

EMISSIONS COMPLIANCE REPORT

Roadstone is planning to commence restoration, backfilling and soil recovery activities at the South Quarry (at the approved intake rate of 750,000 tonnes per annum) early in 2023, following cessation of ongoing waste recovery activities at the North Quarry. The estimated volume of soil and stone material to be placed at the South Quarry to backfill it to former ground level is approximately 12.4 million m³ (equivalent to approximately 22.32 million tonnes). Of this, approximately 5.2 million m³ (or 9.36 million tonnes) will comprise soil and stone imported managed as waste which will be placed and recovered on the western side of the quarry.

ANNUAL ENVIRONMENTAL REPORT 2020

Details of the compliance performance at the existing licenced soil waste recovery facility at Huntstown North Quarry are provided in the most recent Annual Environmental Report submitted to the Agency (for 2020), a copy of which accompanies this submission.

As is noted in the Report,

- The majority of water samples taken at the existing discharge point to the Ballystruhan Stream recorded a 100% compliance with the emission limit thresholds set by the existing waste licence (Ref. W0277-03) in 2020. Two samples exceeded the threshold limit (of 15mg/l) for suspended solids set by Schedule B2 of the licence. A follow-up investigation into these non-compliances concluded that there was an error in water sampling;
- Groundwater monitoring was undertaken on a monthly basis in accordance with the requirements of Schedule C5 of the waste licence. There were no reportable incidents arising from groundwater testing in 2020;
- No exceedances of the dust emission limit of 350 mg/m²/day (set in Schedule B4 of the licence) were recorded at the facility in 2020;
- The noise contribution from the licenced waste activities did not exceed the permitted daytime, evening time or night-time threshold limits set in Schedule B3 of the licence).

Quarrying / extraction activity is ongoing at the South Quarry and some proven / permitted limestone reserves have yet to be extracted there. Extraction activities at the western end of the quarry is expected to continue until reserves fully depleted sometime around the end of 2023 or early 2024.

Subject to successful waste licence review, it is expected that the importation, placement and recovery of imported soil and stone on the western side of the quarry will commence in early 2023, while some rock reserves continue to be extracted at the deeper bench (to-17mOD) in the north-western corner of the quarry. The existing planning permission and waste facility permit sets threshold limits for noise, dust and surface water emissions from extraction operations. Compliance with the permitted emissions thresholds is reviewed herein and below.

AIR QUALITY

Condition 7 of the existing quarry planning permission at Huntstown (Ref. FW12A/0022 and ABP PL06f.241693) requires that '*Dust levels at the site boundary and at sensitive receptors shall not exceed 350 milligrams per square meter per day averaged over a continuous period of 30 days (Bergerhoff gauge)*'. As noted above, Schedule B4 of the existing waste licence sets a similar dust emission threshold for soil waste recovery activities at the quarry.

Dust monitoring is undertaken at 6 locations around the Huntstown quarry complex, designated D1 to D6 and identified in Figure 7-1-3-1A. Monitoring is undertaken using standard Method VDI2119 (*Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method)*) published by the German Engineering Institute.

Dust monitoring results taken over at monthly intervals over the full calendar year of 2019 are reproduced in Table 7-1-3-1A below:

**Table 7-1-3-1A
Huntstown Dust Emissions 2020**

Date	D1 mg/m ² /day	D2 mg/m ² /day	D3 mg/m ² /day	D4 mg/m ² /day	D5 mg/m ² /day	D6 mg/m ² /day
Jan-19	250	449	121	106	177	221
Feb-19	281	33	59	161	-	212
Mar-19	29	28	16	37	24	8
Apr-19	19	20	142	31	35	23
May-19	17	50	53	47	74	69
Jun-19	510	391	89	864	231	763
Jul-19	457	338	1207	309	373	327
Aug-19	145	277	127	141	317	16
Sep-19	134	328	569	238	442	102
Oct-19	22	79	64	34	54	39
Nov-19	48	75	51	26	67	25
Dec-19	146	124	80	228	118	59

As will be noted, several exceedances of the emission limit value (ELV) of 350mg/m²/day were recorded at the Huntstown quarry complex (from all existing site activities) over the course of the 2019. Of a total of 10 No. recorded exceedances from a dust monitoring dataset of 72 readings, 5 No. (identified in italics above) were recorded in the months of June and July and could be attributed to the presence of increased amounts of non-mineral organic dust in dust sample jars (most likely from agricultural activity on surrounding lands). The remaining 5 No. exceedances (in bold above), (i.e. at locations D2, D3, D4 and D5) were all recorded at the Roadstone property boundary (not at receptors), principally in summer months.

