Kildare County Council
Comhairle Contae Chill Dara

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Kerdiffstown Landfill Remediation Project

Kildare County Council

Environmental Impact Assessment Report (EIAR) Volume 3 of 4: Figures

32EW5604 DOC 0055 | Final

August 2017



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FIGURE 3.1



Legend

Site Location

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing Title: FIGURE 3.1 - SITE LOCATION

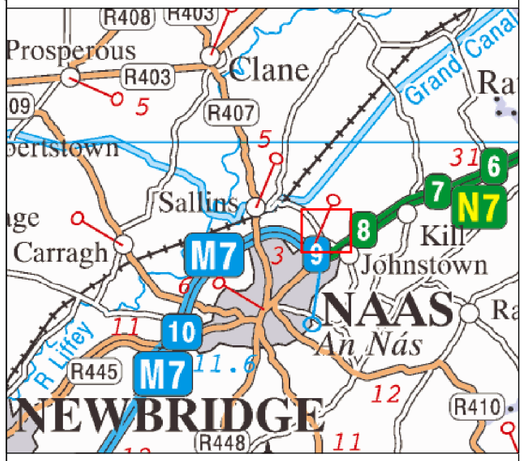
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FIGURE 3.2



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Indicative Zone Boundary

ZONE 1A

ZONE 1

ZONE 2A

ZONE 2B

ZONE 3

ZONE 4

N

W E

S

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0 65 130 260 390 520

Metres

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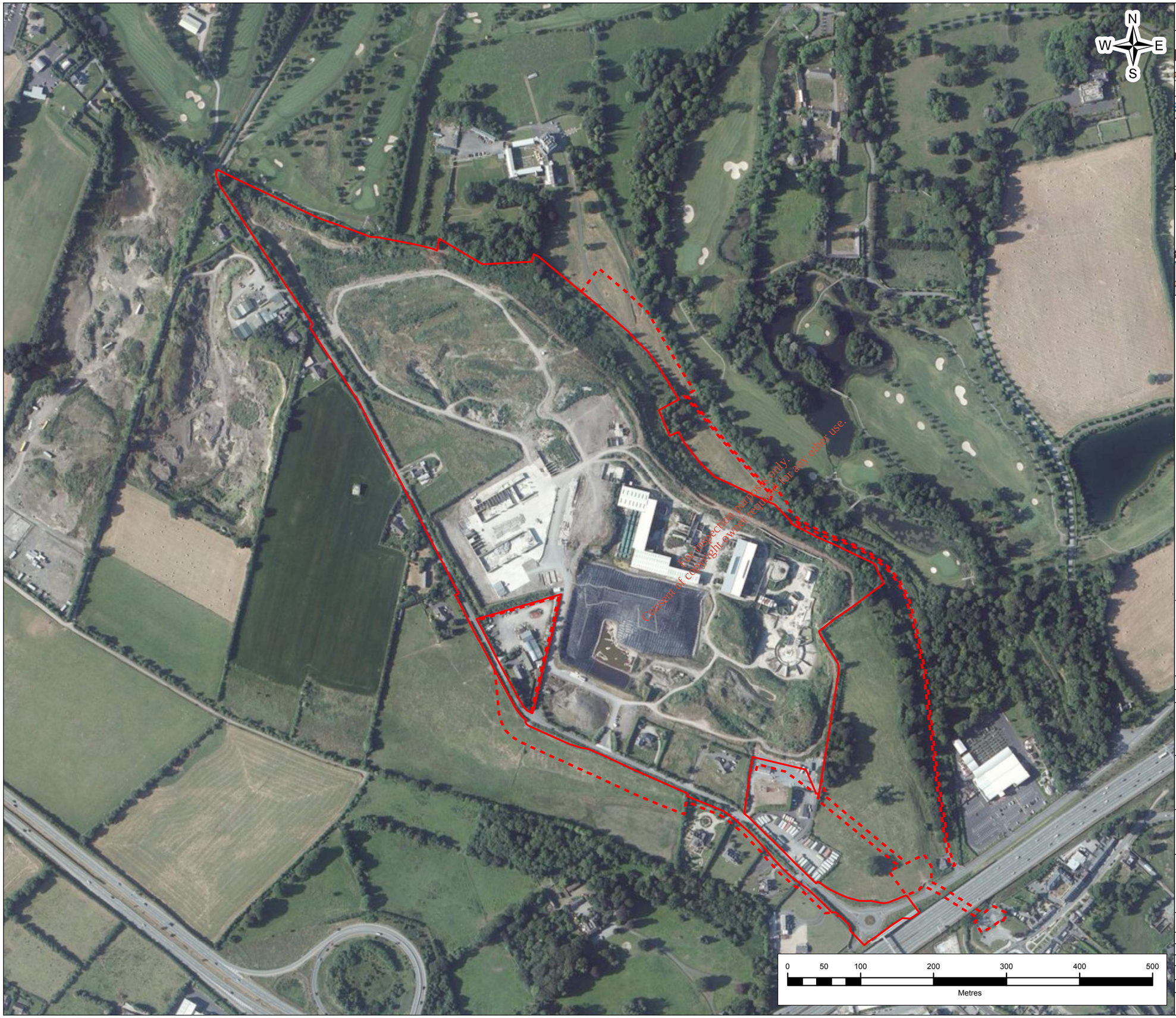
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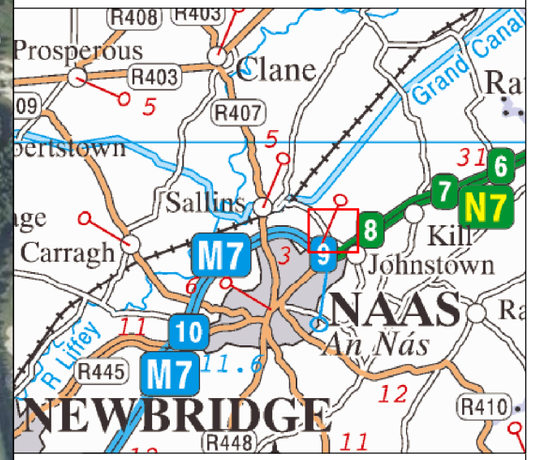
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FIGURE 3.3





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary

0 50 100 200 300 400 500

Metres

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Drawing Title: FIGURE 3.3 - AERIAL OVERVIEW FEBRUARY 2016

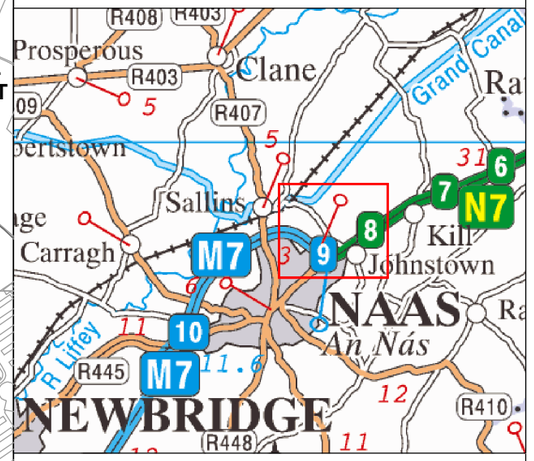
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FIGURE 3.4



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- 1km Buffer of Site
- Buildings
- RECxxx Residential Receptor
- COMxxx Commercial Receptor

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community Based on Ordnance Survey Ireland data and rep

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Drawing Title: FIGURE 3.4 - LOCATION OF KEY RESIDENTIAL AND COMMERCIAL RECEPTORS WITHIN 1KM OF THE SITE

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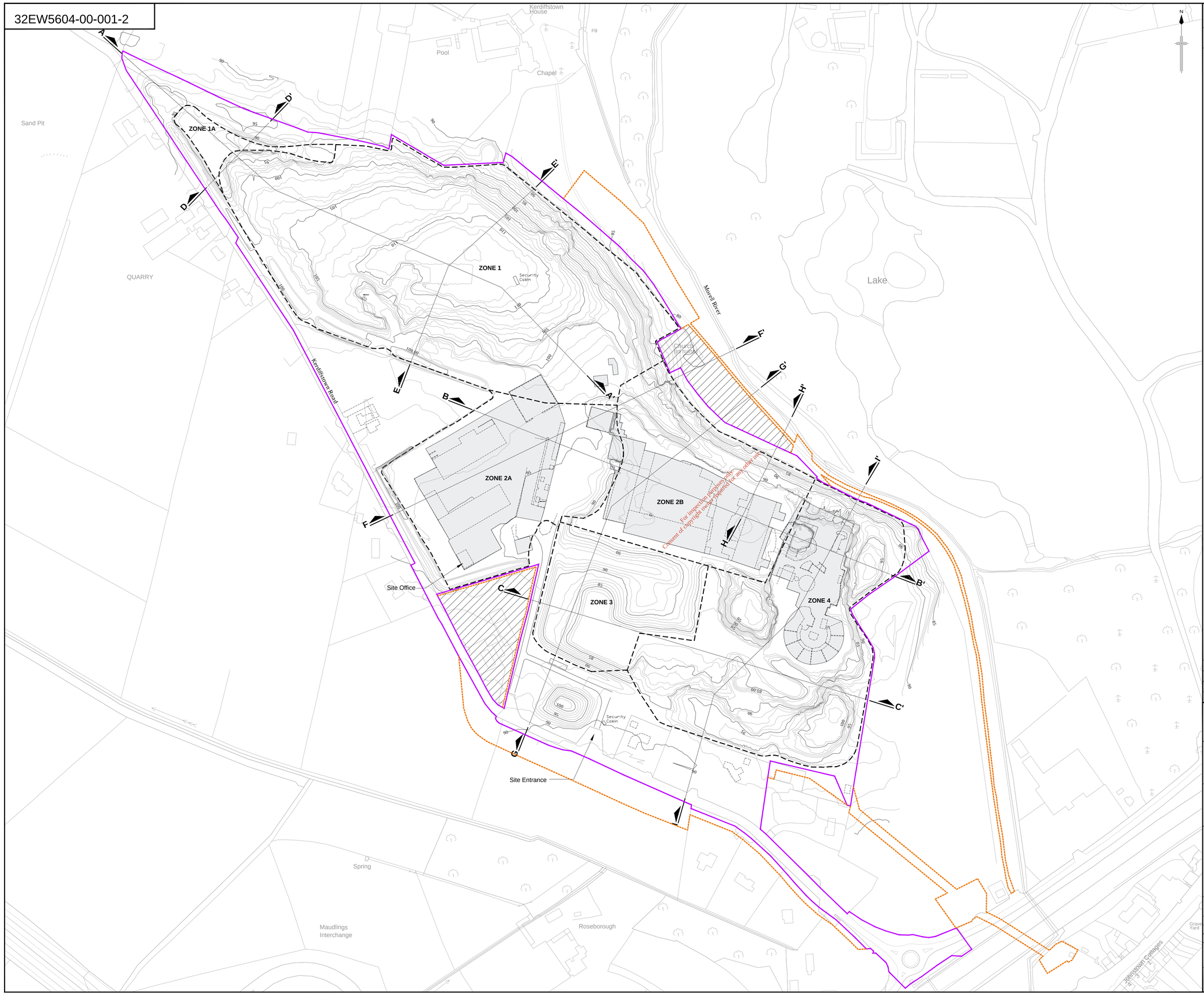


FIGURE 4.1

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KEY:

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Area Excluded from CPO
- Inferred Zone Boundary
- Buildings/Structures
- Concrete Hardstandings (interpolated extents)
- 90 — Existing Site Contours metres OD (Malin Head)

NOTES:

1. For section details see Drawing No. 32EW5604-00-024 (Figure 4.6) and Drawing No. 32EW5604-00-025 (Figure 4.7).
2. Site features based on survey provided by Coastway - Chartered Geospatial Engineering Surveyors, Drg No. 1105-001 Rev11 b, 10th February 2012.
3. Topographical survey undertaken by Baseline Surveys Ltd, 15th February 2016.
4. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.

0 50 100 150 200 m

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Drawing title: FIGURE 4.1 EXISTING SITE CONDITION

Drawing status: EIAR SUBMISSION

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FIGURE 4.2

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KEY:

- Licence Boundary
- Existing Extent of Waste (inferred)
- Future Extent of Waste
- Inferred Zone Boundary
- Retained Concrete Hardstandings
- 90 — Re-profiled Site Contours metres (OD Malin Head)
- New Perimeter Bund

NOTES:

1. For section details see Drawing No. 32EW5602-024 (Figure 4.6) and Drawing No. 32EW5604-025 (Figure 4.7).
2. Site features based on survey provided by Coastway - Chartered Geospatial Engineering Surveyors, Drg No. 1105-001 Rev11 b, 10th February 2012.
3. Topographical survey undertaken by Baseline Surveys Ltd, 15th February 2016.
4. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.

0 50 100 150 200 m

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.2 RE-PROFILED SITE CONTOURS FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

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FIGURE 4.3

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KEY:

- Licence Boundary
- Inferred Waste Extents
- Inferred Zone Boundary
- Contours (Depths of Cut)
- Contours (Depths of Fill)
- Area of Cut
- Area of Fill
- Area of Zero Cut/Fill

NOTE:

1. Cut / fill depths based on comparison of existing site contours shown on Drawing No.32EW5604-001 (Figure 4.1) and re-profiled site contours shown on Drawing No. 32EW5604-020 (Figure 4.2).
2. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.

0 50 100 150 200 m

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.3
ISOPACHYTES - EXISTING GROUND LEVELS
TO PROPOSED RE-PROFILED SITE CONTOURS

Drawing status: EIAR SUBMISSION

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FIGURE 4.4

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KEY:

- Licence Boundary
- Inferred Zone Boundary
- Existing Extent of Waste
- Remediated Extent of Waste
- Retained Concrete Hardstanding
- Multi-layer Capping System (slope gradient 1:3 to 1:2.5 max)
- Multi-layer Capping System (slope gradient <1:3)
- Low Permeability Capping System
- Low Permeability Soil Cover System
- Area of Waste to be Excavated and Replaced with Clean Fill
- 90 Proposed Top of Remediation Contours metres OD (Malin Head)
- 84 Pond Formation Contours metres OD (Malin Head)

NOTES:

1. For section details see Drawing No. 32EW5604-00-024 (Figure 4.6) and Drawing No. 32EW5604-00-025 (Figure 4.7).
2. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.
3. All levels to metres OD (Malin Head).
4. Remediation contours are based on estimated volume of waste to be excavated at the site, to create safe slopes and to satisfy EPA requirements for a post-settlement profile.

0 50 100 150 200 m

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0	2/10/2016	EIS SUBMISSION	AR	JB	CD	RR

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.4 REMEDIATION CONTOURS FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

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Drawing number: 32EW5604-00-022 Rev 2

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32EW5604-00-023-2



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FIGURE 4.5

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KEY:

- Licence Boundary
- Inferred Zone Boundary
- Remediated Waste Extents
- 90 Post Settlement Contours metres OD (Malin Head)
- 84 Pond Formation Contours metres OD (Malin Head)
- Retained Concrete Hardstanding

NOTES:

1. For section details see Drawing 32EW5604-00-024 (Figure 4.6) and Drawing 32EW5604-00-025 (Figure 4.7).
2. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.
3. Post-Settlement Contours have been estimated using a Jacobs numerical, predictive waste settlement model. Refer to the Waste Settlement Assessment Technical Note (Document No. 32EW5604/DOC/0035) for further information.

0 50 100 150 200 m

SCALE 1 : 2000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
1	30/06/2017	EIAR SUBMISSION	KMA	CD	CD	RR
0	17/1/2016	EIS SUBMISSION	AR	JB	CD	RR

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.5
POST SETTLEMENT CONTOURS
FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

Scale	1:2000 @A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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Client no.	6286	

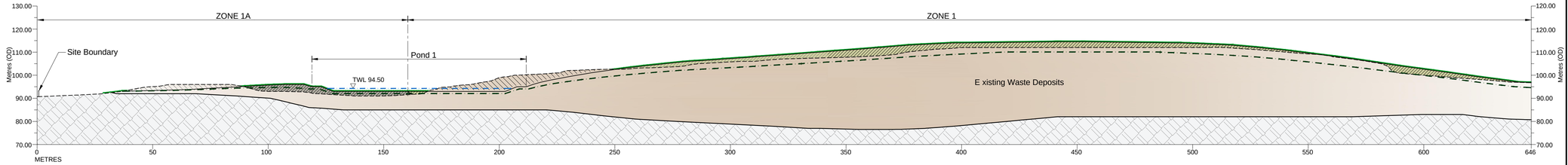
Drawing number: 32EW5604-00-023
Rev: 2

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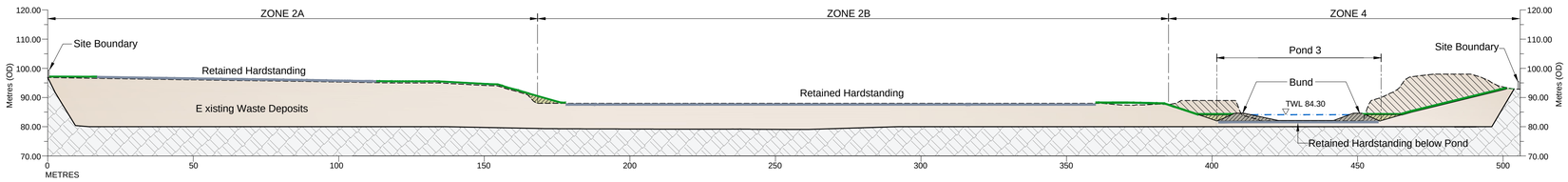
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32EW5604-00-024-2

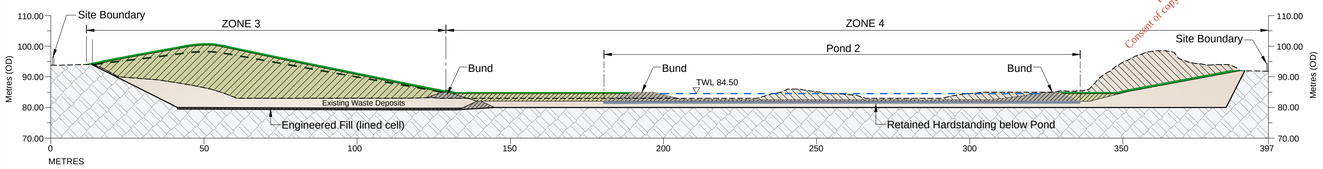


SECTION A-A'

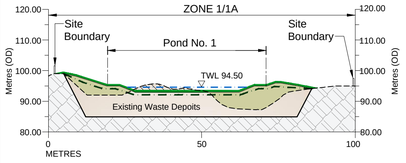


SECTION B-B'

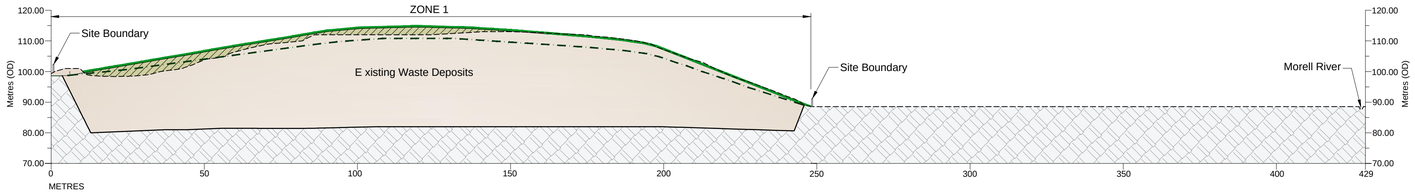
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SECTION C-C'



SECTION D-D'



SECTION E-E'

FIGURE 4.6

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KEY:

- Existing Ground Profile
- Base of Waste Profile
- Remediation Capping Profile
- Retained Hardstanding Restoration Profile
- Post Settlement Surface Profile
- Pond Top Water Level
- Existing Waste Deposits
- Areas of Cut (Waste)
- Areas of Fill
- Areas of Fill (Engineered)
- Natural Strata

NOTE:

1. For location of sections see Drawing No's. 32EW5604-00-001 (Figure 4.1), 32EW5604-00-022 (Figure 4.4) and 32EW5604-00-023 (Figure 4.5).
2. Levels to metres OD (Malin Head).

0 50 100
SCALE 1 : 1000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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0	21/11/2016	EIS SUBMISSION	AR	JB	CD	RR

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Drawing title: FIGURE 4.6
CROSS SECTIONS
FOR THE PROPOSED PROJECT
(SHEET 1 OF 2)

Drawing status: EIAR SUBMISSION

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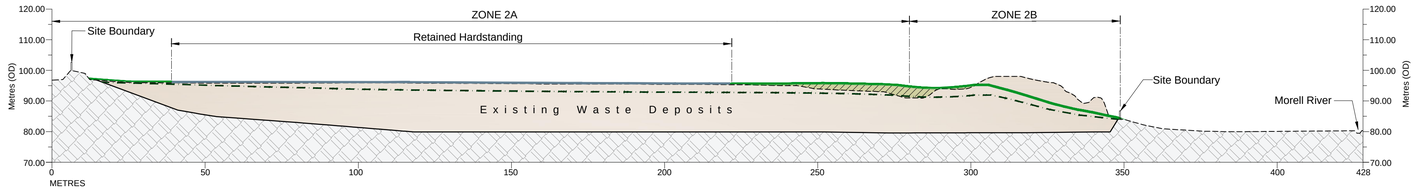
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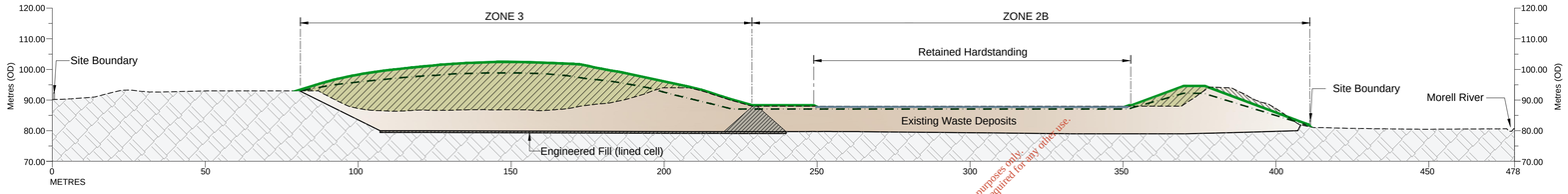
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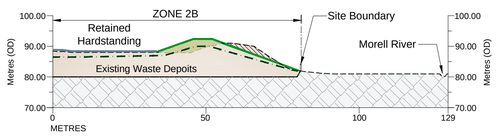


SECTION F-F'

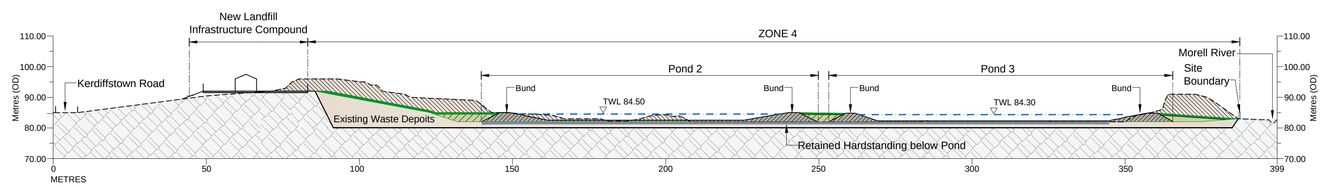


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SECTION H-H'



SECTION I-I'

FIGURE 4.7

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- Retained Hardstanding Restoration Profile
- Post Settlement Surface Profile
- Pond Top Water Level
- Existing Waste Deposits
- Areas of Cut (Waste)
- Areas of Fill
- Areas of Fill (Engineered)
- Natural Strata

1. For location of sections see Drawing No's. 32EW5604-00-001 (Figure 4.1), 32EW5604-00-022 (Figure 4.4) and 32EW5604-00-023 (Figure 4.5).
2. All Levels to metres OD (Malin Head).

0 50 100m

SCALE 1 : 1000

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Drawing title: FIGURE 4.7 CROSS SECTIONS FOR THE PROPOSED PROJECT (SHEET 2 OF 2)

Drawing status: EIAR SUBMISSION

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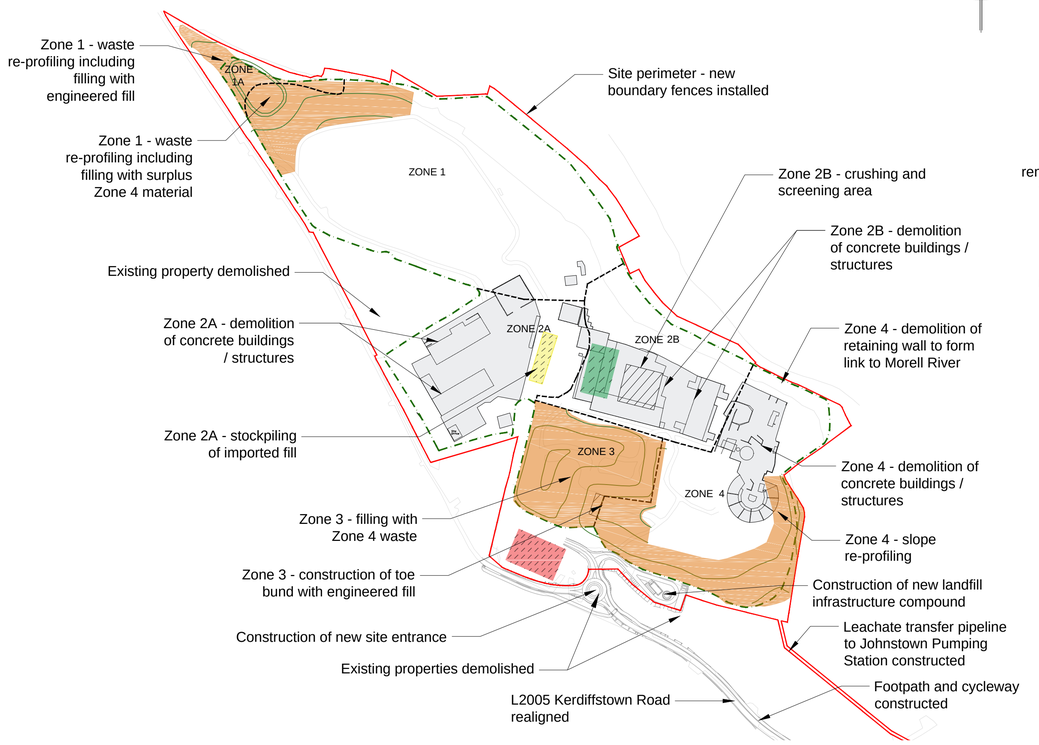
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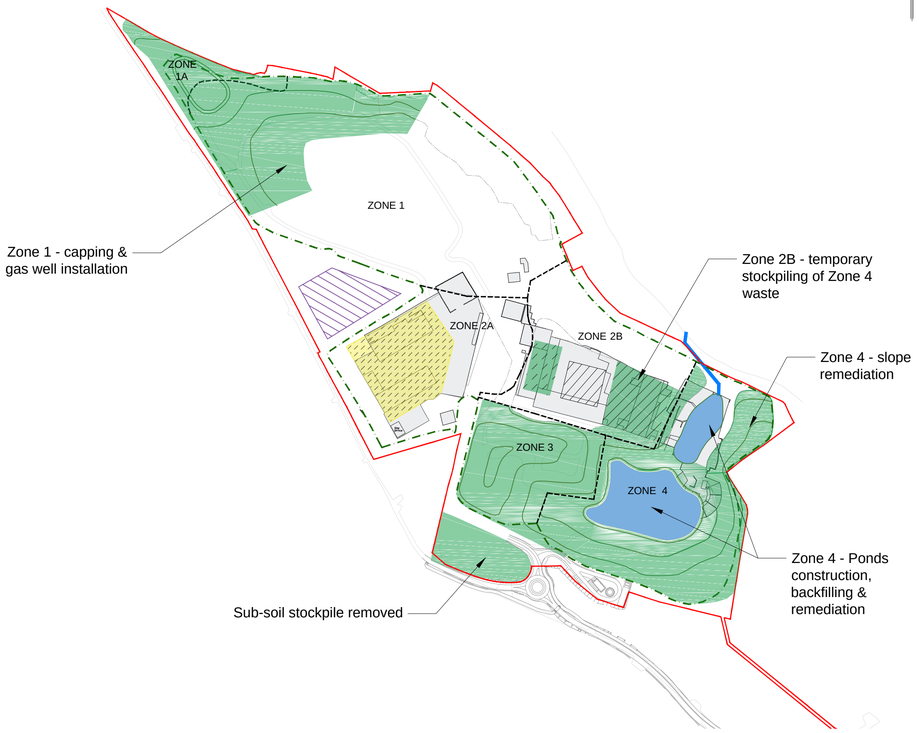
PHASE 1



PHASE 2



PHASE 3



PHASE 4



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FIGURE 4.8

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KEY:

- Licence Boundary
- Inferred Zone Boundary
- Remediated Waste Extents
- Re-profiled Waste
- Completed Remediation
- Pond
- Retained Concrete Hardstanding
- Site Won Subsoil Stockpile
- Imported Fill Stockpiles
- Processed Concrete Stockpiles
- Crushing and Screening Area
- Clean Fill Stockpiles
- Indicative Remediation Contours

NOTES:

1. Outline phasing and time periods subject to detailed design and procurement.
2. For existing site contours see Drawing No. 32EW5604-00-001 (FIGURE 4.1).
3. For re-profiled site contours see Drawing No. 32EW5604-00-020 (FIGURE 4.2).
4. For final remediation contours see Drawing No. 32EW5604-00-022 (FIGURE 4.4).
5. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
1	30/06/2017	EIAR SUBMISSION	KMA	CD	CD	RR
0	7/12/2016	DRAFT EIS SUBMISSION	DM	JB	CD	RR

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Drawing title: FIGURE 4.8
OUTLINE REMEDIATION PHASING
(SHEET 1 OF 2)

Drawing status: EIAR SUBMISSION

Scale	NTS @A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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PHASE 5



PHASE 6



PHASE 7



PHASE 8



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FIGURE 4.9

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KEY:

- Licence Boundary
- Park Boundary
- Remediated Waste Extents
- Inferred Zone Boundary
- Re-profiled Waste
- Completed Remediation
- Pond
- Retained Concrete Hardstanding
- Site Won Subsoil Stockpile
- Imported Fill Stockpiles
- Processed Concrete Stockpiles
- Crushing and Screening Area
- Clean Fill Stockpiles
- Indicative Remediation Contours
- Informal Access Path
- Maintenance Access Track

NOTES:

1. Outline phasing and time periods subject to detailed design and procurement.
2. For existing site contours see Drawing No. 32EW5604-00-001 (FIGURE 4.1).
3. For re-profiled site contours see Drawing No. 32EW5604-00-020 (FIGURE 4.2).
4. For final remediation contours see Drawing No. 32EW5604-00-022 (FIGURE 4.4).
5. For detailed planting schedule see Drawing No. 32EW5604-00-047 (FIGURE 4.20)
6. For detailed description of Zones refer to Chapters 3 and 12 of the EIAR.

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2	08/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
1	30/06/2017	EIAR SUBMISSION	KMA	CD	CD	RR
0	7/12/2016	DRAFT EIS SUBMISSION	DM	JB	CD	RR

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Drawing title: FIGURE 4.9 OUTLINE REMEDIATION PHASING (SHEET 2 OF 2)

Drawing status: EIAR SUBMISSION

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Drawing number: 32EW5604-00-028 Rev: 2

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32EW5604-00-029-3

FIGURE 4.10

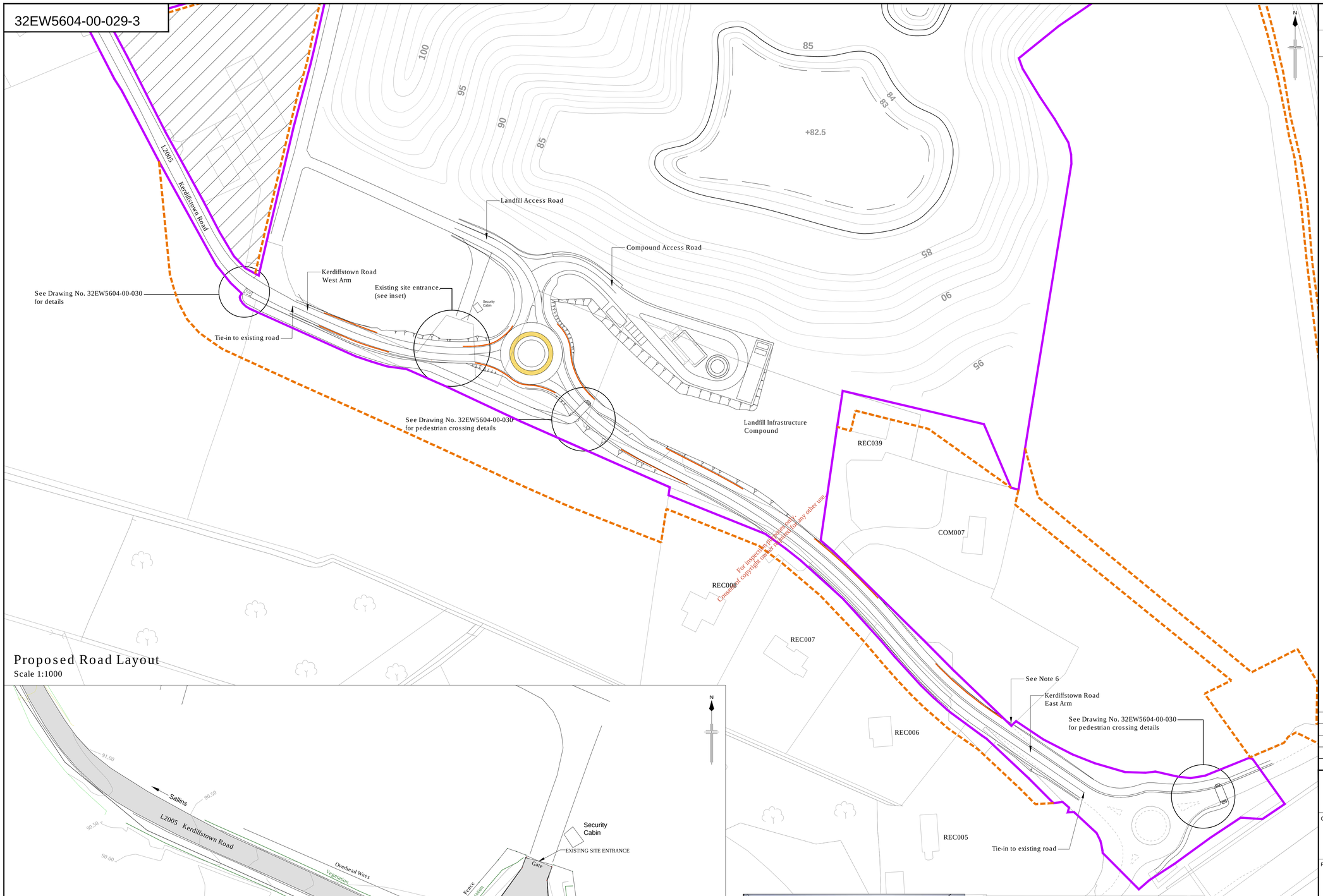
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KEY:

- Proposed Permanent CPO Boundary
- Proposed Temporary CPO Boundary
- Area Excluded from CPO
- REC006 Residential Receptor
- COM007 Commercial Receptor
- Indicative Extents of Street Lighting for New Roundabout
- Over Run Area

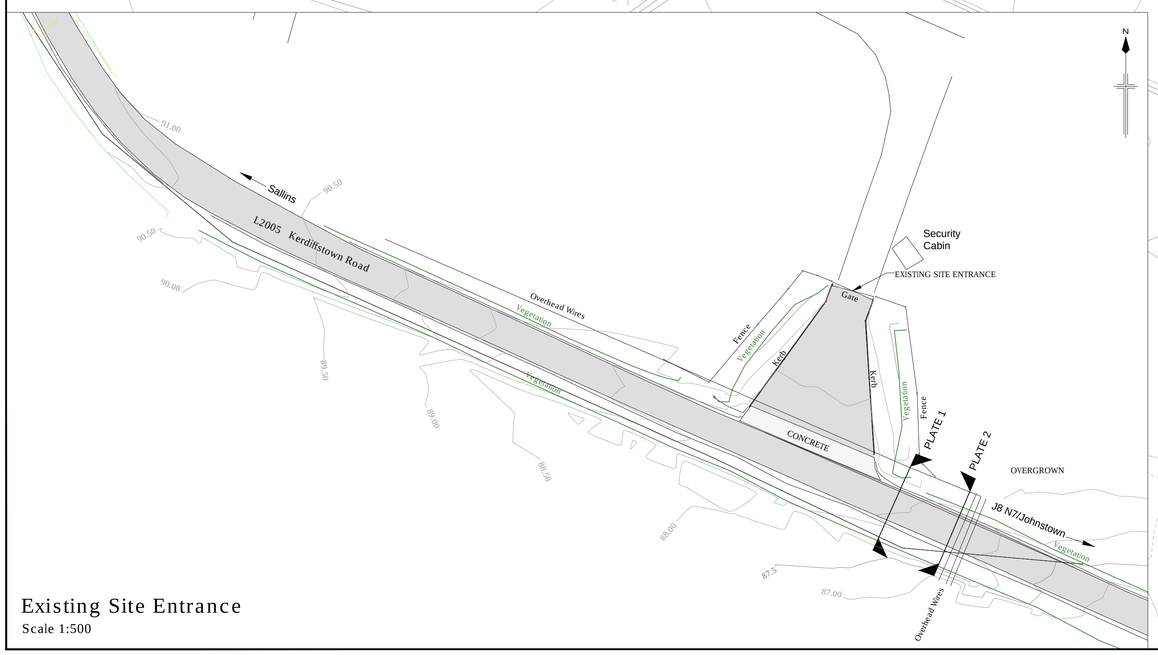
NOTES:

1. To be read in conjuction with Drawings No's 32EW5604-00-030 (Figure 4.11) and 32EW5604-00-031 (Figure 4.12).
2. All levels to metres OD (Malin Head).
3. For details of commercial and residential receptors, refer to Chapter 3 of the EIAR.
4. The design of the roundabout is in accordance with the National Roads Authority Design Manual for Roads and Bridges (NRA DMRB) (volume 6 , Section 2, Part 3, TD 16/07 - Geometric Design of Roundabouts.
5. All other roads have been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS).
6. Restriction on path/cycleway width refer to Drawing No. 32EW5604-00-030 (Figure 4.11).



