

SLIGO COUNTY COUNCIL
COMHAIRLE CHONTAE SHLIGIGH



N4 Collooney to Castlebaldwin Proposed Road Development

**Brief of Evidence to An Bord Pleanála
By Sligo County Council**



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Outline of Brief



- ▶ 1.0 Introduction

Part One

- ▶ 2.0 Need for the Proposed Road Development
- ▶ 3.0 Project Development
- ▶ 4.0 Road Type, Junction Strategy and Traffic

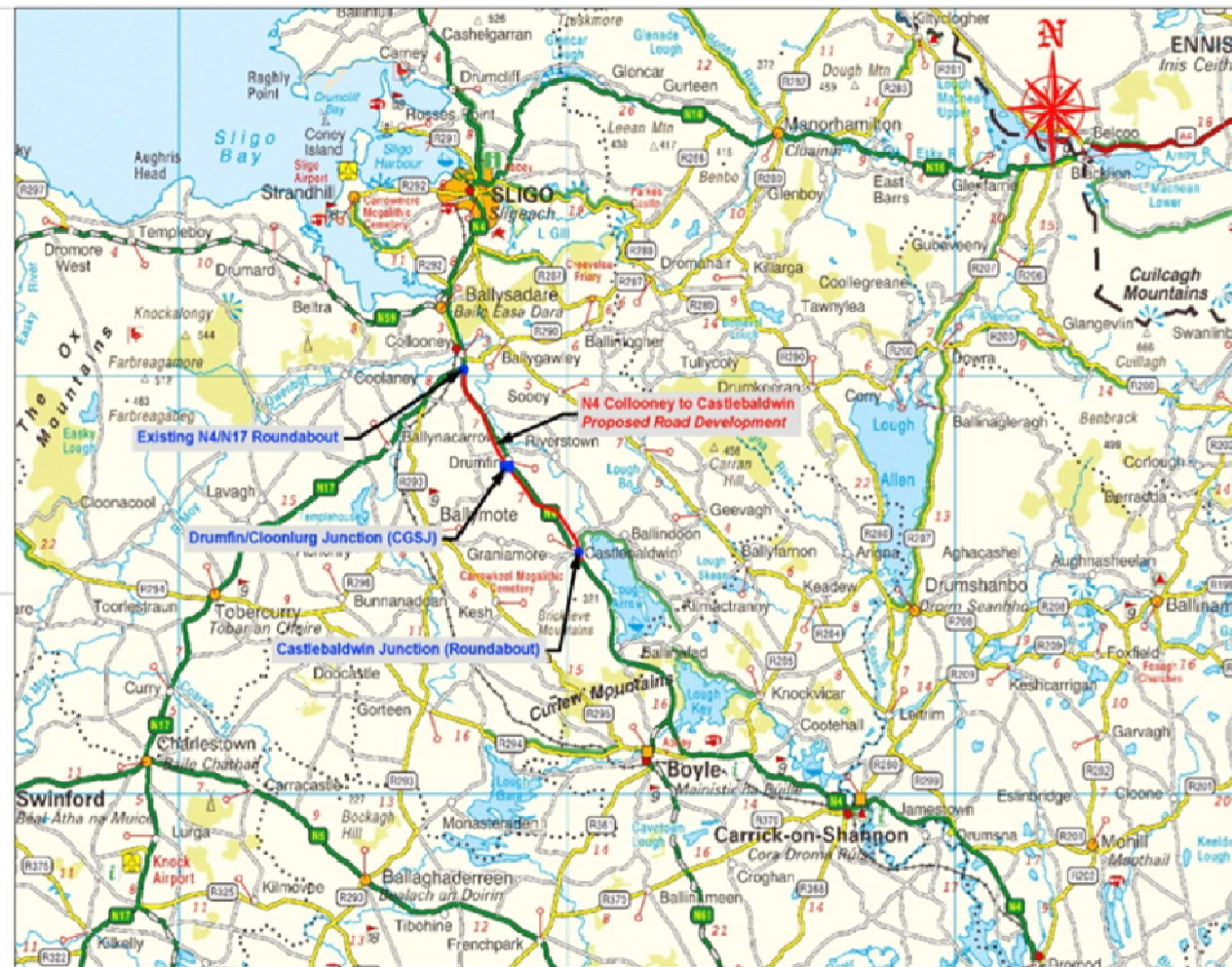
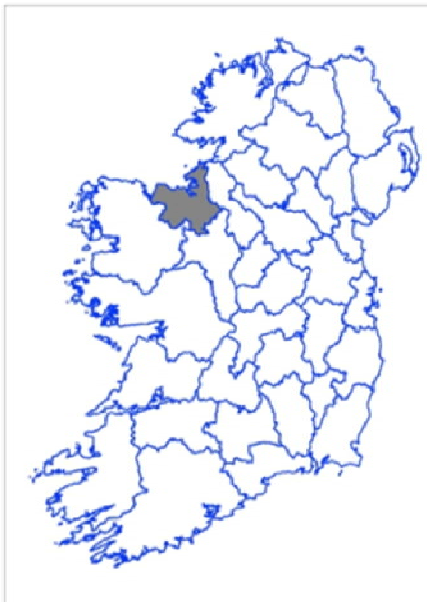
Part Two

- ▶ 5.0 Environmental Considerations during the Design Process
- ▶ 6.0 Construction of the Proposed Road Development
- ▶ 7.0 Cumulative Impacts and Interrelationships
- ▶ 8.0 Errata and Clarifications to the EIS

Part Three

- ▶ 9.0 Submissions
- ▶ 10.0 Conclusions





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Tel: 071 91 51975
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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Proposed Road Development Location Map			
Scales (NAS) NTS	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 1.0
Design FM	Drawn BR	Checked FM	

Accident Data 1996 -2011



Fatal	Serious	Minor
8 Fatal	8 Serious	56 Minor



Existing N4 Network at Toberbride.



Existing N4 Network at Cloonamahan Td.



Existing N4 Network at Doorly Td.



Existing N4 Network at Lackagh Td.



Existing N4 Network at Drumfin Td.



Existing N4 Network at Drumfin Td.



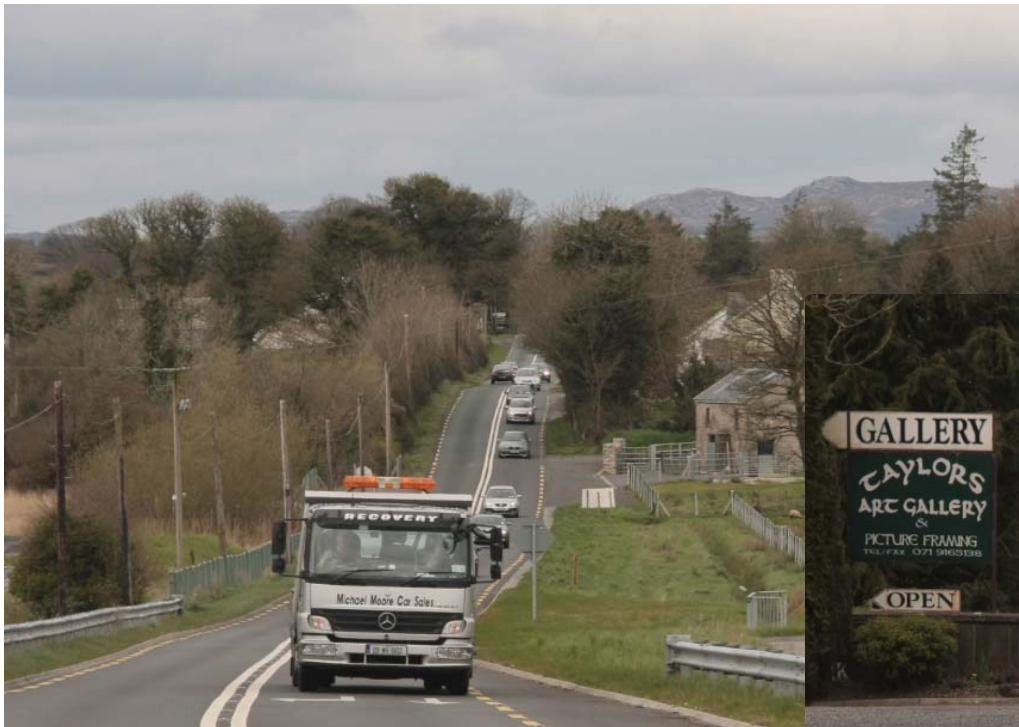
Existing N4 Network at Drumfin Td.



Existing N4 Network at Carrownagark & Carrowkeel Td.



Existing N4 Network at Ardloy & Tawnagh Td.



Existing N4 North of Castlebaldwin



Existing N4 North of Castlebaldwin



Existing N4 Network at Castlebaldwin



Existing N4 South of Castlebaldwin



Traffic Capacity of Existing N4 – Base Year 2008



Table 3-12: Base Year Traffic Flows Verses Capacity of Existing N4

Section of N4 Route	Base Year 2008 (AADT)	Capacity	Notes
Online Section from N4/N17 Toberbride Roundabout to Doorly Td.	10,400	90%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 1 Single Carriageway (S2) which has carriageway lanes of 3.65m, two hard shoulders of width 2.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 11600 AADT.)</i>
Offline Section from Doorly Td. to Castlebaldwin Village.	9,600	192%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 3 Single Carriageway (S2) which has carriageway lanes of 3.00m, two hardstrips of width 0.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 5000 AADT.)</i>
Tie-In to Existing N4.	7,600	66%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 1 Single Carriageway (S2) which has carriageway lanes of 3.65m, two hard shoulders of width 2.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 11600 AADT.)</i>
	Capacity of road type not exceeded in the Base Year assuming Minimum LOS D		
	Less than 15% spare capacity for the minimum LOS D in the Base Year		
	Capacity for the minimum LOS D in the Base Year exceeded		



Traffic Capacity of Existing N4 – Design Year 2032



Table 3-13: Projected 2032 Traffic Flows Verses Capacity of Existing N4

Section of N4 Route	Design Year 2032 (AADT)	Capacity	Notes
Online Section from N4/N17 Toberbride Roundabout to Doorly Td.	13,000	112%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 1 Single Carriageway (S2) which has carriageway lanes of 3.65m, two hard shoulders of width 2.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 11600 AADT.)</i>
Offline Section from Doorly Td. to Castlebaldwin Village.	11,800	236%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 3 Single Carriageway (S2) which has carriageway lanes of 3.00m, two hardstrips of width 0.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 5000 AADT.)</i>
Tie-In to Existing N4.	9,500	82%	<i>(Note: For this exercise it is assumed that the existing cross section along this section equates to a Type 1 Single Carriageway (S2) which has carriageway lanes of 3.65m, two hard shoulders of width 2.5m and grass verge of width 3m and which has capacity for the minimum Level of Service D of 11600 AADT.)</i>
	Capacity of road type not exceeded in Design Year assuming Minimum LOS D		
	Less than 15% spare capacity for the minimum LOS D in the Design Year		
	Capacity for the minimum LOS D in the Design Year exceeded		

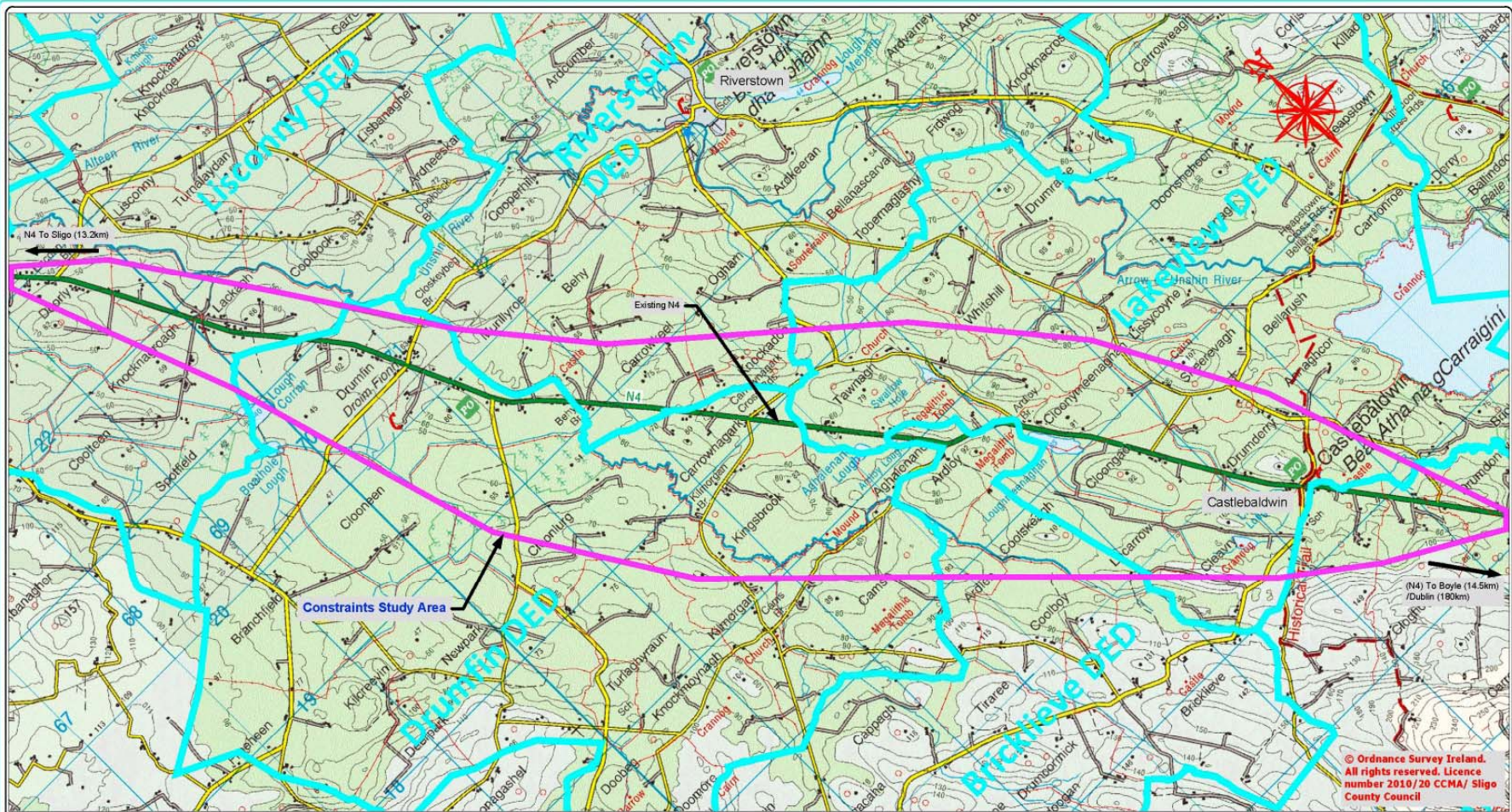


National Spatial Strategy 2002-2020



Map 10: National Spatial Strategy, West Region





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Legend	Existing N4	Townland Boundary
	Constraints Study Area	District Electoral Division (DED)

