ALAMEDA COUNTYWIDE
clean water
PROGRAM

Protecting Alameda County Creeks, Wetlands & the Bay

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MEMBER AGENCIES:
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San Leandro
Union City
County of Alameda
Alameda County Flood Control and Water Conservation District
Zone 7 Water Agency

September 19, 2026

Ms. Eileen White
Executive Officer
California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay St., Suite 1400
Oakland, CA 94612

Transmitted via SMARTS Upload

Subject: Transmittal of Alameda Countywide Clean Water Program Annual Report for Fiscal Year 2025/2026

Dear Ms. White:

The member agencies of the Alameda Countywide Clean Water Program (ACCWP) through their Management Committee, and in conformance with the Memorandum of Agreement signed by their governing bodies, have authorized and directed me to prepare and submit certain reports as part of their compliance with the Municipal Regional Stormwater Permit (MRP) (Order No. R2-2022-0018, as amended, NPDES No. CAS612008).

Provision C.22 of the MRP requires the Permittees to submit Annual Reports by September 30 of each year that document the implementation of MRP requirements during the previous Fiscal Year (FY). Each Permittee is submitting an individual Annual Report using the format approved by you. Additionally, ACCWP prepares an Annual Report that describes the activities that were conducted by ACCWP, the Bay Area Municipal Stormwater Collaborative (BAMSC), and the California Stormwater Quality Association (CASQA) on behalf of the Permittees in Alameda County during the previous FY. This report is referenced in and incorporated by reference into the Alameda Permittees' Annual Reports.

I am submitting the *ACCWP Fiscal Year 2025/26 Annual Report to the San Francisco Bay Regional Water Board* on behalf of and for the benefit the ACCWP member agency Permittees.

By signing this letter on behalf of ACCWP, I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. [40CFR 122.22(d)].

Please contact me at sandym@lwa.com if you have questions or comments.
Sincerely,

Sandra Mathews

Digitally signed by Sandra Mathews
Date: 2026.09.19 12:25:38 -07'00'

Sandy Mathews
Program Manager

Attachment(s): Alameda Countywide Clean Water Program Annual Report for Fiscal Year 2025/2026

Cc: ACCWP Management Committee

ALAMEDA COUNTYWIDE
cleanwater
PROGRAM

MEMBER AGENCIES:

Alameda

Albany

Berkeley

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Newark

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Alameda County Flood Control and Water Conservation District

Zone 7 Water Agency

Alameda Countywide Clean Water Program

Fiscal Year 2025/26 Annual Report to the San Francisco Bay Regional Quality Control Board

August 26, 2026

Contents

List of Tables v

Table of Figures v

List of Appendices vi

List of Acronyms and Abbreviations vii

Preface 1

Introduction 2

Background 2

Organization of the Report 2

Highlights of Significant FY 2025/26 Accomplishments 3

Our Water Our World 3

Kids for the Bay Storm Drain Rangers 3

Media Awareness and Pledge Campaign 5

AGOL Tools C.4, C.6, and C.10 Training 6

C.6 On-Demand Stormwater Construction Inspection Refresher Training 6

C.11 Mercury and C.12 PCBs 6

Provision C.2 Municipal Operations 7

Provision C.2.g: Storm Drain Inlet Marking 7

Provision C.2.h: Staff Training 7

Additional Activities 8

Provision C.3: New Development and Redevelopment 9

Provision C.3.a.i.(4): Provision C.3 Training 9

Provision C.3.b: Regulated Projects 9

Provision C.3.c: Low Impact Development 9

Provision C.3.d.iv: Tree Runoff Reduction and Tree-Based Stormwater Treatment Systems 9

Provision C.3.e.i.(2): Payment of In-Lieu Fees 10

Provision C.3.g.vi.(4): Bay Area Hydrology Model (BAHM) Modifications 10

Provision C.3.h: Operation and Maintenance of Stormwater Treatment Systems 10

Provision C.3.i: Required Site Design Measures for Small Development and Redevelopment Projects and Smaller Detached Single-Family Home Projects 10

Provision C.3.j: Green Infrastructure Planning and Implementation 11

Provision C.3.j.ii.(1)(g): Green Infrastructure Plan Outreach and Education 11

Provision C.3.j.ii.(3): Design and Other Criteria 11
Provision C.3.j.ii.(4): Long-Term Green Infrastructure Implementation 12
Provision C.3.j.iv: Participate in Processes to Promote Green Infrastructure 12
Provision C.3.j.v: Tracking and Reporting Progress 12
Additional Activities 12
Provision C.4: Industrial and Commercial Site Controls 14
Provision C.4.d: Inspections 14
Provision C.4.e: Staff Training 14
Additional Activities 14
Provision C.5: Illicit Discharge Detection and Elimination 15
Provision C.5.c: Spill, Dumping and Complaint Response Program 15
Provision C.5.e: Control of Mobile Sources 15
Provision C.5.f: MS4 Maps 16
Additional Activities 16
Provision C.6: Construction Site Control 17
Provision C.6: Construction Site Control 17
Provision C.6.e.ii.(1): Wet Season Notification 17
Provision C.6.f: Staff Training 17
Provision C.7: Public Information and Outreach 18
Provision C.7.a: Outreach Campaigns 18
Public Outreach Campaign 18
"A Clean Bay Begins Here" Multi-Touch Media Campaign Strategy and Results 18
Fred & Izzy Digital Campaign Results 21
Coastal Cleanup Promotion, September 2025 25
Hire A Certified Pest Contractor Campaign, January 2026 25
Fishing Advisory Campaign 25
Provision C.7.b: Stormwater Pollution Prevention Education 26
Website and Website Promotions 26
Social Media 27
Provision C.7.c: Public Outreach and Citizen Involvement Events 27
Alameda County Fair Outreach Event 28
Provision C.7.d: Watershed Stewardship Collaboration 29
Provision C.7.e: School-Age Children Outreach 32
Provision C.8: Water Quality Monitoring 34
Provision C.8.a: Compliance Options 34
Provision C.8.b: Monitoring Protocols and Data Quality 34

Provision C.8.c: San Francisco Estuary Receiving Water Monitoring 34
Provision C.8.d: LID Monitoring 35
Provision C.8.e: Trash Monitoring 36
Trash Outfall Monitoring 37
Trash Receiving Water Monitoring 38
Provision C.8.f: Pollutants of Concern Monitoring 39
Provision C.8.g: Pesticides and Toxicity Monitoring 41
Provision C.8.h: Reporting 42
Provision C.9: Pesticides Toxicity Control 43
Provision C.9.d: Interface with County Agricultural Commissioners 43
Provision C.9.e.ii.(1): Public Outreach: Point of Purchase 43
Provision C.9.e.ii.(2): Pest Control Contracting Outreach 44
Provision C.9.e.ii.(3): Outreach to Pest Control Professionals 44
Provision C.9.f: Track and Participate in the Regulatory Processes 44
Provision C.10: Trash Load Reduction 46
Provision C.10.a: Trash Reduction Requirements 46
Provision C.10.b.i: Full Trash Capture Systems 46
Provision C.10.b.iii.(b): Visual Assessment of Outcomes 46
Provision C.10.b.v: Source Control 47
Additional Activities 47
Provision C.11: Mercury Controls 48
Provision C.11.a: Assess Mercury Load Reductions from Stormwater 48
Provision C.11.b: Program for Source Property Identification and Abatement 48
Provision C.11.c: Program for Control Measure Implementation in Old Industrial Areas 49
Provision C.11.d: Mercury Collection and Recycling Implemented throughout the Region 49
Provision C.11.e: Plan and Implement Green Stormwater Infrastructure to Reduce Mercury Loads 50
Provision C.11.f: Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations 50
Provision C.11.g: Fate and Transport Study of Mercury: Urban Runoff Impact on San Francisco Bay Margins 50
Provision C.11.h: Implement a Risk Reduction Program 51
Provision C.12: Polychlorinated Biphenyls (PCBs) Controls 52
Provision C.12.a: Assess PCBs Load Reductions from Stormwater 52
Provision C.12.b: Program for Source Property Identification and Abatement 53
Provision C.12.c: Program for Control Measure Implementation in Old Industrial Areas 53
Provision C.12.d: Program for Controlling PCBs from Bridges and Overpasses 54

Provision C.12.e: Program for Controlling PCBs from Electrical Utilities 54
Provision C.12.f: Plan and Implement Green Stormwater Infrastructure to Reduce PCBs Loads 55
Provision C.12.g: Manage PCBs-Containing Materials and Wastes During Building Demolition Activities 55
Provision C.12.h: Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations 56
Provision C.12.i: Fate and Transport Study of PCBs: Urban Runoff Impact on San Francisco Bay Margins 56
Provision C.12.j: Implement a Risk Reduction Program 56
Provision C.15: Exempted and Conditionally Exempted Discharges 58
Provision C.15.b.iii: Emergency Discharges of Firefighting Water and Foam 58
Provision C.15.b.iv: Individual Residential Car Washing 59
Provision C.15.b.v: Swimming Pool, Hot Tub, Spa, and Fountain Water Discharges 59
Provision C.15.b.vi: Irrigation Water, Landscape Irrigation, and Lawn or Garden Watering 59
Additional Activities 59
Provision C.17: Discharges Associated with Unsheltered Homeless Populations 61
Provision C.17.a.ii.(2): Programmatic Efforts 61
Provision C.17.a.ii.(4): Review and Update Implementation Practices 61
Provision C.20: Cost Reporting 62
Provision C.20.b.i: Cost Reporting Framework and Methodology 62
Provision C.21: Asset Management 63
Provision C.21.b: Asset Management Plan 63
Provision C.21.b.v: Climate Change Adaptation Report 63

List of Tables

Table 1: Data Management Subcommittee AGOL Trainings 6
Table 2: Summary of Campaign Promotion Results — March 2026 through April 2026 21
Table 3: Summary of Digital Promotion Results — July 2025 through June 2026 22
Table 4: Fred & Izzy Video Campaign Details, July 2025 through June 2026, by Message and Platform... 23
Table 5: Coastal Cleanup Promotion (September 2025) 25
Table 6: Hire a Certified Pest Control Contractor Program (January 22 - February 2, 2026) 25
Table 7: Fishing Advisory Campaign Promotion Details (June 6 - 13, 2026)..... 26
Table 8: Community Stewardship Grant Program Application Promotions for FY 2025/26 Details 31
Table 9: Projects Awarded Community Stewardship Grants (FY 2026/27) 31
Table 10: LID Monitoring Summary 36
Table 11: Trash Outfall Monitoring Summary 37
Table 12: POCs Monitoring Summary for Monitoring Types #1, 2, 4, and 5 40
Table 13: POCs Monitoring Summary for Monitoring Type #6 (RWL Assessment)..... 41
Table 14: Pesticides and Toxicity Monitoring Summary..... 41

Table of Figures

Figure 1: Our Water Our World Logo and Slogan 3
Figure 2: Store Associate Training at Home Depot San Leandro 3
Figure 3: Students Presenting a Kids For the Bay Storm Rangers Classroom Lesson 4
Figure 4: Campaign BART Station Poster 5
Figure 5: A Clean Bay Begins Here Campaign Billboard..... 18
Figure 6: City of Fremont E-Newsletter Coverage 20
Figure 7: Website Traffic, July 1, 2025, through June 30, 2026..... 26
Figure 8: Photo of the County Fair Program Booth 28
Figure 9: Shark Stewards Pose with Trash Collected from Their Grant-funded Cleanup at Aquatic Park on San Francisco Bay. 29
Figure 10: ACCWP Community Stewardship Grant Advertisement..... 30
Figure 11: Students Participate in Building a Watershed Model in the Storm Drain Rangers Program 33

List of Appendices

Appendix A: Municipal Maintenance Workshop Materials

Workshop Evaluation Summary, Agenda, and Flyer

Appendix B: New Development and Redevelopment Controls

Regional Supplement for New Development and Redevelopment

Appendix C: Industrial and Commercial Site Controls

Post Workshop Report: Stormwater Business and Illicit Discharge Stormwater Inspectors Workshop

Grease Handling and Storage Postcard – English, Chinese, Spanish, and Vietnamese

Appendix D: Construction Site Controls

On-Demand Stormwater Construction Inspection Refresher Training

Appendix E: Pesticide Toxicity Controls

ACCWP Our Water Our World Integrated Pest Management Retail Store Partnership Program

CASQA Our Water Our World Report

CASQA 2026 Pesticides Annual Report

Appendix F: Mercury and PCBs Controls

Mercury and PCBs Control Measures – Update 2026

Regional Effectiveness Evaluation of the Protocols for Managing PCBs-containing Materials During Building Demolition

BAMSC Source Control Load Reduction Accounting for Reasonable Assurance Analysis – 2026 Update

Appendix G: Asset Management

Asset Management Work Group Online Training Attendance Report

Climate Change Adaptation Report

List of Acronyms and Abbreviations

ACCWP	Alameda Countywide Clean Water Program
ACFD	Alameda County Fire Department
AGOL	ArcGIS Online
BAHM	Bay Area Hydrology Model
BAMSC	Bay Area Municipal Stormwater Collaborative
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BMP	Best Management Practice
CASQA	California Stormwater Quality Association
CCAR	Climate Change Adaptation Report
CEDEN	California Environmental Data Exchange Network
CGP	Construction General Permit
CMP	Control Measure Plan
DA	District Attorney
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substances Control
EO	Executive Officer
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year (July 1 through June 30)
GBP	Green Business Program
GI	Green Infrastructure
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
HM	Hydromodification Management
IIDC	Industrial and Illicit Discharge Control
IMR	Integrated Monitoring Report
IPM	Integrated Pest Management
LID	Low Impact Development

LTGSI	Long-Term Green Stormwater Infrastructure
Member Agencies	Cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City; and the County of Alameda, the Alameda County Flood Control and Water Conservation District (District), and the Zone 7 Water Agency
MPC	Monitoring and Pollutants of Concern
MRP	Municipal Regional Permit
MRP 1	Municipal Regional Permit adopted in 2009
MRP 2	Municipal Regional Permit reissued in 2015
MRP 3	Municipal Regional Permit reissued in 2022
MS4	Municipal Separate Storm Sewer System
NDS	New Development Subcommittee
NPDES	National Pollutant Discharge Elimination System
OFEE	Oil-Filled Electrical Equipment
O&M	Operation and Maintenance
OVTA	On-land Visual Trash Assessment
OWOW	Our Water Our World
PCBs	Polychlorinated Biphenyls
PCBs TMDL Project	PCBs TMDL Special Studies and Implementation Project
Permit	Stormwater Discharge Permit
PIP	Public Information and Participation
PLDA	Private Land Drainage Areas
POC	Pollutant of Concern
ppm	Parts per million
Program	Alameda Countywide Clean Water Program
QAPP	Quality Assurance Project Plan
RAA	Reasonable Assurance Analysis
RMC	Regional Monitoring Coalition
RMP	Regional Monitoring Program
RWL	Receiving Water Limitation
SFEI	San Francisco Estuary Institute

SOP	Standard Operating Procedure
SWAMP	Surface Water Ambient Monitoring Program
TAG	Technical Advisory Group
TWG	Technical Working Group
TMDL	Total Maximum Daily Load
UCMR	Urban Creeks Monitoring Report
Water Board	San Francisco Bay Regional Water Quality Control Board
WOW Project	Watching Our Watersheds – Improving Trash Monitoring Methods and Pollution Prevention Strategies through Regional Partnerships in the Bay Area
WQIF	Water Quality Improvement Fund
WY	Water Year

Preface

Provision C.22 of the San Francisco Bay Regional Water Quality Control Board's (Water Board's) Municipal Regional Stormwater Permit (MRP) (Order No. R2-2022-0018, as amended, NPDES No. CAS612008) requires the Permittees covered by the MRP to submit Annual Reports by September 30 of each year that document the implementation of MRP requirements during the previous Fiscal Year (FY, July 1 through June 30). The MRP recognizes that the County of Alameda, the 14 cities within the County, the Alameda County Flood Control and Water Conservation District, and the Zone 7 Water Agency (Alameda Permittees) have joined together to form the Alameda Countywide Clean Water Program (ACCWP or Program). Each Alameda Permittee is submitting a separate Annual Report using the Annual Report format approved by the Water Board Executive Officer (EO). Those Alameda Permittee reports describe the activities conducted by each Permittee during the previous FY. This Program Annual Report describes the activities that were conducted by the Program, the Bay Area Municipal Stormwater Collaborative (BAMSC), and the California Stormwater Quality Association (CASQA) on behalf of the Alameda Permittees during the previous FY. This report is referenced in and incorporated by reference into the Alameda Permittees' Annual Reports.

Introduction

Background

The Alameda Countywide Clean Water Program (ACCWP or Program) is a consortium comprising the cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City; the County of Alameda; the Alameda County Flood Control and Water Conservation District; and the Zone 7 Water Agency (Member Agencies). The Program was established in 1991 through a Memorandum of Agreement in response to the San Francisco Bay Regional Water Quality Control Board's (Water Board's) issuance of a National Pollutant Discharge Elimination System (NPDES) stormwater discharge permit (Permit) to the Member Agencies. The Program allows the Member Agencies to work together to more efficiently comply with many of the Permit requirements. The Program also works collaboratively with other jurisdictions in the Bay Area (Bay) through the Bay Area Municipal Stormwater Collaborative (BAMSC) and throughout the State through the California Stormwater Quality Association (CASQA).

For the first several permit cycles, the Water Board issued permits on a county-by-county basis. In 2009, the Water Board issued a single permit to all the jurisdictions within the more urbanized counties in the Bay Area (Alameda, Contra Costa, San Mateo, Santa Clara, and Solano). This permit was referred to as the Municipal Regional Stormwater Permit or MRP 1. The MRP was subsequently reissued on November 19, 2015 (MRP 2) and on May 22, 2022 (MRP 3). MRP 3 was amended on October 11, 2023. The effective start date of MRP 3 was July 1, 2022. This Annual Report covers the FY from July 1, 2025, to June 30, 2026, and is the fourth Annual Report under MRP 3.

Organization of the Report

This countywide Annual Report only addresses the MRP 3 provisions applicable to Alameda County and, as such, does not include Provisions C.14, C.16, C.18, and C.19. This report is organized in order of the major MRP provisions, as listed below. In FY 2025/26, there were no countywide activities relevant to C.1 or C.13, and they are not included in this report.

- C.2. Municipal Operations
- C.3. New Development and Redevelopment
- C.4. Industrial and Commercial Site Controls
- C.5. Illicit Discharge Detection and Elimination
- C.6. Construction Site Control
- C.7. Public Information and Outreach
- C.8. Water Quality Monitoring
- C.9. Pesticides Toxicity Control
- C.10. Trash Load Reduction
- C.11. Mercury Controls
- C.12. Polychlorinated Biphenyls (PCBs) Controls
- C.15. Exempted and Conditionally Exempted Discharges
- C.17. Discharges Associated with Unsheltered Homeless Populations
- C.20. Cost Reporting
- C.21. Asset Management

Within each section, the requirements being reported on are summarized, along with a description of Program, BAMSC, or CASQA activities conducted to comply with the Permit requirement.

Highlights of Significant FY 2025/26 Accomplishments

Our Water Our World

Our Water Our World (OWOW) is a highly successful point-of-purchase outreach campaign promoting the use of less toxic pest control methods. The OWOW logo and slogan are shown in **Figure 1**.

Figure 1: Our Water Our World Logo and Slogan

During FY 2025/26, the OWOW program continued partnering with 34 retailers throughout Alameda. This total includes nine Home Depot Stores. A total of 253 store visits were conducted by Plant Harmony and Integrated Pest Management Educators. Each retailer received at least four store maintenance and monitoring visits, and several received up to 11 store maintenance and mentoring visits, engaging 196 customers. A total of 15 training events were conducted, and 96 employees received the OWOW training. In addition, 15 in-person public outreach events and two online webinars were held, reaching a total of 611 attendees. Store associates from Home Depot in San Leandro attending an OWOW training are shown in **Figure 2.**

Figure 2: Store Associate Training at Home Depot San Leandro

Kids for the Bay Storm Drain Rangers

The Kids for the Bay Storm Drain Rangers Schoolwide Trash Reduction Program is designed to engage and educate elementary school students in Alameda County about stormwater pollution reduction. Grade-level teams of students learn about watersheds, stormwater pollution, and pollution prevention strategies, including trash cleanup efforts, and practice the Five Rs (Reduce, Reuse, Recycle, Rot, and Refuse) to reduce trash and waste at the source. A total of 16 classrooms at seven elementary schools

participated in the Storm Drain Rangers program this year, receiving 80 lessons. Students became Storm Drain Rangers and pledged to make behavior changes to help their watershed environment. They conducted cleanups and litter audits, collecting 5,065 pieces of litter (equivalent to 130.5 gallons of trash) from local watershed environments within their school campuses and neighborhoods. They also engaged their families and school communities through assemblies, family interviews, and poster campaigns, reaching an additional 2,900 people. A picture of students giving a classroom presentation in the Storm Drain Rangers program is shown in **Figure 3**.

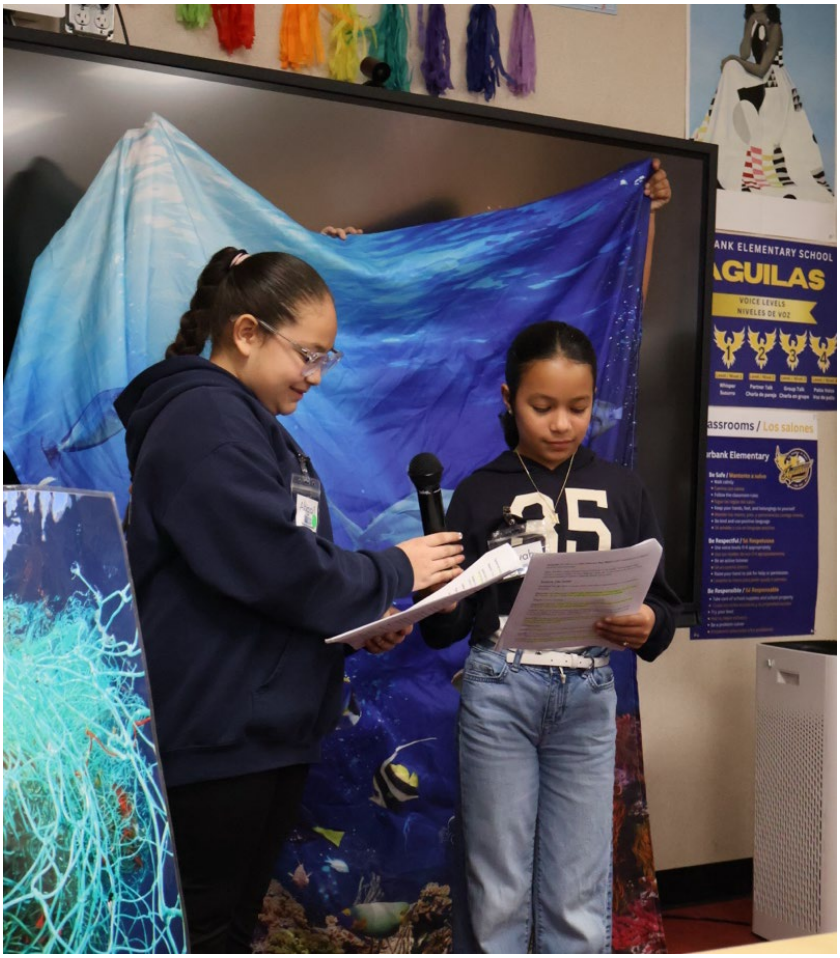

Figure 3: Students Presenting at a Kids For the Bay Storm Rangers Classroom Lesson

Media Awareness and Pledge Campaign

The FY 2025/26 public outreach campaign included digital promotion of existing Fred & Izzy videos, as well as an updated, multi-touch campaign promoting storm drain-to-creek and Bay connection awareness and encouraging behavior change through pledges and giveaways.

A 2024 survey by the program found that 60% of county residents believe runoff flows straight into local waterways, but the other 40% thought it may be treated first, or that it flows into the sewer system. To address this knowledge barrier, the multi-touch media campaign drew attention to the humble storm drain, making the connection from streets to creeks and highlighted the humble storm drain, making the connection from streets to creeks and to the Bay. New artwork for ads, a canvas bag, and sticker giveaways were developed in partnership with local artist Joanna Sokua. Media promotions resulted in over 1,000 online pledges and 14,433,758 impressions. A sample of the Bay Area Rapid Transit (BART) station ad is shown in **Figure 4.**

A total of 200 canvas bags and 767 sticker sets were sent to Alameda County residents who took a pledge of action, selecting from a list of pollution prevention behaviors. The total number of pledges was 1,061, exceeding the supply of giveaways. Web traffic to the campaign pages was the highest of any campaign, at 13,538, a 99% increase from the previous year's campaign.

Figure 4: Campaign BART Station Poster

AGOL Tools C.4, C.6, and C.10 Training

The ACCWP Data Management-Geographic Information System (GIS) Subcommittee provided a suite of training sessions on the ArcGIS Online (AGOL) applications, including a C.4 Inspection Field Application; an AGOL 101 & C.6 Application Training; and a C.10 Trash Load Reduction Requirement and Data Entry Refresher Training. The topics, goals, and the date of each training course are listed in **Table 1**. The trainings were held online and are available on the Program's Vimeo.

Table 1: Data Management Subcommittee AGOL Trainings

Training	Topics and Goals	Date
AGOL 101 & C.6 App Training	Topics included an overview of the new AGOL Application for Provision C.6 Construction requirements. The goals of the training were to introduce the features of the new application and provide an overview of how to use the ACCWP AGOL field maps applications.	October 9, 2025
C.4 Application Training	The training was an overview of the new AGOL Application for Provision C.4 Industrial and Commercial Site Control requirements. The goal of the training was to introduce the new application's features.	March 24, 2026
C.10 Data Entry Refresher Training	The training was an overview of the AGOL Application for C.10 Trash Load Reduction requirements. The goals of the training were to review the features of the application ahead of the annual report season.	June 4, 2026

C.6 On-Demand Stormwater Construction Inspection Refresher Training

This year, the ACCWP New Development Subcommittee (NDS) provided a C.6 On-Demand Stormwater Construction Inspection Refresher Training. Attendees completed the training by watching two online training videos and completing a knowledge survey for each video. The videos went "live" on October 15, 2025. A total of 75 staff from 13 Member Agencies completed this training. This refresher on-demand training included presentations on MRP C.6 Construction Requirements and BMPs, the C.6 BMPs, and BMP examples with installation tips. The training also included C.6 Construction Inspections, which addressed inspection frequency, goals, preparation, inspection procedures, and documentation requirements.

C.11 Mercury and C.12 PCBs

The Program completed the *Mercury and PCBs Control Measures – Update 2026* report as part of the risk reduction program aimed at reducing public health impacts of mercury in San Francisco Bay/Delta fish. The Program worked collaboratively with BAMSC members to develop the *BAMSC Source Control Load Reduction Accounting for Reasonable Assurance Analysis – 2026 Update* and the *Regional Effectiveness Evaluation of the Protocols for Managing PCBs-containing Materials During Building Demolition*.

Provision C.2 Municipal Operations

Requirement: Provision C.2 requires Permittees to implement Best Management Practices (BMPs) to control and reduce non-stormwater and polluted stormwater discharges to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities from municipal facilities and infrastructure.

Program Activities: To assist Member Agencies in complying with this provision, ACCWP held four Municipal Maintenance Subcommittee meetings during the FY. Mike Wells, Livermore, and Anthony Daquioag, Fremont, were the Co-Chairs of the Subcommittee. Subcommittee topics included using updated AGOL tools for trash load reduction efforts, installing and maintaining public and private GSI devices, rural roads BMPs and training, storm drain inlet medallions, clean-up of emergency firefighting discharges, and comparing data management tools used by different Member Agencies. The Municipal Maintenance Subcommittee continues to provide a forum for Member Agencies to share information, benefit from other municipal staff field experiences, and receive information on products and training related to municipal maintenance activities.

Provision C.2.g: Storm Drain Inlet Marking

Requirement: Provision C.2.g requires Permittees to mark and maintain storm drain inlets with an appropriate stormwater pollution prevention message.

Program Activities: Municipal Maintenance Subcommittee Members shared information during subcommittee meetings about the use of various marker types and suppliers, the use of color-coded markers to indicate if a trash capture device is in the inlet or if green infrastructure is present, and workflow processes for maintaining the markers.

Provision C.2.h: Staff Training

Requirement: Provision C.2.h requires Permittees to provide training at least once within the five-year term of the Permit to municipal staff on topics relevant to municipal staff responsible for maintenance activities.

Program Activities: To comply with this provision, the Municipal Maintenance Subcommittee hosted a workshop on November 18, 2025, at the Pleasanton Corporation Yard. The workshop included a classroom session with presentations on stormwater pollution prevention, municipal maintenance BMPs, bridge maintenance BMPs, graffiti removal BMPs, sidewalk/plaza maintenance and pavement washing BMPs, and spill and discharge response. The classroom session also included CASQA videos on good housekeeping, concrete work and saw cutting, and minor spills. The field portion of the workshop included several equipment demonstrations and vendors. In addition to the content presented, the workshop was an opportunity for maintenance staff from various Member Agencies to meet and share ideas about stormwater BMPs and municipal maintenance equipment. The workshop was attended by 43 people from eight agencies. Overall, participants found the workshop to be helpful, meeting their expectations. **Appendix A**, Municipal Maintenance Workshop Materials contains the workshop materials and evaluation summary.

Additional Activities

Requirement: Emergency Firefighting Discharges of Water and Foam (C.15.b.iii): MRP 3 requires Permittees to implement the recommendations in the BAMSC Regional Firefighting Discharges Work Group Report and train municipal maintenance staff involved in the containment and cleanup of emergency firefighting discharges of water and foam.

Program Activities: Subcommittee members discussed communication between Fire Departments and municipal staff, clean-up activities, and training options.

Requirement: Asset Management Plan (C.21): Provision C.21 requires each Permittee to develop an Asset Management Plan to track the location and maintenance of publicly owned Low Impact Development (LID) and/or Green Stormwater Infrastructure (GSI).

Program Activities: Municipal Maintenance Subcommittee members discussed the GSI and full trash capture assets included in Asset Management Plans, maintenance activities related to the assets, and tracking and reporting the assets and maintenance activities conducted.

Provision C.3: New Development and Redevelopment

Requirement: Provision C.3 requires Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects.

Provision C.3.a.i.(4): Provision C.3 Training

Requirement: Provision C.3.a.i.(4) requires Permittees to provide training adequate to implement the requirements of Provision C.3 for staff, including interdepartmental training.

Program Activities: To assist Member Agencies in complying with this provision, ACCWP's NDS provides C.3 training every other year. The Program's FY 2025/26 workshop focused on Provision C.6. However, Member Agency staff can access past virtual training sessions on ACCWP's Vimeo platform. During FY 2025/26, ACCWP provided training on Asset Management and Condition Assessment that included a virtual classroom session on March 10, 2026, followed by a field session on March 19, 2026. The training primarily addressed condition assessments of stormwater treatment measures.

Provision C.3.b: Regulated Projects

Requirement: Under Provision C.3.b, the Permittees must require all projects fitting the category descriptions provided in Provision C.3.b.ii (i.e., Regulated Projects) to implement LID source control, site design, stormwater treatment, and alternative certification by third-party reviews, as required in Provisions C.3.c, C.3.d, and C.3.f. Provision C.3.b.iv.(2) lists detailed information that must routinely be included in Annual Reports for Regulated Projects that are approved during the reporting period.

Program Activities: To assist Member Agencies in compiling the information on C.3 Regulated Projects that they are required to routinely report in accordance with Provision C.3.b.iv. (2), ACCWP continued to maintain the AGOL C.3 Tracking Tool. This software tool includes a feature to support the reporting of C.3 Regulated Projects by Member Agencies in the annual reports they prepare for compliance with MRP 3.

Provision C.3.c: Low Impact Development

Requirement: Provision C.3.c requires Permittees to implement LID source control, site design, and stormwater treatment requirements in all Regulated Projects.

Program Activities: To assist Member Agencies in complying with the requirements of this provision, ACCWP maintains the Program's *C.3 Technical Guidance* manual, which provides comprehensive guidance to project applicants and designers of municipal capital projects regarding the implementation of LID source control, site design, stormwater treatment, and hydromodification management (HM) measures. The manual underwent a major update in FY 2022/23, and Version 8 accounted for the new MRP 3 requirements and provided new content. Version 8.1 accounted for the MRP 3 amendment affecting Special Projects Category C. In FY 2024/25 and FY 2025/26, minor updates were completed to correct errata and respond to comments submitted by Member Agencies, the public, and the Water Board staff. Version 8.4 was approved by ACCWP in June 2026 and posted to the ACCWP website.

Provision C.3.d.iv: Tree Runoff Reduction and Tree-Based Stormwater Treatment Systems

Provision C.3.d.iv allows Permittees to collectively submit a proposal that evaluates the benefits and associated criteria of runoff reduction associated with trees with respect to treatment control sizing;

evaluates and includes, as appropriate, the findings of the Healthy Watersheds, Resilient Baylands project; and will be considered for incorporation into a subsequent Permit.

Program Activities: Following discussions with the Water Board staff, the MRP Permittees collectively decided not to pursue developing this optional report.

Provision C.3.e.i.(2): Payment of In-Lieu Fees

Requirement: Under Provision C.3.e.i.(2), Permittees may allow a Regulated Project to treat a portion of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility and pay equivalent in-lieu fees to treat the remaining portion of the Provision C.3.d runoff with LID treatment measures at a Regional Project.

Program Activities: To assist Member Agencies in providing an in-lieu fee option, the NDS formed a work group to research and evaluate options. In FY 2024/25, the NDS completed a Technical Memorandum and spreadsheet training tool for members' use if they choose to establish a local in-lieu fee program. In FY 2025/26, the NDS continued to consider the merits of pursuing countywide or regional program options but did not move forward with these options.

Provision C.3.g.vi.(4): Bay Area Hydrology Model (BAHM) Modifications

Requirement: Provision C.3.g.vi.(4) requires Permittees allowing the use of the Bay Area Hydrology Model (BAHM) to annually report collectively a listing, summary, and date of modifications made to the BAHM, including the technical rationale.

Program Activities: The BAHM is a tool developed to assist Permittees and development project engineers with sizing and design of facilities needed to meet the HM requirements in Provision C.3.g and to demonstrate that planned facilities meet the HM standards. The BAHM was jointly funded by the Santa Clara, San Mateo, and Alameda countywide stormwater programs. These programs also funded an update to the BAHM and User Manual in 2013. In FY 2023/24, the Program, along with three other countywide programs, provided in-kind support to a BAMSC project of regional benefit to update the BAHM and User Manual. The User Manual, model, and training can be accessed by Member Agencies and the public on the BAHM download page.

Provision C.3.h: Operation and Maintenance of Stormwater Treatment Systems

Requirement: Provision C.3.h requires each Permittee to implement an Operation and Maintenance (O&M) Verification Program in accordance with the requirements specified in Provision C.3.h.

Program Activities: The Program continued to support Members by maintaining the AGOL C.3 Tracking Tool to facilitate data entry of C.3 projects and continued improvements to the AGOL Field Maps application for collecting and documenting data during O&M verification inspections by merging the C.3 and C.10 inspection applications. Additionally, as described in the Provision C.3.a.i.(4) C.3 Training section, training on condition assessments of stormwater treatment measures was provided by the NDS during FY 2025/26.

Provision C.3.i: Required Site Design Measures for Small Development and Redevelopment Projects and Smaller Detached Single-Family Home Projects

Requirement: Provision C.3.i requires Permittees to enforce development and redevelopment projects and detached single-family home projects within certain impervious surface area criteria to install one or more site design measures listed in Provision C.3.i.i.

Program Activities: The Program continued to maintain the *C.3 Technical Guidance* manual, as described in the Provision C.3.c LID section. The manual provides information on the requirements and project thresholds for Small Projects and Smaller Detached Single-Family Home Projects.

Provision C.3.j: Green Infrastructure Planning and Implementation

Requirement: Provision C.3.j requires each Permittee to continue to implement a Green Infrastructure (GI) Plan for the inclusion of LID storm drain infrastructure on public and private lands. The Plan serves as an implementation guide and reporting tool during this and subsequent Permit terms to provide reasonable assurance that urban runoff Total Maximum Daily Load (TMDL) waste load allocations (e.g., for the San Francisco Bay mercury and PCBs TMDLs) will be met, and to set goals for reducing, over the long term, the adverse water quality impacts of urbanization and urban runoff on receiving waters.

Program Activities: To assist Member Agencies in complying with this provision, the Program conducted various activities described here and in the specific sub-provisions of C.3.j below. The Program addressed topics related to GI at NDS meetings, including sharing information on the Member Agencies' activities to implement their GI Plans and progress toward achieving individual and countywide metrics. The NDS technical working group (TWG) provides additional support to Member Agencies on C.3.j and other topics that needed more frequent discussion and input than allowed by the quarterly NDS meetings. As described in the Provision C.3.c LID section, the Program continued to maintain the *C.3 Technical Guidance* manual, which includes a chapter on Public Agency Projects and appendices that provide resources and references to assist Member Agencies with implementing GI projects.

Provision C.3.j.ii.(1)(g): Green Infrastructure Plan Outreach and Education

Requirement: Provision C.3.j.ii.(1)(g) requires Permittees to conduct outreach and education on the requirements of Provision C.3.j and methods of implementation, including public outreach (both general outreach and targeted outreach to professionals involved in infrastructure planning and design); staff training (including planning, engineering, public works maintenance, finance, fire/life safety, and management staff); and education of appropriate Permittee-elected officials (i.e., mayors, city council members, county supervisors, and district board members).

Program Activities: To assist Member Agencies in complying with this provision, the Program continued to make available to Member Agencies various tools developed during MRP 2, and information on GI is featured on the Program's Green Infrastructure website. Regionally, the Program supports BAMSC's outreach efforts that are described in the Provision C.3.j.iv Participate in Processes to Promote GI section.

Provision C.3.j.ii.(3): Design and Other Criteria

Requirement: Provision C.3.j.ii.(3) requires GI projects built pursuant to Provision C.3.j to comply with Provisions C.3.c, C.3.d, and C.3.e-h. With cause, Permittees may use the Guidance for Sizing Green Infrastructure Facilities in Streets Projects with companion analysis, Green Infrastructure Facility Sizing for Non-Regulated Street Projects, to size non-regulated green streets projects.

Program Activities: The Program continued to maintain the *C.3 Technical Guidance* manual, as described in the Provision C.3.c LID section, which includes a chapter on Public Agency Projects and information on alternative sizing requirements for non-regulated road projects.

Provision C.3.j.ii.(4): Long-Term Green Infrastructure Implementation

Requirement: Provision C.3.j.ii.(4) allows Permittees, Water Board staff, and impartial science experts to collectively form a TWG to discuss long-term GI goals and recommend long-term percentage reductions in Permittees' impervious surfaces.

Program Activities: To assist Member Agencies, the Program took on a lead role in the development and coordination of the Long-Term Green Stormwater Infrastructure (LTGSI) TWG. Program representatives coordinated with the other countywide programs and Water Board staff to plan meeting agendas and arrange speakers for the LTGSI TWG meetings. Member Agencies and Program representatives participated in the LTGSI TWG, which met four times during FY 2024/25. The LTGSI TWG discussions and outcomes are documented in the *Long-Term Green Stormwater Infrastructure Technical Working Group Summary and Recommendations Report* that was submitted with the FY 2024/25 Annual Report. The LTGSI TWG met three times in FY 2025/26 to discuss and refine the recommendations in the Recommendations Report.

Provision C.3.j.iv: Participate in Processes to Promote Green Infrastructure

Requirement: Provision C.3.j.iv requires Permittees to, individually or collectively, track processes, assemble and submit information, and provide informational materials and presentations as needed to assist relevant regional, State, and federal agencies with planning, design, and funding incorporation of GI measures into local infrastructure projects, including transportation projects. Issues to be addressed include coordinating the timing of funding from different sources, changes to standard designs and design criteria, ranking and prioritizing projects for funding, and implementation of cooperative in-lieu programs.

Program Activities: To support the Member Agencies in complying with this provision, the Program participated through BAMSC in sharing information about regional efforts and outreach, which are described in the *Regional Supplement for New Development and Redevelopment* (**Appendix B**). Additionally, meetings of the NDS included information-sharing regarding GSI implementation.

Provision C.3.j.v: Tracking and Reporting Progress

Requirement: Provision C.3.j.v requires Permittees to continue to implement regionally consistent methods to track and report implementation of GI measures, including treated area and connected and disconnected impervious area on both public and private parcels within their jurisdictions. The methods shall also address tracking needed to provide reasonable assurance that waste load allocations for TMDLs, including the San Francisco Bay PCBs and mercury TMDLs, and trash, are being met.

Program Activities: To assist Member Agencies in complying with this provision, the Program continued to support the Alameda Countywide GSI Mechanism for their Member Agencies to use in prioritizing and mapping areas for planned and potential GSI projects. The mechanism consists of the Alameda Countywide Multi-Benefit Metrics Prioritization Protocol interface, in conjunction with the AGOL C.3 Tracking Tool described in the Provision C.3.b Regulated Projects section. The Member Agencies continued to use the AGOL C.3 Tracking Tool to track and map information on GI measures implemented on public and private parcels. In addition, during FY 2025/26, the NDS and TWG meetings provided a forum for members to discuss lessons learned and obtain guidance on programmatic implementation of their GI Plans.

Additional Activities

The Program held four meetings of the NDS, which is currently led by Daniel Matlock, Fremont, Chair, and Mary Skramstad, Berkeley, Vice Chair. The NDS provides a valuable venue for Member Agency staff

to share information, benefit from lessons learned by others, and receive training on permit requirements and products developed by the Program related to Provision C.3, as well as Provisions C.6 Construction Site Control, C.12.g Manage PCBs-Containing Materials and Wastes During Building Demolition Activities, and C.13.a Manage Waste Generated from Cleaning and Treating of Copper Architectural Features. Examples of C.3-related topics addressed at NDS meetings in FY 2025/26 included information sharing on:

- The cost of GSI in road reconstruction projects;
- BMPs to protect GSI during construction;
- Inspecting LID features at single family homes;
- Drought tolerant plants for bioretention;
- Evaluation of gravel paths and artificial turf on development submittals;
- Coordinating with Caltrans on LID maintenance;
- Reviewing common LID O&M issues; and
- Assessing C.3 applicability for parcel spits and Accessory Dwelling Units.

ACCWP Members participated in the regional LTGSI TWG, the BAMSC Development Committee and its work groups, and the MRP 4 C.3 Work Group. ACCWP and their technical consultants continued to provide on-call support to Member Agency requests for assistance regarding Provision C.3 compliance.

Provision C.4: Industrial and Commercial Site Controls

Provision C.4.d: Inspections

Requirement: Provision C.4.d requires Permittees to conduct inspections according to their Business Inspection Plan and Enforcement Response Plan to prevent stormwater pollution.

Program Activities: To assist Member Agencies in complying with this provision, the Program developed the *Grease Handling and Storage Postcard* for restaurants, and it was translated into Spanish, Chinese, and Vietnamese by the Oakland. The final postcards are available on the Program's Resources webpage, under the Commercial and Industrial tab. See **Appendix C** for the finalized postcards.

Provision C.4.e: Staff Training

Requirement: Provision C.4.e requires Permittees to provide focused training for industrial and commercial site inspectors and illicit discharge detection and elimination inspectors annually. Training may be program-wide, region-wide, or Permittee-specific.

Program Activities: To comply with this provision, the ACCWP's Industrial and Illicit Discharge Control (IIDC) Subcommittee sponsored an in-person business and illicit discharge stormwater inspectors training workshop on May 5, 2026. Presentations and a group exercise were provided. The group exercise reviewed real-life case studies of inspections of waste storage areas, illicit discharges, and auto repair shops. Attendees discussed in small breakout groups how they would handle the inspections, corrective actions, enforcement, and documentation and shared their observations when the entire group reconvened. The workshop also included presentations on the Oakland inspection application, an Alameda business inspection case study, a Pleasanton illicit discharge investigation, the MRP 3 requirements for Provisions C.4, C.5, and applicable requirements in Provisions C.10, C.13, and C.15.

Presentation materials from the workshop are available to Member Agencies for use as in-house training. Evaluation surveys showed that the training met expectations. Overall, attendees deemed the presentations informative and useful, with an average rating of 3.9 out of 4. **Appendix C** contains the workshop report, including the agenda, attendance list, and evaluations.

Additional Activities

The Program held four IIDC Subcommittee meetings during FY 2025/26. Aileen Mendoza, Alameda County Department of Environmental Health, served as the Chair of the subcommittee, and Mike Perlmutter, Oakland, served as the Vice Chair. On average, 22 people attended each meeting and shared information on MRP 3 compliance and activities. The IIDC meetings provide a valuable venue for Member Agency staff to share information, benefit from lessons learned by others, and receive information on permit requirements and products developed by the Program related to Provision C.4, as well as Provisions C.5 Illicit Discharge Detection and Elimination, C.13.b. Manage Discharges from Pools, Spas and Fountains that Contain Copper-Based Chemicals, C.13.c Copper Source Control for Industrial Sources, and C.15. Exempt and Conditionally Exempt Discharges.

The Alameda County Green Business Program (GBP) Regional Manager attended the March 2026 IIDC Subcommittee meeting to give a presentation on the GBP including the stormwater related measures. There are currently 628 businesses in Alameda County in the GBP. Of those, 218 businesses are in categories of interest to Member Agencies' stormwater programs, such as auto repair shops, restaurants, and manufacturers. The Program financially contributes to the GBP annually and is currently working with the GBP to optimize the outreach the program offers to businesses of interest for stormwater pollution prevention.

Provision C.5: Illicit Discharge Detection and Elimination

Provision C.5.c: Spill, Dumping and Complaint Response Program

Requirement: Provision C.5.c requires Permittees to implement a program to respond to spills, dumping and complaints.

Program Activities: To assist Member Agencies in complying with this provision, the Program maintains a list of Member Agencies and a point of contact for reporting spills on the Program's "Report a Spill" webpage. The list is periodically updated. In addition, Member Agencies shared their internal and external contact lists/flow charts for responding to spill reports. The Program compiled these with general agencies, departments, and staff titles and provided these example lists to the Subcommittee.

Provision C.5.e: Control of Mobile Sources

Requirement: Provision C.5.e requires Permittees to implement a program to reduce the discharge of pollutants from mobile businesses. The Program must include standard BMPs, an enforcement strategy, inventory, outreach strategy, and inspections, as needed. Permittees may cooperate countywide and/or region-wide with the implementation of their programs for businesses, including sharing of mobile business information, BMP requirements, enforcement action information, and educational materials.

Program Activities: The categories of mobile businesses currently addressed by the Program include automobile washing, power washing, steam cleaning, carpet cleaners, pet care providers, graffiti removal, and mobile fuelers. These mobile business categories have minimum standards and BMPs identified in a series of Tip Sheets developed by the Program:

- Tips for Mobile Businesses;
- Tips for Pet Care Providers;
- Tips for Carpet Cleaners;
- Tips for Pools, Spas, and Fountains;
- Tips for Fundraising Car Washes;
- Tips for Graffiti Removal;
- Tips for Mobile Fleet Service Providers;
- Tips for Surface Cleaning & Power Washing;
- Tips for Surface Cleaning & Power Washing (Spanish);
- Tips for Surface Cleaning & Power Washing (Chinese); and
- Tips for Graffiti Removal.

Outreach to Mobile Businesses: The Program developed a countywide mobile business inventory in FY 2016/17. The countywide inventory is updated annually with businesses identified by municipal inspectors in the field and business license lists provided by agencies. Businesses are removed from the list when internet searches show they are closed. There are currently 405 mobile businesses in the inventory. There are approximately 86 auto repair-related businesses, 56 mobile car washes, 108 carpet cleaners, 29 pet groomers, 18 fuelers, 45 power washers, and other miscellaneous mobile cleaner businesses (e.g., shopping cart washers, trash bin washers). The inventory is available on the IIDC Subcommittee's Members-only webpage. The inventory will be provided to the Water Board upon request to meet reporting requirements this FY.

In March 2026, the Program mailed a letter and the applicable BMP Tip Sheets to the mobile businesses on the countywide inventory. There was a Program letter for mobile fuelers, power washers, carpet cleaners, pet care providers and other mobile businesses.

The IIDC Subcommittee worked with the Public Information and Participation (PIP) Subcommittee to develop a social media outreach campaign for mobile businesses and the residents and businesses that hire them. Posts included tips for hiring carpet cleaners, pet care providers, mobile car detailers, and other mobile businesses. See Provision C.7 Public Information and Outreach for more information on the social media campaign.

Mobile Business Enforcement Strategy: In FY 2017/18, the IIDC Subcommittee worked with the Alameda County District Attorney's (DA's) office to develop an enforcement strategy for mobile businesses. When City and County IIDC inspectors issue an enforcement action to a mobile business, they will also complete a Referral Form for the DA. The DA's office will keep a list of mobile businesses that receive enforcement actions from all jurisdictions in Alameda County. If an individual business receives more than one enforcement action, even if they are from different jurisdictions, the DA's office may choose to take action. The Referral Form was emailed to the Subcommittee for reference and use again during this FY.

BAMSC is continuing the Surface Cleaner Training and Recognition Program that educates mobile surface cleaners about proper BMPs to protect water quality and allows them to market themselves as "recognized" cleaners. BAMSC maintains the website with the training resources and recognized cleaners list. This FY, BAMSC formed a Work Group to review and provide comments and recommendations for updating the program materials, including the BMP brochure, quiz, videos and webpage. ACCWP surveyed the IIDC Subcommittee for comments and provided them to the BAMSC Work Group.

Provision C.5.f: MS4 Maps

Requirement: Provision C.5.f requires Permittees to determine information missing from the Permittee's current Municipal Separate Storm Sewer System (MS4) map and develop a plan and schedule for updating the Permittee's storm sewer system information. The plan and schedule must be submitted with the September 2026 Annual Reports.

Program Activities: In June 2025, Program staff developed an MS4 Mapping Update Plan Template to assist Member Agencies with development of their individual plans during FY 2025/26. The template is available on the Program's members-only webpage. Member Agencies discussed their progress during the IIDC Subcommittee meetings.

Additional Activities

The C.4.e Staff Training section includes a description of illicit discharge-related training presented at the IIDC workshop. Illicit Discharge Detection and Elimination Program activities are also discussed at the IIDC Subcommittee meetings.

The C.15.b.iii section includes a description of the discussions and activities related to implementation of the recommendations in the BAMSC Regional Firefighting Discharges Work Group Report.

Provision C.6: Construction Site Control

Provision C.6: Construction Site Control

Requirement: Provision C.6.b requires each Permittee to implement a construction site inspection and control program at all construction sites, with follow-up and enforcement consistent with each Permittee's respective enforcement response plan, to prevent construction site discharges of pollutants into storm drains.

Program Activities: To assist Member Agencies in complying with this provision, ACCWP included discussions of Provision C.6 requirements at NDS meetings, at which Member Agency staff share information, learn from the experience of other agencies, and receive guidance and training from the Program. Examples of C.6-related topics addressed at NDS meetings include discussing preparations for the wet season, implementing BMPs, addressing laydown areas, and the 2022 Construction General Permit (CGP). The NDS and Data Management-GIS Subcommittee completed the development of the C.6 construction inspection AGOL Application and provided training on October 9, 2025. In FY 2025/26, the NDS developed a Construction Site Groundwater Dewatering factsheet and updated the C.6 plan sheet. ACCWP and their technical consultants continued to provide on-call support to Member Agency requests for assistance regarding Provision C.6 compliance.

Provision C.6.e.ii.(1): Wet Season Notification

Requirement: Provision C.6.e.ii. (1) requires Permittees to, by September 1 of each year, remind all site developers and/or owners of projects disturbing one acre or more of soil, hillside projects, and high priority projects to prepare for the upcoming wet season.

Program Activities: To assist Member Agencies in complying with this provision, an email notification was sent to NDS Members on August 8, 2025, regarding the requirement for Member Agencies to provide pre-wet season notifications (by September 1, 2025) to all site developers or owners of hillside sites, high priority sites, and sites disturbing one acre or more of soil, in order to prepare for the upcoming wet season.

Provision C.6.f: Staff Training

Requirement: Provision C.6.f requires Permittees to provide training at least every other year to municipal staff responsible for conducting construction site stormwater inspections.

Program Activities: To assist Member Agencies in complying with this provision, ACCWP provides C.6 training every other year. The Program offered several C.6-related training opportunities in FY 2025/26: 1) a live virtual training on the new AGOL C.6 Inspection Application mentioned above; 2) a recorded virtual on-demand C.6 refresher; and 3) a live webinar on the 2022 CGP. This webinar was recorded and is available to Member Agencies on the ACCWP's Vimeo platform.

The recorded virtual C.6 refresher was offered in lieu of the standard in-person or live virtual training to provide Permittee staff with scheduling flexibility. The presenters recorded the training in advance, and the recordings, along with quizzes to assess attendees' comprehension, could be accessed on demand. The training included two C.6 refresher modules: C.6 Requirements and BMPs; and Documenting Inspections. The training was completed by 65 agency staff and consultants that support Member Agencies. On February 18, 2026, the NDS offered a webinar overview of construction stormwater management requirements under the CGP, with a focus on the 2022 updates. A training report on the C.6 refresher training and CGP webinar is included in **Appendix D**.

Provision C.7: Public Information and Outreach

Provision C.7.a: Outreach Campaigns

Requirement: Provision C.7.a requires Permittees to participate in or contribute to outreach campaigns, with the goal of significantly increasing overall awareness of stormwater runoff pollution prevention messages and behavior changes in target audiences.

Program Activities: To comply with this provision, the Program conducted the activities described below.

Public Outreach Campaign

The FY 2025/26 public outreach campaign effort included the digital promotion of existing Fred & Izzy videos, as well as an updated, multi-touch campaign promoting awareness of the connection of storm drains to creeks and the Bay, and encouraging behavior change through pledges and giveaways.

"A Clean Bay Begins Here" Multi-Touch Media Campaign Strategy and Results

A 2024 survey by the program found that 60% of county residents believe runoff flows straight into local waterways, but the other 40% thought it may be treated first, or that it flows into the sewer system. To address this knowledge barrier, the multi-touch media campaign drew attention to the humble storm drain, making the connection from streets to creeks and the Bay. New artwork for ads, a canvas bag, and sticker giveaways were developed in partnership with local artist Joanna Sokua. Media promotions resulted in over 1,000 online pledges and 14,433,758 million impressions. A sample of the new artwork is shown in **Figure 5.**

Figure 5: A Clean Bay Begins Here Campaign Billboard

Goals: Raise awareness that storm drains connect our streets directly to our creeks and the Bay! Inspire residents to keep litter and other pollution off our streets.

Target Audience: Young to middle-aged adults (age 18-49) who may not know that storm drains connect directly to creeks and the Bay without any cleaning or treatment. This audience is less engaged than other age groups.

TACTICS

Campaign Landing Page: A landing page was created for the duration of the campaign.

Promotional Giveaways and a Campaign Pledge: A total of 200 canvas bags and 767 sticker sets were sent to Alameda County residents who took a pledge of action, selecting from a list of pollution prevention behaviors. The total number of pledges was 1,061, exceeding the supply of giveaways. The calls to action on the pledge form linked to relevant website content and included the following:

- Always Use a Trash Can;
- Take Household Hazardous Waste to a Drop-Off;;
- Use a Commercial Car Wash
- Think Before You Spray—Use Less-Toxic Pest Control;
- Pick up Pet Waste and Dispose in the Trash;
- Sweep Don't Hose Your Driveway; and
- Tap Into the Rain.

E-blasts Announcing Campaign: These were sent to the Program's e-newsletter distribution list.

Media & Community Relations: Outreach was provided to local media outlets and community partners.

Social Media Posts and Reel/Short: These were sent to the Program's e-newsletter distribution list.

Media & Community Relations: Outreach was provided to local media outlets and community partners.

Social Media Posts: These were created using the new artwork.

Paid Media: The campaign ran digital display ads, transit ads, billboards, and BART Station ads.

Local Promotions: Various Member Agencies promoted the campaign locally. Fremont posted banners at their nature center, collected over 400 pledges at their Earth Day event, and placed articles in city newsletters. Alameda County created displays at the Castro Valley, San Lorenzo, and Cherryland Libraries. Union City placed ads inside their buses. Zone 7 Water Agency promoted pledges at events. Livermore placed posters in Downtown Kiosks.

Transit Advertising

The media package included advertising on 24 AC Transit and 10 Tri-Valley Transit buses. In addition, 12 BART station posters were placed at Fremont, Castro Valley, West Dublin, Dublin Pleasanton, South Hayward and Union City.

Billboards

The FY 2025/26 campaign placed 14 neighborhood billboards and one billboard on 1-880 Southbound near the 23rd Avenue exit.

E-Blast to Program Subscribers

On March 2, 2026, an E-blast was distributed to the Program's 1,157 e-newsletter subscribers, sparking significant engagement with its subject line: "Where Do Storm Drains Go? Find out and snag a limited-edition tote bag!" This call to action led to a strong 41% open rate and 117 clicks to the campaign's landing and pledge pages.

Promotion Through Outreach Partners

Several community partners ran articles about the campaign in their communications, highlighting the giveaways and the pledge link. These outlets included, among others, Fremont and Oakland e-newsletters to residents. An example of Fremont's e-newsletter coverage is provided in **Figure 6.**

The Fremont CONNECTION

Fremont

March 6, 2026

A Clean Bay Begins Here

Right here in Fremont, the storm drains you see on our streets connect directly to local creeks, ponds, lakes, wetlands, and the Bay, without going to a treatment plant first. Many people don't realize that whatever goes down the storm drain—or gutter as many say—can end up in our waterways. When rainfall flows into our drains, it carries pollution from our streets and sidewalks with it. Common waste like litter, car wash water, and pet waste can spoil Fremont's natural beauty if we don't keep it off streets and out of storm drains.

The wildlife living in our waterways depends on clean water to thrive. Since our storm drains lead directly to their habitats, keeping our streets and sidewalks clean is essential for their survival. Local species—including the steelhead and Chinook Salmon spotted in Alameda Creek in recent years, as well as egrets, ducks, red-legged frogs, and freshwater turtles—rely on us.

This is why the City of Fremont is partnering with **the Alameda Countywide Clean Water Program** and artist Joanna Sokua to encourage everyone to reduce pollution on our streets to protect our water. **Learn more and pledge to take action**. The first 200 pledges will receive a limited-edition tote bag!

Learn More & Pledge

Figure 6: City of Fremont E-Newsletter Coverage

Hearst Media Digital Display Ads

Digital advertisements also ran alongside the campaign, delivering 207,111 impressions and 91 clicks.

Social Media Advertising-Clean Bay Campaign

To complement the transit and digital advertising, the Program ran several ads and boosted posts on social media to encourage pledges and promote the giveaway. Details on the ads and promotions are provided in **Table 2**.

Table 2: Summary of Campaign Promotion Results — March 2026 through April 2026

Promotion	Cost	Impressions	Cost Per 1,000 Impressions
Hearst Digital Banner Ads	$2,200	207,111	$10.62
E-Blast	$250	1,157	$216.08
Social Giveaways/Boosted Posts	$1045	119,716	$8.73
34 Bus Ads	$10,380	4,807,778	$2.16
1 Hwy 880 Billboard	$7,350	3,686,828	$1.99
12 BART Station Posters	$12,180	654,340	$18.61
14 Neighborhood Billboards	$10,290	4,956,828	$2.08
Total, Clean Bay Campaign	**$43,695**	**14,433,758**	**$3.03**

Website Traffic During Campaign

The combined efforts of all the promotional tactics above led to a significant increase in website traffic during the campaign period (3/1/25-4/30/26) compared to the same timeframe last year. Website visits jumped by 99.4%, with 13,538 page views compared to 6,790 page views the prior year.

Fred & Izzy Digital Campaign Results

The video campaign covered all the strategic messaging goals: litter, pesticide reduction (OWOW program), car washing, surface hosing, fishing, mercury bulb pollution, pet waste, hiring a certified eco-friendly pest contractor, and general watershed/stormwater education. These videos were promoted throughout the year via a strategy that used a mix of smaller, digital promotions on the usual low-cost media, such as Facebook, Google, YouTube, TikTok, and streaming video.

As of June 30, 2026, the YouTube Channel has 338 subscribers, a 6.3% increase from FY 2024/25. Combined, all Fred & Izzy videos were viewed on YouTube more than 609,725 times between July 2025 and June 2026, a 15.4% increase compared to the same period last year, which had 528,334 views. View the videos on the Program's YouTube channel. The Facebook page has 1,484 followers, and the Instagram page has 408. The TikTok channel has 450 followers and 11,454 likes. A summary of FY 2025/26 promotion results across all topics is shown in **Table 3.** Campaign Details are shown in **Table 4.**

Table 3: Summary of Digital Promotion Results — July 2025 through June 2026

Media	YouTube Views	Facebook Impressions	TikTok Views	Instagram Impressions	Streaming Views	Google Display Ad	Total
Paid Posts	612,355	619,516	43,488	295,725	111,111	1,017,499	2,699,694
Total, including Organic Posts	615,476	638,441	43,488	337,334	111,111	1,017,499	2,763,349

Table 4: Fred & Izzy Video Campaign Details, July 2025 through June 2026, by Message and Platform

Date	Message	Platform: YouTube	Platform: Facebook	Platform: TikTok	Platform: Instagram	Platform: Streaming	Platform: Google Display Ad
September 2025	Coastal Cleanup Short Video		Reach: 24,617 Views: 70,222 Impressions: 63,712		Reach: 3,069 Views: 7,964 Impressions: 6,959		
September 2025	Litter Hurts (English)		Reach: 14,357 Views: 27,327 Impressions: 25,264				
September 2025	Litter Hurts (Spanish)		Reach: 42,390 Views: 36,419 Impressions: 43,973				
September 2025	Litter Hurts (Chinese)		Reach: 20,635 Views: 25,184 Impressions: 25,311				
September 2025	Litter 1		Reach: 3,586 Views: 4,204 Impressions: 5,200	Reach: 15,892 Views: 43,199 Impressions: 43,488 Clicks: 557			
January 2026	Storm Drains	Views: 82,410 Clicks: 42	Reach: 12,526 Views: 19,074 Impressions: 18,479		Reach: 2,566 Views: 3,106 Impressions: 2,965		
January 2026	Hire a Certified Pest Contractor		Reach: 321,298 Views: 140,198 Impressions: 119,461		Reach: 1,484 Views: 2,509 Impressions: 2,484		Clicks: 487 Impressions: 1,017,499
February 2026	Pick-up Pet Waste	Views: 156,264 Clicks: 150	Reach: 22,702 Views: 29,132 Impressions: 26,830		Reach: 17,717 Views: 21,988 Impressions: 20,460		
February 2026	Mercury HHW	Views: 87,245 Clicks: 142	Reach:9,900 Views: 16,748 Impressions: 16,251		Reach: 4,058 Views: 4,975 Impressions: 4,709		
March 2026	Watershed Video	Views: 170,746 Clicks: 55			Reach: 132,024 Views: 185,634 Impressions: 178,395		

Date	Message	Platform: YouTube	Platform: Facebook	Platform: TikTok	Platform: Instagram	Platform: Streaming	Platform: Google Display Ad
March 2026	OWOW Resources	Views:115,670 Clicks: 134	Reach: 34,614 Views: 43,082 Impressions: 43,823		Reach: 37,132 Views: 45,401 Impressions: 45,444		
April 2026	Fred's Gardening Getaway		Reach: 39,499 Views: 62,364 Impressions: 64,894		Reach: 19,507 Views: 33,152 Impressions: 33,024	Views: 37,037	
April 2026	Fred's Gardening Getaway (Spanish)		Reach: 15,317 Views: 36,940 Impressions: 34,193		Reach: 87 Views: 105 Impressions: 104		
April 2026	Fred's Gardening Getaway (Chinese)		Reach: 8,472 Views: 36,503 Impressions: 32,578		Reach: 605 Views: 1,190 Impressions: 1,181		
May 2026	Sweeping					Views: 37,037	
May 2026	Car Washing		Reach: 24,446 Views: 39,265 Impressions: 39,265			Views: 37,037	
May 2026	Car Washing (Spanish)		Reach: 21,787 Views: 36,763 Impressions: 33,929				
May 2026	Car Washing (Chinese)		Reach: 5,997 Views: 28,481 Impressions: 26,353				
May 2026	Fishing Article in Fish Sniffer Magazine (30,000 subscribers)						

Coastal Cleanup Promotion, September 2025

Throughout Coastal Cleanup Month in September 2025, many local jurisdictions offered in-person events. The Program compiled a list of these local events and promoted it via their website, E-blasts, and outreach partners. In addition, the Program ran social media posts, using artwork provided by the California Coastal Commission and Fred & Izzy video clips focused on litter and cleanup. Some of the Fred & Izzy video posts were promoted; results from these promotions are listed in the previous section. After the events, several "thank you" posts expressed appreciation to volunteers and shared litter cleanup results. Coastal Cleanup Promotion Details are shown in **Table 5**.

Table 5: Coastal Cleanup Promotion (September 2025)

Campaign	Promo Activities	Results
Coastal Cleanup Month 2025	E-blasts, social media posts (organic and promoted) on Facebook, Instagram, TikTok, and YouTube	E-blast: 1,179 recipients 40% open rate 7% click rate Social media: See Table 4

Hire A Certified Pest Contractor Campaign, January 2026

This campaign effectively raised awareness for pest control contractors committed to less-toxic methods. The Program leveraged a multi-faceted approach, starting with video posts on Facebook and Google Display ads. The display ad campaign proved highly effective in achieving awareness goals, generating over 1,017,499 impressions and 627 visits to the pest control landing page. Campaign details are shown in **Table 6**.

Table 6: Hire a Certified Pest Control Contractor Program (January 22 - February 2, 2026)

Campaign Content	Promo Activities	Results
Hire a Certified Pro: Promote hiring a pest contractor that uses less-toxic methods.	Web Page	**Website:** 627 page views
30-second Video	Facebook Video (Organic post)	**Reach:** 32,874 **Views:** 142,707 Impressions: 121,945
Google Display Ad	Google Display Ad	Impressions: 1,017,499 Clicks: 487

Fishing Advisory Campaign

The Program ran a digital campaign to promote awareness of fish consumption health advisories. The Google Display ads targeted fishing and outdoor enthusiasts. In addition to digital advertising, a paid article and advertisement in the Fish Sniffer Online Magazine and an E-blast reached 30,000 readers interested in fishing in California. Digital ads linked to the Program's website. View the Fishing and Health web page. The Fish Sniffer ads directed viewers to the State of California's Fishing Advisory page. Website traffic to the Program page received 2,741 visits in June. Fishing Advisory Campaign Promotion Details are shown in **Table 7**.

Table 7: Fishing Advisory Campaign Promotion Details (June 6 - 13, 2026)

Campaign Content	Promo Activities	Results
Fishing in the Bay Promote awareness of fish consumption health advisories.	Web Page	**Website:** 2,741 page views
Print Ad, Article, E-blast	Fish Sniffer Magazine	**Reach:** 30,000 subscribers

Provision C.7.b: Stormwater Pollution Prevention Education

Requirement: Provision C.7.b: Permittees shall continue to maintain a point of contact to provide the public with stormwater pollution prevention information.

Program Activities: To comply with this provision, the Program conducted the following activities.

Website and Website Promotions

In addition to comprehensive content on commercial stormwater pollution prevention issues, compliance guidelines, and resources, the website offers information on the local watersheds and monitoring, the Program's school outreach, and content tailored to residents, promoting everyday practices to help prevent stormwater pollution. Focus areas include toxics reduction and runoff prevention in home and garden, less-toxic pest control at home, car care, litter prevention, healthy fish consumption, and local volunteer opportunities. Users can connect with the Program through email or phone, listed in the "Contact Us" section. View the Program's website.

In FY 2025/26, the website received a total of 65,572 page views. The average session duration was 13 seconds. Sessions per month during the reporting period are shown in **Figure 7**.

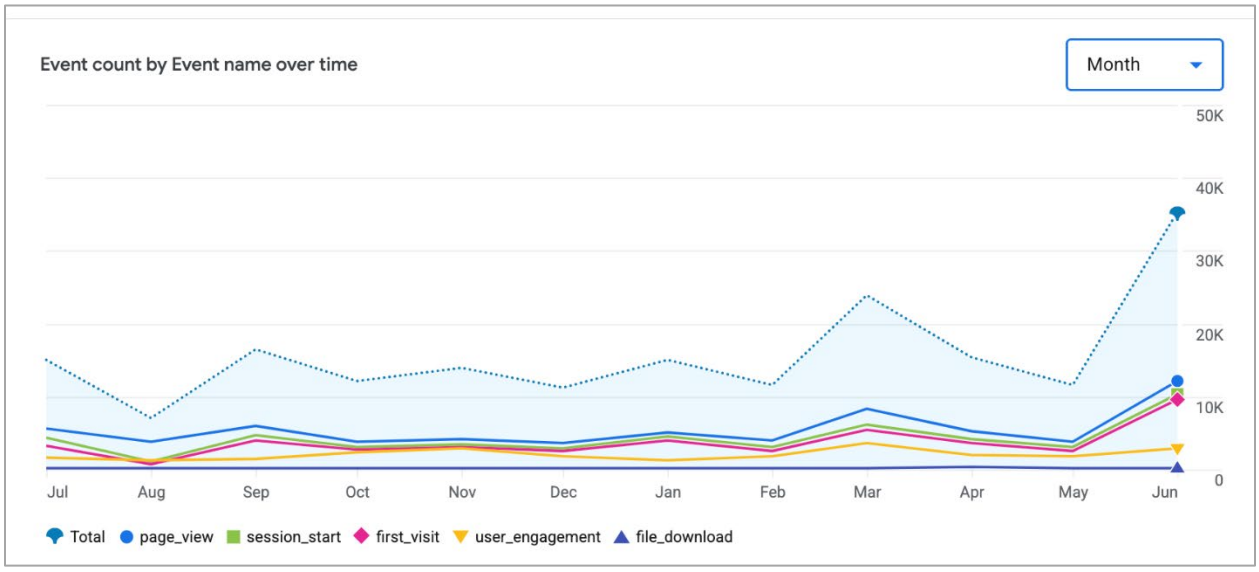

Figure 7: Website Traffic, July 1, 2025, through June 30, 2026

The site receives steady "baseline" traffic to pages tailored to the commercial audience, due to compliance requirements. "Peaks" in traffic are generally due to residential traffic that ebbs and flows with seasonal and topic-specific promotions. Throughout FY 2025/26, the Program launched several outreach efforts to drive traffic to specific portions (pages) of the residential website content.

Typically, efforts included one or more E-blasts to the Program's E-news subscribers and social media posts. The campaigns described in section C.7.b. also used online advertising (YouTube video ads, Google display ads, search ads, text ads, and Facebook and TikTok ads), resulting in periods of particularly high website traffic. The peaks in the graph above correspond to Program's seasonal promotions along with monthly Fred & Izzy short video campaigns.

About the E-blasts: The Program maintains an email database of 1,294 active contacts, as of June 2026. Residents can opt into receiving E-blasts via a signup form on the website or at outreach/tabling events.

In addition to sending E-blasts to the Program's email list, the content was pitched directly to selected local media outlets to promote coverage. Other contacts, including neighborhood and creek groups, social media interest groups, and member cities, helped increase the reach of Program announcements via their own E-blast, newsletter, or website listing, and/or by sharing a social media post.

Social Media

The Program has a presence on Facebook, X (formerly Twitter), and Instagram, with the Facebook page content managed on a weekly basis. The Program added a TikTok channel in April of 2022 to reach younger viewers, since that platform is popular with Gen Z (age 10-20). The posting strategy includes promoting Program projects, events, and issues through original content, sharing Member Agency posts, monthly paid promotions, and posts about local watershed-related events. Posts were made weekly from July 1, 2025, to June 30, 2026.

Facebook: View the Program's Facebook page.

The Program's Facebook page currently has 1,484 followers, a slight increase (2%) from the previous FY. During the reporting period, the page reached 1,384,844 views, an increase of 324% from the previous FY's 326,432 views. Paid promotions reached over 430,465 people and 3,676 link clicks compared to the previous FY of 2,244 link clicks (64% increase).

Instagram: View the Program's Instagram page.

The Program's Instagram page currently has 408 followers, a 19% increase from the previous FY (342 followers). In the period from July 1, 2025, through June 30, 2026, the page had 47 posts and reached 199,832 accounts, compared to the previous year of 105,772 accounts, an increase of 89%. Link clicks totaled 1,288. Content interaction, defined as "the number of likes or reactions, saves, comments, shares and replies on your content," also increased 32% to 804 compared to 610 interactions the previous FY.

X (formerly Twitter): View the Program's X account.

In FY 2025/26, the Program reduced their activity on X, which currently has 110 followers. This decision was made after changes in Twitter's services shifted to X, and we observed lower engagement compared to other social media channels. As a result, we made five tweets during this period, generating 181 impressions.

TikTok: View the Program's TikTok account.

The Program's TikTok account currently has 450 followers. During FY 2025/26, one vertical format snippet (Litter 1) was posted and promoted, and this received a total of 43,199 video views, 189 likes, and 557 link clicks.

Provision C.7.c: Public Outreach and Citizen Involvement Events

Requirement: Provision C.7.c requires Permittees to annually provide a certain number of public outreach and citizen involvement events based on the Permittee's population.

Program Activities: To comply with this provision, the Program conducted the following activities.

Alameda County Fair Outreach Event

On behalf of all members, the Program coordinated and installed an exhibit at the Alameda County Fair. The fair was open Wednesday through Sunday from June 19 to July 12, 2026. The booth won three first prizes and one second-place prize in the Invitational category.

This year, the Program's booth featured the new campaign artwork and an interactive, push-button sound display, where various creek critters explained how storm drains work and how stormwater pollution happens. Visitors could view the exhibit and play a Scavenger Hunt activity or make a pledge to prevent pollution. Educational posters, View Master Reels, and flip-up signs also communicated key messages. The Scavenger Hunt activity encourages visitors to engage with the content and provides the Program with a valuable metric and new subscribers to our e-news.

The booth was staffed by Member Agencies' volunteers or ACCWP consultants on 13 of the Fair's 18 days. We received 93 completed scavenger hunt entry forms. A picture of the County Fair booth is shown in **Figure 8**.

Figure 8: Photo of the County Fair Program Booth

Provision C.7.d: Watershed Stewardship Collaboration

Requirement: Provision C.7.d requires Permittees to encourage and support development of grassroots watershed groups or engagement of an existing group, such as a neighborhood association, in watershed stewardship activities.

Program Activities: To comply with this provision, the Program conducted the following activities.

In FY 2025/26, the Program continued its annual Community Stewardship Grants Program. Grantees who had received grant funding for FY 2025/26 started their projects in August 2025, submitted mid-year reports on their activities in early 2026, and completed their projects with final reports submitted to the PIP Subcommittee by June 30, 2026. See **Figure 9** showing a FY 2025/26 grantee, Shark Stewards, working on their grant-funded cleanup in December 2025.

Figure 9: Shark Stewards Pose with Trash Collected from Their Grant-funded Cleanup at Aquatic Park on San Francisco Bay

The Program also began the next grant cycle (FY 2026/27), allocating up to $30,000 to be awarded in small grants of between $500 and $6,000 per project. Led by a work group formed among members of the PIP Subcommittee and their facilitator, the Program revised the application process, announced and promoted the grant cycle, collected applications, and selected grantees for funding.

Promotion through Outreach Partners and Local Media

Several community partners and local media outlets ran articles about the grants program in their communications. These outlets included printed and online publications: Piedmont Exedra, San Leandro Times, Castro Valley Forum, Tri-City Voice, and residential e-newsletters published by the cities of Albany, Fremont and Oakland, among others. An example of the coverage by the Tri-City Voice is provided in **Figure 10.**

TRI-CITY VOICE

LOCAL NEWS COMMUNITY A&E SPORTS CALENDAR OBITUARIES E-EDITION PLAC

WATER WISE Creek restoration and public education are among the community-based projects funded by grants from the Alameda Countywide Clean Water Program. Yon Hardisty

Community

Apply now for a Clean Water Program Grant

UP TO $6,000 IS AVAILABLE PER PROJECT TO HELP PROTECT CREEKS AND THE BAY

By: **STEFANIE PRUEGEL** April 7, 2026

The Alameda Countywide Clean Water Program is now accepting applications for its 2026 Community Stewardship Grants, offering up to $6,000 per project to support community-based initiatives that prevent stormwater pollution and promote the health of local watersheds.

Stormwater pollution happens when rainwater washes litter, motor oil, pet waste and other contaminants from streets into storm drains that flow directly to creeks, wetlands and the San Francisco Bay.

Projects must be implemented within Alameda County, and the application deadline is May 4.

Eligible applicants include teachers and student groups, youth organizations, community and environmental groups, homeowner associations and non-profit organizations. Proposed activities can range from litter cleanups, creek restoration and wildlife habitat enhancement projects to art and multimedia projects, community outreach events and more. Creative and innovative ideas wanted.

To learn more, including projects funded in the past, and to download the application materials visit cleanwaterprogram.org/grants.

Share

Figure 10: ACCWP Community Stewardship Grant Advertisement

Details of the Community Stewardship Grants Program activities are shown in **Table 8**. A list of the awarded grantees and project details is shown in **Table 9**; awarded grants total $30,000.

Table 8: Community Stewardship Grant Program Application Promotions for FY 2025/26 Details

Date	Activities	Results
March & 5	Grant program announced via a grants web page and an e-blast, as well as social media (Facebook, Instagram)	E-blast: 1,267 successful deliveries 36% open rate 10% click rate Social media: Facebook - 52 shares Impressions:11,981 Clicks:361
April 8	1st Reminder E-blast	1,273 successful deliveries 34% open rate 9% click rate
April 27	2nd Reminder E-blast	1,268 successful deliveries 38% open rate 7% click rate
March-May	Outreach to local media outlets, outreach partners, grant aggregators, past grantees, creek groups, local jurisdictions and others.	Excellent pickup and coverage in local media (print and online), City newsletters, social media channels, community groups, etc.
May 4	Submission deadline	24 applications received
May/June	Review and evaluation of applications, Grantees selected and notified.	6 grant projects selected

Table 9: Projects Awarded Community Stewardship Grants (FY 2026/27)

Grantee	Project Location	Project Focus	Amount
California Orchard Restoration Experiment	Fremont	Native hedgerow installation for stormwater retention; education about IPM, soil improvement and regenerative agriculture	$3,000
Friends of Sausal Creek	Oakland	Watershed education, creek restoration, invasives removal, litter cleanup and water monitoring	$6,000
Gill Tract Farm Coalition	Albany	Creek restoration, immersive watershed education for 300-600 students	$4,800
Plantify	Ashland (Unincorporated County)	Printed/online guide on non-toxic, water-conscious gardening practices, DIY rainwater catchment workshop and demo rain barrel installation	$6,000
Waterside Workshops	Berkeley	Hands-on engagement in litter cleanups and community leadership training for youth ages 14-24	$4,200
Valley Montessori School	Livermore	Rain garden and stormwater catchment system installation for 20,000–55,000 gallons of stormwater annually, education for 300 students and staff	$6,000
Total			**$30,000**

The contract agreements with the selected grantees will be finalized in FY 2026/27. The grant-funded projects must be completed by the end of FY 2026/27.

Provision C.7.e: School-Age Children Outreach

Requirement: Provision C.7.e requires Permittees to implement outreach activities designed to increase awareness of stormwater and/or watershed message(s) in school-age children (K through 12).

Program Activities: During FY 2025/26, school outreach was performed by three environmental education organizations contracted by the Program: Kids for the Bay, Caterpillar Puppets, and the Hayward Area Recreation District.

Kids for the Bay's Storm Drain Rangers Schoolwide Trash Reduction Program is designed to engage and educate elementary school students in Alameda County about stormwater pollution reduction. Grade-level teams of students learn about watersheds, stormwater pollution, and pollution prevention strategies. Students perform a school campus cleanup and record data on the types of pollution observed and the number of pieces and gallons of litter they collected. Students deliver a schoolwide assembly, virtually or in person, to inspire their buddy classes, families and/or their entire school to participate in trash cleanup efforts and practice the Five Rs (Reduce, Reuse, Recycle, Rot, and Refuse) to reduce trash and waste at the source. Students also create and share informational posters to educate others about caring for the watershed and reducing plastic pollution.