NOISE

Condition 3 of the existing quarry planning permission at Huntstown (Ref. FW12A/0022 and ABP PL06f.241693) requires that ‘*During the operational phase of the quarry, the noise level from within the boundaries of the site measured at noise sensitive receptors in the vicinity shall not exceed Daytime 08.00h—20.00h L_{Aeq} (1hr) =55 dBA and Night-time 20.00h—08.00h L_{Aeq} (1hr) = 45 dBA*’.

Schedule B3 of the existing waste licence sets slightly different emission thresholds for soil waste recovery activities as follows:

- *Daytime 08.00h—19.00h L_{Aeq} (1hr) =55 dBA*

- Evening-time 19.00h—23.00h L_{Aeq} (1hr) =50 dBA
- Night-time 23.00h—08.00h L_{Aeq} (1hr) =45 dBA

Noise monitoring is currently undertaken at 4 locations around the Huntstown quarry complex, designated N1 to N4 and identified in Figure 7-1-3-1A. The waste licence stipulates that noise monitoring should be undertaken in accordance with ‘Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)’ published by the EPA and that monitoring periods should be of 30 minutes duration in daytime and evenings and of 15 to 30 minutes duration at night.

Results of noise monitoring is undertaken in 2020 over each of the control periods are reproduced in Table 7-1-3-1B below:

Table 7-1-3-1B
Huntstown Noise Emissions 2020

Date	Report No.	Location	Sampling Interval	Duration (mins)	L_{Aeq} dB(A)
24/06/20	Day-time Measurements				
	180524	N 1	14:54 - 15:24	30	57
			15:24 - 15:54	30	57
			15:54 - 16:24	30	56
		N 2	15:00 - 15:30	30	51
			15:30 - 16:00	30	53
			16:10 - 16:40	30	54
		N 3	16:40 - 17:10	30	50
			17:10 - 17:40	30	52
			17:40 - 18:00	30	48
		N 4	17:30 - 18:00	30	47
			18:00 - 18:30	30	47
			18:30 - 19:00	30	45
	Evening-time Measurement				
	180524	N 1	20:23 - 20:53	30	56
		N 2	20:11 - 20:41	30	49
		N 3	19:33 - 20:03	30	50
		N 4	19:36 - 20:06	30	53
	Night-time Measurement				
	180524	N 1	01:10 - 01:25	15	49
			01:25 - 01:40	15	48
		N 2	01:00 - 01:15	15	50
			01:15 - 01:30	15	50
		N 3	01:45 - 02:00	15	42
			02:00 - 02:15	15	40
		N 4	01:44 - 01:59	15	44
			01:59 - 02:14	15	43

Date	Report No.	Location	Sampling Interval	Duration (mins)	L _{Aeq} dB(A)
10/09/20	Day-time Measurements				
	185634	N 1	14:03 - 14:33	30	57
			14:33 - 15:03	30	57
			15:03 - 15:33	30	56
		N 2	14:10 - 14:40	30	51
			14:40 - 15:10	30	53
			15:10 - 15:40	30	54
		N 3	14:15 - 14:45	30	50
			14:45 - 15:15	30	52
			15:15 - 15:45	30	48
		N 4	15:08 - 15:38	30	47
			15:38 - 16:08	30	47
			16:08 - 16:38	30	45
	Evening-time Measurement				
	185634	N 1	20:48 - 21:18	30	52
		N 2	20:54 - 21:24	30	49
		N 3	20:59 - 21:29	30	48
		N 4	21:23 - 21:53	30	50
	Night-time Measurement				
	185634	N 1	23:00 - 23:15	15	46
			23:15 - 23:30	15	48
		N 2	23:04 - 23:19	15	50
			23:19 - 23:34	15	50
		N 3	23:09 - 23:24	15	40
			23:24 - 23:39	15	41
		N 4	23:34 - 23:49	15	42
			23:49 - 00:04	15	40

Although some noise exceedances are recorded in the above dataset, the key observation in respect of the surrounding noise environment at Huntstown is that recorded noise levels were dominated by road traffic noise on the adjoining local roads, the nearby M50 and the Energia power plant(s). Exceedances of ambient noise levels were recorded at evening and night even though there was no contribution from site-based quarry or waste activities.

