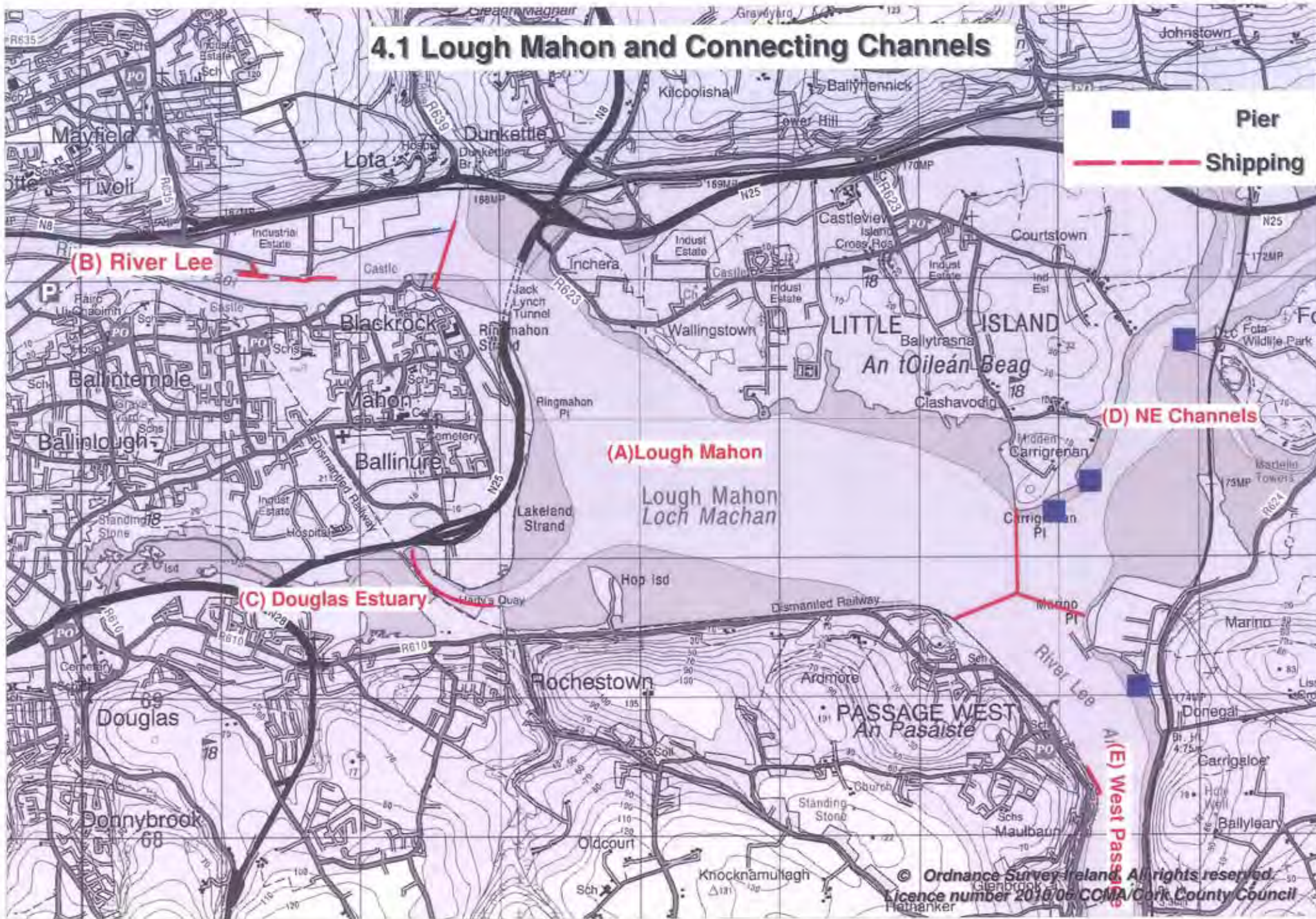


# 4.1 Lough Mahon and Connecting Channels



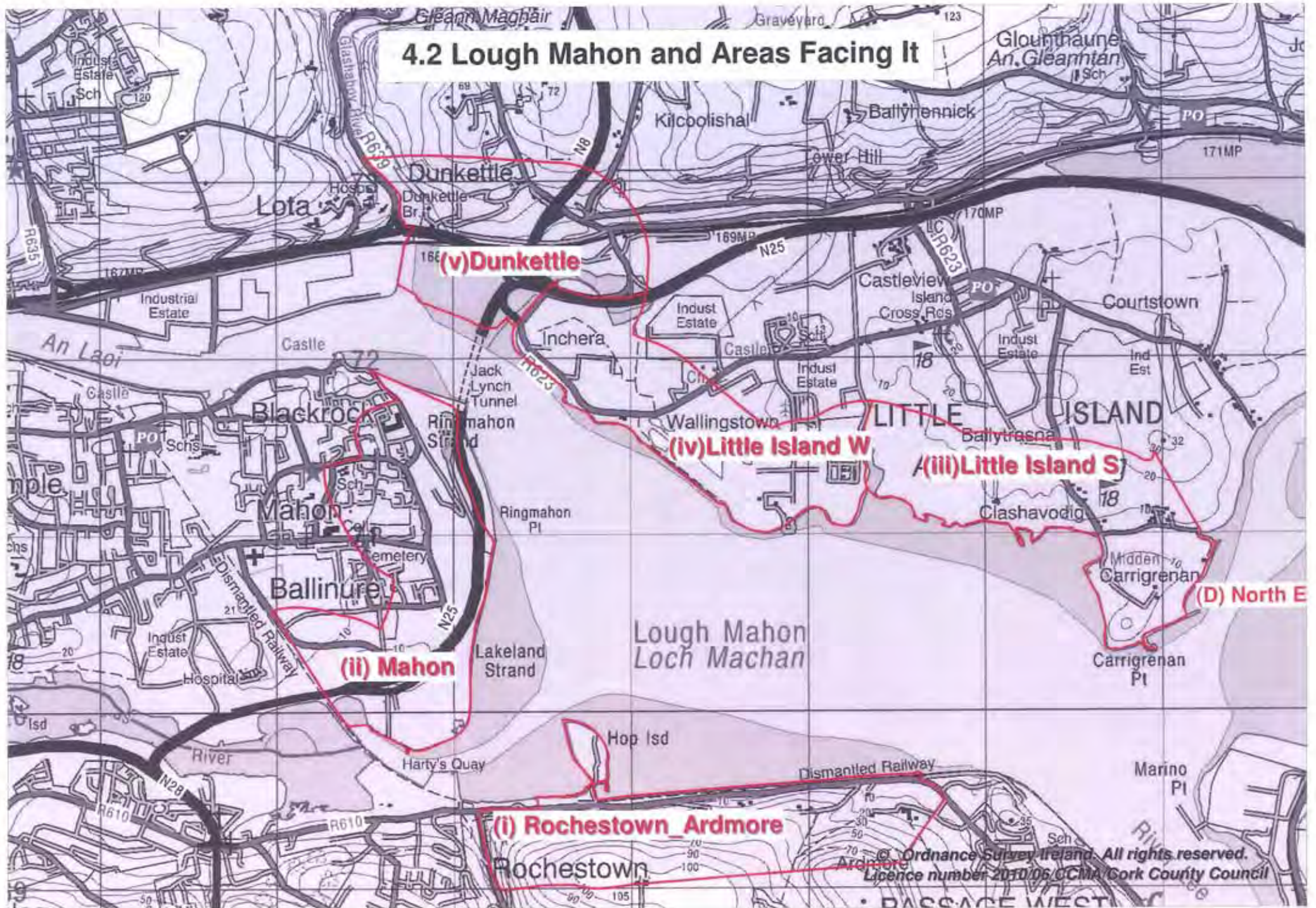
## Chapter 4: Lough Mahon and adjoining areas