The Storm Drain Rangers program engaged 433 students who pledged to help protect watersheds and became storm drain rangers. Students in 16 classrooms at seven elementary schools conducted cleanups and litter audits, assemblies, and classroom lessons on storm drains, litter, and water pollution. Students also engaged their families, interviewing 400 families. In total, 80 lessons were conducted at the 16 classrooms. Students collected 5,065 pieces of trash, equivalent to 130.5 gallons, from their local watershed environments on their school campuses and neighborhoods. A picture of students giving a classroom presentation in the Storm Drain Rangers program is shown in **Figure 11.**

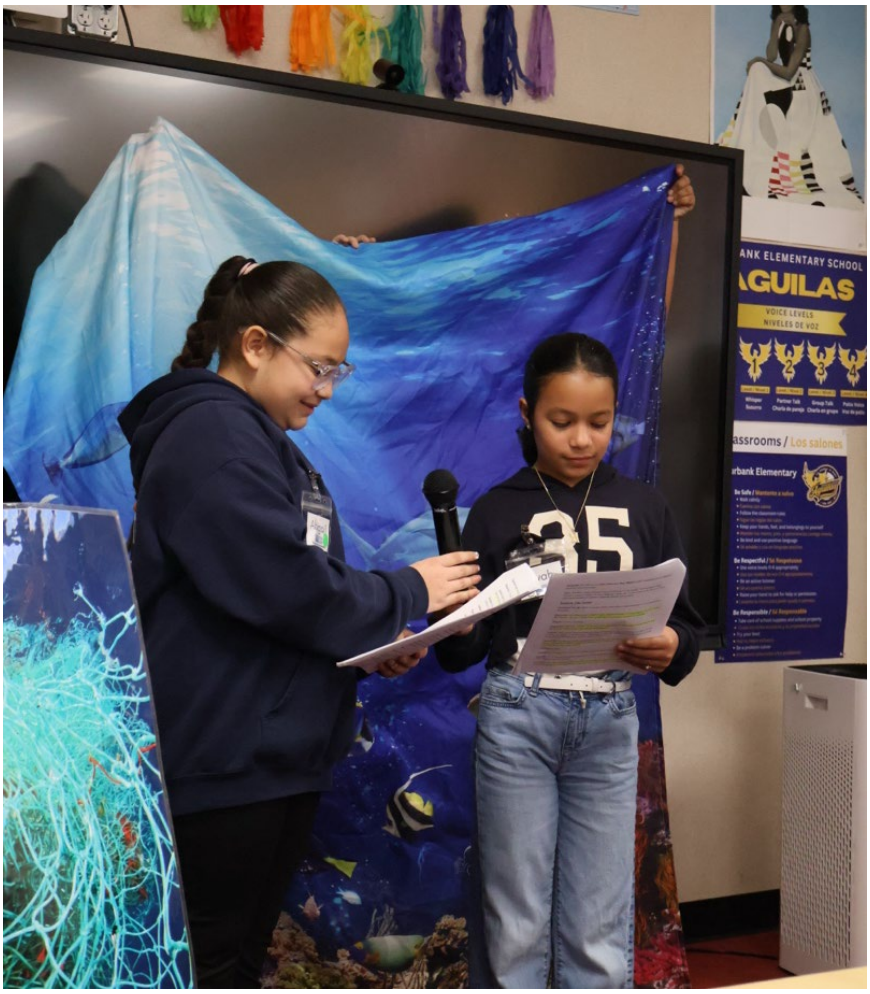

Figure 11: Students Presenting at a Kids For the Bay Storm Rangers Classroom Lesson

Caterpillar Puppets offers watershed education puppet shows for kindergarten through third grade classes throughout Alameda County, and they continue to be in high demand. In FY 2025/26, they completed 50 presentations to a total of 4,692 students at 24 Alameda County schools. This year, they also distributed a Fred & Izzy Stormwater Activity Booklet to 3,500 students and a bookmark to all students. The puppet shows teach the following topics: what is a watershed, what is a storm drain, how to keep our watershed clean, what causes watershed pollution, and how such pollution can be reduced or stopped. Caterpillar Puppets addresses the types of pollution that affect local waterways and the animals of the creek, bay, and ocean, with a special emphasis on litter. Follow-up activities are introduced to students at the Question & Answers session. Ideas include campus clean-up clubs and picking up litter at school as a first step in making a difference and stopping pollution.

Hayward Area Recreation District: offered a new Protect Your Watershed Program aimed at middle schoolers at Winton Middle School and Hayward Shoreline Interpretive Center. The program reached 480 students through 16 programs on Watersheds and the Water Cycle, Watershed Pollution and Runoff, Protecting Our Watershed, and Watershed Ecosystems.

Provision C.8: Water Quality Monitoring

Coordination of monitoring activities required by Provision C.8 continues through ongoing communication with the other countywide stormwater programs and their representatives via the BAMSC Steering Committee and the Monitoring and Pollutants of Concern (MPC) subcommittee. Water quality monitoring activities are also coordinated regionally through the Regional Monitoring Coalition (RMC), a collaborative effort of MRP 3 Permittees.

Provision C.8.a: Compliance Options

Requirement: Provision C.8.a outlines mechanisms that Permittees may choose to meet the monitoring requirements in Provision C.8.

Program Activities: All Alameda Permittees continue to participate in the RMC and coordinate monitoring through the Program. This agreement has been confirmed through authorization of the Program's annual work plans. Program staff and consultants continued to coordinate monitoring activities through meetings and communications of the RMC and the BAMSC MPC subcommittee. When available, the Permittees also used data collected by third-party organizations, including the San Francisco Estuary Regional Monitoring Program (RMP).

Provision C.8.b: Monitoring Protocols and Data Quality

Requirement: Provision C.8.b requires that, where applicable, monitoring data must be comparable to the Surface Water Ambient Monitoring Program (SWAMP).

Program Activities: To comply with this provision, the Program continued to ensure that monitoring activities follow the RMC Quality Assurance Project Plan (QAPP) and Standard Operating Procedures (SOPs), as updated by the RMC in 2016 and 2020 to incorporate changes in the MRP requirements and SWAMP standards. The Program conducted quality control review of the monitoring reports prepared by its consultants.

Provision C.8.c: San Francisco Estuary Receiving Water Monitoring

Requirement: Provision C.8.c requires that Permittees participate in implementing an estuary receiving water monitoring program, at a minimum equivalent to the San Francisco Bay RMP, by contributing their fair share financially on an annual basis.

Program Activities: To comply with this provision, the Program made its fair-share annual contributions to the RMP during the reporting period. The Program participated in stakeholder oversight of the RMP through BAMSC representation on the Steering and Technical Review Committees. The Program actively participated as BAMSC representatives to the following RMP Work Groups or teams:

- Sources, Pathways and Loadings Work Group;
- Small Tributaries Loading Strategy Team;
- Emerging Contaminant Work Group;
- PCBs Work Group; and
- Mercury Work Group.

Participation included attending meetings or conference calls, reviewing technical reports and work products, reviewing articles included in the RMP's annual update, and providing general program direction to RMP staff.

Provision C.8.d: LID Monitoring

Requirement: Provision C.8.d requires Permittees to conduct LID monitoring to measure compliance and effectiveness of LID controls. Permittees shall, regionally or at the countywide level, develop LID Monitoring Plans for EO approval. Permittees shall form a Technical Advisory Group (TAG) with impartial science advisors and Water Board staff to review and make recommendations regarding the LID Monitoring Plans. With Water Board approval or conditional approval of the LID Monitoring Plans, the TAG shall be convened at least annually to provide continued feedback regarding the implementation of the LID Monitoring Plans. Permittees shall begin implementing their approved or conditionally approved LID Monitoring Plans no later than October 1, 2023. ACCWP shall sample 25 events during the permit term with an annual minimum of three events.

Program Activities: To comply with this provision, the Program joined with other countywide stormwater programs subject to MRP 3 to form the BAMSC LID Monitoring Work Group in 2022. The LID Monitoring Work Group meets bimonthly as part of the RMC to discuss monitoring issues and generally support regional consistency in LID monitoring across the Bay Area. In 2022, and in collaboration with Work Group partners, ACCWP identified ideal criteria for selection of LID facilities that could be monitored using the methods prescribed in the MRP. The Program identified a bioretention facility on Admiral Toney Way in Oakland to comply with permit requirements for LID Monitoring. ACCWP continued to monitor inflow and outflow at two monitoring stations established within the facility (OAB-18E and OAB-18W) during the FY.

The *ACCWP LID Monitoring Plan* and *BAMSC LID Monitoring QAPP* were submitted to the Water Board on May 1, 2023, for EO approval. The Water Board conditionally approved the LID Monitoring Plan in a letter sent to the BAMSC stormwater programs on August 23, 2023. The letter permitted the MRP Permittees to proceed with equipment purchases and planning for water year (WY) 2024 and required the programs to revise the LID Monitoring Plan in response to the comments as expeditiously as possible sufficient to implement them during WY 2024. The revised *ACCWP LID Monitoring Plan, Version 1.1,* and *BAMSC LID Monitoring QAPP, Version 1.1,* were submitted to the Water Board on October 30, 2024.

The *ACCWP LID Monitoring Plan Addendum,* submitted to the Water Board on October 5, 2025, reflected regional quality assurance changes, as well as ACCWP-specific changes to site design and hybrid flow measurement scheme, as communicated to Water Board staff at the May 2025 LID TAG meeting and by email on March 3, 2025. The *BAMSC LID Monitoring QAPP,* version 2.0 and dated August 15, 2025, was submitted to the Water Board on December 11, 2025, reflecting the fact that the U.S. Environmental Protection Agency (EPA) method to analyze PFAS was finalized, and that results from the first year of monitoring resulted in suggested modifications to data collection and analysis.

The Program initiated LID monitoring in FY 2023/24 and continued with LID sampling and hydrologic monitoring through FY 2025/26, as summarized in **Table 10**. See the WY 2024 Urban Creeks Monitoring Report (UCMR), MRP 3 Integrated Monitoring Report (IMR), or the WY 2026 UCMR (to be submitted March 31, 2027) for details on the sampling effort and monitoring results.

Table 10: LID Monitoring Summary

Monitoring Type	Sample Water Year	# of Events	Reported Results
LID Influent / Effluent	October 2023 to April 2024	5	WY 2024 UCMR submitted March 31, 2025
LID Influent / Effluent	October 2024 to April 2025	6	MRP 3 IMR submitted March 31, 2026
LID Influent / Effluent	October 2025 to April 2026	8	WY 2026 UCMR to be submitted March 31, 2027

In Fall 2022, the BAMSC LID Monitoring Work Group formed and convened a TAG, which included the following science advisors and Water Board staff:

- Keith Lichten – Watershed Management Division Manager at the Water Board;
- Alicia Gilbreath – Environmental Scientist at the San Francisco Estuary Institute (SFEI);
- Dipen Patel – Research Engineer at the Office of Water Programs at Sacramento State University;
- Eric Strecker – Professional Engineer in California and Oregon and principal investigator for the International BMP Database; and
- Michael Stenstrom – Distinguished Professor at the University of California, Los Angeles, Civil and Environmental Engineering Department.

In FY 2025/26, the LID TAG was convened on June 24, 2026. The Program worked with the BAMSC LID Monitoring Work Group to coordinate on the agenda for the TAG meeting and prepare an update on the monitoring accomplishments, lessons learned, and regional findings from two years of monitoring on water balance, water quality effectiveness, and maintenance effectiveness.

Provision C.8.e: Trash Monitoring

Requirement: Provision C.8.e requires Permittees to implement trash monitoring to verify whether Permittees' trash control actions to date have effectively prevented trash from their jurisdictions from discharging to receiving waters and to evaluate whether discharges of trash from areas of Permittees' jurisdictions where full trash capture equivalency has been achieved are causing and/or contributing to adverse trash impacts in receiving waters. Permittees shall form a TAG with impartial science advisors and Water Board staff to review and provide input on ongoing trash monitoring, site selection, analysis methods, results, and conclusions. Permittees shall convene the Trash TAG twice prior to submission of the Trash Monitoring Plan and annually thereafter. Permittees shall collectively submit a Trash Monitoring Plan by July 31, 2023, for EO approval.

Permittees shall begin implementing trash outfall monitoring based on their approved or conditionally approved Trash Monitoring Plans no later than October 1, 2023. Annually, ACCWP shall sample at three outfalls for a minimum of three storm events, including the first forecasted significant storm event and at least one storm event that is forecast to be greater than the one-year, one-hour storm event.

Permittees shall also implement a pilot program for direct in-stream trash monitoring. Permittees shall conduct this monitoring annually, starting October 1, 2024. Annually, ACCWP shall sample at two in-stream locations for a minimum of three storm events, including the first forecasted significant storm event and at least one storm event that is forecast to be greater than the one-year, one-hour storm event.

Program Activities: To comply with this provision, the Program joined with other countywide stormwater programs subject to MRP 3 to form the BASMC Trash Monitoring Work Group in 2022. The Trash Monitoring Work Group meets bimonthly as part of the RMC to discuss monitoring issues and support regional consistency in trash monitoring across the Bay Area. A summary of trash outfall and receiving water monitoring activities is provided below.

Trash Outfall Monitoring

In FY 2022/23, in collaboration with Permittees and Trash Monitoring Work Group partners, ACCWP identified criteria for selecting trash outfall locations that could be monitored safely using the methods prescribed in the MRP. ACCWP identified three trash outfall monitoring locations in the Dublin area near the I-580/I-680 interchange.

The BASMC Trash Monitoring Work Group conducted a project of regional benefit to develop a Regional Trash Outfall Monitoring Plan and QAPP. The *BAMSC Regional Trash Outfall Monitoring Plan* and *BAMSC Regional Trash Outfall Monitoring QAPP* were submitted to the Water Board by July 28, 2023, for EO approval. The Water Board conditionally approved the BAMSC Trash Outfall Monitoring Plan and QAPP on August 31, 2023. The letter allowed the MRP Permittees to proceed with planning for WY 2024 and required a revised monitoring plan and QAPP to be submitted by July 31, 2024. The Program coordinated with the BAMSC Trash Monitoring Work Group to address Water Board comments on the reports. The *BAMSC Regional Trash Outfall Monitoring Plan, Version 2.0,* and the *BAMSC Regional Trash Outfall Monitoring QAPP*, *Version 2.0,* were submitted to the Water Board by July 31, 2024, along with additional responses to comments on December 20, 2024. The Water Board approved the BAMSC Trash Outfall Monitoring Plan and QAPP on January 30, 2025.

In its 2023 Conditional Approval letter, the Water Board required ACCWP to change at least one of the three outfall monitoring sites, or add an additional site elsewhere in the County, for greater geographic representation across the County. The Program identified a replacement outfall in the Hayward area near De Anza Park. Site AC-CIVIC in Dublin was discontinued after FY 2023/24, and site AC-CTYCTR in Hayward was activated in FY 2024/25. The Program continued with annual trash outfall sampling and hydrologic monitoring through FY 2025/26, as summarized in **Table 11**. See the WY 2024 UCMR, MRP 3 IMR, or the WY 2026 UCMR (to be submitted March 2027) for details on the sampling effort and the monitoring results.

Table 11: Trash Outfall Monitoring Summary

Monitoring Type	Sample Water Year	# of Events	Reported Results
Trash Outfall	October 2023 to April 2024	3[a]	WY 2024 UCMR submitted March 31, 2025
Trash Outfall	October 2024 to April 2025	3[a]	MRP 3 IMR submitted March 31, 2026
Trash Outfall	October 2025 to April 2026	3[a]	WY 2026 UCMR to be submitted March 31, 2027

[a] Included a first flush event and an event forecast to be greater than the one-year, one-hour storm event.

In FY 2024/25, the Program also participated in a BAMSC project of regional benefit to evaluate and potentially develop alternative monitoring methods to trash capture nets installed at outfalls that would allow for more areas to be monitored, thereby increasing the representativeness of the monitoring data. The white paper evaluated three methods, including machine learning-based video monitoring,

manual sub-sampling, and downstream deposition assessments, to determine their feasibility for meeting MRP monitoring requirements. It concluded that, while some methods show promise, none were currently viable replacements due to limitations in safety, representativeness, data quality, and environmental constraints, and recommended continued tracking of emerging technologies. The white paper, *Alternative Stormwater Outfall Trash Monitoring Methods, Literature Review,* was shared with the Trash TAG on October 9, 2025. In an email dated October 31, 2025, the Water Board agreed that none of the alternative methods identified were viable replacements for the current trash outfall monitoring methods.

Since the development of the white paper, advances in computer vision, open-source training datasets, and aquatic object detection frameworks indicate that the limitations of machine learning for this application may now be addressable. In FY 2025/26, the Program developed a proposal for a pilot study to evaluate whether video monitoring, combined with machine learning, is a viable option for conducting outfall trash monitoring. The pilot is designed to test the feasibility of automated trash detection, counting, and volumetric load estimation using camera imagery, with results validated against physical net catch data. A key study objective is to determine whether this approach can be used in other locations to expand the number of viable stormwater outfalls eligible for outfall trash monitoring. The pilot study will be conducted in FY 2026/27 at the Hayward De Anza Park outfall trash monitoring location.

Trash Receiving Water Monitoring

In March 2023, the City/County Association of Governments of San Mateo, on behalf of BAMSC, was awarded an EPA Water Quality Improvement Fund (WQIF) grant for receiving water trash monitoring. A total of $3.35 million in funding was awarded to support the *Watching Our Watersheds – Improving Trash Monitoring Methods and Pollution Prevention Strategies through Regional Partnerships in the Bay Area* (WOW Project). The grant and match funds will support Trash TAG coordination and TAG-member honorariums; evaluation of trash source control measures; implementation of a public outreach campaign; trash monitoring planning, permitting, and implementation; trash characterization and associated public engagement events; and dissemination of information and knowledge gained through trash monitoring via a guidance document, a web portal, and a Bay Area trash symposium. In FY 2024/25, ACCWP participated in the WOW Project Management Team, which is responsible for guiding the overall project.

As part of the WOW Project, two trash receiving water monitoring locations were identified in Alameda County – Crandall Creek at Bonanza Drive in Fremont and Alamo Canal at Dublin Blvd in Dublin. The *BAMSC Receiving Water Monitoring Plan and QAPP, Version 1.0,* was submitted to the Water Board by July 31, 2024, along with responses to comments on December 20, 2024. The Water Board approved the BAMSC Trash Receiving Water Monitoring Plan and QAPP on January 30, 2025. The planning and preparation for monitoring that occurred during WY 2024 is summarized in the Trash Receiving Water Monitoring Progress Report submitted with the WY 2024 UCMR on March 31, 2025.

Implementation of the Trash Receiving Water Monitoring Plan and QAPP began on October 1, 2024. In FY 2024/25, three trash receiving water monitoring events occurred in Alamo Canal. For Crandall Creek, backwater conditions were observed at Bonanza Drive at the tail end of sampling in February 2025. Sampling was halted when these conditions were observed. Subsequently, the sampling location was moved approximately 1.4 kilometers upstream to Siward Drive, where sampling was conducted during a storm event in March 2025. Details on the sampling effort and the monitoring results were included in the MRP 3 IMR submitted in March 2026. In FY 2025/26, three trash receiving water monitoring events

were conducted at Alamo Canal, and four were conducted at Crandall Creek. The Program is up to date on the required number of sample events for receiving water monitoring. See the MRP 3 IMR or the WY 2026 UCMR (to be submitted in March 2027) for details on the sampling effort and the monitoring results.

In 2022, the Regional Trash Monitoring Work Group collaborated to form and convene a TAG. In FY 2024/25, the Regional Trash Monitoring TAG included the following members, which included impartial science advisors and Water Board staff:

- Tony Hale, PhD – Director of the Environmental Informatics Program at SFEI;
- Shelly Moore – Executive Director of the Moore Institute for Plastic Pollution Research;
- Rebecca Nordenholt – Senior Environmental Scientist at the Water Board;
- Dawn Petschauer – Stormwater Program Administrator for the City of Pasadena; and
- Ted Von Bitner, PhD – Assistant Vice President at WSP USA.

The Regional Trash Monitoring TAG was convened once in FY 2025/26 on May 27, 2026. The Program coordinated with the BAMSC Trash Monitoring Work Group and the WOW Project Management Team to provide updates on trash outfall monitoring. The BAMSC Trash Monitoring Work Group will continue to meet, as needed, to facilitate Regional Trash Monitoring TAG input, discuss monitoring issues that may arise, and support regional consistency in trash monitoring across the Bay Area.

Provision C.8.f: Pollutants of Concern Monitoring

Requirement: Provision C.8.f requires that Permittees conduct Pollutant of Concern (POC) Monitoring to assess inputs of POCs to San Francisco Bay from local tributaries and urban runoff, provide information to support implementation of TMDLs and other pollutant control strategies, assess progress toward achieving waste load allocations for TMDLs and help resolve uncertainties associated with loading estimates and impairments associated with these pollutants. In particular, monitoring required by this provision must be directed toward addressing six priority POC management information needs (described in MRP 3 Table 8.1, POC Monitoring Methods) for the priority POCs listed in MRP 3 Table 8.2, POC Monitoring Parameters, Effort and Type – which identifies the minimum effort and type of samples to be collected for each POC. In addition, Permittees were required to submit a *Receiving Water Limitations Assessment Report* by March 31, 2023, for EO approval. This report provides a plan for monitoring receiving waters (i.e., creeks and rivers that flow to San Francisco Bay) to provide information to assess whether receiving water limitations (RWLs) are achieved.

Per Provision C.8.f.ii, Table 8.2, footnote c, Permittees must conduct or cause to be conducted emerging contaminants stormwater monitoring to execute the emerging contaminants stormwater monitoring strategy at the level of effort indicated in the table. This level of effort can be satisfied either through sampling and analysis of the number of samples indicated in Table 8.2 or through augmentation of the San Francisco Bay RMP Emerging Contaminants Monitoring Strategy in the amount of $100,000 per year for all Permittees combined.

Program Activities: To comply with this provision, the Program continued to conduct annual POCs sampling in FY 2025/26, as summarized in **Table 12** for Monitoring Types #1 (Source Area Identification), #2 (Contributions to Bay Impairment), #4 (Loads and Status), and #5 (Trends). Monitoring Type #3 (Effectiveness of Management Actions) is being fulfilled through LID Monitoring. A summary of Monitoring Type #6 (RWL Assessment) is provided in **Table 13**. See the WY 2023 UCMR, WY 2024 UCMR, the MRP 3 IMR, or the WY 2026 UCMR (to be submitted March 2027) for details on the sampling effort and the monitoring results.

Table 12: POCs Monitoring Summary for Monitoring Types #1, 2, 4, and 5

Water Year	Monitoring Type	Parameter	Sample Date	Reported Results
WY 2023	POCs Type #4	Copper	July 2023[a]	WY 2023 UCMR submitted March 31, 2024
WY 2023	POCs Types #1, 2	Mercury and PCBs	August 2023[b], September 2023[b]	WY 2023 UCMR submitted March 31, 2024
WY 2024	POCs Type #4	Copper	July 2024[a]	WY 2024 UCMR submitted March 31, 2025
WY 2024	POCs Types #1, 2, 4, 5	Mercury and PCBs	May 2024[c], June 2024[c], September 2024[c]	WY 2024 UCMR submitted March 31, 2025
WY 2025	POCs Types #1, 2, 4, 5	Mercury and PCBs	May 2025[d], June 2025[d]	MRP 3 IMR submitted March 31, 2026
WY 2025	POCs Type #4	Copper	July 2025[a]	MRP 3 IMR submitted March 31, 2026
WY 2026	POCs Types #1, 2, 4, 5	Mercury and PCBs	December 2025[d,e], April[d,e], May[e], and June 2026[d,e]	WY 2026 UCMR to be submitted March 31, 2027

[a] Sampled concurrent with pesticides and toxicity monitoring.
[b] Sampled urban sediment in industrial area right-of-way (ROW) in Oakland.
[c] Sampled urban sediment in industrial area ROW in the Ettie Street Pump Station and San Leandro Bay watersheds.
[d] Sampled urban sediment on private properties adjacent to ROW samples with elevated concentrations of PCBs in Oakland.
[e] Sampled urban sediment in industrial area ROW in the cities of Oakland, Emeryville, Livermore, and San Leandro.

ACCWP participated in BAMSC projects to prepare a Receiving Water Limitations Assessment Report (submitted to the Water Board on March 31, 2023) and a Receiving Water Limitations Assessment Report Addendum, Demonstration of the Representativeness of the Selected Monitoring Locations (submitted to the Water Board on March 31, 2024). The RWL Assessment Report was conditionally approved on June 12, 2023, allowing Permittees to proceed with RWL monitoring in WY 2024. The selected POCs RWL monitoring location for the Program is in Castro Valley Creek and a summary of the monitoring conducted is provided in **Table 13**. See the WY 2024 UCMR or MRP 3 IMR for details on the sampling effort and the monitoring results. The WY 2024 and WY 2025 efforts combined satisfied all MRP 3 POCs RWL monitoring requirements.

Table 13: POCs Monitoring Summary for Monitoring Type #6 (RWL Assessment)

Water Year	Monitoring Type	Sample Date	Reported Results
WY 2024	POCs Type #6 (wet season)	November 2023, December 2023, February 2024	WY 2024 UCMR submitted March 31, 2025
WY 2024	POCs Type #6 (dry season)	July 2024	WY 2024 UCMR submitted March 31, 2025
WY 2025	POCs Type #6 (wet season)	February 2025	MRP 3 IMR submitted March 31, 2026

In addition, Permittees have collectively agreed to augment the San Francisco Bay RMP Emerging Contaminants Monitoring Strategy in the amount of $100,000 per year. ACCWP Members are satisfying this requirement by annually contributing their equitable share of the cost.

Provision C.8.g: Pesticides and Toxicity Monitoring

Requirement: Provision C.8.g requires Permittees to conduct wet weather and dry weather monitoring of pesticides and toxicity in urban creeks. If a statewide coordinated pesticides and pesticides-related toxicity monitoring program begins collecting data on an ongoing basis during the Permit term, Permittees may request that the Water Board EO modify, reduce, or eliminate this monitoring requirement.

Program Activities: To comply with this provision, in November 2022, in coordination with other RMC members, ACCWP conducted wet weather toxicity and pesticide monitoring collaboratively through the RMC. This collaboration satisfied all MRP 3 wet season monitoring requirements. Since July 2023, the Program has conducted dry weather pesticides and toxicity monitoring annually with results reported in the applicable UCMR or IMR, as summarized in **Table 14**. See the applicable UCMR or IMR for details on the sampling effort and presentation of the monitoring results.

Table 14: Pesticides and Toxicity Monitoring Summary

Water Year	Monitoring Type	Sample Date	Reported Results
WY 2023	P&T (wet season)	November 2022	WY 2023 UCMR submitted March 31, 2024
WY 2023	P&T (dry season)	July 2023	WY 2023 UCMR submitted March 31, 2024
WY 2024	P&T (dry season)	July 2024	WY 2024 UCMR submitted March 31, 2025
WY 2025	P&T (dry season)	July 2025	MRP 3 IMR submitted March 31, 2026
WY 2026	P&T (dry season)	July 2026 (planned)	WY 2026 UCMR to be submitted March 31, 2027

Provision C.8.h: Reporting

Requirement: Provision C.8.h requires Permittees to submit the following by March 31 of each year, concerning data collected during the previous WY, October 1 – September 30 period:

- Electronic data to the California Environmental Data Exchange Network (CEDEN), including results from monitoring conducted pursuant to Provisions C.8.d, C.8.e, C.8.f, and C.8.g. Data that CEDEN cannot accept are exempt from this requirement.
- A comprehensive UCMR on these results, including an LID Monitoring Status Report, an Annual Trash Monitoring Progress Report, a Pesticides and Toxicity Monitoring Status Report, and a POC Monitoring Report.
- In 2026, an IMR, in lieu of the UCMR, reported on the data collected since the previous IMR.
- In March 2026, Permittees submitted an updated POCs Receiving Water Limitations Assessment Report with proposed monitoring to be conducted during the next permit term.

Program Activities: To comply with this provision, the Program submitted the IMR on March 31, 2026. The 2026 IMR reported on all data collected since the previous IMR, which was submitted in March 2020. The IMR represents a substantial multi-year effort involving coordination among participating agencies to compile, quality-check, and synthesize a large regional dataset spanning multiple lines of evidence, including water quality, hydrology, pollutant loading, and control measure performance. The analysis includes evaluation of spatial and temporal trends, comparison to applicable benchmarks and management questions, and integration of monitoring results to assess progress toward permit objectives at both local and regional scales. The IMR included a budget summary, proposed monitoring for next permit term, and the *POCs Receiving Water Limitations Assessment Report Update.* The Program also submitted its associated electronic data in March 2026.

Provision C.9: Pesticides Toxicity Control

Provision C.9.d: Interface with County Agricultural Commissioners

Requirement: Provision C.9.d requires that Permittees maintain communications with county agricultural commissioners to (a) get input and assistance on urban pest management practices and use of pesticides; (b) inform them of water quality issues related to pesticides; and (c) report any observed or citizen-reported violations of pesticide regulations (e.g., illegal handling and applications of pesticides) associated with stormwater management, particularly the California Department of Pesticide Regulation (DPR) surface water protection regulations for outdoor, nonagricultural use of pyrethroid pesticides by any person performing pest control for hire.

Program Activities: To assist Member Agencies in complying with this provision, the Program contacted the County Agricultural Department to discuss any issues with the implementation of pest control regulations. The following updates were provided:

1. Within FY 2025/26, there was one citizen-reported complaint involving alleged pesticide use near a storm drain connected to a local creek. The complaint was investigated, and no violations of pesticide laws or regulations were identified.
2. Within FY 2025/26, there were no violations of DPR's surface water protection regulations for outdoor, nonagricultural use of pyrethroid pesticides by any person performing pest control for hire.
3. As of May 1, 2026, the County Agricultural Department conducted 623 Pesticide Use Enforcement inspections in Alameda County during FY 2025/26.
4. Common violations observed during FY 2025/26 were generally consistent with those observed in FY 2024/25 and included unlicensed and/or unregistered pest control businesses, pesticide use reporting and recordkeeping violations, pesticides not applied in accordance with label requirements, and notification-related violations. An increase in violations related to structural pest control notification requirements was observed during FY 2025/26.
5. During FY 2025/26, DPR continued surface water monitoring activities within Alameda County as part of its Surface Water Protection Program. Sampling was conducted at local waterways and storm drain systems, including San Lorenzo Creek and a storm drain discharging to Sausal Creek, to monitor for pesticides. Results are publicly available through DPR's Surface Water Database.
6. Updated DPR groundwater protection regulations become effective July 1, 2026. The regulations establish additional restrictions and mitigation requirements for pesticide applications in areas identified as vulnerable to groundwater contamination. County Agricultural Department staff will implement and enforce the updated regulatory requirements.

Provision C.9.e.ii.(1): Public Outreach: Point of Purchase

Requirement: Provision C.9.e.ii. (1) requires Permittees to conduct outreach to consumers at the point of purchase; provide targeted information on proper pesticide uses and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control; and participate in and provide resources for the OWOW program or a functionally equivalent pesticide use reduction outreach program.

Program Activities: The OWOW program is now partnered with 34 retailers throughout Alameda County, including nine Home Depot stores and five Ace Hardware stores. A total of 253 store visits were provided. Each retailer received at least four store maintenance and monitoring visits, and several

received up to 11 store maintenance and mentoring visits, engaging with 161 customers. OWOW shelf talker tags are placed to identify eco-friendly products at these retailers. A total of 15 retailer training events were conducted, and 96 associates received the OWOW training. Additionally, 15 in-person public outreach events were conducted with a total of 611 participants. The *ACCWP Our Water Our World Integrated Pest Management Retail Store Partnership Program Report* on the Program-specific FY 2025/26 OWOW activities and their effectiveness is included in **Appendix E**, and *the OWOW 2026 Annual Report*, a California-wide OWOW report prepared by CASQA is also included in **Appendix E**. By offering point-of-purchase materials and via its website, the Program provides targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control.

Provision C.9.e.ii.(2): Pest Control Contracting Outreach

Requirement: Provision C.9.e.ii.(2) requires Permittees to conduct outreach to residents who use or contract for structural pest control and landscape professionals by (a) explaining the links between pesticide usage and water quality; (b) providing information about Integrated Pest Management (IPM) in structural pest management certification programs and landscape professional trainings; and (c) disseminating tips for hiring structural pest control operators and landscape professionals such as the tips prepared by the University of California Extension IPM Program.

Program Activities: The Program explains the links between pesticide usage and water quality via numerous outreach efforts, including a Fred & Izzy video promoting IPM and promotion of the OWOW program content. To promote pest control companies that use IPM, the Program re-ran its digital ad to promote the services of certified pest control professionals that use less-toxic methods. The Hire a Pest Contractor Campaign from January 2026 effectively raised awareness for pest control contractors committed to less-toxic methods. Google Display Ads reached 1,017,499 Alameda County viewers, and the video was viewed 142,707 times. Promotions linked to the Pest Control at Home webpage, which includes details on how to hire a pest control company and links to a fact sheet, *Finding a Pest Control Company*. The page also refers visitors to the EcoWise website for a list of certified contractors.

Provision C.9.e.ii.(3): Outreach to Pest Control Professionals

Requirement: Provision C.9.e.ii.(3) requires Permittees to conduct outreach to pest control operators, urging them to promote IPM services to customers and to become IPM-certified by EcoWise Certified or a functionally equivalent certification program.

Program Activities: In FY 2017/18, the Program sent a letter to all pest control companies registered in Alameda County, encouraging them to provide and promote IPM services to their customers. The Program is continuing to promote EcoWise Certified contractors on its Pest Control at Home webpage.

Provision C.9.f: Track and Participate in the Regulatory Processes

Requirement: Provision C.9.f requires Permittees to conduct the following activities, which may be done at a county, regional, or statewide level: (a) the Permittees shall track EPA pesticide evaluation and registration activities as they relate to surface water quality and, when necessary, encourage EPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the Clean Water Act and to accommodate water quality concerns within its pesticide registration process; (b) the Permittees shall track DPR pesticide evaluation activities as they relate to surface water quality and, when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with the California Water Code and to accommodate water quality concerns within its pesticide evaluation process; (c) the Permittees shall assemble and submit information (such as monitoring data)

as needed to assist DPR and county agricultural commissioners in ensuring that pesticide applications comply with water quality standards; and (d) as appropriate, the Permittees shall submit comment letters on EPA and DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.

Program Activities: The Program fulfilled this requirement through participation in and financial support of the CASQA True Source Control Subcommittee.[1] See the *CASQA Pesticide Annual Report and Effectiveness Assessment* in **Appendix E**.

[1] This Subcommittee continues the work of the former CASQA Pesticide Subcommittee and additionally addresses the source control of other priority pollutants.

Provision C.10: Trash Load Reduction

Provision C.10.a: Trash Reduction Requirements

Requirement: Provision C.10.a requires Permittees to reduce their trash load by 100% by June 30, 2025.

Program Activities: To assist Member Agencies in complying with this provision, the Program continued providing guidance for addressing trash generation on private land drainage areas (PLDAs); technical assistance with mapping of baseline trash generation categories, full trash capture systems, full trash capture system drainage areas, and trash management areas; guidance on achieving the 100% trash load reduction compliance benchmark if not achieved by the June 30, 2025 deadline (including required submittals), and guidance on completing Section 10 of the Annual Report. In April 2026, the ACCWP Program Manager and three ACCWP Permittee staff began participating in monthly MRP 4 Provision C.10 Work Group meetings to discuss the framework of Provision C.10 in the next permit. Additional Work Group meetings will occur in FY 2026/27.

The ACCWP Trash Subcommittee, chaired by Ben Livsey, Oakland met four times in FY 2025/26. The Subcommittee has provided a useful forum for disseminating technical information on Provision C.10 compliance, providing updates on enhancements to the Trash Reporting and Analysis AGOL application, and sharing information on trash-related topics among Member Agencies. The ACCWP Data Management-GIS Subcommittee continued to provide information on AGOL enhancements to the PLDAs, On-land Visual Trash Assessment (OVTA), and Full Trash Capture Maintenance AGOL Field Maps applications during FY 2025/26. The Program also held a one-hour online overview of the AGOL application for C.10 trash load reduction requirements on June 4, 2026.

Provision C.10.b.i: Full Trash Capture Systems

Requirement: Provision C.10.b.i requires Permittees to maintain, and provide for inspection and review upon request, documentation of the design, operation, and maintenance of each of their full trash capture systems, including the mapped location and drainage area served by each system. In addition, Permittees are required to provide their respective vector control agencies with the names and locations of new and existing full trash capture devices with each Annual Report by September of each year.

Program Activities: To assist Member Agencies in complying with this provision, the Program continued enhancing the Full Trash Capture Maintenance AGOL Field Maps application used by Member Agencies to document and track the maintenance of each of their full trash capture devices, including the mapped location, drainage area, and maintenance history. To address the required vector control agency submittal, the Program developed and submitted an Excel Spreadsheet with the device type and location of Member Agency full trash capture systems to the Alameda County Mosquito Abatement District.

Provision C.10.b.iii.(b): Visual Assessment of Outcomes

Requirement: Provision C.10.b.iii.(b) requires Permittees to conduct visual on-land assessment, including photo documentation, or other acceptable assessment method (see C.10.b.iii.(b)(iv)), of each trash generation area within which it is implementing other trash management actions or combination of actions other than full trash capture, to determine or verify the effectiveness of the action or combination of actions.

Program Activities: To assist Member Agencies in complying with this provision, the Program continued updating AGOL Field Maps and Reporting applications that allow Member Agencies to document, track,

and report OVTA results of public right-of-way (i.e., public streets and sidewalks) and PLDAs (i.e., parking lots and other land areas). OVTA results entered in AGOL are used to demonstrate reductions in trash levels observed on-land and available to the MS4; and are included in the calculation to show achievement of the 100% trash load reduction benchmark.

Provision C.10.b.v: Source Control

Requirement: Permittee jurisdiction-wide actions to reduce trash at the source, particularly persistent trash items other than those addressed under previous Permits (i.e., expanded polystyrene food ware and single-use plastic bags), may be valued toward trash load reduction compliance for all such actions. To claim a load percentage reduction value, Permittees must provide substantive and credible evidence that new source control actions are being implemented jurisdiction-wide and reduce trash by the claimed value. A Permittee may support its claimed source reduction value with reference studies from other jurisdictions if it also provides credible evidence that the chosen source control action would achieve comparable trash reduction if implemented in the Permittee's jurisdiction. A jurisdiction-wide source control load reduction value cannot be claimed after June 30, 2025.

Program Activities: The FY 2025/26 Section 10 Annual Report Form developed by BAMSC and approved by the Water Board indicates that Permittees must achieve the 100% trash load reduction benchmark without source control credits. Prior to FY 2022/23, all Member Agencies had previously adopted a single-use bag ban. Additionally, the following Member Agencies have adopted expanded polystyrene food ware bans: Alameda, Albany, Berkeley, Emeryville, Fremont, Hayward, Livermore, Oakland, Pleasanton, San Leandro, and Union City. Alameda County has also adopted a polystyrene ban that applies to the unincorporated area of the County. Member Agencies continue to implement both prohibitions as source control actions.

Additional Activities

The Program also conducted anti-litter public outreach efforts. See Provision C.7 section for details.

The Program participates in quarterly BAMSC Trash Subcommittee meetings. The Subcommittee includes Permittee staff, Water Board staff, Caltrans representatives, Non-Governmental Organization representatives, and stormwater program staff and managers. It provides a forum for Members to discuss MRP 3 compliance-related matters, receive updates from the Water Board and Caltrans, and hear from guest speakers on various trash topics.

Provision C.11: Mercury Controls

Provisions in C.11 reflect the implementation plan incorporated in the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) for the San Francisco Bay mercury TMDL. The MRP 3 Fact Sheet describes a General Strategy for Sediment-Bound Pollutants that progresses from pilot testing of controls in a few specific locations, through focused implementation in areas where benefits are likely to accrue, to full-scale implementation throughout the region, where warranted, by understanding the effectiveness of each control measure or activity. As noted in the MRP 3 Fact Sheet, the permit emphasizes specific programmatic control measures deemed effective based on implementation experience and analyses in previous permit terms. The MRP 3 control program for mercury consists of load reduction assessment, source control measures, treatment control measures, measures to reduce risk to consumers of Bay fish, and reporting.

Most of the MRP 3 provisions for mercury are similar to provisions in C.12 for controlling PCBs. In this permit term, management decisions may be driven predominantly by considerations for reducing PCBs loads but are expected to also result in mercury load reductions. Permittees may comply with any requirement of this provision through a collaborative effort.

Provision C.11.a: Assess Mercury Load Reductions from Stormwater

Requirement: Provision C.11.a requires Permittees to implement an assessment methodology and data collection program to quantify, in a technically sound manner, mercury loads reduced through implementation of pollution prevention, source control, and treatment control measures implemented during this permit term. Permittees must quantify the mercury load reductions achieved through control measure implementation in the 2026 Annual Report. In their 2026 Annual Report, the Permittees shall submit, for EO approval, any refinements, if necessary, to the measurement and estimation methodologies to assess mercury load reductions from control measures in the subsequent Permit.

Program Activities: Pursuant to Provision C.11.a.iii.(1), the Program prepared a report documenting that the control measures implemented during the MRP 2 permit term for which load reduction credit was recognized continue to be implemented at an intensity sufficient to maintain the credited load reduction. Pursuant to Provision C.11.a.iii.(2), the Program also quantified the mercury load reductions achieved through control measure implementation in the 2026 Annual Report. See **Appendix F** for the *Mercury and PCBs Control Measures – Update 2026* Report, which is submitted on behalf of all ACCWP Members to comply with Provision C.11.a.iii.(1) and C.11.a.iii.(2).

In FY 2025/26, the Program participated in a regional collaborative project to revise the approved 2022 Source Control Load Reduction Accounting for Reasonable Assurance Analysis and provide updated source control load reduction accounting methodologies for use during the next permit term. See **Appendix F** for the *BAMSC Source Control Load Reduction Accounting for Reasonable Assurance Analysis (RAA) – 2026 Update*, which is submitted on behalf of all ACCWP Permittees to comply with Provision C.11.a.iii.(3).

Provision C.11.b: Program for Source Property Identification and Abatement

Requirement: Provision C.11.b requires Permittees to investigate 2,620 acres of likely mercury source properties during the MRP 3 permit term. Permittees shall take action to abate mercury sources or refer properties to the Water Board for land areas found to be contributing substantial amounts of mercury or where high mercury concentrations are found. Permittees shall implement interim enhanced O&M measures for source properties referred to by the Water Board.

Program Activities: During FY 2025/26, on-site samples were collected in December 2025, as well as April, May, and June 2026. Composite zone samples were collected in the right-of-way in December 2025, as well as April and June 2026. Based on on-site data from December 2025 and April 2026, three mercury source properties were identified. Results from samples collected in May and June 2026 are expected in Summer 2026. Based on composite zone data received, no zones had elevated concentrations of mercury above the source property threshold. See the *Mercury and PCBs Control Measures – Update 2026* Report (**Appendix F**) for further details.

Provision C.11.c: Program for Control Measure Implementation in Old Industrial Areas

Requirement: Provision C.11.c requires Permittees to implement, or cause to be implemented, control measures (treatment controls, diversion to wastewater treatment plants, redevelopment (provided GSI is implemented in compliance with Provision C.3.b), enhanced O&M controls, or other controls) to achieve mercury load reductions. Control measures must be implemented within the MRP 3 permit term to treat urban runoff from 664 acres of old industrial areas, areas containing known or suspected source areas, or areas with evidence of moderate to high mercury or PCBs soil concentrations.

Program Activities: To assist Member Agencies in complying with this provision, the Program submitted the *Alameda County Old Industrial Area Control Measure Plan* on March 31, 2023. The plan addressed the requirements of MRP Provisions C.11.c.iii.(1) and C.12.c.iii.(1) for providing a plan and schedule for focused implementation of control measures in old industrial areas to address mercury and PCBs load reduction requirements. On August 25, 2023, the Water Board sent a letter to the BAMSC stormwater programs stating that the Control Measure Plans (CMPs) were not acceptable and required Permittees to remedy the identified shortcomings. To address Water Board comments, ACCWP formed an ad hoc old industrial CMP Work Group and met with Water Board staff to discuss CMP revisions.

A revised *Alameda County Old Industrial Area Control Measure Plan, Version 1.1,* was submitted on March 31, 2024. This revised plan includes maps identifying focus areas with known moderate PCBs concentrations and lays out the process by which specific treatment control measures will be assessed and implemented for these focus areas. In response to Water Board comments received in June 2024, the Program submitted the *Alameda County Old Industrial Area Control Measure Plan, Version 1.2* to add the predicted area for inlet-based and large full trash capture devices. The Water Board accepted the revised Old Industrial Control Measure Plans in a letter dated October 10, 2024.

The *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) summarizes control measures implemented in old industrial and moderate areas between July 1, 2022, and June 30, 2026, including maps of the areas treated, the acreage of catchments addressed, and a description of the control measures.

Provision C.11.d: Mercury Collection and Recycling Implemented throughout the Region

Requirement: Provision C.11.d requires Permittees to promote, facilitate, and/or participate in collection and recycling of mercury-containing consumer products, devices, and equipment, and make efforts to increase effectiveness of recycling efforts throughout the region.

Program Activities: The *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) reports on efforts to promote recycling of mercury-containing products and efforts to increase effectiveness of these recycling efforts, as well as the mass of mercury-containing material collected within Alameda County and an estimate of the mass of mercury contained in the recycled material.

Provision C.11.e: Plan and Implement Green Stormwater Infrastructure to Reduce Mercury Loads

Requirement: Provision C.11.e requires Permittees to implement GSI projects consistent with the implementing requirements in Provision C.3.j. Provision C.11.e.iii requires Permittees to report as part of Provision C.11.a.iii(2) on all green stormwater projects (e.g., parcel-based, street rights-of-way, and regional projects) implemented during the permit term and provide the total acreage treated and an estimate of the total mercury mass load reduced resulting from this implementation. The report shall include summary descriptions of the implemented projects including GSI type, location, and area.

Program Activities: Activities related to implementation of Provision C.3.j are described in the Provision C.3.j GI Planning and Implementation section above. Pursuant to Provision C.11.a.iii.(2) and Provision C.11.e.iii, the Program prepared a report that documents the total acreage treated and an estimate of the total mercury mass load reduced through green stormwater infrastructure project implementation in the 2026 Annual Report. See the *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) for further details.

Provision C.11.f: Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations

Requirement: Provision C.11.f requires Permittees to update their mercury control measures implementation plan and corresponding RAA as necessary by March 31, 2026.

Program Activities: The Program prepared and submitted the *Alameda County PCBs and Mercury Control Measure Plan and RAA Report* with the FY 2019/20 Annual Report. Pursuant to Provision C.11.f.iii, the Program prepared and submitted on March 31, 2026, the *Alameda County PCBs and Mercury TMDL Control Measure Plan and Reasonable Assurance Analysis 2026 Update* (**Appendix F**) for updating the mercury control measures implementation plan and corresponding reasonable assurance analysis submitted to the San Francisco Bay Regional Water Quality Control Board in 2020.

Provision C.11.g: Fate and Transport Study of Mercury: Urban Runoff Impact on San Francisco Bay Margins

Requirement: Provision C.11.g requires Permittees to conduct or cause to be conducted studies concerning the fate, transport, and biological uptake of mercury discharged from urban runoff to San Francisco Bay margin areas. Permittees shall submit in their FY 2022/23 Annual Reports a workplan describing how these information needs will be accomplished, including the studies to be performed and a preliminary schedule. Permittees are required to report on the status of the studies in their FY 2022/23 Annual Report. The Permittees are required to report the findings and results of the studies completed, planned, or in progress, as well as implications of studies on potential control measures to be investigated, piloted, or implemented in future permit cycles in the March 2026 IMR.

Program Activities: The Program submitted a workplan and status update in their FY 2022/23 Annual Report on studies concerning the fate, transport, and biological uptake of mercury discharged from urban runoff to San Francisco Bay margin areas. The Program reported on the findings and results of the studies in the *Fate and Transport Study of Mercury and PCBs Urban Runoff Impact on San Francisco Bay Margins* report, which was submitted with the March 2026 IMR.

In addition, BAMSC representatives will continue to participate in the RMP Mercury Work Group to help oversee this work and guide it towards developing information that will inform implementing controls for mercury in stormwater runoff and reducing the San Francisco Bay's impairment by this pollutant.

Provision C.11.h: Implement a Risk Reduction Program

Requirement: Provision C.11.h requires Permittees to conduct an ongoing risk reduction program to address public health impacts of mercury in San Francisco Bay/Delta fish. The fish risk reduction program shall take actions to reduce actual and potential health risks in those people and communities most likely to consume San Francisco Bay-caught fish, such as subsistence fishers and their families. At a minimum, Permittees shall conduct or cause to be conducted an ongoing risk reduction program with the potential to annually reach 3,000 individuals throughout the region who are likely consumers of San Francisco Bay-caught fish. The Permittees shall report on the status of the risk reduction program in each of their Annual Reports and report the findings of the effectiveness evaluation of their risk reduction program in their FY 2025/26 Annual Report.

Program Activities: To comply with this provision, the Program promoted awareness of fish consumption health advisories. The campaign targeted fishing and outdoor enthusiasts and included an advertisement, article, and e-blast in the Fish Sniffer Online Magazine, reaching 30,000 readers interested in fishing in California. Fish Sniffer also sent an E-blast to its full subscriber list with Program-only content. Article links directed viewers to the Program's Fishing and Health page, which received 2,741 visits during the campaign period, and to the State of California's Fishing Advisory page. Combined, these efforts are likely to reach well over the target of 3,000 individuals annually. The first step in behavior change is to promote awareness, communicating the risks and benefits to following health advisories. For local impact, signage and direct outreach is another valuable approach so site-specific prevention of consuming the catch.

View the Fishing and Health webpage.

In FY 2024/25, the Program further enhanced its outreach campaign by visiting and evaluating fish advisory signs at several pier and shoreline locations throughout Alameda County. The *Fish Risk Reduction Program for Mercury and PCBS – Fiscal Year 2024/25 Status Summary Memorandum* report (that was submitted with the FY 2024/25 Annual Report summarized the results of this effort. In FY 2025/26, the Program coordinated the installation of OEHHA's Fish Consumption Advisories and Safe Eating Guidelines Program posters at two of the high priority pier and shoreline locations: Emeryville Marina Pier (signs in English and Spanish) and San Leandro Marina Park. Signs in English and Spanish were installed at the Emeryville Marina Pier adjacent to the fish cleaning station. An English sign was installed at the San Leandro Marina Park restroom.

Provision C.12: Polychlorinated Biphenyls (PCBs) Controls

Provisions in C.12 reflect the implementation plan incorporated in the Basin Plan for the San Francisco Bay PCBs TMDL. The MRP 3 Fact Sheet describes a General Strategy for Sediment-Bound Pollutants that progresses from pilot testing of controls in a few specific locations, through focused implementation in areas where benefits are likely to accrue, to full-scale implementation throughout the region were warranted by understanding the effectiveness of each control measure or activity. As noted in the MRP 3 Fact Sheet, the current permit emphasizes specific programmatic control measures deemed effective based on implementation experience and analyses in previous permit terms implementation at full-scale. Permittees may comply with any requirement of this provision through a collaborative effort.

In December 2024, the City of San Pablo, on behalf of BAMSC, was awarded an EPA San Francisco Bay Program (formerly the WQIF) grant for supporting the protection and restoration of San Francisco Bay. A total of $8 million of the San Francisco Bay Program FY 2024 funds were awarded for the PCBs TMDL Special Studies and Implementation Project (referred to as the PCBs TMDL Project), for continuing and expanding implementation of the San Francisco Bay PCBs TMDL. Collectively, the BAMSC programs will provide a 25% match for a total project budget of $10,666,667. The project will expand existing partnerships between local and regional agencies and organizations who are collectively working to implement the PCBs TMDL by improving and expediting monitoring, mapping, and implementation efforts. The goals of the PCBs TMDL Project include:

- Inform the PCBs TMDL reissuance process prior to 2030;
- Support achievement of PCBs TMDL wasteload allocations for the stormwater category;
- Optimize and focus PCBs control measures to improve the trajectory of Bay recovery;
- Support the Phase I Municipal Regional NPDES Permit monitoring, modeling, and TMDL implementation tasks; and
- Support implementation of the Phase II NPDES Permit requirements for the PCBs TMDL.

In late March 2025, the City of San Pablo released a request for proposals for a consulting team to implement the PCBs TMDL Project and awarded the contract in May. The project started on July 1, 2025, and will continue through December 2029.

Provision C.12.a: Assess PCBs Load Reductions from Stormwater

Requirement: Provision C.12.a requires Permittees to implement an assessment methodology and data collection program to quantify, in a technically sound manner, PCBs loads reduced through implementation of pollution prevention, source control, and treatment control measures implemented during this permit term. In the 2026 Annual Report, Permittees shall report the total loads reduced from each control measure implemented since the beginning of the Permit term. In their 2026 Annual Report, the Permittees shall submit, for EO approval, any refinements, if necessary, to the measurement and estimation methodologies to assess PCBs load reductions from control measures in the subsequent Permit.

Program Activities: The *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) provides documentation (1) confirming that control measures implemented during the previous permit term for which load reduction credit was recognized continue to be implemented at an intensity sufficient to maintain the credited load reduction and (2) quantifying the PCBs load reductions achieved through control measure implementation.

In FY 2025/26, the Program participated in a regional collaborative project to revise the approved 2022 Source Control Load Reduction Accounting for Reasonable Assurance Analysis and provide updated source control load reduction accounting methodologies for use during the next permit term. See **Appendix F** for the *BAMSC Source Control Load Reduction Accounting for Reasonable Assurance Analysis – 2026 Update*, which is submitted on behalf of all ACCWP Member Agencies.

Provision C.12.b: Program for Source Property Identification and Abatement

Requirement: Provision C.12.b requires Permittees to investigate 2,620 acres of likely PCBs source properties during the MRP 3 permit term. Permittees shall take action to abate PCBs sources or refer properties to the Water Board for land areas found to be contributing substantial amounts of PCBs or where high PCBs concentrations are found. Permittees shall implement interim enhanced O&M measures for source properties referred to the Water Board.

Program Activities: In FY 2025/26, on-site samples were collected in December 2025, as well as April, May, and June 2026. Composite zone samples were collected in the right-of-way in December 2025, as well as April and June 2026. Based on composite zone data received, one zone had elevated concentrations of PCBs above the source property threshold, and two zones had elevated concentrations above the moderate property threshold. Follow-up on-site investigations will be conducted in FY 2026/27 for further identification of the likely sources in the elevated zones. Results of composite zone samples collected in May and June 2026 are expected in Fall 2026.

In addition, in FY 2024/25, the ACCWP brought together multiple agencies in the County working on PCBs and initiated quarterly meetings with Alameda County Environmental Health Department, Water Board staff, Department of Toxic Substances Control (DTSC), and City staff, as applicable. Quarterly meetings with these agencies continued through FY 2025/26. See the *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) for further details.

Provision C.12.c: Program for Control Measure Implementation in Old Industrial Areas

Requirement: Provision C.12.c requires Permittees to implement, or cause to be implemented, control measures (treatment controls, diversion to wastewater treatment plants, redevelopment (provided GSI implemented in compliance with Provision C.3.b), enhanced O&M controls, or other controls) to comply with the performance metrics in Provision C.12.c.i. Control measures must be implemented within the MRP 3 permit term to treat urban runoff from 664 acres of old industrial areas, areas containing known or suspected source areas, or areas with evidence of moderate to high mercury or PCBs soil concentrations.

Program Activities: To assist Member Agencies in complying with this provision, the Program submitted the *Alameda County Old Industrial Area Control Measure Plan* on March 31, 2023. The plan addressed the requirements of MRP Provisions C.11.c.iii.(1) and C.12.c.iii.(1) for providing a plan and schedule for focused implementation of control measures in old industrial areas to address mercury and PCBs load reduction requirements. On August 25, 2023, the Water Board sent a letter to the BAMSC stormwater programs stating that the CMPs were not acceptable and required Permittees to remedy the identified shortcomings. To address Water Board comments, ACCWP formed an ad hoc old Industrial CMP Work Group and met with Water Board staff to discuss CMP revisions. The ad hoc Work Group comprised ACCWP staff and eight Member Agency representatives.

A revised *Alameda County Old Industrial Area Control Measure Plan, Version 1.1,* was submitted on March 31, 2024. This revised plan includes maps identifying focus areas with known moderate PCBs concentrations and lays out the process by which specific treatment control measures will be assessed

and implemented for these focus areas. In response to Water Board comments received in June 2024, the Program submitted the *Alameda County Old Industrial Area Control Measure Plan, Version 1.2* to add the predicted area for inlet-based and large full trash capture devices. The Water Board accepted the revised Old Industrial Control Measure Plans in a letter dated October 10, 2024.

The *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) summarizes control measures implemented in old industrial and moderate areas between July 1, 2022, and June 30, 2024, including maps of the areas treated, the acreage of catchments addressed, and a description of the control measures.

Provision C.12.d: Program for Controlling PCBs from Bridges and Overpasses

Requirement: Provision C.12.d requires Permittees to implement a Caltrans specification to manage, as part of bridge and overpass roadway replacement or major repair, potential PCBs-containing material in bridge roadway expansion joints. Permittees shall track the development of the Caltrans specification, develop an inventory of bridges in their jurisdiction, and implement the Caltrans specification during applicable replacement activities.

Program Activities: To assist Member Agencies with complying with Provision C.12.d, the Program developed a preliminary bridge inventory database in FY2022/23. Also, in FY2022/23, the Program, in collaboration with the BAMSC MPC subcommittee, reviewed and commented on a draft Caltrans Standard Operating Procedure (SOP) for managing PCBs-containing materials during bridge replacement or repair projects. The Caltrans SOP was not a specification, as stipulated in MRP 3 Provision C.12.d.ii. The Program, in collaboration with the BAMSC MPC subcommittee, suggested that Caltrans amend Caltrans Specification 13 Water Pollution Control to establish specifications for use by its contractors to address PCBs in bridge projects that the MRP 3 Permittees could then adopt. The Program tracked the development of the Caltrans specification through shared participation in monthly BAMSC Steering Committee meetings. A Caltrans specification was not made available in FY 2025/26.

Provision C.12.e: Program for Controlling PCBs from Electrical Utilities

Requirement: Provision C.12.e requires Permittees to: (1) develop or improve and implement SOPs to respond to, clean up, and report spills and releases from municipally owned oil-filled electrical equipment (OFEE); (2) develop and implement a plan to maintain and upgrade municipally owned OFEE; (3) document PCBs loads avoided through existing and ongoing OFEE removal and replacement programs; and (4) collaborate with the Water Board to request information from non-municipally owned electrical utilities.

Program Activities: To assist the Member Agencies with complying with Provision C.12.e, the Program participates in a BAMSC Work Group focusing on municipally owned electrical utility equipment. In FY 2022/23, the Work Group coordinated to develop an enhanced spill response and reporting methodology that each municipal utility will implement, consistent methods for reporting estimates of the total PCBs mass removed from each municipal utility's equipment between 2002 and 2023, and annual documentation of the removal/disposal of PCBs-containing electrical utility equipment for each municipal utility.

In FY 2023/24, the Work Group coordinated on plans to maintain and upgrade municipally owned OFEE. The Program continues to assist the City of Alameda with estimating PCBs loads avoided resulting from the removal of municipally owned PCBs-containing OFEE through maintenance programs and system updates. See the *Mercury and PCBs Control Measures – Update 2026* report (**Appendix F**) documenting of PCBs loads avoided through existing and ongoing OFEE removal and replacement.

Provision C.12.f: Plan and Implement Green Stormwater Infrastructure to Reduce PCBs Loads

Requirement: Provision C.12.f requires Permittees to implement GSI projects consistent with the implementing requirements in Provision C.3.j. Provision C.12.f.iii requires Permittees to report as part of Provision C.12.a.iii(2) on all green stormwater projects (e.g., parcel-based, street rights-of-way, and regional projects) implemented during the permit term and provide the total acreage treated and an estimate of the total PCBs mass load reduced resulting from this implementation. The report shall include summary descriptions of the implemented projects including GSI type, location, and area.

Program Activities: Activities related to implementation of Provision C.3.j are described in the Provision C.3.j GI Planning and Implementation section above. Pursuant to Provision C.12.a.iii.(2) and Provision C.12.f.iii, the Program prepared a report that documents the total acreage treated and an estimate of the total PCBs mass load reduced through green stormwater infrastructure project implementation in the 2026 Annual Report. See the *Mercury and PCBs Control Measures – Update 2026* Report (**Appendix F**) for further details.

Provision C.12.g: Manage PCBs-Containing Materials and Wastes During Building Demolition Activities

Requirement: Provision C.12.g requires that Permittees implement their established protocol prior to issuing a demolition permit. Permittees shall ensure construction sites are inspected during demolition and obtain verification that materials from demolished buildings are appropriately disposed. Permittees shall enhance their construction site control program to minimize migration of PCBs into the Municipal Separate Storm Sewer Systems (MS4) from applicable structures containing building materials with PCBs concentrations of 50 parts per million (ppm) or greater during demolition activities. A Permittee is exempt from this requirement if it provided evidence acceptable to the Water Board EO in its FY 2022/23 Annual Report that the only buildings that existed pre-1980 within its jurisdiction were single-family residential and/or wood-frame buildings.

Provision C.12.g.iii.(5) states that, in their 2026 Annual Report, Permittees shall submit an evaluation of the effectiveness of the protocol for controlling PCBs during building demolition, as well as supporting data. This should be conducted and reported at the regional level on behalf of all Permittees and shall be considered the Report of Waste Discharge for Provision C.12.g for the next permit reissuance.

Program Activities: In FY 2022/23, the Program participated in a BAMSC project of regional benefit to assist Member Agencies in addressing Provision C.12.g. The *Mercury and PCBs Control Measures – Update 2026* (**Appendix F**) report also documents the reporting required in Provision C.12.g.iii.(3). No Member Agencies claimed exemption from this requirement in their FY 2022/23 Annual Report.

In FY 2025/26, the Program participated in two BAMSC projects of regional benefit to support implementation and address requirements in C.12.g. One regional project facilitated information sharing amongst Permittees on their experiences implementing the program. Over the course of the project, three Work Group meetings were held to discuss the successes and challenges in implementing the program. These discussions formed the basis in the MRP 4 reissuance process. The second regional project supported the Member Agencies in complying with Provision C.12.g.iii.(5) to submit a regional report to evaluate the effectiveness of the protocol for controlling PCBs during building demolition, as well as supporting data. See the *Regional Effectiveness Evaluation of the Protocols for Managing PCBs-containing Materials During Building Demolition* (**Appendix F**), which is submitted on behalf of all ACCWP Member Agencies to comply with Provision C.12.g.iii.(5).

Provision C.12.h: Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations

Requirement: Provision C.12.h requires Permittees to update their PCBs control measures implementation plan and RAA as necessary by March 31, 2026.

Program Activities: The Program prepared and submitted the *Alameda County PCBs and Mercury Control Measure Plan and Reasonable Assurance Analysis Report* with the FY 2019/20 Annual Report. Pursuant to Provision C.12.h.iii, the Program prepared and submitted on March 31, 2026, the *Alameda County PCBs and Mercury TMDL Control Measure Plan and Reasonable Assurance Analysis 2026 Update* for updating the PCBs control measures implementation plan and corresponding reasonable assurance analysis submitted to the Water Board in 2020.

Provision C.12.i: Fate and Transport Study of PCBs: Urban Runoff Impact on San Francisco Bay Margins

Requirement: Provision C.12.i requires Permittees to conduct or cause to be conducted studies concerning the fate, transport, and biological uptake of PCBs discharged from urban runoff to San Francisco Bay margin areas. Permittees shall submit in their FY 2022/23 Annual Reports a workplan describing how these information needs will be accomplished, including the studies to be performed and a preliminary schedule. Permittees are required to report on the status of the studies in their FY 2022/23 Annual Report. The Permittees are required to report the findings and results of the studies completed, planned, or in progress, as well as implications of studies on potential control measures to be investigated, piloted, or implemented in future permit cycles in the March 2026 IMR.

Program Activities: The Program submitted a workplan and status in their FY 2022/23 Annual Report on studies concerning the fate, transport, and biological uptake of PCBs discharged from urban runoff to San Francisco Bay margin areas. The Program reported on the findings and results of the studies in the *Fate and Transport Study of Mercury and PCBs Urban Runoff Impact on San Francisco Bay Margins* report, which was submitted with the March 2026 IMR.

In addition, BAMSC representatives will continue to participate in the RMP PCBs Work Group to help oversee this work and guide it towards developing information that will inform implementing controls for PCBs in stormwater runoff and reducing the San Francisco Bay's impairment by these pollutants.

Provision C.12.j: Implement a Risk Reduction Program

Requirement: Provision C.12.j requires Permittees to conduct an ongoing risk reduction program to address public health impacts of PCBs in San Francisco Bay/Delta fish. The fish risk reduction program shall take actions to reduce actual and potential health risks in those people and communities most likely to consume San Francisco Bay-caught fish, such as subsistence fishers and their families. At a minimum, Permittees shall conduct or cause to be conducted an ongoing risk reduction program with the potential to annually reach 3,000 individuals throughout the region who are likely consumers of San Francisco Bay-caught fish. The Permittees shall report on the status of the risk reduction program in each of their Annual Reports and report the findings of the effectiveness evaluation of their risk reduction program in their FY 2025/26 Annual Report.

Program Activities: To comply with this provision, the Program promoted awareness of fish consumption health advisories. The campaign targeted fishing and outdoor enthusiasts and included an advertisement, article, and e-blast in the Fish Sniffer Online Magazine, reaching 30,000 readers interested in fishing in California. Fish Sniffer also sent an E-blast to its full subscriber list with Program-

only content. Article links directed viewers to the Program's Fishing and Health page, which received 2,741 visits during the campaign period, and to the State of California's Fishing Advisory page. Combined, these efforts are likely to reach well over the target of 3,000 individuals annually. The first step in behavior change is to promote awareness, communicating the risks and benefits to following health advisories. For local impact, signage and direct outreach is another valuable approach so site-specific prevention of consuming the catch

View the Fishing and Health webpage.

In FY 2024/25, the Program further enhanced its outreach campaign by visiting and evaluating fish advisory signs at several pier and shoreline locations throughout Alameda County. The *Fish Risk Reduction Program for Mercury and PCBS – Fiscal Year 2024/25 Status Summary Memorandum,* submitted with the FY 2024/25 ACCWP Annual Report, summarizes the results of this effort. In FY 2025/26, the Program coordinated the installation of OEHHA's Fish Consumption Advisories and Safe Eating Guidelines Program posters at two of the high priority pier and shoreline locations: Emeryville Marina Pier and San Leandro Marina Park. Signs in English and Spanish were installed at the Emeryville Marina Pier adjacent to the fish cleaning station. A sign in English was installed at the San Leandro Marina Park restroom.

Provision C.15: Exempted and Conditionally Exempted Discharges

Provision C.15.b.iii: Emergency Discharges of Firefighting Water and Foam

Requirement: Provision C.15.b.iii requires Permittees to collectively convene a regionwide Firefighting Discharges Working Group to identify and evaluate opportunities to reduce the impacts of emergency discharges to the MS4 associated with firefighting activity. The Permittees shall collectively submit, by September 30, 2025, a Firefighting Discharges Report that describes progress on, and recommendations regarding, the implementation of the items listed in Provision C.15.b.iii.(2)(a)(i)-(vii). Permittees shall implement the recommendations from the Firefighting Discharges Report, ensure proper BMPs and SOPs are included in contracts for non-municipal staff hired by Permittees to assist with containment and cleanup, and Permittees shall evaluate the adequacy of large industrial sites' BMPs and SOPs for the prevention, containment, and cleanup of emergency firefighting discharges into storm drains and receiving waters.

Program Activities: The Program solicited stormwater program and fire department representatives interested in participating in the BAMSC Regional Firefighting Discharges Work Group. ACCWP and Member Agency representatives, as well as staff and members of other countywide stormwater programs and fire departments, actively participated in the FY 2022/23 through FY 2025/26 Work Group meetings. The BAMSC Regional Firefighting Discharges Work Group developed a project profile for a BAMSC project of regional benefit. ACCWP provides in-kind services for the development of the Regional Report, and ACCWP representatives participate in the BAMSC Regional Firefighting Discharges Work Group.

In FY 2023/24 and 2024/25, Program representatives organized and participated in the March 26 and June 17, 2024, and January 14 and April 22, 2025, BAMSC Regional Firefighting Discharges Work Group meetings and four BAMSC Regional Firefighting Discharges Task Force meetings. The BAMSC Regional Firefighting Discharges Task Force was a smaller working group that provided guidance for developing the BAMSC Regional Firefighting Discharges Work Group agendas and Regional Report.

Program representatives assisted with the development of the BAMSC *Regional Firefighting Emergency Discharges Work Group Report* that was submitted in the ACCWP FY 2024/25 Annual Report. Program representatives organized and participated in the May 4, 2026, BAMSC Regional Work Group meeting where participants shared information on the implementation of recommendations in the Regional Report.

The Program provided information on the BAMSC Regional Firefighting Discharges Work Group activities to the IIDC Subcommittee and Management Committee. The IIDC Subcommittee continued to discuss the requirement to evaluate the adequacy of large industrial facilities' BMPs and SOPs for the prevention, containment, and cleanup of emergency firefighting discharges into storm drains and receiving waters. Member Agencies served by the Alameda County Fire Department (ACFD) asked the Program to contact the ACFD to relay and receive information regarding the MRP requirements and Regional Report recommendations across all jurisdictions. Program representatives held an informational interview with Deputy Chief Paige Bowie, sharing the meeting notes with all Permittees served by ACFD to begin facilitating further coordination. Program representatives also compiled an individual stormwater and ACFD liaisons contact list and provided it to the Permittees and ACFD to facilitate further coordination. Program staff are planning a follow-up meeting with Deputy Chief Bowie and the Permittees to continue developing improved communications and coordination around stormwater quality topics.

There is a requirement in C.15.b.iii to develop outreach materials. Two outreach materials, *Fire Restoration Contractors* Tip Sheet and *Sites Prone to Fires* Tip Sheet, were developed by the IIDC in FY 2024/25. These Tip Sheets are available on the Program's Resource webpage. In August 2025, the Program mailed the *Fire Restoration Contractors* Tip Sheet, along with a letter, to the list of contractors that would typically respond to illicit discharges in Alameda County. The list was compiled from DTSC hazardous waste transporters in Alameda County, internet searches, and contractors provided by Member Agencies.

Provision C.15.b.iv: Individual Residential Car Washing

Requirement: Provision C.15.b.iv requires the Permittee to discourage, through outreach efforts, individual residential car washing discharges into the storm drain system. It also requires Permittees to encourage individuals to direct car wash water to landscape, use as little detergent as necessary, or wash cars at commercial car wash facilities.

Program Activities: To assist Member Agencies in complying with this provision, the Program provides outreach materials and information on proper car washing for residents posted on the Program's Car Care webpage. The Program promotes two car wash videos featuring the Program's mascots Fred and Izzy: one is a shorter ad for broadcast TV, and the other is a longer video for digital promotion, including versions in Chinese and Spanish. The promotion of these videos during FY 2025/26 resulted in 39,265 views of English videos, and 36,763 and 28,481 views of Spanish and Chinese videos, respectively. A video discouraging hosing off driveways and other impervious surfaces is also available in English, Spanish, and Chinese. View the Car Washing video on the Program's YouTube channel.

Provision C.15.b.v: Swimming Pool, Hot Tub, Spa, and Fountain Water Discharges

Requirement: Provision C.15.b.v requires Permittees to prohibit polluted discharges from pools, hot tubs, spas, and fountains; provide public outreach; allow discharges to the storm drain system only if there are no other alternatives and proper BMPs are implemented; require new facilities to have a connection to the sanitary sewer; and implement illicit discharge program Enforcement Response Plans to address polluted discharges from these facilities.

Program Activities: To assist Member Agencies in complying with this provision, the Program provides the *Proper Disposal of Wastewater: Don't Drain Pools, Spas and Fountains to Storm Drains* Tip Sheet on the Program website under the Drain Pools, Spas, and Fountains to Sanitary Sewers header.

Provision C.15.b.vi: Irrigation Water, Landscape Irrigation, and Lawn or Garden Watering

Requirement: Provision C.15.b.vi. requires Permittees to promote measures that minimize runoff and pollutant loading from excess irrigation.

Program Activities: To assist Member Agencies in complying with this provision, the Program implements countywide outreach efforts through the New and Redevelopment program Public Information and Outreach program, and Pesticide Toxicity Control program. These efforts are discussed in those sections of the Annual Report.

In FY 2025/26, the Program promoted a social media post, reaching 4,722 residents, and garnering 216 likes, 41 clicks, and five shares.

Additional Activities

Compliance with the conditionally exempt discharge categories, specifically pumped groundwater, foundation drains, water from crawl space pumps, and footing drains, are also discussed at the IIDC Subcommittee meetings. As mentioned in the C.4 Industrial and Commercial Site Controls section of this

report, there were four meetings held this FY, and the focus of the meetings is to share information on MRP 3 compliance and activities, including conditionally exempt discharges that stormwater inspectors may encounter. The PIP Subcommittee also addresses outreach and education for several of the conditionally exempt discharge categories.

Provision C.17: Discharges Associated with Unsheltered Homeless Populations

Requirement: Provision C.17 requires Permittees to individually and collectively identify and ensure the implementation of appropriate control measures to address non-stormwater discharges into MS4s associated with unsheltered homeless populations. At the individual level, Permittees are required to implement and evaluate the effectiveness of BMPs, map locations of unsheltered populations, and work together with Permittees and other stakeholders at the countywide and regional levels. As defined in MRP 3, unsheltered population areas are where unsheltered people congregate (e.g., formal and informal encampments including, but not limited to, informal tent or small cabin encampments, areas where people living in vehicles park, and safe parking areas).

Summary of Program Activities: The Program reconvened the ACCWP C.17 Work Group in FY 2025/26 to review the FY 2024/25 Annual Report submittals and the Water Board's general comments on BMP effectiveness evaluations.

Provision C.17.a.ii.(2): Programmatic Efforts

Requirement: Provision C.17.a.ii.(2) requires each Permittee to report on the programmatic efforts being implemented within their jurisdiction, or at the countywide or regional level, to address MS4 discharges associated with homelessness. To encourage ongoing regional, countywide, and municipal coordination efforts, Permittees are required to collectively develop a BMP report that identifies effective practices to address non-storm water discharges associated with homelessness into MS4s that impact water quality.

Program Activities: The Program coordinated with BAMSC and others (e.g., Caltrans, County and City housing departments/divisions) to develop the *Regional BMP Report for Addressing Non-Stormwater Discharges Associated with Unsheltered Homeless Populations* (Regional BMP Report) that documents programmatic efforts implemented by the Member Agencies. The Regional BMP Report was finalized and included in the September 30, 2023, ACCWP Annual Report.

Provision C.17.a.ii.(4): Review and Update Implementation Practices

Requirement: Provision C.17.a.ii.(4) requires Permittees to use the information generated through biennial point-in-time surveys and related information, and the regional coordinated tasks to review and update their implementation practices.

Program Activities: At the ACCWP C.17 Work Group meeting on April 27, 2026, the group reviewed the effectiveness evaluations in the FY 2025/26 Annual Reports, shared information on BMP implementation, and discussed the Water Board general comments on the Annual Reports. The ACCWP C.17 Work Group will hold additional meetings if needed or requested by Member Agencies.

Provision C.20: Cost Reporting

Provision C.20.b.i: Cost Reporting Framework and Methodology

Requirement: Provision C.20.b.i requires Permittees to develop a cost reporting framework and methodology to perform the fiscal analysis. Permittees are encouraged to collaboratively develop the framework and methodology. The framework shall consider identification of costs incurred solely to comply with the MRP 3 requirements as listed in Provision C.20.b.(iii) as compared to costs shared with other programs or regulatory requirements, provide meaningful data to assess costs of different program areas, and allow for comparisons and to identify trends over time.

Program Activities: In previous years, ACCWP, along with the other countywide stormwater programs, provided in-kind support to a BAMSC project of regional benefit to collectively develop a cost reporting framework and methodology. Member Agencies submitted the *Final Bay Area Cost Reporting Framework and Guidance Manual* (Framework and Guidance Manual) to the Water Board on June 26, 2023. On June 26, 2024, the Water Board provided conditional approval for the revised final Framework and Guidance Manual. The condition of approval was that any future modifications, either for better alignment with Permittee accounting practices or for consistency with the State Water Resources Control Board's (State Water Board) *Water Quality Control Policy for Standardized Cost Reporting in Municipal Stormwater Permits* (Statewide Cost Reporting Policy), must be approved by the Water Board's EO.

During FY 2025/26, the Program focused on assisting Member Agencies with use of the approved Framework and Guidance Manual to track costs of implementing MRP requirements, submit the FY 2024/25 cost analyses, and convene a meeting to discuss, develop, and act upon lessons learned. Member Agencies made the necessary adjustments to internal personnel cost budgeting and/or tracking systems to use the Framework, and Program staff were available for on-call support as the Permittees prepared their FY 2024/25 cost analyses. The FY 2024/25 cost analysis for each Member Agency was submitted with their individual FY 2024/25 Annual Report in September 2025. Water Board staff provided general comments on the annual reports in early 2026 and found that the Framework submittals worked well for FY 2024/25 reporting. The Program coordinated a meeting with the ACCWP Cost Reporting Work Group held on January 26, 2026, to discuss lessons learned from that initial effort. In spring 2026, the Program also provided a Framework version with the FY 2025/26 Program cost numbers to assist Permittees with their FY 2025/26 submittals.

In addition, the ACCWP continued to track the State Water Board and CASQA efforts on development of the Statewide Cost Reporting Policy that was adopted in January 2025. ACCWP provided in-kind support during FY 2025/26 for a BAMSC Regional Project to update the Bay Area Cost Reporting Framework to allow submittal of cost information to the State's Municipal Cost Data Portal for FY 2026/27, per the requirements of the Statewide Cost Reporting Policy. The Program actively participated in the BAMSC Cost Reporting Work Group meetings held on May 28, 2026, and June 15, 2026. As part of this effort, the lessons learned and provided by Permittees from the ACCWP and other countywide programs throughout the region were used to make additional improvements to the Framework and Guidance Manual. Internal drafts of the updated Framework and Guidance Manual were completed by June 30, 2026. Finalization of the draft products awaits the release of State Water Board guidance and data portal details that are currently expected to be released in summer 2026. Once the approved final drafts of the updated Framework and Guidance Manual are completed, BAMSC will provide them to the Water Board's EO for approval.

Provision C.21: Asset Management

Provision C.21.b: Asset Management Plan

Requirement: Provision C.21.b requires Permittees to develop and begin implementation of an Asset Management Plan to ensure the satisfactory condition of all hard assets constructed during this and previous Permit terms. The Asset Management Plan must be developed by June 30, 2025, and begin implementation by July 31, 2025, and be reassessed and updated on an as-needed basis. Permittees must also complete a Climate Change Adaptation Report (CCAR) to identify potential climate change-related threats to assets and appropriate adaptation strategies. The CCAR shall be submitted with the FY 2025/26 Annual Report.

Program Activities: In FY 2025/26, the ACCWP Asset Management Work Group, which consisted of Member Agency and Program representatives, continued to meet with a focus on helping guide Member Agencies with the implementation of their Asset Management Plans. The ACCWP Asset Management Work Group met three times during the FY. ACCWP Asset Management Work Group meetings included a discussion on conducting condition assessments, including approaches, assessment parameters, and data collection; an introduction to post-condition assessment steps that included quality control review of assessment results, maintenance need determinations, and tracking and estimating costs; a review of risk analysis concepts; and a presentation on the findings from a review of trash-related inspection and maintenance data.

In addition, the Program provided an online training to Member Agencies, which was recorded for later viewing, that included an overview of asset management, as well as an introduction to conducting condition assessments of GSI assets. The attendance list for the online training is in **Appendix G**. Following the online training, the Program gave an in-person training hosted by Fremont that included assessment of GSI assets such as bioretention areas and permeable pavers. The training was attended by approximately 30 ACCWP Member Agency staff. During the training, participants were separated into three groups, and participants independently conducted condition assessments using an online form that included linked guidance pages on assessment parameter scoring before reconvening with their respective groups to discuss and calibrate results. Following the training, results from the assessments and calibration process were presented to the ACCWP Asset Management Work Group to demonstrate how alignment of participant scoring improved after group calibrations.

Provision C.21.b.v: Climate Change Adaptation Report

Requirement: Provision C.21.b requires Permittees to complete a CCAR to identify potential climate change-related threats to assets and appropriate adaptation strategies. The report shall assess existing, new, and increasing threats from climate change to the condition of Permittees' inventoried hard assets over the next 50 years and identify approaches that Permittees may implement to address those threats, such as the modification of design standards and countywide technical guidance documents. The CCAR may be developed on an all-Permittee (regional) scale or countywide scale. The Permittees shall submit the CCAR described in Provision C.21.b.v with their 2026 Annual Reports. The Permittees may submit the CCARs on an all-Permittee (regional) scale or countywide scale.

Program Activities: In FY 2025/26, ACCWP provided in-kind support to a BAMSC regional project for completion of a CCAR that identifies potential climate change-related threats to Permittees' stormwater quality-related hard assets and appropriate adaptation strategies. The CCAR includes a discussion of the Permittees' asset management plans and their climate-related vulnerabilities; an assessment of Bay

Area climate threats, including impacts on assets; the geospatial vulnerability of assets; and adaptation strategies and recommendations.

A regional CCAR Work Group was formed for Permittees to collaborate on the report, review the CCAR outline, and receive initial feedback from Water Board staff. The CCAR Work Group held four meetings in January, February, March, and May of 2026. ACCWP Work Group members included Program Staff Member Agency representatives. First and second drafts of the CCAR were circulated to ACCWP and the other Countywide stormwater programs and their Permittees in May and June 2026 for review and comment. The final CCAR is included in **Appendix G**.

Appendix A

Municipal Maintenance Workshop Materials

Workshop Evaluation Summary, Agenda, and Flyer

ACCWP Municipal Maintenance Workshop
November 18, 2025
EVALUATION SUMMARY

Total Attendees – 44

Number of Agencies - 8

What's your job description?

- Collections worker
- Collection system worker I
- Wastewater collection worker II
- Maintenance manager
- Flood control supervisor
- Engineer compliance specialist
- Streets
- Streets II
- Vacon operator

How many maintenance workshops have you attended (circle one)

1 **(4)** 2 **(10)** 3 **(3)** 4 **(1)** 5 **(4)** 6+ **(8)**

What did you think of the following presentations and activities?

1. Stormwater 101

Very Helpful **28** Somewhat Helpful **2** Not Helpful **0**

Comments:

- Great information on what to look out for
- Informative

2. Good Housekeeping Video

Very Helpful **28** Somewhat Helpful **1** Not Helpful **0**

Comments

- Good topic information on how to
- Useful stuff
- More together, more neat, and free of items in storm systems
- The vendors were helpful, and their displays showed how materials and equipment are used

3. Municipal Maintenance BMPs

Very Helpful **25** Somewhat Helpful **5** Not Helpful **0**

Comments:

- Again, good what to do and how to
- Good info
- Being aware is being on top of things

4. Bridge and Graffiti Maintenance BMPs

Very Helpful **25** Somewhat Helpful **4** Not Helpful **1**

Comments:

- Don't do too much of this. But good eye openers.
- How to remove graffiti, then different methods

5. Concrete Work and Saw Cutting. Minor Spills Videos

Very Helpful **25** Somewhat Helpful **4** Not Helpful **0**

Comments:

- How to capture and dispose of solids

6. Sidewalk/Plaza Maintenance and Pavement Washing, Spill and Discharge Response

Very Helpful **26** Somewhat Helpful **3** Not Helpful **1**

Comments:

- The presentation was pretty fast. Not too much depth on the topic.
- How to prevent spills from going into storm lines

7. Field Demonstration and Vendors

Very Helpful **25** Somewhat Helpful **1** Not Helpful **0**

Comments:

- Good to see new tech used.
- The vendors were helpful, and their displays showed how materials and equipment are used.

Did this workshop meet your expectations? Yes **28** No **0**

Comments?