SURFACE WATER

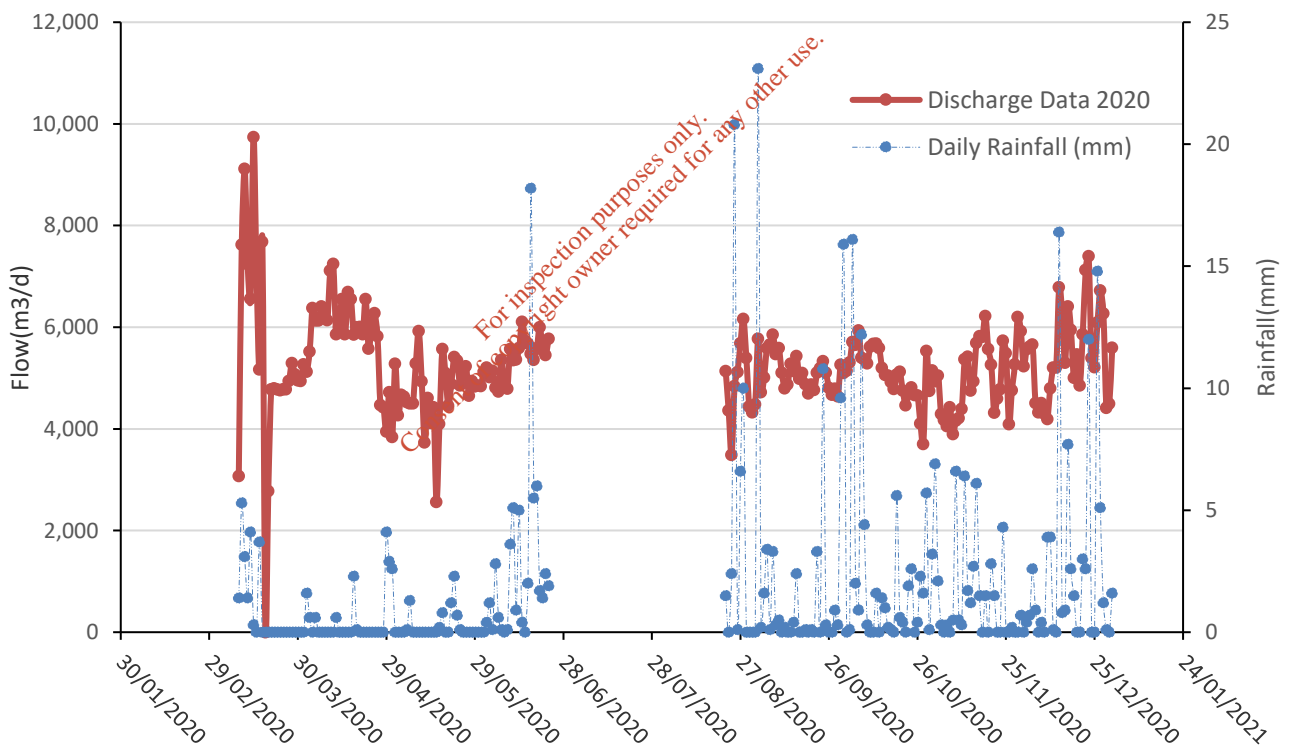
At the present time, treated run-off from the South Quarry is discharged off-site to the headwaters of the Finglas Stream immediately east of the quarry boundary and Roadstone property holding. The discharge is controlled by way of a licence issued by Fingal County Council (Ref WPW/F/008). At the discharge point (Ref. 'W3'), shown in Figure 7-1-3-1A, almost the entire flow in the stream comprises discharge from the South Quarry. In the absence of any discharge, it is likely that this watercourse would periodically run dry, except during periods of heavy or prolonged rainfall.

