

Appendix A – Comment Letters on Recirculated Draft EIR

DISTRICT 4
OFFICE OF REGIONAL AND COMMUNITY PLANNING
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www.dot.ca.gov

June 5, 2023

SCH #: 2018102041
GTS #: 04-SCL-2016-01190
GTS ID: 2423
Co/Rt/Pm: SCL/25/0.63

Valerie Negrete, Senior Planner
County of Santa Clara
70 West Hedding Street, 7th Floor
San Jose, CA 95103

Re: Z-Best Composting Facility Modifications Recirculated Draft Environmental Impact Report (DEIR)

Dear Valerie Negrete:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Z-Best Composting Facility Modifications Project. We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the April 2023 recirculated DEIR.

Project Understanding

The proposed project site is the existing Z-Best Composting Facility at 980 State Route (SR)-25. The project includes modification of the existing composting process from the current window method to an aerated static pile process. SR-25 along the project site frontage would be widened to allow the installation of acceleration and deceleration lanes into and out of the facility entrance, which would be relocated to become a new fourth leg of the existing SR-25/Bolsa Road intersection.

Travel Demand Analysis

CALTRANS-A-1 The project vehicle miles traveled (VMT) analysis and significance determination are undertaken in a manner consistent with the Office of Planning and Research's (OPR) Technical Advisory. Per the recirculated DEIR, this project is found to have significant VMT impact. Please consider measures to mitigate the project's impact to VMT, including those listed in the following section.

Mitigation Strategies

CALTRANS-A-2 Location efficiency factors, including community design and regional accessibility, influence a project's impact on the environment. Using Caltrans' Smart Mobility Framework Guide 2020 ([link](#)), the proposed project site is identified as a Suburban Community/Area where community design is moderate to weak and regional accessibility varies.

Given the place, type and size of the project, the recirculated DEIR should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions from future development in this area. The measures listed below have been quantified by California Air Pollution Control Officers Association (CAPCOA) and shown to have different efficiencies reducing regional VMT:

Suburban and Rural strategies

- Increased location efficiency;
- Orientation of Project towards non-auto corridor;
- Pedestrian network improvements;
- Discounted transit programs (rural);
- Provide local shuttles to increase transit outreach (rural);
- Employer-based vanpool;
- Telecommuting programs and alternative work schedules

Using a combination of strategies appropriate to the project and the site can reduce VMT, along with related impacts on the environment and State facilities. TDM programs should be documented with annual monitoring reports by a TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to take in order to achieve those targets.

Please reach out to Caltrans for further information about TDM measures and a toolbox for implementing these measures in land use projects. Additionally, refer to the CAPCOA Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity ([link](#)).

Transportation Impact Fees

CALTRANS-A-3 Please identify project-generated travel demand and estimate the costs of transit and active transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

State Highway Access

CALTRANS-A-4 The expansion of the Z-Best facility is expected to increase the truck movement in and out of the facility at the intersection. These trips should be restricted to off peak times whenever possible. Since southbound (SB) SR-25 has only one lane at the Bolsa intersection, a merging lane should be provided for trucks turning right when leaving the facility. A storage lane should be provided for the vehicles turning left at the intersection towards Bolsa Road. The minimum length of the left and right turn lanes from SR-25 to Bolsa Road should be 486 feet plus the storage lane length. The approach taper length for both should be at least 660 feet within Caltrans' ROW.

Caltrans has documented operational benefits of a SB receiving lane from Bolsa Road and documented these benefits with the project sponsor in an Intersection Control Evaluation (ICE) report. Caltrans recommends that the project add a receiving lane in the SB median for traffic making a left from SB Bolsa Road onto SB SR-25. It should be noted that the proposed project uses all available Right-of-Way (ROW) making it a challenge for Caltrans to pursue the addition of a receiving lane as a standalone project. As stated previously, and as a condition of approval for any Caltrans encroachment permit, Caltrans requests that the appropriate ROW considerations are made as to not preclude future intersection improvements.

To adequately evaluate the potential impact of the truck turning patterns on SR-25, please provide more information, such as truck turning radius and center turning radius, for Caltrans to review.

SR-25 Widening Project

CALTRANS-A-5 There are plans for widening SR-25 from San Felipe Road within the Hollister City limits to US-101 near Gilroy. In 2016, a Project Approval and Environmental Document (PAED) was completed that generally set an outline of ROW needs for such a project. Before any approvals are given, it is important to confirm that the project modifications preserve enough ROW consistent with the final document. The ultimate project includes constructing a median barrier as part of the expressway conversion which will make the Z-Best facility driveway a right-in right-out scenario.

Safety

CALTRANS-A-6 The proposed retaining walls on both sides of SR-25 are within the clear recovery zone. Please consider obtaining additional right of way to extend the side slope to match with the existing ground. Otherwise, the Midwest Guardrail System (MGS) is needed at the hinge point to prevent errant vehicles going over the retaining walls.

Hydraulics

CALTRANS-A-7 The applicant should provide calculations showing the pre-and post-project runoff to Caltrans facilities when submitting the encroachment permit application for the project work along SR-25.

Construction-Related Impacts

CALTRANS-A-8 Project work that requires movement of oversized or excessive load vehicles on State roadways requires a transportation permit that is issued by Caltrans. To apply, please visit Caltrans Transportation Permits ([link](#)). Prior to construction, coordination may be required with Caltrans to develop a Transportation Management Plan (TMP) to reduce construction traffic impacts to the State Transportation Network (STN).

Utilities

CALTRANS-A-9 Any utilities that are proposed, moved or modified within Caltrans' ROW shall be discussed. If utilities are impacted by the project, provide site plans that show the location of existing and/or proposed utilities. These modifications require a Caltrans-issued encroachment permit.

Lead Agency

CALTRANS-A-10 As the Lead Agency, the County of Santa Clara is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Equitable Access

CALTRANS-A-11 If any Caltrans facilities are impacted by the project, those facilities must meet American Disabilities Act (ADA) Standards after project completion. As well, the project must maintain bicycle and pedestrian access during construction. These access considerations support Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

Encroachment Permit

CALTRANS-A-12 Please be advised that any permanent work or temporary traffic control that encroaches onto Caltrans' ROW requires a Caltrans-issued encroachment permit. As part of the encroachment permit submittal process, you may be asked by the Office of Encroachment Permits to submit a completed encroachment permit application package, digital set of plans clearly delineating Caltrans' ROW, digital copy of signed, dated and stamped (include stamp expiration date) traffic control plans, this comment letter, your response to the comment letter, and where applicable, the following items: new or amended Maintenance Agreement (MA), approved Design Standard Decision Document (DSDD), approved encroachment exception request, and/or airspace lease agreement. Your application package may be emailed to D4Permits@dot.ca.gov.

To obtain information about the most current encroachment permit process and to download the permit application, please visit Caltrans Encroachment Permits ([link](#)).

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D4@dot.ca.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "Luo Yunsheng". The signature is fluid and cursive, with the first name "Luo" written in a stylized, rounded script and the last name "Yunsheng" in a more elongated, flowing script.

YUNSHENG LUO
Acting District Branch Chief
Local Development Review

c: State Clearinghouse

California Department of Transportation

DISTRICT 4
P.O. BOX 23660, MS-1A | OAKLAND, CA 94623-0660
(510) 286-5900 | FAX (510) 286-6301 TTY 711
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September 11, 2023

Valerie Negrete
Senior Planner
County of Santa Clara
Department of Planning and Development
County Government Center, East Wing, 7th Floor
70 West Hedding Street
San Jose, CA 95110

Dear Valerie Negrete:

Thank you for your letter regarding the mitigation measures and the proposed revisions made to the Recirculated Draft Environmental Impact Report (RDEIR) for the proposed Z-Best Composting Facility Modifications Project at State Route 25/ Bolsa Rd. Intersection in Santa Clara County. Please see below for our response:

CALTRANS-B-1

- Under section “MM-TRA-2: Installation of Traffic Controls or Retention of Driveway in Existing Location”, please revise the sections A and B as recommended below:
 - A. The applicant shall modify its proposed design for the SR-25 improvements and driveway relocation to include the installation of traffic signals at the intersection of SR-25/Bolsa Road/relocated driveway, if agreed to by Caltrans. The applicant shall obtain an encroachment permit from Caltrans to implement the modified design and shall comply with all conditions of the permit and/or modifications to the design requested by Caltrans as part of the permit review and approval process, including maintenance of a clear recovery zone and compliance with Caltrans’ stormwater management standards. **The applicant is fully responsible of the proposed project cost and any mitigation impacts to traffic operations and safety. The applicant’s funding contribution to the cost of the SR-25 improvements, either in full or in part, shall be determined by Caltrans.**
 - B. The applicant shall not increase processing capacity of the facility (and associated increase in haul-truck and employee traffic) at the site until either (1) the signalized intersection is operational in accordance with MM-TRA-2A above, or (2) alternative improvements are made to the existing project site driveway in accordance with Alternative 3 and mitigation measure MM-TRA-

Ms. Valerie Negrete
September 11, 2023
Page 2

2-Alt 3 and no relocation of the project site driveway shall occur until the signalized intersection is operational in accordance with MM-TRA-2A. The applicant shall obtain an encroachment permit from Caltrans to implement the modified design and shall comply with all conditions of the permit and/or modifications to the design requested by Caltrans as part of their permit review and approval process. **The applicant is fully responsible of the proposed project cost and any mitigation impacts to traffic operations and safety. The applicant's funding contribution to the cost of the SR-25 improvements, either in full or in part, shall be determined by Caltrans.**

CALTRANS-B-2

- Under section "Mitigation Measure MM-TRA-2-Alt3: Installation of Intersection Lighting and Warning Signage", please revise the section as recommended: The proposed design for Alternative 3 shall include the installation of a southbound acceleration lane for trucks turning right out of the existing Z-Best driveway, as well as installation of intersection lighting at the existing intersection of SR-25/Bolsa Road and at the existing Z-Best driveway, and installation of "Caution: Trucks Entering Highway" signage on SR-25 on both approaches to the driveway. The applicant shall obtain an encroachment permit from Caltrans to implement the modified design and shall comply with all conditions of the permit and/or modifications to the design requested by Caltrans as part of their permit review process. **The applicant is fully responsible of the proposed project cost and any mitigation impacts to traffic operations and safety. The applicant's funding contribution to the cost of the SR-25 improvements, either in full or in part, shall be determined by Caltrans.**
- For items related to our June 5th comment letter:

CALTRANS-B-3

A. Under the subheading "Mitigation Strategies", please correct the classification of the project site as **"Rural Area."**

CALTRANS-B-4

B. Please replace the section "Transportation Impact Fees" to **"Fair Share Contributions": We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.**

Ms. Valerie Negrete
September 11, 2023
Page 3

If you have any questions, please feel free to contact me at (510) 715-9046 or via email at nick.saleh@dot.ca.gov.

Sincerely,

Nick Saleh

NICK SALEH
District Division Chief, PM-South
Division of Program/Project Management

Ms. Valerie Negrete
September 11, 2023
Page 4

- c: Becky Frank, Senior Transportation Planner, Office of Regional and Community Planning
- Taslima Khanum, Regional Project Manager, PPM – South
- Arun Guduguntla, Project Manager, PPM – South



Hollister-Gilroy Area
740 Renz Lane
Gilroy, CA 95020
(408) 427-0700

May 26, 2023

File No.: 725.14548.21586

Santa Clara County Department of Planning and Development
County Government Center, East Wing, 7th Floor
70 West Hedding Street
San Jose, CA 95103
Attention: Valerie Negrete

SCH: 2018102041

CHP-1

I was recently requested to review the Notice of Environmental Impact document from the State Clearinghouse (SCH) related to the proposed Z-Best Composting Facility Modifications located at 980 State Route 25, Gilroy, CA 95020. The California Highway Patrol's (CHP) interest in commenting surrounds our concerns for the increase in heavy truck traffic entering and exiting the facility from the newly proposed uncontrolled driveway onto a State Highway. In addition, the CHP's interest surrounds the increased response times, enforcement, services calls resulting from the increase in heavy truck traffic and the subsequent impact to vehicular traffic. The plan needs to ensure all roadways being utilized or altered, can support the weight of the increased number of loaded trucks and will not degrade. The plan needs to ensure any changes to the roadway configuration consider the 100 extra trucks per day that will be entering and exiting the facility and the impact this will have on vehicular traffic on State Route 25. The plan needs to seriously address material spillage from loaded trucks, that is already present at the current driveway site, it's impact on the safety of the roadway conditions, and how this will be mitigated. Currently, the material spillage contributes to roadway markings becoming obstructed and a safety issue in roadway conditions.

CHP-2

CHP-3

After reviewing the Traffic Engineers report on the plan, I do agree there are several items which need to be implemented to ensure the safety of the motoring public and flow of traffic on SR-25 and Bolsa Road. As described in the attachment, traffic on SR-25 and Bolsa Road is already heavy and Bolsa Road does have a restriction for left turns onto SR-25, Monday-Friday from 3pm-7pm. The roadway improvements to SR-25 and Bolsa Road are necessary and needed, to include the left turn lane improvements and acceleration lanes. With the requested realignment change to the Bolsa Road intersection, a severe safety concern exists with slow moving heavily loaded trucks entering/exiting onto SR-25, specially with the existing issues of material spillage.

CHP-4 Some type of traffic control device needs to be investigated to ensure an increase in crashes does not occur. Additionally, many of the reports referenced in the Engineering report reference data obtained from 2015, which is significantly out of date.

CHP-5 Facility operators need to ensure they establish, monitor, and enforce facility rules related to vehicle safety as CHP personnel work to ensure compliance with California Vehicle Code provisions.

If you have any questions, please contact our office at (408) 427-0700.

Sincerely,



P. COOPER, Captain
Commander



Central Coast Regional Water Quality Control Board

September 5, 2023

Sent via Electronic Mail

Valerie Negrete
Senior Planner
County of Santa Clara
Department of Planning and Development
70 West Hedding Street
San Jose, CA 95110
valerie.negrete@pln.sccgov.org

Dear Valerie Negrete,

LAND DISPOSAL PROGRAM: Z-BEST COMPOSTING FACILITY, SANTA CLARA COUNTY – RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT AND LETTER FROM THE COUNTY OF SANTA CLARA

On August 15, 2023, the California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) received a letter from the County of Santa Clara Department of Planning and Development (County) regarding the recirculated draft environmental impact report (EIR) for the proposed Z-Best Composting Facility (Z-Best) Modifications Project. The letter requests that the Central Coast Water Board provide feedback on the four proposed mitigation measures summarized below:

1. MM-HYD-1A – A mitigation measure requiring a demonstration that the proposed pump capacity will be sufficient to prevent localized flooding of the adjacent green waste compost area during a 25-year, 24 hour storm event.
2. MM-HYD-1B – A mitigation measure requiring a minimum of 22.4 million gallons of storage capacity between Basin #1 and Basin #2.
3. MM-HYD-4 – A mitigation measure requiring Z-Best to prepare a revised floodplain storage analysis based on the final project design.
4. MM-HYD-5 – A mitigation measure requiring an increase in the Basin #2 berm height, such that the basin maintains two feet of freeboard above the 100-year base flood elevation.

Central Coast Water Board Staff Comments

RWQCB-1 Central Coast Water Board staff (Staff) reviewed the subject letter and do not object to the mitigation measures proposed by the County. The subject mitigation measures do

not appear to modify the facility in a way that would result in a violation of the minimum requirements of State Water Resources Control Board Order WQ 2020-0012-DWQ General Waste Discharge Requirements for Commercial Composting Operations (General Order), which currently regulates the facility. Staff do not have specific comments on proposed mitigation measures MM-HYD-1A and MM-HYD-4.

