



## County of Sonoma REQUEST FOR PROPOSALS FOR ORGANIC MATERIALS PROCESSING SERVICES

16 January 2018

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Presented to

Sonoma County Waste  
Management Agency  
2300 County Center Dr.  
B-100  
Santa Rosa, CA 95403

Presented by

**Redwood Landfill Inc.**  
dba Redwood Landfill and Recycling  
8950 Redwood Hwy  
Novato, CA 94945  
415 408 9053 Phone



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# COVER LETTER

January 16, 2018

Patrick Carter  
Executive Director  
Sonoma County Waste Management Agency  
2300 County Center Dr., B-100  
Santa Rosa, CA 95403

Dear Mr. Carter:

Redwood Landfill, Inc., a Delaware corporation doing business as Redwood Landfill and Recycling Center ("Redwood") in Novato, California, is pleased to present this proposal in response to the Sonoma County Waste Management Agency ("SCWMA") request for Organic Materials Processing Services.

As an incumbent provider of organic materials processing services to the SCWMA, we are proud of the strong relationship we've forged over the years and the quality compost we began producing in 1996. Selecting Redwood to continue composting your residential green waste and food scraps provides the SCWMA with numerous benefits, including:

- An industrial composting facility within two miles of the Sonoma County line, providing the smallest transportation carbon footprint of any comparable facility in the region
- State-of-the-art Covered Aerated Static Pile (CASP) composting facility with capacity to manage current and future SCWMA residential feedstock volumes
- BAAQMD-identified facility recognized for its utilization of the Best Available Control Technology (BACT)
- Compost output that is 100 percent OMRI-listed, CDFA-registered and tested under the US Composting Council STA program
- An established compost market in Sonoma County that includes vineyards, landscapers and material yard and accounted for 40 percent of Redwood's compost sales in 2017
- A dedicated sales and marketing team that promotes the use of compost and the recycling of green waste and food scraps to produce high-quality compost
- An existing compost donation program to school and community gardens as well as residents via contract jurisdictions' give back events in Marin and Alameda counties, which can be extended to Sonoma County
- A committed team of professionals, many of whom are Sonoma County residents, that pride themselves in producing compost of the highest quality.

Redwood has the capacity to provide both a short-term and long-term composting solution to SCWMA as well as the financial backing of North America's largest recycler to expand and refine its composting facilities to respond to processing demands or changes in the market. Our proven track record over the past 20 years of composting demonstrates our commitment to quality product, environmental stewardship and local solutions for organic materials processing.

SCWMA and its member jurisdictions will be well-served selecting Redwood to continue providing composting services while it awaits the construction of an in-county solution.

We certify we have examined, understand and agree to the Draft Agreement, subject to the exceptions included in our proposal. Further, we warrant the requirements of the Agreement as described in the RFP document, its enclosures and all addenda (Addendum 1 dated July 7, 2017; Addendum 2 dated July 27, 2017; Addendum 3 dated September 22, 2017; and, Addendum 4 dated November 21, 2017) and the eight (8) documents listed on page 10 of the RFP, have been thoroughly reviewed and Redwood has conducted all due diligence necessary to confirm material facts upon which the proposal is based.

The enclosed proposal, including proposed tipping and pricing, are valid for a period of two hundred sixty (260) days. In the event Redwood is selected as SCWMA's Organic Materials Processing provider, Redwood Landfill, Inc. will enter into the Agreement with SCWMA, subject to the exceptions included in our proposal.

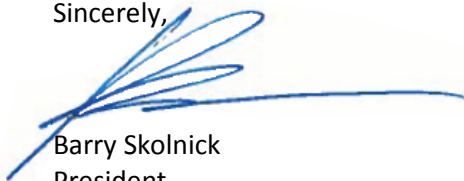
Primary Contact:

Ramin A. Khany, G.C., CPESC  
District Manager  
Redwood Landfill and Recycling Center  
8950 Redwood Highway  
Novato, CA 94948

415 408 9053 – direct line  
415 850 3791 – cell  
[Rkhany@wm.com](mailto:Rkhany@wm.com)

We look forward to continuing to provide organic materials processing services to the SCWA.

Sincerely,



Barry Skolnick  
President  
Redwood Landfill, Inc.



David Stratton  
Vice President  
Redwood Landfill, Inc.

Redwood Landfill, Inc. - Incorporated in the State of Delaware  
8950 Redwood Highway  
Novato, CA 94945



# RECEIPT OF SIGNED ADDENDA

**Sonoma County Waste Management Agency  
Request for Proposals for Organic Materials Processing Services**

Addendum No. 1

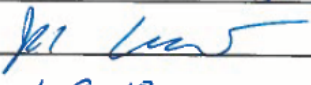
Issued – July 7, 2017

THEREFORE: All Applicants are required to sign this page of this Addendum No. 1, and shall submit a signed copy of this page with their Proposal package.

Thank you for your participation,

Sonoma County Waste Management Agency  
Patrick Carter  
Executive Director

ADDENDUM NO. 1      DATE: July 7, 2017

COMPANY / AGENCY NAME: Redwood Landfill, Inc. / Waste Management  
COMPANY ADDRESS: 8950 Redwood Highway, Novato CA  
REPRESENTATIVE'S NAME: Joe Cadetago  
SIGNATURE:   
DATE: 1-9-18

**Sonoma County Waste Management Agency  
Request for Proposals for Organic Materials Processing Services**

Addendum No. 2

Issued – July 27, 2017

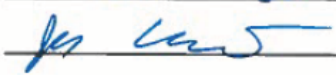
All Applicants are required to sign this page of this Addendum No. 2, and shall submit a signed copy of this page with their Proposal package.

Thank you for your participation,

**Sonoma County Waste Management Agency  
Patrick Carter  
Executive Director**

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**ADDENDUM NO. 2      DATE: July 27, 2017**

COMPANY / AGENCY NAME: Redwood Landfill Inc. / Waste Management  
COMPANY ADDRESS: 8750 Redwood Highway, Noyo CA  
REPRESENTATIVE'S NAME: Joe Cardelago  
SIGNATURE:   
DATE: 1-7-18

**Sonoma County Waste Management Agency  
Request for Proposals for Organic Materials Processing Services**

Addendum No. 3

Issued -September 22, 2017

All Applicants are required to sign this page of this Addendum No. 3, and shall submit a signed copy of this page with their Proposal package.

Thank you for your participation,

**Sonoma County Waste Management Agency  
Patrick Carter  
Executive Director**

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**ADDENDUM NO. 3      DATE: September 22, 2017**

COMPANY / AGENCY NAME: Redwood Landfill Inc. / Waste Management

COMPANY ADDRESS: 8950 Redwood Highway, Novato, CA

REPRESENTATIVE'S NAME: Joe Cardelazo

SIGNATURE: 

DATE: 1-9-18

**Sonoma County Waste Management Agency  
Request for Proposals for Organic Materials Processing Services**

Addendum No. 4

Issued - November 21, 2017


All Applicants are required to sign this page of this Addendum No. 4, and shall submit a signed copy of this page with their Proposal package.

Thank you for your participation,

**Sonoma County Waste Management Agency  
Patrick Carter  
Executive Director**

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**ADDENDUM NO. 4    DATE: November 21, 2017**

COMPANY / AGENCY NAME: Redwood Landfill Inc. / Waste Management  
COMPANY ADDRESS: 8950 Redwood Highway, Novato CA  
REPRESENTATIVE'S NAME: Joe Cardelago  
SIGNATURE:   
DATE: 1-9-18

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## EXECUTIVE SUMMARY

Redwood Landfill, Inc., doing business as Redwood Landfill and Recycling Center (“Redwood”) in Novato, CA is uniquely qualified to provide organic materials processing services to the Sonoma County Waste Management Authority (“SCWMA”). We offer the greenest solution to SCWMA and are ready on Day One to meet your needs.

As an incumbent service provider since 2015, Redwood’s operations and quality compost are well-known to SCWMA staff and Member Agencies. We have developed a strong and transparent working relationship that has culminated in our current contract extension efforts to ensure the SCWMA has composting services until the RFP is awarded and the contract commences. However, we believe the SCWMA needs to look no further than Redwood for its ongoing organic materials processing services.

Our facility, services and product are completely aligned with the SCWMA’s 13-adopted goals to guide this procurement process as described below:

- 1. Processing** - Redwood is prepared on Day One to manage up to 250 tons per day of SCWMA material. In addition, our proposal includes a short-term (3-year base term) and long-term (20-year base term) for management of the SCWMA organic materials under this Organic Materials Processing Services RFP. The corresponding rates for these two terms are competitive.
- 2. Diversion** - Redwood’s existing, fully-permitted facility diverts 514 tons per day of residential green waste and residential food scraps for composting. Redwood composts essentially 100 percent of the compostable organic materials received for processing. Due to our focus on acquiring high quality feedstocks (generally considered to be less than 1% contamination by weight) we generate very little residual.
- 3. Quality Compost** - Redwood’s WM EarthCare™ Homegrown Compost is Organic Materials Review Institute-listed, California Department of Food and Agriculture-registered, and tested under the US Composting Council Seal of Testing Assurance program. Redwood is proud to produce only 100 percent OMRI compost for use by vineyards, material yards, landscapers, home gardeners and community gardens in the Bay Area. The demand for this high-quality compost results in sold-out inventory every year.
- 4. Access** - Redwood is the closest industrial composting facility to Sonoma’s Central Landfill and Transfer Station. This significantly reduces the greenhouse gas emissions associated with transporting organics to the next closest industrial facility in Solano County. Our facility’s entrance is just two miles south of the Sonoma County line with direct access from Highway 101. Because our composting facility is located at a landfill, we can offer the SCWMA access from midnight to 3:00 pm Monday - Friday, and midnight to 3:30 pm on Saturdays. These off-commute hours on the busy 101 Narrows corridor helps to reduce the ghg impact of commercial transport. The public has access from 7:00 am to 3:00 pm Monday - Friday and Saturday 8:00 am to 3:30 pm.
- 5. Reporting** - As an existing full-service waste management facility, Redwood understands the importance of transparent and comprehensive reporting of all materials received and processed. Redwood maintains detailed records which track receipt and material type of all materials received through the scale house facility. As a current composter for the SCWMA, Redwood provides reports of materials received and processed on a monthly and quarterly basis. Redwood will continue to provide these reports work with SCWMA to provide this data in a reasonable format as required. A customer material report will be provided per the terms in Section 3.3 of this RFP.

- 6. Responsive** - The past three years of service to the SCWMA provides a track record of Redwood's responsiveness. We value our relationship as demonstrated by the current contract extension and look forward to providing excellent service to the SCWMA and its Member Agencies.
- 7. Regulatory Compliance** - The Redwood Landfill and its Covered Aerated Static Pile (CASP) composting are fully permitted and have an excellent record of compliance for both the environment and safety. The Redwood CASP is considered the Best Available Control Technology (BACT) by the Bay Area Air Quality Management District (BAAQMD) to mitigate harmful emissions from the composting process. This technology is the new minimum standard and will allow Redwood to continue to manage organics into the future in full compliance with BAAQMD requirements.

Our commitment to safety creates a culture and operation protocols designed to protect the public and commercial haulers as well. Our experienced composting operation has maintained a record of zero OSHA recordable injuries for the past five years. The Redwood facility comprised of maintenance, landfilling, and composting has maintained an average of less than one OSHA recordable injury per year.

- 8. Capacity** - Redwood is currently permitted to accept 514 tons per day of residential clean wood waste, green waste and food scraps, which fully meets the SCWMA's current - and future - needs. Redwood proposes to handle the materials defined in Section 3.3 as (1) wood waste, (2) green waste and (3) mixed organic materials (residential green materials mixed with residential food scraps). This reflects what we are currently processing for the SCWMA and is in keeping with the OMRI and CDFA feedstock requirements for compost intended for organic farm applications.

Redwood is currently in the process of permitting expansion of the CASP to 750 tpd in anticipation of increased demand resulting from implementation of SB 1383 and broader acceptance and participation in diverting organics for composting by residents and businesses alike.

- 9. High Level of Service** - Redwood prides itself in its customer service, responsiveness to community demand for recycling services and production of the highest-quality compost. In 2010 when WM EarthCare was established, we instituted a community donation program for compost and mulch. We also have an existing program for compost giveaways with the many of the jurisdictions we serve. Redwood is prepared to offer the same benefits to the SCWMA and its Member Agencies. The six references provided in this proposal can attest to the success of these programs and our staff's commitment to service.

- 10. Innovation** - Redwood and its parent company Waste Management have a strong track record of support for diversion legislation in California and investment in diversion technology at the Redwood Landfill. Since 2010, Redwood has installed solar panels to operate its administration offices, constructed the CASP resulting in 80 percent reduction in ghg associated with traditional - ton per ton - windrow processing, built a state-of-the-art landfill gas to energy plant that is supplying renewable electricity to 5,000 MCE customers (of which Redwood is one). These investments are a testament to our commitment to diversion, greenhouse gas reduction and service to the Bay Area.

In 2017, the East Bay Clean Cities Coalition presented Redwood with its Clean Air Champion Award for, "its sustained and significant contributions toward reducing petroleum consumption, deploying clean energy technologies, and advancing sustainable and environmentally sound practices through the greater Northern California Bay Area region." Redwood has been a leader in greenhouse gas reduction since 2010 as noted above and detailed further in this proposal.



- 11. Environmentally-Friendly Processing Method** - Built in 2014, the Redwood CASP is considered the Best Available Control Technology (BACT) by the Bay Area Air Quality Management District (BAAQMD) to mitigate harmful emissions from the composting process. This technology is the new minimum standard and will allow Redwood to continue to manage organics into the future in full compliance with BAAQMD requirements. Redwood is in the permitting process to expand its CASP facility, creating more capacity to meet the growing needs of SCWMA and the region.
- 12. Insurance** - Redwood carries all the necessary insurance to meet the service requirements of this proposal.
- 13. Progressive Diversion Programs** - As noted above, Redwood is a leader in diversion services to the North Bay. It will continue to pursue actively new technology and operation improvements, including CASP expansion to 750 tpd, during the term of the SCWMA contract.

## CONCLUSION

Redwood is confident of its ability on Day One to meet the SCWMA's goals as well as immediate need for organic materials processing services. We look forward to continuing our working relationship, expanding our services to and meeting the goals of the SCWMA's.

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## SECTION 2. QUALIFICATIONS

### Key Staff

Redwood has a strong on-site management and composting operations team that is supported by Waste Management's leadership. Area Vice President Barry Skolnick conceived of the WM EarthCare™ brand and Bay Area-wide infrastructure to produce a locally sourced line of recycled organic landscape materials. He championed the construction of two CASPs in the Bay Area and continues to explore innovative ways to divert organics from landfills for composting or anaerobic digestion. They are all proud of the high-quality compost produced at Redwood.



#### Ken Lewis - Area Director of Disposal Operations

510 613 2158

klewis@wm.com

Ken Lewis is the Director of landfill facility operations for Northern California. His oversight includes all landfill, recycling, composting, and mulch operations, which occur at these facilities. He has over 28 years of experience in the industry, including civil and geotechnical engineering.

He first joined Waste Management 22 years ago as an engineer before transitioning to management of operations. Prior to joining Waste Management, Mr. Lewis was a design and engineer consultant with EMCON, CH2M and other consulting companies.

Mr. Lewis will be responsible for coordinating the environmental review/permitting effort, including engagement of subcontractors.



#### Ramin A. Khany, District Manager - Redwood Landfill, Inc., WM EarthCare of Marin, Redwood Recycling Center

415 408 9053

Rkhany@wm.com

**\*\* Primary Contact**

Ramin is a seasoned district manager with more than 26 years of experience. His experience includes responsibility for the overall management of the Redwood Landfill, Redwood MRF and Recycling Center and the Marin Composting Facility. He will be an essential player to ensure that Sonoma County's organic materials are processed appropriately to be transformed into tomorrow's compost, returning needed nutrients to local vineyards and residents' gardens.

Ramin oversees a staff of three operations Managers, two supervisors, four technicians and twenty-two heavy equipment operators. Ramin is a member of Marin County JPA Local Task Force and works directly with county, cities and franchised haulers to ensure all contract, state, county and city mandated recycling goals are met.



**Alisa McCutcheon, Technical Manager - WM EarthCare of Marin**  
415 408 9055  
amccutch@wm.com

Ms. McCutcheon has over 15 years of experience with Waste Management dealing with the complex operations, safety, and environmental issues in the solid waste, recycling, and compost industries. Ms. McCutcheon has extensive knowledge of CDFA, CalRecycle, SWRCB, and CalOSHA regulations.

Ms. McCutcheon manages environmental permitting and compliance at Redwood Landfill and Tri-Cities Recycling. She also manages environmental compliance and compost quality for the 514 ton-per-day compost facility at Redwood Landfill, WM Earthcare of Marin.



**Rhonda Lepori, CASP Supervisor**  
707 322 3122  
rlepori1@wm.com

Sonoma resident Rhonda Lepori supervises the four staff dedicated to our daily CASP operations. She has worked exclusively in our composting operations as a heavy equipment operator since 2008.



**Erin Levine, Sales - WM EarthCare of Marin**  
510 692 0613  
elevine@wm.com

Erin has been in the recycling industry for 11 years and joined Waste Management six years ago as the WM EarthCare™ Specialist. She has successfully built a WM EarthCare Homegrown Compost following among vineyard management companies, soil yards and commercial landscapers in the Bay Area and in particular, Sonoma County which accounted for 40 percent of 2017 sales. Annually, Erin sells out Redwood's inventory of compost. She also manages the WM EarthCare donation program. In 2016, Erin

was named one of the 40 Under 40 by Waste 360 for her role in expanding the use of compost in the Bay Area.

Her composting work led to involvement with CAL CAN and working with the Napa RCD on a research project for carbon sequestration. Erin is passionate about closing the loop on Bay Area organics.



**Jessica Jones, P.E.**

JK Jones Consulting & Engineering

jessica@jkjonesce.com

Jessica Jones is the Owner and Principal Engineer of JK Jones Consulting & Engineering, a company which specializes in the permitting and design of waste management facilities. Jessica is the lead project manager for the Altamont Landfill covered aerated static pile composting system (CASP), which is a 500 ton per day organics management facility scheduled to open in early 2018.

As the former district manager of Waste Management's Redwood Landfill and Recycling Center for six years, Jessica was responsible for an extensive expansion of operations including increasing the size of the existing composting operation. In that role, Jessica oversaw the CEQA permitting efforts for the landfill and composting operations. She has 15 years of experience specifically in the waste management industry and has developed excellent working relationships with many regulators throughout the state. Jessica obtained a BS and MS in Civil Engineering and holds professional registrations as both a Civil and Structural Engineer in the state of California.



**Karen Stern, Director of Communications**

510 613 8720

KStern2@wm.com

Karen joined WM in 2009 to create an in-house communications and graphic design department. The dedicated team ensures consistency of message, design and the latest in public education tools. From website design and printed service brochures to bill inserts and social and traditional media, the department delivers cost-effective public education and marketing services. Her team is responsible for the brand and marketing of WM EarthCare compost and mulch.

Prior to joining WM, Karen managed award-winning public affairs/community relations campaigns for a variety of clients in northern California. She is a Bay Area native and active recycler and composter.



**Barry Skolnick, Area Vice President (AVP),  
Northern California/Nevada Area**  
510 613 2112

bskolnic@wm.com

Barry Skolnick joined WM in 2002, bringing more than 10 years of industry experience as a former owner and operator of several waste and recycling companies in 2009, he became the Area Vice President. Barry oversees the fiscal operations of a market area that spans from Fort Bragg to Monterey and east to the Nevada High Sierras. The region is home to several small, medium and large hauling companies, transfer stations and landfills with an employee base of approximately 2,200.

Barry's responsibilities include:

- Review and approval of all Northern California/Nevada Area contracts
- Oversees performance of operations, maintenance, customer service, and all transfer stations and landfills serving the Area
- Manages strategic planning and capital improvements for all Area locations



**Alex Oseguera, Vice President and General Manager,  
Northern California/Nevada Area**  
209 333 5613

aoseguer@wm.com

Alex Oseguera brings 25 years of progressive experience with WM to the County of Sonoma. He joined the company in 1991, serving in several capacities and locales, including Area Vice President for the Sacramento/Nevada Area, Director of Operations for Northern California, District Manager for the Lodi and Santa Clara facilities, Director of Operations for Waste Management's Mexico operations based in Mexico City, and Assistant Division Manager in Santa Ana, California. Alex and his team have received several coveted Waste Management honors, including "Best Market Area in the West" for 2006, 2007, and 2010.

Alex's responsibilities include:

- Manages government relations and public affairs
- Provides strategic guidance for contract service offerings
- Assists in managing strategic planning and capital allocation for all Area locations

## References

Redwood processes residential green waste and food waste for numerous jurisdictions in Sonoma, Marin and Alameda counties. Below are six references:

Patrick Carter  
Executive Director  
Sonoma County Waste Management Agency  
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Peter Slote  
Supervisor  
Solid Waste & Recycling Program  
City of Oakland  
250 Frank H. Ogawa Plaza, Ste 5301  
Oakland, CA 94612  
[pslote@oaklandnet.com](mailto:pslote@oaklandnet.com)  
(510) 238-7432

## Conflict of Interest Statement

There are no WM officers, directors, agents, or any relative of an officer, director or agent who is an employee, elected official or appointed official of the County of Sonoma.

No County of Sonoma employee, elected official or appointed official owns, directly or indirectly, an interest of five percent (5%) or more in WM or any of its branches or subsidiaries.

No gratuities have been or will be offered or given by WM, or any agent or representative of WM, to any officer or employee of the County or any participant in the selection of a Proposer to furnish the services described herein in order to secure a favorable treatment regarding the evaluation, scoring, and Organic Materials Processing Agreement award process.

## Litigation and Notice of Violation History

**Litigation and Notice of Violation History.** The Proposer must provide a history for the last five (5) years of all claims settlements, arbitrations, litigation proceedings, and civil actions involving One Hundred Thousand Dollars (\$100,000) or more, and all criminal actions in which the company, its parent company, subsidiaries, all partners, or principals were involved. For each case, the Proposer must provide the following: The name of the claim, arbitration, litigation or action; The amount at issue or the criminal charges alleged; and The resolution of the case.

Redwood Landfill, Inc. does not have any pending litigation. The Company is unable to respond to certain aspects of SCWMA's request because it does not track certain categories of information in a centralized manner and the necessary research would be overly burdensome. We have made a good faith effort to respond to the criteria, but certain information is excluded from the scope of our review or response, such as non-litigation matters (including those for which arbitration or mediation arose as a form of dispute resolution), third party personal injury and property damage claims, which are covered and managed by the Company's insurers and the former insurers of acquired entities, workers' compensation matters, and routine debt collection matters. Additionally, our response is limited to matters in our Northern California market area. Regarding criminal actions, we did not include traffic code violations. Settlement terms are generally confidential, so we are not including them here. If the terms of settlement permit disclosure, the Company will allow SCWMA to review such information at the Company's office.

California Sportfishing Protection Alliance v. USA Waste of California, Inc. and Steve Cameron	Clean Water Act citizen suit alleging failure to comply with stormwater discharge requirements. Matter settled.
California Sportfishing Protection Alliance v. Anderson Landfill, Inc., USA Waste of California, Inc. and Mike Rivera	Clean Water Act citizen suit alleging failure to comply with General Permit for stormwater discharges. Matter settled.
xxxx v. Waste Management of Alameda County, Inc., et al, including USA Waste of California, Inc.	Complaint alleging race discrimination, failure to prevent discrimination and harassment, wrongful termination and defamation. Matter settled.



California Sportfishing Protection Alliance v. BLT Enterprises of Sacramento, Inc.	Implementation of settlement agreement settling citizen suit alleging violations of federal Clean Water Act and California general permit for stormwater discharges. WM was not a party to the lawsuit, but inherited the settlement through WM's acquisition of the BLT recycling facility. Matter settled, but open due to ongoing implementation of settlement terms.
State/CalTrans v. Silveira, USA Waste, Redwood Landfill	Complaint in Eminent Domain. Matter settled in May 2015, with USA Waste receiving compensation.
xxxx v. Bryan Aguirre, including USA Waste of California, Inc.	Former employee alleging disability discrimination and wrongful termination. Matter settled.
California Sportfishing Protection Alliance v. USA Waste of California, Inc., Jay Ramos, and Felipe Melchor	Clean Water Act citizen suit alleging failure by Carmel Marina Corporation to comply with its General Permit for storm water discharges. Matter settled, but open due to ongoing monitoring.
xxxx v. USA Waste of California, Inc. and Barry Skolnick	Complaint alleging discrimination, harassment, retaliation, and other employment related claims. Matter pending.
xxxx v. Waste Management of Alameda County, Inc., and Barry Skolnick	Complaint alleging discrimination, harassment, retaliation, and other employment related claims. Matter pending.
California Communities Against Toxics v. USA Waste of California, Inc.	Citizen suit alleging violations of federal Clean Water Act and California general permit for stormwater discharges. Matter settled.
xxxx v. USA Waste of California, Inc., a California Corporation; Waste Management of California, Randy Tessonie, Individually; Jay Stratton, Individually.	Former employee alleging discrimination and wage violations. Matter pending.
xxxx v. USA Waste of California, Inc.; WM Resources, Inc.; Waste Management of California, Inc.; and Ruben Angulo	Former employee alleging discrimination and wage violations. Matter pending.

The Proposer must also provide details of any current or threatened legal actions in California against the Proposer or its parent company, subsidiaries, all partners, principals, or joint venture company(ies) by a governmental entity contracting with the Proposer or its parent company for services relating to solid waste management, or against such a government entity by the Proposer or its parent company or joint venture company(ies). For each action, the Proposer must provide the following: The name of the action; The court in which the action is pending; The action number; and The amount at issue.

The Company is unable to respond to certain aspects of SCWMA's request because it does not track certain categories of information in a centralized manner and the necessary research would be overly burdensome. We have made a good faith effort to respond to the criteria, but certain information is excluded from the scope of our review or response, such as non-litigation matters (including those for which arbitration or mediation arose as a form of dispute resolution). Additionally, our response is limited to matters in our Northern California market area.

No matters to report.

The Proposer shall provide a list of all Notice of Violations and/or enforcement actions taken against it during the last five (5) years by any regulatory agency such as, but not limited to, the United States Environmental Protection Agency, Air Quality Management District, a Local Enforcement Agency under the California Integrated Waste Management Act, or Cal/OSHA. The list shall include the name of the regulatory agency and the date of the enforcement action and a copy of any Notice of Violation. The Proposer shall inform the SCWMA if it has had a permit, franchise, license, entitlements or business licenses that have been revoked or suspended in the last five (5) years.

Our response is limited to environmental Notices of Violations and OSHA matters.

County of Marin, 1/28/15 inspection (see attached)

County of Marin, 10/30/17 inspection (see attached)

County of Marin, 11/26/17 inspection (see attached)

Bay Area Air Quality Management District, November 2016 Compliance and Enforcement Agreement

The Proposer must list any liquidated damages, administrative fines, charges, or assessments that total Fifty Thousand Dollars (\$50,000) or greater in any one (1) calendar year during the last five (5) years that have been paid by the Proposer to a public agency as a result of solid waste management services provided by Proposer. The list shall include the name of the public agency, the date and amount of the liquidated damages, administrative fines, charges, or assessments, and the reason the public agency assessed the liquidated damages, administrative fines, charges, or assessments.

No matters to report.

**The Proposer must list any claims against a bid, proposal, or performance bond and the results and failure to receive a bid, proposal, or performance bond, or any contractual defaults or termination in the last fifteen (15) years.**

No matters to report.

