



Appendix 4A- Figures

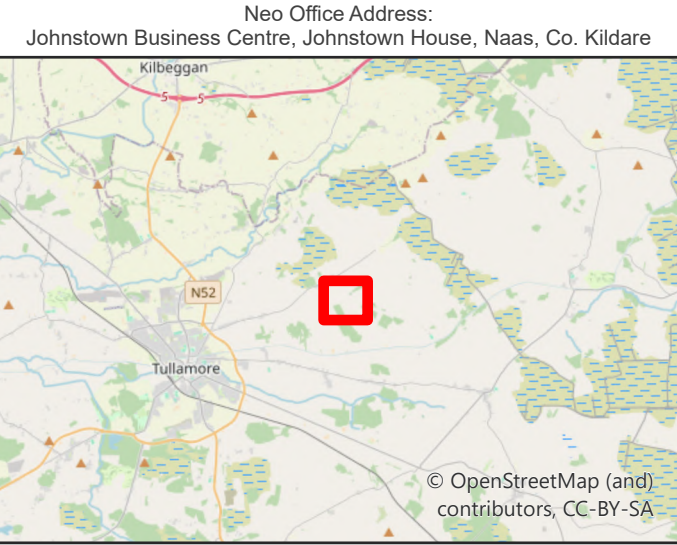


Colehill SID
Watercourses
Figure 4.1

Key

Development Boundary

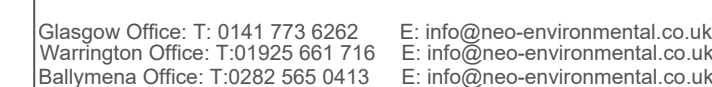
Watercourses



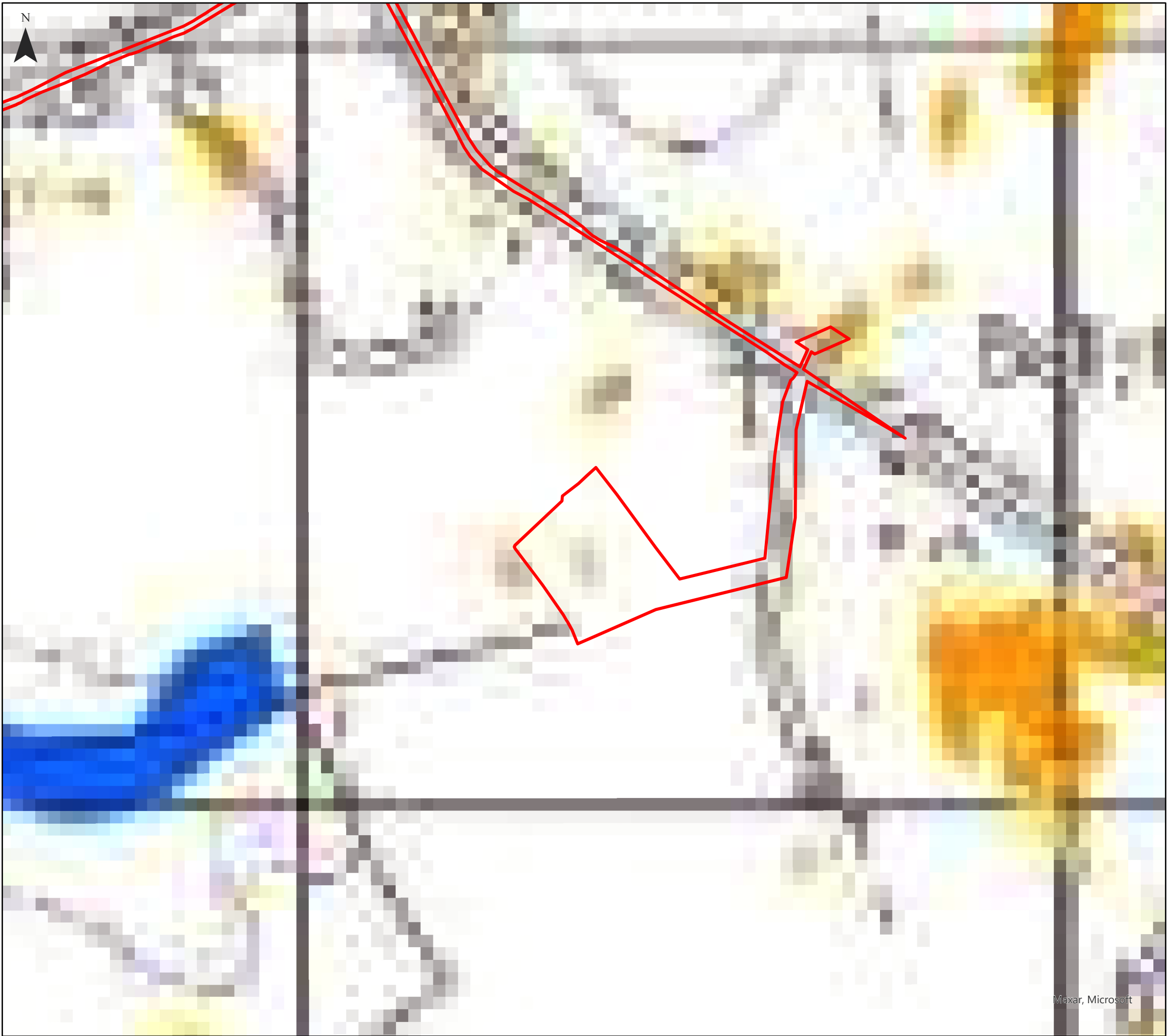
Date: 14/11/2024
Drawn By: Tom Saddington
Scale (A3): 1:5,000
Drawing No: NEO01104/014I/C



