RECYCLING ROADWAYS FOR CARBON EMISSION REDUCTIONS - MIDSTATE RECLAMATION AND TRUCKING

Document Prepared by SustainCert

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Project title	Recycling Roadways for Carbon Emission Reductions - Midstate Reclamation and Trucking
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***VCS Standard* Version**	4.7
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Summary:

SustainCERT S.A has conducted a second verification of the VCS Project 3616 titled “Recycling Roadways for Carbon Emission Reductions – Midstate Reclamation and Trucking” by PP Global Emissionairy, a construction project (Sectoral Scope 6) located in the United States. Cold-in-Place Recycling (CIR) using Foam Stabilized Base (FSB) and asphalt emulsion mixture projects reduces Greenhouse gas (GHG) emissions during the asphalt installation process by using FSB and asphalt emulsions in place of Hot Mix Asphalt (HMA). This project is developed as a grouped project within the United States of America. The purpose of the verification engagement was to conduct, in accordance with the VCS Program rules[/1/2/], an GHG emission reduction independent assessment that have occurred as a result of the project during the monitoring period from 26-September-2021 to 31-December-2024 (“the verification period”).

The Purpose of the verification is to ensure that the GHG statement is materially correct, that the statement conforms with the specified requirements and adheres to the VCS program rules, and that the data provided to VV team can be documented and if errors or omissions are detected, they be corrected by the project proponent.

The verification engagement involved a combination of document review, interviews with relevant personnel, and on-site inspections. As part of the verification engagement 3 Corrective Action Requests, 8 Clarification Requests, and 0 FARs were raised. These findings are described in Appendix 4 of this report.

Based on documentation and explanations provided by the Project Proponent, SustainCERT closed out all findings satisfactorily. All uncertainties associated with inherent data collection and analysis are properly managed through data controls and quality assurance checks.

SustainCERT VVB team concluded to a reasonable level of assurance that the Project as described in the combined Project Description and monitoring report meets all relevant VCS requirements and correctly applies VM0039[/8/].

SustainCERT VVB team concluded that all relevant VCS verification criteria have been satisfied and the Project Activity properly applies the criteria of VM0039[/8/]. SustainCERT VVB team concludes that the emission reductions attributable to the Project Activity are in additional to any emission reductions that would occur in the absence of the Project.

SustainCERT VVB team confirmed that the estimated emission reductions to be claimed during the crediting period is a reasonable estimate. Positive opinion is issued to a reasonable level of assurance, that the Project's GHG statement of 89,606 tCO2 equivalent emissions for the period of 26-September-2021 to 31-December-2024 is fairly stated.

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1 INTRODUCTION

1.1 Objective

The Verification of the project titled “Recycling Roadways for Carbon Emission Reductions – Midstate Reclamation and Trucking” VCS ID – 3616, have been undertaken by SustainCERT, as requested by Global Emissionairy, LLC, project proponent for the monitoring period 26/09/2021—31/12/2024 (including both the days). The verification of project activity is the 2nd periodic verification for the crediting period 27/04/2021 to 26/04/2031. The purpose of the verification is to conduct the independent review of the project information and confirm:

- The project activity is implemented in accordance with registered PDD document, V4.0/5/.
- All physical features (technology, project equipment and metering equipment)/18/ are in place.
- The actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan, the updated methodology/8/ including applicable tool(s) and/or, where applicable, the approved standardized baseline.
- The data collection procedures and records are as per the monitoring methodology/8/VM0039: Methodology for the use of foam Stabilizing Base and Emulsion Asphalt Mixtures in Pavement application v1.1

The verification followed the requirements mentioned in the VCS standard, version 4.7/1/ and VCS guidelines, V4.4/2/ ensuring the quality and consistency of the report.

1.2 Scope and Criteria

The scope of verification for this project activity involves assessing the claims made by the project proponent in the monitoring report/6/, emission reduction calculation sheet/10/ and other supporting evidence (as mentioned in appendix 2) made available to the verifier for this monitoring period from 26/09/2021-31/12/2024, in accordance with:

- VCS standard, V4.7 /1/
- VCS program guideline, V4.4/2/
- Verra Methodology/8/ from Sectoral Scope 6: VM0039: Methodology for the use of foam Stabilizing Base and Emulsion Asphalt Mixtures in Pavement application v1.1

- Registered PDD/5/
- Other relevant rules and requirements, including host part requirements.

A risk-based approach has been followed for the verification of the project activity. Identifying and assessing the high-risk area and ensuring the reliability of the project's emission reductions generated.

The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion. The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Level of Assurance

The verification of the project activity is conducted by doing a thorough assessment of Monitoring report/6/, Registered PDD/5/ emission reduction calculation sheet/10/ and all the relevant documents mentioned contract agreements/13/ and BOL/28/, (as mentioned in appendix 2) of the report.

Enough evidences were gathered by the assessment team to reduce the risk associated with the audit process. This means that there is some uncertainty arising from the use of sampling since it is possible that a material misstatement is missed.

In accordance with Section 4.1.2 of the VCS Standard, the VVB evaluated the reasonableness of assumptions, limitations, and methods that support the statement about the outcome of future activities. In accordance with Section 4.1.8(1) of the VCS Standard, the level of assurance was reasonable.

1.4 Summary Description of the Project

The project "Recycling Roadways for Carbon Emission Reductions – Midstate Reclamation and Trucking" VCS ID – 3616 is located in the United States and is to construct roadways by using Foam Stabilized Base (FSB) or Asphalt Emulsion replacing Hot Mix Asphalt (HMA) paving processes Current monitoring period project instances use CIR, however, future project instances may use Cold Central Plant Recycling (CCPR) or Full-Depth Reclamation (FDR).

The states with PAIs include Iowa, Minnesota, Wyoming, Tennessee, Wisconsin, and Colorado which is limited to geographical boundary of the project activity i.e. United States. Altogether there are 57 PAIs in the current Monitoring period. A total of 89,606 tCO2e GHG are reduced for the current Monitoring period.

2 VERIFICATION PROCESS

The Registered Project activity is undergoing 2nd Verification under its renewable crediting period (10 years), the approach adapted to ensure the quality and credibility of emission reduction is described in the following sections.

2.1 Method and Criteria

The method and criteria used for verification consist of the following phases.

A risk-based approach has been applied for the process.

Desk review:

A document review of the monitoring report/6/ emission reduction calculation sheet/10/ and other evidence like BOL/28/, contract agreement, Ownership and sales agreement/13/, were strategically reviewed, and risk assessment was undertaken. QA/QC procedures and other relevant documents mentioned in *APPENDIX 2: Table of References* of the report are verified.

Onsite Visit:

- An onsite audit/11/ for the project was conducted on 22/03/2025-23/03/2025.
- Interview of the project representatives and to confirm the implementation and operational status of the project with respect to the registered monitoring plan/5/.
- Review the data flow for generating, aggregating and reporting the monitoring parameters.
- Confirm the correct implementation of procedures for operations and data collection.
- Cross-check the information provided in the MR documentation with other sources.
- Check the monitoring equipment against the requirements of the PD and the approved methodology, including calibrations, maintenance, etc.
- Review the calculations and assumptions used to obtain the GHG data and ER.
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

Further, details regarding the process of onsite audit have been mentioned in section 2.3 and 2.4 of the report. Resolution of all the issues and findings raised, and the final verification statement was issued.

2.2 Document Review

As part of verification of the project, the primary activity performed was the strategic review and risk assessment of the documents submitted using a dedicated protocol. A detailed review of MR/6/ and ER sheet/10/ was done to check:

The completeness of the information with reference to the register PDD/4/.

Review of project information, monitoring plan specifically monitoring frequency, weight of raw material, Project amount, distance travelled by truck to supply raw materials, Density of FSB or CIR mix, Project length and CIR milling depth against the registered PDD, V4.0 and applicable VCS standard/1/ and updated methodology "VM0039 Version 1.1/8/.

A review of the QA/QC procedures were conducted to make sure the implementation is as per the register PDD/4/5/.

All the other evidence reviewed are mentioned in Appendix 2 of this report. The cross checks between information of the Monitoring report/6/ is done with respect to VCS PDD/5/ and VCS Standard v 4.7, additionally, independent background investigations are carried out by the assessment team's sectoral or local expertise.

Since the project monitoring implementation approach is by 100% monitoring of each parameter in each PAI; VV team has selected to use sampling plan in the evidence gather plan. As per CDM-EB50-A30-STAN Standard: Sampling and Surveys for CDM Project Activities and Programmes of Activities Version 09.0/17/ para 27. "When the project participants or the coordinating/managing entity have not applied a sampling approach, the DOE may apply a sampling approach, choosing a different confidence/precision than the ones indicated in paragraph 11 above, provided that samples are randomly selected and are representative of the population". Using CDM calculator, Simple random sampling proportion with 90/10 confidence precision criteria, the minimum samples for desk review are determined to be 20.

Sample Size Determination for a Proportion Parameter	confidence/precision criterion
Survey design: Simple random sampling	90/10
Calculation method: Precision via confidence interval	

Instruction for using this calculator	
Input information in cells coloured in orange	
Outputs are displayed in cells coloured in green	

Input	Value	Notes
Expected proportion, p	0.9	enter on a decimal scale
Confidence level	90%	e.g. for 90% enter 90
z multiplier	1.645	determined by confidence level
Relative precision	10%	e.g. for 10% enter 10
Population size, N	57	
Predicted sample size, n	20	rounded up to nearest integer

The rationale of using confidence/precision level of 90/10 for calculation of sample size (for document review sampling) to ensure that the quality of data source provided is of high assurance level. Desk review of project involved crosschecking Bill of lading Truck manifest, Daily Cold-In-Place Asphalt Recycling Report, validated output of daily operation from licensed engineer on site, and national set standards for material, PAIs KML. Taking all into account, the overall risk perceived from the project's claim on GHG assertion addressed by the evidence gathering plan is sufficient to give a reasonable level of assurance for opinion' issuance.

Sampled PAI selected for desk review:

Project Number	**Contractor**
51123 Fayette IA-Echo Valley Road	Surface Cycle
50834 Pocahontas IA-CR 15	Surface Cycle
50363 Poweshiek IA	Surface Cycle
50834 Pocahontas IA-CR 56	Surface Cycle
51463 HUMBOLT IA	Surface Cycle
51878 WINNESHIEK IA	Surface Cycle
51013 Clarke Decatur IA	Surface Cycle
51643 SIOUX IA	Surface Cycle
51560 ST LOUIS MN	Surface Cycle
51043 Scott IA	Surface Cycle
51026 Chickasaw IA	Surface Cycle
51644 POTTAWATTAMIE IA	Surface Cycle
51112 Clay MN	Surface Cycle
50422 Redwood MN	Surface Cycle
51042 Sioux IA	Surface Cycle
51645 BROWN MN	Surface Cycle
51028 Blue Earth Faribault MN	Surface Cycle
51832 E24 BENTON IA	Surface Cycle
51014 Lyon IA	Surface Cycle
51469 MARTIN WANTONWAN MN	Surface Cycle

2.3 Interviews

In accordance with VCS standard, V4.7/1/, site visit requirements, “A site visit that includes a visit to facilities and/or project areas shall be conducted at verification under the following circumstances: 1) The first verification of the project after validation; 2) Verifications that include project baseline reassessments; and 3) Verifications that assess a project description deviation where the deviation impacts the applicability of the methodology, additionality or the appropriateness of the baseline scenario.” The project was currently undergoing 2nd verification and it was the first time for SustainCERT to conduct the verification of this project. Therefore, a site visit was conducted during this verification on 22/03/2025-23/03/2025/11/. During the on-site audit interview of the relevant project personnel were conducted verifying the implementation and operational status of the project, the similar information was also cross verified using the evidence submitted by PP (as mentioned in appendix 2 of the report).

Manika Mongia (TL) led the project verification, remote call, opening and closing meeting for the onsite visit. Whereas onsite visit interviews were conducted by Leandro Pena-Salvatico (Auditor, country expert, technical expert) Details of the personnel interviewed can be found in the table below.

This site visit was carried out to do the following:

1. Assess the design/operation of the Project.
2. Interview personnel regarding the Project operation and data collection procedures.
3. Cross check reported information with evidence observed on site.

Participant	**Affiliation**	**Details Discussed**	**Audit Team**
Ben Devine	Carbon Consultant (Global Emissionairy, LLC.)	Project design, role of other project entities in project implementation, and data management system (collection, aggregation, data analysis, & ER calculation)	On site: Leandro Pena-Salvatico (Auditor, Country expert and Technical Expert) Remote:
Julian Estrada	Carbon Consultant (Global Emissionairy, LLC.)		

Dan Schellhammer	Surface Cycle – Business Development Manager)	Project cycle, baseline scenario, project implementation details and records, project boundary, applicable relevant laws/regulation & industry standardstakeholder grievances and stakeholder comment	Manika Mongia (Team Leader)

2.4 Site Visits

Site visit was executed to project location. As per the nature of the project activity, once the project is completed, physical visit yielded limited parameters that can be observed which are overall condition of the road construction/rehabilitation and its impact to local environment. As the road is under the ownership of state/city/municipal, the project implementation and its impacts are strictly monitored as any violation will result in halt of operation.

Based on the factors considered during the risk assessment, the assessment prioritized document review and interviews with the project implementer particularly those related to road construction to collect data for validating the monitoring plan and verifying the claimed monitored parameters.

Calculation of number of samples required for site visit was carried out using CDM calculator simple random sampling proportion with 90/30 confidence precision with the reason stated above. The minimum sample size is calculated to be 7.