Surface water run-off and dewatered groundwater at the quarry is managed by means of a sump at a low point on the quarry floor. It is pumped up to the top of the quarry and thereafter falls under gravity to a series of settlement ponds located beyond the north-western corner of the quarry. With the elapse of the required retention time in settlement ponds, the treated surface water run-off then flows north-east along a pipe and is discharged to a drainage channel which runs eastwards through the Roadstone landholding for approximately 500m. Thereafter it passes through a hydrocarbon interceptor and is discharged off-site to the Finglas Stream.

Surface water quality has been monitored in compliance with the requirements of the existing discharge licence for the South Quarry (Ref. No. WPW/F/075).

The discharge licence limit is for 7,300m³/d, and the majority of daily discharge rates are below this limit. The discharge rate in the South Quarry typically ranged between 4,000m³/d and 6,000m³/d over the course of 2020. Notably, the discharge rate range after August 2020 was reasonably consistent between 4,900m³/d and 5,300m³/d. Historical discharge records show that discharge volumes prior to 2020 were more variable, but these are now actively attenuated and limited to 7,300m³/day. Summary details of recorded discharge volumes from the South Quarry are presented in the plot below.

South Quarry Daily Flow (m³/d) and Rainfall (mm) 2020



Results of water quality monitoring required by the existing discharge licence at the discharge point (designated 'W3') for the calendar years 2019 and 2020 are presented in Table 7-1-3-1C overleaf. Surface water quality test results are generally within the licence limit warning value for the discharge. Very occasional exceedances of ammoniacal nitrogen and suspended solids were reported. None of the exceedances were persistent, and where exceedances did occur the parameter was within the licence limit during the next monitoring round.

More detailed surface water quality test results are presented in Appendix 7-G of the Environmental Impact Assessment Report (EIA) which accompanies this licence review application.

Table 7-1-3-1C
Water Quality Results for Discharge to Finglas Stream (W3)

Parameter	Ammoniacal Nitrogen	BOD5	COD	Detergents	Mineral Oil	Phosphate (as PO ₄ -P)	pH	Sulphate	Total Suspended Solids	Temperature
Unit	mg/L as N	mg/L O ₂	mg/L O ₂	mg/L MBAS	mg/L	mg/L as P	pH Unit	mg/L	mg/L	°C
Maximum Permitted	1	5	50	10	10	0.1	6. - 9	300	30	25
30/01/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19/02/2020	0.62	< 2	< 4	< 0.05	< 0.010	0.07	7.8	168	4	8
26/03/2019	< 0.08	< 2	< 4	< 0.05	< 0.010	0.1	8	155	4	12
23/04/2019	0.27	< 2	< 4	0.09	< 0.010	0.02	8	142	< 2	15
29/05/2019	0.16	< 4	27	< 0.05	< 0.010	0.01	7.7	159	11	15
26/06/2019	2	< 2	< 4	0.76	< 0.010	0.01	7.8	227	7	16
24/07/2019	0.11	< 2	< 4	0.28	< 0.010	0.03	7.9	159	< 2	20
27/08/2019	0.18	< 2	< 4	< 0.05	< 0.010	0.01	7.9	172	2	18
24/09/2019	1.8	< 2	< 4	0.38	< 0.010	0.01	7.9	160	7	16
23/10/2019	0.26	< 2	< 4	< 0.05	< 0.010	< 0.01	7.7	205	< 2	10
20/11/2019	0.15	< 2	< 4	1.3	< 0.010	0.01	7.8	216	12	9