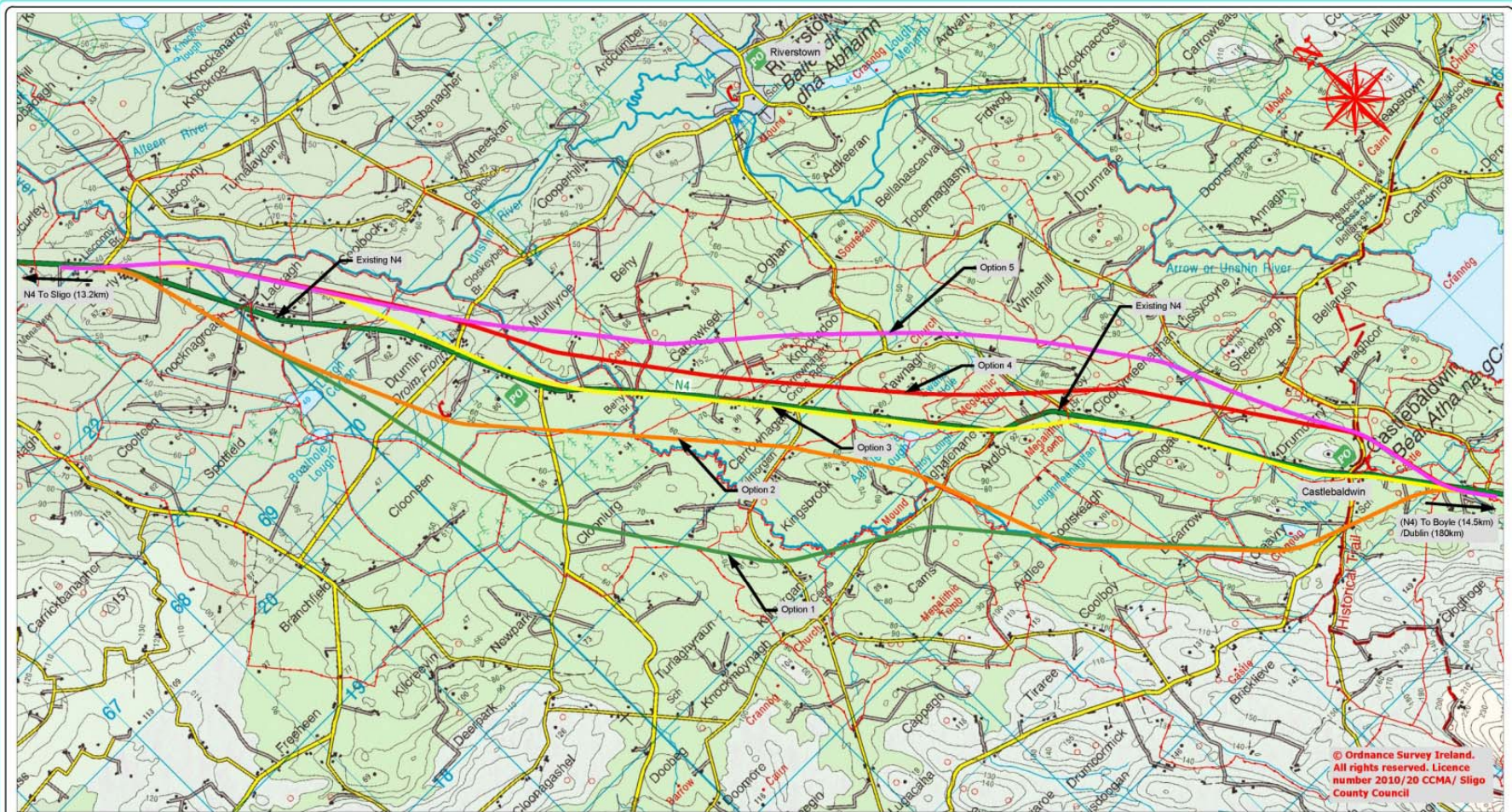


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Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Constraints Study Area			
Scales (MA3) 1:30,000	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 2.1
Drawn BR	Checked FM	Approved AS	





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Legend	
	Existing N4
	Option 2
	Option 3
	Option 4
	Option 5
	Townland Boundary

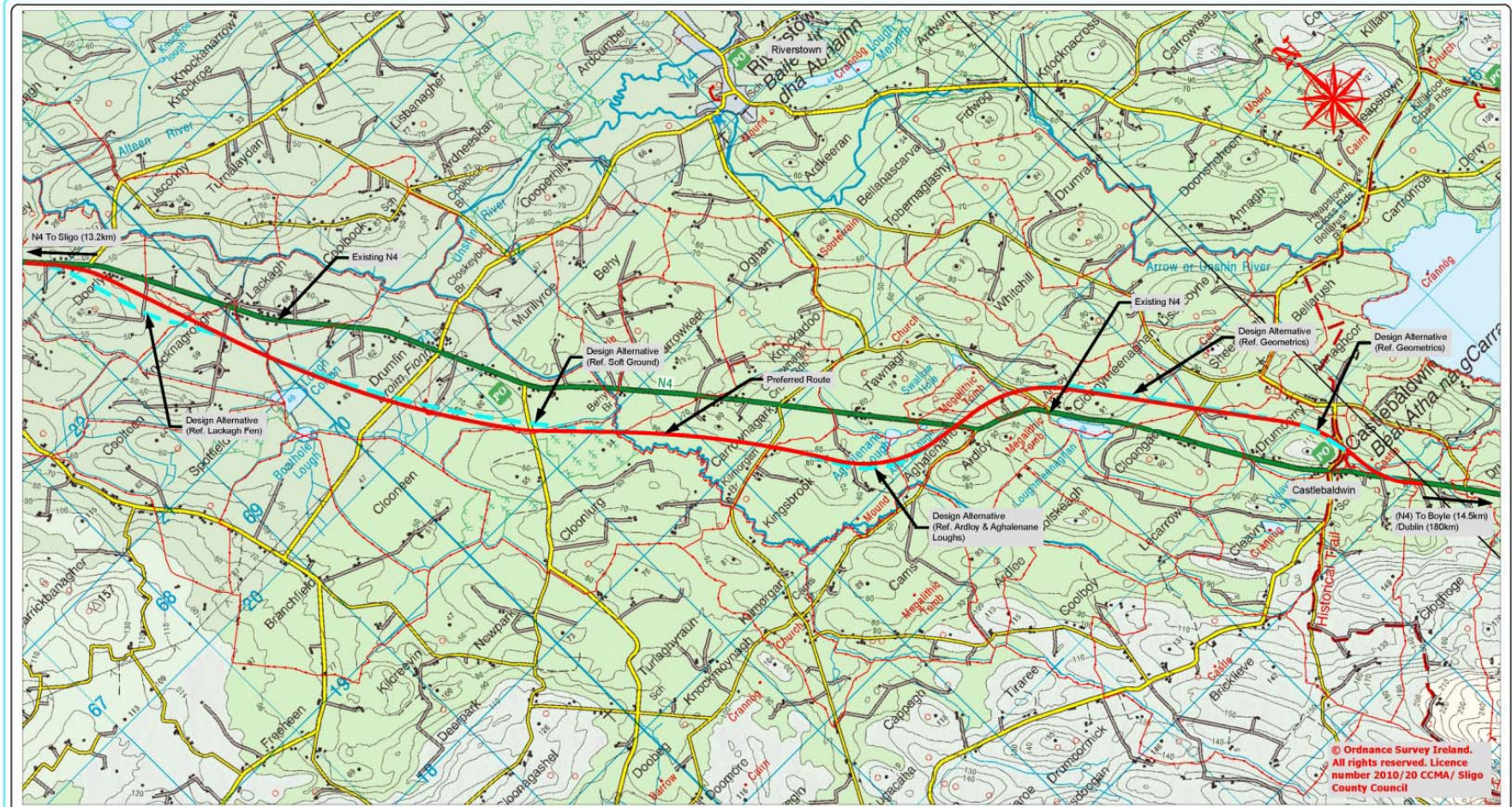


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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Route Selection Report: Initial Route Options			
Scales (0A3) 1:30,000	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 3.1
Drawn BR	Checked FM	Approved AS	





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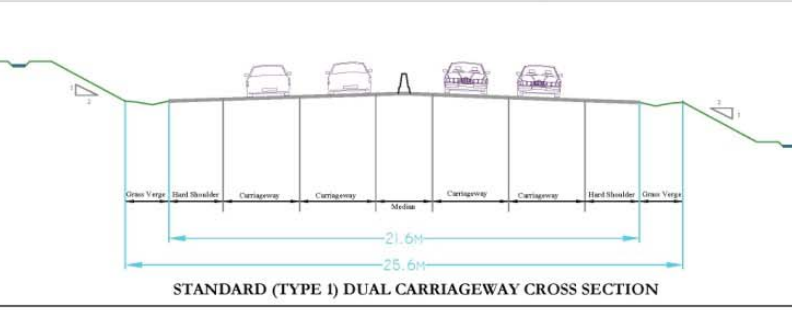
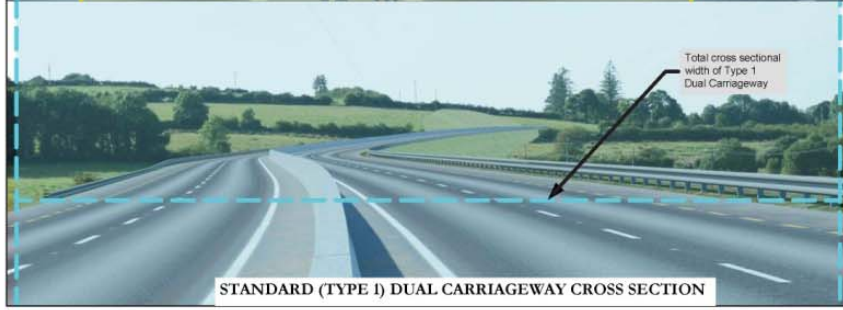
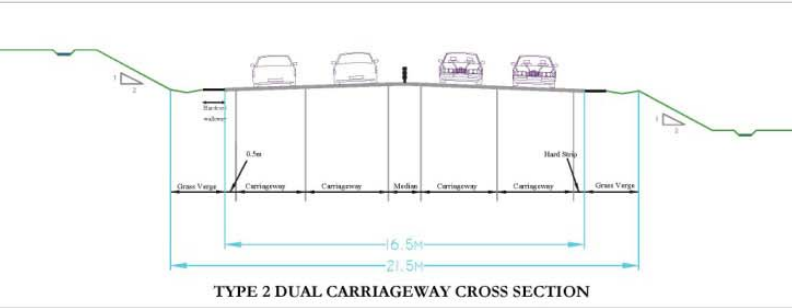
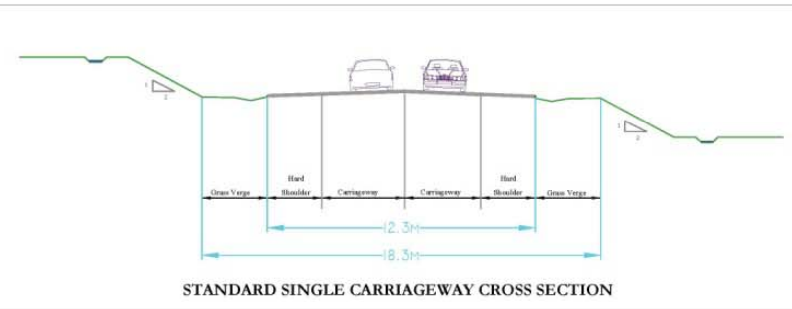
Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Preferred Route and Design Stage Alterations			
Scales (04.3) 1:30,000	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 3.2
Design FM	Drawn BR	Checked FM	



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Legend

Note: Barrier types are illustrated for indicative purposes only and may differ to the final form.

Photo Montages by D3D

- Yellow transparency indicates the total cross sectional width of the Type 2 Dual Carriageway;
- Orange transparency indicates the total cross sectional width of the Standard Single Carriageway;
- Cyan transparency indicates the total cross sectional width of the Standard (Type 1) Dual Carriageway;



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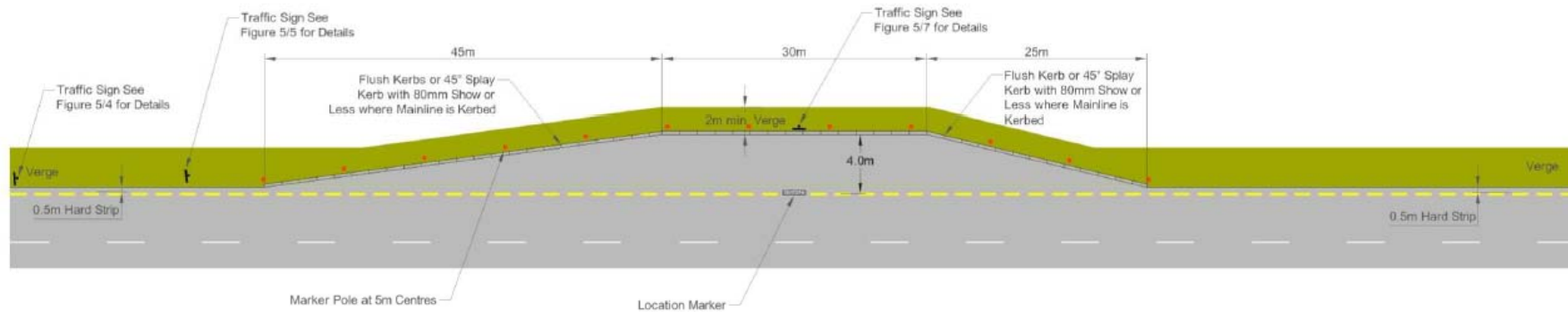
Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Alternative Mainline Cross Section Comparisons			
Scales (0A3) NTS	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 3.3
Drawn FM	Checked FM	Approved AS	

Example of Type 2 Dual Carriageway (N4 Dromod – Roosky Bypass)