- The instructors were very clear and direct. Covered PowerPoint presentations.
- Great presentations
- Awesome workshop
- Have more hands on next time
- For the next workshop have inspection and reporting requirements
- Everything was well explained. Each presenter was clear and straightforward.
- Nice to gather different ways to keep stormwater clean
- Great overall experience
- Very helpful material. Plain and straight forward.
- Pretty knowledgeable

November 18, 2025
8:30 AM – 2:00 PM
Pleasanton Corporation Yard
3333 Busch Road, Pleasanton

Municipal Maintenance Workshop Agenda

Check-in and Refreshments		**8:30-9:00**
Introductions	Mike Wells City of Livermore	9:00-9:10
Stormwater 101	Kristin Kerr EOA, Inc	9:10-9:25
Good Housekeeping	CASQA Video	9:25-9:40
Municipal Maintenance BMPs	Kristin Kerr EOA, Inc.	9:40-10:00
BREAK		**10:00-10:15**
Bridge and Graffiti	Emily Meyers Geosyntec	10:15-10:25
Concrete Work and Saw Cutting Minor Spills	CASQA Video	10:25-10:40
Sidewalk/Plaza Maintenance and Pavement Washing Spill and Discharge Response	Kristin Kerr EOA, Inc	10:40-10:50
Field Demonstrations and Vendors	Mike Wells City of Livermore	11:50-12:00
Lunch		**12:00 – 1:00**
Field Demonstrations and Vendors	Mike Wells City of Livermore	1:00 – 1:30
Closing Remarks/ Questions and Raffle	Mike Wells City of Livermore	1:30- 2:00

SAVE THE DATE

MUNICIPAL MAINTANENCE WORKSHOP

NOVEMBER 18, 2025

3333 Busch Road, Pleasanton
8:30 AM - 2:00 PM

HIGHLIGHTS

⇒ Regulatory Overview of Stormwater Pollution Prevention
⇒ Stormwater Best Management Practices
⇒ Vendor and Equipment Demonstrations

DETAILS

⇒ Workshop is **FREE**
⇒ Morning Refreshments + Lunch Provided

PLEASE SHARE this flyer with appropriate staff in your organization

SPACE IS LIMITED

RSVP via email to emily.meyers@geosyntec.com

QUESTIONS?

Contact Emily Meyers
emily.meyers@geosyntec.com

ALAMEDA COUNTYWIDE cleanwater PROGRAM

Appendix B

New Development and Redevelopment Controls

Regional Supplement for New Development and Redevelopment

Annual Reporting for FY 2025-2026

Regional Supplement for New Development and Redevelopment

San Francisco Bay Area Municipal Regional Stormwater Permit

Bay Area Municipal Stormwater Collaborative

August 2026

MRP Regional Supplement for New Development and Redevelopment
Annual Reporting for FY 2025-2026

TABLE OF CONTENTS

INTRODUCTION **2**

GREEN INFRASTRUCTURE PLANNING AND IMPLEMENTATION **2**

C.3.j.iii Participation in Processes to Promote Green Infrastructure **2**

Activities and Accomplishments during FY 2025-26 **3**

MRP 3.0 C.3/GSI Work Groups 3

BAMSC Development Subcommittee 3

Other Participation and Comments 4

Future Activities **5**

INTRODUCTION

This Regional Supplement has been prepared to report on regionally implemented activities complying with portions of the Municipal Regional Stormwater Permit (MRP) issued to 79 municipalities and special districts (Permittees) by the San Francisco Bay Regional Water Quality Control Board (Water Board). The Regional Supplement covers new development and redevelopment activities related to the following MRP 3.0 provision:

- C.3.j.iv Participate in Processes to Promote Green Infrastructure.

These regionally implemented activities were conducted under the auspices of the Bay Area Municipal Stormwater Collaborative (BAMSC), an informal coalition of the municipal stormwater programs in the San Francisco Bay Area. Most of the 2025-26 annual reporting requirements of Provision C.3.j.iv covered in this Supplement were completely met by BAMSC member activities, except where otherwise noted herein or by Permittees in their reports. Through their program representatives on the BAMSC Steering Committee and its Subcommittees, MRP Permittees collaboratively participated in these BAMSC informal regional activities.

GREEN INFRASTRUCTURE PLANNING AND IMPLEMENTATION

C.3.j.iv Participation in Processes to Promote Green Infrastructure

This provision requires:

> *(1) The Permittees shall, individually or collectively, track processes, assemble and submit information, and provide informational materials and presentations as needed to assist relevant regional, State, and federal agencies to plan, design, and fund incorporation of green infrastructure measures into local infrastructure projects, including transportation projects. Issues to be addressed include coordinating the timing of funding from different sources, changes to standard designs and design criteria, ranking and prioritizing projects for funding, and implementation of cooperative in-lieu programs.*

This section describes activities and accomplishments during FY 2025-26 to promote green infrastructure (GI or GSI). The BAMSC activities described in this section provide compliance for MRP Permittees with this provision.

Activities and Accomplishments during FY 2025-26

MRP 3.0 C.3/GSI Work Groups

The following development-related BAMSC regional work groups began to meet or continued to meet in FY 2025-26: the Long Term GSI Technical Working Group, the Asset Management Work Group, and the Trees in GSI Work Group.

BAMSC Long Term GSI Technical Working Group

Provision C.3.j.ii (4) of the MRP allows Permittees, Water Board (WB) staff, and impartial science experts to collectively form a technical working group to discuss long-term GSI goals and recommend long-term percentage reductions in Permittees' impervious surfaces, at individual, countywide, and regional scales. Working cooperatively through BAMSC, Permittees formed the Long-Term GSI Technical Working Group (TWG) in FY 2023-24. The TWG met four times in FY 2024-25 and three times in FY 2025-26. The TWG includes WB and EPA staff.

MRP Provision C.3.j.v (7) requires Permittees to collectively produce a report summarizing TWG efforts and recommendations and submit it to the WB by September 2025. The BAMSC "TWG Summary and Recommendations Report", which fulfills this requirement, was completed in August 2025 and submitted with each Countywide Program's FY 2024-25 Annual Report. The TWG Summary and Recommendations Report includes summaries of all TWG meetings and Permittee recommendations for a proposed GSI Implementation Framework that includes crediting of a broader range of project types, projects with multiple benefits, and projects in various phases of implementation. During FY 2025-26, the TWG discussed and refined the proposed Framework and completed its work. Discussions related to GSI implementation are continuing in the new BAMSC MRP 4 C.3 Workgroup, led in conjunction with WB staff.

BAMSC Asset Management Work Group

The purpose of the Work Group is to provide a forum to discuss and get regional agreement on approaches to condition assessment and O&M needs of stormwater quality assets. In FY 2023-24, two Work Group meetings were held, both focused on condition assessment of LID/GSI assets. In FY 2024-25, one meeting was held on July 23, 2024, to discuss assessing the condition of trash control assets. Following the July 2024 meeting, the effort to assist Permittees with development of Asset Management Plans shifted to the Countywide Programs, and no additional BAMSC Work Group meetings have been held.

BAMSC Trees in GSI Work Group

The Trees in GSI Work Group of the BAMSC Development Subcommittee met once in FY 2025-26 with attendees including municipal staff, WB staff, and representatives of UC Extension, Davey Resource Group, and NGOs. The Work Group met on December 17, 2025, and discussed Bay Area municipal plans, such as urban forest plans, that contain examples of policies related to the integration of trees in GSI. In FY 2026-27, the Work Group will continue to meet, with an emphasis on design and construction challenges related to integrating trees into bioretention systems.

BAMSC Development Subcommittee

The BAMSC Development Subcommittee continued to meet approximately quarterly during FY 2025-26 and promoted the implementation of GSI by providing a forum to discuss the following topics:

- Pervious Pavement - Peter Schultze-Allen (EOA) provided an overview of Bay Area pervious pavement in public roadway projects and lessons learned, and staff from the City of San José provided a presentation on the Katherine Court permeable interlocking concrete paver project.
- "Clean Watersheds 4 All" - Rinta Perkins (CCCWP) provided an overview of the "Clean Watersheds 4 All" project, including its goals and tasks. Task 1, which developed an Old Industrial Treatment Measure Plan, and Task 2, which created a Project Funding and Delivery Roadmap, have both been completed. Task 3a, focused on Project Design and Implementation, remains in progress and will use Community-Based Public Private Partnerships (CBP3s) to support implementation of a regional GSI project. Task 3b, which involved identifying an Alternative Project for Design, is also ongoing. Task 4 focuses on establishing a Community Facilities District (CFD) to provide sustainable long-term operations and maintenance (O&M) funding for these facilities. This effort is closely aligned with the Contra Costa County Regional Alternative Compliance (RAC) System implementation.
- Contra Costa County RAC System – Rinta Perkins (CCCWP) delivered two presentations on the RAC System, focusing on recent efforts to establish a Joint Powers Authority (JPA) and Community Facilities District (CFD) to support System implementation. The RAC System is a collaborative framework that enables participating municipalities and developers to achieve permit compliance through a regional, market-based approach. The System allows participants to purchase "compliance units" generated by off-site GSI projects. To support administration and long-term sustainability, a JPA and a CFD will be established to provide ongoing funding for O&M. The JPA will function as a separate legal entity responsible for managing compliance transactions and coordinating among member agencies. At the same time, the CFD will fund the long-term O&M of GSI projects. The RAC System was recognized with the 2025 CASQA Award for the Outstanding Stormwater Funding Initiative.
- Filtration Media - The Subcommittee received a presentation from Contech's Regional Regulatory Manager, Craig Fairbaugh, on filtration media specifications and an upcoming report on the subject prepared by the Stormwater Media Filtration Committee of the Urban Water Resources Research Council (part of the Environmental Water Resources Institute of the American Society of Civil Engineers).

Other Participation and Comments

- Peter Schultze-Allen (EOA/SCVURPPP) presented on "Moving the Needle: Green Street Implementation in the San Francisco Bay Area" on October 29, 2025, at the 2025 State of the Estuary conference in Oakland.
- Peter Schultze-Allen (EOA/SCVURPPP) presented on "Designing Resilient Streets through Green Infrastructure" at a webinar hosted by the Active Transportation Resource Center (ATRC) on November 18, 2025. The ATRC is a project coordinated by Caltrans and the California Department of Public Health.
- Reid Bogert (SMCWPPP) presented a technical presentation on "Piloting the OneWatershed Framework in San Mateo County" at the California Stormwater Quality Association 2025 Annual Conference in Pasadena on September 15, 2025
- Reid Bogert (SMCWPPP) and Chris Sommers (SCVURPPP) attended and represented the Bay Area stormwater management perspective at the Bay Area One Water Network meeting held in San Francisco on September 5, 2025. A significant focus for this meeting was evaluating programmatic, institutional, and funding strategies to support a more holistic approach to water and watershed management, including options for leveraging and supporting GSI.
- Reid Bogert (SMCWPPP) met with Federal Congressional leaders, including Senator Padilla's Office on March 11, 2026 and Congressmember Mullin's Office on March 12, 2026, to advocate for federal funding for GSI projects in San Mateo County, focusing on earmark requests for $1.8M in funding for sustainable streets projects in East Palo Alto, Daly City, and South San Francisco and $1.5M for advancing SMCWPPP's OneWatershed effort to develop tools and resources to support local agencies with integrated climate resilience and watershed planning.
- Reid Bogert and Dan Sternkopf (SMCWPPP) presented at multiple community workshops and meetings in spring and summer 2025 on the state-grant funded OneWatershed Framework and San Bruno Creek Watershed Pilot Study. Workshops were presented in multiple languages and were intended to gather input on climate hazards and multi-benefit green infrastructure solutions to address community adaptive capacity needs. Workshop attendees included community members as well as city council members from the City of San Bruno.
- Reid Bogert (SMCWPPP) presented on GSI and resilient schoolyards partnership opportunities at the San Mateo County Office of Education's 10th Annual Environmental Solutionary Teacher Fellowship community partners event. The presentation was focused on how school site and district staff can effectively integrate GSI with schoolyard greening and climate resilience initiatives through partnerships with the countywide stormwater program.
- Reid Bogert (SMCWPPP)worked with Green Schoolyards America and the San Mateo County Office of Education to promote the Schoolyard Forest Leadership Institute to San Mateo County school districts. The institute will be piloted for the

first time in the Bay Area in fall 2026 and is intended to support school sites and districts in making the necessary institutional transformations that will support deeper integration of nature-based solutions, including GSI, in schoolyard greening initiatives.

- Rinta Perkins (CCCWP) provided three presentations to Contra Costa County Public Managers Association (PMA), City/County Engineering Advisory of Contra Costa (CCEAC), and Contra Costa Planning Directors, focusing on the RAC System JPA and the related CFD. In addition, the CCCWP conducted two technical sessions for stakeholder groups on August 12 and September 29, 2025. These outreach efforts are part of an ongoing engagement process to inform and coordinate with local agencies. The formation of the RAC JPA is anticipated to be completed by July 2026.

- Rinta Perkins (CCCWP) delivered ten presentations on the RAC JPA and CFD to the governing bodies of Antioch, Concord, Contra Costa County, Hercules, Moraga, Oakley, Orinda, Pinole, Pleasant Hill, and Richmond during October 2025 through June 2026. In addition to providing agencies with flexibility and efficiency in fulfilling stormwater permit obligations by joining the JPA, the RAC System provides other benefits, such as reduced costs, targeted legacy pollutant areas through regional projects, streamlined administrative tasks, and alignment with regional water quality goals.

- On November 8, 2025, at the State Water Resources Control Board's Urban Stormwater Capture and Use Workshop, Rinta Perkins (CCCWP) and Lisa Austin (Geosyntec Consultants) delivered a presentation on the Contra Costa County RAC System as part of the broader session on stormwater credit systems. The presentation outlined the RAC System's legal basis, the collaborative development process, and the approach to establishing sustainable funding for O&M. It also identified key recommendations to support wider adoption and implementation, including incorporating statewide permit language to enable alternative compliance, developing model joint powers agreement documents, securing dedicated grant funding, and providing ongoing technical assistance.

- Funded by the US EPA Water Quality Improvement Fund (WQIF) program, the CCCWP *Clean Watershed for All (CW4A)* project is advancing countywide implementation (i.e., funding and delivery) of GSI and other water quality improvement projects, with a particular emphasis on benefiting underserved communities. During this permit year, the Project completed identifying and prioritizing stormwater capture opportunities and developed corresponding concept-level designs to support future implementation. As part of its exploration of delivery approaches, the Project also evaluated alternative public-private partnerships (P3) strategies to help secure sustainable financing and expand implementation capacity for these critical watershed improvements.

Future Activities

The MRP 4.0 C.3 Work Group is kicking off in July 2026 and will be meeting during FY 2026-27 to develop and discuss the GSI Implementation Framework and goals and Provision C.3 requirements in the next permit.

BAMSC representatives will also continue to engage in various coordination efforts related to funding and implementation support for GSI. For example, the current CASQA Vice Chair, Reid Bogert, and Board Directors Chris Sommers and Rob Carson are working with leadership at CASQA to evaluate and advance potential funding strategies and funding-related legislation to support stormwater management programs at the state scale. Additionally, BAMSC representatives will continue efforts to promote green and complete streets with regional entities such as the Metropolitan Transportation Commission, the Bay Area Air District, Save the Bay, CalBike, Caltrans, Bay Area Regional Collaborative, Active Transportation Resource Center, San Franscisco Estuary Program, San Francisco Estuary Institute, ReScape, Association of Bay Area Governments, Bay Conservation and Development Commission, and other Bay Area and California organizations.

Appendix C

Industrial and Commercial Site Controls

Post Workshop Report: Stormwater Business and Illicit Discharge Stormwater Inspectors Workshop

Grease Handling and Storage Postcard – English

Grease Handling and Storage Postcard – Chinese

Grease Handling and Storage Postcard – Spanish

Grease Handling and Storage Postcard – Vietnamese

Post Workshop Report: Stormwater Business and Illicit Discharge Inspectors Workshop
Training Fiscal Year 2025-2026

The Clean Water Program's Industrial and Illicit Discharge subcommittee (IIDC) sponsored a stormwater business inspectors and illicit discharge inspector training workshop on May 5, 2026, with presentations and case studies. The Workshop was held in person at the City of Hayward Downtown Library, Hayward. The Training Workgroup members responsible for planning the workshop are identified below.

Aileen Mendoza	Alameda County
Echo Lee	City of Alameda
Mary Skramstad	City of Berkeley
Michael Perlmutter	City of Oakland
Kristin Kerr	EOA, Inc.
Claudia Mayo	EOA, Inc.

The Agenda for the Workshop is attached. There were presentations on the Municipal Regional Stormwater Permit (MRP), a City of Alameda business inspection case study and City of Pleasanton illicit discharge case study. In addition, people that attended in-person broke out into smaller groups to discuss inspection case studies, which allowed for in depth discussion. Sixty five (65) people attended the 3.25-hour workshop in person. The attendance list for the Workshop, sorted by agency, is attached. The presentations are available on the Clean Water Program's (CWP's) website IIDC members only webpage.

MRP (R2-2022-0018) provision C.4.e staff training requirements include 5 topics that must be provided in inspection training within the 5-year permit term. The table below will track the topics covered by the CWP trainings. Note that the CWP training coverage of Business Inspection Plans (BIP) and Enforcement Response Plans (ERP) will discuss what generally is included in these documents. Agencies should consider internal training activities that address their agency specific BIP and ERP. In addition, MRP Provision C.13.c Industrial Sources has a requirement to educate industrial inspectors on industrial facilities likely to use copper or have sources of copper and proper BMPs for them.

MRP Training Topics

	Fiscal Year				
	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
MRP Training Topics (C.4.e.ii)					
Urban Runoff P2	X	X	X	X	
Inspection Procedures		X	X	X	
Business Inspection Plan	X[1]			X[1]	
Enforcement Response Plan	X[1]			X[1]	
Illicit Discharge Detection and Elimination	X	X	X	X	
Best Management Practices	X	X	X	X	
MRP Training Topic (C.13.c)					
Industrial Sources of Copper	X			X	

Notes:

1. Generally discussed required elements of BIPs and ERPs. Agencies should consider internal training activities that address their agency specific BIP and ERP.

Workshop Evaluation

Completed evaluations: 47
Percent of attendees completing evaluation: 72%

Evaluation Question	Response
The presentations were clear and easy to follow	3.91 average rating (out of 4)[1]
Overall, the presentations were informative and useful	3.87 average rating (out of 4)[1]
I will use the skills learned in the workshop today on the job	3.87 average rating (out of 4)[1]
The presenter(s) were knowledgeable in the subject matter	3.81 average rating (out of 4)[1]
Did this training meet your expectations?	Yes: 46 No: 1
Do you prefer in the in-person training in the future?	Yes: 38 No: 9

Note: [1]Strongly Disagree = 1, Strongly Agree = 4

What parts of the training were most useful to you?

- All (2)
- Case Studies (11)
- The case studies and take-home materials
- Case studies embedded into presentations (3)
- New field inspection App implemented at the City Of Oakland

- I like the case studies; the group activities were also good. I liked the addition of the Menti voting website.
- Case studies were great practices of what we can encounter in the field
- Variety of case studies & real-world scenarios
- Anytime the presentations can include real photos of the problems
- Kristin did a great job leading the group exercises discussions and Menti was fun. Maybe slightly shorter small group break out times. Good photos for discussion.
- Practical share
- Identifying C4 vs C5 inspections
- C.4/ C.5
- Talking with colleagues about how they handle different situations
- Example photos and diagrams on slides
- Interactive group discussion (3)
- Enforcement information
- The group exercise and the MRP presentation (2)
- Listening to others take on how to they would enforce
- Illicit discharge vs real discharge
- Restaurant
- Topics were broken down and divided in effective time blocks in a way that was not overwhelming
- Presentation slideshows had effective bullet-points that were easy to follow along
- Case studies were highly relevant, showing outcomes was helpful

What would have made this training more useful?

- Fewer group exercises
- More exercises
- More case studies
- More examples of NOVs and violations, etc. Seeing how others issue enforcement.
- More hands-on activities
- Bigger printing on handouts (2)
- Opportunity for agencies to share challenges they're dealing with
- Don't give me the thumbs -up button
- More information on rooftop inspections
- More case studies and pictures
- Networking opportunity to meet people from other agencies (2)
- Being able to use the Oakland App to try out
- Earlier Lunch
- A little more time maybe!
- Nothing (2)
- More Restaurant info
- More examples and photos of issues in cities and how they handled it and outcome
- Some fonts / font colors were hard to read in front of colorful backgrounds.
- Adding timelines of outcomes, placing BMPs/ corrective actions would be helpful.

What subjects would you like to see addressed in future workshops?

- Training other inspectors
- Stormwater Pollution Prevention Plans (SWPPPs)
- Annual report guidance, exemptions
- More on FOG related issues
- Tobacco laws/smoke shops /cannabis
- Code enforcement and their process
- Public relations and different approach skills
- Walk through the inspection form
- Illicit discharge (e.g., vehicle spill, oil, gasoline diesel spill) cleanup examples
- Restaurant roof top what to look for and grease bins
- More information on pool draining and auto repair on private property/homes
- More enforcement
- Progress and goals: What are we working toward; What we've accomplished;
- Cool new engineering controls that are being implemented
- More variety of commercial/industrial cases
- Presentation on emergency response and videos of things that went wrong
- New and developing issues or regulatory updates
- Priority industries
- New topics related to C4/C5
- C.6-Building demolition, BMPs/violations
- Construction demolition
- Continue with ongoing discussion re: BMPs
- More complicated scenarios
- Efforts to get more consistency between the different jurisdictions! We all seem to do things a little or very differently.
- Digital inspection forms like the Oakland App and other ways to document the inspections easily
- How to handle discharges from cleaning streets. We have issues with human waste being power washed and not having enough resources to safely reclaim the rinsate without exposing staff to pathogens.

General Comments

- Please include water and coffee (3)
- Great job (2)
- Lunch was great. Catering for some coffee, always a plus. In person trainings are good.
- Thank you! Maybe less topics to follow
- Nice job!
- Coffee and cookies. Have sandwiches labeled in understandable terms. Thanks for lunch and your time!
- Thank you! (5)
- Need more food, larger portions
- Love the raffle ticket idea

- Great workshop
- The training was good and educational overall.
- This is my 3rd time coming here, it continues to get better and more engaging! Maybe a meet and greet to meet others and learn about what they do/who they represent.
- I thought the presenters were very knowledgeable, professional and well spoken. Very well done and a terrific course.
- Conditionally exempt explanation and examples would be helpful
- Let's look at slides and make sure there is good visual contrast. P.J. Phillips has good practice (see avoiding death by powerplant).
- I learned that C.4.inspections come first, before C.5 and other inspections. That is the illicit discharge complaints should trigger C.4. inspection rather than C.5

Attendees

- Inspector - 36
- Supervisor – 6
- Stormwater Program Staff/Manager - 4
- Other - 3

Stormwater Business and Illicit Discharge Inspectors Workshop: Sharing Our Knowledge

Tuesday, May 5, 2026
11:15 am to 2:30 pm
City of Hayward Downtown Library
Fremont Bank Room, 888 C St, Hayward

	Topic	Speaker	Time
	Registration		11:00 am
	Welcome	Aileen Mendoza, Alameda County Environmental Health and IIDC Chair	11:15 am
1.	Municipal Regional Stormwater Permit (MRP) – Part 1	Kristin Kerr, EOA	11:25 pm
2.	City of Oakland Inspection App	Mike Perlmutter, City of Oakland	11:35 am
3.	C4 Business Inspection Case Study	Echo Lee, City of Alameda	11:55 pm
4.	Municipal Regional Stormwater Permit (MRP) – Part 2	Kristin Kerr, EOA	12:10 pm
5.	C5 Illicit Discharge Case Study	Claudia Mayo, EOA	12:20 pm
	BREAK	30 min for lunch	12:30 pm
6.	Municipal Regional Stormwater Permit (MRP) – Part 3	Kristin Kerr, EOA	1:00 pm
7.	Group Exercise Case Study #1: Illicit Discharge Case Study #2: Waste Storage Case Study #3: Illicit Discharge complaint turned C4 Inspection Case Study #4: Auto Shop	Kristin Kerr, EOA	1:10 pm
8.	Inspector Resources and Wrap Up	Kristin Kerr, EOA, Inc.	2:15 pm
	Adjourn		2:30 pm

ACCWP Business and Illicit Discharge Stormwater Inspector Workshop
May 5, 2026
Attendance List

	First Name	Last Name	Agency/Organization
1	Nicholas	Nobrega	Alameda County
2	Kyle	Fennessy	Alameda County Environmental Health Department
3	Roseanna	Garcia La Grille	Alameda County Environmental Health Department
4	Timothy	Hildreth	Alameda County Environmental Health Department
5	My Le	Huynh	Alameda County Environmental Health Department
6	Aileen	Mendoza	Alameda County Environmental Health Department
7	Matthew	Soby	Alameda County Environmental Health Department
8	Antoinette	Stetzenmeyer	Alameda County Environmental Health Department
9	Fatinah	Zareef	Alameda County Environmental Health Department
10	Roderick	Guerry	Aliquot Associates
11	Echo	Lee	City of Alamda
12	Jim	Barse	City of Alameda
13	Gerardo	Jimeniz	City of Alameda
14	Curt	Michael	City of Alameda
15	Uranchimeg	Altankhuyag	City of Berkeley
16	Karl	Etulle	City of Berkeley
17	Danielle	Low	City of Berkeley
18	Christina	Pallmann	City of Berkeley
19	Mary	Skramstad	City of Berkeley
20	Ron	Torres	City of Berkeley
21	Lino	Ancheta	City of Berkeley - Environmental Health
22	Jeffrey	Diep	City of Berkeley - Environmental Health
23	Muzna	Rauf	City of Berkeley - Environmental Health
24	Lam	Inthavong	City of Berkeley, Toxics
25	Nicole	Kim	City of Berkeley, Toxics
26	Meridith	Lear	City of Berkeley, Toxics
27	Jasmin	Lara	City of Fremont
28	Emily	Martinez	City of Fremont
29	Ken	Shih	City of Fremont
30	Elliot	Wier	City of Fremont
31	Kiel	Ella	City of Hayward
32	Jaime	Rosenberg	City of Hayward
33	Ernest	Garcia La Grille	City of Livermore
34	Brian	Uribe	city of Livermore
35	Jacob	Welis	City of Livermore
36	Monica	Navarro	City of Livermore - Water Resources Division
37	Mike	Perlmutter	City of Oakland
38	Julie	Yang	City of Pleasanton
39	Bryan	Toledo	City of Pleasanton
40	Manjot	Sandhu	CSWST2

ACCWP Business and Illicit Discharge Stormwater Inspector Workshop
May 5, 2026
Attendance List

	First Name	Last Name	Agency/Organization
41	Elias	Kauders	EOA, Inc.
42	Claudia	Mayo	EOA, Inc.
43	Axel	Rieke	Northgate Environmental Management, Inc.
44	Kevin	Torres	Northgate Environmental Management, Inc.
45	Andy	Block	Union City
46	Kevin	Bishop	Union Sanitary District
47	Eduardo	Cabrera	Union Sanitary District
48	Spencer	Chen	Union Sanitary District
49	Franki	Crites	Union Sanitary District
50	Alicia	Dutrow	Union Sanitary District
51	Marian	Gonzalez	Union Sanitary District
52	Michael	Lothian	Union Sanitary District
53	Alex	Paredes	Union Sanitary District
54	Jose	Soto	Union Sanitary District
55	Joseph	Mendoza	Union Sanitary District/City of Fremont
56	Matthew	Chellemi	Verdantas
57	Luke	Swanson	Verdantas
58	Annabel	Teperson	Verdantas
59	Dylan	Dabel	Verdantas
60	Megan	Sampiere-Prochnow	Vernantas
61	Zachary	Drummond	WSP
62	Mateo	Gutierrez	WSP
63	Lida	Hamidi	WSP
64	Jim	Honniball	WSP
65	Lusi	Tai	WSP (City of Newark)

Grease Handling and Storage

Do NOT pour cooking oil or grease into sinks or floor drains, or into a parking lot, storm drain or street.

Follow these guidelines to prevent stormwater pollution.

Be careful when transferring used cooking oil to avoid spills.

- ☐ **Use approved container for storage of used cooking oil or grease.**
  - ☐ **Store inside when possible** and if less than or equal to 35 gallons.
  - ☐ **Provide secondary containment below and overhead cover for outside storage** of free-standing tallow bins or oil drums, OR store in trash enclosure with berm/trench. See images below.
- ☐ **Secure grease containers when transporting them** from kitchens to outside enclosures. Take care to avoid spills.

Example of proper secondary containment and overhead cover for outside storage.

Example of proper trash enclosure with overhead roof and secondary containment under tallow bin.

Leaks and spills lead to stormwater pollution.

Clean spills properly. Follow the guidelines below to prevent harm to local waterways.

- ☐ **Inspect and replace any damaged or leaking storage bins.**
- ☐ **Clean spilled grease or overflowing grease containers using dry methods,** such as cat litter or absorbent mat or pads. Dispose of all absorbent material properly.
- ☐ **Never wash down outside surfaces to gutter, street, or storm drain -- only sweep, vacuum, or mop.** Dispose of wastewater in floor sinks and janitorial sinks.
- ☐ **Use contracted cleaning services trained to use pollution prevention practices** (BAMSC list of recognized surface cleaners: Surface Cleaning Program – BAMSC).
- ☐ **Check rooftop exhaust fans and flue at least monthly.** Place an oil collection tray under the rooftop exhaust fan shrouds to collect cooking oil. Empty the shrouds weekly.
- ☐ **Dispose or recycle cooking oil and grease through a licensed waste grease hauler or recycler** (see website:apps1.cdfa.ca.gov/IKG/Transporters.aspx)
- ☐ **Improper used cooking oil or grease handling and disposal that pollutes storm drains is illegal.** Both the company and individuals responsible are subject to fines or prosecution.

For more information, call 510-670-6548.

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ACCWP would like to thank the Alameda County Environmental Health Dept. for content and photos.
Version 1. 12-03-25

油脂處理與儲存

切勿將食用油或油脂倒入水槽、地面排水孔，或停車場、雨水下水道及街道。

請遵守下列規定，防止雨水污染。

- ☐ 使用核准容器儲存廢食用油或油脂。
  - ☐ 容量在 **35**加侖或以下者，應盡量儲存於室內。
  - ☐ 戶外儲存獨立式油脂桶或油桶時，底部須設二次防漏設施且上方須有遮蔽，或儲存於設有止水墩/溝槽之垃圾儲存區。詳見下圖。
  - ☐ 將油脂容器 從廚房運至戶外儲存區 時，務必蓋緊固定。小心操作，避免溢漏。

移裝廢食用油時請小心，避免溢漏。

戶外儲存設置適當二次防漏設施及遮蔽範例。

設有遮雨棚及油脂桶底部二次防漏設施之標準垃圾儲存區範例。

洩漏與溢漏會造成雨水污染。

妥善清理溢漏物。請遵守下列規定，避免污染鄰近水域。

☐ 檢查儲存桶，若有損壞或洩漏應立即更換。

☐ 以乾式方法清理溢漏油脂或滿溢容器，例如使用貓砂、吸油毯或吸油棉。妥善棄置吸油材料。

☐ 嚴禁將戶外地面沖洗水排入路邊側溝、街道或雨水下水道，僅可清掃、吸塵或拖地。廢水須倒入地面水槽與清潔專用水槽。

☐ 委託受過污染防治訓練之簽約清潔服務商（灣區市政雨水合作組織 (Bay Area Municipal Stormwater Collaborative, BAMSC) 認可地面清潔商名單：Surface Cleaning Program – BAMSC）。

☐ 至少每月檢查屋頂排風扇與排氣管道。於屋頂排風扇罩下方放置集油盤以收集食用油。每週清空積油。

☐ 委託合格廢油清運或回收業者棄置或回收食用油與油脂（參閱網站：apps1.cdfa.ca.gov/lKG/Transporters.aspx）

☐ 未妥善處理及棄置廢食用油或油脂致污染雨水下水道，屬違法行為。違規公司與個人將面臨罰款或起訴。

如需更多資訊，請致電**510-670-6548**。

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Alameda County Clean Water Program (ACCWP) 感謝Alameda縣環境衛生部提供內容與照片。

第1版 2025年12月3日

Manejo y almacenamiento de la grasa

NO vierta aceite de cocina ni grasa en fregaderos, desagües, estacionamientos, drenajes pluviales ni en la calle.

Siga estas pautas para evitar la contaminación de aguas pluviales.

- ☐ **Utilice un recipiente permitido para almacenar aceite de cocina usado o grasa.**
  - ☐ **Almacene en interiores siempre que sea posible** y si la cantidad es inferior o igual a 35 galones.
  - ☐ **Proporcione un contenedor secundario debajo y una cubierta superior para el almacenamiento en exteriores** de contenedores de sebo o bidones de aceite separados, O almacénelos en un recinto de basura con berma o zanja. Observe las imágenes a continuación.
- ☐ **Asegure bien los contenedores de grasa cuando los transporte** desde cocinas a recintos exteriores. Tenga cuidado para evitar derrames.

Tenga cuidado al transferir aceite de cocina usado para evitar derrames.

Ejemplo de contención secundaria y cubierta superior adecuadas para el almacenamiento en exteriores.

Ejemplo de recinto de basura adecuado con techo y contención secundaria debajo del contenedor de sebo.

Las fugas y los derrames provocan la contaminación de aguas pluviales.

Limpie los derrames adecuadamente. Siga las pautas que se indican a continuación para evitar daños en vías fluviales locales.

- ☐ **Inspeccione y sustituya cualquier contenedor de almacenamiento dañado o con fugas.**
- ☐ **Limpie la grasa derramada o los recipientes de grasa desbordada utilizando métodos en seco,** como arena para gatos o alfombrillas o almohadillas absorbentes. Deseche todo el material absorbente de forma adecuada.
- ☐ **Nunca lave superficies exteriores con agua hacia canales, desagües, la calle ni el drenaje pluvial; solo barra, aspire o utilice un trapeador.** Deseche las aguas residuales en las coladeras y lavabos de limpieza.
- ☐ **Utilice servicios de limpieza contratados y capacitados en prácticas de prevención de la contaminación** (lista de Colaboración Municipal de Aguas Pluviales del Área de la Bahía [Bay Area Municipal Stormwater Collaborative, BAMSC] de compañías de limpieza de superficies reconocidas: Surface Cleaning Program – BAMSC).
- ☐ **Revise los extractores y conductos de humo de la azotea al menos una vez al mes.** Coloque una bandeja recolectora de aceite debajo de las cubiertas de los extractores de la azotea para depositar el aceite de cocina. Vacíe las cubiertas cada semana.
- ☐ **Deseche o recicle el aceite y la grasa de cocina por medio de un transportista o reciclador de grasa residual autorizado** (consulte el sitio web: apps1.cdfa.ca.gov/IKG/Transporters.aspx)
- ☐ **El manejo y la eliminación inadecuados del aceite o la grasa de cocina usados que contaminan los drenajes pluviales son ilegales.** Tanto la empresa en cuestión como el personal responsable están sujetos a multas o acciones legales.

Para obtener más información, llame al 510-670-6548.

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ACCWP desea agradecerle al Departamento de Salud Ambiental del Condado de Alameda por el contenido y las fotografías.

Version 1. 12-03-25

Xử Lý và Bảo Quản Mỡ Động Vật

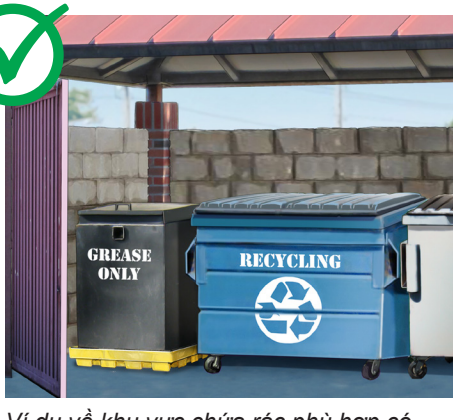
KHÔNG đổ dầu ăn hoặc mỡ động vật vào bồn rửa hoặc cống thoát nước hoặc đổ ra bãi đỗ xe, cống thoát nước mưa hoặc đường phố.

Thực hiện theo nguyên tắc hướng dẫn để tránh làm ô nhiễm nước mưa.

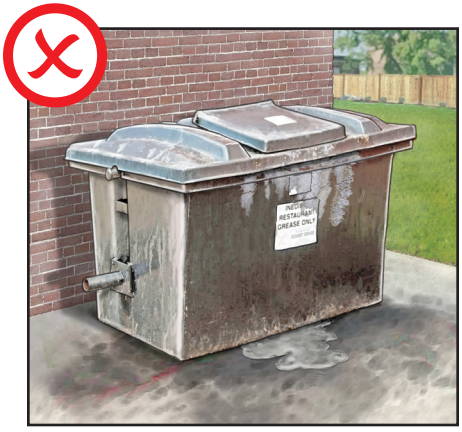
Cẩn thận khi đổ dầu ăn đã sử dụng để tránh bị đổ tràn.

- ☐ **Sử dụng thùng chứa được phê duyệt để bảo quản dầu ăn hoặc mỡ động vật đã sử dụng.**
  - ☐ **Bảo quản trong nhà khi có thể** và nếu lượng bảo quản từ 35 gallon trở xuống.
  - ☐ **Bố trí hệ thống thu gom thứ cấp như bên dưới và mái che trên cao để bảo quản** thùng chứa mỡ động vật hay thùng phuy dầu độc lập HOẶC bảo quản trong khu vực chứa rác có bờ/rãnh. Xem hình ảnh bên dưới.
  - ☐ **Cố định các thùng chứa mỡ động vật khi chuyển** từ bếp ra khu vực chứa ngoài trời. Cẩn thận để tránh đổ tràn.

Ví dụ về hệ thống thu gom thứ cấp và mái che trên cao phù hợp để bảo quản ngoài trời.



Ví dụ về khu vực chứa rác phù hợp có mái che trên cao và hệ thống thu gom thứ cấp bên dưới thùng mỡ động vật.



Rò rỉ và đổ tràn làm ô nhiễm nước mưa.

Vệ sinh bãi đổ tràn đúng cách. Thực hiện theo nguyên tắc hướng dẫn bên dưới để tránh gây hại cho các tuyến đường thủy của địa phương.

- ☐ **Kiểm tra và thay thế mọi thùng chứa bị hỏng hoặc rò rỉ.**
- ☐ **Vệ sinh mỡ bị đổ tràn hoặc thùng chứa mỡ quá đầy bằng các phương pháp khô,** ví dụ như cát vệ sinh cho mèo hoặc tấm hay miếng thấm hút. Thải bỏ toàn bộ vật liệu đã thấm mỡ sao cho đúng cách.
- ☐ **Tuyệt đối không được xả trực tiếp lên các bề mặt ngoài trời xuống rãnh thoát nước, đường phố hoặc cống thoát nước mưa – chỉ được quét, hút bụi hoặc lau.** Đổ nước thải vào bồn rửa trên sàn và bồn rửa dành cho nhân viên vệ sinh.
- ☐ **Sử dụng dịch vụ vệ sinh theo hợp đồng, với nhân sự đã qua đào tạo để sử dụng các biện pháp ngăn ngừa ô nhiễm** (danh sách các chất vệ sinh bề mặt được Liên Minh Hợp Tác Quản Lý Nước Mưa Đô Thị Vùng Vịnh (Bay Area Municipal Stormwater Collaborative, BAMSC) công nhận: Surface Cleaning Program – BAMSC).
- ☐ **Kiểm tra quạt xả và ống hơi trên mái tối thiểu là hàng tháng.** Đặt khay gom dầu bên dưới nắp bảo vệ quạt xả trên mái che để thu gom dầu đã sử dụng. Đổ nắp bảo vệ hàng tuần.
- ☐ **Thải bỏ hoặc tái chế dầu ăn và mỡ động vật thông qua bên vận chuyển hoặc bên tái chế chất thải có giấy phép** (xem website:apps1.cdfa.ca.gov/IKG/Transporters.aspx)
- ☐ **Việc xử lý và thải bỏ không đúng cách dầu ăn hoặc mỡ động vật đã sử dụng làm ô nhiễm cống thoát nước mưa là hành vi trái pháp luật.** Cả công ty và cá nhân chịu trách nhiệm đều có thể bị phạt hoặc khởi tố.

Để biết thêm thông tin, hãy gọi số 510-670-6548.

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Alameda Countywide Clean Water Program (ACCWP) chân thành cảm ơn Sở Y Tế Môi Trường Quận Alameda vì đã cung cấp nội dung và hình ảnh.

Phiên bản 12-03-25

Appendix D

Construction Site Controls

On-Demand Stormwater Construction Inspection Refresher Training

New Development Subcommittee Training Activities Fiscal Year 2025-26

The Clean Water Program's New Development Subcommittee (NDS) sponsored two MRP Provision C.6 trainings in Fiscal Year 2025-26. These trainings are summarized below.

On-Demand Stormwater Construction Inspection Refresher Training

The first training was a virtual, on-demand refresher training on the topic of stormwater construction inspections. Attendees completed the training by logging online, watching two training videos, and completing a knowledge survey for each video (the passing score was a minimum of 60% correct answers). The videos went 'live' on October 15, 2025. Seventy-five staff from across 13 Clean Water Program agencies completed this training by watching one or both of the training videos.

The Construction Inspection Refresher presentations available through the on-demand videos included:

- MRP C.6 Construction Requirements and BMPs (35 min)
  - *MRP C.6 Permit Requirements Overview*
  - *BMP Context and the C.6 Six BMPs*
  - *BMP Examples and Installation Tips*
- C.6 Construction Inspections (20 min)
  - *Inspection Frequency*
  - *Inspection Goals*
  - *Inspection Preparation*
  - *Conducting the Inspection*
  - *Documenting the Inspection*.

These virtual trainings will remain available on the Clean Water Program's video hosting platform, available to the Clean Water Program members.

Effectiveness Assessment

Sixty-five attendees viewed the *MRP C.6 Construction Requirements and BMPs* video and 63 (97%) successfully completed the associated knowledge survey with a score of 60% or higher. Forty-one attendees viewed the *C.6 Construction Inspections* video and 40 (98%) successfully completed the associated knowledge survey with a score of 60% or higher.

Workshop Evaluation

Sixty-four of 65 attendees evaluated the *MRP C.6 Construction Requirements and BMPs* training video. The overall average rating for this presentation was 4.81, out of a maximum of 5.0. Forty-one of 41 attendees evaluated the *C.6 Construction Inspections* training video. The overall average rating of this presentation was 4.78, out of a maximum of 5.0. Attendees valued the information presented in the training as well as the on-demand availability. Several specifically identified the BMP examples included in the presentation and the review of the inspection forms as valuable. The ratings are summarized in **Table 1**.

Future training needs identified by attendees included: more examples of both adequate and inadequate BMPs and case studies of projects with escalated enforcement.

Table 1. Workshop Evaluation Summary

Evaluation Item	Average Rating (out of 5)[1]
MRP C.6 Construction Requirements and BMPs	
The training was useful and informative.	4.77
I will use the skills learned in the workshop today on the job.	4.84
Overall Rating	**4.81**

C.6 Construction Inspections	
The training was useful and informative.	4.80
I will use the skills learned in the workshop today on the job.	4.76
Overall Rating	**4.78**

[1] Rating scale 1-5 with 1 = Strongly Disagree and 5 = Strongly Agree

2022 Construction General Permit Overview

The second training was a virtual workshop held on February 18, 2026. Alina Constantinescu, P.E., QSD, presented an overview of construction stormwater management requirements under the Statewide Construction General Permit (CGP), with a focus on the 2022 updates to the permit. The format was a 45-minute presentation followed by questions and discussion. The workshop was attended by 61 agency staff and consultants that support the Clean Water Program and its member agencies

As noted, the presentation focused on 2022 updates to the CGP. The presentation topics included:

- *Permit effective date and transition period*
- *General overview of permit requirements*
- *Changed requirements in the 2022 Permit*
- *Final stabilization requirements and challenges*

The virtual training session was recorded and remains available on the Clean Water Program's video hosting platform, available to the Clean Water Program members.

Effectiveness Assessment

There were no pre- or post-workshop surveys provided for this training.

Workshop Evaluation

Twenty-three of 61 attendees (38%) completed evaluations. The overall average rating of the workshop was 4.69, out of a maximum of 5.0 (**Table 2**). Attendees generally valued the information presented in the training and several specifically identified the clear presentation of the differences between MRP and CGP requirements as particularly valuable. Future training needs identified by attendees included more CGP-specific inspection and enforcement trainings.

Table 2. Workshop Evaluation Summary

Evaluation Item	Average Rating (out of 5)[1]
The training was useful and informative.	4.78
I will use the skills learned in the workshop today on the job.	4.62
Overall Rating	**4.69**

[1] Rating scale 1-5 with 1 = Strongly Disagree and 5 = Strongly Agree

Attachments: Training Announcements and Attendance Reports

C.6 On-Demand Refresher Training
FY 25-26 Attendance Report

		Date of Completion	
Name	**Agency**	**MRP C.6 Requirements and BMPs**	**C.6 Inspections**
Paige Pearson	Alameda County Public Works	12/3/25	12/3/25
David Craighead	City of Albany / CAP Engineerin	6/30/26	
Allan Wong	City of Berkeley	10/20/25	
Casey McDaniel	City of Berkeley	3/27/26	3/27/26
Devon Patel	City of Berkeley	3/26/26	3/31/26
Diego Figueroa	City of Berkeley	10/20/25	
Gordy Cooper	City of Berkeley	3/17/26	
Jonathan Caudillo	City of Berkeley	10/20/25	
Jose Alonso	City of Berkeley	12/9/25	
Joshua Laranang	City of Berkeley	12/29/25	
Mary Skramstad	City of Berkeley	10/20/25	
Matthew MacArthur	City of Berkeley	10/20/25	
Michael Roshal	City of Berkeley	12/5/25	12/9/25
Adrian Merry	City of Berkeley	12/19/25	12/19/25
James Lai	City of Dublin		6/30/26
Mark Pulgarin	City of Dublin	11/5/25	11/5/25
John Campanile	City of Dublin / 4Leaf, Inc.	11/10/25	11/7/25
Nicholas Edgemon	City of Dublin / 4Leaf, Inc.		11/6/25
Kevin Dickens	City of Dublin / Consor N. Amer	12/15/25	
Jeff Mitchum	City of Dublin / MNS Engineers		12/1/25
Steve Richey	City of Dublin / MNS Engineers		11/19/25
Matt Anderson	City of Emeryville	5/19/26	
Elliot Wier	City of Fremont	12/3/25	
Ken Shih	City of Fremont	1/14/26	1/14/26
Ali Faridi Tavana	City of Hayward	12/10/25	
Haitham Ahmed	City of Hayward	12/9/25	12/9/25
Mustafa Taha	City of Hayward	12/5/25	12/5/25
Paulo Pulu	City of Hayward	12/5/25	
Ramon Ramirez	City of Hayward	12/15/25	12/15/25
Christopher Ferrel	City of Livermore	1/14/26	
Debbie Salgado	City of Livermore	1/15/26	1/21/26
Joe Kudreca	City of Livermore	1/22/26	1/22/26
Jorge Andrade	City of Livermore		1/26/26
Leo Sum	City of Livermore	2/5/26	2/5/26
Michael Davis	City of Livermore	1/20/26	1/20/26
Nicolas Bagakis	City of Livermore	1/26/26	1/26/26
RickTeczon	City of Livermore	2/12/26	2/12/26
Li-Teck Lau	City of Livermore	2/24/26	
Manny Cota	City of Livermore	1/15/26	1/15/26
Jerrald Yang	City of Newark	5/1/26	
Michael Carmen	City of Newark	5/22/26	5/22/26
Carlos Velasquez	City of Oakland	4/24/26	
Cody Meshberger	City of Oakland	1/8/26	1/8/26
Dennis Larks	City of Oakland	12/5/25	

C.6 On-Demand Refresher Training
FY 25-26 Attendance Report

		Date of Completion	
Name	**Agency**	**MRP C.6 Requirements and BMPs**	**C.6 Inspections**
Elizabeth Simmons	City of Oakland		5/7/26
Eric Arico	City of Oakland	1/12/26	
Erik Yslas	City of Oakland	12/3/25	12/3/25
Geno Martinelli	City of Oakland	4/20/26	4/20/26
Isabell Mysyk	City of Oakland	6/10/26	
James Richardson	City of Oakland		4/16/26
Joel Garcia	City of Oakland	4/30/26	
Mersedeh Haghighi Javid	City of Oakland	4/20/26	4/20/26
Revos Mahoro	City of Oakland		12/6/25
Russell Atkinson	City of Oakland		5/4/26
Shane Norris	City of Oakland	5/7/26	
Tam Vo	City of Oakland	4/30/26	
Terrence Jiang	City of Oakland	4/15/26	
Theodore Hasert	City of Oakland	4/15/26	4/16/26
Thomas Owczarzak	City of Oakland	4/21/26	4/21/26
Abderazak Medhkour	City of Oakland	12/24/25	
Eddie Moses lll	City of Oakland	12/4/25	12/4/25
Kevin Martin	City of Oakland		4/22/26
David Nolta	City of Pleasanton		12/4/25
Lily Peng	City of Pleasanton		1/2/26
Mirsad Catic	City of Pleasanton	12/4/25	
Antonio Pulido Lizaola	City of Union City	2/17/26	2/17/26
Jose Gutierrez	City of Union City	2/17/26	2/17/26
Adolfo Perez	Zone 7 Water Agency	6/26/26	
Edward Yeh	Zone 7 Water Agency	6/22/26	
Ishika Nawrin Chowdhury	Zone 7 Water Agency	6/30/26	
Jeff Tang	Zone 7 Water Agency	6/22/26	
Jerry Harris	Zone 7 Water Agency	6/23/26	
Justin Pascual	Zone 7 Water Agency	6/22/26	
Mariza Sibal	Zone 7 Water Agency	6/22/26	
Mona Olmsted	Zone 7 Water Agency	6/29/26	

Construction General Permit – 2022 Updates Overview

LARRY WALKER ASSOCIATES

Alina Constantinescu, P.E., QSD/P

February 18, 2026, 11a-12:30p

Training Outline

- Stormwater regulations and permits
- 2022 Construction General Permit (CGP)
  - Effective date and transition period
  - General overview of permit requirements
  - Changed requirements in the 2022 Permit
  - Final stabilization requirements and challenges
- Q&A / Extended discussion

Review of 2022 CGP

February 18, 2026 Attendance Report

Name	Agency
Ali Hatefi	City of Alameda
Brendin Christolear	City of Alameda
Echo Lee	City of Alameda
James Barse	City of Alameda
Kan Xu	City of Alameda
Allison Carrillo	City of Albany
David Lam	City of Albany
Dina Tasini	City of Albany
Dave Craighead	City of Albany / CAP
Alonso, Jose	City of Berkeley
Cooper, Gordon	City of Berkeley
MacArthur, Matthew	City of Berkeley
Mary Skramstad	City of Berkeley
Merry, Adrian	City of Berkeley
James Lai	City of Dublin
Mark Pulgarin	City of Dublin
Mary Coulson	City of Dublin
Michael Boitnott	City of Dublin
Oscar Rivera	City of Dublin
Robert Magno	City of Dublin
Rosemary Alex	City of Dublin
Sai Midididdi	City of Dublin
Shannan Young	City of Dublin
Tyler Isaac	City of Dublin
Vatsal Patel	City of Dublin
Matt Anderson	City of Emeryville
Daniel Matlock	City of Fremont
Michelle Sim	City of Fremont
Domingo Trinidad	City of Hayward
Elisa Wilfong	City of Hayward
Jarrett Rasmussen	City of Livermore
Leo Sum	City of Livermore
Jerrald Yang	City of Neward
Michael Carmen	City of Neward
Cecilia Muela	City of Oakland
David E. Velez	City of Oakland
Mariano Rojo	City of Oakland
Michael Perlmutter	City of Oakland
Velasquez, Carlos	City of Oakland

Review of 2022 CGP

February 18, 2026 Attendance Report

Name	Agency
John Hilbelink	City of Pleasanton
Lily Peng	City of Pleasanton
Michael Buck	City of Pleasanton
Mirsad Catic	City of Pleasanton
Tommy Nguyen	City of Pleasanton
John O'Driscoll	City of San Leandro
Antonio Pulido	City of Union City
Diana Cangco	City of Union City
Tommy (Wai Chee) Cho	City of Union City
James Yoo	County of Alameda Public Works
Paige Pearson	County of Alameda Public Works
Gary Ushiro	PC Engr
Adolfo Perez	Zone7 Water Agency
Edward Reyes	Zone7 Water Agency
Edward Yeh	Zone7 Water Agency
Elliott Levistky	Zone7 Water Agency
Ishika Chowdhury	Zone7 Water Agency
Junming Li	Zone7 Water Agency
Justin Pascual	Zone7 Water Agency
Shanna Norton	Zone7 Water Agency
Sophie Sidhu	Zone7 Water Agency

Appendix E

Pesticide Toxicity Controls

ACCWP Our Water Our World Integrated Pest Management Retail Store Partnership Program

CASQA Our Water Our World Report

CASQA 2026 Pesticides Annual Report

OUR WATER — OUR WORLD

Alameda Countywide Clean Water Program
Our Water Our World
Integrated Pest Management Retail Store Partnership Program
Final Report for contract fiscal year 2025-2026
Prepared by Suzanne Bontempo, Plant Harmony

Program Overview

Our Water Our World (OWOW) is a public outreach program designed to reduce the use of toxic pesticides and to reduce pesticide pollution in urban run-off. OWOW uses a point-of-purchase approach that educates and encourages retail nurseries, hardware stores, and home improvement stores that sell pesticides, to provide less-toxic, eco-friendly products for their customers. In addition, the OWOW program provides Integrated Pest Management (IPM) educational Fact Sheets for the public. Promoting the use of less toxic products around the home and garden can lead to a reduction of pollutants in our local creeks, and local waterways, as well as a healthier environment for the public.

The OWOW program meets the National Pollutant Discharge Elimination System (NPDES) stormwater permit requirements that require municipalities to have a program in place to educate the public on IPM.

Alameda Countywide Clean Water Program currently sponsors the Our Water Our World retail partnership program in 34 retail businesses throughout Alameda County. The OWOW program services are provided by me, and IPM Educators; Katherine Meler and Kiryn Duncan

OWOW Retail Partners

This is the list of the OWOW Retail Partners as of June 30th, 2026:

Alameda

1. Encinal Nursery, 2057 Encinal Avenue
2. Encinal Hardware, 2801 Encinal Avenue
3. Ploughshares, 2701 Main Street

Albany

4. Flowerland, 1330 Solano Avenue

Berkeley

5. Ace Hardware, 2020 Milvia Street, Unit 100
6. Berkeley Horticultural Nursery, 1310 McGee Avenue

7. East Bay Nursery, 2332 San Pablo Avenue
8. Outdoor Supply Hardware, 1025 Ashby Avenue
9. Westbrae Nursery, 1272 Gilman Avenue

Castro Valley

10. Pete's Ace Hardware, 2569 Castro Valley Boulevard

Dublin

11. Alamo Ace Hardware, 7373 Village Parkway
12. Summer Winds Nursery, 7360 San Ramon Road

Emeryville

13. The Home Depot Store, 3838 Hollis Street

Fremont

14. Dale Hardware 3700 Thornton Avenue
15. The Home Depot Store, 43900 Ice House Terrace
16. Regan's Nursery, 4268 Decoto Road

Hayward

17. The Home Depot Store, 21787 Hesperian Boulevard

Livermore

18. Alden Lane Nursery, 981 Alden Lane
19. The Home Depot Store, 2500 Las Positas Road

Newark

20. The Home Depot Store, 5401 Thornton Avenue

Oakland

21. Broadway Terrace Nursery, 4340 Clarewood Drive
22. Cole Hardware, 5533 College Avenue
23. Grand Lake Ace Garden Center, 4001 Grand Avenue
24. The Home Depot Store, 4000 Alameda Avenue
25. Laurel Ace Hardware, 4024 MacArthur Boulevard
26. Montclair Village Nursery, 5048 Woodminister Lane
27. Yarrow Nursery, 6250 Thornhill Drive

Piedmont

28. Grand Lake Ace Hardware, 1221 Grand Avenue

Pleasanton

29. The Home Depot Store, 6000 Johnson Drive
30. Western Garden Nursery, 2756 Vineyard Avenue

San Leandro

31. Evergreen Nursery and Garden Supply, 350 San Leandro Boulevard
32. The Home Depot Store, 1933 Davis Street
33. Outdoor Supply Hardware, 300 Floresta Boulevard

Union City

34. The Home Depot Store, 30055 Industrial Parkway SW

Contract Deliverables

Summary of Tasks Completed for this Contract.

- A total of 253 store visits were provided.
  Each retailer received at least 4 store maintenance and mentoring visits, and several received up to 11 store maintenance and mentoring visits.
- Engaged with no less than a total of 161 customers during these store visits.
- OWOW shelf talker tags are placed to identify eco-friendly products at these retailers.
- Stock the OWOW rack with the 18 fact sheet topics, including topics in Spanish.
- The OWOW fact sheet QR Code poster is accessible to shoppers to use.
- Provided an OWOW training for the associates at 15 retailers training a total of 96 associates.
- Provided 15 in-person public outreach events, engaging with no less than 611 people.

OWOW tasks throughout the year

Store Set-up

Each retailer received new shelf talker tags to identify the eco-pesticides available for consumers to purchase. The Home Depot Stores physically remerchandise their products each winter. As for the other retailers, they might remerchandise and/or add new eco-products to the retail shelves for sale.

Retailers such as Berkeley Horticultural Nursery, Flowerland, Yarrow, and Broadway Terrace Nursery only sell eco-friendly products so have declined the placement of shelf talker tags.

Placing new shelf talker tags on eco-pesticides at retailers throughout the OWOW partnership. Here are photos of shelf tags at the Montclair Village Hardware, Oakland *(left)* and the Home Depot Store, Fremont *(right)*

Retail Store Mentoring and Maintenance Visits:

A total number 253 program store mentoring and maintenance visits were provided for the year.

Retailer	Number of visits
Ace Hardware, Berkeley	6
Alamo Ace Hardware, Dublin	6
Alden Lane Nursery	6
Berkeley Horticultural Nursery	4
Broadway Terrace Nursery	8
Cole Hardware	9
Dale Hardware	10
East Bay Nursery	9
Encinal Hardware	5
Encinal Nursery	5
Evergreen Nursery and Garden Supply	9
Flowerland Nursery	4
Grand Lake Ace Garden Center	9
Grand Lake Ace Hardware	7
Home Depot, Emeryville	10
Home Depot, Fremont	11
Home Depot, Hayward	9
Home Depot, Livermore	8
Home Depot, Newark	11
Home Depot, Oakland	8
Home Depot, Pleasanton	7
Home Depot, San Leandro	8
Home Depot, Union City	11
Laurel Ace Hardware	7
Montclair Village Hardware	6
Outdoor Supply Hardware, Berkeley	6
Outdoor Supply Hardware, San Leandro	9

Pete's Ace Hardware	7
Ploughshares	4
Regan Nursery	10
Summer Winds Nursery	6
Westbrae Nursery	6
Western Garden Nursery	4
Yarrow	8

Store mentoring and maintenance activities throughout the year:

- Replenish fact sheets
- Update shelf talkers on new products
- Ask associates if they are hearing of any new or unusual pest problems from their customers
- Answer associate pest and product questions
- Focus on the pest of the month calendar
- Bring articles from the UCIPM Retail Newsletter to each retailer
- Remind associates about the resource on the OWOW & UCIPM website
- Demonstrate how to use the UCIPM website for pest problem assistance
- Demonstrate how to access OWOW fact sheet through the QR code poster
- Guide customers to less-toxic solutions in the aisle
- Mentor buyer and manager at each retailer about new eco-friendly product on the market
- Mentor associates about the current pest problems and IPM strategies for the pests
- Mentor associates on how less toxic active ingredients work
- Follow up with emails and phone calls on pest questions from associates and customers

Mentoring associates at the Home Depot Emeryville

Throughout the year, subcontractors Katherine, Kiryn, and I provided each store with mentoring and support around assorted seasonal pest, such as aphids, earwigs, gophers, and peach leaf curl, along with other leaf and plant diseases, especially around managing weeds and rodents. Flies, yellowjackets, powdery mildew, cockroaches, and ants were also highlighted with many customers coming in the stores with these pests.

We continue to provide each retailer with more resources for pest prevention by planting the right plant in the right place, keeping plants healthy, how to efficiently water plants that reduces water usage, and the benefits of planting regionally appropriate plant material. This year, we provided extra resources and information for attracting beneficial insects to gardens to manage pests.

Throughout the year we provided the retailers with information around excluding pests from the home and the tools to do so with, how to keep gardens healthy through times of drought, and how to cultivate a beneficial bug friendly garden. We provided each with the CA Pest Alert ‘Keep the Spotted Lanternfly out

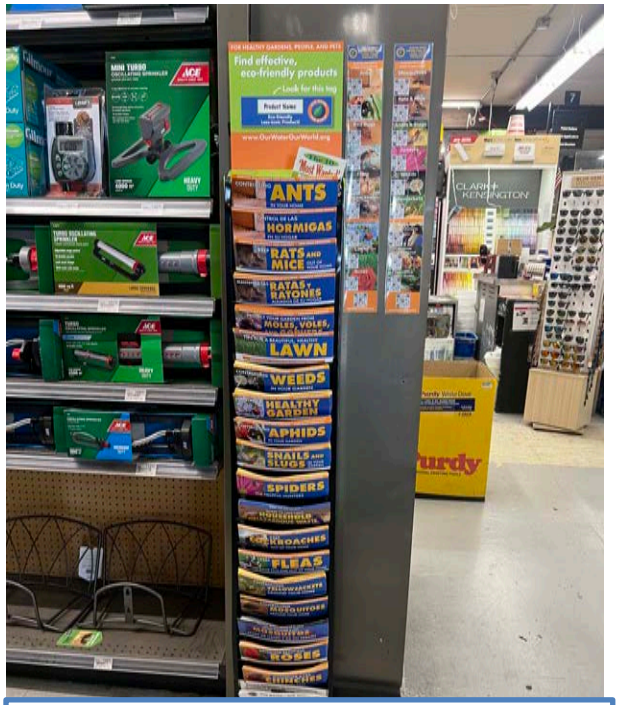
of CA', the 'Don't Move Firewood', and the 'Information about the Asian Citrus Psyllid' brochures. The cities south of Hayward received information on the invasive Mediterranean Fruit Fly.

Fact sheets:

OWOW fact sheets are made available at each retailer in print form and/or digital form. These fact sheets provide the basic information for less-toxic pest management based off the information found on the UCIPM website. The OWOW fact sheets provide user friendly, easy to understand tools and techniques for pest management.

This is the current list of fact sheet available:

- Controlling **Ants** in Your Home
- Controlling **Aphids** in Your Garden
- Keep **Bed Bugs** Out of Your Home
- Keep **Cockroaches** Out of Your Home
- Keep **Fleas** Off Your Pests and Out of Your Home
- Planting a **Healthy Garden**
- Tips for a Beautiful, **Healthy Lawn**
- Protect Your Garden from **Moles, Voles and Gophers**
- Controlling **Mosquitoes** Around Your Home
- Hiring a **Pest Control Company**
- Keep **Rats and Mice** Out of Your Home
- Growing Beautiful **Roses**
- **Snails and Slugs** in Your Garden
- **Spiders** – The Helpful Hunters
- **Pesticides** and Water Quality
- Pesticide **Use and Disposal**
- Controlling **Weeds** in Your Garden
- Controlling **Yellowjackets** Around Your Home



OWOW Fact Sheet Rack and QR Code poster at Laurel Ace Hardware, Oakland

OWOW Fact Sheet Rack at the Ace Hardware, Berkeley

QR Code signage for digital fact sheets

We have placed the QR Code posters or signage at most of the retailers. We currently have the QR code signage for Roses, Healthy Gardens, and the 10 Most Wanted brochure placed in the nurseries. In each associate training, we review how to access the OWOW and UCIPM websites in both

English and Spanish by using the QR code signage so that associates feel comfortable using them with ease.

Each of the Alameda County Public Library (ACPL) is a huge fan of the OWOW program and has an OWOW QR code poster on display in each of their ten branch locations. They even have one that they bring to outreach events they attend.

QR Code data can be provided by CASQA.

OWOW Fact QR Code poster at the ACPL Union City Branch

OWOW IPM Retailer Trainings

The OWOW trainings are designed to educate the associates about storm water runoff, where the local HHW facility is located, their role in reducing problem pesticide usage, the principles of IPM, how to read a pesticide label, the less toxic pesticides their store sells, proper usage of these pesticides, current pest problems and less toxic solutions for these problems for their customer. These trainings also provide suggested alternatives to their customers to manager their gardens sustainably with the intent to reduce the toxic pesticides and fertilizers that so easily can get into the waterways.

A total of 15 training events were provided with a total of 96 associates received the training. Each associate received a training folder stocked with reference materials, pest problem solving for the common seasonal pests they are asked about, OWOW Fact Sheets, Pest Identification key, and UCIPM Pest Notes for some of the current pest problems. Pre & Post Training Surveys were provided to each attendee.

Date	Store	Number Trained	Instructor
9/12/25	Evergreen Nursery, San Leandro	8	Suzanne
10/9/25	The Home Depot, Oakland	5	Katherine
10/15/25	The Home Depot, San Leandro	14	Suzanne
10/15/25	The Home Depot, Emeryville	9	Suzanne
10/28/25	The Home Depot, Union City	6	Katherine
11/7/25	Grand Lake Ace Nursery	9	Katherine
12/7/25	The Home Depot, Newark	4	Katherine
1/6/26	The Home Depot, Hayward	3	Kiryn
2/4/26	Westbrae Nursery	7	Suzanne
3/3/26	Outdoor Supply Hardware, San Leandro	3	Kiryn
3/16/26	Broadway Terrace Nursery	3	Suzanne
3/20/26	The Home Depot, Pleasanton	9	Kiryn
3/21/26	Pete's Ace Hardware	5	Kiryn
5/7/26	Yarrow Nursery	7	Suzanne
5/20/26	The Home Depot, Fremont	4	Katherine
	Total associates trained:	**96**	

Topics covered in the training:

- An OWOW partnership program overview
- Pesticides that are water pollutants of concern
- Where to dispose of local HHW
- ‘How less-toxic products’ work
- How to read a pesticide label
- IPM principles & techniques
- Beneficial Insect Identification
- Water Conservation
- Benefits of Compost
- Benefits of Mulch
- Water-wise plant choices for our area
- Pests highlighted: Aphids, ants, powdery mildew, citrus leaf miner, earwigs, fleas, gophers, rats & mice, snails & slugs, spider mites, whitefly, fungal diseases, codling moth, rose care without problem pesticides and how to address the many customer habits, such as how over fertilizing can increase pest populations.
- How to mix a pesticide from concentrate and how to clean a pesticide application tank
- Invasive pests: Asian Citrus Psyllid, Mediterranean Fruit Fly, and the Glass winged Sharpshooter
- OWOW website, UC Davis IPM website

Resources provided to each OWOW training attendee includes:

- The Mac’s Field Guide Good Garden Bugs of California
- Monthly Pest Calendar
- How to Apply Beneficial Nematode
- ‘How Less Toxic Products Work’ handout
- Home Depot less toxic product list for the Home Depot Store training
- List of websites, books, and catalogs on a resource sheet
- Sheet Mulching instructions
- The CA DPR’s ‘How to read a pesticide label’ handout
- Information on pest problem solving for the following pests: spider mites, lifecycle of grubs, whiteflies, spider mites, citrus leaf miner, codling moth, keeping rodent out of the home and reducing their activity in the garden, Asian Citrus Psyllid, and the UCIPM Quick tips for Mealybugs & Powdery Mildew
- ‘10 Most Wanted Bugs for Your Garden’ brochure
- OWOW pocket guides
- A one sheet informational handout on ‘Protecting Landscapes in a Drought’ and ’10 Tips for Water-wise Gardening’
- A one sheet informational handout on ‘Keeping Rats & Mice out’
- A one sheet informational handout on ‘Rats in the Garden’
- Invasive Pests: Asian Citrus Psyllid
- ‘Keep Spotted Lanternfly Out of California’ brochure
- Eco-herbicide recommendations
- Retail Nursery & Garden Center IPM News

- A one sheet handout that includes services offered by the Alameda County Mosquito Abatement District and the Alameda County Vector Control Program

Compilation of Training Feedback 2025-26 contract year

OWOW training classes are well received by the associates, they see the value and appreciate the up-to-date Integrated Pest Management (IPM) education provided. Through IPM, we share the importance of proper pest identification, to address the cause of the problem and to look towards pesticides as the last line of defense, not the first. We also highlight the importance of nurturing the soil by adding compost, feeding plants organically, protecting the soil with mulch, and how to water to grow healthy plants, because when we grow healthy plants, they are more resilient and less likely to be affected by pest issues.

Some challenges we faced due to the unusual winter into spring weather was scheduling trainings since many retailers were not quite ready for the influx of customers when the weather was warm and sunny after periods of rainy and cold.

Training associates at
The Home Depot, Fremont (photo above) and The Home Depot, Union City (photo below)

Summary of Store Training Pre-Training Surveys

A total of 96 associates trained, 90 pre-training surveys were returned.
Here are the results of those surveys:

1) Are you familiar with the OWOW program?
a) Yes: **27%** b) No: **73%**
2) When does urban runoff occur?
a) When a sprinkler is broken & excess water is running into the street: **2%** b) During & after a rain event: **4%** c) From watering or irrigation overflows: **3%** d) All of the above: **91%**
3) Which of these pollutants can be carried into the waterways with urban runoff?
a) Motor oil & solvents: **1%** b) Pet waste, debris & litter: **1%** c) Pesticides & synthetic fertilizers: **7%** d) Household cleaning agents: **1%** e) All of the above: **90%**
4) Storm drains, including the storm drains in parking lots & loading docks, flow directly to:
a) The sanitary sewer that goes to the wastewater treatment facility: **30%** b) The nearest creek, river, bay, or ocean: **50%** no answer: **20%**
5) Are pesticides removed at the wastewater treatment facility?
a) Yes: **17%** b) No: **34%** c) I'm not sure: **49%**
6) What is the best way to dispose of unused household hazardous waste, including pesticides & fertilizers?
a) Bury them in the garden: b) Dump them into the trash: **2%** c) Pour them down the sink or flush down toilet: **1%** d) Take them to the local HHW facility: **97%** e) I'm not sure:
7) Do you know where your local HHW facility is located?
a) Yes, I do know: **27%** b) No, I don't know: **73%**
8) Do your customers ask for eco-friendly solutions & less-toxic products that are safer for the environment?
a) Yes: **30%** b) No: **12%** c) Sometimes: **58%**
9) What is the highly effective, science-based strategy for controlling pests in the home/garden that also helps to protect our waterways from toxic pesticide pollutants?
a) Synthetic pesticide program: **11%** b) Homemade, D.I.Y. remedies & cures: **11%** c) IPM (Integrated Pest Management) Principles: **62%** d) I'm not sure: **16%**

Summary of Store Training Post-Training Surveys

A total of 96 associates trained, 90 post-training surveys were returned.
Here are the results of those surveys:

1) Are you familiar with the OWOW program
a) Yes: **100%** b) No:
2) When does urban runoff occur?
a) When a sprinkler is broken & excess water is running into the street: b) During & after a rain event: c) From watering or irrigation overflows: d) All of the above: **100%**
3) Which of these pollutants can be carried into the waterways with urban runoff?
a) Motor oil & solvents: b) Pest waste, debris & litter: c) Pesticides & synthetic fertilizers: **2%** d) Household cleaning agents: e) All of the above: **98%**
4) Storm drains, including the storm drains in parking lots & loading docks, flow directly to:
a) The sanitary sewer that goes to the wastewater treatment facility: b) The nearest creek, river, bay, or ocean: **100%**
5) Are pesticides removed at the wastewater treatment facility?
a) Yes: **2%** b) No: **98%** c) I'm not sure:
6) What is the best way to dispose of unused household hazardous waste, including pesticides & fertilizers?
a) Bury them in the garden: b) Dump them into the trash: c) Pour them down the sink or flush down toilet: d) Take them to the local HHW facility: **100%**
7) Do you know where your local HHW facility is located?
a) Yes, knew: **88%** b) Didn't know or left blank: **12%**
8) How can you identify products that are less toxic for pest management in your store?
a) The OWOW shelf labels that identify eco-friendly products: **2%** b) The OWOW pest management fact sheets: c) The OWOW website at ourwaterourworld.org: d) Talking with an OWOW IPM Advocate: **1%** e) All of the above: **97%**
9) What is the highly effective, science-based strategy for controlling pests in the home/garden that also helps to protect our waterways from toxic pesticide pollutants?
a) Synthetic pesticide program: b) Homemade, D.I.Y. remedies & cures: c) IPM (Integrated Pest Management) Principles: **100%**

Summary of End of Training Evaluation Form

A total of 96 associates trained, from the 90 surveys returned, 75 completed the evaluation.
Here are the results of the evaluations:

1) You feel comfortable using the OWOW resources available in this store?
a) Yes: **98%** b) No: c) Left blank: **2%**
2) You understand a less toxic solution for at least one pest problem discussed today.
a) Yes: **100%** b) No: c) Left blank:
3) What type of support can the OWOW IPM Advocate provide you more of?
a) More print & online resources for less toxic pest management: **22%** b) More information about seasonal pest problems and how to manage less toxically: **32%** c) More OWOW training & product knowledge classes: **46%**

What was the most useful thing you learned today?

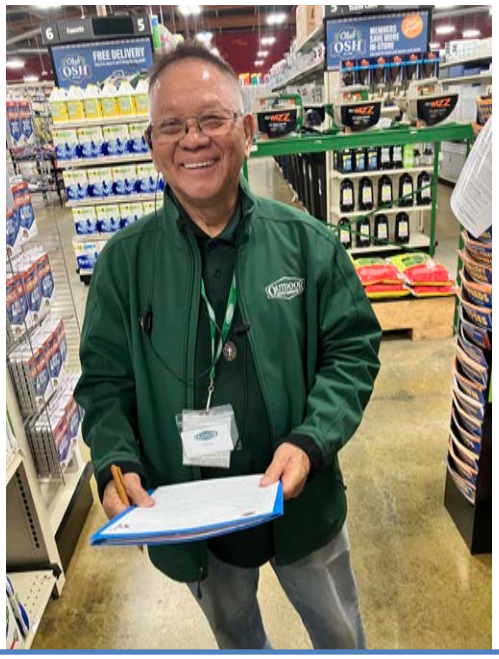
'The resource folders we get to keep'
'How pesticides and other chemical pollute the waterways'
'How to manage fleas without using a fogger'
'How bait statins (for ants) are more effective than sprays (contact kill pesticides)'
'Alternative solutions for managing pest other than pesticides'
'How to use rodent traps effectively'
'All of the information as great!'
'Great class'
'Strategies for speaking with customers about alternatives to pesticides'
'How to read a label'
'How the active ingredients work'
'All of the information as helpful, thank you!'
'Learning about the bio-pesticides'
'How not every pest problem needs a pesticide as the solution'
'Learning about the better products for the environment'
'Learning about exclusion for rodents'
'Learning about the risks of neem for bees'
'Learning about beneficial predators'
'That water runs into the bay'

Additional comments:

'It was great class'
'Thank you!'
'Always a great class'
'Thank you for all you do!'
'Great job'

Training associates at Evergreen Nursery, San Leandro and at Grandlake Ace Nursery, Oakland

Training associates at The Home Depot, Emeryville and at The Home Depot, San Leandro



Training associates at Yarrow Nursery, Oakland and at Outdoor Supply Hardware, San Leandro

Public education & outreach

Throughout the year, we provided 15 public in-person outreach events engaging with no less than 611 people.

Date	Location of event and outreach provided	Number engaged
10/4/25	Westbrae Nursery - tabling	27
10/11/25	Alden Lane - tabling	100
10/25/25	Evergreen Nursery - tabling	20
11/14/25	Livermore-Amador Valley Garden Club - OWOW presentation	40
2/5/26	The Home Depot Livermore - Spring Kick-off Event	60
3/14/26	Outdoor Supply Hardware, San Leandro – tabling	11
3/21/26	Alameda County Public Library, Union City - tabling	17
4/4/26	Alameda County Public Library, Fremont - tabling	55
4/11/26	Alameda County Public Library, Dublin - tabling	21
4/18/26	City of Fremont Earth Day – tabling	96
4/25/26	Alameda County Public Library, Newark - tabling	35
5/2/26	Alameda County Public Library, Centerville - tabling	30
5/16/26	Laurel Ace – tabling	30
5/23/26	The Home Depot Newark – tabling	26
6/6/26	Yarrow Nursery – tabling	18

Public Outreach Events:

The outreach events consisted of assisting people at the retailer, providing an OWOW presentation at a garden club, or other venue. Being able to engage with people directly by discussing their pest & gardening questions enables us to guide each to a specific less toxic solution. This engagement educates the consumer and guiding each towards less toxic pesticides and products. We are encouraged by the increased invitations for OWOW to join different events. This year we had the great opportunity to join five of the Alameda County Public Library plant swap events. We appreciate their support and look forward to join more of their events in the coming year.

- Managing aphids and other common garden pests
- Managing rats and mice, both indoors and outdoors
- Flying insects; flies, mosquitoes, yellowjackets, fruit flies, fungus gnats
- Gophers and moles in the garden
- Crawling insects in the home, and around the perimeter
- Common pests of houseplants
- Weeds in the garden, showing the different tools such as mulch, as well as the eco-herbicides.
- Fruit Tree care, Citrus care, Rose Care, Vegetable Garden care
- Plant diseases; fire blight, powdery mildew, peach leaf curl, black spot, rust
- Best fertilizers to feed plants.
- How to water

- Integrated Pest Management for home gardeners
- Safe pesticide application, storage, and disposal

Each person received a corresponding OWOW pest fact sheet when available, OWOW & UCIPM website information, the ’10 Most Wanted Good Bugs’ brochure, and the ‘Healthy Gardens’ fact sheet.

OWOW Presentations Events:

The OWOW in-person presentations enable us to provide an in-depth introduction to the OWOW program, one that is tailored to the venue and audience, an introduction to Integrated Pest Management, beneficial insect awareness, alternatives to problem pesticides, and helpful resources. These presentations also allow for audience engagement, a question-and-answer session, and the distribution of OWOW fact sheets.

Webinars from the 2021-23 fiscal years are still receiving views:

Date	Type of Event	Number of Attendees
7/8/21	Gardening During Drought – Webinar	179 views on CWP YouTube **6 more views since July 2025**
8/12/21	Vegetable Pest Management - Webinar	86 views on CWP YouTube, **0 views since July 2025**
9/9/21	Fall is for Planting - Webinar	143 views on CWP YouTube, **7 more views since July 2025**
1/13/22	Managing Weeds Effectively – Webinar	170 views on CWP YouTube, **1 more views since July 2025**
2/10/22	Organic Rose Care - Webinar	161 views on CWP YouTube, **1 more views since July 2025**
3/10/22	Soil Basics – Webinar	121 views on CWP YouTube, **5 more views since July 2025**
4/14/22	Waterwise Food Gardening – Webinar	96 views on CWP YouTube, **3 more views since July 2025**
5/12/22	Spring Pest Management – Webinar	170 views on CWP YouTube, **7 more views since July 2025**
6/9/22	Bring in the Pollinators - Webinar	222 views on CWP YouTube, **2 views since July 2025**
11/10/22	Webinar: ‘Fall Pest Prevention’	119 views on CWP YouTube, **22 more views since July 2025**
2/16/23	Webinar: ‘Managing Weeds’	177 views on CWP YouTube, **10 views since July 2025**
3/16/23	Webinar: ‘Setting Garden Up for Success’	170 views on CWP YouTube, **8 views since July 2025**
4/13/23	Webinar: ‘Gardening for the Good Bugs’	369 views on CWP YouTube, **9 views since July 2025**
5/11/23	Webinar: ‘Spring Pest Management’	152 views on CWP YouTube, **15 views since July 2025**

The recorded webinars have received a total of **96 views throughout this 2025-26** contract year.

In total, since these webinar recordings have been posted on the Clean Water Program's YouTube Channel, they have received a total of **2335 views**.

OWOW's Retail Influence

Eco-friendly Pesticide Increases

Throughout the 2025-26 fiscal year, all retailers continue to increase the number of eco-friendly pesticides as they decrease their problem pesticide inventory for the alternatives.

- Yarrow, Flowerland, Berkeley Horticultural Nursery, Broadway Terrace Nursery only sell eco-friendly products.
- Each of the retails that still sell synthetic, or problem pesticides have experienced an increase in sales with the eco-friendly alternative pesticides. This is a significant increase in response to the consumer awareness and demand.
- All stores value the OWOW program and the services we provide.

OWOW Program Evaluation

Fact Sheets Displayed:

- All 34 retailer have a fact sheet rack and/or fact sheet QR code signage on display for their customers to reference.

The fact sheet:

- 83% noted is very effective
- 17% noted that it is somewhat effective, sharing that they are a great resource but most customers look to the employees as the primary resource for pest management solutions.

Shelf Taker Tags:

- 82% of the retailers noted that the shelf talker tags are very effective, they really help us identify the eco-friendly products we sell.
- 18% noted that the shelf tags are somewhat effective.

OWOW Program Education:

- 80% of the retailers noted that OWOW program is overall very effective and that we provide great education to the employees and customers when working in the stores.
- 20% of the retailers noted that though the information we provide them is excellent, many of their customers are in too much of a hurry to learn better ways for solving their pest problems.

Eco-friendly Product Sales:

- 86% noted that yes, they are seeing an increase in the sales of eco-friendly pesticides, that this category is more popular and trending.

- 14% haven't seen an increase or a decrease, that the sale seems to be the same.

OWOW Retailer Trainings:

- 100% of the retailers that received an OWOW training noted that the trainings are very valuable, feel that they are an important addition to staff enrichment and would like them more often when possible.
- A few of the stores who hadn't received a training in the past year have requested one for this next fall season.

OWOW Outreach Events:

- 100% of the retailers who had us join their events, said that they value our time when we are working in the store, helping their customers.
- A few of the stores who hadn't received a training this past year have requested we schedule an event in the next year.

