O.C.O Avonmouth Production Facility Output Audit Report

For Puro.Earth

CO_2 Removal Supplier	O.C.O Technology Limited
Removal Method	Carbonated Materials
Production Facility	O.C.O Aggregate Manufacturing: Avonmouth Production Facility – ID No. 756292
Production Facility Addresses	Unit 1 Severn View Industrial Estate Central Avenue, Avonmouth UK BS10 7SD
Net Volume of CO_2 Removal	1,574.18 CORCs
Reporting Period	October 1st, 2025 – December 31st, 2025
Auditors	350Solutions Guy Ingram-Hardwick Zoe Sandwith
Report Date	April 15th, 2026
Version	V1.2

Contents

O.C.O Avonmouth Production Facility Output Audit Report 1
1. Introduction 3
2. Technology Description 4
2.1. Process Inputs & Outputs 4
2.2 Changes since last Output Audit 6
3. Audit Summary 6
3.1. Audit Approach 6
3.2. Verified Output & CORCs 7
4. Audit Findings 8
4.1. Summary of Audit Findings 8
4.2. Critical Findings and Exceptions 10
4.3. Forward Action Requests and Recommendations 10
5. Revision History 11
6. Auditor Signatures 11
7. References 11
Appendix 1: Puro.Earth Carbonated Materials Methodology Audit Checklist 12
Appendix 2: Verifier Qualifications 13

List of Tables

Table 1. Q4 2025 O.C.O Avonmouth Production Facility Output Audit Summary 3
Table 2. Verified Production Facility Inputs & Outputs 5
Table 3: Audit Activities 6
Table 4: Verified CORCs for O.C.O Avonmouth Production Facility 8
Table 5: Audit Findings 9
Table 6: Notable Findings 10
Table 7: FARs and Recommendations 10

List of Figures

Figure 1. O.C.O Technology Carbonated Aggregate Process. 4

PRODUCTION FACILITY & OUTPUT AUDIT REPORT		
Company O.C.O Technology Limited	Company Contacts: Anna-Marie Simonova Dr. Peter Gunning	Audit Team: Guy Ingram-Hardwick* Zoe Sandwith
Removal Method: Carbonated Materials		
Report Date: April 15th, 2026		
Document No: 350VR-OCO-PU2603.01		
Rev: v1.2		

** primary contact/lead author*

1. Introduction

350Solutions, Inc. was contracted to perform an audit of carbon dioxide removal credit (CORC) claims for O.C.O Technology Limited's Avonmouth carbonated aggregate production process. 350Solutions declares that we are an impartial auditor, free from any conflicts of interest, capable, and qualified to complete this audit according to Puro Standard and related Validation and Verification Body Requirements.

In December 2022, 350Solutions conducted a Production Facility audit of the process, lifecycle CO_2 emissions assessment (LCA), and other administrative details to verify compliance with the requirements of the Puro.Earth Puro Standard General Rules (Version 3.1) and Carbonated Materials Methodology (Edition 2022, v1.0) [1], [2]. The Production Facility audit remains valid until August 31st, 2026. This follow-up output audit was conducted to verify O.C.O's reported CORCs for the Avonmouth production facility over the period of October 1st, 2025 - December 31st, 2025. The verification was conducted through a detailed document review and audit.

Table 1. Q4 2025 O.C.O Avonmouth Production Facility Output Audit Summary

Verification Summary	
CO_2 Removal Supplier	O.C.O Technology Limited
Removal Method	Carbonated Material: Production of carbonated aggregate from waste materials
Verification Type	Removal supplier output audit; Puro Standard General Rules (v3.1) and Carbonated Materials Methodology (v2)
Production Facility Name and Identification Number	Avonmouth Production Facility Facility ID No. 756292
Production Facility Locations	Unit 1 Severn View Industrial Estate Central Avenue, Avonmouth UK BS10 7SD
Reporting Period	October 1st, 2025 – December 31st, 2025
Verified Gross CO_2 stored Factor	130.67 $kgCO_2e/t$ aggregate product
Verified CORCs	1,574.18 CORCs
Audit Kickoff Date	March 13th, 2026
Audit Report Date	April 15th, 2026