Type D Lay-by Layout



Justification of Road Cross Section



Extract from NRA TD 9/12 Table 6/1: Recommended Rural Road Layouts

Type of Road ¹	Capacity ² (AADT) for Level of Service D	Edge Treatment	Access Treatment	Junction Treatment at Minor Road	Junction Treatment at Major Road
Type 3 Single (6.0m) Carriageway (S2)	5,000	0.5m hard strip. Footways/Cycle Tracks where required,	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Simple Priority Junctions	Priority junctions, with ghost islands where necessary.
Type 2 Single (7.0m) Carriageway (S2)	8,600	0.5m hard strips. Footways/Cycle Tracks where required	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary.	Ghost islands
Type 1 Single (7.3m) Carriageway (S2)	11,600	2.5m hard shoulders Footways/Cycle Tracks where required	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary.	Ghost islands or roundabouts ³ .
Type 3 Dual ⁴ (7.0m + 3.5m) Divided 2+1 lanes Primarily for retro fit projects	14,000	0.5m hard strips.	Minimise the number of accesses to avoid standing vehicles and concentrate turning movements.	Restricted number of left in/left out or ghost priority junctions.	Priority junctions or at-grade roundabouts.
Type 2 Dual ⁴ Divided 2 +2 Lanes (2x7.0m) Carriageways. ()	20,000	0.5m hard strips	No gaps in the central reserve. Left in / Left out	No gaps in the central reserve. Left in / Left out	At-grade roundabouts and compact grade separation

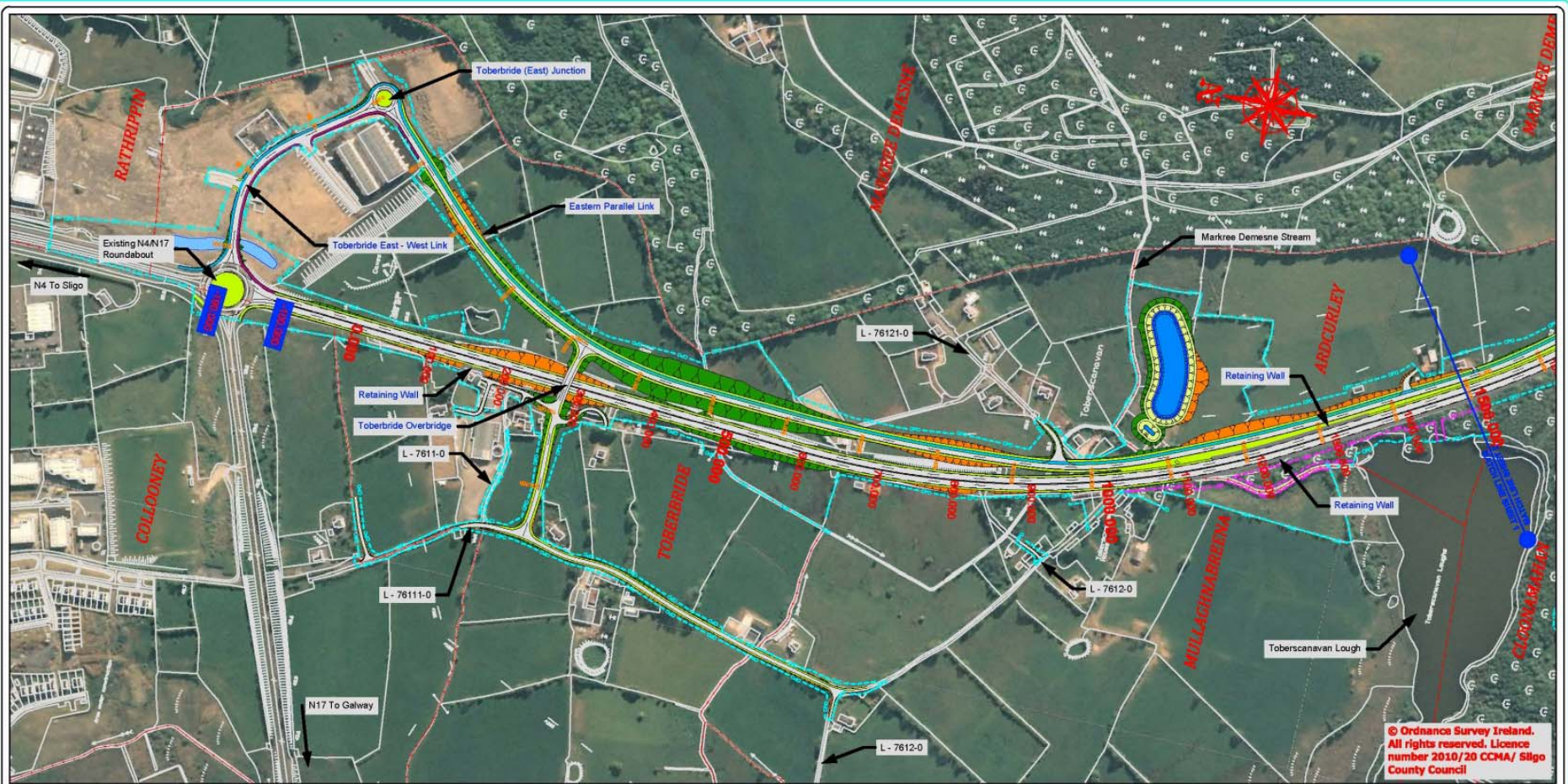


Advantages of Type 2 Dual Carriageway over a Type 1 Single Carriageway



- ▶ Increased safety benefits and removing the likelihood of head-on collisions;
- ▶ Removing right turning conflicts (compact grade separation and roundabouts proposed);
- ▶ An improved Level of Service;
- ▶ Allows safe overtaking;
- ▶ Consistency and continuance of road layout;
- ▶ Expected economic savings over the lifetime of the scheme due to increased journey time and reduced accident figures;
- ▶ Ensuring that pedestrians, cyclists and agricultural vehicles can use routes that are away from the strategic road network;
- ▶ Improving visibility and general road conditions; and
- ▶ Improving the safety of the roadside in the event of single-vehicle collisions.





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Legend

- Proposed Design: Indicating Cut Section
- Proposed Design: Indicating Fill Section
- Pavement
- Verge
- Footway
- Combined Cycle/Footway
- Atkinsville Pond
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
- Townland Name Design Chainage
- Prepared Retaining Wall
- Constructed Wetland
- Existing Attenuation Pond
- Spoil Repository

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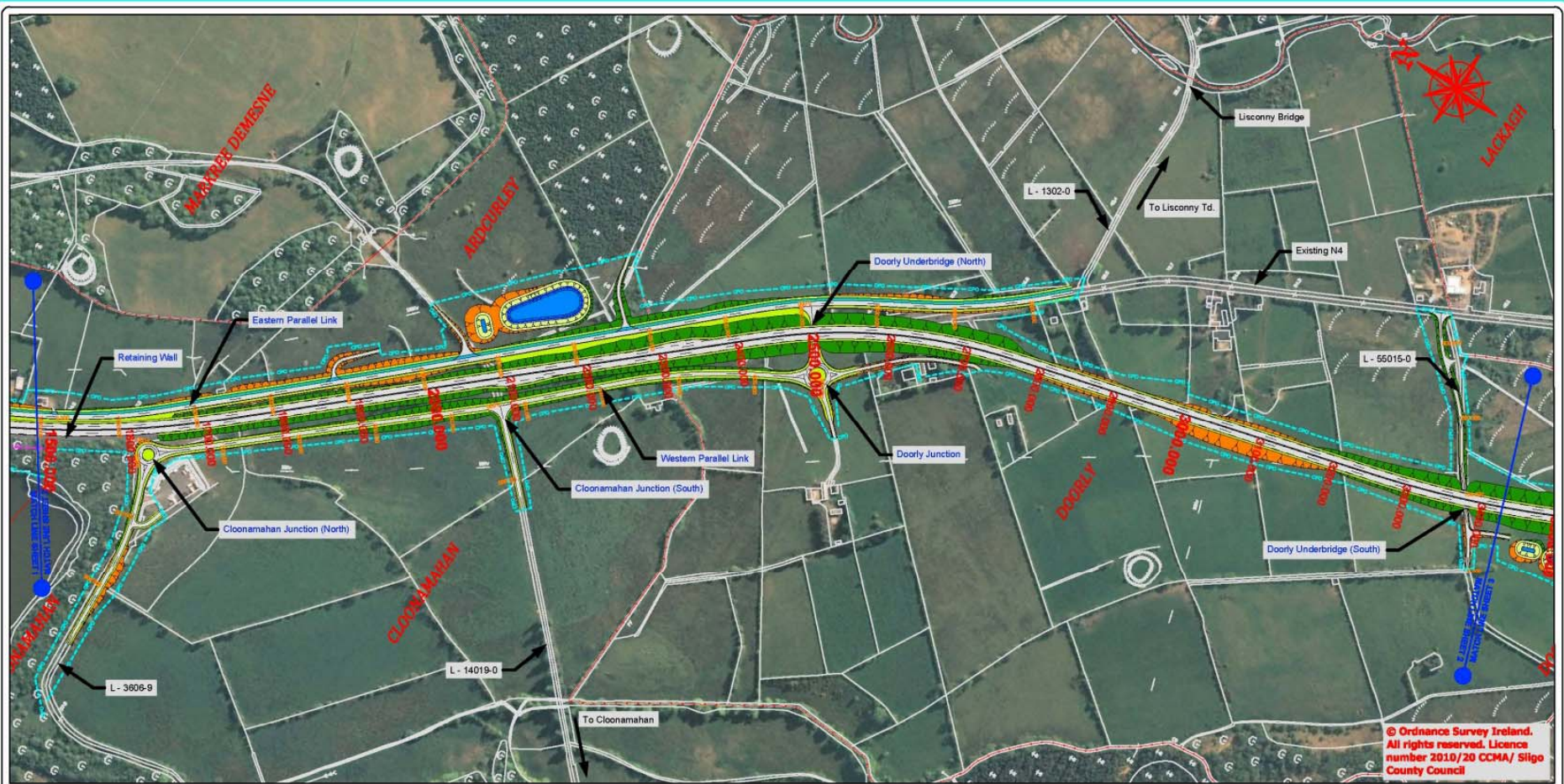


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Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Plan Mainline Ch. -190m to Ch. 1,480m			
Scales (0A3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.1.1 Sheet 1 of 8
Design FM	Drawn BR	Checked FM	



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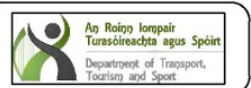
Legend

- Proposed Design Indicating Cut Section
- Proposed Design Indicating Hill Section
- Pavement
- Verge
- Footway
- Combined Cycle/Footway
- Attenuation Pond
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
- Townland Name
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- Constructed Wetland
- Existing Attenuation Pond
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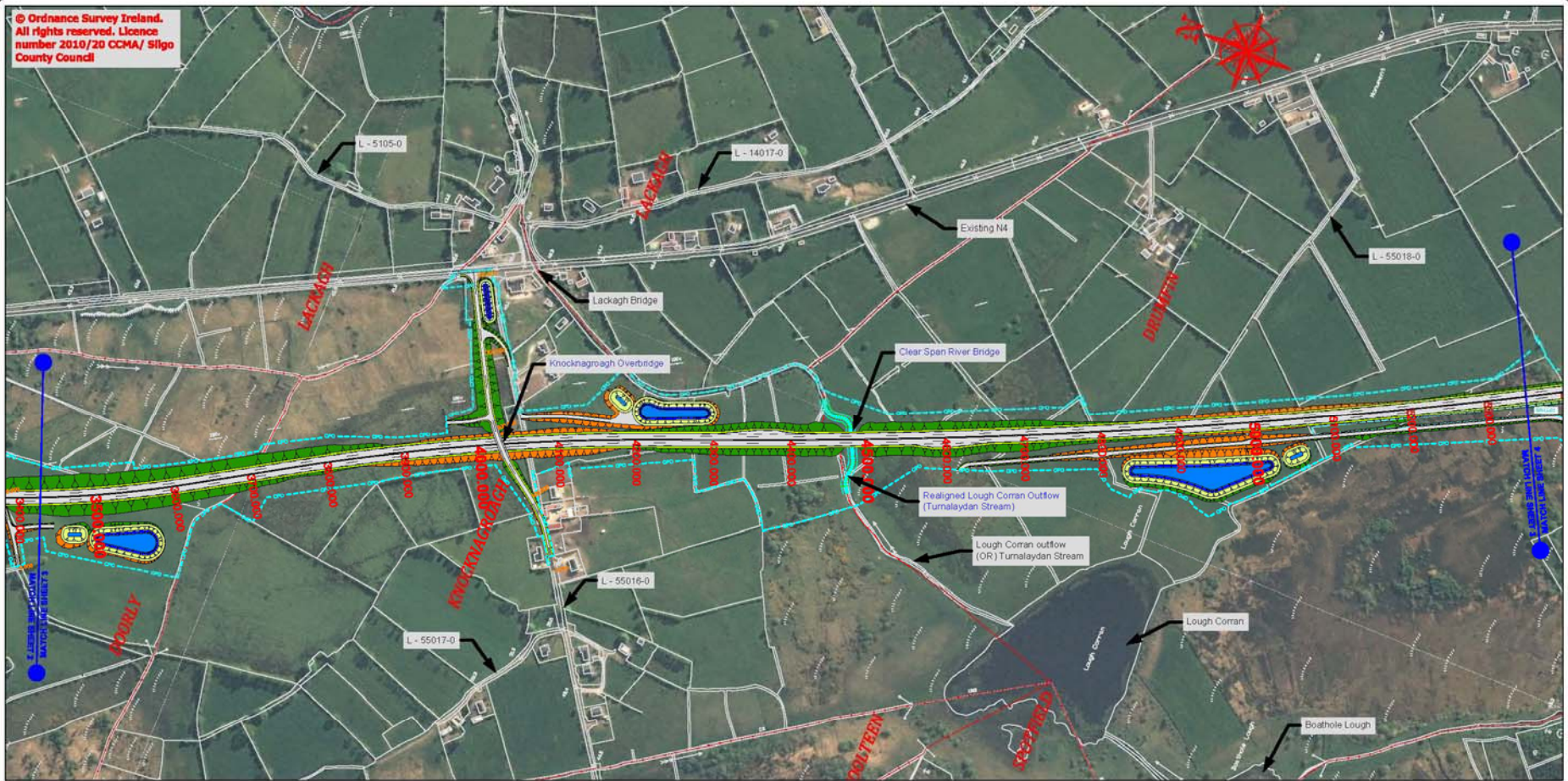