Proposed Road Layout

Scale 1:1000



Existing Site Entrance

Scale 1:500



PLATE 1: Looking East



PLATE 2: Looking West

0 10 20 30 40 50 m

SCALE 1 : 500

0 10 20 30 40 50 60 70 80 90 100 m

SCALE 1 : 1000

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3	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
2	30/06/2017	EIAR SUBMISSION	KMA	CD	CD	RR
1	03/05/2017	PATH EXTENDED. CPO BOUNDARY UPDATE.	AR	DM	CD	RR
0	16/03/2017	DRAFT EIAR SUBMISSION	AR	DM	CD	RR

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Drawing title: FIGURE 4.10 NEW SITE ACCESS PROPOSED ROAD LAYOUT

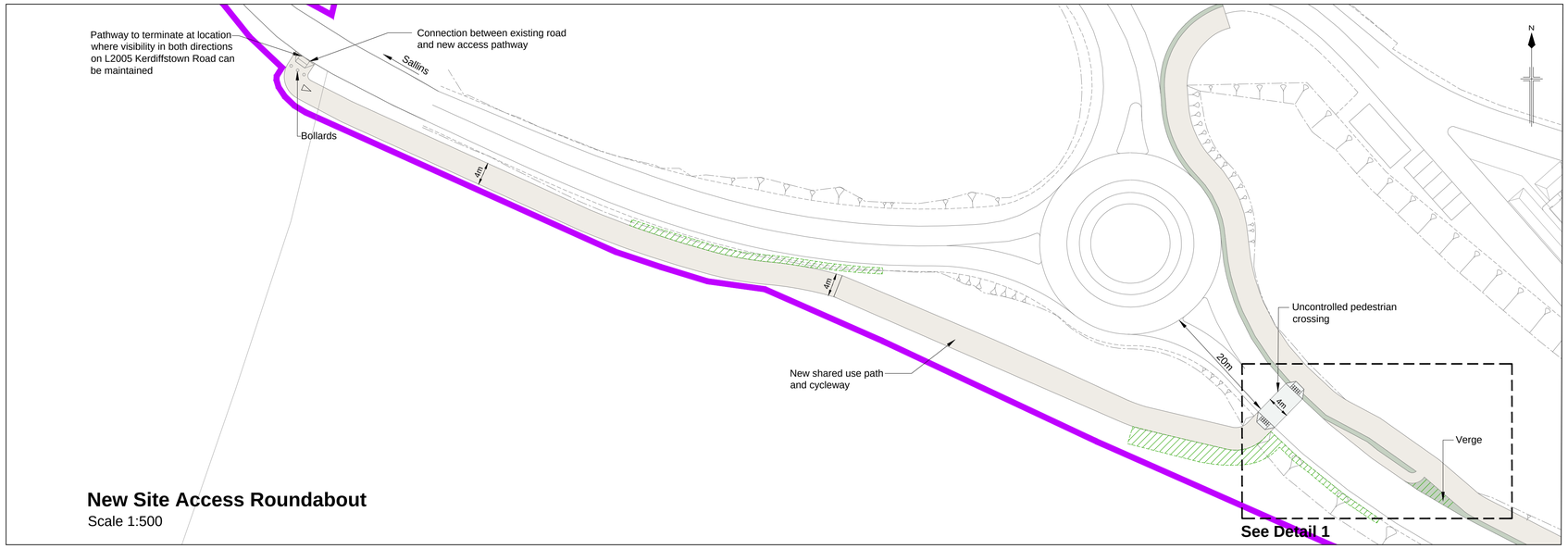
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Client no.	6286	
Drawing number	32EW5604-00-029	Rev 3

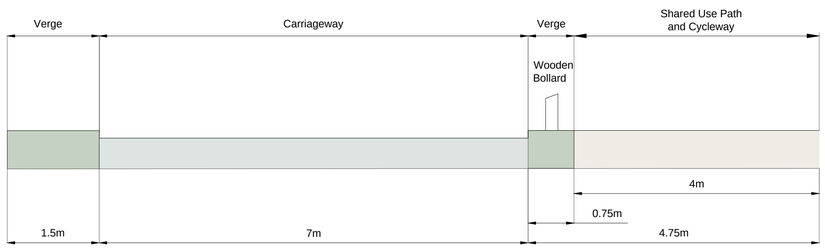
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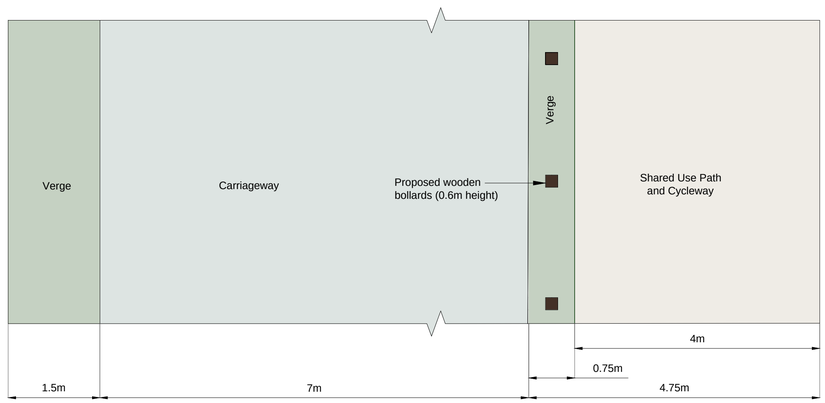
32EW5604-00-030-3



New Site Access Roundabout
Scale 1:500



Indicative Conceptual Section
Scale 1:50



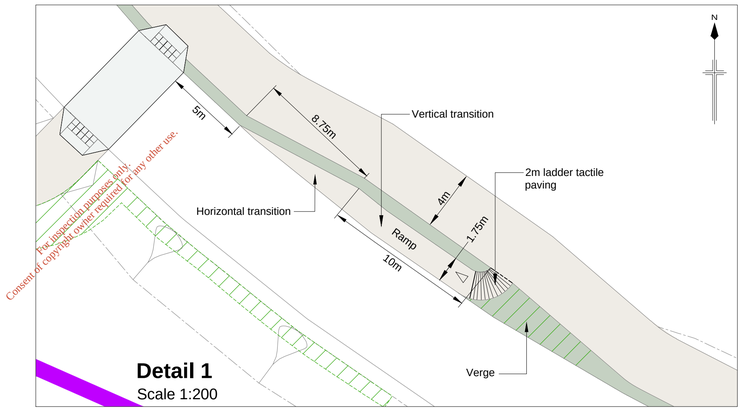
Typical Plan View
Scale 1:50



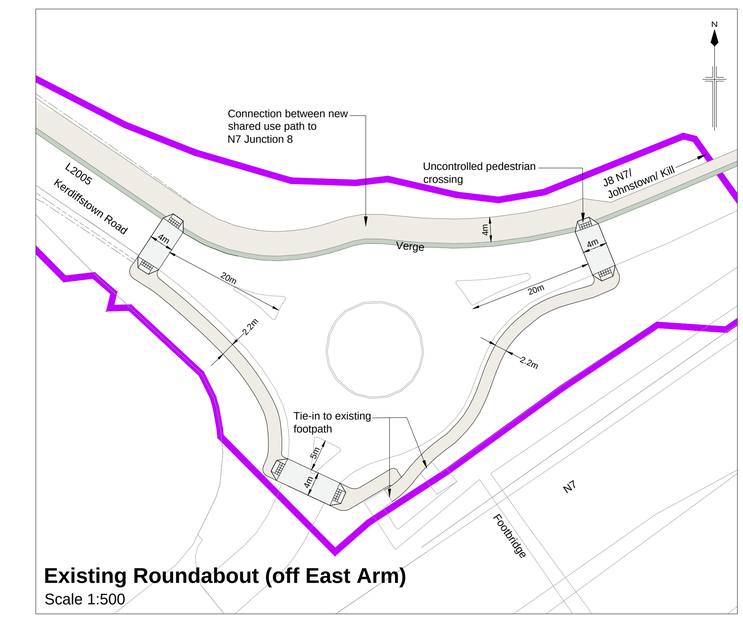
Example of Verge and Wooden Bollards



Example of Uncontrolled Crossing at Naas



Detail 1
Scale 1:200



Existing Roundabout (off East Arm)
Scale 1:500

FIGURE 4.11

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KEY:

- Proposed Permanent CPO Boundary
- New Verge Provision
- New Footpath/Cycleway (Shared Use)
- New Uncontrolled Crossing
- Extent of Existing Road Used for Future Footpath/Cycleway
- Indicative Extents of Low Level screening on verge (0.6m height)

NOTES:

1. Uncontrolled crossing specification follows the NRA DMRB DN-GEO-03033: Geometric Design of Roundabouts (2009) and NRA Pedestrian Crossing Specification and Guidance (2011).
2. Pathway from existing footbridge to crossing at southern roundabout to be widened to 2.2m, matching the width of the existing footbridge.
3. 'Cyclists Dismount' signage to be placed at both ends of footbridge due to low bridge parapet height.
4. Extend new cycle/pedestrian facility to new uncontrolled crossing north of existing footbridge.
5. Cycle/pedestrian facility design per National Cycle Manual and Design Manual for Urban Roads and Streets - TBC.
6. Bollards to match the style and placement observed on other nearby cycle/pedestrian routes, including the frontage roads parallel to the N7 to the east of Junction 8.
7. Lighting and drainage requirements to be developed through detailed design.
8. Cycleway and path width (shared use) to be 4m. At location of restricted width this is reduced to 3.8m (over approximate 1m length).
9. Earthworks shown as indicative. To be confirmed in detailed design.
10. Extents of existing carriageway to be utilised for provision of shared use path and cycleway as far as practicable with surface condition adjusted as necessary.
11. Design incorporates mitigation proposed in the Stage 1 Road Safety Audit.

0 10 20 30 40 50 m
SCALE 1 : 500
0 5 10 15 20 m
SCALE 1 : 200
0 1 2 3 4 5 m
SCALE 1 : 50

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3	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
2	30/06/2017	EIAR SUBMISSION	KMA	CD	CD	RR
1	22/06/2017	UPDATE FOLLOWING STAGE 1 SAFETY AUDIT	AR	DM	CD	RR
0	16/03/2017	DRAFT EIS SUBMISSION	AR	DM	CD	RR

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Drawing title: FIGURE 4.11 NEW SITE ACCESS PROPOSED PEDESTRIAN ACCESS AND CYCLEWAY FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

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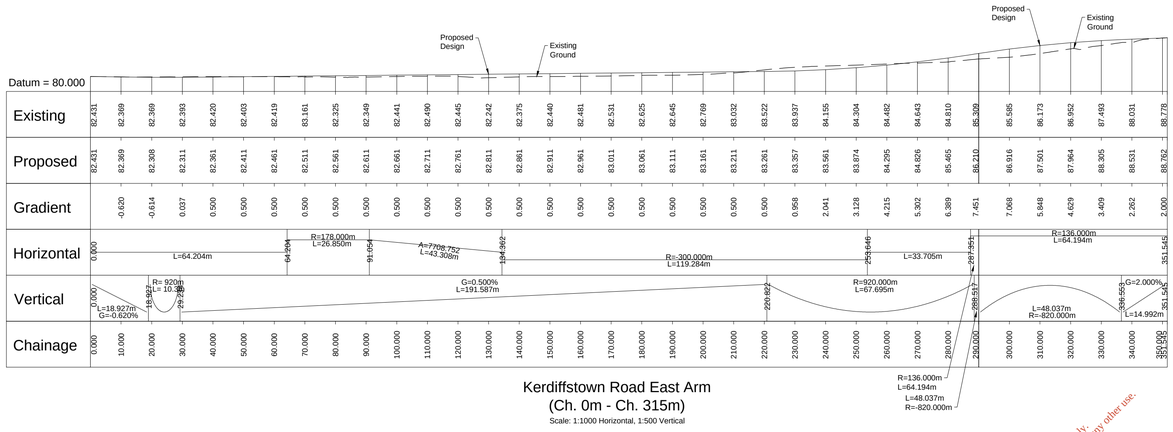
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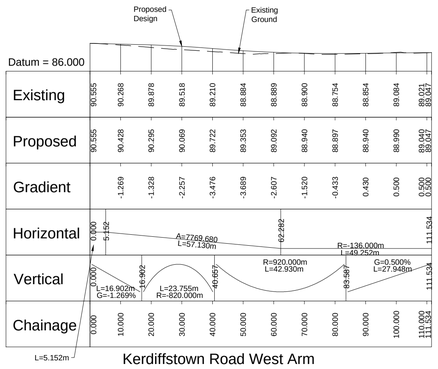
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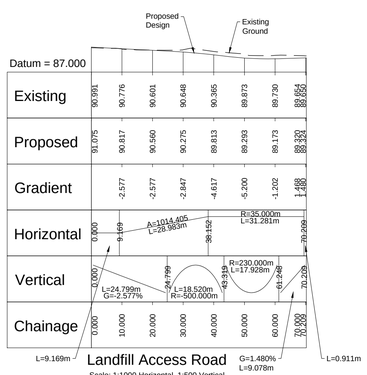
32EW5604-00-031-2



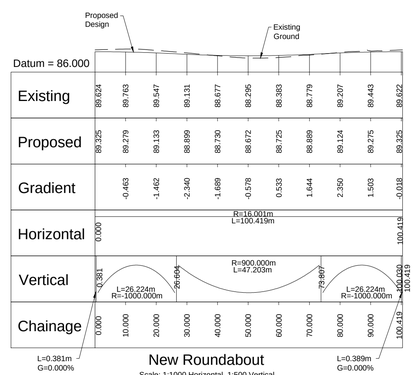
Kerdiffstown Road East Arm
(Ch. 0m - Ch. 315m)
Scale: 1:1000 Horizontal, 1:500 Vertical



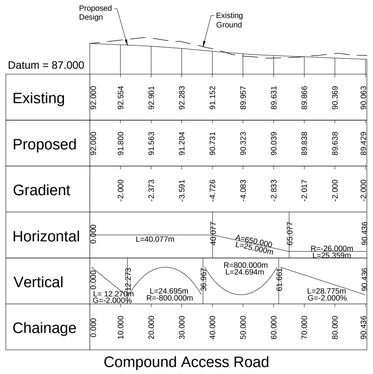
Kerdiffstown Road West Arm
Scale: 1:1000 Horizontal, 1:500 Vertical



Landfill Access Road
Scale: 1:1000 Horizontal, 1:500 Vertical



New Roundabout
Scale: 1:1000 Horizontal, 1:500 Vertical



Compound Access Road
Scale: 1:1000 Horizontal, 1:500 Vertical

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FIGURE 4.12

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KEY:

Proposed Profile

Existing Ground Profile

NOTES:

1. All levels to metres OD (Malin Head)
2. For layout of roads refer to Drawing No. 32EW5604-00-029 (Figure 4.10).

0 50 100m
Scale 1:1000

0 10 20 30 40 50m
Scale 1:500

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2	08/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Project
KERDIFFSTOWN LANDFILL
REMEDIATION PROJECT

Drawing title
FIGURE 4.12
SITE ACCESS FOR THE
PROPOSED PROJECT

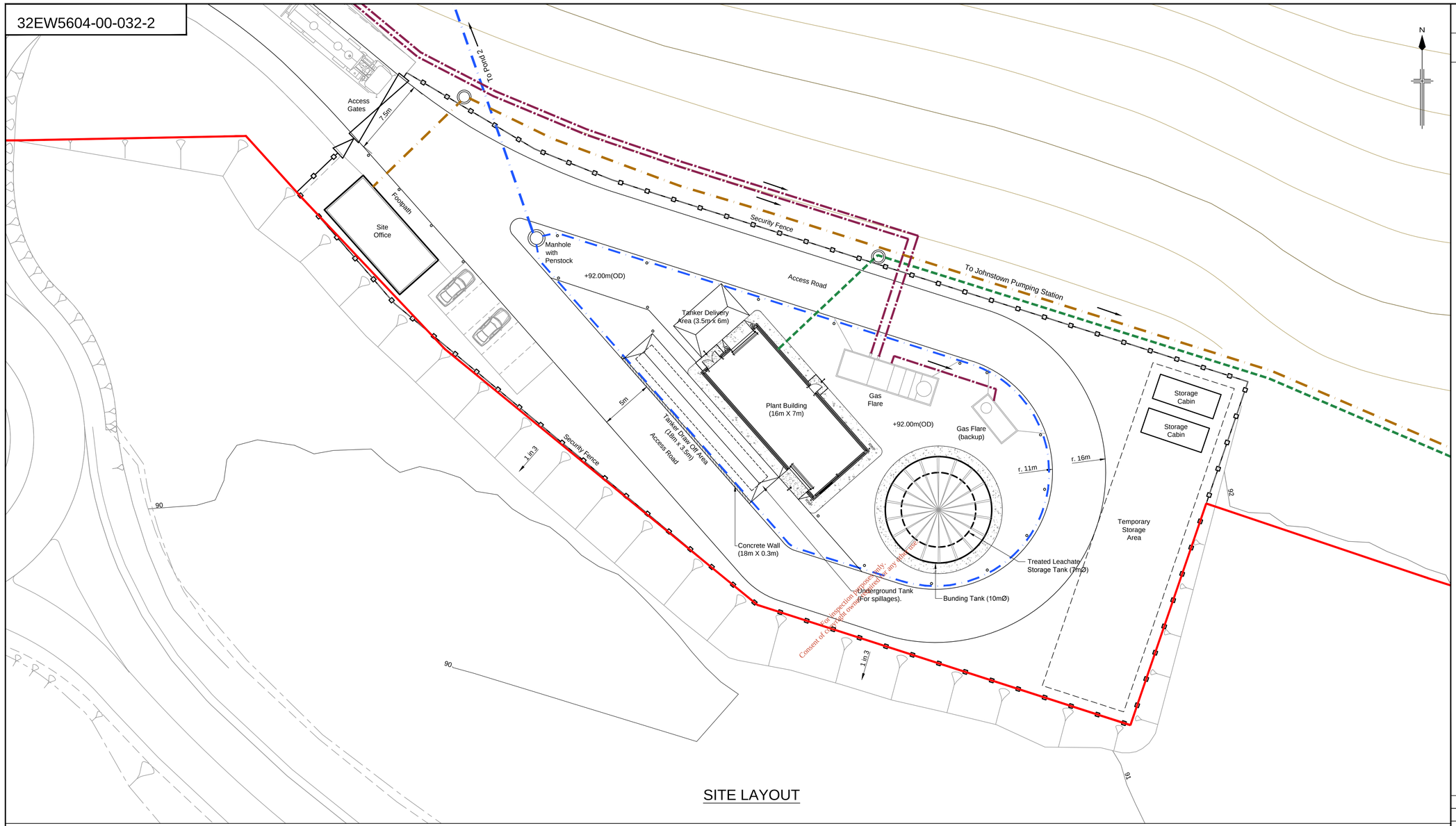
Drawing status
EIAR SUBMISSION

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Jacobs No.	32EW5604
Client no.	6286
Drawing number	32EW5604-00-031
Rev	2

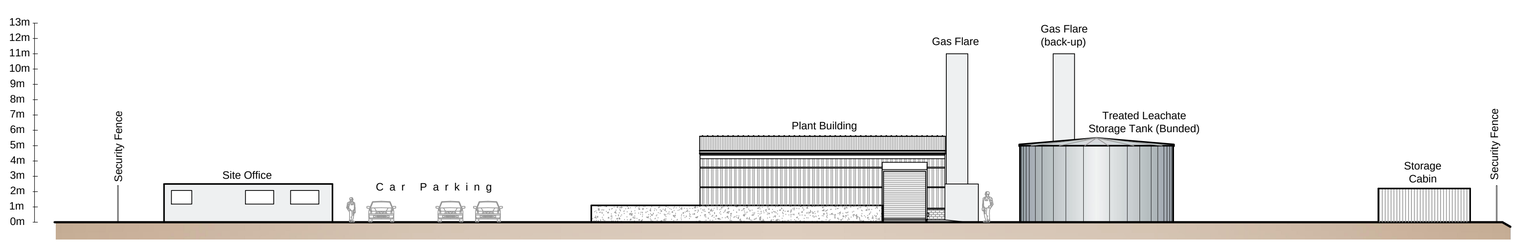
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SITE LAYOUT



ELEVATION

FIGURE 4.13

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KEY:

- Licence Boundary
- Surface Water Drainage
- Treated Leachate Transfer Pipe
- Foul Water Pipeline
- Landfill Gas Carrier Main

NOTES:

1. All levels to metres OD (Malin Head).
2. All dimensions to millimetres unless otherwise stated.
3. For details of plant building and leachate storage tank refer to Drawing 32EW5604-00-033 (Figure 4.14), for details of site office refer to Drawing 32EW5604-00-034 (Figure 4.15).
4. For details of Leachate Management Infrastructure refer to Leachate Management Plan.
5. For details of Landfill Gas Flares refer to Landfill Gas Management Plan.

0 5 10 15 20 m

SCALE 1 : 200

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.13
LANDFILL INFRASTRUCTURE COMPOUND FOR THE PROPOSED PROJECT
LAYOUT AND ELEVATION

Drawing status: EIAR SUBMISSION

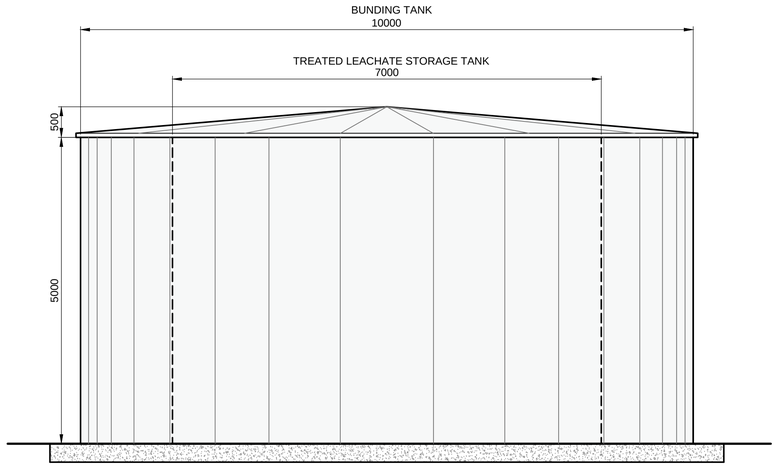
	1:200_@ A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
Jacobs No.	32EW5604	
Client no.	6286	

Drawing number: 32EW5604-00-032
Rev: 2

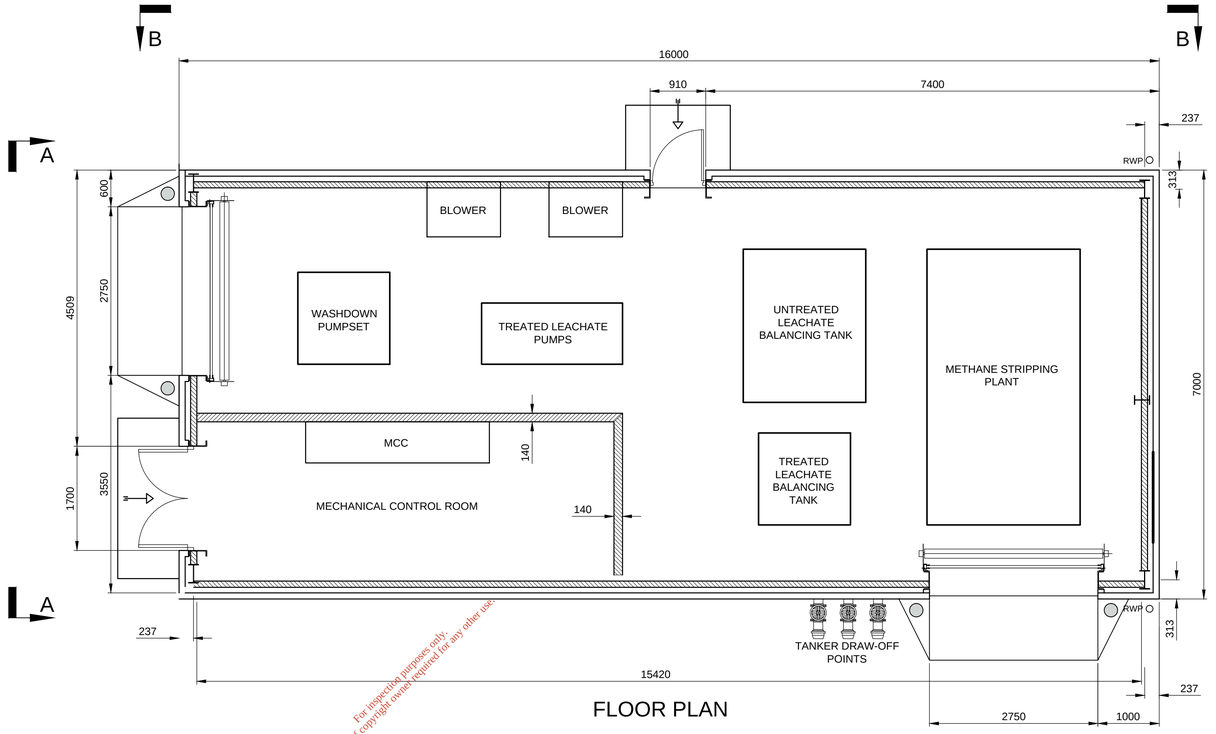
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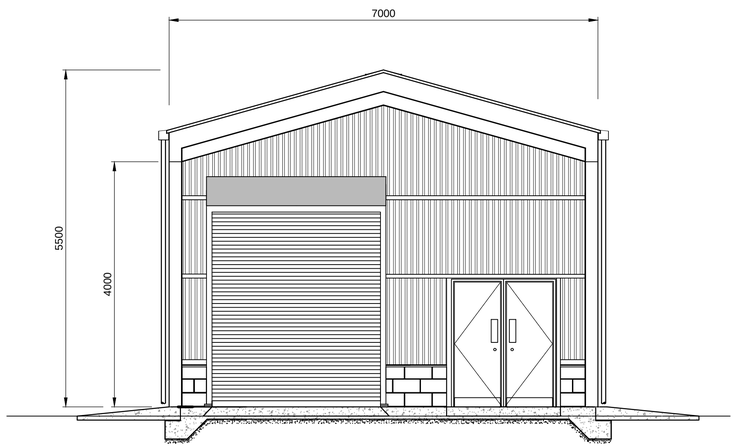


ELEVATION
TREATED LEACHATE STORAGE TANK

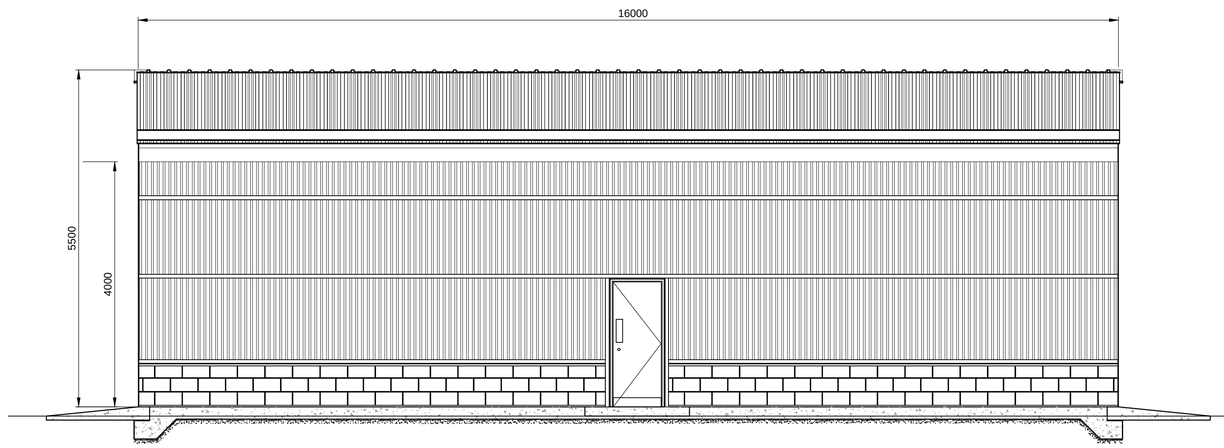


FLOOR PLAN

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ELEVATION A-A



ELEVATION B-B

FIGURE 4.14

NOTES:

1. All dimensions in millimetres unless otherwise stated.
2. Layout of internal infrastructure is indicative only.

0 1000 2000 3000 4000 5000 mm
SCALE 1 : 50

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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REMEDIATION PROJECT

Drawing title
FIGURE 4.14
LEACHATE MANAGEMENT BUILDING
LAYOUT AND ELEVATIONS

Drawing status
EIAR SUBMISSION

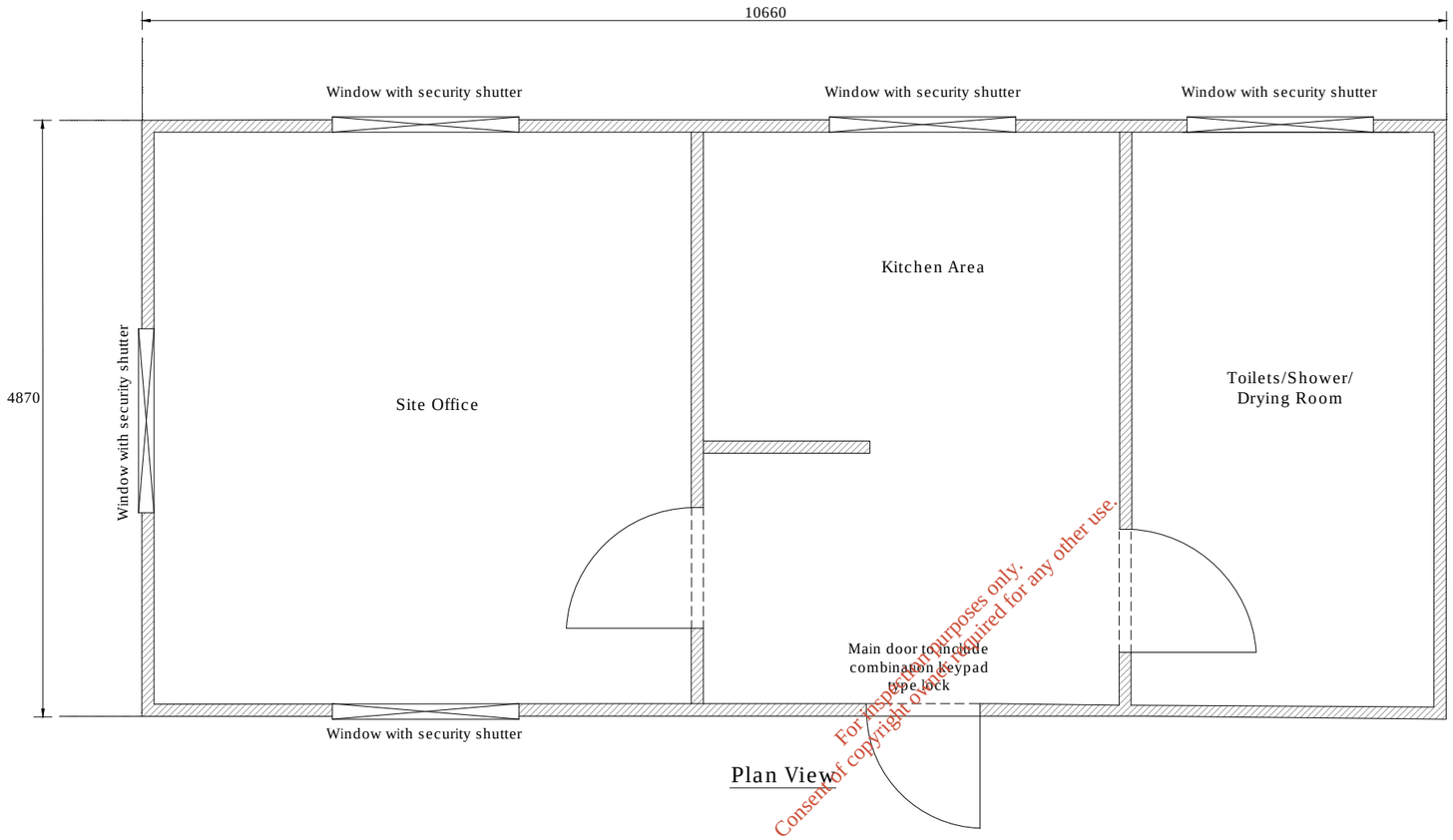
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Drawing number
32EW5604-00-033
Rev
2

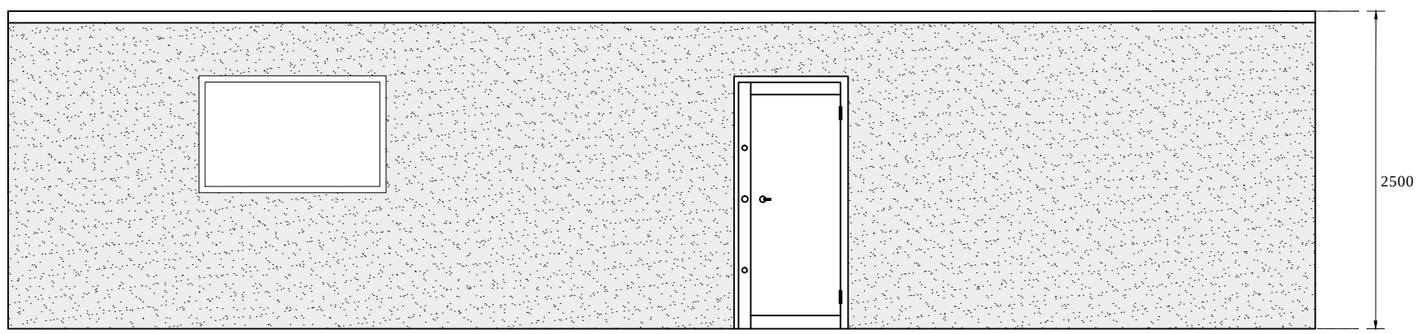
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32EW5604-00-034-2



Plan View



Elevation

0 1000 2000 3000 4000 5000 mm

SCALE 1 : 50

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FIGURE 4.15

NOTE:

1. All dimensions in millimetres unless stated otherwise.
2. Layout shown is indicative and will be confirmed during detailed design.

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Drawing title
FIGURE 4.15
SITE OFFICE BUILDING LAYOUT
AND ELEVATION

Drawing status
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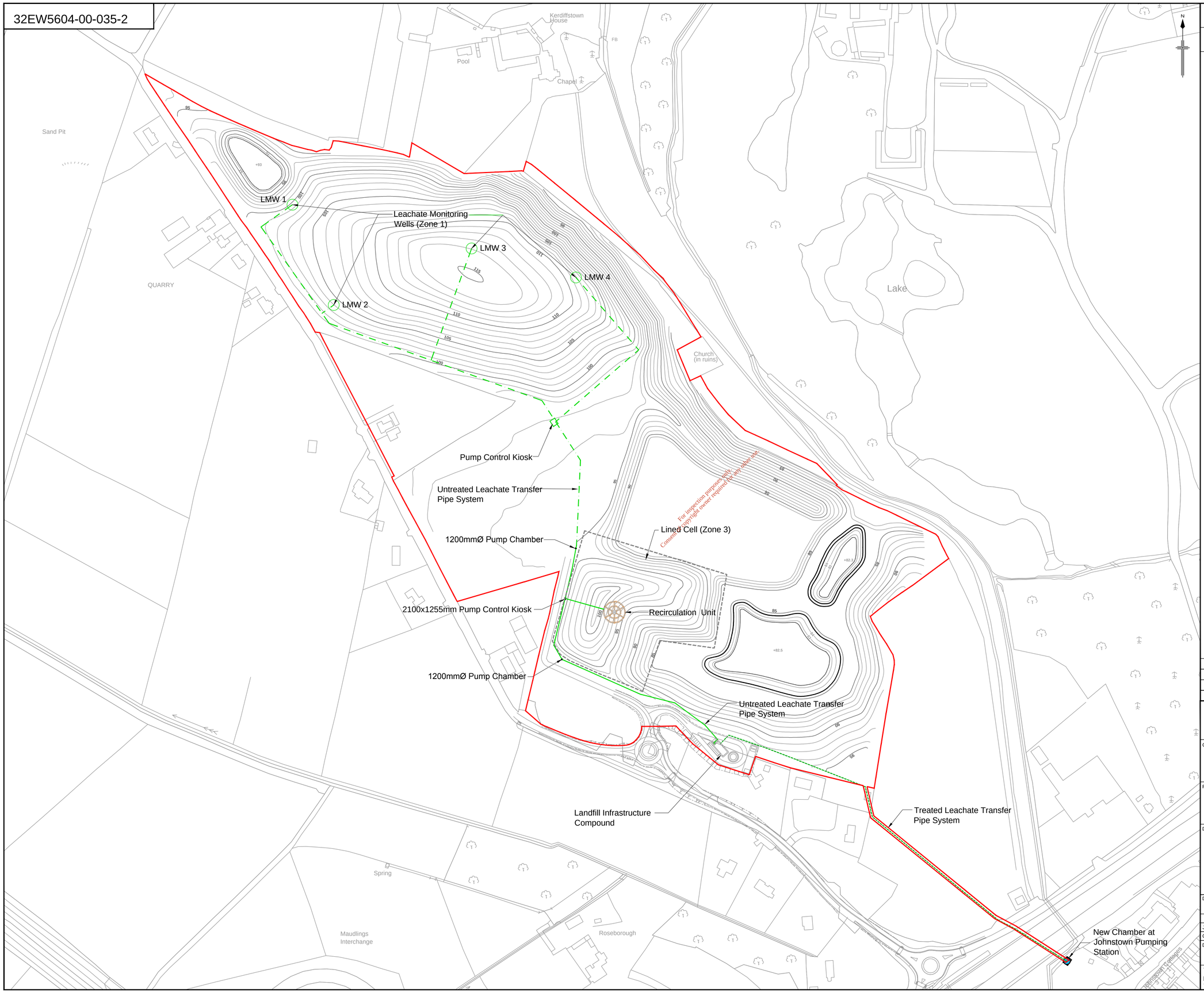


FIGURE 4.16

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KEY;

- Licence Boundary
- Untreated Leachate Transfer Pipe System
- Treated Leachate Transfer Pipe System
- Untreated Leachate Transfer Pipe System (Zone 1)
- Emission to Sewer
- LMW Leachate Monitoring Well.

NOTES:

1. For details of The Leachate Management System refer to Drawing No.32EW5604-00-037. (In Leachate Management Plan).
2. Pumping from Zone 1 initiated when monitoring confirms presence of leachate.
3. Leachate Monitoring Wells to be adapted from existing boreholes: BH61, BH63, BH64 and BH38.

0 50 100 150 200 m

SCALE 1 : 2000

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.16 OUTLINE LEACHATE MANAGEMENT PLAN FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

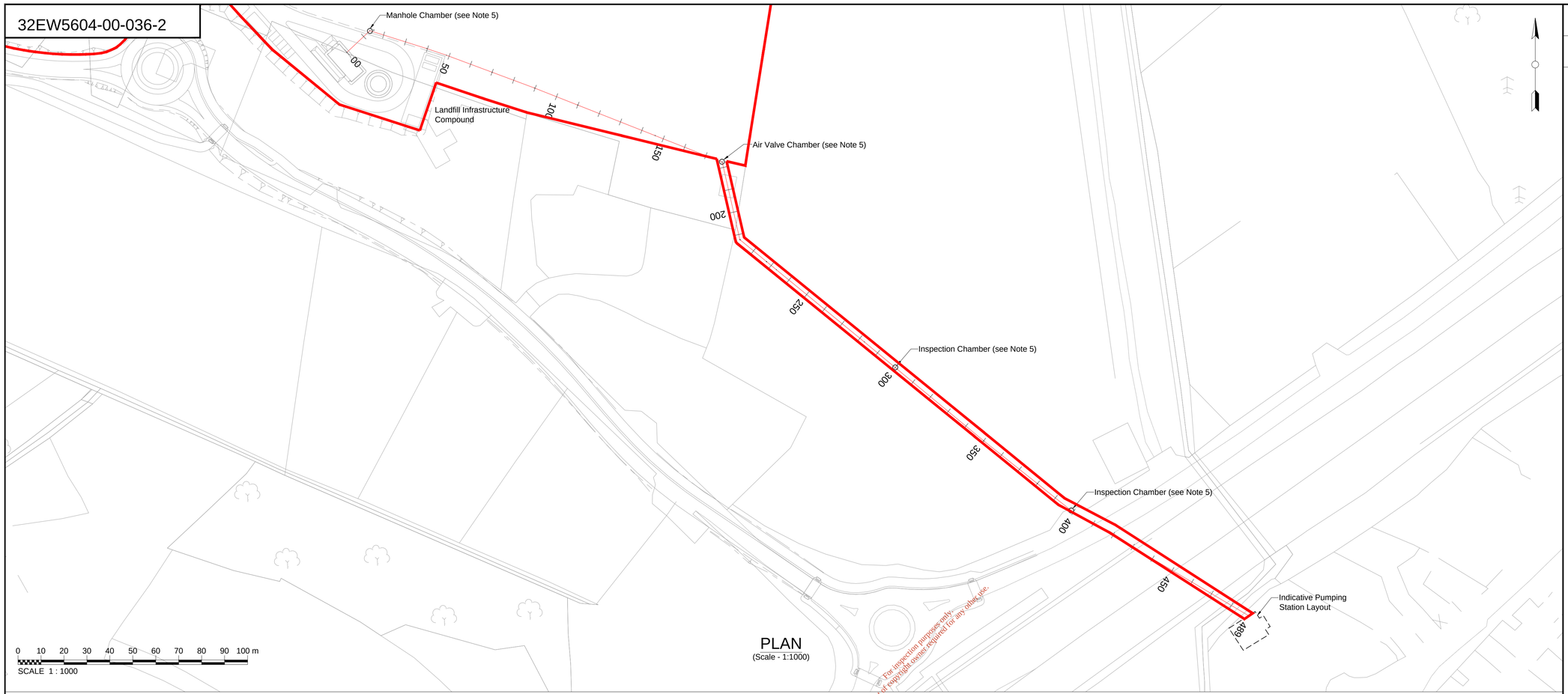
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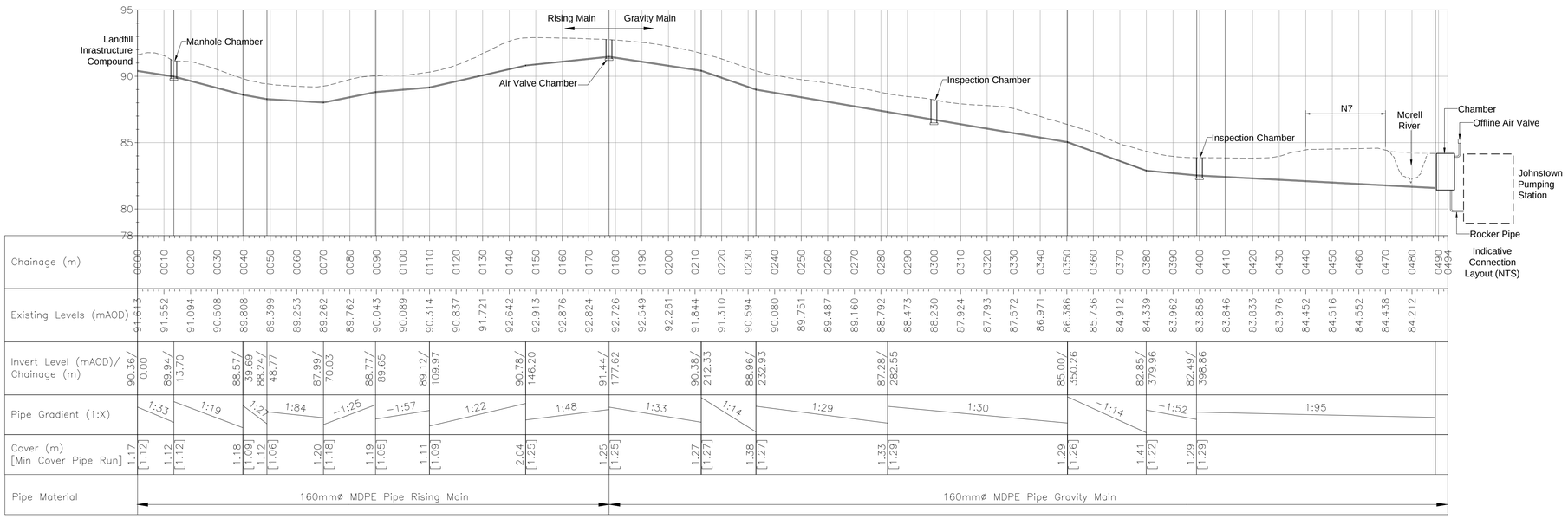
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PLAN
(Scale - 1:1000)

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LONG SECTION
(Scale - 1:1000 H; 1:200 V)

FIGURE 4.17

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KEY:

- Licence Boundary
- Existing Ground Profile
- Indicative Level of Leachate Pipeline
- Indicative Chamber Location

NOTES:

1. Ground profile based on topographical survey dated February 2016.
2. Final line and level of leachate pipe is subject to detailed design following arrangement for connection by Irish Water.
3. Levels of Johnstown pumping station taken from design drawings provided by KCC, dated November 2005.
4. All dimensions in metres unless stated otherwise.
5. Airtight seals to be provided to all pipework entries in all chambers.
6. Profile shown over N7 and Morell River is interpolated from DTM data and site observations

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.17
LEACHATE MANAGEMENT FOR THE PROPOSED PROJECT- PIPELINE ROUTE AND LONG SECTION

Drawing status: EIAR SUBMISSION

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FIGURE 4.18

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KEY:

- Licence Boundary
- Inferred Zone Boundary
- Remediated Waste Extents
- Active Extraction Well - Zones 1 and 3 (Detail 1)
- Perimeter Gas Monitoring Borehole (Detail 2)
- Perimeter Venting Trench
- Zone 1 Carrier Main
- Zone 3 Carrier Main
- 63mm Collection Pipework from Wells to Manifold
- Manifold
- Existing Perimeter Gas Monitoring Borehole
- In-Waste Gas Monitoring Borehole (Subject to Remediation/Development works)

NOTES:

1. For detailed description of Zones, refer to Chapters 3 and 12 of the EIAR
2. All levels to metres OD (Malin Head)

Zone	Description	Gas management
1	Principally MSW with high methane generation.	Vertical extraction wells, linked to active extraction and flaring.
1A	C&D wastes (hard core, plastic, wood), lower methane generation than Zone 1.	Due to proximity to Zone 1, some wells installed linked to the active extraction system.
2A	Mixed MSW and C&D with some isolated areas of high methane where wastes thickest.	Gas collection layer under low permeability capping, linked to perimeter vent trench. Vent trench installed with vents which can be converted to include vertical stacks and cowls if required. Vent trench can also be adapted to include bio-oxidation layer if required.
2B	C&D waste with some MSW (low methane)	As Zone 2A.
3	Lined cell principally MSW, and fire wastes with high methane generation.	Vertical extraction wells, linked to active extraction and flaring. Extraction lines independent to that of Zone 1 to provide gas field flexibility.
4	Above ground mounds and bunds (C&D or processed waste), majority of which are to be removed during remediation, anticipated limited gas generation.	Natural methane oxidation within capping expected to further limit any fugitive releases of gas, bringing emissions to acceptable levels.
5	Waste largely absent (to be confirmed by GI)	None proposed but to be confirmed following GI, and on-going monitoring.