2. Technology Description

The O.C.O Technology (O.C.O) process and technology uses carbon dioxide to treat various waste materials via Accelerated Carbonation Technology (ACT). O.C.O produces a lightweight carbonated aggregate for use in construction applications, such as in precast concrete block and ready-mixed concrete. O.C.O currently operates several sites in the UK treating air pollution control residue (APCr) primarily from waste-to-energy plants and producing aggregate that meets EN13242 and EN13055 requirements. The aggregate production process utilizes CO_2 from biogenic or other sources injected during the accelerated carbonation step and absorbs and reacts with significant amounts of CO_2 in ambient air during on-site curing and storage. For CORC purposes, only CO_2 from biogenic sources, or absorbed directly from the atmosphere during curing is credited. CO_2 is permanently sequestered in the aggregate product in the form of carbonates. The process is summarized in Figure 1.

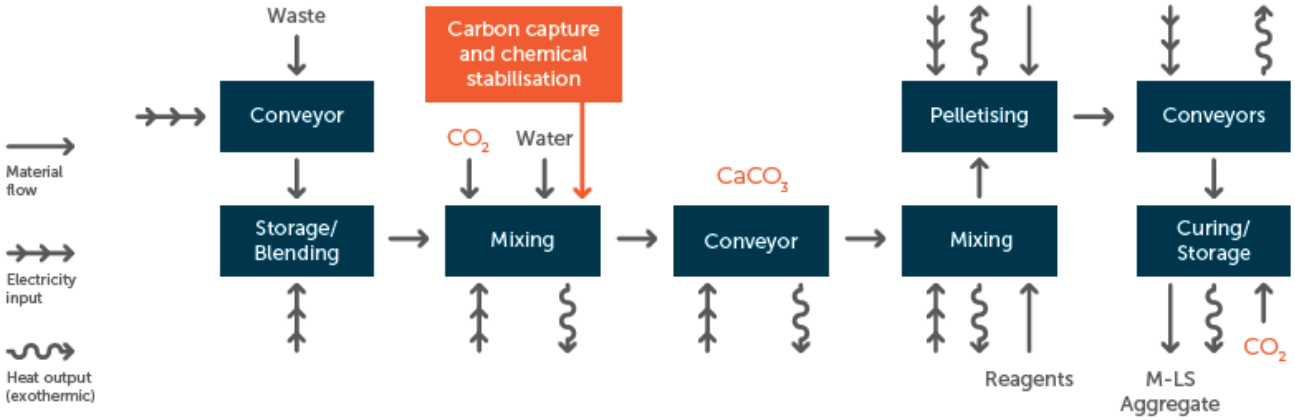

Figure 1. O.C.O Technology Carbonated Aggregate Process.

O.C.O operates production facilities in the U.K. (Avonmouth, Brandon, Leeds, Wretham) utilizing the same general process, inputs, and outputs in each location. O.C.O Manufactured LimeStone (M-LS) aggregate is currently sold primarily as construction material to concrete block makers, ready-mix concrete producers, and for pavement, earthworks (i.e. foundation fill), and similar applications.

2.1. Process Inputs & Outputs

The O.C.O aggregate manufacturing process uses similar inputs as a concrete batching process, with the primary exception being the use of air pollution control residue (APCr) as a primary feedstock, which the O.C.O process treats and stabilizes in the aggregate carbonate matrix that forms. Primary inputs include APCr, water, CO_2, sand, and other aggregates or residues, such as limestone dust or scalping's (crushed rock). The process uses electricity for operation of equipment, and requires heavy equipment for material handling, which require diesel fuel use.

The O.C.O process produces very little to no waste products and has very limited emissions of any kind from the facility. Any waste produced on site is typically recycled and used in the mix in small quantities, as they are often components of feedstock or product. There are no air emission points, with the primary potential emissions being fugitive dust, which is controlled and monitored at the

sites, and water vapor emitted as bound water in the raw material is released during the carbonation reaction. All CO_2 inputs are absorbed and reacted in the Stage 1 process, which is controlled and monitored by pressure in the sealed mixer to ensure CO_2 is not injected until prior injection has been reacted.

Table 2 summarizes the observed inputs and outputs from the process and typical rates from supplied operational data.