The shipping channel up to Cork City runs diagonally across Lough Mahon, providing access to port facilities at each end (Marino Point and Tivoli). It also runs quite close to the south-west facing shoreline of Little Island, at Inchera and Wallingstown. On either side of the deep channel, there are intertidal mudflats and salt marshes which support the wintering bird populations that feed in the harbour and form part of the Cork Harbour SPA. The western part of Lough Mahon is also designated as a pNHA (site code 1046) as well as an SPA (site code 4030).

Four channels connect with Lough Mahon. The shipping channel continues NW along the River Lee (discussed in section B of this chapter) to the City Quays, and SW along the West Passage (section E) to the Lower Harbour. Secondary channels flow into Lough Mahon from the SW (the Douglas Estuary – section C), and the NE (Fota and Little Island channels, Slatty Water – section D). These secondary channels are shallow with extensive mudflats at low tide, and like Lough Mahon itself are important wintering areas for wildfowl protected by European designation.



## 4.2 Lough Mahon and Areas Facing It



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### (A) Lough Mahon and land areas facing it

Lough Mahon is a large, roughly triangular body of water, enclosed on the west by the Mahon peninsula (mainly residential), on the north east by Little Island (mainly industrial) and on the south by the rural area between Passage and Rochestown (agricultural). This last area – designated as scenic landscape - rises steeply to hilltops of around 100m above sea level, and is part of one of the sandstone ridges referred to at the end of the last chapter. There are also hills close to this height north of Little Island (part of the next sandstone ridge to the N.), and behind the remaining large buildings at the former IFI plant at Marino Point, at the SE point of the triangle. These hills create the “*the sense of containment or focus*” referred to in the Landscape Characterisation Report.

This surrounding high ground, much of it undeveloped or developed at low density, helps absorb larger buildings close to sea level into the landscape. However, if buildings at a distance out from the base of the hills are viewed along an east west axis, rather than a north south one, they do not necessarily get the benefit of this absorption, as the recent apartment development at Jacob’s Island (when viewed from the east) has illustrated. Despite the largely developed character of Mahon and Little Island, both retain substantial green or wooded areas close to the shoreline, which also soften the impact of development. Due to these factors, and to continuing agricultural use on the southern side of the triangle, Lough Mahon remains set in an attractive landscape, more natural than developed in appearance.

Population and employment densities for these areas are given in Table 4.1.

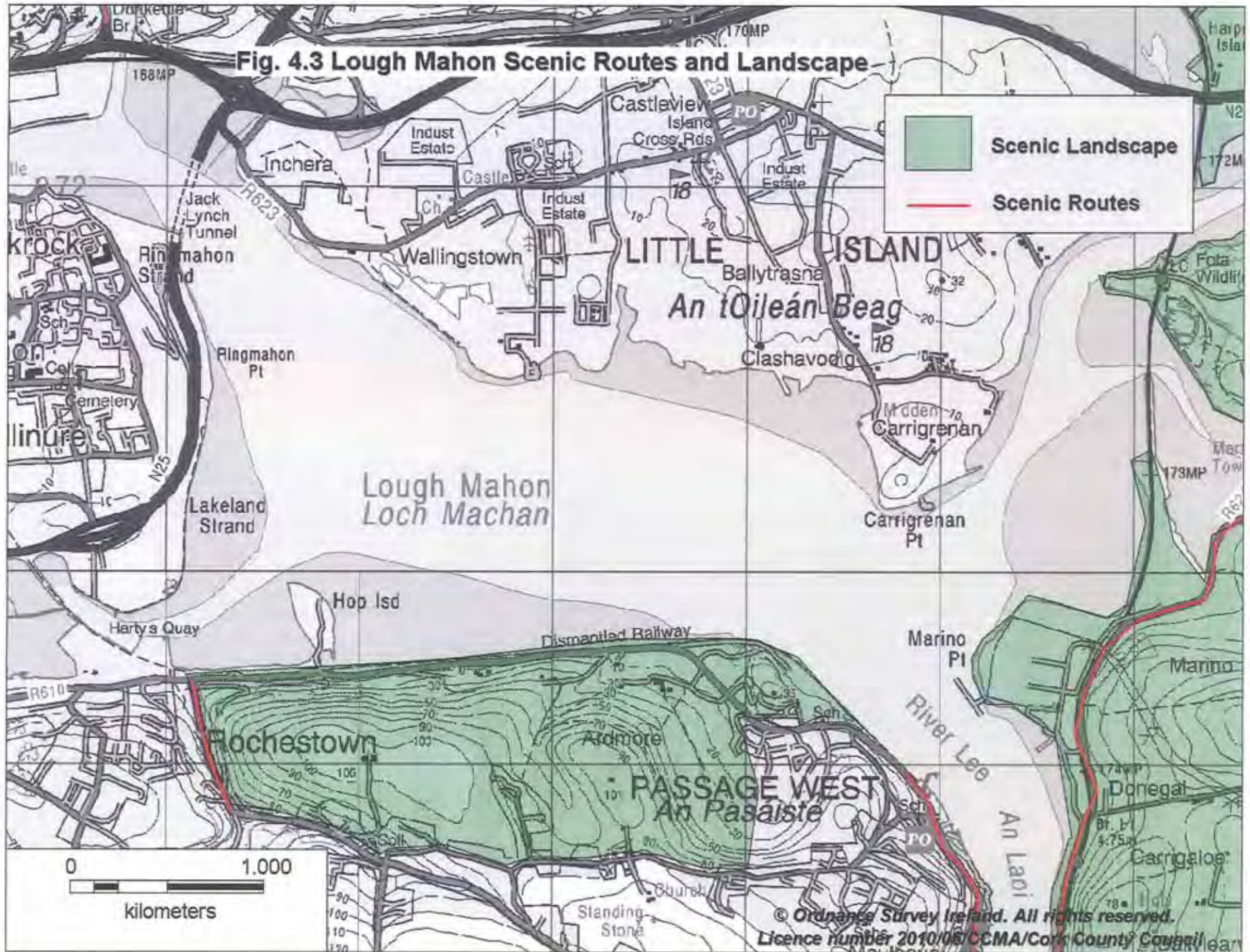
**Table 4.1 Estimated Employment and Population Densities in areas overlooking Lough Mahon**