Staff Comment: MM-HYD-1B

RWQCB-2 The letter describes the County's rationale for finding that additional storage capacity is needed within Basin #1 to preclude discharge during a 25-year, 24-hour peak storm event in a wet year with normal operational volumes. As discussed with the County via videoconference on June 26, 2023, and August 2, 2023, and documented in the subject County letter, the Central Coast Water Board assesses compliance with the General Orders design requirements upon enrollment of the General Order and does not specify the exact conditions to be modeled to demonstrate compliance with these design requirements.

RWQCB-3 Section 4 of the Design, Construction, and Operation Requirements – Tier 2 Only prescribed by the General Order require detention basins to meet a hydraulic conductivity of 1.0×10^{-6} cm/sec or less. On May 22, 2023, the Central Coast Water Board approved an engineered alternative liner design for Basin #1 to bring the site into compliance with these minimum containment requirements of the General Order. If mitigation measure MM-HYD-1B requires modifications to the approved liner design, as drawn in the Basin #1 construction drawings dated November 28, 2022, the Central Coast Water Board will need to review the modifications for compliance with the General Order and issue a new approval letter.

Staff Comment: MM-HYD-5

RWQCB-4 Mitigation measure MM-HYD-5 would require Z-Best to increase the berm height of Basin #2 to at least 150.41 feet so the basin would be able to maintain two feet of freeboard above the 100-year base flood elevation.

The Basin #2 liner system is a 60-mil high-density polyethylene (HDPE) geomembrane, underlain by geosynthetic clay. Based on the Basin #2 construction drawing dated April 11, 2018, the liner terminates into the anchor trench at approximately 150 feet on the south facing berm of the basin. Central Coast Water Board staff are concerned that an increase in berm height would allow for storage of fluids at elevations above the liner system and therefore may pose a threat to the effectiveness of containment. Staff recommends that fluid elevations in Basin #2 not exceed the liner elevation if modification to the basin are implemented as part of mitigation measure MM-HYD-5.

If you have any questions, please feel free to contact Nick Smaira by phone at (805) 549-3467 or email at nicholas.smaira@waterboards.ca.gov, or Ryan Lodge at (805) 549-3506.

Sincerely,

 Digitally signed by Ryan
Lodge
Date: 2023.09.05
08:37:44 -07'00'

for Matthew T. Keeling
Executive Officer

cc:

Robert Salisbury, Santa Clara County, robert.salisbury@pln.sccgov.org

Samuel Gutierrez, Santa Clara County, samuel.gutierrez@pln.sccgov.org

Emma Rawnsley, AECOM, emma.rawnsley@aecom.com

Emmanuel Ursu, M-Group, eursu@m-group.us

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Michael Gonzalez, WSP, michael.a.gonzalez@wsp.com

Angela Schroeter, Central Coast Water Board, angela.schroeter@waterboards.ca.gov

Ryan Lodge, Central Coast Water Board, ryan.lodge@waterboards.ca.gov

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ltr_ZBest.docx

GeoTracker ID: T10000008201

CIWQS Place ID: 630006



File: 25466
Pajaro River

June 20, 2023

Valerie Negrete
County of Santa Clara Planning
70 West Hedding, 7th Floor
San Jose, CA 95110

Subject: Recirculated Draft Environmental Impact Report (EIR) for Z-Best Composting Facility Modifications

Dear Valerie:

The Santa Clara Valley Water District (Valley Water) has reviewed the recirculated draft environmental impact report (EIR) for the proposed modifications to the Z-Best Composting Facility (Project), which made available on April 20, 2023. Based on our staff's review of the EIR, Valley Water has the following comments:

- VW-1 1. **Table 2-1 Summary of Impacts and Mitigation (Page 15):** There appears to be a formatting error as overlapping text is shown within the table.
- VW-2 2. **Figure 3-3, Existing Site Operations, (Page 32):** Detention basin #2 is shown as 2.0 acres, however, Section 3.1 – Project Location and Site Description (Page 28), describes the basin to have an area of approximately 2.1-acres. Please make sure all figures provided in the EIR are consistent with the descriptions provided in other sections throughout the EIR.
- VW-3 3. **Section 4.3.3.1, Leachate from ECS Composting Process (Page 57):** The second paragraph references the Hydrology and Water Quality section as 'Section 10;' this should be referenced as Chapter 11.
- VW-4 4. **Section 4.3.6.1, Finished Site Elevation Changes (Page 67):** The Project proposes a new pad within Area 1B to accommodate the ECS improvements, which in turn would raise the existing elevations by approximately one to two feet above the 100-year flood elevations. The EIR should reference the 100-year water surface elevation of 148.5-ft. (NAVD 88) and note that this elevation was established through a Conditional Letter of Map Revision (CLOMR) from FEMA, which was issued as part of prior improvements to the Z-Best facility. The vertical datum should also be referenced for all elevations specified in the EIR. Additionally, Schaaf and Wheeler's 2012 analysis, supporting the aforementioned CLOMR, should be included as part of Appendix E in the EIR.
- VW-5 5. **Section 4.3.6.2, Modification of Detention Basin #1 (Page 67):** The second paragraph indicates that *"The eastern portion of the existing basin would no longer to be [sic] used for stormwater detention."* This description is contrary to Figure 4-1 and Figure 4-7, both of which show the footprint of Detention Basin #1 being reduced so that the western portion of the existing basin is no longer in use. Please ensure that the description of the modified detention basin and the figures provided in the EIR are consistent.
- VW-6 6. **Section 4.3.6.2, Modification of Detention Basin #1 (Page 67):** The last sentence of this section notes that no modifications are proposed for Detention Basin #2; this is inconsistent with MM-HYD-5 (EIR, page 264), which proposes to increase the berm height for Detention Basin #2.
- VW-7 7. **Section 4.3.6.3, Flood Storage Facility Expansion (Page 69):** It is noted that the proposed flood storage facility will require excavations between 5- and 15-feet deep. The EIR should evaluate the existing groundwater table and its impacts to the capacity of the proposed flood storage expansion.



Ms. Valerie Negrete

Page 2

June 20, 2023

- VW-8** 8. **Section 11.1.3 Existing Composting Operations – Storm Water System Management (Page 226):** The last paragraph indicates “*Floodwater storage areas, detention basins, and undeveloped Z-Best property are located east and south of Areas 1 and 2.*” Figure 3-3 (Existing Site Operations) in the EIR should specify the areas dedicated to floodwater storage so the areas currently being utilized for floodwater storage is clear.
- VW-9** 9. **Section 11.1.3.1 Area 1 and Detention Basin #1 (Page 226):** The last sentence indicates that Detention Basin #1 has an existing berm that has an elevation of 139-feet; all elevations provided in the EIR should specify the vertical datum.
- VW-10** 10. **Section 11.1.3.1 Area 2 and Detention Basin #2 (Page 226):** The last sentence of the second paragraph indicates that Detention Basin #2 has an existing berm that has an elevation of 149-feet; all elevations provided in the EIR should specify the vertical datum.
- VW-11** 11. **Section 11.4.1.1 Leachate Characteristics and Quality (Page 249):** Though the proposed Engineered Composting System (ECS) will reduce the overall volume of Leachate, TetraTech’s Peer Review of the Project’s hydrology and water quality technical analyses (Appendix E-1) concludes that leachate concentrations within Basin 1 “*will most likely increase over time as the leachate evaporates and is recycled for dust control and compost moisturization*” (Conclusion for Task 2, Page 4). The EIR should acknowledge this conclusion and provide a discussion of how increases in leachate concentrate within Basin #1 will be managed.
- VW-12** 12. **Section 11.4.1.1 Proposed ECS System Pad Design (Page 251):** The Project proposed to elevate the existing pad by at least one foot above the base flood elevation. The EIR should reference the 100-year water surface elevation of 148.5-ft. (NAVD 88) and note that this elevation was established through a Conditional Letter of Map Revision (CLOMR) from FEMA, which was issued as part of prior improvements to the Z-Best facility. The vertical datum should also be referenced for all elevations specified in the EIR. Additionally, Schaaf and Wheeler’s 2012 analysis, supporting the aforementioned CLOMR, should be included as part of Appendix E in the EIR.
- VW-13** 13. **Proposed Storm Water/Leachate Conveyance System Improvements (Page 252) -** To comply with the Composting General Order, the Project proposes to design drainage conveyance systems onsite, which have sufficient capacity to direct both wastewater and direct precipitation from the 25-year, 24-hour peak storm event. Though the General Composting Order only requires drainage systems to be provided with sufficient capacity to handle the 25-year, 24-hr storm event, the Project should evaluate events up to the 100-year, 24-hour peak storm event and consider providing adequate capacity to handle larger storm events. In section 10.1.3.5 (page 196), the EIR acknowledges “more frequent and extreme storm events” as a result of climate change. The series of atmospheric rivers that passed through the County during 2023 also serves as recent examples of the possibility of these more extreme and frequent events.
- VW-14** 14. **MM-HYD-1A: Demonstrate Sufficient Pump Capacity (Page 253) -** As mitigation for the Project’s potential impact to surface or groundwater quality, the EIR proposes to have the applicant “*submit details and calculations to the County Planning Department*” to demonstrate that the proposed onsite pump has sufficient capacity “*during a 25-year, 24-hour storm event without causing localized flooding which inundates the southeast corner of the green waste compost area.*” The Project should evaluate events up to the 100-year, 24-hour storm event and consider providing adequate pumping capacity to handle larger storm events. As noted in Comment #11 the possibility of more extreme and frequent events should be considered when evaluating mitigatory measures for the Project
- VW-15** 15. **MM-HYD-1B: Increase Detention Basin Capacity (Page 254) -** The EIR proposes to either “*increase the capacity of Detention Basin #1 and/or Detention Basin #2, such that combined detention basin capacity is sufficient to hold at least 22.8 million gallons of water without discharging and maintain a freeboard of 2 feet.*” In the previous section – “Proposed Storm Water Detention Capacity,” the EIR states that “*there remains a substantial risk of overtopping if an extreme event occurs during a wet year when the detention basins are being used to hold prior runoff from the composting facility, even assuming the currently proposed capacity increase in Detention Basin #1.*” As noted in the previous comments for the

Ms. Valerie Negrete

Page 3

June 20, 2023

proposed drainage and pumping system improvements, the Project should evaluate storm events up to the 100-year, 24-hour storm event, and ensure that mitigatory measures prevent any discharges from the detention basins during the 100-year, 24-hour storm event to prevent overflows from percolating into groundwater and/or entering the Pajaro River.

- VW-16** 16. **Impact HYD-4, Section 11.4.4.1 On-Site Improvements (Page 260)** - The second paragraph notes that the existing pad upon which the existing CTI composting process takes place would be raised by approximately one foot above the 100-year base flood elevation. As previously noted, the EIR should reference the 100-year water surface elevation of 148.5-ft. (NAVD 88) and note that this elevation was established through a CLOMR which was issued by FEMA for previous site improvements. The vertical datum should also be referenced for all elevations specified in the EIR. Additionally, Schaaf and Wheeler's analysis detailing previous improvements for the site, as well as the issued CLOMR should be included as part of Appendix E in the EIR.
- VW-17** 17. **Section 11.4.4.2 SR-25 Improvements (Page 262)** – It is noted that *“The applicant would be required to provide calculations showing the pre-and post-project runoff as related to improvements within the SR-25 right of way when submitting the encroachment permit application to Caltrans for the project-related work on SR-25.”* At a minimum, the EIR include a preliminary analysis of the anticipated runoff (both volume and rate) under post-project conditions to ensure that pre-project conditions are not exceeded. Furthermore, the EIR should specify the terminus, or receiving body of water for the existing storm water drainage ditches running along each side of SR-25. The analysis should also assess whether the terminus or receiving body of water would be impacted due to additional flows generated by the proposed improvements to SR-25.
- VW-18** 18. **Section 11.4.5 Impact HYD-5 (Page 263)** – The 100-year base flood elevation is specified as 148.41-ft. in several instances throughout the referenced section. It should be noted that the CLOMR issued by FEMA, established the 100-year base flood elevation as 148.5-ft. (NAVD 88). Please ensure that the base flood elevation specified in the EIR is consistent with the CLOMR elevation. The vertical datum should also be specified for all flood elevations referenced in the EIR. Additionally, the freeboard specified for Detention Basin #2 (0.59-ft.) should be revised to reflect the established base flood elevation noted above.
- VW-19** 19. **Section 11.4.5 MM HYD-5: Increase Berm Height of detention Basin #2 (Page 263)** – The EIR proposes to *“increase the berm height of Detention Basin #2 to at least 150.41-ft. so that at least 2 feet freeboard above the base flood elevation is maintained.”* This appears to be inconsistent with Section 4.3.6.2, which states that *“No modifications to Detention Basin #2 are proposed as part of the project.”* It should be noted that Schaaf and Wheeler's 2012 flood study, and subsequent CLOMR from FEMA, established the 100-year base flood elevation of 148.5-ft. (NAVD 88). Please ensure that the base flood elevation specified in the EIR is consistent with prior studies. The vertical datum should also be specified for all flood elevations referenced in the EIR. Additionally, the last paragraph of this section indicates that implementation of MM=HYD-1B and MM-HYD-5 would ensure that *“the potential for the capacity of both detention basins to be exceeded would be reduced...”* While the berm heights may be sufficient to keep overbank flows from Pajaro River from mingling with the impounded water in the detention basins, the EIR should assess whether the detention basins have adequate volume to contain precipitation and runoff generated onsite during larger storm events, and ultimately prevent detention basin overflows from discharging into Pajaro River. As previously noted, the Project should evaluate runoff generated by storm events up to the 100-year, 24-hour storm event to prevent overflows during more extreme precipitation events.
- VW-20** 20. **Appendix E – Updated Floodplain Storage Analysis for Z-Best Compost Facility (Schaaf and Wheeler Memorandum dated October 25, 2022):** It is not clear whether the proposed modifications to Detention Basin #1 is being accounted for in the modeled cross sections. More specifically, cross sections 14403 (Figure 6) and 14214 (Figure 7), which according to Figure 8, appears to include Detention Basin 1, do not show the proposed berm height of 150.5-ft. (NAVD 88). All proposed fill should be accounted for in the floodplain study.

Ms. Valerie Negrete

Page 4

June 20, 2023

- VW-21** 21. **Appendix E – Updated Floodplain Storage Analysis for Z-Best Compost Facility (Schaaf and Wheeler Memorandum dated October 25, 2022):** It is understood the updated floodplain analysis accounts for the fill needed to accommodate the proposed improvements along SR-25, however the memorandum does not specify whether the proposed retaining wall is considered in the analysis. More specifically, the analysis should evaluate whether the proposed retaining walls along SR-25 has the potential to impede or redirect flows when the area is subject to more shallow flood events.
- VW-22** 22. **General:** The EIR needs to clarify whether the proposed changes to the overall topography, and resulting impacts from those changes, are evaluated with respect to the existing terrain (determined from a recent survey), or an older terrain. Please specify the year for each terrain referenced in the EIR.

If you have any questions, or need additional clarification of Valley Water's comments, you may reach me at 408-630-3066, or e-mail at bhwang@valleywater.org. Please reference file number 25466 on future correspondences regarding this project.

Sincerely,

DocuSigned by:



2810C0F620844F8

BENJAMIN HWANG, P.E.

ASSOCIATE ENGINEER - CIVIL

Community Projects Review Unit

Cc: Y. Arroyo, B. Hwang, V. De La Piedra, J. Gurdak, G. Tick, E. Zedler, J. Yang, File



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June 20, 2023

Via E-Mail

County of Santa Clara Planning
Attention: Valerie Negrete (valerie.negrete@pln.sccgov.org)
70 West Hedding Street
San Jose, CA 95110

Re: Dorado Leasing Comments on Z-Best Recirculated Draft EIR.