Table for carrier main falls:

	Minimum pipework fall
Stable ground, fall and gas flow in same direction	1 in 100
Stable ground, fall and gas flow in opposite direction	1 in 50
Over fill, fall and gas flow in same direction	1 in 50
Over fill, fall and gas flow in opposite direction	1 in 25

Extraction wells (Detail 1), located at 40 to 60m spacings over Zone 1 and Zone 1A. Current assumption for 40m spacings towards sensitive receptors (houses etc), and 60m over the rest of the site. This will be assessed and revised as appropriate when phased gas pumping trials conducted during remediation and installation of wells. See Detail 1

Perimeter monitoring boreholes at 20m spacings towards Kerdiffstown House.

63mm MDPE SDR 17.6 pipework for connection of well to manifolds. Buried within the remediation layer and installed with falls to drain condensate to manifolds.

Perimeter monitoring boreholes at 20 spacings towards the sensitive receptors (houses and other structures), 50m spacings elsewhere on western flank. To be 20m from edge of waste so may be located on landfill side of road tbc.

63mm MDPE SDR 17.6 pipework for connection of well to manifolds. Buried within the cap and installed with falls to drain condensate to manifolds.

Manifolds - number and location to be determined during detailed design and may be influenced by pumping trial and the numbers of wells installed.

Condensate removal required at low points of carrier mains where condensate will pool. The condensate removal system will either be a gravity drain to the landfill mass or a pumped system. Pumped condensate pots will either return the condensate to the landfill (the landfill Zone from which the gas was extracted) or to the leachate extraction system for treatment and discharge.

Vent trench and gas collection layer (Detail 3). Assumed to offer suitable gas control for Zones 2A and 2B at this stage. Vent trench to include provision of horizontal pipework at 50m spacings which can be converted to venting cowls or active extraction if required

250mm MDPE PN10 pipework for carrier mains (subject to assessment during pumping trial). Buried or surface laid depending on location and public access. Laid on virgin ground where possible or with suitable falls: (refer to table in key)

Potential use of pin wells where steep slope prevents the use of full scale drilling rig.

Manifolds. Installed on waste at areas of high gradient, and within fenced compounds. Each well connection to manifold includes gas extraction control valve and gas sampling port. Manifold will include condensate removal (either pumped or drain to waste mass - to be confirmed on detailed design). Manifold housed in chambers which include surface water drain and ventilation provision. All to be assessed, zoned and provided signage for ATEX.

Vent trench and gas collection layer (Detail 3).

No perimeter boreholes required along south and south eastern flanks due to lack of sensitive receptors, and Morell River acting as gas barrier for migration

Zone 4 contains limited waste and gas generation is anticipated to be very low. Any waste deposits encountered by inspection will be removed in the remediation works to further reduce the risk from landfill gas. Remediation of Zone 4 will comprise placement of low permeable soils, allowing gas to migrate through the cover layer. The levels of methane generation from remaining wastes are anticipated to be sufficiently low for treatment through natural bio-oxidation in the cover system.

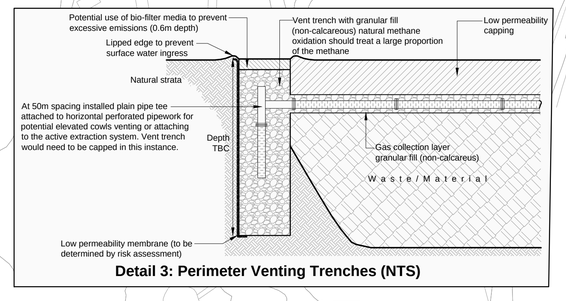
Landfill Infrastructure Compound

CSM Zone 1

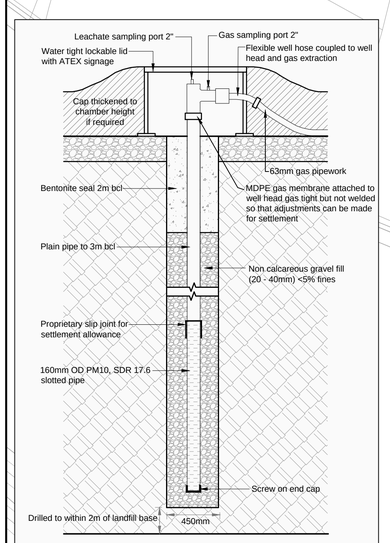
CSM Zones 2A/2B

CSM Zone 3

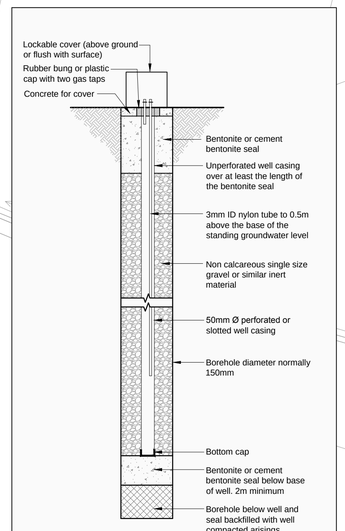
CSM Zone 4



Detail 3: Perimeter Venting Trenches (NTS)



Detail 1: Gas Collection Well (NTS)



Detail 2: Perimeter Monitoring Well (NTS)

0 50 100 150 200 m

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Drawing title: FIGURE 4.18 OUTLINE LANDFILL GAS MANAGEMENT PLAN FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

Scale	1:2000 @A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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FIGURE 4.19

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Discharge pipework to soakaway

Open channel ref. CH01
Top width=2.90m
Base width=0.50m
Depth=0.40m
Ditch bank slope 1 in 3

Proposed soakaway

1200mm internal diameter manhole with isolation penstock

Pond 1
Storage Volume=2452m3
Maximum water depth=1.00m+0.50m freeboard
Assumed TWL=94.5m OD (subject to confirmation upon final detailed design)

Flat laying infiltration swale along northern mound toe. Swale size is subject to confirmation following percolation tests on site to determine permissible infiltration rate.

Open channel ref. CH03
Top width=2.90m
Base width=0.50m
Depth=0.40m
Ditch bank slope 1 in 3

Open channel ref. CH07
Top width=3.45m
Base width=0.45m
Depth=0.50m
Ditch bank slope 1 in 3

Open channel ref. CH08
Top width=4.45m
Base width=0.55m
Depth=0.65m
Ditch bank slope 1 in 3

Open channel ref. CH09
Top width=3.50m
Base width=0.50m
Depth=0.50m
Ditch bank slope 1 in 3

Open channel ref. CH11
Top wicth=2.90m
Base width=0.50m
Depth=0.40m
Ditch bank slope 1 in 3

Outfall to Morell River
Bank level=80.80m OD
Pipe invert level=80.20m OD
(levels subject to confirmation)

225mm dia. discharge pipework to Morell River

Approximate extent of existing rock armour

Open channel ref. CH02
Top width=2.90m
Base width=0.50m
Depth=0.40m
Ditch bank slope 1 in 3

Open channel ref. CH04
Top width=3.03m
Base width=0.40m
Depth=0.43m
Ditch bank slope 1 in 3

Open channel ref. CH19
Top width=1.6m
Base width=0.40m
Depth=0.25m
Ditch bank slope 1 in 3

Open channel ref. CH20
Top width=2.25m
Base width=0.45m
Depth=0.3m
Ditch bank slope 1 in 3

Open channel ref. CH05
Top width=3.20m
Base width=0.50m
Depth=0.45m
Ditch bank slope 1 in 3

Road/car park drainage which includes:
- road gullies
- oil/silt interceptors
- underground pipework

Open channel ref. CH06
Top width=2.20m
Base width=0.45m
Depth=0.30m
Ditch bank slope 1 in 3

Open channel ref. CH10
Top width=3.20m
Base width=0.50m
Depth=0.46m
Ditch bank slope 1 in 3

Open channel ref. CH13
Top width=4.70m
Base width=0.50m
Depth=0.70m
Ditch bank slope 1 in 3

Open channels ref. CH14 & CH15,
Top width=2.30m
Base width=0.50m
Depth=0.30m
Ditch bank slope 1 in 3

Road drainage/car park drainage which includes:
- road gullies
- oil/silt interceptors
- underground pipework

Manhole with penstock to allow isolation of flows from gas and leachate infrastructure compound in the event of contamination

1200mm internal diameter manhole with isolation penstock

Auto sampling / monitoring point

Pond 3
Volume=2777m3
Overall water depth=1.60m+0.5m freeboard.
GL=84.80m OD
TWL=84.30m OD
BWL=82.70m OD
Pond invert level=82.30m OD

Open channel ref. CH17
Top width=2.60m
Base width=0.50m
Depth=0.35m
Ditch bank slope 1 in 3

Open channel ref. CH12
Top width=2.60m
Base width=0.50m
Depth=0.35m
Ditch bank slope 1 in 3

Culvert connecting two ponds (refer to note 5)

Pond 2
Volume=13235m3
Overall water depth=1.60m+0.5m freeboard.
GL=85.00m OD
TWL=84.50m OD
BWL=82.90m OD
Pond Invert Level=82.50m OD

Open channel ref. CH18
Top width=3.20m
Base width=0.50m
Depth=0.45m
Ditch bank slope 1 in 3

Kerdiffstown House
Pool
Chapel
FB
QUARRY
Palmerstown House Estate and Golf Course
Lake
Church (in ruins)
Kerdiffstown Road
Morell River
Canal Feeder Stream
Spring
Maudlings Interchange
Roseborough

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N

0 50 100 150 200 m
SCALE 1 : 2000

KEY:

- Licence boundary
- Approximate extent of existing rock armour
- Proposed storage pond
- Proposed ditch/open channel
- Proposed infiltration swale/trench
- Proposed underground pipework
- Proposed manhole / chamber
- Proposed outfall
- Direction of flows
- Proposed soakaway
- Surface water emission point
- Ground emission point
- Existing Copse (mature trees)
- GL — Ground Level
- TWL — Top Water Level
- BWL — Bottom Water Level

NOTES:

1. All levels are to metres OD (Malin Head) unless stated otherwise.
2. All dimensions are in millimetres unless stated otherwise.
3. This drawing should be read in conjunction with the Surface Water Management Plan.
4. The size and shape of the proposed soakaway is to be confirmed during detailed design phase.
5. The size and general arrangement of culvert between Pond 2 and Pond 3 is to be confirmed during detailed design phase.
6. For section details refer to Drawings 32EW5604-00-045 and 32EW5604-00-046. (In Surface Water Management Plan).
7. Drainage from upgraded road will tie into the existing road.

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 4.19
SURFACE WATER MANAGEMENT
FOR THE PROPOSED PROJECT
OUTLINE DRAINAGE LAYOUT

Drawing status: EIAR SUBMISSION

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32EW5604-00-047-2



Key Proposed Works:

A1 - Proposed new planted roundabout and entrance with double (security) gates.
A2 - Proposed overspill car park (100 spaces) with close access to informal footpaths/cyclepaths. To be constructed in unbound stone with Grasscrete or similar approved for parking bays.
A3 - Proposed car park (100 spaces). To be constructed in tarmac with Grasscrete or similar approved for parking bays.
A4 - Proposed multi-purpose sport area (130m x 80m), with synthetic or similar approved surface, 6 no x 18m high hinged lighting masts proposed for each pitch and 12m x 30m ballstop netting installed to one end of each pitch.
A5 - Proposed multi-use sports area (80m x 45m), with synthetic or similar approved surface with 6 no x 8m high hinged lighting masts proposed and 12m x 30m ballstop netting installed to Kerdiffstown Road end of area.
A6 - Proposed reedbed and wet grassland area.
A7 - Proposed viewing area with new trig point. Informal tracks to top of site along the lower slopes to be varying widths, 1.2m to 1.8m and constructed of unbound stone.
A8 - Proposed wildlife area 1, fenced off from public access, with topography limiting views. Opportunity for ecological enhancements.
A9 - Proposed north west entrance.
A10 - Proposed swale with boundary tree planting to integrate with the existing landscape approach to Kerdiffstown House.
A11 - Proposed changing rooms (4 No.), public toilet facilities and store room.
A12 - Proposed Children's Playground Area.
A13 - Proposed outlet to Morell River. Stone clad headwall to be constructed to minimise visual impact.
A14 - Proposed wildlife area 2, fenced off from public access. Opportunity for ecological enhancements.
A15 - Proposed 2 no. attenuation ponds with marginal aquatic planting, wet grassland and grouped trees providing wildlife habitat.
A16 - Proposed Landfill Infrastructure Compound with security fencing to perimeter and screening beyond.
A17 - Proposed extension of footpath, with separate cycleways, to connect park to footbridge over N7 to Johnstown and footpath heading east to underpass near Kill.
A18 - Retained trees including bat roost

FIGURE 4.20

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KEY:

- Park Boundary
- Informal Access Path (indicative)
- Cycleway/Footpath Access to Park
- Maintenance Access Track
- Post and Wire Fence or similar approved
- Palisade Fence
- Vehicular Access
- Car Park (See Note A2 and A3)
- Pedestrian Access Paths and Hardstanding
- Realigned Access Road to Kerdiffstown House
- Changing Rooms/Toilets Building
- Landfill Infrastructure Compound
- Electrical Substation
- Playground Area
- Sports Pitch (see Notes A4 and A5)
- LE1.1 Amenity Grassland Areas
- LE1.3 Species Rich Grassland
- LE1.6 Open Grassland
- LE6.4 Marsh and Wet Grassland
- LE2.6 Shrubs
- LE2.8 Scrub
- LE2.1 Woodland (to include Woodland Edge LE2.2)
- LE4.4 Native Hedgerow with Trees
- LE5.1 Individual Trees
- LE3.1 Amenity Tree and Shrub Planting
- LE6.1 Water Bodies and Associated Plants
- LE6.3 Reed Beds
- Out of Bounds - No Public Access

NOTES:

1. All levels to metres OD (Malin Head)
2. Final positioning of pathways subject to final design and assessment post-remediation
3. Park boundary to be secured with palisade fencing and security gates
4. Along extent of Kerdiffstown Road vegetation screening to be provided on outside of palisade fencing where practicable.
5. Details of internal fencing to extents of pitch areas to be developed during detailed design.

0 50 100 150 200 m

SCALE 1 : 2000

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Drawing title: FIGURE 4.20
LANDSCAPE MASTERPLAN
FOR THE PROPOSED PROJECT

Drawing status: EIAR SUBMISSION

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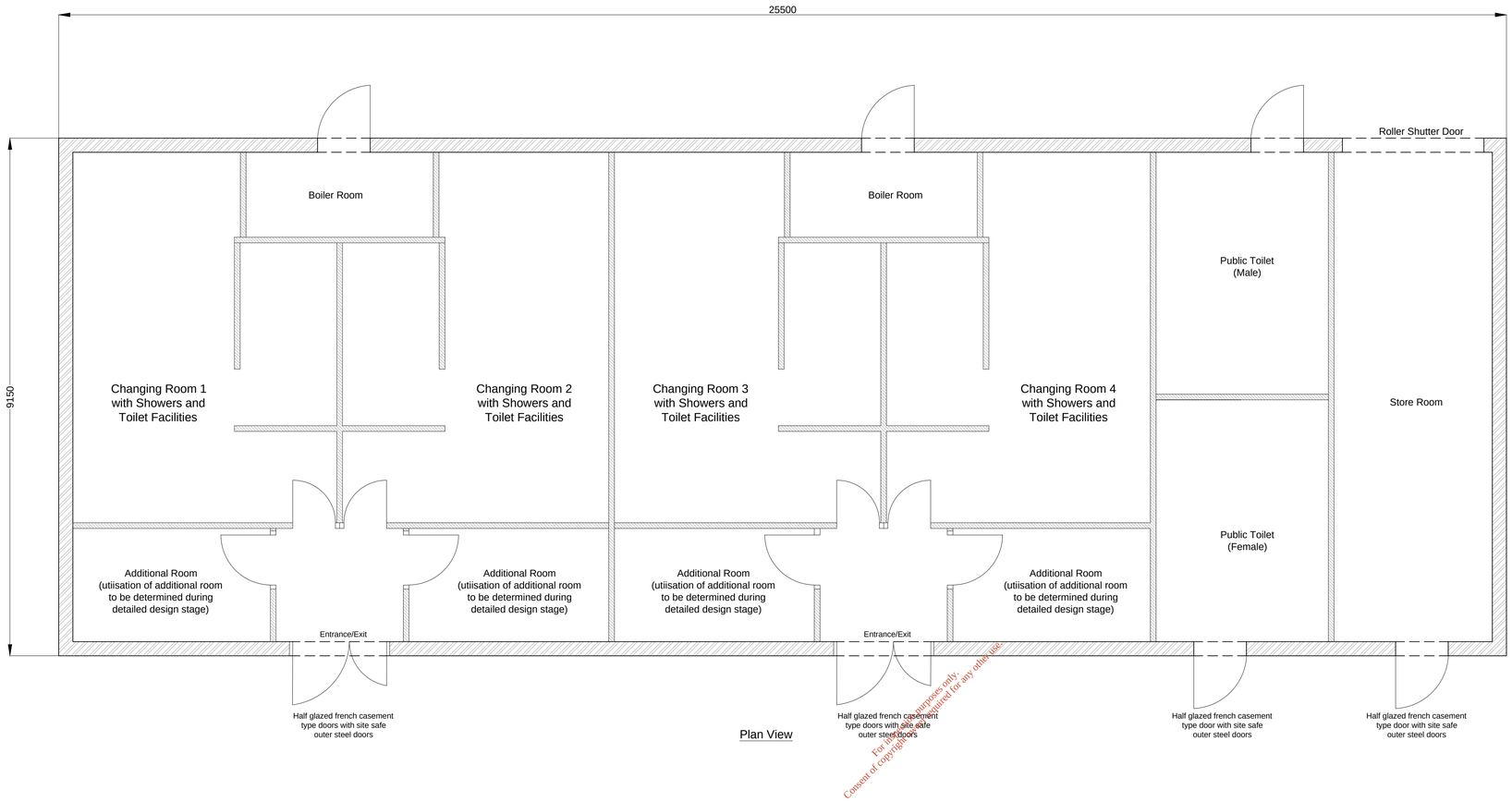
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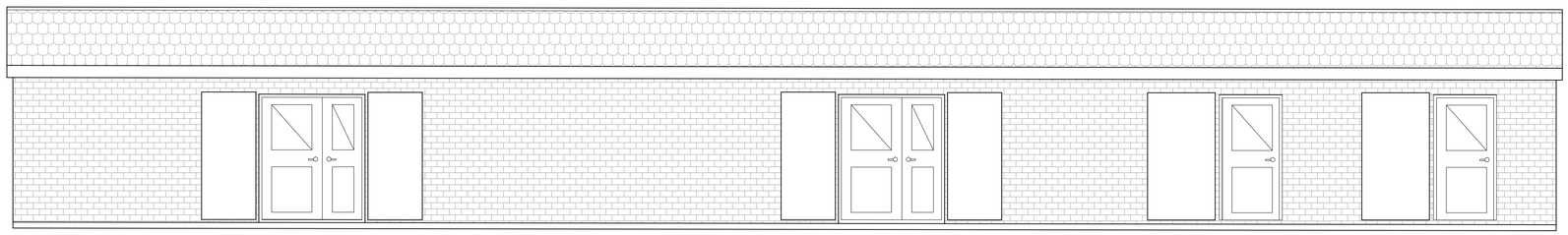
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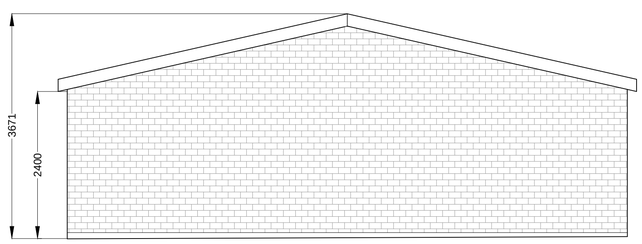


Plan View

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Side Elevation



End Elevation

FIGURE 4.21

NOTE:

1. All dimensions in millimetres unless stated otherwise.
2. Elevation shows steel tiles to roof and brick slip cladding, other optional claddings available. To be confirmed during detailed design.
3. Layout shown is indicative and will be confirmed during detailed design.

0 1000 2000 3000 4000 5000 mm

SCALE 1 : 50

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Project

KERDIFFSTOWN LANDFILL
REMEDIATION PROJECT

Drawing title

FIGURE 4.21
CHANGING ROOMS BUILDING
FOR THE PROPOSED PROJECT

Drawing status

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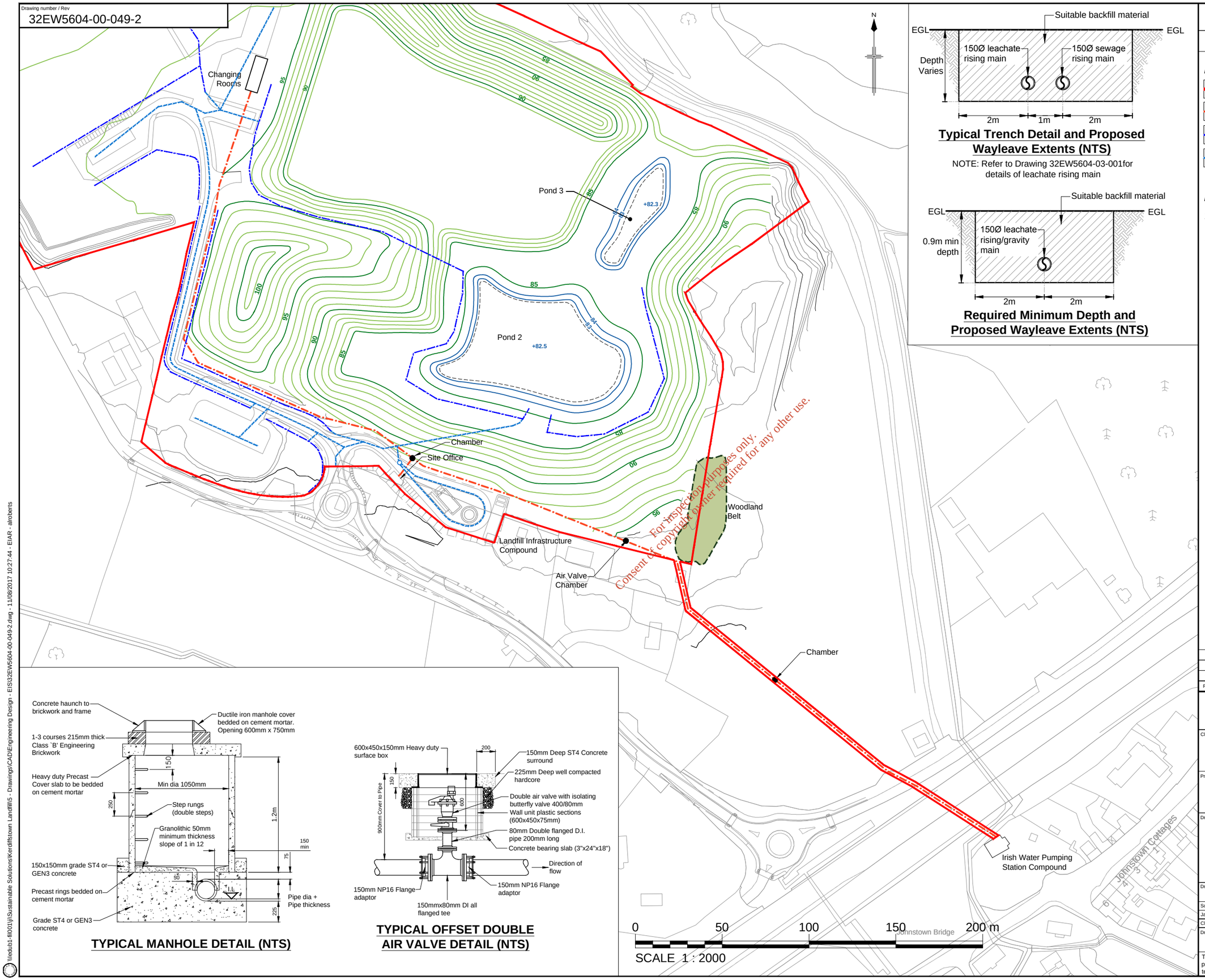
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Typical Trench Detail and Proposed Wayleave Extents (NTS)

NOTE: Refer to Drawing 32EW5604-03-001for details of leachate rising main

Required Minimum Depth and Proposed Wayleave Extents (NTS)

TYPICAL MANHOLE DETAIL (NTS)

TYPICAL OFFSET DOUBLE AIR VALVE DETAIL (NTS)

FIGURE 4.22

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KEY:

- Licence Boundary
- Foul Sewer (Buried)
- Surface Water (Ditch/Open Channel)
- Surface Water (Buried Pipework)

NOTE:

1. All levels to metres OD (Malin Head).
2. All dimensions in millimetres unless stated otherwise.

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Drawing title: FIGURE 4.22 SEWAGE DRAINAGE FOR THE PROPOSED PROJECT PLAN AND TYPICAL DETAILS

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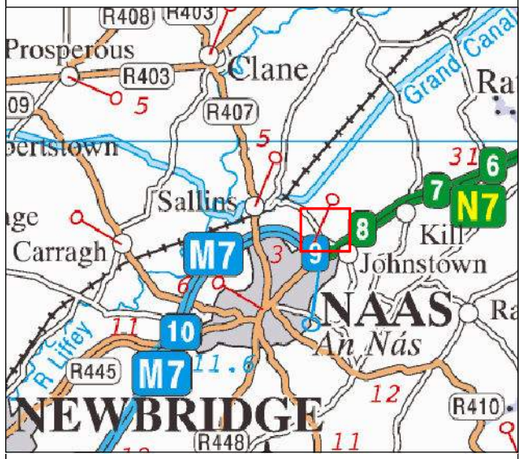
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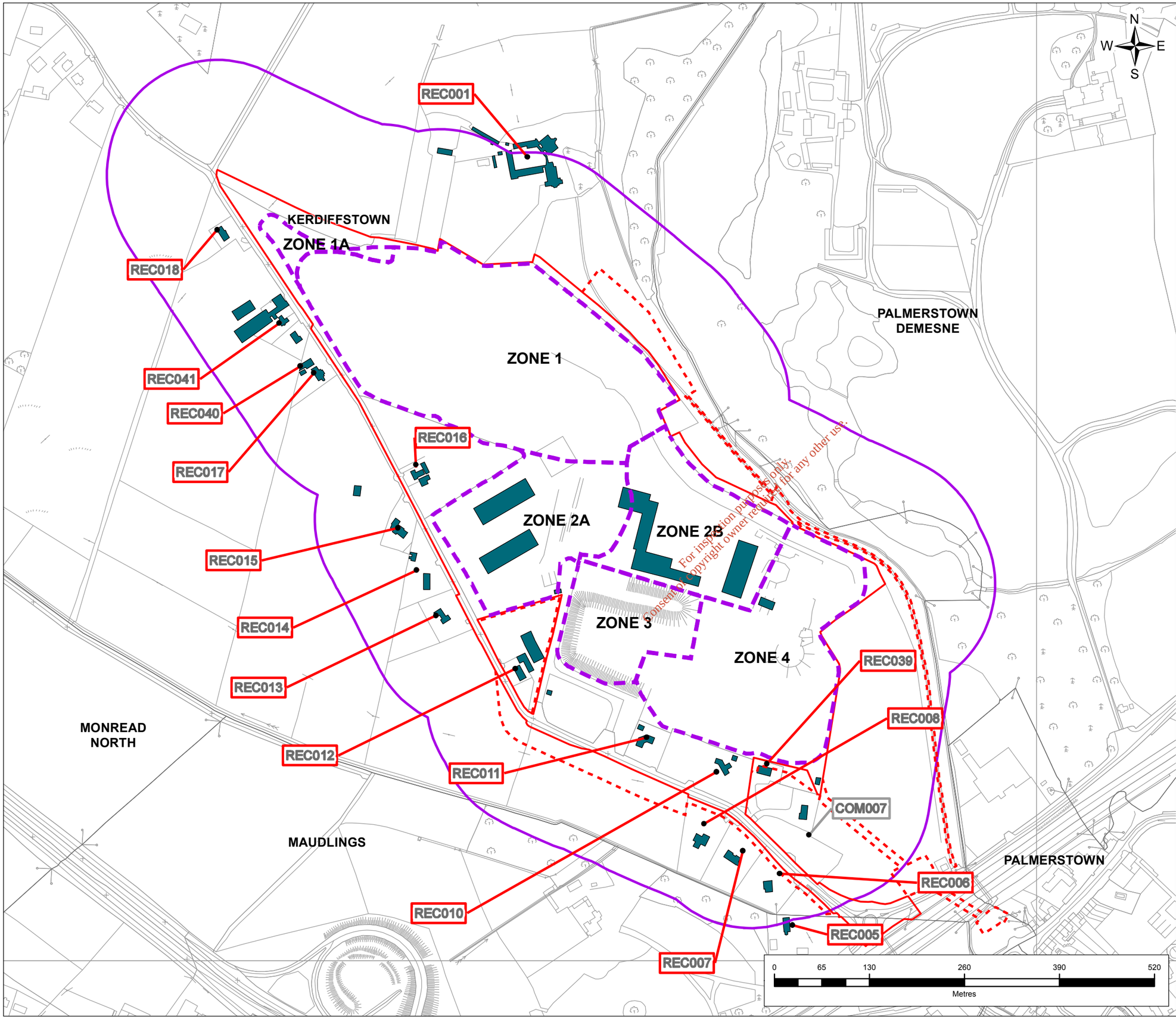
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FIGURE 7.1





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Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- 150m Buffer of Site
- Buildings
- RECxxx — Residential Receptor
- COMxxx — Commercial Receptor
- Inferred Zone Boundary

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Drawing Title: FIGURE 7.1 - LOCATION OF KEY RESIDENTIAL AND COMMERCIAL RECEPTORS WITHIN 150M OF THE SITE

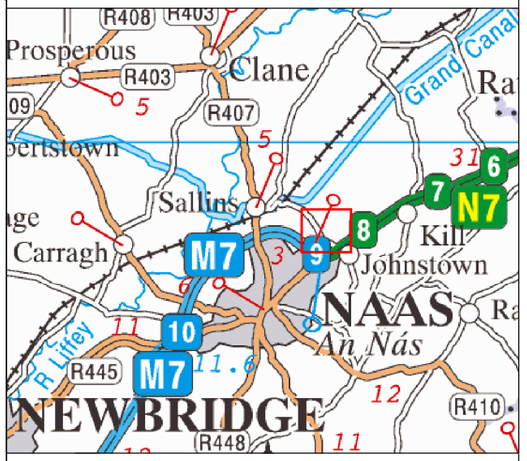
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FIGURE 7.2



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Air Quality Monitoring Locations

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Drawing Title: FIGURE 7.2 - AIR QUALITY MONITORING LOCATIONS

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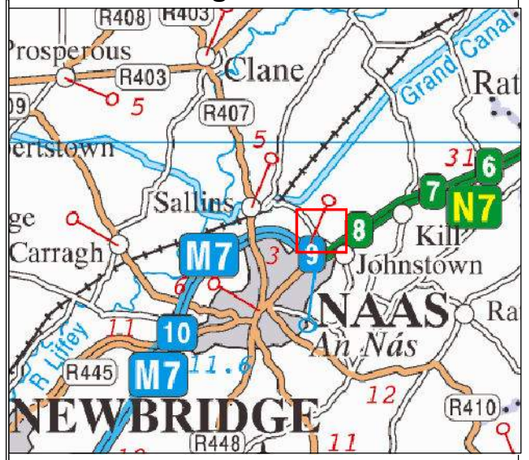
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Figure 7.3



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 50µg/m^3

- Maximum level attained, including background is 10.4µg/m^3 (21% of AQS)
- 10.1 µg/m^3
- 10.0 µg/m^3

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Drawing Title: FIGURE 7.3 - ISOPLETH SHOWING THE PREDICTED 90.4 PERCENTILE OF 24-HOUR GROUND LEVEL CONCENTRATION OF PM_{10} AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

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Drawing No.	32EW5604-833 P2	Rev 2

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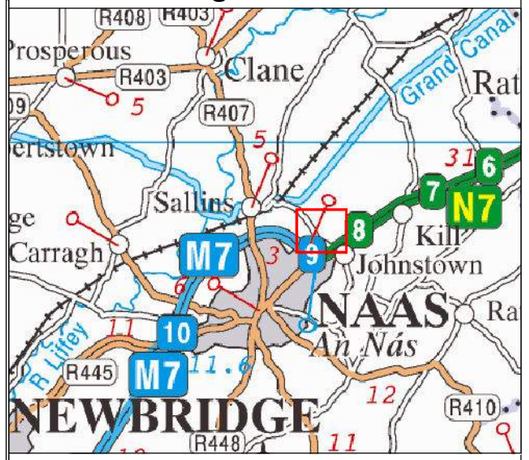
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0 75 150 300 450 600
Metres

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Figure 7.4



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 40µg/m^3

- Maximum level attained, including background is 10.1µg/m^3 (25% of AQS)
- 10.1 µg/m^3
- 10.0 µg/m^3

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Drawing Title: FIGURE 7.4 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF PM_{10} AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

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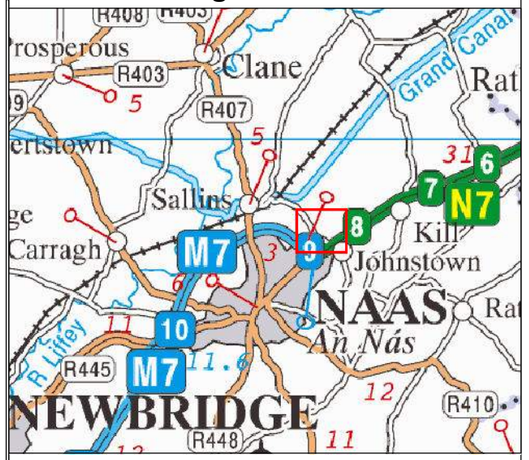
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Figure 7.5



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 25µg/m^3
(20µg/m^3 to be achieved by 2020)

- Maximum level attained, including background is 6.1µg/m^3 (25% of AQS)
- 6.1 µg/m^3
- 6.0 µg/m^3

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Drawing Title: FIGURE 7.5: ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF $PM_{2.5}$ AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

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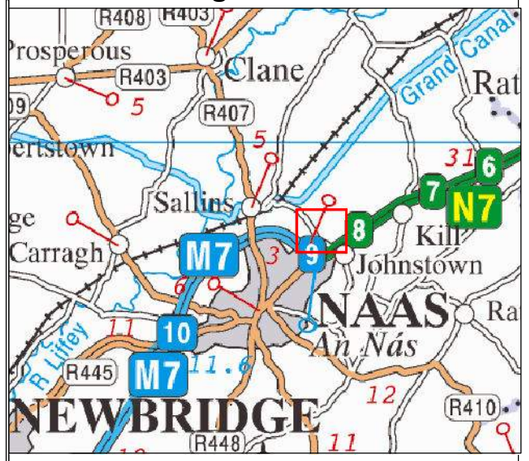
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Figure 7.6



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 350µg/m^3

- Maximum level attained, including background is 133µg/m^3 (38% of AQS)
- 74 µg/m^3
- 54 µg/m^3

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Drawing Title: FIGURE 7.6 - ISOPLETH SHOWING THE PREDICTED 99.7 PERCENTILE OF 1-HOUR GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

Drawing Status: EIAR SUBMISSION

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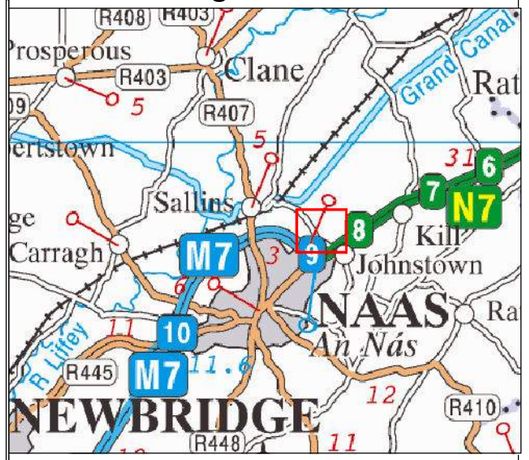
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Figure 7.7



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 125µg/m^3

- Maximum level attained, including background is 57µg/m^3 (46% of AQS)
- 40 µg/m^3
- 27 µg/m^3

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Drawing Title: FIGURE 7.7 - ISOPLETH SHOWING THE PREDICTED 99.2 PERCENTILE OF 24-HOUR GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