Additional Comments:

'We love the seasonal pest resources and communication' – Evergreen Nursery, Manager
'Continue the great support!' – Laurel Ace, Garden Department Manager

'Keep doing what you are doing. We love the information and support. We appreciate the OWOW program and Suzanne's expertise' – Yarrow Nursery, Manager

'In general, our customers are already looking for eco-friendly options. We think you are doing a great job!' – East Bay Nursery, Manager

'Great support from all of you' – Berkeley Ace, Owner/Manager

'Yes, eco-friendly products are more popular, the sign of the times' – Home Depot Fremont, ASM

'The OWOW program is great, we appreciate the continued education you all bring us. Keep up the great work!' – Grand Lake Ace Nursery, Manager

'You all are always very friendly, knowledgeable, and eager to help up. We love the OWOW program and your message' – Western Garden, Manager

Overall challenge for the year:

The challenge we continue to see throughout the year was the continued staffing issues with each of the retailers; staff shortages, reduced staff hours, and employees not showing up to work. Though this is an issue, the stores were eager to schedule trainings when they could make it work. We did have to pivot more often to get trainings rescheduled when needed. However, we did a great job training the number of employees that we did. I hope to have a stronger attendance in the next year. This is the primary reason we are looking to join more public outreach events. Thankfully I have found more opportunities for OWOW to participate. The program seems extremely well received and strongly appreciated from the feedback I received.

Providing OWOW Services Beyond the Retailer

I continue to work closely and learn from the team at UC IPM and their regional advisors, learning science-based, less-toxic best practices for pest management, so that I can uphold the integrity of knowledge I provide the retailers and the public I engage with. I believe that the OWOW program has been a strong influencer in reducing problem pesticides the consumers use because of the invaluable relationship with UC IPM and by the dedicated efforts the trained IPM Advocates provide.

As an Integrated Pest Management and Garden Educator, I share the OWOW message beyond the retailer in several capacities. I recently became a Xerces Ambassador, providing invertebrate conservation education to the public. I am a board member for the Sonoma County Beekeepers Association (SCBA), where I provide monthly articles and updates on gardening without pesticides. Though this may not seem relevant to Alameda County, it has been brought to my attention that the SCBA newsletter if very popular within the Alameda County Beekeepers Association. I also completed the international Pollinator Partnership Pollinator Stewardship program in 2024. Katherine completed this training this past spring.

With the OWOW program and the other organizations I am involved with, throughout the 2025-26 fiscal year I have collectively engaged in-person with over 4276 people with eco-friendly pest management support, beneficial insect and pollinator conservation, and clean water awareness. This is a huge privilege.

I'd like to thank the Alameda Countywide Clean Water Program for the opportunity to provide OWOW services to the communities. I appreciate being able to provide education around reducing pesticide pollutants by sharing IPM knowledge, by offering support around stressful pest problems, and by being available to guide people to less toxic, sustainable pest & gardening solutions.

Thank you so much for allowing me to contract with you**.**

California Stormwater Quality Association®

Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation

Our Water, Our World 2026 Annual Report

Prepared by the California Stormwater Quality Association

August 2026

Preface

ADVANCING SUSTAINABLE STORMWATER MANAGEMENT

The California Stormwater Quality Association (CASQA) is a nonprofit corporation that advances sustainable stormwater management protective of California water resources. With well over 2,000 members, CASQA's membership is comprised of a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, federal agencies, state agencies, ports, universities and school districts, wastewater agencies, water suppliers, industries, and consulting firms throughout the state. Collectively, CASQA represents over 34 million people in California.

CASQA's *Vision for Sustainable Stormwater Management*[1] (Vision) defines the actions needed to manage stormwater as an essential component of the state's water resources, support human and ecological needs, protect water quality, and enhance and restore California's waterways. There are four guiding principles to achieve this Vision. Like the legs of a chair, each Principle is essential and all four must be in place to support the whole.

Principle #1: Program Implementation: Projects and programs that use stormwater as a resource, protect water quality and beneficial uses, and efficiently minimize pollution are critical for sustainable stormwater management. Stormwater capture and true source control (identifying and mitigating a pollutant at its source) are the primary drivers of these solutions, with effective BMPs providing an important supportive role.

Principle #2: Permits, Regulations, and Legislation: Permits, regulations, and legislation need to focus on effectiveness and desired outcomes to support sustainable stormwater management. Regulatory and legislative actions must align with and support the other components of the Vision – advancing stormwater capture, true source control, and effective BMPs, increasing public education and awareness focused on stormwater as a resource, and securing funding to support these solutions.

Principle #3: Public Education: Public awareness, understanding, and support is essential to sustainable stormwater management. The key shift is viewing stormwater as a resource that must be protected and integrated into overall water resource management.

Principle #4: Funding: Significant financial investment is required to achieve sustainable stormwater management. Stormwater is the most underfunded portion of the water sector and substantial funding is needed to bring these solutions forward.

OUR WATER, OUR WORLD ANNUAL REPORT

The Our Water, Our World (OWOW) program advances Principle #1 by focusing on true source control to address the use of Current Use Pesticides. CASQA has identified Current Use Pesticides as a Water Quality Priority, requiring solutions at a statewide scale. OWOW also advances Principle #3 through its public education components. The goal of OWOW is to support a statewide integrated pest management (IPM) outreach program that provides direct-to-consumer information and education on less-toxic IPM practices. This report describes the OWOW program activities from July 2025 through June 2026.

[1] https://www.casqa.org/wp-content/uploads/2022/10/final_-_vision_for_sustainable_stormwater_management_-_10-07-2020.pdf

Acknowledgements

OWOW is funded by CASQA, as well as the organizations implementing the program (see Table 1 in Section 2 of this report), and is sponsored by the Bay Area Clean Water Agencies (BACWA).

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Table of Contents

Preface **2**
Section 1. Introduction **5**
Section 2. Program Elements **5**
2.1 Integrated Pest Management (IPM) Advocates 5
2.2 Educational Materials 5
2.3 Trade Shows 6
Section 3: Partnerships **6**
Section 4. Annual Program Implementation **10**
4.1 IPM Advocates 10
4.2 Educational Outreach Materials 10
4.3 Vendor Outreach 12
4.4 Training and Outreach for Retailers and Consumers 13
Section 5. Program Development **14**
5.1 Updates in Progress 14
5.2 Future Considerations 15
Appendix A: Example Outreach Materials
Appendix B: The Home Depot Support Letter

Section 1. Introduction

Our Water, Our World (OWOW) is an award-winning partnership between municipal agencies, garden centers, and hardware stores that sell pest control products. Initiated in 1998, the program focuses on less-toxic, eco-friendly products and techniques, as many common pesticides harm sensitive species and ecosystems when they reach local creeks, bays, and the ocean.

OWOW started as a pilot project in 1998, in just a handful of stores, initiated by the Central Contra Costa Sanitation District, the City of Palo Alto Regional Water Quality Control Plant, and the Marin Countywide Stormwater Pollution Prevention Program. The program quickly grew and was administered by the former Bay Area Stormwater Management Agencies Association from 1999 to 2021. During that time, over 130 agencies in 16 counties implemented the program, working in approximately 239 stores. Starting in January 2022, the program was transferred to the California Stormwater Quality Association (CASQA), to provide statewide access to this important and successful outreach program.

From a stormwater management perspective, OWOW is an excellent opportunity and cost-efficient way to educate the public and reduce toxicity in waterways from current use pesticides. Several municipalities utilize OWOW to meet permit requirements, including the San Francisco Bay Area Municipal Regional Permit,[2] the Central Valley Region-wide MS4 Permit,[3] and the Phase II – Small MS4 General Permit.[4]

Section 2. Program Elements

The OWOW program consists of several elements that are integral to its effectiveness.

2.1 INTEGRATED PEST MANAGEMENT (IPM) ADVOCATES

IPM Advocates are individuals who have been trained on how to engage with retailers and the public. They provide local implementation of the program on behalf of participating agencies. Local implementation generally consists of coordinating with participating retailers to offer in-store displays, shelf tags, in-store presentations and training for store employees, and advice to customers about pest management methods that are healthier for people and the environment.

2.2 EDUCATIONAL MATERIALS

In pesticide-retailing stores, consumers are directed to less-toxic products and techniques through:

- Fact sheet displays near pest products to educate the public on various pest management topics.
- Shelf tags to guide customers to less-toxic products.
- Display posters with QR codes linking directly to the OWOW website and fact sheets.

[2] Municipal Regional Stormwater NPDES Permit, California Regional Water Quality Control Board – San Francisco Bay Region, 2022. Order R2-2022-0018, NPDES NO. CAS612008, as amended, CA.
[3] NPDES Permit and Waste Discharge Requirements General Permit for Discharges from MS4s, California Regional Water Quality Control Board – Central Valley, 2016. Order R5-2016-0040, NPDES NO. CAS0085324, CA
[4] NPDES Permit and Waste Discharge Requirements for Storm Water Discharges from Small MS4s, California State Water Resources Control Board, 2013. Water Quality Order 2013-0001-DWQ, NPDES General Permit No. CAS000004, as amended, CA.

On the OWOW website, consumers can view the following:

- All 18 fact sheets.
- Stores participating in the OWOW program.
- A database of less-toxic products and their active ingredients.

2.3 TRADE SHOWS

OWOW representatives provide exhibits annually at trade shows to educate store buyers on less-toxic products. Participation in these events helps ensure stores carry less-toxic products.

Section 3. Partnerships

The program is administered by CASQA and implemented by local cities and counties. IPM Advocates and University of California Statewide IPM Program (UC IPM) serve as collaborative partners.

CASQA manages and provides the central services necessary to operate and maintain the OWOW program, including the development of education materials (e.g., less-toxic product lists, label files, and active ingredient lists), creation and updates of outreach materials, operation and updates to the OWOW website, vendor (i.e., retail partners and pesticide distributors) outreach, preparation of an annual report, fulfillment of outreach materials orders, and program management and development.

Municipal agencies subscribe to OWOW through CASQA and implement the OWOW program in their local retail stores by contracting with IPM Advocates, using municipal staff, or other contractors. Implementation may occur by a single agency at stores within their jurisdiction or organized at a regional scale, where agencies combine resources to implement the OWOW program at select stores used by multiple jurisdictions. In addition, municipal agencies conduct outreach to inform residents about the OWOW program. Table 1 provides the list of agencies implementing OWOW as of June 30, 2026. Bay Area Clean Water Agencies (BACWA) continues to support the OWOW program as a sponsor.

IPM Advocates are trained individuals who support the local implementation of the OWOW program. They provide retail stores, nurseries, hardware stores, and garden centers with direct-to-consumer information, IPM tools, products, and practices. IPM Advocates are the link between the municipalities and the retailers where they reach consumers. The active IPM Advocates include Suzanne Bontempo, Julie Barbour, and Maris Sidenstacker.

UC IPM provides research and expertise on IPM practices promoted throughout the state and maintains a website of less-toxic IPM practices for nearly 1,000 home, garden, landscape, and turf pests. OWOW continues to draw on these public resources to support its educational materials and outreach on less-toxic pest management.

Table 1. Agencies Implementing OWOW

Bay Area and Northern California

Alameda County
Alameda County Flood Control & Water Conservation District
Alameda Countywide Clean Water Program
City of Alameda
City of Albany
City of American Canyon
City of Antioch
City of Belmont
City of Belvedere
City of Benicia
City of Berkeley
City of Brentwood
City of Brisbane
City of Burlingame
City of Calistoga
City of Campbell
City of Clayton
City of Cloverdale
City of Concord
City of Cotati
City of Cupertino
City of Daly City
City of Dublin
City of East Palo Alto
City of El Cerrito
City of Emeryville
City of Fairfield
City of Foster City
City of Fremont
City of Half Moon Bay
City of Hayward
City of Healdsburg
City of Hercules
City of Lafayette
City of Larkspur
City of Livermore
City of Los Altos
City of Martinez
City of Menlo Park
City of Mill Valley
City of Millbrae
City of Milpitas
City of Monte Sereno
City of Mountain View
City of Napa
City of Newark
City of Novato
City of Oakland
City of Oakley
City of Orinda
City of Pacifica
City of Palo Alto
City of Petaluma
City of Piedmont
City of Pinole
City of Pittsburg
City of Pleasant Hill
City of Pleasanton
City of Redwood City
City of Richmond
City of San Bruno
City of San Carlos
City of San José
City of San Leandro
City of San Mateo
City of San Pablo
City of San Rafael
City of San Ramon
City of Santa Clara
City of Santa Rosa
City of Saratoga
City of Sausalito
City of Sebastopol
City of South San Francisco

Bay Area and Northern California (Continued)

City of St. Helena
City of Suisun City
City of Sunnyvale
City of Ukiah
City of Union City
City of Vallejo
City of Walnut Creek
Contra Costa Clean Water Program
Contra Costa County
Contra Costa County Flood Control and Water Conservation District
Fairfield-Suisun Sewer District
Marin County
Marin County Flood Control and Water Conservation District
Marin Countywide Stormwater Pollution Prevention Program
Mendocino County
Napa County
Napa County Flood Control and Water Conservation District
Napa Countywide Stormwater Pollution Prevention Program
Russian River Watershed Association
San Mateo County
San Mateo Countywide Water Pollution Prevention Program
Santa Clara County
Santa Clara Valley Urban Runoff Pollution Prevention Program
Santa Clara Valley Water District (Valley Water)
Solano Stormwater Alliance
Sonoma County
Sonoma County Water Agency
The San Mateo County Flood and Sea Level Rise Resiliency District
Town of Atherton
Town of Colma
Town of Corte Madera
Town of Danville
Town of Fairfax
Town of Hillsborough
Town of Los Altos Hills
Town of Los Gatos
Town of Moraga
Town of Portola Valley
Town of Ross
Town of San Anselmo
Town of Tiburon
Town of Windsor
Town of Woodside
Town of Yountville
Vallejo Flood and Wastewater District
Zone 7 Water Agency

Central Valley, Tahoe, and Inland Areas

City of Ceres
City of Citrus Heights
City of Davis
City of Dixon
City of Elk Grove
City of Escalon
City of Folsom
City of Galt
City of Lathrop
City of Lincoln
City of Lodi
City of Manteca
City of Merced
City of Modesto
City of Patterson
City of Rancho Cordova
City of Riverbank
City of Rocklin
City of Roseville
City of Sacramento
City of Stockton
City of Tracy
City of Turlock
City of West Sacramento
City of Woodland

Central Valley, Tahoe, and Inland Areas (Continued)

El Dorado County
Fresno Metropolitan Flood Control District
Mountain House Community Service District
Sacramento County
Sacramento Stormwater Quality Partnership
San Joaquin County
Stanislaus County

Central Coast

City of Buellton
City of Carmel-by-the-Sea
City of Carpinteria
City of Del Rey Oaks
City of Goleta
City of Guadalupe
City of Lompoc
City of Marina
City of Monterey
City of Pacific Grove
City of Sand City
City of Santa Barbara
City of Santa Maria
City of Seaside
City of Solvang
Monterey Regional Storm Water Management Program
Monterey County
Santa Barbara County

Southern California

City of Santa Clarita

Sponsor

Bay Area Clean Water Agencies

Section 4. Annual Program Implementation

This section describes the OWOW outreach services conducted between July 2025 and June 2026.

4.1 IPM ADVOCATES

Several municipalities contracted with IPM Advocates to implement the OWOW program at local stores. IPM Advocates shared their knowledge with store staff and held educational events for customers.

During the 2025-2026 reporting year, demand from municipalities for IPM Advocate services exceeded availability capacity, limiting coverage of some retail locations. In response, CASQA has initiated a program planning initiative to improve support and guide future growth (see Section 5. Program Development for more information).

In-Store Coordination

An in-store coordination meeting was not held during the 2025–2026 reporting year because program development efforts focused on the structured planning process described in Section 5. Future in-store coordination efforts will be informed by the outcomes of this planning process.

4.2 EDUCATIONAL OUTREACH MATERIALS

Educational materials include fact sheets on specific pests, gardening methods, and pesticide applications, shelf tags to identify eco-friendly products in stores, and the OWOW website that makes the materials accessible to the public. Examples of OWOW outreach materials are provided in Appendix A, and all are accessible on the OWOW website.

Fact Sheets

The OWOW program has 18 fact sheets. Between July 2025 and June 2026, three fact sheets were revised and translated into Spanish: (1) *Hiring an IPM Company,* (2) *Moles, Voles, and Gophers,* and (3) *Snails and Slugs* . Currently, 14 of the 18 fact sheets are available in Spanish, and efforts continue to translate the entire fact sheet series. As each fact sheet is updated, QR codes are added (both English and Spanish versions) to help consumers easily navigate to the OWOW website.

In January 2022, posters with trackable QR codes were developed to encourage consumers to digitally access the OWOW fact sheets in pesticide aisles. These trackable QR codes record which fact sheets consumers view in retail stores. Based on the tracking data collected between July 2025 and June 2026, the three most viewed fact sheets were (1) *Ants*, (2) *Rats and Mice,* and (3) *Fleas*. Table 2 presents a summary of QR code scans for each fact sheet. Additionally, Figure 1: *OWOW by the Numbers* provides an overview of engagement with our educational outreach materials, including total QR code scans, fact sheet views, and website activity.

Website

The OWOW website provides public access to fact sheets, the less-toxic product database, and the Store Finder, an interactive map allowing users to search for participating stores. Updates to the Store Finder are made quarterly. During the 2025 – 2026 reporting year, two stores were added to the OWOW program and made available on the Store Finder. **Website visitors increased 26%,** from 19,076 unique visitors between July 2024 and June 2025 to 24,095 unique visitors between July 2025 and June 2026. Figure 2 shows the monthly website visitor history trending up since May 2021 (when data were first tracked via QR codes).

Less-Toxic Pest Product Database

In August 2024, enhancements were made to both the less-toxic product lists and the OWOW website to develop an integrated less-toxic product database hosted on the OWOW website. The database enhances accessibility for both IPM Advocates, who rely on the database to identify less-toxic products, and the public, who can now easily search for products using their phones.

The store-specific product lists will continue to be updated as needed to support the printing of shelf tag labels. Each year, new products are reviewed, and updates are made in consultation with subject matter experts to ensure the information remains current and accurate.

Table 2. QR Code Scans by OWOW Product from July 2025 to June 2026

OWOW Product	QR Code Scans	OWOW Product	QR Code Scans
Ants	233	Bed Bugs	67
Rats & Mice	167	10 Most Wanted	60
Fleas	166	Healthy Gardens	55
Mosquitos	153	Weeds	52
Moles, Voles, & Gophers	150	Yellowjackets	38
Cockroaches	141	Lawns	30
Aphids	131	Spanish Fact Sheets	21
Spiders	110	Pesticides Use & Disposal	16
Roses	102	Hiring a Pest Company	13
Snails & Slugs	96	Pesticides & Water Quality	6
OWOW Website	93		
Total QR Code Scans		**1,897**	

Figure 1. OWOW by the Numbers

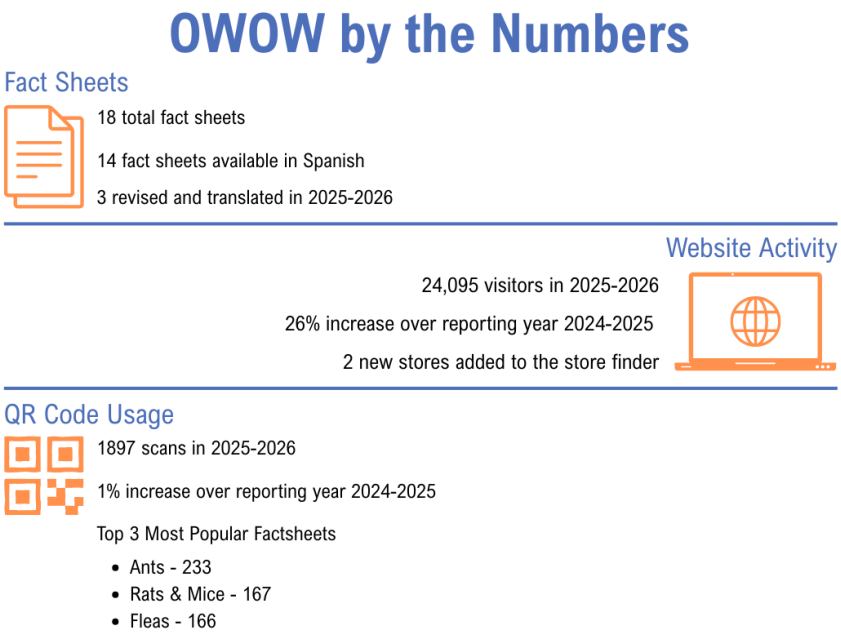
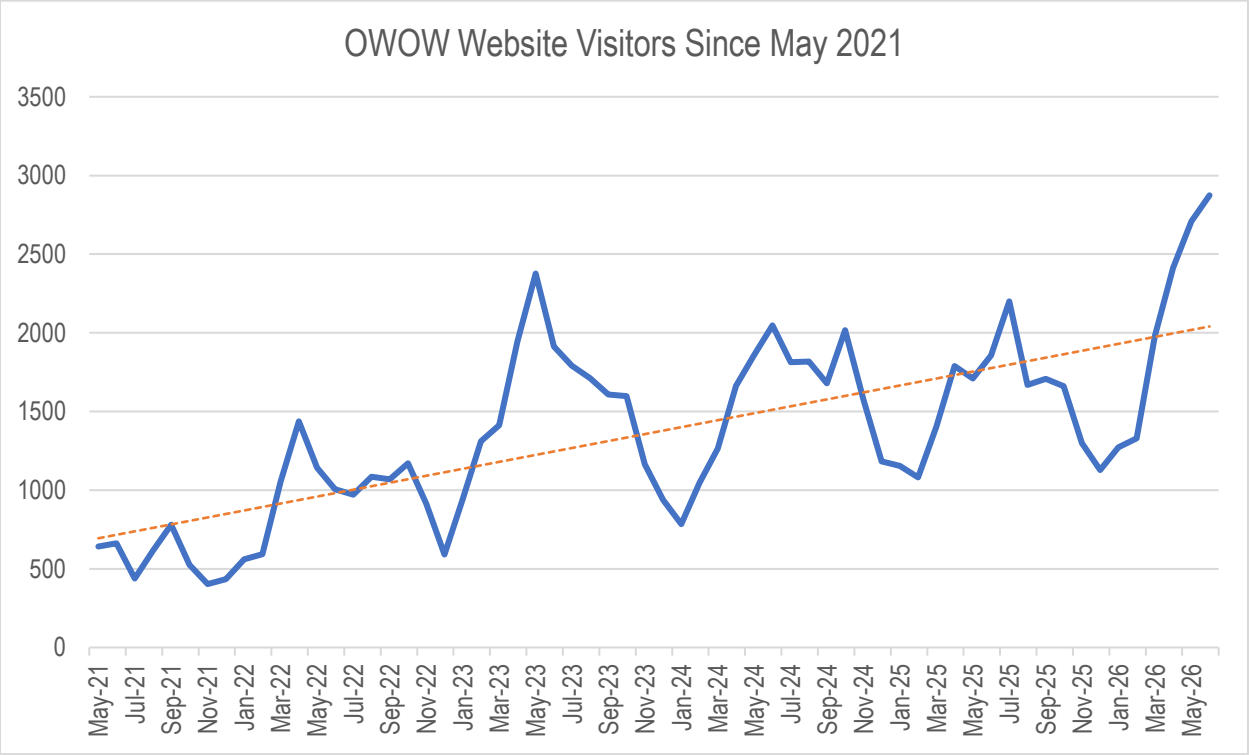


Figure 2. Monthly Website Visitors Since May 2021



4.3 VENDOR OUTREACH

Education of vendors and retailers on less-toxic products is a critical step to ensure stores carry less-toxic products.

Retail Partners

The OWOW program added two new retail partners during the 2025–2026 reporting year, increasing the total number of participating stores to 283. The Home Depot Corporate continues to be a model retail partner and OWOW strives to replicate this partnership with other retailers and vendors. In February 2026, The Home Depot Corporate delivered an internal memorandum to California store managers to facilitate OWOW collaboration in The Home Depot stores (see Appendix B). In addition to The Home Depot, OWOW retail partners include Outdoor Supply Hardware, Ace Hardware, and independent hardware and garden centers throughout California.

Trade Show Booths

Attending trade shows provides an opportunity to meet pesticide buyers and vendors, learn about the new products coming to the California marketplace, answer questions, and provide mentorship to the retail pesticide buyers and vendors. In 2025 – 2026, trade show attendance was paused to focus efforts on the structured planning process described in Section 5. Future trade show attendance will be informed by the outcomes of this planning process.

4.4 TRAINING AND OUTREACH FOR RETAILERS AND CONSUMERS

IPM Advocates and local municipal agency staff/consultants conduct OWOW outreach activities to educate pesticide retailers and consumers at the local level. Local OWOW implementation activities vary between agencies. Many agencies receive tailored OWOW reports from their contracted IPM Advocate with a summary of their local OWOW data (for example, the number of trainings, the number of staff trained, and/or the number of fact sheets distributed).

IPM Advocates and local municipal agency staff/consultants provided OWOW services to approximately 283 participating retailers throughout California. Table 3 provides a summary of outreach activities between July 2025 and June 2026, which were funded by local municipalities' stormwater programs.

Table 3. Summary of Outreach Activities

Audience	OWOW Outreach Activity
Retailers	283 retailers participated in the OWOW program
	62 trainings conducted
	488 retail staff trained
Consumers	14 in-person classes, presentations, or workshops (749 persons in attendance)
	75 public outreach events
	5,393 person interactions

IPM Advocates and local municipal agency staff/consultants conducted 62 trainings and trained 488 retail store staff. The training topics included IPM and strategies for managing pest problems with less-toxic and eco-friendly products. Additionally, of the 89 public outreach events to consumers, 14 were classified as in-person classes, presentations, or workshops, reaching a combined total of 749 attendees. The remaining consumer outreach, most often in the form of tabling at public outreach events, included 75 reported events, with 5,393 person interactions.

Section 5. Program Development

To support a growing demand for OWOW outreach material and IPM Advocates, efforts are underway to advance the OWOW program.

5.1 UPDATES IN PROGRESS

Fact Sheets

In 2026, the *Roses, Healthy Gardens, Weeds, and Lawns* fact sheets are being reviewed for technical accuracy and by public communications specialists. Additionally, these fact sheets will be translated into Spanish and made available on the OWOW website. Once these fact sheet updates are complete, 18 of the 18 OWOW fact sheets will have Spanish translations.

Program Planning

In July 2025, the OWOW program completed a survey of OWW subscribers to understand the program's needs and reaffirm the program's goal. Key takeaways from the subscriber survey were: 1) a need to understand the program's effectiveness, 2) a desire for implementation flexibility, 3) requests for additional implementation resources, and 4) guidance on how to implement the program. Following the results of the Subscriber Survey, the OWOW program initiated a year and half long program planning project with the goal to improve the program's effectiveness and increase implementation flexibility. The project includes conducting market research on urban pesticide use behaviors and the development of implementation resources based on subscriber needs identified in the Subscriber Survey and the market research. The project's timeline is shown on Figure 3.

The market research consists of two phases. Phase I included a literature review on the pesticide statewide use market and trends, analysis of existing OWOW data, review of existing academic and governmental research, and the development of preliminary audience hypotheses. An additional in-store intercept survey of 24 residents validated the hypothesized audience profiles—the DIY Pragmatist, the Steward, and the Outsourcer. This understanding reinforced the need for audience-specific strategies.

In May 2026, as part of the Phase II market research, a public survey was developed to create audience-specific profiles based on their pesticide use behaviors and motivations for the development of a strategic messaging framework consisting of targeted channels and tactics. As of June 2026, the public survey collected 429 responses with a goal of 800. Preliminary findings showed that 58% of respondents acted only after seeing pests, 37% returned to conventional sprays when a less-toxic method did not work as hoped, and 20% had purchased perimeter spray or granules during the previous 12 months. The research also identified a gap between trusted information sources and actual behavior: 45% of respondents first turned to Google for pest help, although public agencies and experts received the strongest trust ratings. Expected September 2026, the survey results will create quantified audience profiles, a validated messaging mix, and targeted channel maps, which will provide the basis for a suite of subscriber implementation resources scheduled for completion in December 2026.

Figure 3. Program Planning Timeline

5.2 FUTURE CONSIDERATIONS

IPM Advocate Training Program

As described in Section 4.1, IPM Advocates serve as contractors to municipalities to assist with implementation of the in-store component of the program. IPM Advocates were initially trained in 2012 with funding from a Department of Pesticide Regulation (DPR) Alliance Grant. Since that time, some IPM Advocates have moved on from providing IPM Advocate support, reducing the number IPM Advocates available to provide services. Additionally, the OWOW program expanded its service area into the Central Valley, increasing the demand for IPM Advocates. In 2022, to increase IPM Advocate support, CASQA began consideration of developing an IPM Advocate Training Program. In September 2023, CASQA met with DPR representatives to discuss collaboration and funding opportunities for the OWOW program. Based on the scope of training required, the development of an IPM Advocate Training Program will require outside funding support and collaboration with partners such as UC-IPM. Work on advancing the IPM Advocate Training Program is on hold pending the outcomes of program planning, which is currently in development.

Appendix A: Example Outreach Materials

Figure A1. Trackable QR Code Poster in Store Aisle

Figure A2: Ants Fact Sheet (Front)

EFFECTIVE ECO-FRIENDLY PEST CONTROL • LESS-TOXIC PRODUCTS

CONTROLLING ANTS IN YOUR HOME

ANT CONTROL IS EASY AS 1–2–3!

1. Seal the source

- Store food in sealed containers
- Caulk and weatherstrip cracks and gaps

2. Bait them

- Use bait stations and sticky traps, which are more effective than sprays
- Choose a bait station with borax (tetraborate decahydrate) or hydramethylnon

3. Monitor

- After ants are gone, watch for new ant activity
- To avoid a new ant invasion, spread desiccating dust in areas where you see ants
- Avoid sprays, which only temporarily get rid of ants

Argentine ants are frequent invaders in California homes. Their small size (1/8 inch) allows them to enter the home through cracks and crevices. They typically arrive a few at a time at first (the scouts), and then in long lines, following scent trails to a food source.

A QUICK FIX FOR AN ANT EMERGENCY

1. Find what ants are after (usually food or water) and where they are entering the room (usually through a crack in the wall).
2. Spray lines of ants with soapy water and wipe up. Clean up any food or spills.
3. Block entry points temporarily with a smear of petroleum jelly or a piece of tape.
4. If you can't find an entry point, place a bait station in an out-of-the-way spot on the line the ants have been following. Remember to remove the bait station when the line of ants has disappeared so you don't attract more ants into the house. (See *Tips for Using Ant Baits.*)

TIPS FOR USING ANT BAITS

Bait stations are much safer for humans, pets, and the environment than sprays. Ants carry small quantities of bait back to the nest to share, reducing the local ant population.

- Use baits with active ingredients borax/tetraborate decahydrate. Bait stations with hydramethylnon should be enclosed.
- Argentine ants change their food preferences frequently. If one bait is not working, try another type. Wait at least a day to see if ants take the bait.
- Place bait stations out of reach from children and pets. Do not spray insecticide around the bait; it will repel the ants.
- Baits may take several weeks to kill the ants. At first you may see more ants coming to the bait, but after a few days to a week you should see fewer ants.
- When ants are gone, remove the bait so you don't attract more ants. Return enclosed bait stations to the original box to save and use again. Put the box inside a sealed plastic bag, and store away from children and pets.

OUR WATER OUR WORLD

Choose eco-friendly products for your home and garden. Look for this symbol before you buy.

Appendix B: The Home Depot Support Letter

Interoffice
MEMORANDUM

DATE: February 9, 2026

TO: California Store Managers, D28 ASMs and Department Heads

FROM: Candace N. Rodriguez

CC: Steve Knott, Scott Jacobson, Charles Bayer

SUBJECT: Our Water Our World Training

OUR WATER, OUR WORLD is a coalition of organizations whose purpose is to encourage consumers to use environmentally-preferred pest controls in and around their homes. They specialize in retail-friendly education. Their goal is not to alienate consumers by telling them what they can't use, but instead to inform customers about environmentally-preferred pest management that we merchandise in our store. We have had a partnership with Our Water, Our World for many years, and we have supported their in-store educational efforts annually for the past few years.

An Our Water, Our World (OWOW) representative will be in your store to help train employees and label environmentally-preferred products with shelf-talkers. The representative may also schedule a tabling event to educate consumers. This ties in well with "How-to" weekend events. Please support this additional help in your store.

An OWOW representative will contact you before the training or demonstration date to arrange details. Please contact Joseph Draper of the California Stormwater Quality Association at (559) 492-7507 if you have questions. Please also do not hesitate to reach out to me if you have any questions or concerns at 678-799-2750.

Thank you for your support,

Candace N. Rodriguez
Senior Director – Sustainability

from the desk of.....
Candace Rodriguez
Senior Director – Sustainability
THE HOME DEPOT USA, INC.
2455 Paces Ferry Road
Atlanta, GA 30339
(770) 384-3544

INTERNAL USE

CASQA

California Stormwater Quality Association®

Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation

2026 Pesticides Annual Report

Prepared by the California Stormwater Quality Association

September 2026

Preface

ADVANCING SUSTAINABLE STORMWATER MANAGEMENT

The California Stormwater Quality Association (CASQA) is a nonprofit corporation that advances sustainable stormwater management protective of California water resources. With well over 2,000 members, CASQA's membership is comprised of diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, federal agencies, state agencies, ports, universities and school districts, wastewater agencies, water suppliers, industries, and consulting firms throughout the state. Collectively, CASQA represents over 34 million people in California.

CASQA's *Vision for Sustainable Stormwater Management*[1] (Vision) defines the actions needed to manage stormwater as an essential component of the state's water resources, support human and ecological needs, protect water quality, and enhance and restore California's waterways. There are four guiding principles to achieve this Vision. Like the legs of a chair, each Principle is essential and all four must be in place to support the whole.

Principle #1: Program Implementation: Projects and programs that use stormwater as a resource, protect water quality and beneficial uses, and efficiently minimize pollution are critical for sustainable stormwater management. Stormwater capture and true source control (identifying and mitigating a pollutant at its source) are the primary drivers of these solutions, with effective BMPs providing an important supportive role.

Principle #2: Permits, Regulations, and Legislation: Permits, regulations, and legislation need to focus on effectiveness and desired outcomes to support sustainable stormwater management. Regulatory and legislative actions must align with and support the other components of the Vision – advancing stormwater capture, true source control, effective BMPs, increasing public education and awareness focused on stormwater as a resource, and securing funding to support these solutions.

Principle #3: Public Education: Public awareness, understanding, and support is essential to sustainable stormwater management. The key shift is viewing stormwater as a resource that must be protected and integrated into overall water resource management.

Principle #4: Funding: Significant financial investment is required to achieve sustainable stormwater management. Stormwater is the most underfunded portion of the water sector and substantial funding is needed to bring these solutions forward.

2026 PESTICIDES ANNUAL REPORT

This report, *2026 Pesticides Annual Report,* advances Principle #1 by addressing pesticide pollution through source control solutions. CASQA has identified Current Use Pesticides as a Water Quality Priority, requiring solutions at a statewide scale. To advance true source control for pesticides, CASQA is actively engaged with state and federal regulators in an effort to develop an effective pesticide regulatory system, based primarily on existing statutes, that includes timely identification and mitigation of urban water quality impacts, and proactively prevents additional problems through the registration and registration review processes. This report describes CASQA's regulatory engagement activities from July 2025 through June 2026.

[1] https://www.casqa.org/wp-content/uploads/2022/10/final_-_vision_for_sustainable_stormwater_management_-_10-07-2020.pdf

Acknowledgements

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Table of Contents

Preface **2**
Section 1. Introduction **5**
1.1 Importance of CASQA's Efforts to Improve Pesticide Regulation 5
Section 2. Pesticide Program Activities **7**
2.1 Regulatory Tracking 7
2.2 Regulatory Communications 7
2.3 Education 7
2.4 Participation in Federal and State Advisory Groups 7
2.5 Pesticide Watch List 7
2.6 Partnerships 8
Section 3. Annual Program Implementation **8**
3.1 Regulatory Engagement 8
3.2 Participation in Federal and State Advisory Groups 9
3.3 Updated Pesticide Watch List 10
3.4 Partnerships 14
Section 4. Assessment of Progress **15**
4.1 State-Level Progress 15
4.2 Federal-Level Progress 15
Section 5. Looking Forward **16**
Attachment 1: Pesticides Regulatory Action Items
Attachment 2: Regulatory Participation Outcomes and Effectiveness Assessment Summary Tables

Section 1. Introduction

1.1 IMPORTANCE OF CASQA'S EFFORTS TO IMPROVE PESTICIDE REGULATION

For decades, the uses of certain pesticides in urban areas – even when applied in compliance with pesticide regulations – have adversely impacted urban water bodies. Currently, several pesticides are present in California urban water bodies at concentrations above aquatic toxicity thresholds.[2] CASQA member agencies face substantial costs to comply with pesticides-related Total Maximum Daily Loads (TMDLs), California State Water Board Toxicity Provisions, and additional permit requirements. Throughout California, more municipalities will be subject to similar requirements, as additional TMDLs and Basin Plan Amendments are adopted (Table 1). Meanwhile, while local agencies in California have authority over their own use of pesticides, they are pre-empted by state law from regulating pesticide use by consumers and businesses to address these sources of pollution in stormwater.

Consistent with CASQA's Vision for Sustainable Stormwater Management (Vision), CASQA's efforts focus on reducing pesticide pollution at the source. Minimizing pesticide pollution before it can occur, as opposed to attempting to remove pesticides from the environment, is essential to sustainable stormwater management. True source control (the elimination of a pollutant at its source) and the use of alternative products offers the most effective and economical approach to eliminating pesticides that impair the beneficial uses of California's waterways.

Table 1. California TMDLs, Statewide Water Quality Control Plans, and Basin Plan Amendments Addressing Currently Registered Pesticides and/or Toxicity in Urban Watersheds[3, 4, 5]

Water Board Region	Water Body	Pesticide	Status
Statewide	Statewide Water Quality Control Plan amendments for urban pesticides reduction ["Urban Pesticides Amendments"] (Inland Surface Waters, Enclosed Bays & Estuaries, and Ocean)	All Pesticides/All pesticide-related toxicity	In preparation
	Sediment Quality Objectives (Enclosed Bays & Estuaries)	Sediment Toxicity[6]	Approved
	Toxicity Provisions (Inland Surface Waters and Enclosed Bays & Estuaries)	Toxicity	Approved May 2023[7]
San Francisco Bay (Region 2)	All Bay Area Urban Creeks	All Pesticide-Related Toxicity	Approved

[2] California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report) https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html
[3] Excludes pesticides that are not currently registered in California, such as organochlorine pesticides.
[4] https://www.waterboards.ca.gov/water_issues/programs/tmdl/
[5] https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_final/apx_d_adopted_tmdls_list.pdf
[6] These TMDLs/Plan provisions can trigger toxicity testing stressor source identification studies, and additional follow up, even when toxicity is linked to current pesticides.
[7] https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Water Board Region	Water Body	Pesticide	Status
Central Coast (Region 3)	Santa Maria River Watershed	Pyrethroids, Toxicity	Approved
	Lower Salinas River Watershed	Pyrethroids, Toxicity, Malathion, Chlorpyrifos, Diazinon[9]	Amended by Central Coast Water Board, June 2024[8]
	San Lorenzo River Watershed (Santa Cruz)	Chlorpyrifos[9]	Approved
Los Angeles (Region 4)	Marina del Rey Harbor	Copper (Marine antifouling paint)[10]	Approved
	Oxnard Drain 3 (Ventura County)	Bifenthrin, Toxicity	EPA-Adopted Technical TMDL
	Calleguas Creek, its Tributaries and Mugu Lagoon	Water & Sediment Toxicity[6]	Approved
		Diazinon & Chlorpyrifos[9]	
	McGrath Lake (Ventura County)	Sediment Toxicity[6]	Approved
	Colorado Lagoon (Long Beach)	Sediment Toxicity[6]	Approved
	Dominguez Channel; Greater Los Angeles & Long Beach Harbor	Sediment Toxicity[6]	Approved
	Ballona Creek Estuary	Sediment Toxicity[6]	Approved
Central Valley (Region 5)	Sacramento River and San Joaquin River Basins	Pyrethroids	Approved
	Sacramento-San Joaquin River Delta Waterways	Diazinon & Chlorpyrifos[9]	Approved
	Sacramento & Feather Rivers	Diazinon & Chlorpyrifos[9]	Approved
	Sacramento County Urban Creeks	Diazinon & Chlorpyrifos[9]	Approved
	Lower San Joaquin River	Diazinon & Chlorpyrifos[9]	Approved
Lahontan (Region 6)	Pesticide Discharge Prohibition	All Pesticides	Approved[11]
Santa Ana (Region 8)	Newport Bay	Copper (Marine antifouling paint)[10]	Pending EPA Approval[12]
	San Diego Creek, and Upper and Lower Newport Bay	Toxicity (Diazinon & Chlorpyrifos)[9,13]	EPA-Adopted Technical TMDL
San Diego (Region 9)	Shelter Island Yacht Basin (San Diego Bay)	Copper (Marine antifouling paint)[10]	Approved
	Chollas Creek	Diazinon[9]	Approved

[8] https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/oppesticides/
[9] Use prohibited in urban areas (diazinon) or no meaningful use due to use limitations (chlorpyrifos).
[10] Primarily addresses pesticides that are directly discharged and should not ordinarily appear in stormwater (marine antifouling paint).
[11] https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/pesticidebpa.shtml
[12] https://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/tmdl_metals.html
[13] 23 CA Code of Regs 3977

Section 2. Pesticide Program Activities

CASQA's pesticide program activities support the development of an effective pesticide regulatory system based primarily on existing statutes. An effective pesticide regulatory system provides for the timely identification and mitigation of urban water quality impacts and proactively prevents additional problems through the registration and registration review processes.

2.1 REGULATORY TRACKING

CASQA actively tracks a range of regulatory activities to identify potential issues and opportunities for engagement. This effort includes reviewing Federal Register and California Department of Pesticide Regulation (DPR) notices to flag regulatory actions that may affect high-priority active ingredients requiring further review. Through this tracking, CASQA can identify gaps in current procedures and highlight potential urban runoff-related impacts. CASQA also reviews relevant regulatory actions, guidance documents, and work plans from United States Environmental Protection Agency (EPA) and DPR to assess their alignment with urban runoff concerns and determine whether additional input is warranted.

Activities at the State and Regional Water Boards are monitored to identify opportunities for improving TMDLs, Basin Plan Amendments, and National Pollutant Discharge Elimination System (NPDES) permits. A monthly summary titled *Pesticides Regulatory Action Items* documents regulatory tracking efforts and informs future engagement. This summary is distributed to the CASQA True Source Control Subcommittee. See Attachment 1: Pesticides Regulatory Action Items for the most recent update.

2.2 REGULATORY COMMUNICATIONS

To maintain strong working relationships and to provide early input, CASQA maintains communications with both EPA and DPR. These communications may be formal through comment letters in response to regulatory actions or informal to share areas of concern or collaboration. The purpose is to provide information sharing about immediate issues or ongoing efforts and inform EPA and DPR about issues confronting the stormwater community. Early communication on upcoming proceedings can reduce the need for time-intensive letters and add context.

2.3 EDUCATION

CASQA provides presentations and participates in discussions with EPA, DPR, the Water Boards, and CASQA members about pesticide impacts on urban runoff and opportunities to improve regulatory processes. Though these educational activities, CASQA encourages research and monitoring programs to address urban runoff data needs and priorities, stimulate academic, government, or private development of analytical and toxicity identification methods to address anticipated urban runoff monitoring needs, and inform development of new pesticides by manufacturers and selection of pesticides by professional users.

2.4 ENGAGEMENT WITH FEDERAL AND STATE ADVISORY COMMITTEES

CASQA engages with policy and scientific advisory committees convened by EPA and DPR by attending public meetings and providing input through the public participation process. Through these activities, CASQA contributes technical information, identifies data gaps, and fosters collaboration in the development of a more effective pesticide regulatory system. Table 3 lists these committees and summarizes their current status.

2.5 PESTICIDE WATCH LIST

CASQA updates the Pesticide Watch List annually to prioritize regulatory engagement based on current and potential water quality impacts from urban pesticide uses. The update utilizes recent scientific and regulatory literature and relevant monitoring information from DPR, the Water Boards' Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey (USGS), and MS4 monitoring programs.

2.6 PARTNERSHIPS

CASQA and the Bay Area Clean Water Agencies (BACWA) continue to work on parallel efforts to effect long-term systemic changes in the pesticide regulatory process. CASQA and BACWA combine resources to track stormwater and wastewater priorities into a unified monthly Pesticides Action Plan. Partnering with BACWA to coordinate the review of EPA and DPR pesticide regulatory actions allows for increasing the capacity and value of our collective pesticide program activities.

Section 3. Annual Program Implementation

3.1 REGULATORY ENGAGEMENT

At any given time, there are dozens of pesticides with current or pending actions before EPA or DPR. Addressing these regulatory concerns is critical because some pesticides may pose an immediate threat to water quality and create compliance risks for MS4s. In addition, regulatory decisions made by EPA and DPR often remain in place for many years – typically revisited only once every fifteen years – making early engagement essential to avoid long-term consequences for stormwater programs. Our engagement with EPA and DPR seeks to reinforce source control measures and alternatives as an effective strategy to reduce pesticide pollution.

Table 2 summarizes CASQA's comment activities and regulatory outcomes during the reporting period, including responses to comment letters submitted in prior years. For additional details on ongoing pesticide registrations, see Attachment 2: Regulatory Participation Outcomes and Effectiveness Assessment Summary Tables.

Table 2. Recent Regulatory Activities and Outcomes

Regulatory Action or Concern	CASQA Activity	Support	Outcomes and Notes
Fipronil Preliminary Aquatic Risk Assessment	Comment Letter Submitted July 6, 2020	BACWA CA DPR CA Dept. of Justice SFB Water Board State Water Board	**EPA issued a response to comments in November 2025.** Although EPA incorporated the monitoring data submitted by CASQA and partners, EPA did not address key CASQA and partner recommendations, including: • Include impervious surfaces in risk modeling, including perimeter treatments and crack-and-crevice treatments. • Add urban mitigation measures after acknowledging that urban concentrations exceed aquatic benchmarks.
Cyhalothrins (gamma and lambda)-Proposed Interim Decision (ID)	Comment Letter to EPA January 11, 2020	BACWA CA DPR SFB Water Board NACWA City of Salinas	**EPA issued Clarification and Correction to the (Gamma and Lambda-) Interim Decision in February 2026.** EPA retained the urban label language supported by CASQA. The 2026 clarification and correction also added a restriction on applications to residential lawns and turf to address post-application human exposure. This restriction will have a net effect of reduction of use of cyhalothrins in outdoor urban areas, which may protect aquatic life.
Isocyloseram Proposed Registration of a New Active Ingredient	Comment Letter: June 10, 2025	BACWA SFB Water Board NACWA Center for Biological Diversity	**EPA issued a response to comments in November 2025.** Isocycloseram, a new pesticide with proposed urban outdoor uses, appears to be more toxic than existing pesticides (including pyrethroids) with parallel uses. EPA incorporated several of the warning statements that CASQA suggested for the pesticide label, including a graphic submitted by CASQA and partners (see right)

			and warning statements "Do not apply to storm drains" and "Do not pour down drains or sewers." EPA did not adopt CASQA's request to apply narrower pyrethroid perimeter-band restrictions to comparable isocycloseram uses. EPA retained a 7-foot perimeter band for outdoor handheld isocycloseram treatments, explaining that its modeling accounted for impervious areas.
EPA Endangered Species Act (ESA) Draft Fungicides Strategy	Comment Letter to EPA July 2026	BACWA NACWA SFB Water Board	**Pending.** EPA's draft Fungicide Strategy addresses conventional agricultural fungicides. The draft Fungicide Strategy does not establish a framework for non-agricultural uses that may discharge to storm drains. CASQA requested a schedule for addressing non-agricultural uses and mitigation measures to minimize exposure to listed species from outdoor residential pesticide uses.

3.2 ENGAGEMENT WITH FEDERAL AND STATE ADVISORY GROUPS

As presented in Table 3, CASQA remains actively involved with various agencies and advisory groups that affect urban pesticide use and pest management. In addition to the PPDC and PMAC, new advisory groups are currently being initiated by DPR, such as a Scientific Advisory Committee, Sustainable Pest Management Committee, and an Environmental Justice Advisory Committee.

Table 3. Engagement with Federal and State Efforts to Support CASQA's Goals

Agency or Committee	Status and Developments
EPA's Pesticide Program Dialogue Committee (PPDC)	Before the PPDC's charter temporarily expired in October 2025, the PPDC served as a 40-member advisory committee chaired by the Director of Office of Pesticide Programs (OPP). The committee included representatives from growers, industry, environmental organizations, public health organizations, farmworker groups, and state, local, and tribal governments. The PPDC held biannual public meetings. Over the last decade, CASQA, BACWA, and others have presented at PPDC meetings and received important updates from EPA on pesticide regulatory activities and priorities. As of July 2026, OPP was seeking renewal of the PPDC charter, with a status update potentially available in the second half of 2026.
DPR's Pesticide Registration and Evaluation Committee (PREC)	PREC is an interagency committee that advises DPR on the proposed registration, renewal, and reevaluation of pesticide products. The committee may also provide advice to DPR on proposed regulatory development and reform initiatives, evolving public policy and program implementation issues, environmental monitoring data related to pesticide use, and science issues associated with evaluating and reducing risks. The most recent PREC meeting was on May 15, 2026.
DPR's Sustainable Pest Management (SPM) Advisory Committee	The SPM Advisory Committee was established to advise DPR on goals, tactics, policies, and partnerships that support the implementation of SPM statewide. The newly established, 17-member, limited-term committee will meet quarterly over three years to discuss barriers and opportunities for SPM adoption across California and inform DPR's work to foster pest management approaches that promote human health and safety, ecosystem resilience, agricultural sustainability, community wellbeing, and economic vitality. This committee held their first meeting on June 15, 2026.
DPR's Scientific Prioritization and Review Committee (SPARC)	SPARC is a newly created committee that advises DPR on prioritizing actions within its continuous evaluation and mitigation process. The committee provides science-based recommendations to support DPR's transparent, data-driven identification and mitigation of potential risks to human health and the environment from pesticide use. In April 2026, DPR selected 12 members to serve on the committee. The first committee meeting is scheduled for August 7, 2026.

DPR's Pest Management Advisory Committee (PMAC)	BACWA participates on the PMAC and provides an urban perspective within the committee. Urban participation on the PMAC has contributed to an increased focus on urban pest management and water quality issues, as well as funding for urban IPM research and implementation programs.
DPR's Environmental Justice Advisory Committee (EJAC)	EJAC is a newly established committee that advises DPR on policies and programs that address environmental justice concerns – particularly those of communities living in areas of high pesticide use. The committee held its first meeting in April 2026, with an initial focus on agricultural issues.

3.3 UPDATED PESTICIDE WATCH LIST

CASQA uses the Pesticide Watch List (Watch List) to prioritize efforts on the pesticides of concern to MS4 agencies.[14] To keep the Watch List current, CASQA reviews newly available scientific literature, government reports, and monitoring studies. Pesticide prioritization is based on several considerations, including monitoring results relative to aquatic toxicity thresholds, evidence of surface water toxicity, Clean Water Act section 303(d) listings, pesticide urban use patterns, and pathways to storm drains.

The 2026 Watch List Update addresses two elements. First, selected priority criteria, definitions, and annotations were revised to improve clarity and support consistent tracking. Second, available monitoring data and literature were reviewed, and Watch List prioritization criteria were applied to determine whether pesticide priorities should be added or reassigned. The discussion below describes these revisions, the information evaluated, resulting priority changes, and the complete updated Watch List.

Updates to Priority Criteria, Definitions, and Annotations

- **Updated the Priority 3 criteria to address highly toxic pesticides with pathways to the storm drain.** Previously, Priority 3 placement depended primarily on regulatory designations, including whether a pesticide contains a Clean Water Act priority pollutant or is associated with a section 303(d) listing. The revised criteria fill a gap between Priority 2 and Priority 4 by allowing a highly toxic pesticide with a pathway to storm drains and a documented urban monitoring detection to be placed in Priority 3, even when it does not meet Priority 2 criteria and might otherwise remain in Priority 4. The following language was added to implement this change: "*or is highly toxic with a pathway to the storm drain and has been detected in urban monitoring.*"
- **Clarified the scope of chromium pesticides included in Priority 3.** A footnote was added specifying that chromium pesticides include dichromic acid/chromic acid, chromated arsenicals, and other chromium pesticides. The footnote expressly identifies dichromic acid because of increasing concern regarding its use and to support consistent Watch List tracking.
- **Identified pesticides containing per- and polyfluoroalkyl substances (PFAS).** An asterisk was added to each pesticide identified as containing PFAS.
- **Listed MCPA separately from other phenoxy herbicides in Priority 4.** MCPA remains in Priority 4 but is now listed separately from phenoxy herbicides to support individual tracking.

[14] The first Watch List was published by the UP3 in 2005

Monitoring Data Review and Resulting Priority Changes

Table 4 identifies the monitoring data and literature reviewed to evaluate pesticide placements for the 2026 Watch List Update.

Table 4. Monitoring Data and Literature Reviewed for Watch List Update

Source	Monitoring Program or Study
California Department of Pesticide Regulation	(1) Study 329. *Surface Water Monitoring for Pesticides in Urban Areas of Northern California (FY2023-2024*), McClanahan 2025 and (2) Study 320. *Ambient Surface Water and Mitigation Monitoring in Urban Areas in Southern California (FY2023-2024*), Budd 2025.
San Francisco Estuary Institute (SFEI)	Heberger, Matthew, Rebecca Sutton, Nina Buzby, Jennifer Sun, Diana Lin, Miguel Mendez, Michelle Hladik, James Orlando, Corey Sanders, and Edward T. Furlong. *Current-Use Pesticides, Fragrance Ingredients, and Other Emerging Contaminants in San Francisco Bay Margin Sediment and Water.* SFEI Contribution No. 934. San Francisco Estuary Institute, Richmond, CA, 2020.
Delta Regional Monitoring Program	Current-use pesticide monitoring data available through the California Environmental Data Exchange Network (CEDEN).
State Water Resources Control Board	Stream Pollution Trends (SPoT) Monitoring Program. Khan, B, et al., *Pyrethroid-driven toxicity and its relationships with urban land use: Findings from 15 years of statewide monitoring in California watersheds*, Science of The Total Environment, Volume 999, 15 October 2025, 180330.
MS4/NPDES Monitoring Programs	Monitoring conducted by the Bay Area Municipal Stormwater Collaborative and the Southern California Stormwater Monitoring Coalition.
U.S. Geological Survey (USGS)	California Stream Quality Assessment; Sandstrom, M., L. Nowell, B. Mahler, and P. Van Metre. "New-Generation Pesticides Are Prevalent in California's Central Coast Streams." *Science of the Total Environment*, Volume 806, 2022.

The information summarized in Table 4 was evaluated against the Watch List criteria. Table 5 identifies the resulting priority changes and the basis for each change.

Table 5. Changes to Watch List Priorities

Pesticide or Category	Change	Basis for Change
Dicamba	Priority 4 → Priority 3	Detections in urban monitoring. Dicamba was previously identified in a Priority 4 footnote under phenoxy herbicides.
Propiconazole	Priority 4 → Priority 3	Toxicity to freshwater invertebrates and fish and frequent detections in urban stormwater monitoring.
Boscalid	Added to Priority 4	Inclusion on DPR's urban monitoring priority list.
Diflubenzuron	Added to Priority 4	Inclusion on DPR's urban monitoring priority list.
Isothiazolinones	Added to Priority 4	One compound in this category, 4,5-dichloro-2-octyl-3(2H)-isothiazolone (DCOIT), was already identified as a Priority 4 pesticide. Based on urban use patterns and toxicity, other isothiazolinones of interest include 2-methyl-4-isothiazolin-3-one (MIT), 5- chloro-2-methyl-4-isothiasolin-3-one (CMIT), 1,2 Benzisothiazolin-3-one (BIT), and 2-n-Octyl-4-isothiazoline-3-one (OIT), and 1,2-Benzisothiazol-3(2H)-one,2-butyl (BBIT).
Etoxazole	Added to Priority 4	High toxicity to aquatic invertebrates and urban use patterns.
Tetrapraniliprole	Added to Priority 4	High toxicity to aquatic invertebrates and urban use patterns.
Dinotefuran	Keep Watching → Priority 4	Inclusion on DPR's urban monitoring priority list.
Malathion	Priority 1 → Priority 3	No Aquatic Life Benchmark exceedances in recent years.
Simazine	Priority 2 → Priority 3	Recent detected concentrations are no longer approaching Aquatic Life Benchmarks.

Updated 2026 Pesticide Watch List

Table 6 presents the complete 2026 Watch List, incorporating the criteria, definitions, and annotations described above and the priority changes summarized in Table 5.

Table 6. 2026 Pesticide Watch List

Priority	Basis for Priority Assignment	Pesticides
1	Monitoring data exceeding benchmarks; linked to toxicity in surface waters; urban 303(d) listings	Diuron Fipronil* Imidacloprid

Priority	Basis for Priority Assignment	Pesticides	
		Pyrethroids with significant monitoring data:[15] • Bifenthrin* • Cyfluthrin* • Cyhalothrin (lambda)* • Cypermethrin • Deltamethrin/Tralomethrin • Esfenvalerate/Fenvalerate • Permethrin	
2	Monitoring data approaching benchmarks; modeling predicts benchmark exceedances; very high toxicity and broadcast application on impervious surfaces; urban 303(d) listing for pesticide, degradate, or contaminant that also has non-pesticide sources	Carbendazim/Thiophanate-methyl Chlorantraniliprole Clothianidin (Neonic) Copper pesticides[16] Creosote (PAHs) Indoxacarb* Pendimethalin Polyhexamethylenebiguanidine (PHMB) [16] Pyrethroids with little or no monitoring data[15],* Thiamethoxam (Neonic, degrades into Clothianidin) Zinc pesticides (including Ziram)[16] 2,4-D[17]	
3	Pesticide contains a Clean Water Act Priority Pollutant; 303(d) listing for pesticide, degradate, or contaminant in any watershed; or is highly toxic with a pathway to the storm drain and has been detected in urban monitoring	Arsenic pesticides Bensulide Chromium pesticides[18] Dicamba Dichlorvos (DDVP) Malathion	Naled Naphthenates Propiconazole Silver pesticides[16] Simazine Trifluralin*
4	High or unknown toxicity (parent or degradate) and urban use pattern associated with water pollution; synergist for higher tier pesticide; on DPR urban monitoring priority list	Antimicrobials in paints/coatings Abamectin Quaternary Ammonium Compounds (QACs) [16, 19] Azoxystrobin *Bacillus sphaericus*[16] *Bacillus thuringiensis* (Bti) [16] Boscalid Bromacil N-Bromosulfamates[16] Busan-77[16] Carbaryl Chlorinated isocyanurates[16] Chlorine[16]	MCPA Methomyl Methoprene[16] Mineral bases, weak[16] Mineral oil (aliphatic) [16] Methoxyfenozide Methyl anthranilate[16] MGK-264 Novaluron* Oryzalin Oxadiazon Oxyfluorfen* PCNB Peroxyacetic acid[16]

[15] Pyrethroids with little or no urban monitoring data include Allethrins, Cyphenothrin, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluorothrin, Prallethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate Tetramethrin. Etofenprox is included in SoCal analytes but has not been detected; there continue to be no NoCal monitoring data for etofenprox.
[16] Used in pools, spas, and/or fountains.
[17] These pesticides may have dioxins as contaminants; there are several bay and estuary 303(d) listings for dioxin compounds.
[18] Includes dichromic acid/chromic acid, chromated arsenicals, and other chromium pesticides.
[19] QACs found in stormwater include DDACs, ADBAC, ETMACs, BACs, EBAC, and others. Pools spas, and fountains can be a source of QACs in stormwater but the main sources of QACs in stormwater are undetermined at this time.

Priority	Basis for Priority Assignment	Pesticides	
		Chlorine dioxide[16] Chlorfenapyr* Chlorothalonil[17] Chlorsulfuron Isothiazolinones[16, 20] DDAC[16] Dichlobenil Diflubenzuron* Dinotefuran (Neonic) Dithiopyr* Etoxazole* Halohydantoins[16] Hydramethylnon* Hypochlorites[16] Imazapyr Isoxaben Mancozeb	Phenoxy herbicides[21] Piperonyl butoxide (PBO) Prodiamine* Pyrethrins Pyriproxyfen[16] Sodium bromide[16] Sodium chlorite[16] Sodium percarbonate[16] Sodium tetraborate[16] Spinosad/Spinetoram Sulfometuron-methyl Tebuconazole Terbuthylazine[16] Tetrapraniliprole Triclopyr Trimethoxysilyl quats
5	Frequent questions from partners[22]	Glyphosate	Metaldehyde
Keep Watching	Urban pesticides that may threaten water quality depending on approved urban use patterns.	Acetamiprid (Neonic) Cyantraniliprole Flupyradifurone (Neonic-like) Isocycloseram*	Sulfoxaflor (Neonic-like)* Veratridine (pyrethroid replacement)
None	No tracking trigger	Most of the >1,000 existing pesticides	
Unknown	Lack of information. No systematic screening has ever been completed for urban pesticides.	Unknown. EPA will be reviewing many antimicrobials and fungicides in the next decade, so we expect to see more data on these two classes of pesticides.	

3.4 PARTNERSHIPS

CASQA and BACWA continued to combine resources to track stormwater and wastewater priorities into a unified monthly pesticide action plan (see Attachment 1: Pesticides Regulatory Action Items for the most recent update). CASQA will continue to seek opportunities to support DPR's efforts across the SPM focus areas, and work with BACWA on areas of shared priority.

[20] Isothiazolinones include 2 methyl-4-isothiazolin-3-one (MIT), 5-chloro-2-methyl-4-isothiasolin-3-one (CMIT), 1,2, Benzisothiazolin-3-one (BIT), 4,5-dichloro-2-octyl-3(2H)-isothiazolone (DCOIT), 1,2-Benzisothiazol-3(2H)-one, 2-butyl (BBIT), and 2-n-Octyl-4-isothiazoline-3-one (OIT).
[21] Includes, 2,4-DP and MCPP (Mecoprop). 2,4-D, Dicamba, and MCPA are listed separately.
[22] Chlorpyrifos and Diazinon, while often asked about, have near zero or no urban uses, respectively.
* Contains Perfluoroalkyl and polyfluoroalkyl substances or "PFAS," a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom. (Based on the definition set by the Organisation for Economic Co-operation and Development (OECD). The state of Minnesota compiled a list of PFAS pesticides here: https://www.mda.state.mn.us/environment-sustainability/pfas-pesticide-active-inert-ingredients Full OECD PFAS definition here: https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/07/reconciling-terminology-of-the-universe-of-per-and-polyfluoroalkyl-substances_a7fbcba8/e458e796-en.pdf

Section 4. Assessment of Progress

Since the mid-1990s, CASQA (and its predecessor organization the Stormwater Quality Task Force) has worked to ensure that the pesticide regulatory structure at the state and federal level regulates pesticide uses to protect water quality. CASQA's long-term pesticide program activities focus less on specific pesticides and more on instilling systematic process improvements. A central aspect of achieving these changes involves supporting key initiatives at EPA, DPR, and the Water Boards that make progress toward these changes

4.1 STATE-LEVEL PROGRESS

At the state level, significant progress has been made by DPR in addressing current problems with pesticides in surface waters receiving urban runoff. DPR continues to implement improved registration processes and responses to observed water quality problems. DPR also continues to implement and evaluate mitigation measures for observed problems with pyrethroids and fipronil.

DPR's transition to Sustainable Pest Management (SPM), a holistic, systems-based approach, offers opportunities for further improvement. The 2023 SPM Roadmap identifies improved data, research and outreach, increased adoption of SPM, and pest-preventive urban design as key leverage points for urban implementation. DPR's 2026 Continuous Evaluation and Mitigation Update increases transparency by identifying actions and next steps. As described in Section 3.2, the SPM Advisory Committee and SPARC provide additional avenues for stakeholder input and science-based prioritization.

Furthermore, in 2014, the State Water Board established an urban pesticides reduction project (now titled the Statewide Urban Pesticide Provisions or UPP) as a top priority under the comprehensive stormwater strategy, known as "Strategy to Optimize Resource Management of Stormwater" or STORMS. CASQA has been actively supporting the development of the UPP since their inception.

Overall, DPR has a system in place that is reasonably effective at addressing pesticide toxicity in urban water bodies, although improvement is needed to better coordinate this process with the requirements of the Clean Water Act and MS4 permits. The goal is to embody this process in the State's UPP and the Management Agency Agreement (MAA) between DPR and the Water Boards

4.2 FEDERAL-LEVEL PROGRESS

CASQA's engagement with EPA focuses on promoting the standardization in labeling, enhancing modeling of pesticide use and water quality impacts, and ensuring Endangered Species Act (ESA) considerations are incorporated into regulatory decisions. Regulatory activities, as described by Table 2, show moderate success in addressing pesticide registration decisions. However, questions remain about how fully EPA's analyses account for key urban uses and whether upcoming risk management decisions for pyrethroids, imidacloprid and other neonicotinoids will provide any additional protection of urban water bodies. Consequently, further engagement on pesticide registration decisions is necessary to effectively communicate the impacts of urban use pesticides to water quality.

Section 5. Looking Forward

In the coming year, CASQA will continue to address near-term pesticide concerns and seek long-term regulatory change. At the federal level, CASQA will continue engagement on specific regulatory actions for priority pesticides. At the state level, CASQA will continue to support DPR in their rollout of the SPM initiative and their proposed Pesticide Prioritization Process. The pesticide program's priority focus areas include:

(1) Seek near-term changes in pesticide regulatory actions:

- Support completion of DPR action on fipronil water pollution, including implementation of effective education for professional users regarding restrictions on its outdoor urban use.
- Advocate for the enforcement of DPR's existing mitigation measures for pyrethroids and fipronil and recommend adoption of additional mitigation measures as warranted.
- Support completion of DPR's evaluation of the impacts of neonicotinoid pesticides on aquatic organisms.
- Continue to review EPA's proposed pesticide registration and registration review decisions, including those for new active ingredients and existing pesticides.

(2) Seek long-term changes in the pesticide regulatory structure:

- Continue engagement with EPA regarding incorporating their ESA obligation in registrations and re-registrations, including recommending the use of pictograms in labels, and seeking opportunities in California for EPA's future regional and vulnerable species pilot programs.
- Continue engagement with DPR regarding the SPM Roadmap specific to urban implementation programs and opportunities, including engagement with the SPM Advisory Committee and SPARC.
- Support DPR's proposed pesticide prioritization process as an effective pathway to prioritize pesticides under their continuous reevaluation process.
- Encourage and assist the Water Boards to continue to implement its MAA with DPR to prevent and mitigate pesticide impairments through more effective pesticide regulation.

CASQA will continue to seek opportunities to coordinate on high-priority regulatory actions with the Water Boards and other water quality stakeholders to improve efficiency and effectiveness. Attachment 1: Pesticides Regulatory Action Items details the prioritization and estimated schedule of future pesticide regulatory items, to inform planning and future pesticide regulatory activities.

Attachment 1: Pesticides Regulatory Action Items

Estimated CA DPR Schedule (Next 12 months):

Priority	Topic	Estimated Due Date	Wastewater / Stormwater	Item	Water Quality Issue
1	Investigation of Total Release Foggers (TRFs) and Intent to Begin Reevaluation	6/26/26		Reevaluation of indoor TRFs	Monitoring data; toxicity
1	Fipronil Pet Product Aquatic Risk Analysis (details below)	June 2026		Mitigation Options Document	Monitoring data; Anticipated 303(d) listings
1	Non-Agricultural Outdoor Neonicotinoids (details below)	July 2027		Re-evaluation Determination	DPR found human health risks for Acetamiprid, Dinotefuran, and Imidacloprid, which may necessitate product label changes or product bans.

Estimated US EPA Schedule (Next 12 months):

Priority	Topic	Estimated Due Date	Wastewater / Stormwater	Item	Water Quality Issue
high	Draft ESA Fungicide Strategy	6/29/26		ESA Strategy	Varied; review is needed to screen these for water quality issues
unknown	New Antimicrobials and Fungicides	various		various	Varied; many of these pesticides are showing up for the first time at the PID level; review is needed to screen these for water quality issues
1	Diuron	2026		BE (ESA)	303(d) listings
3	o-phenyl phenol	2026		PID	Toxicity. Used in cooling towers, paints, cleaners, etc.
4	Dicamba	2026		PID	Toxicity, stormwater monitoring data
4	Peroxy Compounds (peroxyacetic acid)	2026		PID (re-release)	Fountain chemical
4	Piperonyl butoxide (PBO)	2026		PID	Pyrethroid synergist
4	Pyrethrins	2026		PID	Related to pyrethroids, but less stable and less toxic
4	Tebuconazole	2026		PID	Fungicide
4	MGK-264	Uncertain		PID	Pyrethroid synergist
1	Fipronil	2027		PID	Monitoring data; Anticipated 303(d) listings

Key: RA = Risk Assessment; PID = Proposed Interim Decision; BE (ESA) = Biological Evaluation (Endangered Species Act); CA DPR = California Department of Pesticide Regulation; US EPA = United States Environmental Protection Agency

Attachment 2: Regulatory Participation Outcomes and Effectiveness Assessment Summary Tables

Cyhalothrins (Gamma and Lambda) Regulatory Participation Outcome and Effectiveness Assessment Summary Table

Pesticide: **Cyhalothrins (Gamma and Lambda), EPA–HQ–OPP–2010–0479 and EPA–HQ–OPP–2010–0480**
Use: Broad area uses in golf courses, lawns and turf, landscapes, and building perimeter treatments.
Issue: Highly toxic to aquatic invertebrates. Recurring exceedances of aquatic toxicity thresholds in water quality monitoring. Multiple 303(d) listings as well as adopted and pending TMDLs.
Actions taken: CASQA sent a comment letter to EPA on the cyhalothrins Proposed Interim Decision (PID) on January 11, 2021. In February 2020, CASQA also sent a comment letter to EPA on the Pyrethroids and Pyrethrins Ecological Risk Mitigation Proposal.
Status: In September 2021, EPA released the Interim Registration Review Decision (ID). In February 2026, EPA released a Clarification and Correction to the ID.

Next steps: EPA will complete an endangered species determination and any necessary consultation with the US Fish and Wildlife Services.

CASQA Comments to EPA on the Cyhalothrins PID (1/11/2020) (Summarized)	**EPA Response** Clarification and Correction to the September 2021 Lambda-Cyhalothrin and Gamma-Cyhalothrin Interim Registration Review Decision, posted February 2026.	**Did EPA incorporate CASQA's comment?**
Risk Mitigation Must be Protective of Urban Surface Waters CASQA recommends EPA design a clear schematic graphic for product labels, review proposed label language text, and edit as needed to provide clear and consistent descriptions of pervious and impervious surfaces, and provide California-specific labels for outdoor structural pest control pyrethroids products consistent with regulations implemented by CDPR. "CASQA strongly supports the '"Required Label Language for Lambda-and Gamma-Cyhalothrin End-use products with outdoor, urban, non-agricultural uses".' As defined in PID Appendix B, pp. 88-90, as a minimum level of mitigation required	To mitigate the risk to adults and children resulting from post-application exposure to products containing lambda-cyhalothrin and gamma-cyhalothrin on residential lawns, EPA added a new label restriction: **"Do not apply directly to residential lawns and turf in residential settings (e.g., homes, parks, schools, athletic fields or any other area frequented by the general public)."** (Clarification and Correction, pp. 2-3)	**Partially.** EPA kept the label language from the PID in the ID. Further, the 2026 correction to restrict residential lawn applications may reduce impacts to urban areas.

CASQA Comments to EPA on the Cyhalothrins PID (1/11/2020) (Summarized)	**EPA Response** Clarification and Correction to the September 2021 Lambda-Cyhalothrin and Gamma-Cyhalothrin Interim Registration Review Decision, posted February 2026.	**Did EPA incorporate CASQA's comment?**
to address the known risks to aquatic species from outdoor / urban uses of cyhalothrins. However, the Cyhalothrins PID does not provide any additional mitigation measures…to address the documented impacts of pyrethroid use in urban (non-agricultural) areas, and the risks to aquatic life of continued use of pyrethroid pesticides. This is despite significant evidence presented both in EPA's risk assessments and in our previous comment letters…consideration for possible additional mitigation measures should be afforded for each pyrethroid known through documented sources to contribute to surface water pollution." (CASQA's Comments, pp. 2-3)		

Fipronil Regulatory Participation Outcome and Effectiveness Assessment Summary Table

Pesticide: **Fipronil, EPA-HQ-OPP-2011–0448**
Use: Broad area uses in golf courses, lawns and turf, landscapes, and building perimeter treatments (trench or rod, building structure, and soil surface applications).
Issue: Highly toxic to aquatic invertebrates. Recurring exceedances of aquatic toxicity thresholds in water quality monitoring.
Actions taken: CASQA submitted a comment letter on the Preliminary Aquatic Risk Assessment (June 2020).
Status: EPA prepared a response to comments and Revised Risk Assessment in 2021 which was published to their docket in November 2025 (in parallel with a 2025 revised Health Risk Assessment).

Next steps: EPA will issue a Proposed Interim Decision.

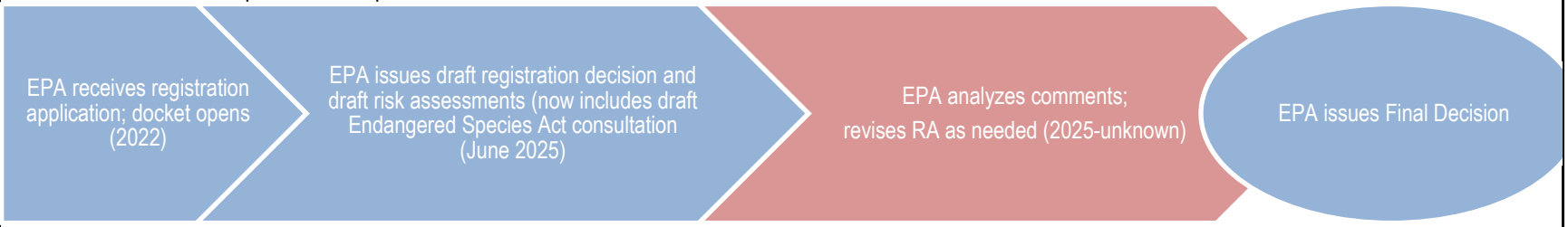
CASQA Comments to EPA on Fipronil: Draft Ecological Risk Assessment for Registration Review (7/6/2020) (Summarized)	**EPA Response** Fipronil: Response to Comments on the Draft Ecological Risk and Drinking Water Assessments for Registration Review (Feb 16, 2021; published Nov. 2025) pp. 72-74; and Fipronil: Revised Draft Ecological Risk Assessment for Registration Review (April 13, 2021; published Nov. 2025).	**Did EPA incorporate CASQA's comment?**
Comment #1: Monitoring Data Cited in Fipronil ERA Should be Updated The Fipronil ERA appropriately cites California Department of Pesticide Regulation (CDPR) water quality monitoring data, but the data cited are outdated and incomplete. CASQA recommends the EPA update their monitoring data to include more recent studies done by CDPR. CDPR studies continue to show high levels of detection of fipronil and its degradates in surface water samples from urban areas.	EPA provided an updated summary of monitoring data using more recent data. "EFED (Environmental Fate and Effects Division) appreciates CASQA comments and the reference to the California Department of Pesticide Regulation's (CDPR) Surface Water Database … Monitoring data were queried for fipronil and its major degradates (sulfide, sulfone and amide) on October 15, 2020 from CDPR's website. The monitoring samples were taken from California rivers, creeks, agricultural drains, urban streams and estuaries." (Response to Comments, p. 10)	**Yes.**

CASQA Comments to EPA on Fipronil: Draft Ecological Risk Assessment for Registration Review (7/6/2020) (Summarized)	**EPA Response** Fipronil: Response to Comments on the Draft Ecological Risk and Drinking Water Assessments for Registration Review (Feb 16, 2021; published Nov. 2025) pp. 72-74; and Fipronil: Revised Draft Ecological Risk Assessment for Registration Review (April 13, 2021; published Nov. 2025).	**Did EPA incorporate CASQA's comment?**
	"In the most recent southern California study (Budd, 2019), fipronil was detected in 76% of samples, with 73% at concentrations above EPA's aquatic life benchmark for invertebrate chronic toxicity (0.011 ppb). In a separate study from northern California, Ensminger, (2019), fipronil was detected in 48% of samples, in all cases above EPA's aquatic life benchmark for invertebrate chronic toxicity (0.011 ppb)." (Response to Comments, p. 10)	
Comment #2: Risk Assessment Modeling Underestimates Risk from Urban Outdoor Uses CASQA recommends that applications to impervious surfaces without subsequent runoff over pervious surfaces, including but not limited to perimeter treatment uses, crack and crevice treatment uses, and spot treatment uses, be included in the risk assessment modeling. "According to the most recent available (2017) pesticide use data, virtually all fipronil applied to outdoor surfaces in California is applied as "structural pest control", in areas covered by municipal stormwater NPDES permits. … assessments of risks from pesticide applications to impervious surfaces are essential for non-agricultural pesticide uses, because transport in urban runoff from impervious surfaces to surface waters via the storm drainage system is the transport pathway known to contribute most to observed water quality pollution from pesticide uses in urban areas. This is especially true where pesticides are applied	"Currently, the Agency does not quantitatively assess crack and crevice nor spot treatment uses. These uses are considered unlikely to result in appreciable aquatic exposure as compared to agricultural and wide-area non-agricultural applications. EFED acknowledges that many of the non-agricultural uses (e.g., perimeter treatment of commercial/ institutional/ industrial premises/ equipment) may contribute to fipronil residues in urban discharge into surface water. However, uses are not wide-area but are restricted to treatment of building perimeters and walls. And, in many cases, application rates listed in Appendix A of the DRA are one to several orders of magnitude lower than the application rate for perimeter treatments. Thus, assessment of perimeter treatment uses is considered protective for other outdoor uses." (Response to Comments, p. 11)	**No**. EPA did not update their risk estimates to include the additional urban uses and did not address the comment about how current EPA perimeter treatment modeling is only assessed over pervious surfaces, rather than impervious surfaces hydraulically connected to the storm drain system.

CASQA Comments to EPA on Fipronil: Draft Ecological Risk Assessment for Registration Review (7/6/2020) (Summarized)	**EPA Response** Fipronil: Response to Comments on the Draft Ecological Risk and Drinking Water Assessments for Registration Review (Feb 16, 2021; published Nov. 2025) pp. 72-74; and Fipronil: Revised Draft Ecological Risk Assessment for Registration Review (April 13, 2021; published Nov. 2025).	**Did EPA incorporate CASQA's comment?**
to surfaces that are hydraulically connected directly to the storm drainage system." (CASQA Comments, pp. 2-3) "The Fipronil ERA's description of modeling with respect to inclusion of applications to impervious surfaces for the perimeter (structural) ant treatment scenario needs clarification. ERA Section 8 text and tables indicate that impervious surface applications were modeled… (However), only runoff that flows over pervious surfaces (sod or lawn) was modeled in the residential perimeter treatment scenario." (CASQA Comments, p. 3)		
Comment #3: Additional Mitigation Measures Are Needed CASQA recommends that EPA evaluate, as part of the registration review process, whether existing California-specific label restrictions are sufficient to mitigate identified risks to aquatic life in urban surface waters. CASQA also recommends additional label requirements for pre-construction termiticide applications to prevent discharges of water that has contacted pesticide-treated soil. Specifically, labels should require applicators to cover treated areas until the foundation is poured, post signage identifying the treatment date and applicable site-management requirements, and manage water that collects in treated areas in accordance with applicable stormwater quality and hazardous waste requirements.	No published response.	**No**. EPA acknowledges urban values surpass aquatic benchmarks, but mitigation measures, including urban mitigation, are not discussed in the risk assessment.

Isocycloseram Regulatory Participation Outcome and Effectiveness Assessment Summary Table

Pesticide:	**Isocycloseram, EPA-HQ-OPP-2021-0641**
Use:	Broad-spectrum contact insecticide to be used as a gel, spray, spot, void, perimeter or crack-and-crevice treatment with proposed urban/suburban uses for cockroaches, ants, and termites.
Issue:	Very highly toxic to aquatic invertebrates and toxic to fish.
Actions taken:	CASQA submitted a comment letter on the new active ingredient registration decision in June 2025.
Status:	EPA published response to comments in November 2025.



Next steps:	No Federal action until new uses added and/or registration review.