Dear Ms. Negrete:

On behalf of Dorado Leasing (“Dorado”), the owner of the 570-acre Sargent Ranch, which is contiguous to the southern boundary of the Z-Best facility, we submit the following comments on the Recirculated Draft EIR (“RDEIR”). These comments are in addition to the comments our firm submitted on the original Draft EIR, which remain relevant to the Z-Best project and highlight the potential environmental impacts of the project on adjacent high-quality farmland. Rather than resubmitting our prior March 1, 2021, letter (“March 1 Letter”) in its entirety, we incorporate by reference the various points and environmental issues that Dorado raised in this letter, which remain relevant. Accordingly, we request and CEQA demands that the Final EIR include written responses to Dorado’s comment letter on the original Draft EIR, dated March 1, 2021, and these additional comments on the RDEIR.

DORADO-1

A. The Important Purpose of CEQA and an EIR

DORADO-2

As we explained in our March 1 Letter, CEQA is a comprehensive scheme designed to provide long-term protection to the environment. In enacting CEQA, the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties. CEQA is to be interpreted “to afford the fullest possible protection to the environment within the

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County of Santa Clara Planning
Attention: Valerie Negrete
June 20, 2023
Page 2 of 7

reasonable scope of the statutory language.”¹ Both the mandate and the procedure of CEQA are carefully crafted and well ingrained into the law of this state.²

The process compelled by CEQA “is a meticulous process designed to ensure that the environment is protected”³ In fact, “[t]he integrity of the [CEQA] process is dependent on the adequacy of the EIR.”⁴ Thus, the EIR, with all its specificity and complexity, is the mechanism prescribed by CEQA to force informed decision making and to expose the decision making process to public scrutiny.⁵ As the Supreme Court has established, the EIR is “the heart of CEQA.”⁶

An EIR is an “environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.” The EIR is also intended “to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.” Because the EIR must be certified or rejected by public officials, it is a document of accountability. If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees. The EIR process protects not only the environment but also informs self-government.⁷

As such, the purpose of any EIR is to provide public agencies and the public with “detailed information about the effect which a project is likely to have on the environment to list ways in which the significant effects of such project might be minimized; and to indicate alternatives to such a project.”

DORADO-3 B. The RDEIR Continues to be Legally Inadequate

An agency abuses its discretion by failing to proceed in the manner required by law if its action or decision does not substantially comply with the requirements of CEQA.⁸ Under this test, omission of information that CEQA mandates be included in an environmental analysis constitutes a failure to proceed in the manner required by law.⁹

¹ Mountain Lion Foundation v. Fish and Game Com. (1997) 16 Cal.4th 105, 112.

² County of Amador v. El Dorado County Water Agency (1999) 76 Cal.App.4th 931, 943

³ Planning and Conservation League v. Department of Water Resources (2000) 83 Cal.App.4th 892

⁴ Save Our Peninsula Committee v. Monterey County Board of Supervisors (2001) 87 Cal.App.4th 99, 118-119

⁵ No Oil, Inc. v. City of Los Angeles (1974) 13 Cal.3d 68, 86.

⁶ Laurel Heights Improvement Ass’n v. Regents of the University of California (Laurel Heights I) (1988) 47 Cal.3d 376, 392.

⁷ Ibid

⁸ Pub Res C §§21168, 21168.5; Communities for a Better Env’t v. South Coast Air Quality Mgmt. Dist. (2010) 48 C4th 310

⁹ Banning Ranch Conservancy v. City of Newport Beach (2017) 2 C5th 918, 935

County of Santa Clara Planning
Attention: Valerie Negrete
June 20, 2023
Page 3 of 7

The Court of Appeal in *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 CA4th 1109, 1117 held:

"[T]he ultimate decision of whether to approve a project, be that decision right or wrong, is a nullity if based upon an EIR that does not provide the decision-makers, and the public, with the information about the project that is required by CEQA. The error is prejudicial if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.

With these general legal principles in mind, Dorado submits the following specific comments on the RDEIR.

DORADO-4

1. The RDEIR's Analysis of Agricultural Impacts Continues to Be Legally Deficient.

Dorado re-engaged Dr. Trevor Suslow to review the additional technical information that was added to the RDEIR relating to the project's potential impact on farmland. As you know, Dr. Suslow previously submitted comments on the original Draft EIR, which explained and documented these potential impacts, and those comments are attached as **Exhibit A** and incorporated herein by reference. As noted in Dr. Suslow's original analysis, the Z-Best expansion has "the potential to increase physical, chemical, and microbial contamination of edible horticultural commodities in proximal production zones." Dr. Suslow's conclusion is based on numerous studies and technical reports that are referenced in Dr. Suslow's analysis that found that composting facilities generate airborne microorganisms that could impact surrounding areas, including in this case, the Ranch and neighboring farm fields.

Dr. Suslow reviewed the RDEIR's analysis of the project's potential agricultural impacts and the supporting technical data and analysis to determine whether his prior comments and concerns were adequately addressed. As documented in Dr. Suslow's comments on the RDEIR, which are attached as **Exhibit B** and incorporated by reference, the RDEIR continues to overlook and omit any analysis of certain discrete impacts of the composting operation that could impact adjacent farmland.

Until this additional analysis is undertaken, it is impossible to determine what specific mitigation or minimization measures could be incorporated into the project design or otherwise required to address these impacts. Nonetheless, Dr. Suslow identifies and recommends that the project implement certain mitigation measures to address the potentially significant increase in bird vectors and bioaerosol impacts. Dorado also identified and described several other mitigation measures in its March 2001 letter that have been ignored or rejected.

County of Santa Clara Planning
 Attention: Valerie Negrete
 June 20, 2023
 Page 4 of 7

As we noted in our March 2021 letter, a fundamental purpose of an EIR is to identify ways in which a proposed project's significant environmental impacts can be mitigated or avoided. Pub Res C §§21002.1(a), 21061. To implement this goal, an EIR must describe feasible mitigation measures that can minimize the project's significant environmental effects. 14 Cal Code Regs §§15121(a), 15126.4(a). As one court observed, "A gloomy forecast of environmental degradation is of little or no value without pragmatic, concrete means to minimize the impacts and restore ecological equilibrium."¹⁰ Accordingly, Dorado again requests that the County require Z-Best to implement mitigation measures that would further reduce or minimize the potential impacts of the logical increase in bird vectors and bioaerosol transmission. Even assuming the RDEIR's authors disagree with Dr. Suslow's conclusions, in an abundance of caution, the County should require Z-Best to implement such measures.

DORADO-5

2. The RDEIR continues to fail to correlate the project's adverse air quality impacts to resultant adverse health effects.

Failing to correlate the Project's adverse air quality impacts to increased incidents of health ailments constitutes a prejudicial abuse of discretion. As the Court of Appeal in *Bakersfield Citizens for Local Control v. City of Bakersfield* ("Bakersfield") (2004) 124 Cal.App.4th 1184, 1220 explained: health problems caused by a project must be addressed in an environmental impact report, including incidents health effects caused by increases in air pollution. Specifically, CEQA requires an environmental impact report to discuss "health and safety problems caused by the physical changes" by the proposal. §15126.2(a). To meet CEQA's disclosure requirement, an environmental impact report must "correlate the identified adverse air quality impacts to resultant adverse health effects." *Bakersfield* at 1219 (italics added). "Correlate" is defined as: "to bring (a thing) into mutual relation (with another thing); **calculate** or show the reciprocal relation between; specif., to bring (one or two related or interdependent **quantities**, sets of statistics, etc.) into contrast (with the other)." Webster's New World Dictionary 319 (2d College ed. 1985) (italics in original; bold added).

Thus, the court in Bakersfield used "correlate" to mean an environmental impact report must disclose the proportional relationship between increased tonnages in air pollution and increased incidents of health ailments by calculating and quantifying the relationship. The DEIR fails to comply with this necessary informational disclosure requirement. Indeed, *Bakersfield* teaches us a truncated analysis involving a bare statement that increased air pollution tonnages means more people get ill fails to satisfy CEQA's information disclosure requirement.

In *Bakersfield*, the two EIRs at issue calculated the approximate increased tonnage of air pollution and then baldly concluded that more air pollution means more health and respiratory ailments.' *Id.* at 1220. According to *Bakersfield*, this embryonic level of detail is insufficient and

¹⁰ Environmental Council of Sacramento v City of Sacramento (2006) 142 CA4th 1018, 1039

County of Santa Clara Planning
Attention: Valerie Negrete
June 20, 2023
Page 5 of 7

resulted in the Appellate Court rejecting the air quality analyses for failing to quantify or correlate the relationship between increased health ailments and increased air pollution. *Id.* at 1220-1221. Accordingly, it is not enough for an environmental impact report to simplistically conclude air pollution will increase and then supply a laundry list of pollutants and related health effects. Rather, CEQA is satisfied only when an EIR discloses, and quantifies anticipated increases of health ailment events resulting from a project's increases in air pollution tonnages.

The RDEIR continues to suffer the same affliction as the DEIR and the *Bakersfield* EIRs and likewise fails to satisfy CEQA. The RDEIR notes in Table 7-1 that certain pollutants can contribute to certain health ailments but never correlate the actual increases of air pollutants to the number and type of air pollution related conditions and diseases. For example, Table 7-7 of the DEIR states that the project would generate 123.19 per day of NO_x emissions due to the additional truck trips, which exceeds the applicable significance threshold of 54 pounds per day. However, the DEIR fails to correlate this increase in NO_x emissions to any potential increased health risk to workers at the Z-Best facility, farmworkers in the adjacent farm fields, or residents in the surrounding area. The RDEIR appears to blame the existing modeling for its inability to translate project generated pollutant emissions into specific health effects on people. However, it's unclear why the Health Risk Assessment that was prepared for Toxic Air Contaminants could not assess the potential impact of other types of pollutant emissions on people or surrounding and uses. This error is compounded by the RDEIR's ongoing failure to adequately address the impact of bioaerosols on human health and safety as Dr. Suslow explains in **Exhibit B**, which can cause the same types of health effects as NO_x.

The RDEIR's air quality analysis continues to ignore glaring omissions and falls short of fulfilling the statutory disclosure requirement. This truncated analysis violates CEQA by omitting a correlation between adverse air quality impacts and resultant adverse health effects and does not disclose the severity of the Project's environmental impacts. *Bakersfield* holds that brief references to, or the listing of, potential respiratory illnesses do not satisfy CEQA. It is only when correct and feasible scientific analysis is conducted and the EIR calculates the significance of the impact in terms of increased events of disease and suffering, are the public and decision makers notified of a project's true impacts. This correlated information is scientifically possible and legally required, and the omission amounts to a prejudicial failure to proceed in the manner required by law.

DORADO-6 3. The RDEIR Fails to Analyze a Reasonable Range of Project Alternative and Its Rejection of the Fully Enclosed Alternative, Which Would Significantly Minimize or Avoid Agricultural Impacts, Is Not Supported by Substantial Evidence.

CEQA requires that an EIR analyze a "reasonable range" of project alternatives that would minimize or avoid the significant environmental impacts of a project. The California Supreme

County of Santa Clara Planning
Attention: Valerie Negrete
June 20, 2023
Page 6 of 7

Court has described the discussion of mitigation and alternatives as "the core of an EIR."¹¹ An EIR must also discuss alternatives even if all the project's significant environmental impacts will be avoided or reduced by mitigation measures.¹²

In our March 2021 letter, Dorado criticized the Draft EIR's abbreviated alternatives analysis, which only studied two potential alternatives, a "Reduced Project Scale" alternative and a "No Driveway Relocation" alternative." The other alternative, the No Project Alternative, clearly does not meet any of the key project objectives of the project and is not a true project alternative. We explained that CEQA demands more than analyzing just two alternatives, particularly for a large-scale composting operation that will result in significant and unavoidable air quality impacts and the types of potentially significant impacts on agricultural resources and human health and safety discussed above.

Dorado recommended that the Draft EIR analyze an entirely enclosed or indoor composting facility like the one that was described and discussed in the 2015 Cal Poly Study that was referenced in our letter. This type of system provides the best pathogen, odor, and vector control, and has the smallest footprint compared to other composting technologies (ECS, 2015). The unique aeration design helps capture and dramatically decreases greenhouse gas and odor emissions. The special aeration system provides a controlled airflow to maintain uniform biomass temperatures. The aeration system shown in the figure below is designed to conserve energy with adaptive control strategies.

In *Center for Biological Diversity v. County of San Bernardino* (2010) 185 CalApp.4th 866, the Court of Appeal found that an EIR for an outdoor composting facility was legally inadequate because it did not consider an enclosed facility alternative that would significantly reduce air quality impacts. Like the RDEIR, the EIR in the *Center for Biological Resources* case only studied three (3) alternatives, the statutorily mandated no-project alternative, a reduced capacity alternative, and an off-site alternative. The Court determined that this range of studied alternatives was inadequate where there was evidence in the record that demonstrated that an enclosed alternative would significantly reduce air quality impacts and was potentially economically feasible.

Rather than analyzing a fully enclosed composting facility, the RDEIR (Section 18.3.2) dismisses this alternative for several reasons. First, the RDEIR suggests that the alternative is not economically infeasible because it would substantially increase capital expenditures and increase the overall cost of the project by 2.5 to 3 times. However, the only cited reference for this statement is a 2022 personal communication with someone named O'Neill, who is presumably a representative of the project applicant. There is no written comparative analysis of the cost of the

¹¹ *Citizens of Goleta Valley v Board of Supervisors* (1990) 52 C3d 553, 564.

¹² *Laurel Heights Improvement Ass'n v Regents of Univ. of Cal.* (1988) 47 C3d 376, 403

County of Santa Clara Planning
Attention: Valerie Negrete
June 20, 2023
Page 7 of 7

open bunker composting versus the enclosed facility option and other context for this conclusion. As the Court of Appeal has explained:

"The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project." (citation omitted) While an EIR need not analyze "every imaginable alternative or mitigation measure," "it should evince good faith and a reasoned analysis."¹³

Second, the RDEIR dismisses the alternative based on conclusory statements that construction of the enclosed systems would increase construction-related haul trips and air pollutant emissions, aesthetic impacts, energy use, and GHG emissions and would not decrease the project's significant and unavoidable environmental impacts relating to NOx emissions, Clean Air Plan Consistency, or VMT. However, the RDEIR provides no specific information relating to the construction (e.g., number and types of construction equipment) or operational requirements of a fully enclosed project to provide any meaningful comparison with the project to substantiate these statements. Unless such a comparative analysis is provided, neither the County decision-makers, nor the public, have sufficient information to assess the veracity of this conclusion.

We request that the County require more detailed review and analysis of a fully enclosed project alternative, which could demonstrate that indeed such an alternative is economically feasible and that the project would remain profitable even assuming the additional capital expenditures.

We appreciate the opportunity to comment on the DEIR for the Z-Best facility expansion and look forward to reviewing the County's responses to the DEIR that address these comments, concerns, and revisions.

Sincerely,

JRG Attorneys at Law



Jason S. Retterer

¹³ *Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 599.