Area	Population per km <sup>2</sup>	Jobs per km <sup>2</sup>
Rochestown/ Ardmore (rural)	60	<20
Mahon	1200	1100
Little Island (S)	50	80
Little Island (W)	<20	900
Dunkettle	75	80

There were around 2,700 jobs in 2006 in areas facing Lough Mahon, concentrated in the Mahon peninsula and the western end of Little Island. However, the coastal parts of these areas included in the inner study area only contain a minority of the jobs in much larger, strategically important employment areas. Overall, there are around 5,500 jobs in Little Island in 2006, and 4,500 in Mahon.

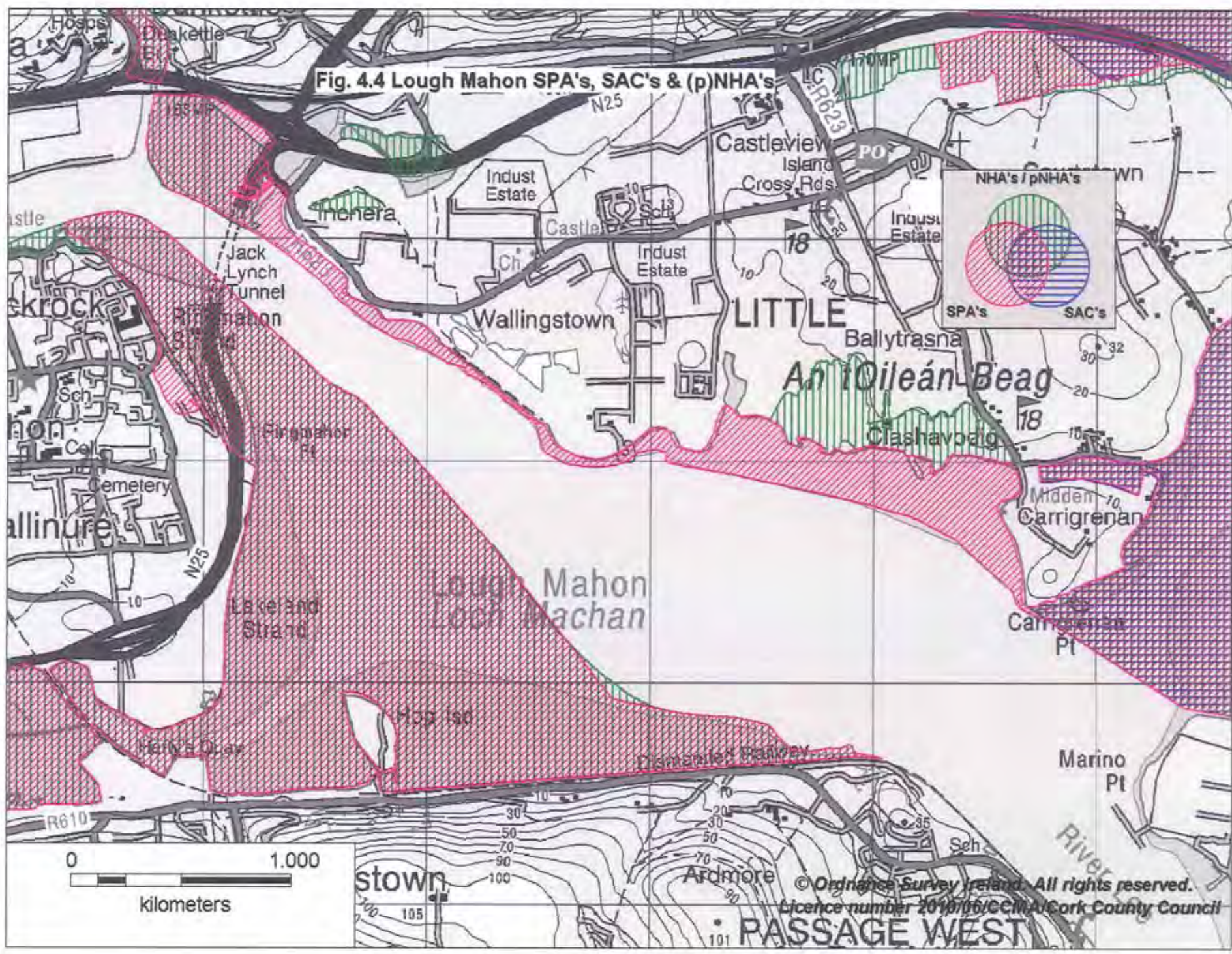
Although Little Island was originally planned as a location for Harbour related industry, there is now minimal functional connection between employment there and the Harbour. Employment areas in Mahon were not considered as Harbour related industrial areas even in theory, and are physically separated from navigable water by other land uses as well as inter-tidal mud flats.

**Fig. 4.3 Lough Mahon Scenic Routes and Landscape**



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Fig. 4.4 Lough Mahon SPA's, SAC's & (p)NHA's