Table 2. Verified Production Facility Inputs & Outputs

Input or Output	Item	Verified Amount Over Monitoring Period	Notes (Specifications, source, etc.)
Inputs	APCr (tonne)	12,617	O.C.O tests each APCr delivery to ensure it is within specifications to enable aggregate production.
	CO_2 (tonne) - Biogenic injected - Fossil injected Ambient CO_2 absorbed during curing	 492 0 3435	CO_2 values provided for reporting period are the total CO_2 delivered to O.C.O, all injected CO_2 was biogenic sourced.
	Water (m^3)	4,289	Utility metering data and flow meter data from borehole water/ rainwater collection
	Cement (tonne)	2,795	Data recorded using process control output files associated with production facility weigh scales
	Limestone dust (tonne)	182.16	
	Other waste materials (sand, C&D debris, steel slag waste, recycled glass, etc.) (tonne)	10,450	
	Raw material supply inputs (extraction, handling, transportation emissions)	Included in Production & Operation CO_2 emissions below	Emissions are from raw material extraction and production processes (OneClick EPD software used for EPD emission factors and calculation) as well as transport of materials to O.C.O. EPD independently verified by EPD Hub
	Production inputs: - materials handling equipment (diesel) - Site electricity use	 12,650 liters 158,515 kWh	No additional energy inputs are required. All electricity and diesel usage is based on utility bills or purchase records.
	CO_2 present in feedstock ($E_{priorcarbon}$)	29.6 kg CO_2e per tonne aggregate	Based on monthly analysis of APCr feedstock material and rate.
Outputs	Aggregate product output (tonne)	30,063	Aggregate product output is based on delivered product weighed as it leaves the plant gate on calibrated weigh scales.
	Gross CO_2 stored in aggregate (E_{stored})	3,926 tCO_2e (130.67 $kgCO_2e$ per tonne aggregate produced)	Based on measured carbonate content of M-LS aggregate (monthly), as detailed in document the uploaded Carbon Assessment Datasheet
	Production and operation CO_2 emissions output ($E_{production}$)	2352 tCO_2e (78.23 $kgCO_2e$ per tonne aggregate produced)	Includes all raw material extraction and transportation and aggregate production process.

	Net CO_2 emissions	- 1,574.18 tCO_2e (-47.61 $kgCO_2e$ per tonne aggregate produced)	$E_{stored} - E_{production}$

2.2 Changes since last Output Audit

No changes since the last audit have been outlined by O.C.O

3. Audit Summary

3.1. Audit Approach

A planned series of audit activities were conducted by 350Solutions to independently verify production and output data, and CORC claims for the reporting period. The audit was conducted following the specifications of Puro General Rules (Version 3.1) and Carbonated Materials Methodology (Edition 2022, v2). Specific audit activities conducted are summarized in Table 3. A completed Puro Carbonated Materials Methodology Audit Checklist used during the audit is attached to this report as Appendix 1. Auditor qualifications are attached as Appendix 2.

Table 3: Audit Activities

Date(s)	Verification Activity	Verification Tasks	Documents Reviewed
March 13th, 2026 – March 29th, 2026	Introductory Document Review	- Review of operational and procedural changes - Review of LCA and supporting documentation - Review of Puro CORC calculations - Review of raw material sources and sustainability - Review of system inputs and outputs - Review evidence of product output - Review of product properties - Review of product end use - Review of equipment and calibrations	Baseline.pdf field-values.csv Estuary Oils INV 1119748 07.11.25.pdf Diesel (1).png (Diesel Use) Active Monthly Records 07-01-2026 18-44-47.xlsx All Site's Key Information.xlsx Copy of Utility Accruals Dec 25.xlsx Utilities Template.csv _Renewable Energy Certificate - O.C.O Technology Limited 7705 Avonmouth 011024-300925.pdf REGO Certificate - O.C.O Technology Limited Avonmouth 011025-300927.pdf Grid Electricity EF.png Bill001663823_1 OCT 25.pdf Bill001673111_1 OCT 25.pdf Bill001689244_1 NOV 25.pdf Bill001698155_1 NOV 25.pdf Bill001714773_1 DEC 25.pdf Bill001723487_1 DEC 25.pdf Solar power.png Avo PV Gen 2025.10.01.jpg Avo PV Gen 2025.11.03.jpg Avo PV Gen 2025.12.01.jpg Water (1).png Bill_02102025 to 03112025.pdf Bill_04112025 to 01122025 water 2 business.pdf Bill_05102025 to 04112025.pdf Bill_05112025 to 02122025.pdf AUTO_EPD_CEM_I_52-5_R_(ma)_MATAPORQUERA_ENG.pdf AUTO_EPD_CEM_II_A-L_42-5_R_MATAPORQUERA_ENG.pdf
March 13th, 2026 – March 29th, 2026	Data Review	- Review of LCA and supporting documentation - Review of Puro CORC calculations - Review of raw material sources and sustainability - Review of carbon content of input materials and output aggregate - Review of system inputs and outputs	