Composting Materials Handling Operation and Facility Inspection Report (93)					
Enforcement Agency:		County of Marin			
SWIS Facility File Number (99-xx-9999)		Inspection Date		Program Code	
21-AA-0068		10/30/2017		LEA Periodic	
Time In	12:00pm	Time Out	2:19pm	Inspection Time	
Facility Name			Received By		
WM Earthcare of Marin			Redwood Landfill, Inc.		
Facility Location			Owner Name		
8950 Redwood Highway, Novato 94945					
Inspector			Also Present (Name)		
Cynthia Granicher-LEA			Alisha McCutcheon-Technical Manager		
<small>THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)</small>					
No Violations or Areas of Concern					
V	A	Regulations			
X		17867(a)(9) - Fire Prevention, Protection and Control			
		<p>Comments: Section 17867(a)(9) The operator shall provide fire prevention, protection and control measures, including, but not limited to , temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. Firelanes shall be provided to all to allow fire control equipment access to all operation areas.</p> <p>For the third consecutive month, the compost facility has had fires, some smoldering and some with flames. The operator has notified the LEA via email of smoke coming from approximately one cubic yard of a compost pile at the east end of the oxbow on 10/05/2017, smoke coming from 8-10 cu. yds. of a curing pile of compost at the west end of the oxbow on 10/12/2017, and smoke coming from a curing pile of compost on 10/18/2017.</p> <p>According to Alisha McCutcheon, RL Technical Manager, the October fires were discovered and extinguished by RL personnel.</p> <p>Additionally, on November 6, 2017, the operator notified the LEA of visible smoke emanating from approximately 200 cubic yards of ground greenwaste which was being stored on the topdeck of Area B for eventual erosion control. The fire department responded to a call from the public. RL personnel extinguished the smoldering material.</p>			
	X	17869(b) - Special Occurrences			
		<p>Comments: The special occurrence log must be accurate. Date of an incident is incorrect and one incident is missing.</p> <ul style="list-style-type: none"> <li>Email notification received by the LEA indicated smoking in a curing pile of compost at the west end of the oxbow on 10/12/2017. However, the special occurrence log indicates the incident occurred on 10/13/2017.</li> <li>The 10/05/2017 incident of a compost pile smoking at the east end of the oxbow is not in the special occurrence log.</li> </ul>			
Inspection Report Comments:					
<p>Weather conditions at the time of the inspection were sunny, clear, breezy and 62F according to the landfill administration weather station.</p> <p>A new trommel with twice screening capacity of the previous trommel has been purchased and is being utilized.</p> <p>The trough next to the compost bays was dry at the time of the inspection.</p> <p>The load check log indicates sufficient frequency and quantity of load checks being conducted.</p>					

## Disposal Facility Inspection Report (52)

Enforcement Agency:		County of Marin			
SWIS Facility File Number (99-xx-9999)		Inspection Date		Program Code	
21-AA-0001		1/28/2015		LEA Periodic	
Time In	3:30	Time Out	5:00	Inspection Time	Two Hours
Facility Name			Received By		
Redwood Landfill			Redwood Landfill, Inc.		
Facility Location			Owner Name		
8950 Redwood Highway, Novato 94945			Redwood Landfill, Inc.		
Inspector			Also Present (Name)		
Mark Janofsky, Eithne Bullick			Alisha McCutcheon		

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF THE DIVISION 30 OF THE PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR).

No Violations or Areas of Concern	
V	A Regulations
X	20690 - Alternative Daily Cover
<p>Comments: Exposed waste (e.g. numerous plastic bags, cardboard beer carton) was observed at the working face after Alternative Daily Cover had been applied at the end of the day. Ensure that waste is covered with a minimum of 6 inches of compacted, approved cover material at the end of each operating day, or more frequent intervals, to control vectors, fires, odors, blowing litter and scavenging. A Violation of this State Minimum Standard is being recorded.</p> <p>In addition, the Operator is hereby notified that the processed construction and demolition material screenings (fines) being received from Marin Resource Recovery for use as Alternative Daily Cover are not acceptable for such use, due to the amount of contaminants, such as polystyrene, plastic pill bottles, caulking material tubes, and particle board. The Operator shall therefore not accept additional screenings for use as ADC until/unless the contaminant level is significantly reduced, as verified by the LEA. Any future receipts of screenings accepted for use as ADC by Redwood Landfill shall be stored/stockpiled separately from the existing stockpile of contaminated screenings.</p> <p>The existing stockpile of screenings can only be used for ADC if the contaminants which have accumulated toward the bottom of the pile are removed for disposal.</p>	
X	20810 - Vector and Bird Control
<p>Comments: A very substantial number of gulls were present above the working face during this inspection. The Falconer had already left the site by 2:45. The Falconer should remain on-site until the waste is covered at the working face.</p> <p>An Area of Concern is being recorded for this State Minimum Standard, as LEA staff had not observed so many gulls above the working face in at least two years. However, if this situation is not markedly improved by the next monthly inspection, a Violation will be recorded.</p>	
X	20820 - Drainage and Erosion Control
<p>Comments: Ponded water was noted in a number of locations in Areas A and B on the inboard side of the levee road, at the toe of the landfill. Drainage improvements are mandatory in this area as soon as site conditions permit. In the meantime, the Operator had stated previously that the ponded water is being pumped to the next discharge point.</p>	
Inspection Report Comments:	
<p>During this inspection, the active face of the landfill was located in Area B.</p> <p>The odor of landfill gas was readily apparent while driving on the landfill, south of the C&amp;D recycling storage area. Landfill staff stated that the landfill gas collection system upgrade is still in progress. The project, which includes realignment of the headers, requires disconnection of the gas wells, which are capped.</p> <p>Erosion has been repaired beneath/around the drainage pipe on the slope adjacent to the access road on the west side of the landfill in Area E3.</p>	

## Disposal Facility Inspection Report (52)

<b>Enforcement Agency:</b> County of Marin			
<b>SWIS Facility File Number (99-xx-9999)</b>		<b>Inspection Date</b>	
21-AA-0001		11/26/2017	
		<b>Program Code</b>	
		LEA Focused	
<b>Time In</b>	9:06am	<b>Time Out</b>	10:15am
		<b>Inspection Time</b>	
<b>Facility Name</b>		<b>Received By</b>	
Redwood Landfill		Redwood Landfill, Inc.	
<b>Facility Location</b>		<b>Owner Name</b>	
8950 Redwood Highway, Novato 94945			
<b>Inspector</b>		<b>Also Present (Name)</b>	
Rebecca Ng -Marin County LEA			

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 46 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

<b>No Violations or Areas of Concern</b>	
<b>V</b>	<b>Regulations</b>
X	<p><b>PRC 44014(b) - Operator Complies with Terms &amp; Conditions</b></p> <p><b>Comments:</b> Statement of facts regarding violation of SWFP 4(b):</p> <p>On Saturday, November 25, 2017 at 3:51pm, an email with the subject heading "Redwood landfill to open Sunday, November 26, 2017" was sent from Barry Skolnick, Area Vice President with Waste Management, to Cynthia Granicher-Marín LEA and copied to Rebecca Ng-Marín LEA, requesting to open Redwood Landfill on Sunday, November 26, 2017 to accept disaster-related waste due to unspecified issues with Central Landfill and weather conditions. The email states the request is from AshBritt. Further mention from Mr. Skolnick, indicates Waste Management's intent to request a waiver on Monday, November 27, 2017 to increase Redwood Landfill's operating hours to 24/7 and to increase tonnage for total waste for disposal to 3,000-5000 tpd in excess of the daily permitted maximum tonnage.</p> <p>Rebecca Ng, Deputy Director, Marin County EHS, replied to Mr. Skolnick's email at 8:27pm on Saturday, November 25, 2017 and copied all individuals on the original email (Ramin Khany, Tianna Nourot, Alisha McCutcheon, Ken Lewis, Cynthia Granicher) and blind copied Christine Sosko, Director of Sonoma County Environmental Health, indicating that the request to open Redwood Landfill on Sunday, November 26, 2017 was denied due to the lack of adequate advance planning by AshBritt and Army Corp of Engineers combined with the inability to confer with CalRecycle, and the expected rains creating poor conditions. The email clearly stated that the Marin County LEA would not approve the opening of Redwood Landfill on Sunday, November 27, 2017.</p> <p>Operating on a Sunday is not part of the current SWFP nor part of the Emergency Waiver which was granted on 11/21/2017.</p> <p>On Sunday, November 26, 2017, Rebecca Ng drove to Redwood Landfill arriving at 9:06pm. The gate was open and she followed a truck through the gate. After parking in the open area before the railroad tracks, she observed trucks going into and out of Redwood Landfill from 9:07am to 9:22am. During this time period, at least 4 (four) trucks drove into the site and 6 (six) trucks drove out of the site. Upon driving into the landfill past the railroad tracks, a bulldozer was observed being operated in Area G near the LF gas flares. There were 3 (three) trucks lined up on the road heading out and 3(three) vehicles with 3(three) people with safety vests outside of the vehicles. At the scale house, there was one truck on the scale and one truck leaving.</p> <p>Ramin Khany, District Manager, was present in the scale house and was informed that Redwood Landfill was being operated in violation of both their SWFP and their Emergency Waiver and ordered to close. Upon request, the trucks already enroute from Sonoma County (approximately 10-15) were allowed to continue and dispose of their disaster-related waste at Redwood Landfill. At 10:15am, the last truck was allowed through the gates before the gates were closed. Twenty-one (21) trucks were observed entering Redwood Landfill from 9:07am to 10:15am.</p> <p>Upon rechecking Redwood Landfill at 3:50pm on Sunday, November 26, 2017, the gates were closed.</p>



**REDWOOD LANDFILL, INC. – BAAQMD  
COMPLIANCE AND ENFORCEMENT AGREEMENT**

This COMPLIANCE AND ENFORCEMENT AGREEMENT (“Agreement”) is made and entered into between Redwood Landfill, Inc. (“RLI”) and the Bay Area Air Quality Management District (“BAAQMD” or “District”). The parties shall be collectively referred to herein as the “Parties” and individually as a “Party”, unless specifically identified otherwise. This Agreement shall be effective upon the date that all Parties have executed this Agreement (the “Effective Date”), as evidenced by the signatures below.

**RECITALS**

**WHEREAS** the District is the regional agency with primary responsibility for the control of air pollution from stationary sources in the San Francisco Bay Area Air Basin; and,

**WHEREAS** RLI operates a solid waste landfill in Novato, California, denominated by the District as Plant # A1179 (“Facility”). RLI is a wholly-owned subsidiary of Waste Management, Inc.; and,

**WHEREAS** the Facility is presently permitted for landfill gas (“LFG”)-related emissions from the surface of the landfill (denominated by the District as source S-5), two (2) enclosed flares (denominated by the District as abatement devices A-51 and A-60), and four (4) LFG engines (denominated by the District as sources S-64, S-65, S-66, and S-67); and,

**WHEREAS** RLI’s current BAAQMD permit to operate (“PTO”) contains various limits on the allowable sulfur and toxic air contaminant (“TAC”) levels in the LFG. A peak limit of 450 parts per million by volume (“ppmv”) of total reduced sulfur (“TRS”) as hydrogen sulfide and an annual average limit of 350 ppmv of TRS as hydrogen sulfide are currently in effect. Additional limits for specified TACs are also contained within the PTO. The peak sulfur limit is primarily based on compliance with the acute risk threshold in BAAQMD Rule 2-5 for hydrogen sulfide emissions from the surface of the landfill. The annual average limit is primarily based on compliance with an annual sulfur oxides (“SOx”) emission limit of 99 tons per year (“tpy”) for LFG combustion devices (TRS is converted to SOx during combustion of LFG in the flares and engines); and

**WHEREAS** in a draft source test report dated, April 1, 2016, which summarized required annual testing of the LFG for TRS, RLI received initial notice that the detected concentration of TRS in the LFG was 610 ppmv, in excess of the 450 ppmv limit. In the same report, 1,4-dichlorobenzene was detected at 1,900 parts per billion by volume (“ppbv”), in excess of the 1,000 ppbv limit. Ethylbenzene was detected at 4,160 ppbv, in excess of the 4,000 ppbv limit. A ten (10)-day deviation report was submitted by RLI to the District on April 8, 2016, documenting the exceedances; and

**WHEREAS** weekly testing of the LFG for TRS is also required by RLI’s PTO, and additional exceedances of the 450 ppmv limit have occurred on April 6 (558.3 ppmv), April 15 (527.8 ppmv), and April 20 (456.8 ppmv), 2016. A second ten (10)-day deviation report was submitted to the BAAQMD on April 13, 2016 to address the subsequent sulfur exceedances during the weekly testing; and

**WHEREAS** re-testing of the LFG for 1,4-dichlorobenzene and ethylbenzene occurred on April 12, 2016, and the results were reported to RLI on April 26, 2016. The resampling showed ethylbenzene at 3,880 ppbv, in compliance with the PTO limit; however, the re-tested concentration of 1,4-dichlorobenzene was 1,650 ppbv, still in excess of the PTO limit. At this time, RLI remains non-compliant with the 1,4-dichlorobenzene limit of 1,000 ppbv. As of the date of this Agreement, RLI has returned to compliance with the annual peak and average TRS and ethylbenzene limits; however, it is possible that these limits will also be exceeded during the term of this Agreement; and,

**WHEREAS** since it is difficult for RLI to reduce or otherwise affect the concentration of TRS and TACs in the LFG, particularly on a short-term basis, RLI will submit permit applications to the District to increase the TRS and TAC limits. Three applications have been or will be submitted. One application will address the annual average TRS concentration limit by requesting an allowance that an exceedance of the 350 ppmv average concentration limit would not be considered a violation if RLI can show that its SO<sub>x</sub> emissions from LFG combustion are less than 99 tpy (the Facility is currently well below the SO<sub>x</sub> limit even when the higher TRS concentrations are considered). The second application will address the peak TRS concentration by demonstrating that acute health risks from hydrogen sulfide are and will remain below acute risk thresholds in BAAQMD Rule 2-5 at higher TRS concentrations. The third application will request an increase in 1,4-dichlorobenzene and ethylbenzene limits by demonstrating that the cumulative carcinogenic and non-carcinogenic health risks from all TACs are and will remain below risk thresholds in BAAQMD Rule 2-5 even with higher concentrations of these two chemicals; and,

**WHEREAS** the parties have agreed to execute this Compliance and Enforcement Agreement to allow RLI to continue operating while options for achieving compliance, including the permitting actions described above, are evaluated; and,

**WHEREAS** the District believes a penalty is appropriate to resolve the non-compliance that is occurring. The penalties provided for in this Agreement are intended to compensate for the excess emissions associated with TRS and TAC concentrations above permit limits; and

**NOW, THEREFORE** based on the foregoing recitals, and in consideration of the mutual promises and covenants contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

#### **AGREEMENT**

**1. Term; Termination.** The Term of this Agreement shall be TWELVE (12) months, commencing on the Effective Date set forth above. The Agreement may be extended by written consent of both Parties. Notwithstanding the foregoing, RLI may terminate the Agreement upon BAAQMD approval of higher concentration limits for TRS or TAC if the higher limits result in compliance. RLI may terminate the Agreement pursuant to the preceding sentence by providing THIRTY (30) days advance written notice to the District. The notice shall explain how RLI is currently in compliance.

**2. Enhanced Monitoring.** During the Term of this Agreement, RLI shall conduct enhanced monitoring as follows:

2.1. Landfill Surface Monitoring. RLI shall increase the frequency of its landfill surface emissions monitoring under Rule 8-34-506 to bi-monthly (*i.e.*, once every two months).

2.2. Sulfur Monitoring. RLI shall increase the frequency of its sulfur field test monitoring under RLI's PTO to twice per week. The frequency of RLI's sulfur lab test monitoring shall continue to be quarterly.

2.3. TAC Monitoring. RLI shall increase the frequency of its monitoring of 1,4-dichlorobenzene and ethylbenzene under RLI's PTO to quarterly.

Unless terminated as provided herein, the enhanced monitoring shall continue through the Term of this Agreement, regardless of whether the applicable limits for the parameters monitored are met.

**3. Implementation of Hydrogen Sulfide Monitoring Plan:** In addition to the Enhanced Monitoring in Section 2 above, RLI shall undertake hydrogen sulfide monitoring by implementing RLI's *Hydrogen Sulfide Monitoring Plan*, dated May 16, 2011 and attached hereto as Exhibit "1," including any amendments thereto approved by BAAQMD.

**4. Recordkeeping and Reporting:** RLI shall keep the records listed below. RLI shall maintain these records for (a) at least ONE (1) year after the termination of this Agreement, or (b) such period of time as is otherwise required under applicable law, whichever is longer.

4.1. Results of surface monitoring conducted pursuant to Section 2.1 above;

4.2. Results of sulfur monitoring conducted pursuant to Section 2.2 above;

4.3. Results of TAC monitoring conducted pursuant to Section 2.3 above

4.4. Results of the hydrogen sulfide monitoring conducted pursuant to Section 3 above.

During the Term of this Agreement, RLI shall submit to the District by the 20<sup>th</sup> day of each calendar month a report summarizing the results listed in subsections 4.1 through 4.4 above for the previous calendar month. The report shall be submitted to:

Richard Murray  
Air Quality Inspector II  
Bay Area Air Quality  
Management District  
375 Beale Street  
San Francisco, CA 94105  
rmurray@baaqmd.gov

Carol Allen  
Supervising Air Quality Engineer  
Bay Area Air Quality  
Management District  
375 Beale Street  
San Francisco, CA 94105  
callen@baaqmd.gov

**5. Civil Penalty.** RLI shall pay to BAAQMD a civil penalty consisting of an Initial Penalty and an Excess Emissions Penalties as follows:

5.1. Initial Penalty. Within THIRTY (30) days after the Effective Date, RLI shall pay to the BAAQMD a civil penalty of TEN THOUSAND DOLLARS (\$10,000).

5.2. Excess Emissions Penalties. Within THIRTY (30) days after the end of each calendar quarter, RLI shall pay a civil penalty for its excess emissions (if any) associated with exceedances of the peak TRS concentration limit and the limits for 1,4-dichlorobenzene and ethylbenzene. The amount of the excess emissions penalty shall be



calculated based on the excess emissions (in pounds) for each contaminant emitted multiplied by the following excess emission fee rate:

Contaminant	Contaminant Category	Excess Emissions Exceeding	Excess Emissions Fee Rate
Total Reduced Sulfur	Air Contaminant	450 ppmv	\$3.72/pound
1,4-dichlorobenzene	Toxic Air Contaminant	1,000 ppbv	\$18.46/pound
ethylbenzene	Toxic Air Contaminant	4,000 ppbv	\$18.46/pound

Such rates shall be revised consistent with any revisions to the BAAQMD's "Schedule of Excess Emissions Fees" in Regulation 3, Schedule A, Table 1. RLI shall submit with each quarterly excess emissions payment a written explanation of how the amount of excess emissions of each pollutant was calculated.

5.3. Payment Instructions. Payments required under subsections 5.1 and 5.2 shall be mailed to the following address:

Bay Area Air Quality Management District  
Office of District Counsel  
Brian C. Bungler, District Counsel  
375 Beale Street  
San Francisco, California 94105

**6. Settlement and Release of Claims:** RLI's compliance with this Agreement and payment of the Civil Penalty in Section 5 above will settle, resolve, and conclude the allegations stated herein and all claims that have been or could have been asserted by the District against RLI for or relating to the exceedances stated herein prior to or during the Term of this Agreement.

**7. Notice.** Any notice required or permitted hereunder shall be in writing (including, without limitation, by facsimile transmission) and sent to the address shown below:

If to RLI:	Redwood Landfill, Inc.
	P.O. Box 793
	Novato, CA 94948
Attention:	Ramin Khany
If to District:	Bay Area Air Quality Management District
	375 Beale Street
	San Francisco, CA 94105
Attention:	Wayne Kino, Director of Enforcement

**8. Reservation of Rights:** The District reserves the right to rely upon the alleged violations described herein and may offer proof thereof in connection with any other administrative or judicial proceeding not related to this Agreement or the violations or conduct alleged herein. RLI reserves the right to contest any such showing.

**9. Default of RLI:** If RLI fails to perform its obligations, RLI will be in violation of this Agreement and the District may at its sole discretion terminate this Agreement upon written

notice to RLI, seek civil or criminal penalties, or otherwise take enforcement action against the RLI for the violation of District Regulations referenced herein.

**10. Limitations of Agreement:** This Agreement is binding upon the RLI and the District only with respect to the matters specifically addressed and does not otherwise bind the RLI and/or the District.

**11. Successors Bound:** The terms of this Agreement shall inure to the benefit of and be binding upon the Parties and their respective predecessors, successors, subsidiaries, partners, limited partners, agents, principals, and assigns.

**12. Savings Clause:** If any provision of this Agreement or the application of this Agreement to either RLI or the District or both is held by any judicial authority to be invalid, the application of such provision to the other Party and the remainder of this Agreement shall remain in force and shall not be affected thereby, unless such holding materially changes the terms of this Agreement.

**13. Understanding of Agreement and Authority to Sign:** Each of the undersigned represents and warrants that he or she has read and understands and has full and complete lawful authority to grant, bargain, convey, and undertake the rights and duties contained in this Agreement, and that he or she has full and complete lawful authority to bind any respective principals, successors, subsidiaries, partners, limited partners, agents and assigns to this Agreement. Each of the undersigned understands and agrees that this representation and warranty is a material term of this Agreement, without which it would not have been executed.

**14. Opportunity to Consult with Counsel:** The Parties affirm and acknowledge they have read this Agreement, that they know and understand its terms, and that they have signed it voluntarily and after the opportunity to seek the advice of counsel of their own choosing. The Parties have had the opportunity to consult with their attorneys and any other consultant each deemed appropriate prior to executing this Agreement.

**15. California Law Governs:** This Agreement shall be governed by and construed in accordance with the laws of the State of California notwithstanding the choice-of-law rules of California or any other state.

**16. Integrated Agreement:** The mutual obligations and undertakings of RLI, on the one hand, and the District, on the other hand, expressly set forth in this Agreement are the sole and only consideration of this Agreement and supersede and replace all prior negotiations and proposed agreements between the RLI and the District, written or oral, on the specific matters addressed in this Agreement. RLI and the District each acknowledge that no other party, nor the agents nor attorneys of any other party, has made any promise, representation or warranty whatsoever (express or implied), not contained herein, to induce the execution of this Agreement. This Agreement constitutes the full, complete and final statement of RLI and the District on the matters addressed by this Agreement.

**17. Section Headings:** The Section headings in this Agreement, which appear in bold-face type at the beginning of each Section, are inserted only for convenience and ease of reference and are not to be considered in the interpretation of any provision of the Agreement.

**18. Signature by Counterparts:** This Agreement may be executed in one or more counterparts, each of which shall have the same force and effect as an original, but all of which together shall constitute one and the same instrument.

**19. Joint Preparation:** RLI and the District have jointly prepared this Agreement. This Agreement shall be deemed to have been jointly drafted by the Parties for the purpose of applying any rule of construction to the effect that ambiguities are to be construed against the party drafting the Agreement.

**20. Amendments:** This Agreement may be amended and supplemented only by a written instrument signed by both RLI and the District or their successors-in-interest. However, such execution may be in counterparts and, when so executed, shall be deemed to constitute one and the same document.

**21. Breach:** Any material breach of this Agreement by either Party shall make the Agreement subject to termination upon notice by the non-breaching Party.


**22. Waiver:** The waiver of any provision or term of this Agreement shall not be deemed as a waiver of any other provision or term of this Agreement. The mere passage of time, or failure to act upon a breach, shall not be deemed as a waiver of any provision or term of this Agreement.


\* \* \*

IN WITNESS WHEREOF, the Parties acknowledge, agree to and accept this Agreement.

**BAY AREA AIR QUALITY  
MANAGEMENT DISTRICT**  
939 Ellis Street  
San Francisco, CA 94109

**REDWOOD LANDFILL, INC.**


By:   
Name: Jack P. Broadbent  
Title: Air Pollution Control Officer/  
Chief Executive Officer  
Date: 11-22-16

By:   
Name: Barry S. Skolnick  
Title: President  
Date: 11-4-16

**APPROVED AS TO FORM:**

**APPROVED AS TO FORM:**

By:   
Name: Adan Schwartz  
Title: Senior Assistant Counsel

By:   
Name: Andrew M. Kenefick  
Title: Senior Legal Counsel

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## SECTION 3. STATEMENT OF FINANCIAL QUALIFICATIONS



WASTE MANAGEMENT  
Northern California –Nevada  
100 Vassar Street  
Reno, NV 89502

January 5, 2018

Sonoma County Waste Management Agency  
Patrick Carter, Executive Director  
2300 County Center Drive, B-100  
Santa Rosa, CA 95403

RE: Request for Proposals for Organic Materials Processing Services

Dear Mr. Carter,

WM is financially qualified to perform the work described in the Request for Proposals for Organic Materials Processing Services issued on May 31, 2017. WM has provided the requested audited financial data as well as a letter from Bank of America detailing the amount of available credit. The available credit far exceeds the cost of new trucks, facilities, other equipment and labor required to perform all services described in this RFP, which is estimated to be in the \$4.2 million range for a 20-year contract, and \$0 for a 3-year agreement.

In addition, the aforementioned line of credit is sufficient to compensate for all required payments to the SCWMA, capital costs, equipment costs, startup costs, and a minimum of three (3) months operating costs.

Regards,

A handwritten signature in blue ink, appearing to read 'D. Stratton', written over a horizontal line.

David Stratton  
Vice President  
USA Waste of California, Inc.



## Financial Capacity/Line of Credit



January 11, 2018

Sonoma County Waste Management Agency  
Patrick Carter, Executive Director  
2300 County Center Drive, B-100  
Santa Rosa, CA 95403

RE: Financial Capability Letter

Redwood Landfill, Inc., a wholly own subsidiary of Waste Management, Inc., has asked us to provide you with a letter which addresses the Company's financial capability.

Bank of America, N.A. has had the pleasure of doing business with Waste Management Inc. and its subsidiaries for approximately 20 years. Not only do we enjoy a comprehensive treasury management relationship, but we also have a very significant credit relationship. We are the Administrative Agent for and a participant in, the company's five-year \$2.25 billion Revolving Credit Facility, of which approximately \$1.6 billion is available, as of this date, to be utilized for direct borrowings and issuance of letters of credit subject to certain conditions. The facility has been handled as agreed.

Waste Management, Inc. has adequate financial resources and all of their accounts are in good standing. Should you have additional questions about our relationship with Waste Management, please do not hesitate to contact me by phone at: 312-992-3882 or by email at: [michael.contreras@bamf.com](mailto:michael.contreras@bamf.com).

Please note that the information set forth in this letter is subject to change without notice, and is provided in strict confidence, without any responsibility or liability on the part of Bank of America, N.A. Bank of America, N.A. undertakes no responsibility to update the information set forth in this letter.

Very truly yours,

BANK OF AMERICA, N.A.

A handwritten signature in black ink, appearing to read "Michael Contreras".

Michael Contreras  
Vice President  
Corporate Credit Risk  
Global Corporate & Investment Bank

## Audited Financial Statements

Key statements from Waste Management's 2016 annual report appear on the following pages. Full financial results are available on our website at [www.wm.com](http://www.wm.com).

### REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders of Waste Management, Inc.

We have audited the accompanying consolidated balance sheets of Waste Management, Inc. (the "Company") as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive income, cash flows, and changes in equity for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Waste Management, Inc. at December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Waste Management, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 16, 2017 expressed an unqualified opinion thereon.

/s/ ERNST & YOUNG LLP

Houston, Texas  
February 16, 2017

**WASTE MANAGEMENT, INC.**  
**CONSOLIDATED BALANCE SHEETS**  
(In Millions, Except Share and Par Value Amounts)

	December 31,	
	2016	2015
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 32	\$ 39
Accounts receivable, net of allowance for doubtful accounts of \$24 and \$25, respectively	1,700	1,549
Other receivables	432	545
Parts and supplies	90	92
Other assets	122	120
Total current assets	2,376	2,345
Property and equipment, net of accumulated depreciation and amortization of \$17.152 and \$16.420, respectively	10,950	10,665
Goodwill	6,215	5,984
Other intangible assets, net	591	477
Investments in unconsolidated entities	320	360
Other assets	407	536
Total assets	<u>\$20,859</u>	<u>\$20,367</u>
<b>LIABILITIES AND EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 799	\$ 721
Accrued liabilities	1,085	1,064
Deferred revenues	493	472
Current portion of long-term debt	417	253
Total current liabilities	2,794	2,510
Long-term debt, less current portion	8,893	8,676
Deferred income taxes	1,482	1,391
Landfill and environmental remediation liabilities	1,675	1,584
Other liabilities	695	839
Total liabilities	15,539	15,000
Commitments and contingencies		
Equity:		
Waste Management, Inc. stockholders' equity:		
Common stock, \$0.01 par value; 1,500,000,000 shares authorized; 630,282,461 shares issued	6	6
Additional paid-in capital	4,850	4,827
Retained earnings	7,388	6,939
Accumulated other comprehensive income (loss)	(80)	(127)
Treasury stock at cost, 190,966,584 and 183,105,326 shares, respectively	(6,867)	(6,300)
Total Waste Management, Inc. stockholders' equity	5,297	5,345
Noncontrolling interests	23	22
Total equity	5,320	5,367
Total liabilities and equity	<u>\$20,859</u>	<u>\$20,367</u>

See notes to Consolidated Financial Statements.