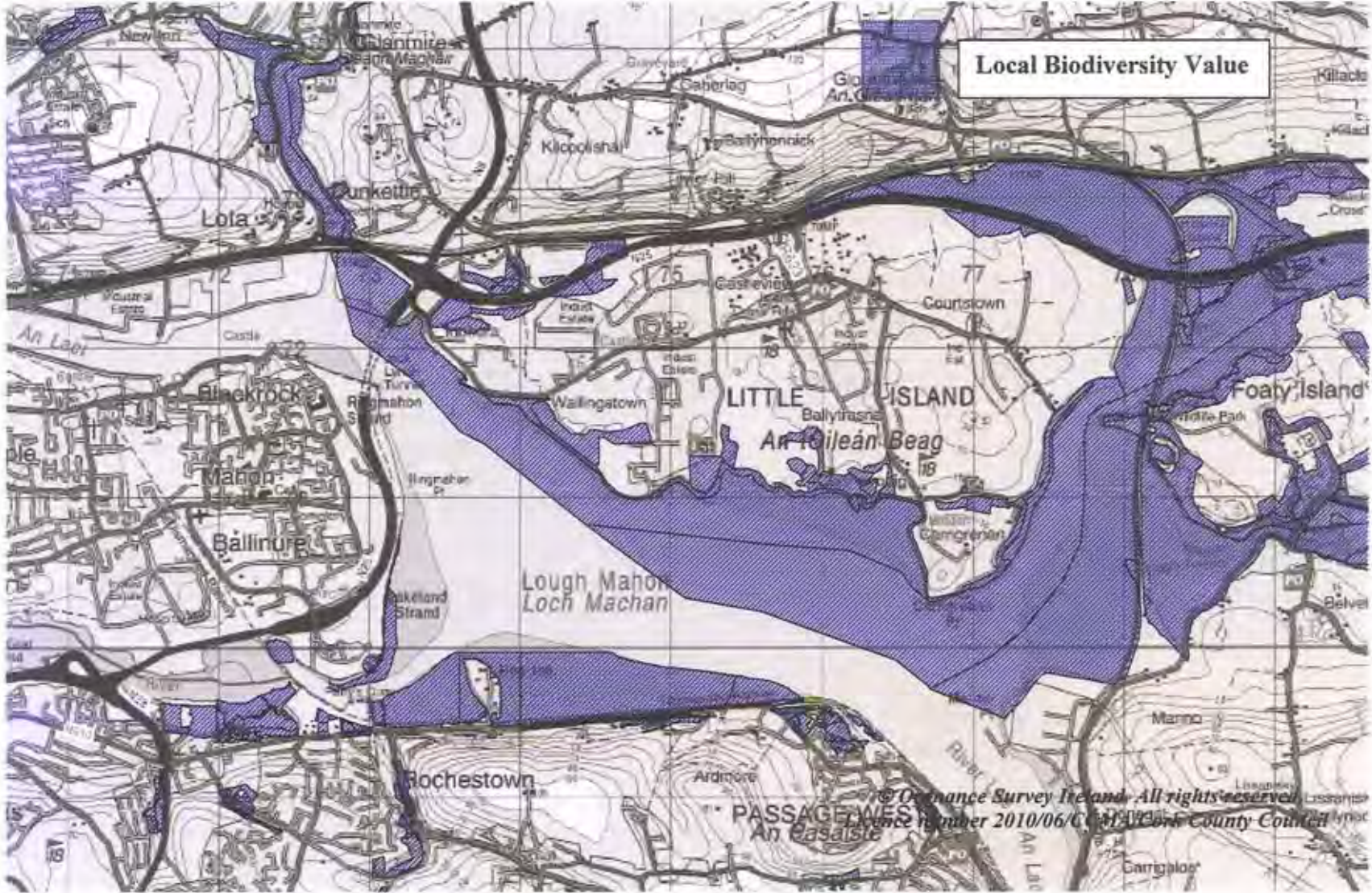


0 1.000  
kilometers

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PASSAGE WEST

**4.5 Lough Mahon Areas of Local Biodiversity Value**



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**(i) Rochestown/Ardmore (rural part of townlands):** This area is agricultural, and includes small woods and well treed hedgerows. It is likely to retain this rural character, as it contains extensive areas sloping up to the hilltops with gradients of 1 in 3 or 1 in 4, and facing north. These would be difficult and expensive to develop, they perform an important visual function in their current agricultural role (reflected in their designation as scenic landscape) and development on them would be very obtrusive. The main reasonably level area is the parkland in front and to each side of Ardmore House, west of the Harbour Heights housing development in Passage. This parkland forms a fine entrance to Passage, probably better left as part of the green belt, and Ardmore House itself is a nineteenth century Italianate house of some architectural quality, though in need of repair. West of Ardmore House, the two main hills descend steeply towards the sea, and provide natural end-stops to Passage West and Rochestown respectively.

The principal public amenity in the area is the shoreline walking route on the embankment of the former Cork, Blackrock and Passage railway (closed in 1932), and now part of the "Passage West and Monkstown railway trail". The route is well signed, with points of interest noted. There are minimal views of the water or the amenity walk from the Rochestown road itself, but two small parking areas along the route are provided for walkers arriving by car. It almost connects with a second amenity walk which starts by the Harty's Quay apartment complex and runs NE via the former railway bridge over the Douglas estuary to Mahon and Blackrock. The two coastal walking routes are separated by a small 1960's housing

estate, so those wishing to walk both need to use a section of roadside public footpath. As it is not realistic to link them by reclamation or via the road, well positioned signs at the parking areas at Hop Island and Harty's Quay are suggested, to alert those unfamiliar with the area. Hop Island itself is home to an equestrian centre and a scatter of private residences, though its woodland predominates when it is viewed from a distance.

The regional road and former rail line follow the coast because this was/is the only level route to Passage. The footpath along the former rail line was recently upgraded for use as a cycleway as well, for similar reasons. This coastline location for main transport corridors is a standard pattern found all over the Harbour area (see Theme 2, Ch. 3).

The Rochestown-Passage Road, while only slightly above (current) sea level, is better protected than some other transport links around the Harbour, as the LeeCFrams does not show this section of the R610 as at risk from tidal flooding in its mid range future scenario (MRFS). Conversion of the former rail line has opened the shoreline up to pedestrians/cyclists, though speeds on the regional road can create some difficulties for those turning into the car parks on the route.

The proposal in the Cork Area Transit System Study for a Bus Rapid Transit (BRT) service through the City centre and Docklands to Mahon on the City section of the former Passage line, if built, might in time generate proposals for its extension along this corridor. A rapid transit line needs to be densely developed enough and long enough to have sufficient



Fig 4.6 Rochestown



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passenger volumes to justify frequent service by high capacity vehicles. The distance between Mahon and the city centre is quite short for a radial section of rapid transit route, and a short extension to Rochestown, or a long one to Carrigaline, might improve its viability. The MVA Study indicated BRT would be around one third of the cost of LRT, and - on the assumption that users would be equally prepared to use either - thus better value for money. If a BRT route was extended to serve Rochestown and Passage, it would be more likely to use the section of the R610 road linking them than an LRT one, and less likely to require re-use of the former rail line. It might thus be preferable from the point of view of amenity for walkers, and pedestrian access to the shoreline.



Fig 4.7 Mahon



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**(ii) Mahon:**

The bulk of the Mahon peninsula was compulsorily acquired by the City Council in the 1970s, and has since been largely developed, with most of this development separated from Lough Mahon by the southern ring road (N25). Within the N25, the central part of the peninsula has been developed primarily as a residential area, and the southern part partly as a major employment area, and partly for a major shopping complex at Mahon Point. These areas are of strategic significance for the planning of the Cork area, but have limited interaction with the Harbour. The amenity value of the shoreline facing east across Lough Mahon has been realised through provision of a well used and accessible public walk on the seaward side of the N25.

At the southern end of the peninsula, the N25 is well back from the shoreline, leaving an area to the south which has been partly developed for an apartment development at Jacob's Island, and for a lower density housing area side overlooking McHugh Park, with some currently undeveloped land in between them. McHugh Park overlooks the amenity walk which connects southward across the old rail bridge to Harty's Quay and Rochestown, as well as northward on the seaward side of the N25.