CASQA Comments to EPA on Memorandum Supporting Proposed Decision to Approve Registration for the New Active Ingredient of Isocycloseram (6/10/2025) (Summarized)	**EPA Response** (Response to Public Comments on EPA's Registration of the New Active Ingredient, Isocycloseram, Nov. 19, 2025, pp. 72-74)	**Did EPA incorporate CASQA's comment?**
Comment #1: Isocycloseram Appears to be More Toxic Than Existing Pesticides with Parallel Outdoor Uses "The draft ERA states that isocycloseram is very highly toxic to aquatic invertebrates and toxic to fish. Isocycloseram is particularly toxic to estuarine/marine invertebrates under chronic exposure…When comparing chronic toxicity to aquatic invertebrates, isocycloseram is more toxic than fipronil, imidacloprid, and several pyrethroids with the same outdoor uses. In addition, several of the isocycloseram degradates are also highly toxic to aquatic invertebrates, similar to fipronil.	"EPA's risk assessment indicates, using modeling, that isocycloseram can potentially enter surface water and affect aquatic invertebrates. However, the chemical is unlikely to move into groundwater in concentrations high enough to affect aquatic invertebrates in subterranean habitats. EPA modeled exposure from outdoor residential, urban, and industrial use patterns of isocycloseram and characterized risks to aquatic invertebrates based on the sensitivity of those species coupled with the magnitude of exposure from proposed uses of isocycloseram… Label mitigations	**No.** EPA evaluated urban usage of isocycloseram. However, the response identifies agricultural runoff controls as the measures expected to substantially reduce risks to aquatic taxa. For urban uses, EPA identifies restrictions on applications to sewer and drain locations to reduce

CASQA Comments to EPA on Memorandum Supporting Proposed Decision to Approve Registration for the New Active Ingredient of Isocycloseram (6/10/2025) (Summarized)	**EPA Response** (Response to Public Comments on EPA's Registration of the New Active Ingredient, Isocycloseram, Nov. 19, 2025, pp. 72-74)	**Did EPA incorporate CASQA's comment?**
… Given that isocycloseram has equal or greater toxicity and shares similar urban applications, use of isocycloseram would likely result in a regrettable substitution within urban environments." (CASQA Comments, p. 2)	intended to reduce runoff from agricultural fields have the potential to reduce risk to aquatic taxa by approximately one order of magnitude… Additionally, because of stormwater contamination concerns, isocycloseram labels limit sewer/drain applications locations and specifically prohibit use in storm drains to help limit the exposure from residential uses. The BE and registration decision identify multiple compulsory mitigation measures for the general label to reduce the movement/transport of isocycloseram via run-off/erosion and spray drift." (Response to Comments, pp. 72-73)	potential exposure from residential uses.
Comment #2: Perimeter Band Spray On Pesticide Labels – Use Label Language Established for Pyrethroids "From 2019 to 2020, EPA worked extensively with pyrethroid registrants to develop perimeter band label language that was both effective against pests as well as protective of aquatic life. This reduced the band spray width (for pyrethroids) for some applications on impervious surfaces to be just 1-inch wide, greatly reducing the possibility of run-off over impervious surfaces which enter the storm drain system and flow untreated to surface waters. The pyrethroids perimeter band label, which is used for ten pyrethroids of varying toxicities, allows for a seven-foot perimeter band only when the application is over pervious surfaces, such as soil, mulch or lawn. CASQA Recommendation:	"EPA is maintaining a 7-ft perimeter band for outdoor handheld treatments because modeling conducted for handheld applications that have perimeter band restrictions in EPA's risk assessment considers applications to impervious surfaces. The highest EECs for residential use were obtained with 'ResidentialBSS' scenario. The curve number associated with this scenario accounts for 38% impervious area in EPA's standard quarter acre lot assumption. Therefore, EPA's modeling incorporates the potential for applications to both pervious and impervious surfaces without needing to aggregate different scenarios (e.g. residential and impervious) or restrict applications to impervious surfaces as was done with the pyrethroids. Since the exposure estimates already include the potential for application to impervious areas, no additional label instructions are required to address the exposure concerns for the perimeter band treatments." (Response to Comments, pp. 73 – 74)	**No**. EPA did not include the additional mitigation language to address exposure concerns for the perimeter band in isocycloseram products.

CASQA Comments to EPA on Memorandum Supporting Proposed Decision to Approve Registration for the New Active Ingredient of Isocycloseram (6/10/2025) (Summarized)	**EPA Response** (Response to Public Comments on EPA's Registration of the New Active Ingredient, Isocycloseram, Nov. 19, 2025, pp. 72-74)	**Did EPA incorporate CASQA's comment?**
• Given the toxicity of isoclycloseram and parallel uses, recommends require, pesticide registrants to submit revises labels for urban pesticides, using a process similar to the development of the pyrethroid labels which have narrower perimeter band spray widths when proximate to impervious surfaces." (CASQA Comments, p. 3)		
Comment #3: Clarify Urban Labels So That Isocycloseram Is Not Applied In Or Around Storm Drains. "CASQA Recommendation: All urban labels: Under 'SECTION 5.0 USE RESTRICTIONS AND PRECAUTIONS' add the following bullet points: • 'DO NOT apply in or around storm drains.' • 'Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, wetlands or natural ponds, estuaries and commercial fish farm ponds).' • 'Do not apply or irrigate to the point of runoff.' Proposed A22128 Cockroach Gel Bait label: • Under Section '3.0 PRODUCT INFORMATION' where 'sewers' are included in allowed treatment areas add statement that 'Use is prohibited in or near storm drains.'	"While products should not be used in sewers or drains, some products may be used around perimeters of sewers or drains. For these products, EPA has added the following statements and graphic to reduce down-the-drain exposure pathways. To be clear, a product could contain one or more of these statements, as appropriate: 'Do not pour down drains or sewers. Call your local solid waste agency for local disposal options.' • 'When applying near sewers or drains, only apply using a coarse, low-pressure spray.' {only for A21550 400SC (EPA Reg. No. 100-1707)} • 'When applying near drains or sewers (that are not storm or runoff drainage systems), only apply to the external perimeters (mouth/rim of sewer) and underside of sewer lids. Do not apply inside sewers or drains.' • 'Do not apply to storm drains.' • 'Do not use on washable textiles or fabrics.'" (Response to Comments, p. 74)"	**Partially.** EPA used/modified several of the warning statements that CASQA suggested to improve outdoor, urban labels.

CASQA Comments to EPA on Memorandum Supporting Proposed Decision to Approve Registration for the New Active Ingredient of Isocycloseram (6/10/2025) (Summarized)	**EPA Response** (Response to Public Comments on EPA's Registration of the New Active Ingredient, Isocycloseram, Nov. 19, 2025, pp. 72-74)	**Did EPA incorporate CASQA's comment?**
• Under Section '4.1.2 Outdoor Use', where label language allows use in 'drains leading to sewers' add clarification that 'Use is prohibited in or near storm drains.' • Under 'SECTION 5.0 USE RESTRICTIONS AND PRECAUTIONS' on all urban labels add the following bullet point: 'DO NOT apply in or around storm drains.'" (CASQA's Comments, p. 4)		
Comment #4: A Sixty-Day Comment Period Is More Appropriate For Stakeholder Engagement "CASQA Recommendion: • Provide a sixty-day comment period for all new pesticide registrations, draft environmental risk assessments, and draft biological evaluations." (CASQA's Comments, p. 4)	"While not mandated by law, EPA offers an opportunity for public engagement when the proposed decision memo is published for a new active ingredient. A public comment period was held for 30 days based on the normal practice." (Response to Comments, p. 74)	**No.**

Appendix F

Mercury and PCBs Controls

Mercury and PCBs Control Measures – Update 2026

Regional Effectiveness Evaluation of the Protocols for Managing PCB-s-containing Materials During Building Demolition

BAMSC Source Control Load Reduction Accounting for Reasonable Assurance Analysis – 2026 Update

ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM

MERCURY AND PCBS CONTROL MEASURES – UPDATE 2026

Report prepared by:

Alameda Countywide Clean Water Program

Submitted to:

California Regional Water Quality

Control Board, San Francisco Bay Region

September 2026

FINAL

MEMBER AGENCIES:

Alameda

Albany

Berkeley

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Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

County of Alameda

Alameda County Flood Control and Water Conservation District

Protecting Alameda County Creeks, Wetlands & the Bay

Acknowledgements

Geosyntec Consultants contributed substantially to the writing and preparation of this report.

Preface

This *Mercury and PCBs Control Measures – Update 2026* report was prepared by the Alameda Countywide Clean Water Program (ACCWP) per the Municipal Regional Stormwater National Pollutant Discharge Elimination (NPDES) Permit (MRP; NPDES Permit No. CAS612008; Order No. R2-2022-0018) for urban stormwater issued by the San Francisco Bay Regional Water Quality Control Board. This report fulfills many reporting requirements for implementation of MRP Provisions C.11 Mercury Controls and C.12 Polychlorinated Biphenyls (PCBs) Controls.

This report is submitted by ACCWP on behalf of the following Permittees:

- The cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City
- Alameda County
- Alameda County Flood Control and Water Conservation District
- Zone 7 of the Alameda County Flood Control and Water Conservation District (Zone 7 Water Agency).

List of Acronyms

Acronym	Definition
ac	acre
ACCWP	Alameda Countywide Clean Water Program (also Program)
AMP	Alameda Municipal Power
BAMSC	Bay Area Municipal Stormwater Collaborative
BASMAA	Bay Area Stormwater Management Agencies Association
Bay	San Francisco Bay
BPJ	Best Professional Judgement
BMPs	Best Management Practices
CA	California
CMP	Control Measure Plan
CIP	Capital Improvement Project
CWA	Clean Water Act
EBMUD	East Bay Municipal Utility District
EC	Emeryville Crescent
FCS	Full Trash Capture System
FY	Fiscal Year
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
GSRD	Gross Solids Removal Device
HDS	Hydrodynamic Separator
g/yr	grams per year
HHW	Household Hazardous Waste
IMR	Integrated Monitoring Report
kg	kilogram
mgd	million gallons per day
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MPC	Monitoring and Pollutants of Concern
MRP 2.0	Municipal Regional Stormwater Permit 2.0
MRP 3.0	Municipal Regional Stormwater Permit 3.0
MRP	Municipal Regional Stormwater Permit
MS4	Municipal Separate Storm Sewer System
NA	Not Applicable
ng/L	nanograms per liter
NPDES	National Pollutant Discharge Elimination System
OFEE	Oil Filled Electrical Equipment

O&M	Operations and Maintenance
PCBs	Polychlorinated Biphenyls
POC	Pollutants of Concern
POTW	Publicly Owned Treatment Works
ppm	parts per million
ROW	Right-of-Way
SPCC	Spill Prevention, Control, and Countermeasure
SOP	Standard Operating Procedure
SVP	Silicon Valley Power
TMDL	Total Maximum Daily Load
UCMR	Urban Creeks Monitoring Report
URDP	Urban Runoff Diversion Project
WY	Water Year

Table of Contents

1 Introduction 9

1.1 Purpose and Report Organization 9

1.1.1 Purpose 9

1.1.2 Report Organization 11

1.2 Background 11

1.2.1 Mercury and PCBs Total Maximum Daily Loads 11

1.2.2 Municipal Regional Permit 12

2 Assess Load Reductions from Stormwater (C.11.a/C.12.a) 13

2.1 Description 13

2.2 Control Measures Implemented during MRP 2.0 with Load Reductions 13

2.2.1 Source Property Identification and Abatement 14

2.2.2 Green Stormwater Infrastructure and Treatment 15

2.2.3 Large Full Trash Capture Systems 15

2.2.4 Enhanced Operations and Maintenance 16

2.2.5 Manage PCBs in Building Materials 16

2.2.6 Diversion to POTW 17

3 Control Measure Implementation in Old Industrial Areas (C.11.b/C.12.b and C.11.c/C.12.c) 18

3.1 Description 18

3.2 Implementation 19

3.2.1 Process for Selecting and Implementing Specific Treatment Control Measures 19

3.2.2 Source Area Investigation 21

3.2.3 Treatment Controls 26

3.3 Summary of Area Treated and Total Mass Load Reduced in Old Industrial and Moderate Areas 32

4 Program for Controlling PCBs from Bridges and Overpasses (C.12.d) 34

4.1 Description 34

4.2 Implementation 34

5 Program for Controlling PCBs from Electrical Utilities (C.12.e) 35

5.1 Description 35

5.2 Implementation 35

5.2.1 Enhanced Spill Response and Reporting Requirements 35
5.2.2 Plan to Maintain and Upgrade OFEE 36
5.2.3 PCBs Loads Avoided 36

6 Manage PCBs-Containing Materials and Wastes During Building Demolition Activities (C.12.g) 37

6.1 Description 37
6.2 Implementation 37

7 Mercury Collection and Recycling Implemented Throughout the Region (C.11.d) 38

7.1 Description 38
7.2 Implementation 39
7.2.1 Promotion of Mercury Recycling 39
7.2.2 Mass of Mercury Collected 39

8 Mercury and PCBs Loads Reduced 40

8.1 Estimated Loads Reduced 40
8.2 Findings and Conclusions 42

9 References 43

Appendices

Appendix A Composite Zone Sample Maps

Appendix B On-Site Sample Maps

Appendix C MRP 3.0 Source Property Referrals

Appendix D Source Area Investigations of Mercury and PCBs – Standard Operating Procedure

Appendix E PCBs Loads Avoided Resulting from the Removal of Municipally Owned PCBs-Containing OFEE

Appendix F PCBs in Building Materials Management Program – Fiscal Year 2025/26 Data Summary

Appendix G Mass of Mercury Recycled in Alameda County

Appendix H Supporting Data for Mercury and PCBs Load Reduction Estimates

List of Tables

Table 2-1: PCBs Loads Reduced Within Alameda County (FY 2013/14 through FY 2021/22)..... 14

Table 2-2: Mercury Loads Reduced Within Alameda County (FY 2013/14 through FY 2021/22) 14

Table 3-1: Total Old Industrial Area Investigated 22

Table 3-2: ACCWP PCBs Source Properties Identified during MRP 3.0 23

Table 3-3: ACCWP Contaminated Sites Referred to the Regional Water Board 25

Table 3-4: Applicable Source and Old Industrial/Moderate Area Treated by Retrofit Projects Since July 1, 2022 28

Table 3-5: Applicable Source and Old Industrial/Moderate Area Treated by Redevelopment Projects Since 7/1/2022 30

Table 3-6: Source and Old Industrial/Moderate Area Treated by Full Trash Capture Systems Since 7/1/2022 32

Table 3-7: Old Industrial and Moderate Area Treated and Total Load Reduced FY 2022/23 through FY 2025/26 33

Table 8-1: Mercury Load Reduced During MRP 3..... 40

Table 8-2: PCBs Load Reduced During MRP 3..... 41

List of Figures

Figure 1: City of Alameda Projects Treating Old Industrial and Moderate Area

Figure 2: City of Albany Projects Treating Old Industrial and Moderate Area

Figure 3: City of Berkeley Projects Treating Old Industrial and Moderate Area

Figure 4: City of Dublin Projects Treating Old Industrial and Moderate Area

Figure 5: City of Emeryville Projects Treating Old Industrial and Moderate Area

Figure 6: City of Fremont Projects Treating Old Industrial and Moderate Area

Figure 7: City of Hayward Projects Treating Old Industrial and Moderate Area

Figure 8: City of Livermore Projects Treating Old Industrial and Moderate Area

Figure 9: City of Newark Projects Treating Old Industrial and Moderate Area

Figure 10: City of Oakland Projects Treating Old Industrial and Moderate Area

Figure 11: City of Piedmont Projects Treating Old Industrial and Moderate Area

Figure 12: City of Pleasanton Projects Treating Old Industrial and Moderate Area

Figure 13: City of San Leandro Projects Treating Old Industrial and Moderate Area

Figure 14: City of Union City Projects Treating Old Industrial and Moderate Area

Figure 15: Unincorporated Alameda County Projects Treating Old Industrial and Moderate Area

1 Introduction

This *Mercury and PCBs Control Measures – Update 2026* report was prepared by the Alameda Countywide Clean Water Program (ACCWP or Program) to document implementation of mercury and PCBs control measures required under the Municipal Regional Stormwater Permit (MRP) Provisions C.11 and C.12 issued by the San Francisco Bay Regional Water Quality Control Board (Regional Water Board; Order No. R2-2022-0018).

1.1 Purpose and Report Organization

The section summarizes the report purpose and regulatory background.

1.1.1 Purpose

This report fulfills the requirements of MRP Provisions for reporting on the mercury and polychlorinated biphenyls (PCBs) control measure implementation:

- C.11 – Mercury Controls
    - C.11.a.iii.(1), C.11.a.iii.(2)
    - C.11.b.iii.(1), C.11.b.iii.(2), C.11.b.iii.(3)
    - C.11.c.iii.(2), C.11.c.iii.(3)
    - C.11.d.iii.(1)
    - C.11.e.iii.(1)
- C.12 – PCBs Controls
    - C.12.a.iii.(1), C.12.a.iii.(2)
    - C.12.b.iii.(1), C.12.b.iii.(2), C.12.b.iii.(3)
    - C.12.c.iii.(2), C.12.c.iii.(3)
    - C.12.d.iii.(4)
    - C.12.e.iii.(1), C.12.e.iii.(2), C.12.e.iii.(4), C.12.e.iii.(5)
    - C.12.f.iii.(1)
    - C.12.g.iii.(3)

The following MRP reporting requirements are addressed within this report:

- C.11.a/C.12.a: Permittees must document that all control measures implemented during MRP 2.0 that received load reduction credit remain in place and are being maintained at a level sufficient to achieve the credited reductions. The 2026 Annual Report must also

summarize cumulative mercury and PCBs load reductions achieved during the permit term, estimate reductions expected through the end of the permit term, and provide supporting data and documentation used to calculate those reductions.

C.11.b/C.12.b: Permittees must report progress on investigating old industrial land use areas, including actions taken at investigated parcels such as referrals, abatements, or enforcement measures. Annual reporting must also describe enhanced O&M activities conducted at referred source properties. The 2026 Annual Report must summarize the total area investigated, referred properties, associated O&M measures, and estimated mercury and PCBs load reductions achieved through this control measure.

- C.11.c/C.12.c: Permittees must report implementation of control measures identified in the Old Industrial Control Measure Plan, including treated areas, catchment acreage, and descriptions of treatment and stormwater diversion measures. The 2026 Annual Report must summarize all measures implemented during the permit term, the total acreage treated, and the estimated mercury and PCBs load reductions achieved.
- C.11.d: Permittees must annually describe efforts to promote recycling of mercury-containing products and improve program effectiveness. Reporting must also include the quantity of mercury-containing materials collected regionally and estimates of the mercury recovered using approved accounting methodologies.
- C.11.e/C.12.f: The 2026 Annual Report must summarize all green stormwater infrastructure projects implemented during the permit term, including parcel-scale, right-of-way, and regional projects. Reporting must include project descriptions, locations, treated acreage, and estimated mercury and PCBs load reductions achieved.
- C.12.e: Permittees must annually report activities undertaken to remove municipally owned PCBs-containing oil-filled electrical equipment (OFEE), including estimated load reductions and the methods used to calculate them. The 2026 Annual Report must provide a cumulative estimate of PCBs load reductions achieved through OFEE removal, maintenance programs, and system upgrades during the permit term.
- C.12.g: Permittees must annually report information related to demolition permit compliance, including the number of applicable structures evaluated, PCBs sampling results, and details for structures containing elevated PCBs concentrations. Reporting must also include information on emergency demolitions of applicable structures constructed or remodeled between 1950 and 1980 when conducted to protect public health or safety.

1.1.2 Report Organization

This report is organized as follows:

1. Introduction – Section 1 describes the purpose of the report and provides background on the PCBs and mercury Total Maximum Daily Loads (TMDLs) and the current municipal regional stormwater permit (i.e., MRP 3.0).
2. Assess Load Reductions from MRP 2.0 - Section 2 provides documentation confirming that the control measures implemented during MRP 2.0 for which load reduction credit was recognized continue to be implemented at an intensity sufficient to maintain the credited load reduction.
3. Control Measures – Section 3 though Section 7 discuss each of the control measures that are being implemented by the Permittees during this permit term to control PCBs and mercury.
4. Mercury and PCBs Loads Reduced – Section 8 provides the total mercury and PCBs loads reduced from each control measure implemented since the beginning of the Permit term and estimated for control measures taking place after the 2026 Annual Report submittal but before the end of the permit term (i.e., June 30, 2027).

1.2 Background

This section summarizes the regulatory background for the San Francisco Bay (Bay) mercury and PCBs TMDLs and the MRP requirements that guide implementation of mercury and PCBs control measures.

1.2.1 Mercury and PCBs Total Maximum Daily Loads

Fish tissue monitoring in Bay has revealed bioaccumulation of PCBs, mercury, and other pollutants. The levels found are thought to pose a health risk to people consuming fish caught in the Bay. As a result of these findings, California has issued an interim advisory on the consumption of fish from the Bay. The advisory led to the Bay being designated as an impaired water body on the Clean Water Act "Section 303(d) list" due to PCBs, mercury, and other pollutants. In response, the Regional Water Board has developed TMDL water quality restoration programs targeting PCBs and mercury in the Bay. The general goals of the TMDLs are to identify sources of PCBs and mercury in the Bay and implement actions to control the sources and restore water quality.

Municipal separate storm sewer systems (MS4s) are one of the PCBs and mercury source/pathways identified in the TMDL plans. Local public agencies (i.e., Permittees) subject to

requirements via NPDES permits are required to implement control measures in an attempt to reduce PCBs and mercury from entering stormwater runoff and the Bay. These control measures, also referred to as Best Management Practices (BMPs), are the tools that Permittees can use to assist in restoring water quality in the Bay.

1.2.2 Municipal Regional Permit

NPDES permit requirements for Phase I municipal stormwater programs and Permittees in the Bay Area are included in the MRP, which was issued to 70 cities, counties, and flood control districts in 2009 and initially reissued in 2015. The current MRP (i.e., MRP 3.0; Order No. R2-2022-0018) became effective on July 1, 2022. MRP 3.0 was amended in October 2023 (Order No. R2-2023-0019); this amendment did not affect Provisions C.11 and C.12.

Consistent with the TMDL plans, Provisions C.11 and C.12 of the MRP require the implementation of control programs, including source and treatment control measures and pollution prevention strategies, to reduce mercury and PCBs in urban stormwater runoff. The following sections describe the elements of the control programs and report on their implementation by the Alameda County Permittees.

2 Assess Load Reductions from Stormwater (C.11.a/C.12.a)

This section summarizes the control measures and approach for assessing mercury and PCBs load reductions from stormwater. It also confirms that control measures implemented during MRP 2.0 that received load reduction credit remain in place and are being maintained at a level sufficient to support the credited reductions.

2.1 Description

The Permittees must implement an assessment methodology and data collection program to quantify, in a technically sound manner, mercury and PCBs loads reduced through implementation of pollution prevention, source control, and treatment control; green stormwater infrastructure; and other measures taken as part of the mercury and PCBs control programs. The load reduction accounting system is described in the *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report (Bay Area Stormwater Management Agencies Association (BASMAA) 2022). This accounting system describes calculation methodologies, data requirements, and model parameters used to quantify the load reduction for each type of control measure. The Permittees have used the assessment methodology to demonstrate the load reductions achieved during MRP 3.0 as well as progress toward achieving the mercury and PCBs TMDL wasteload allocations. The loads reduced during the permit term are reported in Section 8 of this 2026 Annual Report.

This annual report provides documentation confirming that the control measures implemented during MRP 2.0 for which load reduction credit was recognized continue to be implemented at an intensity sufficient to maintain the credited load reduction.

2.2 Control Measures Implemented during MRP 2.0 with Load Reductions

Table 2-1 lists the PCBs load reductions credited for each control measure implemented from Fiscal Year (FY) 2013/14 through FY 2021/22 (i.e., during MRP 2.0). Table 2-2 lists the mercury load reduction credited during MRP 2.0, as reported in the *ACCWP Mercury and PCBs Watershed/Management Areas, Control Measures, and Load Reduction – Update 2022 report* (ACCWP 2022).

Table 2-1: PCBs Loads Reduced Within Alameda County (FY 2013/14 through FY 2021/22)

Control Measure Category	PCBs Load Reduced (g/yr)
Source Property Identification and Abatement	234.91
Green Stormwater Infrastructure and Treatment	62.13
Full Trash Capture Devices	27.92
Enhanced O&M	8.70
Manage PCBs in Building Materials	626.67
Diversion to POTW	7.78
TOTAL - All Control Measures	**968.1**

Table 2-2: Mercury Loads Reduced Within Alameda County (FY 2013/14 through FY 2021/22)

Control Measure Category	Mercury Load Reduced (g/yr)
Source Property Identification and Abatement	63.17
Green Stormwater Infrastructure and Treatment	733.19
Large Full Trash Capture Devices	230.61
Enhanced O&M	76.47
Diversion to POTW	18.47
TOTAL - All Control Measures	**1,122.0**

The sections below discuss the control measures implemented during MRP 2.0 for which load reduction credit was recognized

2.2.1 Source Property Identification and Abatement

The source property identification and abatement program implemented during MRP 2.0 involved investigations of properties located in historically industrial land use or other land use areas where PCBs were used, released, and/or disposed of and where sediment concentrations have been found at levels significantly above urban background levels. The source property identification and abatement control measure began with performing investigations of these "High Likelihood" areas to identify PCBs sources to the municipal storm drain system. The Permittees validated the existence of significantly elevated PCBs concentrations through surface soil/sediment sampling in the right-of-way or stormwater sampling in the storm drain system where visual inspections and/or other information suggested that a specific property was a potential source of significantly elevated PCBs concentrations. Where data confirmed significantly elevated PCBs concentrations (e.g., a sediment concentration equal to or greater than 1.0 mg/kg or a concentration greater than 0.5 mg/kg plus other lines of evidence) were present in soil/sediment from a potential source property or in stormwater samples, the Permittees took actions to cause the property to be abated or referred that property to the

Regional Water Board to facilitate the issuance of orders for further investigation and remediation of the subject property.

For each confirmed source property, the Permittee implemented or caused to be implemented one or a combination of interim enhanced O&M measures in the street or storm drain infrastructure adjacent to the source property during the source property abatement process to prevent further contaminated sediment from entering the storm drain. Documentation of the ongoing enhanced O&M measures at the referred properties that have not been abated is provided in Section 3.2.

For those source properties that were self-abated (i.e., by the Permittee or the property owner), the Permittee provided the Regional Water Board with sufficient documentation that source property abatement had effectively eliminated the transport of PCBs or mercury offsite and from entering the MS4 infrastructure for all transport mechanisms that apply to the site (e.g., stormwater runoff, wind, vehicle tracking).

As required by MRP 3.0 Provisions C.11.b and C.12.b, the source property investigation program is ongoing. See Section 3.2 for further information.

2.2.2 Green Stormwater Infrastructure and Treatment

This control measure included new development and redevelopment projects on private and public properties regulated by MRP Provision C.3, as well as retrofit of existing infrastructure in public right-of-way (ROW) areas and on public properties that are not Provision C.3 Regulated Projects. Permittees tracked and accounted for implemented C.3. projects and public retrofit green stormwater infrastructure (GSI) projects over the MRP 2.0 permit term.

New development, redevelopment, and GSI retrofit projects continue to be tracked by the Alameda County Permittees in their ArcGIS Online database. Refer to the Provision C.3 section of the *ACCWP Fiscal Year 2025/26 Annual Report* for further information.

2.2.3 Large Full Trash Capture Systems

Permittees installed full trash capture systems (large and inlet-based) in response to the trash control requirements of MRP Provision C.10. These devices capture sediments that may be contaminated with mercury and PCBs. Permittees are continuing to install full trash capture systems during the current permit term. The existing and new devices are routinely maintained per the requirements of MRP Provision C.10. Refer to the Provision C.10 section of the *ACCWP Fiscal Year 2025/26 Annual Report* for further information.

2.2.4 Enhanced Operations and Maintenance

As stated above, many Permittees installed inlet-based full trash capture devices in response to the trash control requirements of MRP Provision C.10. These inlets are typically inspected and cleaned more frequently due to the installation of the full trash capture device. Therefore, the Permittees conducted an enhanced O&M activity for each of these inlets. New inlet-based devices continue to be installed to comply with MRP Provision C.10. The inlet-based full trash capture devices are routinely maintained per the requirements of MRP Provision C.10.

2.2.5 Manage PCBs in Building Materials

MRP 2.0 Provision C.12.g. required Permittees to develop and implement a protocol for managing materials with PCBs concentrations of 50 parts per million or greater in applicable structures at the time such structures undergo demolition, so that PCBs do not enter municipal storm drain systems. A Permittee was exempt from this requirement if it provided evidence in its FY 2016/17 Annual Report that the only buildings that existed pre-1980 within its jurisdiction were single-family residential and/or wood-frame buildings.

Permittees were required to develop a protocol by June 30, 2019 that included each of the following components:

- The necessary authority to ensure that PCBs do not enter municipal storm drains from PCBs-containing materials in applicable structures at the time such structures undergo demolition,
- A method for identifying applicable structures prior to their demolition, and
- Method(s) for ensuring PCBs are not discharged to the municipal storm drain from demolition of applicable structures.

By July 1, 2019 and thereafter, Permittees were required to:

- Implement or cause to be implemented the PCBs management protocol for ensuring PCBs are not discharged to municipal storm drains from demolition of applicable structures via vehicle track-out, airborne releases, soil erosion, or stormwater runoff; and
- Develop an assessment methodology and data collection program to quantify in a technically sound manner PCBs loads reduced through implementation of the protocol for controlling PCBs during demolition of applicable structures.

BASMAA completed a regional project in March 2019 that developed a framework for local programs to manage PCBs-containing materials during building demolition. The assistance

included model ordinance language, guidance materials, tools, training materials, and outreach. Permittees began implementing the program on July 1, 2019 (BASMAA 2019). Building demolition data from Permittees with applicable structures are reported annually in the ACCWP's Annual Report.

Implementation of the program to manage PCBs in building materials during demolition is ongoing, as required by MRP 3.0. See Section 6 for further information.

2.2.6 Diversion to POTW

This control measure consists of diverting dry weather and/or first flush events from MS4s to publicly owned treatment works (POTWs) as a method to reduce loads of PCBs and mercury in urban runoff.

The Alameda County Flood Control and Water Conservation District has executed an agreement with the East Bay Municipal Utility District (EBMUD) for the operation of an Urban Runoff Diversion Project (URDP) at the Ettie Street Pump Station to direct dry weather discharge to EBMUD's main wastewater treatment plant for treatment. The URDP is designed to divert up to 0.5 million gallons per day (mgd) of dry weather flow from approximately April 16th through November 30th. EBMUD completed the installation of its pump and control system and new 6-inch diameter conveyance pipe in 2016; implementation is ongoing. Alameda County Flood Control and Water Conservation District staff coordinate with EBMUD staff to ensure proper operation and maintenance of the diversion pump.

3 Control Measure Implementation in Old Industrial Areas (C.11.b/C.12.b and C.11.c/C.12.c)

This section summarizes ACCWP's implementation of investigation and control measure requirements for old industrial areas. It also tracks progress toward the MRP 3.0 investigation and treatment-area requirements and summarizes treated acreage and associated mercury and PCBs load reductions.

3.1 Description

MRP Provisions C.11.b and C.12.b require the Permittees to investigate land areas that are likely to contribute mercury and PCBs to MS4s. These investigations focus on land areas where industrial activities occurred prior to 1980 and continue today (i.e., old industrial land use areas). Alameda County Permittees must investigate 2,620 acres during the MRP 3.0 permit term.

For those properties or land areas found to be contributing substantial amounts of mercury or PCBs or where high mercury or PCBs concentrations are found (generally areas with mercury or PCBs sediment concentrations greater than 1.0 mg/kg), Permittees must take actions to abate the mercury or PCBs source property or refer the property to the Regional Water Board for follow-up. For each source property referred to the Regional Water Board, Permittees should implement interim enhanced O&M measures in the street or storm drain infrastructure adjacent to the referred source property or implement a stormwater treatment system downstream of the property. These enhanced O&M measures must intercept historically deposited contaminated sediment in the vicinity of the source property and prevent further contaminated sediment from being discharged to the storm drain system.

MRP Provisions C.11.c and C.12.c require the Permittees, within the permit term, to implement or cause to be implemented control measures (i.e., treatment controls, diversion to wastewater treatment plants, GSI implemented in compliance with Provision C.3.b, enhanced operation and maintenance controls, or other controls) to achieve mercury and PCBs load reductions. The Alameda County Permittees must implement control measures on 664 acres of old industrial land use areas that have not been redeveloped or treated with GSI or other treatment controls by June 30, 2027.

Implementation of treatment control measures on 664 acres would result in a total estimated load reduction of about 28 grams per year (g/yr) of mercury and 121 g/yr of PCBs (assuming a 70% pollutant removal efficiency). Implementation of control measures with a lower efficiency than 70 percent will result in reduced area credited (for those lower efficiency control measures) toward fulfillment of the total treatment area requirement. Permittees may comply with this provision either by implementing control measures on old industrial land use areas or by accounting for the load reduction of mercury and PCBs (28 g/yr and 121 g/yr, respectively). The

area credited will be proportional to the ratio of the implemented control measure efficiency relative to the efficiency of treatment controls.

Implementation of control measures in PCBs-contaminated catchments not designated as old industrial may count toward fulfillment of the required treatment area. In choosing locations for control measures, implementation should focus on catchments containing known or suspected source areas or evidence of moderate to high mercury or PCBs soil concentrations (generally soil/sediment concentrations greater than 0.3 mg mercury/kg or 0.2 mg PCBs/kg).

Treatment control systems must be designed and sized consistent with MRP Provision C.3.d (Numeric Sizing Criteria for Stormwater Treatment Systems). The Regional Water Board will consider the use of conditionally approved treatment control system sizing criteria, per MRP Provision C.3.j.ii(3)(b), provided an analysis of the effectiveness of the facility sized according to these alternative criteria is acceptable to the Regional Water Board Executive Officer.

Permittees may choose to implement diversions to publicly owned treatment plants (POTWs). Because of the higher removal efficiency of wastewater treatment, each acre addressed by routing stormwater to a POTW will be credited as 1.3 acres toward satisfying the old industrial area treatment requirement, provided that the POTW captures and treats the stormwater design storm identified in MRP Provision C.3.d.

3.2 Implementation

The Program submitted the Alameda County Old Industrial Area Control Measure Plan (CMP) on March 31, 2023. The plan includes schedules for implementing control measures in old industrial areas to address mercury and PCBs load reduction requirements included in MRP Provisions C.11.c and C.12.c. and includes maps of the areas where control measures will be implemented, the size of the treated catchments, and a description of design and sizing features for the selected control measures. ACCWP revised the March 2023 CMP to address Regional Water Board comments received in August 2023. The Revised CMP, submitted to the Regional Water Board on March 31, 2024, was accepted on October 10, 2024. ACCWP also received comments from Regional Water Board staff on the Revised CMP via email on October 10, 2024, which were subsequently addressed in Revised Version 1.2 resubmitted on October 20, 2024.

3.2.1 Process for Selecting and Implementing Specific Treatment Control Measures

For the 2024 Old Industrial Area CMP, ACCWP analyzed existing monitoring data to identify known or suspected areas with moderate or high concentrations of mercury or PCBs. These areas are located in the cities of Berkeley, Emeryville, Hayward, Oakland, and San Leandro. The Emeryville Crescent and San Leandro Bay watersheds are known areas of concern and also are targeted for investigation.

The process used to select and implement specific control measures for each focus area consists of the following:

1. ACCWP resampled within the focus areas in 2024 and 2025 to confirm the presence of moderate or elevated levels of mercury or PCBs. The results of the monitoring were summarized in the *ACCWP Mercury and PCBs Control Measures – Update 2025* (ACCWP 2025) and the *ACCWP IMR* (ACCWP 2026a). ACCWP continued with composite zone monitoring in the ROW throughout FY 2025/26. The results of the FY 2025/26 composite zone sampling are provided in **Appendix A**.
2. For target areas where elevated levels of PCBs are confirmed in the ROW, ACCWP or permittee will conduct site visits to determine if there is a readily identifiable source. These site visits began in May 2025, continued throughout FY 2025/26, and will be conducted in future years as needed to support ongoing source identification efforts. The results of the FY 2025/26 on-site monitoring are provided in **Appendix B**.
3. Confirmed source properties (i.e., PCBs ≥ 1 mg/kg), will either be referred to the Regional Water Board or the permittee will abate or cause the property to be abated directly. See Section 3.2.3 for the list of source properties identified to date. New source properties will be referred to the Regional Water Board as they are identified throughout the permit term unless the property will be abated directly (e.g., through redevelopment). New source properties referred to the Regional Water Board in FY 2025/26 are provided in **Appendix C**.
4. If a property that is a source of moderate contamination (i.e., PCBs ≥ 0.2 mg/kg) is located, the permittee will assess whether the property owner can implement actions on the property to contain or treat the source. The permittee will take action to cause the containment or treatment to be implemented by the property owner at or around the site. This process began in FY 2025/26 for properties identified in FY 2024/25 and will continue into future years as additional sites are identified.
5. If no specific property is identified as a source of contamination, ACCWP and permittee will select and implement controls in the ROW (i.e., treatment or operations and maintenance) based on site constraints, local infrastructure, and drainage patterns. This process began in FY 2025/26 with the initiation of a storm drain line cleaning pilot project in West Oakland (Section 3.2.3) and will continue in subsequent fiscal years in other areas throughout the County, as applicable.

To prepare for onsite inspections and sampling of sites suspected of generating moderate or high concentrations of PCBs, ACCWP followed the procedures and protocols in the *Source Area Investigations of Mercury and PCBs (SOP)* document, which was finalized in FY 2025/26 and is

provided in **Appendix D**. The SOP describes the desktop evaluation, field preparation, field inspection and monitoring, and control measure steps for assessing potential properties.

3.2.2 Source Area Investigation

This section reports the progress towards investigating 2,620 acres of old industrial area this permit term and actions taken for identified source properties including supporting data and referral reports, if any.

Sediment/Soil Sampling

As described in the *ACCWP Integrated Monitoring (IMR) Report: Water Years 2020 through 2025* (ACCWP 2026a) Appendix A.4, *Pollutants of Concern Monitoring Report*, prior to WY 2021, the Program's Pollutants of Concern (POCs)-related monitoring had largely relied upon a targeted sampling design that collected soils associated with individual parcels in the public ROW as a means of identifying potential source properties. This sampling design is limited in the number of samples that can be feasibly collected and analyzed each year, which limits the geographic scope of the assessment efforts. ACCWP identified and tested a variety of catchment-scale sampling techniques to test out their utility for identifying important source properties in larger catchment areas beginning in WY 2021. The goal of these efforts was to allow segregation of catchment areas of interest into two categories: (1) those that are potentially important contributors of POCs and require additional characterization efforts, or (2) those that are unlikely to be important contributors and can be excluded from future monitoring efforts. Comparison of compositing techniques employed in WY 2021 and WY 2022 indicated that use of a compositing scheme that incorporates targeted sampling at all identified potential source properties within a given area was the most effective design based upon the ability to differentiate between areas of lower and higher pollutant concentrations in a cost- and time-efficient manner.

POC monitoring activities conducted by ACCWP in FY 2025/26, which includes portions of WY 2025 and WY 2026, continued to identify important POC source areas at the site-specific, catchment, and watershed scale. ACCWP expanded on prior pilot studies to characterize prioritized catchments for their potential to be important contributors of POC loadings and conduct on-site inspections in areas found to be elevated in POC concentrations based on composite sampling. In FY 2025/26, ACCWP focused on two main monitoring components: (1) composite zone monitoring in the ROW, and (2) on-site inspections and collections of sediment samples on potential source and moderate properties in areas with elevated concentrations (> 0.2 mg/kg) of PCBs or mercury identified through zone-based composite sampling.

Prior to initiation of zone sampling efforts, ACCWP performed a desktop analysis of potential source properties located within zones not previously sampled and grouped these within distinct polygons to support generation of representative composite samples. For each identified zone,

sampling personnel collected a composite sample of soils in the ROW adjacent to potential source properties within the zone with sufficient surficial sediments. If applicable, sampling personnel also included within the composites sample material from a non-target parcels that had the appearance of potential source properties (e.g., heavy industry, oily sidewalks / sediments, etc.). Between December 2025 and June 2026, field personnel successfully collected sediment samples within 27 target zones in Oakland, Emeryville, Livermore, and San Leandro. The total old industrial area investigated in each year of the permit term, including FY 2025/26, is shown in Table 3-1. The results of the composite zone monitoring and associated maps are provided in **Appendix A**. Results from composite zone samples collected during Water Year (WY) 2026 (i.e., October 1, 2025, through September 30, 2026) are considered preliminary and will be reported and submitted with the WY2026 Urban Creeks Monitoring Report (UCMR) in March 2027.

On-site inspection and sampling activities followed the protocol and procedures outlined in the *Source Area Investigations of Mercury and PCBs SOP* (ACCWP 2026b). Prior to initiating on-site inspection sampling activities, ACCWP performed a desktop screening of potential source properties within targeted areas to identify sites with varying likelihoods of PCBs contamination. Screening criteria included land use characteristics, business operations associated with potential PCBs use or handling (such as metal recycling facilities and electrical substations), and documented reports of potential PCBs-containing spills. Between December 2025 and June 2026, ACCWP conducted onsite inspections and monitoring of properties suspected to be sources of moderate or high concentrations of PCBs. A total of 24 sites were monitored for this effort. The results of the on-site monitoring and associated maps are provided in **Appendix B**. Results from on-site samples collected during WY2026 are considered preliminary and will be reported and submitted with the WY2026 Urban Creeks Monitoring Report (UCMR) in March 2027.

Total Area Investigated

Table 3-1 summarizes the total old industrial area investigated during this permit term. Areas inspected and monitored for as part of the on-site effort are not counted towards the total old industrial area investigated, as they would have been previously included in composite zone sampling investigations.

Table 3-1: Total Old Industrial Area Investigated

Fiscal Year	Old Industrial Area Investigated (acres)
FY 2022/23	126
FY 2023/24	1,433
FY 2024/25	39[1]

Fiscal Year	Old Industrial Area Investigated (acres)
FY 2025/26	2,102
Total	**3,700**
Required during Permit Term	2,620
Area Remaining to be Investigated in MRP 3.0	0

1. Most of the old Industrial area investigated in FY 2024/25 was previously monitored in FY 2023/24.

A summary of the source properties identified from the beginning of MRP 3.0 are listed in Table 3-2. Based on results available at the time this report was generated for ROW and on-site sampling conducted in FY 2025/26, no new source properties identified, although three source property referrals were submitted this fiscal year for previously identified source properties.

Table 3-2: ACCWP PCBs Source Properties Identified during MRP 3.0

SITE NAME	LOCATION	Site Description	Notes
Prologis	3600 Alameda, Oakland 703 37th Avenue, Oakland	Former Owens-Brockway Glass factory	This property will be redeveloped, so no referral but will be tracked through the demolition and redevelopment process.
Yenlin Air Conditioning	1268 48th Ave (between International Blvd and E 12th St), Oakland	The Li Yenlin Air Conditioning Company has been in operation for approximately 34 years. It has also operated as Yenlin Li Refrigeration Company doing HVAC, sheet metal, and mechanical work. The "back" portion of the parcel extends south to 49th Ave.	Contamination may be limited to the back portion of the site. Date of site referral was March 19, 2026.
Cole Brothers	1797 12th Street, Oakland	Site operations include auto dismantling and salvaging company. Dismantling is conducted on a concrete pad outdoors.	The property is inactive but stores materials outside. The property owners are planning on cleaning up the site and selling it. Date of site referral was March 19, 2026.
One Stop	1530 Wood Street, Oakland	Site is no longer in use and is planned for redevelopment	This property will be redeveloped, so no referral but will be tracked through the demolition and redevelopment process.

SITE NAME	LOCATION	Site Description	Notes
AB&I Redevelopment Site	7825 San Leandro Street, Oakland	The Site operated as a cast iron foundry from at least 1940 to 2022, conducting scrap metal melting, mold making, casting, finishing, and coating of pipes and fittings	This property will be redeveloped and will be tracked through the demolition and redevelopment process. Date of site referral was May 29, 2026 at the request of the Regional Water Board.

Ongoing Enhanced O&M Activities

This section reports ongoing enhanced O&M activities associated with source property referrals. The properties that were referred to the Regional Water Board during MRP 2.0, their abatement status, and enhanced O&M BMPs, as well as those referred during MRP 3.0, are listed in Table 3-3 below. MRP 3.0 source property referrals are also attached in **Appendix C**.

Table 3-3: ACCWP Contaminated Sites Referred to the Regional Water Board

SITE NAME	LOCATION	YEAR REFERRED	ABATEMENT STATUS	ENHANCED O&M
AMG	3438 Helen Street, Oakland	2018	Abated	Site is abated per Regional Water Board letter dated July 18, 2023.
Custom Alloy Scrap Sales	2601 Peralta St., Oakland	2018	Abated	Site is abated per Regional Water Board update Jan 2025. Note this business is moving to the Port of Oakland and the site will be closed.
Precision Cast Products	1549 32nd Street and 2868 Hannah Street, Oakland	2018	Abated	Site is abated per Regional Water Board letter dated July 18, 2023.
UPRR – Oakland Coliseum	700 73rd Avenue, Oakland	2018	Abated	Site has been capped as part of the ongoing remediation.
Schnitzer Steel	1101 Embarcadero West, Oakland	2020	Referred Investigation / Design	Onsite controls, wheel wash at site entrance, enhanced street sweeping conducted by Schnitzer.
Brownfield Auto Auction (former Nor-Cal Rock)	768 46th Avenue, Oakland	2020	Referred Investigation / Design	Direct discharge to creek; no opportunity for enhanced O&M.
Economy Lumber	750 High Street, Oakland	2020	Referred Investigation / Design	Direct discharge to creek; no opportunity for enhanced O&M.
Yenlin Air Conditioning	1268 48th Ave, Oakland	2026	Referred	Downstream storm drain inlet cleanout and installation of full trash capture devices.
Cole Brothers	1797 12th Street, Oakland	2026	Referred	Installation of straw wattles and rumble strips or another method of sediment control at the site entrance and exit.
AB&I Redevelopment Site	7825 San Leandro Street, Oakland	2026	Referred	Storm drain line cleaning onsite and in MS4.

Enhanced O&M activities listed for the referred source properties that have not been abated are ongoing.

3.2.3 Treatment Controls

This section describes the treatment control measures that were implemented during this permit term (i.e., since July 1, 2022) to control mercury and PCBs in urban runoff from old industrial areas, areas containing known or suspected source areas, or areas with evidence of moderate to high mercury or PCBs soil concentrations. Potential treatment control measures include storm drain operation and maintenance (O&M) practices, retrofit with GSI or non-GSI treatment control, redevelopment with GSI, full trash capture devices, and diversion to POTW. The process for selecting treatment control measures is described in the CMP.

Figures 1 through 15 (provided at the end of this report) show PCBs and mercury sample concentrations in monitoring data collected through WY 2024 (the year up until composite zone and on-site inspection and sampling was fully implemented), untreated old industrial land use areas, and old industrial areas that were treated prior to FY 2020/21. These maps also show the locations and drainage catchments of old industrial area treatment measures installed in FY 2021/22 and treatment control measures installed during this permit term (i.e., since July 1, 2022). The old industrial area indicated on these maps is based on mapping conducted over the previous two permit terms. The maps will be updated throughout the permit term to improve the accuracy of the maps at the parcel scale and to add new monitoring data. Maps showing the composite zone and on-site results, which has been the monitoring approach after WY2024 are included in **Appendix A** and **Appendix B**, respectively.

Operations and Maintenance

Routine MS4 O&M activities conducted by Permittees include street sweeping and drain inlet cleaning. In addition, storm drains, culverts, and channels are maintained as needed (i.e., desilted when needed to remove excessive quantities of accumulated sediment that may be causing localized flooding issues). Infrequent capital improvement projects may also remove accumulated sediment from the MS4, such as storm drain repairs or channel stabilization projects. Each of these O&M activities removes PCBs and mercury that are present in the sediment that is removed.

In FY 2025/26, the City of Oakland flushed approximately 6,886 feet (1.3 miles) of storm drain lines in old industrial areas in the priority watersheds of Emeryville Crescent and San Leandro Bay.

In FY 2025/26, ACCWP and the City of Oakland also started planning an O&M pilot project to remove sediments containing mercury and PCBs from the MS4 system in a West Oakland old industrial area. This pilot project focuses on the Zone EC_18 area (ACCWP 2025, 2026a) with elevated levels of PCBs in sediment in the ROW and on private parcels. There are approximately 8,500 linear feet of storm drain line within this project area and forty storm drain inlets.

Also in FY 2025/26, the City of Oakland, with assistance from ACCWP, applied for and was awarded an EPA San Francisco Bay Program grant to support the implementation of a project to clean up PCBs contaminated sediments in Arroyo Viejo Creek, a tributary to San Leandro Bay.

Retrofit with Treatment Controls or Green Stormwater Infrastructure

Retrofit projects provide treatment control for existing developed areas without redeveloping the tributary area. Treatment controls may include GSI or non-GSI treatment.

Retrofit treatment control measures will be designed and sized consistent with MRP Provision C.3.d (Numeric Sizing Criteria for Stormwater Treatment Systems). Non-regulated retrofit projects with significantly constrained area or other substantial constraints will size treatment control measures using the *Guidance for Sizing Green Infrastructure Facilities in Streets Projects* (BASMAA 2019) with companion analysis *Green Infrastructure Facility Sizing for Non-Regulated Street Projects* (BASMAA 2017). These projects will comply with the Regional Water Board's conditional approval of that sizing method providing qualifiers and conditions under which alternative sizing criteria may be used for Non-Regulated green streets projects. Retrofit projects that use the conditionally approved sizing criteria in MRP Provision C.3.j.ii.(3)(b) will provide an analysis to the Regional Water Board that determines the reduced effectiveness of the facility sized according to these alternative criteria.

Since July 1, 2022, 0.76 acres of applicable source property and old industrial parcels and ROW area were retrofit. In addition, 2.7 acres of old industrial area was retrofit in FY 2021/22. A list of the retrofit projects is provided in Table 3-4. These projects are illustrated in Figures 1 through 15.

Table 3-4: Applicable Source and Old Industrial/Moderate Area Treated by Retrofit Projects Since July 1, 2022

Fiscal Year	Jurisdiction	Project Name	Catchment Area (acres)	Applicable Source Property Area Treated (acres)	Applicable Old Industrial or Moderate Area Treated (acres)
FY 2022/23	Alameda	Mitchell Avenue Northside Improvements	0.67	0.67	NA
FY 2024/25	Alameda	Clement Ave Safety CIP	0.09	NA	0.09
FY 2025/26	*NA*	*No applicable projects*	*NA*	*NA*	*NA*

Notes: Control measure implementation data may be incomplete for FY2025/26 at the time this report was generated for some Permittees. There were no retrofit projects in FY 2025/26 in source or old industrial/moderate areas with known elevated concentrations of PCBs or mercury.

Redevelopment with Green Stormwater Infrastructure

GSI is treatment control that uses vegetation, soils, and natural processes to manage water and create healthier urban environments. GSI is used to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural treatment control systems to detain and treat runoff before it reaches tributary creeks and, ultimately, San Francisco Bay. GSI treatment control measures include pervious pavement, infiltration basins, bioretention facilities, green roofs, and rainwater harvesting systems. Infiltration-based GSI treatment control measures are generally not recommended in areas with contaminated soils or groundwater.

Regulated redevelopment projects in old industrial and moderate areas are required to implement GSI by MRP Provision C.3. Redevelopment projects reduce mercury and PCBs loads both through the redevelopment activity (e.g., soil removal, capping, and addition or replacement of impervious surfaces) and the implementation of GSI treatment.

MRP Provision C.3.d includes numeric sizing criteria for GSI treatment measures for regulated redevelopment projects. The current *C.3 Technical Guidance Manual*, released in June 2026, provides guidance on the selection, sizing, and design of GSI treatment measures for redevelopment projects in Alameda County (ACCWP 2026c). MRP 3.0 includes several significant changes to Provision C.3, including changes to the types and sizes of projects regulated. Most of these changes went into effect on July 1, 2023. The redevelopment projects in old industrial and moderate areas listed in this plan will be sized and designed in accordance with this guidance.

Since July 1, 2022, 53.0 acres of source property and old industrial parcel and municipal ROW area have been redeveloped. In addition, 47 acres of old industrial area was redeveloped in FY 2021/22. A list of the applicable redevelopment projects since July 1, 2022 is provided in Table 3-5. These projects are illustrated in Figures 1 through 15.

Table 3-5: Applicable Source and Old Industrial/Moderate Area Treated by Redevelopment Projects Since 7/1/2022

Fiscal Year	Jurisdiction	Project Name	Project Address	Catchment Area (acres)	Applicable Source Property Area Treated (acres)	Applicable Old Industrial or Moderate Area Treated (acres)
FY2022/23	Alameda	Alameda Landing Public Waterfront Improvements	Mitchell Avenue at Fifth Street, Alameda	3.88	3.88	NA
FY2022/23	Berkeley	Berkeley Commons	600 Addison Street, Berkeley	8.46	8.46	NA
FY2022/23	Oakland	1067 Calcot Place	1067 Calcot Place, Oakland	1.24	NA	1.24
FY2023/24	Alameda	Alameda Landing Northern Waterfront Improvements – Mitchell Avenue Greenway Phase 2	North of Mitchell Avenue, east from Avenue A, Alameda	0.74	0.74	NA
FY2023/24	Alameda	Alameda Point Adaptive Re-Use Phase 1	W Midway and W Tower Ave between Saratoga St and Pan Am Way, Alameda	4.5	NA	4.5
FY2023/24	Fremont	Scannell Properties	40517 Albrae Street, Fremont	20.29	NA	20.29
FY 2024/25	Alameda	Alameda Landing Waterfront Residential Phase 2 and 3	Mitchell and A Ave, Alameda	8.7	8.7	NA
FY 2024/25	Alameda	Alameda City Parking Lot	W Ranger and Pan Am Way, Alameda	0.01	NA	0.01
FY 2024/25	Oakland	2255 International Blvd	2255 International Blvd, Oakland	0.88	NA	0.88
FY 2024/25	Oakland	1708 Wood Street	1708 Wood Street, Oakland	2.07	NA	2.07
FY 2024/25	Oakland	1701 Campbell Street	1701 Campbell Street, Oakland	2.24	NA	2.24
FY 2025/26	*NA*	*No applicable projects*	*NA*	*NA*	*NA*	*NA*

Notes: Control measure implementation data may be incomplete for FY25/26 at the time this report was generated for some Permittees. There were no redevelopment projects in FY 2025/26 in source or old industrial/moderate areas with known elevated concentrations of PCBs or mercury. Applicable source property redevelopment projects are listed in the 2024 Old Industrial Area Control Measure Plan Appendix E (ACCWP 2024).

Full Trash Capture Treatment Control Measures

MRP Provision C.10 requires Permittees to implement trash prevention and control actions, including full trash capture systems (FCS), to reduce trash generation. Full trash capture systems capture sediment along with trash that may be contaminated with PCBs and mercury. Permittees have installed both large and inlet-based full trash capture systems in response to Provision C.10. Large full trash capture devices, including hydrodynamic separators (HDS), gross solids removal devices (GSRDs), and baffle boxes, capture and treat urban runoff from large drainage areas, ranging from 10's to 100's of acres. Inlet-based devices in roadways enhance the capture of sediments that may be contaminated with PCBs and mercury from smaller, localized drainage areas. In addition, these inlets are typically cleaned more frequently as a result of the installation of the full trash capture device. Full trash capture system implementation is described in each Permittee's Trash Load Reduction Plan. Full trash capture devices are sized and designed in compliance with MRP Provision C.10.

Alameda County Permittees treated 922 acres of source and old industrial/moderate parcels and ROW areas with large and inlet-based full trash capture systems since July 1, 2022. Table 3-6 lists the area treated by large and inlet-based FCS since FY 2022/23. These projects are illustrated in Figures 1 through 15.

Table 3-6: Source and Old Industrial/Moderate Area Treated by Full Trash Capture Systems Since 7/1/2022

Full Trash Capture System Type	Source and Old Industrial/Moderate Area Treated (acres)
Large Full Trash Capture Systems	230
Inlet-Based Full Trash Capture Systems	692

Notes: Control measure implementation data may be incomplete, or no new devices were installed, for FY2025/26 at the time this report was generated for some Permittees.

3.3 Summary of Area Treated and Total Mass Load Reduced in Old Industrial and Moderate Areas

Table 3-7 summarizes the estimated the mercury and PCBs loads reduced through implementation of the CMP through FY 2025/26 through storm drain cleanouts in old industrial areas in priority watersheds, GSI implementation in areas with known highly or moderately elevated concentrations of PCBs or mercury, and implementation of full trash capture devices countywide. Implementation of full trash capture projects, which have a lower efficiency than GSI retrofit (i.e., 70 percent) resulted in reduced load credited by a factor related to its efficiency related to GSI retrofit.

Table 3-7: Old Industrial and Moderate Area Treated and Total Load Reduced FY 2022/23 through FY 2025/26

Control Measure	Mercury Load Reduced (g/yr)	PCBs Load Reduced (g/yr)
Source Property Identification and Abatement[1]	0.0	61.9
Storm Drain Cleaning in the City of Oakland[2]	7.9	10.8
Applicable GSI Retrofit Treatment Projects[3]	0.03	2.4
Applicable GSI Redevelopment Treatment Projects[4]	2.8	118.7
Full Trash Capture Devices[5]	2.4	13.4
Total	**13.1**	**207.2**
MRP 3 C.11.c/12.c Requirement	**28**	**121**

1. Source property referral only, Load Reduced = (Source Property Area (ac)) x (5.078 – 0.049 (g/ac/yr)). Load reduced is halved for referral. Acres associated with this control measure can be found in **Appendix H**.
2. Load Reduced = (assumed average unit mass of solids removed (2.6 kg/ft)) x (mean mercury sediment concentration (0.331 mg mercury/kg)) or (mean PCBs sediment concentration (0.45 mg PCBs /kg)) x (length of storm drain line cleaned in old industrial area in Oakland (ft)). Approach to estimating the load reduced is from the methodology approved in the *ACCWP Old Industrial Control Measure Plan, Version 1.2, Appendix D (October 2024)*. Further details on this control measure can be found in **Appendix H**.
3. Load Reduced = (Project Drainage Area (ac)) x (area-weighted mercury or PCBs yield (g/ac/yr)) x 0.70. Load reductions were calculated for the GSI retrofit projects listed in Table 3-4. Further details can be found in **Appendix H**.
4. Mercury Load Reduced = (Project Area (ac)) x (Existing Yield – 0.004 (g/ac/yr)). PCBs Load Reduced = (Project Area (ac)) x (Existing Yield – 0.0004 (g/ac/yr)). Load reductions were calculated for the redevelopment projects listed in Table 3-5. Further details can be found in **Appendix H**.
5. For large full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted mercury or PCBs yield (g/ac/yr)) x 0.20. For small full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted mercury or PCBs yield (g/ac/yr)) x 0.18. Further details can be found in **Appendix H**. For large full trash capture devices, an additional factor of 0.29 (20%/70%) is applied; for small full trash capture devices a factor of 0.26 (18%/70%) is applied.

4 Program for Controlling PCBs from Bridges and Overpasses (C.12.d)

This section describes implementation of the program to manage PCBs as part of bridge and overpass roadway replacement or major repair projects.

4.1 Description

Provision C.12.d requires Permittees to implement a Caltrans specification to manage, as part of bridge and overpass roadway replacement or major repair, potential PCBs-containing material in bridge roadway expansion joints. Permittees shall track the development of the Caltrans specification, develop an inventory of bridges in their jurisdiction, and implement the Caltrans specification during applicable replacement activities.

4.2 Implementation

To assist the Permittees in complying with Provision C.12.d, the Program developed a preliminary bridge inventory database in FY2022/23. Also, in FY2022/23, the Program, in collaboration with the Bay Area Municipal Stormwater Collaborative (BAMSC) Monitoring and Pollutants of Concern (MPC) subcommittee, reviewed and commented on a draft Caltrans SOP for managing PCBs-containing materials during bridge replacement or repair projects. The Caltrans SOP was not a specification, as stipulated in MRP 3 Provision C.12.d.ii. The Program, in collaboration with the BAMSC MPC subcommittee, suggested that Caltrans amend Caltrans Specification 13 Water Pollution Control to establish specifications for use by its contractors to address PCBs in bridge projects that the MRP 3 Permittees could then adopt. The Program tracked the development of the Caltrans specification through shared participation in monthly BAMSC Steering Committee meetings. A Caltrans specification was not made available in FY 2025/26.

5 Program for Controlling PCBs from Electrical Utilities (C.12.e)

This section describes implementation of the program to manage PCBs in municipally owned oil-filled electrical equipment. Supporting load reduction calculations and assumptions are provided in **Appendix E**.

5.1 Description

Provision C.12.e requires Permittees to develop and implement a program to manage PCBs in oil-filled electrical equipment (OFEE[1]). Requirements include: (1) develop or improve and implement standard operating procedures (SOPs) to respond to, clean up, and report spills and releases from municipally owned OFEE; (2) develop and implement a plan to maintain and upgrade municipal owned OFEE; (3) document PCBs loads avoided through existing and ongoing OFEE removal and replacement programs; and (4) collaborate with the Regional Water Board to request information from non-municipally owned electrical utilities.

5.2 Implementation

Activities implemented during the permit term to manage PCBs in municipally owned oil-filled electrical equipment are summarized below.

5.2.1 Enhanced Spill Response and Reporting Requirements

To assist the Permittees with complying with Provision C.12.e, the Program and the City of Alameda participated in a BAMSC workgroup to collaboratively develop an Enhanced Spill Response and Reporting Requirements addendum. The addendum describes improved spill response and reporting practices that will be implemented by the municipally owned electrical utilities that currently operate within the MRP area:

- Alameda Municipal Power (AMP), Alameda CA
- City of Palo Alto Utilities Department, Palo Alto CA
- Pittsburg Power Company dba Island Energy, Pittsburg CA
- Silicon Valley Power (SVP), Santa Clara CA

[1] Oil-filled electrical equipment (OFEE) includes electrical equipment that has an oil storage container (or multiple containers) in which the oil is present solely to support the function of the apparatus or the device. Examples include transformers, circuit breakers, and electrical switches.

The improved spill response and reporting practices (provided in the Fiscal Year 2022-23 Annual Report) is being implemented in addition to the actions described in the spill response SOPs and Spill Prevention Control and Countermeasure (SPCC) Plans that each of the above municipally owned electrical utilities follow. In all cases, the actions described in the addendum are in addition to any local, state, and/or federal requirements described in existing SOPs/SPCCs.

5.2.2 Plan to Maintain and Upgrade OFEE

AMP continues to maintain and upgrade its OFEE. AMPs' Stormwater Pollution Prevention Plan, updated July 3, 2023, was provided with the ACCWP 2024 Annual Report.

5.2.3 PCBs Loads Avoided

The Program assisted the City of Alameda with estimating PCBs loads avoided resulting from the removal of municipally owned PCBs-containing OFEE through maintenance programs and system upgrades for the period 2002 to the beginning of this permit term (July 1, 2022), as well as actions undertaken during this permit term. Documentation of the loads avoided, details of the calculations, and assumptions used to estimate the load reduced are provided in **Appendix E**.

6 Manage PCBs-Containing Materials and Wastes During Building Demolition Activities (C.12.g)

This section summarizes the protocol for and implementation of managing PCBs-containing building materials during demolition. Annual reporting information for applicable demolition projects is provided in **Appendix F**.

6.1 Description

Provision C.12.g requires that Permittees implement the established protocol for managing PCBs-containing building materials prior to issuing a demolition permit. Permittees shall enhance their construction site control program to minimize migration of PCBs into the MS4 from applicable structures containing building materials with PCBs concentrations of 50 ppm or greater during demolition activities. Permittees shall ensure construction sites are inspected during demolition during the rainy season and obtain verification that materials from demolished buildings are appropriately disposed. A Permittee is exempt from this requirement if it provided evidence acceptable to the Regional Water Board Executive Officer in its FY 2022/23 Annual Report that the only buildings that existed pre-1980 within its jurisdiction were single-family residential and/or wood-frame buildings.

6.2 Implementation

Appendix F (*PCBs in Building Materials Management Program – Fiscal Year 2025/26 Data Summary*) documents the following permit-required reporting:

- The number of applicable structures that applied for a demolition permit during the reporting year.
- A running list of the applicable structures that applied for a demolition permit since July 1, 2019; the number of samples each structure collected; and the concentration of PCBs in each sample.
- For each applicable structure with PCBs concentrations ≥ 50 ppm, provide the project address, the demolition date, and a brief description of the PCBs-containing materials.
- For each structure that was constructed or remodeled between the years 1950 and 1980 and requires emergency demolition to protect public health and/or safety, provide the address, the date building was constructed, and the date of demolition.

7 Mercury Collection and Recycling Implemented Throughout the Region (C.11.d)

This section describes regional efforts to promote and facilitate collection and recycling of mercury-containing products, devices, and equipment. Annual reporting information for the mass of mercury recycled is provided in **Appendix G**.

7.1 Description

Provision C.11.d requires Permittees to promote, facilitate, and/or participate in collection and recycling of mercury-containing consumer products, devices, and equipment and make efforts to increase effectiveness of recycling efforts throughout the region.

Mercury load avoidance and reduction includes a number of source control measures listed in the California Mercury Reduction Act adopted by the State of California in 2001. These source controls include material bans, reductions of the amount of mercury allowable for use in products, and mercury device recycling. The following source controls bans are included:

- Sale of cars that have light switches containing mercury;
- Sale or distribution of fever thermometers containing mercury without a prescription;
- Sale of mercury thermostats; and
- Manufacturing, sale, or distribution of mercury-added novelty items.

In addition, fluorescent lamps manufacturers continue to reduce the amount of mercury in lamps sold in the U.S. Manufacturers have significantly reduced the amount of mercury in fluorescent linear tube lamps.

Mercury Device Recycling Programs resulting in mercury load reduction generally include three types of programs that promote and facilitate the collection and recycling of mercury–containing devices and products:

- Permittee-managed household hazardous waste (HHW) drop-off facilities and curbside or door-to-door pickup;
- Private business take-back and recycling programs (e.g., Home Depot); and
- Private waste management services for small and large businesses.

7.2 Implementation

Activities implemented to promote mercury recycling and estimates of mercury collected and recycled are summarized below.

7.2.1 Promotion of Mercury Recycling

The Program coordinates with Permittees and local HHW collection facilities to implement mercury collection and recycling in accordance with MRP Provision C.11.d. Alameda County offers multiple free, convenient options for Alameda County residents to dispose of their HHW properly and safely, including mercury devices. Specialized services are also provided to qualifying small businesses and residential landlords.

Recycling services are promoted by StopWaste, a public agency governed by the Alameda County Waste Management Authority, the Alameda County Source Reduction and Recycling Board, and the Energy Council. StopWaste helps Alameda County's businesses, residents, and schools waste less, recycle properly, and use water, energy, and other resources efficiently (https://www.stopwaste.org/at-home/household-hazardous-waste). The StopWaste website provides information on how to properly dispose of mercury-containing wastes such as light bulbs and thermostats. The site also links to EPA guidance on how to cleanup spills from broken mercury-containing bulbs and thermometers. The StopWaste RE:source website provides guidance for reuse, repair, recycling, and safe disposal for Alameda County, Contra Costa County, and the City of Palo Alto (https://resource.stopwaste.org/). RE:source is also available as an application for smart phones.

7.2.2 Mass of Mercury Collected

The Program assisted the Permittees with estimating the mass of mercury-containing material collected in Alameda County and an estimate of the mass of mercury contained in recycled material using the methodology contained in load reduction accounting system described and cited in the MRP 3.0 Fact Sheet (provided in **Appendix G**).

8 Mercury and PCBs Loads Reduced

This section presents the total mercury and PCBs loads reduced using the approved methodology in the *Source Control Load Reduction Accounting for Reasonable Assurance Analysis, Version 1.1* (BASMAA 2022) to demonstrate cumulative mercury and PCBs load reduced from each control measure implemented since the beginning of the permit term (i.e., July 1, 2022). This section also includes an estimate of mercury and PCBs load reductions from control measures taking place after the 2026 Annual Report submittal but before the end of the permit term (i.e., June 30, 2027). All supporting data and information necessary to substantiate the load reduction estimates are provided in Appendix G.

8.1 Estimated Loads Reduced

Table 8-1 and Table 8-2 present, respectively, the mercury and PCBs loads reduced countywide by the control measures that are reported in the preceding sections of this report (Sections 3 through 6). Table 8-2 reflects that the PCBs load reduction achieved through implementation of the program and protocol for managing materials with PCBs concentrations of 50 ppm or greater in applicable structures is equivalent to 626.7 g/yr and was credited in full during MRP 2.0.

Table 8-1: Mercury Load Reduced During MRP 3

Control Measure	Mercury Load Reduced (g/yr) FY 2022/23 to FY2025/26	Increased Mercury Load Reduced (g/yr) for FY 2026/27 Only	Mercury Load Reduced (g/yr) Estimated Total MRP 3.0
Operations and Maintenance[1]	7.9	0	7.9
Green Infrastructure and Treatment[2]	37.8	9.5	47.3
Trash Full Trash Capture Devices[3]	82.6	0	82.6
Diversion to POTW[4]	3.8	0	3.65
Mercury Collection and Recycling[5]	2,371	0	2,371
Total	**2,503**	**9.5**	**2,512**

1. Storm Drain Line Cleaning Load Reduced = (assumed average unit mass of solids removed (2.6 kg/ft)) x (mean mercury sediment concentration (0.331 mg mercury/kg)) x (length of storm drain line cleaned in old industrial area in Oakland (ft)). Approach to estimating the load reduced is from the methodology approved in the *ACCWP Old Industrial Control Measure Plan, Version 1.2,* Appendix D (October 2024). Further details on this control measure can be found in **Appendix H**.
2. For parcel-based projects, Load Reduced = (Project Area (ac)) x (Existing Yield – 0.004 (g/ac/yr)). For green street or regional retrofit projects, Load Reduced = (Project Drainage Area (ac)) x (area-

weighted mercury yield (g/ac/yr)) x 0.70. Acres associated with this control measure can be found in **Appendix H.**

3. For large full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted mercury yield (g/ac/yr)) x 0.20. For small full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted mercury yield (g/ac/yr)) x 0.18. Assumes no additional FTC devices installed in FY 2026/27. Acres associated with this control measure can be found in **Appendix H**.
4. Load reduced based on the average volume of flow diverted in FY 2022/23 through FY 2025/26. Further details on this control measure can be found in **Appendix H**.
5. Assumes 4.8% of the average of the reported mass of mercury that is recycled is prevented from being transported to the Bay via urban stormwater (BASMAA 2022). Further details on this control measure can be found in **Appendix G and H**.

Table 8-2: PCBs Load Reduced During MRP 3

Control Measure	PCBs Load Reduced for FY 2022/23 through FY 2025/26 (g/yr)	Additional PCBs Load Reduced for FY 2026/27 (g/yr)	PCBs Load Reduced Estimated MRP 3 Total (g/yr)
Source Property Identification and Abatement[1]	61.9 g/yr (Referral) 110.6 g/yr (Redevelopment)	8.8 g/yr (Referral) 27.6 g/yr (Redevelopment)	70.7 g/yr (Referral) 138.2 g/yr (Redevelopment)
Operations and Maintenance[2]	10.8	0	10.8
Green Infrastructure and Treatment[3]	40.2	10.0	50.2
Trash Full trash capture Devices[4]	68.3	0	68.3
Diversion to POTW[5]	1.6	0	1.6
Manage PCBs in Infrastructure[6]	0	0	0
Manage PCBs in Municipally Owned Electrical Utilities[7]	<0.001	0	<0.001
Manage PCBs in Building Materials[8]	0	0	0
Total	**293.4**	**46.4**	**339.8**

1. For source property referral, Load Reduced = (Source Property Area (ac)) x (5.078 – 0.049 (g/ac/yr)). For source property abatement/redevelopment, Load Reduced = (Source Property Area (ac)) x (5.078 – 0.0004 (g/ac/yr)). Load reduced is halved for referral rather than self-abatement. Acres associated with this control measure can be found in **Appendix H**.
2. Storm Drain Line Cleaning Load Reduced = (assumed average unit mass of solids removed (2.6 kg/ft)) x (mean PCBs sediment concentration (0.45 mg PCBs /kg)) x (length of storm drain line

cleaned in old industrial area in Oakland (ft)). Approach to estimating the load reduced is from the methodology approved in the *ACCWP Old Industrial Control Measure Plan, Version 1.2,* Appendix D (October 2024). Values associated with this control measure can be found in **Appendix H.**

3. For parcel-based projects, Load Reduced = (Project Area (ac)) x (Existing Yield – 0.0004 (g/ac/yr)). For green street or regional retrofit projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted PCBs yield (g/ac/yr)) x 0.70. Acres associated with this control measure can be found in **Appendix H**.
4. For large full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted PCBs yield (g/ac/yr)) x 0.20. For small full trash capture projects, Load Reduced = (Project Drainage Area (ac)) x (area-weighted PCBs yield (g/ac/yr)) x 0.18. Assumes no additional FTC devices installed in FY 2026/27. Acres associated with this control measure can be found in **Appendix H**.
5. Load reduced based on average volume of flow diverted. Further details on this control measure can be found in **Appendix H**.
6. The Caltrans bridge specification for managing PCBs-containing caulks and sealants on bridges or roadway overpasses during bridge replacement or joint maintenance has not been made available through FY 2025/26 and was assumed to not be available for the remainder of the MRP 3.0 permit term.
7. Loads reduced associated with this control measure for municipally owned electrical utilities can be found in **Appendix E**.
8. PCBs load reduction achieved through implementation of this program, equivalent to 626.7 g/yr, was credited during MRP 2.0.

8.2 Findings and Conclusions

Overall, the Alameda Countywide Clean Water Program has made substantial progress implementing mercury and PCBs control measures during MRP 3.0. The Program has exceeded the old industrial area investigation requirement, with 3,700 acres investigated compared to the 2,620 acres required during the permit term. The Program also continued implementation of the source property investigation framework, including extensive composite zone monitoring, on-site inspections, source property referrals, and ongoing enhanced O&M activities at referred properties that have not been abated. These efforts demonstrate that ACCWP's approach for identifying, prioritizing, implementing, and tracking source control and treatment control measures is functioning as intended.

While some FY 2025/26 control measure data may be incomplete at the time this report was generated, and an available Caltrans specification for bridge-related PCBs controls has not yet been issued, implementation activities remain ongoing as the Program continues to evaluate moderate areas and advance the selection and implementation of appropriate control measures. Continued monitoring, follow-up on source and moderate properties, targeted storm drain maintenance, and implementation of planned FY 2026/27 projects will be important to sustain progress and address remaining gaps before the end of the permit term.