Drawing Status: EIAR SUBMISSION

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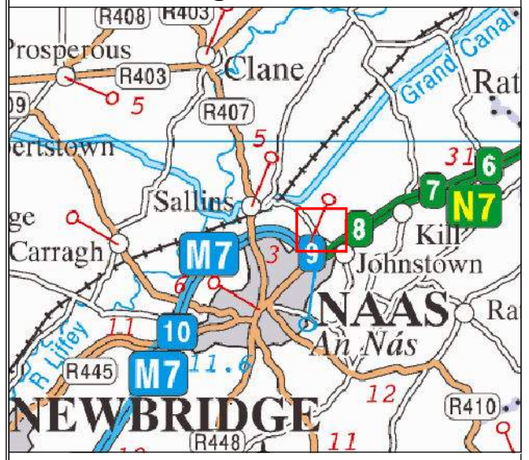
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Figure 7.8



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 20µg/m^3

- Maximum level attained, including background is 9µg/m^3 (46% of AQS)
- 11 µg/m^3
- 7 µg/m^3

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Drawing Title: FIGURE 7.8 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE EXISTING 250M^3 FLARE DURING THE REMEDIATION PHASE

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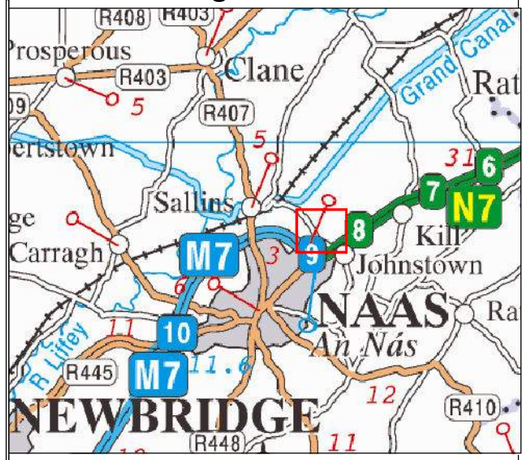
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Figure 7.9



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 200µg/m^3

- Maximum level attained, including background is 8.8µg/m^3 (4% of AQS)
- 7.5 µg/m^3
- 6.5 µg/m^3

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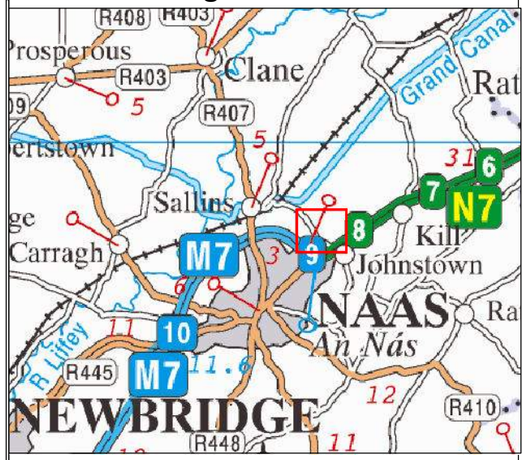
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Figure 7.10



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 40µg/m^3

- Maximum level attained, including background is 3.4µg/m^3 (9% of AQS)
- 3.1 µg/m^3
- 3.0 µg/m^3

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Drawing Status: EIAR SUBMISSION

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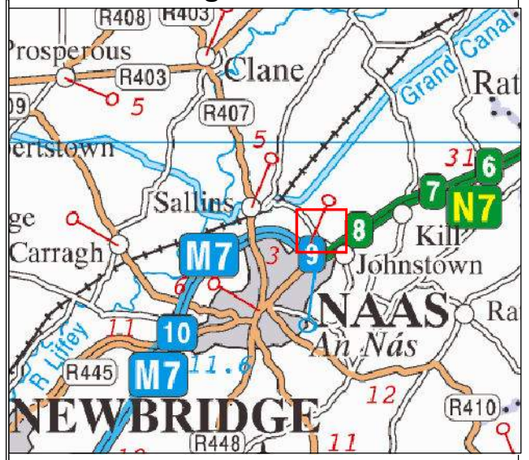
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Figure 7.11



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Air Quality Standard (AQS) is 30µg/m^3

- Maximum level attained, including background is 3.4µg/m^3 (11% of AQS)
- 3.1 µg/m^3
- 3.0 µg/m^3

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Drawing Status: EIAR SUBMISSION

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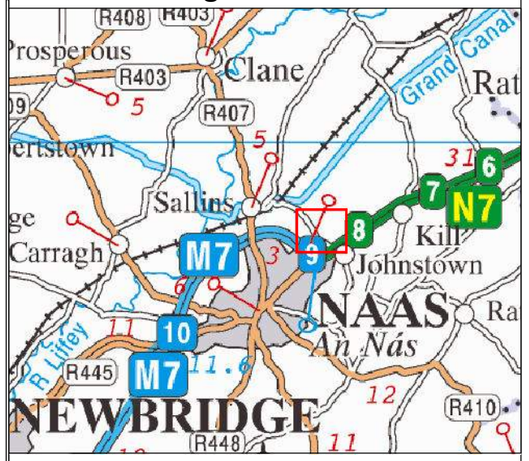
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Figure 7.12



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Odour Threshold (OT) is 1200µg/m^3

- Maximum level attained is 58.6µg/m^3 (5% of OT)
- 30 µg/m^3
- 20 µg/m^3

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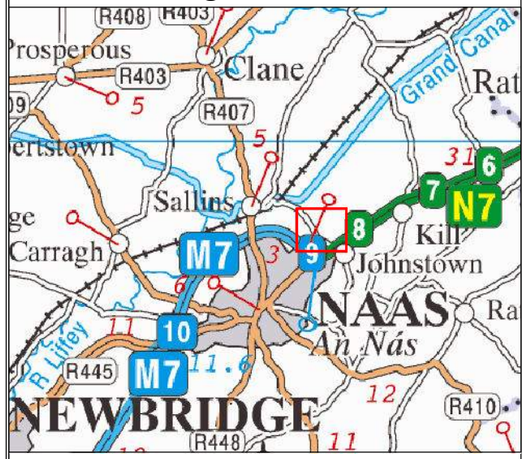
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Figure 7.13



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of the Existing Flares

Odour Threshold (OT) is 0.7µg/m^3

- Maximum level attained is 0.59µg/m^3 (84% of OT)
- 0.4 µg/m^3
- 0.2 µg/m^3

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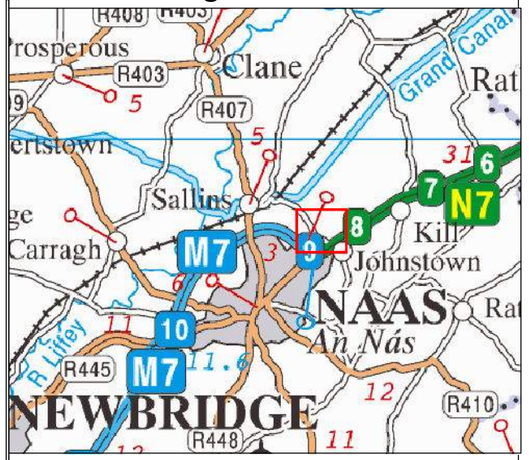
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Figure 7.14



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 50µg/m^3

- Maximum level attained,including background, is 10.4µg/m^3 (20% of AQS)
- 10.1 µg/m^3
- 10.0 µg/m^3

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Drawing Status: EIAR SUBMISSION

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Drawing No.	32EW5604-844 P2	Rev 2

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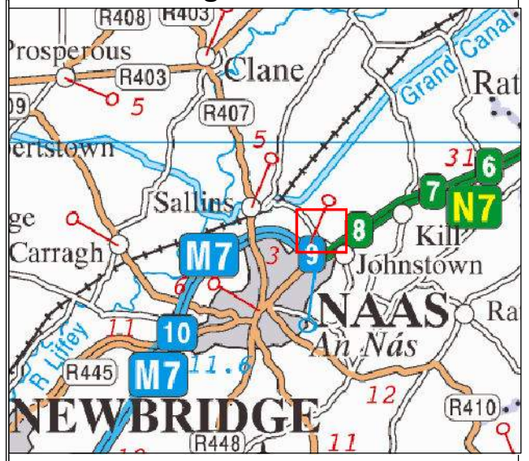
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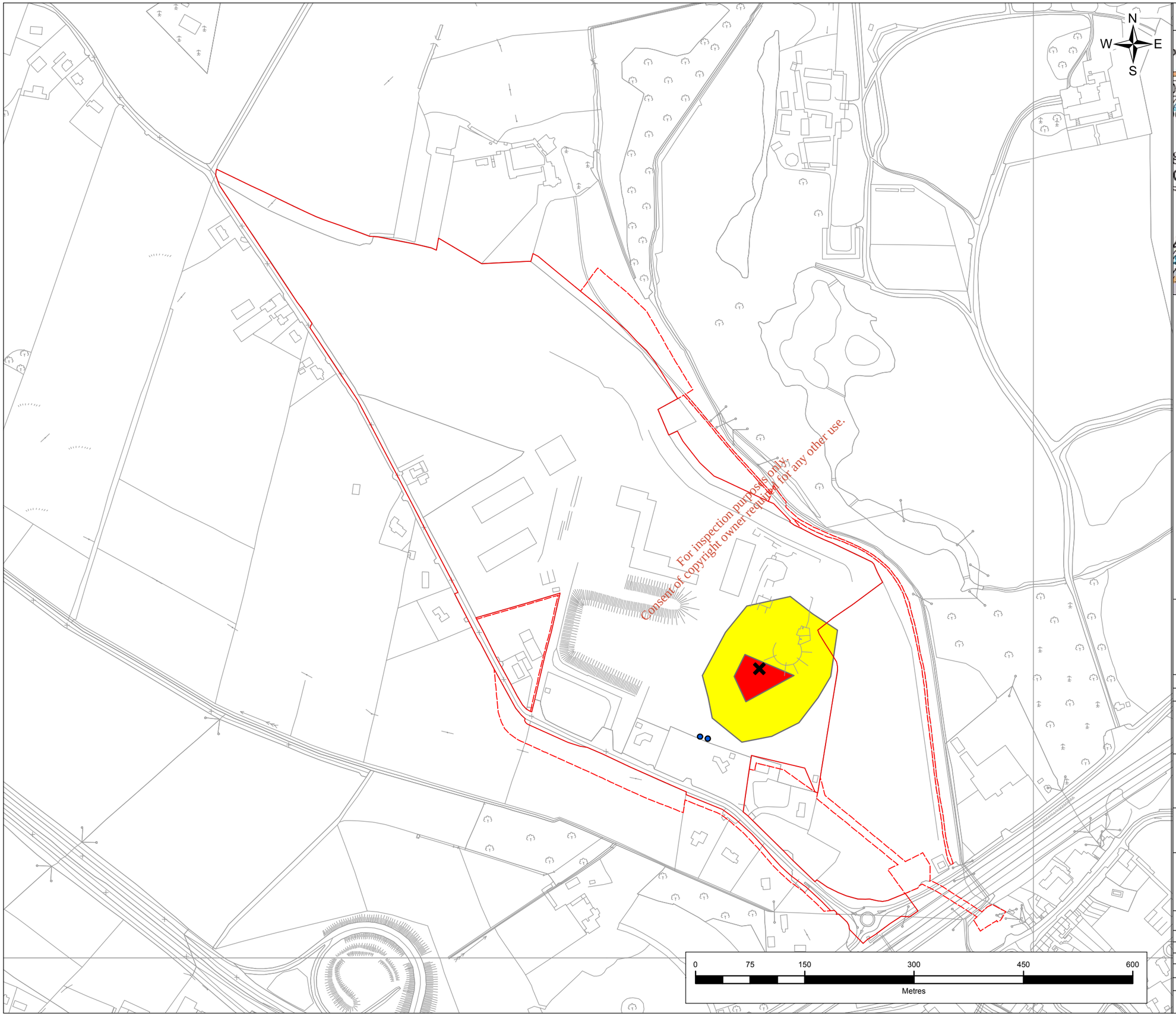
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Figure 7.15





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 40µg/m^3

- Maximum level attained,including background, is 10.1µg/m^3 (26% of AQS)
- 10.1 µg/m^3
- 10.0 µg/m^3

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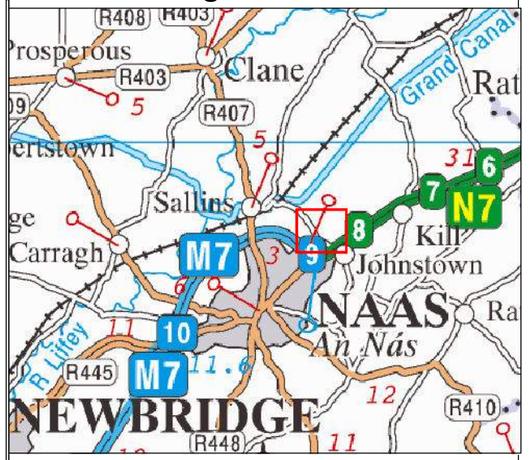
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Figure 7.16



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 25µg/m^3 (20µg/m^3 to be attained by 2020)

- Maximum level attained,including background, is 6.1µg/m^3 (25% of AQS)
- 6.1 µg/m^3
- 6.0 µg/m^3

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Drawing Title: FIGURE 7.16 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF $PM_{2.5}$ AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

Drawing Status: EIAR SUBMISSION

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Drawing No.	32EW5604-846 P2	Rev 2

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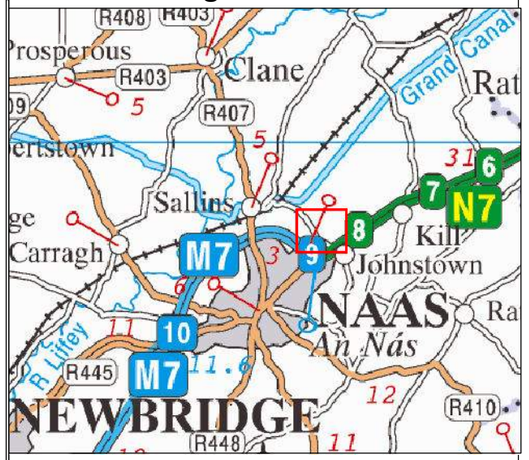
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0 75 150 300 450 600
Metres

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Figure 7.17



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 350µg/m^3

- Maximum level attained,including background, is 79µg/m^3 (23% of AQS)
- 45 µg/m^3
- 35 µg/m^3

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Drawing Title: FIGURE 7.17 - ISOPLETH SHOWING THE PREDICTED 99.7 PERCENTILE OF 1-HOUR GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

Drawing Status: EIAR SUBMISSION

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Jacobs No.	32EW5604	
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Drawing No.	32EW5604-847 P2	Rev 2

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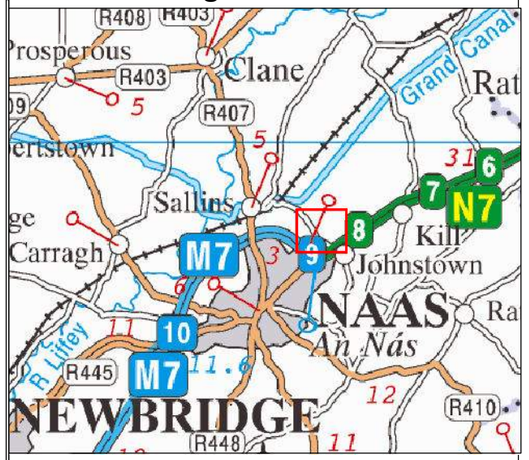
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Figure 7.18



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 125µg/m^3

- Maximum level attained,including background, is 29.3µg/m^3 (23% of AQS)
- 20 µg/m^3
- 15 µg/m^3

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Drawing Title: FIGURE 7.18 - ISOPLETH SHOWING THE PREDICTED 99.2 PERCENTILE OF 24-HOUR GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

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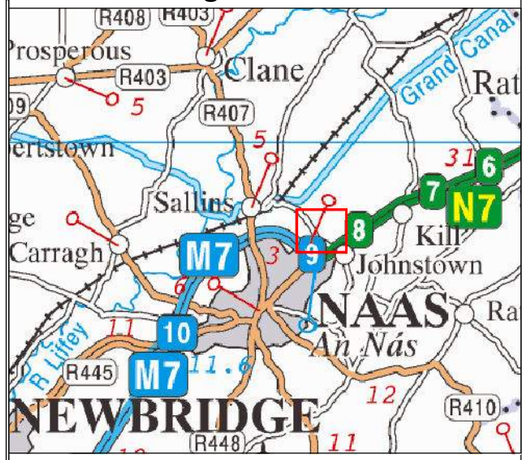
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0 75 150 300 450 600
Metres

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Figure 7.19



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 20µg/m^3

- Maximum level attained,including background, is 9µg/m^3 (45% of AQS)
- 4 µg/m^3
- 2 µg/m^3

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Drawing Title: FIGURE 7.19 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF SO_2 AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

Drawing Status: EIAR SUBMISSION

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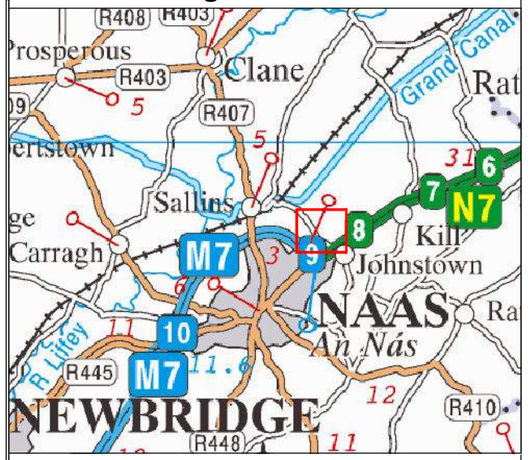
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Metres

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Figure 7.20



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 200µg/m^3

- Maximum level attained,including background, is 7.6µg/m^3 (4% of AQS)
- 1.2 µg/m^3
- 0.8 µg/m^3

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Drawing Status: EIAR SUBMISSION

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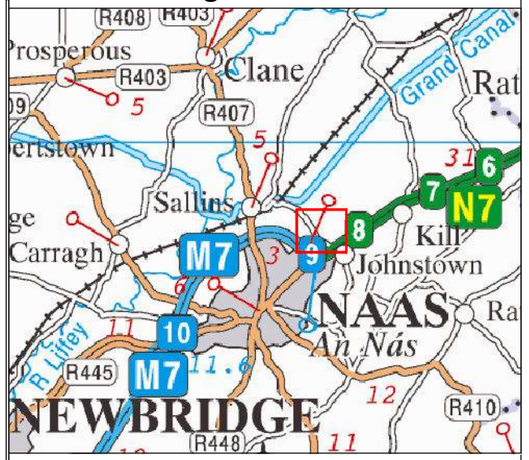
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0 75 150 300 450 600
Metres

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Figure 7.21



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 40µg/m^3

- Maximum level attained,including background, is 3.1µg/m^3 (8% of AQS)
- 0.08 µg/m^3
- 0.05 µg/m^3

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Drawing Title: FIGURE 7.21 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF NO_2 AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

Drawing Status: EIAR SUBMISSION

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Client No.	6286	
Drawing No.	32EW5604-851 P2	Rev 2

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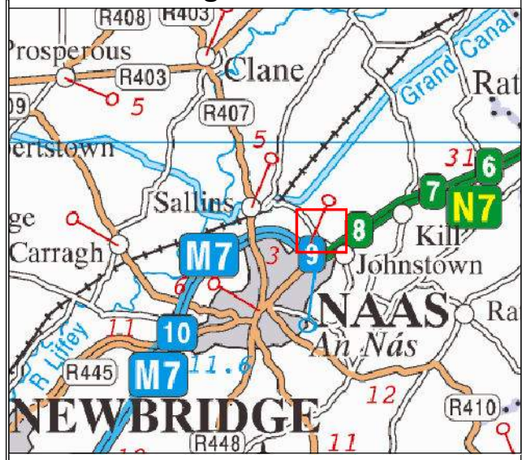
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0 75 150 300 450 600
Metres

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Figure 7.22



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Air Quality Standard (AQS) is 30µg/m^3

- Maximum level attained,including background, is 3.1µg/m^3 (11% of AQS)
- 0.08 µg/m^3
- 0.05 µg/m^3

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Drawing Title: FIGURE 7.22 - ISOPLETH SHOWING THE PREDICTED ANNUAL MEAN GROUND LEVEL CONCENTRATION OF NO_X AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

Drawing Status: EIAR SUBMISSION

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Client No.	6286	
Drawing No.	32EW5604-852 P2	Rev 2

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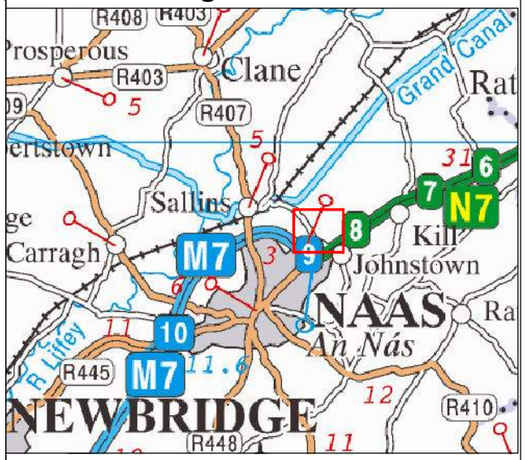
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0 75 150 300 450 600
Metres

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Figure 7.23



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Odour Threshold (OT) is 1200µg/m^3

- Maximum level attained is 51.5µg/m^3 (11% of OT)
- 30 µg/m^3
- 20 µg/m^3

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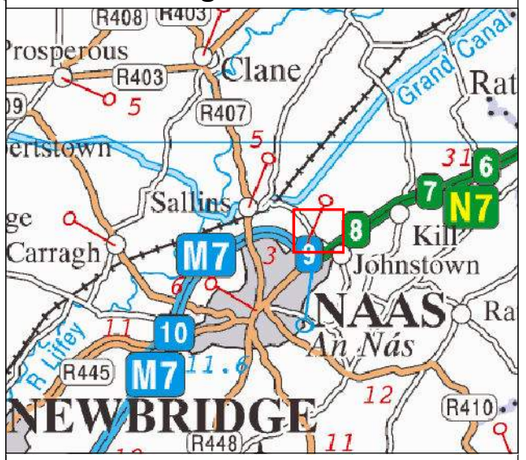
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0 75 150 300 450 600
Metres

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Figure 7.24



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Location of New 600 m^3 Flare and back-up 250 m^3 Flare

Odour Threshold (OT) is 0.7µg/m^3

- Maximum level attained is 0.68µg/m^3 (97% of OT)
- 0.3 µg/m^3
- 0.2 µg/m^3

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Drawing Title: FIGURE 7.24 - ISOPLETH SHOWING THE PREDICTED 98 PERCENTILE OF 1-HOUR GROUND LEVEL CONCENTRATION OF H_2S AS A RESULT OF EMISSIONS FROM THE PROPOSED 600M^3 FLARE DURING THE OPERATION PHASE

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Drawing No.	32EW5604-854 P2	Rev 2

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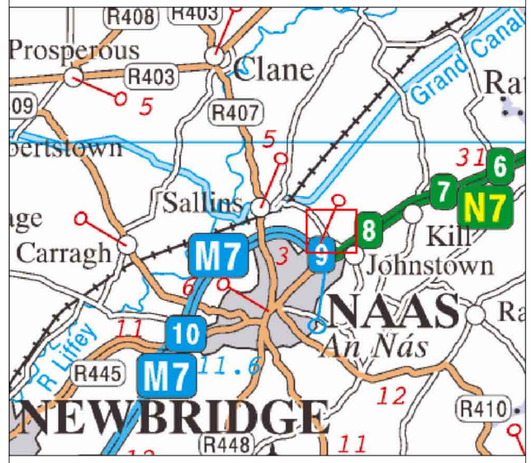
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0 75 150 300 450 600
Metres

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FIGURE 8.1



N
W
E
S

REC001
N1
REC018
ZONE 1A
N4
ZONE 1
N6
REC017
N5
ZONE 2A
ZONE 2B
REC014
ZONE 3
ZONE 4
N8
REC012
N2
N3
REC039
N7

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0 62.5 125 250 375 500
Metres

Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Noise & Vibration Monitoring Locations
- Buildings
- RECxxx Residential Receptor
- COMxxx Commercial Receptor
- Inferred Zone Boundary

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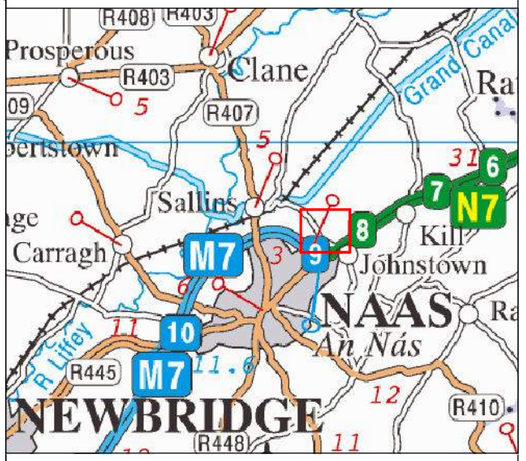
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FIGURE 8.2



REC001
REC018
REC017
REC014
REC012
REC039

N
W
E
S

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0 62.5 125 250 375 500
Metres

Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Existing Screening Banks Reinforced with Straw or Equivalent)
- 5m High Straw Bale Screening Banks
- 2.4m High Acoustic Screens or Equivalent
- Buildings
- RECxxx Residential Receptor
- COMxxx Commercial Receptor

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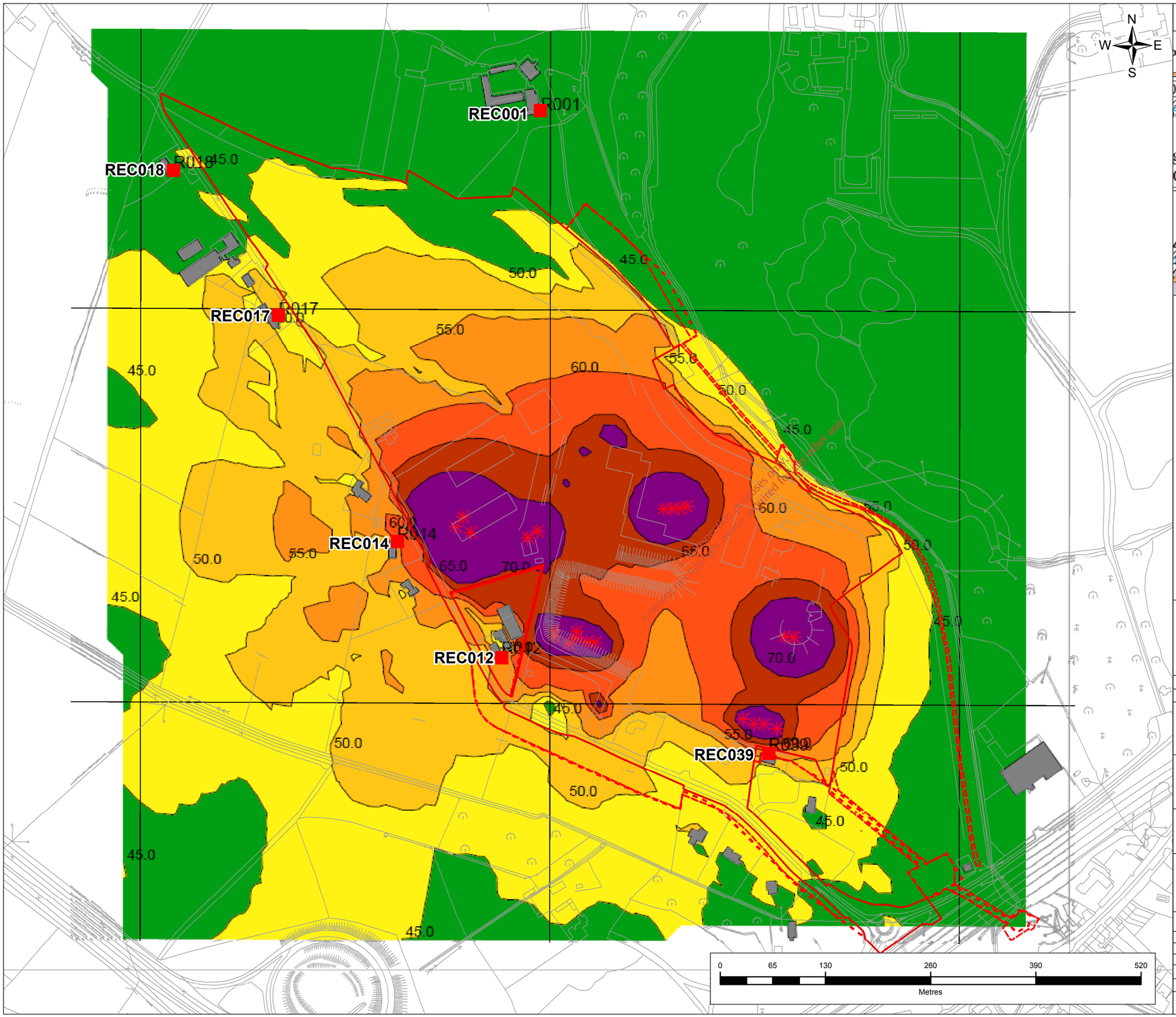
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Client No.	6286	
Drawing No.	32EW5604-828 P1	Rev 1

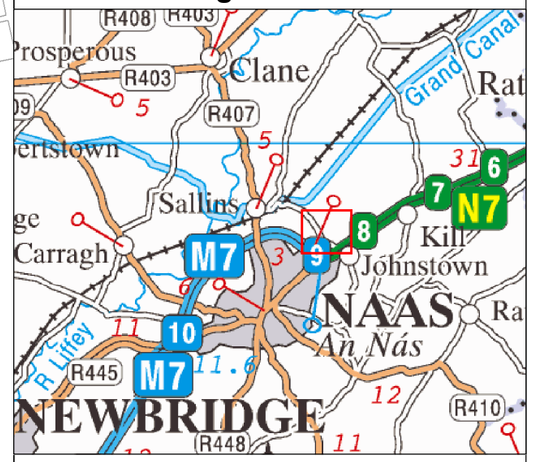
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Figure 8.3





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.3 - CALCULATED NOISE CONTOURS FOR PHASE 1 ONSITE REMEDIATION WORKS (NO ACOUSTIC REINFORCEMENT IN PLACE)

Drawing Status: EIAR SUBMISSION

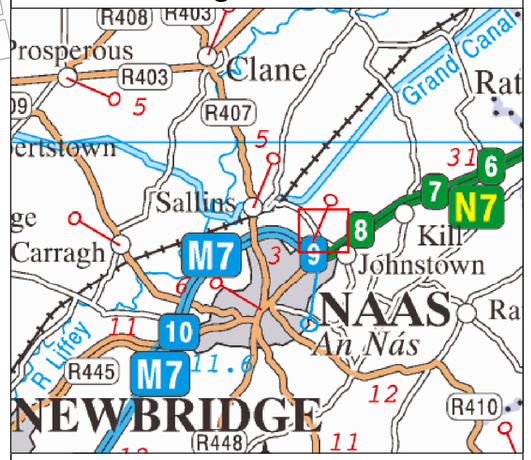
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Jacobs No.	6286	
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Drawing No.	32EW5604-855 P1	Rev 1

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Figure 8.4



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.4 - CALCULATED NOISE CONTOURS FOR PHASE 1 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

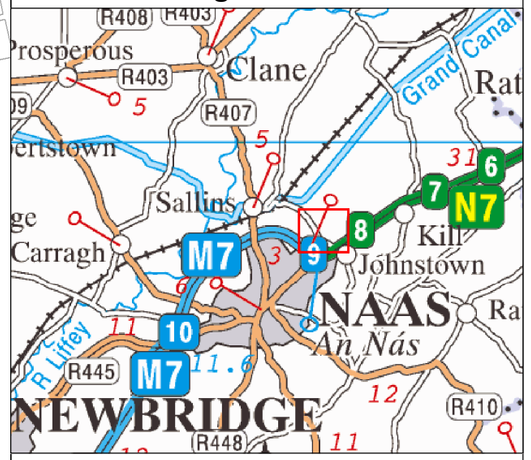
Scale @ A3	1:4,500
Jacobs No.	6286
Client No.	32EW5604
Drawing No.	32EW5604-856 P1
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Figure 8.5



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.5 - CALCULATED NOISE CONTOURS FOR PHASE 2 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

Scale @ A3	1:4,500	
Jacobs No.	6286	
Client No.	32EW5604	
Drawing No.	32EW5604-857 P1	Rev 1

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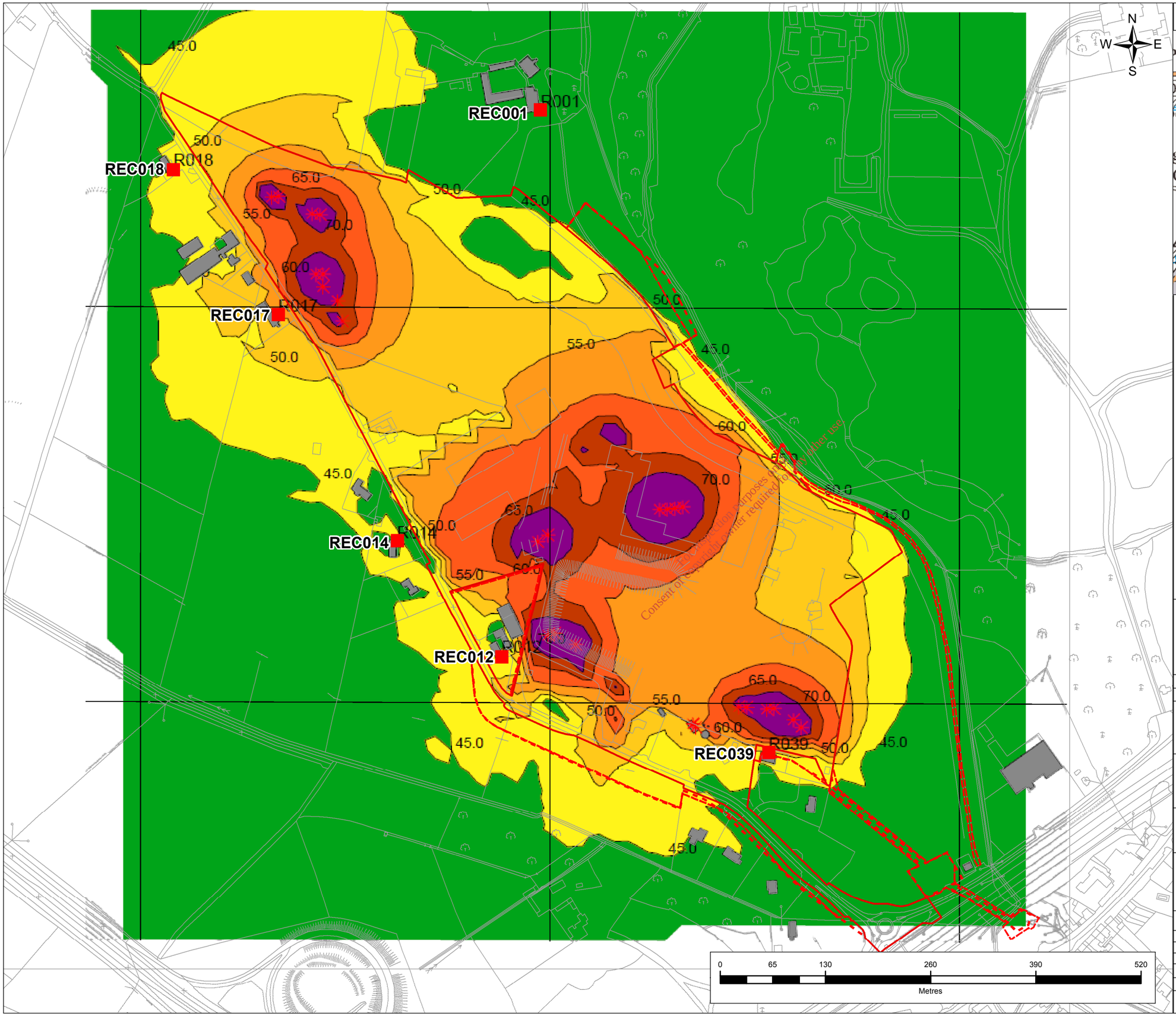
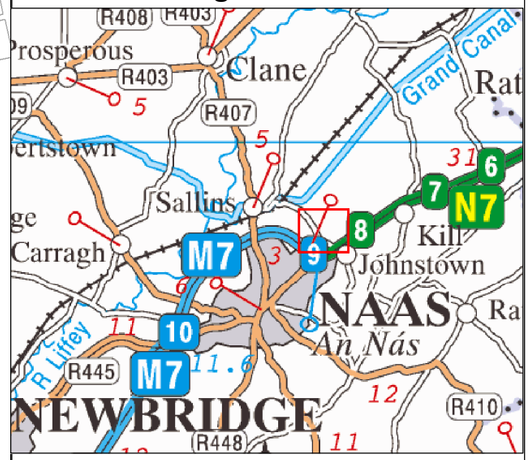


Figure 8.6



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.6 - CALCULATED NOISE CONTOURS FOR PHASE 3 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

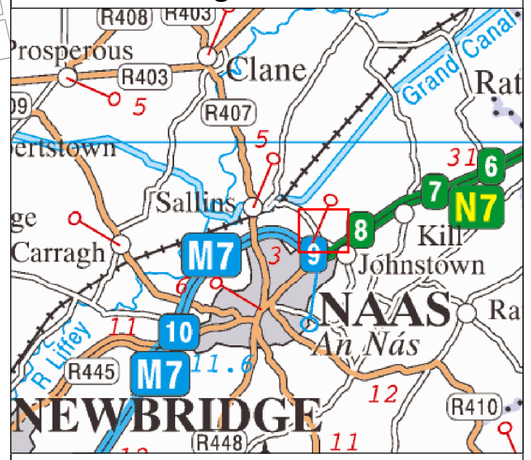
Scale @ A3	1:4,500	
Jacobs No.	6286	
Client No.	32EW5604	
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Figure 8.7



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.7 - CALCULATED NOISE CONTOURS FOR PHASE 4 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

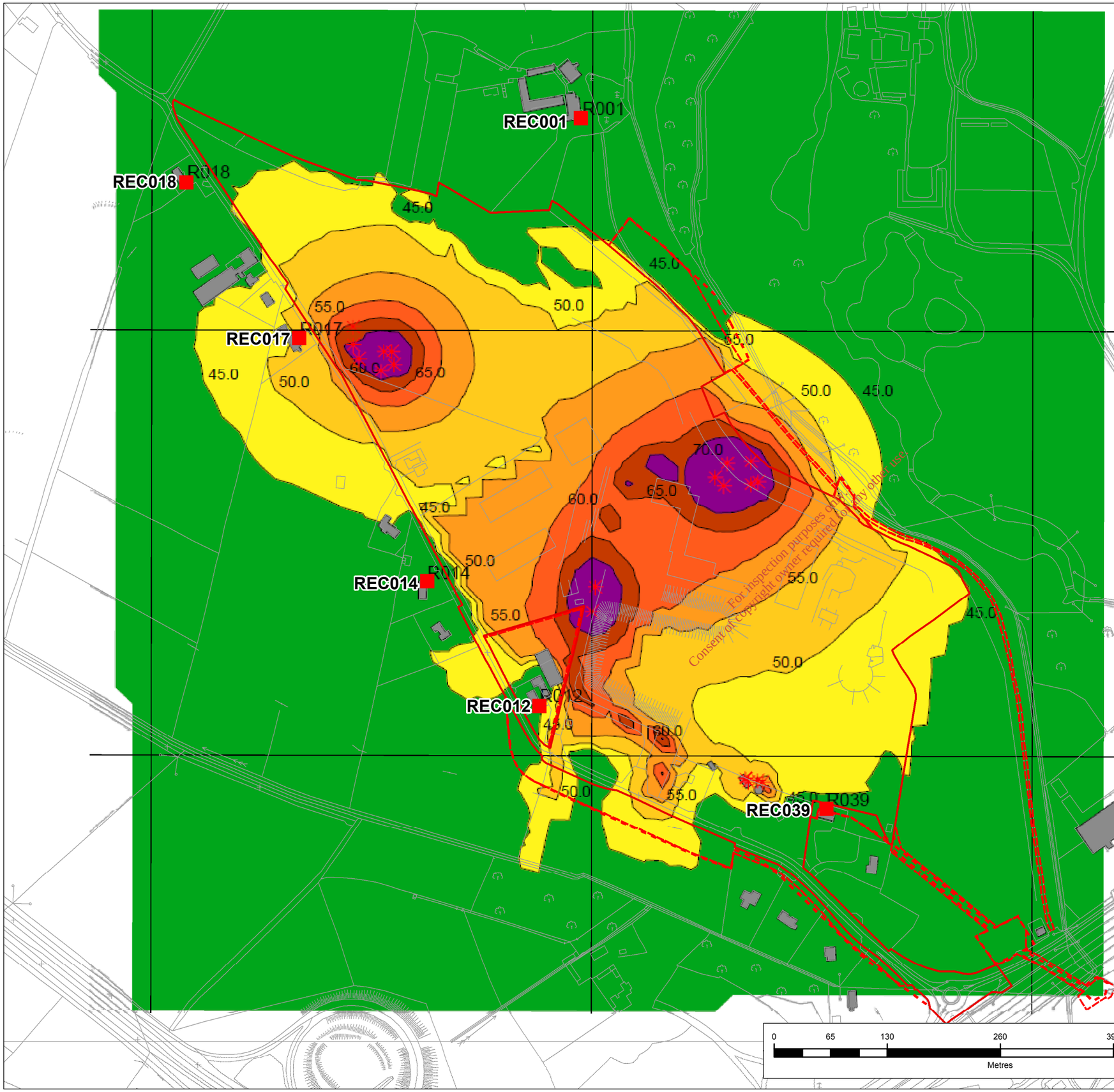
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Jacobs No.	6286
Client No.	32EW5604
Drawing No.	32EW5604-859 P1
Rev	1