Sample Size Determination for a Proportion Parameter	confidence/precision criterion
Survey design: Simple random sampling	90/30
Calculation method: Precision via confidence interval	

Instruction for using this calculator	
Input information in cells coloured in orange	
Outputs are displayed in cells coloured in green	

Input	Value	Notes
Expected proportion, p	0.8	enter on a decimal scale
Confidence level	90%	e.g. for 90% enter 90
z multiplier	1.645	determined by confidence level
Relative precision	30%	e.g. for 10% enter 10
Population size, N	57	
Predicted sample size, n	7	rounded up to nearest integer

The selection of Project Activity Implementations (PAIs) for the site visit was carried out with consideration of the following factors:

- The geographic location of the project sites, and
- The type of processes applied

The site visit was conducted as summarized below:

- Based on the audit plan, a total of seven completed PAIs were visited, which meets the minimum sample size calculated.
- The revision to the site visit plan was evaluated and does not represent a material change to the initial audit plan, as the visits to completed PAIs provided limited data to the Validation and Verification (VV) team.

A site visit was conducted from March 22 to March 23, 2025, to the headquarters and equipment warehouse of the road contractor to interview the field team and gather data related to:

- Equipment used,
- Baseline scenario,
- Assessment against applicable regulations and laws,
- Potential labor, social, and environmental impacts of the project,
- Data collection, aggregation, and reporting processes,
- Verification of the accuracy and completeness of the GHG inventory,

- Condition and technical specifications of monitoring and measuring equipment under project implementation control.

  Time was allocated for the site visit to the equipment storage yard of the road construction team, with the understanding that data obtained from these activities were likely to provide greater value to the VV team than data from completed project sites.

  Sampled PAI selected for Onsite Visit:

Project Name	Contractor
51585 DODGE MN	Surface Cycle
50433 Scott MN	Surface Cycle
51404 Worth IA	Surface Cycle
51049 Franklin IA	Surface Cycle
51085 Mitchell IA	Surface Cycle
51086 Worth IA	Surface Cycle
51052 Warren IA	Surface Cycle

2.5 Resolution of Findings

As discussed above, a risk-based approach has been applied for the verification of the project activity. During the verification, assessment team identified the issues which could impact the accuracy and the credibility of the emission reduction claimed by the project. The detailed analysis of the issues raised and the approach used to resolve these issues can be found in Appendix 4 of this report.

The Corrective Action Request (CAR) was raised if:

1. Modifications to the implementation, operation, and monitoring of the registered project activity have not been sufficiently documented by the project participants.

2. Mistakes have been made in applying assumptions, data, or calculations of emission reductions that will impact the number of emission reductions.

   The Clarification Request (CL) was raised if:

   Information is insufficient or not clear enough to determine whether the applicable requirements have been met.

   The Forward Action Request (FAR) was raised if:

   If the monitoring and reporting require attention and/or adjustment for the next verification period.

   As part of the joint validation and verification engagement: 3 Corrective Action Requests, 8 Clarification Requests and 0 FARs. These findings are described in Appendix 4 of this report.

2.5.1 Forward Action Requests

This section is not applicable, as no forward action requests have been issued.

2.6 Eligibility for Validation Activities

Not Applicable as SustainCERT has not conducted the validation activity.

3 VALIDATION FINDINGS

PP has updated the methodology to the latest version. Section 3.1 describes the methodology deviation adopted for the current monitoring period.

3.1 Methodology Deviations

1. Deviation to use lime as a stabilizing agent instead of Portland cement in one project activity instance (PAI) titled “Coughlin Colorado Project”.

   The use of lime as a stabilizing agent does not affect the project activity instance’s applicability to the methodology VM0039 v1.1 as it does not affect the asphalt emulsion production or the CIR process. PAI Coughlin Colorado Project meets the 5 applicability conditions of VM0039 v1.1, specifically,

   1) The PAI includes the construction of road in the United States.

   2) The PAI applies Asphalt emulsions produced using the CIR process for road construction.

   3) Production plants where the project activity occurs may serve multiple pavement types, including, but not limited to, roadways and parking lots.

   4) The PAI has asphalt emulsions base layer.

   5) The PAI has asphalt emulsions paving material base layer.

   The methodology VM0039 v1.1 does not explicitly limit the use of stabilizing agent to Portland cement. According to the Environmental Product Declaration (EPD) of Portland cements produced in the United States (US) by Portland Cement Association, clinker is the main component (91.4%) of Portland Cement. Quicklime (calcium oxide) is the main compound of clinker. PP also provides a laboratory mix design testing report for the use of quicklime/37/.

In addition, PP has applied a more conservative value of quicklime emission factor, 1.25 kgCO2e/kg of quicklime according to the ecoInvent database. This value is higher than the initial value of 1.15 kgCO2e/kg and the emission factor of Portland Cement of 0.919 kgCO2e/kg, resulting in a lower emission reduction by the project activity. The use of quicklime does not affect the conservativeness of the quantification of project emission reductions.

Therefore, assessment team confirms that the deviation of using lime as stabilizing agent in place of Portland cement in PAI Coughlin Colorado Project is acceptable.

2. PP has applied latest version of the methodology. VM0039 v1.0 was employed as per registered PD whereas VM0039 v1.1 is used for current monitoring period.

As per appendix 4 of VM0039 v1.1 there are minor revisions to the latest version of methodology which include:

- Update to the latest version of methodology template
- Inclusion of a discount factor for upstream displacement of production and delivery of raw materials
- Inclusion of the explanation on how the discount factor was calculated
- Methodology renamed to VM0039 Foam Stabilized Base and Emulsion Asphalt Mixtures in Pavement Application

The latest version of the methodology doesn't affect applicability condition of the project. Moreover, the calculation structure for emission reduction quantification remains same with respect to VM0039 v1.0. Hence methodology deviation is acceptable.

3.2 Project Description Deviations

This section is not applicable as no Project description deviations were applied to the project or were validated as part of the validation engagement described in this report.

3.3 New Project Activity Instances in Grouped Projects

The set eligibility criteria listed are verified following the VCS standard/1/ requirement 3.6.16 - 3.6.18, 3.6.22 and 3.11.1.

New PAIs included in this verification process are in total of 33 PAIs out of 57 PAI which were validated for its eligibility under the set criteria on sampling basis (see section 2.2 for document review and 2.4 for site visit samples) for the Group Project Design as followed:

VCS Standard criteria	PAI Eligibility criteria	VV's assessment

Meet the applicability conditions set out in the methodology applied to the project.	New project activity instances must meet the applicability conditions defined in Section 3.2 of JPDMR/5/.	Detailed assessment for methodology's eligibility is provided in section 3.4.2 of the Validation Verification Report.
Use the technologies or measures specified in the project description.	New project activity instances must use one or more of the technologies listed in Section 3.2 of JPDMR/5/.	VV team has assessed PAI records for the evidence of technology used within the project activity through sampled PAI records/28/ in specific project BOL. Project design specified the type of process i.e., CIR as well as the use of Foam Stabilized Base or Asphalt Emulsion is used in each PAI for current monitoring period. The information is then cross-checked against project completion record in form of project BOL. This was also confirmed through site visit/11/ in which verbal confirmation with road contractor authority, observation on the equipment used for cold mix application. In this claimed monitoring period, the included PAIs are CIR projects.
Apply the technologies or measures in the same manner as specified in the project description.	New project activity instances must apply to one or more of the technologies listed in Section 3.2 (2) of JPDMR/5/ and be applied in the same manner as defined in Section 3.2 of JPDMR/5/. Project activities that include only an HMA, WMA, or other non-FSB/asphalt emulsion paving material base layer do not qualify for inclusion.	PP assessment for each sampled PAI on against eligibility inclusion criteria in JPDMR section 3.2 has been verified.

		VV team has assessed PAI records for the evidence of technology used within the project activity through sampled PAI records/28/ with specifics in project BOL. Project design specified the type of process ie CIR as well as the use of Foam Stabilized Base or Asphalt Emulsion to be used in each PAI. The information is then cross-checked against project completion records in form of project daily quantity reports. This was also confirmed through site visit/11/ in which verbal confirmation with road contractor teams, observation on the equipment used for cold mix. Overall assessment on the claimed PAIs in this monitoring period ie 57 PAIs are presented in ER calculation with project technology reflected meeting the eligibility criteria in terms of technology applied and ER claimed. In this claimed monitoring periods, the included PAIs are CIR projects.

Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	New project activity instances must be subject to the baseline scenario which is the continuation of reconstructing roadways in the United States with HMA pavement with details in Section 3.4 of JPDMR/5/.	All of the claimed PAIs in this monitoring period are within project boundary ie the United States of America as reflected in section 1.12 of the JPDMR. This is in line with one of the eligibility requirements of the applied methodology/8/. Baseline scenario presented in section 3.4 of the JPDMR is illustrated as homogeneous situation across the project boundary.

Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	New project activity instances must occur with the United States and apply the additionality testing procedures including Step 1: Regulatory Surplus and Step 2: Performance Benchmark as defined in section 3.5 of JPDMR/5/. This will ensure consistency with the initial project instances.	Review on the current applicable law and regulation on U.S Department of Transportation and State level from Department of Transportation website/23/ yielded that no existing regulation mandate the use of FSB and/or asphalt emulsion by any law, statute, or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute, or other regulatory framework. Review on National state level Department of Transportation website/21//23/ is sighted with guidance documents, training materials and checklists on the cold recycling techniques for CIR. The same was confirmed through interviews with road contractors during site visit/11/ and the same clause was part of signed agreements between contractors and Global Emissionairy LLC/13/. Individual PAI ER calculation was assessed against performance benchmark (referring to section 7 of the methodology) to determine additionality. Criteria is concluded to be following applied methodology and that additionality of the PAI included in MR/6/ is evident.

Occur within one of the designated geographic areas specified in the project description.	New project activity instances must occur with the United States.	Criteria is verified following methodology requirement VM0039/8/ section. Location for each PAI included has been provided in project database as well as in form of KML file/15/ for the entire GP. Based on sampled PAIs, assessment was carried out for verification of project location.
Conform with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial conformance with multiple sets of eligibility criteria is insufficient.	New project activity instances must conform to all eligibility criteria set forth in this table.	VVB performed assessment of new PAIs included in this monitoring period as stated in section 4 of the JPDMR/5/ is verified with details reflected in each point of this table. Set criteria in JPDMR section 1.4 and that methodology requirement criteria in section 3.2 of the JPDMR/5/ are comprised with all relevant points set in VCS standard/1/ clause 3.11.1, 3.6.16-3.6.17 & 3.6.22 for Grouped Project and applied methodology VM0039/8/.
Be included in the JPDMR with sufficient technical, financial, geographic, and other relevant information to demonstrate conformance with the applicable set of eligibility criteria and enable evidence gathering by the validation/verification body.	New project activity instances must provide all data and documentation as required to sufficiently demonstrate conformance with all the eligibility criteria and allow for an impartial audit and be validated at the time of verification against the applicable set of eligibility criteria by the validation/verification body.	Supporting details as per monitored parameters, applicability set criteria for general conditions under VCS standard, grouped project as well as for methodology requirements are provided in form of project specific reports/28/ (bill of lading, project information from contractual agreements/job order, density, daily report, and project equipment log record). CAR#3, CL#1, CL#5 were raised and resolved satisfactorily.

Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	New project activity instances must provide proof of ownership through a contractual agreement between project proponent and road contractor that is active from prior to the start of emission reduction activities.	Project ownership is provided in the form of signed agreements with a road contractor/13/ in which all of the PAIs included in this MP are carried out by. Contract documents between road contractor and road owner, and other entities involved in the project implementations were part of verification to ensure no enforced clauses in relation the carbon credit claim is regulated within the construction project agreements (CL#1). Project ownership is concluded lies with Global Emissionairy LLC in full with no other project proponents for this Group Project.
Have a start date that is the same as or later than the grouped project start date.	New project activity instances must provide evidence of when project activities and emission reduction began to be generated.	Start date of the crediting period ie 27/04/2021 as claimed in section 1.9 and crediting period of the GP as 27/04/2021 to 26/04/2031 as reflected in section 1.7 of the JPDMR/5/ as the first day of project implementation in the earliest PAIs which was verified through project BOL. The monitoring period submitted is from 26/09/2021 to 31/12/2024 which is verified against PAI project documents (bill of lading, daily quantity records) to be within the validated crediting period of the GP. All the PAIs included in the GP are verified to have later start date of the project implementation after 27/04/2021.

Only be eligible for crediting from the later of start date of the project activity instance or the start of the verification period in which they were added to the grouped project, through to the end of the total project crediting period.	New project activity instances must provide evidence of when project activities and emission reduction began to ensure to meet this eligibility requirement. Each instance must occur after the project start date of 27/04/2021 or after the start date of the subsequent verification period as applicable. No instances may be added following the conclusion of the project crediting period.	Start date of the crediting period ie 27/04/2021 as claimed in section 1.9 and crediting period of the GP as 27/04/2021 to 26/04/2031 as reflected in section 1.7 of the JPDMR/5/ as the first day of project implementation in the earliest PAIs which was verified through project BOL as well as daily quantity record (CL#1). The monitoring period submitted for the is from 26/09/2021 to 31/12/2024 which is verified against PAI project documents (bill of lading, daily quantity record) to be within the validated crediting period of the GP. All the PAIs included in the GP are verified to have later start date of the project implementation after 27/04/2021.
Not be or have been enrolled in another VCS project.	New project activity instances must be distinct activities that have not been enrolled in another VCS project.	Assessment made for other registered VCS projects under the same Project Proponent in which project location as claimed in the MR/5/, project database/10/ yielded no evidence that same PAI included in the Group Project is counted in other VCS project.
Adhere to the clustering and capacity limit requirements for multiple project activity instances set out in 3.6.8 – 3.6.9.	New project activity instances within 10 kilometers of another instance of the same project activity and with the same project proponent must be included in a singular VCS project. Please note that VM0039 does not apply a capacity limit, therefore that requirement is not applicable.	Applied methodology VM0039/8/ is verified to have no specified capacity limit thus this criteria point is not applicable for this GP.