**WASTE MANAGEMENT, INC.**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**  
(In Millions, Except per Share Amounts)

	Years Ended December 31,		
	2016	2015	2014
Operating revenues	\$13,609	\$12,961	\$13,996
Costs and expenses:			
Operating	8,486	8,231	9,002
Selling, general and administrative	1,410	1,343	1,481
Depreciation and amortization	1,301	1,245	1,292
Restructuring	4	15	82
(Income) expense from divestitures, asset impairments and unusual items	112	82	(160)
	<u>11,313</u>	<u>10,916</u>	<u>11,697</u>
Income from operations	<u>2,296</u>	<u>2,045</u>	<u>2,299</u>
Other income (expense):			
Interest expense, net	(376)	(385)	(466)
Loss on early extinguishment of debt	(4)	(555)	—
Equity in net losses of unconsolidated entities	(44)	(38)	(53)
Other, net	(50)	(7)	(29)
	<u>(474)</u>	<u>(985)</u>	<u>(548)</u>
Income before income taxes	1,822	1,060	1,751
Provision for income taxes	642	308	413
Consolidated net income	1,180	752	1,338
Less: Net income (loss) attributable to noncontrolling interests	(2)	(1)	40
Net income attributable to Waste Management, Inc.	<u>\$ 1,182</u>	<u>\$ 753</u>	<u>\$ 1,298</u>
Basic earnings per common share	<u>\$ 2.66</u>	<u>\$ 1.66</u>	<u>\$ 2.80</u>
Diluted earnings per common share	<u>\$ 2.65</u>	<u>\$ 1.65</u>	<u>\$ 2.79</u>
Cash dividends declared per common share	<u>\$ 1.64</u>	<u>\$ 1.54</u>	<u>\$ 1.50</u>

**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME**  
(In Millions)

	Years Ended December 31,		
	2016	2015	2014
Consolidated net income	\$1,180	\$ 752	\$1,338
Other comprehensive income (loss), net of tax provision (benefit):			
Derivative instruments, net	12	9	1
Available-for-sale securities, net	5	(2)	4
Foreign currency translation adjustments	28	(159)	(124)
Post-retirement benefit obligation, net	2	2	(12)
Other comprehensive income (loss), net of tax provision (benefit)	<u>47</u>	<u>(150)</u>	<u>(131)</u>
Comprehensive income	1,227	602	1,207
Less: Comprehensive income (loss) attributable to noncontrolling interests	(2)	(1)	40
Comprehensive income attributable to Waste Management, Inc.	<u>\$1,229</u>	<u>\$ 603</u>	<u>\$1,167</u>

See notes to Consolidated Financial Statements.

**WASTE MANAGEMENT, INC.**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
(In Millions)

	Years Ended December 31.		
	2016	2015	2014
Cash flows from operating activities:			
Consolidated net income	\$ 1,180	\$ 752	\$ 1,338
Adjustments to reconcile consolidated net income to net cash provided by operating activities:			
Depreciation and amortization	1,301	1,245	1,292
Deferred income tax (benefit) provision	73	30	(118)
Interest accretion on landfill liabilities	91	89	88
Interest accretion on and discount rate adjustments to environmental remediation liabilities and recovery assets	—	1	14
Provision for bad debts	42	36	42
Equity-based compensation expense	90	72	65
Excess tax benefits associated with equity-based transactions	(28)	(15)	(5)
Net gain on disposal of assets	(24)	(18)	(35)
(Income) expense from divestitures, asset impairments and other, net	110	87	(127)
Equity in net losses of unconsolidated entities, net of dividends	44	42	42
Loss on early extinguishment of debt	4	555	—
Change in operating assets and liabilities, net of effects of acquisitions and divestitures:			
Receivables	(78)	(178)	(268)
Other current assets	(12)	16	(19)
Other assets	78	(7)	22
Accounts payable and accrued liabilities	174	(112)	117
Deferred revenues and other liabilities	(85)	(97)	(117)
Net cash provided by operating activities	2,960	2,498	2,331
Cash flows from investing activities:			
Acquisitions of businesses, net of cash acquired	(611)	(554)	(35)
Capital expenditures	(1,339)	(1,233)	(1,151)
Proceeds from divestitures of businesses and other assets (net of cash divested)	43	145	2,253
Net receipts from restricted trust and escrow accounts	—	51	19
Investments in unconsolidated entities	(21)	(20)	(33)
Other, net	(4)	3	(58)
Net cash provided by (used in) investing activities	(1,932)	(1,608)	995
Cash flows from financing activities:			
New borrowings	3,057	2,337	2,817
Debt repayments	(2,682)	(2,764)	(3,568)
Premiums paid on early extinguishment of debt	(2)	(555)	—
Common stock repurchase program	(725)	(600)	(600)
Cash dividends	(726)	(695)	(693)
Exercise of common stock options	63	77	93
Excess tax benefits associated with equity-based transactions	28	15	5
Acquisitions of and distributions paid to noncontrolling interests	(1)	(1)	(125)
Other, net	(47)	31	(1)
Net cash used in financing activities	(1,035)	(2,155)	(2,072)
Effect of exchange rate changes on cash and cash equivalents	—	(3)	(5)
Increase (decrease) in cash and cash equivalents	(7)	(1,268)	1,249
Cash and cash equivalents at beginning of year	39	1,307	58
Cash and cash equivalents at end of year	\$ 32	\$ 39	\$ 1,307

See notes to Consolidated Financial Statements.

WASTE MANAGEMENT, INC.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY  
(In Millions, Except Shares in Thousands)

	Waste Management, Inc. Stockholders' Equity								
	Total	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock		Noncontrolling Interests
		Shares	Amounts				Shares	Amounts	
Balance, December 31, 2013	\$6,002	630,282	\$ 6	\$4,596	\$6,289	\$ 154	(165,962)	\$(5,338)	\$ 295
Consolidated net income	1,338	—	—	—	1,298	—	—	—	40
Other comprehensive income (loss), net of tax provision (benefit)	(131)	—	—	—	—	(131)	—	—	—
Cash dividends	(693)	—	—	—	(693)	—	—	—	—
Equity-based compensation transactions, including dividend equivalents, net of tax provision (benefit)	195	—	—	79	(6)	—	3,779	122	—
Common stock repurchase program	(600)	—	—	(180)	—	—	(9,569)	(420)	—
Distributions paid to noncontrolling interests	(34)	—	—	—	—	—	—	—	(34)
Acquisitions of noncontrolling interests and divestiture of Wheelabrator business	(188)	—	—	90	—	—	—	—	(278)
Other, net	—	—	—	—	—	—	7	—	—
Balance, December 31, 2014	\$5,889	630,282	\$ 6	\$4,585	\$6,888	\$ 23	(171,745)	\$(5,636)	\$ 23
Consolidated net income	752	—	—	—	753	—	—	—	(1)
Other comprehensive income (loss), net of tax provision (benefit)	(150)	—	—	—	—	(150)	—	—	—
Cash dividends	(695)	—	—	—	(695)	—	—	—	—
Equity-based compensation transactions, including dividend equivalents, net of tax provision (benefit)	171	—	—	62	(7)	—	3,457	116	—
Common stock repurchase program	(600)	—	—	180	—	—	(14,823)	(780)	—
Other, net	—	—	—	—	—	—	6	—	—
Balance, December 31, 2015	\$5,367	630,282	\$ 6	\$4,827	\$6,939	\$(127)	(183,105)	\$(6,300)	\$ 22
Consolidated net income	1,180	—	—	—	1,182	—	—	—	(2)
Other comprehensive income (loss), net of tax provision (benefit)	47	—	—	—	—	47	—	—	—
Cash dividends	(726)	—	—	—	(726)	—	—	—	—
Equity-based compensation transactions, including dividend equivalents, net of tax provision (benefit)	186	—	—	69	(7)	—	3,556	124	—
Common stock repurchase program	(725)	—	—	(45)	—	—	(11,241)	(680)	—
Other, net	(9)	—	—	(1)	—	—	(177)	(11)	3
Balance, December 31, 2016	\$5,320	630,282	\$ 6	\$4,850	\$7,388	\$ (80)	(190,967)	\$(6,867)	\$ 23

See notes to Consolidated Financial Statements.

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## SECTION 4 – TECHNICAL PROPOSAL

### OVERVIEW

Redwood Landfill, Inc. dba Redwood Landfill and Recycling Center (Redwood) is providing herein both a short-term (3-year base term) and long-term (20-year base term) proposal for management of the SCWMA organic materials under this Organic Materials Processing Services RFP. Both the short-term and long-term services are proposed for processing at the Redwood Landfill and Recycling Center's Covered Aerated Static Pile Composting Facility (CASP). This facility is fully permitted, operational, and in excellent standing with all regulatory agencies. The Redwood CASP currently processes approximately 150,000 tons per year (514 tpd) of organic material into high-quality OMRI Certified finished compost products. Nearly 36,000 tons of this organic material is delivered under SCWMA's current agreement with Redwood, and Redwood is proposing to continue and even grow this existing service. Redwood has adequate capacity to service all the existing organic materials (residential green, food and wood) generated annually by SCWMA, up to 250 tpd (approximately 66,000 tpy). Redwood is also evaluating an expansion of the CASP facility from the currently permitted 514 tpd limit to 750 tpd limit in the next few years if additional feedstock can be acquired. Redwood is confident that it has the necessary capacity to manage 100% of the SCWMA current and future anticipated flows.

The Redwood facility is an important partner in the region and has been providing waste management services to Marin and Sonoma counties for more than 50 years. The landfill opened in 1958, and Redwood began processing organic waste to produce compost in 1996. The eastern edge of the Redwood facility property is located on the boundary of Sonoma County, and the facility entrance is just two miles south of the Sonoma County line directly off Hwy 101. This proximity to Sonoma County and ideal location directly off a major highway not only allow for the safe and efficient receipt of SCWMA organic materials at Redwood, but also allows for the economical redistribution of compost to Sonoma County's local organic farms and wineries. Redwood today is quite possibly the largest supplier of OMRI-certified compost to the southern region of Sonoma County.



Redwood not only provides responsible waste management services to the region, but is also a significant producer of green energy. For nearly 10 years Redwood's administration facilities have been supplied power from a roof-top solar installation on its scale house, and in 2017 Redwood became a net generator of electricity with completion of one of the most environmentally advanced landfill-gas-to-energy facilities in the nation. This facility generates 3.9 MW of continuous electricity, 24 hours per day, which meets the power needs of approximately 5,000 Marin Clean Energy (MCE) customers, of which Redwood is one. This clean power source is estimated to displace 8,900 metric tons of greenhouse gas annually from traditional fossil fuel methane gas-generated electricity. Redwood was recognized as a 2017 Clean Air

Champion by the East Bay Clean Cities Coalition for its "sustained, significant and innovative contributions toward...advancing sustainable and environmentally sound practices..." As chronicled in a [Marin Voice](#) (11.16.17) piece in the Marin Independent Journal, Redwood has a long history of contributing to Marin County and the region's diversion and greenhouse gas reduction goals.



## 4-A. FACILITY

All services are proposed to occur at the Redwood Landfill and Recycling Center facility. Redwood is located in Marin County, two miles south of the Sonoma County line, directly on the east side of Hwy 101. The physical address is 8950 Redwood Highway, Novato, CA 94945. Redwood is a 420-acre facility including a 222-acre landfill footprint, composting, recycling, and ancillary operations. The available usable land for composting activities, not including the landfill footprint, is more than 50 acres. The property is bounded on its eastern side by San Antonio creek and the Sonoma County line. The remaining boundaries of the property are defined by the centerlines of manmade sloughs which drain the neighboring agricultural properties. The facility property is completely flood protected by engineered levees, and the SMART train which connects travelers between Marin and Sonoma crosses the main entrance of the facility.

Redwood Landfill, Inc. is a Delaware corporation incorporated on September 4, 1991. Our corporate address is 1001 Fannin, Suite 4000, Houston, TX 77002. Our local business address is 8950 Redwood Highway, Novato CA 94945 (P.O. Box 793, Novato CA 94948). Redwood Landfill, Inc. is a wholly owned subsidiary of USA Waste of California, Inc., a Delaware corporation, which in turn is wholly owned by Waste Management Holdings, Inc., a Delaware corporation, which in turn is wholly owned by Waste Management, Inc., a Delaware corporation. There are no creditors that are owed more than 10% of the value of the total assets.

Contact Information for Redwood Landfill, Inc.:

Ramin Khany, District Manager

Redwood Landfill and Recycling Center

8950 Redwood Highway

Novato, CA 94948

Mailing Address:

P.O. Box 793

Novato, CA 94945

Tel: (415) 892-2851

Fax: (415) 898-1354

Cell: (510) 850-3791

Email: [rhkany@wm.com](mailto:rhkany@wm.com)

## COVERED AERATED STATIC PILE COMPOSTING (CASP) TECHNOLOGY

Redwood began composting in 1996 utilizing technologies available at the time, including open windrow composting. In 2014, Redwood completed construction of a state-of-the-art Covered Aerated Static Pile Composting Facility (CASP). The new CASP allowed Redwood to significantly reduce air emissions over the traditional windrow composting method, while increasing the facility permitted throughput to 514 tpd. The CASP is superior to traditional composting methods such as windrows because air is mechanically added to the piles as needed based on continuous temperature monitoring, and a

biological “cap” or “cover” of compost is placed over the pile to significantly reduce the previously uncontrolled emissions.

The Bay Area Air Quality Management District (BAAQMD) recently identified the CASP process utilized at Redwood as the Best Available Control Technology (BACT) to mitigate harmful emissions from the composting process. This technology is the new minimum standard and will allow Redwood to continue to manage organics into the future in full compliance with BAAQMD requirements. BACT is not a static process however, and new facilities applying for permits in the future may have even more requirements imposed on their operations.

The CASP composting process at Redwood consists of multiple phases. These include feedstock receiving and processing, active composting, curing, screening and storing finished compost prior to sale. There are over 50 acres available at the Redwood facility for composting activities. The active composting area features a 9-acre paved pad where receiving, grinding, and active composting occur. Once active composting is complete, the materials are moved to a curing area, and then final screening and finished compost storage may occur on other portions of the Redwood facility property until products are sold.



Composting is the biological decomposition of organic material under aerobic (in the presence of oxygen) conditions. Composting is a self-limiting biological process. Conditions that limit the microbial population include: nutrient availability, temperature, aeration, moisture content, and pH. The composting process requires that microorganisms be supplied with the primary nutrients carbon and nitrogen. Carbon to nitrogen ratios (C/N), which range from 20 to 30:1, are considered optimal for microorganisms. The more the C/N ratio deviates from this range, the slower the decomposition process becomes. With a ratio greater than 40 to 1, nitrogen represents a limiting factor and the reaction rate slows. With a C/N ratio lower than 15 to 1, excess nitrogen is driven off as ammonia. While this loss of nitrogen is not detrimental to the decomposition process, it does lower the nutrient value of the compost product.

**Feedstock:** The Redwood CASP is permitted to receive a variety of composting feedstocks including green wastes, food wastes, and clean wood wastes. Currently, compost feedstock received is predominately composed of tree prunings, leaves, grass clippings, and a small percentage of food waste. Leaves generally have a high C/N ratio. Lawn clippings lack structure to maintain porosity for aeration but have a favorable C/N ratio and moisture content for composting as does food waste. Redwood’s compost “recipe” will benefit as the participation in residential food waste collection programs increases over time, however the recipe received today yields an excellent finished compost product.



**Grinding:** In preparation for the active composting phase, feedstock materials are pre-processed by grinding. Grinding of the feedstock reduces the volume of material, increases the surface area to promote biological decomposition, and provides a relatively uniform mixture of material and particle size. Feedstock may consist of any organic materials including green waste, clean dimensional lumber, agricultural materials (such as grape pomace), and food wastes. The amounts of these materials which make-up the



feedstock “recipe” are critical for both carbon/nitrogen ratio and most importantly bulk density. Redwood’s experience with the materials generated in the region is green waste materials are ideal, with small percentages of food waste introduced to the mixture. High percentages of food waste or other similar high-density feedstocks of the total recipe (typically over 20%), may lead to feedstock that is too dense and does not allow for proper airflow through the CASP. Bulking materials such as compost overs or wood waste can be added to increase the bulk density as required, however these materials also reduce the amount of capacity available for new inbound feedstocks.

**Temperature & Moisture Control:** The composting process produces heat as a result of bacteriological metabolism. Initially, the heat generated by mesophilic bacteria elevates the temperature to about 50°C (122°F) or more. As the mesophilic bacteria population decreases due to the high temperature, thermophilic bacteria take over and elevate the temperature up to 60°C (140°F) or more. Over time and under the proper environmental conditions (i.e. the presence of oxygen, water, and nutrients), the microorganisms are self-limiting and the temperature stabilizes at between 55°C (131°F) and 75°C (167°F).

Temperatures are monitored to ensure that the prescribed regulatory period of 72 consecutive hours at no less than 55°C (131°F) are met for the Process to Further Reduce Pathogens (PFRP). Maintaining the proper moisture content for a composting pile is also important; for the composting operations, the optimum water content lies around 50 percent. If the pile is too dry, the microbes go dormant; therefore, moisture is added to the feedstock prior to inclusion into the CASP operation in order to maintain the proper water content. If the pile is too wet, saturated conditions can cause the pile to become anaerobic due to lack of oxygen circulation. The optimum pH for composting is between 6.0 and 7.5 (near neutral).

**Composting:** Following grinding, the materials are placed in piles approximately 90-feet long by 30-feet wide and approximately 10-feet in height. The piles are constructed using a loader to stack the material. Underlying the piles are perforated pipes which provide positive aeration to the bottom of the piles from adjacent air handling units or “blowers”. After the piles are constructed, they are covered with a minimum of six-inches of compost material which acts as a biofilter which reduces harmful emissions and potential odors. The compost cover itself is moisture conditioned through the active composting phase as needed to maintain its effectiveness in controlling emissions and odors.

The CASP aeration process is highly automated and controlled. The composting piles are instrumented with wireless automated temperature probes for ongoing temperature monitoring throughout the active composting process. Based on monitoring and operational protocol, the aeration system is activated to induce airflows through the CASP. The aeration timing and flow rates are varied as needed to optimize the composting process and minimize odors. Composting piles remain on the pad for three to five weeks prior to being moved to the curing area, with variation in composting time depending on feedstock composition, temperature, moisture, season of the year, and stability of the compost at the end of the active phase.



**Curing:** When the active composting phase is complete, the curing phase begins. The composting piles are dismantled and hauled to the curing area. Curing allows the compost material to mature and is essential in the development of a high-quality product. Curing piles are constructed with front loaders and are approximately 24 feet wide and 15 feet high. Material placed in the curing area will typically cure for 3 months or more. Moisture may also be added to the curing windrows as needed to maintain suitable curing conditions and control dust. After the curing process, the composted materials are screened based on customer demand, but typically to 3/8 inch and smaller, to remove oversize particles and contaminants (plastic, glass, etc.) and provide a final compost product specific for its end use.

**Screening:** Through this process an over-sized finished compost (>3/8 inch typically) is also produced through the screening effort. This material is typically referred to as “overs” and they generally consist of composted pieces of woody material. There are many uses for “overs” such a composted mulch, biofilter media, erosion control, compost bulking agent, soil amendment but due to the rather low nitrogen content and size of this material the value tends to be significantly less than the unders fraction. In addition, film plastic contaminants are a common problem in composting residential wastes and film plastics tend to be concentrated into the overs fraction of the finished compost process. Because of this contamination some end uses may be limited with regard to overs. Eventually, through additional processing and screening contamination of overs may become so high that only landfill ADC or disposal is viable as an end use of overs. Overs are not generally considered a residual; they are a valuable part of the finished compost. But depending on inbound feedstock contamination and the natural process of concentrating film plastics into the overs fraction through screening a portion of overs will generally end up as landfill ADC due to this contamination.



Redwood receives materials from various customers including the public of Sonoma and Marin Counties, and has a proven track record for operating a successful composting business for decades. Our focus is to acquire the highest quality feedstocks possible to limit contamination in compost, produce the highest possible quality compost, and to retain our OMRI certification. For this reason, Redwood may be permitted to accept certain waste streams, such as commercial food, but our experience has been that many of these waste streams are far too contaminated to make them viable to introduce to our CASP process.

## REQUIRED ENTITLEMENTS

Redwood is fully licensed and permitted to operate as a non-hazardous Class III waste disposal and CASP composting facility for materials originating both in and outside of Marin County. A description of the government permits, licenses and entitlements follows. Redwood's landfill and CASP operations both have separate Full Solid Waste Facility Permits (SWFP) and the CASP facility's Report of Composting Site Information (RCSI), the document describing that operation, is incorporated by reference into the CASP SWFP. Since disposal of contaminants and residuals from the composting feedstock is an option in this proposal, this chart below includes both the permitting information for the landfill operation and the composting. Some permits, including land use entitlements and air permits are issued facility-wide and not unique to just one operation at the facility.

PERMIT SUMMARY TABLE

Permit Title	Regulatory Agency	Permit Authority	Date of Permit	Contact Person
<b>WATER QUALITY</b>				
Waste Discharge Requirements, Order No. R2-2009-0053	CRWQCB	SWRCB Resolution No. 93-62 implementing Parts 257 and 258 of Title 40 CFR (Subtitle D).	22 July 2009	Vic Pal 510-622-2403
Hazardous Waste and Hazardous Materials Management Regulatory Program Permit	Marin County Department of Public Works		31 December 2017	Eric Lueder 415-499-6647
NPDES General Industrial Activities Stormwater Discharge Permit	CRWQCB	Federal Regulation	July 1, 2015	Vic Pal 510-622-2403
Solid Waste Assessment Test Approval-Water Quality	CRWQCB	California Water Code Section 13273	1 March 1993	Vic Pal 510-622-2403
<b>AIR QUALITY</b>				
Permit to Operate No. 1179 for solid waste landfill operation, sewage sludge processing, gasoline dispensing facilities, and the landfill gas collection and flaring system.	BAAQMD	Regulation 8, Rule 34. Control of Volatile Organic Compound Emissions from Landfills.	01 January 2017	Richard Murray 415.74 9.8405
Solid Waste Assessment Test Approval - Air Quality	BAAQMD	California Health and Safety Code Section 48505.5.	1994	Richard Murray 415.74 9.8405
<b>LAND USE AND PLANNING</b>				
Conditional Use Permit	Marin County Community Development Agency	Marin County Land Use Plan	4 March 1958	Inga Lumdegard 415-499-7023
General Plan Consistency	Marin County Community Development Agency	Marin County Land Use Plan	Filed 27 March 1990	Inga Lumdegard 415-499-7023
Zoning Consistency	Marin County Community Development Agency	Marin County Land Use Plan	Filed 27 March 1990	Inga Lumdegard 415-499-7023
<b>PUBLIC AND ENVIRONMENTAL HEALTH</b>				

SWFP 21-AA-001 (Includes Composting Operation)	EA with concurrence from the CIWMB	Chapter 3 of Title 14 CCR. Minimum Standards for the Handling and Disposal of Solid Waste.	18 December 2014	Cynthia Granicher 415- 473-4233
EIR Certification	Marin County Community Development Agency	CEQA, Section 2100 et. seq., of Public Resource Code	10 June 2008	Timothy Haddad 415-499-6274
<b>GENERAL</b>				
Landfill Perimeter Clearance Statement	Novato Fire Protection District	Public Resources Code	1 October 1994	Lori Jessell 415-878-2690

**Notes:**

BAAQMD Bay Area Air Quality Management Board  
CCR California Code of Regulations  
CEQA California Environmental Quality Act  
CFR Code of Federal Regulations  
CFR Code of Federal Regulations  
CIWMB California Integrated Waste Management Board  
CRWQCB California Regional Water Quality Control Board

EA Marin County Community Development Agency; Environmental  
Health Services Department is the designated Enforcement Agency  
EIR Environmental Impact Report  
NPDES National Pollutant Discharge Elimination System  
NPDES National Pollutant Discharge Elimination System  
SWFP Solid Waste Facility Permit  
SWRCB California State Water Resources Control Board

As part of Redwood's current agreement with SCWMA, approximately 36,000 tons per year of organic materials are delivered and processed into compost annually. Redwood's benefit of being a fully permitted facility will allow for essentially no ramp-up time upon award of the contract. We are ready and permitted to receive up to 250 tons per day of organic materials from SCWMA. Delivery of SCWMA organic materials for composting may begin as soon as requested by SCWMA.

## RECOVERY RATES

Redwood composts essentially 100 percent of the compostable organic materials received for processing. Due to our focus on acquiring high quality feedstocks (generally considered to be less than 1% contamination by weight) we generate very little residual. The residual that is generated is usually comprised of trash or contamination pulled out in bulk on the front end when the load is delivered. Because we pull contamination out in bulk there is always some de minimus amounts of organic matter that is included in the residuals being removed. Items that are identified as contaminants, as defined per the Agreement such as plastics and glass, are typically removed from the feedstock prior to processing; however, these materials historically make up less than 1 percent of the inbound SCWMA organic materials received. Contaminants have generally not been an issue for the SCWMA feedstock but other feedstocks accepted at Redwood do contain higher levels of contamination. Contaminants which must be removed prior to composting are tracked and disposed in as required under Redwood's solid waste facilities permits for both the composting and landfill operations. Once contaminants have been selectively removed from a feedstock source all materials received at the facility are pushed together and ground to form a composite material which is then placed into the active compost piles.

Once the organic materials are placed into the CASP operation, they will complete the composting process and produce compost materials including screened finished compost (screened typically to less than 3/8-inch particle size) and compost materials that are oversized or compost "overs". Although the oversized finished compost screened to more than 3/8-inch and less than 6-inches is a compost product, because of its size and the concentrations of contaminants (usually film plastic) typically seen in this



fraction, the value and end markets for this material is typically very different compared to the under 3/8-inch finished compost product fraction. Typical uses for “overs” includes use as a biofilter on new compost piles, biofuel, bulking agent for feedstock, composted mulch, erosion control on slopes, soil amendments, etc. In addition, depending on the quality of the combined feedstocks accepted at the site, the amount of contaminants concentrated into the overs during the compost process may render the only feasible end use for overs as landfill ADC or disposal. Redwood typically avoids using overs as landfill ADC unless there are no other viable options available for the material. Because Redwood accepts feedstocks from several different sources and blends them all into one compost process the quality of the overs derived from the compost process is not solely related to the quality of the SCWMA feedstock. The screening process typically concentrates contaminants such as film plastic into the overs fraction of the finished compost. Therefore, because of the overall contamination level received in the sites’ aggregated feedstock, Redwood does expect that overs will continue to have high levels of contaminants (typically film plastic) which will render overs unable to be used for many purposes other than landfill ADC. In many cases, the only viable option for these overs will be landfill ADC or disposal in extreme cases.

If there is an exception to the typical compost process then this will be logged and reported as required to both the affected customer when applicable, and the regulatory agencies. Exceptions may include but are not limited to situations such as feedstock that becomes contaminated in a manner that may not be separated like spilled liquid contaminants, invasive species identified that may not be composted, odorous load that has gone anaerobic prior to receipt at Redwood, or other situation where regulators or operators determine disposal of the materials is the only viable option. Redwood encounters situations like this at most a few times a year, and these events are recorded and reported as required. SCWMA may also receive a record of these events if requested to ensure that they are isolated and not a common practice having an impact on overall site recovery rates.

## RECEIPT OF MATERIALS

Redwood is a fully permitted solid waste management facility and as such has a manned scale house with both inbound and outbound scales. All material received for processing enters through the scale house facility and are tracked for both amount delivered and material type. Loads are also observed for contaminants and other unacceptable materials and managed as appropriate. Redwood’s CASP solid waste facility permit also mandates regulatory required load checks and observance of materials received. Records of types and amounts of materials accepted are tracked and provided to the regulatory agencies and customers as requested and required per associated contracts and operating permits.

Redwood produces only one line of finished compost, WM EarthCare Homegrown Compost, which is OMRI-listed, CDFA-labeled and a US Composting STA program participant. Our commitment to producing organic farming quality compost has fostered a strong following among Sonoma County vineyards, landscapers and materials yards. As a result, for the purposes of this proposal, we will only accept materials defined in Section 3.3 as (1) wood waste, (2) green waste and (3) mixed organic materials.

Upon award of this proposal, Redwood will continue to provide SCWMA records of materials received and processed as is done currently. A customer material report will be provided per the terms in Section 3.3 of this RFP. A sample report is provided herein.

## HOURS OF OPERATION

The Redwood facility provides multiple waste management services in addition to composting. This allows for Redwood to offer longer operating hours for receipt of materials from commercial customers. Composting operations typically occur Monday through Saturday during daytime hours, however the facility is permitted for sitewide operations 24 hours per day 7 days per week. Receipt of composting materials for commercial customers is midnight to 3:00pm Monday – Friday, and midnight to 3:30pm Saturdays. The facility will close at noon to commercial customers on Memorial Day, 4<sup>th</sup> of July, Labor Day, and Thanksgiving when these days do not fall on a Sunday. The facility is closed to commercial customers on Sundays, New Year’s Day, and Christmas Day.

The facility is open to the public during general business hours (7:00 a.m. to 3:00 p.m. Monday through Friday, and from 8:00 a.m. to 3:30 p.m. on Saturday). The facility is closed to the public on Sundays, New Year’s Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day. Purchase and loading of compost and other materials from the CASP operations are the same as the operating hours listed above for both public and commercial customers.

## SITE CONDITIONS AND PERMIT DOCUMENTS

The Redwood CASP is a fully permitted existing facility. The operation has completed full environmental review under CEQA, has all required land use entitlements, and is in excellent standing with the permitting agencies which regulate this industrial operation. For a complete list of permits and approvals see the permit summary table provided herein.