		- Review evidence of product output - Review of product properties - Review of product end use	Avonmouth&Leeds Q4 25 deliveries raw dynamics.xlsx AVQ425RawMaterialWasteandCO2_Template.csv Limestone (1).png Rock Crushing.png Ecoinvent information (1).png ghg-conversion-factors-2024-full_set__for_advanced_users__v1_1.xlsx Avonmouth_Q4_25LoadBasedTransport_NewTemplate.csv Calc_Avonmouth_Q4_25LoadBasedTransport_NewTemplate.xlsx Off Site Deliveries Avonmouth Transport.xlsx OCO INV61825.pdf Electricity (gas) (2).png Electricity (mixed) (1).png Ladywell.xlsx St Nicholas Court Farms CO2 Data 2024 (1) (2).xlsx Copy of PR268 Carbon Assessment Datasheet Avonmouth Q4 25 (1).xlsx SI80720.pdf SI81275.pdf SI81681 - December.pdf 1A1 CO2 Supplier 2 Contract (1).pdf Dragon Alfa INV 232173 26.10.25.pdf Dragon Alfa INV 232707 23.12.25.pdf INV-04461-V3B0P2 - FCC Environment (UK) Limited - O.C.O Avonmouth.pdf INV-04471-R0B7Y8 - Grundon Waste Management Ltd - O.C.O Avonmouth.pdf Tarmac INV 9050424769 23.10.25.pdf Tarmac INV 9050645941 11.12.25.pdf Tarmac INV 9050650617 18.12.25.pdf 1B2 BES6001 Sustainable Sourcing Certificate.pdf Product dispatch Avonmouth Q4 25.csv INV-04487-D6V8Y5 - Aardvark Hire Ltd - O.C.O Avonmouth.pdf 3B1 Terms and Conditions of Sale (1).pdf 3C3 BlockMix - Sales Factsheet (1).pdf 3C4 6F - Sales Factsheet.pdf 3C5 UKCA Blockmix.pdf 3C6 UKCA 6F.pdf 05A Permanence Risk Assessment.pdf Contact information to auditor.xlsx PU2523_OCO Avonmouth 2025 OA_VR_V1.2.pdf Q4 25 Avonmouth - Disclosure since last audit .xlsx 251010 O.C.O Methodology for CO2 Removal v3.pdf
March 29th, 2026 - April 15th, 2026	Report Development	- Compose Verification Report - Internal quality control	*No additional documents reviewed following data review*

3.2. Verified Output & CORCs

Table 4 includes the specific CORCs claimed by O.C.O. and verified by 350Solutions during the output audit process.

Table 4: Verified CORCs for O.C.O Avonmouth Production Facility

Performance Metric Name / Description	Revised Value	Verified Value	Monitoring Period
Net CO_2 Removal Factor*	52.36 $kgCO_2$/ tonne aggregate	52.36 kg CO_2/ tonne aggregate	October 1st, 2025 – December 31st, 2025
Aggregate Output	30,063 tonnes	30,063 tonnes	
Biogenic CO_2 Injected	492 tonnes	492 tonnes	
Ambient CO_2 absorbed during curing**	3435 tonnes	3435 tonnes	
Total CORCs***	1,574.18 CORCs	1,574.18 CORCs	

** CO_2 Removal factor is the net value of CO_2 removed in the aggregate product based on the O.C.O M-LS Environmental Product Declaration. All of CO_2 injected during the reporting period was of biogenic source.*

*** Determined using the average measured carbonate content of M-LS aggregate and the mass of biogenic CO_2 injected.*

**** CORC calculations are based on the net CO_2 emission rate determined and verified in the valid Environmental Product Declaration (EPD) for the reporting period, and the average measured carbonate content of M-LS aggregate. CORC values are calculated based on this factor and the total aggregate product delivered during the reporting period. The values of inputs during the reporting period are verified and reported here for completeness and to cross check versus the EPD.*