A grouped project shall be described in a single project description.	New project activity instances must be incorporated into this project description.	Included PAIs in the monitoring period is verified to be in conformance with the project description in terms of location, technology and activity as reflected in section 3.1 of the MR/5/. VV team verified Project Proponent assessment on sample basis for project specific records/28/, confirmation through site visit which consisted of interviews with road contractors, verification on main equipment's in the equipment yards during site visit/11/ .
A delineation of the geographic area(s) within which all project activity instances shall occur. Such area(s) shall be specified by geodetic polygons. For projects with multiple project activity instances and grouped projects, a geodetic coordinate for each instance, provided in a KML file.	New project activity instances must occur within the delineated United States boundary provided in the project KML file within the Verra registry and each individual project activity instance must be added with geodetic coordinates.	Individual geo-coordinate of the PAI location is provided as part as PAI details in ER calculation. Project KML file/15/ is provided in which each PAI location is provided. Overview verification was performed with sampled PAIs individually verified for accuracy.

One or more determinations of the baseline for the project activity in accordance with the requirements of the methodology applied to the project.	New project activity instances must be subject to the baseline scenario which is the continuation of reconstructing roadways in the United States with HMA pavement. Further detailed assessment provided in Section 3.1 MR/5/. The crediting baseline is dependent on the year the asphalt installation took place; thus, new inclusions must document the year the project took place.	Baseline identified for the project is the continual use of HMA for road construction/maintenance in United States of America. Project Proponent base of analysis is derived from NAPA annual survey 2014 (issued in 2017)/34/. VV team confirmed the baseline scenario through interview with road contractor companies during site visit/11/ and literature studies that there are conditions/21/ for which cold recycle mix can be applied depending on type of road distress thus application of HMA is considered still in majority of road construction projects.

One or more demonstrations of additionality for the project activity in accordance with the requirements of the methodology applied to the project.	New project activity instances must be added to Section 3.5 of JPDMR/5/ to demonstrate the results of the additionality testing requirements of VM0039.	The claimed PAIs in the monitoring period is provided with assessment of additionality in accordance to the applied methodology/8/. VV has identified that no regulations enforcing the use of technology applied by the project in road construction through desk review performed across Department of Transportation/20/21/22/23/ (National and State level) website, confirmation with road contractors during site visit/11/ as well as details in project bid documents/28/. Additionality of each PAI is presented in calculated project emissions which is lower than the set performance benchmark values set by the methodology requirement. Overall, the 57 PAIs included are concluded to be additional.

One or more sets of eligibility criteria for the inclusion of new project activity instances at subsequent verification events.	New project activity instances must be evaluated against all criteria listed within this table prior to inclusion through subsequent verification events.	Project proponent has set inclusion criteria for PAIs in section 1.4 and assessment for PAIs included in MR. The set criteria are evaluated by VV to be following relevant VCS standard clauses 3.6.16-3.6.17, 3.6.22, 3.11.1 as well as eligibility criteria set by applied methodology/8/. Assessment of the 57 PAIs included in the monitoring period by VV was performed through sampled PAIs records/28/ for type of technology, activity, location, type of process and through site visit/11/ for baseline scenario, technology, regulatory surplus, start date and location. Additional assessment was performed through Department of Transportation/20/21/22/23/ (National and State level) website to have a generalized baseline scenario of road construction in project boundary as well as for applicable regulations related to project activities.

A description of the central GHG information system and controls associated with the project and its monitoring.	New project activity instances must conform to the monitoring plan provided in 6.3 of the JPDMR/5/ which document the central GHG information system and controls applied to the project. Any differences in procedures encountered during inclusion of new project activity instances must revise the sections accordingly.	Internal data management is verified through interviews with the road construction authority/11/ for the type of data generated throughout project implementation stages, verification of GHG inventory report, monitoring/measuring equipment calibration/verification requirements, applicable industry standards/practices for project reports and record retention. The collected information is cross checked against the illustrated system in MR. Remote call sessions/14/ was conducted for VV team to assess the QA/QC measures claimed implemented under section 4.3 of MR. Through the evidence verified, PP is concluded to have an internal GHG management system that is sufficient to monitor and collect the necessary data from PAIs included in the Grouped Projects. Quality controls detailed in section 4.3 were able to be demonstrated through project records and evaluated to be in conformance with the industry requirement (as specific in bid documents/28/), state requirements/23/29/34/ as criteria set in applied methodology/8/.

Overall, VV team confirms that new project instances implemented in this monitoring period comply with the eligibility criteria set for inclusion for the Group Project which is in conformance following VCS standard/1/ and applied methodology/9/.

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3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 VERIFICATION FINDINGS

4.1 Project Details

The Project Implementation was checked in the following manner:

The project is a grouped project under the Sectoral Scopes 6 (Construction) that includes a single project activity; namely, the technology of using Foamed Stabilize Base or Asphalt Emulsion with CIR, FDR or CCPR process in road rehabilitation activities. In the current monitoring period CIR process is used for road rehabilitation. Emission reduction generated by the project activity is generated from lower emission resulted from the applied technology in place of baseline scenario which is the application of HMA.

Project Proponent had identified the geographic area as the United States of America where new project instances are added. VV's assessment of the baseline scenario and additionality was based on the initial instances included within the project boundary. The project has 57 PAIs. The first instance of the project crediting period occurred on 27-04-2021 whereas, the first and last instance within this monitoring period occurred on 07-05-2022 and 12-09-2024 During the onsite visit, it is found that the project is running satisfactorily as per the plan mentioned in PD. The completion of the project activity and generation records are verified by the verification team during onsite visit. The project activity is undergoing 2nd verification from 26/09/2021 to 31/12/2024, and during this Monitoring period the project activity has reduced 89,606 tCO2e emission reductions.

Global Emissionairy LLC has demonstrated through signed agreement with road construction/13/ companies as the sole project proponents as claimed in section 1.4 and 1.5 of the MR/5/ with road constructions companies as the other entities involved in the project.

Details of assessment on project description presented in MR/5/ is presented in the following table.

VV team concluded that the project description is accurate, complete, and with clear information on the nature of the project.

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<table>
<tr><th>Item</th><th>Evidence gathering activities, evidence checked, and assessment conclusion:</th></tr>
<tr><td>Audit history</td><td>The project activity is undergoing 2nd Verification under its twice renewable crediting period. The assessment team has verified that audit history using the Project webpage/4/, the joint validation verification has been published under Verra. It has been concluded that the information present in section in 1.2 of MR is appropriate.
<table>
<tr><th>Audit type</th><th>Period</th><th>Program</th><th>Validation/ verification body name</th><th>Number of years</th></tr>
<tr><td>Validation/ verification</td><td>27-April-2021 to 25-September-2021</td><td>VCS</td><td>SCS Global Services</td><td>0.41</td></tr>
<tr><td>Verification</td><td>26-September-2021 to 31-December 2024</td><td>VCS</td><td>SustainCERT</td><td>2.59</td></tr>
</table></td></tr>
<tr><td>Double counting and participation under other GHG programs</td><td>The project activity is not registered under any other GHG and non-GHG program or registry. This has been confirmed by means of research on relevant applicable registries and available information in public domain and through declaration from the Project Owner.

The assessment team has searched for similar projects having the same nature, capacity and project proponent as well as legal owner. The name of the owners mentioned in the regulatory licenses are also matched and checked. It was concluded that no such projects having same location and geo-coordinates, technology or project/legal owners are registered in various carbon schemes like CDM, GCC, and Gold Standard. CL #2 was raised and closed upon document verification by VVB. /18/</td></tr>
<tr><td>No double claiming with emissions trading programs or binding emission limits</td><td>The project activity has been thoroughly searched on the various websites of various emission trading programs and or ETS programs running in various counties, using nature, capacity and project proponent as well as legal owner as the search option.</td></tr>
</table>

No double claiming with other forms of environmental credit	As discussed above the, the project has been thoroughly searched in the currently active environment schemes and found that the project is not registered with any other environmental credits. Therefore, it can be concluded that the project is not claiming any credits from other programs/schemes.
Supply chain (scope 3) emissions double claiming	PP has provided public statement on Global Emissionairy website clearly mentioning 'Carbon credits may be issued through Verified Carbon Standard project 3616 for the greenhouse gas emission reductions associated with Global Emissionairy facilitated projects producing low carbon asphalt products.' VVB has assessed the website and found the statement acceptable.
Sustainable development contributions	As claimed in section 1.12 of the monitoring report/6/, the project is claiming positive impact for the following: SDG 9 – 1,082 lane miles are rehabilitated by the project activity this involve altogether 57 PAIs across various state of US. SDG 12- 1,185,654 tonnes of waste through the recycling and reuse of asphalt millings due to roadway rehabilitation. SDG 13 impact is claimed through the emission reduction calculated by the project implementation which is 89,606 tonnes of carbon dioxide avoided into the atmosphere during this second monitoring period.
Additional information relevant to the project	No commercially sensitive information has been excluded by the PP.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	It has been observed and verified during on-site audit/11/ that the project activity is in line with the monitoring plan/6/ and there has been no new stakeholder identification done.
Legal or customary tenure/access rights	It has been observed and verified during on-site audit that the project activity is in line with the monitoring plan/6/ and there are no new legal or customary access right.

Stakeholder diversity and changes over time	It has been observed and verified during on-site audit that the project activity is in line with the monitoring plan/6/ and also personnel and stakeholders were interviewed during onsite audit (details of which are mentioned in section 2.3 of report) and it can be concluded that there is no change in stakeholder diversity over project lifetime till now.
Expected changes in well-being	It has been observed and verified during on-site audit that the project activity is in line with the monitoring plan/6/ and also stakeholders were interviewed during onsite audit (details of which are mentioned in section 2.3 of report) and it can be concluded that there is no expected change Wellbeing of stakeholder.
Location of stakeholders	It has been observed and verified during on-site audit that the project activity is in line with the monitoring plan/6/ and there is no change in the location of stakeholders.
Location of resources	It has been observed and verified during on-site audit that the project activity is in line with the monitoring plan/6/ and no change in location of resources.

4.2.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	During onsite audit/11/, interviews with personnel and local stakeholders were conducted, details of which can be found in sections 2.3 and 2.4. During the interview it was concluded that PP has a direct communication channel, and stakeholders report feedback/grievance on Project's website/12/. The assessment team has verified the details mentioned onsite and it is found to be in line with the PDD/5/. It has been observed that there have been no major grievances received from stakeholders during this MP.
Date(s) of stakeholder consultation	28-August-2020, 23-June-2021, 21-April-2022, 18-Dec-2024/36/
Communication of monitored results	Results of the original meeting were provided and are also stored, during the current monitoring period there has been no new major comments received as verified onsite and from stakeholder engagement
Consultation records	There have been no new major comments received during the current monitoring period, this has been verified by the details checked during onsite audit, all comments/ complaints are registered by PP using a stakeholder engagement log.

Stakeholder input	During Onsite audit/11/, interviews with local stakeholders were conducted, details of which can be found in sections 2.3 and 2.4. Based on the interview conducted, it has been concluded that all the procedures are implemented in line with registered monitoring plan/6/ and there is a proper procedure in place for stakeholder engagement logs.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	The project activity doesn't require consent from the stakeholders as the roadway project instances that are listed in this project are all /government owned by either a town, county, or state. The scope of the project activity is limited to rehabilitation of existing roadways only.
Outcome of FPIC discussion	N/A

4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	It is verified from confirmation with contractors' team during site visit/11/ with Global Emisisonairy team, that no inputs/comments have been received for VCS 3616. The process of bidding prior to project implementation is carried out in public forum and in the hand of road owner. Project implementation begins after road contractors have been selected as the bid winner in which all grievances/inputs have been received and resolved by the road owners. During public consultation period, the project is also verified with no comments received as sighted from Project page in Verra Registry/4/. During project implementation, communication channel is established for project implementation is established by means on Global Emissionairy website/12/, which was confirmed that no such public inputs have been received

Grievance redress procedure	It is verified from confirmation with contractors' team during site visit/11/ that no inputs/comments have been received for VCS 3616. The process of bidding prior to project implementation is carried out in public forum and in the hand of road owner. Project implementation begins after road contractors have been selected as the bid winner in which all grievances/inputs have been received and resolved by the road owners. During public consultation period, the project is also verified with no comments received as sighted from Project page in Verra Registry/4/. During project implementation, communication channel is established for project implementation is established by means on Global Emissionairy website/12/, which was confirmed that no such public inputs have been received. Assessment on the information presented in Global Emissionary website, VCS3616 project information is presented/12/ with project design, impacts of project implementation, project location, as well as mechanism to register grievance or comments. The mechanism is verified by collection through means of email address provided. Grievance redress procedure by itself is detailed in MR section 2.1.4. A narrative is sighted on Project Page/12/ at Global Emissionairy website a description on how Global Emissionairy is committed to resolve any disputes during project planning and implementation through discussion, neutral mediation and if needed through arbitration or the competent courts as permitted by the relevant laws. For the same document is uploaded on Verra Registry available for public access, it is used as a method of communicating grievance mechanism.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
No public comments were received in the current monitoring period.	Not applicable	

4.2.6 Risks to Local Stakeholders and the Environment

4.2.6.1 Management Experience

Global Emissionairy has expertise in rehabilitation services for roadways and have prior experience to deploy carbon finance to lead projects/30/ that involve roadway reclamation across US. The team expertise can be confirmed from the interviews conducted during onsite visit and their website/12/.