EXHIBIT A

Suslow 26 February 2021

Considerations for Physical, Chemical, and Microbial Food Safety and Buyer Acceptance Impacts Associated with Proximity to Expanded Operations Receiving Green Waste, Commercial Food Waste, and Post-consumer Food Waste

There are diverse conditions and potentially interrelated factors associated with siting or significant expansion of a waste handling site, which includes wastewater treatment facilities, landfill, composting operations, and hauler-spreader holding and transfer yards. These adjacent land features are known to have the potential to increase physical, chemical, and microbial contamination of edible horticultural commodities in proximal production zones. These sites, depending on variable features and distances, may directly or indirectly result in negative impacts to surrounding agricultural production areas and should be carefully evaluated. The absence of realization of an anticipated impact is wholly dependent upon the quality of the facility and engineering design as well as operational controls of the site as a baseline. To prevent an identified expansion project from realization of a foreseeable agricultural nuisance, the design and effectiveness of innovated proactive measures to prevent, minimize, and contain the potential off-site movement or aerosolized dispersal of hazards and sources of microbial contamination associated with these operations, especially large mixed and variable waste handling facilities, are needed. Planning for the reduction/minimization of the windborne dispersal and deposition of physical and hazardous chemical or pathogen containing aggregates or particulate fines are critical for a comprehensive EIR for these projects. Equally, reduction or mitigation of enhanced attractant factors to vermin and vectors under the most challenging conditions associated with food waste and other post-consumer waste streams must be anticipated. This precautionary impact assessment is well supported and reasonably extrapolated from an abundance of available science-based authoritative and peer-reviewed published knowledge and practice.

The intent of this brief document, at this time, is not to provide a comprehensive literature review, but to support and encourage immediate efforts to develop an objective overview of potential food safety impacts associated with proximity to waste handling sites, with specific focus on large composting operations. The potential for demonstrable risk of contamination of edible horticultural crops as well as the issues of perceived hazard and negative economic affects or competitive market disadvantage are briefly addressed. The current situation in the production and marketing of fresh consumed, raw, or value-added agricultural products, especially leafy greens and herbaceous culinary herbs, necessitates that any broad analysis of the potential for local and adjacent land-use features to influence the real or perceived physical, chemical, and microbial hazards be carefully considered. Domestic and international wholesale, retail, foodservice, and mass merchant buyers, as well as public health regulators, are demanding increasingly complex and comprehensive documented food safety programs. To assess the potential impact of a composting operation expansion on local agricultural and ag-enterprise operations, it is important to evaluate the potential for unintended

Suslow 26 February 2021

harm beyond the loss of farmlands, unique farmland, or forested and timberland resources.

Previous related experience by T. Suslow, Ph.D. involved the assessment of potentially contributing factors to a regional *E. coli* O157:H7 outbreak associated with Romaine lettuce produced adjacent to a compost facility which began accepting increased green waste and institutional and urban food scraps and food waste (Cheung, 2015). The implicated compost operation was well managed and had been in operation for many years as an immediate neighboring land use feature to mixed cool season vegetables. Though categorical proof was not obtained, the changed feedstock components to greater volumes of food waste which were associated with increased vector attractant potential, primarily birds, was a notable factor.

Assessment of the Risk Associated with Composting Sites

A preliminary digital literature search of scientific journals and related publications and a similar broad search of Internet-accessible public documents revealed extensive information on the risk potential of various hazards, including microbial contamination transfer, from compost operations to off-site lands, communities, and crop production. The uniform conclusion contained within multiple studies, issue briefs, and policy reviews, across global locations, are consistent in supporting the need for applying science-based containment measures, including dust abatement windbreaks, within effective operational design and governance. It is recognized that long established standards, regulated permit requirements, and precautionary measures are needed to protect both operators, the local environment, and agricultural enterprises.

A leading source of presumptive risk of transferable contamination from composting facilities, especially those receiving commercial food waste and post-consumer food waste is the direct and indirect vectoring of microbial pathogens by rodents, insects, and birds, particularly crows, pigeons, and gulls.

In summary, all studies and reports related to or scientifically addressing downstream public health concerns about infectious agents transmitted from waste handling siting decisions and facilities are consistent in defining a presumption of risk in the absence of a properly designed and operated containments and vector control programs.

Negative Economic Impacts

Scientific literature and science-based risk assessments cannot be adequately employed to dismiss legitimate concerns for potential economic impact to agricultural enterprises within proximity to a perceptual source of food safety hazards. It is not the purpose of this document to argue either side of this sensitive issue. However, it seems prudent that any compost facility expansion EIR identify and address the current realities of fresh produce processing and marketing, especially with regards to particulate deposition

Suslow 26 February 2021

residues and microbial food safety issues. The needs inherent in retaining and improving consumer confidence in the safety of fresh produce, consumed without a terminal kill step, to mitigate the potential for contamination by fecal indicators, which are part of many buyer acceptance requirements, and pathogens mandates that adjacent land use risk factors be seriously and thoroughly evaluated. Once site-specific potential risks have been identified, risk assessment may be engaged as a productive action to determine the science-basis for the level of anticipated risk exposure. As the scientific basis for risk assessment is not yet available for every situation, risk perception tends to be sufficient cause for certain buyer-imposed food safety metrics, which has resulted in the loss of prime agricultural land for high value food crop production. Against this backdrop and the unknown potential for competitors to, unfairly, use proximity to expanded waste handling activities as a negative marketing influence on buyers, it is prudent and responsible to commission a more inclusive review to address concerns for significant negative impacts of site expansion and inadequacies of current prevention and containment measures on immediately surrounding agricultural viability.

**Prepared by Trevor V. Suslow, Ph.D.
Emeritus Extension Specialist faculty
University of CA, CAES, Dept. Plant Sciences**

Literature accessed and reviewed 2/22-25/21

Blackwell, B. and T. Seamans. 2008. Food Scraps Composting and Vector Control. University of Nebraska –DigitalCommons@University of Nebraska – Lincoln. USDA National Wildlife Research Center - Staff Publications. Paper 803.
http://digitalcommons.unl.edu/icwdm_usdanwrc/803

CDPH. 1999. Final Report - Bioaerosols and Green-waste Composting in California.

Cheung, L. 2015. FEASIBILITY AND COST ANALYSIS OF COMPOSTING CAMPUS DINING FOOD WASTE IN CAL POLY'S COMPOST FACILITY. Available at
<https://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1150&context=braesp>

Domingo, J. and M. Nadal. 2009. Domestic waste composting facilities: A review of human health risks. Environment International 35 (2009) 382–389

Ferguson, R. et.al.2021. Size fractionation of bioaerosol emissions from green-waste composting. Environment International 147:106327

Fracchia, L. et.al. 2006. The assessment of airborne bacterial contamination in three composting plants revealed site-related biological hazard and seasonal variations. J Appl Microbiol. 100(5):973-84. doi: 10.1111/j.1365-2672.2006.02846.x

Suslow 26 February 2021

Grisoli, P. et.al. 2009. Assessment of airborne microorganism contamination in an industrial area characterized by an open composting facility and a wastewater treatment plant. *Environmental Research* 109 (2009) 135–142

McCabe, C. et.al. 2020. **FINAL REPORT OUTDOOR FOOD WASTE COMPOSTING.** NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION SCIENCE ADVISORY BOARD. Available at https://www.nj.gov/dep/sab/sab_food_composting.pdf

Prasad, M. et.a. prepared for EPA .2004. Bioaerosols and Composting A Literature Evaluation. Available at http://www.cre.ie/docs/cre_bioaerosol_aug2004.pdf

Waste 360. Accessed 2/24/21. Ten Steps to Successful Facility Siting. <https://www.waste360.com/print/4880>

Rahardyan, B. et.al. 2004. Resident's concerns and attitudes towards Solid Waste Management facilities. *Waste Management* 24 (2004) 437–451

Schlosser, O. 2019. Bioaerosol and Health: Current knowledge and gaps in field of waste management. *Multidisciplinary Journal of Waste Resources and Residues*. 5:111-125

Stella Ayilata, M. et.al. 2020. Review- Waste Management through Composting: Challenges and Potentials. *Sustainability* **2020**, 12, 4456; doi:10.3390/su12114456

Wéry, N. 2014. Bioaerosols from composting facilities – a review. *Frontiers in Cellular and Infection Microbiol.* 4: article 42

Robertson, S., et.al. 2019. Bioaerosol exposure from composting facilities and health outcomes in workers and in the community: A systematic review update. *International Journal of Hygiene and Environmental Health* 222: 364–386

Fernanda Hei Wikuats, C. 2020. Assessment of airborne particles and bioaerosols concentrations in a waste recycling environment in Brazil. 10:14812. <https://doi.org/10.1038/s41598-020-71787-0>

Summary of Composting Regulations – California Tiers available at <https://www.calrecycle.ca.gov/swfacilities/permitting/facilitytype/compost>

CalRecycle - OSWER Innovations Pilot Project. Achieving Economic and Environmental Benefit through Agricultural and Municipal Cooperation in Co-composting Green Waste with Animal Manure. Final Report: September 30, 2003 – March 31, 2005. Available at <https://www.calrecycle.ca.gov/organics/farming/agdemos/manure>

Suslow 26 February 2021

Prior background Literature applicable to broad aspects of risk assessment in waste handling facilities and potential impacts on adjacent fresh produce production and packing operations utilized in related risk assessments and impacts of waste handling facilities by Suslow.

1. 1. Abdul Raouf, U.M., L.R. Beuchat, and M.S. Ammar. 1993. *Survival and growth of Escherichia coli O157:H7 on salad vegetables*. Applied and Environmental Microbiology . 59(7): p. 1999-2006.
2. Ackers, M., B. Mahon, E. Leahy, I Damrow, L. Hutwagner, T. Barrett, W. Bibb, P Hayes, P. Griffin, and L. Slutsker. 1996. An outbreak, of *Escherichia coli* O 157:H7 infections associated with leaf lettuce consumption, Western Montana. Abstract no. K43. 36th *Interscience Conference on Antimicrobial Agents and Chemotherapy, American Society for Microbiology*, Washington D.C., 15 to 18 1996. Sept p 258.
3. Ahmed , R.E. and Muller, H.E. 1984. Distribution of enterobacteria in soil after sprinkling with sewage effluent. *Zentralblatt fur Bakteriologie , Mikrobiologie und Hygiene*. 179: 248-258
4. Ait Melloul, A., and Hassani, L. 1999. Salmonella infection in children from the wastewater spreading zone of Marrakesh city (Morocco). *Journ. Appl. Micobiol*. 87: 536-539
5. Armon, R.; C. G. Dosoretz; Y. Azov; and G. Shelef. 1994. Residual contamination of crops irrigated with effluent of different qualities: A field study. *Water Science and Technology* 30: 239-248.
6. Bastos, R. , Mara, D. , Pearson, H. and Green, F.B. 1995. The bacterial quality of salad crops drip and furrow irrigated with waste stabilization pond effluent: an evaluation of WHO guidelines. *Water Science Technol*. 31: 425-430
7. Bell, R.G. 1976. Persistence of fecal coliforms indicator bacteria on alfalfa irrigated with municipal sewage lagoon effluent. *Journ. Environ. Quality*. 5: 39-42
8. Besser, R. E., S. M. Lett, J. T Weber, M. P. Doyle, T. J. Barrett, J. G. Wells, and P. M. Griffin. 1993. An outbreak of diarrhea and hemolytic uremic syndrome from *Escherichia coli* O157:H7 in fresh pressed apple cider. *JAMA* 269:2217-2220.
9. Beuchat, L.R. 1996. Pathogenic microorganisms associated with fresh produce. *J. Food Prot*. 59(2): p. 204-216.
10. Beuchat, L.R. 1998. Surface Decontamination of Fruits and Vegetables Eaten Raw: A Review. *Food Safety Issues*. World Health Organization. 1998.

Suslow 26 February 2021

11. Blostein, J. 1991. An outbreak of *Salmonella javiana* associated with consumption of watermelon. *J. Environ. Health* 56:29-31.
12. Brackett, R.E. 1999. Incidence, contributing factors, and control of bacterial pathogens in produce. *Postharvest Biology and Tech.* 15:305-311.
13. Bryan, F.L. 1977. Diseases transmitted by foods contaminated by wastewater, *Jour. Food Protection.* 40: 45-56
14. Centers for Disease Control and Prevention. 1979. *Salmonella oranienburg* gastroenteritis associated with consumption of pre-cut watermelons. *Morb. Mort. Weekly Report.* 28:522-523.
15. Centers for Disease Control and Prevention. 1991. Multistate outbreak of *Salmonella poona* infections United States and Canada, 1991. *Morb. Mort. Weekly Report.* 40:5495-52 (1991, *JAMA* 266:1189-1190).
16. Centers for Disease Control and Prevention. 1993. Multistate outbreak of *Salmonella* serotype Montevideo infections. *EPI-AID* 93-79.
17. Centers for Disease Control and Prevention. 1994. Foodborne outbreaks of enterotoxigenic *Escherichia coli*-Rhode Island and New Hampshire, 1993. *Morbidity and Mortality Weekly Report.* 43:81, 87-89.
18. Centers for Disease Control and Prevention. 1996. Outbreak of *Escherichia coli* O157:H7 Infections Associated with Drinking Unpasteurized Commercial Apple Juice. *Morbidity and Mortality Weekly Report.* Oct. 45:975.
19. Centers for Disease Control and Prevention. 1997. Outbreaks of *Escherichia coli* O157:H7 Infection and Cryptosporidiosis Associated with Drinking Unpasteurized Apple Cider-Connecticut and New York, October 1996. *Morbidity and Mortality Weekly Report.* Jan. 46:4-8.
20. Centers for Disease Control and Prevention. 1997. *The control of non-point source microbial indicators and pathogens using best management practices: A literature review and evaluation.* Centers for Disease Control and Prevention, National Center for Infectious Diseases, Division of Parasitic Diseases. Atlanta, GA.
21. Cherry, W.B., Hanks, J.B., Thomason, B.M., Murlin, A.M., Biddle, J. W., and Croom, J.M. 1972. *Salmonellae* as an index of pollution of surface waters. *Appl. Environ. Microbiol.* 24: 334-340
22. Cohen, D. et.al. 1991. Reduction of transmission of shigellosis by control of houseflies (*Musca domestica*). *Lancet.* 337: 993-998

Suslow 26 February 2021

23. Christensen, B. B., C. Sternberg, J. B. Andersen, L. Eberl, S. Moller, M. Givskov, and S. Molin. 1998. Establishment of new genetic traits in a microbial biofilm community. *Appl. Environ. Microbiol.* 64:2247-2255.

24. Cook, K., T. Boyce, C. Langkop, K. Kuo, M. Swartz, D. Ewert, E. Sowers, J. Wells, and R. Tauxe. 1995. A multistate outbreak of *Shigella flexneri* traced to imported green onions. Abstract no. K72, *35th Interscience Conference on Antimicrobial Agents and Chemotherapy*, American Society for Microbiology, Washington D.C., 17 to 20 Sept 1995, p. 300.

25. Cook, K., D. Swerdlow, T. Dobbs, J. Wells, N. Puh, G. Hlady, C. Genese, L. Finelli, B. Toth, D. Bodager, K. Pilot, and P. Griffin. 1996. Fresh-squeezed *Salmonella*: an outbreak of *Salmonella hartford* infections associated with unpasteurized orange juice in Florida. Abstract no. K49, *36th Interscience Conference on Antimicrobial Agents and Chemotherapy*, American Society for Microbiology, Washington D.C., 15 to 18 Sept 1996. p. 259.

26. Council for Agricultural Science and Technology (CAST). 1994. Foodborne Pathogens: Risks and Consequences. *Task Force Report*, No. 122. 87 pps.

27. De Roever, C. 1999. Microbiological Safety Evaluations and Recommendations on Fresh Produce. *Food Control* 10 (1999) 117-143.

28. Diaz, C. and J.H. Hotchkiss. 1996. *Comparative growth of Escherichia coli O157:H7, spoilage organisms and shelf-life of shredded iceberg lettuce stored under modified atmospheres*. *Journal of the Science of Food and Agriculture*. 70(4): p. 433-438.