4. Audit Findings

4.1. Summary of Audit Findings

350Solutions has reviewed and audited the documentation of the technology, the instrumentation, the procedures, performance and collected data and has found that the data presented in the Puro Audit Package:

☒ ***Meets the requirements of the Puro General Rules V3.1 and Carbonated Materials Methodology V2***

☐ ***Meets the requirements of the Puro General Rules V3.1 and Carbonated Materials Methodology V2 with minor modifications***

☐ ***Does Not Meet the requirements of the Puro General Rules V3.1 and Carbonated Materials Methodology V2***

350Solutions utilized a reasonable level of assurance in performance of the output audit. A summary of findings associated with each primary requirement of the *Puro General Rules* and *Carbonated Materials Methodology* and any identified issues with the audit are summarized below.

Table 5: Audit Findings

Puro Standard CM Method. Section Ref.	Audit Verification Topic	Findings
1.1.1	*CO_2 Source*	**Acceptable.** O.C.O utilized biogenic CO_2 during the reporting period (no CO_2 injected was fossil sourced). A significant portion of the CO_2 in the product occurs via absorption from ambient atmosphere and reaction in the aggregate during the curing and storage process on-site.
1.1.2 *5.2.1* *5.2.2*	*Sustainable Raw Materials*	**Acceptable.** O.C.O utilizes waste material (APCr) as a primary input, serving as a certified End-of-Waste treatment facility. In addition, O.C.O has obtained BES 6001 certification for Responsible Sourcing of Construction Materials for other inputs.
1. *3.1.1* *3.1.2* *3.1.3* *5.2.1* *5.3.1* *5.3.2* *5.3.3*	*Net-Negative LCA*	**Acceptable**. O.C.O has demonstrated an appropriate basis for CORCs according to the Puro Methodology. The LCA was completed and independently verified as part of the independently verified EPD development, and utilizes the appropriate standard (ISO 14040/14044), system boundary (cradle to gate – excluding distribution use and end-of-life), cut-off approach for secondary materials, and results in a net-negative LCA, with -47.61 kg CO_2 removed per tonne of aggregate (after accounting for prior carbon present in the APCr feedstock material).
1.2.4	*Output Quantification*	**Acceptable.** All reported aggregate production is based on deliveries at the gate, as measured on a calibrated weigh scale at the facility. All shipped aggregate product is accounted for in dispatch records, which form the basis for the claimed production and CORCs. O.C.O also documents raw material usage and production via plant SCADA systems, which can be used for cross-check purposes. Water, electricity, and diesel fuel use are determined by either on-site meters, utility bills, or purchase receipts, respectively. O.C.O has a valid EPD for the M-LS aggregate product. All LCA inputs in the EPD are complete and analysis performed in compliance with the Puro methodology.
2.1.3 *5.4.1*	*Product usage*	**Acceptable.** The carbonated aggregate produced by O.C.O is utilized in a variety of construction processes. O.C.O maintains a complete list of customers and a summary of applications of the aggregate. In addition, O.C.O certifies that the product meets EN13242 and EN 13055 standards for specific aggregate types for use in certain construction materials.
2.2.5	*Demonstrated Additionality*	**Acceptable.** O.C.O has provided financial models and financial records demonstrating the need for carbon finance. Specifically, the primary counterfactual for the O.C.O process is the treatment and landfilling of the APCr residues. Companies that perform this process are typically able to provide lower tipping fees than what O.C.O charges for treatment, which is in large part due to the additional costs of operating the O.C.O process compared to traditional landfilling. To remain competitive with the counterfactual, O.C.O requires carbon finance to enable tipping fee reductions for APCr, to secure their primary input. In addition, with increasing operating costs (electricity, CO2), and low value of aggregate product, the carbon finance revenues support financial results that significantly improve options for future investment and scaling.
4. *5.3.2*	*CORC Calculation Methodology*	**Acceptable.** O.C.O follows the CORC quantification methodology in the CBM Methodology. Note that O.C.O now uses direct measurement of carbonate content of M-LS to quantify CO_2 uptake. Direct measurement of

		carbon content of APCr waste feedstock material is used to deduct prior carbon from the end-product carbon content.
5.5.1	*Statement re: Double Counting*	**Acceptable.** O.C.O is aware of end-user customer practices and assures no-double counting is taking place. O.C.O has provided written confirmation of use of product. O.C.O utilizes language in its terms and conditions that state that the carbon credits associated with the product do not transfer with the product purchase and credit ownership may be negotiated separately.