Surface Cycle has qualified civil engineers that take care of QA/QC and execution of the project. Global Emissionairy have experience in carbon accounting.

4.2.6.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human induced risks to stakeholders' wellbeing	PP submitted PPE and safety manual and relevant photographs captured during roadway rehabilitation where all the employes wore PPE and followed safety protocols/19/ while working. The same was crosschecked by interviewing contactor during the site visit.
Risks to stakeholder participation	Not applicable. The rehabilitation of the roadways is based on bidding system. These roadways are already constructed and doesn't have any risk to stakeholder participation.
Working conditions	Based on onsite interviews with the contactors during onsite visit it can be concluded working conditions are maintained in accordance with state agency requirement. Moreover, PPE and safety manual/19/ are submitted that portraits guidelines for safe working conditions. Moreover, surface cycle has a policy submitted to VVB which is duly signed by the employs to ensure a safer working environment.
Safety of women and girls	PP submitted policy and safety manual that should be followed by all personnels. PP has submitted training records for employes to operate on site. Hence there is no identified risk.
Safety of minority and marginalized groups, including children	Based on the onsite interviews it can be confirmed that roadway contactors adhered to work zone related safety protocols. VVB assessed the labor law in US and confirms equal opportunity is provided. Hence no risk is identified.
Pollutants (air, noise, discharges to water, generation and release of hazardous materials and chemical pesticides and fertilizers	Noise pollution was mitigated by use of PPE by employees during site operation. The same is confirmed form submitted photographs and interviews during site visit.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	The project abides by Title VII of the Civil Rights Act of 1964/22/ which is for all the employees of US based companies. Moreover project contactor has policies in place to safeguard personnel against discrimination.
Sexual harassment	The project abides by Title VII of the Civil Rights Act of 1964 which is for all the employees of US based companies. Moreover, project contactor has policies in place to safeguard personnel against sexual harassment.
Gender equity in labor and work	The project abides by Title VII of the Civil Rights Act of 1964 which is for all the employees of US based companies. Moreover, project contactor has policies in place to safeguard personnel against gender inquality.
Forced labor	The project abides by Title VII of the Civil Rights Act of 1964 which is for all the employees of US based companies. Moreover, project contactors have policies in place to safeguard personnel against forced labor.
Child labor	The project abides by Title VII of the Civil Rights Act of 1964 which is for all the employees of US based companies. Moreover, project contactors have policies in place to safeguard personnel against child labor.
Human trafficking	The project abides by Title VII of the Civil Rights Act of 1964 which is for all the employees of US based companies. Moreover, project contactor has policies in place to safeguard personnel against Human trafficking.

4.2.7.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Human Rights	During the current verification, onsite audit/11/ was conducted. Interviews with personnel and stakeholders confirmed that there were no incidents related to human rights violations at the project site.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Preservation and protection of cultural heritage	As part of the current verification, on-site audit/11/ was conducted, including interviews with relevant stakeholders. It was confirmed that no damage to cultural heritage occurred at the project site.

4.2.7.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
Disputes over rights to territories and resources	During the current verification, an on-site audit/11/ was conducted, and interview with the stakeholders was conducted. It has been observed and confirmed that there has been no dispute over territories and resources project.
Respect for property rights	During the current verification, on-site audit/11/ was conducted. It was observed and confirmed that the project site is government-owned land that was awarded for rehabilitation through a bidding process.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	As part of the current verification, on-site audit /11/ was conducted along with interviews with stakeholders. It was confirmed that no benefit-sharing mechanism exists at the project site.
Benefit sharing during the monitoring period	As per discussion during the on-site audit, it is confirmed that benefit sharing is not applicable here.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	Not in scope of this project activity as these roadways are rehabilitated.
Soil degradation and soil erosion	As verified during onsite visit. It's a roadway rehabilitation project and doesn't affect soil or leads to soil degradation.
Water consumption and stress	As verified during onsite visit. It's a roadway rehabilitation project where cold recycling utilize 1-2% water by weight of mix/35/ and doesn't effects water needs in the surroundings.

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	Not in scope of this project activity as these roadways are rehabilitated.
Areas needed for habitat connectivity	Not in scope of this project activity as these roadways are rehabilitated.

4.2.8.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Not in scope of this project activity as these roadways are rehabilitated.

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Not applicable as this project activity as these roadways are rehabilitated.

Invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
Not applicable	Not applicable as this project activity as these roadways are rehabilitated.

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	Not applicable as this project activity as these roadways are rehabilitated.

4.3 Accuracy of Reduction and Removal Calculations

ER calculation presented as part of the monitoring period (26/09/2021 – 31/12/2024) was assessed by VV team with break down as below following applied methodology/8/.

Baseline Emission

Baseline emissions have been predetermined by the performance benchmark for the crediting baseline, which is the same as the additionality performance benchmark (in unit kgCO2e/ton) from the year of 2014 – 2025 as presented in table 4 of the applied methodology/8/.

Year	Patching project (<40mile) kgCO2e/t	Patching project (>40mile) kgCO2e/t	Roadway project kgCO2e/t
2014	121.9	142.4	95.1
2015	121.8	142.3	95.0
2016	121.7	142.2	94.9
2017	121.6	142.1	94.8
2018	121.5	142.0	94.7
2019	121.4	141.9	94.6
2020	121.3	141.8	94.5
2021	121.2	141.7	94.4
2022	121.1	141.6	94.3
2023	121.0	141.5	94.2
2024	120.9	141.4	94.1
2025	120.8	141.3	94.0

VV team assessed performance benchmark values for the claimed PAIs in the monitoring period which are from the year 2021 to 2024. During the process, VV has requested and clarified project categorization to ensure the appropriate values are used and year of project implementation. The implementation period for the current monitoring period is 26 /09/2021-31/12/2024. For the 14 roadway projects being implemented in year 2022 the crediting baseline is 94.3 kgCO2e/tonne, similarly for 24 roadway projects being implemented in year 2022 the crediting baseline is 94.2 kgCO2e/tonne and 19 roadway projects being implemented in year 2022 the crediting baseline is 94.1 kgCO2e/tonne. The same is verified from Baseline emission tab in ER spreadsheet and BOL.

For the current MP, the applied baseline emission applied in corresponding PAI are verified by start date of the PAI in BOL/28/ and Baseline emission tab in ER spreadsheet/10/.

Project Emission

Project emission is calculated for each PAI using corresponding equations set for CIR process as per applied methodology/9/.

For CIR Projects, project emission consist of emissions resulted from material EIM, emissions from transportation to-site ELSD, and emissions from pavement installation EII using equation 11.

$$CIR\ EI\ (or\ FDR\ EI) = EI_M + EI_{SD} + EI_I \quad (11)$$

Where:

CIR EI = Emission intensity of CIR (kgCO2e/t)

FDR EI = Emission intensity of FDR (kgCO2e/t)

EIM = Material emissions intensity (kgCO2e/t)

EISD = To-site delivery emission intensity (kgCO2e/t)

EII = On-site installation emission intensity (kgCO2e/t)

$$EI_M = \frac{EF_M \times W_M}{Project\ Amount}\ (Eq.2)$$

Where:

EIM	=	Emission intensity of raw material production (kgCO2e/tonne)
EFm	=	Raw material emission factor (kgCO2e/tonne)
Wm	=	Raw material weight (kg)

$$EI_{SD} = \frac{Trip_S \times Distance_S \times (1 + DF) \times EF_T}{Project\ Amount}\ (Eq.4)$$

Where:

TripS	=	Number of trips from production plant to job site
DistanceS	=	Distance to site (miles)
DF	=	Discount factor
EFT	=	Truck emission factor (kgCO2e/mile)
Project amount	=	Amount of FSB/asphalt emulsions manufactured (tonnes)

Emission generated from material production (EIM) is calculated using Equation 2 above and emission generated from transportation of material to site (EISD) is using Equation 4 above.

$$EI_I = \frac{EF_{EQ} * HR_{EQ}}{Project\ Amount} \ (Eq. 8)$$

Where:

EII	=	Emission intensity of pavement installation (kgCO2e/tonne)
EFEQ	=	Equipment emission factor (kgCO2e/tonne)
HREQ	=	Equipment operation hours (hour)
Project amount	=	Amount of asphalt emulsions manufactured (tonne)

On-site installation emissions intensity (EII) is derived from diesel consumption from the equipment used for the installation project. The emission generated is calculated using Equation 8 above. In cases, where HREQ is not available, the equipment operating hours must be estimated using equipment running speeds according to Equation 12.

$$HR_{CR} = \frac{L}{S} \quad (12)$$

Where:

HRCR = Operation hours of cold recycler (hour)

S = Running speed of cold recycler (mile/hour)

L = Project length (mile)

For CIR projects where FSB and asphalt emulsion produced from CIR or FDR is installed in multiple road sections, project emission is calculated using equation 13.

$$MCIR\ EI\ (or\ MFDR\ EI) = EI_M + \frac{\sum_i^N EI_{SD,i} \cdot project\ amount_i + \sum_I^N EI_{I,i} \cdot project\ amount_i}{\sum_I^N project\ amount_i} \quad (13)$$

Where:

MCIR EI = Emission intensity of multiple CIR projects (kgCO2e/t)

MFDR EI = Emission intensity of multiple FDR projects (kgCO2e/t)

EISD = To-site delivery emission intensity (kgCO2e/t)

Project amount = Amount of FSB and asphalt emulsions manufactured (t)

EII = On-site installation emission intensity

EIM = Material emissions intensity (kgCO2e/t)

Assessment team has reviewed emulsion/cement bill of ladings, daily quantity sheets, and cold recycling speed document to verify project emission parameters. Please refer section 4.4 of the document for detailed assessment.

Leakage

As per the provisions of the applied methodology, leakage is deemed not applicable, as stated in Section 5.3 of the Monitoring Report/6/. The Validation and Verification (VV) team reviewed the applicability conditions referenced in Section 8.3 of the methodology document/8/ and verified that the justification presented in Section 5.3 of MR/6/ is consistent with the methodological criteria. Furthermore, the Emission Reduction (ER) calculations were examined, and it was confirmed that no leakage values were included, in accordance with the methodological approach that excludes leakage under the current project conditions.

Net GHG Emission Reductions and Removals

In accordance with the methodological requirements, the correction factor (θ) for Foam Stabilized Base (FSB) and asphalt emulsions is applied, with values set at 1.02 for FSB and 1.17 for asphalt emulsions. These factors shall be adjusted for each Project Activity Implementation (PAI) using Equation 14 of the applied methodology/8/, as prescribed.

$$\theta = 0.0025\ DE / LC \qquad (14)$$

Where:

DE = Density of FSB or asphalt emulsions, lb/cu.ft

LC = Layer coefficient of FSB or asphalt emulsions

By then, equation 16 is applied to calculated net GHG reduction depending on the nature of the project.

For CIR project using FSB, equation 15 is used:

$$ER_{CIR} = \left(\frac{CB \times (1 - DF)}{\Theta} - CIR\ EI\right) * \frac{Project\ Amount}{1{,}000}\ Eq.16$$

ERFSB-CIR	=	Net emission reductions of FSB using CIR (tCO2e)
CB	=	Crediting baseline (kgCO2e/t)
Θ	=	Correction factor

CIR EI	=	Emission intensity of CIR project (kgCO2e/t)
Project amount	=	Amount of FSB or asphalt emulsion manufactured (t)
DF	=	Discount factor for uncertainty in upstream displacement

PP's calculation for each PAI is presented in the ER calculation with correction factor applied accordingly. In this monitoring period, each PAI is calculated as single project in which correct equations are applied accordingly.

The quantification approach was assessed during a sample recalculation of the project calculations using project records/28/. The approach undertaken by Global Emissionairy in the quantification of the projects GHG emission reductions conforms to the requirements of the methodology. Global Emissionairy uses the following equation numbers 1 through 26 from the methodology in determining the GHG emission reductions.

From the detailed assessment executed, VV team did not identify any uncertainties regarding the recorded data and parameters used that are not already covered in VM0039 using applicable discount factors for uncertainty.

Project description presented in MR/6/ is assessed for:

-Assumptions and data are listed in the project description, including their references and sources which have been validated for its relevance, accuracy, and conservatives as part of the validation process.

-GHG inventory is verified through interviews with road contractor/11/ and observation on active work site during site visit/11/, as well as literature of the project activity from DOT websites/21/23/32/33/.

-All data and parameter values used in the project description are considered reasonable in the context of the project and are in conformance with the VCS Program rules.

-All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

From the evidence collected as well as literature studies, VV team concluded that the methodology and any referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and reductions and removals during the project crediting period.

4.4 Quality of Evidence to Determine Reductions and Removals

The data and parameters recorded for the project are in compliance with the registered PDMR/5/. Assessment team has cross checked all the parameters that are used for the calculation of the emission reductions against the evidence such as BOL/21/, daily quantity records provided by the PP. It has been observed that all the sources provided are appropriate and can be accepted.