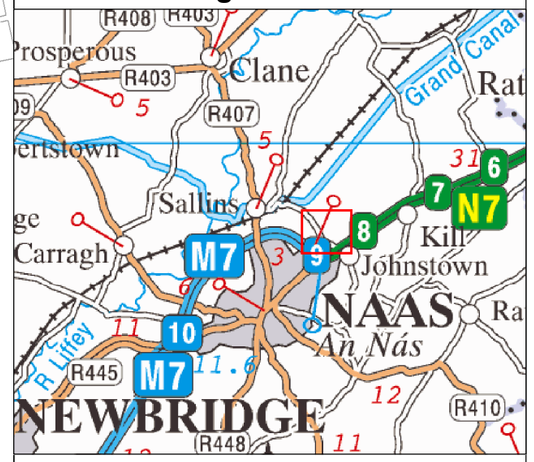
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Figure 8.8





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.8 - CALCULATED NOISE CONTOURS FOR PHASE 5 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

Scale @ A3	1:4,500	DO NOT SCALE
Jacobs No.	6286	
Client No.	32EW5604	
Drawing No.	32EW5604-860 P1	Rev 1

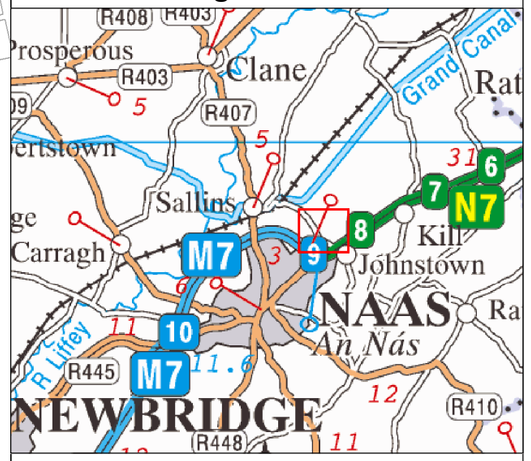
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Figure 8.9



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.9 - CALCULATED NOISE CONTOURS FOR PHASE 6 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

Scale @ A3	1:4,500
Jacobs No.	6286
Client No.	32EW5604
Drawing No.	32EW5604-861 P1
Rev	1

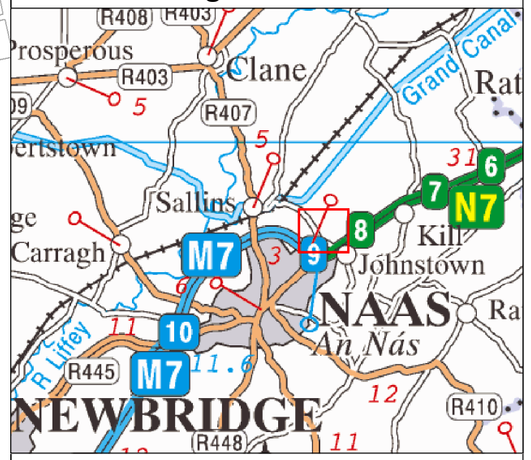
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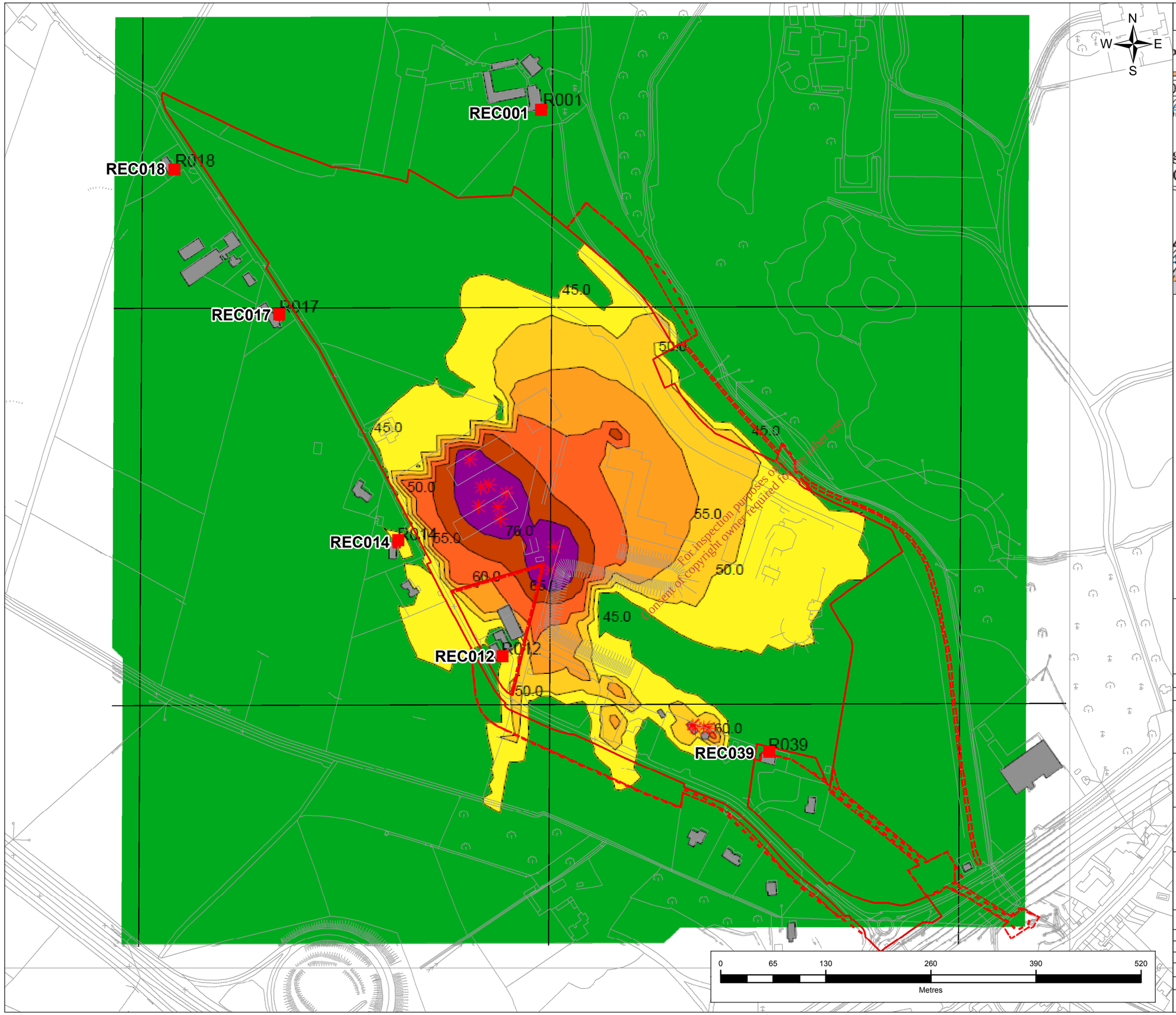
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Figure 8.10





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.10 - CALCULATED NOISE CONTOURS FOR PHASE 7 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

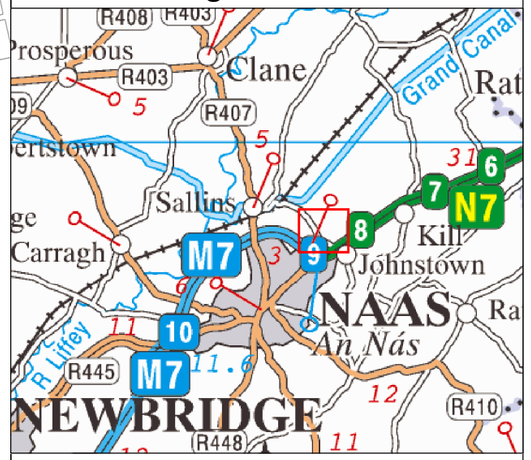
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Client No.	32EW5604
Drawing No.	32EW5604-862 P1
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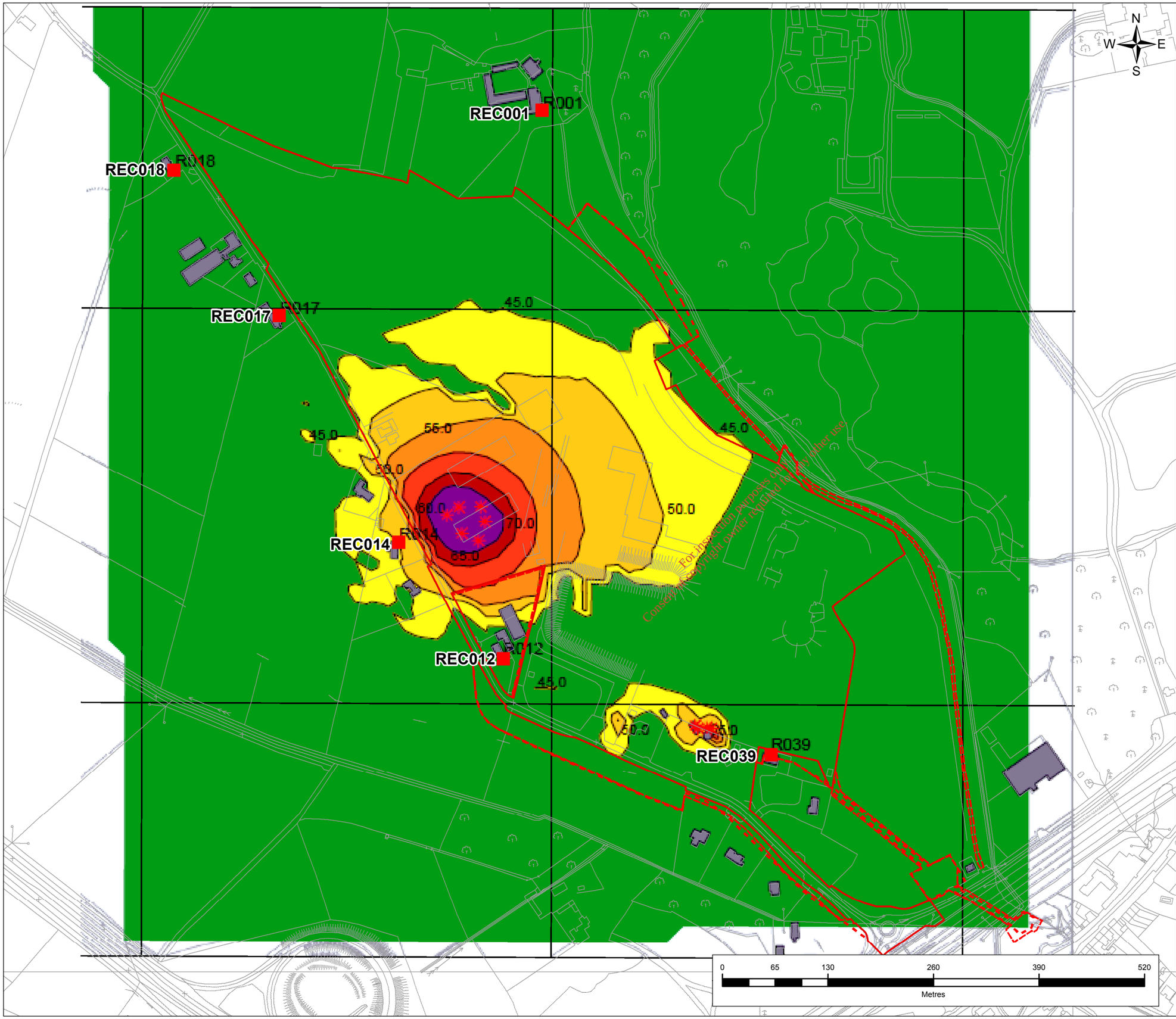
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Figure 8.11





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- 50.0 - 55.0 dB(A)
- 55.0 - 60.0 dB(A)
- 60.0 - 65.0 dB(A)
- 65.0 - 70.0 dB(A)
- > 70.0 dB(A)

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Drawing Title: FIGURE 8.11 - CALCULATED NOISE CONTOURS FOR PHASE 8 ONSITE REMEDIATION WORKS WITH ACOUSTIC REINFORCEMENT IN PLACE

Drawing Status: EIAR SUBMISSION

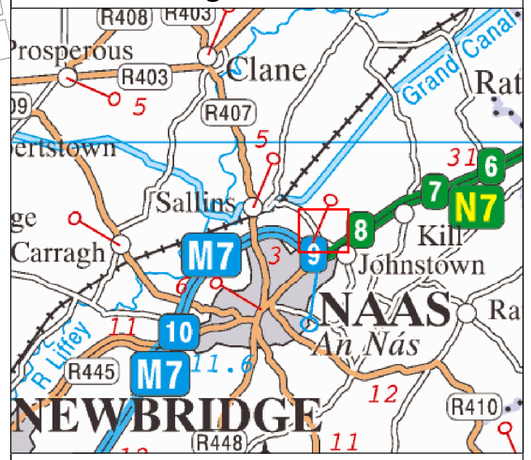
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Jacobs No.	6286	
Client No.	32EW5604	
Drawing No.	32EW5604-863 P1	Rev 1

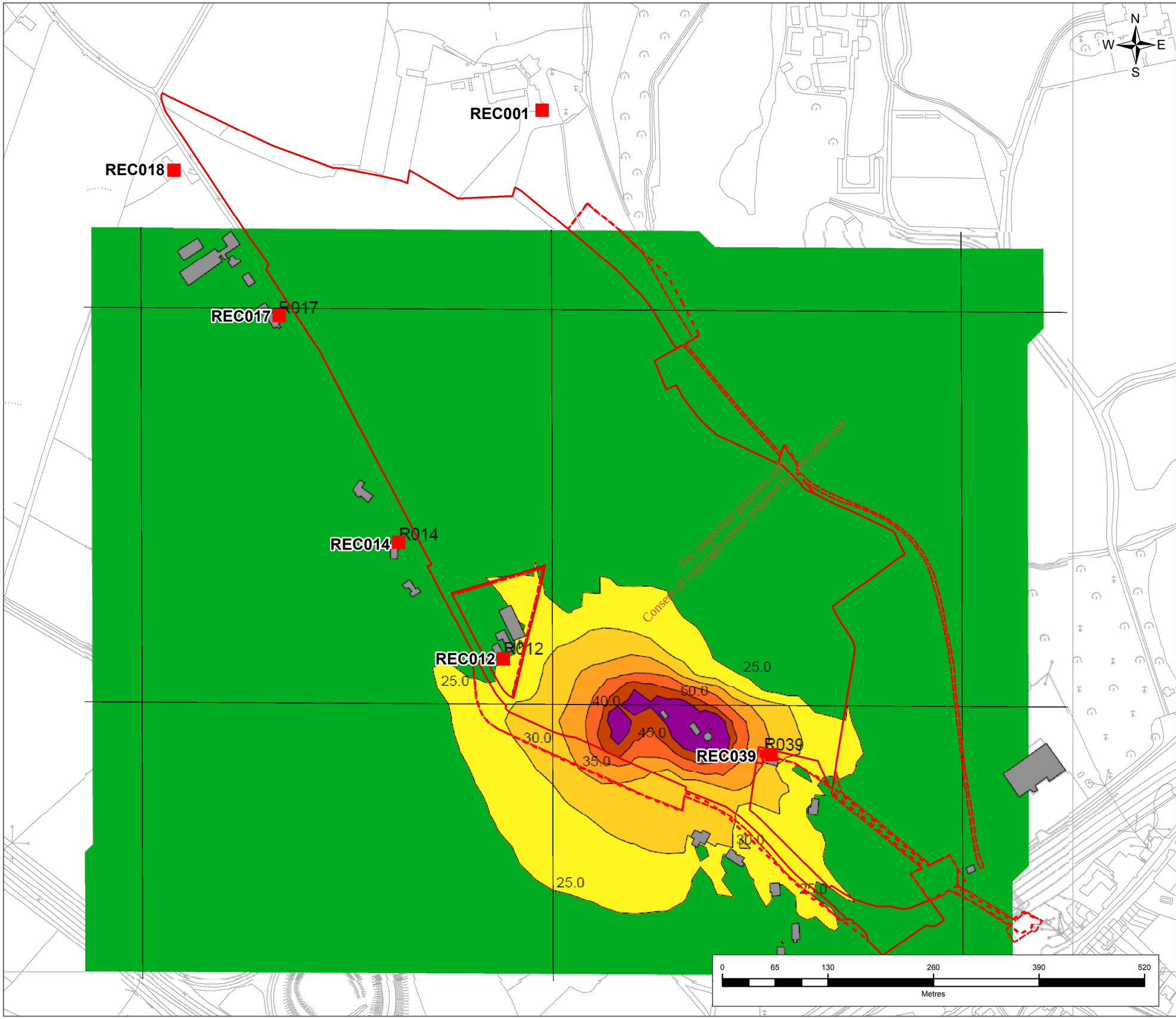
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Figure 8.12





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 25.0 dB(A)
- 25.0 - 30.0 dB(A)
- 30.0 - 35.0 dB(A)
- 35.0 - 40.0 dB(A)
- 40.0 - 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- > 50.0 dB(A)

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Drawing Title: FIGURE 8.12 - CALCULATED NOISE CONTOURS FOR OPERATIONAL PHASE (DAYTIME)

Drawing Status: EIAR SUBMISSION

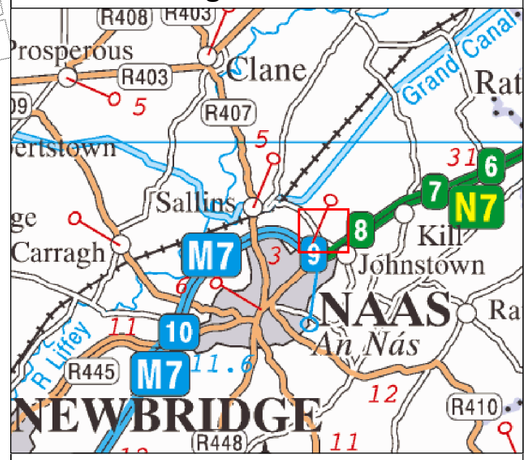
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Jacobs No.	6286	
Client No.	32EW5604	
Drawing No.	32EW5604-865 P1	Rev 1

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Figure 8.13



REC001
REC018
REC017
REC014
REC012
REC039

N
W
E
S

Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Building
- Point source
- Receiver
- < 25.0 dB(A)
- 25.0 - 30.0 dB(A)
- 30.0 - 35.0 dB(A)
- 35.0 - 40.0 dB(A)
- 40.0 - 45.0 dB(A)
- 45.0 - 50.0 dB(A)
- > 50.0 dB(A)

0 65 130 260 390 520
Metres

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Drawing Title: FIGURE 8.13 - CALCULATED NOISE CONTOURS FOR OPERATIONAL PHASE (EVENING TIME AND NIGHT-TIME)

Drawing Status: EIAR SUBMISSION

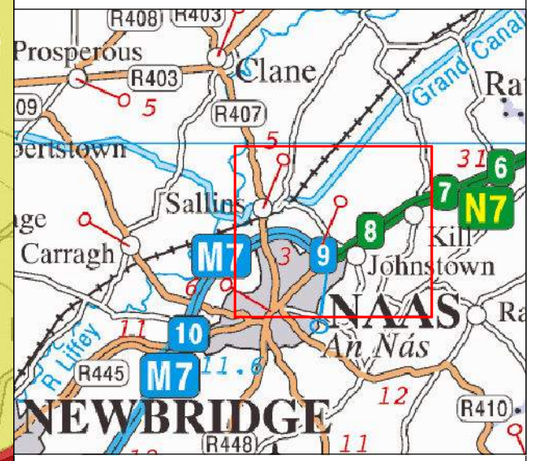
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Client No.	32EW5604	
Drawing No.	32EW5604-865 P1	Rev 1

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FIGURE 9.1



Legend

- Site Location

Corine Landcover Type (2016)

- 111 Continuous urban fabric
- 112 Discontinuous urban fabric
- 121 Industrial or commercial units
- 122 Road and rail networks
- 132 Dump
- 142 Sport and leisure facilities
- 211 Non-irrigated land
- 231 Pastures
- 242 Complex cultivation patterns

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Drawing Title: FIGURE 9.1 - LAND USE MATRIX OF THE CENTRAL STUDY AREA

Drawing Status: EIAR SUBMISSION

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Client No.	6286	
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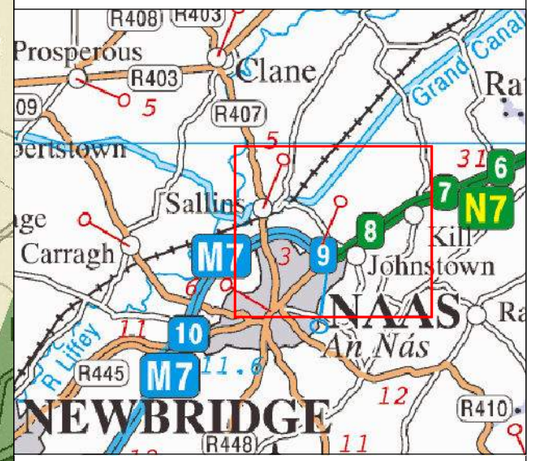
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FIGURE 9.2



Legend

- Site Location
- Eastern Transition
- Northern Lowlands
- River Liffey
- Royal & Grand Canals

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Drawing Title: FIGURE 9.2 - LANDSCAPE CHARACTER AREAS (LCA) - KILDARE COUNTY DEVELOPMENT PLAN 2017-2023

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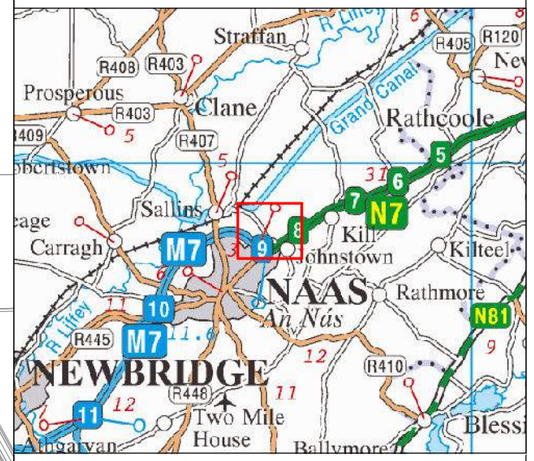
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FIGURE 9.3



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Viewpoint Locations

VP 1
VP 2
VP 3
VP 4
VP 5
VP 6
VP 7
VP 8
VP 9

N
W
E
S

0 120 240 480 720 960
Metres

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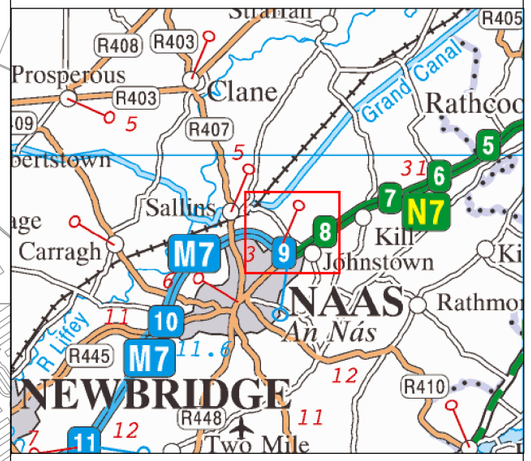
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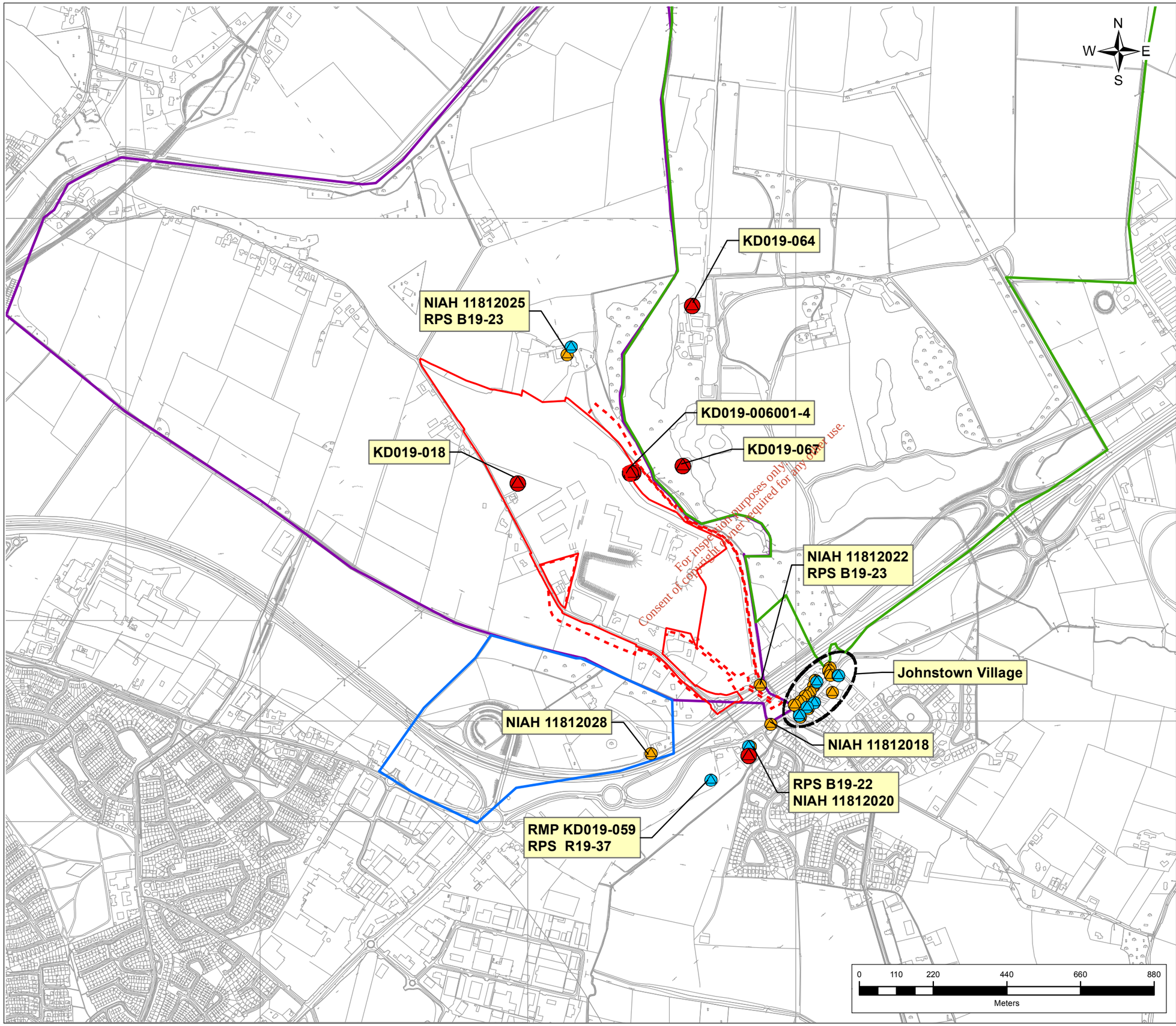
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FIGURE 10.1





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Recorded Monuments
- Protected Structures
- NIAH Buildings
- Roseborough Demense
- Palmerstown Demense
- Kerdiffstown Demense

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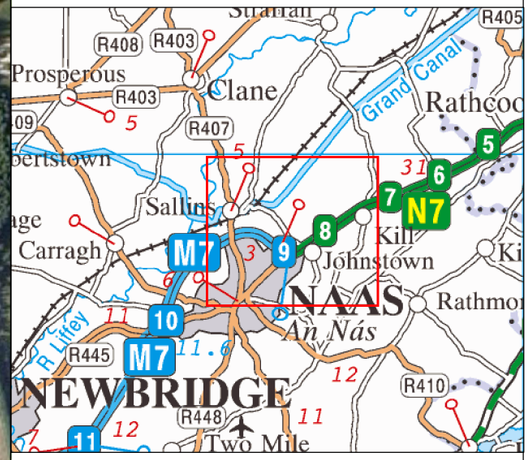
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Drawing No.	32EW5604-811 P1	Rev 1

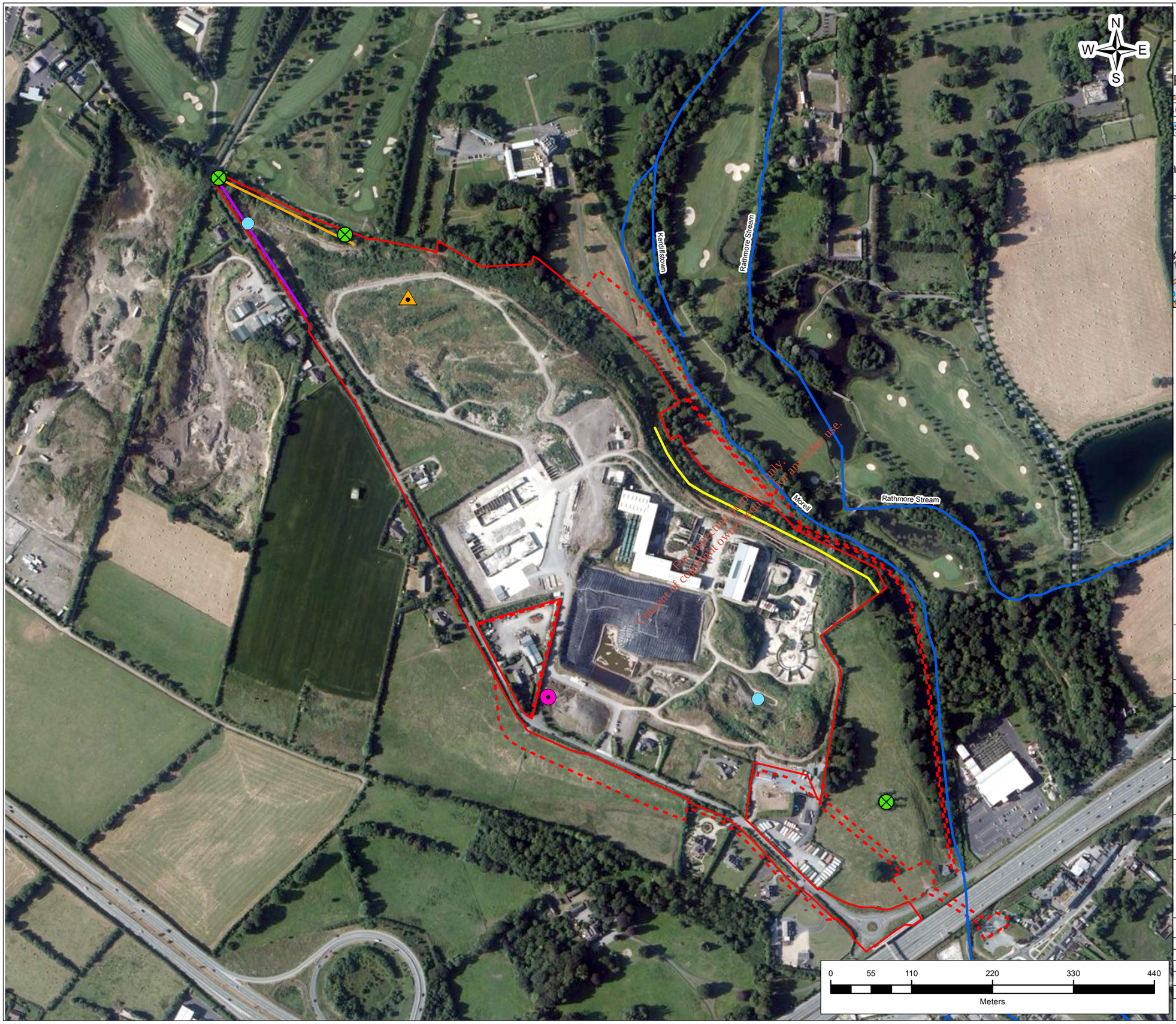
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FIGURE 11.1





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Frog Spawn
- Badger latrine
- Building with Potential Roost Feature (now demolished)
- Tree with Potential Roost Feature (High Potential)
- Immature tree line with Potential Roost Feature (Low Potential)
- Mature tree line with Potential Roost Feature (Medium Potential)
- Mature tree line with Potential Roost Feature (High Potential)
- Rivers

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Drawing Title: FIGURE 11.1 - FAUNA SURVEY MAP

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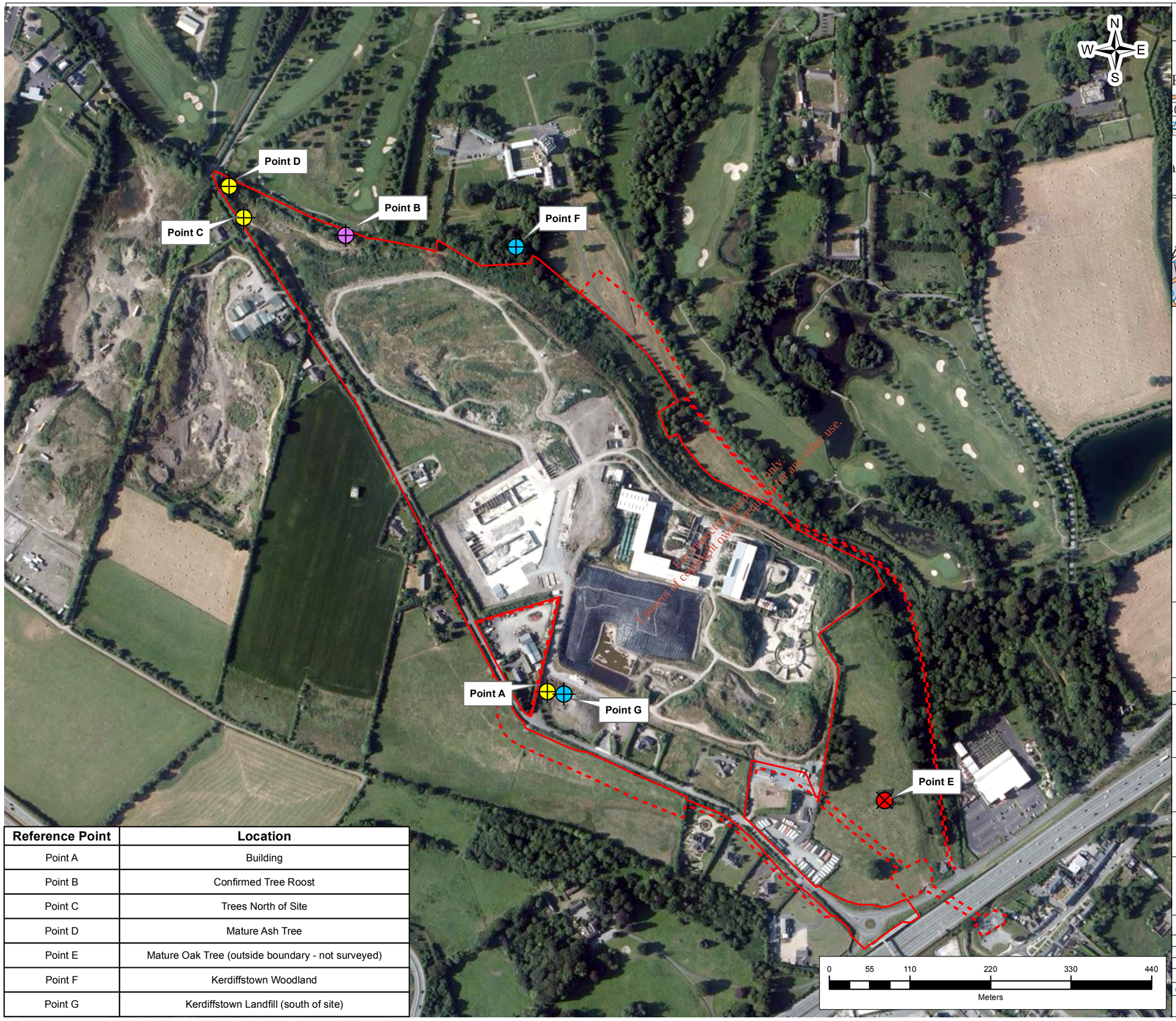
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Client No.	6286	
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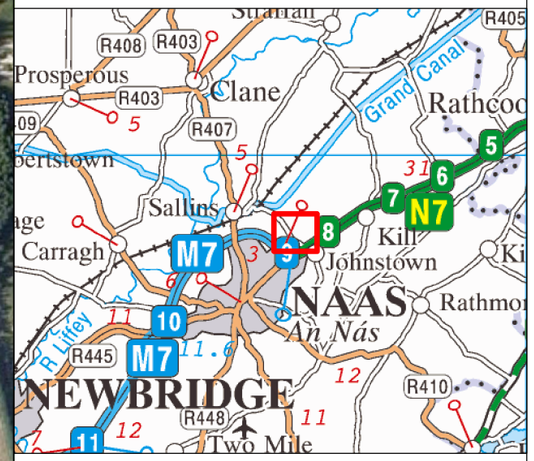
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FIGURE 11.2





Reference Point	Location
Point A	Building
Point B	Confirmed Tree Roost
Point C	Trees North of Site
Point D	Mature Ash Tree
Point E	Mature Oak Tree (outside boundary - not surveyed)
Point F	Kerdiffstown Woodland
Point G	Kerdiffstown Landfill (south of site)

Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Confirmed bat roost
- Dusk/dawn emergence survey location
- Static recorder location
- Survey not required

Note: Point E was included in the site assessment, however it was deemed that a survey was not required.