The Redwood CASP permitting documents include a Land Use Permit issued by the County of Marin, an approved Report of Composting Site Information (RCSI) as required per the Solid Waste Facilities Permit, approved Odor Impact Minimization Plan as an attachment to the RCSI, Storm Water Pollution Prevention Plan (SWPPP) as required per the General Industrial Storm Water Permit. Erosion and sediment control are addressed in the SWPPP, and potential noise mitigation issues are addressed in the RCSI. These documents are on file with the approval agencies and/or copies can be provided by Redwood upon request. A complete list of permits and approval is provided in the permit summary table provided herein.

## MATERIALS MANAGEMENT PROTOCOLS

Compliance with Redwood’s operating permits requires all materials are managed in a timely manner. All green waste feedstock material received must be processed within 72 hours of receipt so that it does not decompose in the storage piles and generate potential odors. Any loads containing primarily food material are processed within 24 hours of receipt. In the event of an equipment breakdown or other unforeseeable circumstance that would prevent the processing of green waste within 72 hours or food



waste within 24 hours, material may be stockpiled for no more than seven days. Should feedstock not be processed within the time specified per material, the materials will be covered with finished compost to mitigate odors, or rental equipment will be obtained to process materials while the broken equipment is fixed.

All open bed trucks are visually inspected at the scale house prior to acceptance and unsuitable materials are rejected or redirected. At a minimum, 1 truck per day or 1 percent of daily incoming feedstock volume delivered in closed containers/trucks, whichever is greater, is visually inspected at the receiving area of the compost pad by Redwood. If through a visual inspection load check indicates a contamination level greater than 1 percent by weight, the load is rejected or sent for disposal at the working face of the Landfill or will be sent back to the Central Landfill in the case of SCWMA flow as defined in the agreement.

RLI keeps a dated record of the material throughput in a BAAQMD-approved logbook. Material throughput is totaled on a monthly basis, and is available to the LEA staff for inspection per Redwood's Permit to Operate.

## OVERS MANAGEMENT

Oversize materials, or compost "overs" have multiple potential end uses. Redwood's primary objective is to produce and sell 100 percent of the materials generated from the composting process (including overs), and when the materials generated have an end use customer this occurs. These overs materials are also occasionally mixed back into the compost process as a bulking agent for feedstock that is too dense to place on the CASP or as space allows in the composting facility. When the overs material is of a poor quality due to contamination which does not qualify it for an end use, including even offering the materials free of charge to potential customers, the overs may be utilized at a landfill facility for a beneficial reuse. This includes use as a landfill Alternative Daily Cover (ADC) or as mulch for erosion control on the interim landfill slopes to reduce run-off and improve water quality. These specific end uses (landfill ADC, erosion protection, and other beneficial re-use) qualify as diversion as recognized by CalRecycle and local jurisdictions in the region. On average by weight, the compost overs account for approximately 30% of the inbound materials received for composting and are an important part of the compost process in that they help improve aeration, porosity, and bulk density of the active compost piles.

Redwood recognizes the desire of SCWMA to find even more end markets for all materials produced from the composting process, and Redwood will continue to work with SCWMA on this topic to develop new processing and screening methods to maximize the amount of sellable product from the process. Redwood will also work with its customer base to generate materials suitable for new end uses and improve feedstock quality. To this end Redwood is willing to offer SCWMA that any Overs not able to be sold will be provided to SCWMA free of charge for their use. Reduction of contamination in the finished compost overs continues to be of high concern to Redwood. To date however, Redwood has not found an economically viable back end solution to the contamination problem in the overs fraction and we continue to focus on improving upfront feedstock quality. For this reason, the site does limit acceptance of certain feedstocks, such as commercial food, due to quality and contamination concerns in addition

to OMRI certification problems it creates. Redwood has also evaluated a number of back-end screening and separation techniques in the past with no success and currently has no plans to install additional mechanical separation or sorting systems to the overs fraction.

## COMPOST PRODUCTS

One hundred percent of the compost produced at Redwood's CASP facility is approved for organic farming. Our WM EarthCare Homegrown Compost is OMRI-listed, CDFA-registered and tested per the testing protocols of the US Composting Seal of Testing Assurance (STA) program. Redwood has been producing OMRI listed compost since 2011, and plans to maintain this certification with the continued acceptance of compostable materials from Sonoma under this agreement.

More than 40 percent of the nearly 60,000 yards of Homegrown Compost produced in 2017 was sold to Sonoma County vineyards, soil yards and landscapers. Among our loyal customers are:

Soil and Company, owners of Grab 'n Grow	Wilbur Ellis Agribusiness
Sonoma Marin Landscape Materials	Ricci Vineyards
Wheeler Zamaroni Landscape Supplies	Kirk Ranch Vineyards
MIX Garden Materials	Renteria Vineyard Management
Landesign Inc	Radio Coteau
Capri Creek Habitat Restoration	Elysian Wines

Since introducing the WM EarthCare brand in 2010, Redwood has had a dedicated salesperson and marketing program. Our sole focus is to produce locally sourced, 100 percent recycled landscape materials for gardeners, growers and landscapers in Marin, Sonoma, Napa, Alameda and Santa Clara counties. We produce OMRI-listed WM EarthCare Homegrown Compost as well as mulch, aggregate and soil blends for retail and wholesale at our four Bay Area landscape centers. In addition, we allocate 500 cubic yards of compost or mulch for donation annually and promote the program via our website: [wmeearthcare.com](http://wmeearthcare.com) and word-of-mouth.

Casa Grande High School in Petaluma along with schools in Novato have been regular recipients of compost donations. As part of our marketing strategy, our sales person is an active member of Sonoma County Winegrowers, Sonoma County Farm Bureau and a past member of the Petaluma Gap Winegrowers Alliance.



For the past three years, Redwood has sold out of its compost every year, even as our output increased with the installation of the CASP. Our commitment to producing quality compost has resulted in a strong customer base that returns each year even when the price increases.

## CERTIFICATIONS & HONORS

WM EARTHCARE™ CERTIFICATIONSWM EarthCare™



Homegrown Compost carries the US Composting Council's Seal of Testing Assurance (STA) and is Organic Materials Review Institute (OMRI) listed as well as registered with the California Department of Food and Agriculture (CDFA).

In order to carry the US Composting Council's Seal of Testing Assurance, a large volume composter such as Redwood must agree to test at a minimum monthly the product produced at their facility. Compost carrying the USCC STA must be tested for properties far and above those required by regulation. In addition to screening for the minimum requirements of pathogens, metals, and contaminants, STA composters use an independent, third-party laboratory approved by the US Composting Council to test for:

- pH
- Soluble salts
- Nutrient content (total n, p2o5, k2o, ca, mg)
- Moisture content
- Organic matter content
- Bioassay (maturity)
- Stability (respirometry)
- Particle size

STA composters must make their testing results available to the public in an easy to read standardized format. The US Composting Council's Seal of Testing Assurance Program (STA) is a compost testing, labeling and information disclosure program designed to give you the information you need to get the maximum benefit from the use of compost.

OMRI is a non-profit organization that reviews products in accordance with the National Organics Program (NOP) standards. Products that meet or exceed NOP standards are listed by OMRI as being acceptable for use in the production of organic crops. OMRI requires that extensive documentation be submitted in order to support a product's claim that it is suitable for use in organic production.

In January 1, 2012, the California Department of Food and Agriculture (CDFA) secured oversight of compost that makes a nutrient claim or makes the claim that it is acceptable for use in the production of organic crops. Any compost making those claims must be registered with the CDFA and have its label explicitly approved by the CDFA. Under its brand name, WM EarthCare™ Homegrown Compost, Redwood's compost qualifies as an Organic Input Material. Compliance involved supplying the CDFA with feedstock test results, documentation of the origin of feedstocks, compost test results, description

of the production process, directions for use, and a label that very strictly adheres to CDFA regulations. Those registered with CDFA must submit to production and records inspections by the CDFA as well as allow CDFA to independently test their products.



In 2014, Alameda County's StopWaste awarded WM EarthCare Homegrown Compost its Business Efficiency Award, recognizing its efforts to improve environmental performance.

As previously mentioned, Redwood Landfill received a 2017 Clean Air Champion Award from the East Bay Clean Cities Coalition recognizing its "sustainable and environmentally sound practices."



## CHANGING REGULATORY REQUIREMENTS

Redwood began the first large-scale commercial composting operation in Marin County over 20 years ago. Since that time the regulatory environment has continued to change and evolve, and the technology used at that time is no longer adequate to meet the strict regulatory conditions imposed on organics waste management facilities. Redwood, and Redwood's parent company Waste Management, continue to be an active participation in the development of new regulations at the state and federal level, and support regulations that work to further protect human health and the natural environment. Redwood continues to strive to stay ahead of potential future changes and not get caught flat-footed. Redwood's track record of significant capital improvements proves this with construction of a multi-million-dollar lined class II containment pad for the composting operation back in 2006, construction of a new class II contact water impoundment in 2013, and conversion from windrow composting to a state-of-the-art CASP facility in 2014. Redwood continues to plan for future improvements including increasing the capacity of the current facility, and Redwood's parent company Waste Management has the financial backing to allow for these significant capital improvements.

## PROPOSAL TERMS

The Redwood CASP is currently permitted to received up to 514 tons per day of organic materials for composting and is operating at or near full capacity. Redwood will redirect some of the internal current flows to make room for up to 100% of the SCWMA's flow if awarded to the site. SCWMA currently delivers approximately 120 tons per day (approximately 36,000 tons annually) for processing in the CASP. Redwood has capacity to accept up to 250 tpd (wood waste, green waste, and mixed materials) or 100% of SCWMA's flow, whichever is less. Redwood is proposing to continue to manage SCWMA's organic materials under both a short-term (3-year) and long-term (20-year) agreement. The materials delivered may be up to a maximum of 250 tpd (66,000 tons per year) or 100 percent. Pricing for the various flow levels is shown on the pricing tables. Contracted flow rates are the sum of all materials accepted and not individual material types. Pricing is contingent upon having some mechanism in place to ensure the flow will be delivered to the site.

Redwood will reserve capacity for the contracted SCWMA tons if SCWMA, its Member Agencies, or some other form of guarantee mechanism can be developed acceptable to both parties. Since Redwood is currently at capacity and it is willing to redirect certain internal flows to ensure it can provide

additional capacity for up to 250 tons per day for SCWMA, it is essential to Redwood it can continue to efficiently and completely utilize its full permitted capacity of 514 tons per day. Therefore, some form a capacity guarantee by the SCWMA, its Member Agencies, or through some other mechanism will be necessary or Redwood will retain the right to sell or otherwise commit its permitted capacity to other customers who are willing to provide such a guarantee during the contract term.

Although there is little prior history of the SCWMA delivering high contamination levels in the feedstock to Redwood, in the event that high contamination is received a disposal rate of \$72 per ton will be applied to all materials disposed of at the Redwood Landfill. Our experience has been the SCWMA feedstock contains far less than 1% contamination typically.

Loads received with contamination levels over 1% by weight as determined through visual inspection will be rejected and not accepted and per regulation are not considered compostable feedstock. SCWMA will be responsible to remove the waste and either dispose of the material at the Redwood Landfill and pay the disposal rate or haul the material to another facility. Material with contamination of greater than 1% by weight is not considered compostable feedstock by CalRecycle and the composting regulations. Redwood is unable to further process this material to render it acceptable, however we are able to dispose of the load or a portion of the load at Redwood if SCWMA desires. If not the rejected load can be redirected to another facility. Contaminated loads of greater than 1% will be the responsibility of SCWMA and not accepted at the Redwood CASP.

Loads containing less than 1% contamination are considered compostable feedstock and are anticipated to be processed as delivered. Any contaminants that may be removed from accepted loads by Redwood during or after the compost process are considered generated by Redwood (i.e. the origin of the residual is Redwood) and will be the responsibility of Redwood to dispose or further process as necessary. This is typically a very small amount of material due to the high quality of feedstocks accepted. The costs associated with managing these contaminants is included in the pricing listed on the pricing forms for composting services.

Residuals produced, if any, from loads that have less than 1% contamination will be considered to have an origin of Redwood Landfill and will be managed by Redwood under its permitted approvals and utilized as landfill ADC or disposed as appropriate. Overs are considered finished compost and not residuals and will be utilized in the ways described in the above section.

Redwood does not have any pending or ongoing litigation around the facility permits or existing customer agreements, and does not anticipate any future litigation.

## ACCESS FOR NON-SCWMA CUSTOMERS

Both the Redwood landfill and CASP operations are open to the public for receipt of acceptable materials. The CASP receives organic materials for processing from both commercial customers under contracts with Redwood, and public customers. Due to Redwood's proximity, public from both Marin and Sonoma Counties utilize the facility for both delivery of organic materials for composting, and to purchase compost for use in homes and businesses in the area. The facility is open to the public 6 days

per week during normal business hours. See the hours of operation section in this proposal for specific hours and holiday closures.

#### 4-B. SAFETY

Redwood feels safety should weigh heavily in the selection of a responsible vendor. All facility operations at Redwood are run with safety as the number one priority, and WM has a zero tolerance policy for violation of WM's Life Critical Rules. The Redwood facility as a whole including maintenance, landfiling, and composting has maintained an average of less than one OSHA recordable injury per year. The composting operation specifically has maintained a record of zero OSHA recordable injuries for the past five years. More details on WM safety record and policies will be provided upon request.

Redwood Landfill is accessed from Highway 101 via a private two-lane paved landfill access road. To improve traffic conditions and public safety, Redwood fully-funded construction of a highway overcrossing in 2006 for vehicles using the landfill. With the additional recent upgrades to the frontage roads near Redwood there are no improvements required or necessary to access the facility safely and efficiently.

From the perspective of management of contaminants and hazardous waste, Redwood has the distinct advantage and expertise of also operating a fully permitted Class III landfill at the same facility. Redwood's hazardous waste management plan is utilized for not just the landfill, but facility wide including all materials received and managed as part of the CASP operation at the site.

#### 4-C. REPORTING

Redwood will continue to provide the level of reporting currently provided to SCWMA, under the existing organics processing agreement. This includes reporting of materials received and processed on a monthly and quarterly basis. Redwood maintains detailed records which track receipt and material type of all materials received through the scale house facility. Redwood will work with SCWMA to provide this data in a reasonable format as required. Additionally, Redwood has an excellent history of minimal complaints from the community and public. All complaints are addressed and followed-up upon as required per Redwood's permit requirements, and Redwood maintains a log of all complaints and will make this information available to SCWMA upon request.

#### 4-D. OPERATIONS

##### SCALE PROCEDURES

Redwood receives loads through its scale house facility for both disposal and composting operations. There is little to no waiting time for commercial customers utilizing the scales, and tipping at the composting operation also has a very quick turn-around for unloading of materials. Open top trucks such as end dumps, roll-off containers, and walking floors are untarped prior to entering the scales, visually inspected with cameras by scale personnel and/or inspected by operators at the unloading area on the compost pad. Unsuitable loads are identified and either rejected or redirected to the landfill for



disposal. At a minimum, 1 truck per day or 1 percent of daily incoming feedstock volume delivered in closed containers/trucks, whichever is greater, is visually inspected at the receiving area of the compost pad by Redwood personnel during unloading. If a visual load check indicates a contamination level greater than 1 percent by weight, the load is rejected or sent for disposal at the working face of the landfill. RLI keeps a dated record of the material throughput in a BAAQMD-approved logbook. Material throughput is totaled on a monthly basis, and is available to the LEA staff for inspection per RLI's PTO.

## FUEL TYPE

The primary fuel used for on-site equipment is low sulfur diesel. All new equipment is required to meet the emissions thresholds set by BAAQMD. Redwood also maintains an Equipment Check-up & Service Maintenance Program to ensure equipment is in proper working order and diesel emissions are kept to a minimum.

## LABOR

In an environment where labor is typically unionized, Redwood has always been and continues to be a facility with employees who are not represented by collective bargaining agreements. Redwood maintains this non-union environment through equitable pay and a respectful and professional relationship between employees and management. There is no history of service interruptions due to labor actions and there is no reason to anticipate this will occur in the future.

## 4-E. SUSTAINABILITY

The Redwood facility is an industry leader in sustainability and the site maintains a detailed greenhouse gas reduction plan as part of its long-term planning and operations. All organics materials received for composting are processed, site operations are run on clean energy generated from the landfill, and heavy equipment emissions are minimized through investments in new heavy equipment and a detailed maintenance plan. Redwood's CASP operation minimizes harmful emissions from composting and is considered BACT by the BAAQMD, and Redwood's proximity to Sonoma for both receipt of feedstock materials and sales back into the community reduces the emissions associated with long-haul of organic materials to far-away facilities for processing.

## ENVIRONMENTAL PROTECTION

Redwood's active CASP composting pad is a fully-lined and permitted Class II waste impoundment permitted by the San Francisco Regional Water Quality Control Board (RWQCB). All waste materials are full contained and managed on the active CASP pad. Storm water that contacts the inbound waste materials and active CASP is managed as contact water and is fully contained and collected on the lined compost pad. The contact water is conveyed to a class II impoundment contact water pond to ensure zero discharge of contact water from CASP active area both through surface and subsurface conditions. Other related compost activities that occur outside the fully-contained CASP pad occur are conveyed to a 20-acre storm water impoundment on the south portion of the facility property.

Storm water management at Redwood consists of drainage, erosion and sediment control measures. Permanent and major temporary diversion and drainage facilities are designed and constructed to

accommodate the anticipated volume of precipitation and peak flow from surface run-off associated with precipitation of the 100-year, 24-hour duration storm event. Drainage ditches, culverts, and cross drains are designed to accommodate peak flows. The non-contact storm water from both the landfill and finished compost storage and ancillary composting activities is directed toward discharge locations along the perimeter levee road, or to the surface water sedimentation pond on the southern end of the facility property.

As required by the site's NPDES General Permit, Redwood has prepared a SWPPP (Storm Water Pollution Prevention Plan) that specifies site specific Best Management Practices (BMPs) be implemented to protect waters of the state, in this case San Antonio Creek and the surrounding sloughs and wetlands. Implementation of the BMPs complies with Title 27 regulations for precipitation and drainage control. Storm water discharges are monitored in accordance with the NPDES General Industry Permit and the site-specific Monitoring and Reporting Plan. Samples are collected periodically from various discharge points during storm events. The collected samples are analyzed for selected constituents and annual reports of findings are submitted to the RWQCB.

The Redwood facility location is ideal not only in its proximity to Sonoma County, but also with regards to its distance from residential neighborhoods. Redwood is bounded by unoccupied wetlands to the east, agricultural land to the west, and land owned by the Audubon Society to the north and south. Redwood also enjoys direct access through private road onto Highway 101. No City or County Roads are used to access the Redwood facility. Redwood has an excellent relationship with its host community Marin County, and adjacent land owners. Redwood is required by multiple regulations to ensure potential off-site nuisances do not impact the surrounding communities. These include potential issues such as dust, litter, vectors, noise, and odor from both the landfill and composting operations. Dust control is accomplished by spraying water on unpaved haul roads throughout each day of dry weather operation. Redwood retains an outside contractor who uses trained falcons to deter gulls from the landfill and composting operations. Redwood employs a full-time litter picker to continuously collect litter from the site and surrounding area. Equipment noise is controlled by a comprehensive maintenance program that includes repair of defective muffler and exhaust systems. And odors are controlled by the proper and timely management of feedstock in the composting area and proper aeration of the compost piles. Redwood's record of compliance with potential nuisance issues is excellent and has received no confirmed odor complaints for over 10 years.

As part of Redwood's environmental compliance requirements, the Redwood facility also maintains a Greenhouse Gas Reduction Plan which outlines the facility's efforts to reduce greenhouse gas emissions. Redwood is required to reduce greenhouse gas emissions facility-wide by 15% of its baseline emission levels in 1990. The most significant projects implemented as part of this plan are the increased composting throughput with construction of the CASP in 2014, solar energy production from the scale house rooftop solar project, construction of the landfill-gas-to energy facility which is a net exporter of electricity to the energy grid, and future construction of the construction and demolition materials recovery facility in 2018.

## ENVIRONMENTAL STEWARDSHIP

Redwood has a long history of working collaboratively with environmental groups as well as the County of Marin to foster environmental stewardship. In 2003, working with the Marin Audubon Society, Redwood identified 180-acres of its property suited for restoration to original tidal wetlands status. Redwood sold the property at a significantly discounted price to the Audubon Society and provided it with a permanent easement to the property.

For years, the Marin Environmental Forum, Marin Master Gardeners and numerous elementary and high schools have scheduled annual visits to the landfill and composting operations to educate their members and students about the important sustainability services provided at the landfill. Redwood maintains an open-door policy and welcomes tour groups throughout the year.

In 2010, Waste Management of the California Bay Area developed the WM EarthCare™ family of landscape products. Redwood's compost was named Homegrown Compost, reflecting its origins from local yard trimmings and residential food scraps. It is listed by the Organic Materials Review Institute (OMRI) for organic farming applications, registered with the California Department Food and Agriculture, and participates in the US Composting Council Seal of Testing Assurance Program.

In 2014, Redwood invested more than \$8 million to convert its windrow composting operations to a state-of-the-art Covered Aerated Static Pile facility (CASP). Redwood's CASP is recognized by the BAAQMD as the Best Available Control Technology (BACT) to mitigate harmful emissions from the composting process. Ton per ton Redwood's CASP system reduced GHG emissions by 80 percent compared to traditional windrow composting.

In 2017, Redwood received the East Bay Clean Cities Coalition's Clean Air Champion Award for "its sustained and significant contributions toward reducing petroleum consumption, deploying clean energy technologies, and advancing sustainable and environmentally sound practices through the greater Northern California Bay Area region." The award was presented in recognition of Redwood's use of CASP technology and the 2017 commissioning of a \$14.5 million landfill gas to electricity plant and piloting of a Volvo prototype hybrid loader at its composting facility.

On a policy level, Redwood's parent company, Waste Management, has a record of supporting progressive environmental policies and regulations. In California, Waste Management was the first Fortune 500 Company to support AB 32, the California Climate Solutions Act of 2006. In addition, it supported the California Integrated Waste Management Board's Zero Waste Policy and was an early and vocal advocate for AB 939, requiring 50% diversion of county waste.

Waste Management is the leading provider of comprehensive materials management and environmental services in North America. Redwood began its composting services 1996, and Waste Management currently operates 43 Organics Facilities, processing more than 3 million tons of organic materials annually into beneficial uses including compost and mulch materials.

## WATER CONSERVATION

Water demands can be high for composting facilities, and adequate moisture conditioning of processed feedstock is critical to creating a high-quality finished product. The Redwood facility design and layout allows for the CASP operations to meet the majority of its water demands utilizing recycled and reclaimed water. Redwood collects storm water in its storm water pond and contact water from the composting pad in its contact water pond for use in the CASP facility. Unlike many other composting facilities, Redwood is fortunate to avoid the use of valuable groundwater resources.

## ENERGY USE

Redwood not only provides comprehensive waste management services but is also generates a significant amount of renewable energy. In 2010, Redwood installed solar panels on its new scale house, generating enough energy to power the site's administration offices. Redwood became an early customer of MCE customer to further reduce its carbon footprint and in 2017, it became a net-positive generator of renewable energy for MCE customers. Approximately 5,000 MCE customers annually receive electricity generated by Redwood's landfill-gas-to-energy plant. The 3.9 megawatt facility is estimated to displace 8,900 metric tons of greenhouse gas annually from traditional fossil fuel methane gas-generated electricity.

The landfill gas is primarily methane, which is captured through a network of gas collection wells and distributed to engines in the LFGTE facility building. The facility is state-of-the-art, with pre-processing and scrubbing equipment which purifies the landfill gas and allows for clean combustion of the methane in the engines. This not only produces continuous green energy 24 hours a day, but the process also consumes the potentially harmful methane, which is a potent greenhouse gas, and converts it to carbon dioxide. The carbon dioxide generated from the landfill gas combustion is not an anthropogenic source of CO<sub>2</sub>, such as burning fossil fuels which were previously sequesters, so it's impact to the net carbon in the atmosphere are neutral. Even as organics continue to be diverted from disposal, the waste materials contained in the landfill today will continue to generate landfill gas for decades to come. See Appendix for our Green House Gas Reduction plan.

## LOCAL VENDORS

Redwood prides itself in being part of the community fabric. Annually we spend in excess of \$700,000 with local maintenance, trades and construction firms, suppliers and professional service companies. This is addition to our memberships with the Novato Chamber of Commerce, Marin Builders Association and Sonoma Marin Farm Bureau, Sonoma County Winegrowers and paid exhibit fees for various compost-related trade shows and conferences in the Bay Area.

## INNOVATIVE "GREEN" APPROACH TO PROVIDING SERVICES

As detailed above, Redwood and Waste Management walk the talk of sustainability. Since 2010, Redwood has been actively "greening" its service offerings from solar power and the introduction of WM EarthCare to the construction of the CASP and landfill-gas-to-energy plant. It continually looks for ways to "green" its services – no matter how big or small, it adds up to GHG savings. Redwood relies on backhaul trucking to deliver compost to its landscape centers in Alameda and Santa Clara counties and

retrieve mulch. Most recently, it adopted Mike's Bike Africa project. Bikes delivered to the metal yard or visible in the landfill are salvaged for donation to Mike's Bikes Africa project. The bikes are given new life in Africa, providing transportation to school, jobs and more – clearly a higher and better reuse of a sustainable vehicle.

The 2017 Waste Management Sustainability Report (available at [sustainability.wm.com](http://sustainability.wm.com)) highlights numerous innovations and achievements, including:

- The largest fleet of natural gas trucks in the waste industry
- Use of non-fossil Renewable Natural Gas fuel in our trucks
- 131 landfill-gas-to-energy plants, some of which produce the renewable Natural Gas fuel
- A greenhouse gas savings over three times the total GHG emissions generated by WM operations for the second year in a row

Waste Management actively supports California's greenhouse gas reduction initiatives as demonstrated by all the initiatives at Redwood and the new CASP facility at the Altamont Landfill in Alameda County.

## GIVEAWAY PROGRAM

Since 2010, Redwood via the WM EarthCare website ([wmearthcare.com/community/community-giving/](http://wmearthcare.com/community/community-giving/)) has had an active Community Donation program for its compost and mulch. It allocates 500 cubic yards of materials for donation. Schools in northern Marin and Petaluma have been regular recipients.

It is also experienced in providing compost for distribution to residents by Marin Sanitary Service and jurisdictions in Alameda County that use our composting services. The jurisdiction donation amounts are based on the volume of materials processed for each community. Redwood is pleased to discuss providing a similar service to the SCSWA.



## SECTION 5 - FORMS

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Form A COMMUNICATION PROTOCOL	
<p>The Sonoma County Waste Management Agency (SCWMA) commits to a procurement process for Organics Processing Capacity to be open, objective, and carefully monitored. The following rules will be adhered to and enforced.</p> <p>Until the SCWMA Board of Directors awards the Organic Materials Processing Services Agreement, all contact between participants, participant's sub-contractors, participant's sub-consultants, participant's affiliates, participants lobbyists, legal or political advisors, or any individual or entity that may be assisting the participant in preparing a response to this request for proposals, or providing work to the participant should participant be selected, and SCWMA, shall be in writing, either by email or mail to:</p> <p style="margin-left: 40px;"> <b>Patrick Carter</b>  <b>Executive Director, Sonoma County Waste Management Agency</b>  <b>2300 County Center Dr., B-100, Santa Rosa, CA 95403</b>  <b>(707) 565-3579</b>  <b>Patrick.Carter@sonoma-county.org</b> </p> <p>All communications between the SCWMA and a participant, along with the related responses, will be transmitted simultaneously to all participants that have signed into and attended the MANDATORY pre-proposal conference and will be included as part of the evaluation record.</p> <p>Any participant who fails to recognize or utilize this process of communication will be notified of its violation and may be subject to disqualification from the selection process at the sole discretion of the SCWMA.</p> <p><u>Any attempt to contact or directly interact with any elected or appointed official for the purpose of obtaining information or influencing the Request for Proposal Process, including the selection process, Form A will be grounds for determination of non-compliance and disqualification from the selection process.</u></p> <p>All participants must acknowledge and sign this statement as part of the RFP process. All participants must provide a signed <b>ORIGINAL</b> of this statement by the close of the MANDATORY pre-proposal conference. Participants that do not provide this signed statement will be disqualified from this procurement process.</p> <p>On behalf of my company/agency, I understand and accept the rules established in this statement.</p> <p>Company Name: <u>Waste Management - N. CA Market Area</u> (Print or Type)</p> <p>Representative: _____ Title: <u>Director Operation</u> (Print or Type)</p> <p>Signature: _____ Date: <u>6-28-17</u> (Sign in Ink)</p>	



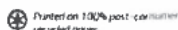


**Kenneth Lewis, P.E.**  
Director, Disposal Operations  
Northern California/Nevada Area

172 98th Avenue  
Oakland, CA 94603  
klewis@wm.com

510 613 2158  
510 385 9520 Cell

ment Agency Request for Proposals for Organics Processing Capacity



wm.com

### Form A

### COMMUNICATION PROTOCOL

The Sonoma County Waste Management Agency (SCWMA) commits to a procurement process for Organics Processing Capacity to be open, objective, and carefully monitored. The following rules will be adhered to and enforced.