29. Downs, T.J., Cifuentes-Garcia, E., and Suffet, I.M. 1999. Risk screening for exposure to groundwater pollution in a wastewater irrigation district of the Mexico City Region. *Environ. Health Perspectives*. 107: 553-561

30. Dunlop, S.G. and W.L.L Wang. 1961. Studies on the use of sewage effluent for irrigation of truck crops. *J. Milk Food Technol.* 24:44-47.

31. Ferns, P.N. and Mudge, G.P. 2000. Abundance, diet and *Salmonella* contamination of gulls feeding at sewage outfalls. *Water Research*. 34: 2653-2660

32. Frost, J. A., M. B. McEvoy, C. A. Bentley, Y. Andersson, and A. Rowe. 1995. An outbreak of *Shigella sonnei* infection associated with consumption of iceberg lettuce. *Emerg. Infect. Dis.* 1:26-29.

33. Gagliardi, J.V. and Karns, J.S. 2000. Leaching of *Escherichia coli* O157:H7 in diverse soils under various agricultural management practices. *Appl. Environ. Microbiol.* 66: 877-883

Suslow 26 February 2021

34. Garcia Villanova Ruiz, B., R. Galvez Vargas, and R. Garcia Villanova. 1987. *Contamination on fresh vegetables during cultivation and marketing*. Int J Food Microbiol, 4(4): p. 285-291.
35. Geldreich, E.E. and R.H. Bordner. 1971. Fecal contamination of fruits and vegetables during cultivation and processing for market. A review. *J. Milk Food Technol.* 34:184-195.
36. Gerba, Charles, T. Straub, J. B. Rose, M. Karpiscak, K. Foster, and R. Brittain. 1995. Water Quality Study of Graywater Treatment Systems. *Water Resources Bulletin.* 31:109-116.
37. Goyal, S.M., Gerba, C.P., and Melnick, J.L. 1977. Occurrence and distribution of bacterial indicators and pathogens in canal communities along the Texas coast. *Appl. Environ. Microbiol.* 34: 139-149
38. Hancock, D. D. , et.al. 1998. Multiple sources of *Escherichia coli* O157 in feedlots and dairy farms in Northwestern USA. *Prevent. Vet. Medicine.* 35: 11-19
39. Himathongkham, S., Bahari, S., Riemann, H., Cliver, D. 1999. Survival of *Escherichia coli* O157:H7 and *Salmonella typhimurium* and Cow Manure Slurry. *FEMS Microbiology Letters* 178 (1999) 251- 257.
40. Hossain, A., Towend, J., and Killham, K. 2000. A simple method for assessing leaching risk of bacteria through soils. *Soil Use and Management.* 16: 71-73
41. Iawasa, M. et.al. 1999. Detection of *Escherichia coli* O157:H7 from *Musca domestica* at a cattle farm in Japan. *J. Medical Entomology.* 36: 108-112
42. Janisiewicz, W.J., W.S. Conway, and B. Leverentz. 1999. Biological control of postharvest decays of apple can prevent growth of *Escherichia coli* O157:H7 in apple wounds. *Journal of Food Protection.* 62:1372-1375
43. Jones, P.W., Rennison, L.M., Lewin, V.H., and Redhead, D.L. 1980. The occurrence and significance to animal health of salmonellas in sewage and sewage sludges. *J. Hyg., Camb.* 84:47-62
44. Kakiomenou, K., C. Tassou, and G.J. Nychas, *Survival of Salmonella enteritidis and Listeria monocytogenes on salad vegetables*. 1998. *World J. Microbiol Biotechnol.* 1998. (3): p. 383-387.
45. Katzenelson, E., Telch, B., Shuval, H.I. 1977. Spray Irrigation with Wastewater: The Problem of aerosolization and Dispersion of Enteric microorganisms. *Progress in Water Technology.* 9:1, 1-11.

Suslow 26 February 2021

46. Kobayashi, M. et.al.1999. Houseflies: not simple mechanical vectors of enterohemorrhagic *Escherichia coli* O157:H7. *Amer. J. Tropical Medicine and Hygiene*. 61: 625-629
47. Kovacs, F. and Tamasi, G. 1979. Survival times of bacteria in liquid manure. *Acta Venterinara Academiae Scientiarum Hungaricae*. 27: 47-54
48. Libero, A. 1989. Hygienic and health aspects of peach tree irrigation with waste water at different treatment stages. *Irrigazione e Drenaggio*. 36: 51-58
49. Lin, C.M., S.Y. Fernando, and C. Wei. 1996. *Occurrence of Listeria monocytogenes, Salmonella spp., Escherichia coli and E. coli O157:H7 in vegetable salads*. *Food Control* 7(3): p. 135-140.
50. Mahon, B. E., A. Ponka, W. Hall, K. Komatsu, L. Beuchat, S. Dietrich, A. Siitonen, G. Cage, M. Lambert-Fair, P. Hayes, N. Bean, P. Griffin, and L. Slutsker. 1996. An international outbreak of *Salmonella* infections caused by alfalfa sprouts grown from contaminated seed. Abstract no. K48, *36th Interscience Conference on Antimicrobial Agents and Chemotherapy*, American Society for Microbiology, Washington D.C., 15 to 18 Sept 1996. p. 259.
51. Maxcy, R.B. 1978. *Lettuce salad as a carrier of microorganisms of public health significance*. *J Food Protect*. 41(6): p. 435-438
52. National Advisory Committee On Microbiological Criteria For Foods. March 5, 1998. *Microbiological Safety Evaluations and Recommendations on Fresh Produce*, Final Draft.
53. Nguyen-The and F. Carlin. 1994. The Microbiology Of Minimally Processed Fresh Fruits And Vegetables. *Crit. Rev. Food Sci. Nutr*. 34:371-401.
54. Nichols, A.A., Daviers, P.A., and King, K.P. 1971. Contamination of lettuce irrigated with sewage effluent. *J. Hort. Sci*. 46:425-433
55. Odumeru, J.A., et al. 1997. *Assessment of the microbiological quality of ready-to-use vegetables for health-care food services*. *J Food Prot*. 60(8): p. 954-960
56. O'Mahony, M., J. Cowden, B. Smyth, D. Lynch, M. Hall, B. Rowe, E. L. Teare, R. E. Tettmar, A. M. Rampling, M. Coles, R. J. Gilbert, E. Kingcott, and C. L. R. Bartlett. 1990. An outbreak of *Salmonella saint-paul* infection associated with bean sprouts. *Epidemiol. Infect*. 104:229-235.
57. Park, C.M., and Beuchat, L.R.1999. Evaluation of Sanitizers for Killing *Escherichia coli* O157:H7, *Salmonella* and Naturally Occurring Microorganisms on Cantaloupes,

Suslow 26 February 2021

Honeydew Melons, and Asparagus. Dairy, Food and Environmental Sanitation.19.12:842-847.

58. Radi, M.H., Shoukry, M., and Hafez, G.A. 1988. Evidence for biological mode of transmission of enteric bacteria by *Musca domestica sorbens*. Journ. Egyptian Soc. Parasitology. 18: 457-462

59. Rahn, K. et.al.1997. Persistence of Escherichia coli O157:H7 in dairy cattle and dairy farm environment. Epidemiology and Infection. 119:251-259

60. Ries, A. A., S. Zaza, C. Langkop, R. V. Tauxe, and P. A. Blake. 1990. A multistate outbreak of *Salmonella chester* linked to imported cantaloupe, p. 238, Abstract no. 915. 30th Interscience Conf. Antimicrob. Agents Chemother., Am. Soc. Microbiol., Washington, D.C.

61. Roberts, D., G.N. Watson, and R.T. Gilbert. 1982. Contamination of food plants and plant products with bacteria of public health significance. in *Bacteria and Plants*. M. Rhodes-Roberts and F.A. Skinner. Academic Press, London. pp. 169-195.

62. Robinson, I. and R.P. Adams. 1978. Ultra-violet treatment of contaminated irrigation water and its effect on the bacteriological quality of celery at harvest. *J. Appl. Bacteriol.* 45:83-90.

63. Rosenblum, L. S., I. R. Mirkin, D. T. Allen, S. Safford, and S. C. Hadier. 1990. A multifocal outbreak of hepatitis A traced to commercially distributed lettuce. *Am. J. Pub. Health* 80:1075-1079.

64. Ruiz, Garcia-Villanova B., Espinar, Cueto A., and C 1 armona, Bolanos M.J. 1987a. A comparative study of strains of salmonella isolated from irrigation waters, vegetables and human infections. *Epidem. Inf.* 98:271-276

65. Sadoski, A., Fattal, Y.B., and Goldberg, D. 1978. Microbial contamination of vegetables irrigated with sewage effluent by the drip method. *J. Food Prot.* 41: 336-340

66. Seo, K.H. and J. F. Frank. 1999. Attachment of *Escherichia coli* O157:H7 to lettuce leaf surface and bacterial viability in response to chlorine treatment as demonstrated by using confocal scanning laser microscopy. *Journal of Food Protection*: Vol. 62, No. 1, pp. 39.

67. Sheikh, B., Cooper, R.C., and Israel, K.E. 1999. Hygienic evaluation of reclaimed water used to irrigate food crops – A case study. *Wat. Sci. Tech.* 40: 261-267

68. Shuval, H., Morris, R., Grabow, W., and Dufour, A. P. 1993. Investigation of typhoid fever and cholera transmission by raw wastewater irrigation in Santiago, Chile. *Water Science Technol.* 27: 167- 174

Suslow 26 February 2021

69. Shuval, H.; Lampert, Y.; Fattal, B. Development of a risk assessment approach for evaluating wastewater reuse standards for agriculture. *Water Science and Technology* 1997. 35 (11-12): 15-20
70. Smith, P.J., Jones, F., and Watson, D.C. 1978. Salmonella pollution of surface waters. *J. Hyg. Camb.* 81:353-359
71. Suslow, T.V. 2001. Production practices affecting the potential for persistent contamination of plants by microbial foodborne pathogens. in *Phyllosphere Microbiology*, Chapter 16: pp.234-248 (S.E. Lindow, Ed.), APS Press, St. Paul, MN
72. Szabo, J. 1976. Survival of *Salmonella enteritidis* on pastures following irrigation. *Magyar Allatorvosk Lapja*. 31: 161-164
73. Takayanagui, O.M., et.al. 2000. Monitoring of market gardens in Ribeirao Preto, SP. *Revista da Sociedade Brasileira de Medicina Tropical* 33:169-174
74. Tamasi, G. and Winkler, K.C. 1977. Dissemination of microorganisms due to slurry sprinkling. *Montashefte fur Veterinarmedizin*. 32: 773-775
75. Tauxe, R., H. Kruse, C. Hedberg, M. Potter, J. Madden, and K. Wachsmuth. 1997. Microbial Hazards And Emerging Issues Associated With Produce. A Preliminary Report To The National Advisory Committee On Microbiological Criteria For Foods. *Journal of Food Protection*, 60(11):1400.
76. Teltsch, B. and Katzenelson, E. 1978. Airborne Enteric Bacteria and Viruses from Spray Irrigation with Wastewater. *Applied and Environmental Microbiology*. 35:2, 290-296.
77. U.S. Department of Agriculture. The National Advisory Committee on Microbiological Criteria for Foods. 1992. Hazard Analysis Critical Control Point System. *International Journal of Food Microbiology* 16:1–23.
78. U. S. FDA, CFSAN. October, 1998. *Guide To Minimize Microbial Food Safety Hazards For Fresh Fruits and Vegetables*. 1-40.
79. Vaz da Costa Vargas, S.M., D.D. Mara, and C.E. Vargas Lopez. 1991. *Residual faecal contamination on effluent-irrigated lettuces*. *Water Science and Technology*. 24(9): p. 89-94.
80. Vescovo, M., et al. 1954. *Application of antimicrobial-producing lactic acid bacteria to control pathogens in ready-to-use vegetables*. *J Appl Bacteriol*. 54: p. 113-119.

Suslow 26 February 2021

81. Wells, J.M. and J.E. Butterfield. 1997. *Salmonella* contamination associated with bacterial soft rot of fresh fruits and vegetables in the marketplace. Plant Dis. **81**(8): p. 867-872

82. Wood, R. C., C. Hedberg, and K. White. 1991. A multistate outbreak of *Salmonella javiana* associated with raw tomatoes. Abstract, *Epidemic Intelligence Service 40th Annual Conference*, CDC, Atlanta, GA. P.69.

EXHIBIT B

Jason S. Retterer
JRG Attorneys at Law
318 Cayuga St.
Salinas, CA 93908

Re: Comments on Z-Best Recirculated Draft EIR

20 June 2023

Dear Jason:

You asked me to review and comment on the Recirculated Draft Environmental Impact Report (“RDEIR”) that the County of Santa Clara has prepared for the Z-Best Composting Facility Modifications. I also reviewed the “Memorandum: Z-Best Composting Facility – Evaluation of potential bioaerosol emissions from proposed operations compared to existing operations,” dated December 9, 2022 and prepared by AECOM. Attached is a short biography relating to my expertise in evaluating the potential risks and hazards of adjacent land uses on farmland.

I had previously commented on the original Draft EIR and identified a number of potential hazards and impacts of Z-Best’s proposed modifications to its current composting processes on adjacent agricultural land. Those comments are incorporated by reference herein.

While the County has endeavored to address these potential impacts in the RDEIR, the RDEIR still does not adequately address the project’s potential impacts on surrounding farmland. My specific comments are as follows.

- DORADO-7**
- The RDEIR still does not adequately address the likelihood of increased vector attraction, predominantly birds and specifically American Crow readily observed at and around the operations from viewpoints on the adjacent farmland. Due to increased volume of incoming materials and open-bunker composting, the bird activity observed by personal observation and readily observed on the Z-Best Virtual Tour of the Gilroy facility, notwithstanding a windrow format versus bunkers, the risk potential for bird movement between the diverse operational units from receiving to finished compost facility have not been sufficiently addressed. The increased risk potential is fundamentally a two-fold leading issue. Simply stated, an expanded volume of raw materials and in-process compost in combination with known and routine crop development and crop management inputs on the adjacent farm represents a greater risk of avian species of primary concern, such as cowbirds, gulls, and crows from the facility into farm (6).

To mitigate the risk of increased bird vectors, I recommend that an assessment of correspondingly more substantial non-lethal bird harassment and diversion mitigation offset practices be undertaken by the County and addressed in the RDEIR. Considerations should include but not be limited to species-specific sonic wave technologies (e.g. [Sonic Nets](#)) and strategic placement of modern laser-sentinel devices (e.g. [Bird Control Group](#)). Specialized laser devices have been effectively used in acute and chronic bird diversion tactics at airports and vineyards, for example.

- DORADO-8**
- Irrespective of the development of the bulk bunkered pile with a 6-inch finished product layer, in-process pile basal “tail edges” will invariably be slow to (or potentially never) reach the 55 degrees Celsius inactivation temperature asserted as an enhanced process safety factor. 55 degrees Celsius is the minimal bulk temperature of this operational window for pathogen lethality, dependent on materials and environmental conditions. This basement level standard has been demonstrated to be operationally

non-uniform in surveys conducted by the University of Florida in conjunction with Food and Drug Administration programs regarding the safety of soil amendments (1, 2). While these studies included aerated compost masses which incorporated animal manures in the feedstock, the studies do not obviate the prudent step of considering this potential source of contaminants. The RDEIR does not address this “tail edge” issue.