9 References

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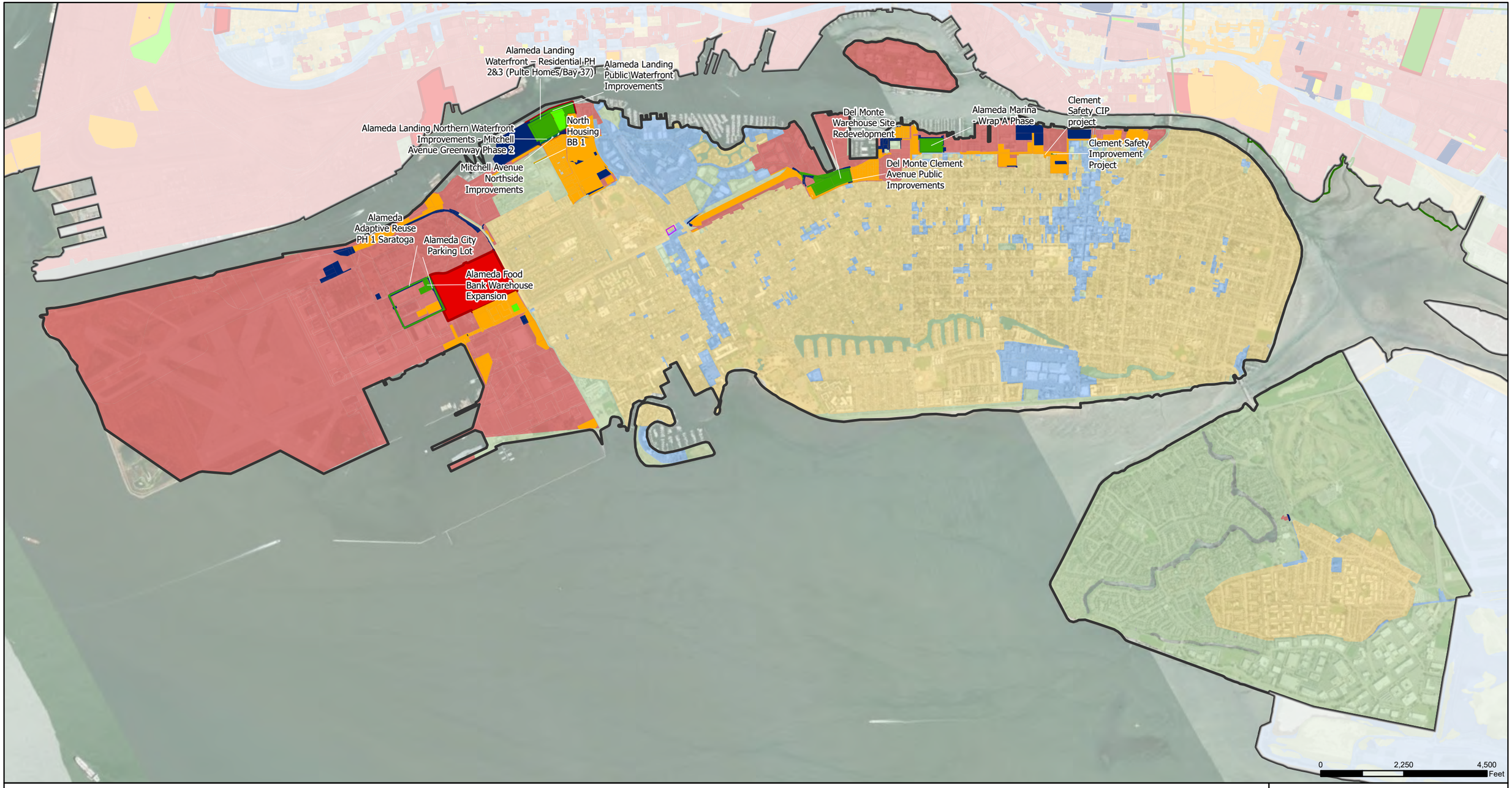
FIGURES



City Limits

Emeryville Crescent Watershed Investigation Area

San Leandro Bay Watershed Investigation Area

Baseline Category

Old Commercial & Old Transportation

Old Residential

New Urban & Open Space

Old Industrial Baseline (OIB)

Source Properties

Untreated Old Industrial

Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB

GSI Projects FY21-22 (7/1/2021-6/30/2022)

Redevelopment

Retrofit

GSI Projects After 6/30/2022

Redevelopment [a]

Retrofit

Large FTC within OIB[b]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Notes:

a: Project labels indicate projects with moderate to high concentrations of PCBs.

b: Includes HDS and GSRD

c: Includes Basket, CPS, Inlet Filter

N

City of Alameda

Projects Treating Old Industrial and Moderate Area

Figure 1

August 2026

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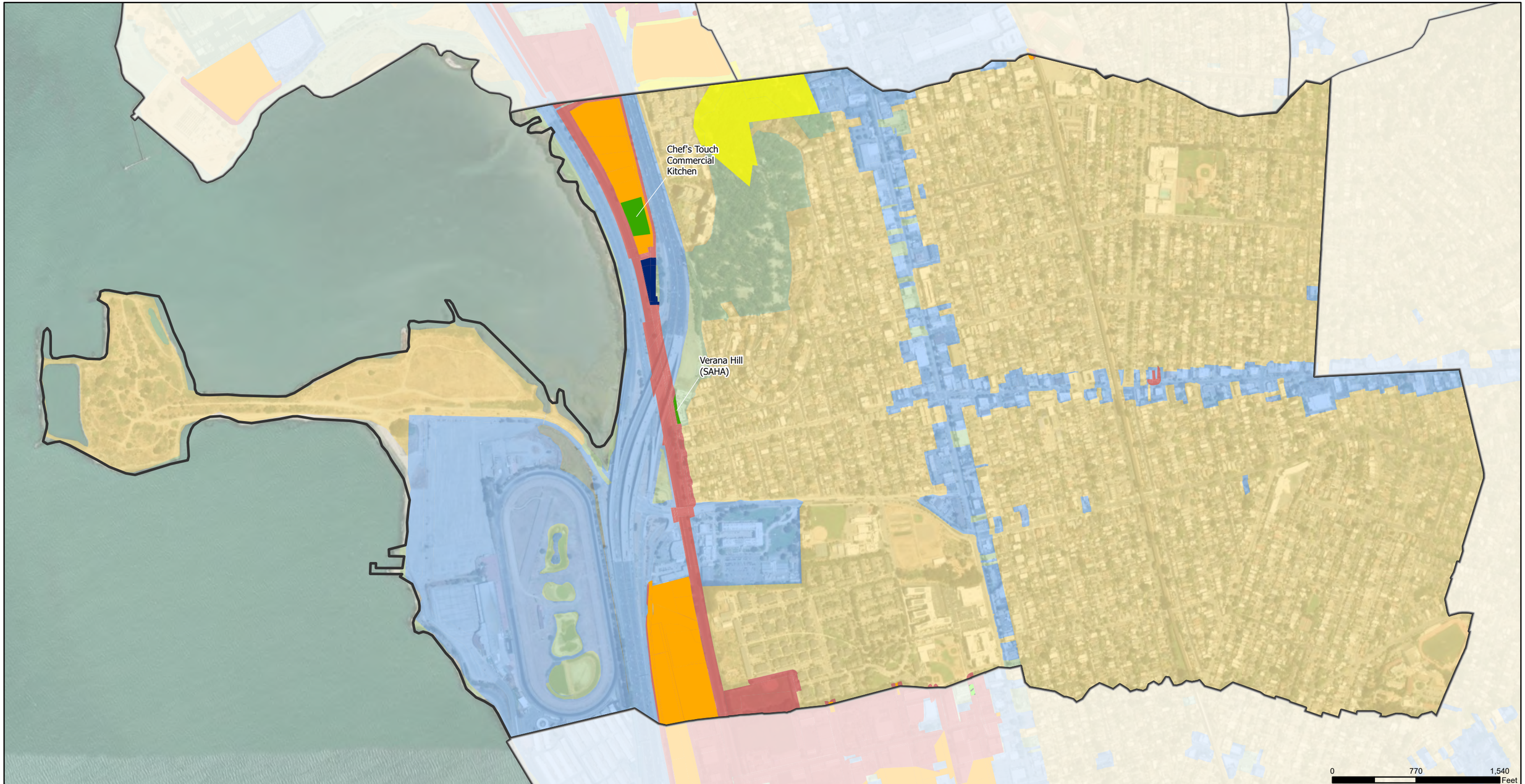

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
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FTC Install Date
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City of Albany

Projects Treating Old Industrial and Moderate Area

Figure 2

August 2026

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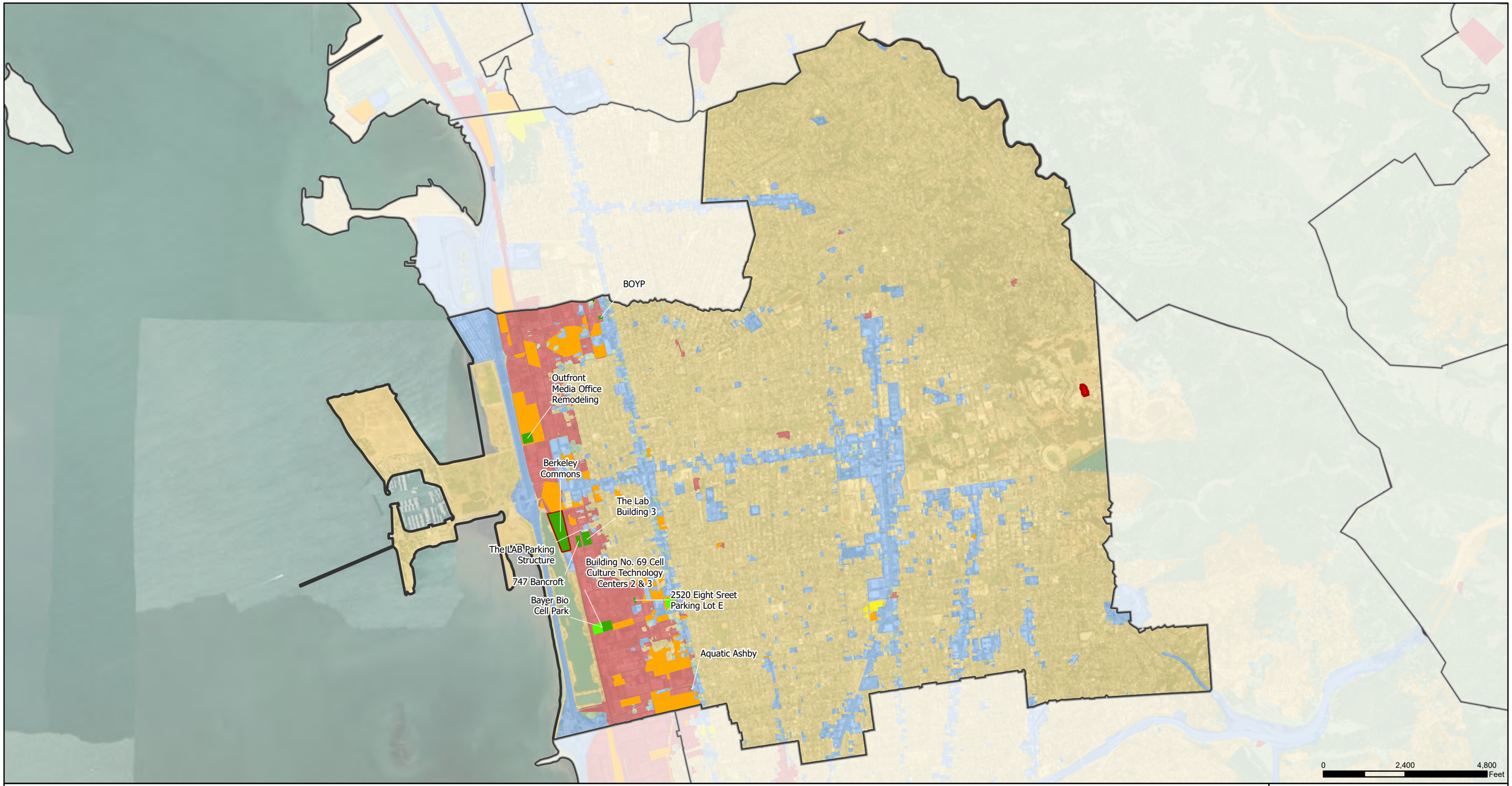

City Limits
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San Leandro Bay Watershed Investigation Area

Baseline Category
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Old Residential
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Retrofit
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FTC Install Date
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After 6/30/2022

Notes:
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c: Includes Basket, CPS, Inlet Filter

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City of Berkeley

Projects Treating Old Industrial and Moderate Area

Figure 3

August 2026

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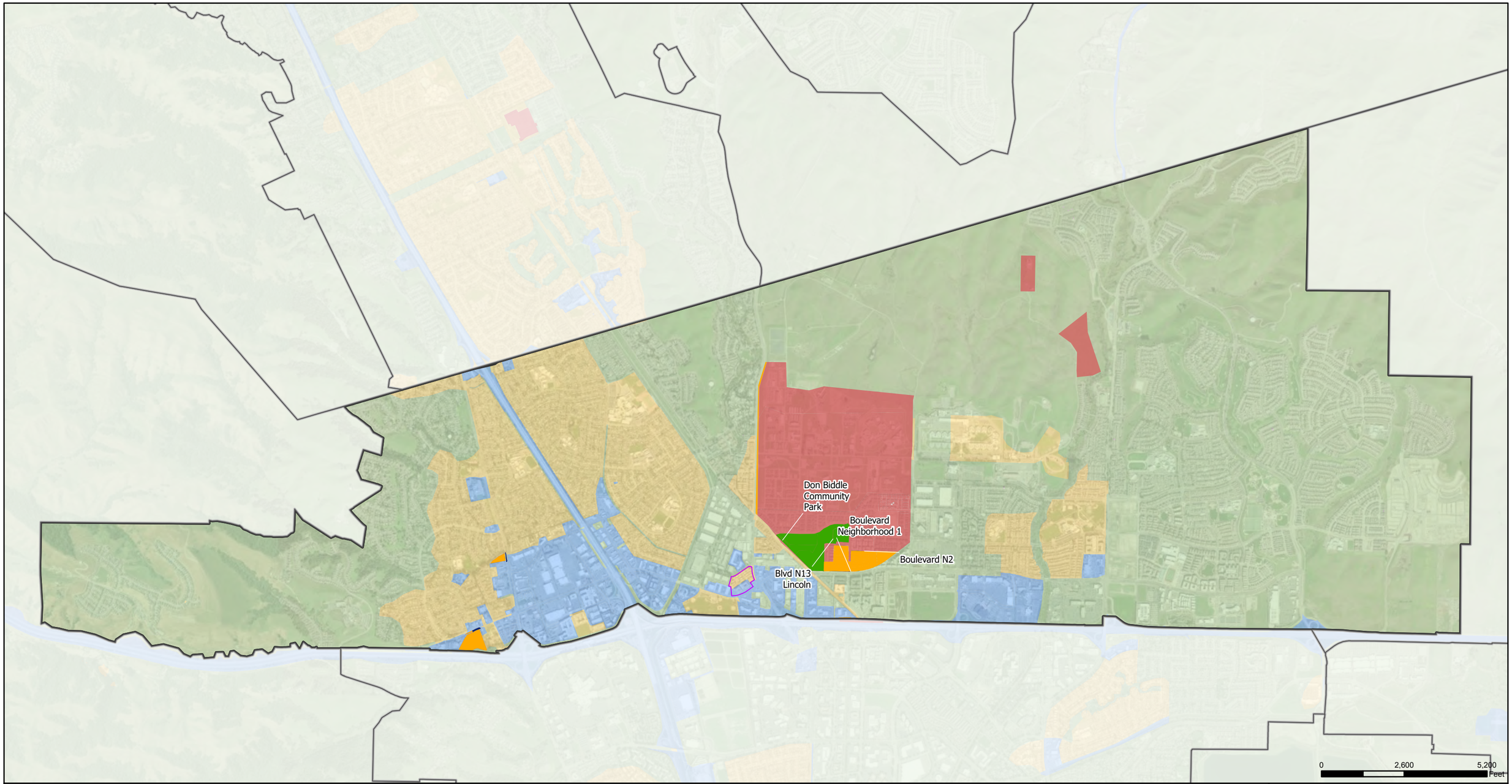

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

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City of Dublin

Projects Treating Old Industrial and Moderate Area

Figure 4

August 2026

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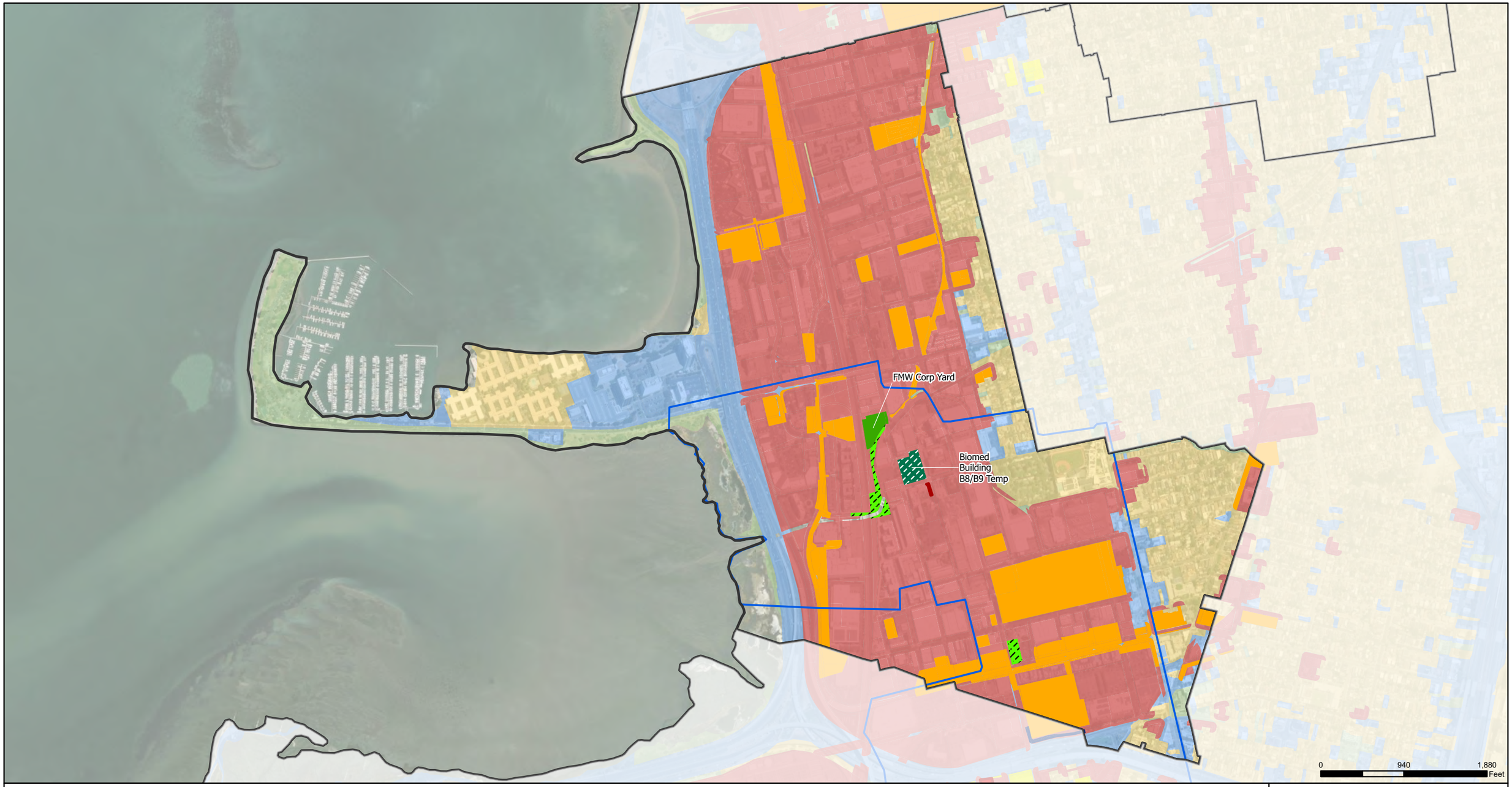

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Drainage Area Boundaries After 6/30/2022

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Notes:
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N

City of Emeryville

Projects Treating Old Industrial and Moderate Area

Figure 5

August 2026

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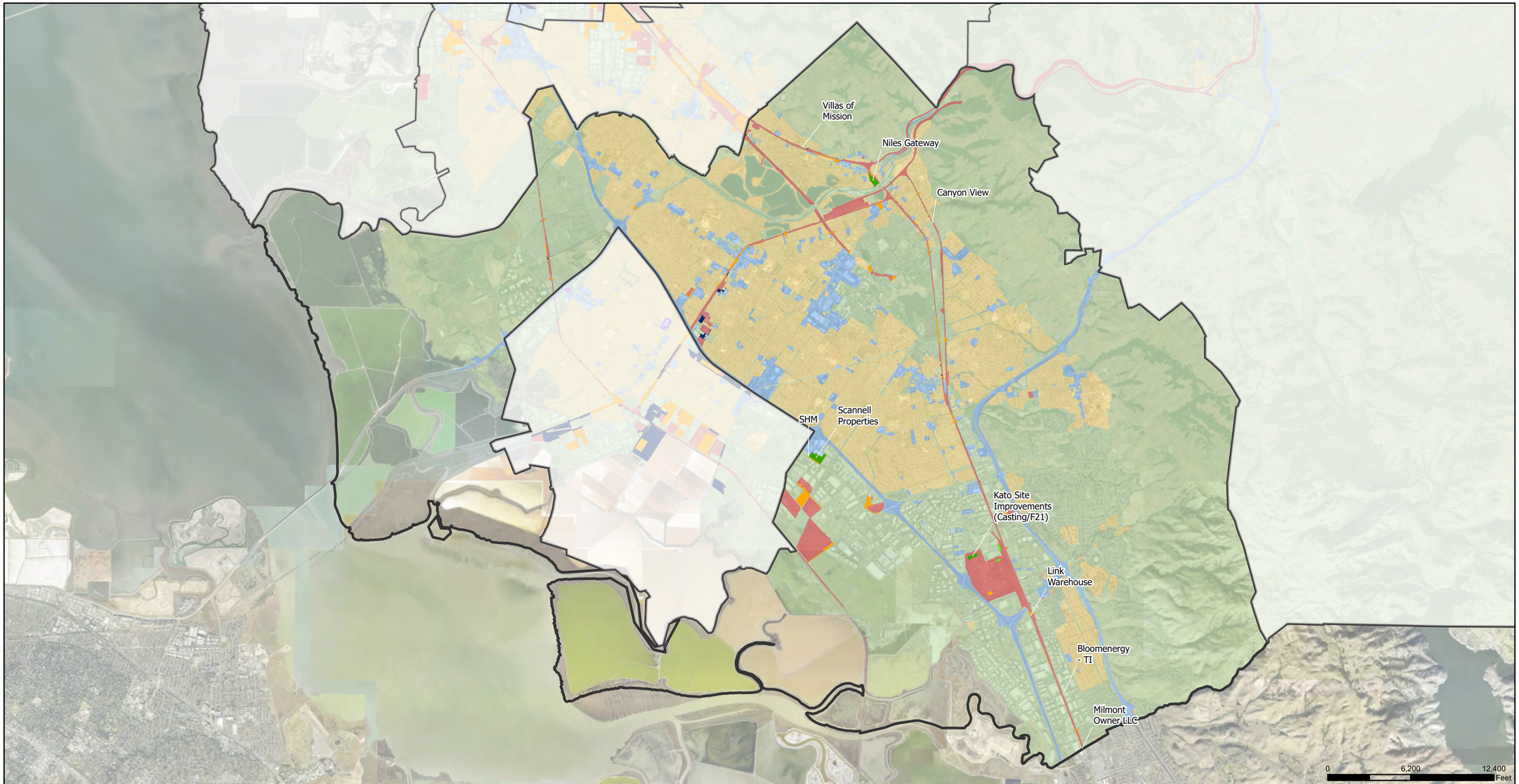

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San Leandro Bay Watershed Investigation Area

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Notes:
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City of Fremont

Projects Treating Old Industrial and Moderate Area

Figure 6

August 2026

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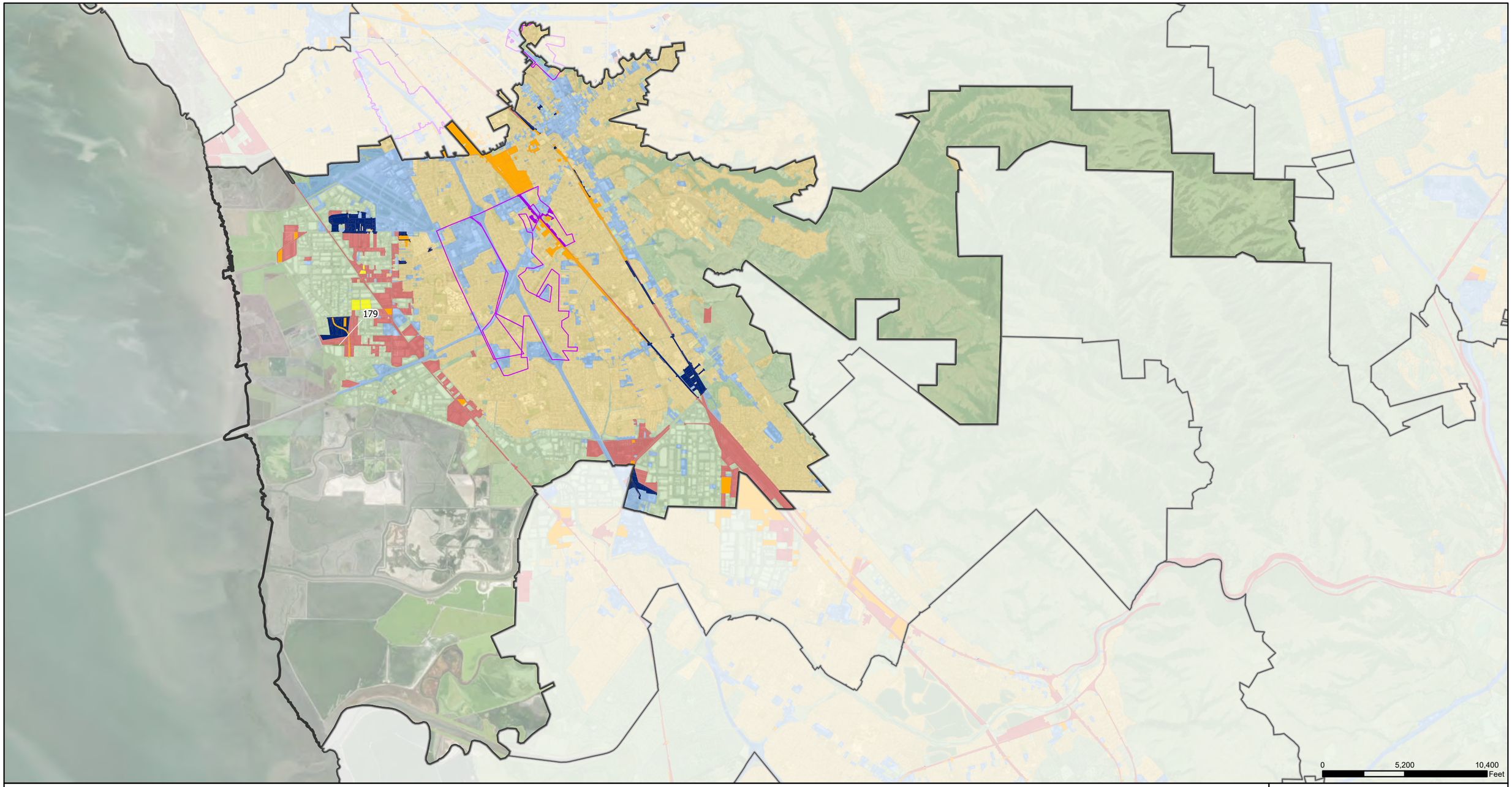

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Hayward

Projects Treating Old Industrial and Moderate Area

Figure 7

August 2026

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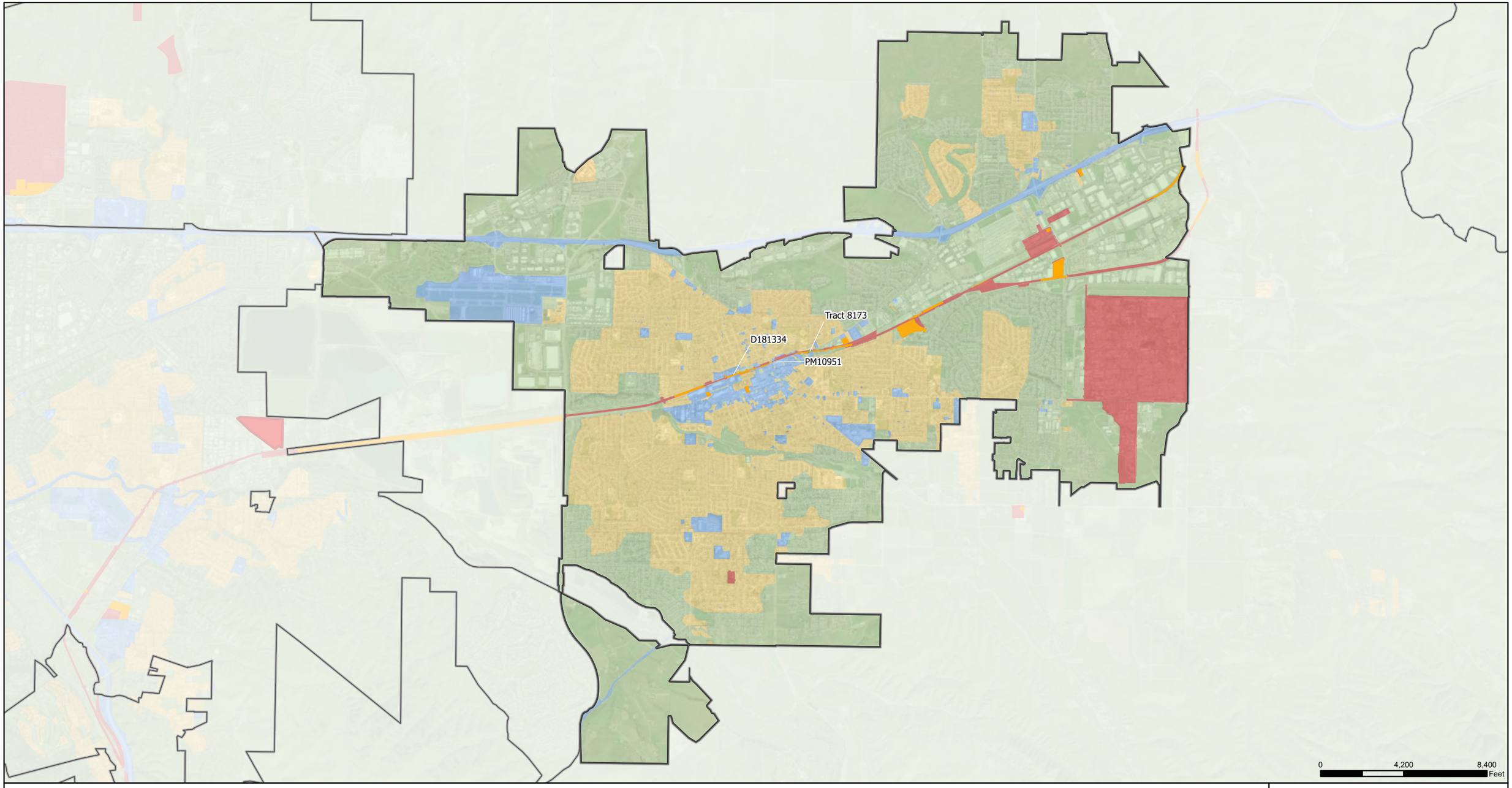

City Limits

Emeryville Crescent Watershed Investigation Area

San Leandro Bay Watershed Investigation Area

Baseline Category

Old Commercial & Old Transportation

Old Residential

New Urban & Open Space

Old Industrial Baseline (OIB)

Source Properties

Untreated Old Industrial

Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB

GSI Projects FY21-22 (7/1/2021-6/30/2022)

Redevelopment

Retrofit

GSI Projects After 6/30/2022

Redevelopment [a]

Retrofit

Large FTC within OIB[b]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Notes:

a: Project labels indicate projects with moderate to high concentrations of PCBs.

b: Includes HDS and GSRD

c: Includes Basket, CPS, Inlet Filter

N

City of Livermore

Projects Treating Old Industrial and Moderate Area

Figure 8

August 2026

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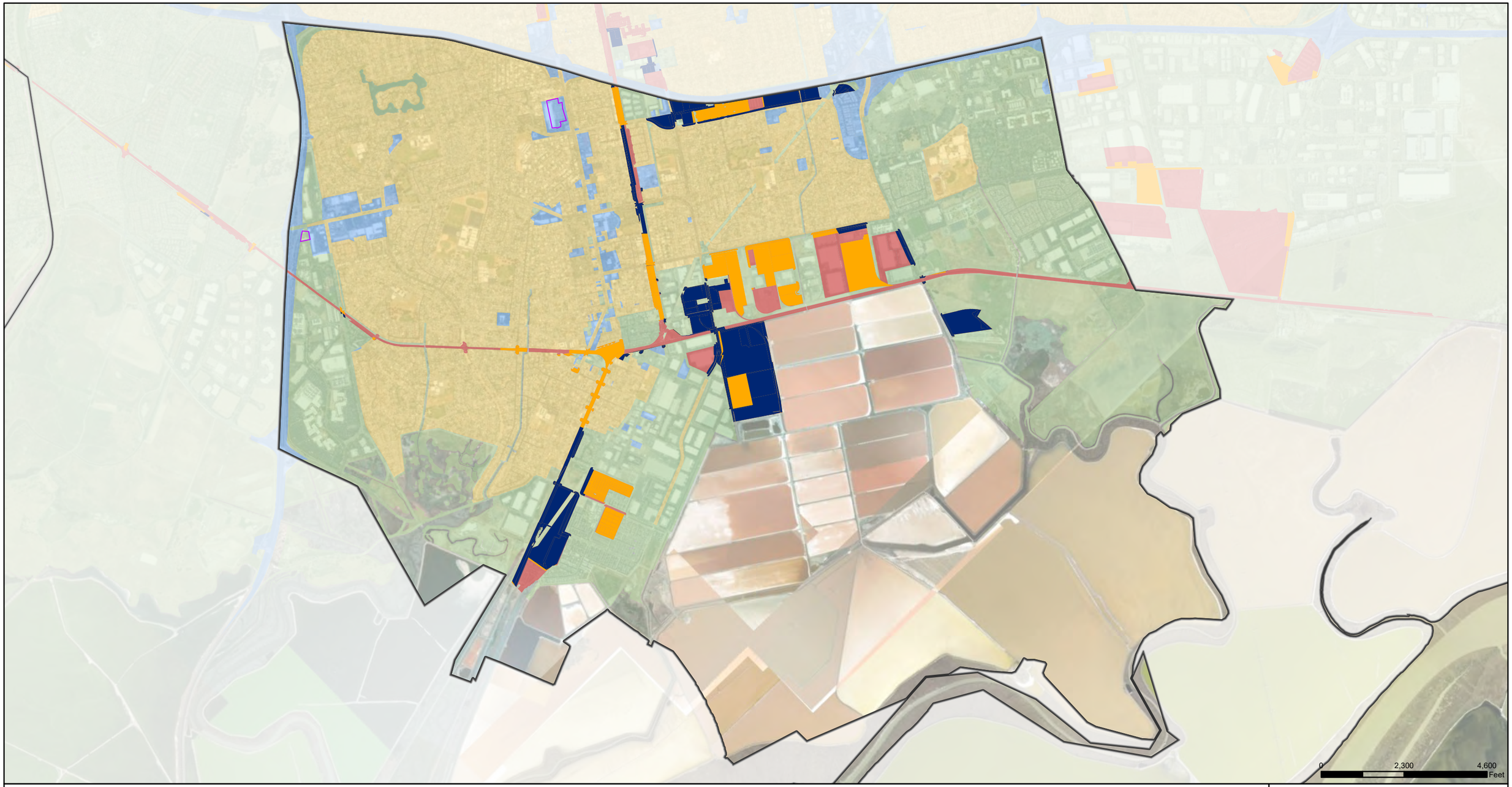

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Newark

Projects Treating Old Industrial and Moderate Area

Figure 9

August 2026

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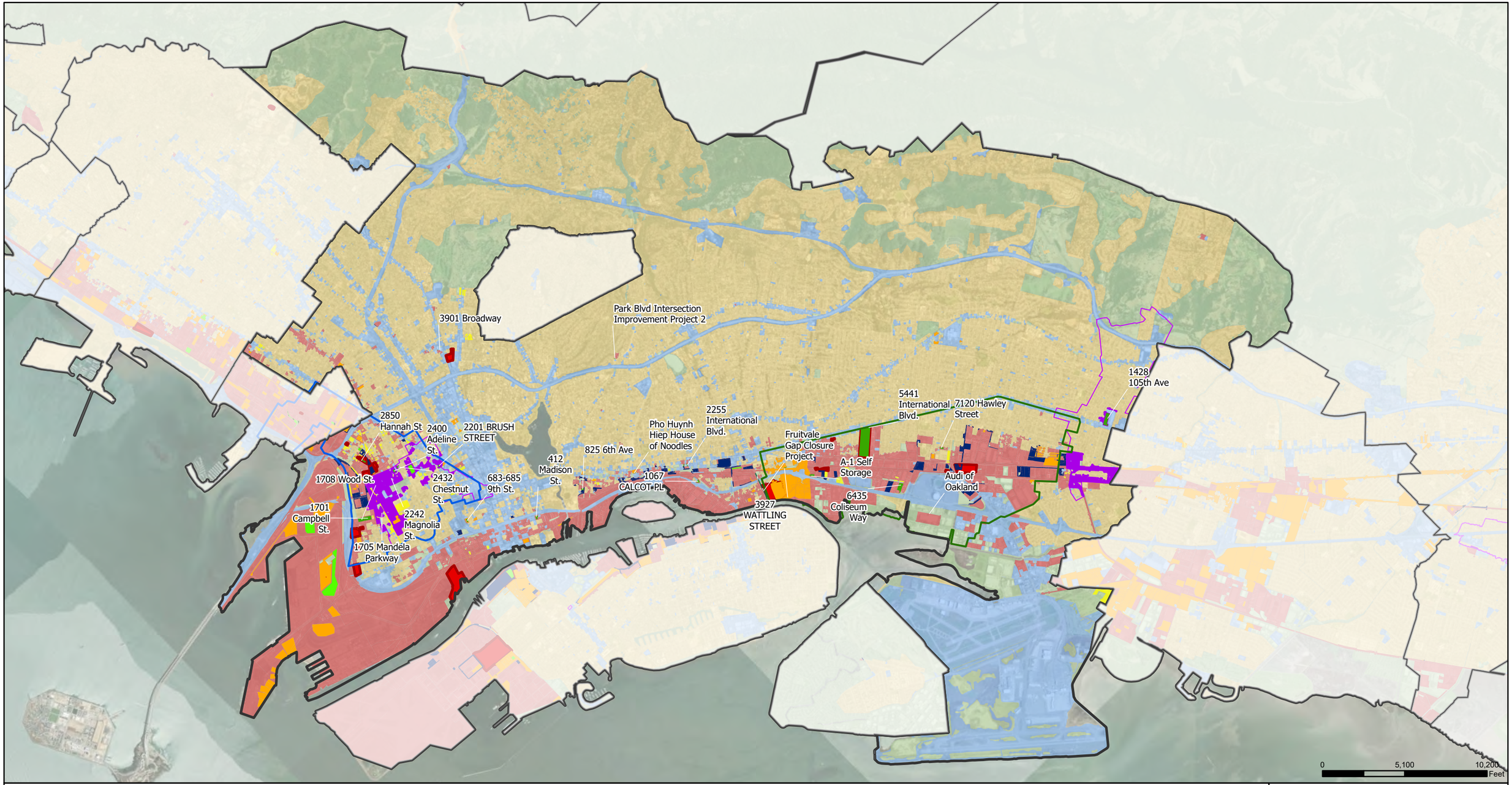

City Limits

Emeryville Crescent Watershed Investigation Area

San Leandro Bay Watershed Investigation Area

Baseline Category

Old Commercial & Old Transportation

Old Residential

New Urban & Open Space

Old Industrial Baseline (OIB)

Source Properties

Untreated Old Industrial

Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB

GSI Projects FY21-22 (7/1/2021-6/30/2022)

Redevelopment

Retrofit

GSI Projects After 6/30/2022

Redevelopment [a]

Retrofit

Large FTC within OIB[b]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]

FTC Install Date

FY21-22 (7/1/2021-6/30/2022)

After 6/30/2022

Notes:

a: Project labels indicate projects with moderate to high concentrations of PCBs.

b: Includes HDS and GSRD

c: Includes Basket, CPS, Inlet Filter

City of Oakland

Projects Treating Old Industrial and Moderate Area

Figure 10

August 2026

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\\oakland-01\data\GIS\CCCWP\Project\Annual Report_2026\C12C_MRPMapping2 - Annual Report 2026.aprx 7/22/2026 6:38 PM

0 690 1,380 Feet

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Piedmont

Projects Treating Old Industrial and Moderate Area

Figure 11

August 2026

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0 3,400 6,800 Feet

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Pleasanton

Projects Treating Old Industrial and Moderate Area

Figure 12

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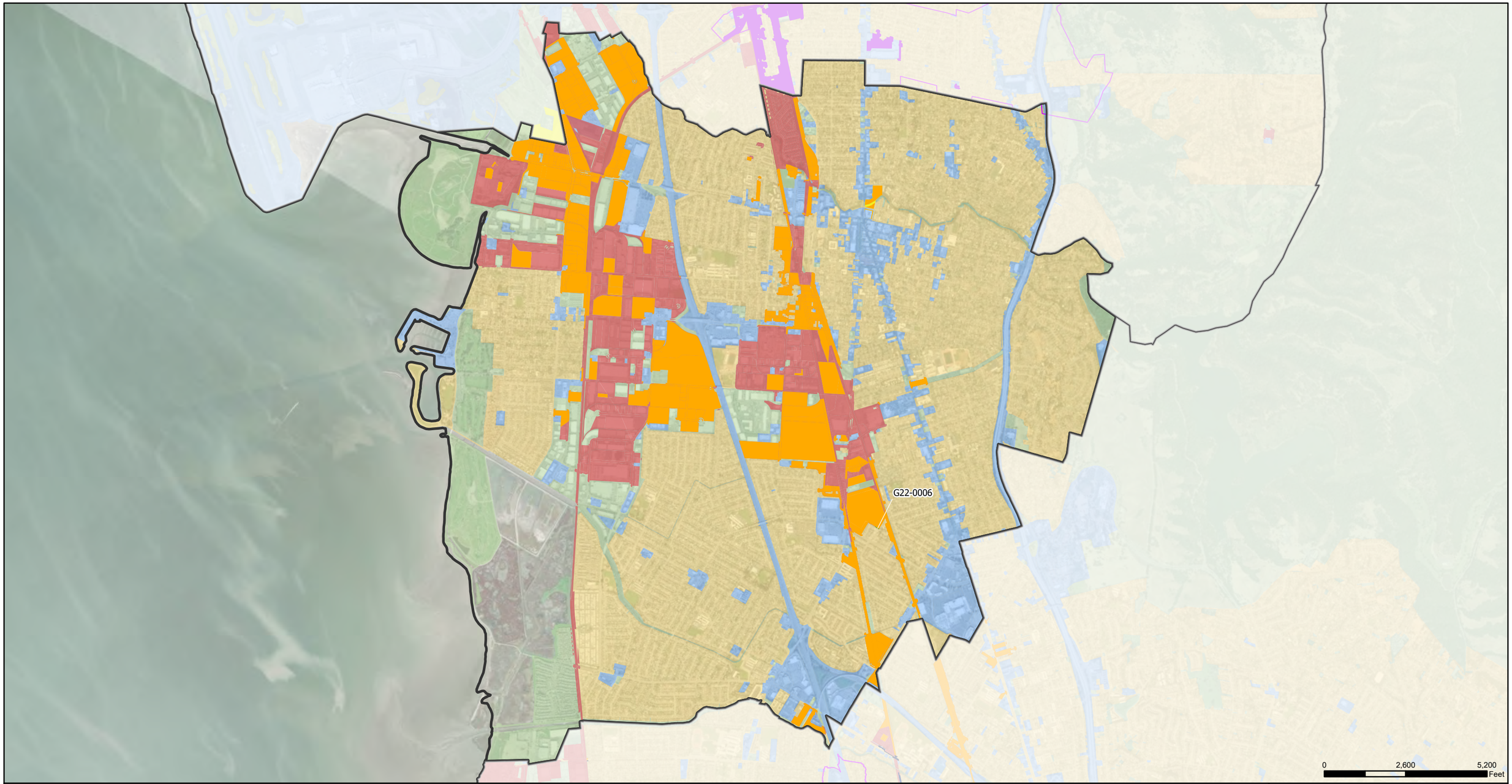

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

City of San Leandro

Projects Treating Old Industrial and Moderate Area

Figure 13

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0 3,000 6,000 Feet

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

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GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
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Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Union City

Projects Treating Old Industrial and Moderate Area

Figure 14

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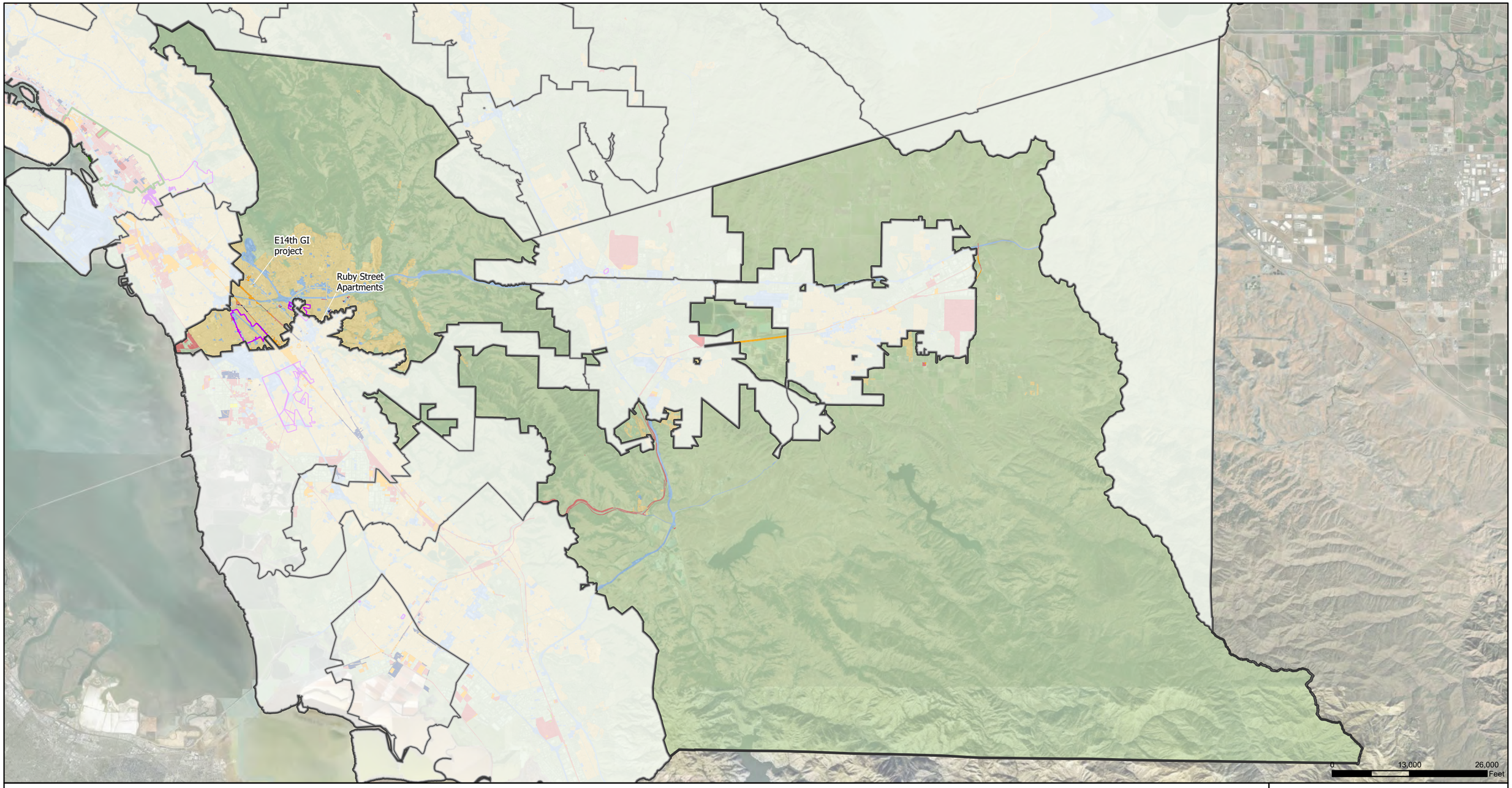

City Limits
Emeryville Crescent Watershed Investigation Area
San Leandro Bay Watershed Investigation Area

Baseline Category
Old Commercial & Old Transportation
Old Residential
New Urban & Open Space

Old Industrial Baseline (OIB)
Source Properties
Untreated Old Industrial
Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)
Treated by GSI Or FTC Through 6/30/2021

GSI Projects within OIB
GSI Projects FY21-22 (7/1/2021-6/30/2022)
Redevelopment
Retrofit
GSI Projects After 6/30/2022
Redevelopment [a]
Retrofit

Large FTC within OIB[b]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022
Drainage Area Boundaries After 6/30/2022

Small FTC Projects within OIB[c]
FTC Install Date
FY21-22 (7/1/2021-6/30/2022)
After 6/30/2022

Notes:
a: Project labels indicate projects with moderate to high concentrations of PCBs.
b: Includes HDS and GSRD
c: Includes Basket, CPS, Inlet Filter

N

City of Alameda County

Projects Treating Old Industrial and Moderate Area

Figure 15

August 2026

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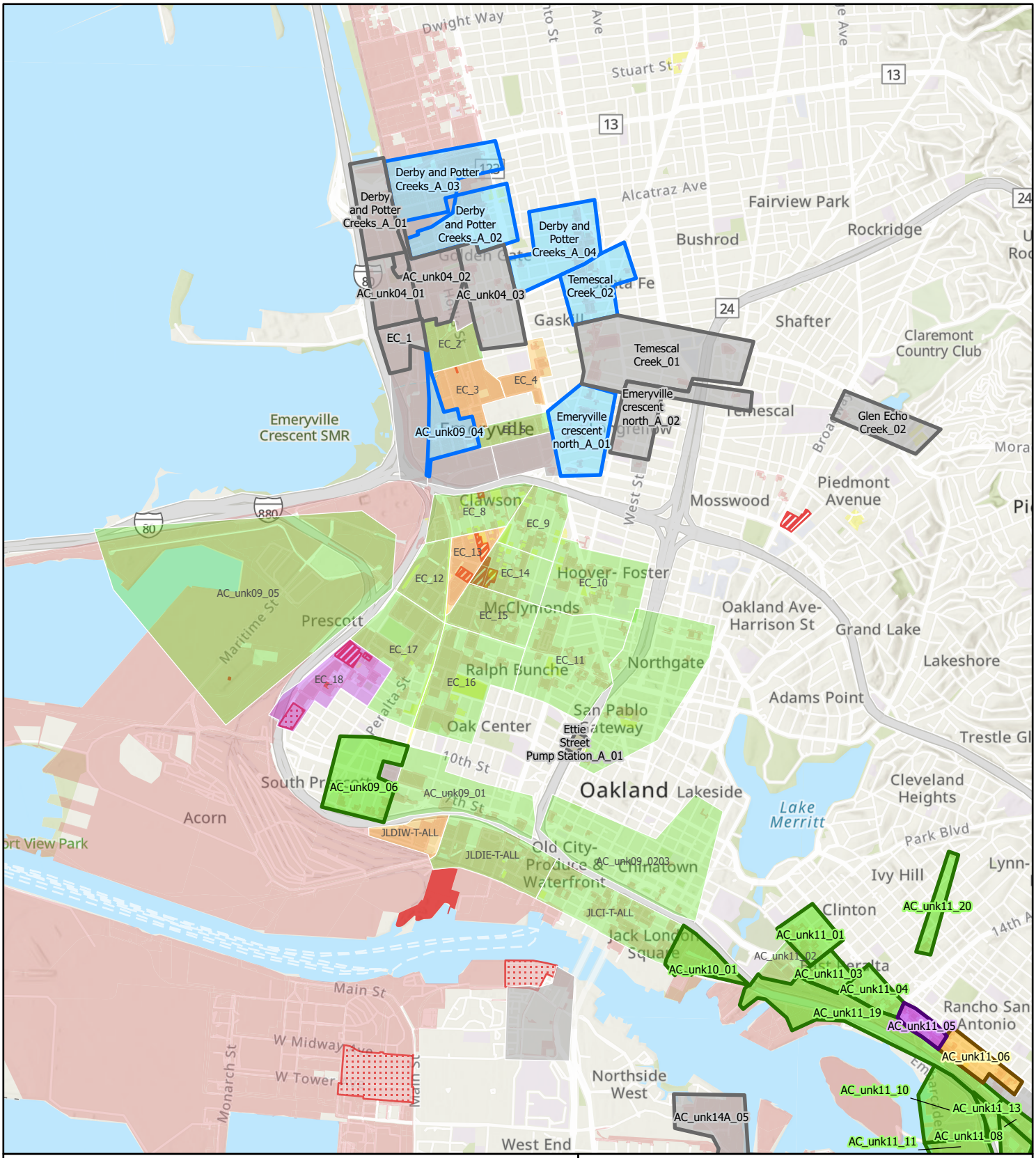
\\oakland-01\data\GIS\CCCWP\Project\Annual Report_2026\C12C_MRPMapping2 - Annual Report 2026.aprx 7/22/2026 6:38 PM

APPENDIX A
Composite Zone Sample Maps



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Proerty (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

Composite Zone Sampling Results from FY2025-2026
- <0.2 mg/kg
- 0.2 - 1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- No Sample (Field or Desktop Redevelopment)

Composite Zone Sampling Results from Prior Years
- <0.2 mg/kg
- 0.2 - 1.0 mg/kg
- >1.0 mg/kg
- No Sample (Field or Desktop Redevelopment)

N

0 2,000 Feet

Composite Zone Sampling Results

Emeryville Crescent and Ettie St Pump Station Watersheds

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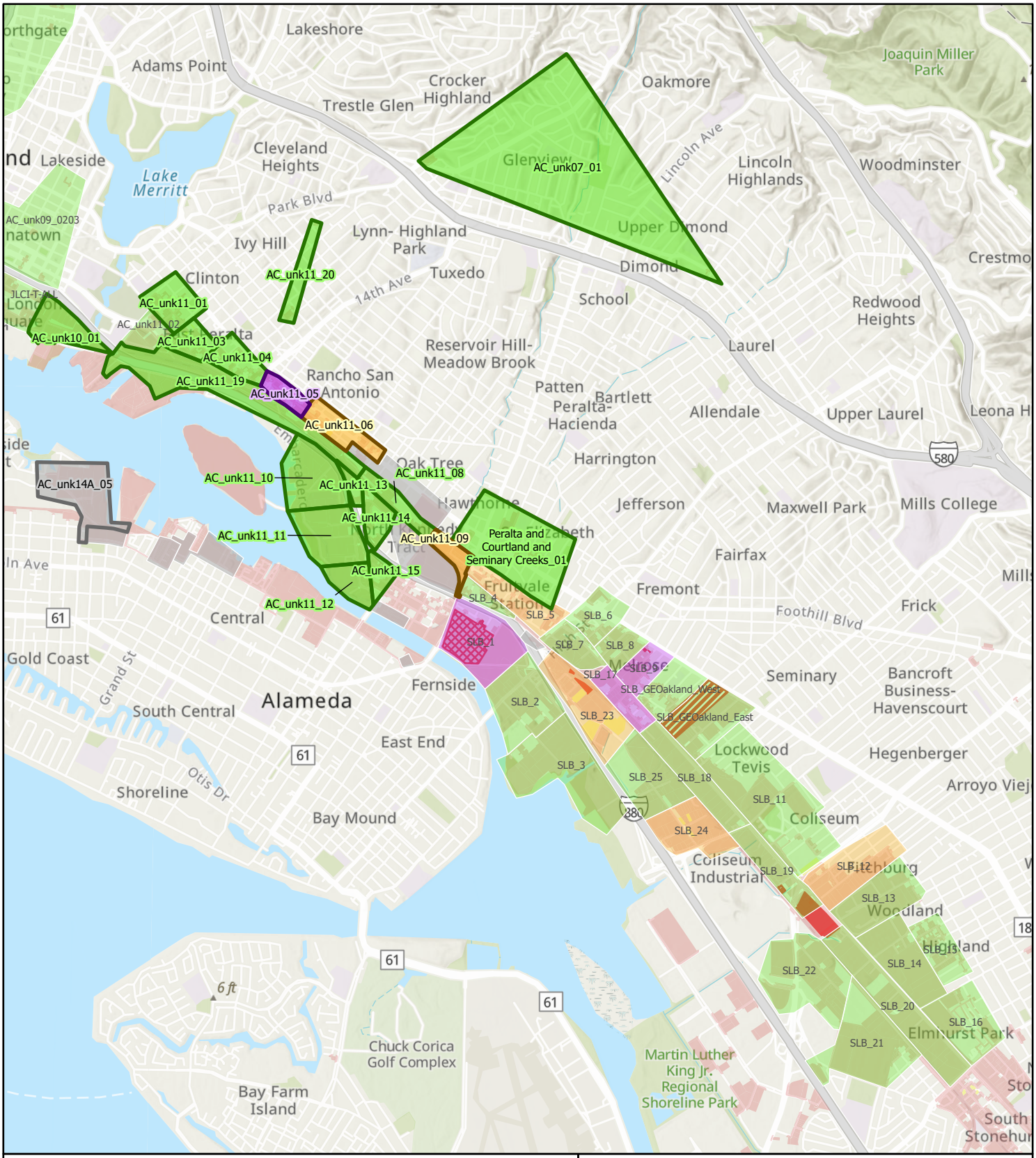
26013274	August 2026

Figure A-1

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_CompositeZones 7/15/2026 1:09 PM (Yaxin.Jin)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Proerty (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

Composite Zone Sampling Results from FY2025-2026
- <0.2 mg/kg
- 0.2 - 1.0 mg/kg
- >1.0 mg/kg
- No Sample (Field or Desktop Redevelopment)

Composite Zone Sampling Results from Prior Years
- <0.2 mg/kg
- 0.2 - 1.0 mg/kg
- >1.0 mg/kg
- No Sample (Field or Desktop Redevelopment)

N

0 2,000 Feet

Composite Zone Sampling Results

San Leandro Bay

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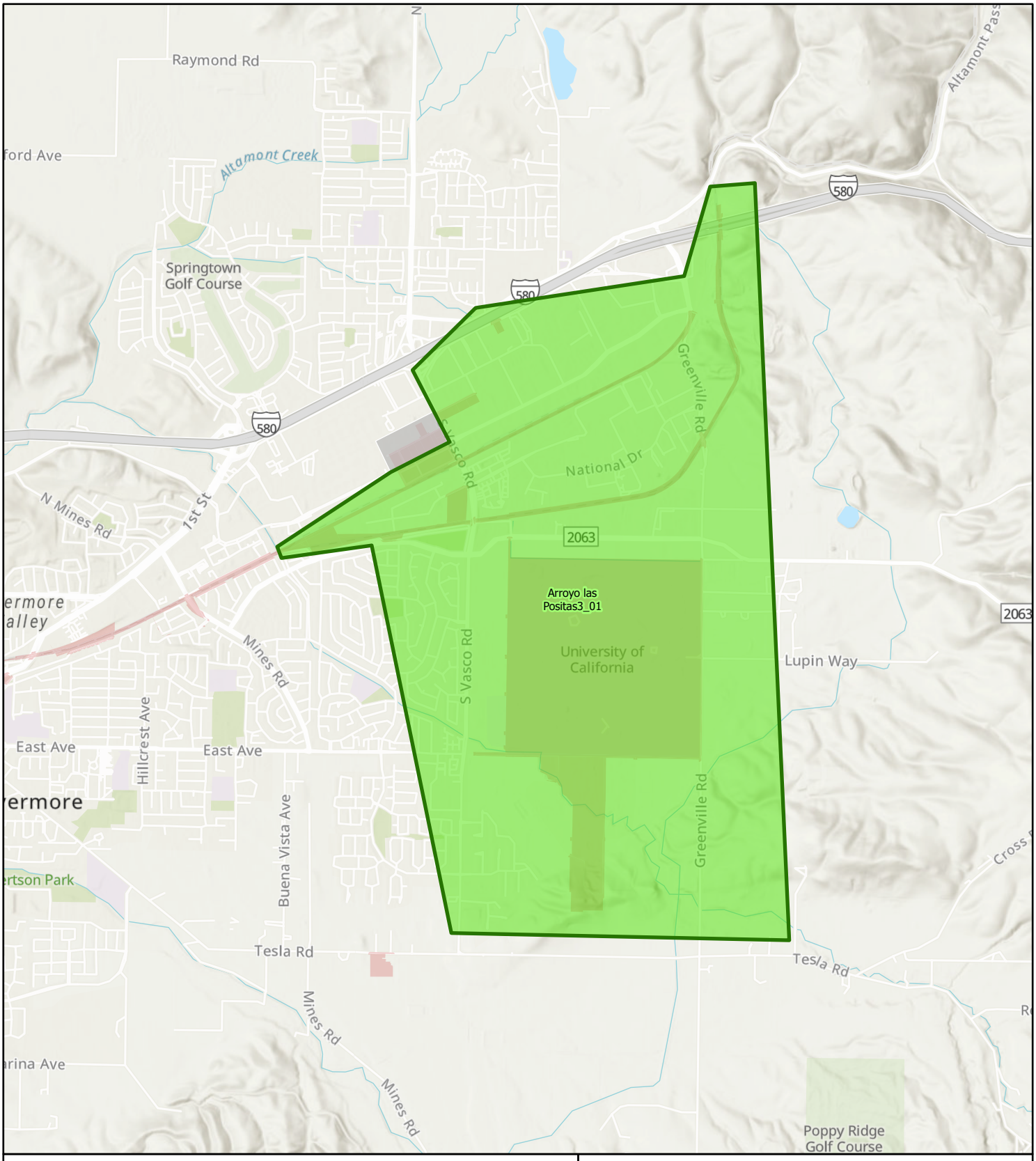
Figure A-2

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_CompositeZones 7/15/2026 1:09 PM (Yaxin.Jin)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial

Source Property
- Source Proerty (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

Composite Zone Sampling Results from FY2025-2026
- <0.2 mg/kg

Composite Zone Sampling Results from Prior Years
- No Sample (Field or Desktop Redevelopment)

N

0 2,000 Feet

Composite Zone Sampling Results

Livermore

Geosyntec consultants

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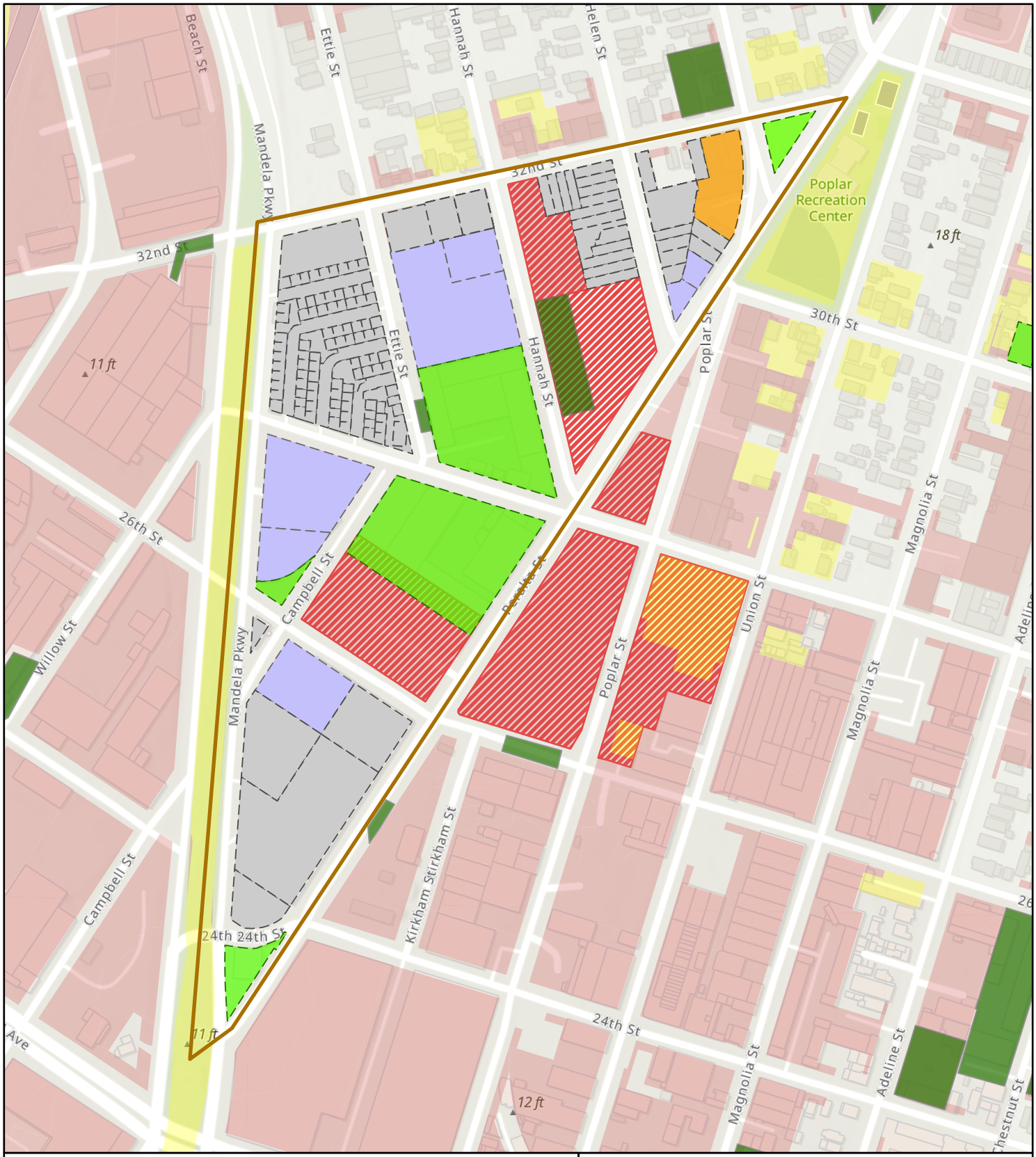
Figure A-3

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_CompositeZones 7/15/2026 1:09 PM (Yaxin.Jin)

APPENDIX B
On-Site Sample Maps



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 320 Feet

On-Site Investigation Results

Composite Zone: EC_13

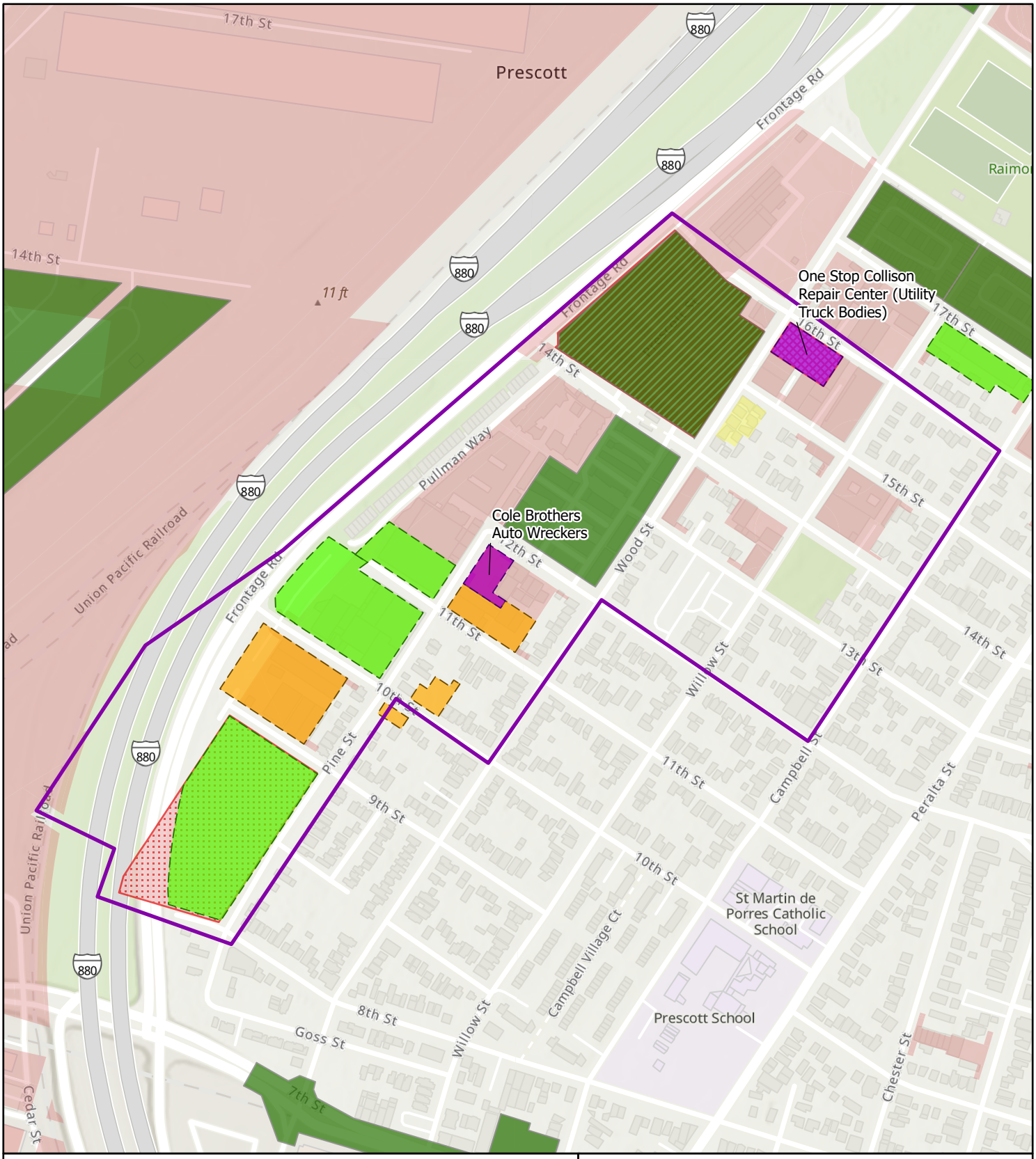
Geosyntec consultants

26013274

August 2026

Figure B-1

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- >1.0 mg/kg

N

0 450 Feet

On-Site Investigation Results

Composite Zone: EC_18

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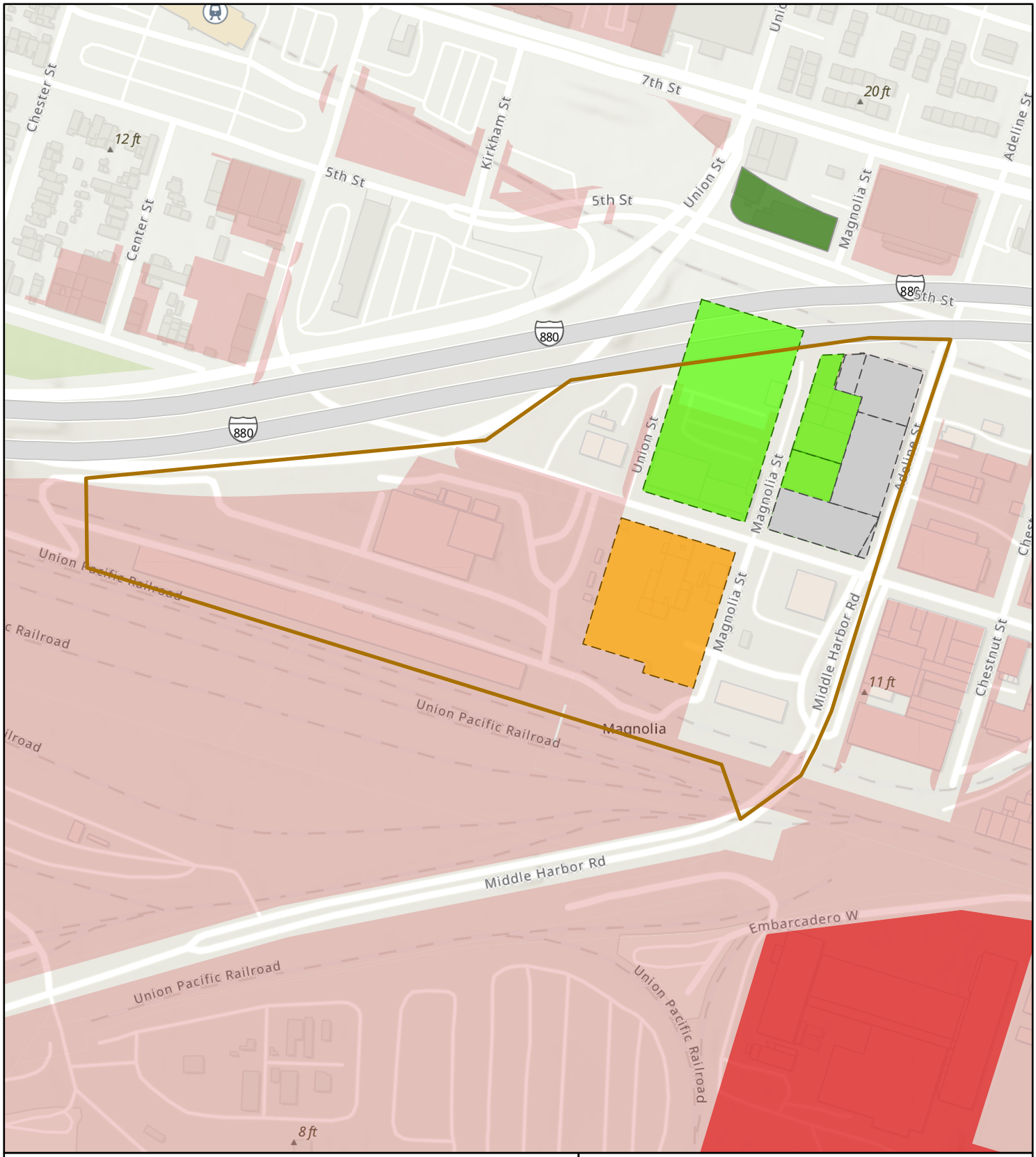
Figure B-2

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 320 Feet

On-Site Investigation Results

Composite Zone: JLDIW-T-ALL

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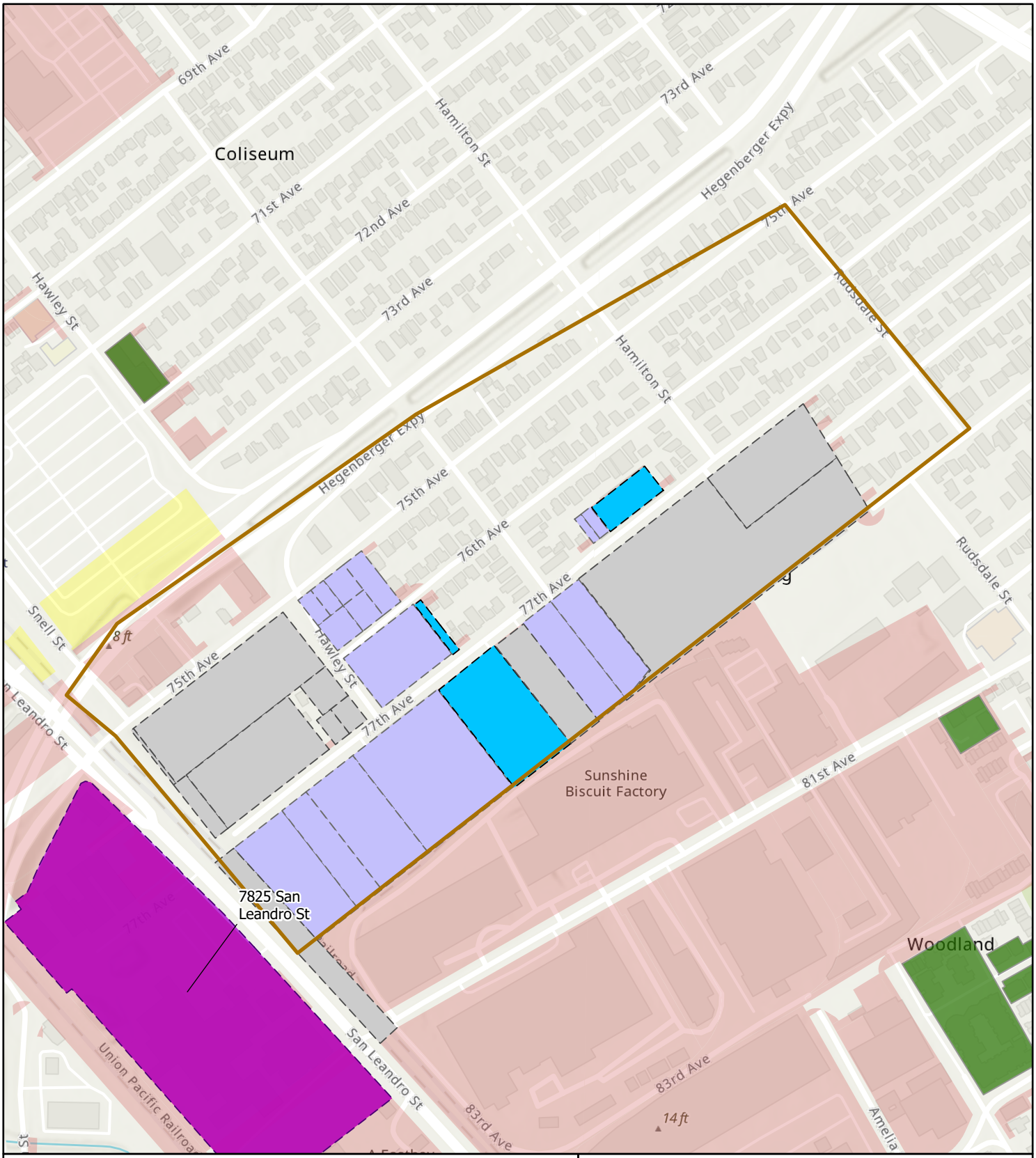
26013274	August 2026

Figure B-3

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 400 Feet

On-Site Investigation Results

Composite Zone: SLB_12

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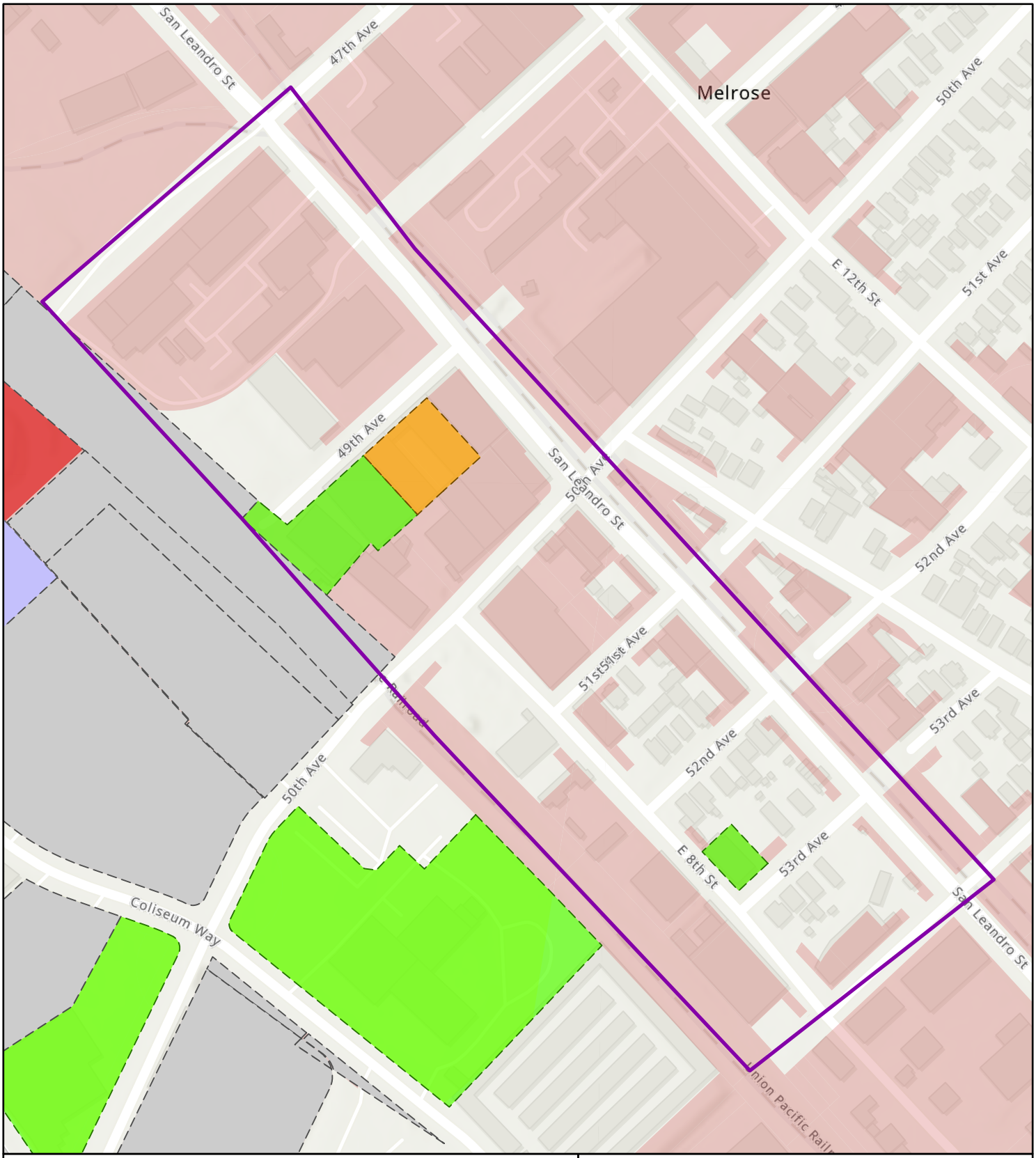
26013274 | August 2026

Figure B-4

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- >1.0 mg/kg

N

0 240 Feet

On-Site Investigation Results

Composite Zone: SLB_17

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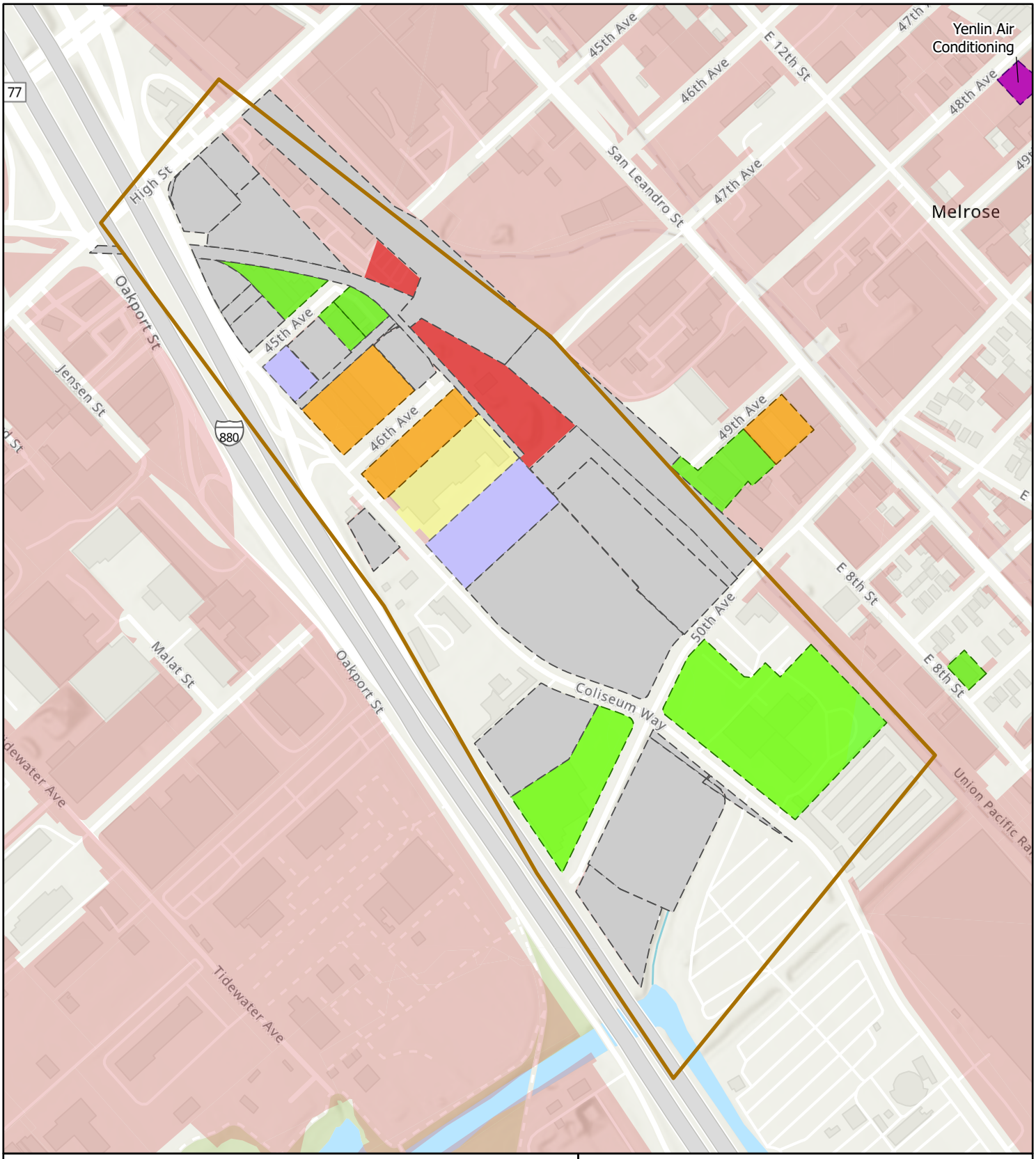
26013274 | August 2026

Figure B-5

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 400 Feet

On-Site Investigation Results

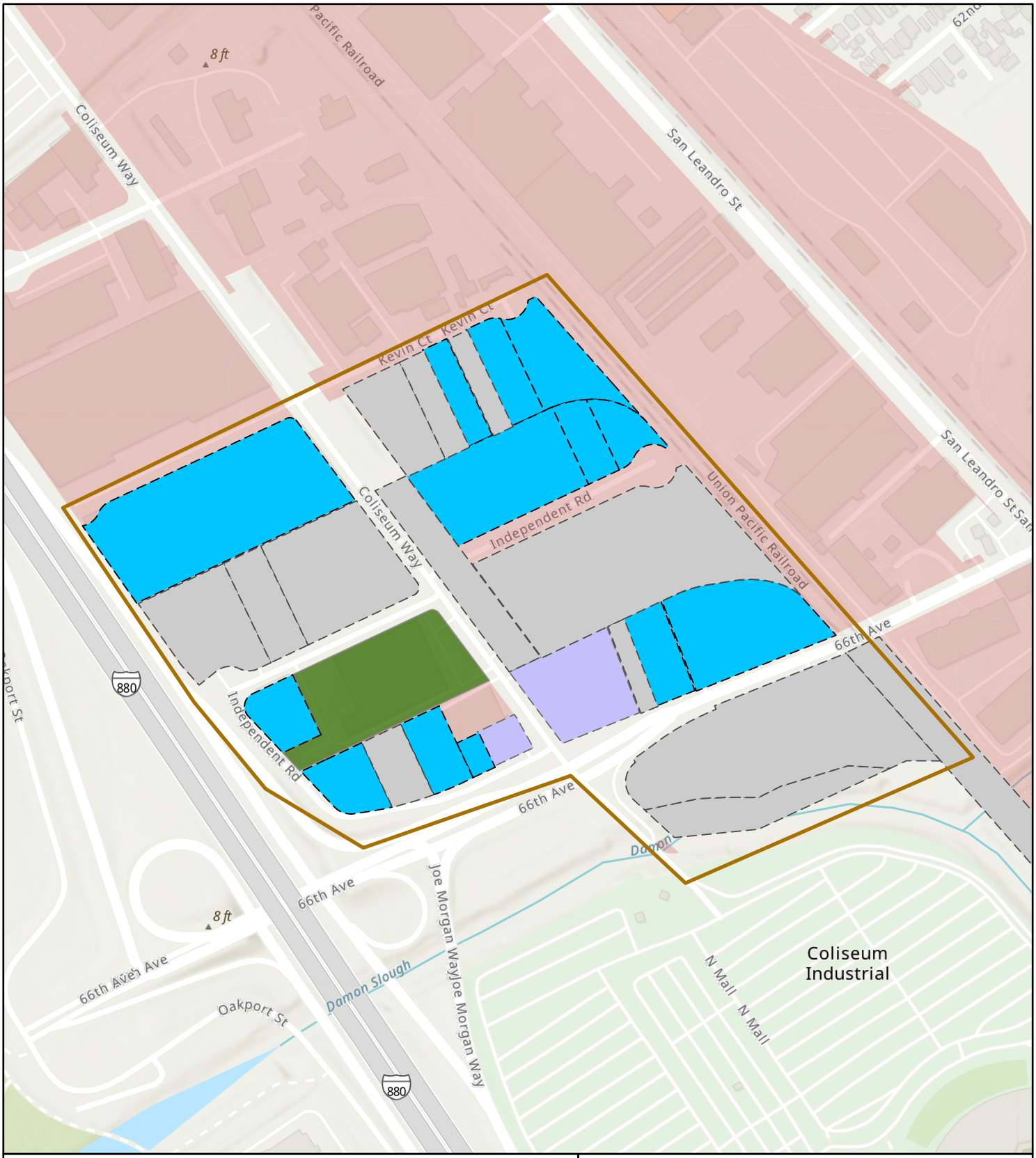
Composite Zone: SLB_23

Geosyntec consultants

26013274 | August 2026

Figure B-6

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 360 Feet

On-Site Investigation Results

Composite Zone: SLB_24

Geosyntec consultants

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Figure B-7

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)

Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- 0.2 - 1.0 mg/kg

N

0 400 Feet

On-Site Investigation Results

Composite Zone: SLB_5

Geosyntec consultants

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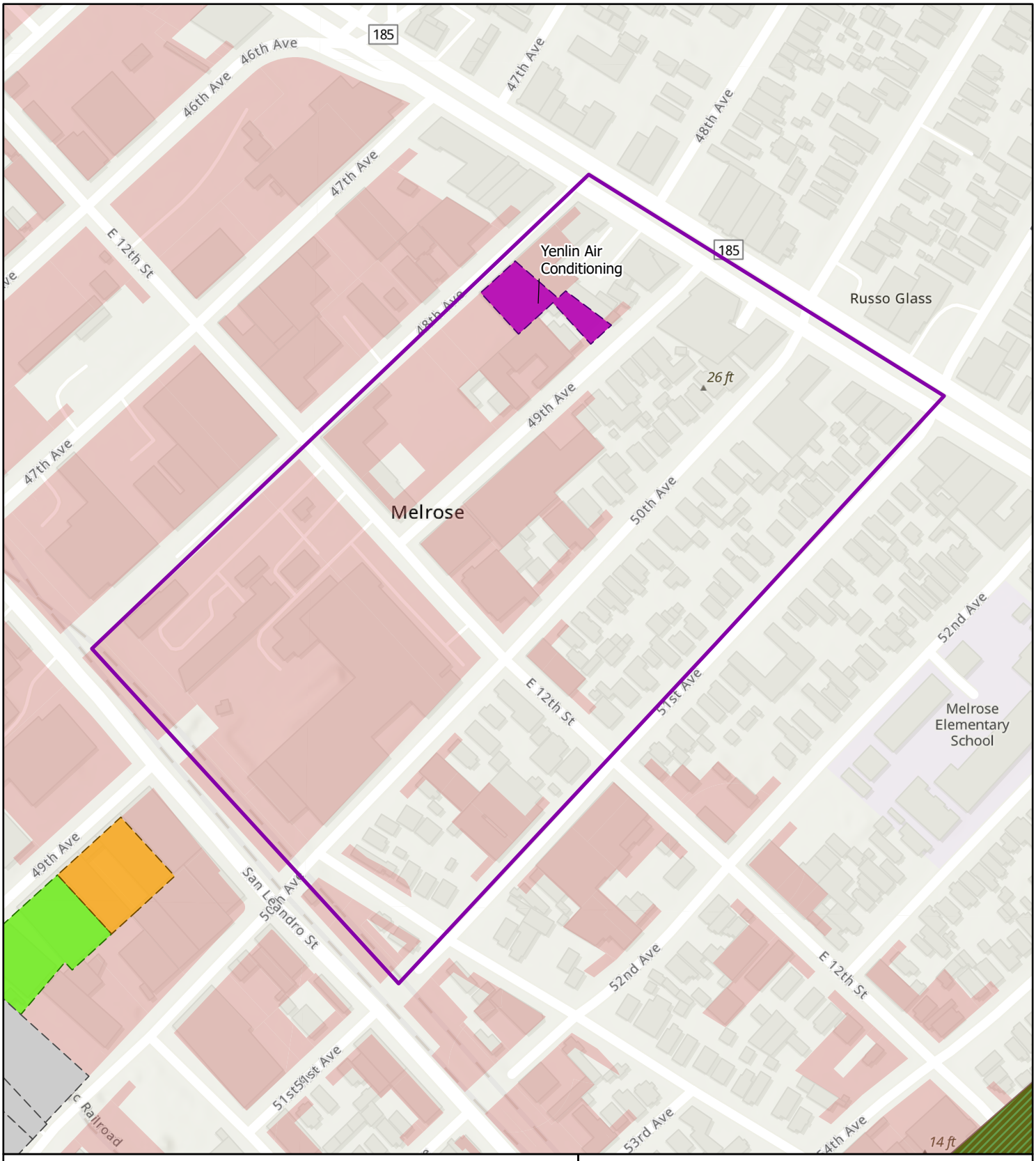
Figure B-8

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)



Legend

Old Industrial (OI) Baseline
- Untreated Old Industrial
- Untreated Moderate Area (Non Old Industrial Areas with >=0.2 mg/kg)

Source Property
- Source Property (In progress)
- Source Property (Referred)
- Source Property (Abated)
- Redevelopment (include In Progress)

GSI Projects
- Retrofit or Redevelopment

On-Site Investigation Results
- <0.2 mg/kg
- 0.2-1.0 mg/kg
- >1.0 mg/kg
- Sampled Waiting for Results
- BPJ Low Priority
- To Be Revisited

Composite Zone
- >1.0 mg/kg

N

0 240 Feet

On-Site Investigation Results

Composite Zone: SLB_9

Geosyntec consultants

26013274 | August 2026

Figure B-9

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\POC_2026_Annual Report\OI Investigation Results_2026_v2.aprx\OISP_Investigation_OnParcel 7/27/2026 3:06 PM (GYao)

APPENDIX C

MRP 3.0 Source Property Referrals

PCB REFERRAL SITE INFORMATION

The purpose of this form is to provide the Department of Toxic Substances Control and the Regional Water Quality Control Board with sufficient information to require site owner/operators to conduct follow-up investigations and/or PCB cleanup actions. Please use additional pages, as necessary, to complete your responses.