The monitoring done for all the parameters are in line with the applied methodology/5/, thus, can be considered accurate and acceptable. Additionally, during this verification an on-site audit was done for the project activity on 22/03/2025 – 23/03/2025/11/, information was also cross checked by means of interview, therefore it has been concluded that mechanism is effective and reliable.

The transfer of carbon rights and other supporting documents related to quality and maintenance were checked by the verification team during the onsite audit assessment to confirm the authenticity of the documents and to check the correctness of the calculation.

Verification team has reviewed carbon rights documents and confirms that carbon rights are solely owned by Global Emissionary/13/

The verification team can confirm that sufficient evidence is available for the whole monitoring period and the same is verifiable. PP has provided all relevant documents in support of data/parameters monitored and fixed ex ante for new PAIs in the current Monitoring period and are found satisfactory.

The data and parameters fixed (ex-ante):

<table>
<tr><th>S. No</th><th>Parameter</th><th>Value</th><th>Means of verification</th></tr>
<tr><td>1.</td><td>EFEQ Equipment emission per hour</td><td>
<table>
<tr><td rowspan="2">Installation Equipment</td><td>Surface Cycle</td></tr>
<tr><td>EFEQ (kgCO2e/hr)</td></tr>
<tr><td>Cold recycler, Wirtgen 12'</td><td>901.4</td></tr>
<tr><td>Paver, Others</td><td>126.5</td></tr>
<tr><td>Skid Steer Loaders, Others</td><td>53.5</td></tr>
<tr><td>Rollers, Others</td><td>46.3</td></tr>
</table>
</td><td>PP has opted for equipment emission factors mentioned under appendix 2 of VM0039 v1.1.</td></tr>
</table>

		Rollers, Others	46.3	
		Rollers, Others	-	
		Rubber Tired Loaders, Others	-	
		Rubber Tired Loaders, Others	-	
		Rubber Tired Dozer, John Deere	-	
		Water Trucks, Freightliner (Water)	284.6	
		Water Trucks, Freightliner (Bitumen)	284.6	
		Water Trucks, Freightliner (Cement)	284.6	
		Milling Machine, Others (Secondary)	-	
		Track Loader (Others)	-	

S.No	Parameter	Value	Means of verification
2	EFT Truck's emission per mile travelled	10.2	The value has been verified from registered PDMR and is found to be appropriate.

S.No	Parameter	Value	Means of verification

3.	EFM Material emission factor	RAP: 0 Cement: 0.922 Bitumen: 0.48 Water: 0 Crushed Rock: 0.056 Sand: 0.005 Manufactured Aggregates: 0.006 Quicklime: 1.25	The values are verified from the defaults value in the applied methodology. In the initial version of the MR, PP justified the use of the value of 0.919 kgCO2e/kg for EFm Cement as this was the most up-to-date value based on the Environmental Product Declaration (EPD). As the new EFm value 0.919 kgCO2e/kg is lower than the validated value of 0.922 kgCO2e/kg in the registered PD, it results in a lower project emission and thus a higher emission reduction. VVB determined that the use of the new value will affect the conservativeness of the emission reduction quantification. Therefore, PP has revised the EFm Cement to 0.922 kgCO2e/kg. VVB confirms that the use of 0.922 kgCO2e/kg is conservative and consistent with the registered PD, as well as complies with Section 3.20.2 of the VCS Standard v4.7. There is a deviation to use quicklime as a stabilizing agent instead of Portland cement in one project activity instance (PAI) titled “Coughlin Colorado Project”.

			The use of lime as a stabilizing agent does not affect the project activity instance's applicability to the methodology VM0039 v1.1 as it does not affect the asphalt emulsion production or the CIR process. PP has applied a more conservative value of quicklime emission factor, 1.25 kgCO2e/kg of quicklime according to the ecoInvent database. This value is higher than the initial value of 1.15 kgCO2e/kg and the emission factor of Portland Cement of 0.919 kgCO2e/kg, resulting in a lower emission reduction by the project activity. The use of quicklime does not affect the conservativeness of the quantification of project emission reductions.

S.No	Parameter	Value	Means of verification
4.	DFD For conservativeness, a discount factor for distance calculation (DFD) must be applied when a map distance calculator is used to estimate hauling distance. DFD is equal to 0 if using actual logged miles.	0.1	The value has been verified from the applied methodology section 9.1.1 and is found appropriate.

S.No	Parameter	Value	Means of verification
5.	DF Discount factor for upstream displacement	Patching < 40 miles: 0.15 Patching > 40 miles: 0.12 Roadway: 0.15	The value has been verified from the applied methodology section 9.1.1 and is found appropriate.

The data and parameters monitored (ex-post):

1. Parameter: W_M, the weight of each raw material used to produce FSB or asphalt emulsions.

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/5/. The monitoring is done once per project activity instance.
	Monitoring equipment	Truck scale
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring requirement is as per the monitoring plan/5/. VVB team has checked Bill of lading tickets that appropriately mention WB and is found accurate.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications. The weight of RAP is calculated by calculating back the amount from the project amount and the rest of the material. RAP material by itself does not have any project emission from its production as it is derived from the existing road. This is verified through bill of lading/28/ of material on sampled projects. Truck scale calibrations are performed by third parties outside of the carbon reduction project.

	Is(are) calibration(s) valid for the whole reporting period?	This is captured once at the time of PAI implementation and remains valid for complete reporting period. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications.
	How were the values in the monitoring report verified?	VVB has randomly selected sample PAI for which BOL were submitted by PP. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications. Same was crosscheck during onsite visit via interview with roadway contactors.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has any deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CL#01 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

2. Project amount, Output quantity of FSB and asphalt emulsions

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/5/. The monitoring is done once per project activity instance.
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB team has checked Bill of lading tickets that appropriately mention project amount and is found accurate.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable as BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications.
	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications.

	How were the values in the monitoring report verified?	VVB has randomly selected sample PAI for which BOL were submitted by PP. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with applicable PAI state specifications. Same was crosscheck during onsite visit via interview with roadway contactors.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CL#01 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

3. L, Length of damaged pavement

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/5/. The monitoring is done once per project activity instance.
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB team has checked Bill of ladding tickets and stationing exercise and explanation document/28/ that appropriately mention length of damaged pavement and is found accurate.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable as stationing exercise and explanation document is issue by PAI state department of transportation the county of brown.
	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. Stationing exercise and explanation document is issue by PAI state department of transportation the county of brown.
	How were the values in the monitoring report verified?	VVB has randomly selected sample PAI for which BOL and stationing document were submitted by PP. Stationing exercise and explanation document is issue by PAI state department of transportation the county of brown. Same was crosscheck during onsite visit via interview with roadway contactors.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.

	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CAR#02 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

4. Distances, the total miles that trucks travelled to supply raw materials to the job site

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/5/. The monitoring is done once per project activity instance.
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB team has checked Bill of ladding tickets where details on source and destination location along with google map to define the distance.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable as VVB has crosschecked Bill of landing tickets where details on source and destination location along with google map to define the distance.

	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. as VVB has crosschecked Bill of landing tickets where details on source and destination location along with google map to define the distance
	How were the values in the monitoring report verified?	VVB has randomly selected sample PAI for which BOL where details on source and destination location along with google map to define the distance. Same was crosscheck during onsite visit via interview with roadway contactors.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CAR#02 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

5. S, Running speed of cold cycler

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	The reference value is applied instead of monitoring the value. VVB has accessed cold recycler speed from article CIR around US dated on 13 oct 2016 to be between 22-28 ft./min. PP has opted for 22 ft./min which is conservative.
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB has accessed cold recycler speed from article/28/ CIR around US dated on 13 oct 2016 to be between 22-28 ft./min. PP has opted for 22 ft./min which is conservative.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable VVB has accessed cold recycler speed from article CIR around US dated on 13 oct 2016 to be between 22-28 ft./min. PP has opted for 22 ft./min which is conservative.
	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. VVB has accessed cold recycler speed from article CIR around US dated on 13 oct 2016 to be between 22-28 ft./min. PP has opted for 22 ft./min which is conservative.
	How were the values in the monitoring report verified?	This is not applicable as standard value is used across all PAIs. VVB has accessed cold recycler speed from article CIR around US dated on 13 oct 2016 to be between 22-28 ft./min. PP has opted for 22 ft./min which is conservative.

	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CAR#03 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/. The value applied is 22 ft./min Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

6. DE, Density of FSB or asphalt emulsions

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/6/. The monitoring is done once per project activity instance.
	Monitoring equipment	Not applicable

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB team has checked Bill of lading tickets that appropriately mention CIR density and is found accurate.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable as BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with and applicable PAI state specifications.
	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with and applicable PAI state specifications.
	How were the values in the monitoring report verified?	VVB has randomly selected sample PAI for which BOL were submitted by PP. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with and applicable PAI state specifications. Same was crosscheck during onsite visit via interview with roadway contactors.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CAR#02 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

7. LC, Layer coefficient of FSB or asphalt emulsions

Means of verification	Measuring /Reading /Recording frequency	Done once at implementation of PAI
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the monitoring frequency is in line with the monitoring plan/6/. The monitoring is done once per project activity instance.
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	No monitoring equipment is employed. VVB team has accessed recommendations from NCAT, ARRA, VDOT, and Alabama DOT and is found accurate.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	This is not applicable as recommendations from NCAT, ARRA, VDOT, and Alabama DOT is applied.

	Is(are) calibration(s) valid for the whole reporting period?	Data captured once at the time of PAI implementation and remains valid for complete reporting period. recommendations from NCAT, ARRA, VDOT, and Alabama DOT is applied.
	How were the values in the monitoring report verified?	This is not applicable as recommendations from NCAT, ARRA, VDOT, and Alabama DOT is applied.
	If applicable, has the reported data been cross checked with other available data?	This is not applicable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reduction management. QA/QC processes are in place.
	In case project participants have temporarily not monitored the parameter, has either deviation?	This is not applicable as no deviation is seeked for current monitoring period with respect to above parameter.
Findings	CAR#03 was raised and closed successfully.	
Conclusion	The assessment team concluded that the parameter was monitored at the time of PAI implementation and in line with the registered monitored plan/5/ and applied methodology/9/ Value applied for layer coefficient is 0.38 Since 100% of data has been monitored and verified, the verification team can ascertain that the values used for the calculation of emission reduction are free from material errors.	

The Validation and Verification (VV) team assessed the values of parameters fixed ex-ante and those monitored during the verification. The parameters, which were taken from referenced sources, were verified for their reliability, as well as the source and nature of the supporting evidence

The data flow was assessed and confirmed through site visit interviews/11/ with road construction team. The data flow originated from project records such as bill of ladings manually collected by road construction team and sent to Global Emissionairy team.

Throughout the stages of project implementation, measuring and monitoring equipment were identified and evaluated to determine their impact on the accuracy of the data generated, as well as their conformance with applicable regulations and industry standards. The information presented in Section 4.3 of the Monitoring Report (MR/6/) regarding the monitoring plan for equipment calibration was reviewed and assessed by the Validation and Verification (VV) team.

Due to the nature of the project, calibration requirements are governed by the specifications outlined in the Bill of Lading (BOL) documents. Within the defined project boundary, the VV team confirmed that no measuring equipment used within the control of project activities has a material impact on the data values used in the Emission Reduction (ER) calculations.

The truck scales used for weighing raw materials are operated and controlled by external party. The accuracy of these measurements was verified through a review of weigh tickets and BOLs submitted for the sampled project activities.

By nature of the project activity, the occurrence and scale of the project activity is highly depended on the road condition and decision made by the road owner. Another factor that is affecting the implementation is the limitation of cold recycling process that depends on factors such as type of pavement distresses/21/. As a result, the nature of the project type does not allow for accurate estimates until projects are fully implemented. The calculated Emission reductions are considered reasonable.

As part of the evidence-gathering plan, the Validation and Verification (VV) team conducted interviews during the opening meeting with the Global Emissionairy (GE) team members responsible for data collection and aggregation leading to the Emission Reduction (ER) calculation. Additionally, during remote call/14/, the Project Participant's (PP) team provided a demonstration of the internal data quality review process.

The VV team confirmed that quality assurance activities are in place, including data review techniques performed by qualified and competent GE personnel. Based on this review, the GHG management system was determined to be sufficient for generating accurate and reliable data in accordance with the applicable methodological requirements.

4.5 Non-Permanence Risk Analysis

The project activity is a roadway rehabilitation project. Therefore, it is not applicable.

5 VERIFICATION OPINION

5.1 Verification Summary

The project activity VCS ID – 3616, “Recycling Roadways for Carbon Emission Reductions – Midstate Reclamation and Trucking” has undergone 2nd verification with monitoring period from 26/09/2021 to 31/12/2024 (including both days). Global Emissionairy is responsible for the documentation related to carbon accounting and conducted analysis, prepared monitoring report and ER calculations. Surface cycle is responsible rehabilitation of roadways in the project boundary. The verification engagement is based on the assumption that the GHG data provided to us is complete, sufficient, true and free from material misstatements.

SustainCERT applies its own quality management system and compliance policies for quality control, in accordance with ISO/IEC 17029:2019 – Conformity Assessment Requirements for Validation and Verification bodies providing environmental information (ISO 14065:2020) and greenhouse gas audit (ISO 14064-3:2019) and certifications, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal & regulatory requirements.