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Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Plan Mainline Ch. 1,480m to Ch. 3,425m			
Scales (0A3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150	
Design FM	Drawn BR	Checked FM	Approved AS
Figure No.: Fig.: 4.1.2			Sheet 2 of 8

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Legend

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Department of Transport,
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NRA
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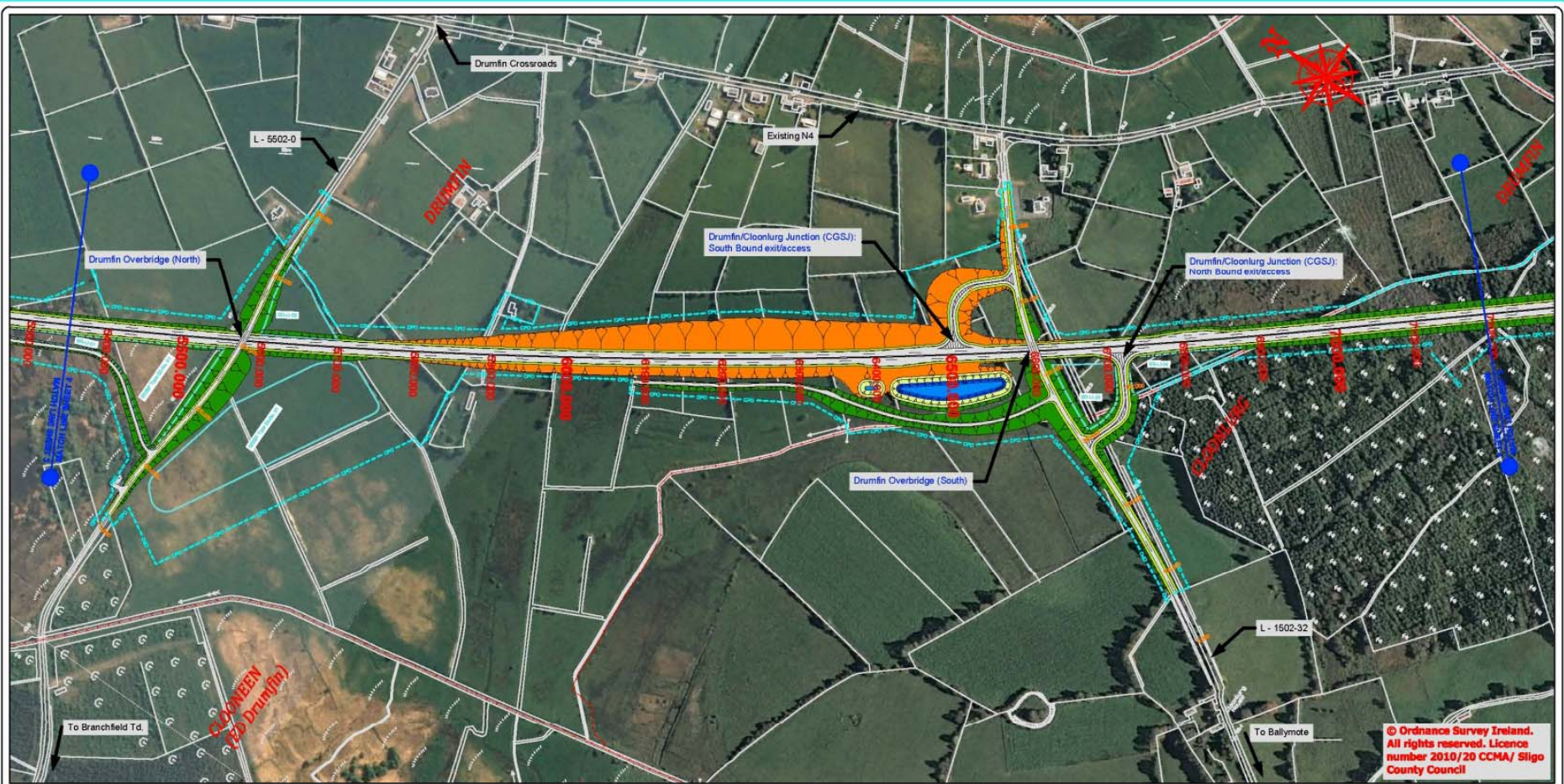
Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development

Title Design Overview: Plan Mainline
Ch. 3,425m to Ch. 5,350m

Scales (0A3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150
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Figure No.: Fig.: 4.1.3
Sheet 3 of 8



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Legend

- Proposed Design Indicating Cut Section
- Proposed Design Indicating Fill Section
- Pavement
- Verge
- Footway
- Combined Cycle/Footway
- Alternative Road
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
- Townland Name
- Design Chainage
- Proposed Retaining Wall
- Constructed Wetland
- Existing Attenuation Pond
- Spoil Repository

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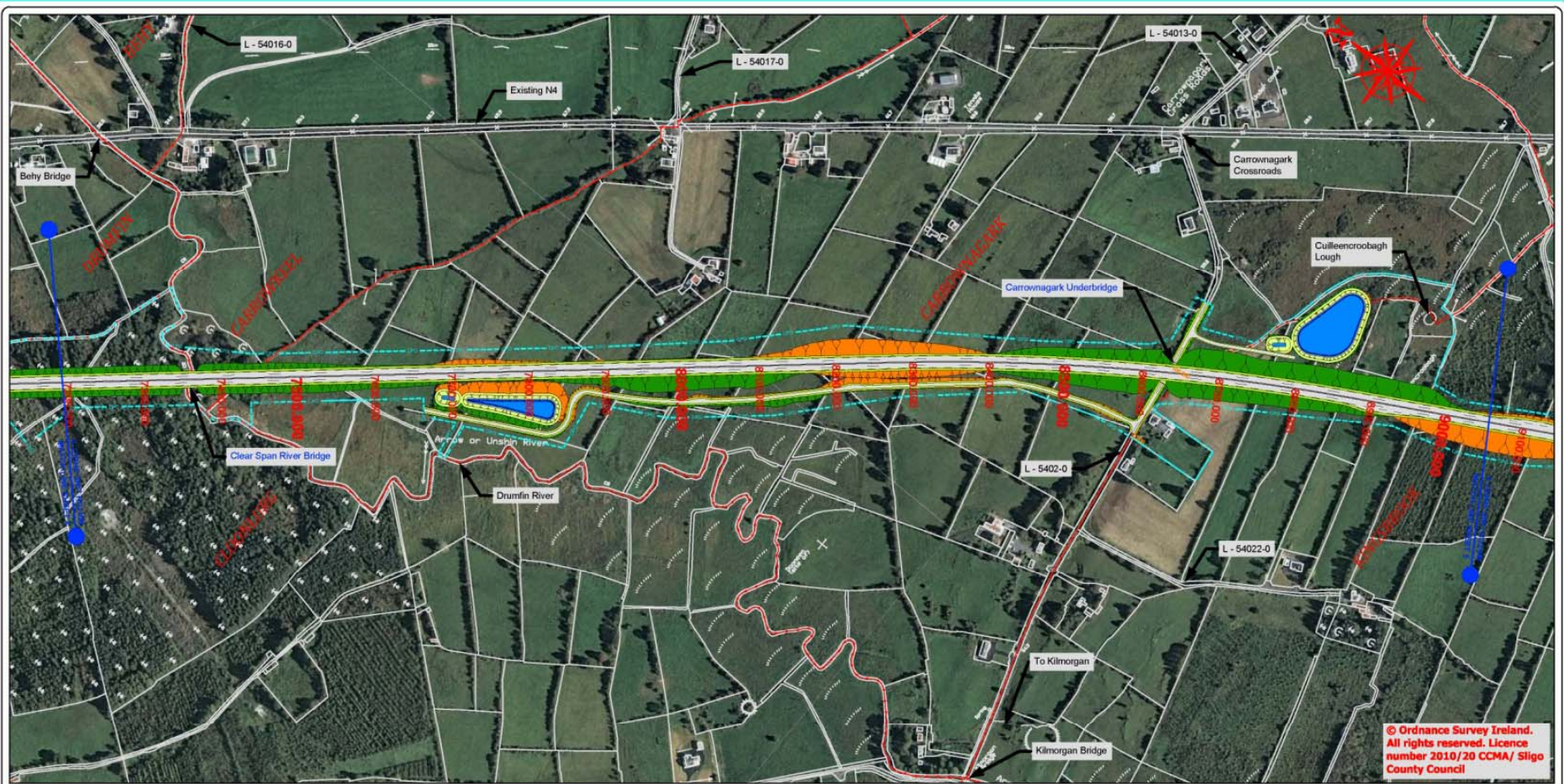
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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Plan Mainline Ch. 5,350m to Ch. 7,190m			
Scales (0A3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.1.4 Sheet 4 of 8
Design FM	Drawn BR	Checked FM	

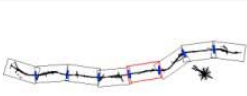


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Legend

- Proposed Design, Indicating Cut Section
- Proposed Design, Indicating Fill Section
- Pavement
- Verge
- Footway
- Combined Cycle/Footway
- Attenuation Pond
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
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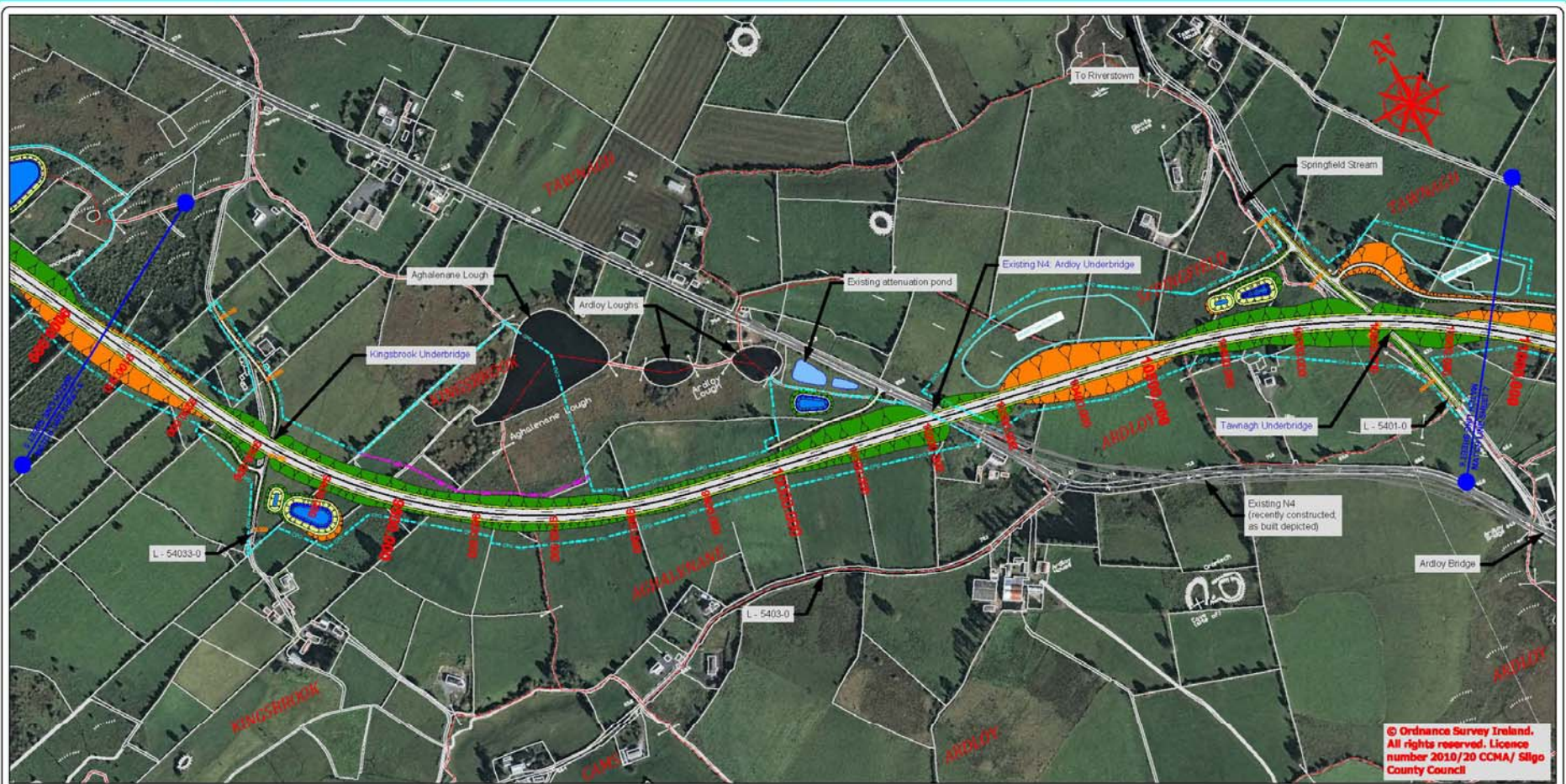


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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Plan Mainline Ch. 7,190 to Ch. 9,055m			
Scales (0A3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150	
Design FM	Drawn BR	Checked FM	Approved AS

Figure No.:
Fig.: 4.1.5
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Legend

- Proposed Design, Indicating Cut Section
- Proposed Design, Indicating Fill Section
- Alternative Pond
- Pavement
- Verges
- Footway
- Combined Cycle/Trotway
- Alternative Pond
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
- Townland Major Design Change
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- Spill Repository