Ver.	Date	Comments
C	16/06/2025	
B	14/11/2024	
A	26/04/2023	



Date: 16 June 2025 C



Colehill SID
PFRA Map
Figure 4.3

Key

 Development Boundary

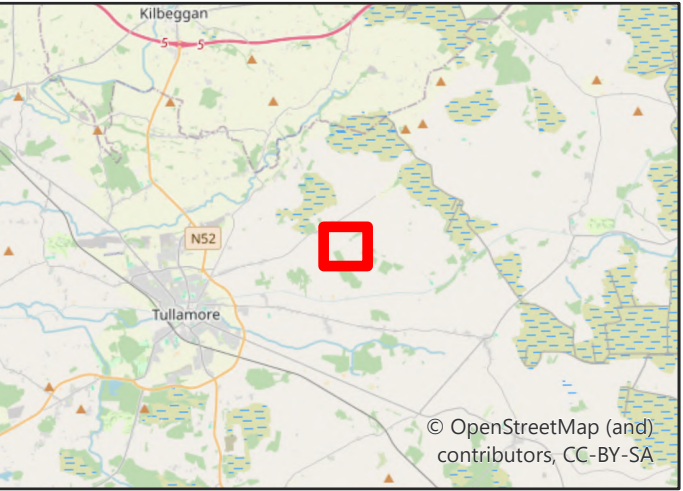
Flood Extents

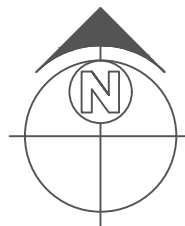
-  Fluvial - Indicative 1% AEP (100-yr) Event
-  Fluvial - Extreme Event
-  Coastal - Indicative 0.5% AEP (200-yr) Event
-  Coastal - Extreme Event
-  Pluvial - Indicative 1% AEP (100-yr) Event
-  Pluvial - Extreme Event
-  Groundwater Flood Extents
-  Lakes / Turloughs

PFRA Outcomes

-  Probable Area for Further Assessment
-  Possible Area for Further Assessment

Neo Office Address:
Johnstown Business Centre, Johnstown House, Naas, Co. Kildare