We have complied with the VCS standard v 4.7/1/ and other requirements mentioned, during the verification engagement and maintained independence. SustainCERT was not involved in the preparation of any statements or reports or data except for this Verification Statement and Report. SustainCERT maintains complete impartiality toward stakeholders interviewed during the verification process. SustainCERT did not provide any service PP’s company and its subsidiaries in the scope of verification that could compromise the independence or impartiality of our work. SustainCERT disclaims any liability or co-responsibility for any decision a person or an entity would make based on this verification statement towards the issuance and utilization of VCUs hereby verified and certified. The verification was carried out during March 2025 – June 2025 by a team of qualified GHG auditors.

5.2 Verification Conclusion

The Verification of the project titled 'Recycling Roadways for Carbon Emission Reductions – Midstate Reclamation and Trucking' VCS ID – 3616, have been undertaken by SustainCERT, as requested by Global Emissionairy, LLC., project proponent for the monitoring period 26/09/2021 to 31/12/2024 (including both the days) as reported in MR/6/. The project activity is implemented in accordance with the monitored plan in registered JPDMR/5/ and the emission reduction from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

SustainCERT verification approach was based on understanding the risk associated with reporting of GHG emission data and the controls in place to mitigate these. SustainCERT planned and performed the verification by obtaining evidence and other information and explanations that SustainCERT considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion, the GHG emissions reductions reported for the project activity for the period 26/09/2021 to 31/12/2024 are fairly stated in the MR/5/The GHG emission reductions were calculated correctly based on the approved baseline and monitoring methodology VMR0039/9/ and the monitoring plan contained in the PD/5/.

Verification period: From 26-September-2021 to 31-December-2024

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO2e)	Project emissions (tCO2e)	Leakage emissions (tCO2e)	Reduction VCUs (tCO2e)	Removal VCUs (tCO2e)	Total VCUs (tCO2e)
26-Sept-2021 to 31-Dec-2021	0	0	0	0	0	0
01-Jan-2022 to 31-Dec-2022	34,686	10,736	0	23,950	0	23,950
01-Jan-2023 to 31-Dec-2023	45,717	8,948	0	36,769	0	36,769
01-Jan-2024 to 31-Dec-2024	37,844	8,957	0	28,887	0	28,887

Total	118,247	28,641	0	89,606	0	89,606

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/ removals	Achieved reductions/ removals	Percent difference	Explanation for the difference
26-Sept-2021 to 31-Dec-2021	0	0	0	No project activities occurred in this initial vintage period. The reason was seasonal climatic constraints—specifically, adverse weather during late fall and winter in the host country (U.S.) delayed road construction mobilization. The first PAI commenced in May 2022, after favorable weather conditions returned and material procurement, contractor readiness, and permitting processes were in place.
01-Jan-2022 to 31-Dec-2022	35,250	23,950	-32.05%	Lower than expected annual FSB/AE production. 15% upstream discount factor applied to baseline emissions.
01-Jan-2023 to 31-Dec-2023	42,250	36,769	-12.97%	
01-Jan-2024 to 31-Dec-2024	50,570	28,887	-42.87%	
Total	128,070	89,606	-30.03%	

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification	Assessment method and conclusion
N/A			

APPENDIX 2: TABLE OF REFERENCES

S. No	Document Title	Version	Date
1.	VCS standard https://verra.org/documents/vcs-standard-v4-7/	4.7	16/04/2024
2.	VCS guidelines https://verra.org/wp-content/uploads/2023/08/VCS-Program-Guide-v4.4.pdf	4.4	29/08/2023
3.	Validation and Verification Manual https://verra.org/wp-content/uploads/2018/03/VCS_Validation_Verification_Manual_v3.2.pdf	3.2	19/10/2016
4.	VCS Project Webpage, VCS ID - 3616 (https://registry.verra.org/app/projectDetail/VCS/3616)		
5.	Joint Project Description & Monitoring Report Document '2023-10-12_Midstate PDMR_v4.2_Final_Clean'	4.0	12/10/2023
6.	VCS Monitoring report 'VCS MR PROJECT 3616 26SEP2021-31DEC2024 Final'	3.0	16/05/2025
7.	VCS Registration-and-Issuance-Process	4.4	04/10/2023
8.	VM0039 Methodology for Use of Foam Stabilized Base and Emulsion Asphalt Mixtures in Pavement Application, v1.1	1.1	15/05/2024
9.	VM0039 Methodology for Use of Foam Stabilized Base and Emulsion Asphalt Mixtures in Pavement Application, v1.1 on Verra Website (conditions of applicability for version 1.0) VM0039 Methodology for Use of Foam Stabilized Base and Emulsion Asphalt Mixtures in Pavement Application, v1.1 - Verra		Accessed on 14/05/2025
10.	VCS 3616 Emission Reduction Worksheet_v4.0	4.0	
11.	Onsite audit report (22/03/2025 to 23/03/2025)		
12.	Project Page in Global Emissionairy Website (https://www.globalemissionairy.com/project/the-recycling-roadways-for-carbon-emission-reductions-4547)		Accessed on 14/05/2025
13.	Ownership and contract agreement with road contractor 'Emission Reduction Sales Agreement 220203_executed' 'Surface Cycle parent company of Midstate' 'Surface Cycle Signed Addendum'		Valid for current Monitoring Period

14.	Remote call with Project Proponent (13/05/2025)		
15.	KML files for Grouped Project 'Surface Cycle KML Desk Review PAI's.kml'		
16.	Portland Cement Association Environmental Product Declaration - EPA 195 (rev Oct 2023) cement.org/docs/default-source/default-document-library/pca_epd_portland_athena_final_revised_oct2023.pdf?sfvrsn=88aefebf_2		Accessed on 14/06/2025
17.	CDM Guideline Sampling and Surveys for CDM Project Activities and PoA	9	27/05/2021
18.	No Double counting declaration		
19.	Safety manual		
20.	USA (country profiles) from ILO database Ratifications of ILO conventions: Ratifications for United States of America		Accessed 18/05/2025
21.	US Department of Transportation article on: - 'Asphalt Pavement In-place Recycling Technologies (APIPRT)' (https://www.fhwa.dot.gov/pavement/recycling/apiprt.cfm) -(Tech Brief: Asphalt Pavement Recycling Technologies (dot.gov) - FHWA-HIF-23-036, 2023		Accessed 18/05/2025
22.	U.S Department of Labor Website: -Title VII of the Civil Rights Act of 1964 (Title VII,Civil Rights Act of 1964, as amended | U.S. Department of Labor (dol.gov) -Wages and the Fair Labor Standards Act (https://www.dol.gov/agencies/whd/flsa) -Family and Medical Acts (https://www.dol.gov/agencies/whd/fmla) -OSHA Worker Rights and Protections (https://www.osha.gov/workers) -Equal Pay Act under Title VII (Equal Pay for Equal Work | U.S. Department of Labor (dol.gov)		Accessed 18/05/2025

23.	US Department of Transportation: -National Level https://www.transportation.gov/) -State Level: a. California (https://dot.ca.gov/) b. b. Wyoming https://www.dot.state.wy.us/home.html		Accessed 18/05/2025
24.	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Chapter 2 Stationary Combustion		2006
25.	The Climate Registry 2023 Default Value (June 2023) 2023-Default-Emission-Factors-Final-1.pdf (theclimateregistry.org)		Accessed on 17/05/2025
26.	National Centre for Asphalt Technology (NCAT Report 16-04 (2018) PHASE V (2012-2014)) https://rosap.ntl.bts.gov/view/dot/61927/dot_61927_DS1.pdf		Accessed on 17/05/2025
27.	Carnegie Mellon University Green Design Institute (CMUGDI) (2008). "Economic Input-Output Life Cycle Assessment (EIO-LCA), US 1997 Industry Benchmark model ". (http://www.eiolca.net/cgi-bin/dft/use.pl)		Accessed on 17/05/2025
28.	PAI records: sampled PAI for desk review (initially sampled and added during verification): - 51123 Fayette IA-Echo Valley Road - 50834 Pocahontas IA-CR 15 - 50363 Poweshiek IA - 50834 Pocahontas IA-CR 56 - 51463 HUMBOLT IA - 51878 WINNESHIEK IA - 51013 Clarke Decatur IA - 51643 SIOUX IA - 51560 ST LOUIS MN - 51043 Scott IA - 51026 Chickasaw IA - 51644 POTTAWATTAMIE IA - 51112 Clay MN - 50422 Redwood MN - 51042 Sioux IA - 51645 BROWN MN - 51028 Blue Earth Faribault MN - 51832 E24 BENTON IA - 51014 Lyon IA		

	- 51469 MARTIN WANTONWAN MN Type of documents: - Material bill of lading - Distance measurement google map screenshots - Picture of the equipment used - Stationing exercise and explanation - Cold recycling speed literature		
29.	National Asphalt Pavement Association: Asphalt Pavement Industry Survey on Recycled Materials and Warm-mix Asphalt Usage:2014. (https://www.asphaltpavement.org/uploads/documents/IS138/IS138-2014_RAP-RAS-WMA_Survey_Final.pdf)		Accessed on 15/05/2025
30.	Other registered VCS projects with same methodology and same PP: -VCS3839 (https://registry.verra.org/app/projectDetail/VCS/3839) -VCS3616 (https://registry.verra.org/app/projectDetail/VCS/3616) -VCS3094 (https://registry.verra.org/app/projectDetail/VCS/3094)		Accessed on 17/05/2025
31.	DOT Standard Specification and Standard Sheet Electronic Standard Specifications and Standard Sheets (USC) (ny.gov)		Accessed on 17/05/2025
32.	US Department of Transportation – Federal Highway Administration https://www.fhwa.dot.gov/civilrights/programs/doj_fhwa_ta_glossary.cfm		Accessed on 05/05/2025
33.	Cold Asphalt and Hot In-place Asphalt Recycling Technologies ((PDF) Cold Asphalt and Hot In-place Asphalt Recycling Technologies (researchgate.net))		Accessed on 19/05/2025
34.	National Asphalt Pavement Association: Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage 2022 (produced in March 2024) Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt: 2022, 13th Annual Survey		Accessed on 18/03/2025
35.	Mix Design - Moisture Content %		-

36.	Stakeholder consultation record		21-April-2022, 18-Dec-2024
37.	FINAL Lake City Revised Report - Crushed Cores (1)		30-March-2022

APPENDIX 3: ABBREVIATIONS

JPDMR	Joint Project description Monitoring report
PP	Project Proponent
PAI	Project Instances
DOT	Department of Transportation
VCS	Verified Carbon Standard
SDG	Sustainable Development Goals

VCU	Verified Carbon Unit
IPCC	Intergovernmental Panel on Climate Change
GP	Grouped Project
FSB	Foamed Stabilized Base
HMA	Hot Mixed Asphalt
WMA	Warm Mixed Asphalt
CCPR	Cold Central Plant Recycling
CIR	Cold In-Place Recycling
FDR	Full-Depth Reclamation
RAP	Reclaimed Asphalt Pavement
CDM	Clean Development Mechanism
ACR	American Carbon Registry
NCAT	National Centre for Asphalt Technology

APPENDIX 4: LIST OF FINDINGS

Rule	Assessment Question	Findings/Comments CAR 1	Developer Response
MR template v 4.4 Guide	Inconsistent formatting of Monitoring report template	VVB could not site the page numbers for the document. PP shall update the contents section in line with the requirement of VCS monitoring report template v 4.4. VVB has sighted inconsistent format in MR. PP shall ensure that complete document should apply size 10.5, black, regular (non italic) which is in accordance with MR template guide v 4.4.	Table of Contents section is now cited correctly MR formatting is corrected following MR template v4.4 guide
	Rd 2	PP has updated page numbers for the document in accordance with requirements of VCS monitoring report template v 4.4. **#CLOSED** PP has revised MR to ensure consistency of format in accordance with MR template guide v 4.4. **#CLOSED**	

<table>
<tr><th>Rule</th><th>Assessment Question</th><th>Findings/Comments CL 1</th><th>Developer Response</th></tr>
<tr>
<td>VCS standard v 4.7</td>
<td>Ownership requirement, start date requirements for project activity instances</td>
<td>Section 1.4 ,1.5, and 1.6

PP shall provide ownership agreement of project proponent and collaborator agreement with other entities involved in the project along with the roles and responsibilities of the parties for the current monitoring period in line with section 3.6.17 of the VCS Standard v 4.7.
PP shall share evidence for start date of PAI In addition to this provide bill of lading truck manifest, Picture of the equipment used, Equipment type (model, year and horse power), bid documents for-
<table>
<tr><td>51123 Fayette IA-Echo Valley Road</td></tr>
<tr><td>50834 Pocahontas IA-CR 15</td></tr>
<tr><td>50363 Poweshiek IA</td></tr>
<tr><td>50834 Pocahontas IA-CR 56</td></tr>
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<tr><td>51878 WINNESHIEK IA</td></tr>
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<tr><td>51643 SIOUX IA</td></tr>
<tr><td>51560 ST LOUIS MN</td></tr>
<tr><td>51043 Scott IA</td></tr>
<tr><td>51026 Chickasaw IA</td></tr>
</table>
</td>
<td>1. PP has provided ownership agreement of project proponent and collaborator agreement between Global Emissionairy and the stakeholders. The entity Surface Cycle is referenced in the monitoring report which is the parent company of Midstate Reclamation and Trucking, the Minnesota company identified in the ownership agreement. Both names represent the same organizational group involved in the project activity. Please refer to evidence folder file name “CL #1 Sales & Ownership agreement”
2. Project start dates can be found within each PAI’S project appendices provided by the PP. Specifically, the project start dates are available on either emulsion/cement bill of ladings, daily quantity sheets, or mix design sheets and are marked up in the respective PDFs provided. A few items not included are invoices, equipment log hours, and equipment type as required parameters are sourced via alternate documents. We excluded invoices because invoices contain project quantities, which have been provided from the plan sets & quantity sheets in each PAIs project appendix. Invoices also contain contractors’ private information. We exclude equipment log hours as cold recycling speed is used in place of equipment hour tracking. We excluded equipment type as these parameters are detailed within Appendix B of our methodology version v1.1. We believe the documentation submitted effectively demonstrates project start dates, project implementation, and supports verification of the PAIs under review.</td>
</tr>
</table>