The 2009 City Development Plan (para.14.5) indicates an intention to produce a Local Area Plan for South Mahon. Within this, its proposals for the area south of the N25 will have the most direct effect on the Harbour. Under more normal property market conditions, this southern area would be subject

to substantial development pressure for commercial content and high buildings, because of its position directly adjoining interchange on the N25. However, residential development is likely to derive more benefit from this relatively high amenity location than most forms of commercial activity. There may be an opportunity to subsume the apartment complex already constructed into a larger grouping of buildings of gradually decreasing height, thereby softening its profile when viewed from the east. The Mahon Local Area Plan currently being prepared by the City Council will provide a framework for future development, including its relationship to existing buildings.



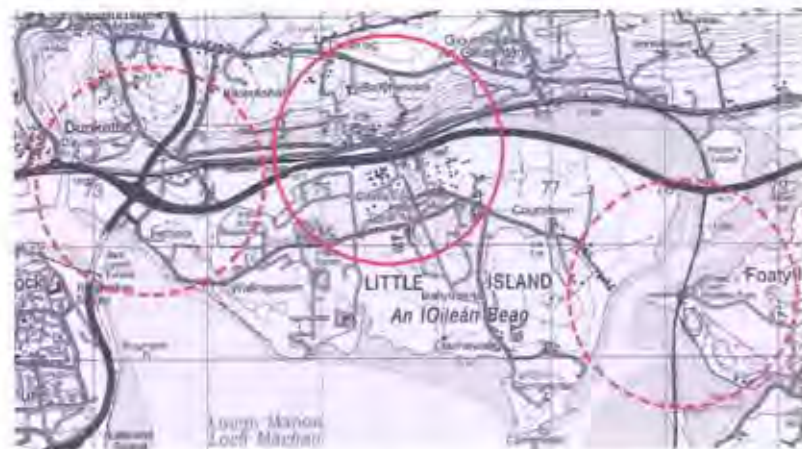
### *Little Island (General)*

Little Island already had an established population of around 1,300 in the 1970s. Following the 1972 Cork Harbour Development Plan, it was developed as one of two major Harbour-related industrial areas (the other being Ringaskiddy). Unlike Ringaskiddy, however, almost all the employment uses that have been developed in Little Island are in practice functionally unrelated to the Harbour. The IDA acquired substantial land banks in both locations, and the 1978 LUTS Study saw Little Island as the one likely to be developed first. Although its development was slowed by the recession of the 1980s, employment grew from 800 in 1976 to 2,500 in 1990, and 5,600 in 2006.

Little Island also has strategic planning significance as a major employment location on the rail corridor proposed by the 2001 CASP Study. However, the 2006 Census indicated that only 2% of those working there arrived via the Cobh-Cork rail service, implying that rail access was more insurance against future congestion or energy shortages than an important form of access to the Island at that time. The addition of rail services from Middleton and increase in frequency of trains from the City in 2009 should raise this figure.

Only 20% of Little Island is within 1 km of Little Island Station. This proportion could in principle be raised to around 40%, if some means could be found of providing pedestrian

access across the N25 from the proposed station at Dunkettle<sup>1</sup>, and across the channel from the existing station at Fota. The areas which might benefit are at the eastern and western ends of the island and are shown on Figure 4.8. The possibilities are discussed in more detail in sections B(viii) (Dunkettle) and C(v) (Little Island (E)).



**Figure 4.8: 1 km 'as the crow flies' distances from existing and proposed rail stations to Little Island**

140 hectares in 5 blocks was zoned for industrial development in Little Island in the LAP in 2005. The Business Land Availability Study estimates that 69 hectares remain available in Little Island, most of it in a large industrial site of 53 hectares at the NE end of the island. There was a recent, post

<sup>1</sup> An Bord Pleanála refused permission for this station as premature pending design of improvements to the Dunkettle road interchange in 2009.

2005 surge in construction of industrial units on the SE corner of the island, but at present they have a high vacancy rate. Two large sites on the Courtstown road have been levelled but not built on. Despite the prime position of Little Island, the market will take time to absorb currently vacant and incomplete units.

The majority of both employment and population in Little Island is in the interior of the Island, rather than in the coastal areas within 0.5 km of the shore. The coastal areas differ sufficiently in character and land use to be worth discussing individually.

### **(iii) Little Island (South)**

This section of the Little Island coastline is predominantly undeveloped. There are four large land uses on or close to the coastline: the City Main Drainage treatment plant at Carrigrenan, which opened in 2004, the island's two golf clubs (Harbour Point Golf Club and Cork Golf Club), and the Sitecast Industrial Estate, which lies between the two golf courses, and whose southern end extends to within 200m of the shore.

The first three provide active recreational facilities for the surrounding area, and also act as passive green areas which dilute the industrial character of Little Island. At its southern end, Cork Golf Club largely incorporates the (disused) Rock Farm quarries adjoining the estuary. These are of geological interest, host a number of rare plants, and are designated as a pNHA, while the inter-tidal area south of them is designated as an SPA. Cork Golf Club also wraps around an established farm

to the SW, located partly below sea level. The pedestrian walkway proposed as intended to run south from this farm along the road west of Cork Golf Club, and then around the SW end of the island to the Mitsui Denman site in the LAP has not so far been provided. While it would not be compatible with some appropriate uses of that land, an opportunity to realise it may arise, so it is worth retaining as an aim, subject to compatibility with the substantive land use.

Harbour Point Golf Club, on the eastern side of the Clash Road, has passive amenity value for a well established linear residential area immediately to the west. The road itself is an attractive walking route connecting the main residential areas in the centre of Little Island with the shoreline at Carrigrenan.

A c. 2km circular amenity walk runs around the Carrigrenan plant, close to the shore for much of its length, and continues north into Courtstown, between the sea and the access road serving the plant. The plant itself is visually fairly unobtrusive, and the walk has long distance views of Passage, Rochestown, and the greenbelt between them, and (less attractively) of the former IFI site at Marino Point. The amenity walk and small playground are well used.

There is an attractive small pseudo-Gothic Belvedere on the shoreline near the western point of the Carrigrenan peninsula, which is visible from considerable distances (eg from Mahon) and is well worth retaining. At a minimum, this building needs some work to stabilise it. It could have potential for restoration as an attractive holiday rental property, perhaps by a specialist organisation such as the Landmark Trust.

**Fig 4.9 Little Island South**



For key to CMRC Coastal Inventory data, see inside of back cover

Carrigrenan is surrounded by an SPA (which includes wetlands in a low lying area to the N, on the landward side), and the tidal area east of the island is also designated a SAC and pNHA.

The substantial recreational and amenity function of this part of Little Island is consistent with its limited development potential, being remote both from the proximity to navigable water which formed the original reason for its development as an industrial location, and also from the rail line which in principle makes Little Island a sustainable employment location.