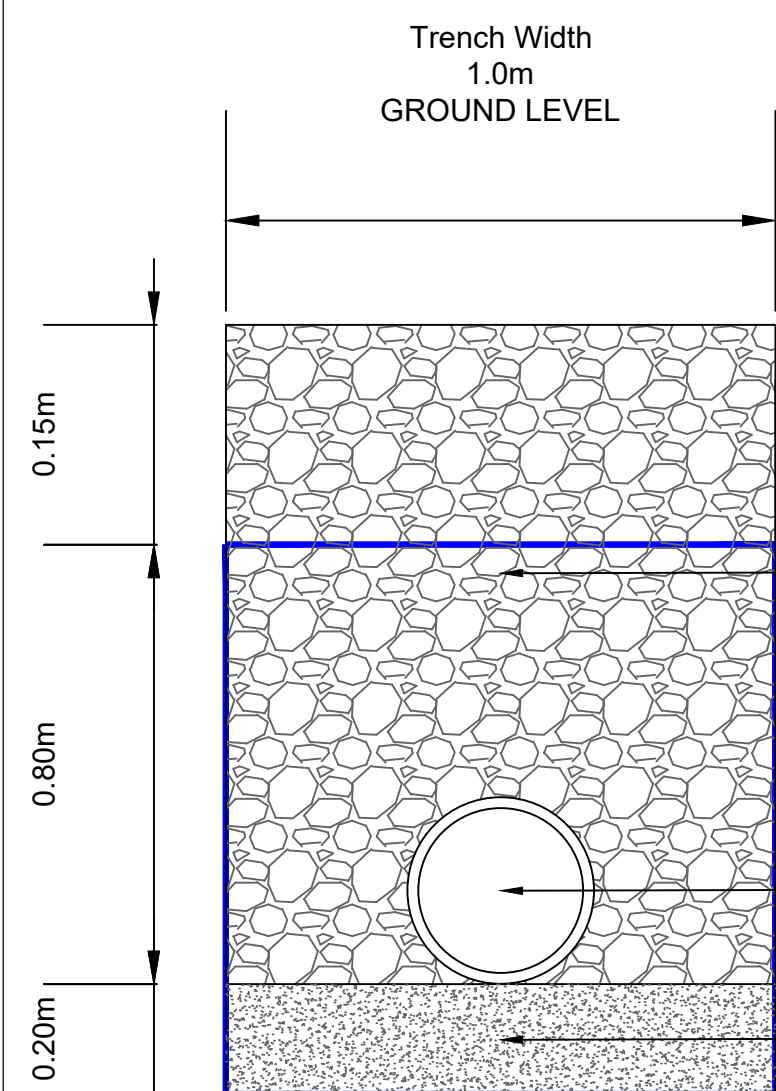
SEALED CESSPOOL/
SEPTIC TANK

CLASS 1 FULL
RETENTION
SEPARATOR

RAINWATER HARVESTING
TANK

BELOW GROUND FOUL
WASTE HOLDING TANK

SOAKAWAY
PIT/INFILTRAITION
DRAIN (NTS)



Free Draining Material
(Stone Aggregate with a
porosity of 0.2)

Terram Geotextile to Trench
& Pipe Surround

Perforated Pipe

Clean Pipe Bedding

- KEY:
- PLANNING APPLICATION BOUNDARY (OUTSIDE EDGE OF LINE DENOTES BOUNDARY)
 - SITE ENTRANCE
 - EXISTING TRACK TO BE UPGRADED TO ACHIEVE A MINIMUM WIDTH OF 3.0m
 - PROPOSED ACCESS TRACK / HARDSTAND
 - PROPOSED UNDERGROUND 110kV CABLES ROUTE
 - PROPOSED HDD CROSSING
 - PROPOSED PERIMETER FENCE
 - PROPOSED GATE
 - PROPOSED CCTV
 - PROPOSED 110kV SUBSTATION SITE
 - FUTURE SUBSTATION EXPANSION
 - EXISTING ESB THORNBERRY 110kV SUBSTATION
 - SITE ENTRANCE VISIBILITY SPLAY
 - UNDERGROUND PIPE
 - SOAKAWAY PIT/INFILTRATION DRAIN
 - STORMWATER PIPE
 - FOUL WATER PIPE
 - SURFACE WATER PIPE

OSi Sheet Numbers:

4381-B
4381-D
4382-A
4382-C
4381
4382

Drawn By: Tom Saddington
Address: Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

Ver.	Date	Comments
G	28/11/2025	
F	25/11/2025	
E	16/09/2025	
D	05/09/2025	
C	16/06/2025	
B	14/11/2024	
A	26/04/2023	

neo
ENVIRONMENTAL

Naas Office: T:00353 (0)45 844250 E: info@neo-environmental.ie

Glasgow Office: T: 0141 773 6262 E: info@neo-environmental.co.uk
Warrington Office: T: 01925 861 716 E: info@neo-environmental.co.uk
Ballymena Office: T: 0282 565 0413 E: info@neo-environmental.co.uk

Project: Colehill 110kV Substation
Client: RES

Drawing: Outline SuDs Design

Project No.: NEO01104

Drawing No.: NEO01104_016I_G Figure 4.4

Drawn: TS Checked: MM Approved: PN

Scale: 1:500 @ A1 Revision:

Date: 28 November 2025 G

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	30	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
Rainfall Events	Singular	Additional Storage (m³/ha)	0.0
FSR Region	Scotland and Ireland	Starting Level (m)	
M5-60 (mm)	17.000	Check Discharge Rate(s)	✓
Ratio-R	0.300	1 year (l/s)	0.3
Summer CV	0.750	30 year (l/s)	0.7
Winter CV	0.840	100 year (l/s)	0.9
Analysis Speed	Normal	Check Discharge Volume	✓
Skip Steady State	x	100 year +20% 360 minute (m³)	27

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	20	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.144	Betterment (%)	20
SAAR (mm)	1074	QBar	0.4
Soil Index	2	Q 1 year (l/s)	0.3
SPR	0.30	Q 30 year (l/s)	0.7
Region	11	Q 100 year (l/s)	0.9
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	20
Positively Drained Area (ha)	0.144	Storm Duration (mins)	360
Soil Index	2	Betterment (%)	20
SPR	0.30	PR	0.347
CWI	125.185	Runoff Volume (m³)	27

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m ³)	
Full Bore Velocity	✓		