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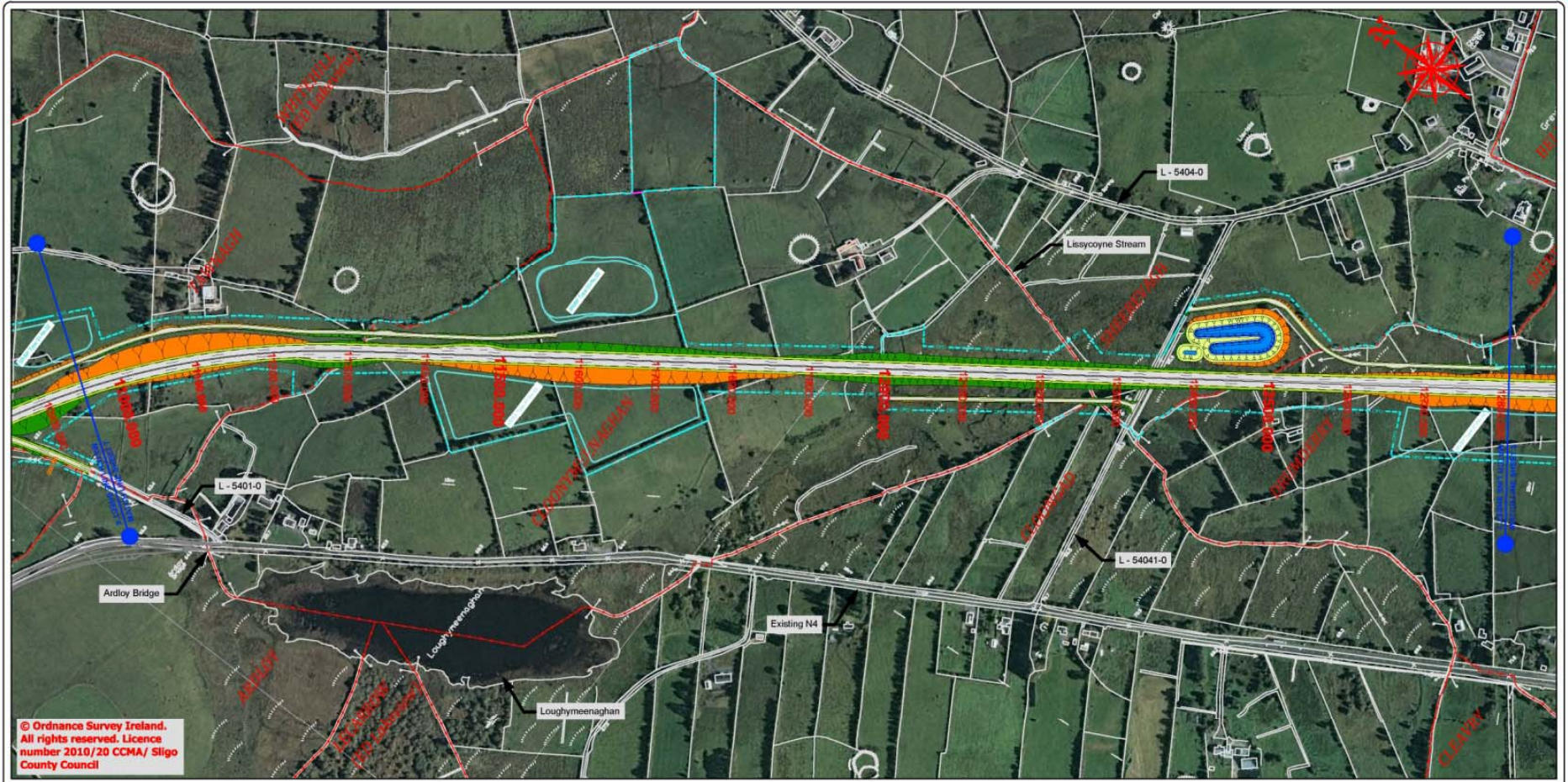


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Title Design Overview: Plan Mainline Ch. 9.055 to Ch. 10.950m			
Scales (DA3) H 1:5,000 V 1:500	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.1.6 Sheet 6 of 8
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Legend

- Proposed Design, Indicating Cut Section
- Proposed Design, Indicating Fill Section
- Pavement
- Verges
- Footway
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- Attenuation Pond
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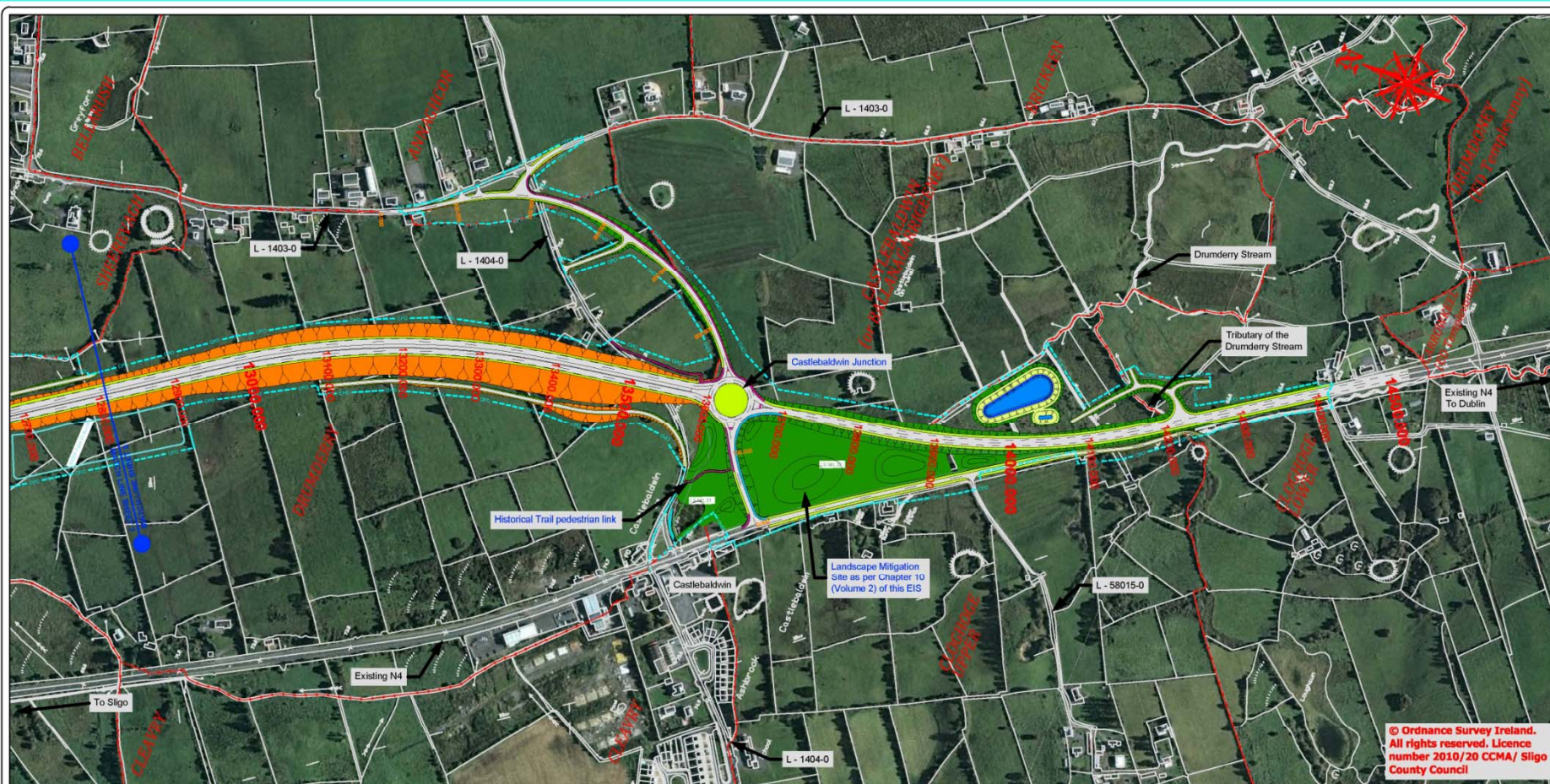


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Title Design Overview: Plan Mainline Ch. 10,950 to Ch. 12,810m			
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			Figure No.: Fig.: 4.1.7 Sheet 7 of 8

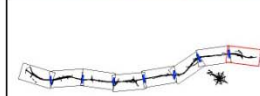


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Legend

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- Proposed Design, Indicating Fill Section
- Pavement
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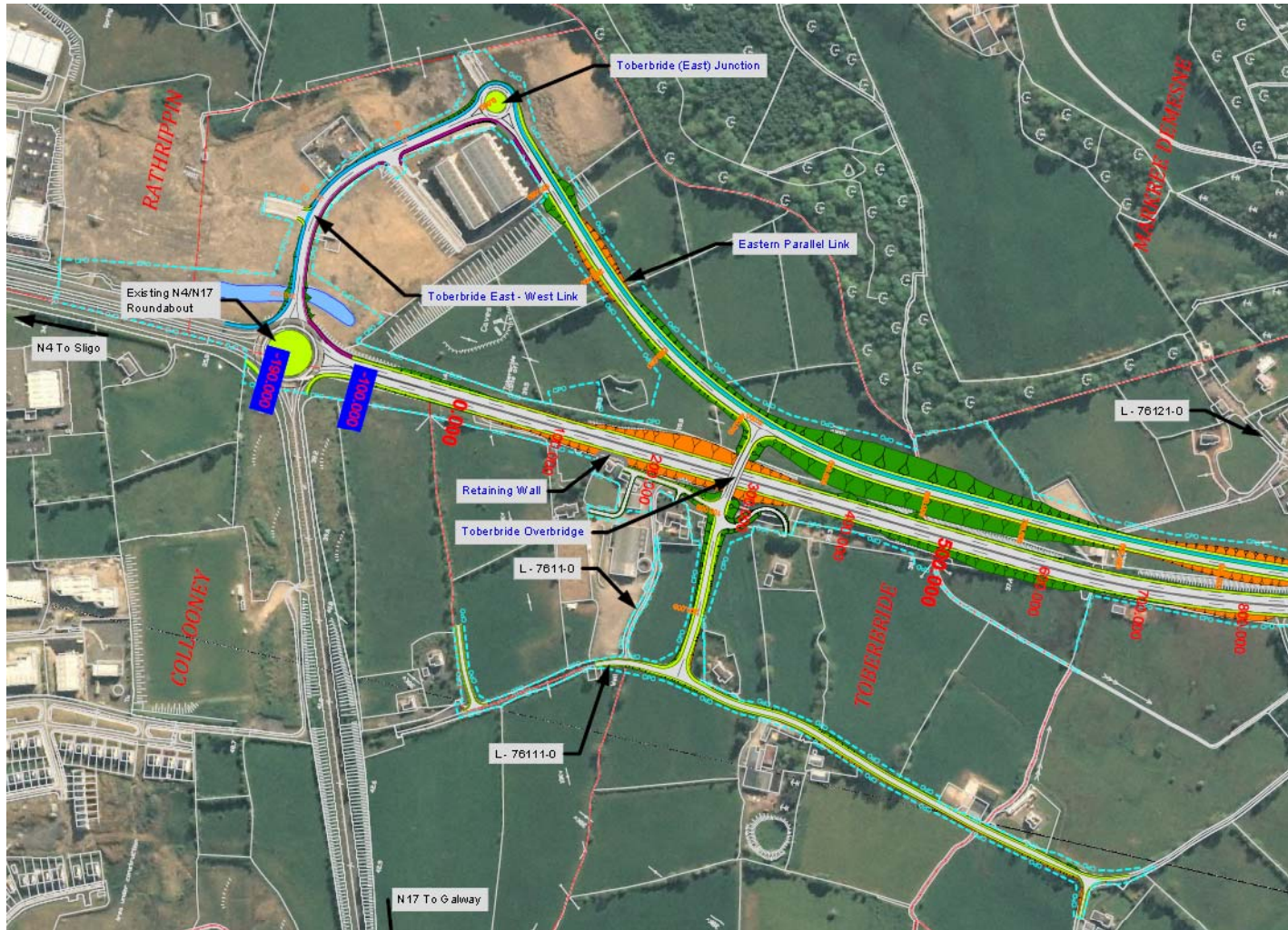
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e-mail: fmeham@sligoeco.ie



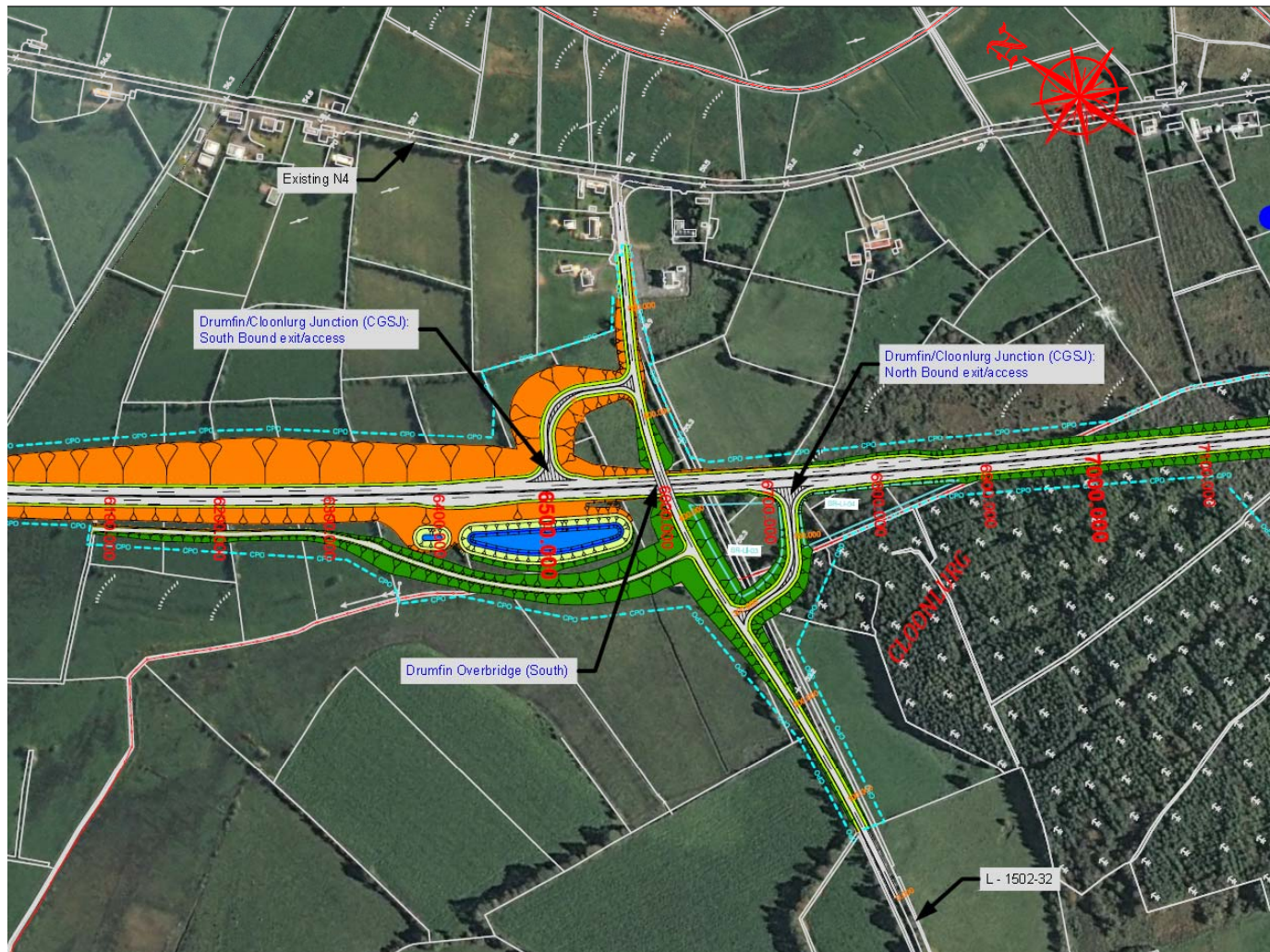
Date	By	Revision
April 2014	FM	This is an addenda to the EIS as described in Addenda Sheet No. 01.
		The historical trail pedestrian link has been re-linked to provide the uncontrolled crossing on the Standard Single Carriageway section of the proposed N4.