Until the SCWMA Board of Directors awards the Organic Materials Processing Services Agreement, all contact between participants, participant's sub-contractors, participant's sub-consultants, participant's affiliates, participants lobbyists, legal or political advisors, or any individual or entity that may be assisting the participant in preparing a response to this request for proposals, or providing work to the participant should participant be selected, and SCWMA, shall be in writing, either by email or mail to:

Patrick Carter  
Executive Director, Sonoma County Waste Management Agency  
2300 County Center Dr., B-100, Santa Rosa, CA 95403  
(707) 565-3579  
Patrick.Carter@sonoma-county.org

All communications between the SCWMA and a participant, along with the related responses, will be transmitted simultaneously to all participants that have signed into and attended the MANDATORY pre-proposal conference and will be included as part of the evaluation record.

Any participant who fails to recognize or utilize this process of communication will be notified of its violation and may be subject to disqualification from the selection process at the sole discretion of the SCWMA.

Any attempt to contact or directly interact with any elected or appointed official for the purpose of obtaining information or influencing the Request for Proposal Process, including the selection process, Form A will be grounds for determination of non-compliance and disqualification from the selection process.

All participants must acknowledge and sign this statement as part of the RFP process. All participants must provide a signed ORIGINAL of this statement by the close of the MANDATORY pre-proposal conference. Participants that do not provide this signed statement will be disqualified from this procurement process.

On behalf of my company/agency, I understand and accept the rules established in this statement.

Company Name: WM Redwood Landfill  
(Print or Type)

Representative: \_\_\_\_\_ Title: Ramin KHANY - DISTRICT MANAGER  
(Print or Type)

Signature: [Signature] Date: 6-28-17  
(Sign in Ink)

May 31, 2017

Attachment B Page 3 of 13



Form B PROPOSER'S STATEMENT OF ORGANIZATION														
1.	Full Name of Business Concern (Proposer): <u>Redwood Landfill, Inc.</u> Principal Business Address: <u>8950 Redwood Highway</u> <u>Novato CA 94945</u>													
2.	Principal Contact Person(s): Name: <u>Ramin Khany</u> Phone Number: <u>415-850-3791</u>													
3.	Form of Business Concern: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Joint Venture   Other _____													
4.	Provide names of partners or offices as appropriate and indicate if the individual has the authority to sign in name of Proposer. Provide proof of the ability of the individuals so named to legally Bind the Proposer. <table><thead><tr><th><u>Name</u></th><th><u>Address</u></th><th><u>Title</u></th></tr></thead><tbody><tr><td><u>Barry Skolnick</u></td><td><u>100 Vassar St. Reno, NV 89502</u></td><td><u>President</u></td></tr><tr><td><u>David Stratton</u></td><td><u>100 Vasser St. Reno, NV 89502</u></td><td><u>Secretary</u></td></tr><tr><td>_____</td><td>_____</td><td>_____</td></tr></tbody></table>		<u>Name</u>	<u>Address</u>	<u>Title</u>	<u>Barry Skolnick</u>	<u>100 Vassar St. Reno, NV 89502</u>	<u>President</u>	<u>David Stratton</u>	<u>100 Vasser St. Reno, NV 89502</u>	<u>Secretary</u>	_____	_____	_____
<u>Name</u>	<u>Address</u>	<u>Title</u>												
<u>Barry Skolnick</u>	<u>100 Vassar St. Reno, NV 89502</u>	<u>President</u>												
<u>David Stratton</u>	<u>100 Vasser St. Reno, NV 89502</u>	<u>Secretary</u>												
_____	_____	_____												
5.	If a corporation, in what state incorporated: <u>Delaware</u> Date Incorporated: <u>10</u> <u>28</u> <u>1996</u> Month                      Day                      Year													
6.	If a Joint Venture or Partnership, date of Agreement: _____													

Form B	
PROPOSER'S STATEMENT OF ORGANIZATION	
7. List all subcontractors participating in this Organic Materials Processing Services Agreement:	
Name	Address
a) _____	_____
b) _____	_____
c) _____	_____
d) _____	_____
8. Outline specific areas of responsibility for each firm listed in Question 7.	
a) _____	
b) _____	
c) _____	
d) _____	
9. Identify the provisions of any agreement between parties which assigns legal or financial liabilities or responsibilities:	
_____	
10. If responding firm(s) are a partially or fully-owned subsidiary of another firm, or share common ownership with another firm, please identify the firms and relationships.	
_____	

**Form C**  
**CERTIFICATION OF NON-GRATUITIES**

**TO: THE SONOMA COUNTY WASTE MANAGEMENT AGENCY**

**CERTIFICATION**

This is a written certification, signed under penalty of perjury, stating that no persons acting on behalf of REDWOOD LANDFILL, INC. has paid, or offered or attempted to pay, any elected or appointed official, officer or employee of the SCWMA any compensation or consideration, in any form whatsoever, in connection with obtaining or entering into this Organic Materials Processing Services Agreement.

BARRY SKOLNICK

Name

PRESIDENT

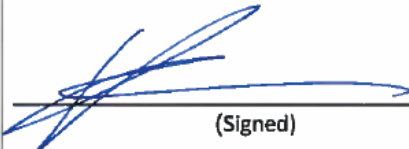
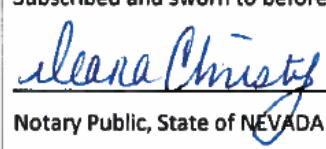

Title

  
Signature

12-21-17

Date

<p align="center"><b>Form D</b></p> <p align="center"><b>NON-COLLUSION AFFIDAVIT OF PROPOSER and</b></p> <p align="center"><b>DISCLOSURE OF NON-COMPETE AGREEMENTS</b></p>	
<p>State of <u>NEVADA</u> County of <u>WASHOE</u></p> <p><u>BARRY SKOLNICK</u>, being duly sworn, deposes and says that:</p> <ol style="list-style-type: none"> <li>1. He/She is <b>PRESIDENT</b> of <u>REDWOOD LANDFILL, INC.</u>, the Proposer that has submitted the attached proposal;</li> <li>2. He/She is fully informed respecting the preparation and contents of the attached proposal and of all pertinent circumstances respecting such proposal;</li> <li>3. Such proposal is genuine and is not a collusive or sham proposal;</li> <li>4. Neither said Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, connived, or agreed, directly or indirectly, with any other Proposer, firm or person to submit a collusive or sham proposal in connection with the Organic Materials Processing Services Agreement for which the attached proposal has been submitted or to refrain from proposing in connection with such Organic Materials Processing Services Agreement, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm, or person to fix the price or prices in the attached RFP, or of any other Proposer, or to fix any overhead, profit or cost component of the proposal or the response of any other Proposer, or to secure through any collusion, connivance, or unlawful agreement any advantage against The Sonoma County Waste Management Agency or any person interested in the proposed Organic Materials Processing Services Agreement; and</li> <li>5. The tipping fee proposal in the attached RFP are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.</li> <li>6. Proposer must list the name of any and all other solid waste service providers and/or affiliates that it has a "non-compete" agreement with that prohibits the other solid waste services provider from proposing on services as requested in this RFP. Failure to disclose this information will result in immediate disqualification from this RFP process.</li> </ol> <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	

Form D NON-COLLUSION AFFIDAVIT OF PROPOSER and DISCLOSURE OF NON-COMPETE AGREEMENTS	
 _____ (Signed)	<b>PRESIDENT</b> _____ (Title)
Subscribed and sworn to before me this <u>21<sup>ST</sup></u> day of <u>DECEMBER</u> , <u>2017</u> .	
 _____ Notary Public, State of NEVADA	My Commission Expires: <b>June 20, 2018</b>  <b>DEANA CHRISTY</b> Notary Public - State of Nevada Appointment Recorded in Washoe County No. 14-10973-2 - Expires June 20, 2018

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**Form E**  
**ORGANIC WASTE TIPPING FEE PROPOSAL**  
**SUMMARY AND SIGNATURE**

In preparing the Tipping Fee Proposal Forms Proposers should be aware of the following:

All organic materials processing tipping fees proposed on these forms for *Sonoma County Waste Management Agency* shall be fixed through December 31, 2020 or one (1) year after the Effective Date and should reflect service requirements as specified in the Organic Materials Processing Services Agreement.

The Undersigned hereby certifies as follows:

That \_\_\_\_\_ have personally and carefully examined the specifications and instructions for the work to be done as set forth in Sections 1 – 6 of this RFP and the Draft Organic Materials Processing Services Agreement (Attachment A or Attachment B).

That \_\_\_\_\_ have made examination of the services as applicable to the proposal, and fully understand the character of the work to be done.

That, having made the necessary examination, the undersigned hereby proposes to furnish all materials, vehicles, plant, equipment and facilities, and to perform all labor and services which may be required to do said work with the time fixed and upon the terms and conditions provided in the Organic Materials Processing Services Agreement, at the tipping fees set forth on the Tipping Fee Proposal Forms set forth below:

PROPOSER REDWOOD LANDFILL, INC.

President/Partner/Owner BARRY SKOLNICK

Secretary DAVID STRATTON

Firm Name REDWOOD LANDFILL, INC.

Individual: ☐ Partnership: ☐ Joint Venture ☐

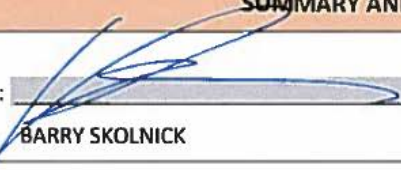
Corporation \_\_\_\_\_, A DELAWARE Corporation (State of Incorporation)


**Signature Instructions:**

If business is a CORPORATION, name of the corporation should be listed in full and both President and Secretary must sign the form, OR if one signature is permitted by corporation by-laws, a copy of the by-laws shall be furnished to the SCWMA as part of the proposal.

If business is a PARTNERSHIP, the full name of each partner should be listed followed by d/b/a (doing business as) and firm or trade name; any one partner may sign the form. If the business is INDIVIDUAL PROPRIETORSHIP, the name of the owner should appear followed by d/b/a and name of the company.

If business is a JOINT VENTURE, the full name of each joint venturer should be listed in full and each joint venturer must sign the form, OR if one signature is permitted by the joint venture agreement or by-laws, a copy of the agreement or by-laws shall be furnished to the SCWMA as part of the proposal.

<b>Form E</b>	
<b>ORGANIC WASTE TIPPING FEE PROPOSAL</b>	
<b>SUMMARY AND SIGNATURE</b>	
Signature: 	Date <u>12-21-17</u>
BARRY SKOLNICK	

<b>Form E</b> <b>ORGANIC WASTE TIPPING FEE PROPOSAL</b> <b>SUMMARY AND SIGNATURE</b>	
Signature: 	Date: <u>12/22/17</u>
DAVID STRATTON	

**Form F**

**ORGANIC WASTE TIPPING FEE PROPOSAL**

Form F is provided in an Excel spreadsheet, Attachment C SCWMA RFP Section 6 Form F Excel.

Form F shall be submitted in hard copy format and via USB drive in Microsoft Excel format.

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Form G PASS/FAIL REQUIREMENTS	
PROPOSER NAME:	<u>REDWOOD LANDFILL, INC.</u>
(name of the entity that will sign the Organic Materials Processing Services Agreement in the event one is awarded)	
<b>Key Contact Information</b>	
Name:	<u>Ramin Khany</u>
Title:	<u>District Manager</u>
Address:	<u>8950 Redwood Hwy. Novato, CA 94948</u>
Telephone Number:	<u>415-408-9053</u>
Fax Number:	<u>                    </u>
<b>Required Attachments:</b>	
Each Proposer must include the following attachments in the separate sealed "Pass/Fail Requirements" envelope:	
A copy of Form A Communication Protocol, as completed on the date of the <b>MANDATORY</b> pre-proposal conference.	
A written statement acknowledging receipt of any and all addenda to this RFP document, and a signed copy of each addendum with the date of receipt clearly displayed next to each signature.	
<b>The Proposal Bond of \$25,000.</b>	
A letter from Proposer's bank/financial institution clearly stating that the Proposer has adequate assets and/or irrevocable line of credit that is sufficient to compensate for all required payments to the SCWMA, capital costs, equipment costs, start-up costs, and a minimum of three (3) months' operating costs.	
<b>The Undersigned hereby certifies as follows (initial next to each statement):</b>	
<u>          </u>	The Proposer has attended the <b>MANDATORY</b> pre-proposal conference held on June 28, 2017 at 11:00 a.m. PDT.
<u>          </u>	The Proposer certifies that Proposer has personally and carefully examined the specifications and instructions for the work to be done as set forth in Sections 1 – 6 of this RFP.
<u>          </u>	The Proposer certifies that Proposer has personally and carefully examined the specifications and requirements as set forth in the Draft Organic Materials Processing Services Agreement.
<u>          </u>	The Proposer certifies that Proposer has personally and carefully examined the specifications and requirements of the <b>Sonoma Countywide Integrated Waste Management Plan</b> .
<u>          </u>	The Proposer certifies that Proposer has personally and carefully examined the specifications and requirements of the <b>Sonoma County Waste Management Agency Joint Exercise of Powers Agreement</b> , and all subsequent amendments.
<u>          </u>	The Proposer certifies that Proposer has made an examination of the services as applicable to

May 31, 2017

Attachment B Page 12 of 13

**Form G**  
**PASS/FAIL REQUIREMENTS**

the proposal, and fully understands the character of the work to be done.

The Proposer warrants that the requirements of the Draft Organic Materials Processing Services Agreement as described in this RFP, its enclosures, and all addenda have been thoroughly reviewed and the Proposer has conducted all due diligence necessary to confirm material facts upon which the proposal is based.

(For long-term Agreements only) The Proposer agrees to submit a **Performance Bond** in the amount of **One Million Dollars (\$1,000,000)** effective within ten (10) calendar days from the date the SCWMA Board approves the Agreement(s).

The Proposer acknowledges the validity of the proposal contents, including proposed Organic Materials Processing Tipping Fees and pricing for a period of one hundred eighty (180) days from the proposal due date.

Having made the necessary examination, the undersigned hereby proposes to furnish all materials, vehicles, plant, equipment, and facilities, and to perform all labor and services which may be required to do said work within the time fixed and upon the terms and conditions provided in the Organic Materials Processing Services Agreement, at the tipping fees set forth on Form F:

PROPOSER NAME REDWOOD LANDFILL, INC.

(name of the entity that will sign the Organic Materials Processing Services Agreement)

President/Partner/Owner BARRY SKOLNICK

Secretary DAVID STRATTON

Firm Name REDWOOD LANDFILL, INC.

Individual: ☐ Partnership: ☐ Joint Venture: ☐

Corporation A DELAWARE Corporation (State of Incorporation)

Signature [Signature]

Date 12/21/17

Signature [Signature]

Date 12/22/17

**Signature Instructions:**

If business is a CORPORATION, name of the corporation should be listed in full and both President and Secretary must sign the form, OR if one signature is permitted by corporation by-laws, a copy of the by-laws shall be furnished to the SCWMA as part of the proposal.

If business is a PARTNERSHIP, the full name of each partner should be listed followed by d/b/a (doing business as) and firm or trade name; any one partner may sign the form. If the business is INDIVIDUAL PROPRIETORSHIP, the name of the owner should appear followed by d/b/a and name of the company.

If business is a JOINT VENTURE, the full name of each joint venturer should be listed in full and each joint venturer must sign the form, OR if one signature is permitted by the joint venture agreement or by-laws, a copy of the agreement or by-laws shall be furnished to the SCWMA as part of the proposal.

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## SECTION 6 – SERVICE EXCEPTIONS/ALTERNATIVES

In accordance with the requirements outlined in the Request for Proposal, Redwood Landfill, Inc. requests the following exceptions:

- Article I, new definition for “Composting” (both agreements):

“**Composting** is the biological decomposition of organic material under aerobic conditions in a self-limiting biological process performed at above 55 degrees Celsius for a period of at least 3-days. The composting process occurs when conditions are created in organic materials to balance and optimize air distribution, temperature control, nutrient availability, moisture content, and pH to encourage the increased natural decomposition rate of the material. The composting period is usually defined as the period of time necessary to reduce the compost pathogen concentrations to a level below the limits defined in CCR Title 14 Article 7 Section 17868.3 - Pathogen Reduction. The process and methodologies used to reduce the pathogen concentrations below the limits prescribed in CCR Title 14 Article 7 Section 17868.3 is generally referred to as the Process For Pathogen Reduction (PFRP) and defines the length of time and temperature necessary for an organic material to complete the compost process. After the PFRP is completed a compost product is produced and is typically (but not always) allowed to cure into a matured compost for later sale.”

We feel it important to carefully define the composting process in order to avoid ambiguities in the agreement. WM is willing to discuss and modify the above new definition, as well as the below proposed definition modifications, although we believe they are adequate as drafted.

- Article I, new definition for “Compostable Plastic” (both agreements):

“**Compostable Plastic** means a plastic designed to undergo a significant change in its chemical structure during its residency in a compost process such that the material has undergone biological degradation during composting to yield carbon dioxide, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leaves no visually distinguishable or toxic residues. Plastics that do not completely degrade during the compost process are not Compostable Plastics.”

We feel it important to carefully define the types of acceptable foodware in order to avoid ambiguities in the agreement, and to reduce acceptance of material that not capable of composting.

- Article I, new definition for “Contaminants” (both agreements):

“**Contaminants** means are materials that cannot be readily composted, or difficult to compost, at the Organic Materials Processing Facility, and include: human-made inert material contained within Organic Materials or Compost such as glass, metal, and plastic, concrete, hazardous materials such as batteries and electronic waste; certain natural materials such as rock and soil; and certain organic materials which are difficult to process into Compost such as palm, cactus, and yucca.”

We feel it important to carefully define material that is excluded from the composting process in order to avoid ambiguities in the agreement. This will hopefully result in a higher quality compost product and provide more clarity in our agreement.

- Article I, new definition for “Overs” (both agreements):

"Overs means pieces of composted material that are left "over" after the screening of finished Compost, and consists mainly of woody pieces of organic matter and film plastic. Overs may be mixed back in with the compost feedstock as a bulking agent and reprocessed to improve porosity and airflow in the incoming feedstock, used on top of the compost piles as a biofilter, sold to third parties as a mulch or biofuel or used in the landfill as ADC or erosion control, or disposed if the concentration of film plastic and other Physical Contaminants render it unfeasible for other uses. Typically, Overs range in size from 6-inches to 3/8" depending on screening and grinding operation utilized in the compost process and have a high concentration of film plastic within."

We feel it important to create a definition of this material in order to provide more clarity in our agreement, and that some of this material be allowed to be used as ADC or disposal as a result of contamination.

- Section 1.01, line 62-65 (Section 1.04 of long term agreement): "Alternative Daily Cover (ADC) means cover material used at a Disposal Site, other than at least six (6) inches of earthen material, placed on the surface of the active face of the refuse fill area at the end of each operating day to control blowing litter, fires, odor, scavenging, and vectors; ~~or, means materials used as soil amendments for erosion control and landscaping.~~"

We want to clarify that ADC may be used as soil amendments, erosion control and landscaping, as allowed by state law. This above change is modeled after Title 27 definition.

- Section 1.06, line 81 (section 1.06 of long term agreement): We would like to clarify that "Assignments" do not include transactions with affiliated companies (i.e., other subsidiaries of our parent company).

Occasionally, WM combines two or more subsidiaries of Waste Management, Inc. (Redwood Landfill, Inc's indirect parent company) to create accounting efficiencies or similar non-operational reasons. Usually, a smaller subsidiary is merged into its parent. We do not expect to merge Redwood Landfill, Inc. with another WMI subsidiary during this agreement, but would like the flexibility to do so without the undertaking the assignment process in this section.

- Section 1.12, line 114 - 117: (section 1.12 of long term agreement) "Compost or Compost Products means the resultant product of Processing Composting. The compost shall be dark in texture, have an earthy aroma, be neutral pH, and have the chemical profile of sufficient quality to pass [SUBJECT TO MODIFICATION BASED ON SELECTED CONTRACTOR'S PROPOSAL] found in Exhibit F. [FOR COMPOST FACILITIES]"

Based on the new definition of "Composting" that we are proposing, we feel this change is proper.

- Section 1.20, line 134 - 139 (section 1.20 of long term agreement): Replace "Food Scraps" definition with the following:

"Food Scraps means meat, fish, dairy, fruit, vegetable and grain waste resulting from food production, preparation, cooking, storage, consumption or handling. Food Scraps excludes Compostable Plastics but includes food-soiled paper products which complexly degrade during the composting process. Food Scraps does not include Contaminants."

We feel this definition more accurately describes the food waste stream acceptable to our composting operations.

- Section 1.22, Line 144 - 151 (section 1.22 of long term agreement): Replace "Green Waste" definition with the following:

"Green Waste means vegetative matter resulting from normal yard and landscaping maintenance that is not more than 4 feet in its longest dimension or 12 inches in diameter, but excludes Contaminants such as palm, cactus and yucca. Examples of Green Waste are grass cuttings, weeds, leaves, weeds, pruning, and branches of acceptable size.

We feel this definition more accurately describes the green waste stream acceptable to our composting operations.

- Section 1.25, line 169 (section 1.25 of long term agreement): The inclusion of all "Actions" does not seem appropriate for this definition. We would like to discuss changes.
- Section 1.26, Line 182 - 188 (section 1.26 of long term agreement): **"Material Change in Law.** Any change in (or any new) Applicable Laws, applicable on or after the Effective Date, that applies to the Solid Waste industry (including, for the avoidance of doubt and without limitation, changes to the California Integrated Waste Management Act (CIWMA), changes to CalRecycle regulations, or changes to other Applicable Laws relating specifically to any aspect of "Solid Waste handling," "Solid Waste disposal" or "Solid Waste facilities," as such terms are defined by CalRecycle). Material Change in Law shall not include any modifications to the Exhibits to this Agreement, as allowed under the terms of this Agreement."

We feel use of the term "specifically" is too narrow. There could be changes in Applicable Law (e.g., labor) that impact performance under this agreement which are not "specific" to solid waste handling, etc.

- Section 1.30, line 196 - 204 (section 1.30 of long term agreement): ~~"Mixed Organic Materials means fruits, vegetables, grain products, dairy products, meat, seafood, napkins, acceptable food packaging items such as pizza boxes, paper towels, compostable food packaging (meeting the standards established by ASTM 6400 and ATRM 6868), compostable bags, waxed cardboard and food soiled paper products, and other compostable food scraps generated at residential premises from normal household activity, including kitchen fats and greases (not oil), wood crates, ivy, palm, yucca and cactus, grass cuttings, weeds, leaves, pruning, branches, dead plants, brush tree trimmings, dead trees (on average not more than twelve (12) inches in diameter) and four (4) feet in length, and similar materials generated at Premises, separated and set out for Collection, processing, and Recycling. The requested materials do not include materials not normally produced from gardens or landscapes, such as, but not limited to, brick, rock, gravel, large quantities of dirt, concrete, sod, non Organic Materials, oil, and painted or treated wood or wood products."~~  
loads of material delivered Contractor's Organic Materials Processing Facility, consisting of commingled Food Scraps and Green Waste, which have been separated by the residential generator and set out for Collection and Processing.

We feel this definition more accurately describes the mixed organic waste stream acceptable to our composting operations.

- Section 1.42, line 246 - 248 (section 1.43 of long term agreement): ~~"Residual means all (other than trace amounts) Solid Waste, Contaminants and other materials, that are not Plant or excluding Overs and Organic Materials (other than trace amounts), removed from Organic Materials during, before, or after Processing Composting. Residual may be landfilled or used as ADC or sent for other appropriate use, such as biofuel.~~

We feel this definition more accurately describes the residue from our composting operations.



- Section 1.56, line 307 - 313 (section 1.57 of long term agreement): ~~“Wood Waste means a subset of Mixed Organic Materials consisting of pieces of unpainted and untreated dimensional lumber, and any other wood pieces or particles generated from the manufacturing or production of wood products, harvesting, processing or storage of raw wood materials, milled lumber with no paints, varnishes, finishes, glues, or treatments, sawmill waste, wood crates, and source separated construction and demolition material including sheetrock (which material may contain nails, doorknobs, and/or joist hangers), excluding pressure treated wood, creosote treated wood, particle board, and unprocessed logs.”~~ means loads of material delivered to Contractor’s Organic Materials Processing Facility consisting of wood materials (excluding unprocessed logs) which have no paint, varnish, finishes, glues, or treatments, and which have been separated by the generator and set out for Collection and Processing.

We feel this definition more accurately describes the wood waste stream acceptable to our composting operations.

- Section 3.01.2 (both agreements): ~~“Contractor and SCWMA expressly agree that nothing in this Agreement guarantees to Contractor any minimum amount of such waste, nor does this Agreement obligate Contractor to accept or have available capacity to accept any amount of such waste during the term of the Agreement.”~~

An alternative to WM’s change above is for SCWMA to commit to delivering certain amounts of material, in which case WM would commit to having available capacity for such amount.

- Section 3.02.4, line 345 - 349 (short term agreement): ~~“100% of the Organic Materials accepted at the facility, not including Contamination, including third-party and Self-Haul material, shall be Processed and marketed for use as compost, mulch, or soil amendment. Residuals may be disposed, used as ADC, erosion control or sent to other appropriate uses as defined by the Contractor. Overs may be mixed back in with the compost feedstock as a bulking agent and reprocessed to improve porosity and airflow in the incoming feedstock, used on top of the compost piles as a biofilter, sold to third parties as a mulch or biofuel or used in the landfill as ADC or erosion control, or disposed if the concentration of film plastic and other Physical Contaminants render it unfeasible for other uses.”~~
- Section 3.02.4, line 364 (long term agreement): ~~100% of the Organic Materials accepted at the facility, including third-party and Self-Haul material, shall be Processed and marketed for use as compost, mulch, or soil amendment and none shall be disposed, or used, anywhere at a landfill, except for Residual. Organic Materials may not be used as Alternative Daily Cover, Alternative Intermediate Cover, or for other Beneficial Reuse Purposes. Residual may be landfilled or used as ADC. Residuals may be disposed, used as ADC, erosion control or sent to other appropriate uses as defined by the Contractor. Overs may be mixed back in with the compost feedstock as a bulking agent and reprocessed to improve porosity and airflow in the incoming feedstock, used on top of the compost piles as a biofilter, sold to third parties as a mulch or biofuel or used in the landfill as ADC or erosion control, or disposed if the concentration of film plastic and other Physical Contaminants render it unfeasible for other uses.~~
- Section 3.02.5 (both agreements): ~~“Organic Waste Processing Facility must operate at a level that results in a maximum 10% Residual Rate. Any amount of material exceeding the 10% Residual Rate shall be considered Excess Residual.”~~

WM proposes to delete this section, although we are willing to discuss during contract negotiations. It is not practical to calculate residual attributable to SCWMA waste stream, primarily (i) because

the facility will receive material from many sources, and (ii) due to the time it takes to compost material and generate residual.

- Section 3.02.5.1 (both agreements): ~~"Residual from Processing shall be Disposed of by Contractor at the Central Disposal Site at Contractor's sole expense."~~

We understand that the Member Agencies have an agreement with Republic for disposal of composting residual at the Central Disposal Site. However, it is not practical for WM to determine residual from the SCWMA inbound material or dispose of SCWMA residual at the Central Landfill facility. WM proposes that all deliveries by SCWMA which has more than 1% Contamination based on visual inspection will be rejected by WM, in which case SCWMA may either transport such material to Central Landfill, and pay the applicable fees, or instruct WM to dispose of such material at Redwood Landfill and pay WM's negotiated disposal tip fee. There will be a de minimis amount of material generated from SCWMA Organic Materials that is composted and ultimately disposed based on the 1% contamination limit on inbound material. However, WM considers such material to be generated by WM, and not subject to disposal agreements with Central Landfill, and WM's proposal does not contemplate disposal of such material at Central Landfill or paying any third-party disposal or other fees. Instead, WM will dispose of any such material at Redwood Landfill, at WM's cost.

- Section 3.02.6 (both agreements): "Contractor is responsible for processing organic waste into a marketable product and transporting and marketing of all end products at the risk, expense and profit or loss of the Contractor, subject to Exhibit A."

As proposed below, WM would like to add language to Exhibit A that would give WM protection in the event of extraordinary events that increase our costs or reduce revenue.

- Section 3.02.6, line 376 (long term agreement): ~~"SCWMA may request a full list of customers/brokers/buyers who buy the finished product (material market outlets)."~~

WM considered this information confidential.

- Section 3.04 (both agreements): "Permits and Compliance. Contractor will comply with all Permits, including any mitigation measures related to the operation and maintenance of the Organic Materials Processing Facility. Contractor is solely responsible for paying any fines or penalties imposed for noncompliance with or violation of Permits or failure to obtain Permits, unless caused by SCWMA's or a third party's breach, negligence or violation of applicable law. Under no circumstances shall any provision of this Agreement obligate Contractor to violate any of its Permits."