DORADO-9 • Bacterial pathogens of concern have the potential to develop heat and other stress tolerance traits on the incoming materials prior to receiving and/or during pre-process hold times. The target “come-up” threshold of 55 degrees Celsius (131 Fahrenheit), or greater but less than 70 degrees Celsius (158 degrees Fahrenheit) in 48 hours is an enhancement to the current process. Consideration of pre-adaptive tolerance, rarely included as a composting process performance factor in most experimental risk assessment and validation studies, was not considered in this narrative. Pre-adaptive tolerance is a common terminology to describe the genetically determined response bacteria, as used here, can undergo following a non-lethal stress exposure which then adapts the surviving cells to greater tolerance for the same or more severe stress exposure, such as elevated temperature. This stress-tolerance induction response simultaneously conveys resistance to multiple stresses common to composting, as reported in several peer-reviewed reports (3, 5, 7, 8). A further enhancement to accelerate “come-up” time which has been studied uses heated forced aeration consistently or during periods of cool to cold seasonal weather conditions. This would better ensure an adequate and more uniform lethal temperature distribution.

DORADO-10 • The potential for pooling water at these base layers with process water addition, as occurs with the current system, would also occur in open bunker arrays during seasonal rain. Such pooled moisture has the potential to provide an environment for amplification of bacterial pathogens. The RDEIR should consider the impact on pooled moisture to amplify bacterial pathogens and possible steps or measures that could be taken to eliminate any pooling. Elevated transference potential, due to greater populations and distribution of pathogens across the facility footprint, mediated by any of the recognized physical or biological vectors has the potential to result in a partial or complete loss of the adjacent crop.

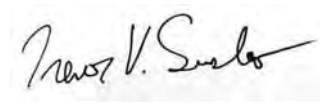
DORADO-11 • The assessment of fugitive dust and aerosolized particulates did not adequately address the full breadth of interacting factors which could result in sporadic but consequential release from diverse boundary layers within operational units as well as during handling and transfers. As just one example, the design and elevation of the proposed open-channel conveyance relative to wind speed and wind run, especially under extreme conditions, was not included in the RDEIR’s analysis. Studies cited to establish likely distances of fugitive dust and bioaerosols do not adequately address the scale of the proposed expansion and predictable adverse conditions to containment of the materials likely to be experienced in a year-round operation.

To mitigate this risk, I recommend that the RDEIR require this project to implement risk reduction practices such as stopping certain high aerosol-generating operations during high wind conditions or seasonal periods when wind direction is counter to prevailing vectors.

DORADO-12 • A robust dust dispersal survey across an extended timeframe coinciding with seasonal farming is a positive step and will benefit from an additional detailed design development effort. A comprehensive longitudinal study and granular documentation of site-specific “fugitive dust” dispersal characteristics is necessary to best develop data-informed decisions regarding the mitigations. Such a study would best inform whether and which design changes are warranted, and where, to optimize the mitigation of

bioaerosolization and off-site movement of particulates. An example of impacts of off-site movement and impacts is provided in Frączek et. al. 2022 (4.)

DORADO-13 Based on my review of the Recirculated Draft EIR and associated documents that you have provided, it is my opinion that additional analysis and assessments of additional or alternative preventive measures and mitigation practices or technologies to reduce and manage the inherent risk potential associated with any composting facility should be undertaken prior to any decision on expansion is made.



Trevor Suslow, Ph.D.

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1. Dunn LL, Sharma V, Chapin TK, Friedrich LM, Larson CC, Rodrigues C, Jay-Russell M, Schneider KR, Danyluk MD. The prevalence and concentration of *Salmonella enterica* in poultry litter in the southern United States. PLoS One. 2022 May 26;17(5):e0268231. doi: 10.1371/journal.pone.0268231. PMID: 35617326; PMCID: PMC9135211.

2. Food and Drug Administration. 2020. **Florida BSAAO Workshop –Virtual – December 15-17**. Ingram, D. Ph.D. FDA Presenting. Current Thinking and Risk Assessment Research.

3. Joshua B. Gurtler, Michael P. Doyle, Marilyn C. Erickson, Xiuping Jiang, Patricia Millner, Manan Sharma, Composting To Inactivate Foodborne Pathogens for Crop Soil Application: A Review, Journal of Food Protection, Volume 81, Issue 11, 2018, Pages 1821-1837, ISSN 0362-028X, <https://doi.org/10.4315/0362-028X.JFP-18-217>.
(<https://www.sciencedirect.com/science/article/pii/S0362028X22088196>)

4. Frączek, Krzysztof Ropek, Dariusz Roman and Jacek Kozdrój. Spatial Distribution of *Salmonella* in Soil near Municipal Waste Landfill Site. Agriculture 2022, 12(11),1933;
<https://doi.org/10.3390/agriculture12111933>

5. Lemunier M, Francou C, Rousseaux S, Houot S, Dantigny P, Piveteau P, Guzzo J. Long-term survival of pathogenic and sanitation indicator bacteria in experimental biowaste composts. Appl Environ Microbiol. 2005 Oct;71(10):5779-86. doi: 10.1128/AEM.71.10.5779-5786.2005. PMID: 16204488; PMCID: PMC1265932.

6. Navarro-Gonzalez N, Wright S, Aminabadi P, Gwinn A, Suslow TV, Jay-Russell MT. Carriage and Subtypes of Foodborne Pathogens Identified in Wild Birds Residing near Agricultural Lands in California:

a Repeated Cross-Sectional Study. *Appl Environ Microbiol.* 2020 Jan 21;86(3):e01678-19. doi: 10.1128/AEM.01678-19. PMID: 31757824; PMCID: PMC6974635.

7. Patel JR, Yossa I, Macarisin D, Millner P. Physical covering for control of *Escherichia coli* O157:H7 and *Salmonella* spp. in static and windrow composting processes. *Appl Environ Microbiol.* 2015 Mar;81(6):2063-74. doi: 10.1128/AEM.04002-14. Epub 2015 Jan 9. PMID: 25576620; PMCID: PMC4345378.

8. Singh R, Kim J, Shepherd MW Jr, Luo F, Jiang X. Determining thermal inactivation of *Escherichia coli* O157:H7 in fresh compost by simulating early phases of the composting process. *Appl Environ Microbiol.* 2011 Jun;77(12):4126-35. doi: 10.1128/AEM.02873-10. Epub 2011 Apr 15. PMID: 21498743; PMCID: PMC3131655.

Trevor Suslow, Ph.D. is transitioning from full time (Oct 1, 2018 to Dec 31, 2020) as VP of Produce Safety at the Produce Marketing Association and Emeritus Extension Research Specialist at the University of California, Davis, Department of Plant Sciences. Trevor has formed Trevor Suslow Consulting, LLC and retains his Emeritus position. His former full-time position at UCD included statewide responsibilities in quality and safety of perishable horticultural commodities. Dr. Suslow's program spanned preharvest to postharvest research and outreach education on diverse whole fresh and minimally processed horticultural foods from annual row crops to tree and vine commodities. His past and current applied research combines lab and on-farm research on *E. coli*, *Salmonella*, and *Listeria* in conventional and organic production systems, for the purpose of identifying opportunities for optimal microbial reductions and delivery of safe food to the consumer. He served on the Center for Produce Safety Board of Directors from 2008 to 2014 and the CPS Technical Committee since its creation in 2008 to the present. Dr. Suslow received his BSc. in Agricultural Sciences with honors and his Ph.D. in Plant Pathology from the University of California, Berkeley. Before joining UC Davis, he was a Research Scientist and Director of Product Research for DNA Plant Technologies, Inc. for 15 years. Trevor received the United Fresh Produce Association Technical Award in 2012 and was named to and to The Packer 25 *Profiles in Leadership* award in 2014. He was named to Food Safety News list of *The Best of Food Safety in Education* and honored with the National Steinbeck Center's Valley of the World Award in Education in 2017. He is a Lead Instructor for the FDA FSMA Produce Safety Alliance, Food Safety Preventive Controls Alliance, and the Sprout Safety Alliance. Trevor served as Faculty Director for the UC Postharvest Technology Center from 2016 to October 2018. Dr. Suslow was recently recognized by the International Association of Food Protection (IAFP) with the 2018 Elmer Marth Educator Award and in 2019 the IAFP President's Award for extension and outreach to the food safety community.

Academic Preparation

University of California, Berkeley	B.Sc. (High Honors)	1975	Agricultural Sciences
University of California, Berkeley	M.Sc.	1977	Plant Pathology
University of California, Berkeley	Ph.D.	1980	Plant Pathology

Employment History

1980- 1981	Postdoctoral Research	Hilleleshög, Inc. Sweden MAFF at Leeds, Eng.
1981 -1995	DNA Plant Technology, Inc. (1990-1995)	Staff Sci.-Microbial R&D Dir. of Product Research
Feb-Oct 1995	Visiting Scientist	UC Berkeley, Plant Mol.Bio.
Nov. 1995 – Oct 2018	University of CA at Davis	Extension Research Specialist
Oct 2018 – present	University of CA at Davis	Emeritus Specialist Faculty
Oct 15, 2018 – Dec 31 20	Produce Marketing Assoc.	VP Produce Safety based in Davis, CA
Jan 1, 2021 -	Trevor Suslow Consulting LLC	

Recent Activities

Over 400 national and international technical, extension education, training, and outreach presentations on microbial food safety of fresh produce in the past five years in diverse forums to diverse industry, regulatory, academic, and technology workshop audiences.

Served on multiple panels and USDA SCRI Advisory Boards, including USDA NIFA *Food Safety Innovations and Preventive Controls during Fresh-cut Produce Washing and Retail Display*; Fresh Express Blue Ribbon Panel on *Cyclospora* (2019); GFSI Leafy Greens Technical Working Group; USDA SCRI Cornell and Multistate Produce Safety Grant Advisory Council; CPS PI on *STEC: Romaine Seasonality Project* and Industry Romaine Rally Technical Advisory Panel

Recent webinars to global audiences on preharvest and postharvest water quality management issues and systems, coronavirus impacts and response in produce industry, WGS, *Listeria* and *Salmonella* EMPs, microbial community analysis in produce safety, and diverse topics in FSMA and FDA New Era awareness.

Recent Peer-Reviewed Publications –past 5 years

Gil, M. Selma, M., **Suslow, T.**, Jacxsens, L., Uyttendaele, M., and Allende, A. 2015. Pre- and Post-harvest Preventive Measures and Intervention Strategies to Control Microbial Food Safety Hazards of Fresh Leafy Vegetables. *Critical Reviews in Food Science and Nutrition*. 55:453–468

Bech, T.B. Sbodio, A., Jacobsen, C., and **T. Suslow**. 2015. Adhesion of *Escherichia coli* and *Salmonella enterica* to soil in runoff as influenced by polyacrylamide. *Journal of Environmental Quality*. 43:2002–2008

Lopez-Velasco, Gabriela, Alejandro Tomas-Callejas, Adrian O. Sbodio, Xuan Pham, Polly Wei, Dawit Diribsa, and **Trevor V. Suslow**. 2015. Factors affecting cell population density during enrichment and subsequent molecular detection of *Salmonella enterica* and *Escherichia coli* O157:H7 on lettuce contaminated during field production, *Food Control*, [Volume 54](#), August 2015, Pages 165–175

Berry, E. D., Wells, J. E., Bono, J. L., Woodbury, B. L., Kalchayan and, N., Norman, K. N., **Suslow, T. V.**, Lopez-Velasco, G., & Millner, P. D. 2015. Effect of proximity to a cattle feedlot on *Escherichia coli* O157:H7 contamination of leafy greens and evaluation of the potential for airborne transmission. *Appl Environ Microbiol*, 81, 1101-1110.

Burch, A., Do, P., Sbodio, A., **Suslow, T.** and Steven Lindow. 2016. High culturability of epiphytic bacteria and frequency of biosurfactant producers on leaves. *AEM* 82: 5997-6009

Allende, A, Truchado, P., **Suslow T.**, and M.I. Gil. 2018. Impact of chlorine dioxide sanitization of irrigation water on the epiphytic bacterial community of baby spinach and underlying soil. *PLoS ONE* 13(7): e0199291.

Gutiérrez, Gundersen., Sbodio, Koike, and **T. V. Suslow**. Epub 2018. Quantitative and qualitative recovery of on-farm applied attenuated *E. coli* O157:H7 and qualitative detection of naturally-contaminating *E. coli* O157:H7 from spinach under field conditions. *Food Microbiol*. 2019 .Feb;77:173-184.

Shen X, Sheng L, Gao H, Hanrahan I, **Suslow TV** and Zhu M-J (2019) Enhanced Efficacy of Peroxyacetic Acid Against *Listeria monocytogenes* on Fresh Apples at Elevated Temperature. *Front. Microbiol*. 10:1196. doi: 10.3389/fmicb.2019.01196

Berry, E. D., J. E. Wells, L. M. Durso, K. M. Friesen, J. L. Bono, and **T. V. Suslow**. Occurrence of *Escherichia coli* O157:H7 in Pest Flies Captured in Leafy Greens Plots Grown Near a Beef Cattle Feedlot. *Journal of Food Protection*: August 2019, Vol. 82, No. 8, pp. 1300-1307.

Sheng L, Shen X, Ulloa O, **Suslow TV**, Hanrahan I and Zhu M-J (2020) Evaluation of JC9450 and Neutral Electrolyzed Water in Controlling *Listeria monocytogenes* on Fresh Apples and Preventing Cross-Contamination. *Front. Microbiol*. 10:3128. doi: 10.3389/fmicb.2019.03128

N. Navarro-Gonzalez, S. Wright, P. Aminabadi, A. Gwinn, T. V. Suslow, M. T. Jay-Russell
Carriage and Subtypes of Foodborne Pathogens Identified in Wild Birds Residing near Agricultural Lands in California: a Repeated Cross-Sectional Study
Applied and Environmental Microbiology Jan 2020, 86 (3) e01678-19; **DOI**: 10.1128/AEM.01678-19

K. Phan-Thien M.H. Metaferia T.L. Bell M.I. Bradbury H.P. Sassi F.F. van Ogtrop **T.V. Suslow** R. McConchie. 2020. Effect of soil type and temperature on survival of *Salmonella enterica* in poultry manure-amended soils. *Letters in Applied Microbiology* 71, 210—217 <https://doi.org/10.1111/lam.13302>

Shen, Xiaoye; Su, Yuan; Hua, Zi; Cong, Jian; Dhowlaghar, Nitin; Sun, Qi; Lin, Shengnan; Green, Tonia; Perrault, Mackenzie; Galeni, Marcella; Hanrahan, Ines; Suslow, Trevor V; Zhu, Mei-Jun. 2020. Verification of peroxyacetic acid treatment against *L. monocytogenes* on fresh apples using *E. faecium* NRRL B-2354 as a surrogate in commercial spray-bar operations. *Food Microbiology* 92:103590: DOI: 10.1016/j.fm.2020.103590

Belias AM, Sbodio A, Truchado P, Weller D, Pinzon J, Skots M, Allende A, Munther D, **Suslow T**, Wiedmann M, Ivanek R. 2020. Effect of weather on the die-off of *Escherichia coli* and attenuated *Salmonella enterica* serovar Typhimurium on preharvest leafy greens following irrigation with contaminated water. *Appl Environ Microbiol* 86:e00899-20. <https://doi.org/10.1128/AEM.00899-20>.

Recent Abstracts

International Association for Food Protection 2020

Mathilde J. Rivera, Dave Murray, **Trevor Suslow**. Root cause analysis of on-farm EHEC contamination of Brussel Sprouts

Janneth Pinzon, Mariya Skots, **Trevor V Suslow**. Genomic characterization of a subset of *Listeria monocytogenes* isolates from fresh produce packing facilities in California

International Association for Food Protection 2019

Kerry Cooper, Janneth Pinzon, Margarethe Cooper, Mariya Skots, Gilberto Flores, Rachel Mackelprang, **Trevor Suslow**. Characterization of Tree Fruit Bacterial Communities during Harvest

T. Suslow. Sanitization Efficacy and Impact of Sanitary Design for Control of *L. monocytogenes* in the Processing Plant.