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Drawing Title: FIGURE 11.2 - BAT SURVEY LOCATIONS

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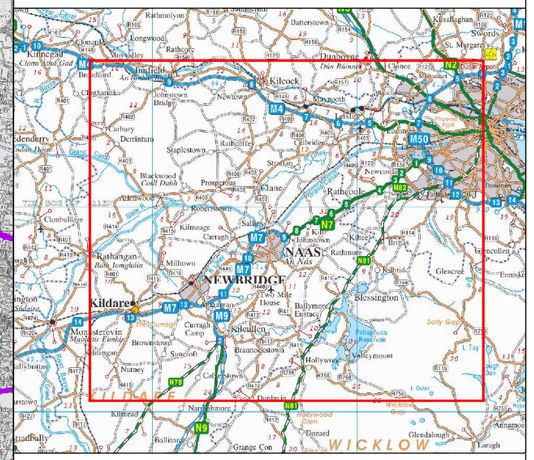
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Client No.	6286	
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FIGURE 11.3



N
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Ballina Bog pNHA
Carbury Bog NHA
Donadea Wood pNHA
Hodgestown Bog NHA
The Long Derries, Edenderry pNHA
Ballynafagh Bog pNHA
Ballynafagh Lake pNHA
Ballynafagh Bog SAC
Grand Canal pNHA
Ballynafagh Lake SAC
Mouds Bog SAC
Mouds Bog pNHA
Pollardstown Fen pNHA
Pollardstown Fen SAC
Curragh (Kildare) pNHA
Liffey At Osberstown pNHA
Rye Water Valley/Carton pNHA
Rye Water Valley/Carton SAC
Royal Canal pNHA
Liffey Valley pNHA
Dodder Valley pNHA
Lugmore Glen pNHA
Slade Of Saggart And Crooksling Glen pNHA
Glenasmole Valley pNHA
Glenasmole Valley SAC
Wicklow Mountains SAC
Glencree Valley pNHA
Kilteel Wood pNHA
Red Bog, Kildare pNHA
Red Bog, Kildare SAC
Liffey Bank Above Athgarvan pNHA
Liffey Valley Meander Belt pNHA
Poulaphouca Reservoir pNHA
Poulaphouca Reservoir SPA
Wicklow Mountains SPA
Newtown Marshes pNHA
Dunlavin Marshes pNHA
Hollywood Glen pNHA
River Barrow And River Nore SAC

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0 1.75 3.5 7 10.5 14
Kilometres

Legend

- Site Location
- 10 km Buffer of Site
- 20 km Buffer of Site
- Special Area of Conservation (SAC)
- Special Protected Area (SPA)
- Natural Heritage Areas (NHA)
- Proposed Natural Heritage Areas (pNHA)

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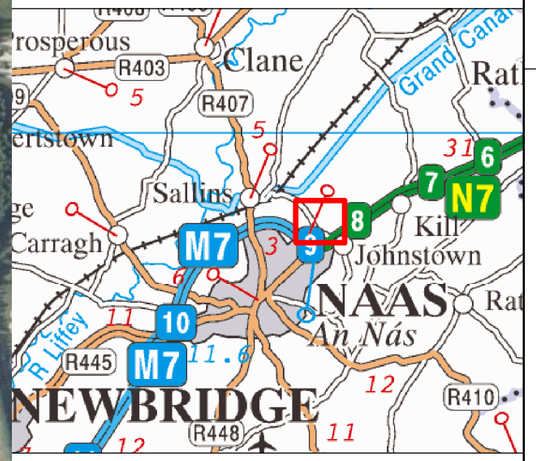
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FIGURE 11.4





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Japanese Knotweed
- BL3 Buildings and Artificial Surfaces
- BL2 Earth Banks
- ED2 Spoil and Bare Ground
- ED3 Recolonising Bare Ground
- FW2 Rivers
- FW4 Drainage Ditch
- FL8 Other Artificial Lakes and Ponds
- Private Property / Amenity
- GA1 Improved Agricultural Grassland
- GS2 Dry Meadows and Grassy Verges
- GS4 Wet Grassland
- WD1 Mixed Broadleaved Woodland
- WD5 Scattered Trees and Parkland
- WL1 Hedgerows
- WL2 Tree Line
- WS1 Scrub

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Drawing Title: FIGURE 11.4 - HABITAT MAP

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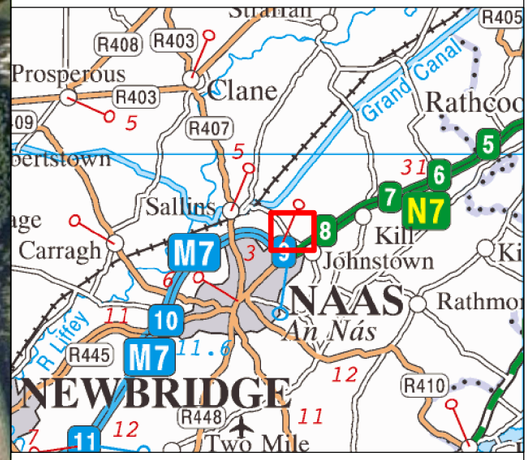
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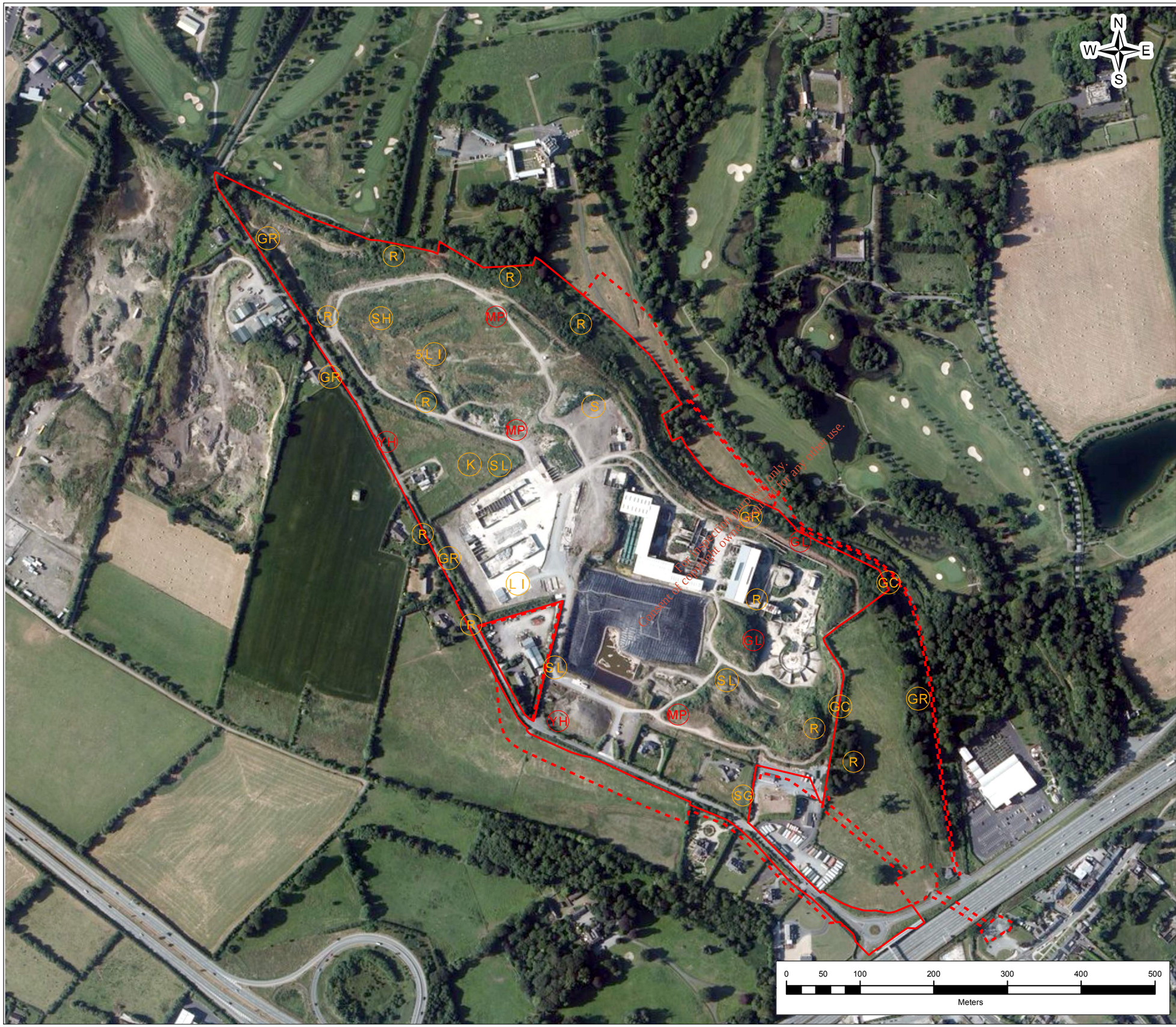
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FIGURE 11.5





Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- SL Swallow
- 5 L I 5 Pairs of Linnets
- GC Goldcrest
- K Kestrel
- S Skylark
- GR Greenfinch
- YH Yellowhammer
- SH Sparrowhawk
- R Robin
- SG Starling
- GL Grey wagtail
- MP Meadow pipit
- L I Linnet

Note 1: Only Amber-listed and Red-listed species were mapped.

Note 2: Red / Amber circle indicates confirmed / probable breeder.

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Drawing Title: FIGURE 11.5 - BREEDING BIRDS

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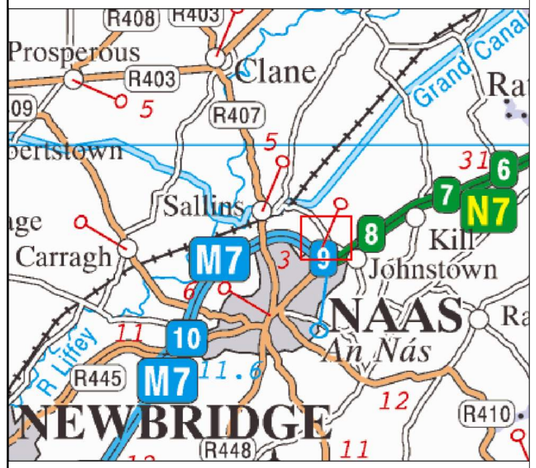
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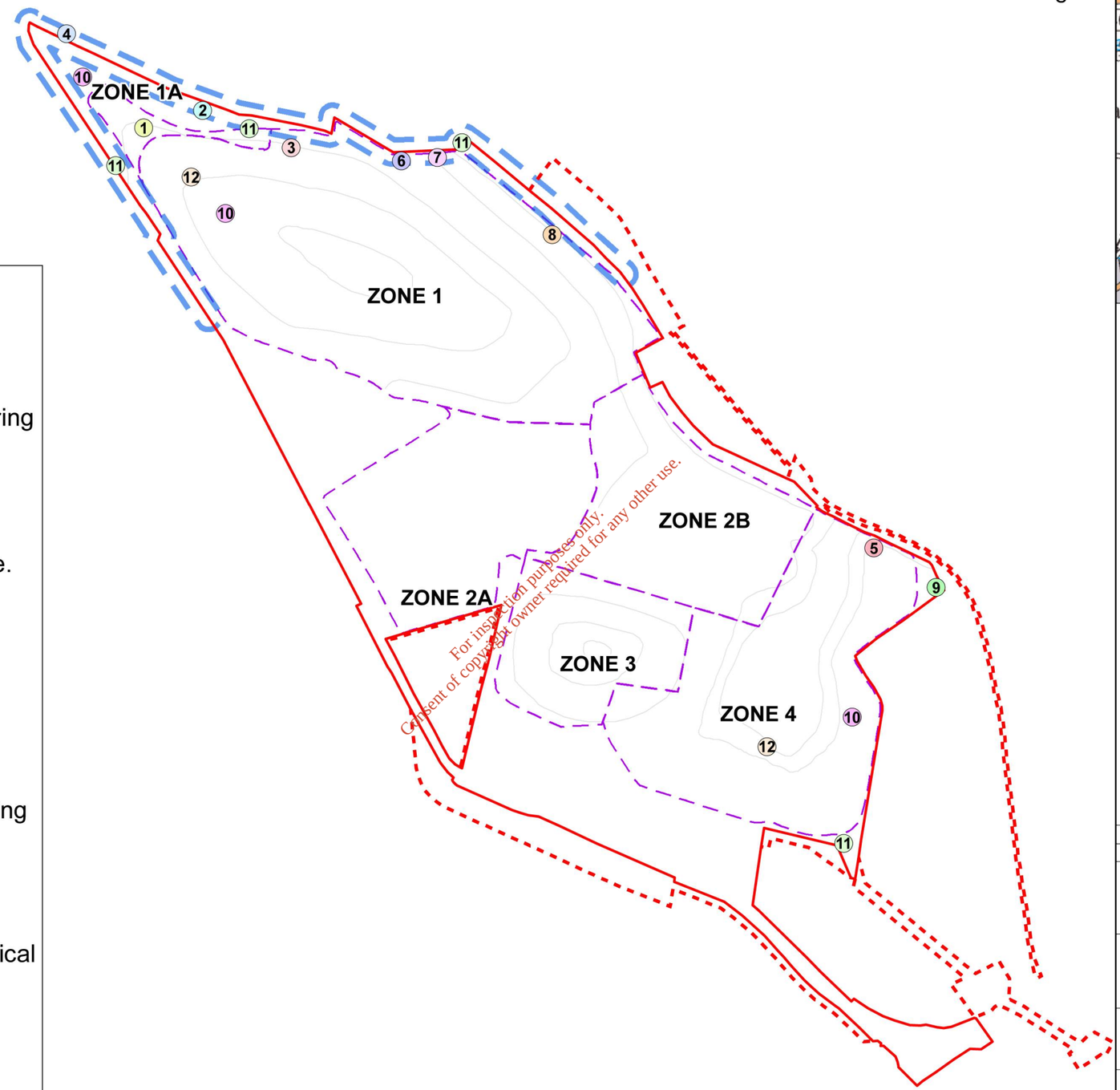
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FIGURE 11.6



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Inferred Zone Boundary



N
W E
S

0 65 130 260 390 520
Metres

1. Pre-construction survey for badger. Removal of log piles under ecologist supervision. Exclusion of BS1 (see Section 11.5, Chapter 11).
2. Protect tree (confirmed bat roost) during works.
3. Install mammal proof fencing once capping complete.
4. Maintain Area open for use by wildlife.
5. Crayfish translocation / no instream works October - June (inclusive).
6. All works within 50m of BS2 under licence and supervision of ecologist (see Section 11.5, Chapter 11).
7. Extend mammal proof fencing following capping.
8. Install final section of mammal proof fencing.
9. Indicative location for creation of artifical sand martin bank.
10. Indicative location for reptile hibernacula.
11. Indicative location for bat, bird and hedgehog boxes.
12. Wetland planting / surface water ponds.

No lighting of retained habitats to avoid impacts on bat roosting / foraging habitat.

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Drawing Title: FIGURE 11.6 - ECOLOGICAL MITIGATION & ENHANCEMENTS

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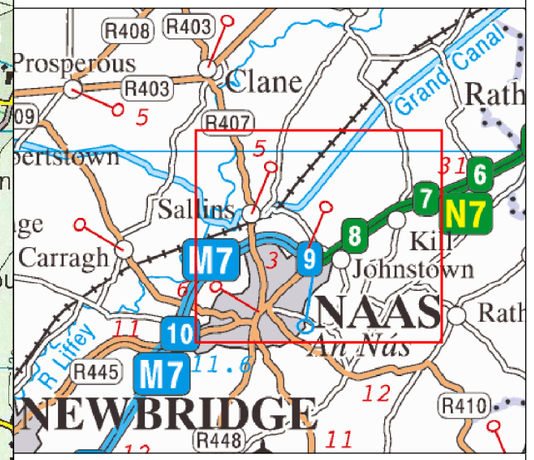
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FIGURE 12.1



Legend

- Site Location
- 3km Buffer of Site

Well Locations

- Agricultural and domestic use
- Industrial use

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Drawing Title: FIGURE 12.1 - GEOLOGY, SOILS, CONTAMINATED LAND AND GROUNDWATER STUDY AREA

Drawing Status: EIAR SUBMISSION

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FIGURE 12.2

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KEY;

- Licence Boundary
- Inferred Waste Extents
- Inferred Zone Boundary

EXPLORATORY HOLE DATA:

PRE 2010

- Groundwater Monitoring Well

2010 PGL

- Borehole

2012 IGSL

- Borehole
- Trial Pit
- Environmental Monitoring Well

2012 GSIL

- Environmental Monitoring Well

2016 IGSL

- Borehole
- Trial Pit
- Gas Extraction Well

NOTES:

1. This drawing is in draft pending the final factual report from the 2016 IGSL Ground Investigation.
2. Site features based on survey provided by Coastway - Chartered Geospatial Engineering Surveyors, Drg No. 1105-001 Rev11 b, 10/2/2012.
3. Topographical survey undertaken by Baseline Surveys Ltd, 15th February 2016.

0 50 100 150 200 m

SCALE 1 : 2000

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.2 GROUND INVESTIGATION LOCATIONS AT EXISTING SITE

Drawing status: EIAR SUBMISSION

Scale.	1:2000 @ A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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Client no.	6286	
Drawing number	32EW5604-00-002	Rev 2

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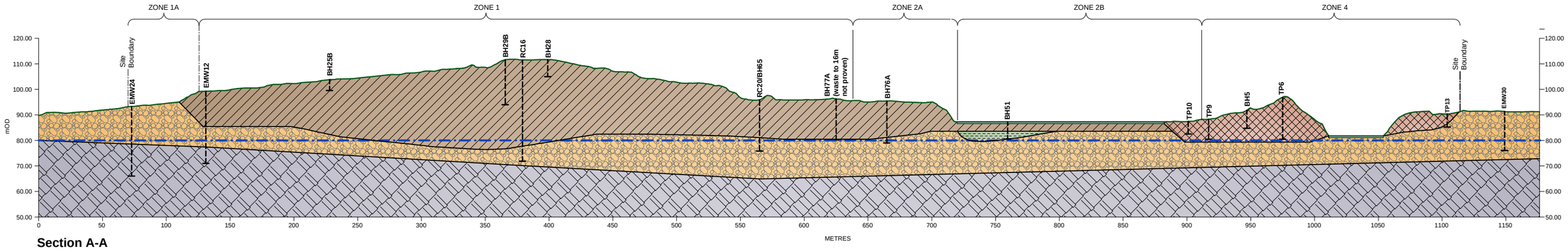
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Drawing number / Rev

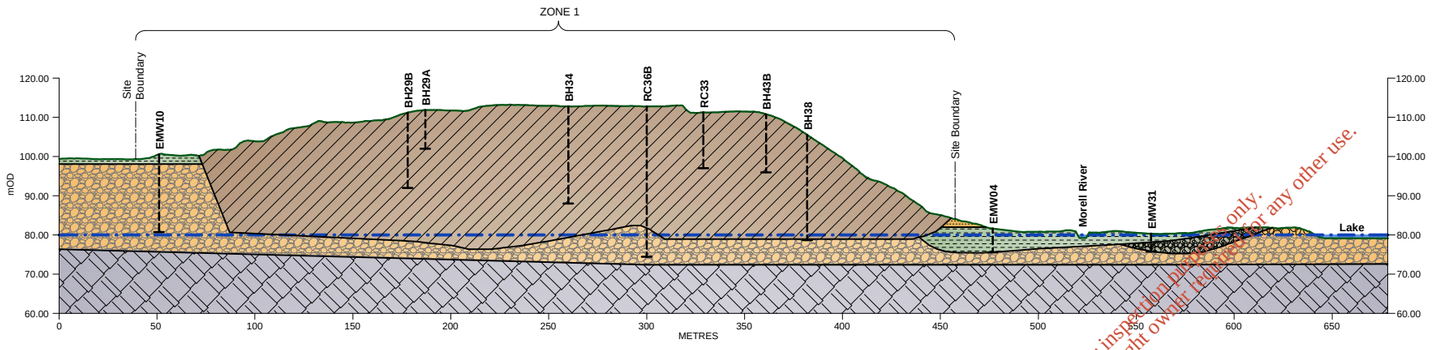
32EW5604-00-003-2

FIGURE 12.3



Section A-A

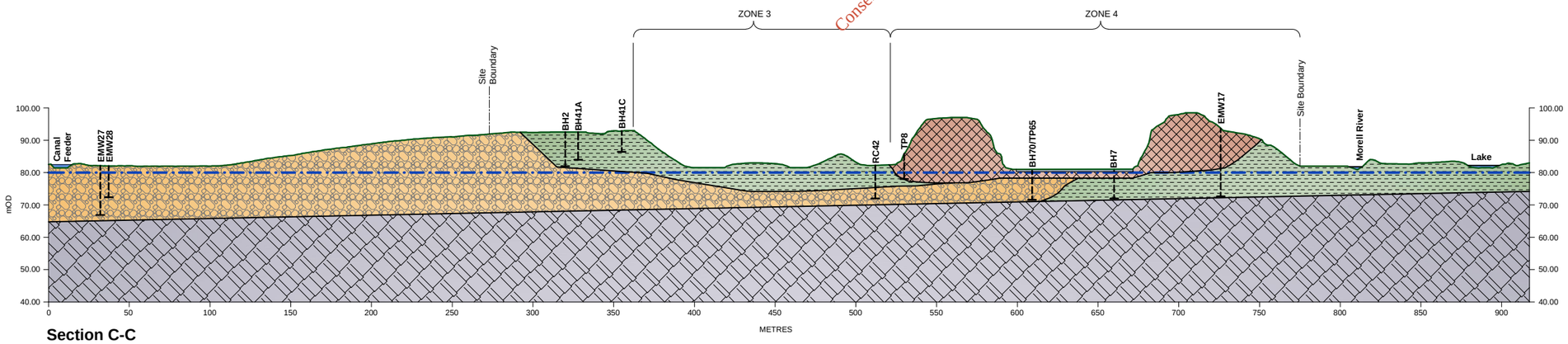
(Vertical exaggeration x2)



Section B-B

(Vertical exaggeration x2)

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Section C-C

(Vertical exaggeration x2)

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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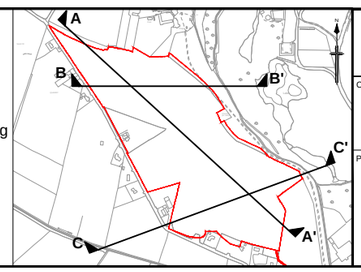
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KEY:

- Gravel
- Sand and Gravel
- Sand
- Clay/Silt
- Concrete
- Landfill Dominated by Municipal Waste
- Made Ground
- Bedrock (transition zone in upper 2m to 5m)
- Groundwater Table (overburden)

NOTES:

1. Ground levels based on site contours shown on Drawing No. 32EW5604-00-001 (Figure 4.1).
2. Levels are in metres above Ordnance Datum (mOD) (Malin Head).
3. Existing site buildings / drawings omitted for clarity.
4. See Drawing 32EW5604-00-002 (Figure 12.2) for exploratory hole locations.



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Drawing title: FIGURE 12.3 GEOLOGICAL CROSS SECTIONS

Drawing status: EIAR SUBMISSION

Scale	AS SHOWN	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
Jacobs No.	32EW5604	
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Drawing number: 32EW5604-00-003 Rev: 2

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32EW5604-00-004-2

FIGURE 12.4

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KEY;

- Licence Boundary
- Approximate Extent of Quarrying
- Inferred Zone Boundary
- Basal Contours mOD (Malin Head)
- (80.74) Base of Waste mOD (Malin Head

EXPLORATORY HOLE DATA:

PRE 2010

- Groundwater Monitoring Well

2010 PGL

- Borehole

2012 IGSL

- Borehole
- Environmental Monitoring Well

2012 GSIL

- Environmental Monitoring Well

2016 IGSL

- Borehole
- Gas Extraction Well
- Boreholes where significant thickness of waste encountered but base of waste not reached. Base of waste therefore will be deeper than shown

NOTES:

1. 1. For detailed description of Zones, refer to Chapters 3 and 12 of the EIAR.

0 50 100 150 200 m

SCALE 1 : 2000

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Drawing title: FIGURE 12.4 WASTE BASAL CONTOURS

Drawing status: EIAR SUBMISSION

Scale	1:2000 @ A1	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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Client no.	6286	

Drawing number: 32EW5604-00-004 Rev 2

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FIGURE 12.5

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KEY:

- Licence Boundary
- Inferred Waste Boundary
- Inferred Zone Boundary

THICKNESS OF WASTE MATERIAL:

- 0m - 2m
- 2m - 4m
- 4m - 6m
- 6m - 8m
- 8m - 10m
- 10m - 12m
- 12m - 14m
- 14m - 16m
- 16m - 18m
- 18m - 20m
- 20m - 22m
- 22m - 24m
- 24m - 26m
- 26m - 28m
- 28m - 30m
- 30m - 32m
- 32m - 34m
- 34m - 36m

NOTES:
1. For detailed description of Zones, refer to Chapters 3 and 12 of the EIAR.

0 50 100 150 200 m

SCALE 1 : 2000

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.5
WASTE THICKNESS

Drawing status: EIAR SUBMISSION

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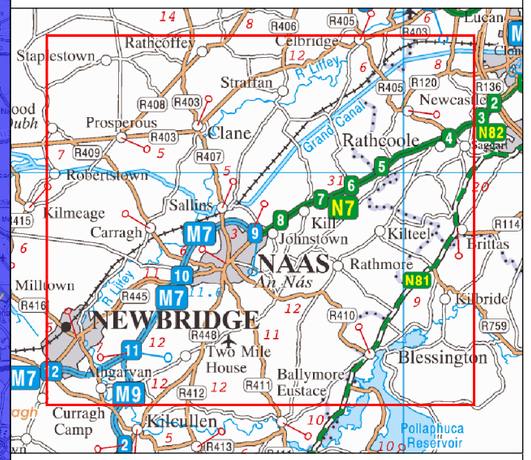
Drawing number: 32EW5604-00-005
Rev: 2

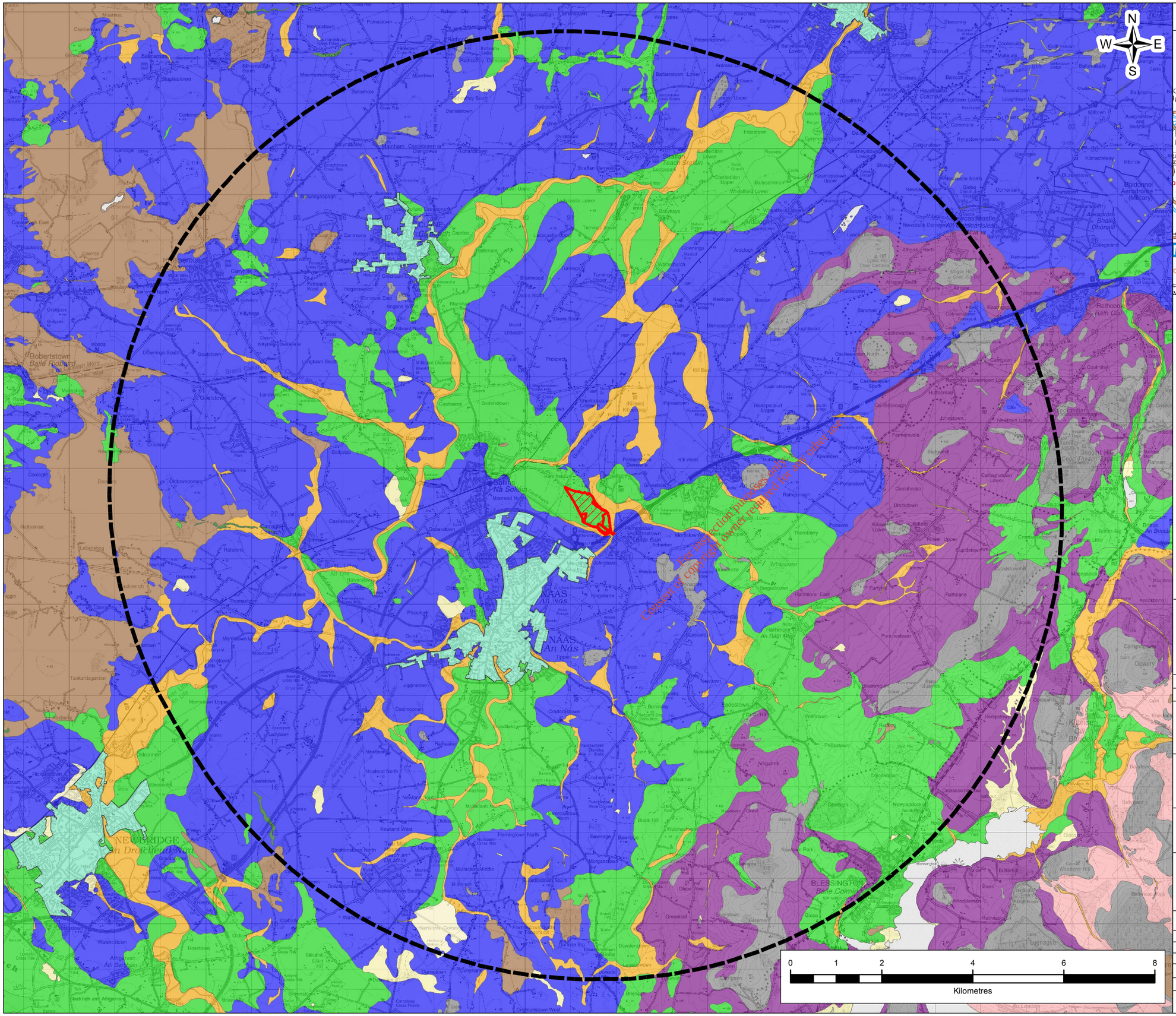
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FIGURE 12.6





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Legend

- Site Location
- 10 km Buffer of Site
- Alluvium
- Alluvium (gravelly)
- Blanket peat
- Fen peat
- Cutover raised peat
- Esker comprised of gravels of basic reaction
- Gravels derived from Lower Palaeozoic sandstones and shales
- Gravels derived from limestones
- Gravels derived from granites
- Bedrock outcrop or subcrop
- Karstified bedrock outcrop or subcrop
- Lacustrine sediments
- Lake marl
- Till derived from granites
- Till derived from Lower Palaeozoic sanstones and shales
- Till derived from limestones
- Urban
- Water

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Drawing Title: FIGURE 12.6 - REGIONAL GEOLOGY - OVERBURDEN

Drawing Status: EIAR SUBMISSION

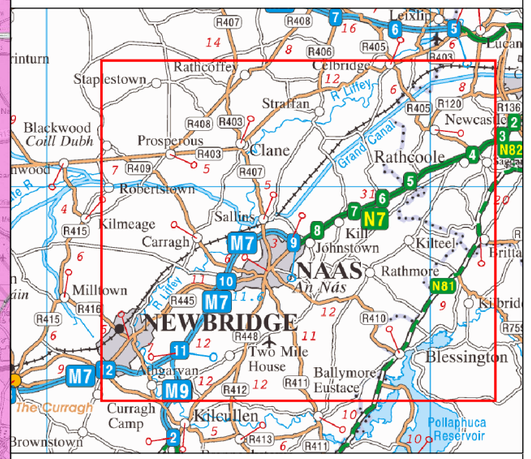
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Jacobs No.	32EW5604	
Client No.	6286	
Drawing No.	32EW5604-820 P1	Rev 1

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FIGURE 12.7



Legend

- Site Location
- Anticlinal axis
- Fault
- Synclinal axis
- 10 km Buffer of Site
- Aghfarrell Formation
- Allenwood Formation
- Aplite
- Ballysteen Formation
- Boston Hill Formation
- Butter Mountain Formation
- Calp
- Carrighill Formation
- Cloghan Sandstone Formation
- Dolerite
- Dowery Hill Member
- Feighcullen Formation
- Ferbane Mudstone Formation
- Glen Ding Formation
- Lucan Formation
- Old Red Sandstone (undifferentiated)
- Pollaphuca Formation
- Quinagh Formation
- Rickardstown Formation
- Slate Quarries Formation
- Tipperkevin Formation
- Tober Colleen Formation
- Type 1 granodiorite
- Type 2e equigranular
- Type 2p microcline porphyritic
- Type 3 muscovite porphyritic
- Waulsortian Limestones

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Drawing Title: FIGURE 12.7 - REGIONAL GEOLOGY - BEDROCK

Drawing Status: EIAR SUBMISSION

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0 1 2 4 6 8
Kilometre

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Drawing number / Rev
32EW5604-00-006-2

EWM24
B.L
76.34mOD

BH60
B.L
79.48mOD

DB1
B.L
76.20mOD

EMW12
B.L
78.88mOD

EMW22
B.L
68.39mOD

DB2
B.L
68.98mOD

BB2
B.L
62.12mOD

BB1
B.L
68.37mOD

EMW19
B.L
70.45mOD

BB4
B.L
74.88mOD

BH68
B.L
67.76mOD

BB3
B.L
74.10mOD

Sand Pit
QUARRY
Kerdiffstown House
Pool
Chapel
FB
Church (in ruins)
Lake
Morell River
Kerdiffstown Road
75.00
70.00
65.00

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N

0 50 100 150
METRES

FIGURE 12.8

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KEY:

- Licence Boundary
- Bedrock Contours - metres OD (Malin Head)
- Environmental Monitoring Well (2012 IGSL)
- Environmental Monitoring Well (2012 GSIL)
- Borehole (2016 IGSL)
- B.L — Bedrock Level Recorded in Borehole - metres OD (Malin Head)

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.8
BEDROCK ELEVATION

Drawing status: EIAR SUBMISSION

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Drawing number / Rev
32EW5604-00-007-2

EWM24
B.D 19.50m bgl

DB1
B.D 18.60m bgl

BH60
B.D 16.80m bgl

EMW12
B.D 13.00m bgl

EMW22
B.D 19.50m bgl

DB2
B.D 24.00m bgl

BB2
B.D 25.00m bgl

BB1
B.D 12.50m bgl

EMW19
B.D 10.00m bgl

BB4
B.D 6.70m bgl

BH68
B.D 26.80m bgl

BB3
B.D 18.65m bgl

Sand Pit
QUARRY
Pool
Chapel
House
FB
Church (in ruins)
Lake
Morell River
Kerdiffstown Road
20.00
25.00
15.00
30.00
35.00
40.00
45.00
10.00

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N

0 50 100 150
METRES

FIGURE 12.9

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KEY:

- Licence Boundary
- 20.00 — Depth to Bedrock - mbgl
- Environmental Monitoring Well (2012 IGSL)
- Environmental Monitoring Well (2012 GSIL)
- Borehole (2016 IGSL)
- B.D — Bedrock Depth Recorded in Borehole - mbgl

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Project
KERDIFFSTOWN LANDFILL
REMEDIATION PROJECT

Drawing title
FIGURE 12.9
DEPTH TO BEDROCK

Drawing status
EIAR SUBMISSION

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Client no.	6286

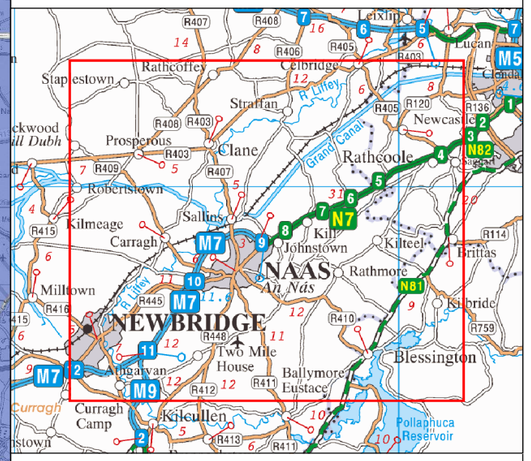
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FIGURE 12.10



Legend

- Site Location
- 10 km Buffer of Site
- Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- Locally Important Aquifer - Karstified
- Poor Aquifer - Bedrock which is Generally Unproductive
- Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Regionally Important Aquifer - Karstified (diffuse)

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Drawing Title: FIGURE 12.10 - AQUIFER CLASSIFICATION

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Client No.	6286	
Drawing No.	32EW5604-822 P2	Rev 2

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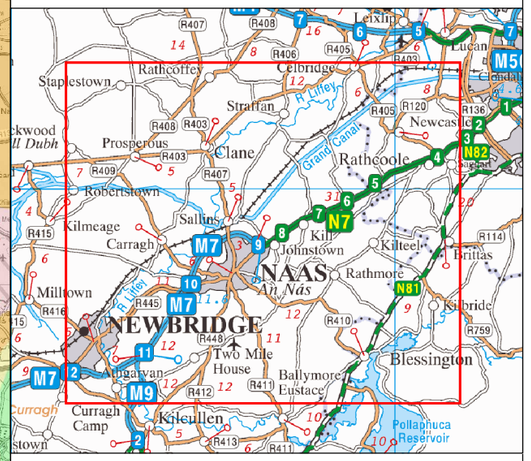
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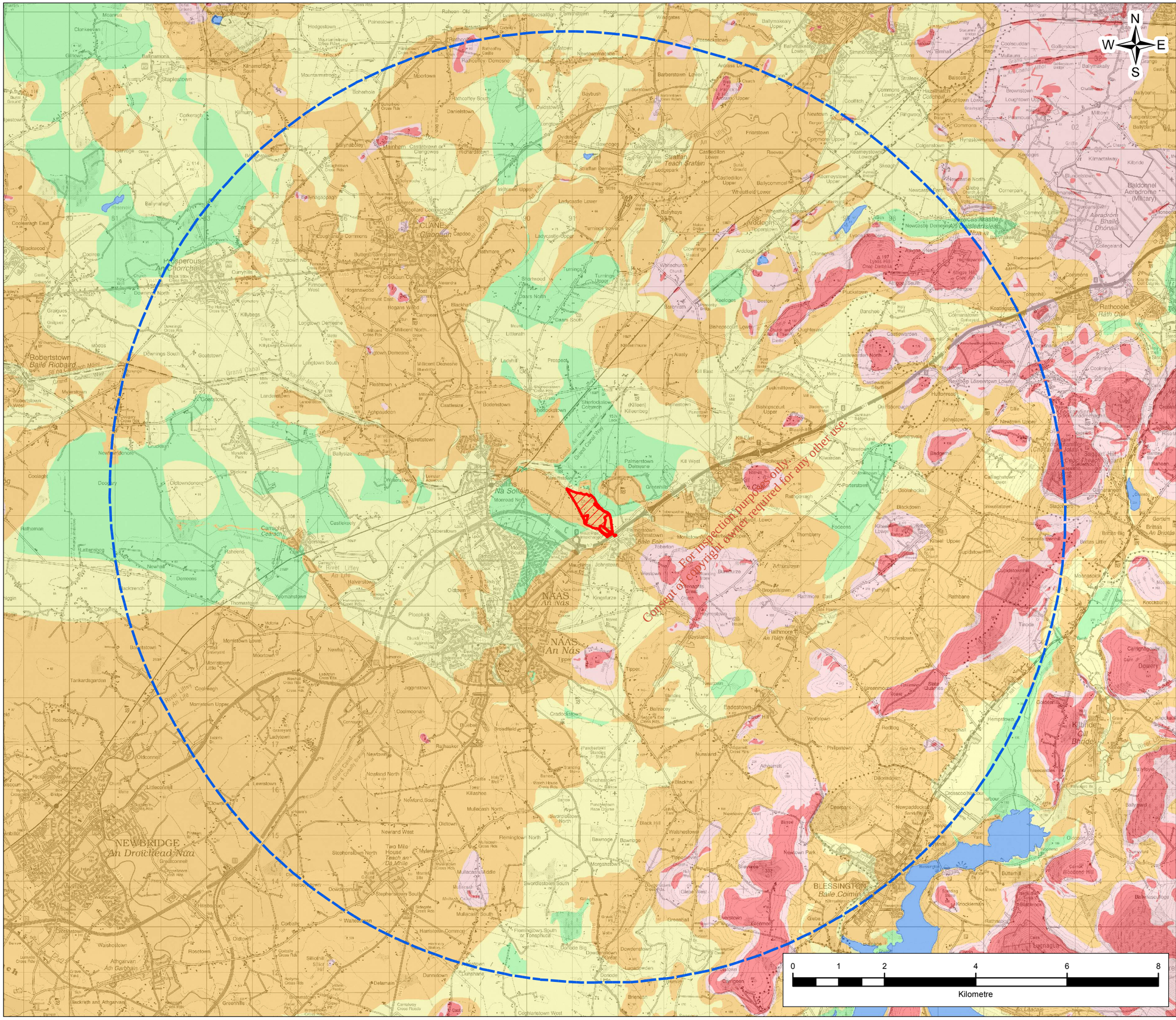
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0 1 2 4 6 8
Kilometre

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FIGURE 12.11





0 1 2 4 6 8

Kilometre

Legend

- Site Location
- 10 km Buffer of Site
- Extreme Groundwater Vulnerability
- High Groundwater Vulnerability
- Low Groundwater Vulnerability
- Moderate Groundwater Vulnerability
- Waterbody (Lakes & Reservoirs)
- Rock at or near Surface or Karst

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Drawing Title: FIGURE 12.11 - GROUNDWATER VULNERABILITY

Drawing Status: EIAR SUBMISSION

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Client No.	6286	
Drawing No.	32EW5604-823 P1	Rev 1

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Drawing number / Rev
32EW5604-00-008-2

EMW24
BH60 (D)
DB1
EMW12
DB2
EMW22
EMW23
DB3
EMW21
RM1
EMW33
EMW32
EMW13
RM2
DB4 (D)
BB2
EMW06
BH61 (D)
BH26
BH62A (D)
RM3
EMW05
EMW09 (D)
DB15A (D)
EMW10 (D)
BH63 (D)
RM4
EMW03
EMW02
EMW31
BH38
EMW04
RM4
BH64 (D)
BH36B
BH67 (D)
DB5
EMW20
EMW14
RM5
DB14A (D)
BH39B (D)
BH66 (D)
EMW08
BH65 (D)
BB1
EMW07
RM6
BH48
BH77A
EMW19
BH79 (D)
EMW15
DB6
EMW11
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DB12 (D)
BH71
BH70
BH42
GW2S
BH6
BH2
GW1D
BH41D
BH72
DB8A
DB10A
BH73 (D)
EMW30
EMW27D
EMW28
DB9
EMW29

Pool
Chapel
FB
Sand Pit
QUARRY
Lake
Church (in ruins)
Spring
N

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0 50 100 150
METRES

FIGURE 12.12

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KEY:

- Licence Boundary
- Groundwater Monitoring Point
- (D) Borehole Dry, January 2017
- Overburden GW
- Bedrock
- In-Waste Boreholes

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Client
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Comhairle Contae Chill Dara

Project
KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title
FIGURE 12.12
LOCATION OF GROUNDWATER MONITORING WELLS

Drawing status
EIAR SUBMISSION

Scale	AS SHOWN @A3	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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Drawing number / Rev

32EW5604-00-009-2

FIGURE 12.13

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KEY:

- Licence Boundary
- Groundwater Monitoring Point
- Inferred Groundwater Contour (mOD)