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Parameter	Ammoniacal Nitrogen	BOD5	COD	Detergents	Mineral Oil	Phosphate (as PO ₄ -P)	pH	Sulphate	Total Suspended Solids	Temperature
Unit	mg/L as N	mg/L O ₂	mg/L O ₂	mg/L MBAS	mg/L	mg/L as P	pH Unit	mg/L	mg/L	°C
19/12/2019	< 0.08	< 2	< 4	< 0.05	< 0.010	< 0.01	7.6	176	6	9
20/01/2020	< 0.08	< 2	< 4	< 0.05	< 0.010	0.02	8	195	3	7
24/02/2020	0.29	3	< 4	0.09	< 0.010	< 0.01	7.9	223	37	10
25/03/2020	< 0.08	2	< 4	0.09	< 0.010	< 0.01	7.9	114	28	11
26/05/2020	< 0.08	< 5	22	< 0.05	< 0.010	< 0.01	7.9	126	3	18
25/06/2020	< 0.08	< 2	< 4	< 0.05	< 0.010	0.01	7.8	164	3	18
27/07/2020	0.11	< 2	< 4	< 0.05	0.054	0.04	7.7	154	9	17
17/08/2020	0.12	< 2	< 4	< 0.05	< 10	0.01	7.7	139	7	No record
21/09/2020	< 0.08	< 2	< 4	0.3	< 0.010	0.02	7.9	164	4	17
27/10/2020	< 0.08	< 2	4	1	< 0.010	< 0.01	7.9	51	3	11
16/11/2020	0.21	< 2	16	0.73	< 0.010	0.05	7.9	185	14	10
14/12/2020	0.08	< 2	< 4	0.61	< 0.010	0.01	7.8	209	13	9

GROUND / GROUNDWATER

Condition 8 of the existing quarry planning permission at Huntstown (Ref. FW12A/0022 and ABP PL06f.241693) requires that 'A groundwater monitoring programme shall be implemented to monitor the cone of depression induced by dewatering at the quarry'. The existing groundwater monitoring wells within the landholding of the operator shall be maintained and maintained on a monthly basis'. This monitoring is undertaken and reported as required by the planning permission.

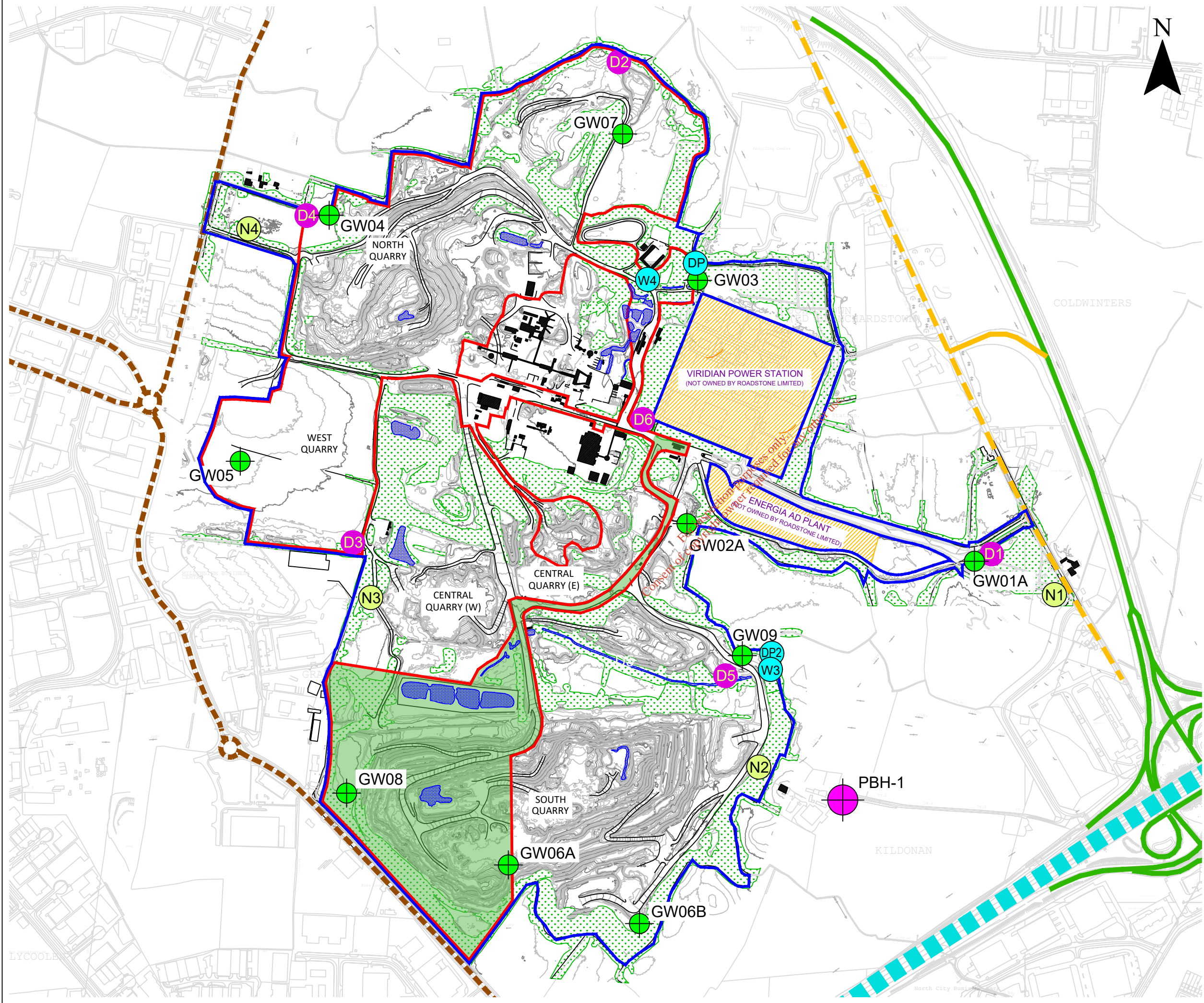
Schedule C5 of the existing waste licence (Ref. W0277-03) also requires periodic monitoring of groundwater level and groundwater quality for specified quality parameters at 7 No. identified monitoring wells (GW1 to GW7) but does not prescribe any water quality compliance limits.