Trevor Suslow, Adrian Sbodio, Janneth Pinzon, David Hill, Mariya Skots. Survival and Inactivation of *Listeria monocytogenes* from Common Specialty Crop Food Contact and Non-Food Contact Surfaces Using Different Antimicrobials.

ICPP 2018

T. Suslow. Collateral benefits of preventive controls for FSMA implementation in postharvest decay management

Rawnsley, Emma

From: compostercary@gmail.com
Sent: Wednesday, May 24, 2023 7:35 AM
To: valerie.negrete@pln.sccgov.org
Cc: Rawnsley, Emma; 'Greg Ryan'
Subject: Submitting a Comment on the DEIR for the Z-Best Composting Facility
Attachments: Comments re bioaerosols in Z-Best DEIR.pdf

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Ms. Negrete,
Please accept this comment letter on the Z-Best Composting Facility Modifications - Recirculated Draft EIR, SCH# 2018102041
Please don't hesitate to contact me if you have any questions.
Regards,
Cary Oshins

ComposterCary.Com

"Composting may not save the world, but we can't save the world without composting"



Cary Oshins
Composting Specialist
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1-484-547-1521
compostercary@gmail.com



Valerie Negrete
County of Santa Clara - Department of Planning and Development
7th Floor East Wing
70 West Hedding Street
San Jose, CA 95110
valerie.negrete@pln.sccgov.org

cc: Emma Rawnsley, AECOM, emma.rawnsley@aecom.com
Greg Ryan, Z-Best, greg.ryan@greenwaste.com

Re: Recirculated Draft Environmental Impact Report for Z-Best Composting Facility
Modifications, dated April 20, 2023, SCH# 2018102041

Ms. Negrete,

OSHINS-1 Z-Best was quite surprised that the Draft EIR for the modifications to the Z-Best Composting Facility stated that the impacts of bioaerosols would be Significant and Unavoidable. I have been asked to review the DEIR and comment on this conclusion.

I have spent the last 35 years as a researcher, teacher and advocate for composting, including serving as the Associate Director of the US Composting Council, most of that time while living in California. Over those years, and for decades prior, bioaerosols—airborne particles of bacteria, fungi, and endotoxins—have been a known issue facing compost manufacturers. The real concern in regards to this issue is the health of facility site workers. That is why dust filters, respirators, enclosed equipment cabs with air controls, and dust reduction practices and procedures are all routinely employed to mitigate the risk from bioaerosol exposure.

However, in regards to the impact of bioaerosols on the surrounding community and environment, this finding runs counter to established science on bioaerosols impact as well as to a number of other CEQA studies on similar facilities, so should have been declared “less than significant”. The authors themselves provide the very arguments that could be used for this declaration.

These include:

- Most of these bioaerosols are ubiquitous in the environment and already exist in rural and agricultural areas. (DEIR pg 144)
- Regulatory exposure limits have not been established for exposure to bioaerosols (pgs 125, 146, 147)
- Exposure is distance related, not volume related, so increasing the MSW volume does not increase exposure beyond 150 meters (pg 146, appendix B-6, pg 6)

- Improved filtering through the use of a biofilter and other aspects of the ECS system (B-6, pgs 7-9)
- Since bioaerosols co-occur with dust in the pm₁₀ and pm_{2.5} categories, implementation of dust mitigation measures, eg, MM-AIR-7a and MM-AIR-7b, would also serve to reduce bioaerosol impacts
- Impact on food crops and farm workers will be minimal since the area is sparsely populated and field workers are only intermittently within the 300 meters. (pg 145)

OSHINS-2 Furthermore, a review of 5 other recent Environmental Reviews of large composting facilities revealed no concerns with bioaerosols:

- Jess Ranch Compost Facility, Administrative Draft Environmental Impact Report, Alameda County, Nov 2019, Page 174: Less than significant, only evaluated for workers
- Shafter/Wasco Composting and Waste Diversion Project, Draft Supplemental Environmental Impact Report, Kern County February 2021: Not mentioned
- Visalia Disposal Site and Compost Facility, Final Focused Environmental Impact Report, Tulare County Resource Management Agency, September 2022: Not discussed. No mitigation.
- Renewable Placer: Waste Action Plan. Draft and Final Environmental Impact Reports, Western Placer Waste Management Authority: EIR: “The composting operations involve the application of water to the compost windrows and the periodic turning of windrows to minimize release of bioaerosols and dust.” No comments received. Not addressed in Final EIR.
- Redwood Landfill Solid Waste Facilities Permit Revision, Final Supplemental Environmental Impact Report, Marin County, July 2005, 3.8.2: mitigation of significant health threat to workers with dust mitigation plan/program. Risks to surrounding environment or inhabitants not addressed.

Unless the authors can identify a unique factor differentiating the Z-Best Project from these other projects with regards to bioaerosol risk, their finding represents a substantial departure from contemporary understanding of risks from composting-generated bioaerosols.

OSHINS-3 Finally, I will note that a comprehensive review of bioaerosol exposure by Robertson et al in 2019 concluded that “given the absence of any consistent evidence on the toxicity of bioaerosols from composting facilities, there is insufficient evidence to provide a quantitative comment on the risk to nearby residents from exposure to compost bioaerosols.”¹

Based on the above I recommend that the threat from bioaerosols to the surrounding environment be declared as Less than Significant.

Respectfully yours,
Cary Oshins

¹ Sarah Robertson, Philippa Douglas, Deborah Jarvis, and Emma Marczylo, Bioaerosol exposure from composting facilities and health outcomes in workers and in the community: A systematic review update, Int J Hyg Environ Health, 2019 Apr;222(3):364-386. doi: 10.1016/j.ijheh.2019.02.006. Epub 2019 Mar 12.

Rawnsley, Emma

From: John Doyle <john.doyle@greenwaste.com>
Sent: Monday, June 26, 2023 8:02 AM
To: Emmanuel Ursu; Rawnsley, Emma; Negrete, Valerie
Cc: Erik Schoennauer
Subject: Fw: Stormwater Mitigation measures in dEIR
Attachments: Golder Recirculated dEIR Comments - Final 5-30-23.pdf; Point Precip Freq Estimates 4.75-Z-Best NOAA-1 -Golder 5-30-23.pdf

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Emmanuel, to confirm, I would like Rich Haughey's memo along with point precipitation data sheet to be submitted as comments to the dEIR circulation.



John Doyle
GreenWaste | General Manager

Office (408)846-1346 | Mobile (408)722-1999
980 State Highway 25
Gilroy, CA 95020

www.greenwaste.com

From: John Doyle <john.doyle@greenwaste.com>
Sent: Wednesday, May 31, 2023 9:04 AM
To: Emmanuel Ursu <EUrsu@m-group.us>; Rawnsley, Emma <emma.rawnsley@aecom.com>
Cc: Erik Schoennauer <es@stanfordalumni.org>
Subject: Stormwater Mitigation measures in dEIR

ZBEST-1

Emmanuel/Emma, I have had Rich Haughey of Golder Associates review the dEIR being recirculated. There appears to be some discrepancy as to Composting General Order requirements relating to detention basin required capacity and associated mitigation measures in the dEIR. There is also some discrepancy as to the applicable geographical area from which point precipitation data is to be used as representative of the Z-Best site. Third, there are apparent mitigation measures for basin 2, which is an existing basin, not part of the proposed project. This basin was built after design review and permitting by the County, it meets applicable Composting General Order Requirements, as is.

We are requesting a meeting to review these topics. Please see attached memo and point precipitation data document prepared by Rich Haughey of Golder Associates.



John Doyle
GreenWaste | General Manager

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TECHNICAL MEMORANDUM

DATE May 26, 2023

Project No. GL13397640

TO John Doyle
Z-Best Products

CC Lindsey Angel, WSP

FROM Richard Haughey

RE: RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT COMMENTS, Z-BEST COMPOSTING FACILITY MODIFICATIONS

WSP USA Inc. (WSP) has reviewed the Recirculated Draft Environmental Impact Report, Z-Best Composting Facility Modifications (DEIR) and offers the following comments.

- ZBEST-2** 1. In several places in the DEIR and AECOM's April 7, 2023, memorandum (DEIR Appendix E-6), the 25-year, 24-hour precipitation is cited as 5.8 inches. The source of this information is identified as NOAA Atlas 14 Point Precipitation Frequency Estimates, National Weather Service, Hydrometeorological Design Studies Center for the Gilroy station (04-3417). The Gilroy station is approximately 8 miles northwest of the Z-Best site, located in a narrower section of the valley, and is not representative of the Z-Best site.

The NOAA Atlas 14 Point Precipitation Frequency Estimates use spatial data from numerous stations to calculate the frequency storm event at any given location. The 25-year, 24-hour precipitation cited in Golder's August 25, 2020, memorandum¹ is 4.75 inches and was estimated for the actual site location as shown on the attached print from the NOAA Atlas 14 Point Precipitation Frequency Estimates. The frequency storm event estimate varies slightly between 4.72 and 4.78 inches across the site. The difference between 4.72 inches and 4.78 inches is insignificant. However, the difference between 4.75 inches and 5.8 inches is significant. The analyses, conclusions, recommendations, and mitigation measures in the DEIR based on 5.8 inches should be reviewed and revised, as necessary.

- ZBEST-3** 2. Mitigation Measure HYD-1B requires increasing the capacity of Detention Basin 1 and/or Detention Basin 2 to at least 22.8 million gallons without discharging and maintaining a freeboard of at least two feet. Text following the mitigation measure states the detention basin capacity would be increased to meet the requirements of the Composting General Order.

The Composting General Order requires that detention ponds, if used, to be "designed, constructed, and maintained to prevent conditions contributing to, causing, or threatening to cause contamination, pollution, or nuisance, and must be capable of containing without overflow or overtopping (taking into consideration the crest of wind-driven waves and water reused in the composting operation), all runoff from the working

¹ Golder's August 25, 2020, memorandum is Appendix C of Z-Best Composting Facility Technical Report, December 2020.

surfaces in addition to precipitation that falls into the detention pond from a 25-year, 24-hour peak storm event at a minimum, or equivalent alternative approved by the Regional Water Board."

As noted previously, the 25-year, 24-hour precipitation at the site varies slightly from 4.72 inches to 4.78 inches. In Table 3 of Golder's August 25, 2020, memorandum, the precipitation for January is 4.70 inches. Although this is slightly less than the 25-year, 24-hour precipitation range for the site, it can be used as a proxy for the 25-year, 24-hour storm event. Based on 4.70 inches, the direct precipitation into Detention Basin 1 and Detention Basin 2 is 457,954 gallons and 258,507 gallons, respectively. The runoff into Detention Basin 1 and Detention Basin 2 is 6,890,232 gallons and 2,288,977 gallons², respectively. The total inflow into Detention Basin 1 and Detention Basin 2 is 7,340,186 gallons and 2,646,484 gallons, respectively. Based on Tables 1 and 2, the resulting water elevations are approximately 144 feet and 147 feet, respectively, both of which are two feet or more below the maximum basin water surface. Therefore, both Detention Basin 1 and Detention Basin 2 comply with the Composting General Order capacity requirement and there is no need to increase capacity or provide additional freeboard.

As noted in AECOM's April 7, 2023, memorandum, extreme storm events are more likely to occur during wet years. The Golder August 25, 2020, memorandum includes a water balance for a 25-year wet year, an event that has a 4 percent chance of occurring in any given year. The water balance shows that both Detention Basin 1 and Detention Basin 2 have adequate capacity to hold the peak runoff during a 25-year wet year.

- ZBEST-4** 3. Mitigation Measure HYD-5 requires increasing the berm height of Detention Basin 2 to at least 150.41 feet, so that at least two feet of freeboard above the 100-year base flood elevation is maintained. Detention Basin 2 is an existing condition and not part of this project. Detention Basin 2 was constructed with a berm height that exceeds the 100-year base flood elevation by at least a foot. The Detention Base 2 spillway crest is 149.25 feet. The Detention Basin 2 design was approved by Santa Clara County, including the freeboard, and a grading permit issued.

WSP USA Inc.



Richard D. Haughey
Vice President

g:\projects\z-best\133-97640 (grading plan)\ecsl\environmental impact report\deir comments\draft environmental impact report comments - final.docx

² The runoff to Detention Basin 2 is based on the original drainage area of approximately 26 acres. The drainage area has decreased to provide additional flood storage capacity. As a result, the analysis for Detention Basin 2 is conservative.