We feel each party should bear the cost of its breach, etc., and this change reflects that.

- Section 3.04.2 (both agreements): "Compliance with all Applicable Laws and Regulations. Contractor and SCWMA shall comply with all Federal, State, and/or Local Regulations in the performance of this Agreement. These laws may include but are not limited to: CalRecycle Facility Permit, Water Board Permit, Air District Permit, Land Use Permit, Emergency Management and Contingency Plan, and State and Local Fire Code. ~~Contractor shall abide by any mitigation measures pursuant to the California Environmental Quality Act ("CEQA").~~ The Contractor shall comply with Federal and State regulatory standards for compost operation; pollutant concentrations, pathogen reduction, monitoring, recordkeeping, and reporting."

WM would like to discuss the deleted sentence to determine an equitable allocation of risk associated with CEQA.

- Section 3.04.11 (long term agreement): ~~"Odor Containment. The Contractor shall operate the Organic Materials Processing Facility in a manner that prevents odors from being detected off site. If odors are reported, and the source of the odor is confirmed to be the Organic Materials Processing Facility, the SCWMA may require additional physical improvements or management practices, as necessary, to alleviate the problem. The source of the odor shall be identified and corrected. All odor complaints shall be logged and investigated by the Contractor. Any odor complaints received shall be responded to by the Contractor within two office working days, detailing the problem and remedial action taken. See Exhibit E for proposed Odor Impact Minimization plan, which may be modified if requested by Contractor and approved by the SCWMA. Such plan shall be in alignment with the plans provided to regulatory bodies associated with active permits."~~

We would like to remove this section, which we feel is not necessary since odor containment is already addressed in permits and by regulatory agencies.

- Section 3.04.15 (long term agreement): "Any changes to documents contained in **Exhibit E** or any other exhibit to this Agreement should not be considered a Material Change in Law."

We would like to remove this sentence because there may be changes in law impacting exhibits to this agreement for which WM would expect change in law relief.

- Section 3.06, line 399 (short term agreement): ~~"Traffic Control and Direction. Contractor will direct on-site traffic to appropriate unloading areas and provide a safe working environment. Contractor will provide necessary signs and personnel to assist drivers to proper unloading areas. Contractor will operate the Organic Materials Processing Facility so that the conditions of the Maximum Vehicle Turnaround are met and the SCWMA's Transfer Company or Collections Company(ies) vehicles are processed, unloaded and exit without delay from the facility no longer than 30 minutes from arrival onto at the Contractor's scales, and assuming SCWMA's vehicles efficiently queue and unload in a timely fashion. Contractor will not exceed this time more than 5 times per month. The calculation of the times will be based on time stamp tickets at the scale house."~~

WM should not be responsible for delays caused by SCWMA's vehicles.

- Section 3.06 (long term agreement):

~~"Traffic Control and Direction. Contractor will direct on-site traffic to appropriate unloading areas and provide a safe working environment. Contractor will provide necessary signs and personnel to assist drivers to proper unloading areas. Contractor will operate the Organic Materials Processing Facility so that the conditions of the Maximum Vehicle Turnaround are met and the SCWMA's Transfer Company or Collections Company(ies) vehicles are processed, unloaded and exit without delay from the facility no longer than 30 minutes from arrival onto at the Contractor's scales, and assuming SCWMA's vehicles efficiently queue and unload in a timely fashion. Contractor will not exceed this time more than 5 times per month. For each load exceeding the 30 minutes from arrival onto at the scale to exiting the scale over the five grace loads (and assuming SCWMA's vehicles did efficiently queue and unload in a timely manner), the Contractor may be assessed liquidated damages in accordance with the schedule set forth in Section 3.14 below. The calculation of the times will be based on time stamp tickets at the scale house."~~

See above comment.

- Section 3.08.2 (both agreements): “For loads that exceed the [as proposed] 1% by weight Contamination threshold as determined by visual inspection as described in Exhibit C, but which are salvageable by sorting Contamination out of the load, the SCWMA can choose to have the Contractor sort contamination from the load so that it falls below the established contamination threshold [as proposed]. For loads that are sorted to remove excessive Contamination, the SCWMA will reimburse Contractor on a time and materials basis for the Direct Cost of handling of the excessive Contamination (e.g., sorting, transportation and disposal); the Contractor shall retain auditable records of these direct costs for applicable loads of Contamination. It is understood that Contamination removed by Contractor will not be processed over a sort line or mechanical screens and will include some de minimus amounts or Organic Materials that cannot be efficiently separated from Contamination.”

This provides and operational clarification.

- Section 3.10 (both agreements): “Annually, Contractor shall make available an amount of compost product equal to 0.5% of annual inbound SCWMA feedstock three hundred and fifty (350) cubic yards of compost twice per year. Such compost will be available to Member Agency through self-haul and at one annual event, to be held at the Contractor location, for SCWMA residents. Such compost will be provided at no additional cost to the SCWMA or the ratepayers for use by residents and Member Agency(ies), in parks and facility landscaping. The Contractor will coordinate with SCWMA staff to have Contractor staff present at the event to assist residents and distribute educational materials, and residents will be instructed to bring their own bucket(s) to the event to receive compost from the Contractors location. Contractor will not supply buckets, bags or loading services during this event and residents and member agencies shall be responsible to load and haul their own material. Free material will be provided on a first come, first served basis.”

This provides an operational clarification.

- Section 3.11, line 573 (long term agreement): “Construction Debris. The Contractor shall reduce, reuse, or cause to be reused, as much construction debris is as feasible. Materials that are unfit for reuse may be recycled, or caused to be recycled. The remaining debris that is unfit for reuse or recycling may be disposed in a permitted landfill.”

We would like to remove this section because we do not expect to generate any C&D debris at Redwood Landfill.

- Section 3.14.5, line 611 (long term agreement): “SCWMA shall assess Liquidated Damages and provide Contractor with a written explanation of its determination for each incident(s)/non-performance. SCWMA may assess Liquidated Damages for each day or incident of non-performance with the Agreement. The decision of the SCWMA Executive Director or designee shall be final, and subject only to the right to appeal the imposition of the liquidated damages to the SCWMA Board when the amount imposed exceeds ten thousand dollars (\$10,000) per ~~month~~ year in total.”

We feel this is a more reasonable threshold.

- Section 3.14.7 (long term agreement):

We would like to remove item (g) to reflect other changes we made in the draft agreement. Additionally, we would like to remove item (l) because \$100 per event certainly would not reflect a reasonable estimate of every type of performance failure under the agreement.

- Section 4.04 (long term agreement):

We would like to remove this section because WM has a policy against such most favored rate provisions.

- Section 4.05 (long term agreement): "Special Rate Adjustments. Contractor may request a Special Rate Adjustment, over and above the CPI-based adjustment set forth in Exhibit A, in the event that either (or both) of the following occur after the date hereof: (1) any increase in Governmental Fees outside of Contractor's control, ~~or~~ (2) any change in Applicable Law, or (3) other events which are beyond Contractor's reasonable control, such as material changes in compost markets."

We feel this change is especially important in a long-term agreement when it is impossible to predict such matters.

- Section 5.01.4.9 (both agreements): "Contractor's indemnification of Indemnitees will not include indemnification for Loss which arises as the result of an Indemnitee's breach of this Agreement, or the sole negligence or willful misconduct of Indemnitees."

We feel each party should bear the cost of its breach, etc., and this change reflects that.

- Section 5.01.5 (both agreements): WM proposes to remove this CEQA indemnification section, as such matters are beyond WM's reasonable control.
- Section 5.01.5.1 (both agreements): WM proposes to remove this section in the interest of creating a balanced contract, and one where each party is responsible for their performance failures.
- Section 5.01.5.2 (both agreements): "The defense and indemnification obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement. ~~If any term or portion of this Section 5.01.5 is held to be invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, said Section shall be interpreted to provide the broadest indemnity permitted by law."~~

WM proposes to remove this section in the interest of creating a balanced contract, and one where each party is responsible for their performance failures.

- Sections 5.02, 5.03 and 5.04 (both agreements): WM proposes to remove these sections in the interest of creating a balanced contract, and one where each party is responsible for their performance failures. We would like to negotiate language that addresses these issues, but is more balanced.
- Section 5.09 (both agreements): "Contractor's obligation to indemnify, hold harmless and defend SCWMA, its officers and employees shall not extend to any loss, liability, penalty, pain, damage, action or suit arising or resulting ~~solely~~ from acts or omissions constituting a breach of this Agreement, willful misconduct or ~~sole~~ negligence on the part of the SCWMA its officers or employees."

We feel each party should bear the cost of its breach, etc., and this change reflects that.

- Section 5.11.2(d) (both agreements): "This policy shall not be cancelled, ~~non-renewed, or materially changed~~ without first giving thirty (30) days prior written notice to the SCWMA, except ten (10) days' notice shall be given for cancellation due to non-payment of premium."

This change is to be consistent with WM's insurance policies. However, WM could agree that it would renew and would not material change coverage without 30 days' written notice to SCWMA.

- Section 5.11.3 (both agreements): “This policy shall not be cancelled, ~~non-renewed, or materially changed~~ without first giving thirty (30) days prior written notice to the SCWMA, except ten (10) days notice shall be given for cancellation due to non-payment of premium.”

This change is to be consistent with WM’s insurance policies. However, WM could agree that it would renew and would not material change coverage without 30 days’ written notice to SCWMA.

- Section 5.12 (both agreements): “This policy shall not be cancelled, ~~non-renewed, or materially changed~~ without first giving thirty (30) days prior written notice to SCWMA, except ten (10) days notice shall be given for cancellation due to non-payment of premium.”

This change is to be consistent with WM’s insurance policies. However, WM could agree that it would renew and would not material change coverage without 30 days’ written notice to SCWMA.

- Section 6.01.3 (both agreements): “In the event that the SCWMA agrees to an assignment of this Agreement to a qualified service provider, Contractor shall make payment to the SCWMA in ~~an~~ a reasonable amount to be determined by the SCWMA for reimbursement of direct costs to SCWMA associated with for the right to any such assignment.”

WM proposes that a reasonable cap be placed on the assignment fee.

- Section 9.02, line 788 (section 10.02 of the long term agreement): “The first seven days of any Labor unrest, including but not limited to strike, work stoppage or slowdown, sick-out, picketing, or other concerted job action conducted by Contractor’s employees or directed at Contractor is ~~not~~ an excuse from performance; ~~provided, however additionally, that~~ labor unrest or job action directed at a third party over whom Contractor has no control, shall excuse performance.”

WM typically has very little time to prepare for labor disruptions, and would need at least seven days to mobilize replacement workers.

- Exhibit A (both agreements): “Commencing [START DATE] and thereafter on each [START DATE minus year], this Agreement is in effect, including any extension years, the rates stated above shall be increased by the percentage change in the annual average of the Consumer Price Index – All Urban Consumers – San Francisco, Oakland, San Jose California Id: CUUSA422SA0 (CPI) between the base year, which shall be the prior preceding twelve (12) months from ~~January~~ May 1 through ~~December 31~~ April 30, and the preceding year ending ~~December 31~~ April 30. ~~If the calculated percentage change exceeds 3%, the increase to the rates shall be set at 3%.~~”

Having a cap on CPI increases would create a risk that our rates under this agreement do not keep pace with increased costs, and result in WM proposing higher rates in the RFP process.

- Exhibit A (both Agreements): WM proposes adding the following:

“In the event that a change in Applicable Law or a material change in Compost market conditions occurs including, but not limited to, lack of commercially reasonable markets for Compost, changes in market specifications affecting Compost, changes affecting the recyclability or marketability of Organic Materials, and changes in the quantity, quality or composition of the Organic Materials (each a “Material Change”), has the effect of materially altering the terms of this Agreement, or preventing or precluding compliance with one or more provisions of this Agreement, or preventing, precluding or substantially affecting the benefit(s) bargained for under this Agreement, including profits of Contractor, this Agreement shall be modified to comply with, ameliorate, or prevent the



detrimental effects on the Agreement of, such Material Change. Additionally, should any new or increased governmental fees, taxes or other charges result in increased costs to Contractor, there will be an appropriate increase in the Rates paid by SCWMA hereunder, such that Contractor will fully recover such increased costs."

Adequately protecting WM against changes in law and market conditions beyond our control allow WM to propose more aggressive rates in the RFP process.

- Exhibit B (long term agreement): "Incoming Tons by Member Agency ~~and for third party and self-haul customers not covered under the Agreement~~, and type of material delivered (by sector and Organic Material Type);"

WM would consider this information confidential.

## SECTION 7 - APPENDIX

# SOLID WASTE FACILITY PERMIT

Facility Number:

**21-AA-0068****1. Name and Street Address of Facility:**

WM EarthCare of Marin  
8950 Redwood Highway  
Novato, CA 94945

**2. Name and Mailing Address of Operator:**

Redwood Landfill, Inc.  
P.O. Box 793  
Novato, CA 94948

**3. Name and Mailing Address of Owner:**

Redwood Landfill, Inc.  
P.O. Box 793  
Novato, CA 94948

**4. Specifications:****a. Permitted Operations:** ☒ Compostable Material Handling Facility

**b. Permitted Hours of Operation:** Public: M - F, 7:00 am - 3pm and Sat, 8:00 am - 3:30 pm  
Commercial Haulers: M - F, 12:00 am - 3:00 pm and Sat, 12:00 am - 3:30 pm  
(except sludge haulers) and 12 am - 12pm on Memorial Day, July 4, Labor Day, Thanksgiving  
Closed to public and commercial haulers: Sundays, New Year's Day, Christmas Day  
Sludge Haulers: M - Sun, 24 hours per day except New Year's Day and Christmas Day  
Composting Operations: 24 hours per day except New Year's Day and Christmas Day

**c. Permitted Maximum Tonnage:** 514 Tons Per Day Total Compostable Materials Permitted to be Received per Day**d. Permitted Traffic Volume:** 662 Total Daily Vehicles Entering Site, which includes landfill traffic as well as composting facility traffic.**e. Key Design Parameters (Detailed parameters are shown on site plans bearing EA and CalRecycle validations):**

	Total	Disposal	Transfer/Processing	Composting	Transformation
Permitted Area (in acres)	35.2	N/A	N/A	35.2	N/A
Design Capacity (cu.yds)		N/A	N/A	300,000 cubic yards	N/A
Max. Elevation (Ft. MSL)		N/A			
Max. Depth (Ft. MSL)		N/A			
Estimated Closure Year		N/A			

Upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The attached permit findings and conditions are integral parts of this permit and supersede the conditions of any previously issued solid waste facility permit.

**5. Approval:**

  
Rebecca Ng, Local Enforcement Agency

**6. Enforcement Agency Name and Address:**

Marin County Environmental Health Services  
3501 Civic Center Drive, Room 236  
San Rafael, CA 94903

**7. Date Received by CalRecycle:****DEC 10 2013****8. CalRecycle Concurrence Date:****DEC 27 2013****9. Permit Issued Date:**

December 30, 2013

**10. Permit Review Due Date:**

December 30, 2018

**11. Owner/Operator Transfer Date:**

# SOLID WASTE FACILITY PERMIT

Facility Number:

**21-AA-0068****12. Legal Description of Facility: APN 125-16-13**

Section 30 T4N R6W diablo Meridian – PARCEL ONE, as shown upon that certain map entitled "Parcel Map of Redwood Landfill", filed for record August 25, 2003 in Volume 2003 of Maps, at page 197, Marin County Records, EXCEPTING any portion of the described property within the natural bed of San Antonio Creek and in the natural bed of any tidal slough below the elevation of ordinary high tide where it was located prior to any artificial changes.

The 35.2-acre Compostable Materials Handling Facility is included within the Legal Description of the 420-acre Redwood Landfill.

**13. Findings:**

- a. This permit is consistent with the Marin County Integrated Waste Management Plan, which was approved by the CIWMB in April 1998. The location of the facility is identified in the Non-disposal Facility Element, pursuant to Public Resources Code (PRC), Section 50001(a).
- b. This permit is consistent with the standards adopted by CalRecycle (previously the CIWMB), pursuant to PRC 44010.
- c. The design and operation of the facility is consistent with the State Minimum Standards for Composting as determined by the enforcement agency, pursuant to PRC 44009.
- d. The Novato Fire Protection District has determined that the facility is in conformance with applicable fire standards, pursuant to PRC, 44151.
- e. A Final Environmental Impact Report was filed with the State Clearinghouse (SCH #1991033042) and certified by Marin County Environmental Health Services on June 10, 2008. An Addendum to the FEIR was adopted by Marin County Environmental Health Services on September 30, 2013. The Addendum describes and supports the design and operation which will be authorized by the issuance of this permit.
- f. The owner/operator has agreed to comply with the mitigation measures as described in the Mitigation Monitoring and Reporting Program dated May 7, 2013.

**14. Prohibitions: The permittee is prohibited from accepting the following materials for composting:**

Hazardous, radioactive, medical (as defined in Chapter 2, Division 104 of the Health and Safety Code), liquid, designated, or municipal solid waste; treated wood (as defined in Chapter 6.5, Division 20 of the Health and Safety Code) or wood treated with lead-based paint; hot ashes/burning materials.

**15. The following documents describe and/or restrict the operation of this facility:**

	Date		Date
Report of Composting Site Information	December 5, 2013	BAAQMD Major Facility Review Permit, Facility #A1179	April 5, 2012
Waste Discharge Requirements Order No. R2-2009-0053	July 14, 2009	CEQA Findings	Sept 30, 2013
BAAQMD Permit to Operate, Plant #1179	Jan. 1, 2013	BAAQMD Authority to Construct	July 18, 2012
Final Environmental Impact report (SCH #1991033042)	June 10, 2008	Complete SWFP Application	October 16, 2013
Addendum FEIR (SCH #1991033042)	Sept 30, 2013	SWRCB Industrial Activities Storm Water General Permit	May 1, 1997
Mitigation Monitoring & Reporting Program	May 7, 2013	Odor Impact Minimization Plan	December 4, 2013

# SOLID WASTE FACILITY PERMIT

Facility Number:

21-AA-0068

## 16. Self Monitoring:

The owner/operator shall submit the results of all self monitoring programs to the Enforcement Agency within 30 days of the end of the reporting period (for example, 1<sup>st</sup> quarter = January – March, the report is due by April 30, etc. Information required on an annual basis shall be submitted with the 4<sup>th</sup> quarter monitoring report, unless otherwise stated.)

Where noted, the results need not be sent to the LEA. They shall be retained on the Facility's premises for a minimum of three (3) years and made available for review upon request.

### Program

### Reporting Frequency

- |  |                        |
|--|------------------------|
| a. The types and quantities (in tons) of compost feedstock received each day.  | Quarterly              |
| b. The number of vehicles utilizing the compostable materials handling facility per day of operation.                          | Quarterly              |
| c. Logs and reports of all complaints regarding the facility and the operator's action(s) taken in response to the complaints. | Quarterly              |
| d. Logs and reports of all shutdowns other than the closed days specified in this permit. (Please refer to Condition L.)       | Quarterly              |
| e. Logs of special or unusual occurrences and the operator's action(s) taken to correct/resolve the problem.                   | Quarterly              |
| f. The total volume of all compost feedstock, active, curing and finished compost on -site.                                    | Quarterly              |
| g. Records of random load checks pursuant to Condition T.  | Available Upon Request |
| h. An employee training log with the dates of training, course descriptions, etc., shall be maintained and kept current.       | Available Upon Request |
| i. Records of quantities and length of time materials for composting are stored on-site before being processed.                | Quarterly              |
| j. Results of Covered Aerated Static Pile temperature readings.  | Quarterly              |
| k. Results of laboratory testing for pathogen and metal concentrations per Title 14, CCR, Sections 17868.2 and 17868.3.        | Quarterly              |
| l. Records of quantities of compost disposed at the site or another site and the reason it was disposed.                       | Available Upon Request |
| m. The types and quantities of residuals resulting from the on-site processing of compostable materials that are landfilled.   | Quarterly              |

# SOLID WASTE FACILITY PERMIT

Facility Number:

21-AA-0068

## 17. Enforcement Agency (EA) Conditions:

- A. The operator shall comply with all applicable State Minimum Standards for Compostable Materials Handling Operations and Facilities as specified in Title 14, California Code of Regulations (CCR).
- B. The operator shall maintain a log of special/unusual occurrences. This log shall include, but is not limited to, fires, explosions, the discharge and disposition of hazardous or unpermitted wastes, failure of finished compost to meet Title 14, CCR pathogen/metals standards, and significant injuries, accidents or property damage. Each log entry shall be accompanied by a summary of any actions taken by the operator to mitigate the occurrence. The log shall be available to site personnel and the LEA at all times.
- C. Additional information concerning the design and operation of the facility shall be furnished upon request and within the time frame specified by the LEA.
- D. The maximum permitted daily tonnage received at this facility is 514 tons per day, and the facility shall not receive more than this amount without a revision of this permit. Feedstock is limited to green material (including yard waste and untreated wood waste), Class B biosolids, food material, and agricultural material. The maximum volume of compost feedstock, active, curing and finished compost that may be stored on-site at any one time is 300,000 cubic yards.
- E. This permit is subject to review by the LEA and may be temporarily suspended or revoked at any time by the LEA for sufficient cause, in accordance with Division 30 of the Public Resource Code, Part 4, Chapter 4, Article 2, Sections 44305 et seq. and associated regulations.
- F. The LEA reserves the right to suspend or modify composting operations when deemed necessary due to an emergency, a potential health hazard, or the creation of a public nuisance.
- G. Any change that would cause the design or operation of the facility not to conform to the terms and conditions of this permit is prohibited. Such a change may be considered a change requiring a permit modification or revision. In no case shall the operator implement any change without first submitting a written notice of the proposed change, in the form of an RCSI amendment, to the LEA at least 180 days in advance of the change.
- H. The owner/operator shall maintain copies of the inspection reports and permits issued by the LEA and other regulatory agencies at the facility. The operator shall also maintain copies of the Compostable Materials Handling Facility Permit (CMHFP), the Mitigation Monitoring and Reporting Program (MMRP), the Report of Composting Site Information (RCSI), and the Odor Impact Minimization Plan (OIMP) at the facility so as to be available at all times to facility personnel, LEA personnel, and other regulatory agencies.
- I. The operator shall comply with all mitigation and monitoring measures that govern the design and operation of the solid waste facility developed in accordance with any certified environmental documents filed pursuant to Public Resources Code (PRC) Section 21081.6. The LEA, under this permit, will enforce only those mitigation measures of the Mitigation Monitoring and Reporting Program (MMRP) that the LEA has the authority to enforce under the Public Resources Code, Titles 14 and 27 of the California Code of Regulations, and other applicable regulations.
- J. During the hours of operation for composting activities, an attendant or attendants shall be present at all times to supervise the loading and unloading of compostable materials and the loading of finished compost.
- K. The operator shall maintain records of all materials composted by weight or volume and material type.
- L. The operator shall notify the LEA at least 48 hours prior to scheduled shutdowns and within one hour of unscheduled shutdowns. A log of these shutdowns shall be maintained and available at all times.
- M. The operator shall provide training in safety procedures to all workers and employees at the facility, as stated in the RCSI.
- N. The Odor Impact Minimization Plan (OIMP) shall be reviewed by the operator annually to determine if any revisions are necessary.



- O. The OIMP shall be revised to reflect any changes in design and operation, and the proposed changes shall be provided to the LEA in the form of an RCSI Amendment.
- P. All laboratory analyses of finished compost shall be performed by a California State-certified laboratory. The results of the analyses shall be provided to the operator by the laboratory before the compost is removed from the site. As specified in Title 14, CCR, Chapter 3.1, Article 7, Section 17868.1, no compost shall leave the premises of the facility without meeting the metal concentration limits specified in Section 17868.2 and the pathogen reduction requirements specified in Section 17868.3. Verification of the pathogen reduction and metal requirements shall occur prior to removal of the compost from the site.
- Q. Compost that contains metals or pathogens in amounts that exceed the maximum acceptable metal and/or maximum acceptable pathogen concentrations shall be designated for disposal, or additional processing until it meets acceptable levels.
- R. Covered Aerated Static Piles (CASP) or windrows shall be constructed and handled in a manner that limits the attraction of birds, animals, or vectors to the site.
- S. If nuisance conditions develop with the compostable materials, immediate measures shall be taken to mitigate the problem. Records of measures taken to deal with such conditions shall be available to the LEA. If odor abatement cannot be achieved within 24 hours, the material shall be landfilled. Records of such disposal shall be maintained and available for inspection.
- T. Random load checks of feedstock, additives, and amendments for contaminants shall be conducted daily. Contaminants shall be removed prior to incorporation in CASP piles or windrows and removed within 24 hours.
- U. All green material shall be processed within 72 hours of receipt. All biosolids, manure (an agricultural material) and dedicated loads of food material/loads containing primarily food material shall be processed and incorporated into CASP piles or windrows within 24 hours of receipt. In the event of an equipment breakdown or other unforeseen circumstance that would prevent processing of green material within 72 hours or processing and incorporation of biosolids, manure or dedicated loads/loads containing primarily food material into CASP piles or windrows within 24 hours, material may be stockpiled and covered with finished compost or other suitable materials for no more than seven days, providing that odors, vectors, or other nuisance conditions do not develop. (Refer to Condition S.) Absent such nuisance conditions, if the material cannot be processed and incorporated into CASP piles or windrows within seven days, it shall be landfilled or sent to another facility. Records of such disposal shall be available for inspection.
- V. The operator shall maintain a record of all written and oral complaints regarding the facility and the operator's action(s) taken in response to the complaint. The operator shall immediately notify the LEA via e-mail or telephone upon receipt of any odor complaints.
- W. This permit supersedes the previous Solid Waste Facility Permit for the composting facility, as described in the 2008 SWFP for Redwood Landfill, SWIS No. 21-AA-0001.

**2017 Redwood Landfill Greenhouse Gas Reduction Plan  
(Mitigation Measure 3.2.5f)**

Presented To:

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# 1 INTRODUCTION

Efforts are currently underway at all levels of government to reduce greenhouse gas (GHG) emissions from all sources, including landfills. This GHG Reduction Plan is consistent with and furthers those efforts. First developed in 2008, this GHG Reduction Plan Update brings current the prior GHG Reduction Plan<sup>1</sup> prepared for the Redwood Landfill (Redwood) as required by the 2008 Environmental Impact Report (EIR) Mitigation Measure 3.2.5f.

## GHG EMISSIONS FROM SOLID WASTE DISPOSAL ACTIVITIES

### GHG Emissions from Landfills

Management of waste affects GHG emissions in several ways. The first is landfill methane (CH<sub>4</sub>) emissions. Landfills typically emit carbon dioxide (CO<sub>2</sub>) and methane from the creation of landfill gas (LFG). The United States Environmental Protection Agency (EPA) has reported that methane accounts for about 9 percent of all national GHG emissions, measured in terms of global warming potential (GWP) (EPA, 2013). Landfill methane accounts for 17.5 percent of the methane, or 1.5 percent of the overall emissions. (EPA, 2013.) The Intergovernmental Panel on Climate Change (IPCC) estimates that landfill methane accounts for 3 percent of global GHG emissions. (IPCC, 200701.) The current California Air Resources Board (CARB) inventory indicates that for 2014, landfills contributed 1.5 percent of the statewide GHG emissions. (CARB, 2016.)

Under natural conditions, waste decays and produces biogenic or naturally occurring CO<sub>2</sub>, whereas under the anaerobic conditions that occur in a landfill, anthropogenic or human-made methane is formed along with biogenic CO<sub>2</sub> in approximately equal amounts. The majority of methane is captured and destroyed or oxidized in the cover to produce biogenic CO<sub>2</sub> that would have occurred under non-landfill conditions. In addition, landfills effectively sequester or store carbon that would have otherwise produced CO<sub>2</sub>, thereby providing a carbon “sink. (IPCC, 2006, IPCC, 2007b, IPCC, 2007c.)

The majority of anthropogenic methane that is generated within landfills is captured, combusted or is oxidized, and converted to biogenic CO<sub>2</sub> and water. The methane and CO<sub>2</sub> produced, combined in a single stream as “landfill gas” may be collected and flared or converted to energy, which oxidizes the methane to CO<sub>2</sub> emitted to the atmosphere. The methane can also be oxidized to CO<sub>2</sub> by methanotrophic bacteria in the landfill cover soil. Therefore, the ultimate fate of carbon placed in the landfill is either sequestered (long-term storage in the landfill) or emitted as CO<sub>2</sub> and methane. Methane from landfills is considered an anthropogenic GHG while the CO<sub>2</sub> is biogenic in origin.