Referring Agency:	City of Oakland
Staff Contact Name:	Terri Fashing
Phone:	(510) 238-7276
Email Address:	tfashing@oaklandca.gov
Date of Referral:	May 29, 2026

1. Name of Site: American Brass & Iron (AB&I) Redevelopment Site

2. Address City County ZIP: 7825 San Leandro Street, Oakland, Alameda County, 94621

3. APN(s): 41-4175-18, 41-4175-19, 41-4208-1, 41-4209-1-1, 41-4209-3-2, 41 4209-8-1, 41-4209-1-2, 41-4209-7, 41-4175-16, 41-4175-17, 41-4175-3-2, 41-4175-5, 41 4175-6, and 41-4175-10

4. Provide a Site Location Map and a Site Diagram showing significant features.

Site Area: 14.5 acres
Land Use: Mixed commercial and industrial area
See attached Figure 1 for the Site Location Map.

5. Current Owner

Name:	Duke Realty Foundry LP (Prologis)
Address:	1800 Wazee Street #500
City, County & Zip Code:	Denver, CO 80202
Phone:	
E-mail Address:	gfisco@prologis.com
Contact:	Gavin Polite Fisco

6. Background: Current Business Operations

Name:	Prologis
Period of Operation:	April 2022 - Present
Type:	Vacant industrial land undergoing redevelopment

7. Background: Previous Business Operations (if known)

Name:	American Brass & Iron Foundry (McWane, Inc.)
Period of Operation:	At least 1940 – April 2022
Type:	The former Site owner and operator (AB&I) operated a foundry at the Site from at least 1940 until October 2022. During foundry operations, the Site was utilized for the manufacture of metal pipe and pipe fittings. Operations at the Site included the production of cast iron for the manufacturing of

fittings and pipe from recycled scrap iron, pig iron, and steel, which it accepted and stockpiled on-Site. Major operations involved scrap metal melting, mold making, fitting and pipe casting, and final finishing and coating of pipes and fittings. AB&I ceased foundry operations in October 2022 and vacated the Site in April 2023.

8. Summarize any available information that may indicate hazardous substances, pollutants, or contaminants OTHER than PCBs have been associated with the site.

From GeoTracker: Alameda County Environmental Health Department (ACEHD) has been providing regulatory environmental oversight for the investigation and cleanup activities associated with Cleanup Site Program Case No. RO0003535 since July 2022 subsequent to property transaction. To redevelop the Site, environmental investigations are required to evaluate impacts to the subsurface from historic land use and develop corrective actions to reduce potential risk to construction workers, the surrounding community, and occupants of the new development. Subsurface investigations have been conducted to evaluate historical operations at the Site including but not limited to various commercial and industrial foundry configurations with numerous former underground storage tanks. Results of these subsurface investigations has identified chemicals of concern (COCs) in environmental media (soil, soil vapor, and groundwater). To address this contamination prior to development, proposed corrective actions include the hazardous material survey and abatement of the existing onsite buildings and hardscape; demolition of existing Site buildings and above ground infrastructure; remediation and/or off-Site disposal of impacted soil at a permitted disposal facility; extraction, treatment, and discharge of groundwater; and installation of vapor intrusion mitigation and migration engineering controls to control potential vapor intrusion to indoor air of the proposed development and migration along new utility corridors. Proposed redevelopment of the Site includes construction of a commercial warehouse space.

The COCs listed on GeoTracker include arsenic, benzene, copper, diesel, ethylbenzene, gasoline, lead, naphthalene, nickel, other chlorinated hydrocarbons, other metal, polychlorinated biphenyls (PCBs), tetrachloroethylene (PCE), total petroleum hydrocarbons (TPH), trichloroethylene (TCE), vinyl chloride, and waste oil (motor/hydraulic/lubricating).

9. Describe the known and suspected sources of PCBs at the site.

Based on the ASTM Phase I Environmental Site Assessment prepared by Haley & Aldrich, Inc. in April 2022, PCBs may be associated with PCBs-containing oils historically used in electrical equipment, primarily in a generator room and in transformers centrally located at the Site. Additionally, PCBs might also originate from the Site's historical activity of producing cast iron for fittings and pipes using recycled scrap iron, pig iron, and steel.

10. Has sampling or other investigation been conducted in the vicinity of the property? <u>Yes</u> No

Surface sediment removal activities were conducted by Prologis between June 13 to June 17, 2025, during which surface sediment was swept up and containerized into seven 55-gallon drums. Composite samples of the containerized sediment were collected on September 29, 2025: COMP-01 represents sediment from Drums 1, 2, and 3, with a concentration of 1.8 mg/kg; COMP-02 represents sediment from Drums 4 and 7, with a concentration of 2.6 mg/kg; and SED-19 represents sediment

from Drums 5 and 6, which were collected near Sump 19 adjacent to a stormwater catch basin, with a concentration of 14 mg/kg.

On June 23, 2025, Applied Marine Sciences, Inc. (AMS) on behalf of the Alameda Countywide Clean Water Program collected soil samples at six locations within the 7825 San Leandro Street property. Monitoring locations included adjacent to driveways, around storm drain inlets, and adjacent to depressions/pits that accumulated runoff and had an indeterminate connection to the municipal storm drain system (MS4). Sample locations and analytical results are summarized in Table 1 and shown in Figure 2.

Table 1: Analytical results PCBs sampling conducted at 7825 San Leandro St, Oakland

Sample ID	Sample Date	Total PCBs (mg/kg or ppm)
7825SL-01	6/23/2025	0.432
7825SL-02	6/23/2025	0.660
7825SL-03	6/23/2025	0.142
7825SL-04	6/23/2025	0.198
7825SL-05	6/23/2025	**2.813**
7825SL-06	6/23/2025	**2.346**
COMP-01	9/29/2025	**1.8**
COMP-02	9/29/2025	**2.6**
SED-19	5/9/2025	**14**

11. Is the site subject to the general industrial stormwater permit? **Yes** **No**
AB&I submitted a Notice of Termination for the Industrial General Permit in 2023. During the demolition and construction phase of Site redevelopment, stormwater at the Site will be managed by Prologis under the General Permit for Discharges of Storm Water Associated with Construction Activity, Order 2009-0009-DWQ (Construction General Permit).

12. Is there currently a potential for exposure of the community or workers to hazardous substances, pollutants, or contaminants at the site? **Yes** **No** **Unknown**

Elevated PCBs concentrations have been detected at the Site, presenting a potential exposure concern primarily for on-site workers during closure or redevelopment activities. In addition, the surrounding Site area is predominantly commercial/industrial, and the nearest residential receptors are located approximately 1,100 feet northeast of the Site.

13. Are any Federal, State or Local regulatory agencies currently involved with the site?
Yes **No**

In July 2022, the Site was formally enrolled in the State Cleanup Program under a Voluntary Remedial Action Agreement (VRAA), with regulatory oversight provided by the Alameda County Department of Environmental Health (ACEHD) through its Local Oversight Program (LOP) (Case No. RO0003535). Currently, the Site is undergoing facility closure activities supervised by the Certified Unified Program Agency (CUPA), with ACEHD designated as the CUPA for Oakland.

Table 2 below summarizes ACDEH's role and some other regulatory agencies involved in the AB&I facility demolition, investigation, and redevelopment process.

Table 2: Regulatory Agencies Involved at the Site

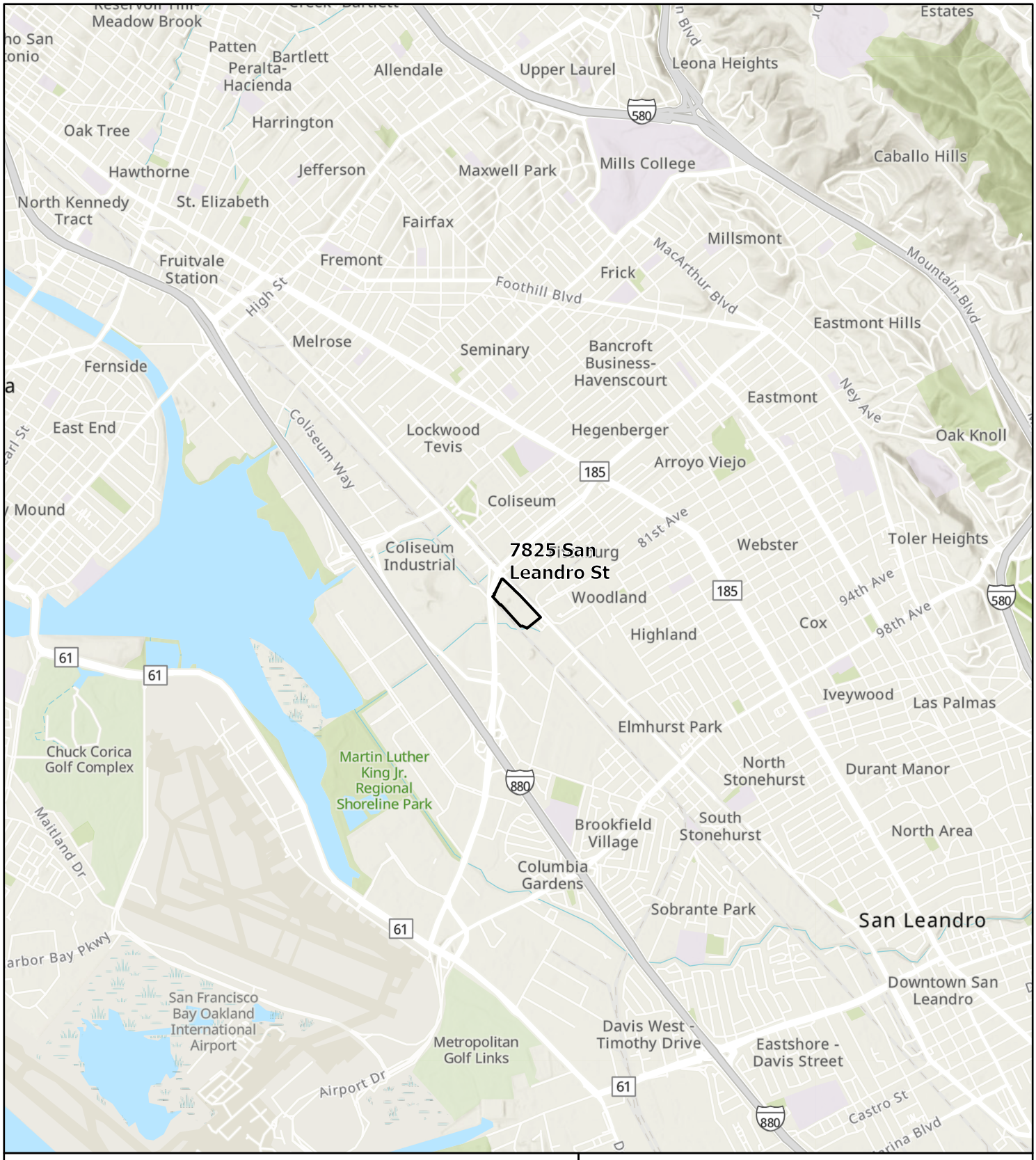
Agency	Role in Engagement
ACDEH – CUPA	Oversight of closure, demolition, investigation, and remediation
ACDEH – LOP	Oversight of closure, demolition, investigation, and remediation
San Francisco Bay Regional Water Quality Control Board	Oversight of water quality impacts / CGP compliance
Bay Area Air Quality Management District (BAAQMD)	Monitor emissions, oversee air quality during remediation

14. Provide any other pertinent site information not covered above:
See GeoTracker (https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000019792).

15. Describe enhanced control measures that will be implemented at the site.

Prologis maintained the onsite storm drain system in March 2026 and will submit a completion report upon receipt of the final disposal documentation. ACEHD has requested that the final report document analysis of all chemicals of potential concern, including PCBs and the volume and type of media removed from the storm drain system. The City will request that Prologis clean the storm drain system in San Leandro Boulevard adjacent to the Site. The cleanup measures at the site should prevent further discharge of PCBs into the MS4.

Attachments:
Figure 1. Site Location Map
Figure 2. Sample Location Map



Legend

AB&I Redevelopment Site

N

0 4,500 Feet

Site Location Map

7825 San Leandro St.,
Oakland, CA 94601

cleanwater PROGRAM

Figure 1

May 2026

P:\GIS\MRP Mapping\AC_CC_POCs Monitoring Planning 2025\AC_CC_Referral Site Mapping 2025.aprx\Site Locations 4/29/2026 9:17 PM (yaxin.jin)

Sample ID	Sample Date	Total PCBs (mg/Kg or ppm)
7825SL-01	6/23/2025	0.432
7825SL-02	6/23/2025	0.660
7825SL-03	6/23/2025	0.142
7825SL-04	6/23/2025	0.198
7825SL-05	6/23/2025	2.813
7825SL-06	6/23/2025	2.346

APN List
41-4175-3-2
41-4175-5
41-4175-6
41-4175-10
41-4175-16
41-4175-17
41-4175-18
41-4175-19
41-4208-1
41-4209-1-1
41-4209-1-2
41-4209-3-2
41-4209-7
41-4209-8-1

Legend

- Water Year 2025 Samples
- AB&I Redevelopment Site
- Parcel

N

0 120 240 Feet

Sample Location Map

7825 San Leandro St.,
Oakland, CA 94601

cleanwater PROGRAM

Figure 2

May 2026

PCB REFERRAL SITE INFORMATION

The purpose of this form is to provide the Department of Toxic Substances Control and the Regional Water Quality Control Board with sufficient information to require site owner/operators to conduct follow-up investigations and/or PCB cleanup actions. Please use additional pages, as necessary, to complete your responses.

Referring Agency:	City of Oakland
Staff Contact Name:	Terri Fashing
Phone:	(510) 238-7276
Email Address:	tfashing@oaklandca.gov
Date of Referral:	March 19 2026

1. Name of Site: Cole Brothers Auto Wreckers

2. Address City County ZIP: 1797 12th St, Oakland, Alameda County, CA 94607

3. APN(s): 006 003104700

4. Provide a Site Location Map and a Site Diagram showing significant features.

Parcel Area: 0.4 acres
See attached Figure 1 for the Site Location Map. Figure 2 provides a Site Diagram.

5. Current Owner

Name:	Floyd Cole, Maurice Cole Sr, and Lucretia Cole
Address:	1797 12th Street
City, County & Zip Code:	Oakland, Alameda County, CA 94607
Phone:	(510) 776-2765
E-mail Address:	Raycole12058@gmail.com
Contact:	Ray Cole
Title:	Owner

6. Background: Current Business Operations

Name:	Cole Brothers Auto Wrecking
Period of Operation:	2016 – present (not in active use since 2015)
Type:	Auto and parts storage

Cole Brothers Auto Wreckers operated an auto dismantling and salvaging company from 1968 – 2015 on the property. An Industrial General Stormwater Permit (IGP) Notice of Termination (NOT) was filed in 2016. The site is no longer involved in wrecking or repairing cars as a business and is now storing vehicles and miscellaneous car parts.

PCB REFERRAL SITE INFORMATION

7. Background: Previous Business Operations (if known)

Name:	Cole Brothers Auto Wrecking
Period of Operation:	1975 – 2016
Type:	Auto dismantling and salvaging company

Site operations included auto dismantling and salvaging. Dismantling took place on a concrete pad outdoors. Auto parts and engines were not cleaned or washed on-site. Cole Brothers did not require customers to clean auto parts that were brought in. Automobiles and engines delivered to Cole Brothers were requested to have all fluids drained before being accepted. Hazardous materials, primarily related to auto fluids, were temporarily stored on-site prior to off-site disposal. See the attached Site Screening Assessment prepared by DTSC in 2007 for further information.

8. Summarize any available information that may indicate hazardous substances, pollutants, or contaminants OTHER than PCBs have been associated with the site.

Inspection reports from the Alameda County Urban Runoff Clean Water Program and Alameda County Department of Environmental Health from 1992 through 2006 indicated the presence of oil-stained soil in unpaved areas of the site. Poor housekeeping practices were also reported during the same time period. An Oakland Fire Hazardous Materials Inspection Report dated April 2006 indicated that "contaminated soil has been cleaned". The area from which the contaminated soil was cleaned was not specified in the inspection report. It does not appear that confirmation samples were collected after cleanup was conducted.

On October 24, 2006, DTSC collected two surface soil samples in an unpaved area located in the northwest corner of the property. Analysis of the soil samples indicated the presence of arsenic, cadmium, lead, and PCBs. Arsenic was detected at concentrations up to 27.3 mg/kg. Cadmium was detected at concentrations up to 26.1 mg/kg. Lead was detected at concentrations up to 1,720 mg/kg.

The site also has a documented history of uncontrolled stormwater discharges containing heavy metals such as copper, zinc, and lead exceeding EPA benchmark values and water quality standards.

9. Describe the known and suspected sources of PCBs at the site.

When the site operated as an auto dismantling company, potential wastes and pollutants that might have come into contact with stormwater included waste oils; waste antifreeze coolant; grease; battery acid; and residual lead, sediments, and heavy metals such as aluminum, copper, iron, lead, and zinc. The source of PCBs is unknown.

10. Has sampling or other investigation been conducted in the vicinity of the property? Yes No

Sample results are summarized below.

PCB REFERRAL SITE INFORMATION

Date	Sampling Agency	Sample Location Description	PCBs Sediment Concentration (mg/kg)
2005	City of Oakland (Kleinfelder, 2005)	ROW composite of sediment from the driveway area of both entrances (front gate on 12th Street and back gate on Pine Street)	3.814
2006	City of Oakland (Kleinfelder, 2006)	Onsite composite	1.663
2006	DTSC (DTSC, 2007)	Two surface soil samples in an unpaved area located in the northwest corner of the property.	2.0 & 3.4
2025	ACCWP	Onsite sediment accumulation in cracking in concrete near the office building.	8.776

11. Is the site subject to the general industrial stormwater permit? **Yes** **No**

In 1995, Cole Brothers submitted a Notice of Intent to be authorized to discharge stormwater from the facility under the IGP. The site filed an IGP NOT in 2015 and no longer operates as an auto wrecking yard per a settlement agreement with the San Francisco Baykeeper.

12. Is there currently a potential for exposure of the community or workers to hazardous substances, pollutants, or contaminants at the site? Yes No Unknown

Sediment samples collected at the site and the public right-of-way near the property exceeded both U.S. EPA Region 9 Preliminary Remediation Goals (0.22 mg/kg for residential and 0.74 mg/kg for industrial use) and Cal-EPA California Human Health Screening Levels (89 µg/kg for residential and 300 µg/kg for industrial use). Additionally, the site is located in a mixed light industrial-residential area of West Oakland.

13. Are any Federal, State or Local regulatory agencies currently involved with the site?
Yes No

The ACCWP and City of Oakland identified this site as a source of PCBs into the MS4 as part of Alameda County Old Industrial Area Control Measure Plan implementation. The ACCWP and City of Oakland conducted an onsite investigation with monitoring in May 2025 that confirmed the site soils are contaminated above the 1.0 mg/kg source property threshold.

14. Provide any other pertinent site information not covered above: None.

15. Describe enhanced control measures that will be implemented at the site.

The City of Oakland will request that the site owners install straw wattles on the interior side of the fence and rumble strips or another method of sediment control at the site entrance and exit to reduce potential track-out to the public right-of-way.

References:

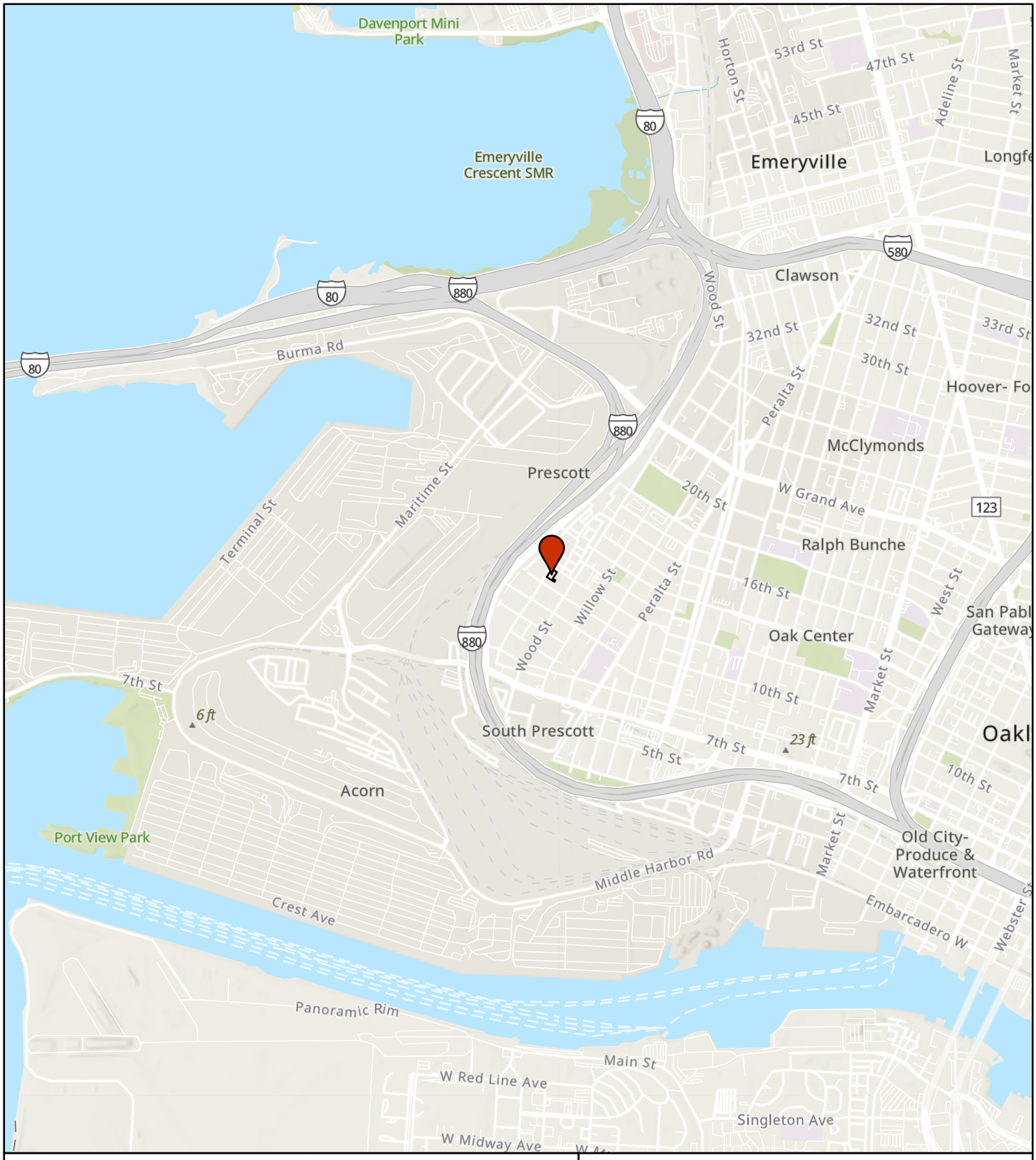
Department of Toxics Substances Control (DTSC), 2007. Site Screening Assessment. Prepared by DTSC for USEPA Region 9. February 2007.

Kleinfelder, 2005. Sediment Sampling Report Ettie Street Pump Station Watershed, Oakland, California. Prepared for the City of Oakland PWA – ESD by Kleinfelder, Inc. July 2005.

Kleinfelder, 2006. Final Project Report Ettie Street Pump Station Watershed, Oakland, California. Prepared for the City of Oakland PWA – ESD by Kleinfelder, Inc. September 2006.

Attachments:

Figure 1. Site Location Map
Figure 2. Site Map
DTSC Site Screening Assessment (2007)



Legend

Cole Brothers

APN 006 003104700

N

0 2,000 Feet

Site Location Map

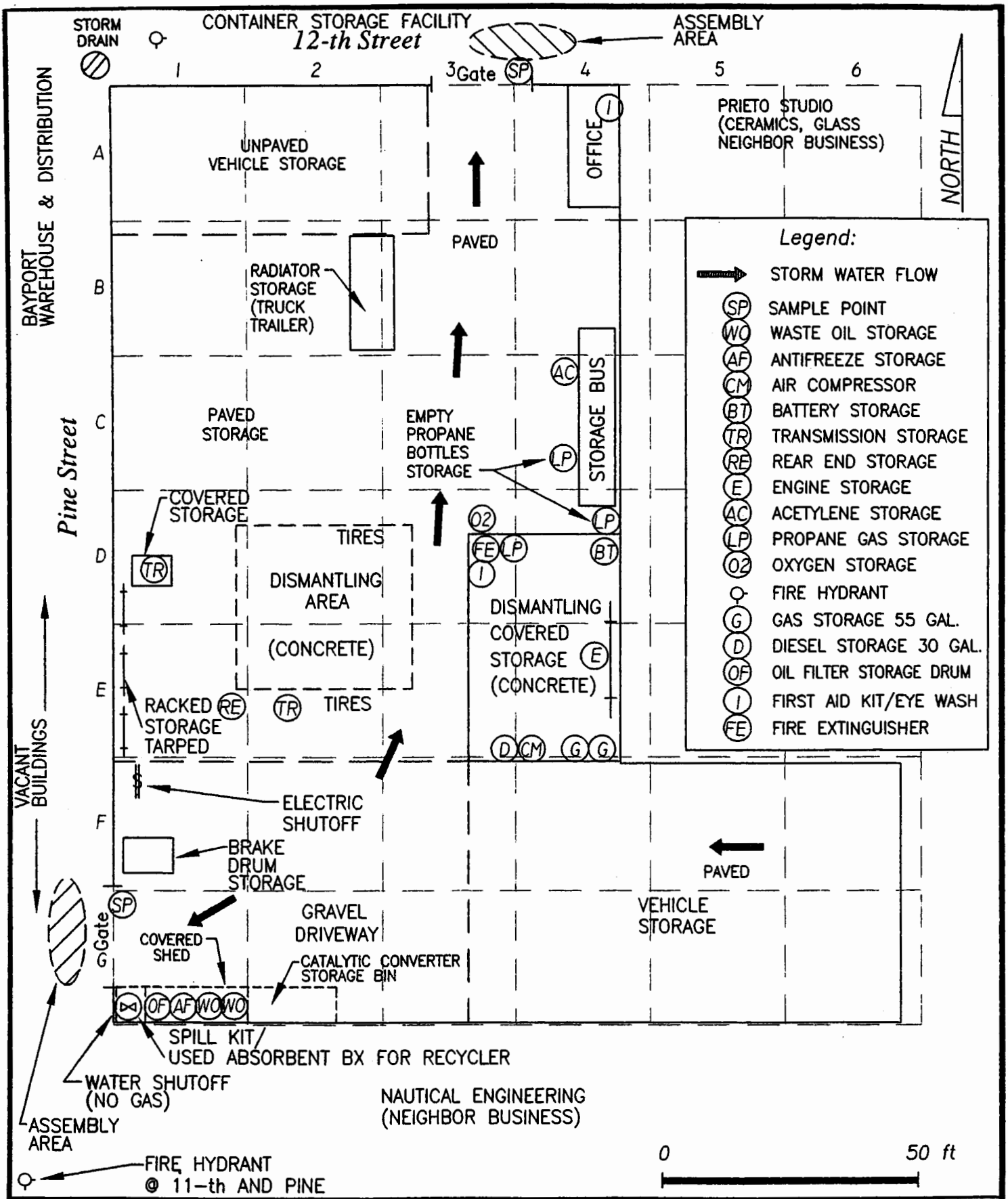
1797 12th St,
Oakland, CA 94607

cleanwater PROGRAM

Figure 1

December 2025

P:\GIS\MRP Mapping\AC_CC_POCs Monitoring Planning 2025\AC_CC_Referral Site Mapping 2025.aprx\Site Locations 12/22/2025 5:08 PM (Yaxin.Jin)



NEST Environmental Services

1040 Grant Road, Suite 155–PMB 325
Mountain View, CA 94040–3296
Phone: (650) 938–3012, Fax: (650) 968–6633

COLE BROTHERS AUTO WRECKING

Oakland, CA Alameda County

DRAWN: Vlad Zarici	CHECKED: Laurie Mattison
ACADFILE: colebrswrk.dwg	DATE: 03.09.06

HMBP SITE MAP

SITE SCREENING ASSESSMENT

Prepared by:
California Department of Toxic Substances Control
Cooperative Agreement Number: V99925205-2
DTSC Fiscal Year: 2006/2007

Prepared for:
United States Environmental Protection Agency
Region 9
States, Planning, and Assessment Office
San Francisco, California

Date: February 16, 2007

Site Name: Cole Brothers Auto Wrecking
EPA ID Number: CAN 000908447
City: Oakland
County: Alameda
DTSC Regional Office: Berkeley (2)

EXECUTIVE SUMMARY

Site Name:	**Cole Brothers Auto Wrecking**
EPA ID Number:	**CAN 000908447**

Findings and Recommendation:

FINDINGS: (new sites only)

SITE IS CERCLIA ELIGIBLE - refer to section 1.3	☒ Yes	☐ No	
REFERRAL TO EMERGENCY RESPONSE - refer to section 1.4	☐ Yes	☒ No	
PRIMARY REGULATORY AGENCY INVOLVED - refer to section 3.0	☐ Federal	☒ State	☐ Local ☐ N/A
OVERALL SITE PRIORITY LEVEL	☐ High	☒ Medium	☐ Low
HAZARD FACTOR VALUE	☐ High	☒ Medium	☐ Low
VULNERABILITY FACTOR VALUE	☐ High	☒ Medium	☐ Low
OTHER INFLUENCING FACTORS	☐ High	☐ Medium	☒ Low
- refer to section 4.0			

RECOMMENDATION:

REMEDIATION LEAD: STATE OR FEDERAL:	☒ State	☐ Federal	☐ Local
FORWARD TO TRIAGE:	☐ Yes	☒ No	☐ Hold

Signatures and Concurrence:

	Signature	Type Name	Date: (MM/DD/YYYY)
DTSC Screener:		Edgardo Gillera	2/16/07
DTSC Approval:		Denise Tsuji	2/16/07
EPA Concurrence:		Jeff Inglis	03/14/07

Note: Executive Summary page to be copied to originator once EPA Concurrence block is signed. EPA concurrence approves screen.

EPA only:

Date sent to DTSC: _____

Next Triage Meeting: 8/2/05 11/1/05 2/7/06 5/2/06 8/1/06

Comments:

US EPA / CA DTSC COOPERATIVE AGREEMENT
SITE SCREENING ASSESSMENT
Table of Contents

1.0 General Instructions
- 1.1 Site Information
- 1.2 Core Locational Information
- 1.3 CERCLA Eligibility
  - Attachment A: Site Screening Assessment Contact Log
  - Attachment B: Site Evaluation Map and Backup
- 1.4 Removal Assessment Eligibility (non-time critical)

2.0 Technical Information
- 2.1 Operational History
- 2.2 Contaminants
- 2.3 Has a release as defined in CERCLA Section 101(22) occurred?
- 2.4 Pathway(s) of contaminant migration
- 2.5 Sampling History
- 2.6 Additional Information
  - Attachment C: Site Screening Assessment Observation Record
  - Attachment D: Site Type – Primary/Secondary Activity Form
  - Attachment E: Sampling Event Summary Table

3.0 Regulatory and Enforcement History
- 3.1 Regulatory Agencies: Federal
- 3.2 Regulatory Agencies: State, State Deferral
- 3.3 Regulatory Agencies: Local
- 3.4 PRP Viability
  - Attachment F: Enforcement and Regulatory Reference Documentation

4.0 Site Prioritization Worksheet
- 4.1 Hazards Identification
- 4.2 Vulnerability Analysis
- 4.3 Other Influencing Factors
- 4.4 Overall Ranking of Site

Attachment A – Site Screening Assessment Contact Log

Attachment B – Site Evaluation Map and Site Report (EPA GIS Center) Cover Page

Attachment C – Site Screening Assessment Observation Record

Attachment D – Site Type – Primary/Secondary Activity Form

Attachment E – Site Screening Assessment Sampling Event Summary Table & Analytical Results

Attachment F – Enforcement and Regulatory Agency Reference Documentation Cover Page

1.0 GENERAL INSTRUCTIONS

Complete this section electronically using readily available information and contact information from appropriate individuals. A Site Screening Assessment Contact Log (Attachment A) should be used to document information gained through correspondence, interviews, file reviews and telephone calls. Add extra pages if necessary.

1.1 Origin of Site Under Assessment: Pick one

Origin		Required Information for submittal to EPA
New site from a discovery project	☒	Fill out entire SSA Form
Discovery Project Title: West Oakland Discovery		
Existing CERCLIS Site which is a candidate for triage?	☐	Sections 1 and 3 minimum
New site: Independent Discovery Vehicle	☐	Fill out entire SSA Form

1.2 Core Locational Information:

Site Name: Cole Brothers Auto Wrecking

Other Names:

Site Street Address: 1797 12th Street

City, County, State: Oakland, Alameda, CA

Zip Code: 94607

Primary EPA ID Number:

Secondary EPA ID #s: CAL000082798

In Calsites Database? ☒ Yes ☐ No If, yes, specify ID number 60000365

CA DTSC REGION Name: Berkeley Regional Office (2)

CA RWQCB REGION: San Francisco Bay CA RWQCB REGION #: 2

Latitude: 37.81253 Longitude: -122.30023

MAD Code:

Note: Latitude and Longitude coordinates along with MAD code will be generated by the USEPA GIS Center along with an accompanying "Site Evaluation Map and Site Report (Attachment B) of this document.

1.3 CERCLA Eligibility

Complete the following checklist. If a yes is marked, the site may not be eligible for CERCLA assessment without further justification. Please explain in the Decision / Rationale section below.		**YES**	**NO**
1.	Does the site already appear in CERCLIS?	☐	☒
2.	Is the release from products that are part of the structure of, and result in exposure within, residential buildings or businesses or community structures?	☐	☒
3.	Does the site consist of a release of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found?	☐	☒
4.	Is the release into a public or private drinking water supply due to deterioration of the system through ordinary use?	☐	☒
5.	Is some other program actively involved with the site (i.e., another Federal, State, or Tribal program)?	☐	☒
6.	Are the hazardous substances potentially released at the site regulated under a statutory exclusion (i.e., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?	☒	☐
7.	Are the hazardous substances potentially released at the site excluded by policy considerations (e.g., deferral to RCRA Corrective Action)?	☐	☒
8.	Is there sufficient documentation that clearly demonstrates that there is no potential for a release that could cause adverse environmental or human health impacts (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, EPA approved risk assessment completed)?	☐	☒
9	Part of a NPL-Site?	☐	☒
10.	Is the site currently under the control and management of a state/local agency? If yes, which agencies?	☒	☐

Briefly explain all "yes" answers in "Decision/Rationale" section below. Use number reference.

Number **Explanation of "yes" answer:**

6. Known and/or suspected release at the Site are primarily associated with petroleum products, namely waste oil. Under CERCLA petroleum-based products are not classified as a hazardous substance.

10. Oakland Fire Department Hazardous Materials Management Program (CUPA), State Regional Water Resources Control Board (SWRCB), Alameda County Urban Runoff Clean Water Program and the Alameda County Department of Environmental Health.

	Yes	No
SITE IS CERCLIA ELIGIBLE	☒	☐
Note: This recommendation should be included on Executive Summary Page		

1.4 Removal Assessment Eligibility

Use the following eligibility criteria to determine if the site should be referred for emergency response. If the answer to any question is yes, get the site may be eligible for referral emergency response. If a question cannot be answered, explain why in the Comments section below.

1.	Is there actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances, pollutants, or contaminants?	☐ Yes	☐ No
2.	Is there actual or potential contamination of drinking supplies or sensitive ecosystems?	☐ Yes	☒ No
3.	Are hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers which may pose a threat of release?	☒ Yes	☐ No
4.	Are there high levels of hazardous substances, pollutants, or contaminants are soils largely at or near the surface, which may migrate and affect populations or the environment?	☐ Yes	☐ No
5.	Could weather conditions cause hazardous substances, pollutants, or contaminants to migrate or be released?	☐ Yes	☒ No
6.	Is there a threat of fire or explosion?	☐ Yes	☒ No
7.	Are there appropriate Federal or State response mechanisms to respond to the release or potential release?	☒ Yes	☐ No
8.	Are there other situations or factors which may pose threats to public health, welfare, or the environment?	☐ Yes	☒ No
9.	For the situation where there appears to be primarily a groundwater contamination problem, is there a near-surface source which can be removed?	☐ Yes	☒ No

Please explain all "yes" answer(s), noting question number (character max = 400, attach additional page if necessary):

3. Hazardous materials commonly associated with auto wrecking/recycling operations are used and temporarily stored at the site. These materials may include waste oils, solvents, batteries and other auto related fluids. Release of these materials may pose a threat to onsite workers, customers and the environment.

7. The Office of Emergency Services coordinates responses to emergencies in California.

	Yes	No
Refer to Emergency Response	☐	☒
Note: This recommendation should be included on Executive Summary Page		

2.0 TECHNICAL INFORMATION

This section contains information about site's operational history and environmental sampling. Complete the following section by filling in the blanks or checking the appropriate boxes. If a question cannot be answered, explain why. If a drive-by is performed, complete the Site Screening Assessment Observation Record (Attachment C). A Site Type – Primary/Secondary Activity Form (Attachment D) focused on past or present operations of health or environmental concern should also be filled out.

2.1 Operational History

1a. List present site owner(s) and operator(s):

Cole Brothers Auto Wrecking

- Cole Brothers operates an auto dismantling and salvaging company. Dismantling is conducted on a concrete pad outdoors. Auto parts and engines are not cleaned or washed onsite. Cole Bros. does not require their customers to clean auto parts that are brought in. Automobiles and engines brought to Cole Bros. must be drained of all fluids prior to being accepted. Hazardous materials, mostly associated with auto fluids, are temporarily stored onsite prior to offsite disposal. Cole Brothers has been in operation since 1968.

Maurice & Lucretia Cole, Floyd & Rosemary Cole 10/1975 – present

1b. Are hazardous substances presently on site? ☒ Yes ☐ No

If yes, how and where are substances stored and used?

Hazardous Materials Inventory indicates the following hazardous substances onsite: gasoline, waste motor oil, ethylene glycol (waste antifreeze), oxygen gas and liquid propane gas.

These chemicals are used in relatively small qualities and are disposed offsite.

2a. List historic site owner(s) and operator(s):

Cole Brothers has operated at the Site since 1968. Maurice & Lucretia Cole and Floyd & Rosemary Cole have owned the property since 1975. Operations and ownership prior to 1968 are unknown.

2b. Were hazardous substances present on site in the past? ☒ Yes ☐ No

If yes, how and where were substances stored and used?

Similar hazardous substances, as stated in 1b, have been used and stored at the Site since beginning of operations.

Additional comments:

Cole Brothers participates in the SWRCB's Storm Water Pollution Prevention Plan program. Stormwater samples collected in December 2002 and October 2004 indicated lead, copper and zinc at concentrations up to 0.70 mg/L, 0.81 mg/L and 7.4 mg/L, respectively. These concentrations are above U.S. EPA's benchmarks values of 0.0816 mg/L, 0.0636 mg/L, and 0.117 mg/L for surface water for the corresponding contaminants. East Bay Municipal Utility District's (EBMUD) wastewater discharge limits for lead, copper and zinc are 2 mg/L, 5 mg/L and 5 mg/L, respectively.

Inspection reports from the Alameda County Urban Runoff Clean Water Program and Alameda County Department of Environmental Health from 1992 through 2006 have indicated the presence of oil-stained soil in unpaved areas of the Site. Poor housekeeping practices were also reported during the same time period. An Oakland Fire Hazardous Materials Inspection Report dated April 2006 indicated that "contaminated soil has been cleaned". The area from which the contaminated soil was cleaned was not specified in the inspection report. It does not appear that confirmation samples were collected after clean up was conducted.

On August 2005, the City of Oakland, as part of the Ettie Street Pump Station Project, collected sediment samples from the Cole Bros. property. The samples were analyzed for polychlorinated biphenyls (PCBs). Analytical results indicated the presence of PCBs with concentrations of 3,814 µg/kg and 1,663 µg/kg. U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) are 0.22 mg/kg and 0.74 mg/kg for residential and industrial use, respectively. Cal-EPA California Human Health Screening Levels (CHHSLs) for PCBs are 89 µg/kg and 300 µg/kg for residential and industrial use, respectively. The sample containing 3,814 µg/kg of PCB was collected in the public right-of-way near the Cole Bros. property.

On October 24, 2006, the Department of Toxic Substances Control collected two surface soil samples in an unpaved area located in the northwest corner of the property. Analysis of the soil samples indicated the presence of arsenic, cadmium, lead and PCBs above CHHSLs for residential use. Arsenic was detected at concentrations up to 27.3 mg/kg. Regional background levels for arsenic is 17 mg/kg. Cadmium was detected at concentrations up to 26.1 mg/kg. PRGs for cadmium are 37 mg/kg and 450 mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for cadmium are 1.7 mg/kg and 7.5 mg/kg, respectively. Lead was detected at concentrations up to 1720 mg/kg. PRGs for lead are 150 mg/kg and 800mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for lead are 150 mg/kg and 3500 mg/kg, respectively. PCBs were detected at concentrations up to 3.4 mg/kg. Residential and commercial/industrial CHHSLs for PCBs are 0.089 mg/kg and 0.30 mg/kg, respectively.

2.2 Contaminant(s):

List any hazardous substances, pollutants, or contaminants that have been identified at the site and indicate whether they have been quantified (e.g., by sampling).

	Suspected	Identified	Quantified	Comments
☒ Arsenic	☐	☐	☒	27.3 mg/kg (surface soil)
☐ Asbestos	☐	☐	☐	
☐ Beryllium	☐	☐	☐	
☒ Cadmium	☐	☐	☒	26.1 mg/kg (surface soil)
☐ Carbon tetrachloride	☐	☐	☐	
☐ Chloroform	☐	☐	☐	
☐ Chromium (+3 or +6)	☐	☐	☐	
☒ Copper	☐	☐	☒	0.81 mg/L (surface water)
☐ Cyanide	☐	☐	☐	
☐ Dichloroethene,1,1-	☐	☐	☐	
☐ Dioxin	☐	☐	☐	
☐ Ethyl benzene	☐	☐	☐	
☒ Lead	☐	☐	☒	0.33 mg/L (surface water) 1720 mg/kg (surface soil)
☐ Mercury	☐	☐	☐	
☐ Methylene chloride	☐	☐	☐	
☐ Nickel	☐	☐	☐	
☐ P-Dichlorobenzene	☐	☐	☐	
☐ Pentachlorophenol	☐	☐	☐	
☐ Perchlorate	☐	☐	☐	
☒ Polychlorinated biphenyls (PCBs)	☐	☐	☒	1663 µg/kg (sediment) 3.4 mg/kg (surface soil)
☐ Polycyclic aromatic hydrocarbons (PAHs)	☐	☐	☐	
☐ Tetrachloroethene	☐	☐	☐	
☐ Toluene	☐	☐	☐	
☐ Trichloroethylene	☐	☐	☐	
☐ Vinyl chloride	☐	☐	☐	
☐ Xylene	☐	☐	☐	
☒ Zinc	☐	☐	☒	0.7.4 mg/L (surface water)
☐ Other chemicals (Specify):	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
☐ Pesticides (Specify):	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	
	☐	☐	☐	

2.3 Has a release as defined in CERCLA Section 101(22) occurred?

☒ Yes ☐ Suspected ☐ No

Identify the source(s) of the release or suspected release (e.g., drums, landfill, surface impoundment, waste pile, etc.):

A release to surface water has been documented at the Site. Probable sources of the release may be from improper storage of auto parts and various auto fluids. Samples were collected in December 2002 and October 2004.

Lead = 0.33 mg/L
Copper = 0.81 mg/L
Zinc = 7.4 mg/L

A release to sediment has been documented at the Site. Source of PCBs detected in sediment are unknown. Samples were collected in August 2005.

PCB = 1,663 µg/kg

A release to surface soil has been documented at the Site. Probable sources of the release may be from various scrap metals stored on the property and/or automobile batteries. Arsenic concentrations in soil may be attributed to regional geology. Samples were collected in October 2006.

Arsenic = 27.3 mg/kg
Cadmium = 26.1 mg/kg
Lead = 1720 mg/kg
PCB = 3.4 mg/kg

2.4 Pathway(s) of contaminant migration:

☐ Air ☐ Groundwater ☒ Surface Water ☒ Soil

Briefly describe any identified pathway:

The Site is approximately 0.4-acre, of which approximately 75 percent is paved. The Site has no storm drains. Storm water drains to 12th St. and Pine St. prior to draining into an EBMUD storm sewer.

2.5 Sampling History

1. Has sampling been conducted? ☒ Yes ☐ No

2. If environmental sampling has been conducted, use the Sampling Event Summary Table (Attachment E) to record the information. Indicate significant concentrations above benchmark by "bolding" the number.

2.6 Additional Information

Use this space to present additional information that may be used to support site screening assessment decisions.

Cole Brothers participates in the SWRCB's Storm Water Pollution Prevention Plan program. Stormwater samples collected in December 2002 and October 2004 indicated lead, copper and zinc at concentrations up to 0.70 mg/L, 0.81 mg/L and 7.4 mg/L, respectively. These concentrations are above U.S. EPA's benchmarks values of 0.0816 mg/L, 0.0636 mg/L, and 0.117 mg/L for surface water for the corresponding contaminants. East Bay Municipal Utility District's (EBMUD) wastewater discharge limits for lead, copper and zinc are 2 mg/L, 5 mg/L and 5 mg/L, respectively.

Inspection reports from the Alameda County Urban Runoff Clean Water Program and Alameda County Department of Environmental Health from 1992 through 2006 have indicated the presence of oil-stained soil in unpaved areas of the Site. Poor housekeeping practices were also reported during the same time period. An Oakland Fire Hazardous Materials Inspection Report dated April 2006 indicated that "contaminated soil has been cleaned". The area from which the contaminated soil was cleaned was not specified in the inspection report. It does not appear that confirmation samples were collected after clean up was conducted.

On August 2005, the City of Oakland, as part of the Ettie Street Pump Station Project, collected sediment samples from the Cole Bros. property. The samples were analyzed for polychlorinated biphenyls (PCBs). Analytical results indicated the presence of PCBs with concentrations of 3,814 µg/kg and 1,663 µg/kg. U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) are 0.22 mg/kg and 0.74 mg/kg for residential and industrial use, respectively. Cal-EPA California Human Health Screening Levels (CHHSLs) for PCBs are 89 µg/kg and 300 µg/kg for residential and industrial use, respectively. The sample containing 3,814 µg/kg of PCB was collected in the public right-of-way near the Cole Bros. property.

On October 24, 2006, the Department of Toxic Substances Control collected two surface soil samples in an unpaved area located in the northwest corner of the property. Analysis of the soil samples indicated the presence of arsenic, cadmium, lead and PCBs above CHHSLs for residential use. Arsenic was detected at concentrations up to 27.3 mg/kg. Regional background levels for arsenic is 17 mg/kg. Cadmium was detected at concentrations up to 26.1 mg/kg. PRGs for cadmium are 37 mg/kg and 450 mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for cadmium are 1.7 mg/kg and 7.5 mg/kg, respectively. Lead was detected at concentrations up to 1720 mg/kg. PRGs for lead are 150 mg/kg and 800mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for lead are 150 mg/kg and 3500 mg/kg, respectively. PCBs were detected at concentrations up to 3.4 mg/kg. Residential and commercial/industrial CHHSLs for PCBs are 0.089 mg/kg and 0.30 mg/kg, respectively.

3.0 REGULATORY AND ENFORCEMENT HISTORY

Provide information regarding past and present regulatory and enforcement activity associated with the site. Citations and reference documentation should be included *for **initiation, status, and certification*** documents used for substantiating site status. Web links may be used when accompanying a short narrative regarding what the document in the link states about the site. *Sections 3.1 through 3.4 are limited of 1800 characters (approximately two paragraphs). Responses requiring more space should be included as a reference to this report and identified below with the statement "See Attachment F".*

Primary Regulatory Agency Involved ☐ Federal ☒ State ☐ Local ☐ None

Note: This recommendation should be included on Executive Summary Page

3.1 Regulatory Agencies: Federal

None

3.2 Regulatory Agencies: State

On October 24, 2006, DTSC conducted a site visit at the Cole Bros. property. A site tour was conducted by Mr. Floyd Cole (Cole Bros.) and Mr. Lurie Mattison (Nest Environmental Services). A vehicle storage area was observed in the southeast corner of the property (Figure 1). Mr. Cole indicated that this area is paved with base rock on the surface. A waste oil storage area was located near the vehicles (Figure 2). Mr. Cole and Mr. Nest indicated that the waste oil is stored and disposed off in compliance with all regulatory requirements. The drums were in double containment. No spills were observed. The vehicle dismantling area located in the center of the property appeared relatively clean, with no signs of significant staining on the ground (Figures 3, 4 & 5). This entire area was paved with concrete. DTSC staff collected two surface soil samples in an unpaved area located in the northwest corner of the property (Figures 6 & 7). This area contained various car parts and other debris. Analysis of the soil samples indicated the presence of arsenic, cadmium, lead and PCBs above PRGs and CHHSLs for residential and industrial land use.

3.3 Regulatory Agencies: Local

The Oakland Fire Department Hazardous Materials Management Program conducts regular site inspections. The most recent inspection conducted on May 2006 reported "no violations". Inspections conducted in 2003 indicated oil stained soils. The location of the stained soil was not identified in the inspection report. The inspections also indicated improper storage of auto parts including engines and batteries. An inspection report dated April 2006 indicated that the area of "contaminated soil has been cleaned".

The Alameda County Urban Runoff Clean Water Program conducted an inspection at the Site on June 2004. The inspection report indicated "spilled oil on dirt". It also reported improper storage of used auto parts containing various auto fluids.

The Alameda County Department of Environmental Health Hazardous Materials Division conducted an inspection at the Site on July 1992. The inspection report indicated "spilled oil saturated in lot which was mostly unpaved". It was recommended that the operators "discontinue discharge of oil onto ground" and a "workplan for cleanup of oil [is] required". The County did not receive the required workplan.

Cole Brothers participated in the SWRCB's Storm Water Pollution Prevention Plan program. Stormwater samples collected in December 2002 and October 2004 indicated lead, copper and zinc at concentrations above U.S. EPA's benchmarks levels for storm water discharge for the corresponding contaminants[1]. Stormwater samples exceeded the EBMUD stormwater discharge limit for zinc.

([1] Federal Register / Vol. 65, No. 62 / 3/30/2000 / p. 17032)

On August 2005, the City of Oakland, as part of the Ettie Street Pump Station Project, collected sediment samples from the Cole Bros. property. The samples were analyzed for polychlorinated biphenyls (PCBs). Analytical results indicated the presence of PCBs with concentrations above PRGs and CHHSLs for residential and commercial/industrial use.

3.4 PRP Viability

Maurice & Lucretia Cole, Floyd & Rosemary Cole have owned the property since 1975. They have operated Cole Brothers Auto Wrecking at the Site since 1968.

4.0 SITE PRIORITIZATION WORKSHEET

The following risk-based criteria should be used as a guideline to assist in the prioritization of pre-CERCLIS and CERCLIS sites. These guidelines can be used in various stages of assessment. When interpreting the information provided below, one should understand that conservative assumptions were made where information is lacking and the risk value is subjective.

Site screeners should complete this form by using the categories as guidelines. The "Comments" section should be used to document assumptions made, data sources, or other information pertinent to determining risk prioritization.

4.1 Hazards Identification

Complete the sections below for the suspected contaminants of *greatest* concern. Use SCDMs as a reference for assigning hazardous substance risk category. Assign a Hazard Factor for each hazardous substance evaluated and then assign an Overall Hazard Factor Value combining the separate Hazard Factors. If only one hazardous substance is evaluated, the Overall Hazard Factor Value will be the same as the Hazard Factor for A. The individual conducting the Site screening assessment has the option of evaluating as many substances as deemed necessary so long as the contaminants of greatest concern and concentration are addressed first.

HAZARDOUS SUBSTANCE A1: Lead (stormwater runoff)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☐ >1 and <0.001	☒ >0.001
Bioavailabilty	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark =0.0816 mg/L[1] Highest sample = 0.33 mg/L	☐ near benchmark = Highest sample = _____ ☐ near benchmark = Highest sample = _____	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☐ None	☐ Partial Type= _____	☒ Full Type= stormwater runoff drains offsite to a EBMUD sanitary sewer
Hazard Factor for A1	☐ HIGH	☐ MEDIUM	☒ LOW

[1] Federal Register / Vol. 65, No. 62 / 3/30/2000 / p. 17032

Comments regarding Substance A should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE A2: Lead (surface soil)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☐ >1 and <0.001	☒ >0.001
Bioavailabilty	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark =150 mg/kg[1] (residential); 3500 mg/kg (comm./industrial)[1] Highest sample = 1720 mg/kg	☐ near benchmark = Highest sample = _____ ☐ near benchmark = Highest sample = _____	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☒ None	☐ Partial Type= _____	☐ Full Type=
Hazard Factor for A2	☐ HIGH	☒ MEDIUM	☐ LOW

[1] Cal-EPA CHHSLs, January 2005

Comments regarding Substance A should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE B: Copper (stormwater runoff)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or <5 mil. gals and >50,000 gals; or <25,000 yds^3 and >250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity[2]	☐ <10,000	☐ >10,000 and <100	☐ >100
Mobility	☐ 1	☒ >1 and <0.001	☐ >0.001
Bioavailability	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark =0.0636 mg/L[1] sample = 0.81 mg/L	☐ near benchmark = sample = _____ ☐ near benchmark = sample = _____	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☐ None	☐ Partial Type= _____	☒ Full Type= stormwater runoff drains offsite to a EBMUD sanitary sewer
Hazard Factor for B	☐ HIGH	☐ MEDIUM	☒ LOW

[1] Federal Register / Vol. 65, No. 62 / 3/30/2000 / p. 17032
[2] Toxicity factor for Cu not available in June 1996, US EPA Superfund Chemical Data Matrix

Comments regarding Substance B should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE C: Zinc (stormwater runoff)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or <5 mil. gals and >50,000 gals; or <25,000 yds^3 and >250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☐ >10,000 and <100	☒ >100
Mobility	☐ 1	☒ >1 and <0.001	☐ >0.001
Bioavailabilty	☐ <1,000	☒ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark =0.117 mg/L[1]. 5 mg/L [2] sample = 7.4 mg/L	☐ near benchmark = sample = _____ ☐ near benchmark = sample = _____	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☐ None	☒ Partial Type= stormwater runoff drains offsite to a EBMUD sanitary sewer	☐ Full Type=
Hazard Factor for C	☐ HIGH	☐ MEDIUM	☒ LOW

[1] Federal Register / Vol. 65, No. 62 / 3/30/2000 / p. 17032
[2] EBMUD Stormwater Discharge Limit

Comments regarding Substance C should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE D: Arsenic (surface soil)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☒ >1 and <0.001	☐ >0.001
Bioavailabilty	☐ <1,000	☒ >1,000 and <10	☐ >10
Concentration (if known)	☐ <benchmark = Highest sample =	☒ near benchmark = 17 mg/kg [1] Highest sample = 27.3 mg/kg	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☒ None	☐ Partial Type= _____	☐ Full Type=
Hazard Factor for D	☐ HIGH	☒ MEDIUM	☐ LOW

[1] Lawrence Berkeley National Laboratory, Analysis of Background Distribution of Metals in the Soil at Lawrence Berkeley National Laboratory, 2002.

Comments regarding Substance D should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE E: Cadmium (surface soil)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☒ >1 and <0.001	☐ >0.001
Bioavailabilty	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark = 1.7 mg/kg (residential)[1]; 7.5 mg/kg (comm./industrial)[1] Highest sample = 26.1 mg/kg	☐ near benchmark = Highest sample =	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☒ None	☐ Partial Type= _____	☐ Full Type=
Hazard Factor for E	☐ HIGH	☒ MEDIUM	☐ LOW

[1] Cal-EPA CHHSLs, January 2005

Comments regarding Substance E should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE F: Polychlorinated Biphenyls (sediment)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☐ >1 and <0.001	☒ >0.001
Bioavailabilty	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark = 0.089 mg/kg (residential)[1]; 0.30 mg/kg (comm./industrial)[1] Highest sample = 1.663 mg/kg	☐ near benchmark = Highest sample =	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☒ None	☐ Partial Type= _____	☐ Full Type=
Hazard Factor for F	☐ HIGH	☒ MEDIUM	☐ LOW

[1] Cal-EPA CHHSLs, January 2005

Comments regarding Substance F should be included in "Comments" section at the end of this section.

HAZARDOUS SUBSTANCE G: Polychlorinated Biphenyls (surface soil)

Estimate the risk associated with the hazard properties for this hazardous substance.

Hazard Property	HIGH	MEDIUM	LOW
Quantity	☐ <10,000 lbs; or 5 mil. gals; or 25,000 yds^3	☐ >10,000 lbs and <100 lbs; or >5 mil. gals and <50,000 gals; or >25,000 yds^3 and <250 yds^3	☒ >100 lbs. or 50,000 gals. or 250 yds^3
Toxicity	☐ <10,000	☒ >10,000 and <100	☐ >100
Mobility	☐ 1	☐ >1 and <0.001	☒ >0.001
Bioavailability	☒ <1,000	☐ >1,000 and <10	☐ >10
Concentration (if known)	☒ <benchmark = 0.089 mg/kg (residential)[1]; 0.30 mg/kg (comm./industrial)[1] Highest sample = 3.4 mg/kg	☐ near benchmark = Highest sample =	☐ low relative to benchmark Highest sample = _____ ☐ low relative to benchmark Highest sample = _____
Level of Containment	☒ None	☐ Partial Type= _____	☐ Full Type=
Hazard Factor for F	☐ HIGH	☒ MEDIUM	☐ LOW

[1] Cal-EPA CHHSLs, January 2005

OVERALL HAZARD FACTOR VALUE (Pick one only):

☐ HIGH ☒ MEDIUM ☐ LOW

COMMENTS SUPPORTING HAZARDOUS SUBSTANCES EVALUATED ABOVE:

Haz. Substance	Hazard Property and Comment
Lead (surface water & soil)	Lead was detected in a stormwater samples at 0.33 mg/L. The EPA Benchmark level for stormwater discharge for lead is 0.0816 mg/L. EBMUD Wastewater Discharge Limit concentration for lead is 2 mg/L. Lead was also detected in shallow soils at concentrations up to 1720 mg/kg. PRGs for lead are 150 mg/kg and 800mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for lead are 150 mg/kg and 3500 mg/kg, respectively.
Copper (surface water)	Copper was detected in a stormwater samples at 0.81 mg/L. The EPA Benchmark level for stormwater discharge for copper is 0.0636 mg/L. EBMUD Wastewater Discharge Limit concentration for copper is 5 mg/L.
Zinc (surface water)	Zinc was detected in a stormwater samples at 7.4 mg/L. The EPA Benchmark level for stormwater discharge for zinc is 0.117 mg/L. EBMUD Wastewater Discharge Limit concentration for copper is 5 mg/L.
Arsenic (soil)	Arsenic was detected at concentrations up to 27.3 mg/kg. Regional background levels for arsenic is 17 mg/kg.
Cadmium (soil)	Cadmium was detected at concentrations up to 26.1 mg/kg. PRGs for cadmium are 37 mg/kg and 450 mg/kg for residential and industrial land use, respectively. Residential and commercial/industrial CHHSLs for cadmium are 1.7 mg/kg and 7.5 mg/kg, respectively.
PCBs (sediment & soil)	PCBs were detected in sediment at concentrations of 3,814 µg/kg and 1,663 µg/kg. Two surface soil samples collected by DTSC contained PCB concentrations of 2.0 mg/kg and 3.4 mg/kg. PRGs for PCBs are 0.22 mg/kg and 0.74 mg/kg for residential and industrial use, respectively. Cal-EPA California Human Health Screening Levels (CHHSLs) for PCBs are 89 µg/kg and 300 µg/kg for residential and industrial use, respectively. The sample containing 3,814 µg/kg of PCB was collected in the public right-of-way near the Cole Bros. property.

4.2 Vulnerability Analysis

Assign a risk category to each of the following vulnerability factors. Assign an Overall Vulnerability Factor Value for the site based on the dominant vulnerability risk categories.

Vulnerability Factor	High	Medium	Low
1. Environmental Setting - Land use within 0.5 miles of the site	☒ Residential	☐ Agricultural/ Commercial	☐ Industrial
2. Sensitive Populations - Children, the elderly, or groups with poor health live:	☒ Within 0.25 miles of site		☐ More than 0.25 miles from site
3. Population Density - Evaluate within 0.5 miles.	☐ Dense	☒ Moderate	☐ Sparse
4. Groundwater Use - Wells used for drinking water are located:	☐ Within 0.5 miles of the site	☐ 0.5 to 2 miles from site	☒ More than 2 miles from site
5. Groundwater Contamination - Evaluate groundwater contamination within 2 miles of the site.	☒ Known	☐ Possible	☐ Not likely
6. Surface Water Location - Distance to nearest surface water body. If used for drinking water or known to be contaminated, bump to next higher risk category.	☐ Within 0.5 miles of the Site	☒ 0.5 to 2 miles from site	☐ More than 2 miles from site
7. Sensitive Habitats - Distance to nearest sensitive habitat. If known or projected contamination within habitat, bump to next higher risk category.	☐ Within 0.5 miles of the site	☐ 0.5 to 2 miles from site	☒ More than 2 miles from site
8. Soil/Air Contamination - Evaluate the potential for exposure to individuals from contaminated soil or air releases.	☐ Documented or probable exposure	☒ Potential for exposure	☐ Exposure not likely
9. Sampling Data Confidence - Evaluate the quality of any data available for the site.	☐ No oversight; no QA/QC; no data	☒ Regulatory oversight; EPA methods; partial or unknown QA/QC	☐ Regulatory oversight; EPA methods; QA/QC validation

OVERALL VULNERABILITY FACTOR VALUE (Pick one only):

☐ HIGH ☒ MEDIUM ☐ LOW

COMMENTS SUPPORTING VULNERABILITY FACTOR EVALUATED ABOVE:

Vulnerabity Factor #	Comments (Character max = 300)
1	The Cole Brothers property is located in a mixed light industrial-residential area of West Oakland.
2	It is very likely that children and elderly live in the surrounding residences.

5	The Northwestern Venetian Supply Corp. Site is located approximately one-mile southeast of the Cole Brothers Property. Groundwater beneath the Northwestern Venetian Site has confirmed benzene, 1,1,1-TCA and TCE contamination. Groundwater direction in area generally flows towards Oakland Inner Harbor.

4.3 Other Influencing Factors Matrix

Assign a high, medium, or low priority category to each of the following factors and then use these factors to help make preliminary recommendations in Section 5. A high priority influence may indicate that a Preliminary Assessment should be conducted as a high priority without regard to other screening factors. A low priority influence given for removal, regulatory, and Brownfields activities must be substantiated with citations to "initiation", "remediation", and "certification" documentation.

Other Influences	High	Medium	Low
1. Site remedial/ removal history	☐ None	☐ Some	☒ All wastes removed
2. Regulatory involvement	☐ No involvement	☐ Somewhat involved	☒ Other agency currently active
3. Brownfields/Redevelopment	☐ Possible candi-date		☒ Not a likely candidate
4. Environmental justice	☒ Site is in low income/minority neighborhood		☐ Site is not in low income or minority neighborhood
5. Political attention	☐ Very visible/vocal	☐ Some involvement	☒ None
6. Public attention	☐ Very visible/vocal	☐ Some involvement	☒ None
7. Remedial Costs	☐ Likely very expensive or difficult		☒ Easy and relatively cheap

OTHER INFLUENCING FACTORS CATEGORY (Pick one only):

☐ HIGH ☐ MEDIUM ☒ LOW

Other Influence and letter reference	Citation
1,2,4	Waste oil-contaminated soil identified onsite and reported in separate inspection reports by the Oakland Fire Department Hazardous Materials Unit (OFDHMU), the Alameda County Urban Runoff Clean Water Program and the Alameda County Department of Environmental Health. An inspection reported conducted by OFDHMU in April 2006 indicated that contaminated soil has been cleaned. On August 2005, the City of Oakland, as part of the Ettie Street Pump Station Project, collected sediment samples from the Cole Bros. property. The samples were analyzed for polychlorinated biphenyls (PCBs). Analytical results indicated the presence of PCBs with concentrations of 3,814 µg/kg and 1,663 µg/kg. Cal-EPA California Human Health Screening Levels (CHHSLs) for PCBs are 89 µg/kg and 300 µg/kg for residential and industrial use, respectively. On August 2005, the City of Oakland, as part of the Ettie Street Pump Station Project, collected sediment samples from the Cole Bros. property. The samples were analyzed for polychlorinated biphenyls (PCBs). Analytical results indicated the presence of PCBs with concentrations of 3,814 µg/kg and 1,663 µg/kg. U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) are 0.22 mg/kg and 0.74 mg/kg for residential and industrial use, respectively. Cal-EPA California Human Health Screening Levels (CHHSLs) for PCBs are 89 µg/kg and 300 µg/kg for residential and

	industrial use, respectively. The sample containing 3,814 µg/kg of PCB was collected in the public right-of-way near the Cole Bros. property. On October 24, 2006, the Department of Toxic Substances Control collected two surface soil samples in an unpaved area located in the northwest corner of the property. Analysis of the soil samples indicated the presence of arsenic, cadmium, lead and PCBs above CHHSLs for residential use. Arsenic was detected at concentrations up to 27.3 mg/kg. Regional background levels for arsenic is 17 mg/kg. Cadmium was detected at concentrations up to 26.1 mg/kg. PRGs for cadmium are 37 mg/kg and 450 mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for cadmium are 1.7 mg/kg and 7.5 mg/kg, respectively. Lead was detected at concentrations up to 1720 mg/kg. PRGs for lead are 150 mg/kg and 800mg/kg for residential and industrial use, respectively. Residential and commercial/industrial CHHSLs for lead are 150 mg/kg and 3500 mg/kg, respectively. PCBs were detected at concentrations up to 3.4 mg/kg. Residential and commercial/industrial CHHSLs for PCBs are 0.089 mg/kg and 0.30 mg/kg, respectively.

4.4 Overall Ranking of Site Risk

Rankings below reflect the professional judgement of the person conducting the Site Screening Assessment (SSA). Information used to draw such conclusions is found in the body and attachments of this document. All CERCLA Eligible sites with a High, Medium, or Low Overall Site Priority Level require a Triage Form (Attachment G) to be completed.

HAZARD FACTOR VALUE (4.1)	☐	HIGH	☒	MEDIUM	☐	LOW
VULNERABILITY FACTOR VALUE (4.2)	☐	HIGH	☒	MEDIUM	☐	LOW
OTHER INFLUENCING FACTORS (4.3)	☐	HIGH	☐	MEDIUM	☒	LOW
OVERALL SITE PRIORITY LEVEL	☐	HIGH	☒	MEDIUM	☐	LOW

Note: This recommendation should be included on Executive Summary Page

Attachment A

SITE SCREENING ASSESSMENT CONTACT LOG

Site Name: Cole Brothers Auto Wrecking **Site Screener:** Edgardo Gillera

Contact Name	Affiliation	Telephone Number	Date	Discussion
1) Cole Bros. Auto Wrecking	Site Owners/Operators	510-444-4359	07/28/06	Information letter sent by DTSC. Response sent by NEST Environmental Services on behalf of Cole Bros. on 08/31/06.
2) Melinda Wong	RWQCB	510-622-2430	09/12/06	File review request. No files were available.
3) Roseanna Garcia	Alameda County Environmental Health Dept.	510-777-2149	09/27/06	File review request. No files were available.
4) Vihbor Jain	Oakland Office of Emergency Services	510-238-7491	09/15/06	File review request. Appointment set for 09/20/06. Files reviewed.
5) Laurie Mattison	Nest Environmental Services	650-938-3012	10/10/06	Cole Bros. consultant. Contact to schedule site visit. Site visit w/ sampling on 10/24/06.

PRIVLEGED AND CONFIDENTIAL – DELIBERATIVE

Attachment B

SITE EVALUATION MAP AND BACKUP
COVER PAGE

COLE BROS. AUTO WRECKERS CAN000908447

Latitude: 37 48 45.12 Longitude: 122 17 00.83,

EPA Region 9 GIS Center

PRODUCED BY: USEPA Region 9 GIS Center

DATE: November 13, 2006

SOURCES:

Population Density:
PL94-171, Bureau of the Census, 2000 Census

Drinking Water Supply:
California Dept. of Health, 2004

Endangered/Threatened Species:
Natural Diversity Database, Ca. Dept. of Fish & Game, 2004

▲ Drinking Water Supply Wells

● Threatened and Endangered Species

Population Density per Square Mile by Census Block

- 0
- < 1000
- 1001-5000
- 5001-15,000
- 15,001-30,000
- > 30,000

N
W E
S

CONFIDENTIAL

NOTE: Radius in Miles.

SITE REPORT FOR STATE OF CALIFORNIA
November 13, 2006

Site Name: COLE BROS. AUTO WRECKERS 'CAN000908447'

Latitude: 37 48 45.12 Longitude: 122 17 00.83

Sources:

Population Density: PL94-171, US Bureau of the Census (2000 Census)
Endangered Species: Natural Diversity Database, California Dept. of Fish & Game 2004
(CONFIDENTIAL) Drinking Water Supply Wells: Water Quality Monitoring Database, California Dept. of Health Services, 2004

****
SITE POPULATION SUMMARY:
****

RADIUS DISTANCE FROM SOURCE	CUMULATIVE POPULATION
1/4 Mile	2687
1/2 Mile	7817
1 Mile	28329
2 Mile	88914
3 Mile	189708
4 Mile	312975
5 Mile	425946
10 Mile	1280269
15 Mile	2224753

****
DRINKING WATER WELLS:
****

CONFIDENTIAL
WELL NO. WELL NAME SYSTEM NAME LATITUDE LONGITUDE
.....
- WATER SOURCE POPULATION SERVED SOURCE ORIGIN WELL STATUS

1/4 Mile Radius from Site

1/4 to 1/2 Mile Radius from Site

1/2 to 1 Mile Radius from Site
---

1 to 2 Mile Radius from Site
---

2 to 3 Mile Radius from Site
---

3 to 4 Mile Radius from Site
---

4 to 5 Mile Radius from Site

- Groundwater 70, TREATMENT PLANT,ACTIVE TREATED
0707644-001,WELL HEAD,EBRPD ALHAMBRA,0 0
- Groundwater 70, GROUND WATER,ACTIVE RAW
0110005-012,WALNUT CREEK WTP-MOKULUMNE AQUEDUCT-TRTD,East Bay MUD,0 0
- Surface Water 1200000, SURFACE WATER,ACTIVE TREATED
2110350-001,MMWD - METER,NPS GGNRA,0 0
- Surface Water 100, PURCHASED SURFACE WATER,
0707617-001,WELL HEAD,WILDWOOD ACRES RESORT,0 0
- Groundwater 90, GROUND WATER,ACTIVE UNTREATED
3810700-006,PRESIDIO WTP - TREATED,Presidio of San Francisco,0 0
- Surface Water 1500, TREATMENT PLANT,ACTIVE TREATED
3810700-002,WELL 06 - ABANDONED,Presidio of San Francisco,0 0
- Groundwater 1500, GROUND WATER,ABANDONED
3810700-001,WELL 02 - ABANDONED,Presidio of San Francisco,0 0
- Groundwater 1500, GROUND WATER,ABANDONED
3810700-003,WELL 13 - ABANDONED,Presidio of San Francisco,0 0
- Groundwater 1500, GROUND WATER,ABANDONED
3810700-004,LOBOS CREEK,Presidio of San Francisco,0 0
- Surface Water 1500, SURFACE WATER,ACTIVE RAW
0706111-001,WELL HEAD,EBRPD LITTLE HILLS,0 0
- Groundwater 50, GROUND WATER,ACTIVE UNTREATED
3810001-005,LAKE MERCED-RAW - INACTIVE,San Francisco Regional Water System,0 0
- Surface Water 600, SURFACE WATER,INACTIVE RAW
4110013-002,WELL 02 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
4110013-001,WELL 01 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
0110005-002,CHABOT LAKE,East Bay MUD,0 0
- Surface Water 1200000, SURFACE WATER,ACTIVE RAW
0103041-001,WELL 01,Trailer Haven Mobilehome Park,0 0
- Groundwater 240, GROUND WATER,ACTIVE RAW
0103041-002,WELL O1 - TREATED,Trailer Haven Mobilehome Park,0 0
- Groundwater 240, TREATMENT PLANT,ACTIVE TREATED
4110013-003,WELL 03 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
4110013-008,WELL 11 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
4110013-801,WELL 10 - CHLORINATED,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-005,WELL 08 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
4110013-007,WELL 10,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,ACTIVE RAW
4110013-006,WELL 09 - INACTIVE,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,INACTIVE UNTREATED
4110013-807,WESTLAKE - NO3 BLEND,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-804,WESTLAKE - CHLORINATION,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-802,JEFFERSON - CHLORINATED,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-010,JEFFERSON WELL,City of Daly City,0 0
- Groundwater 103000, GROUND WATER,ACTIVE RAW
4110013-800,WELL 04 - CHLORINATED,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-806,CITRUS - NO3 BLEND,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-004,WELL 04 (CITRUS),City of Daly City,0 0
- Groundwater 103000, GROUND WATER,ACTIVE RAW
4110013-803,VALE WELL - CHLORINATED,City of Daly City,0 0
- Groundwater 103000, TREATMENT PLANT,ACTIVE TREATED
4110013-011,VALE WELL,City of Daly City,0 0

SPECIES OF CONCERN

1	1883	bent-flowered fiddleneck	amsinckia lunaris
1	1883	saline clover	trifolium depauperatum var. hydrophilum
1	1881	San Francisco Bay spineflower	chorizanthe cuspidata var. cuspidata
1	1980	'Kellogg''s horkelia'	horkelia cuneata ssp. sericea

NONE

1	1891	round-leaved filaree	erodium macrophyllum

1/4 to 1/2 Mile Radius from Site

1/2 to 1 Mile Radius from Site

---

1 to 2 Mile Radius from Site

ENDANGERED

1	1999	California clapper rail	rallus longirostris obsoletus
1	1900	tidewater goby	eucyclogobius newberryi
1	1986	salt-marsh harvest mouse	reithrodontomys raviventris

THREATENED

1	1976	Santa Cruz tarplant	holocarpha macradenia

SPECIES OF CONCERN

1	1999	California black rail	laterallus jamaicensis coturniculus
1	2002	alkali milk-vetch	astragalus tener var. tener
1	1990	'Point Reyes bird''s-beak'	cordylanthus maritimus ssp. palustris

NONE

1	2003	'Cooper''s hawk'	accipiter cooperii
1	1977	Northern Coastal Salt Marsh	northern coastal salt marsh
1	0	**********	tryonia imitator

---

2 to 3 Mile Radius from Site

ENDANGERED

1	1996	California least tern	sterna antillarum browni

THREATENED

1	1916	Santa Cruz tarplant	holocarpha macradenia

SPECIES OF CONCERN

1	1922	California black rail	laterallus jamaicensis coturniculus

NONE

1	1894	round-leaved filaree	erodium macrophyllum

---

3 to 4 Mile Radius from Site

11	2002	Alameda whipsnake	masticophis lateralis euryxanthus
3	1980	Bay checkerspot butterfly	euphydryas editha bayensis
10	2002	Santa Cruz tarplant	holocarpha macradenia
9	2001	pallid manzanita	arctostaphylos pallida
3	1986	Marin western flax	hesperolinon congestum
SPECIES OF CONCERN			
1	1997	foothill yellow-legged frog	rana boylii
1	1990	snowy egret	egretta thula
1	1990	white-tailed kite	elanus leucurus
1	1995	California black rail	laterallus jamaicensis coturniculus
2	1983	burrowing owl	athene cunicularia
1	1995	saltmarsh common yellowthroat	geothlypis trichas sinuosa
2	1980	Sacramento perch	archoplites interruptus
2	1985	salt-marsh wandering shrew	sorex vagrans halicoetes
3	1938	Berkeley kangaroo rat	dipodomys heermanni berkeleyenis
3	0	'Bridges'' coast range shoulderband (snail)'	helminthoglypta nickliniana bridgesi
1	1895	adobe sanicle	sanicula maritima
2	1988	San Francisco gumplant	grindelia hirsutula var. maritima
11	1996	Diablo helianthella	helianthella castanea
1	1958	'Congdon''s tarplant'	centromadia parryi ssp. congdonii
1	1968	Santa Cruz microseris	stebbinsoseris decipiens
4	1998	bent-flowered fiddleneck	amsinckia lunaris
1	1997	San Francisco popcorn-flower	plagiobothrys diffusus
2	1991	most beautiful jewel-flower	streptanthus albidus ssp. peramoenus
1	1893	coastal bluff morning-glory	calystegia purpurata ssp. saxicola
2	1942	Franciscan manzanita	arctostaphylos hookeri ssp. franciscana
3	1937	alkali milk-vetch	astragalus tener var. tener
1	1865	Loma Prieta hoita	hoita strobilina
2	1995	robust monardella	monardella villosa ssp. globosa
4	0	Oregon meconella	meconella oregana
1	1912	San Francisco Bay spineflower	chorizanthe cuspidata var. cuspidata
1	1885	rose linanthus	linanthus rosaceus
1	1902	round-headed chinese houses	collinsia corymbosa
1	1991	'Point Reyes bird''s-beak'	cordylanthus maritimus ssp. palustris
1	1881	'San Francisco owl''s-clover'	triphysaria floribunda
6	1938	fragrant fritillary	fritillaria liliacea
1	1983	Point Reyes rein orchid	piperia elegans ssp. decurtata
NONE			
1	1990	black-crowned night heron	nycticorax nycticorax
1	1993	golden eagle	aquila chrysaetos
1	1990	Caspian tern	sterna caspia
1	0	Angel Island mole	scapanus latimanus insularis
3	1992	western pond turtle	emys (=clemmys) marmorata
2	1992	Northern Maritime Chaparral	northern maritime chaparral
1	1975	Valley Needlegrass Grassland	valley needlegrass grassland
1	1986	Serpentine Bunchgrass	serpentine bunchgrass
2	1985	Northern Coastal Salt Marsh	northern coastal salt marsh
9	1998	monarch butterfly	danaus plexippus
2	0	coastal triquetrella	triquetrella californica
2	1891	round-leaved filaree	erodium macrophyllum

1	1957	compact cobwebby thistle	cirsium occidentale var. compactum
12	1988	San Francisco gumplant	grindelia hirsutula var. maritima
25	2002	Diablo helianthella	helianthella castanea
1	1998	'Congdon''s tarplant'	centromadia parryi ssp. congdonii
3	1963	bent-flowered fiddleneck	amsinckia lunaris
1	1987	San Francisco popcorn-flower	plagiobothrys diffusus
1	1924	hairless popcorn-flower	plagiobothrys glaber
3	1985	San Francisco campion	silene verecunda ssp. verecunda
1	0	Franciscan manzanita	arctostaphylos hookeri ssp. franciscana
3	1995	San Bruno Mountain manzanita	arctostaphylos imbricata
1	1980	Montara manzanita	arctostaphylos montaraensis
2	2002	alkali milk-vetch	astragalus tener var. tener
1	2001	Northern California black walnut	juglans hindsii
11	1992	San Francisco Bay spineflower	chorizanthe cuspidata var. cuspidata
4	1989	'Kellogg''s horkelia'	horkelia cuneata ssp. sericea
5	1990	'Point Reyes bird''s-beak'	cordylanthus maritimus ssp. palustris
5	1985	'San Francisco owl''s-clover'	triphysaria floribunda
2	1990	fragrant fritillary	fritillaria liliacea

NONE

3	2000	double-crested cormorant	phalacrocorax auritus
2	1990	great blue heron	ardea herodias
1	1988	great egret	ardea alba
1	1988	black-crowned night heron	nycticorax nycticorax
1	1986	northern harrier	circus cyaneus
1	1999	'Cooper''s hawk'	accipiter cooperii
1	1994	black skimmer	rynchops niger
1	1986	short-eared owl	asio flammeus
1	2000	yellow warbler	dendroica petechia brewsteri
8	1986	San Pablo vole	microtus californicus sanpabloensis
6	2000	western pond turtle	emys (=clemmys) marmorata
1	1986	Northern Maritime Chaparral	northern maritime chaparral
1	1975	Coastal Terrace Prairie	coastal terrace prairie
1	1991	Valley Needlegrass Grassland	valley needlegrass grassland
3	1989	Serpentine Bunchgrass	serpentine bunchgrass
6	1987	Northern Coastal Salt Marsh	northern coastal salt marsh
1	1987	Coastal Brackish Marsh	coastal brackish marsh
1	1984	Tomales isopod	caecidotea tomalensis
8	1998	monarch butterfly	danaus plexippus
5	1993	Mt. Diablo fairy-lantern	calochortus pulchellus

PRIVLEGED AND CONFIDENTIAL – DELIBERATIVE

Attachment C

SITE SCREENING ASSESSMENT OBSERVATION RECORD

Site Name: Cole Brothers Auto Wrecking **Site Screener:** Edgardo Gillera
EPA ID Number: n/a **Date:** _____

1. Status:
Active X
Inactive _____
Different Company _____

2. Setting:
Residential X
Industrial X
Paved X (small area in southern portion of the property is unpaved)
Restricted access X
Near RR Tracks X
Commercial X
Agricultural _____
Unpaved _____
Unrestricted access _____
Near drainage _____

Vegetation grass around the perimeter of the property
Topography Flat

3. Visibility: _____

4. Waste Description:

Containment:

Pond _____	Pit _____	Ditch _____
Drums X	Tanks _____	Buckets _____
Trash can X	Dumpster X	Sacks _____
Piles _____	Scattered X	Other _____

Stored On:

Bare Ground _____	Asphalt _____	Pallets X
Gravel _____	Concrete X	Other _____

Waste Type:

Inert _____	Garbage _____	Liquid X
Solid X	Sludge X	Gas _____

Describe quantities, labeling, colors, odors, etc.:

5. Distance to surface water and sensitive environments or ecosystems:

San Francisco Bay is located approximately 1.5 miles east of the Site.