Rule	Assessment Question	Findings/Comments CL 1	Developer Response
		51644 POTTAWATTAMIE IA 51112 Clay MN 50422 Redwood MN in accordance with section 3.6.17 of VCS standard v 4.7. VVB has sighted inconsistency in other entities involved in the project with respect to registered PDMR. PP shall clarify on the discrepancy identified.	3. We would like to clarify that Surface Cycle is the parent company of Midstate Reclamation and Trucking. At the stakeholders request, Surface Cycle is being used for this and future verification periods. PP has provided evidence that Surface Cycle is the parent company of Midstate Reclamation and Trucking, in our evidence folder. Thie file is titled “CL #1 Surface Cycle ownership of Midstate”
	Rd 2	PP has submitted Emission reduction sales agreement dated feb 3rd 2022 that clearly defines the ownership of Global Emissionairy and defines roles and responsibilities of Midstate restoration a Minnesota Corporation, entity involved in the project activity. Furthermore, PP has submitted documents to demonstrate that surface cycle which is other entity involved in the project is the parent company for Minnesota Corporation. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 1	Developer Response
		PP has submitted Bill of lading issued by flint hills resources that has start date of the PAI and provide details on weight of asphalt emulsion for all the above selected samples. BOL certifies that asphalt emulsion meets applicable product specifications based on testing and weight of material are accurate and in accordance with Minnesota state specifications, In addition to this picture of equipment is submitted. PP has submitted evidence related to speed of cold cyclers employed for road rehabilitation. PP has employed equipment listed in appendix 2 of the methodology. All the documents are reviewed by VVB and are found satisfactory. **#CLOSED** PP has submitted documents to demonstrate that surface cycle which is the other entity involved in the project is the parent company for Minnesota Corporation. In addition to this PP has submitted an amendment in the service contract where name of the (client) other entity in the project activity has been appropriately updated and is in line with MR. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 2	Developer Response
MR template v 4.7 requirement	Double counting and double claiming or participation of project in other GHG Program, Scope 3 Emission.	Section 1.10 and section 1.11 PP shall provide confirmation whether project instances are currently active in any other environment schemes and claiming credits. PP shall provide signed declaration stating that the project is not registered with any other registry. In case PP have received or are seeking credit for reductions and removals from a project activity under the VCS Program and another GHG program, PP shall provide the required information as per VCS Standard v4.7 para 3.23.2 (1)-(4). Moreover, PP shall clarify if project is part of host country NDCs.	We confirm that this project is not registered with any other GHG program or registry and has not received or sought credits under any other environmental scheme in the previous or present monitoring period. This project is also not included in the host country's NDCs. A signed declaration confirming the project is not registered with any other registries has been provided to the VVB in our project resubmission package. The file is titled "(CL 2) – GHG Signed Declaration VCS 3616"
	Rd 2	PP has submitted GHG Signed Declaration VCS 3616 which is in accordance with requirements of VCS Standard v4.7 para 3.23.2 (1)-(4). **#CLOSED**	

Rule	Assessment Question	Findings/Comments CAR 2	Developer Response
VCS standard v 4.7	Demonstration of SDG in the project activity	Section 1.12 VVB could not sight the rationale of stated SDGs for the project. PP shall provide transparent calculation for SDG 9.4, 12.5 as claimed in table 1 of section 1.12 of the MR in the ER sheet in accordance with section 3.17 of the VCS standard v 4.7. VVB could sight the CCPR, CIR and FDR process listed in the section but could only sight PAI for CIR in the MR. PP shall clarify on which technology was employed for road rehabilitation for the current MP.	SDG 9.4 – Please refer to the project inputs tab in the ER sheet for the following information. In Cells AE2 to AE58, we documented the project lengths for each PAI. This data was sourced from the contractor's plan sets, which are included in each PAI's respective project appendix. To calculate the average project width (column AF), we divided the total project area by the project length along with necessary unit conversions. We then converted this into lane miles (column AG) by dividing the average width by 12 feet (standard lane width) and multiplying by the total project length. These calculations provide a reliable representation of the project's logistical footprint, using plan set data provided by the contractor. SDG 12.5 – Please refer to the project inputs tab in the ER sheet for the following information. Column N contains a transparent calculation of the amount of reclaimed asphalt pavement (RAP) recycled for each project. All of this project data was provided by the contractor and is included in each PAI's respective project appendices, which has been submitted to the VVB. The Cold In-Place Recycling (CIR) process is the technology that was employed for all PAIs in the current monitoring period. CCPR and FDR verbiage have been taken out of the monitoring report as they were not used in this monitoring period.

Rule	Assessment Question	Findings/Comments CAR 2	Developer Response
	Rd 2	1.PP submitted PAI project appendices which have Bill of lading for samples PAI randomly selected by VVB out of complete list of PAI included for calculation. The document clearly showcases the project location, project area, project length, process, distance bitumen. Rationale provided by PP for calculation of SDG 9 is found acceptable. In addition to this. The above document has mentioned CIR density, layer depth, weight of bitumen, weight of water that are used to calculated weight of RAP in the ER Spreadsheet. Hence calculation for SDG 12 is found satisfactory. **#CLOSED** 2.PP has updated MR to ensure the technology employed for PAIs is correctly reflected throughout the document. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
MR template guide v 4.4	Evidence for stakeholder consultation.	Section 2.1.1 PP shall provide evidence of collaboration between roadway owner, asphalt contractor and project proponent. Moreover, PP shall include all stakeholder groups in line with registered PDMR in line with section 3.18 of the VCS standard v 4.7. In accordance with registered PDMR it is confirmed that for first 24 PAI bidding took place between 28 Aug 2020 and 23 June 2021. whereas stakeholder consultation is conducted on 21 April,2022. PP shall provide appropriate evidence. Section 2.2.1 PP shall provide documentary evidence for project contractor/stakeholder and project proponent along with the employee structure/qualifications to justify the management experience for the project activity Section 2.2.2 PP shall provide documentary evidence of training provided to the employees and PPE is provided for site operations irrespective of gender	PP has provided a sales & ownership contract between Global Emissionairy and the asphalt contractor as evidence of collaboration between PP and stakeholder. The folder is titled "(CL 1) – Sales & Ownership agreement." PP has also provided contract documents between the asphalt contractor and the prime contractor as additional evidence. Please note, Surface Cycle enters into contract agreements as a subcontractor under a prime contractor. The prime contractor is responsible for the overall project and holds a direct contract with the roadway owner. When the prime contractor does not self-perform the CIR portion of the work, they subcontract that portion of the work to another contractor (in this case Surface Cycle). Supporting documentation can be found in the evidence folder under the file titled "CL #3 Project Contract Agreements" PP has provided appropriate evidence of stakeholder consultation between Global Emissionairy and the contractor. Please refer to folder "(CL 3) – Stakeholder Consultation" in our resubmission package to the VVB. Section 2.2.1

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
		'Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)' the identified risk at present is in regard to the emission produced by heavy construction equipment only. PP is requested to provide confirmation whether all the impact resulted from the project such as waste generation (whether RAP generated is 100% utilized in cold mix) Section 2.4 PP shall provide related EIA study performed to support the claim of negligible effect on biodiversity, soil degradation and soil erosion and water consumption.	To demonstrate the relationship between Surface Cycle and the PP, we have provided our contract agreement. Regarding employee structure and qualifications, both the PP and Surface Cycle have published detailed information on our respective websites. These sources include organizational roles, relevant industry experience, partners & associations, and our qualifications and experience. This publicly available information provides an accurate representation for section 2.2.1. Surface Cycle has proven to be a reliable and qualified cold recycling contractor as they have successfully completed an auditing process in their previous monitoring period. PP has included references to our organizational qualifications and experience in section 2.2.1 of the revised MR. This section will also contain direct links to our company websites. Section 2.2.2 The PP has provided Surface Cycle's Health & Safety Plan as evidence of training and company safety policies. Please refer to evidence folder and file named "CL #3 Health & Safety Manual" The VVB took photos of safety posters and PP has provided PPE images of Surface Cycles CIR operation. Please refer to file name "CL #3 PPE & Safety Photos" in our resubmission package to the VVB.

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
			Per contract agreements between Surface Cycle and prime contractor, both parties are prohibited from discrimination and must follow equal employment opportunity act. Please refer to evidence folder titled “CL #3 Project Contract Agreements” The contract for project 51123 Fayette IA-Echo Valley Rd specifies these requirements. The cold recycling process utilizes 100% of the RAP generated during project implementation. CIR ensures that all grinded material is immediately processed and reinstalled into the roadway, leaving no RAP or waste behind. Additional materials used during the recycling process are fully integrated into the CIR mixture with no leftover material left on-site. The cold recycling equipment is designed to minimize the potential for material spills, and no releases of hazardous substances during project activities. The primary environmental impact remains limited to emissions from the construction equipment, which have been accounted for in the emission reduction calculations. Section 2.4

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
			Environmental Impact Assessments (EIAs) are not required for the PAIs covered under this project, as all activities involve CIR, a roadway rehabilitation technique conducted entirely within the existing roadway footprint. The areas CIR is applied to have already undergone environmental disturbance through their original construction. Therefore, no new or additional land disturbance occurs as a result of these project activities. To further clarify: **Biodiversity -** CIR is performed strictly on existing paved surfaces, which do not support any terrestrial or aquatic ecosystems. Since the process does not expand beyond the existing roadway, there is no direct or indirect impact on local biodiversity. **Soil degradation and soil erosion** - The CIR process reuses the existing pavement structure and does not disturb the underlying subgrade or adjacent soils. No excavation, clearing, or soil displacement occurs. As such, there is no risk of soil degradation or erosion associated with the project activities. **Water consumption** - CIR uses a very small quantity of added water, typically around 1.5% of the total mix weight, to facilitate proper mixing and compaction. This water evaporates during the curing process and does not result in long-term withdrawal from local water sources or produce any wastewater. The impact on the local water cycle is negligible as it reenters the atmosphere as it dries.

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
	Rd 2	PP has submitted work order contracts for PAIs randomly selected by VVB. The document clearly provides details of the project contractor and subcontractor. The document defines scope of work, work order terms and condition. Furthermore, the explanation provided by PP is reviewed by VVB and is found to be acceptable. **#CLOSED** PP has submitted Meeting with Midstate (Stakeholder) notes dated 21/04/2022 where questions/feedback from stakeholder are appropriately addressed, further finalizing on way forward for the project which is inline with the MR. **#CLOSED** Section 2.2.1 PP has revised MR to include the details of relevant experience, association and partnership of surface cycle and Global Emissionary. VVB has accessed the respective websites and confirms the expertise and experience of both the parties for the project activity. **#CLOSED** Section 2.2.2	

Rule	Assessment Question	Findings/Comments CL 3	Developer Response
		PP has submitted photographs that portraits employees at work wearing PPE. Surface cycles have policy statement in place that covers health safety and the environment of the workplace. The document is duly signed by the project employees. PP has submitted contract agreements with contractors to safeguard against any kind of discrimination at workplace. VVB has reviewed the documents and found to be satisfactory. **#CLOSED** 100% of RAP which is generated is utilized in roadways rehabilitation by CIR technology. Hence the explanation provided by PP is acceptable. **#CLOSED** Section 2.4 PP has provided BOL which is issued to roadway rehabilitation company (Surface cycle) after bidding process was completed for already constructed roads which were available for rehabilitation. CIR technology has minimum water requirement for the rehabilitation process. Hence the justification provided by PP is acceptable. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 4	Developer Response
MR template guide v 4.4	Methodology deviation request	Section 3.2.1 PP shall submit approved document form for determination of total emission by addition of lime as stabilizing agent in one PAI for methodology deviation claimed.	Our monitoring report complies with the requirements in the MR template v4.4, section 3.2.1. We confirm that the use of an Environmental Product Declaration (EPD) for lime was included in the MR as part of the project-specific methodology deviation. The EPD provides verified product data, including the Global Warming Potential (GWP) for Lime. A written justification for this deviation has been provided, and we believe it fulfils the intent of section 3.2.1 by demonstrating transparency, conservativeness, and alignment with the methodology. The MR has also been updated to clearly specify the PAI in which lime was used as a stabilizing agent. Please refer to Appendix E.1 to view the EPD for the lime stabilizing agent.
	Rd 2	PP has updated the section 3.2.1 of the MR to appropriately provide details on PAI in which lime was used as stabilizing agent. In addition to this PP has attached environmental product declaration for lime stabilizing agent in Appendix E.1 of the MR. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CAR 3	Developer Response
MR template guide v 4.4	Exante and ex post parameters	Section 4.1.1 and section 4.2.1 VVB could not sight all the values for EF_M in accordance with PDMR. In addition to this the value for cement is not in line with registered PDMR and same discrepancy is reflected in ER sheet. PP shall clarify on the inconsistency identified. VVB could not sight EF_{EQ} value in appendix 2 in the MR. PP shall clarify on the missing information. VVB could not sight all the values for DF_D in accordance with PDMR. Moreover, PDMR has DF parameter under section 6.1.1. PP shall clarify on the inconsistency observed. VVB has identified incorrect references provided for value applied under monitored parameters. PP shall clarify the discrepancy observed. PP shall submit documentary evidenced for running speed of cold recycler and layer coefficient for 51123 Fayette IA-Echo Valley Road 50834 Pocahontas IA-CR 15 50363 Poweshiek IA 50834 Pocahontas IA-CR 56 51463 HUMBOLT IA 51878 WINNESHIEK IA 51013 Clarke Decatur IA 51643 SIOUX IA	The difference in the cement emission factor EF_M between the registered PDMR and the current MR is due to an update in the data sources. The value used in the registered PDMR was 0.922 $kgCO_{2e}$/kg, while the current MR uses a more recent industry-based emission factor of 0.919 kgCO2e/kg. The source of the EPD data is located in section 4.1.1 of the MR as a footnote. This update reflects improved data availability and is more conservative because it avoids underestimating emission output for cement use and ensures accurate calculations. The same updated value is consistently reflected in the ER sheet, which aligns with the current MR. The reference is to Appendix 2 in VM0039 Methodology v1.1, which is not included in the monitoring report. Please refer to Appendix 2 in v1.1 of our methodology. It can be found in our evidence folder titled “CAR #3 VM0039 v1.1 Appendix 2 Emission Factors for Construction Equipment” In methodology v1.0 and in the registered PDMR, the parameter labeled DF referred to the distance discount factor. In methodology v1.1, Verra changed this same parameter labeling it as DFd instead of DF. In v1.1, DF is still used but to represent an upstream discount factor. The change in variable naming may have caused confusion.