DB1 77.32
EMW23 79.23
DB3 79.81
EMW21 77.48
RM1 78.25
EMW33 79.73
EMW32 78.59
EMW13 79.50
RM2 78.27
EMW06 82.34
BH26 79.09
EMW05 78.27
RM3 79.07
EMW02 79.82
EMW31 78.69
RM4 79.01
EMW04 80.33
BH36B 77.94
DB5 77.98
EMW20 78.74
RM5 79.31
EMW08 78.79
EMW07 78.86
RM6 79.14
BH77A 87.04
EMW15 78.68
DB6 78.98
EMW18 78.60
BH80 81.08
EMW11 78.45
BH75 91.74
BH76A 82.51
EMW16 79.60
BH78 84.62
BH69 83.05
EMW17 79.78
BH7 79.06
BH71 82.16
BH70 79.56
BH42 79.19
GW2S 78.86
BH6 79.39
BH2 84.72
BH72 80.94
DB8A 79.64
BH10A 88.25
EMW30 79.28
EMW28 81.00
EMW27 80.99
DB9 87.68
EMW29 81.51

79m 78m 78m 79m 80m 81m 80m 81m

Kerdiffstown House
Pool
Chapel
FB
Sand Pit
QUARRY
Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.13 GROUNDWATER LEVELS - OVERBURDEN

Drawing status: EIAR SUBMISSION

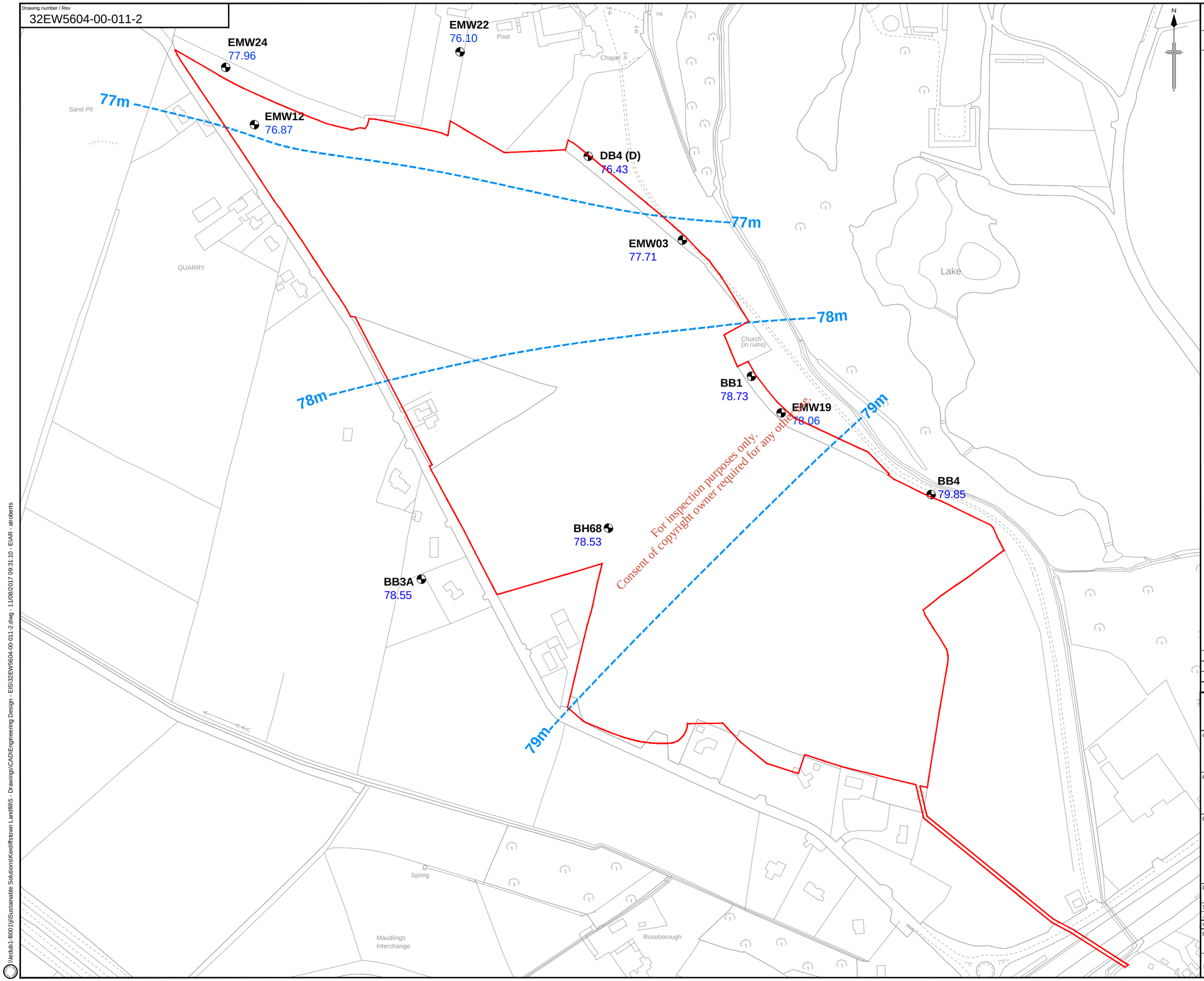
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Client no.	6286
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FIGURE 12.14

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KEY:

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- Groundwater Monitoring Point
- Inferred Groundwater Contour (mOD)

NOTE:
Groundwater contours shown are interpolated based on the whole monitoring data set and considering hydrogeological principles

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Project
KERDIFFSTOWN LANDFILL
REMEDIATION PROJECT

Drawing title
FIGURE 12.14
GROUNDWATER LEVELS -
BEDROCK

Drawing status
EIAR SUBMISSION

Scale	NTS @A3	DETAILS SHOWN ARE NOT FOR CONSTRUCTION PURPOSES HENCE DRAWING SHOULD NOT BE SCALED
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Drawing number / Rev

32EW5604-00-010-2



FIGURE 12.15

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KEY:

- Licence Boundary
- Inferred Zone Boundary
- Approximate Extent of Quarrying
- Waste Basal Contours metres OD (Malin Head)
- Approximate Area of Saturated Waste. Areas shown are those where the base of waste is below 80m OD (Malin Head)
- Potential Area of Saturated Waste
- Boreholes where groundwater was measured above the basal level of waste in February 2017. * these boreholes are potentially recording perched water levels.
- (0.19) Depth of Waste Below 80m OD Contour (m)
- (1.63) Depth of Waste Below Measured Water Level (m)

NOTES:

1. For detailed description of Zones, refer to Chapters 3 and 12 of the EIAR.

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.15
SATURATED WASTE THICKNESS AND AREAS OF SATURATED WASTE

Drawing status: EIAR SUBMISSION

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FIGURE 12.16

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KEY:

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- Groundwater Monitoring Point

AMMONIACAL NITROGEN CONCENTRATIONS:

- < 0.5mg/l
- 0.5 - 5mg/l
- 5 - 50mg/l
- >50mg/l

EMW24 <0.06
EMW22 <0.06
EMW23 <0.06
EMW12 <0.06
EMW13 165
BH26 129
EMW09
EMW10
EMW11 <0.06
EMW21 <0.06
RM05 1.88
EMW33 0.2
RM02 0.37
EMW06 <0.06
EMW05 1.45
RM03 0.82
EMW02 <0.06
EMW03 23.8
EMW31 2.82
BH38
EMW04 0.27
RM04 2.43
BH36B 1.65
DB05 0.44
EMW20 1.06
EMW14
RM05 0.53
EMW08 <0.06
BH39B
EMW07 4.89
RM06 0.3
EMW19 3.85
BH48
EMW15 4.4
DB06 0.48
EMW18 0.44
BH40B
EMW32 0.12
EMW16 5.18
BH24
EMW17 1.39
BH7 0.64
BH42 3.42
GW2S 0.32
BH6 <0.06
BH2
BH41D
GW2D <0.06
EMW30 <0.06
EMW27D 0.23
EMW28 0.38
EMW29 0.12

Sand Pit
QUARRY
Pool
Chapel
FB
Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough

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Drawing title: FIGURE 12.16
DISTRIBUTION OF AMMONIACAL NITROGEN (DECEMBER 2016)

Drawing status: EIAR SUBMISSION

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FIGURE 12.17

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KEY:

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- Groundwater Monitoring Point

CHLORIDE CONCENTRATIONS:

- <30mg/l
- 30mg/l - 100mg/l
- 100mg/l - 200mg/l
- >200mg/l

EMW24 18.4
EMW22 35
EMW23 11.4
EMW12 31
EMW13 221
BH26 412
EMW21 4.1
RM05 35.1
EMW33 16.1
RM02 21.0
EMW32 18.2
EMW06 5.7
RM03 41.9
EMW05 24.8
EMW02 7.6
EMW03 59.3
EMW31 19.9
EMW04 40.5
RM04 27.8
BH36 139
DB05 17.2
EMW20 19.5
EMW14
RM05 42.4
BH39B
EMW08 8.6
EMW07 31.1
RM06 18.3
EMW19 27.5
DB06 17.0
EMW15 50.3
EMW18 17.4
EMW11 51.7
BH40B
EMW16 153
EMW17 19.5
BH7 64.7
BH42 25.1
GW2S 31.8
BH6 26
BH2
GW1D 170
EMW30 12.1
EMW28 9.9
EMW27 15.1
EMW29 25.2

Sand Pit
QUARRY
Chapel
Pool
FB
Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.17
DISTRIBUTION OF CHLORIDE
(DECEMBER 2016)

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FIGURE 12.18

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KEY:

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- Groundwater Monitoring Point

TOTAL PHENOL CONCENTRATIONS:

- < 1 Õg/l
- 1 Õg/l - < 10 Õg/l
- > 10 Õg/l

EMW24 <0.5
EMW22 <0.5
EMW23 <0.5
EMW12 1.2
EMW13 98
BH26 36
EMW06 1.3
EMW21 <0.5
RM01 <0.05
EMW33 0.67
RM02 <0.05
RM03 <0.05
EMW02 <0.5
EMW05 <0.5
EMW31 <0.5
EMW03 11
EMW04 <0.5
RM04 <0.05
BH36 <0.5
DB05 <0.05
EMW20 <0.5
RM05 <0.5
EMW14
EMW08 <0.5
BH39B
EMW07 <0.5
RM06 <0.5
EMW19 <0.5
DB06 <0.5
EMW18 <0.5
EMW15 <0.5
EMW11 <0.05
BH40B
EMW16 <0.5
EMW32 <0.5
EMW17 <0.5
BH7 <0.5
BH42 <0.5
GW2S <0.5
BH6 <0.5
BH2
GW1D <0.5
EMW30 <0.5
EMW28 <0.5
EMW27 3.2
EMW29 <0.5

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Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough
Pool
Chapel
House
FB

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DISTRIBUTION OF PHENOL
(DECEMBER 2016)

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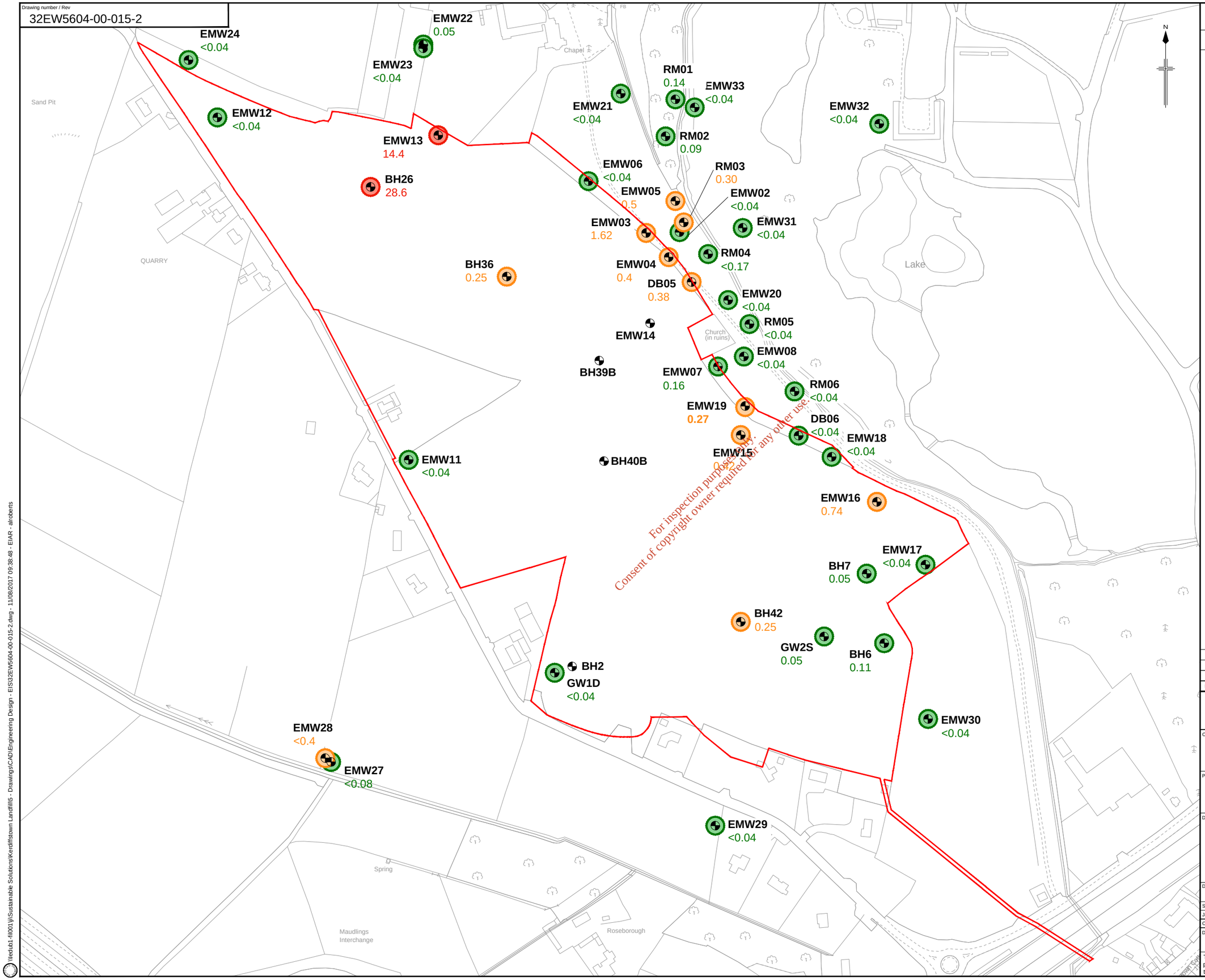


FIGURE 12.19

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KEY:

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MECOPROP CONCENTRATIONS:

- < 0.25 Õg/l
- 0.25 Õg/l - 10 Õg/l
- > 10 Õg/l

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Drawing title: FIGURE 12.19
DISTRIBUTION OF MECOPROP
(DECEMBER 2016)

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FIGURE 12.20

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KEY:

- Licence Boundary
- Groundwater Monitoring Point

Ammoniacal Nitrogen Concentrations

- <0.5mg/l
- 0.5 - 5mg/l
- 5 - 50mg/l
- >50mg/l

EMW24 · DB1 · EMW12 <0.06 · EMW22 · EMW2 · DB2 · EMW13 · DB3 6.38 · EMW21 · RM1 0.08 · EMW33 · RM2 <0.06 · DB4 (D) · EMW06 <0.06 · BB2 <0.06 · EMW05 0.66 · BH26 138 · RM3 0.67 · EMW32 · EMW03 17.7 · EMW31 · EMW02 · EMW04 · RM4 1.45 · EMW01 · DB15A (D) · BH36B · DB5 <0.06 · EMW20 0.78 · RM5 <0.06 · EMW14 · DB14A (D) · BH39B · EMW07 · BB1 1.97 · EMW08 0.11 · RM6 0.33 · EMW18 · BH77A 0.43 · EMW19 1.94 · DB6 0.65 · EMW11 <0.06 · BH40B · EMW15 8.5 · EMW18 · BB4 0.32 · EMW16 5.98 · BH69 19.9 · BH68 <0.06 · BH78 0.09 · EMW17 · DB7 · BB3A <0.06 · DB12 (D) · BH71 6.75 · BH7 · BH42 3.45 · BH70 6.73 · GW2S · BH6 · BH2 · GW2D · BH72 0.15 · DB8A <0.06 · DB10A <0.06 · EMW30 · EMW27D · EMW28 0.61 · DB9 · EMW29 <0.06

Pool · Chapel · Sand Pit · QUARRY · Lake · Church (in ruins) · Spring · Maudlings Interchange · Roseborough · 38kV

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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.20 DISTRIBUTION OF AMMONIACAL NITROGEN (FEBRUARY 2017)

Drawing status: EIAR SUBMISSION

Scale	NTS @A3
Jacobs No.	32EW5604
Client No.	6286

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Drawing number: 32EW5604-00-050 Rev 1

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Drawing number / Rev
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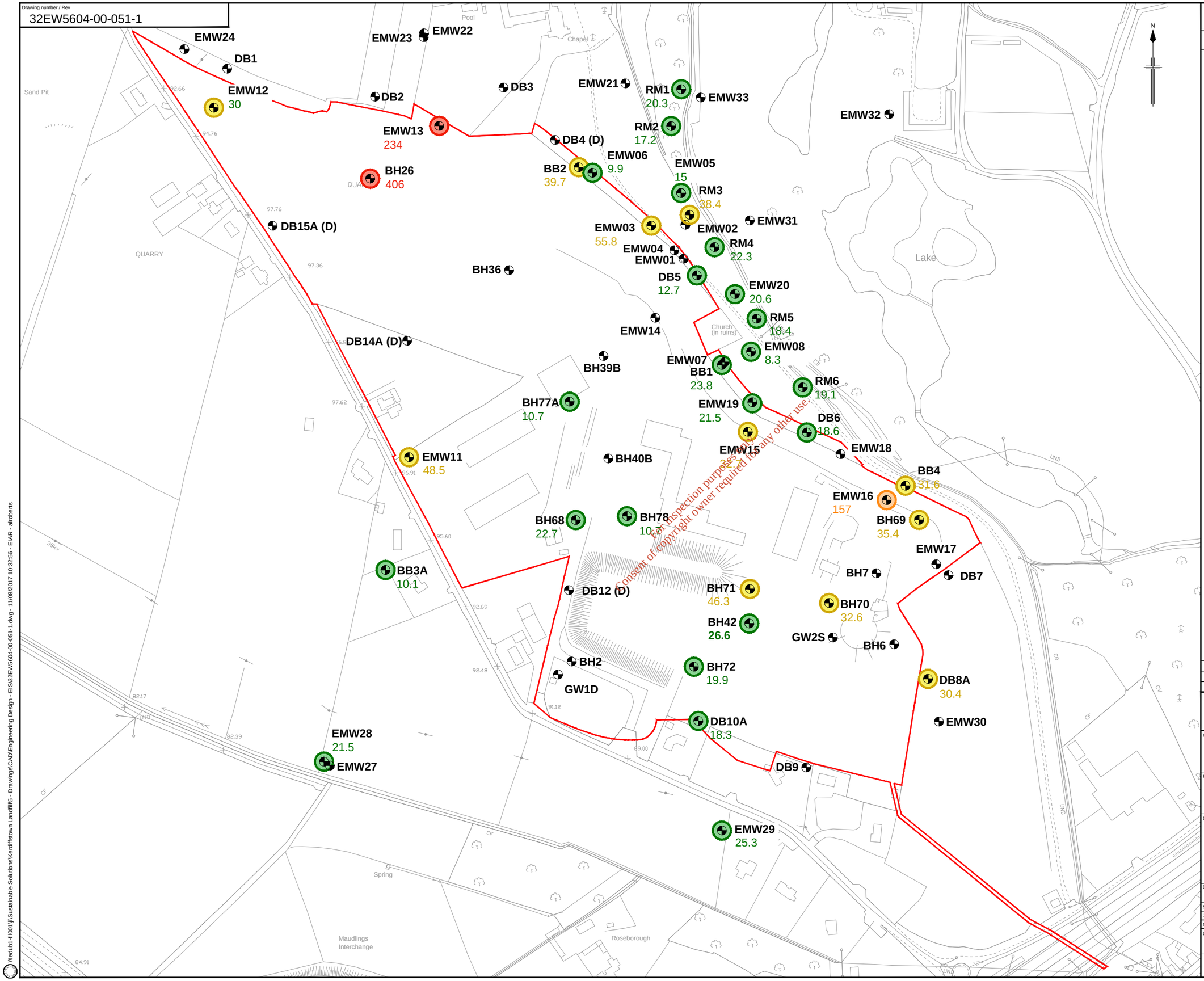


FIGURE 12.21

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KEY:

- Licence Boundary
- Groundwater Monitoring Point

Chloride Distribution

- <30mg/l
- 30mg/l - 100mg/l
- 100mg/l - 200mg/l
- >200mg/l

Rev	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Drawing title: FIGURE 12.21 DISTRIBUTION OF CHLORIDE (FEBRUARY 2017)

Drawing status: EIAR SUBMISSION

Scale	NTS @ A3
Jacobs No.	32EW5604
Client No.	6286
Drawing number	32EW5604-00-051
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Drawing number / Rev
32EW5604-00-052-1

EMW24
DB1
EMW12
EMW23
EMW22
DB2
EMW13
DB3
<0.05
EMW21
RM1
<0.5
EMW33
RM2
<0.5
DB4 (D)
EMW32
BB2
<0.5
EMW06
BH26
EMW05
RM3
8.6
DB15A (D)
EMW03
EMW02
EMW31
RM4
<0.5
EMW04
BH36
DB5
0.67
EMW20
RM5
2.7
EMW14
DB14A (D)
EMW08
BH39B
EMW07
BB1
<0.5
RM6
<0.5
BH77A
7.0
EMW19
DB6
<0.5
EMW15
EMW11
BH40B
EMW18
BB4
<0.5
EMW16
BH68
13.0
BH78
<0.5
BH69
26.0
EMW17
BB3A
<0.5
BH7
DB7
DB12 (D)
BH42
5.1
BH70
5.0
GW2S
BH6
BH2
GW1D
BH72
0.67
DB8A
6.4
DB10A
0.7
EMW30
EMW28
EMW27
DB9
EMW29

Pool
Chapel
Sand Pit
QUARRY
QUARRY
Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough
38kV
UND
CF
CB
CV

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N

FIGURE 12.22

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KEY:

- Licence Boundary
- Groundwater Monitoring Point

Total Phenol

- < 1 Õg/l
- 1 Õg/l - < 10 Õg/l
- > 10 Õg/l

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1	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.22
DISTRIBUTION OF TOTAL PHENOL
(FEBRUARY 2017)

Drawing status: EIAR SUBMISSION

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Drawing number / Rev
32EW5604-00-053-1

EMW24
DB1
EMW12
EMW23
EMW22
DB2
EMW13
DB3
0.73
EMW21
RM1
<0.04
EMW33
RM2
<0.04
DB4 (D)
EMW32
BB2
<0.08
EMW06
BH26
EMW05
RM3
0.16
DB15A (D)
EMW03
EMW02
EMW31
RM4
0.08
EMW04
BH36
DB5
<0.04
EMW20
RM5
<0.08
EMW14
DB14A (D)
EMW08
BH39B
EMW07
BB1
0.1
RM6
0.08
BH77A
0.12
EMW19
DB6
<0.08
EMW15
EMW11
BH40B
EMW18
BB4
<0.04
EMW16
BH68
<0.04
BH78
<0.04
BH69
EMW17
BB3A
0.05
BH7
DB7
DB12 (D)
BH42
0.69
BH70
0.7
GW2S
BH6
BH2
GW1D
BH72
<0.04
DB8A
<0.04
DB10A
<0.04
EMW30
EMW28
EMW27
DB9
EMW29

Pool
Chapel
Sand Pit
QUARRY
Lake
Church (in ruins)
Spring
Maudlings Interchange
Roseborough
92.66
94.76
97.76
97.36
97.62
96.91
95.60
92.69
92.48
91.12
89.00
82.17
82.39
84.91
38kV
UND
CF
CR
CW
TK
N

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FIGURE 12.23

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KEY:

- Licence Boundary
- Groundwater Monitoring Point

Mecroprop

- < 0.25 Õg/l
- 0.25 - 10 Õg/l
- > 10 Õg/l

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FIGURE 12.23
GROUNDWATER MECOPROP DISTRIBUTION (FEBRUARY 2017)

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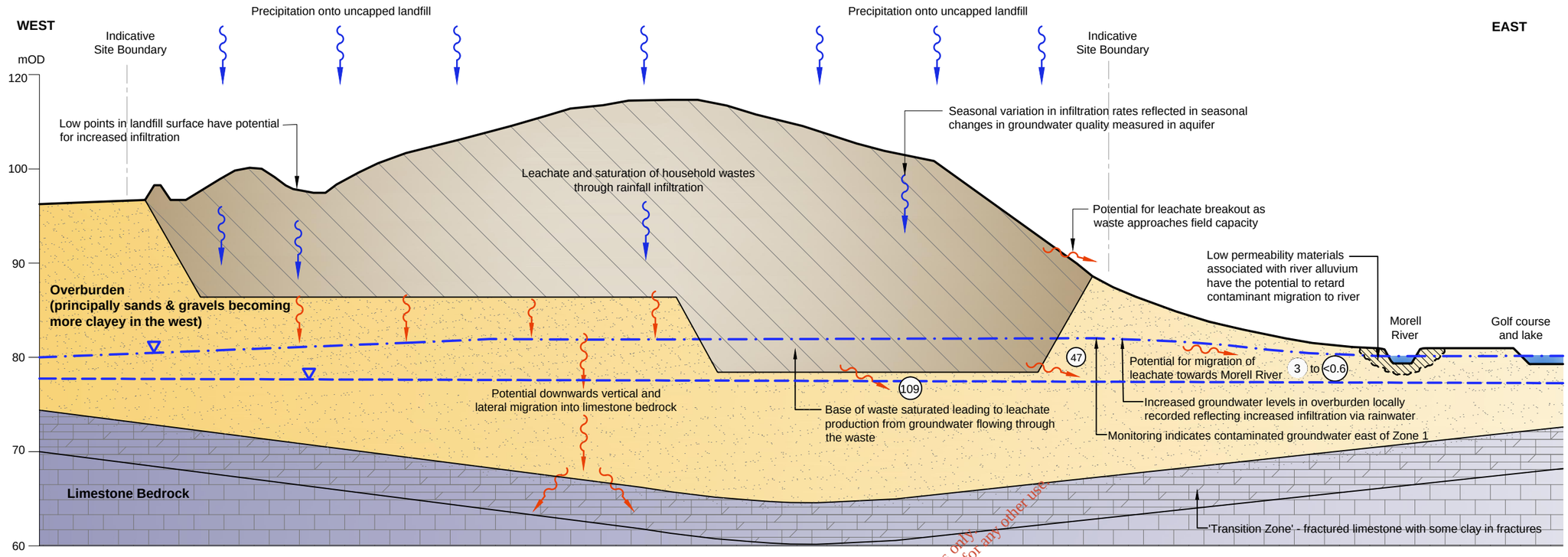
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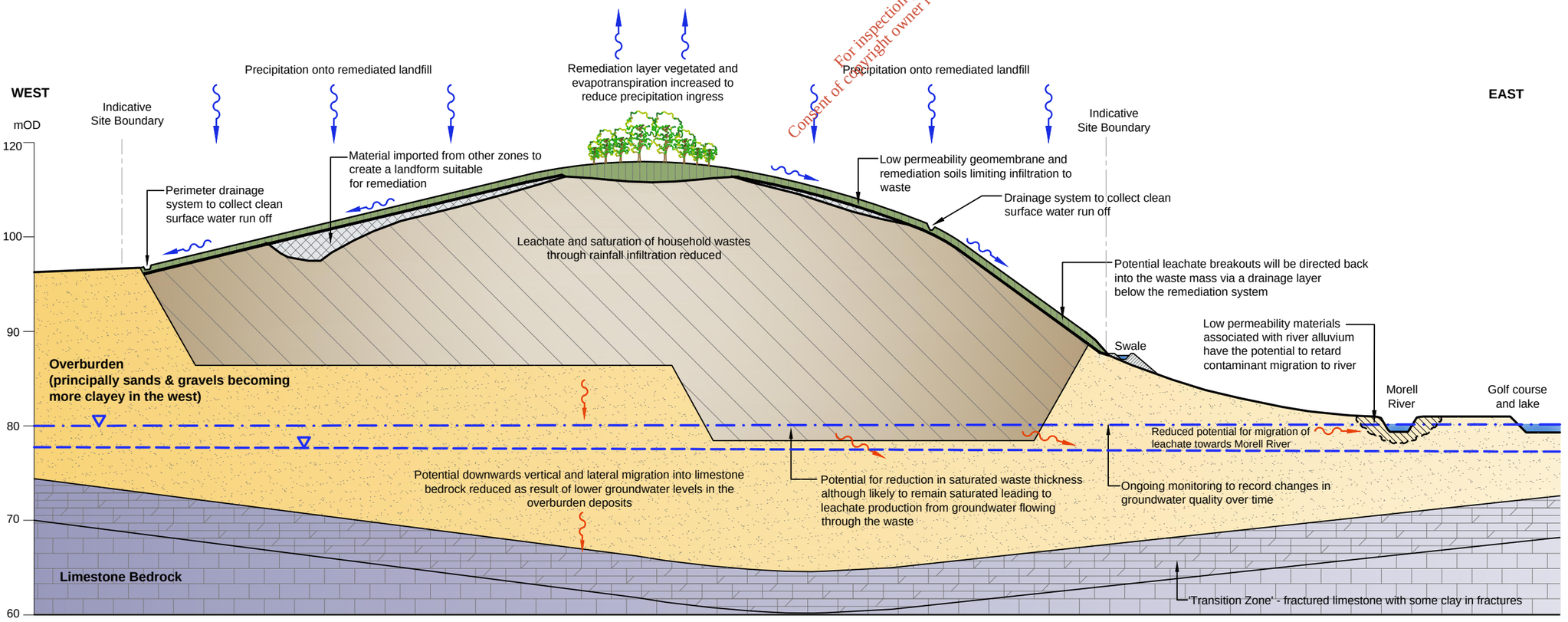
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Groundwater Conceptual Site Model for Zone 1: Current Scenario

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Groundwater Conceptual Site Model for Zone 1: Post Remediation

FIGURE 12.24

KEY:

- Groundwater Level in the Overburden
- Groundwater Head in the Limestone Bedrock
- Migrating Leachate
- (47) Ammoniacal Nitrogen Concentration July 2016 (mg/l)

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Drawing title: FIGURE 12.24 HYDROGEOLOGY CONCEPTUAL SITE MODEL (ZONE 1)

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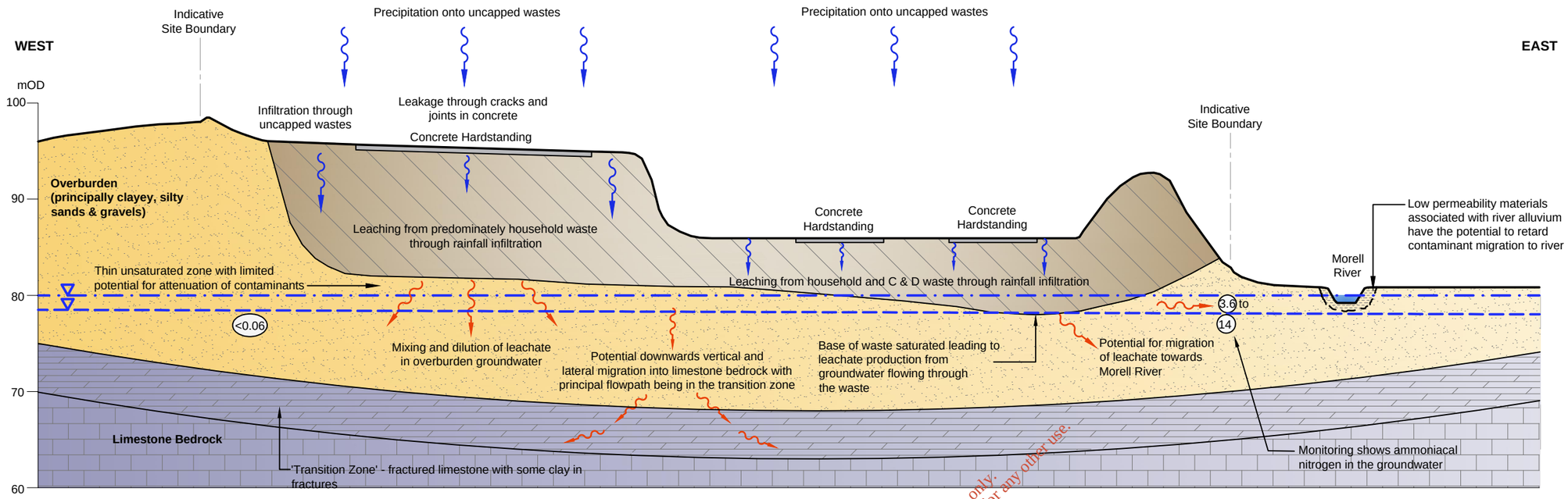
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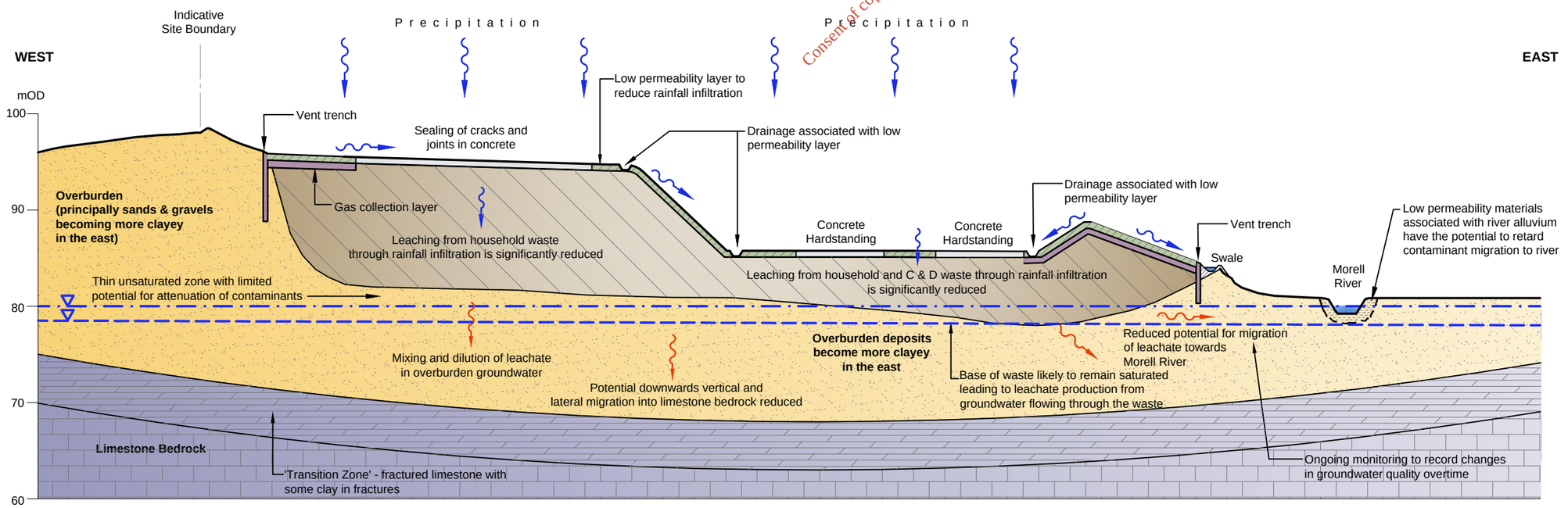
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Groundwater Conceptual Site Model for Zone 2A and 2B: Current Scenario

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Groundwater Conceptual Site Model for Zone 2A and 2B: Post Remediation

FIGURE 12.25

KEY:

- Groundwater Level
- Potential Leachate Level
- Migrating Leachate
- (4.7) Ammoniacal Nitrogen Concentration July 2016 (mg/l)

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Drawing title: FIGURE 12.25 HYDROGEOLOGY CONCEPTUAL SITE MODEL (ZONE 2)

Drawing status: EIAR SUBMISSION

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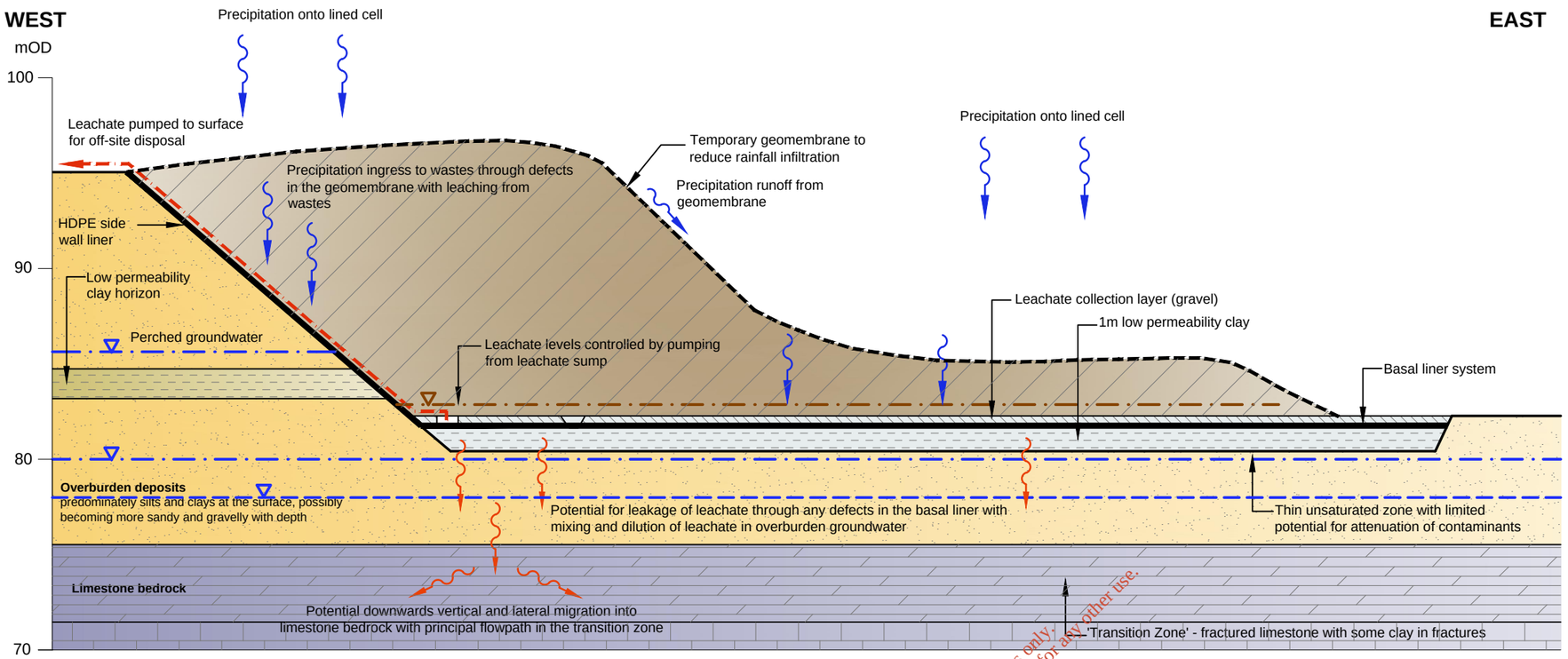
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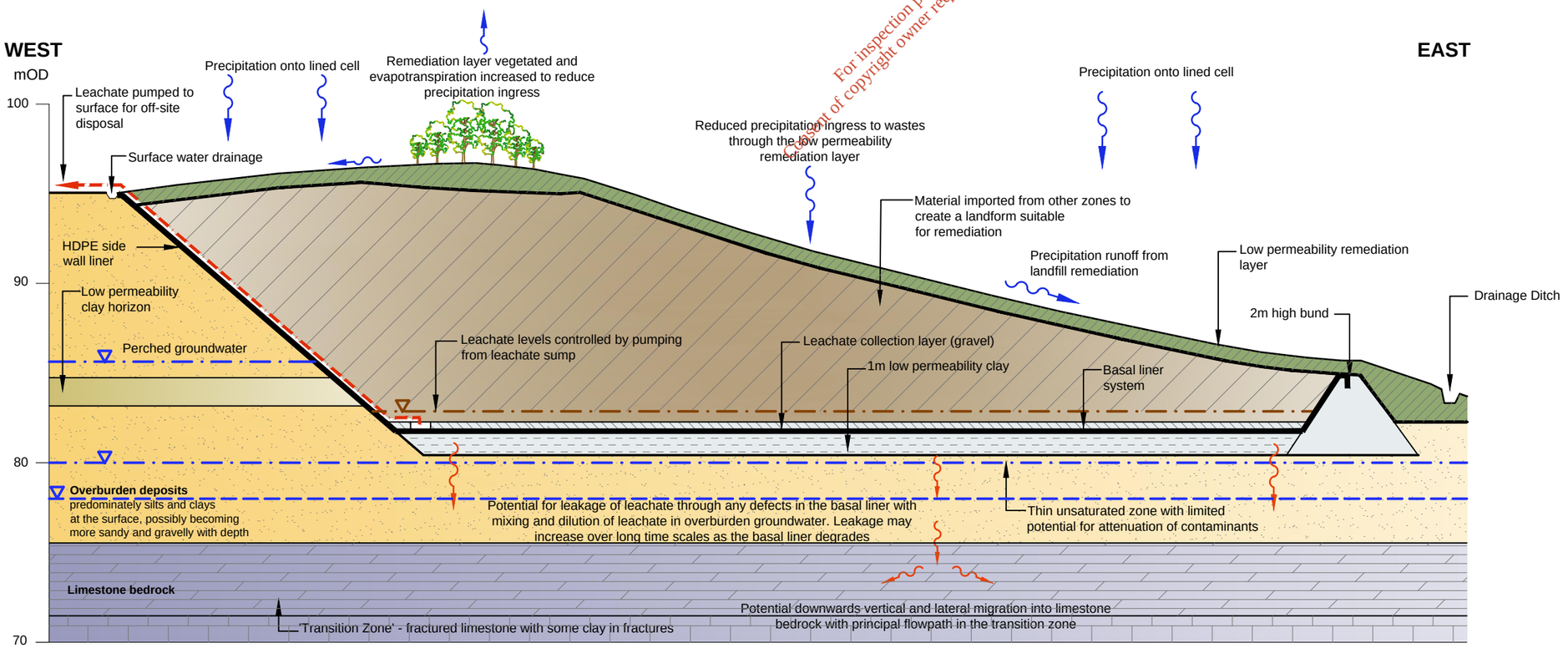
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32EW5604-00-018-2