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Plan Mainline Ch. 12.810 to Ch. 14.523m			
Scales (0A3) H 1:5,000 V 1:500		Date December 2013	Job No. SO/01/150
Design FM	Drawn BR	Checked FM	Approved AS
			Figure No.: Fig.: 4.1.8 Sheet 8 of 8

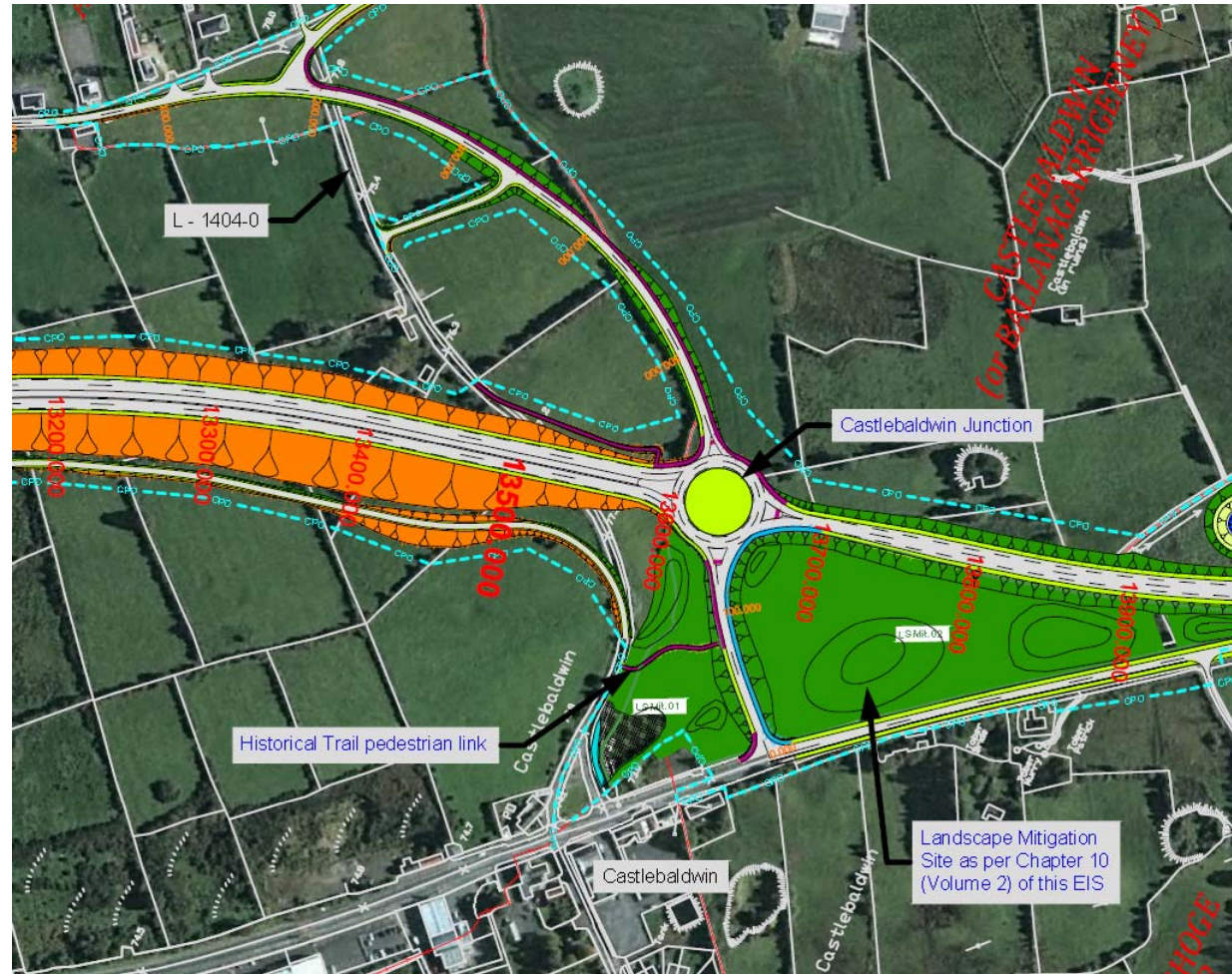
Mainline Junction Strategy – Proposed tie into Existing N4/N17 Roundabout



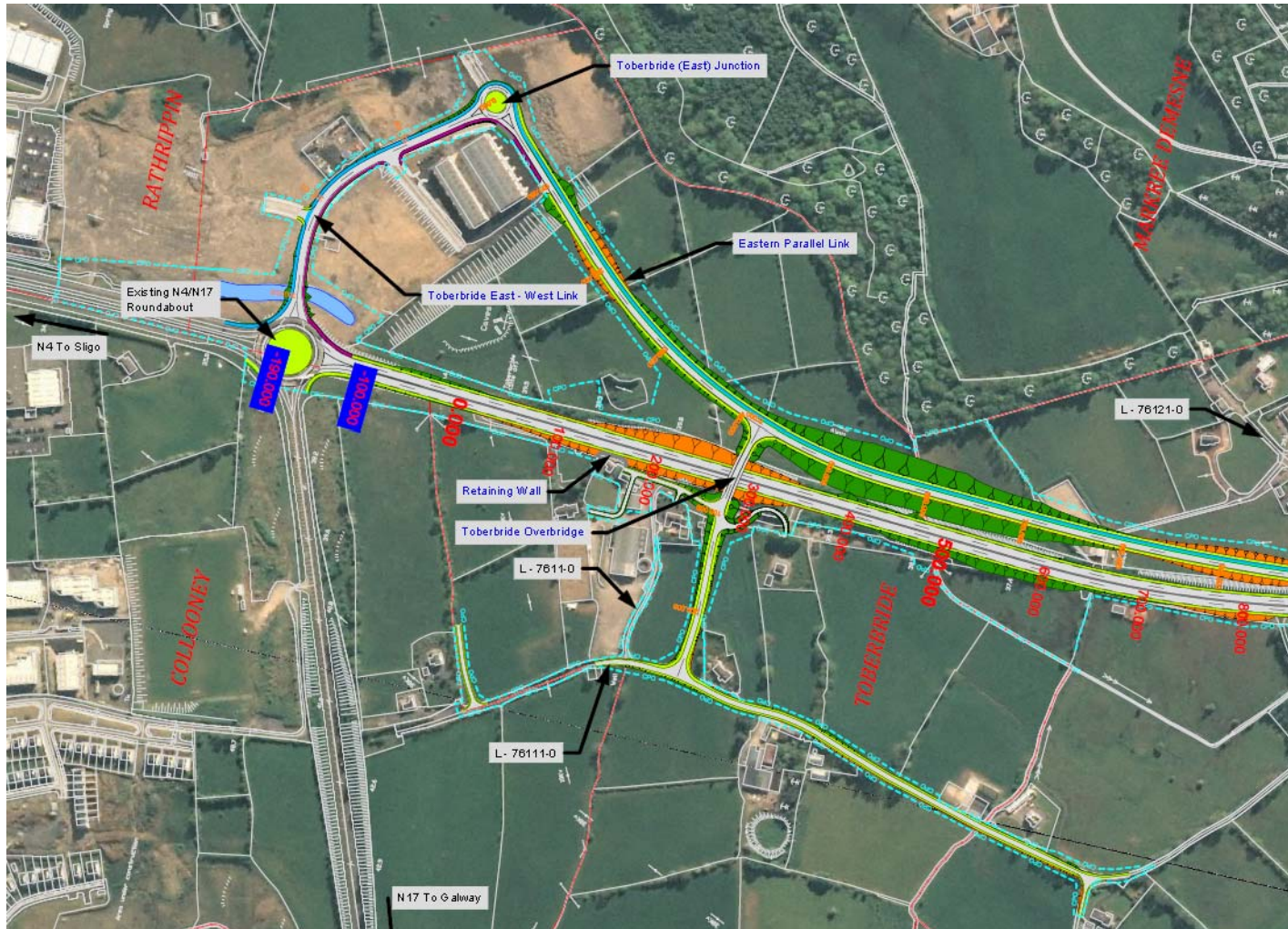
Mainline Junction Strategy – Proposed Drumfin/Cloonlurg Junction



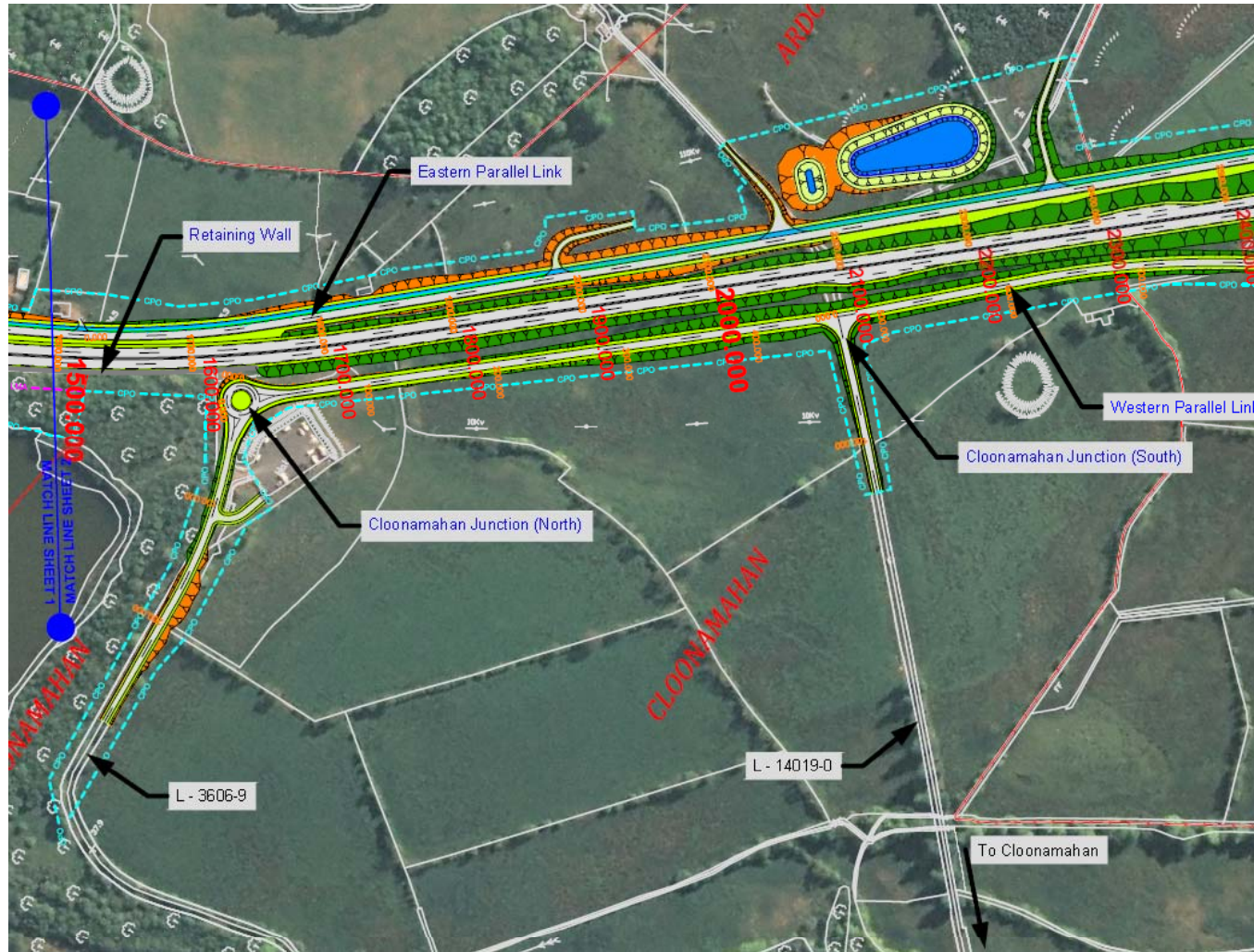
Mainline Junction Strategy – Proposed Roundabout at Castlebaldwin