NOAA Atlas 14, Volume 6, Version 2
Location name: Gilroy, California, USA*
Latitude: 36.9463°, Longitude: -121.5204°
Elevation: 166 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.119 (0.108-0.132)	0.148 (0.134-0.165)	0.190 (0.172-0.213)	0.227 (0.202-0.257)	0.281 (0.238-0.336)	0.326 (0.267-0.402)	0.376 (0.297-0.481)	0.430 (0.326-0.574)	0.511 (0.364-0.725)	0.579 (0.392-0.864)
10-min	0.170 (0.155-0.189)	0.213 (0.193-0.237)	0.273 (0.246-0.305)	0.325 (0.290-0.369)	0.403 (0.341-0.481)	0.468 (0.383-0.577)	0.538 (0.425-0.689)	0.617 (0.467-0.823)	0.732 (0.522-1.04)	0.830 (0.562-1.24)
15-min	0.206 (0.187-0.229)	0.257 (0.233-0.286)	0.330 (0.298-0.369)	0.393 (0.351-0.446)	0.487 (0.412-0.582)	0.566 (0.463-0.697)	0.651 (0.514-0.833)	0.746 (0.565-0.995)	0.886 (0.631-1.26)	1.00 (0.680-1.50)
30-min	0.284 (0.258-0.315)	0.354 (0.321-0.395)	0.455 (0.410-0.508)	0.542 (0.483-0.614)	0.672 (0.568-0.802)	0.780 (0.639-0.961)	0.897 (0.709-1.15)	1.03 (0.778-1.37)	1.22 (0.869-1.73)	1.38 (0.937-2.06)
60-min	0.399 (0.363-0.443)	0.498 (0.452-0.555)	0.639 (0.577-0.715)	0.763 (0.680-0.864)	0.945 (0.800-1.13)	1.10 (0.899-1.35)	1.26 (0.997-1.62)	1.45 (1.10-1.93)	1.72 (1.22-2.44)	1.95 (1.32-2.90)
2-hr	0.602 (0.547-0.669)	0.752 (0.682-0.837)	0.964 (0.871-1.08)	1.15 (1.02-1.30)	1.42 (1.21-1.70)	1.65 (1.36-2.04)	1.90 (1.50-2.43)	2.18 (1.65-2.91)	2.58 (1.84-3.66)	2.93 (1.98-4.36)
3-hr	0.757 (0.688-0.841)	0.948 (0.860-1.06)	1.22 (1.10-1.36)	1.45 (1.30-1.65)	1.80 (1.52-2.15)	2.09 (1.71-2.58)	2.40 (1.90-3.08)	2.75 (2.08-3.67)	3.26 (2.32-4.62)	3.68 (2.50-5.49)
6-hr	1.04 (0.941-1.15)	1.31 (1.19-1.46)	1.70 (1.54-1.90)	2.03 (1.81-2.30)	2.52 (2.13-3.01)	2.92 (2.40-3.60)	3.35 (2.65-4.29)	3.83 (2.90-5.11)	4.51 (3.21-6.40)	5.08 (3.44-7.58)
12-hr	1.36 (1.24-1.51)	1.78 (1.61-1.98)	2.34 (2.11-2.62)	2.82 (2.51-3.19)	3.50 (2.96-4.18)	4.05 (3.32-4.99)	4.63 (3.66-5.93)	5.26 (3.98-7.02)	6.15 (4.38-8.73)	6.89 (4.66-10.3)
24-hr	1.76 (1.62-1.95)	2.36 (2.17-2.61)	3.16 (2.90-3.50)	3.82 (3.49-4.27)	4.75 (4.21-5.46)	5.48 (4.78-6.42)	6.25 (5.34-7.47)	7.06 (5.89-8.64)	8.20 (6.60-10.4)	9.12 (7.12-11.9)
2-day	2.24 (2.06-2.48)	3.02 (2.78-3.34)	4.05 (3.72-4.50)	4.90 (4.47-5.48)	6.08 (5.40-7.00)	7.00 (6.11-8.20)	7.96 (6.80-9.51)	8.96 (7.47-11.0)	10.3 (8.32-13.1)	11.4 (8.93-14.9)
3-day	2.54 (2.34-2.81)	3.42 (3.15-3.79)	4.59 (4.22-5.10)	5.56 (5.07-6.21)	6.88 (6.10-7.91)	7.91 (6.90-9.26)	8.98 (7.66-10.7)	10.1 (8.40-12.3)	11.6 (9.34-14.7)	12.8 (10.0-16.7)
4-day	2.78 (2.57-3.08)	3.75 (3.45-4.15)	5.03 (4.62-5.58)	6.08 (5.55-6.80)	7.52 (6.67-8.65)	8.64 (7.53-10.1)	9.79 (8.36-11.7)	11.0 (9.16-13.5)	12.6 (10.2-16.0)	13.9 (10.9-18.2)
7-day	3.38 (3.12-3.75)	4.52 (4.17-5.01)	6.04 (5.55-6.71)	7.28 (6.65-8.15)	9.00 (7.98-10.3)	10.3 (9.00-12.1)	11.7 (9.98-14.0)	13.1 (10.9-16.0)	15.1 (12.1-19.1)	16.6 (12.9-21.7)
10-day	3.80 (3.50-4.21)	5.06 (4.66-5.61)	6.73 (6.19-7.48)	8.10 (7.39-9.06)	9.98 (8.85-11.5)	11.4 (9.96-13.4)	12.9 (11.0-15.4)	14.4 (12.0-17.7)	16.5 (13.3-21.0)	18.2 (14.2-23.7)
20-day	4.91 (4.53-5.44)	6.54 (6.02-7.24)	8.63 (7.93-9.59)	10.3 (9.42-11.5)	12.6 (11.2-14.5)	14.3 (12.5-16.7)	16.0 (13.7-19.1)	17.7 (14.8-21.7)	20.1 (16.1-25.4)	21.8 (17.0-28.5)
30-day	6.02 (5.55-6.67)	7.99 (7.36-8.85)	10.5 (9.64-11.7)	12.5 (11.4-13.9)	15.1 (13.4-17.3)	17.0 (14.8-19.9)	18.9 (16.2-22.6)	20.8 (17.4-25.5)	23.3 (18.8-29.6)	25.2 (19.7-32.9)
45-day	7.45 (6.87-8.25)	9.83 (9.05-10.9)	12.8 (11.7-14.2)	15.1 (13.8-16.9)	18.0 (16.0-20.8)	20.2 (17.6-23.7)	22.3 (19.0-26.7)	24.3 (20.3-29.8)	27.0 (21.7-34.2)	28.9 (22.6-37.7)
60-day	8.80 (8.11-9.74)	11.5 (10.6-12.8)	14.8 (13.6-16.5)	17.4 (15.9-19.4)	20.6 (18.3-23.7)	22.9 (20.0-26.9)	25.2 (21.5-30.1)	27.3 (22.8-33.4)	30.0 (24.1-38.1)	31.9 (24.9-41.7)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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[Back to Top](#)

PF graphical



NOAA Atlas 14, Volume 6, Version 2
Location name: Gilroy, California, USA*
Latitude: 36.9463°, Longitude: -121.5204°
Elevation: 166 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.119 (0.108-0.132)	0.148 (0.134-0.165)	0.190 (0.172-0.213)	0.227 (0.202-0.257)	0.281 (0.238-0.336)	0.326 (0.267-0.402)	0.376 (0.297-0.481)	0.430 (0.326-0.574)	0.511 (0.364-0.725)	0.579 (0.392-0.864)
10-min	0.170 (0.155-0.189)	0.213 (0.193-0.237)	0.273 (0.246-0.305)	0.325 (0.290-0.369)	0.403 (0.341-0.481)	0.468 (0.383-0.577)	0.538 (0.425-0.689)	0.617 (0.467-0.823)	0.732 (0.522-1.04)	0.830 (0.562-1.24)
15-min	0.206 (0.187-0.229)	0.257 (0.233-0.286)	0.330 (0.298-0.369)	0.393 (0.351-0.446)	0.487 (0.412-0.582)	0.566 (0.463-0.697)	0.651 (0.514-0.833)	0.746 (0.565-0.995)	0.886 (0.631-1.26)	1.00 (0.680-1.50)
30-min	0.284 (0.258-0.315)	0.354 (0.321-0.395)	0.455 (0.410-0.508)	0.542 (0.483-0.614)	0.672 (0.568-0.802)	0.780 (0.639-0.961)	0.897 (0.709-1.15)	1.03 (0.778-1.37)	1.22 (0.869-1.73)	1.38 (0.937-2.06)
60-min	0.399 (0.363-0.443)	0.498 (0.452-0.555)	0.639 (0.577-0.715)	0.763 (0.680-0.864)	0.945 (0.800-1.13)	1.10 (0.899-1.35)	1.26 (0.997-1.62)	1.45 (1.10-1.93)	1.72 (1.22-2.44)	1.95 (1.32-2.90)
2-hr	0.602 (0.547-0.669)	0.752 (0.682-0.837)	0.964 (0.871-1.08)	1.15 (1.02-1.30)	1.42 (1.21-1.70)	1.65 (1.36-2.04)	1.90 (1.50-2.43)	2.18 (1.65-2.91)	2.58 (1.84-3.66)	2.93 (1.98-4.36)
3-hr	0.757 (0.688-0.841)	0.948 (0.860-1.06)	1.22 (1.10-1.36)	1.45 (1.30-1.65)	1.80 (1.52-2.15)	2.09 (1.71-2.58)	2.40 (1.90-3.08)	2.75 (2.08-3.67)	3.26 (2.32-4.62)	3.68 (2.50-5.49)
6-hr	1.04 (0.941-1.15)	1.31 (1.19-1.46)	1.70 (1.54-1.90)	2.03 (1.81-2.30)	2.52 (2.13-3.01)	2.92 (2.40-3.60)	3.35 (2.65-4.29)	3.83 (2.90-5.11)	4.51 (3.21-6.40)	5.08 (3.44-7.58)
12-hr	1.36 (1.24-1.51)	1.78 (1.61-1.98)	2.34 (2.11-2.62)	2.82 (2.51-3.19)	3.50 (2.96-4.18)	4.05 (3.32-4.99)	4.63 (3.66-5.93)	5.26 (3.98-7.02)	6.15 (4.38-8.73)	6.89 (4.66-10.3)
24-hr	1.76 (1.62-1.95)	2.36 (2.17-2.61)	3.16 (2.90-3.50)	3.82 (3.49-4.27)	4.75 (4.21-5.46)	5.48 (4.78-6.42)	6.25 (5.34-7.47)	7.06 (5.89-8.64)	8.20 (6.60-10.4)	9.12 (7.12-11.9)
2-day	2.24 (2.06-2.48)	3.02 (2.78-3.34)	4.05 (3.72-4.50)	4.90 (4.47-5.48)	6.08 (5.40-7.00)	7.00 (6.11-8.20)	7.96 (6.80-9.51)	8.96 (7.47-11.0)	10.3 (8.32-13.1)	11.4 (8.93-14.9)
3-day	2.54 (2.34-2.81)	3.42 (3.15-3.79)	4.59 (4.22-5.10)	5.56 (5.07-6.21)	6.88 (6.10-7.91)	7.91 (6.90-9.26)	8.98 (7.66-10.7)	10.1 (8.40-12.3)	11.6 (9.34-14.7)	12.8 (10.0-16.7)
4-day	2.78 (2.57-3.08)	3.75 (3.45-4.15)	5.03 (4.62-5.58)	6.08 (5.55-6.80)	7.52 (6.67-8.65)	8.64 (7.53-10.1)	9.79 (8.36-11.7)	11.0 (9.16-13.5)	12.6 (10.2-16.0)	13.9 (10.9-18.2)
7-day	3.38 (3.12-3.75)	4.52 (4.17-5.01)	6.04 (5.55-6.71)	7.28 (6.65-8.15)	9.00 (7.98-10.3)	10.3 (9.00-12.1)	11.7 (9.98-14.0)	13.1 (10.9-16.0)	15.1 (12.1-19.1)	16.6 (12.9-21.7)
10-day	3.80 (3.50-4.21)	5.06 (4.66-5.61)	6.73 (6.19-7.48)	8.10 (7.39-9.06)	9.98 (8.85-11.5)	11.4 (9.96-13.4)	12.9 (11.0-15.4)	14.4 (12.0-17.7)	16.5 (13.3-21.0)	18.2 (14.2-23.7)
20-day	4.91 (4.53-5.44)	6.54 (6.02-7.24)	8.63 (7.93-9.59)	10.3 (9.42-11.5)	12.6 (11.2-14.5)	14.3 (12.5-16.7)	16.0 (13.7-19.1)	17.7 (14.8-21.7)	20.1 (16.1-25.4)	21.8 (17.0-28.5)
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¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

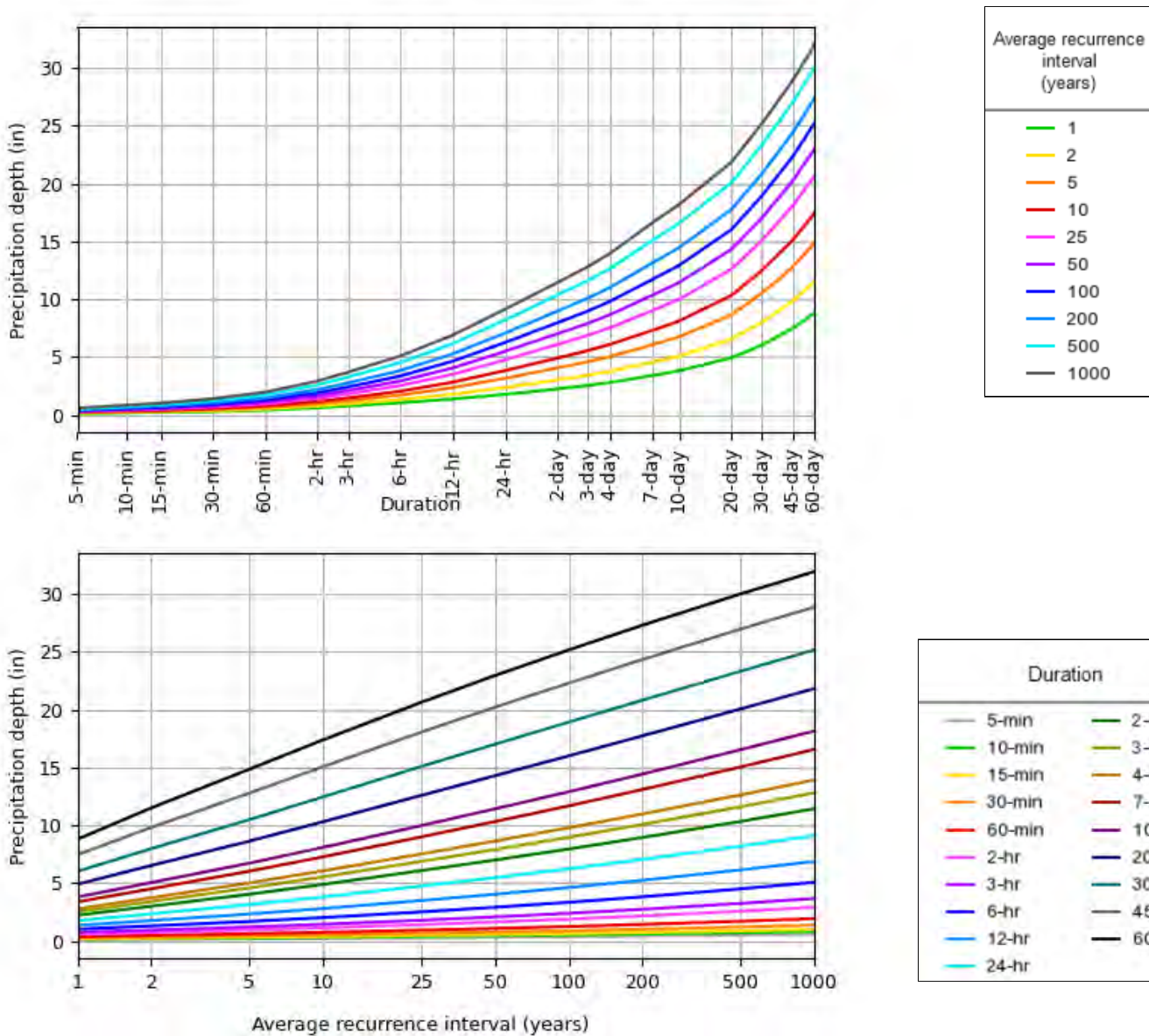
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 36.9463°, Longitude: -121.5204°



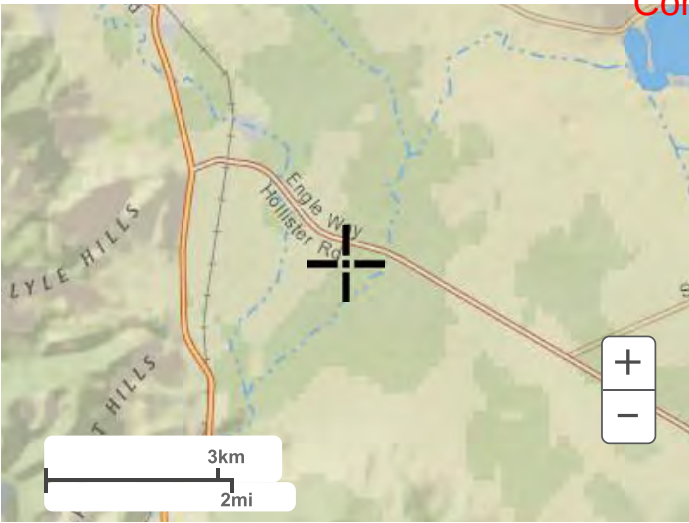
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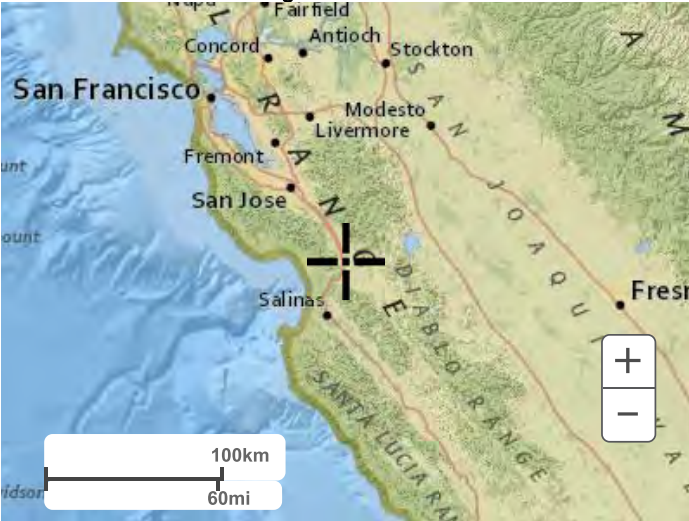
[Back to Top](#)

Maps & aerials

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[Back to Top](#)

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