Rule	Assessment Question	Findings/Comments CAR 3	Developer Response
		51560 ST LOUIS MN 51043 Scott IA 51026 Chickasaw IA 51644 POTTAWATTAMIE IA 51112 Clay MN 50422 Redwood MN	We reviewed the discrepancies in the monitored parameter section 4.2.1 and have corrected them. The references now point to the correct appendix in the MR, and the column the supporting information is located in. These revisions are included in our track changes MR document. A few sources are being submitted to the VVB to support our justifications of a 0.38 layer coefficient across all projects in this monitoring period. Research conducted by the National Center for Asphalt Technology (NCAT) indicates that layer coefficients for cold recycled asphalt mixtures range from 0.36 to 0.44. In addition, the report "Justification of Layer Coefficients" supports the use of 0.38 as a conservative value for cold recycled layers which aligns with recommendations from various associations within the asphalt industry. For this project, a single layer coefficient value of 0.38 was applied across all projects in this monitoring period, including all 20 PAI desk review projects. We considered both sources on layer coefficient data to support our reasoning and rationale using a value of 0.38 layer coefficient. Both supporting sources mentioned by the PP have been included in our response package to the VVB titled "(CAR 3) – Layer Coefficient Data." We would like to note that the NCAT data was published in Spring 2018, which is located on page 3 of the file titled "NCAT Data – Layer Coefficient" in our evidence folder.

Rule	Assessment Question	Findings/Comments CAR 3	Developer Response
			For the cold recycler running speed, the PP used a standard value of 22 ft/min applied to all projects, including all 20 PAI desk review projects. This value reflects industry norms and has been supported through: Contractor communication confirming their typical cold recycling operating speeds (Screenshots of our discussion are provided by PP). Folder is titled "(CAR 3 & CL 6 – Cold Recycling Speeds" Real-world project data showing cold recycling operations between 22-28 ft/min (Link to source provided in Appendix E.1 of the MR). We took a similar approach for both layer coefficients and cold recycling speeds across all projects in this monitoring period. When project-specific data is not available, it is common practice to use industry-provided data that reflects typical CIR operations and up to date research on structural performance of sustainable pavements. In such cases, it is essential to use credible, industry sources to support our claims to ensure the integrity of our emission reductions.

Rule	Assessment Question	Findings/Comments CAR 3	Developer Response
	Rd 2	PP has updated section 4.1.1 to add footnote of the latest and conservative value of EF_M for cement with respect to the one mentioned in registered PDMR. The updated value is consistent in ER spreadsheet. **#CLOSED** PP has updated MR to include correct reference for EF_{EQ}. Although PP registered the project with version 1.0 of the methodology. PP has updated the version of methodology to version 1.1. PP has provided details under section 3.2 of MR and is acceptable by VVB. **#CLOSED** PP registered the project with version 1.0 of the methodology. PP has updated the version of methodology to version 1.1. The change in v1.1 is the introduction of an upstream discount factor, which is for a more conservative quantification of emission reductions. The update does not affect applicability conditions, as they remain unchanged between the two versions. In addition to this, the calculation structure and quantification of the emission reductions remain the same in both versions of Methodology VM0039. The explanation is reviewed by VVB and is found to be satisfactory. **#CLOSED** PP has now updated MR to correctly refer the data and parameters under section 4.2.1 of the MR. **CLOSED**	

Rule	Assessment Question	Findings/Comments CAR 3	Developer Response
		PP has submitted documentary evidence for layer coefficient. VVB confirms that PP has used more conservative latest available value for calculation of ERs. PP has provided documentary evidence for Cold Recycling Speeds and has provided appropriate footnote under appendix E.1 of MR. **CLOSED**	

Rule	Assessment Question	Findings/Comments CL 5	Developer Response
		Section 4.3 PP shall provide details on calibration of measuring equipments used for data monitoring as claimed under section 4.3 of the MR for- 51123 Fayette IA-Echo Valley Road 50834 Pocahontas IA-CR 15 50363 Poweshiek IA 50834 Pocahontas IA-CR 56 51463 HUMBOLT IA 51878 WINNESHIEK IA 51013 Clarke Decatur IA 51643 SIOUX IA 51560 ST LOUIS MN 51043 Scott IA	The calibration process of measuring equipment for materials such as emulsion and cement is the responsibility of the certified suppliers. They must comply with relevant industry standards and regulations to ensure measurement accuracy, which is documented through Bill of Ladings (BOL's) provided to the cold recycling contractor. The process of weighing the materials used for cold recycling occurs outside of the project boundaries and does not directly involve the cold recycling contractor, but the company that supplies and produces the materials. This verbiage has been updated in the applicable section QA/QC procedures in the current MR. BOL's have been provided for each PAI to the VVB for reference of this process. A marked-up Bill of Lading (BOL) has been submitted to illustrate relevant project data. It is intended to explain the meaning of each field and how the information supports the calibration of measuring equipment/materials. Please refer to folder "(CL 5) – Bill of Lading (BOL) Explanation" in our resubmission package.

Rule	Assessment Question	Findings/Comments CL 5	Developer Response
		51026 Chickasaw IA 51644 POTTAWATTAMIE IA 51112 Clay MN 50422 Redwood MN In addition to this PP shall provide calibration requirements details in applicable sections under QA/QC procedures to be applied.	
	Rd 2	PP has submitted Bill of Lading that clearly certifies that the product are tested on sample bases and meets applicability specifications in accordance with FHR's agency. Hence the justification provided by PP is satisfactory. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 6	Developer Response
VM0039 v 1.1	Emission reduction Formula	Section 5.1 VVB has sighted inconsistency in the formula for single asphalt emulsion project wrt applied methodology. PP shall clarify on the discrepancy identified.	In this monitoring report, baseline emissions have been separated from the emission reduction calculations and are presented in section 5.1. This aligns with the VCS v4.4 template to provide greater clarity to the VVB. The baseline emission calculations are used in our ER spreadsheet in the "baseline emissions" tab. This rationale does not represent a deviation from the methodology but is meant to help illustrate how baseline emissions were calculated and meet the criteria of section 5.1. This verbiage has been added to section 5.1 of the MR in both track changes and clean MR documents.

Rule	Assessment Question	Findings/Comments CL 6	Developer Response
	Rd 2	The justification submitted by PP is acceptable. PP has added the clarification in section 5.1 of MR as well. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 7	Developer Response
VM0039 v 1.1	Assumptions and evidence for calculation of emission reduction for the Project activity.	Appendix E.1- VVB could not access the link provided for cold recycler running speed data. PP shall elaborate on the rationale behind cols recycler running speed. Also add the relevant link in the footnote of the document. VVB could not identify the bases of the assumption of 1.5% moisture content for FBS Mixes. PP shall provide details on the same.	PP has fixed the link provided in the MR and created a footnote. The link contains CIR project data showing typical operating speeds ranging from 22-28 ft/min. The cold recycling speed of 22 ft/min used in the MR was selected as a conservative estimate, consistent with typical cold recycling operations. It is generally accepted that cold recyclers operate within the 22-25 ft/min range, which depends on project conditions. To further support our rationale, Surface Cycle confirmed in writing that their typical cold recycling operation averages 20-30 ft/min. PP made a conservative effort of 22 ft/min based off operational data provided by the contractor, and the link we provided in the MR. This correspondence has been provided to the VVB in our project submission titled “CAR #3 & CL #6 Cold Recycling Speeds”.

Rule	Assessment Question	Findings/Comments CL 7	Developer Response
			The assumption of 1.5% moisture content for FSB mixes is based on mix designs from Minnesota projects, where formal mix designs have been provided. The mix designs for these projects specify an added moisture content of approximately 1.5% in the cold-in place recycling (CIR) mixture. For Iowa projects, mix designs are not required and specific moisture content data is not available. We applied the same 1.5% value to make a conservative and consistent assumption. This approach ensures water mixture assumptions are consistent with Minnesota mix design data which specifies 1.5% mixture content for FSB. Two mix design examples have been provided to support the applied moisture content. These can be found in the evidence folder submitted to the VVB, under the file titled “CL #7 Mix Design Moisture Content %”
	Rd 2	PP has revised MR to correctly include the link for cold recycler running speed data under appendix E.1 of the MR. In addition to this PP submitted relevant evidence for cold recycling speeds for VVB review and are found satisfactory. **#CLOSED** PP has submitted documentary evidence for mix design- moisture content %. The document is reviewed by VVB and is acceptable. **#CLOSED**	

Rule	Assessment Question	Findings/Comments CL 8	Developer Response
VM0039 v 1.1	Emission Reduction calculation	ER sheet- PP shall add appropriate source of the values obtained under tab equipment configurations in ER spreadsheet. And provide relevant documentary evidence. VVB has sighted values of EF cement in the tab E 1 Material EI row 54 onwards. Moreover, the values are not in line with registered PDMR section 4.1.1. PP shall provide relevant documentary evidence in support of EF value.	The equipment configuration values included in the ER spreadsheet are sourced from "Appendix 2: Emissions Factors for Construction Equipment" in our current Methodology v1.1. A source reference has been added to the bottom of the equipment configurations tab in the ER sheet for clarity (Cell A20). Multiple emission factor values were available for the same equipment types in Appendix 2, we selected middle to higher-range emission factors to ensure a conservative and transparent approach. Appendix 2 in Methodology v1.1 serves as the supporting documentary evidence for the values used. The emission factor for cement in row 54 and onward was reviewed and corrected. The cement values are in line with our monitoring report in section 4.1.1. The emission factor for cement was updated in the MR to reflect more recent industry data, which explains the difference from the value used in the registered PDMR. For additional context, please refer to our response to finding CAR 3 section 4.1.1 & 4.1.2.
	Rd 2	The justification provided by PP is acceptable. PP has used appendix 2 for VM0039 v 1.1 emission factors for construction equipment to calculate ERs. **#CLOSED** PP has updated the EF cement value in E 2 Material EI of the ER spreadsheet to ensure consistency throughout the document. **#CLOSED**	

APPENDIX 5 : COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Competency Statement	
Name	Manika Mongia
Years of Experience	3+
Qualifying Roles	
Team Leader	Yes
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / CE Region 6 (Hindi)
Technical Expert	Yes (1.1)
Financial Expert	No
Independent Reviewer	No
Approval	
Approved by	Head of Quality and Compliance, SustainCERT
Date	23/02/2024

Competency Statement	
Name	Leandro Pena-Salvatico
Years of Experience	1+
Qualifying Roles	
Team Leader	No
Auditor	Yes

Country Expert	Yes, CE Region 1 (English) CE Region 2, (Portuguese)
Technical Expert	Yes (1.2)
Financial Expert	No
Independent Reviewer	No
Approval	
Approved by	Head of Quality and Compliance, SustainCERT
Date	15/05/2024

Competency Statement	
Name	Prakash Sahu
Years of Experience	9+
Qualifying Roles	
Team Leader	No
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / CE Region 6 (Hindi)
Technical Expert	Yes (1.1, 1.2, 1.6)
Financial Expert	Yes
Independent Reviewer	Yes
Approval	
Approved by	Head of Quality and Compliance, SustainCERT
Date	08/04/2025

Competency Statement	
Name	Indrapal Parmar

Years of Experience	15+
Qualifying Roles	
Team Leader	No
Auditor	Yes
Country Expert	Yes, CE Region 1 (English) / CE Region 6 (Hindi)
Technical Expert	Yes (1.1, 1.2, 1.6)
Financial Expert	Yes
Independent Reviewer	Yes
Approval	
Approved by	Head of Quality and Compliance, SustainCERT
Date	15/07/2022