4.2. Critical Findings and Exceptions

Table 6 contains a list of notable findings identified during the output audit for this reporting period. All findings, primarily associated with missing supporting evidence, have been addressed and closed. A list of all findings can be found in Appendix 1.

Table 6: Notable Findings

ID No.	Finding/ Issue	Supplier Response	Conclusion/ Resolution
1	RECs certificates are not eligible under new Puro guidance (Puro published clarification CL023 CMA regarding the use of RECs) Please provide eligible certificates.	Unable to provide for this reporting period due to timing constraints.	Emission Factor for the UK grid used instead of renewable EF. FAR for next OA to ensure any use of RECs are supported by appropriate certificates.
3	Emissions associated to freight shipping of raw materials has been included but requires updating with more representative emissions factor for the type of ship.	Emission factor updated to be more representative.	Emissions factor update accepted.
4	APCr prior carbon was not included in the ACO2 calculation for Estored. Please update document to include the CO2 within the APCr.	ACO2 calculation updated to include APCr prior carbon.	Confirmed. No further action.

4.3. Forward Action Requests and Recommendations

Table 7 contains the list of forward action requests that should be addressed by O.C.O prior to the next Output Audit.

Table 7: FARs and Recommendations

ID No.	Finding/ Issue	Supplier Response	Conclusion/ Resolution
2	FAR – future use of RECs (or equivalent) shall be accompanied with appropriate documentation to meet Puro eligibility requirements.	Noted.	Ongoing.
5	Recommendation – Update invoice template for customers to include a short statement ensuring no double counting and stating intended use within the invoices themselves alongside	-	Ongoing.

	the link to the terms of sale document.		

5. Revision History

Version	Date Issued	Noted Changes
Draft v1.0	April 14th, 2026	Initial Draft
Draft v1.1	April 14th, 2026	Updated dates following internal review
Final v1.2	April 15th, 2026	Final draft following Puro and OCO review.

6. Auditor Signatures

Auditor Information		
VVB	**Auditor**	**350 Solutions Project ID No.**
350Solutions, Inc.	Guy Ingram-Hardwick (Lead Verifier)	PU2603.01
350Solutions, Inc.	Zoe Sandwith (Quality Assurance)	

Guy Hardwick

Digitally signed by Guy Hardwick
Date: 2026.04.22 17:02:48 +01'00'

Signed: Guy Ingram-Hardwick (Lead Verifier)

Zoe Sandwith

Digitally signed by Zoe Sandwith
Date: 2026.04.22 09:44:51 -07'00'

Zoe Sandwith(Quality Assurance)

7. References

[1] Puro.Earth, Puro.Earth General Rules version 3.1, 2023, Website: https://puro.earth/document-library

[2] Puro.Earth, Puro.Earth Carbonated Materials Methodology (2022, version 2) Website: https://puro.earth/document-library?tab=methodologies

[3] Puro.Earth, Clarifications Puro Standard, 17th December, 2025, page 23/34 Website: https://puro.earth/document-library?tab=clarifications

Appendix 1: Puro.Earth Carbonated Materials Methodology Audit Checklist

Type	Finding/Issue	Required Action	Supplier Response	350 Response	2nd Supplier Response	Conclusion/Resolution
Omission	CO2 sourcing invoices and receipts missing for December	Provide requested documentation	Requested documentation provided			Requested document uploaded and meets requirements
Omission	Solar meter readings for the Reporting Period are requested to be included within the submission	Provide requested documentation	Documentation emailed separately			Documentation received.
Clarification	Note: There is a slight inconsistency between the Dragon Alfa deliveries invoice for 23/12 (3 deliveries) and the master deliveries document, which states that only 2 deliveries occurred and seemingly has documented the 3rd delivery to the 22nd instead (29.38 tonnes). Any reason why this might be the case?	Confirm reasoning for this	Drivers sometimes load one day and deliver the day after.	Confirmed. Thanks for clarifying		-
Recommendation	Update emission factor for trucking emissions to be more representative.	Update trucking emissions factor	Emissions Factor updated using DEFRA data			Emissions factor updated accepted.