Groundwater Conceptual Site Model for Zone 3: Current Scenario



Groundwater Conceptual Site Model for Zone 3: Post Remediation

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FIGURE 12.26

KEY:

- Groundwater Level in the Overburden
- Groundwater Head in the Limestone Bedrock
- Potential Leachate Level
- Migrating Leachate

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Drawing title: FIGURE 12.26
HYDROGEOLOGY CONCEPTUAL SITE MODEL (ZONE 3)

Drawing status: EIAR SUBMISSION

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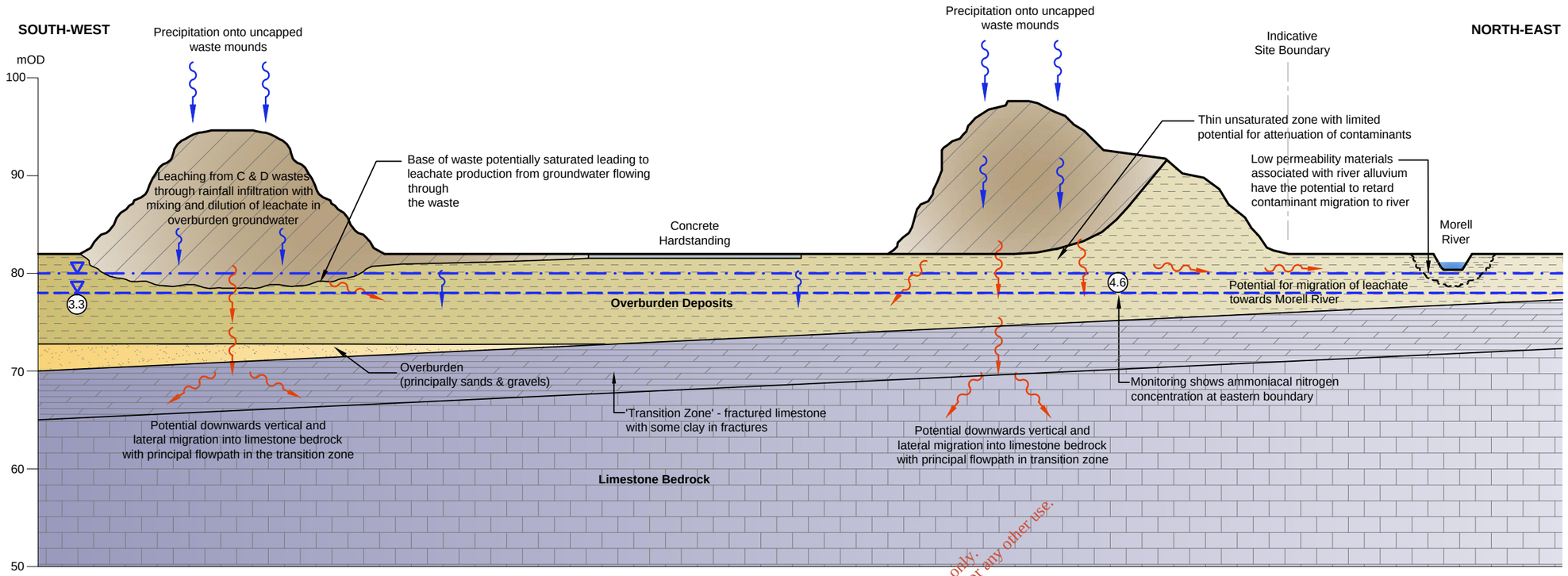
Drawing number: 32EW5604-00-018
Rev: 2

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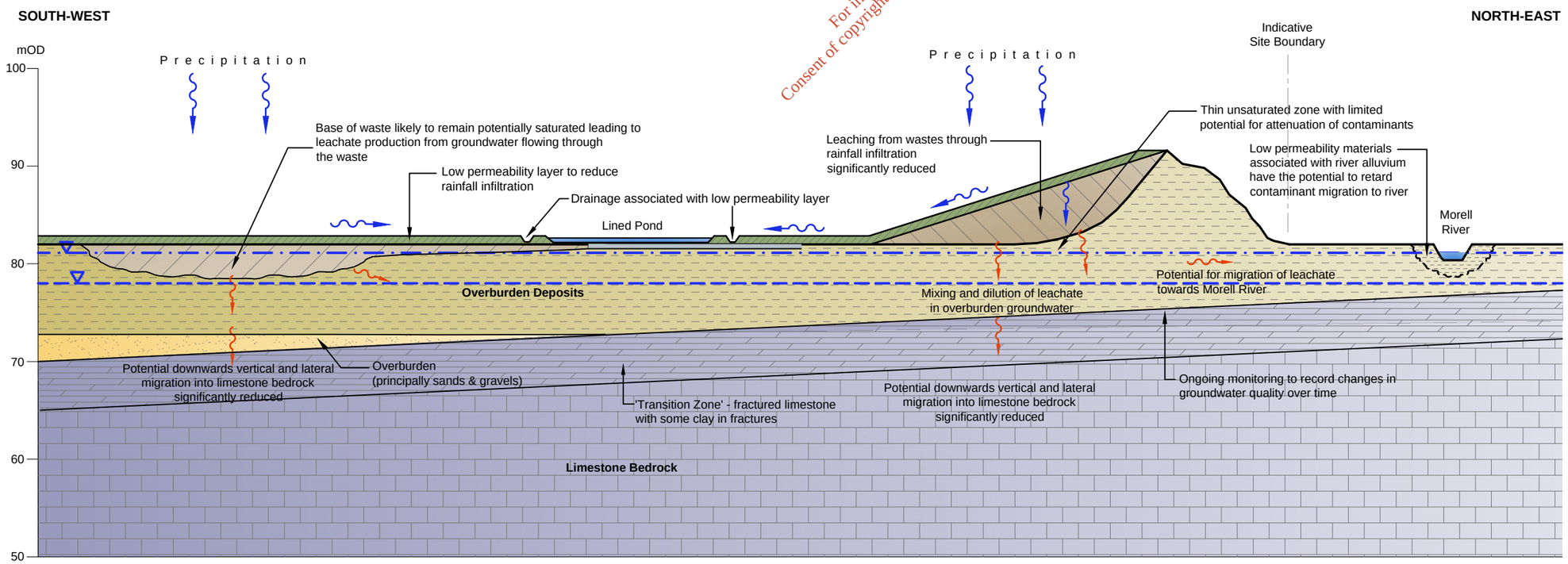
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32EW5604-00-019-2



Groundwater Conceptual Site Model for Zone 4: Current Scenario

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Groundwater Conceptual Site Model for Zone 4: Post Remediation

FIGURE 12.27

KEY:

- Groundwater Level in the Overburden
- Groundwater Head in the Limestone Bedrock
- Migrating Leachate
- (47) Ammoniacal Nitrogen Concentration July 2016 (mg/l)

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.27
HYDROGEOLOGY CONCEPTUAL SITE MODEL (ZONE 4)

Drawing status: EIAR SUBMISSION

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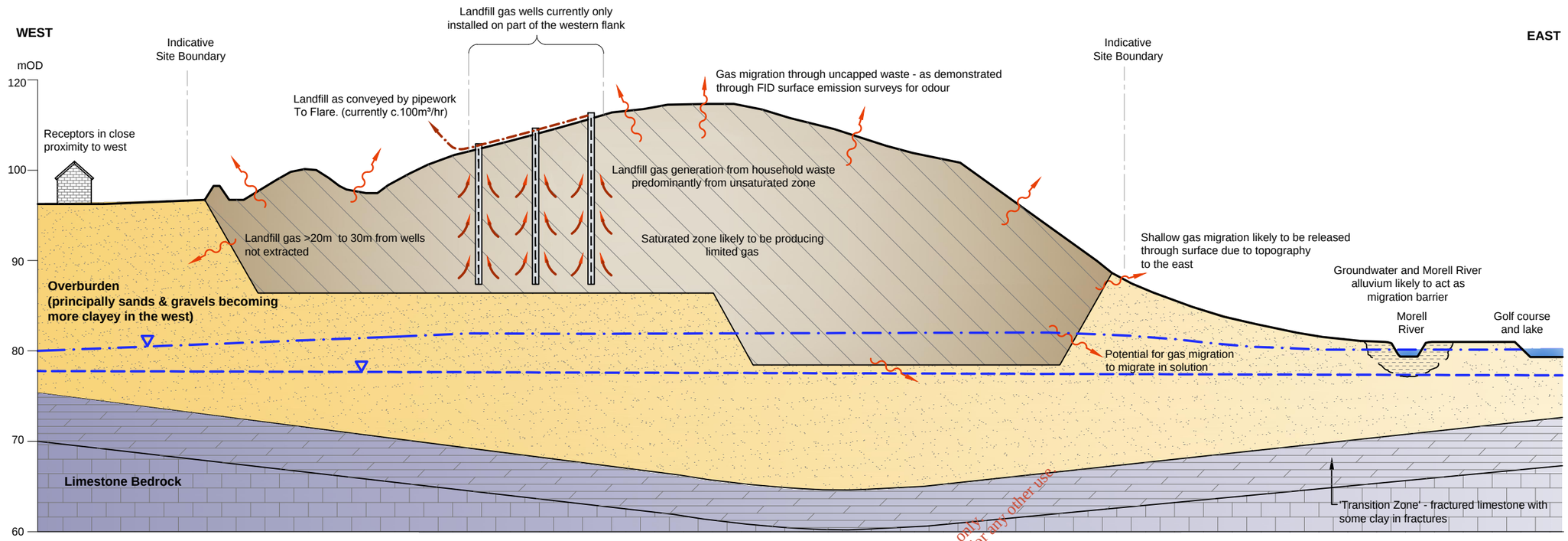
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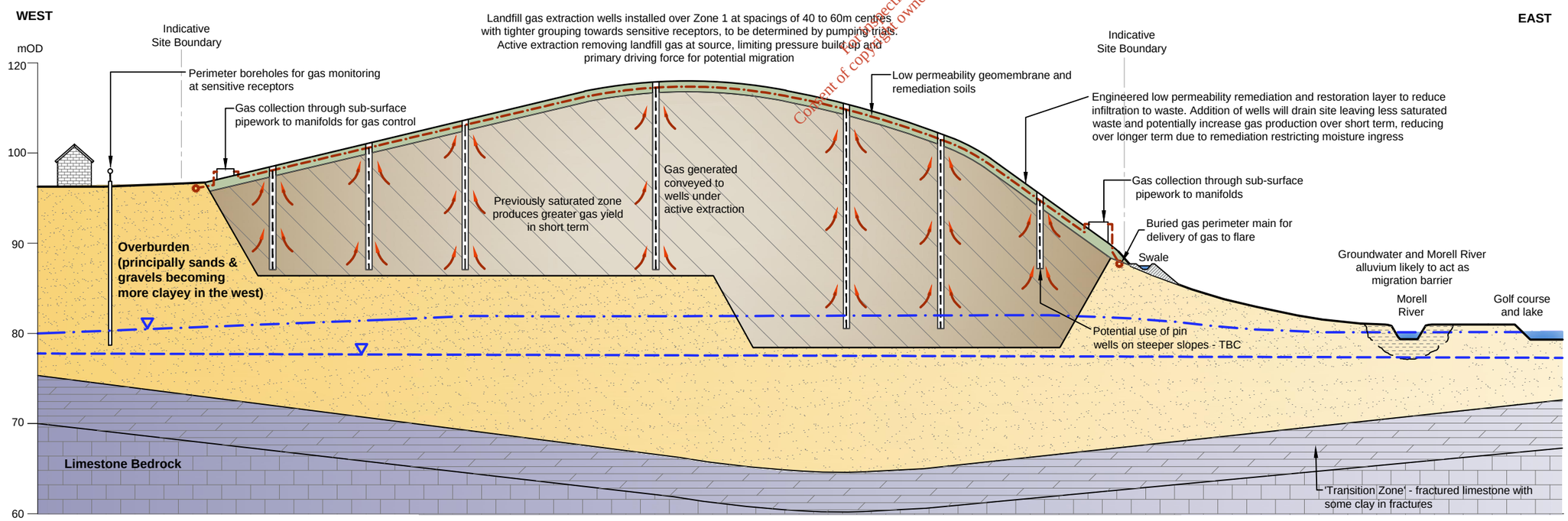
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Drawing number / Rev
32EW5604-00-039-2



Gas Conceptual Site Model for Zone 1: Current Scenario

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Gas Conceptual Site Model for Zone 1: Post Remediation

FIGURE 12.28

KEY:

Groundwater Level in the Overburden

Groundwater Head in the Limestone Bedrock

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Comhairle Contae Chill Dara

Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: FIGURE 12.28
LANDFILL GAS MANAGEMENT
CONCEPTUAL SITE MODEL (ZONE 1)

Drawing status: EIAR SUBMISSION

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Client No.	6286	

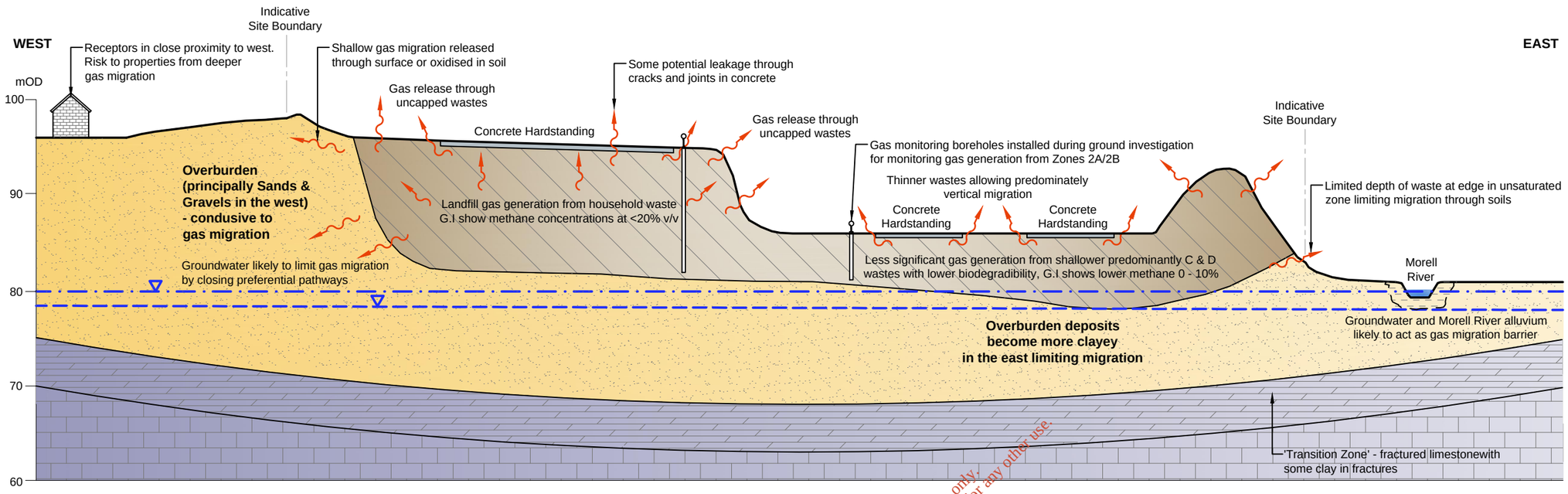
Drawing number: 32EW5604-00-039
Rev: 2

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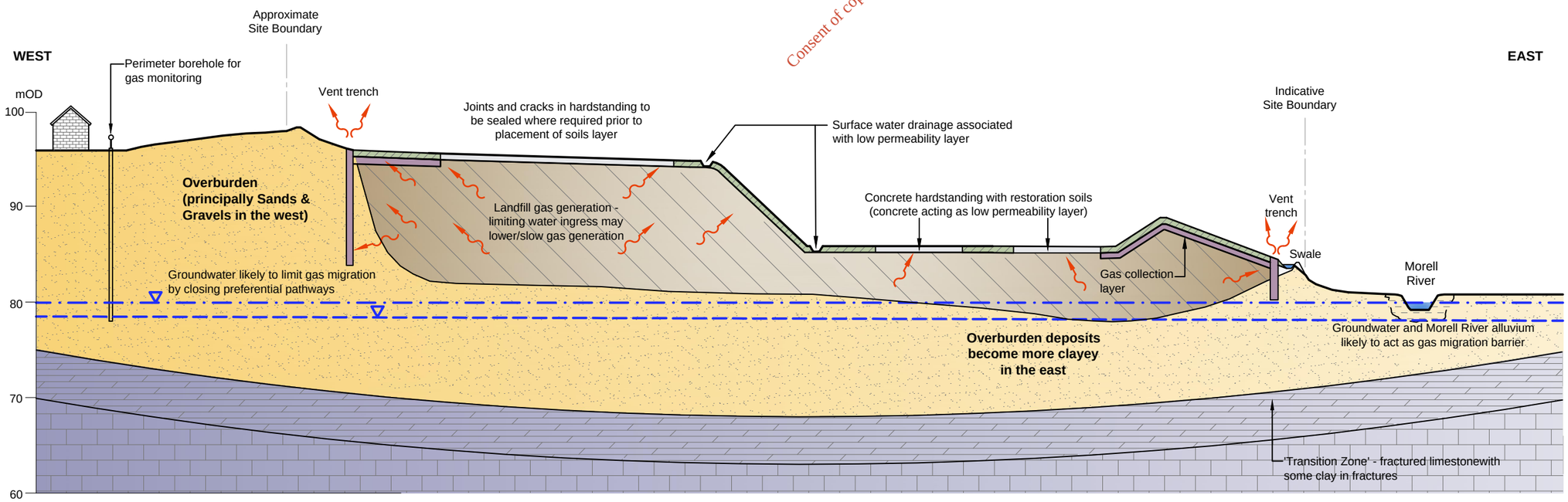
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Drawing number / Rev
32EW5604-00-040-2



Gas Conceptual Site Model for Zone 2A/B: Current Scenario

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Gas Conceptual Site Model for Zone 2A/B: Post Remediation

FIGURE 12.29

KEY:

Groundwater Level in the Overburden

Groundwater Head in the Limestone Bedrock

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Drawing title: FIGURE 12.29
LANDFILL GAS MANAGEMENT
CONCEPTUAL SITE MODEL (ZONE 2)

Drawing status: EIAR SUBMISSION

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Drawing number: 32EW5604-00-040
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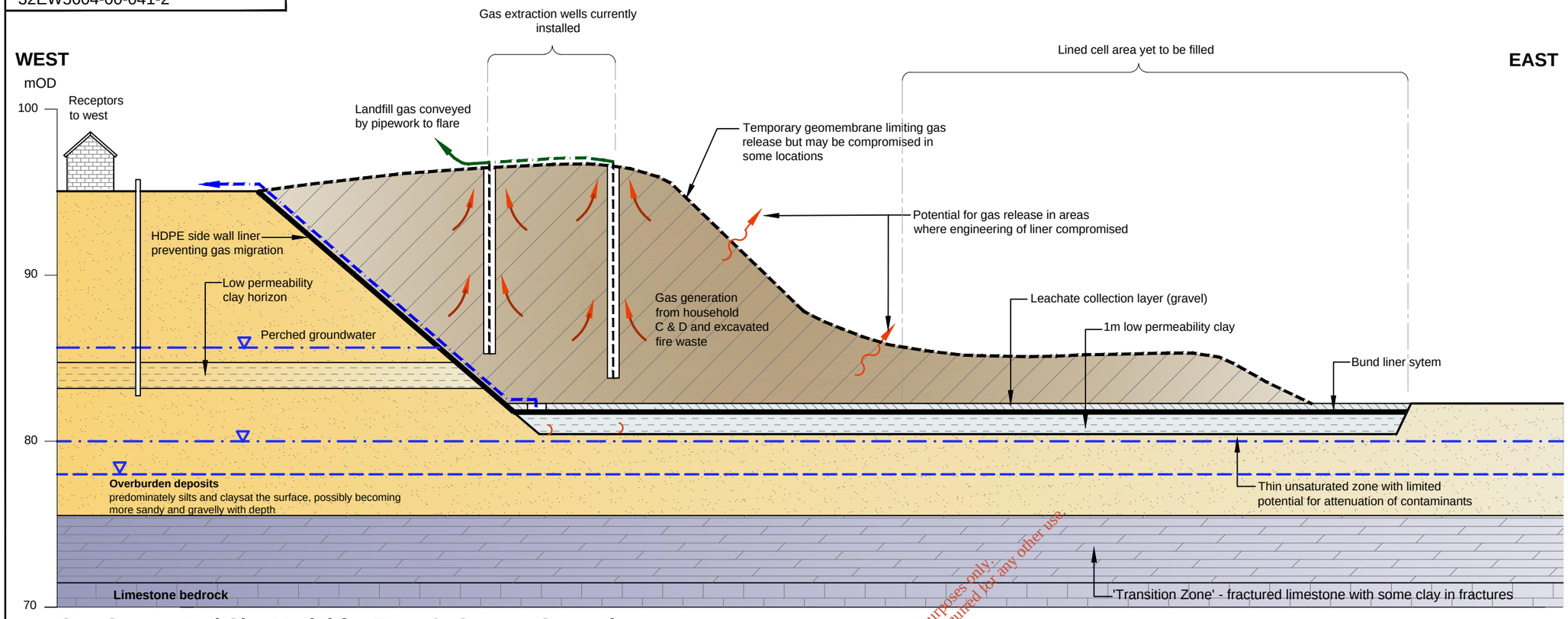
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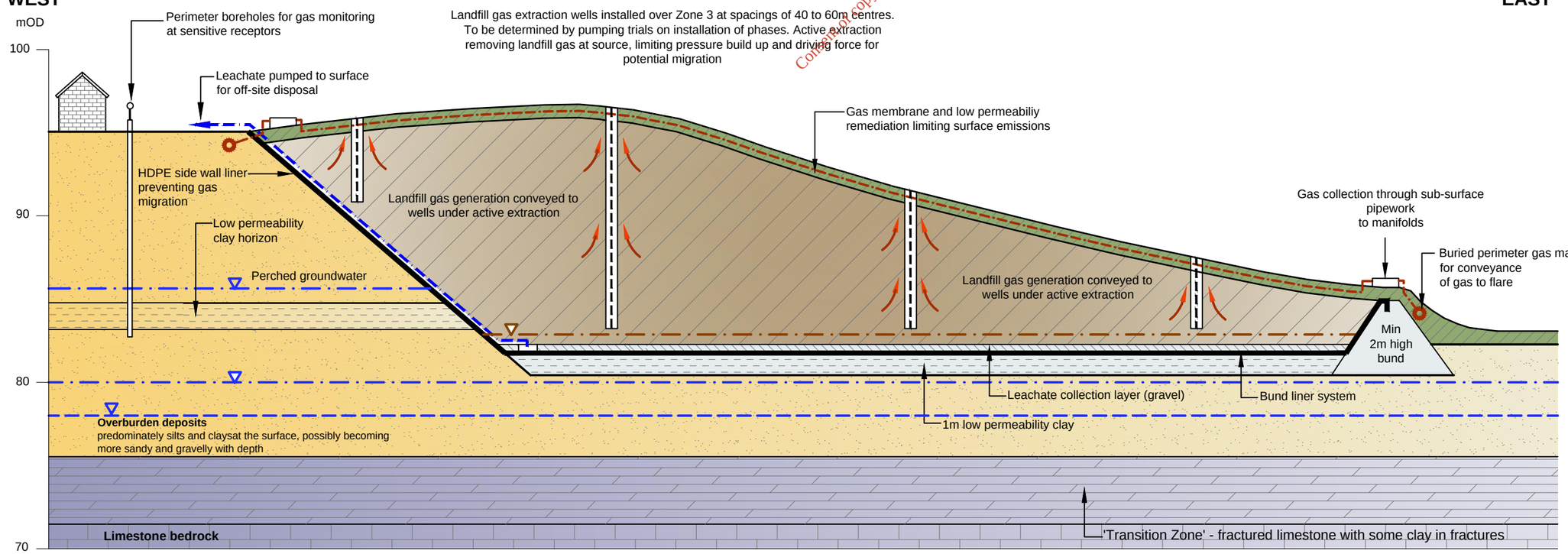
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32EW5604-00-041-2

FIGURE 12.30



Gas Conceptual Site Model for Zone 3: Current Scenario

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Gas Conceptual Site Model for Zone 3: Post Remediation

KEY:

- Groundwater Level in the Overburden
- Groundwater Head in the Limestone Bedrock

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Drawing title: FIGURE 12.30
LANDFILL GAS MANAGEMENT
CONCEPTUAL SITE MODEL (ZONE 3)

Drawing status: EIAR SUBMISSION

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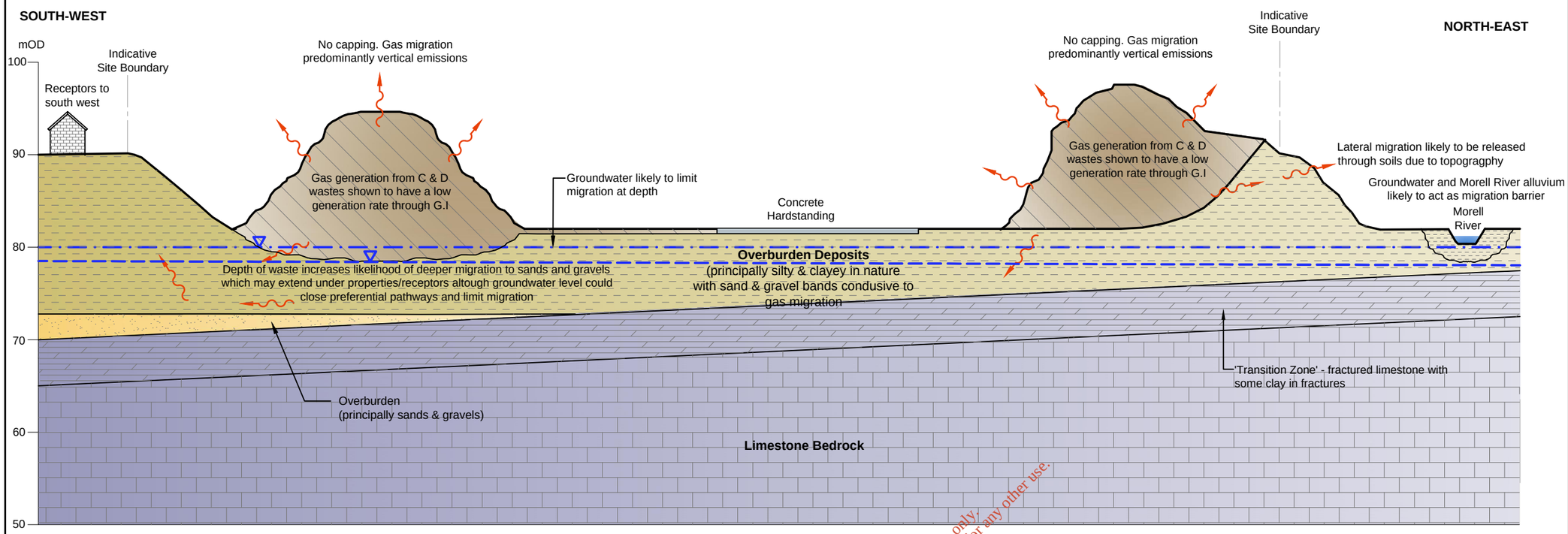
Drawing number: 32EW5604-00-041
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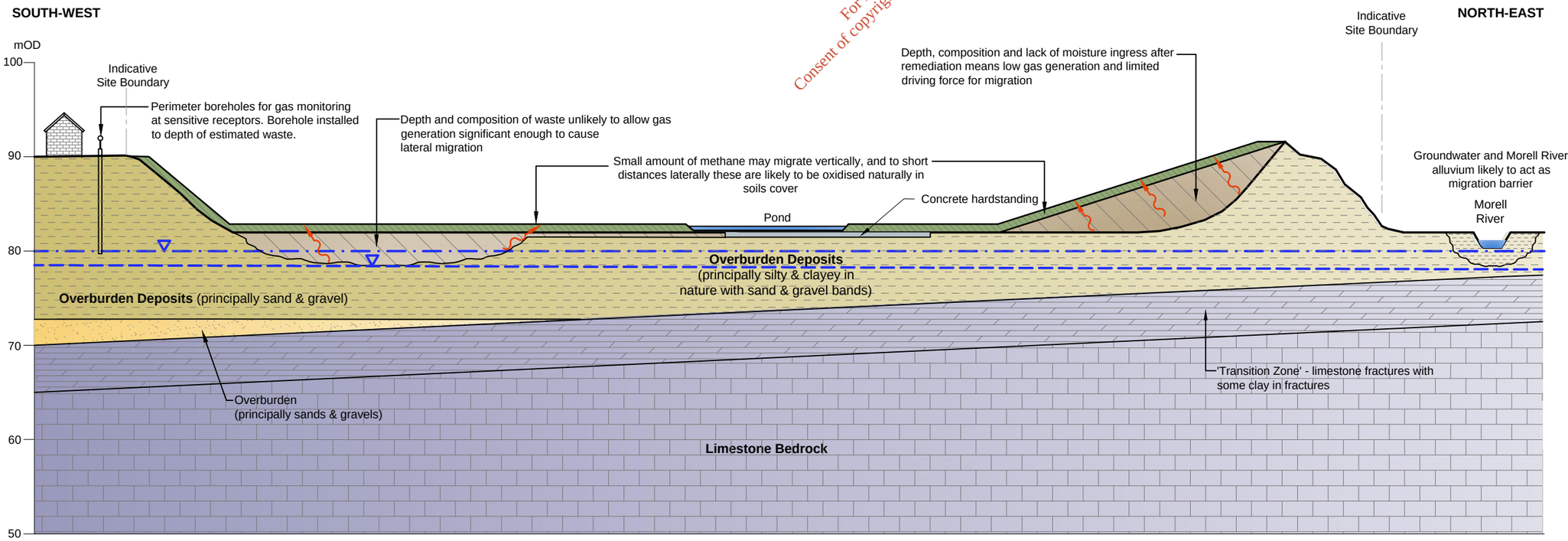
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Gas Conceptual Site Model for Zone 4: Current Scenario

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Gas Conceptual Site Model for Zone 4: Post Remediation

FIGURE 12.31

KEY:

Groundwater Level in the Overburden

Groundwater Head in the Limestone Bedrock

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2	07/08/2017	EIAR SUBMISSION	AR	CD	CD	RR
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Drawing title: FIGURE 12.31
LANDFILL GAS MANAGEMENT
CONCEPTUAL SITE MODEL (ZONE 4)

Drawing status: EIAR SUBMISSION

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Drawing number / Rev

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Nass Golf Club

Kerdiffstown House

Palmerstown House Estate

Security Cabin. To be removed as part of the remediation works

Site Office.To be removed as part of the remediation works

Electrical Sub-Station

Groundwater pumping well kiosk. To be retained

Security Cabin.To be removed as part of the remediation works

Johnstown Garden Centre. Low sensitivity due to location in relation to Morell River

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N7

Figure 12.32

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KEY:

- Inferred Waste Boundary
- 50m Buffer from Waste Boundary
- 250m Buffer from Waste Boundary
- On-site Buildings and Buildings within 50m of the Waste Boundary (High Sensitivity)
- Buildings within 250m of the Waste Boundary (Medium Sensitivity)
- Gardens/Amentiy within 50m of the Waste Boundary (Low Sensitivity)
- Land within Site Boundary and within 50m of Waste Boundary
- Water Main
- Gas Pipeline
- Electricity Cables

NOTES:

1. Refer to Drawing Number 32EW5604/804 P0 for Receptor identification numbers.

0 100 200

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Drawing title: FIGURE 12.32 LANDFILL GAS MANAGEMENT RECEPTORS

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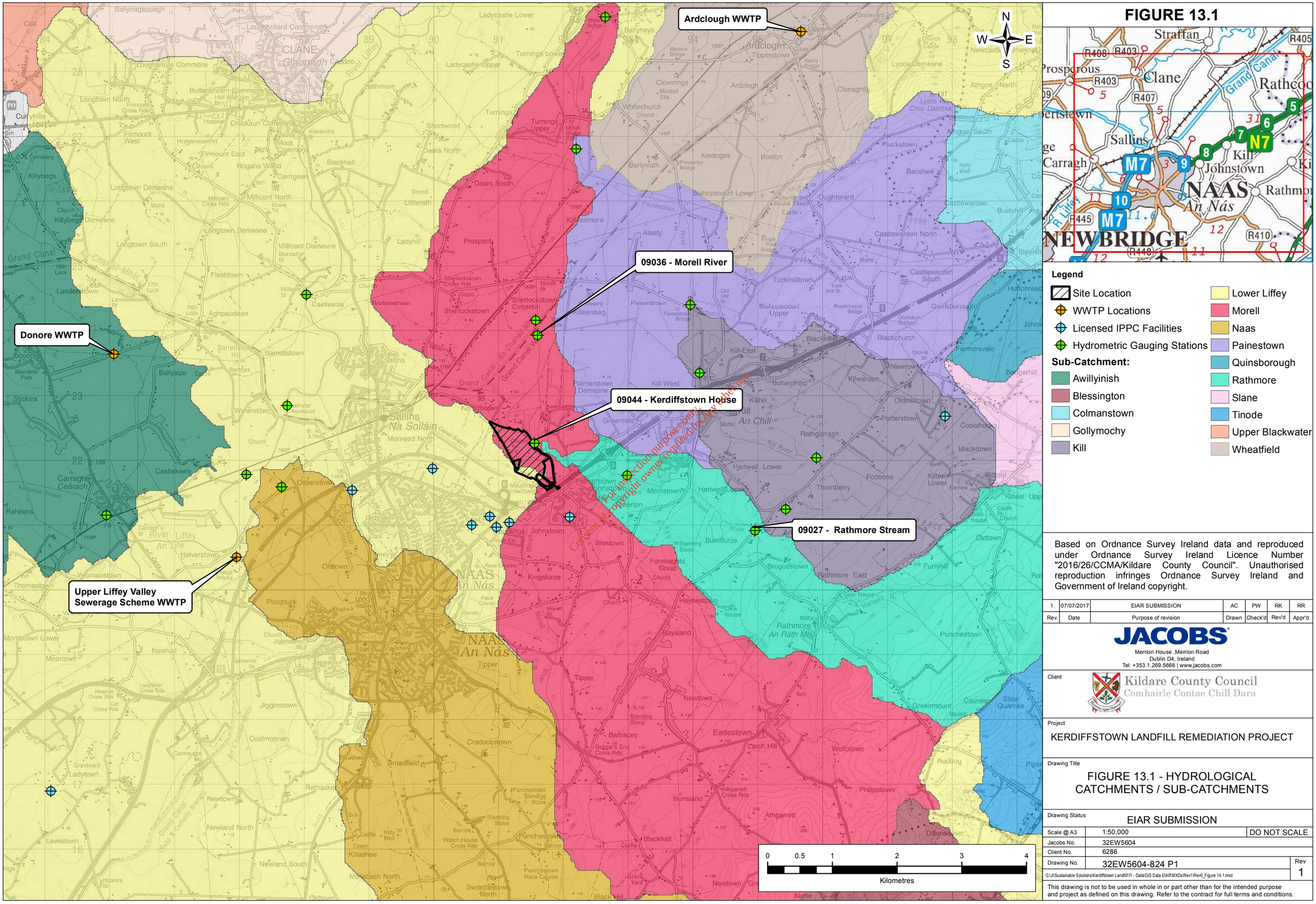
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FIGURE 13.1



Legend

- Site Location
- WWTP Locations
- Licensed IPPC Facilities
- Hydrometric Gauging Stations

Sub-Catchment:

- Awillyinish
- Blessington
- Colmanstown
- Gollymochy
- Kill
- Lower Liffey
- Morell
- Naas
- Painestown
- Quinsborough
- Rathmore
- Slane
- Tinode
- Upper Blackwater
- Wheatfield

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Drawing Title: FIGURE 13.1 - HYDROLOGICAL CATCHMENTS / SUB-CATCHMENTS

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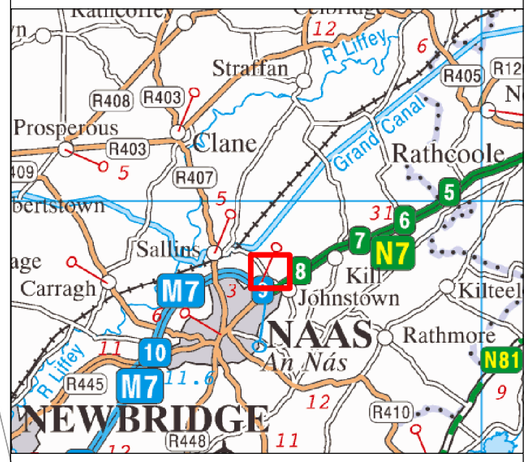
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FIGURE 13.2



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Surface Water Monitoring Point (Existing)
- Watercourses

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Drawing Title: FIGURE 13.2 - SURFACE WATER QUALITY MONITORING LOCATIONS & WATERCOURSES

Drawing Status: EIAR SUBMISSION

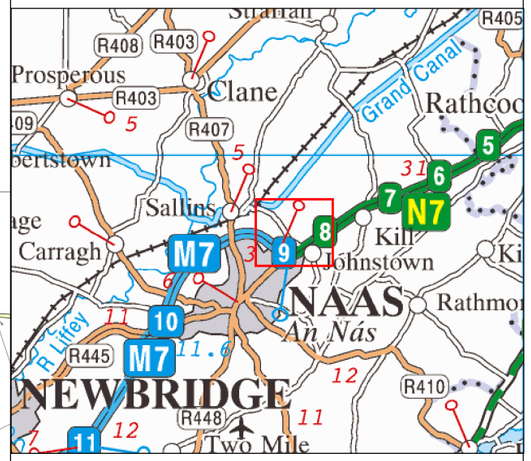
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FIGURE 14.1



Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Motorway
- Motorway Link
- Residential
- Secondary
- Service
- Track
- Unclassified
- Footway
- Automatic Traffic Count (ATC) Locations

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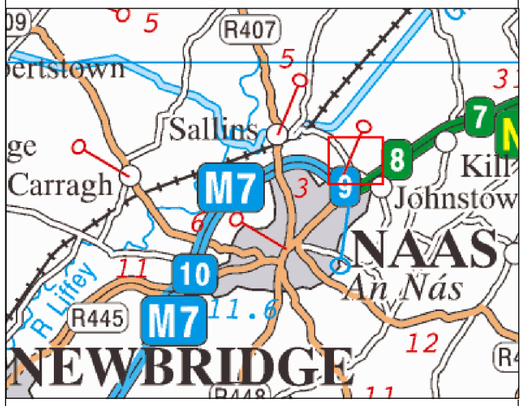
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FIGURE 17.1



KCC Site Office

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Legend

- Proposed CPO Boundary
- Proposed Temporary CPO Boundary
- Septic Tank
- ESB Substation
- Electricity Transformer
- Interceptor
- Silt Seperation Tank
- Water Main
- Surface Water Drainage
- Telecoms Line
- ESB Ducting
- Low Voltage Network
- Medium Voltage Network
- Wastewater pipe
- 38kV Network Objects
- 110kV Network Objects

0 50 100 200 300 400
Metres

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Drawing Title: FIGURE 17.1 - EXISTING UTILITIES

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