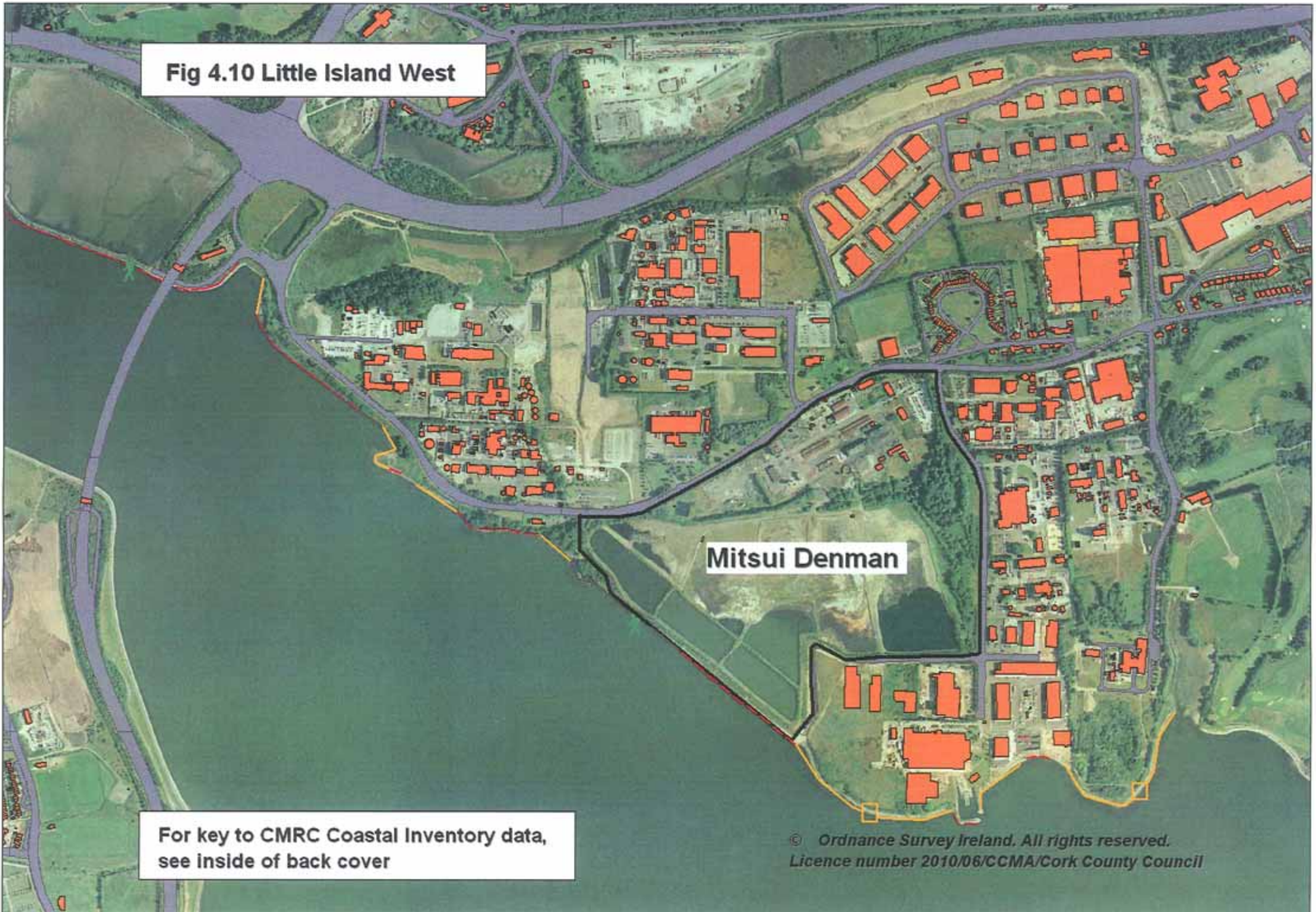


**Fig 4.10 Little Island West**

**Mitsui Denman**

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#### (iv) Little Island (West)

The western end of Little Island is dominated by heavier pharmachem type industry, and contains four Seveso establishments - Cognis Ireland, Pfizer (Wallingstown and Inchera), and BOC gases. The EU Seveso directive deals with control of major accidents hazards, and may require restriction of development on adjacent sites. The Health and Safety Authority (HSA) are the competent authority for this Directive, and comment on planning applications within designated referral boundaries. The referral boundaries for the sites are 700 metres, with consultation boundaries at 1000 metres.

The 40 ha former Mitsui Denman premises was occupied by another heavy industrial use, now closed, and is now a strategic brown field site. Since its closure in 2003, the site has had a complex planning and ownership history, eventually resulting in 2008 permissions for a business park type redevelopment on an 11 ha. site on the northern boundary of the site, and for a construction and demolition waste facility at its NW corner, which is intended to generate material to fill the lagoons which occupy most of the remaining 29 ha., over a period of around 10 years.

#### *Options on the Mitsui Site*

The Mitsui site could develop in two different directions. On the one hand, it is a potential business park site, having the advantage of being in a well located and recognised larger employment area with well established business parks within it, and the disadvantage of being outside normal walking distance of public transport and so liable to promote a car dependent journey to work pattern. This could be regarded as the 'trend' option, or at least as having been so up until 2008.

On the other, adjoining uses make the Mitsui site suitable for light or heavy industrial uses, and its shoreline also has some potential for port activity or port related industry. It could be a potential source of supply for those activities in the longer term, as the bulk of the site is gradually reclaimed and made available.

The advantages of developing the site in this latter direction are:

- the site has a Harbour frontage c.600m long, which is within 250-300m of the existing dredged channel running up to the City. This might give it potential for port related uses, and/or facilitate inclusion as a stop on the proposed Harbour CAT ferry service
- it is in an established area of heavy industry and large structures

- it is close to the Dunkettle road interchange, which has become the effective focus of the national road system in the Cork Metropolitan Area
- a siding from the rail line around Dunkettle bridge (c. 2 km) might be feasible, if required.

This potential is balanced by some constraints, including:

- a narrow inter-tidal strip 1-200m wide along its Harbour frontage is part of a designated SPA
- possible tensions between some uses of the main part of the site, and the proposed business park to the north (if built)
- like Tivoli, it is a long way up the Harbour for shipping, and has limited depth
- the road connections to the Dunkettle road interchange, while short, are also limited and congested.

Ultimately, the choice should depend partly on anticipated future demand for each of these potential uses, and partly on how well the site would rank, relative to other possible sources of supply for them.

Despite the industrial character of this part of Little Island, there is reasonable tree cover on or near the coast road between the Dunkettle interchange and Mitsui, and in a more substantial

wood which runs E-W south of the N25, and which is proposed NHA (site no. 001082). These are worth protecting and if necessary reinforcing, as they soften the visual impression from across Lough Mahon.