In the United States, as well as in California, municipal solid waste (MSW) is composed of approximately 30 to 50 percent cellulose, 7 to 12 percent hemicellulose, and 15 to 28 percent lignin on a dry weight basis, with cellulose and hemicellulose representing about 90 percent of the biodegradable portion of the MSW. When MSW is buried in a landfill, a complex series of

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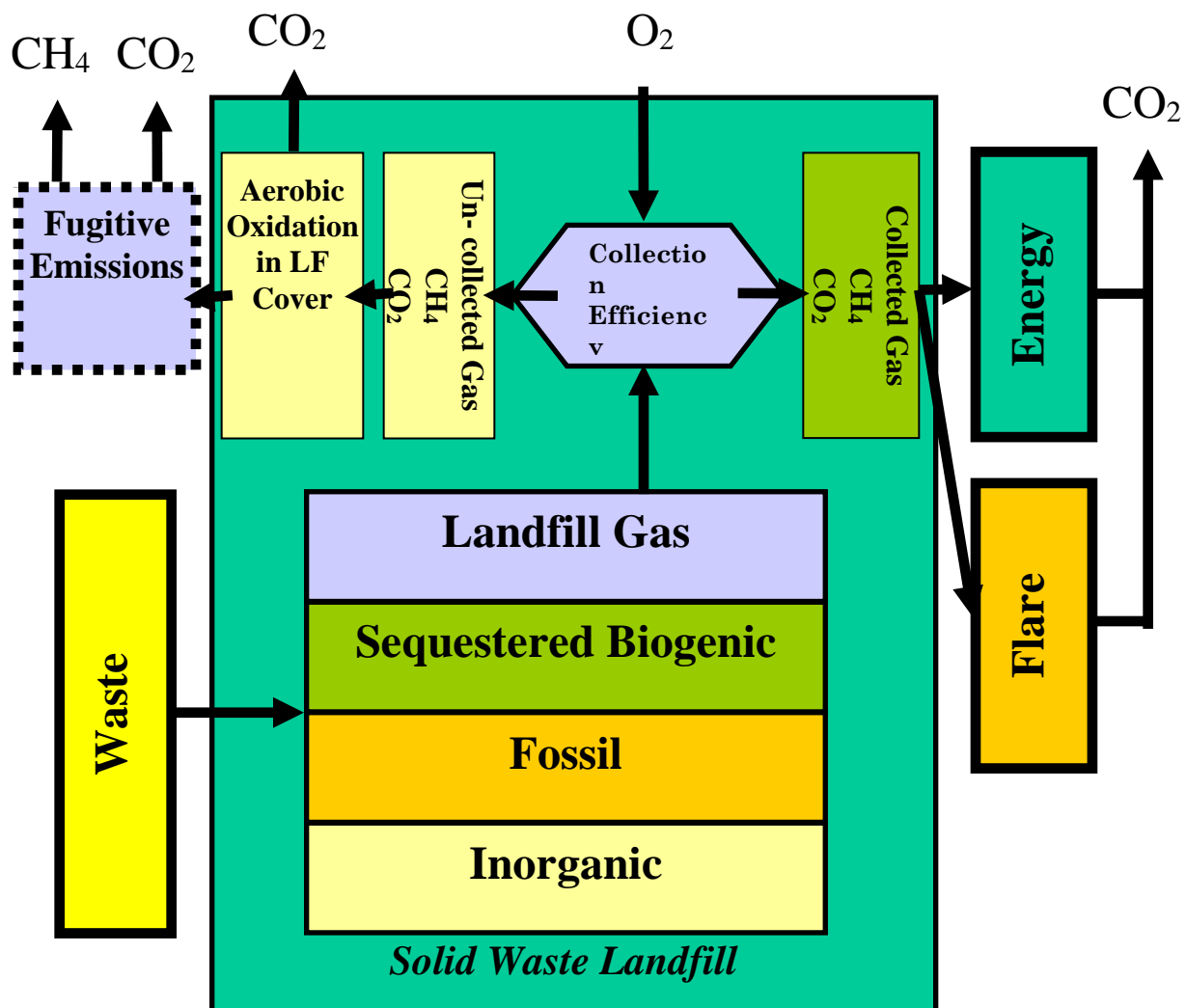
<sup>1</sup> 2016 Redwood Greenhouse Gas Reduction Plan dated September 2016

reactions occur in which anaerobic microorganisms decompose a portion of the organic fraction of the waste to CO<sub>2</sub> and methane. Management and treatment of waste ultimately leads to management of the method by which the carbon will be released back into the environment, similarly changing the climate impacts and the way waste will need to be stored, treated and disposed.

The other positive impacts are less visibly parts of the waste management process. Both recycling and waste reduction lead to decreased energy use and process emissions associated with production of new materials. Energy recovery from waste also displaces fossil fuel consumption. Each of these activities reduces GHG emissions.

Figure 1 shows a not-to-scale schematic of the carbon flow in landfills.

**Figure 1. Schematic of Carbon Flow in Landfills**





## **Federal Greenhouse Gas Reporting**

On October 30, 2009, the EPA promulgated its Mandatory Reporting Rule (MRR) (40 Code of Federal Regulation [CFR] 98). The MRR requires annual GHG emissions reporting from landfills generating more than 25,000 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e) starting with the reporting of 2010 calendar year emissions in 2011. Landfills that are required to report due to methane generation are also required to report emissions from other categories, most commonly stationary combustion.

The MRR also requires reporting for any facility emitting more than 25,000 MTCO<sub>2</sub>e. In 2012, over 8,200 facilities reported GHG emissions. Of those reporters, 15 percent were MSW landfills, which accounted for 39 percent of reported emissions. The MRR includes only large stationary sources; vehicle fuel, heating fuel, and small stationary sources are not included in the program.

Redwood reports its annual GHG emissions to the EPA as required under the MRR. The MRR does not create a cap or limit on GHG emissions.

## **Statewide GHG Emissions from Solid Waste Disposal**

The California Greenhouse Gas Inventory developed by CARB (CARB, 2015) indicates that the statewide emissions CO<sub>2</sub> equivalent (CO<sub>2</sub>e) were 459.28 MMT in 2013, the most recent inventory year. Solid waste disposal (i.e., landfills) accounted for 8.32 million metric tons (MMT) of CO<sub>2</sub>e in 2013 or about 1.8 percent of the total. Other sources or industries contributing to this statewide total include: (1) transportation fuel use (169.2 MMT or 36.8 percent); (2) agriculture (36.21 MMT or 7.9 percent); (3) industrial processes and product use (92.68 MMT or 20.2 percent); and (4) waste, including solid waste disposal (8.87 MMT or 1.9 percent). (CARB, 2015.)

In the most recent inventory year (2013), the national emissions of methane from landfills were estimated by the EPA to be 114.6 MMTCO<sub>2</sub>e. In the same year, the EPA estimated that 12.6 MMTCO<sub>2</sub>e were sequestered in landfills due to the landfilled yard trimmings and food waste. (EPA, 2015.)

## **California Climate Solutions Act**

Many legislative and executive actions have focused on addressing climate change in California. Assembly Bill 32, the California Climate Solutions Act of 2006 (AB 32), is the most important. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that started in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 also specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles.

On June 21, 2007, CARB published its Proposed Early Actions to Mitigate Climate Change in California, which describes recommendations for discrete early action measures to reduce GHG

emissions. (CARB 2007a.) These measures became part of California's strategy for achieving GHG reductions under AB 32.

One of the sources for the potential measures includes the Climate Action Team (CAT) Report (CAT 2007, CAT 2010). A total of three new regulations were proposed as "discrete early action greenhouse gas reduction measures," which included: restrictions on high global warming potential refrigerants; a low carbon fuel standard (LCFS); and improved landfill methane capture. (CARB, 2007a.) On June 17, 2010, CARB's Landfill Methane Rule (LMR) became effective. LMR requires additional surface monitoring of landfills for methane emissions, additional annual reporting, and potentially earlier gas collection from waste containing areas of the landfill. CARB has estimated that the LMR will result in an increase in the collected methane at landfills from 75 percent to 85 percent, resulting in statewide GHG reductions of 1.1 MMT CO<sub>2</sub>e. Redwood is subject to the LMR and has been complying since 2011. However, as a conservative approach, a collection efficiency of 75 percent has been used in this evaluation.

It is anticipated that the measures being implemented at Redwood to reduce GHG emissions in advance of direct regulation of GHG emissions through AB 32 will ultimately facilitate the site's compliance with those future regulations.

### **Local GHG Reduction Efforts**

In 2002, Marin County (County) joined the Cities for Climate Protection (CCP) Campaign, which is working to reduce GHG emissions through actions by local governments. The CCP Campaign is part of the "International Council for Local Environmental Initiatives (ICLEI) - Local Governments for Sustainability" program, which is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development. The CCP Campaign provides five milestones for local government entities to reduce their contributions to GCC: (1) analyze current and predicted GHG emission levels; (2) set a GHG reduction target; (3) develop a local action plan; (4) implement a local action plan; and (5) monitor progress and report results.

The County is actively participating in the CCP Campaign through local planning and implementation efforts. The Marin Countywide Plan Final Environmental Impact Report (CWP Update FEIR) analyzed GHG emissions associated with buildout of the CWP and includes specific programs to reduce the County's GHG emissions. (Marin, 2007b.) The County has also measured the County's ecological footprint in terms of acres of land to support an average County resident as part of its sustainability program. (See Marin, 2006a; Marin, 2006b; Marin, 2007a.)

In its 2003 Report on Greenhouse Gas Emissions for the County (GHG Emissions Report), the County completed the first milestone of the CCP Campaign by presenting an inventory of the County's GHG emissions. (Marin 2003). The inventory indicated that for the year 2000, "waste was -4 percent of Marin's GHG emissions, which means it serves as a sink (net loss) of CO<sub>2</sub>E." (Marin, 2003.) The County's analysis indicated that under natural conditions, waste decays and produces CO<sub>2</sub>, whereas under the anaerobic conditions that occur in a landfill, methane is formed. The majority of methane that escapes the landfill is flared and converted to CO<sub>2</sub>.

As part of its sustainability program, the County also prepared a report entitled: Measuring Marin County's Ecological Footprint (February 2006) (Ecological Footprint Report). The Report explains that a "Footprint measures ecological demand associated with human activities in terms of the area of biologically productive land and sea required to provide the resources being used and to absorb the waste generated, given current technology." (Marin, 2006a.) The consumption of an average United States resident requires 24 global acres. According to 2001 calculations, the footprint of an average County resident was calculated to be 27 acres. (Marin 2006a.) The Ecological Footprint Report notes that transportation is responsible for more than half of the County's GHG emissions. (Marin, 2006a.) The Report also describes how the County's waste creates an ecological footprint associated with: (1) the physical area occupied by landfills; (2) trucks and roads needed to transport waste; and (3) material and energy needed to process the waste stream. (Marin, 2006a.)

Footprint savings can be generated by reducing consumption (including eliminating unnecessary packaging and buying durable products) and by increasing recycling products at the end of their useful life. (Marin, 2006a.) County residents produce about 2.7 pounds of solid waste per day (the state average is 2 pounds per day). However, the County diverts more than 75 percent of its waste from disposal, which is a higher rate than any other county in the state. The Ecological Footprint Report references CWP programs that will encourage individual and collective reductions in the County's ecological footprint. (Marin 2006a.)

The 2006 Marin County Greenhouse Gas Reduction Plan (Marin GHG Reduction Plan) reported that waste comprised 3 percent of the County's GHG emissions for the year 2000. (Marin 2006b.) The GHG Reduction Plan also set a target at 15 percent below the 1990 baseline for countywide GHG reductions by the year 2020. (Marin, 2006b.) The Marin County Re-Inventory of Greenhouse Gas Emissions (GHG Re-Inventory) represents the fifth CCP Campaign milestone – to monitor progress and report results. (Marin, 2007a.) The GHG Re-Inventory shows waste as 2 percent of the County's GHG emissions. (Marin, 2007a.) The modeling used for the Re-Inventory also shows that 108,103 tons of waste-derived CO<sub>2</sub>e were captured and/or permanently sequestered. (Marin 2007a.) The GHG Re-Inventory notes that the model does not account for the energy required to create and transport products that eventually enter the waste stream. (Marin, 2007a.) The County's future inventories may include these additional GHG emissions. (Marin, 2007a.)

The GHG Reduction Plan also included a plan for reaching the target reduction, largely based on goals, policies and programs contained in the CWP Update. (Marin, 2006b.) Under **Program AIR-4.f Establish a Climate Change Planning Process**, the County will:

Continue implementation of the approved Marin County Greenhouse Gas Reduction Plan. Integrate this plan into long-range and current planning functions of other related agencies. Establish and maintain a process to implement, measure, evaluate, and modify implementing programs, using the Cities for Climate Protection Campaign as a model.

Several programs in the CWP Update are specifically designed to reduce GHG emissions related to waste disposal. Implementation of these programs at Redwood Landfill is part of the County's GHG Reduction Plan.

The County is currently in the process of updating its County GHG Reduction Plan. The County's 2014 Public Draft Climate Action Plan estimates that waste still generates about 2 percent of the County's GHG emissions. (Marin 2014.) Future updates to Redwood's GHG Reduction Plan will incorporate any new information generated by the County in that update process.

### **Redwood's 2008 Environmental Review Process and Subsequent GHG Compliance**

Consistent with CWP **Program AIR-4.f**, the environmental review process for Redwood resulted in adoption of Mitigation Measure 3.2.5f, which requires that Redwood document its GHG reduction efforts as follows:

Prior to project approval, the applicant will develop a Greenhouse Gas Reduction plan that demonstrates how the landfill will achieve by 2020 a reduction in annual GHG emissions such that emissions are no greater than 15 percent below 1990 levels. This will include but is not limited to development of alternative energy, including additional landfill gas-to-energy production capacity and solar generation capacity; use of alternative fuels in on-site equipment and in truck fleets; increased recycling, development of other on-site renewable energy generation capacity. Measures may also include those measures discussed in the guidance document entitled: Technologies and Management Options for Reducing Greenhouse Gas Emissions from Landfills, April 2008, available at: <http://www.calrecycle.ca.gov/publications/Detail.aspx?PublicationID=1268>. For emission reductions that cannot feasibly be achieved through on-site measures, the plan may specify purchase of off-site carbon credits that are verified and listed with the California Climate Action Registry; available from the Chicago Climate Exchange or the Regional Greenhouse Gas Initiative (RGGI); or otherwise deemed acceptable by the Marin County Community Development Agency/BAAQMD. The plan will include specific measures and a timeline for reducing the landfilling and use as landfill cover material of putrescible organic material. This will include, but is not limited to, phasing out the use of raw greenwaste and sewage sludge as alternative daily cover material, reducing the landfilling of sewage sludge, food waste, and other materials with a potential for high methane generation, and cooperative programs with waste collectors, individual municipalities, and joint powers authorities to increase source separation of organic materials for composting. The plan will include cost estimates for plan implementation and will identify funding sources, including but not limited to tip fee increases. The plan shall include an implementation schedule that demonstrates compliance with the following interim and final targets:

**By 2015:** Greenhouse gas emissions reduced by 25 percent below annual baseline;

**By 2020:** Greenhouse gas emissions reduced to 15 percent below 1990 levels;  
**Beyond 2020:** Greenhouse gas emissions not to exceed 15 percent below 1990 levels.

The plan will include an updated inventory of lifecycle GHG emissions including an updated estimate of GHG emissions in 1990 as well as the milestone years. The Plan also establishes 2008 as the baseline year. The updated inventory shall constitute the annual baseline for the purpose of determining the above-stated targets. The plan will be updated and submitted for review at least every 5 years. The plan will be subject to review and approval by Marin County Community Development Agency and the Bay Area Air Quality Management District (BAAQMD).

On March 30, 2016, the Marin County Community Development Agency (MCCDA) provided direction to Redwood regarding certain inputs to use in the calculations for this GHG Reduction Plan, which are incorporated herein. (MCCDA, 2016.)

### **Additional Background Information**

Mitigation Measure 3.2.5f goes well beyond the current requirements of the CARB, AB 32 and the mitigation requirements of the California Environmental Quality Act (CEQA). There is presently no requirement for individual projects to comply with the AB 32 goal of reducing statewide GHG emissions to 1990 levels by 2020. Under CEQA, mitigation measures normally address impacts caused only by the project being analyzed, not previously analyzed and permitted operations. (See, e.g., CEQA Guidelines, §§ 15126.6, 15126.4.) Mitigation measures must also have an essential nexus with and be roughly proportional to the impacts of the project. (CEQA Guidelines, § 15126.4, subds. (a)(4)(A) & (B).)

Mitigation Measure 3.2.5f would mitigate impacts associated with the entire life of the landfill by reducing GHG emissions to *below 1990 levels* without consideration of the fact that the landfill is already a permitted facility that has not yet reached maximum capacity under its 1995 SWF permit. Unlike other industrial activities that have no emissions when there is no activity, the major source of GHG emissions for landfills is associated with the decomposition of waste over time. While the environmental baseline for purposes of the environmental review process was conditions (GHG emissions) as they existed at the time review commenced in 1998 (CEQA Guidelines, § 15125), Mitigation Measure 3.2.5f requires GHG emissions to be reduced well below baseline conditions to 15 percent below 1990 levels. For these and other reasons, Mitigation Measure 3.2.5f could be considered legally or otherwise infeasible under CEQA. (See CEQA Guidelines, § 15364.)

In any case, Redwood is committed to meeting the GHG reduction goals contained in Mitigation Measure 3.2.5f. This commitment is also consistent with the proactive role of Redwood's parent company, Waste Management, Inc. (WM), on GHG issues, which was the first solid waste company to voluntarily join the California Climate Action Registry and the Chicago Climate Exchange (CCX).

In 2003, Redwood worked with the Marin Audubon Society to convert 180 acres of its site to wetlands as part of the Petaluma Marsh, the largest salt marsh in San Pablo Bay home to shorebirds and water fowl.” (WM 2014a.) The Landfill has also incorporated the WM EarthCare™ Landscape Center, “featuring a family of landscape products locally sourced and produced from 100% recycled materials, including Redwood’s own *Homegrown Compost*,” and a family of Landscape Centers made from recycled materials to reduce carbon emissions. (WM 2014b.) In 2014, Redwood expanded its composting operation to 514 tons per day, providing additional composting capacity for the growing demand for composting using updated composting methods.

WM is the largest Landfill Gas to Energy (LFGTE) developer and operator in North America, with 90 projects, consisting of power plants, medium Btu gas sales, and renewable natural gas facilities, with a total equivalent nameplate capacity of about 460 megawatts. WM also sells landfill gas to third party developers at 43 more locations. EPA’s Landfill Methane Outreach Program named WM its 2011 Industry Partner of the Year for waste-based renewable energy. Sustainability Key Performance Indicators show that GHG footprints from process decreased from 21,552,559 MTCO<sub>2</sub>e in 2009 to 16,448,441 MTCO<sub>2</sub>e in 2011. Through recycling, WM achieved GHG savings equal to 6.3 million cars taken off of the road for the year 2011, up from 4.8 in 2009; and of 1.8 million households per year, up from 1.4 million in 2009. Waste-based energy benefits included 6,089,000 tons of coal equivalent, and 23,494,000 barrels of oil equivalent in 2011. (WM 2012.) As discussed below Redwood completed construction of a LFGTE plant and commenced operations in 2017, producing an estimated 4 megawatts of power.

In 2012, WM was named for the fifth consecutive year, the “Most Ethical Company Award,” by the Ethisphere Institute. The Ethisphere Institute is a research-based organization with a focus on corporate and social responsibility, business ethics, anti-corruption and sustainability best practices. Of the one hundred and forty-five companies listed on the “WME Index,” WM was the only environmental services or waste industry company to be named. (WM 2012.) WM was also named as part of the Carbon Disclosure Project, which recognizes the top 10 percent of industrial companies for efforts to reduce emissions and mitigate the risks of climate change. (WM 2012.)

## 2 GHG INVENTORY AT REDWOOD

### METHODOLOGY

As previously noted, landfills sequester carbon as well as emit GHG, primarily in the form of methane. The existing LFG collection and control system (GCCS) at Redwood Landfill collects most of the generated LFG and either combusts it in a flare or converts it to electricity in the LFGTE plant. A small amount of collected methane escapes from the flare or LFGTE plant uncombusted. Uncollected LFG dissipates through the landfill cover, where a significant portion of the methane is oxidized to CO<sub>2</sub>. This oxidation further reduces the methane emissions from the landfill. Finally, landfills sequester or store carbon that would otherwise be released as CO<sub>2</sub>, though sequestration calculation methodologies vary.



## Baseline Emissions

Baseline GHG emissions in 1990 were established in the 2008 GHG Reduction plan prepared by SCS. The 1990 baseline emissions were 2,804 Mg/yr. The MCCDA directed that the updated GHG Reduction plan should use this fixed baseline (March 30, 2016 MCCDA Review Letter). Thus, this baseline will not be updated to reflect updated methodologies or data.

## Methane Generation

Methane generation is modeled using the EPA's Landfill Gas Emission Model (LandGEM). LandGEM is the regulatory model used by landfills to calculate emission for purposes of determining emissions for air permitting. It is a first order decay (FOD) model, which uses the waste placement in each year, a methane generation potential value ( $L_0$ ), and a decay value ( $k$ ) to determine the generation rate of methane and other components of LFG.

The methane generation was modeled using the tonnage of putrescible waste only. This approach excludes inert waste landfilled such as soil, but it includes construction and demolition (C&D) waste, which is a waste type tracked separately by many landfills including Redwood. This approach of exclusion of inert waste is consistent with the MRR.

## Methane Oxidation

The 2008 GHG Reduction Plan for Redwood used the default methane oxidation rate of 10 percent of the amount of methane that fugitively migrates through landfill cap and cover materials. (EPA, 2004.) However, the EPA recently amended the MRR to adopt the flux-based oxidation rates suggested by the Solid Waste Industry for Climate Solutions (SWICS) *Current MSW Industry Position and State-of-the-Practice on LFG Collection Efficiency, Methane Oxidation, and Carbon Sequestration in Landfills* document (SWICS 2009, 2013), which can range from 10 percent to 35 percent. The methane oxidation rates for each methane flux rate are shown in **Table 1**. These oxidation values were calculated using a database of field and laboratory measurements.

**Table 1 –Methane Oxidized in Landfill Cover by Flux Rate**

Flux Rate (g/m <sup>2</sup> /day)	Percent Oxidized
>70	10
10<flux<70	25
<10	35

Based on experience in the field, SCS Engineers (SCS) believes these flux-based oxidation values are more reliable than the default oxidation value of 10 percent used in many GHG inventories, and the flux based rates have been incorporated into the MRR. For the purposes of this inventory, the flux rate was calculated based on the fugitive emission flow rate and the landfill area. Because the fugitive methane emission rate at Redwood changed annually, the

methane oxidation rate also changed from 1990 to the present, increasing from 25 percent to 35 percent.

The MCCDA confirmed that the use of the 35 percent collection efficiency was appropriate for the 2015 inventory in its March 30, 2016 Review Letter.

### **LFG Collection Efficiency**

The site's GCCS and flare allow combustion to convert methane to CO<sub>2</sub>, vastly reducing its GHG impact and returning it to a biogenic form. In Redwood's LFGTE plant, collected landfill methane is alternatively substituted for natural gas, a fossil fuel, to produce renewable energy, currently at the rate of about 4 megawatts.

The amount of LFG assumed to be collected by an active or passive LFG system (i.e. collection efficiency) is an important parameter that must be accurately accounted for in a landfill GHG inventory. Prior to the adoption of the LMR, EPA and CARB assumed a default or blanket 75 percent LFG collection efficiency rate for landfills with a GCCS. In its evaluation of the LMR's effectiveness, CARB estimated that statewide collection efficiency would increase to 85 percent. According to research of available data, however, the LFG actual capture efficiency rate varies greatly among landfills. The collection efficiency is dependent on the type of cover, the purpose of the GCCS, and the effectiveness of the GCCS. (SWICS, 2009.)

SCS has extrapolated collection efficiencies based on site-specific data for Redwood for the years evaluated in the GHG Reduction Plan. For 1990, this GHG Reduction Plan estimates the collection efficiency was 50 percent because the GCCS at that time was only a partial system (a limited number of LFG wells were installed in 1987) and was not intended to comply with current federal and state air quality regulations. The 50 percent value is based on the default for partial LFG systems in the SWICS methodology. (SWICS, 2009.) This value is considered to be conservatively high, thereby underestimating 1990 baseline emissions, because the LFG system installed in 1987 provided coverage for less than half of the refuse that was in place at that time. As such, it is likely that the actual LFG collection efficiency in 1990 was less than 50 percent, resulting in higher 1990 baseline GHG emissions for the Redwood Landfill. By 2001, the GCCS was modified and improved to comply with New Source Performance Standards (NSPS) and other federal and air district regulations.

For the period beginning in 2001 until the LMR became effective in 2011, a LFG collection efficiency of 75 percent is estimated. This collection efficiency matches the collection efficiency calculated using the SWICS method for 2007, which is based on cover type, surface emissions monitoring data, LFG design details, and other site-specific parameters. These parameters were the same for all years in this time period.

The March 30, 2016 MCCDA Review Letter indicates that Redwood should use a 75 percent collection efficiency for the current GHG inventory year. Although SCS and Redwood believe that this collection efficiency is lower than the actual collection efficiency at Redwood, thereby overestimating emissions, this collection efficiency is used in calculating the GHG emissions for this report.

## **Methane Global Warming Potential**

The global warming potential (GWP) of a gas is a measure of the effectiveness of the gas to increase global warming. When determining the GHG emissions from a source, emissions from all GHG are converted to CO<sub>2</sub>e based on their GWP. A higher GWP indicates a greater potential to increase global warming. Most GHG inventories used the GWP values from the IPCC Second Assessment Report (TCR, 2008; EPA, 2011; CARB 2007). The GWP for methane in the Fifth Assessment Report is 34. The EPA's MRR was amended in 2013 to use a GWP of 25 for methane. When calculating the GHG emissions from Redwood Landfill, SCS used a GWP of 25 for methane, which is based on the IPCC's Fourth Assessment Report and the EPA's GHG reporting regulation starting with the 2013 inventory year (IPCC, 2007a, EPA 2014) and consistent with the MRR.

## **Sequestration**

A substantial portion of the carbon in all disposed materials that contain carbon is never released, but remains sequestered indefinitely in landfills. A number of international and domestic protocols including the IPCC and EPA recognize carbon storage in landfilled material as a sink in calculating carbon emissions inventories. The EPA includes carbon storage in landfills and other waste management options in its Waste Reduction Model (WARM). CARB, The Oregon Climate Trust, the EPA, and the IPCC recognize carbon storage from waste management or other practices. However, CARB and the EPA have recently removed carbon in landfills as a carbon sink in their inventories. CARB has characterized the inclusion of sequestration as technically correct but inconsistent with the atmospheric flow approach CARB utilizes in its inventories. Even though sequestration is a substantial and recognized factor in most GHG inventories, this GHG Reduction Plan does not include any quantitative credit for carbon sequestration.

## **Mobile Source Emissions**

Mobile source emissions from the landfill include the GHG emissions from off-road equipment as well as on-road refuse hauling vehicles.

Mobile source emissions include both off-road and on-road sources. Off-road sources include dozers, loaders, and similar waste handling equipment. On-road emissions include fleet and self-haul vehicles. Year 2013 to 2016 mobile source emissions were calculated using available site specific data.

Equipment GHG emissions were calculated based on the volume of diesel and gasoline used by on-site equipment. Fuel use was obtained from site records and is summarized with the resulting GHG emissions in **Table 2**. The GHG emissions from equipment use over this period was divided by the total tonnage of waste landfilled over this period to determine an emission factor of GHG emission from equipment per ton of waste landfilled. That factor is 0.00530 MTCO<sub>2</sub>e per ton of waste landfilled. GHG emissions from each other year were then determined by multiplying the total tonnage of waste landfilled by the emission factor of 0.00530 MTCO<sub>2</sub>e per ton of waste landfilled.

**Table 2 – Equipment Fuel Use and GHG Emissions**

Year	Total Waste Landfilled (tons)	Diesel Used (gallons)	Gasoline Used (gallons)	Emissions (MgCO <sub>2</sub> E)
2013	238,789	122,003	3,278	1,278
2014	251,992	123,000	3,191	1,288
2015	287,471	143,739	2,461	1,494
2016	302,205	161,636	1,790	1,671
Total	1,080,457	550,378	10,720	5,731

Haul vehicle emissions occur when a vehicle transports waste to the Redwood Landfill. The facility does not own or control many of the vehicles, so fuel use cannot be directly measured. However, Redwood does track the number of trips, general vehicle classification (e.g., transfer trailer and truck, garbage truck, pickup truck), and the amount of waste in the vehicle. Based that vehicle information for 2013 to 2016, Redwood Landfill estimates that the average fuel efficiency for vehicles bringing waste to Redwood Landfill is 8.88 miles per gallon (mpg) and that the average load is 7.8 tons of waste delivered. Redwood estimates that the typical waste hauling distance is 15 miles one-way, which his consistent with the existing 2013 EIR addendum. **Table 3** shows the waste landfilled, the number of trips, the fuel efficiency for that year, and the haul vehicle emissions for 2013 to 2016. Based on these emissions and the tonnage of waste landfilled, haul vehicle emissions are 0.00441 MTCO<sub>2</sub>e per ton of waste landfilled. This factor was used for all other years to calculate the GHG emissions from haul vehicles.