Appendix 2: Verifier Qualifications

Verifier Qualifications	Criteria Met?	Evidence / Notes *(note how the criteria was met, specific documents - resume/CV, publications, certifications, etc.).*
Verifier has relevant technical knowledge of the type of technology being evaluated and carbon removal processes in general		
A) Does Verifier have:		
1. An in-depth technical knowledge of the technology type under verification;	☑	350Solutions is accredited to ISO/IEC 17020:2012 and ISO 14034 Environmental Technology Verification (ETV) as a Type A (third party) Inspection Body (ANAB Certificate Number: AI-2618). The technical scope of 350's accreditation includes verification of performance and environmental impact as it relates to design, materials, equipment, installation and operations of technologies in the categories of Energy, Clean Production and Process, and Air Pollution Monitoring and Abatement. As documented in 350Solutions' ETV Standard Operating Procedure (ETV QPM 350-223-03), and Quality Systems Procedures for verifier qualifications (QSP-350-005-02), 350Solutions conforms to the requirements of ISO 17020 Annex A with respect to verifier qualifications and procedures relevant to the Puro.Earth General Standard. 350 staff have participated in the evaluation and development of small scale biomass gasification and biofuels technologies. 350 also served as lead verifier for the Carbon XPrize competition and contributed to the development of procedures and processes for verification of relevant calculations, modeling, and statistical methods in order to assess team results and calculations of performance metrics and uncertainty. 350 has demonstrated knowledge of data quality and data validation approaches and execution in supporting verification of performance claims and results.
2. Knowledge of specific risk areas associated with performance of such technologies (i.e. common failure points, performance issues, barriers to scaleup);	☑	
3. Knowledge of the environmental implications related to the use of the technology from a life cycle perspective, such as impact of the technology on lifecycle CO2 emissions and carbon removal;	☑	
4. Knowledge of relevant applicable test methods and standards for evaluating performance or impact of the technology;	☑	
5. Knowledge of relevant calculation, modeling, and statistical methods in order to assess test results and calculations of performance metrics and uncertainty, as applicable;	☑	
6. Knowledge of data quality and data validation approaches, including QA/QC procedures, for example.	☑	
Verifier is a credible independent 3rd party		
B) Is Verifier:		
1. third-party body independent of the team registered for the Puro Earth CORCs;	☑	350Solutions is accredited to ISO/IEC 17020:2012 and ISO 14034 ETV as a Type A (third party) Inspection Body. As documented in 350Solutions ETV Policy Manual (ETV QPM 350-200-03), 350Solutions conforms to the requirements of ISO 17020 Annex A with respect to impartiality for Type A inspections, pursuant to ISO 14034 activities. These procedures and quality management programs are generally relevant to verification under the Puro.Earth General Standard. Note that verifications completed for Puro.Earth are not equivalent to ISO 14034 verifications.
2. Not directly involved in the design, manufacture or construction, marketing, installation, use or maintenance of the specific technologies submitted to Puro.Eargh for verification, or represent the parties engaged in those activities.	☑	
3. Not part of a legal entity that is engaged in design, manufacture, supply, installation, purchase, ownership, use or maintenance of the items inspected.	☑	

Guy Ingram-Hardwick
Carbon Removal Verification Engineer, 350Solutions

EDUCATION:
MEng Materials Science and Engineering, Loughborough University, UK - 2022

EXPERIENCE SUMMARY:
Guy Ingram-Hardwick is a Carbon Removal Verification Engineer, with experience in materials engineering, process engineering, MRV protocol development, experimental design and life cycle analysis (LCA). At 350 Solutions, Guy's efforts centre on validation and verification of varied carbon removal pathways, including biochar, biomass storage, and DAC+S. Guy has led the verification of a biochar CDR supplier registered with Puro.Earth and supported verifications of bio-oil and biomass geologic storage pathways as well as DAC technology assessments. Guy began his experience in carbon removal working to develop an LCA model for Brilliant Planet, a marine based carbon removal company growing, processing and burying microalgae for carbon sequestration. Once completing the LCA model, Guy managed the third-party verification and co-authored the MRV methodology for Brilliant Planet before managing its adoption with carbon market registries and developing relevant documentation required for carbon removal verification and crediting.