### (v) Dunkettle

The Dunkettle area, like other areas on the N. bank of the Lee, has road and rail corridors along the original shoreline, reclaimed land on the seaward side and well treed sloping ground and heritage buildings on the landward one, but there are some permutations. The ground north of the original shoreline is less steep than that further W., and much of the lands at Dunkettle and Ballinglanna are zoned for housing, and the subject of several planning application, the most recent of which (for 1210 dwellings) was recently refused on appeal.

A dyke was constructed in the 1970s around the inter-tidal area immediately E. of the mouth of the Glashaboy River, with a view to longer term reclamation, but only the E. end of this area has actually been reclaimed (for the Jack Lynch tunnel and associated works). The rest of the area behind the dyke remains as mudflats, albeit at somewhat higher level due to impoundment, and is a designated SPA and pNHA. The new motorway standard N25 runs alongside the rail line and original N25 towards Carrigtwohill, but is superimposed on the old N25 between the 2 Dunkettle roundabouts to save space.

The tunnel and road interchange at Dunkettle replaced the city centre in the late 1990s as the lowest fixed crossing of the River Lee, and the natural link between each side of the City and the opposing side of the Harbour. As major harbour industrial complexes at Little Island and Ringaskiddy and 6 of the 8 satellite towns are located on the Harbour, the interchange is, perhaps inevitably, now overloaded, and the NRA is currently preparing proposals to upgrade it.

### *Theme 3. Transport/Spatial Competition in the Coastal Zone*

*Where multiple forms of transport are present – on land, in the water or both – the best supported and best funded mode may claim overriding priority, and seek the optimum from its own point of view, leaving other modes which cross its routes or have other potentially conflicting requirements to adapt as best they can, or cease operation. Similarly, the dominant transport mode may make adjoining land uses difficult to access.*

*This is not the intention, but the result of a 3way squeeze from*

- (a) limited funding for improvements*
- (b) physical constraints on those improvements*
- (c) the requirements of the dominant mode being regarded as the least negotiable*

*Conflict between different users of the coastal zone may be eased by joint planning of facilities, aiming at a satisfactory outcome for several, rather than the optimum for one.*

*To achieve this outcome in practice, one may need to start from the reverse of (c) above, and treat the needs of the subordinate mode(s) as least negotiable, to draw attention to options likely to be ignored if it were assumed that the needs of the dominant mode would prevail. This would encourage exploration of design possibilities which did not encroach on space needed by other modes, or for access to adjoining land uses. This will not necessarily lead to a lower rate of return; a less ambitious approach in a constrained location may indeed raise it.*

**Fig 4.11 Dunkettle**

**Lands zoned for housing at Ballinglanna**

**Lands zoned for housing at Dunkettle**

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Theme 3 (above) applies at a number of points around the harbour, but is particularly relevant at Dunkettle, where there is an unusual number of potentially conflicting claims on space for movement and access around the interchange:

- (a) the need to protect the current capacity of the national road interchange, and allow for any additional space it may require for upgrading.
- (b) The desirability of road access to the eastern end of Tivoli industrial estate, which may facilitate proposals in the 2008 CASP Update and 2009 City Development Plan for introduction of new, more intensive development there (see next section)
- (c) the park and ride rail station proposed for the quadrant NE of the interchange, which was refused in 2009 by An Bord Pleanála after an appeal by the NRA pending design of (a)
- (d) local traffic movements to and from zoned housing land in the Dunkettle Estate and Ballinglanna. Concern that these may pre-empt capacity on (a) have recently led to a successful NRA appeal against permission for the 1210 dwelling application referred to above.
- (e) pedestrian access between the proposed rail station, Dunkettle, Little Island (W) and Tivoli Industrial Estate.
- (f) The need to avoid damage to the SPA SW of the junction (which has overriding status under European law) and to the setting of Dunkettle House.

These involve different public bodies: (a) is primarily a matter for the NRA, (b) for the City Council, (c) for Iarnród Éireann, (d) for the County Council, (e) for all the above, and (f) for the NPWS. While the strategic importance of the road interchange is obvious, Dunkettle station was shown by the Faber Maunsell study to be the 4<sup>th</sup> best used on the suburban rail system by 2020 (after Kent station, Middleton and Carrigtwohill). The Dunkettle lands represent a large block of potential housing land reasonably close to a planned rail station.

While Cork has a good record of coordinated multi-agency planning, studies like CASP and LUTS dealt with the overall planning of the area, leaving specific projects to be carried out by individual agencies. The exceptional concentration of different types of movement demand in this particularly focal part of the coastal zone may require more multi-agency coordination than usual at project design level. The recent An Bord Pleanála decision to treat the park and ride station and housing development as premature pending design of an upgrade to the road interchange, illustrates the difficulty of separately designing facilities which are likely to interact so closely with each other. A single, appropriately balanced design process involving multiple modes, access issues and agencies might reduce the risk of generating projects with conflicting requirements.

Theme 3 suggested outcomes in constrained coastal zone sites will in practice be unduly dominated by the dominant agency at the expense of other needs, unless the starting position involves treating the needs of subordinate mode(s) and access to land uses as the least negotiable.

**FIG. 4.12 POSSIBLE METHOD OF MEETING NEEDS OF SECONDARY MODES AT DUNKETTLE JUNCTION**



Figure 4.12 illustrates what this starting position might look like (sequence of issues as per previous items (a)-(f) above):

- (a) To control undue use of the interchange by commuters, instead of the NRA objecting to planning permissions for housing in its hinterland<sup>2</sup>, an electronic toll could be charged.
- (b) An alternative route of local road standard could be created, starting from either the cul-de-sac S. of the Tunnel administration building or the slip from the tunnel to the N8(W), and running immediately alongside the existing N25, N8(W) and rail line to enter the E. end of the Tivoli Industrial Estate at its NE corner. This E-W connection of adjoining industrial areas could provide sufficient demand within a linear corridor to support reasonably frequent buses serving central and S. parts of Little Island at a distance from rail stations, as well as Tivoli.
- (c) The proposed rail station could be relocated NW of the interchange, with the closed section of the old N25 NW and NE of the interchange reconnected through a small road tunnel under the N8, and laid out as a linear car park