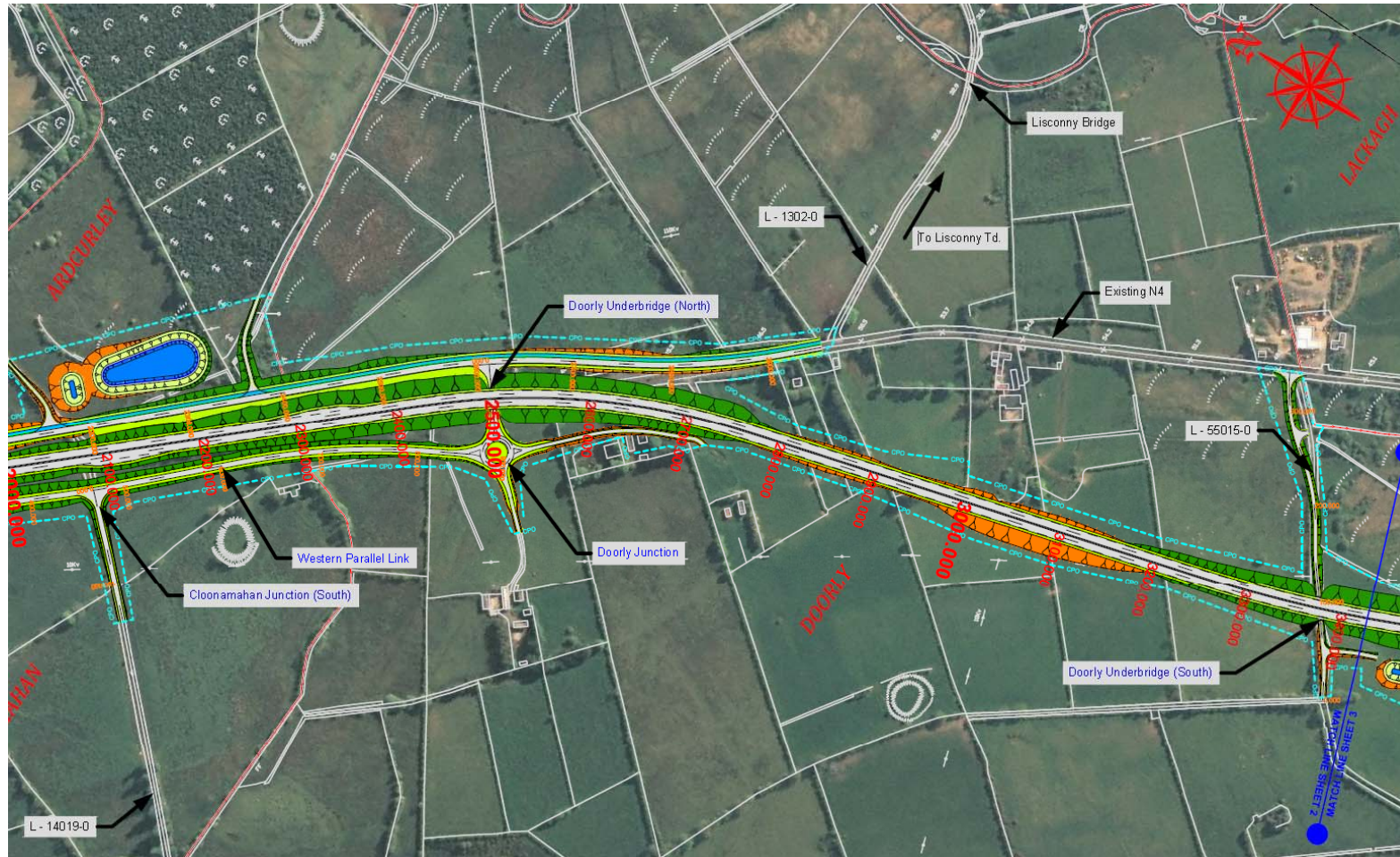
Side Road Junction Strategy – Proposed Toberbride (East) Junction

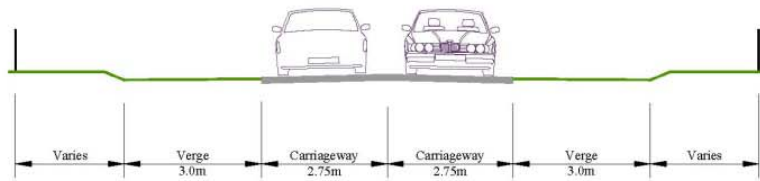


Side Road Junction Strategy – Proposed Cloonamahan Junction (North)

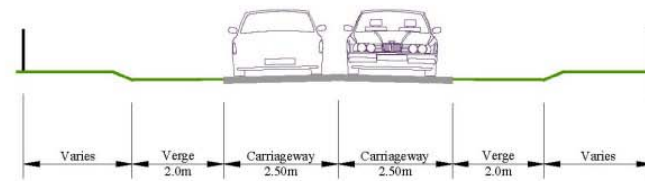


Side Road Junction Strategy – Proposed Doorly Junction

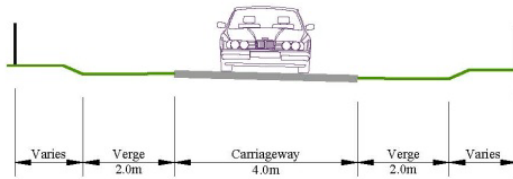




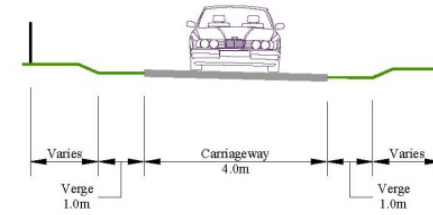
LOCAL ROAD - CROSS SECTION TYPE 1 (5.5m c/w, 3m verge)



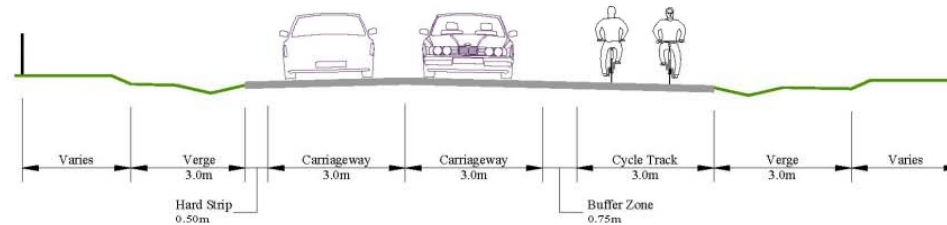
LOCAL ROAD - CROSS SECTION TYPE 2 (5.0m c/w, 2m verge)



LOCAL ROAD - CROSS SECTION TYPE 3 (4.0m c/w, 2m verge)



Access Tracks (Agricultural, Domestic and Service)-Cross Section (4m c/w, 1m verge)



LOCAL ROAD - CROSS SECTION TYPE 4 (6.0m c/w, 3m verge)

Legend/Notes: Cross Section Type 1 Applies to ; L-7611-0, Link between Doorly West and Doorly East Junction, Western Parallel Link, L1502-32, Links from/to Castlebaldwin Junction.

Type 2 Applies to ; L-3606-9, L-14019-0, L-5502-0, L-5402-0, L-5401-0, L-55016-0, L-1403-0, L1404-0.

Type 3 Applies to ; L-55015-0, L-54033-0.

Type 4 Applies to ; Eastern Parallel Link, Link between the Eastern Parallel Link and the N4/N17 Roundabout.

NOTE:

All proposed road levels indicated are based on a Design prepared for Phase 3 and 4 of the NRA PMG and may be revised at the Detailed Design Stage. Modifications may be made to avail of opportunities to improve the design in the light of experience on the ground or other innovations provided this has no significant adverse environmental effects.

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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Typical Cross Sections (Local Roads and Access Tracks)			
Scales (0/A3) 1:100	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.4.2
Design FM	Drawn BR	Checked FM	



Location of Overbridges



Table 4-5: Location of Overbridges

Local road crossing over proposed N4	Chainage location (approx.)	Townland	Maximum Design Characteristic of Local Road
No name (Link between the L-7611-0 and the Eastern parallel link road).	Ch 280m	<i>Toberbride</i>	5.5m carriageway with 1.5m and 0.6m raised concrete verge.
L-55016-0	Ch 4,020m	<i>Knocknagroagh</i>	5.5m carriageway with 1.5m and 0.6m raised concrete verge.
L-5502-0	Ch 5,570m	<i>Drumfin</i>	5.5m carriageway with 1.5m and 0.6m raised concrete verge.
L-1502-32	Ch 6,600m	<i>Drumfin</i>	5.5m carriageway with 1.5m and 0.6m raised concrete verge.



Location of Underbridges



Table 4-6: Location of Underbridges

Local road crossing under proposed N4	Chainage location (approx.)	Townland	Span Type	Maximum Design Characteristic of Local Road	Headroom provided
No name (Link between eastern and western parallel link roads)	Ch. 2,500m	<i>Doorly</i>	Single	5.5m carriageway with 1.5m and 0.6m raised concrete verge.	5.3m
L-55015-0	Ch. 3,380m	<i>Doorly</i>	Single	4m carriageway with 1.5m and 0.6m raised concrete verge.	4.5m
L-5402-0	Ch. 8,630m	<i>Carrownagark</i>	Single	5.5m carriageway with 1.5m and 0.6m raised concrete verge.	5.3m
L-54033-0	Ch. 9,310m	<i>Kingsbrook</i>	Single	4m carriageway with 1.5m and 0.6m raised concrete verge.	4.5m
Existing N4	Ch. 10,220m	<i>Ardloy</i>	Single	6m carriageway and 0.5m hard strip with 2.5m and 1m raised concrete verge.	5.3m
L-5401-0	Ch. 10,800m	<i>Tawnagh</i>	Single	5.5m carriageway with 1.5m and 0.6m raised concrete verge.	5.3m



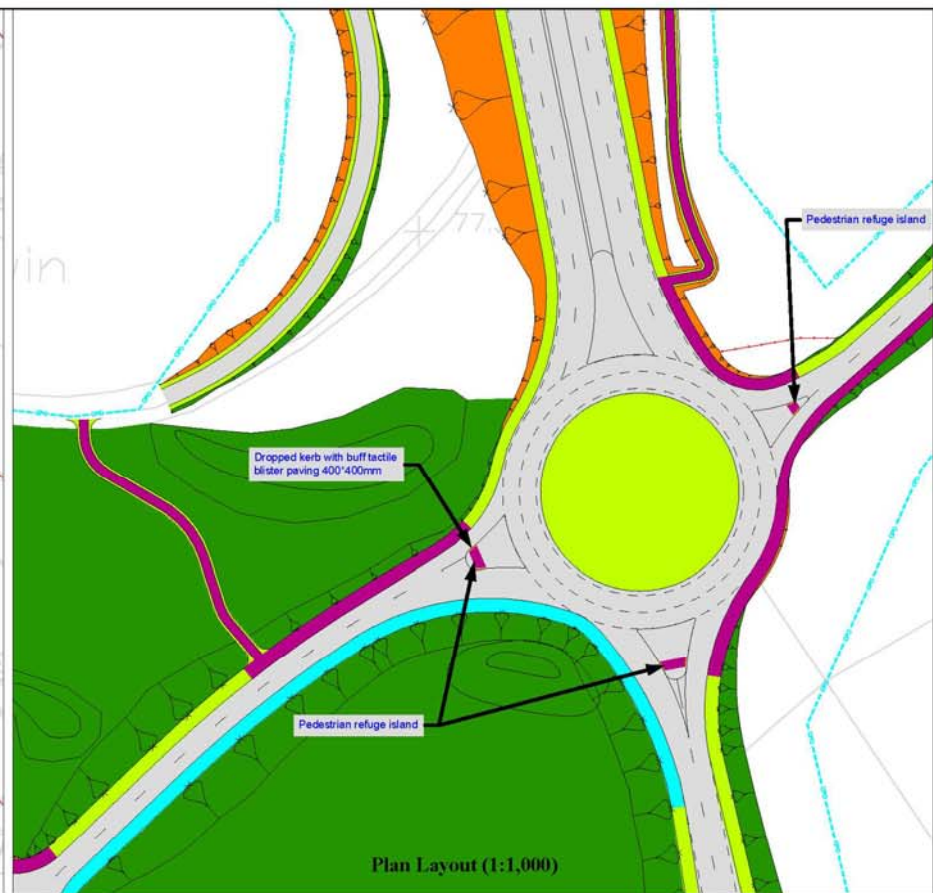
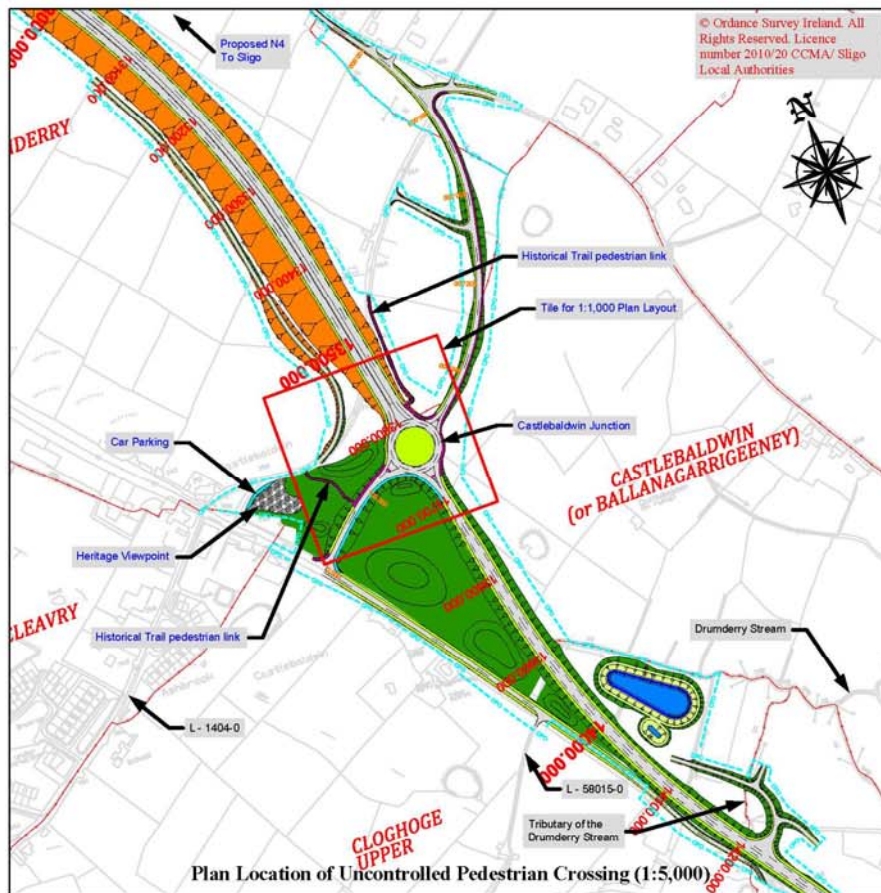
Location of River Bridges



Table 4-7: River Bridges

River Name	Chainage location (approx.)	Townland	Span Type	Span	Soffit Level required
Lough Corran Outflow (Turnalaydan Stream)	Ch. 4,460m	<i>Drumfin</i>	Clear Span	20m	42.55m aOD
Drumfin River	Ch. 7,360m	<i>Carrowkeel/ Cloonlurg</i>	Clear Span	20m	52.13m aOD





Legend/Notes:

- Proposed Design: Indicating Car Section
- Proposed Design: Indicating FILL Section
- Pavement
- Verge
- Footway
- Combined Cycle/Footway
- Alternation Pool
- Townland Boundary
- CPO Boundary
- Land Made Available (LMA)
- Townland Names
- Design Change
- Constructed Wetland

NOTE:

All proposed road levels indicated are based on a Design prepared for Phase 3 and 4 of the NRA PMG and may be revised at the Detailed Design Stage. Modifications may be made to avail of opportunities to improve the design in the light of experience on the ground or other innovations provided this has no significant adverse environmental effects.