At the present time, there are 11 No. groundwater monitoring wells installed around the Huntstown Quarry complex. In addition to the 7 No. wells identified by the existing waste licence, there are an additional 3 No. wells installed around the South Quarry. The locations of these wells, designated GW6B, GW8 and GW9, are shown in Figure 7-1-3-1A. One further well, PBH1, is located on private land to the east of the quarry. A pre-existing groundwater monitoring well (GW6A) had to be replaced recently, by GW06B, in March 2021, after it had become inaccessible.

Details of recent groundwater level monitoring and groundwater quality testing at wells around the South Quarry are provided in Chapter 7 of the EIA which accompanies this waste licence review application.

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0180.00313.FIG 7-1-3-1A.Environmental Monitoring Locations.dwg



NOTES

- EXTRACT FROM 1:2,500 ORDNANCE SURVEY DIGITAL SHEET NO'S. 3062-A, 3062-B, 3062-C, 3062-D, 3063-A, 3063-C, 3130-A & 3130-B.
- ORDNANCE SURVEY IRELAND LICENCE NO. CYAL50167032 (C) ORDNANCE SURVEY IRELAND/ GOVERNMENT OF IRELAND
- SURVEY COMPLETED ON AUGUST 2021 BY ASM IRELAND TO ITM AND MALIN HEAD DATUM

LEGEND

	ROADSTONE LIMITED LAND INTEREST (C. 171.8 HA)
	AMENDED WASTE LICENCE AREA (COMPRISING EXISTING LICENCE AREA AND PROPOSED EXTENSION) (C. 77.5 HA)
	PROPOSED EXTENSION TO CURRENT WASTE LICENCE AREA
	N2 DUAL CARRIAGEWAY
	R135 REGIONAL ROAD (NORTH ROAD)
	LOCAL ROAD
	ON-SITE GROUNDWATER WELL LOCATIONS
	PRIVATE WELLS
	HUNTSTOWN POWER STATION WELL LOCATIONS
	NOISE MONITORING LOCATION
	DUST MONITORING LOCATION
	SURFACE WATER MONITORING LOCATION

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ROADSTONE LIMITED
 WASTE LICENCE REVIEW APPLICATION
 HUNTSTOWN WASTE RECOVERY FACILITY
 NORTH ROAD, FINGLAS, DUBLIN 11
ENVIRONMENTAL MONITORING LOCATIONS

FIGURE 7-1-3-1A

Scale: 1:8,000 @ A3 Date: DECEMBER 2021