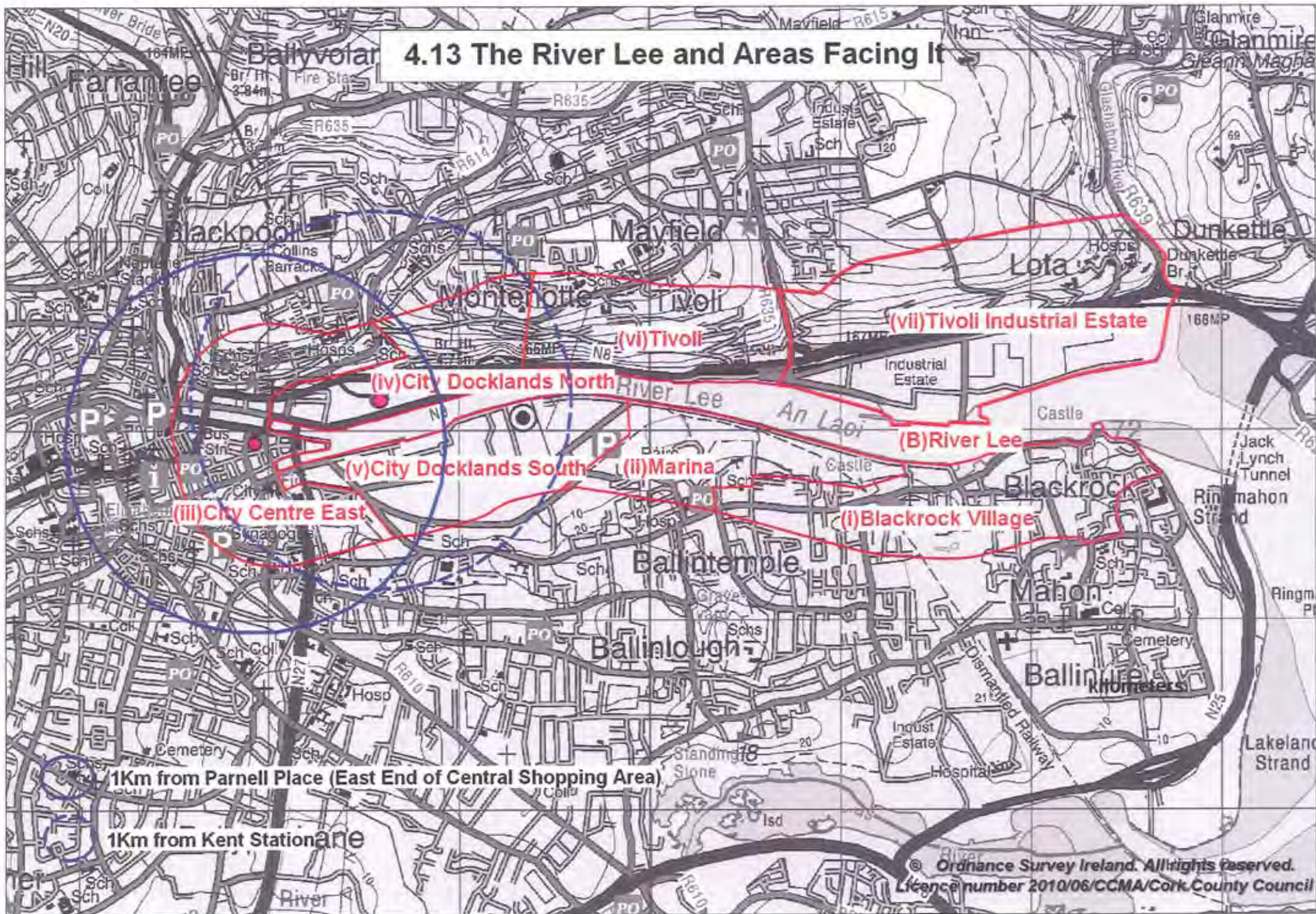
<sup>2</sup> In the most recent Dunkettle appeal, a distinction was drawn between new housing in the immediate hinterland of the interchange, and that in more distant satellite towns (eg Middleton). Local trips from the former would pass through the interchange, but not from the latter, which would therefore generate fewer trips per dwelling through it. The UK Highway Agency's view that strategic traffic should be defined by function rather than origin/destination was also cited, with freight, business travel and public transport having priority over commuting and shopping. These priorities are reflected in willingness to pay, so a toll would embody them fairly accurately, and be less likely to promote long distance over short distance commuting.

containing c.480 spaces. In addition to entry and exit to this car park off the existing Dunkettle Road E of the Ibis Hotel, an additional entrance could be provided from E. of the old Dunkettle roundabout (facilitating access from Glanmire) and an additional exit in the form of a northbound slip onto the N8(N). A minimal slip could leave the N8 immediately N of the traffic lights onto the interchange, and connect as a separate slip back to the entrance beside the Ibis Hotel. This would avoid any need for traffic between the park and ride car park and the N8(N) to enter the interchange. Movement through the car park could be prevented either by charging at an entry barrier, or laying it out with speed bumps etc

- (d) Where their destinations permitted, the electronic toll at (a) would give commuters from new and existing housing areas E and N of the interchange an incentive to use the rail system or other modes, while those who could not divert would at any rate get some benefit from reduced congestion
- (e) from a station provided under (c), a pedestrian overpass E of the old Dunkettle roundabout could give access to Tivoli Industrial Estate (E) and Little Island (W). A pedestrian footbridge over the ramp down into the tunnel would keep walking distance to a minimum
- (f) While (b) and (e) might result in loss of c.5% of the impounded area SW of the interchange, it should be possible to compensate for this. Birds in this part of the SPA do not appear to be affected by vehicle noise, and the local road envisaged at (b) would in any case make minimal difference. If necessary, pedestrian routes SW of the interchange could be kept on the landward side of the local road, and/or screened from the SPA



### 4.13 The River Lee and Areas Facing It



This is being suggested, not as the correct solution, but as a test against which the effects of other proposals for the interchange - on issues other than traffic capacity and speed on the national road system - might be assessed. In so far as proposals for extra traffic capacity at the interchange were judged necessary, the approach outlined in Theme 3 would involve asking how far other various options could provide equally good conditions for items (b)-(f).



## **(B) The River Lee**

With the exception of parts of Lota, the areas overlooking the section of the River Lee between the City Centre and the Jack Lynch tunnel are all within Cork City. The City Council has recent existing plans for the North and South Docks and Blackrock Village, which take account of the river as well as the land areas adjoining them, and also intend to produce a River Use Management Study and a Tivoli Local Area Plan.

To avoid duplication, this section is set out somewhat differently from the other water body based sections, and focuses on a small number of trans-boundary issues:

- (i) Flood risk
- (ii) Existing Docklands Uses which may relocate in other Harbour areas to facilitate redevelopment
- (iii) City – Harbour Connections along the River
- (iv) Interaction between Dunkettle and Tivoli Industrial Estate

The City Docklands project also has a broader relevance for the Harbour area as a whole, through its effects on the supply and demand for uses such as apartments and offices. Office markets in particular overlap and interact in the wider Harbour area, as potential sources of supply – from city centre offices to larger floorplate ones in docklands or suburban business parks – are to a considerable extent substitutes for each other from a demand point of view. These effects are relevant to the broader