**Table 3 – Haul Vehicle Information and GHG Emissions**

Year	Total Waste Landfilled (tons)	Trips	Fuel Efficiency (mpg)	Emissions (MgCO <sub>2</sub> E)
2013	238,789	31,522	9.04	1,071
2014	251,992	33,265	8.92	1,146
2015	287,471	37,948	8.85	1,317
2016	302,205	38,599	8.74	1,304
Total	1,080,457	138,002		4,760

Mobile source emissions are based on the total tonnage of waste landfilled and not the tonnage of putrescible waste landfilled because inert waste also takes fuel to transport and to process at the landfill.

## RESULTS

**Table 4** summarizes the assumptions discussed above and incorporated into the inventory for this GHG Reduction Plan. **Table 5** shows the GHG emissions from Redwood Landfill and compares annual emissions to the baseline conditions in 2008 and the 1990 level emissions. As **Table 5** shows, the GHG emissions from Redwood Landfill have decreased since 1990 even though LFG generation has increased. This decrease in GHG emissions since 1990 is primarily due to the installation of a comprehensive GCCS and flare to destroy methane. The 2020 emissions from

the landfill are lower than the 1990 or baseline emissions due to the expansion of the GCCS and continued compliance with the LMR.

**Table 4 - Comparison of Factors Used in Landfill GHG Calculations**

Parameter	2008 Value	2015 Value	2020 Value
LFG Collection	75%	75%	75%
Methane oxidation in cover	25%	35%	35%
Methane destruction in flare	99.96%	99.96%	99.96%
Methane destruction in engines		98.34%	98.34%
Methane global warming potential (MgCO <sub>2</sub> E/Mg methane)	25	25	25

### 3 GHG MITIGATION MEASURES AND REDUCTIONS

Existing and planned activities at Redwood Landfill are reducing GHG emissions in conformance with draft CWP programs that implement the County's GHG Reduction Plan. Increased recycling and reuse activities along with the recently constructed LFGTE project and applicable mitigation measures further reduce GHG emissions and implement the County's GHG Reduction Plan. These activities are summarized in **Table 6**.

**Table 6 - GHG Reduction Measures at Redwood Landfill**

<b>GHG Reduction Measure</b>	<b>Description</b>
Removal of C&D from loads delivered to landfill	Construction and demolition (C&D) debris is removed from incoming waste delivered to the landfill.
Self-haul and debris box sorting and recovery operation for general recyclables	General recyclables are removed from self-hauled waste and placed into bins for recycling and recovery.
Composting	Greenwaste, woodwaste and other compostable waste is diverted for composting. This operation was expanded significantly in 2014 and now includes foodwaste composting.
Construction and Demolition Debris Materials Recovery Facility (MRF)	C&D debris is collected at the landfill and sorted at the MRF. The MRF has a much higher throughput than current C&D recycling levels. This operation is expected to be developed in 2018.
Solar power generation	Solar panels were added at the site to generate electricity. Solar panels at the facility can generate 22 megawatt hours per year (MWhr/yr)
Landfill gas to energy project (LFGTE)	Engines and generators are added to the gas collection and control system to burn landfill gas and generate electricity. This operation was permitted in 2016 and operational in 2017.

## LFG CONTROLS

Under existing operations as permitted by the BAAQMD, Redwood Landfill must operate a LFG collection system that controls at least 75 percent of generated LFG. In its rulemaking for the LMR, CARB estimated that the collection efficiency for California would increase to 85 percent in the state on average. Redwood is subject to and compliant with the LMR, so it is reasonable to believe that the LFG collection efficiency is 85 percent; however, a collection efficiency of only 75 percent is used in this evaluation. The LFG recovery system combusts at least 98 percent of non-methane organic compounds (NMOCs) in the collected LFG under its Permit to Operate (PTO) from the BAAQMD. Enclosed flares like the one at Redwood Landfill destroy 99.96 percent of the methane in the LFG on average. (SWICS, 2007.) Combusting methane in the LFGTE plant is similarly effective with an estimated destruction rate of 98.34 percent of the methane in LFG on average. (SWICS, 2008). The small amount of uncombusted methane is included in the GHG inventory, but fugitive methane emissions through the landfill cover account for most of the GHG emissions from the landfill. Cover materials and final landfill caps further attenuate methane emissions from uncollected LFG through oxidation.

As shown in **Table 2**, the analysis for this report assumed a LFG collection efficiency of 50 percent in 1990, 75 percent in 2008, 2015, and 2020. The bases for these assumptions is discussed in section 2 (GHG Inventory at Redwood) above.



Additional best management practices (BMPs) discussed in the report entitled *Technologies and Management Options for the Reducing Greenhouse Gas Emissions from Landfills*, among other sources, may be carried out at Redwood to further reduce GHG emissions. (CIWMB, 2008.)

These BMPs are intended to increase LFG capture at landfills, which would increase methane capture and destruction, increase the collection efficiency, and reduce the methane emitted. As specified in the guidance, each BMP would have to be evaluated for application at the site to determine whether the practice would be technologically feasible, implementable, and would be expected to substantially increase LFG capture. The guidance contains a specific strategy for assessing feasibility and developing an action plan that would be followed to achieve optimal results. These measures could improve collection efficiency beyond 75 percent, providing additional GHG reductions to maintain compliance with the LMR and achieve a higher efficiency.

## LFG TO ENERGY PROJECT

A LFGTE project using internal combustion (IC) engines creates renewable energy, which displaces the need for fossil fuel and reduces GHG emissions. The Mitigated Alternative included a LFGTE project that could provide renewable electricity for the entire site and an estimated 8,000 California homes. The LFGTE facility was permitted in 2016 and began operation in summer 2017. The generation capacity of the LFGTE facility is 3.9 MW. Under development since 2000, this project converts LFG to energy, thereby replacing energy that would otherwise be produced from fossil fuels and other nonrenewable sources of conventional power. LFG is preferentially routed to the engines where it is used to create electricity in IC engines, rather than being flared. The flares remain on site to destroy LFG in excess of what the engines can use. The GHG reductions generated by the LFGTE project are not included in the totals shown in **Table 5** as those GHG reductions are not currently being relied upon for purposes of compliance with Mitigation Measure 3.2.5f. Redwood may rely on the Green Attributes of GHG reductions from LFGTE in future GHG Reduction Plan updates if needed to comply with Mitigation Measure 3.2.5f and SWF permit condition 16T, which are local and state permit requirements.<sup>2</sup>

As already stated, the LFGTE facility began operations in 2017. Redwood has contracted with Marin Clean Energy to make this locally produced Green Power available to local customers.

## SOLAR ENERGY PROJECT

Production of solar power at Redwood Landfill helps reduce demand for energy from conventional sources that generate GHG emissions. In 2009, Redwood installed approximately 14 solar panels capable of producing a total of 22 megawatt hours per year (MWhr/yr).

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<sup>2</sup> Redwood's 2014 Power Purchase and Sale Agreement with Marin Clean Energy reserves to Redwood the Green Attributes of the LFGTE associated with emission reduction credits used for compliance with local, state or federal operating and/or air quality permits. This GHG Reduction Plan is prepared in compliance with Redwood's SWF permit and accompanying CEQA requirements.

## C & D MATERIALS RECOVERY FACILITY

Redwood's current operations include diversion of Construction and Demolition (C&D) debris from disposal, as shown in **Table 7**. C&D loads received at Redwood are currently transported to the Davis Street Transfer Station and Marin Sanitary Service for sorting and processing.

The Mitigated Alternative includes the on-site development of a materials recovery facility (MRF) to recycle construction and demolition debris of up to 400 tons per day, which is planned for completion in 2018. Under MRF operations, commingled C&D waste and inert materials would continue to be brought to the site where the scalehouse operator directs loads suitable for recycling to the MRF receiving area. Redwood accepts the following materials for diversion to recycling and reuse programs:

- concrete and asphalt;
- newspapers, cardboard, glass, and aluminum;
- white goods and scrap metal;
- woodwaste and greenwaste;
- comingled recyclable material (such as construction and demolition debris); and
- reusable materials.

Once at the MRF area, the materials will be unloaded onto a concrete pad. The facility will have separate unloading areas for commercial loads and public loads. Received loads may be either sorted and placed into bins (drop boxes) by a loader, floor sorted by employees or unsorted materials may be loaded into a transfer truck for sorting at another location.

The MRF will be an open-air facility and include:

- a receiving or tipping area – which consists of a concrete pad where materials are unloaded;
- a loading area with ramp where loaders can load material into transfer trucks;
- materials sorting bins where the loader or floor sorters can place materials after they are sorted ;
- a bin storage area – where materials are temporarily stored until they are transferred for on-site or off-site reuse and recycling;

A future increase in tonnage could necessitate construction of a MRF with conveyers and sort stations. All MRF processing equipment would be powered by electricity. A baler could also be installed at a later date if the quantity of recovered cardboard and other paper products warrants it. Outbound materials are shipped primarily in 18-wheel tractor trailers.

Loads directed to the MRF for recovery may include loads that would otherwise be destined for landfill disposal, as well as loads brought to the facility specifically for recovery. Once separated, most materials would be sold to available markets where the materials would be reused or recycled. Soil and concrete, however, would be used onsite. Outbound materials would be shipped to destinations within Redwood's market area for processing, reuse and recycling, which are generally considered to be within a one-hour driving distance.

Increased flows of C&D materials are an essential component of a successful C&D MRF. The Marin County Joint Powers Authority (JPA) adopted a model C&D ordinance in 2000. With some modifications, the County and a handful of incorporated cities/towns have adopted the JPA's model ordinance called Marin County Hazardous and Solid Waste Management Authority's model C&D ordinance. The County's ordinance applies to all construction, demolition, and renovation projects within the county, and requires permit applicants for covered projects to submit a waste management plan to the Community Development Agency demonstrating how at least 50 percent of the waste generated by the project will be diverted. (See Marin County Municipal Code, Title 19, Chapter 19.07.) Redwood will continue to coordinate with the JPA and the Local Task Force to: (1) encourage all jurisdictions within the County to adopt C&D ordinances; (2) facilitate better enforcement of existing ordinances; and (3) provide technical and other assistance to increase diversion rates from construction projects.

## SELF-HAUL RECYCLING OPPORTUNITIES

The Mitigated Alternative also included an increase in the variety of accepted recyclable materials for self-haul, drive-up customers. Bins for recycling cardboard and other paper grades, glass, metal, plastic containers, and other basic commodities are accessible to the public. In addition, bins for separating and recycling self-haul building materials are made available to the public. **Table 5** shows the GHG reductions from increased recycling from self-hauling. Local markets for these materials would be used whenever possible, which is consistent with maintaining the economic feasibility of these activities by reducing hauling costs. Valuable commodities collected from self-haul, drive-up customers that are recyclable are not placed in the landfill.

## FLEET VEHICLES

Fleet vehicles, engines and heavy equipment at Redwood Landfill are also being managed to reduce emissions, including GHG. Upgrades to engines and heavy equipment on the site for compliance with CARB's diesel particulate matter and oxides of nitrogen reduction measures were completed in 2010, and Redwood's current fleet is in compliance until January 2020. At Redwood Landfill, the replacement strategy for new on-site support vehicles is to replace with hybrid or all electric vehicles where feasible. These actions also provide additional GHG reductions. The potential GHG reductions from more efficient engines, however, are not quantified in this GHG Plan.

## INCREASED DIVERSION OF ORGANICS

Diversion of putrescible organic material from landfilling and use as landfill cover material is also a means to reduce GHG emissions. Diversion of such materials from landfilling when there are beneficial end uses available can also conserve landfill capacity.

Under Mitigation Measure 3.2.5f, this GHG Reduction Plan must address: phasing out the use of raw greenwaste and sewage sludge as alternative daily cover material, reducing the landfilling of sewage sludge, food waste, and other materials with a potential for high methane generation, and

cooperative programs with waste collectors, individual municipalities, and joint powers authorities to increase source separation of organic materials for composting. CARB is in the process of updating the California AB32 GHG Scoping Plan. The update includes reductions in landfill GHG emissions through increased diversion of organic waste.

### **Statewide Efforts Regarding Organics**

Compostable organic materials comprise over 25 percent or about 10 million tons of what is disposed in landfills annually. CalRecycle has set a goal of reducing the amount of organics being landfilled by 50 percent by 2020. To do this, at least 15 million tons of organics, much of it compostable, needs to be recycled annually, as identified in the CIWMB's "Organics Roadmap" discussed at the CIWMB's December 11, 2007, meeting.

(<http://www.ciwmb.ca.gov/organics/RoadMap08/default.htm>.)

In January 2007, CalRecycle commenced work on a lifecycle assessment of organics diversion alternatives and an economic analysis of GHG reduction options. (See <http://www.ciwmb.ca.gov/Climate/Organics/LifeCycle/>.) The intent of the assessment group was to assist CalRecycle in making informed decisions on the best options for implementing the "Zero Waste – High Recycling" strategy, which is one of the CAT's two strategies related to solid waste management to reduce climate change emissions. This study was intended provide further guidance to local jurisdictions about the potential for composting to increase diversion rates while continuing to minimize air emissions. CalRecycle's Life Cycle Assessment of Organic Diversion group also worked to develop a GHG tool and final report that will combine all the project elements into a California-specific, dynamic tool and a project report that can be used by CalRecycle staff, local jurisdictions, and industry to prioritize organic diversion alternatives for maximum GHG reductions in a cost effective manner on a regional and statewide basis. The group released a draft report and a draft tool in April 2010. The assessment group encountered project challenges and was unable to issue a final report. As part of the Organics Roadmap, CalRecycle has been working with stakeholders to identify actions CalRecycle could take to increase the siting and capacity of organic diversion facilities.

In February 2007, CalRecycle also began work on a manual of Best Management Practices (BMPs) for GHG reductions at waste facilities as part of its responsibility under the interagency California CAT to implement strategies to reduce GHG emissions from landfills. In April 2008, CIWMB completed a report, entitled: *Technologies and Management Options for Reducing Greenhouse Gas Emissions from Landfills*. (CalRecycle, 2008) The manual serves as a guidance document that may be used on a voluntary basis.

In 2009, CalRecycle released its report, which estimated that "organics comprise approximately 73 percent of the State's municipal solid waste (MSW) stream, including food scraps, yard trimmings, wood waste, and mixed paper" making organics management as "a top priority." This document also recognized that organic waste is also important in the context of GHG emissions and climate action plans because it creates methane in landfills.

In May 2014, CARB released the California GHG Scoping Plan. The Scoping Plan advocates the development of additional programs to incentivize the diversion of organics from landfills. Under the Scoping Plan, CARB started to prohibit/phase out landfilling of organic materials

starting in 2016 with a commercial organic waste diversion requirement. CARB and CalRecycle would also finance/fund/incentivize infrastructure development to support organics diversion goals.

## **Site-Specific Organic Diversion Efforts**

### **Composting**

Redwood Landfill is currently the largest composting facility in Marin County. The final compost product is available for wholesale to farms and other industrial users. Redwood has obtained certification of its compost product for approved use at organic farms and wineries. For purposes of 2008 baseline GHG reductions attributable to composting, this analysis used a composting rate of 46,774 tons per year (80 tons/day). (See *Table 7*.)

Under the Mitigated Alternative, composting of up to 170 tons per day (tpd) was permitted. The Mitigated Alternative also included up to 30 tons per day of the overall materials processed for composting to be food waste. A small-scale demonstration project was subsequently completed in 2009 to verify that commercial food waste was a viable composting feedstock for Redwood's composting operation. A further demonstration project was undertaken in 2012-2013 to help design the Covered Aerated Static Pile (CASP) compost operation discussed below.

After analyzing the potential environmental impacts in the 2013 EIR Addendum, Redwood received a solid waste facility (SWF) permit for an expanded CASP composting operation with a maximum daily throughput of 514 tpd. The composting facility is permitted to use the same feedstocks as under the 2008 SWF permit, including green/yard/wood waste, foodwaste, and biosolids for composting, with the addition of certain agricultural materials to improve the quality or nutrient content of the compost. The CASP method has several advantages over windrow composting. Primarily, the CASP method has the ability to reduce air emissions substantially, including volatile organic compounds, dust, bioaerosols, and odors, as compared to open windrow operations. (Marin County, 2013.) Redwood has increased tonnages composted in the newly constructed CASP facility to keep up with the demand for high quality compost suitable for organically grown crops. Currently, Redwood's composting operation is at or near capacity (514 tons per day).

### **Greenwaste Management**

Under the Mitigated Alternative, Redwood may use up to 300 tons per day of green, yard and wood waste as alternative daily cover (ADC). The Regional Water Quality Control Board has also specifically requested that Redwood use greenwaste on the landfill sideslopes as a means to control erosion.

Redwood's current approach to greenwaste is to divert all greenwaste for composting and erosion control. Redwood has discontinued use of greenwaste as ADC since 2009, which is consistent with CARB's and CalRecycle's goals and the AB 32 Scoping Plan.

## Sludge Management

Under the Mitigated Alternative, sludge is limited to 50 tons per day for use as ADC and 100 tons per day for disposal and 80 tons per day for composting. Thus, implementation of the Mitigated Alternative substantially reduced permitted sludge disposal and ADC levels. These reductions in the mass of degradable waste landfilled could potentially lead to reductions in GHG, though as noted above, reductions may not be great given the existence of an effective LFG collection system at the site. The methodologies used in this report do not include methods for quantifying the GHG emissions from the use of sludge as ADC; however, all degradable ADC material has been included in the LFG generation calculations. Furthermore, lifecycle GHG emissions for alternative uses of sludge are not available for comparison. According to Table 104-3 of the 2008 Final Environmental Impact Report Response to Comment Amendment, these changes would lead to a reduction in reactive organic gas generation. (ESA, 2008a.)

Consistent with current entitlements, Redwood has conducted some co-composting of sludge with greenwaste. However, demand for the end product is low, due primarily to the limited end uses for the potent end-product. Additionally, Redwood can only sell the end-product wholesale. At this time, Redwood does not intend to co-compost sludge in the CASP, though the entitlements have been maintained. Should the community demand a compost solution for biosolids, Redwood will investigate co-composting sludge using the CASP.

Further reductions in sludge use beyond those levels included in the Mitigated Alternative may be possible. However, management of sludge at Redwood provides a needed service to local sanitation entities. The diversion of locally generated sludge to more distant facilities, in itself, would not likely lead to GHG reductions. Additionally, substitution of other virgin materials (such as clean soil) for use as ADC instead of sludge could lead to GHG and other emissions. Therefore, any further reductions in sludge disposal and ADC use should be coordinated with local sanitation entities and be justified based on a lifecycle analysis. This GHG Plan does not attempt to quantify what GHG reductions might result from future changes in sludge management.

## Coordination to Increase Source Separation

Marin County already source separates greenwaste from other MSW, facilitating separate management of greenwaste. Redwood's use of foodwaste as composting feedstock is a step toward eventual source separation of foodwaste from MSW in the community, beginning with the commercial sector. Redwood will continue to coordinate with waste collectors, individual municipalities, and joint powers authorities as increased source separation of organic materials for composting and other beneficial uses moves forward.

# 4 MITIGATED RESULTS

## ACTIVITIES TO REDUCE GHG EMISSIONS

*Table 5* shows the GHG emissions from 1990 to 2020, including the benefit of GHG reduction measures and continued composting. . GHG emission reductions from organics waste

composting were calculated using the emission reduction factor of 0.42 MTCO<sub>2</sub>e of reductions per ton of organics composted, developed by CARB in its *Method for Estimating Greenhouse Gas Emission Reductions from Compost From Commercial Organic Waste* (CARB 2011). Potential GHG reductions for energy are derived from the energy content of the LFG collected at the site and the EPA Emissions & Generation Resource Integrated Database (eGRID). Emission reductions from waste diversion are significant and are a result of the landfill operation; however, they are indirect results of the waste diversion operations. It would be appropriate to include the benefits from waste diversion, but it is not included in the total emissions as a conservative approach.

The specific GHG reduction activities in addition to improved LFG capture included in the emissions shown in **Table 5** to reach the benchmarks required by Mitigation Measure 3.2.5f are a small solar facility and increased waste diversion/composting at the facility. The GHG reduction from composting and recycling is due to decreased methane generation in the landfill and displaced use of raw materials for production of virgin materials.

**Table 7** includes the estimated timeline for commencement of activities to further reduce GHG emissions; expected recycling and composting rates as these activities come on line are also shown in **Table 7**. As shown in **Table 7**, recycling and composting, which will increase the GHG reductions, are expected to increase as additional facilities and projects come online.




**Table 7 – Schedule of Current and Expanded Diversion Activities**

<b>Diversion Project</b>	<b>2008 annual tons diverted</b>	<b>2015 annual tons diverted</b>	<b>2020 projected annual tons diverted</b>
Single stream recycling loads delivered to landfill (in current ops.)	0	10,020	10,500
Scrap metal delivered to landfill and recycled offsite (in current ops.)	202	120	120
Construction and Demolition Debris Materials Delivered to Landfill and recycled offsite (in current ops.)	119	5,500	6,000
Composting (green/wood/yardwaste, sludge and foodwaste)	30,605	91,918	120,00

## RESULTS

With implementation of the GHG reduction measures, the 2020 GHG emissions from Redwood Landfill are projected to be more than 15 percent below 1990 emission levels. The GHG emissions in 2015 are also expected to be below the intermediate benchmark of 25 percent below 2008 GHG emissions from the site. These results are summarized in **Table 8** and are consistent with Mitigation Measure 3.2.5f. GHG emissions include benefit from improved LFG capture and control. Benefits from energy generation and waste diversion other than composting are not included in the emissions comparisons to the benchmark shown in **Table 8**.

**Table 8 - Redwood Landfill Benchmark Summary**

Year	Emissions*	Benchmark
1990	72,604	
2008	46,467	
2015	26,514	34,850
2020	16,475	61,714

\*Does not include GHG reductions from LFGTE or recycling

## TIMELINES AND COSTS

The estimated timeline for implementing the currently identified GHG reduction measures is shown in **Table 7**. Generally, costs of developing and implementing these programs would be incorporated into the site's annual and long term capital budgets. Depending upon the ability of these programs to be self-supporting, tipping fee increases could be used to help fund these activities. Timeline and cost information will continue to be adjusted in future revisions to the GHG Reduction Plan as additional information becomes available.

An approximately 0.3 kilowatt (kW) solar facility was completed at the scalehouse in 2009, which produces approximately 22,000 kWh annually. The manufacturer guarantees the output of the panels for 25 years, but the facility is expected to last significantly longer. The cost of the facility may be partially or fully recovered through government incentives (tax credits and grants) and the provision of electricity to the site that would otherwise have to be purchased from PG&E and which would otherwise likely be generated using fossil fuel.

The facility used 56 MWh of electricity in 2013. For purposes of calculating GHG historical and future GHG emissions, facility electricity use was assumed to be constant from year to year. Overall, electricity use has little relative impact on the facility emissions.

Additional composting capacity was realized in late 2014 when the CASP construction was completed and Redwood is expanding operations to the permitted limits. Food waste composting is also accommodated by the existing facilities and CASP, which makes up about 10 percent of the feedstock.

Redwood Landfill currently reuses concrete, asphalt, and other inert waste, which is used as road or construction materials at the site. The program is currently in place, and no additional costs from these recycling programs are expected as a result of the project.

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## Tables



**Table 5 - GHG EMISSIONS BY YEAR AND SOURCE**

Year	Putrescible Waste Landfilled (tons/yr)	Total Waste Landfilled (tons/year)	LFG Generation (m <sup>3</sup> /yr)	Methane Generated (Mg/yr)	Collection Efficiency	Methane not Captured (Mg/yr)	Net Methane From Landfill (Mg/yr)	Total Methane Emitted (Mg/yr)	GWP of Fugitive Methane Emissions (MgCO <sub>2</sub> E)	Mobile Source Emissions (MgCO <sub>2</sub> e/year)	Composting Emission Reduction (MgCO <sub>2</sub> e/yr)	GHG Emissions With Composting Mitigation (MgCO <sub>2</sub> e/year)	% of Baseline Emissions	% of 1990 Emissions
1990*	256,000	256,000						2,804	70,100	2,486	0	72,604	156%	100%
1991	259,000	259,000	25,921,823	8,647	50%	4,323	2,810	2,812	70,299	2,515	0	72,832	157%	100%
1992	244,000	244,000	26,755,587	8,925	50%	4,462	2,901	2,902	72,560	2,369	0	74,948	161%	103%
1993	236,000	236,000	27,449,507	9,156	50%	4,578	2,976	2,978	74,442	2,292	0	76,752	165%	106%
1994	243,000	243,000	28,059,069	9,360	50%	4,680	3,042	3,044	76,095	2,360	0	78,473	169%	108%
1995	255,000	255,000	28,694,734	9,572	50%	4,786	3,111	3,113	77,819	2,476	0	80,313	173%	111%
1996	289,000	377,000	29,391,197	9,804	50%	4,902	3,186	3,188	79,708	3,661	0	83,387	179%	115%
1997	310,000	377,000	30,303,231	10,108	50%	5,054	3,285	3,287	82,181	3,661	0	85,860	185%	118%
1998	353,000	433,000	31,329,518	10,451	50%	5,225	3,396	3,399	84,964	4,204	0	89,187	192%	123%
1999	417,103	524,969	32,622,735	10,882	50%	5,441	3,537	3,539	88,471	5,097	0	93,587	201%	129%
2000	421,370	514,573	34,323,166	11,449	50%	5,725	3,721	3,723	93,083	4,996	0	98,098	211%	135%
2001	423,400	509,662	35,987,404	12,004	75%	3,001	1,951	1,954	48,858	4,949	-24,335	29,490	63%	41%
2002	431,189	505,623	37,600,887	12,543	75%	3,136	2,038	2,042	51,049	4,910	-23,080	32,897	71%	45%
2003	424,519	490,155	39,206,746	13,078	75%	3,270	2,125	2,129	53,229	4,759	-28,980	29,027	62%	40%
2004	408,869	477,698	40,701,990	13,577	75%	3,394	2,206	2,210	55,259	4,638	-31,576	28,340	61%	39%
2005	397,433	455,177	42,026,809	14,019	75%	3,505	2,278	2,282	57,058	4,420	-27,036	34,459	74%	47%
2006	430,511	471,091	43,217,988	14,416	75%	3,604	2,343	2,347	58,675	4,574	-27,981	35,286	76%	49%
2007	417,762	430,511	44,598,754	14,877	75%	3,719	2,418	2,422	60,549	4,180	-27,279	37,469	81%	52%
2008	383,343	398,208	45,834,306	15,289	75%	3,822	2,484	2,489	62,227	3,867	-19,645	46,467	100%	64%
2009	341,040	357,090	46,775,538	15,603	75%	3,901	2,536	2,540	63,505	3,467	-13,592	53,398	115%	74%
2010	301,500	320,985	47,377,672	15,804	75%	3,951	2,568	2,573	64,322	3,117	-16,294	51,163	110%	70%
2011	210,907	232,484	47,673,740	15,903	75%	3,976	2,584	2,589	64,724	2,257	-21,049	45,951	99%	63%
2012	184,476	215,265	47,311,046	15,782	75%	3,945	2,565	2,569	64,232	2,090	-21,748	44,593	96%	61%
2013	191,291	238,789	46,773,763	15,603	75%	3,901	2,535	2,540	63,502	2,319	-20,309	45,530	98%	63%
2014	196,667	251,992	46,306,230	15,447	75%	3,862	2,510	2,515	62,867	2,447	-21,514	43,819	94%	60%
2015	239,598	287,471	45,895,433	15,310	75%	3,827	2,488	2,492	62,310	2,791	-38,606	26,514	57%	37%
2016	251,234	302,205	45,807,422	15,280	75%	3,820	2,483	2,488	62,190	2,934	-51,355	13,789	30%	19%
2017	250,000	285,000	45,805,984	15,280	75%	3,820	2,483	2,603	65,084	2,767	-51,355	16,515	36%	23%
2018	250,000	285,000	45,795,788	15,276	75%	3,819	2,482	2,603	65,070	2,767	-51,355	16,501	36%	23%
2019	250,000	285,000	45,785,991	15,273	75%	3,818	2,482	2,602	65,057	2,767	-51,355	16,488	35%	23%
2020	250,000	285,000	45,776,579	15,270	75%	3,817	2,481	2,602	65,044	2,767	-51,355	16,475	35%	23%

\*1990 emissions shown are established baseline emissions

Haul vehicle emissions calculated using average truck load of 7.829 tons/load from 2013-2016 data.

Haul vehicle emissions calculated using fuel efficiency of 8.88 miles per gallon.

Haul vehicle emissions calculated using one-way haul distance of 15 miles, consistent with 2013 FEIR Addendum.

Haul vehicle assumptions result in emission factor of 0.00441 MTCO<sub>2</sub>e per ton landfilled.

Equipment emissions calculated using 2013-2016 diesel use, resulting in an emission factor of 0.00530 MTCO<sub>2</sub>e of emissions per ton landfilled.