Guy also studied degradation mechanisms for biodegradable polymers which was the focus of his Master's thesis. His work during the Master's thesis and at Brilliant Planet provided experience in experimental design and execution, including conducting field trials for developing novel technologies. This included leading design and execution of demonstration and testing of processing and storage of the microalgae, displaying the long-term permanence of the carbon removal system. Prior to his experience at Brilliant Planet, Guy worked as a process engineer at Pirelli's rubber compound manufacturing plant in Burton-on-Trent with a focus on data analytics for driving continuous improvement, as well as developing familiarity with industrial manufacturing operations and data, quality assurance, and international standards.

RESEARCH AND PROFESSIONAL EXPERIENCE:
January 2025 – Present: Carbon Removal Verification Engineer, 350Solutions
Verify carbon dioxide removal technologies on behalf of registries and private companies ensuring high quality and meaningful climate impact.

Jul 2022 – Dec 2024: LCA and MRV Associate, Brilliant Planet
Quantified the carbon removal efficiency of the Brilliant Planet system across a variety of engineering designs using LCA. Developed the proprietary MRV methodology and PDD as well as setting up a novel experimental design to display the permanence of the stored carbon.

July 2019 – September 2020: Process engineer, Pirelli
Completed data analytics to drive continuous improvement for increasing efficiency, safety and rubber compound quality.

Zoe Sandwith
Research & Verification Associate, 350Solutions

EDUCATION:

BSc. Combined Biology & Earth Science, University of Victoria, 2011

EXPERIENCE SUMMARY:

Zoe Sandwith is an observational ocean scientist with expertise in ocean chemistry, biogeochemical cycles, oceanographic instrumentation, and field- and lab-based analytical methodologies. Zoe works on verifying carbon dioxide removal (CDR) technologies, with a focus on marine and open systems. Previously, Zoe conducted academic research on topics including: dissolved oxygen in dynamic coastal settings and constraining the error associated with different measurement techniques; the use of dissolved oxygen isotopes for understanding net community productivity and potential export efficiency; the analysis of the marine carbonate cycle and ocean acidification; and the development and testing of novel instrumentation. In addition to her research, Zoe has experience managing large, long-term observational research infrastructure at the marine interface.

SELECTED RESEARCH AND PROFESSIONAL EXPERIENCE:

Jun 2025 – Present: Research & Verification Associate, 350Solutions

Verify CDR technologies on behalf of registries and individual clients. Specializes in marine and open system pathways, instrumentation, carbonate system chemistry, and data quality

2021-2024: Scientist, Hakai Institute. Analyzed high-frequency, high resolution oceanographic data from field programs and autonomous platforms and synthesized in a regional context. Focused on dissolved oxygen dynamics, regional hypoxia, ocean acidification, and climatological linkages. Participated in field monitoring programs and developed and trialed low-cost autonomous sensors and sampling platforms.

2011-2020: Manager & Research Assistant III, Woods Hole Oceanographic Institution. Managed daily operations for the Martha's Vineyard Coastal Observatory and spearheaded infrastructure retrofit and upgrades and permitting review. Conducted research on biogeochemical cycles using gas tracers, specializing in dissolved oxygen isotopes and the dissolved oxygen to argon ratio for measuring Net Community Production, as well as high quality analysis of the isotopes of the nitrogen cycle and carbonate system. Operated in open and coastal ocean, estuarine, lacustrine and marsh systems. Managed multiple analytical laboratories.

SELECTED PUBLICATIONS:

Evans W, Campbell K, Weekes C, [...] **Sandwith Z**, and Jackson J. 2025. Variability in Storm season intensity modulates ocean acidification conditions in the northern Strait of Georgia. *Nature Sci Reports 15(4505)*. https://doi.org/10.1038/s41598-025-88241-8

•Nicholson D, Michel APM, [...] **Sandwith Z**, Monk S. 2018. Rapid mapping of methane and carbon dioxide in coastal ecosystems using the ChemYak, an autonomous surface vehicle. *Env Sci* Tech. https://doi.org/10.1021/acs.est.8b04190