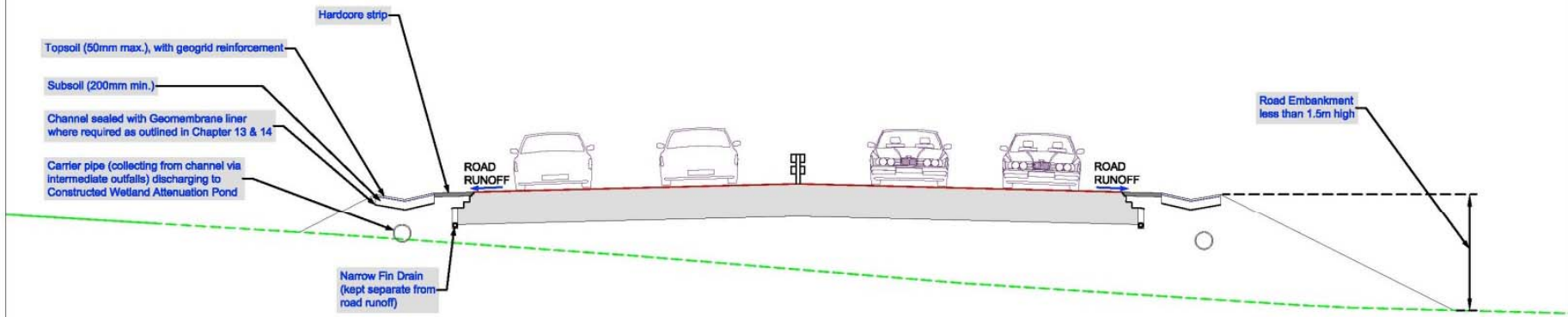
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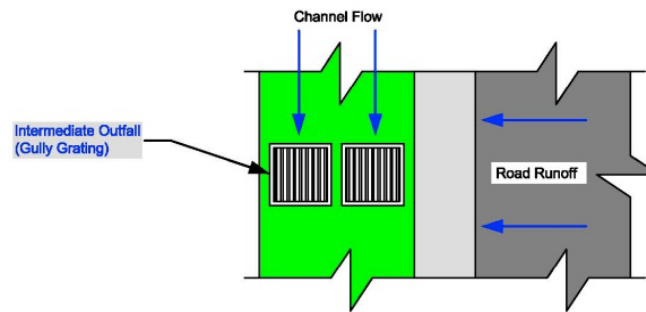
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Date	By	Revision
April 2014	FM	This is an addenda to the EIS as described in Addenda Sheet No. 01.
		The historical trail pedestrian link has been re-linked to provide the uncontrolled crossing on the Standard Single Carriageway section of the proposed N4.

Project			
N4 Collooney to Castlebaldwin Proposed Road Development			
Title			
Uncontrolled Pedestrian Crossing			
Scales (A3)		Date	Job No.
As Shown		December 2013	SO/01/150
Design	Drawn	Checked	Approved
FM	JF	FM	AS
			Figure No.: Fig.: 4.10



Grassed Surface Water Channel: Schematic Section detail within Road Embankment (1:100)



Surface Water Channel: Schematic plan detail within verge (NTS)

Legend/Notes



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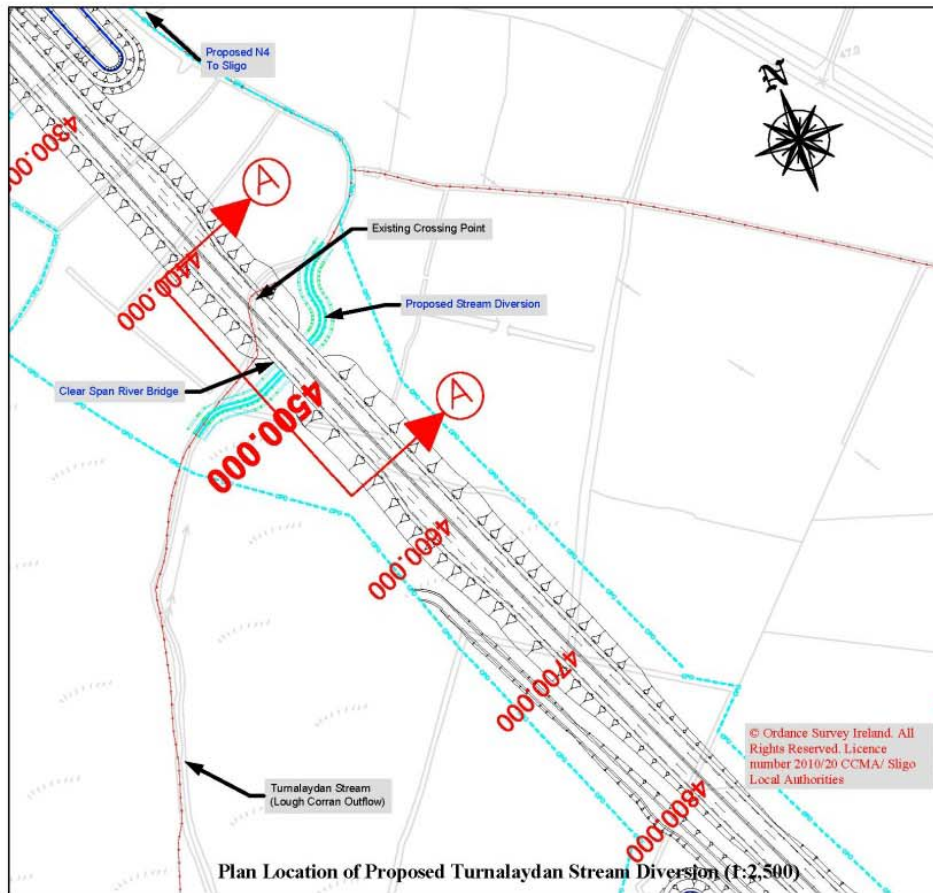
Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Design Overview: Drainage System; Schematic detail of Grassed Surface Water Channel			
Scales (0A3) As Shown	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.7.11
Design FM	Drawn FM	Checked FM	

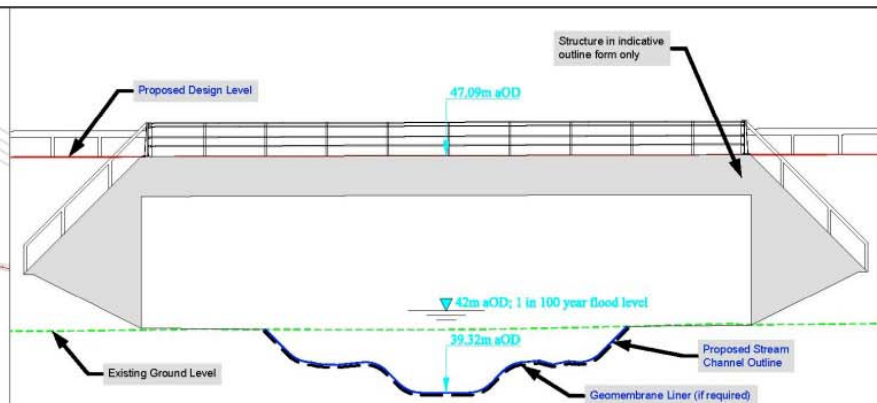


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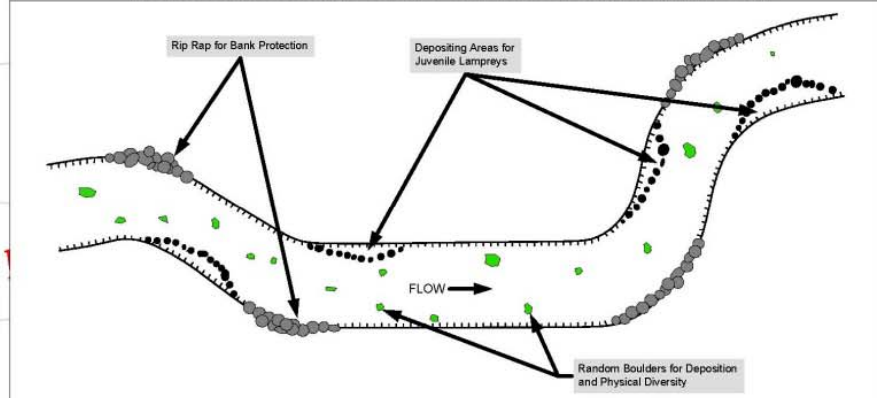
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Plan Location of Proposed Turnalaydan Stream Diversion (1:2,500)



Indicative Section Through Proposed Channel Diversion (1:150) (See Notes)



Schematic detail of Turnalaydan Stream Diversion (See Notes) (Input from Ecofact)

Legend/Notes:
Geometrics Details
 - Proposed Design Level
 - Existing Ground Level
 - Townland Boundary
 - CPO Boundary
 - Land Made Available (LMA)
 - Design Change
 - Constructed Wetland

The figures attached are an indicative outline for the proposed diversion of the Turnalaydan Stream. The final detail shall be based on the schematic outline included in this figure, and developed in direct consultation with the NPWS and IFI. Should the Contractor decide not to progress with the diversion then a clear span structure shall be provided over the existing stream; as per chapter 4 Volume 2 of the EIS.

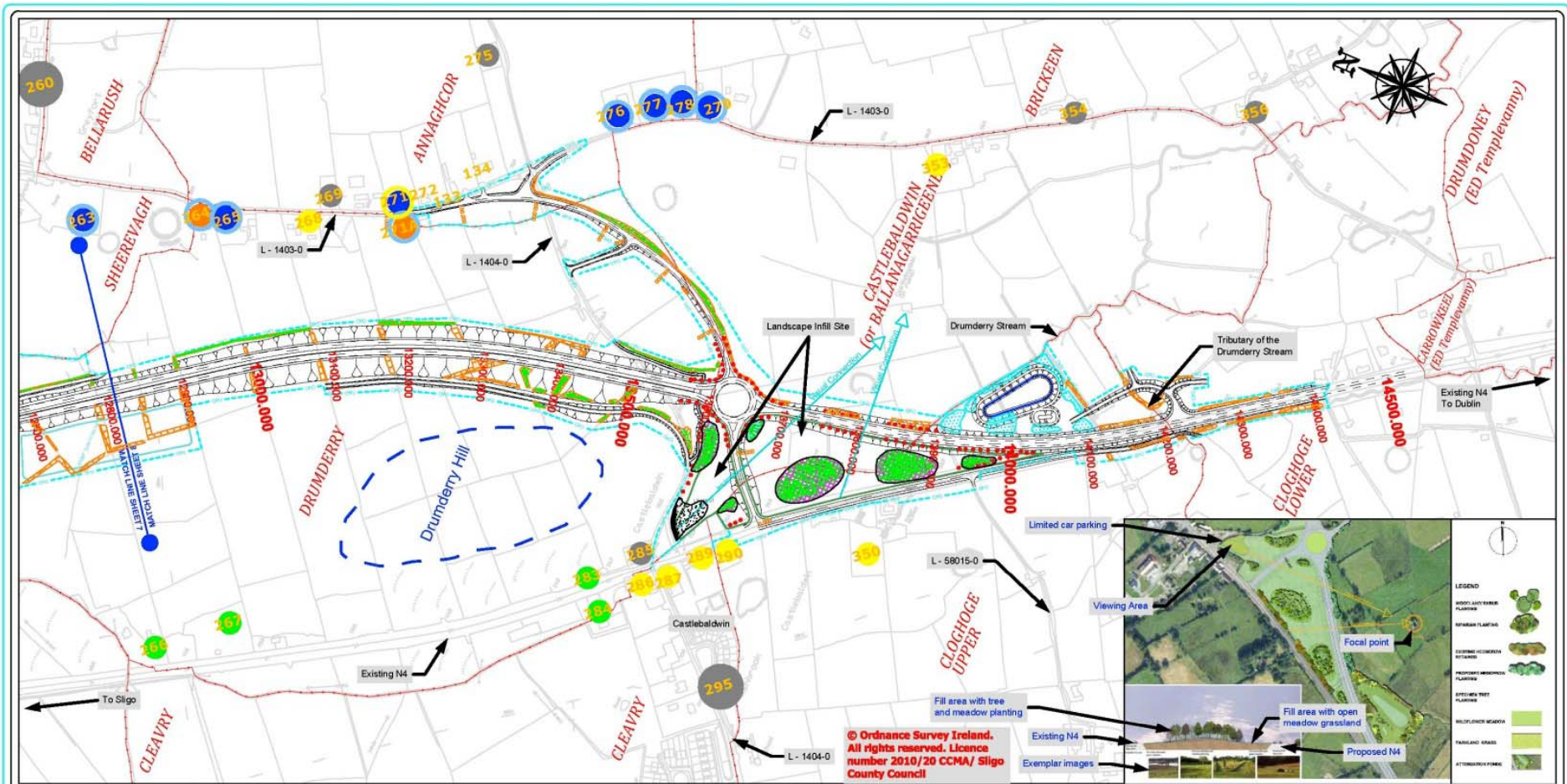
NOTE:
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Date	By	Revision

Project N4 Collooney to Castlebaldwin Proposed Road Development			
Title Turnalaydan Stream Channel Diversion			
Scales (A3) As Shown	Date December 2013	Job No. SO/01/150	Figure No.: Fig.: 4.7.12
Design FM	Drawn BR	Checked FM	



Legend		Post mitigation assessment of visual impact 2010/2011 - before mitigation / 2010/2011 - after mitigation	
	Hedgerow mix		Significant Adverse
	High canopy woodland mix		Moderate Adverse
	Low canopy woodland mix		Slight Adverse
	Riparian woodland mix		Slight Positive
	Feature planting - semi-mature tree planting		Imperceptible
	Mature Hedgerow mix		Slight Positive
	Shrub mix underplanting		102 Property Number
	Mature High Canopy Woodland and Shrub mix		
	Solid Screen / Noise Barrier		

	Townland Boundary		Constructed Wetland
	CPO Boundary		Existing Attenuation Pond
	Land Made Available (LMA)		Retaining Wall
	Townland Names		Spoil Emponitory
	Design Change		Landscape Mitigation Site

NOTE:
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NRA

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Sligo County Council

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Date	By	Revision
April 2014	FM/CW	This is an errata to the EIS as described in Errata Sheet No. 01. The landscape image in the lower right corner is enhanced for clarity.

Project	N4 Collooney to Castlebaldwin Proposed Road Development		
Title	EIS, Chapter 10 Drawings: Landscape and Visual Impact Assessment		
Scales (0A3)	Date	Job No.	Figure No.: Fig.: 10.1.8 Sheet 8 of 8
1:5,000	December 2013	SO/01/150	
Assessment & Mapping	Design Team Review	Approved	
Mos Art	FM	AS	