6. Proximity to residences, schools, day care facilities, hospitals, nursing homes, etc.:

The Site is located in a mixed light-industrial and residential neighborhood. Prescott Early Childhood Center is located approximately 1-mile southeast of the Site.

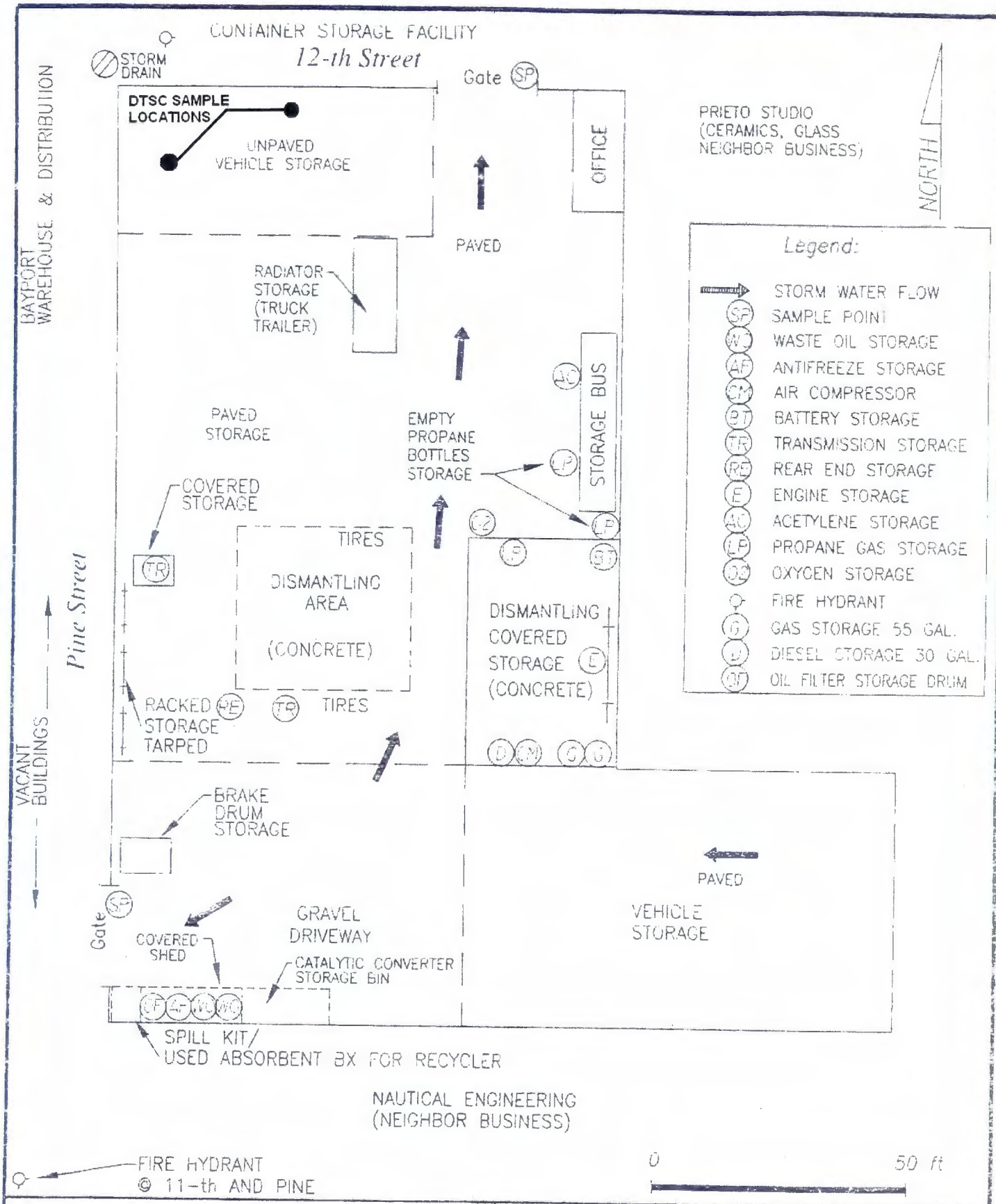
7. Estimated number of people living or working in the area: 500-1000

8. Distance to food processing/packaging or agricultural production: n/a

9. Additional Information:

10. Sketch a diagram of the facility with relevant features and labels.

(see attached figures)



NEST Environmental Services

1040 Grant Road, Suite 155–PMB 325
Mountain View, CA 94040–3296
Phone: (650) 938–3012, Fax: (650) 968–8633

COLE BROTHERS AUTO WRECKING

Oakland, CA Alameda County

DRAWN: Vlad Zarici	CHECKED: Laurie Mattison
ACADFILE: colebrswrk.dwg	DATE: 03.09.06

STORM WATER SITE MAP

SITE MAP
COLE BROTHERS AUTO WRECKING
1797 12TH ST., OAKLAND, CA 94607

Figure 1: View of vehicle storage area in southeast corner of the property

Figure 2: Waste oil storage area in southeast corner of property

Figure 3: View of vehicle dismantling area facing east

Figure 4: View of vehicle dismantling area facing west

Figure 5: View of vehicle dismantling area facing north

Figure 6: Unpaved vehicle storage area in northwest corner of property

Figure 7: Unpaved storage area in northwest corner of property

Attachment D

SITE TYPE – PRIMARY/SECONDARY ACTIVITY FORM

Fed Fac Indicator: ☐ Federal Facility ☒ Not A Federal Facility ☐ Status Undetermined

RCRA Status: ☒ Generator ☐ TSDF ☐ Transporter ☐ Not listed in RCRIS

SITE TYPES **(Designate <u>one</u> dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.) Site type designations for both primary & secondary should pertain to the operation(s) on site of environmental consequence.**

P C	S S	Manufacturing/Processing/Maintenance (Subcategory)
☐	☐	Chemicals and allied products
☐	☐	Coal gasification
☐	☐	Coke production
☐	☐	Electric power generation and distribution
☐	☐	Electronic/electrical equipment
☐	☐	Fabrics/textiles
☐	☐	Lumber and wood products/pulp and paper
☐	☐	Lumber and wood products/wood preserving/treatment
☐	☐	Metal fabrication/finishing/coating and allied industries
☐	☐	Oil and gas
☐	☐	Ordnance production
☐	☐	Plastics and rubber products
☐	☐	Primary metals/minerals processing
☐	☐	Radioactive products
☐	☐	Tanneries
☐	☐	Trucks/ships/trains/aircraft and related components

P C	S S	Waste Management (Subcategory)
☐	☐	Radioactive waste treatment, storage, disposal
☐	☐	Municipal solid waste landfill
☐	☐	Mine tailings disposal
☐	☐	Industrial waste landfill
☐	☐	Industrial waste facility (non generator)
☐	☐	Illegal disposal/open dump
☐	☐	Co-disposal landfill (municipal and industrial)

P C	S S	Other (Subcategory)
☐	☐	Agricultural
☐	☐	Contaminated sediment site with no identifiable source
☐	☐	Dust control
☐	☐	Ground water plume site with no identifiable source
☐	☐	Military/other ordinance
☐	☐	Product storage/distribution
☐	☐	Research, development, and testing facility
☐	☐	Retail/commercial
☐	☐	Spill or other one time event
☐	☐	Transportation (e.g. railroad yards, airports, barge docking site
☐	☐	Treatment works/septic tanks/other sewage treatment

P C	S S	Mining (Subcategory)
☐	☐	Coal
☐	☐	Metals
☐	☐	Non-metals minerals
☐	☐	Oil and gas

P C	S S	Recycling (Subcategory)
☒	☐	Automobiles/tires
☐	☐	Batteries/scrap metals/secondary smelting/precious metal recovery
☐	☐	Chemicals/chemicals waste (e.g. solvent recovery)
☐	☐	Drums/tanks
☐	☐	Waste/used oil

SITE TYPES **(Designate <u>one</u> dominant primary category (*PC*). Designate all secondary subcategories (*SS*) that apply.)**

Attachment E

SITE SCREENING ASSESSMENT SAMPLING EVENT SUMMARY TABLE

Site Name: Cole Brothers Auto Wrecking **Site Screener:** Edgardo Gillera

Date	Event	Media	Location	Depth	Method	Quality	Result	Benchmark
December 2002	Stormwater sampling	Surface water	Onsite	n/a	EPA 200.7	High	Lead = 0.70 mg/L	0.0816 mg/L [1]
							Copper = 0.38 mg/L	0.0636 mg/L [1]
							Zinc = 1.7 mg/L	0.117 mg/L [1]
October 2004	Stormwater sampling	Surface water	Onsite	n/a	EPA 200.7	High	Lead = 0.33 mg/L	0.0816 mg/L [1]
							Copper = 0.81 mg/L	0.0636 mg/L [1]
							Zinc = 7.4 mg/L	0.117 mg/L [1]
August 2005	Sediment sampling	Sediment	Onsite	n/a	EPA 8082	High	PCB = 1.663 mg/kg	0.089 mg/kg (res.); 0.30 mg/kg (ind.) [2]
			Public Right-of-Way	n/a	EPA 8082	High	PCB = 3.814 mg/kg	0.089 mg/kg (res.); 0.30 mg/kg (ind.) [2]
October 2006	Soil sampling	Surface soil	Onsite	0-6 inches below ground surface (bgs)	EPA 6010	High	Arsenic = 27.3 mg/kg	17.1 mg/kg [3]
								0.62 mg/kg (res.); 0.25 mg/kg (ind.) [4]

October 2006	Soil sampling	Surface soil	Onsite	0-6 inches below ground surface (bgs)	EPA 6010	High	Cadmium = 27.3 mg/kg	1.7 mg/kg (res.); 7.5 mg/kg (ind.) [2] 37 mg/kg (res.); 450 mg/kg (ind.)[4]
							Lead = 1720 mg/kg	150 mg/kg (res.); 3500 mg/kg (ind.) [2] 150 mg/kg (res.); 800 mg/kg (ind.)[4]
					EPA 8082	High	PCB = 3.4 mg/kg	0.089 mg/kg (res.); 0.30 mg/kg (ind.) [2] 0.22 mg/kg (res.); 0.74 mg/kg (ind.)[4]

[1] Federal Register / Vol. 65, No. 62 / 3/30/2000 / p. 17032
[2] Cal-EPA CHHSLs, 2005
[3] Lawrence Berkeley National Laboratory, Analysis of Background Distribution of Metals in the Soil at Lawrence Berkeley National Laboratory, 2002
[4] U.S. EPA Region IX Preliminary Remediation Goals

Key:

Date - Date sample was collected.
Event - Who did it and why?
Media - e.g., groundwater, soil, air, etc.
Sample Location - Physical location with respect to source (e.g., up- or down gradient).

Sample Depth - For soil, depth below ground surface sample was collected. For groundwater, depth of well screen.
Method - Analytical testing method used.

Data Quality - QA/QC level (high, medium, or low)
Result - Analytical results (parameter/value, units)
Benchmark - Risk-based benchmark for parameters in the same units as results. Identify which benchmark used (e.g. soil PRG, water MCL).

Attachment F

ENFORCEMENT AND REGULATORY AGENCY REFERENCE DOCUMENTATION COVER PAGE

REFERENCES:

- Response to Information Request provided by Nest Environmental Services on behalf of Cole Brothers Auto Wrecking, August 31, 2006.

- Files from file review at Oakland Office of Emergency Services, September 15, 2006.

- Kleinfelder, Inc., Private Property Sediment Sampling Report, Ettie Street Watershed, Oakland, CA, January 25, 2006.

- Cal-EPA, DTSC Environmental Chemistry Laboratory, Analytical Laboratory Report from Surface Soil Sampling, November 2, 2006.

NEST Environmental Services

1040 Grant Road, Suite 155, PMB 325, Mountain View, California 94040-3296 8-31-06

To: Ryan Miya
DTSC - Berkeley

Re: Cole Bros Auto Wrecking - Oakland
Hazardous Substances Information Request

As per our conversation regarding this facility, I have enclosed a copy of their HMBP & SWPPP, including past storm water runoff sampling which is required every other year as a member of a Group Monitoring Program.

Cole Brothers has been operational since 1965 and, to their knowledge, no significant spills have occurred, nor have they had any other requests to analyze soil, surface water or groundwater.

Should you have further questions regarding this facility, please contact me.

Sincerely,

Carrie Mattson, NEST
for Cole Bros.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
SITE MITIGATION BRANCH
BERKELEY
SEP 06 2006
STATE OF CALIFORNIA
EPA
RECEIVED

Phone: (650) 938-3012 / (800) 699-NEST (6378), Fax: (650) 968-6633

UNIFIED PROGRAM CONSOLIDATED FORM
ALAMEDA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH

BUSINESS OWNER/OPERATOR IDENTIFICATION

I. IDENTIFICATION

FACILITY ID # 01 000 BEGINNING DATE: 2/1/06 ENDING DATE: 2/1/07

BUSINESS NAME: COLE BROTHERS AUTO WRECKING BUSINESS PHONE: 510-444-4359

BUSINESS SITE ADDRESS : 1797 12TH STREET

CITY: OAKLAND STATE: CA ZIP CODE: 94607

DUN & BRADSTREET SIC CODE: 5015

COUNTY: ALAMEDA

BUSINESS OPERATOR NAME: FLOYD COLE BUSINESS OPERATOR PHONE 510-444-4359

II. BUSINESS OWNER

OWNER NAME: FLOYD COLE OWNER PHONE: 510-444-4359

OWNER MAILING ADDRESS: 1797 12TH STREET

CITY: OAKLAND STATE: CA ZIP CODE: 94607

II. ENVIRONMENTAL CONTACT

OWNER NAME: FLOYD COLE CONTACT PHONE: 510-444-4359

CONTACT MAILING ADDRESS: 1797 12 TH STEET

CITY: ALAMEDA STATE: CA ZIP CODE: 94607

1V. EMERGENCY CONTACTS

-PRIMARY-	-SECONDARY-
NAME: FLOY D COLE	NAME: MAURICE COLE
TITLE: OWNER	TITLE: OWNER
BUSINESS PHONE: 510-444-5369	BUSINESS PHONE: 510-444-5369
24-HOUR PHONE:510-333-5422	24-HOUR PHONE: 510-910-5513
PAGER #:	PAGER #:

ADDITIONAL LOCALLY COLLECTED INFORMATION

[X] check here if this form is the annual submittal pursuant to Federal EPRCA requirements

[X] check here if this form is accompanied by a new or modified Hazardous Materials Inventory-Chemical Description pages(s)

[X] check here if this form is accompanied by a new or modified Business Activity form

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE DATE NAME OF DOCUMENT PREPARER

Floyd Cole 2/1/06 DONALD C. REH, N EST ENVIRONMENTAL SERVICES

NAME OF SIGNER (print): FLOYD COLE

TITLE OF SIGNER: OWNER, MANAGER

UNIFIED PROGRAM CONSOLIDATED FORM

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY –CHEMICAL DESCRIPTION

☐ADD ☐ DELETE X REVISE PAGE 2 OF

I. FACILITY INFORMATION

BUSINESS NAME Cole Brothers Auto Wrecking

CHEMICAL LOCATIOI Inside covered shed

CHEMICAL LOCATION CONFIDENTIAL
EPCRA YES__ NO _X_

FACILITY ID# 01 000 MAP # 2 GRID# A7

II. CHEMICAL INFORMATION

CHEMICAL NAMI Gasoline

COMMON NAMI Drained Gasoline, mixed grades

CAS# 8006-61-9

TRADE SECRET ☐Y ☒N

* EHS ☐Y ☒N

* IF EHS BOX IS "Y" ALL AMOUNTS MUST BE IN LBS.

FIRE CODE HAZARD CLASSES: (Complete if required by CUPA)
Flammable liquid

HAZARDOUS MATERIA TYPE	☐PURE ☒MIXTURE ☐WASTE	RADIOACTIVE ☐Y ☒N	CURIES
PHYSICAL STATI	☐SOLID ☒LIQUID ☐GAS	LARGEST CONTAINER 55 gallon steel drum	

FED HAZARD CATEGORY ☒FIRE ☐REACTIVE ☐PRESSURE RELEASI ☒ACUTE HEALTI ☐CHRONIC HEALTI

AVG DAILY AMT	MAX DAILY AMT	ANNUAL WASTE AMT	STATE WASTE CODE
50 gal	100	50	

UNITS ☒GAL ☐ CU FT ☐ LBS ☐TONS
IF EHS, amounts must be in lbs.

DAYS ON SITI 365 (20)

STORAGE CONTAINER
☐ ABOVE GROUND TAN ☐ PLASTIC/NONMETALLIC DRUI ☐GLASS BOTTLI ☐RAIL CAR
☐ UNDERGROUND TANI ☐ CAN ☐FIBER DRUM ☐PLASTIC BOTTLI ☐ OTHER
☐ TANK INSIDE BUILDIN ☐ CARBOY ☐BAG ☐ TOTE BIN
☒STEEL DRUM ☐ SILO ☐BOX ☐TANK WAGOI
☐CYLINDER

STORAGE PRESSURE ☒AMBIENT ☐ ABOVE AMBIEN ☐BELOW AMBIEN

STORAGE TEMPERATURE ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN ☐CRYOGENIC

% WT	HAZARDOUS COMPONENT	EHS	CAS#
1		☐Y ☐ N	
2		☐Y ☐ N	
3		☐Y ☐ N	
4		☐Y ☐ N	
5		☐ Y ☐ N	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach separate sheets of paper.

ADDITIONAL LOCALLY COLLECTED INFORMATION

UNIFIED PROGRAM CONSOLIDATED FORM

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY –CHEMICAL DESCRIPTION

☐ADD ☐ DELETE X REVISE PAGE 3 OF

I. FACILITY INFORMATION

BUSINESS NAME Cole Brothers Auto Wrecking

CHEMICAL LOCATIOI Inside covered Shed

CHEMICAL LOCATION CONFIDENTIAL EPCRA YES__ NO _X_

FACILITY ID# 01 000 MAP # 2 GRID# A7

II. CHEMICAL INFORMATION

CHEMICAL NAMI

COMMON NAMI Waste Motor Oil

CAS#

TRADE SECRET ☐Y ☒N

* EHS ☐Y ☒N

* IF EHS BOX IS "Y" ALL AMOUNTS MUST BE IN LBS.

FIRE CODE HAZARD CLASSES: (Complete if required by CUPA) Flammable liquid

HAZARDOUS MATERIA TYPE	☐PURE ☐MIXTURE ☒WASTE	RADIOACTIVE ☐Y ☒N	CURIES
PHYSICAL STATI	☐SOLID ☒LIQUID ☐GAS	LARGEST CONTAINER 55 gallon steel drum	

FED HAZARD CATEGORY ☒FIRE ☐REACTIVE ☐PRESSURE RELEASI ☐ACUTE HEALTI ☒CHRONIC HEALTI

AVG DAILY AMT	MAX DAILY AMT	ANNUAL WASTE AMT	STATE WASTE CODE
50	110	300	221

UNITS ☒GAL ☐ CU FT ☐ LBS ☐TONS IF EHS, amounts must be in lbs.

DAYS ON SITI 365 (20)

STORAGE CONTAINER
☐ABOVE GROUND TAN ☐ PLASTIC/NONMETALLIC DRUI ☐GLASS BOTTLI ☐RAIL CAR
☐UNDERGROUND TANI ☐ CAN ☐FIBER DRUM ☐PLASTIC BOTTLI ☐ OTHER
☐TANK INSIDE BUILDIN ☐ CARBOY ☐BAG ☐ TOTE BIN
☒STEEL DRUM ☐ SILO ☐BOX ☐TANK WAGOI
☐CYLINDER

STORAGE PRESSURE ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN

STORAGE TEMPERATURE ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN ☐CRYOGENIC

% WT	HAZARDOUS COMPONENT	EHS	CAS#
1		☐Y ☐ N	
2		☐ Y ☐ N	
3		☐ Y ☐ N	
4		☐ Y ☐ N	
5		☐ Y ☐ N	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcogenic, attach adtional sheets of paper capturing the required inf

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA Please Sign Here.

UNIFIED PROGRAM CONSOLIDATED FORM

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY –CHEMICAL DESCRIPTION

☒ ADD ☐ DELETE REVISE PAGE 4 OF

I. FACILITY INFORMATION

BUSINESS NAME: Cole Brothers Auto Wrecking

CHEMICAL LOCATIOI: Inside covered shed

CHEMICAL LOCATION CONFIDENTIAL EPCRA YES__ NO _X_

FACILITY ID# 01 000 MAP # 2 GRID# A7

II. CHEMICAL INFORMATION

CHEMICAL NAMI: Ethylene glycol

COMMON NAMI: Waste antifreeze

CAS#: 107-21-1

TRADE SECRET ☐Y ☒N

* EHS ☐Y ☒N

* IF EHS BOX IS "Y" ALL AMOUNTS MUST BE IN LBS.

FIRE CODE HAZARD CLASSES: (Complete if required by CUPA) Flammable liquid

HAZARDOUS MATERIA TYPE: ☐PURE ☒MIXTURE ☐WASTE

RADIOACTIVE ☐Y ☒N CURIES

PHYSICAL STATI: ☐SOLID ☒LIQUID ☐GAS

LARGEST CONTAINER 55 gallon steel drum

FED HAZARD CATEGORY: ☒FIRE ☐REACTIVE ☐PRESSURE RELEASI ☒ACUTE HEALTI ☐CHRONIC HEALTI

AVG DAILY AMT	MAX DAILY AMT	ANNUAL WASTE AMT	STATE WASTE CODE
35 gal	55	80	342

UNITS: ☒GAL ☐ CU FT ☐ LBS ☐ TONS IF EHS, amounts must be in lbs.

DAYS ON SITI 365 (20)

STORAGE CONTAINER:
☐ ABOVE GROUND TAN ☐ PLASTIC/NONMETALLIC DRUI ☐ GLASS BOTTLI ☐ RAIL CAR
☐ UNDERGROUND TAN ☐ CAN ☐ FIBER DRUM ☐ PLASTIC BOTTLI ☐ OTHER
☐ TANK INSIDE BUILDIN ☐ CARBOY ☐ BAG ☐ TOTE BIN
☒ STEEL DRUM ☐ SILO ☐ BOX ☐ TANK WAGOI
☐ CYLINDER

STORAGE PRESSURE: ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN

STORAGE TEMPERATURE: ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN ☐CRYOGENIC

% WT	HAZARDOUS COMPONENT	EHS	CAS#
1		☐Y ☐N	
2		☐Y ☐N	
3		☐Y ☐N	
4		☐Y ☐N	
5		☐Y ☐N	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, please attach list.

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

UNIFIED PROGRAM CONSOLIDATED FORM

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY –CHEMICAL DESCRIPTION

☒ ADD ☐ DELETE REVISE PAGE 5 OF

I. FACILITY INFORMATION

BUSINESS NAME Cole Brothers Auto Wrecking

CHEMICAL LOCATIOI Outside, NW corner, dismantling shed

CHEMICAL LOCATION CONFIDENTIAL EPCRA YES__ NO X

FACILITY ID# 01 000 MAP # 2 GRID# D-3

II. CHEMICAL INFORMATION

CHEMICAL NAMI Oxygen gas

COMMON NAMI Oxygen gas

CAS# 7782-44-7

TRADE SECRET ☐Y ☒N

* EHS ☐Y ☒N

* IF EHS BOX IS "Y" ALL AMOUNTS MUST BE IN LBS.

FIRE CODE HAZARD CLASSES: (Complete if required by CUPA) Flammable liquid

HAZARDOUS MATERIA TYPE	☒PURE ☐MIXTURE ☐WASTE	RADIOACTIVE ☐Y ☒N	CURIES
PHYSICAL STATI	☐SOLID ☐LIQUID ☒GAS	LARGEST CONTAINER 251 cu ft cyl.	

FED HAZARD CATEGORY ☒FIRE ☒REACTIVE ☒PRESSURE RELEASI ☐ACUTE HEALTI ☐CHRONIC HEALTI

AVG DAILY AMT	MAX DAILY AMT	ANNUAL WASTE AMT	STATE WASTE CODE
500 cu ft	750		

UNITS ☐GAL ☒ CU FT ☐ LBS ☐TONS IF EHS, amounts must be in lbs.

DAYS ON SITI 365 (20)

STORAGE CONTAINER
☐ABOVE GROUND TAN ☐ PLASTIC/NONMETALLIC DRUI ☐GLASS BOTTLI ☐RAIL CAR
☐UNDERGROUND TAN ☐ CAN ☐FIBER DRUM ☐PLASTIC BOTTLI ☐ OTHER
☐TANK INSIDE BUILDIN ☐ CARBOY ☐BAG ☐TOTE BIN
☐STEEL DRUM ☐ SILO ☐BOX ☐TANK WAGOI
☒CYLINDER

STORAGE PRESSURE ☐AMBIENT ☒ ABOVE AMBIEN ☐BELOW AMBIEN

STORAGE TEMPERATURE ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN ☐CRYOGENIC

% WT	HAZARDOUS COMPONENT	EHS	CAS#
1		☐Y ☐ N	
2		☐ Y ☐ N	
3		☐Y ☐ N	
4		☐ Y ☐ N	
5		☐ Y ☐ N	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcogenic, attach adtional sheets of paper capturing the required infc

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

UNIFIED PROGRAM CONSOLIDATED FORM

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY –CHEMICAL DESCRIPTION

☒ ADD ☐ DELETE REVISE PAGE 6 OF

I. FACILITY INFORMATION

BUSINESS NAME: Cole Brothers Auto Wrecking

CHEMICAL LOCATIOI: Inside north wall of dismantling shed

CHEMICAL LOCATION CONFIDENTIAL EPCRA YES__ NO X

FACILITY ID# 01 000 MAP # 2 GRID# D 3/4 C 4

II. CHEMICAL INFORMATION

CHEMICAL NAMI: Liquid propane gas

COMMON NAMI: Liquid propane gas

CAS#: 74-98-6

TRADE SECRET ☐Y ☒N

* EHS ☐Y ☒N

* IF EHS BOX IS "Y" ALL AMOUNTS MUST BE IN LBS.

FIRE CODE HAZARD CLASSES: (Complete if required by CUPA) Flammable liquid

HAZARDOUS MATERIA TYPE	☐PURE ☒MIXTURE ☐WASTE	RADIOACTIVE ☐Y ☒N	CURIES
PHYSICAL STATI	☐SOLID ☒LIQUID ☐GAS	LARGEST CONTAINER 72 gallons	
FED HAZARD CATEGORY	☒FIRE ☐REACTIVE ☒PRESSURE RELEASI ☒ACUTE HEALTI ☐CHRONIC HEALTI		

AVG DAILY AMT	MAX DAILY AMT	ANNUAL WASTE AMT	STATE WASTE CODE
140 gal	420		

UNITS: ☒GAL ☐CU FT ☐LBS ☐TONS (IF EHS, amounts must be in lbs.)

DAYS ON SITI 365 (20)

STORAGE CONTAINER: ☐ABOVE GROUND TAN ☐UNDERGROUND TAN ☐TANK INSIDE BUILDIN ☐STEEL DRUM ☐PLASTIC/NONMETALLIC DRUI ☐CAN ☐CARBOY ☐SILO ☐FIBER DRUM ☐BAG ☐BOX ☒CYLINDER ☐GLASS BOTTLI ☐PLASTIC BOTTLI ☐TOTE BIN ☐TANK WAGOI ☐RAIL CAR ☐OTHER

STORAGE PRESSURE: ☐AMBIENT ☒ABOVE AMBIEN ☐BELOW AMBIEN

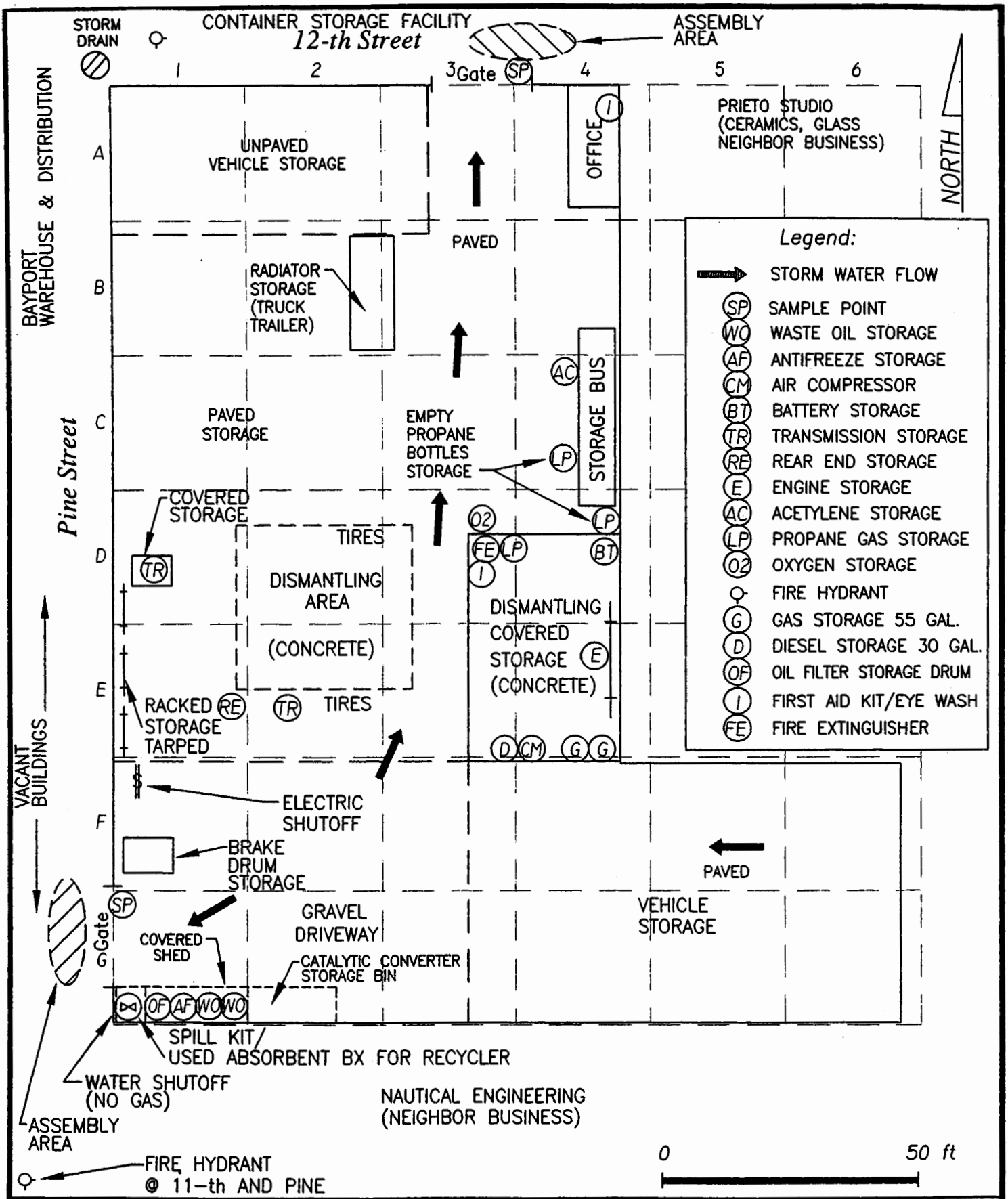
STORAGE TEMPERATURE: ☒AMBIENT ☐ABOVE AMBIEN ☐BELOW AMBIEN ☐CRYOGENIC

	% WT	HAZARDOUS COMPONENT	EHS	CAS#
1			☐Y ☐N	
2			☐Y ☐N	
3			☐Y ☐N	
4			☐Y ☐N	
5			☐Y ☐N	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcogenic, attach adtional sheets of paper capturing the required inf

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here



NEST Environmental Services

1040 Grant Road, Suite 155–PMB 325
Mountain View, CA 94040–3296
Phone: (650) 938–3012, Fax: (650) 968–6633

COLE BROTHERS AUTO WRECKING

Oakland, CA Alameda County

DRAWN: Vlad Zarici	CHECKED: Laurie Mattison
ACADFILE: colebrswrk.dwg	DATE: 03.09.06

HMBP SITE MAP

A Certified Unified Program Agency

UNIFIED PROGRAM CONSOLIDATED PERMIT AND REGISTRATION

Issued to

Name of Facility: COLE BROTHERS AUTO WRECKING	*Executive Contact:* FLOYD COLE
Street Address: 1797 12th STREET	*Mailing Address:* 1797 12TH STREET
Permit Type: Full Provisional Temporary	*City/State/ZIP:* OAKLAND, CA, 94607
Registration/Permit Number:	*Telephone Number at Facility:* 510-444-4359

For the following elements of the Unified Hazardous Materials and Hazardous Waste Program

- ☒ Hazardous Materials Storage
- ☒ Hazardous Materials Business Plan
- ☐ Aboveground Petroleum Storage, SPCC Plan
- ☐ Underground Storage Tank Program
  _____tanks; Facility No. : 01-_____
- ☒ Hazardous Waste Generator Program
- ☐ Tiered Permit Program for Onsite Treatment of Hazardous Waste:
  _____PBR; _____CA; _____CE
- ☐ California Accidental Release Prevention Program and/or Federal Risk Management Plan

(None Noted)

Certification

I certify that I have read and I hereby accept the terms and conditions printed on the other side of this Unified Program Consolidated Permit and Registration. I agree to comply with all permit conditions and all local, state and federal ordinances, laws, statutes, codes, rules and regulations relating to the storage, handling, generation and disposal of hazardous materials and/or hazardous waste.

Signature of Applicant	*Printed Name and Title*	*Date Signed*
Floyd Cole	FLOYD COLE	6-9-03

FOR OFFICE USE ONLY

Effective Date:	Expiration Date:	*Machine Validation / Official Receipt*
Date Payment Received:	Payment Reference:	
Total Amount Paid: $	State Service Charge Paid: $	Approved by

A Certified Unified Program Agency

APPLICATION FOR A CONSOLIDATED PERMIT/REGISTRATION
UNIFIED HAZARDOUS MATERIALS / HAZARDOUS WASTE MANAGEMENT REGULATORY PROGRAM

(Before completing this form, please read the instructions on the cover page.)

Type of Application: *(Please check one.)* ☒ **Initial Registration** ☐ **Modification** ☐ **Renewal**

1. Facility Information

Name:	COLE BROTHERS AUTO WRECKING
Address:	1797 12TH STREET
City, ZIP	OAKLAND 94607

2. Hazardous Materials Storage Program

Number of Hazard Classes		
Total Liquids	630	gallons
Total Solids		pounds
Total Gases (at STP)		cu. ft.

3. Accidental Release Prevention Program (RMP/CalARP)

Do you have any federal-regulated substance listed in Tables 1 or 2?	☐ Yes ☒ No
Do you have any state-regulated substance listed in Table 3?	☐ Yes ☒ No

4. Underground Storage Tank Program (UST)

Do you have underground storage tanks for hazardous materials/waste at this facility?	☐ Yes ☒ No
If "yes", number of tanks for fuel or new oil	
Number of tanks for used oil or non-fuel	
Total underground storage capacity	gallons

5. Aboveground Storage Tank Program (AGT)

Do you have aboveground storage tanks for petroleum products?	☐ Yes ☒ No
If "yes", number of tanks bigger than 660 gallons in capacity	
Total aboveground storage capacity	gallons

6. Hazardous Waste Generator Program (HWG)

Do you generate hazardous waste on site?	☒ Yes ☐ No	
Quantity generated per month	50	(gallons or pounds)

7. Tiered Permit Program (On-site Treatment of Hazardous Waste)

Do you treat, on this site, any hazardous waste you generate?	☐ Yes ☒ No
Do you have a Tiered Permit from DTSC?	☐ Yes ☒ No

Number of Treatment Units under Tiered Permit:

Permit-By-Rule	
Conditionally Authorized	
Conditionally Exempt – Specified Waste	
Conditionally Exempt – Small Quantity	
Conditionally Exempt – Limited	
Conditionally Exempt – Commercial Laundry	

8. Certification and Signature

I used reasonable diligence in preparing this application. I have reviewed the application and, to the best of my knowledge, the information contained herein is true and correct.

Signature	*Printed Name and Title*	*Date Signed*
Floyd Cole	FLOYD COLE	6-9-03

Reviewed by: _____ **Date reviewed:** _____

UNIFIED PROGRAM CONSOLIDATED FORM

FACILITY INFORMATION

BUSINESS ACTIVITIES

I. FACILITY IDENTIFICATION

FACILITY ID #	1	EPA ID # (Hazardous Waste Only)	2
		000082798	

BUSINESS NAME (Same as Facility Name of DBA-Doing Business As) 3

II. ACTIVITIES DECLARATION

NOTE: If you check YES to any part of this list, please submit the Business Owner/Operator Identification page (OES Form 2730).

Does your facility...	If Yes, please complete these pages of the UPCF....	
A. HAZARDOUS MATERIALS		
Have on site (for any purpose) hazardous materials at or above 30 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☒ YES ☐ NO 4	HAZARDOUS MATERIALS INVENTORY - CHEMICAL DESCRIPTION (OES 2731)
B. UNDERGROUND STORAGE TANKS (USTs)		
1. Own or operate underground storage tanks?	☐ YES ☒ NO 5	UST FACILITY (Formerly SWRCB Form A) UST TANK (one page per tank) (Formerly Form B)
2. Intend to upgrade existing or install new USTs?	☐ YES ☒ NO 6	UST FACILITY UST TANK (one per tank) UST INSTALLATION - CERTIFICATE OF COMPLIANCE (one page per tank) (Formerly Form C)
3. Need to report closing a UST?	☐ YES ☒ NO 7	UST TANK (closure portion –one page per tank)
C. ABOVE GROUND PETROLEUM STORAGE TANKS (ASTs)		
Own or operate ASTs above these thresholds: —any tank capacity is greater than 660 gallons, or —the total capacity for the facility is greater than 1,320 gallons?	☐ YES ☒ NO 8	NO FORM REQUIRED TO CUPAs
D. HAZARDOUS WASTE		
1. Generate hazardous waste?	☒ YES ☐ NO 9	EPA ID NUMBER – provide at the top of this page
2. Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	☐ YES ☒ NO 10	RECYCLABLE MATERIALS REPORT (one per recycler)
3. Treat hazardous waste on site?	☐ YES ☒ NO 11	ONSITE HAZARDOUS WASTE TREATMENT – FACILITY (Formerly DTSC Forms 1772) ONSITE HAZARDOUS WASTE TREATMENT – UNIT (one page per unit) (Formerly DTSC Forms 1772 A,B,C,D and L)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	☐ YES ☒ NO 12	CERTIFICATION OF FINANCIAL ASSURANCE (Formerly DTSC Form 1232)
5. Consolidate hazardous waste generated at a remote site?	☐ YES ☒ NO 13	REMOTE WASTE / CONSOLIDATION SITE ANNUAL NOTIFICATION (Formerly DTSC Form 1196)
6. Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned onsite?	☐ YES ☒ NO 14	HAZARDOUS WASTE TANK CLOSURE CERTIFICATION (Formerly DTSC Form 1249)

E. LOCAL REQUIREMENTS 15

(You may also be required to provide additional information by your CUPA or local agency.)

UNIFIED PROGRAM CONSOLIDATED FORM
ALAMEDA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH

BUSINESS OWNER/OPERATOR IDENTIFICATION

I. IDENTIFICATION

FACILITY ID # 01 000 BEGINNING DATE: 5/1/03 ENDING DATE: 4/30/04

BUSINESS NAME: COLE BROTHERS AUTO WRECKING BUSINESS PHONE: 510-444-4359

BUSINESS SITE ADDRESS : 1797 12TH STREET

CITY: OAKLAND STATE: CA ZIP CODE: 94607

DUN & BRADSTREET SIC CODE: 5015

COUNTY: ALAMEDA

BUSINESS OPERATOR NAME: FLOYD COLE BUSINESS OPERATOR PHONE 510-444-4359

II. BUSINESS OWNER

OWNER NAME: FLOYD COLE OWNER PHONE: 510-444-4359

OWNER MAILING ADDRESS: 1797 12TH STREET

CITY: OAKLAND STATE: CA ZIP CODE: 94607

II. ENVIRONMENTAL CONTACT

OWNER NAME: FLOYD COLE CONTACT PHONE: 510-444-4359

CONTACT MAILING ADDRESS: 1797 12 TH STEET

CITY: ALAMEDA STATE: CA ZIP CODE: 94607

1V. EMERGENCY CONTACTS

-PRIMARY-	-SECONDARY-
NAME: FLOY D COLE	NAME: MAURICE COLE
TITLE: OWNER	TITLE: OWNER
BUSINESS PHONE: 510-444-5369	BUSINESS PHONE: 510-444-5369
24-HOUR PHONE:510-333-5422	24-HOUR PHONE: 510-910-5513
PAGER #:	PAGER #:

ADDITIONAL LOCALLY COLLECTED INFORMATION

[X] check here if this form is the annual submittal pursuant to Federal EPRCA requirements

[X] check here if this form is accompanied by a new or modified Hazardous Materials Inventory-Chemical Description pages(s)

[X] check here if this form is accompanied by a new or modified Business Activity form

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE DATE NAME OF DOCUMENT PREPARER

Floyd Cole 6-9-103 DONALD C. REH, N EST ENVIRONMENTAL SERVICES

NAME OF SIGNER (print): FLOYD COLE

TITLE OF SIGNER: OWNER, MANAGER

Section A: SWPPP MANAGEMENT PLAN

PART A: DESCRIPTION OF THE FACILITY

1.0 INTRODUCTION

This document describes the Storm Water Pollution Prevention Plan (SWPPP) for *Cole Brothers Auto Wrecking, 1797 12th Street, Oakland, California*. It was prepared according to the guidelines set forth by the State Water Resources Control Board (SWRCB) in their "Fact Sheet for National Pollutant Discharge Elimination System Permit (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities" as amended in September 17, 1992. Cole Brothers Auto Wrecking, will comply with all the provisions in the General Permit issued by the SWRCB for SWPPPs.

The principal features of this SWPPP include:

- The facility operates an auto dismantling and salvaging company.
- There is no steam cleaning or water washing on the site.
- There are no non-storm water discharges from the site.
- The dismantling is done mostly outdoors. on concrete pad - under shed cover during rain
- Waste oil, diesel fuel, gasoline and waste antifreeze are the only on-site petroleum products.
- Engines and transmissions are drained of oil before storage undercover.
- Most drive train and mechanical components are stored under cover.
- There are no roof-top activities that could potentially contaminate storm water.
- The monitoring and inspection program covers all facets of the handling and storage of hazardous materials and other potential pollutants to storm waters.

2.0 SITE LOCATION AND REGIONAL INFORMATION

2.1 Location

Cole Brothers Auto Wrecking, is located at 1797 12th Street, Oakland, County of Alameda , California.

2.2 Topography

The site is located on the flat alluvial plane 1.5 miles east of the SF Bay.
The elevation of 25 feet and water table are essentially the same as those for the City of Oakland.

2.3 Surface Water Bodies within 1/4 mile

SF Bay 1.5 mile west

2.4 Water Wells within 1/4 mile

There is no well on the site. The site is located in mixed zones of commercial and residential property and there may be ground water monitoring wells in the vicinity of the site; a detailed survey for off-site wells was not made.

2.5 Regional Rainfall

The expected rainfall for the site would be that of the general Oakland Area, approximately 12 inches/year.

3.0 SITE DESCRIPTION

3.1 Introduction

Cole Brothers Auto Wrecking, operates a vehicle dismantling and salvage business. Vehicles are dismantled on site, usable components are stored either outdoors or indoors. Unusable components are shipped out as scrap metal. The facility provides minor ~~fueling and~~ servicing of vehicles. reusing fuel from vehicles

3.2 Buildings

The Site Map shows the general site plan and the details for the buildings on the site. The site is occupied by a building, sheds and a number of truck trailers housing the following:

- An office for managing the facility and its operations.
- Indoor storage for a variety of components
- Covered storage for mechanical components

3.3 Outdoor Storage, Manufacturing, and/or Processing Areas

- The facility does most of the dismantling outdoors on the cement area shown on the Site Map.
- Vehicles and vehicle components are stored on the paved area as indicated on the Site Map.
- Engines and transmissions and other mechanical components are mostly stored indoors or undercover.

3.4 Loading/Unloading Areas

- There are no formal loading areas.
- Supplies and materials are delivered Gate 1 on 12th street.
- Incoming vehicles, for dismantling, are unloaded at Gate 2 shown on the Site Map.
- Waste oil and other materials are removed at Gate 2.

3.5 Site Paving and Drainage

The Site Map shows that:

- About 75 percent of the 1 acre site is paved.
- The site has no storm drains.
- The storm water drains to 12 th Street, and Pine Street and then to the EBMUD Storm Sewer
- 90 percent of the storm water remains on the site.

3.6 Storm Drain System

Refer to paragraph 3.5.

3.7 Sanitary Sewer System

The site is served by the EBMUD Sanitary District.

3.8 Underground and Above-Ground Storage Tanks

- There are no underground storage tanks on the site.
- There are no below-ground-level sumps.
- The are no above-ground storage tanks.
- 3 to 4 drums of waste petroleum products are located in the waste oil storage area as viewed on the Site Map.

4.0 POTENTIAL SOURCES OF POLLUTANTS IN STORM WATER DISCHARGES

4.1 Potential Pollutants

4.1.1 List of potential pollutants to storm water

- Waste oil from the dismantled vehicles
- Waste fuels, gasoline and diesel
- Antifreeze coolant
- Battery acid
- Sediments from the parking and storage areas

4.1.2 Estimate of annual quantities of potential pollutants in storm water runoff

Trace amounts of oil and grease, and suspended solids.

4.1.3 Existing sampling data describing pollutants in storm water discharge

There are no existing sampling data for this facility.

4.2 Isolation of Storm Drain from Sanitary Sewer

The site discharges storm water to the Oakland Storm System.

4.3 Handling of Liquids and Dry Bulk Materials

- All vehicles are unloaded in the parking area.
- Waste petroleum lubricants are drained from the vehicles and stored in drums.
- Waste radiator coolant is drained from the vehicles and accumulated in drums.
- Waste coolant is taken off-site for recycling.
- Waste oils are taken off-site for recycling
- Waste fuel is used to fuel various vehicles.
- Vehicles are dismantled in the paved yard and residual petroleum fluids are collected and transferred to the appropriate storage container.
- All waste petroleum products are stored in covered drums in secondary containment

4.4 Equipment Maintenance and Cleaning

- The company vehicles and forklifts are maintained and repaired by trained, Cole Brothers Auto Wrecking, personnel.

4.5 Waste Collection, Recycling and Disposal Practices

- See sections 4.3 and 4.4 for a description of waste oil collection practices.
- There are no treatment facilities for processing hazardous wastes on this site.

5.0 LIST OF SIGNIFICANT SPILLS OR LEAKS TO STORM WATER AFTER NOVEMBER 1988

Cole Brothers Auto Wrecking knows of no known significant spills or leaks on the site since 1988.

6.0 SUMMARY OF EXISTING STORM WATER SAMPLING DATA

There are no existing storm water sampling data.

7.0 ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION

<contact>, the designated facility contact for Storm Water Pollution Prevention, or a qualified, designated representative , will conduct an annual comprehensive site compliance evaluation in each reporting period (July 1-June 30).

Evaluations will be conducted no sooner than 8 months, or later than 18 month, after the previous one. The GMP Administrator or qualified, designated representative may schedule his site inspections, minimum 2 during the term of the General Permit, and recommend any additional BMPs necessary to achieve compliance with th General Permit.

Upon completion of the annual evaluation the SWPPP will be revised, as appropriate, and the revisions implemented within 90 days of the evaluation.

Ealuations (using FORM 1) will include:

a. Review of all visual observation records, inspection records, and sampling and analysis results

b. Visual inspection of all potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system

c. Review and evaluation of all BMPs (both structural and non-structural) to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed to include a visual inspection of equipment needed to implement the SWPPP, such as spill response equipment.

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PART B: STORM WATER MANAGEMENT CONTROLS "BEST MANAGEMENT PRACTICES (BMP)"

1.0 STORM WATER POLLUTION PREVENTION PERSONNEL

Mr. Floyd Cole, Owner

2.0 PREVENTIVE MAINTENANCE

- The forklifts and some automobiles are serviced and repaired on site by trained personnel.
- Vehicles are fueled on-site with waste fuels and fueled off-site as needed.

SUGGESTED ADDITIONAL PREVENTIVE MAINTENANCE ACTIVITIES

- Maintenance logs are maintained for each piece of equipment.

3.0 GOOD HOUSEKEEPING

- Drain oil from engines, transmissions and differentials, and collect in a waste oil tank or drum
- Drain and collect oil filters for off-site disposal
- Drain and collect antifreeze in a drum or tank
- Drain and reuse fuel in facility vehicles or equipment
- Collect residual oils and fluids from the dismantling operation
- Store engines and transmissions under cover (construction of covered racks in progress)
- Outdoor storage areas covered with gravel
- Routine sweeping of service areas
- A complete formal inspection of the facility will be conducted on a regular basis - at least quarterly - by the Storm Water Pollution Personnel

Routine BMP?

SUGGESTED ADDITIONAL HOUSEKEEPING ACTIVITIES

- Remove and collect freon from air conditioners with an approved unit N/A
- Service areas regularly inspected for cleanliness and removal of debris

4.0 SPILL PREVENTION AND RESPONSE

The following procedures will comprise our spill prevention and response planning:

- All spills cleaned up immediately
- All dismantling and fluid removal done on an impervious surface
- Brooms, shovels and wheel barrow maintained on-site
- Dispose of contaminated absorbents as hazardous wastes or to the municipal collection service if they accept oily materials

SUGGESTED ADDITIONAL ITEMS FOR SPILL PREVENTION

- Maintain an adequate (three 75 lb. bags minimum) supply of absorbent materials for sponging up spills of liquid wastes

5.0 STORM WATER MANAGEMENT PRACTICES

Storm water management practices include:

- There are no non-storm water discharges to the storm sewer
- Drums have secondary containment
- 90 % storm water remains on the facility and evaporates from the facility
- Some storm water drains to the street and local storm sewer system

routine BMP's

SUGGESTED ADDITIONAL STORM WATER MANAGEMENT CONTROLS

- Dismantling and equipment servicing done under cover or canopy
- Drums stored under cover or canopy

6.0 EROSION AND SEDIMENT CONTROL

The site is 75 % paved, flat and level, there is no erosion.

7.0 EMPLOYEE TRAINING

(Use FORM 5, Appendix C)

Employee training is part of the safety training. The storm water management issues cover the following items:

- Daily clean-up of debris
- The storage of all hazardous or potentially polluting materials either indoors or in a secondary storage structure with a shed roof
- The use of proper containers for handling oils, solvents, grease
- Cleaning up of spills and the handling of contaminated absorbents
- Labeling of containers according to their contents
- Review of the housekeeping and maintenance procedures for preventing contamination of storm water

8.0 INSPECTIONS

Mr. Floyd Cole shall make the following inspections:

Informal Inspections:

- daily, Storage Tanks and Drums
- daily, Dismantling Areas
- weekly, General Storage Areas
- monthly, Storm water drainage and conveyances

SOME SUGGESTED ADDITIONAL INSPECTIONS:

Formal Inspections see updated monitoring

1. Early September (use FORM 1, Appendix C), before the commencement of the first rains:
1.1 Inspect the storage areas for oils, greases and solvents. Identify for further action any clean up that is needed and assure that all primary containers are also contained secondarily.
1.2 Check all containers for proper labeling.
1.3 Inspect the site for paper, cardboard, wood and plastic debris. Collect and dispose as required.
1.4 Inspect for adequate spill control absorbent and tools that are available.

2. During the first significant storm (FORM 3, Appendix C):
2.1 Inspect storm water run-off at the discharge points.
2.2 Note color, odors and clarity of the run-off
2.3 Identify for further action, if needed, any clean-up that is needed to reduce turbidity and evidence of other pollutants.

3. After the first significant storm (FORM 3, Appendix C), inspect all storm drains and discharge points on the site and remove accumulated dirt and debris.

4. May or early June repeat the inspection made in item 1 for September (FORM 2, Appendix C).

5. During the rainy season, make visual inspections of the water entering the storm drains during one significant storm per month.

6. Include summaries of all inspections in the annual report (Appendix B).

9.0 RECORD KEEPING AND REPORTING PROCEDURES

File all records of inspections, sampling data and the annual reports in Appendix D of this document. Retain these documents for a period of not less than five years.

PART C: NON-STORM WATER DISCHARGES TO STORM WATER CONVEYANCES

{IT IS ESSENTIAL THAT ALL NON-STORM WATER DISCHARGES TO THE STORM WATER DRAINS AND CONVEYANCES BE TERMINATED UNLESS YOU HAVE A SPECIFIC PERMIT UNDER THE NPDES REGULATIONS FOR NON-STORM WATER DISCHARGES. THE NOI REQUIRES THAT ALL NON-STORM WATER DISCHARGES BE ELIMINATED; THERE ARE PROVISIONS FOR TEMPORARY POSTPONEMENT IF ELIMINATING THE DISCHARGES REQUIRES IMPLEMENTATION OF COMPLEX PROCEDURES OR STRUCTURES. YOU WILL HAVE TO MAKE A SPECIAL APPLICATION FOR THE POSTPONEMENT AND THE DELAY CANNOT EXCEED THREE YEARS FROM THE DATE OF THE NOI. IF YOU COMPLY WITH THIS CONDITION INCLUDE THE FOLLOWING PARAGRAPH IN THIS SWPPP. SEE PAGE 7, OF THE SWRCB "Fact Sheet" INCLUDED IN APPENDIX E.}

"I certify under penalty of law that all non-storm water discharges to storm water conveyance systems have been eliminated from this facility. Moreover, I am aware that there are significant penalties for submitting false information to the affect of eliminating non-storm waster discharges."

Signed: F. Loyd Cole : Date: 9-12-95

PART D: SIGNATURE AND TITLE OF RESPONSIBLE PERSON

Signed: F. Loyd Cole : Date: 9-12-95

Mr. Floyd Cole, Owner
1797 12th Street
Oakland, California 94607

Section B: MONITORING PROGRAM AND REPORTING REQUIREMENTS

1.0 OBJECTIVES

This storm water monitoring program is included as part of the SWPPP. This monitoring program is designed to meet the following objectives:

a. Evaluate the effectiveness of the facility's BMPs in preventing or reducing potential pollutants from coming into contact with storm water, storm water discharges and authorized non-storm water discharges.

b. Aid in identifying and revising practices to reduce or prevent pollutants from coming into contact with storm water and storm water discharges and authorized non-storm water discharges.

c. Aid in the implementation and improvement of the SWPPP for this facility.

2.0 MONITORING REQUIREMENTS AND METHODS

The Storm Water Responsible person proposes the following monitoring program and methods for its facility (see also Part B,Section 8.0, Inspections, above):

- Non-Storm Water Discharge Visual Observations, Quarterly, 4 per year
- Storm Water Discharge Visual Observations, monthly, October through May (7 total)
- Sampling and Analysis, twice, in two non-consecutive years for Group members.

2.1 Dry Weather Non-Storm Water Discharge Visual Observations (Use Form 2).

QUARTERLY visual observations will be made, during daylight hours, on days with no storm water discharge, and during scheduled facility operating hours. Quarterly observations will be conducted in each of the following months: **August, November, February, and May**. The Facility operator will conduct the quarterly observations within 6-18 weeks of each other. A list of some non-storm discharges, published by the Water Board, is at the end of this section.

The Facility operator will:

a. Visually OBSERVE all drainage areas within his/her facility for the presence of unauthorized non-storm water discharge.

b. Visually OBSERVE the facility's authorized non-storm water discharges and their sources.

c. RECORD each visual observation on a FORM 2, to include (1) noting the presence of any discolorations, stains, odors, floating materials, etc., as well as the source of the discharge and (2) specifying any corrective action you take to eliminate any non-authorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges, (3) place the record in Appendix D to this SWPPP and (4) revise the facility SWPPP as necessary and implement

changes within 90 days.

2.2 Wet Weather Storm Water Discharge Visual Observations (Use Form 3).

MONTHLY visual observations will be performed during the wet season (October 1-May 30).

The Facility operator will:

a. Visually OBSERVE storm water discharges from one storm event per month during the wet season (October 1-May 30), during the first hour of discharge and at all discharge locations identified on the Site Map to verify the visual clarity, quality and quantity of the storm water discharge. (Part B, Section 8.0, Items 2 and 3).

   Visual observations are only required of storm water discharges that occur during daylight hours that are preceded by at least three working days without storm water discharges and that occur during scheduled facility operating hours.

b. RECORD each visual observation on a FORM 3, and include recording any corrective action taken to reduce or prevent pollutant in storm water discharges. Place the record in Appendix D to this SWPPP. Revise the facility SWPPP as necessary and implement any corrective action within 90 days of the observation.

2.3 Sampling and Analysis.

For the facilities participating in the NEST Group Monitoring Program (GMP), the collection and analysis of storm water samples is under the control of the GMP administrator.

2.3.1 Sampling Events.

When the facility as a member of group plan is designated as a sampler, the Facility operator will collect at a minimum, two storm water samples in different and non-consecutive wet seasons.

2.3.2 Time of Collection.

Sample collection is required during the FIRST HOUR of discharge, and preferably, the FIRST STORM of the wet season starting in October.

Sample collection is only required of storm water discharges that occur during scheduled facility operating hours and that are preceded by at least three working days without storm water discharge.

2.3.3 Sample Storm Water Discharge Locations.

The facility operator will:

a. Visually observe and collect samples of storm water discharges from all drainage areas noted on the site map. Designated collection locations will represent the quality and quantity of the facility's storm water discharges from the storm event.
b. Avoid collecting samples from locations that have co-mingled run-on from surrounding areas, or areas difficult to observe or sample, and select other locations that represent the quality and quantity of the facility's storm water discharges from the storm event.

The facility operator may collect samples from a reduced number of substantially identical drainage areas or collect samples from each substantially identical area and analyze a combined sample.

2.3.4 Sampling Parameters.

The samples shall be analyzed for:

- Total suspended solids (TSS), pH, specific conductance and total organic carbon (TOC).
- Toxics and other analytical parameters listed in Table D of the General Permit or specified by the GMP administrator and approved by the State or the Regional Water Board. For this Group: lead, copper and zinc.

2.3.5 Sampling Frequency.

Sampling will be conducted twice in different and non-consecutive wet seasons during the period 1997-2002 as designated by the GMP administrator.

2.3.6 Quality Assurance and Analytical Methods.

The sample will be collected in the proper containers sent by NEST (provided by the laboratory) for this purpose, cooled to 4 degrees Celsius and shipped to the designated certified laboratory in sealed containers with ice packs provided by NEST under Chain-of-Custody documentation. The water samples will be analyzed by a laboratory certified by the California Department of Health Services using the EPA recommended procedures for each of the elements of concern listed in Section 2.3.4.

2.3.7 Record Retention.

The Facility operator will retain the lab's reports of its storm water analysis and the letter from the GMP administrator summarizing those results for at least five years. Reports, summaries and the chain-of-custody record will be retained in Appendix D to this SWPPP.

3.0 RECORDS AND RECORD KEEPING

Records. Includes all records of storm water monitoring information, and copies of all reports, the Annual Reports required by the General Permit, non-storm water discharge inspections and visual observations, and storm water discharge visual observation records, and lab reports.

Record Location. Records will be retained in Appendix D to this document.

Retention Period. Records/documents will be retained for a period of not less than five years.

4.0 ANNUAL REPORT

This business will prepare and submit an Annual Report by July 1 of each year to the Executive office of the Regional Water Board responsible for the area in which this facility is located and to the local agency if requested. It will either complete the one provided by the Water Board or submit a completed one substantially the same as the one provided by the Water Board.

The Annual Report will include:

- a summary of the visual observations and sampling results
- an evaluation of the visual observations and sampling and analysis results
- an updated site map showing visual observation points and discharge/sampling points
- laboratory reports
- the Annual Comprehensive Site Compliance Evaluation Report (FORM 1)
- explanations (if appropriate)of why the facility did not implement any activities required by the General Permit
- Dry season (non-storm water discharge) visual observations (FORM 2s)
- Wet season visual observations (FORM 3s).

Combined SWPPP and Monitoring Compliance Schedule

Daily

Inspections

- Informally inspect activities, areas, and employees for proper implementation of BMPs.
- Make on-the-spot corrections.
- Make note to address problem in the next storm water, hazardous material handling or safety meeting.

Housekeeping

- Clean up any spills or drips promptly with dry rags or loose absorbent.
- Promptly sweep up loose absorbent, and dispose properly.
- Pick up loose, oily parts and trash off the ground or paving; place into designated vehicles or containers.
- Look for and round up loose batteries daily; store upright, with caps on, inside building or covered container.

Monthly & Quarterly

1st Q	**July** • Implement BMPs • Plan improvements for coming season	**August** • 1st NSWD+ observation • Order absorbents, filter materials • Schedule contractor or do maintenance for filter systems	**September** • Do pre-rainy season checklist-use NEST form • Train employees on HazMat, storm water, BMPs • Clean out drains, inlets, etc. • Replace filter materials
2nd Q	**October** • 1st SWD++ observation • Take storm water sample at first rain with runoff • Find, fix sources of visible pollutants in runoff	**November** • At least one SWD observation • 2nd NSWD	**December** • At least one SWD observation
3rd Q	**January** • At least one SWD observation • Take 2nd storm water sample, if not in Group or if RWB* directs you to do so.	**February** • At least one SWD observation • 3rd NSWD observation	**March** • At least one SWD observation •
4th Q	**April** • At least one SWD observation	**May** • At least one SWD observation • 4th NSWD observation • Do ACSCE** (Form 5)	**June** • Do ACSCE** (Form 5) • Complete Annual Report • Submit Anl Rept by June 30th • Clean out drains and inlets

\+ NSWD Non-Storm Water Discharge observation ++ SWD Storm Water Discharge observation

* RWB Regional Water Board ** ACSCE Annual Comprehensive Site Compliance Evaluation

NEST Environmental Services

(NEST Internet Technologies, Inc.)

1040 Grant Road, Suite 155, PMB 325, Mountain View, CA 94040-3296

February 10, 2003

Floyd Cole
Cole Brothers Auto Wrecking
1797 12th Street
Oakland, CA 94607

Re: Storm Water Sample Analysis, NEST GMP

Dear Floyd Cole:

The laboratory's analysis of your December, 2002 storm water sample is back (see next page).

GOOD NEWS! The lab's analysis shows 4 of 7 parameters tested in the sample were below the EPA benchmark values. Results indicate that most of your BMPs are effective.

NOT SO GOOD NEWS! Three (3) constituent: copper, lead and zinc, tested above the EPA benchmark value.

Your results and the EPA benchmark values for the parameters tested are shown in the table below. Your results are on the left; the EPA benchmark values are on the right. Levels above benchmark values are considered harmful to human health and require attention.

NEST recommends that you use this benchmark comparison to help determine where you need more effective BMPs on-site to reduce potential pollutants to your storm water discharge.

What do you need to do? IDENTIFY the sources and implement BMPs: (1) review the attached green page, (2) locate your source(s) (materials) of pollutants, (3) review the BMPs in your SWPPP, and (4) implement an EXISTING or NEW BMP(s) to eliminate any contact of the potential pollutants with your storm water runoff. Call us to discuss new BMPs.

TABLE: Summary of Water Sample Analysis for 2002/2003 Season

Parameter	Laboratory Sample* and Date ~~1st~~: Current 12/28/02	~~2nd~~: Previous 12/2/99	Benchmark Levels[1] For Investigation	Units
pH	6.40	7.07	below 6.0 or above 9.0	pH
Conductance	84	120	greater than 300 to 500	µmhos/cm
TSS	nd	150	greater than 100	mg/l or ppm
TOC	14	21	greater than 100 to 110	mg/l or ppm
Copper	0.38	0.13	0.0636	mg/l or ppm
Lead	0.70	0.32	0.0816	mg/l or ppm
Zinc	1.7	0.90	0.117	mg/l or ppm

* nd=none detected; na=not analyzed (see lab report attached)

1.Note: EPA benchmark values published in Fed Register Vol. 65, No. 62, 3/30/2000 Notices.

Please place this letter report, the lab analysis and the Chain-of-Custody in your SWPPP Binder, Appendix D, RECORDS. You will need a copy of the lab report for your Annual Report.

Sincerely yours,

Donald Reh
VP Client Services
NEST Environmental Services

Phone: 650-938-3012 / 800-699-NEST (6378); Fax: 650-968-6633

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

NEST Environmental Services
1040 Grant Road, Suite 155 - PMB 325
Mountain View, CA 94040
Attn: Don Reh

Date: 1/15/03
Date Received: 01/02/03
Project Name: GMP-Cole Brothers Auto Wreck
Project Number: GMP-Cole Brothers Auto Wreck
P.O. Number: GMP-Cole Brothers Auto Wreck
Sampled By: Client

Certified Analytical Report

Order ID: 32758 **Lab Sample ID:** 32758-001 **Client Sample ID:** Stormwater

Sample Time: 1:40 PM **Sample Date:** 12/28/02 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Conductance	84	1	1	1	µmhos/cm	01/02/03	WCOND030102	EPA 120.1
Copper	0.38	1	0.005	0.005	mg/L	01/08/03	WM8376	EPA 200.7
Lead	0.70	1	0.015	0.015	mg/L	01/08/03	WM8376	EPA 200.7
pH	6.4	1			STU	01/02/03	WPH030102	EPA 150.1
TOC	14	5	1	5	mg/L	01/10/03	WTOC030110	EPA 415.2
Total Suspended Solids	ND	1	5	5	mg/L	01/02/03	WTSS030102	EPA 160.2
Zinc	1.7	1	0.005	0.005	mg/L	01/08/03	WM8376	EPA 200.7

Comment: Per client letter 11/8/01,no analysis within 96 hours of recommended holding time will be narrated.USEPA protocols used for all analyses.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

NEST Environmental Services
1040 Grant Road, Suite 155 - PMB 325
Mountain View, CA 94040
Attn: Don Reh

Project Number: GMP
Project Name:
Date Received: 10/20/2004
P.O. Number: Cole Brothers Auto Wrecking
Sampled By: Client

ertificate of Analysis - Data Report

ıb # : 40917-001 **Sample ID: Stormwater** **Matrix:** Liquid **Sample Date:** 10/19/2004 11:20 AM

ethod: EPA 120.1

rameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
nductance	310		1	1	µmhos/cm	N/A	N/A	10/22/2004	WCOND041022E

Analyzed by: Limbat
Reviewed by: RLAZARO

ethod: EPA 150.1

rameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
	6.3		1	1	pH Units	N/A	N/A	10/20/2004	WPH041020B

Analyzed by: Equeja
Reviewed by: RLAZARO

ethod: EPA 160.2

rameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
tal Suspended Solids	10		1	5	mg/L	N/A	N/A	10/22/2004	WTSS041022B

Analyzed by: Equeja
Reviewed by: RLAZARO

ethod: EPA 200.7 / EPA 3010B / Acid Digestion for ICP for 6010B

rameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
pper	0.81		1	0.005	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2
ıd	0.33		1	0.05	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2
ıc	7.4		1	0.005	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2

Analyzed by: Jisiderio
Reviewed by: MFELIX

ethod: EPA 415.2

rameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
C	64		5	5	mg/L	N/A	N/A	10/27/2004	WTOC041027B

Analyzed by: Equeja
Reviewed by: RLAZARO

OAKLAND FIRE DEPARTMENT/FIRE PREVENTION BUREAU
HAZARDOUS MATERIALS UNIT

250 FRANK OGAWA PLAZA, SUITE 3341, OAKLAND, CA 94612-2032 • (510) 238-3927

HAZARDOUS MATERIALS INSPECTION REPORT

Site Number	Facility Name	Facility Address	Zip Code
	Cole Brothers	1787 12th Street	07

Inspection Report

☒ **PERMISSION TO INSPECT GRANTED**

Activity: Auto Wrecking/Salvage yard

Reason for Site visit: Recieve 1st of 2 installments on 1000.00 penalty associated w/ Hazardous Material Storage & Waste Generator program

A brief Site tour was conducted... all operations appear to be in good condition.

No violations observed during my visit

Facility Contact/Print Name:	Inspected By:		
T Cole	KM 238-3927	☐ Insp. Griffin	238-7759
Facility Contact/Signature:		☒ Insp. Matthews	238-2396
Tloyd Cole		☐ Insp. Kupers	238-7054
		☐ Insp. Gomez	238-7253
	Date:	26May06	

538-156 (05/05)

NEST Environmental Services

1040 Grant Road, Suite 155, PMB 325, Mountain View, California 94040-3296

4-28-06

TO: Keith Matthews
Oakland Fire Dept
Hazmat Mgmt Program

RE: Cole Bros. Auto Wreckers Permit # 20-0461

As per your request at our meeting earlier this week we are sending the revised Notice to Comply and Fee Assessment @ $1000. plus $91. reinspection. It is our understanding that Cole Bros. may make three payments, if needed, the first due May 23 '06.

Also enclosed is the Oct '05 sampling analysis showing higher than benchmark levels for metals (Cu Pb. Since that time, as you noted on your visit, this facility has made a substantial effort to clean up, and will strive to maintain the yard as you requested. Covering and removing exposed metals and parts along with implementing all pertinent BMP's should do the job.

Our "quick reference" is also enclosed FYI.

Thank you for your time and consideration.

Sincerely, Laurie Matthews @ NEST

Phone: (650) 938-3012 / (800) 699-NEST (6378), Fax: (650) 968-6633

OAKLAND FIRE DEPARTMENT

250 Frank H. Ogawa Plaza, #3341, Oakland, CA
HAZARDOUS MATERIALS MANAGEMENT PROGRAM
Phone: (510) 238-3927

Date: November 1, 2005

Permit Number: 20-0461

Mailing Address
FLOYD COLE
COLE BROS. AUTO WRECKERS
1797 12TH ST
OAKLAND CA 94607

Facility Operator, Name, and Address

Cole Bros. Auto Wreckers
1797 12th St.
Oakland, CA 94607

NOTICE TO COMPLY & INVOICE

Conditions to Remedy:

HMBP Inspection

	Violation	Inspector	Inspect Date	Due Date
1	CA H&SC Section 25503.5(a) requires any business handling a hazardous material and which has a quantity at any one time equal to or greater that, 500 pounds, 30 gallons, or 200 cubic feet of compressed gas, shall establish and implement a business plan.	Jesse Kupers	08/22/2005	09/22/2005

Hazardous Waste Generator

	Violation	Inspector	Inspect Date	Due Date
1	66265.32a Internal communication/alarm not provided	Jesse Kupers	08/22/2005	09/22/2005
2	66262.34f accumulation date not indicated	Jesse Kupers	08/22/2005	09/22/2005
3	66262.32(14) HW labels not properly filled out	Jesse Kupers	08/22/2005	09/22/2005

Failure to remedy the violations by the due date indicated will result in this agency taking further regulatory action or recovery action. Regulatory action may include, but is not limited to, suspension, modification, or revocation of a permit, or other proceedings by this agency to correct the condition.

The list of violations and mitigation requirements outlined in the initial inspection have not been implemented. Therefore, the following fines and fees are herby assessed:

Fine: ~~$4000.00~~ 1000.00 K Mattison 4/24/06

Fees:

Re-inspection $91.00

Total Fees Due: **$4091.00**

Sincerely,

Kevin L. Mattison

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

NEST Environmental Services
1040 Grant Road, Suite 155 - PMB 325
Mountain View, CA 94040
Attn: Don Roh

Project Number: GMP
Project Name:
Date Received: 10/20/2004
P.O. Number: Cole Brothers Auto Wrecking
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40917-001 Sample ID: Stormwater Matrix: Liquid Sample Date: 10/19/2004 11:20 AM

Method: EPA 120.1

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Conductance	310		1	1	µmhos/cm	N/A	N/A	10/22/2004	WCOND041022E

Analyzed by: [illegible]
Reviewed by: RLAZARO

Method: EPA 150.1

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
pH	6.3		1	1	pH Units	N/A	N/A	10/20/2004	WPH041020B

Analyzed by: Equaja
Reviewed by: RLAZARO

Method: EPA 160.2

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Total Suspended Solids	10		1	5	mg/L	N/A	N/A	10/22/2004	WTSS041022B

Analyzed by: Equaja
Reviewed by: RLAZARO

Method: EPA 200.7 / EPA 3010B / Acid Digestion for ICP for 4010B

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Copper	0.81		1	0.005	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2
Lead	0.32		1	0.05	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2
Zinc	7.4		1	0.005	mg/L	10/20/2004	WM041020	10/27/2004	WICP2041027-2

Analyzed by: [illegible]
Reviewed by: MPBLIX

Method: EPA 415.2

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TOC	64		5	5	mg/L	N/A	N/A	10/27/2004	WTOC041027B

Analyzed by: Equaja
Reviewed by: RLAZARO

Detection Limit = Detection Limit for Reporting.
DF = Dilution and/or Prep Factor including [illegible]
ND = Not Detected at or above the Detection Limit.

NEST Environmental Services, Inc.
1040 Grant Road, Suite 155, PMB 325, Mountain View, California, 94040-3296

QUICK REFERENCE TO POLLUTANT SOLUTIONS/BMP
FOR AUTO DISMANTLERS / RECYCLERS

Are your storm water sample results above benchmarks?

Need help figuring out why? See below.

Pollutant	Potential sources	Pollution solution/BMP
Zinc Zinc used in galvanizing, anodizing metal products to prevent rust. Also used to strengthen tires.	1- Exposed large tire piles 2-Waste motor & lube oils, waste antifreeze 3- Galvanized metal like shed roofs, siding, fencing, rain gutters, parts racks, wheel rims 4- Exposed, rusty metal doors, hoods, roofs, alloy parts.	1- Rack, remove pile and cover tires 2- Look for drips; clean them up promptly 3- Sheds, bldgs.: dig shallow trench outside of roof drip line around structure 4- Cover (shrink wrap, plastic bags, tarps) or remove scrap
Copper	5- Disk brake pads 6- Waste antifreeze 7- Radiators 8- Electrical motors & harnesses	5- Raise off ground and cover 6- Use drip pans; prevent drips onto surfaces 7- Drain; raise off ground; cover; sweep up cutting fines ASAP 8- Raise off ground, cover
Lead	9- Batteries-acid spills; exposed to rainfall, storm water run-in; cracked, laying on side, caps not on 10- Wheel weights	9- Place all batteries inside non-metal, secondary containment, under cover; store upright with ALL caps on it possible 10-Remove from wheel rims; place weights inside secondary container; cover
TOC (total organic carbon) **Oil & Grease**	11- Spills, drips, leaks of motor oil, grease, gasoline, lube oils and other lubricating fluids, antifreeze; all exposed oily parts storage	11- PREVENT SPILLS!! Use drip pans under drips; clean it up promptly using absorbent pads, socks, sweep; cover parts; (Available from NEST)
TSS (total suspended solids)	12-Dirt or gravel surfaces; dirt, dust blown into yard; particles of leaves, trash, branches, straw, loose absorbents, metal particles	12- Sweep paved driveways; Put absorbent socks, wattles, hay bales before the discharge or sampling points
Conductance	13- Dissolved salts from dust suppressant; soapy water; salts from high water table	13- Don't wash on site! Use hay bales, wattles at discharge point
pH around 1-3? **pH** greater than 10.0?	14-Incorrect sampling technique: acid from one bottle contaminated the no-acid bottle; sampled a soft drink spill; battery acid 15-Recently poured concrete	14- Do not use any one bottle to fill the other two - fill each bottle from the stream 15- Do NOT sample downstream of newly poured concrete; sweep first; use citric crystals to neutralize

NEST Environmental Services, Inc. ©2005 NEST:potpolhndout

CITY OF OAKLAND

250 FRANK OGAWA PLAZA, SUITE 3341 • OAKLAND, CALIFORNIA 94612

Fire Department
Office of Emergency Services
Hazardous Materials Management Program

(510) 238-2936
FAX: (510) 238-6739
TTY/TDD: (510) 238-6884

CERTIFICATION OF RETURN TO COMPLIANCE

For Hazardous Material Storage, Hazardous Waste Generator And Stormwater Violations

In the matter of the Violation cited on: 11/1/05

As Identified in the Inspection Report dated 11/1/05

Conducted by: Keith Matthews.

I certify under penalty of law that:

1. Respondent has corrected the violations specified in the notice of violation cited above.

2. I have personally examined any documentation attached to the certification to establish that the violations have been corrected

3. Based on my examination of the attached documentation and inquiry of the individuals who prepared or obtained it, I believe that the information is true, accurate, and complete.

4. I am authorized to file this certification on behalf of the Respondent.

5. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

FLOYD COLE — Name (Print or Type)

OWNER-Partnership — Title

Floyd Cole — Signature

4-24-06 — Date Signed

Cole Bros auto Wreckers — Company Name

1797 12th Street — Address

OAKLAND FIRE DEPARTMENT/FIRE PREVENTION BUREAU
HAZARDOUS MATERIALS UNIT

250 FRANK OGAWA PLAZA, SUITE 3341, OAKLAND, CA 94612-2032 • (510) 238-3927

HAZARDOUS MATERIALS INSPECTION REPORT

Site Number	Facility Name	Facility Address	Zip Code
	Cole Bros.	1797 17th St.	07

Inspection Report

☒ **PERMISSION TO INSPECT GRANTED**

Activity: Wrecking Yard

Purpose of Visit: Reinspection & closeout of enforcement case

Labeling issues have been corrected
All Hazardous Waste is Secondarily Contained
HMBP on Site & updated
SWPPP on Site & Current
Contaminated Soil has been cleaned

Return to compliance form completed

Penalty reduced from $4000 to 1000^{00} plus reinspection fees based on ability to pay. Penalty to be payed in 3 installments to commence 30 days from today.

Facility Contact/Print Name:	Inspected By:		
FLOYD-COLE	FM 238-3927	☐ Insp. Griffin	238-7759
Facility Contact/Signature:		☒ Insp. Matthews	238-2396
Floyd Cole		☐ Insp. Kupers	238-7054
		☐ Insp. Gomez	238-7253
	Date:	24 April 06	

538-156 (05/05)

OAKLAND FIRE DEPARTMENT/OFFICE OF EMERGENCY SERVICES
HAZARDOUS MATERIALS UNIT

1605 Martin Luther King Jr. Way, Oakland, CA 94612 • (510) 238-3938

HAZARDOUS MATERIALS INSPECTION REPORT

Site Number	Facility Name	Facility Address	Zip Code
461	Cole Auto Wreckers	1797 12th St.	C7

Auto Dismantling
>20 years

Inspection Report CAL000282798

☒ **PERMISSION TO INSPECT GRANTED**

Waste drums Labeled - Must List accumulation date

Place batteries on pallets + protect from weather.

Place engines on Pallets and protect from rain

Separate Cylinders of oxygen at Least twenty ft. from ~~OA~~ acetylene + LPG.

Find HMBP or Complete HMBP + return w/in 30days

Clean Oil Stains from ground

All corrective actions must be completed w/i 30 day

JH Cole
414-4359

Facility Contact/Print Name:	Inspected By: Kim.	☐		
	238-3938	☒ Insp. Matthews	238-2396
Facility Contact/Signature:		☐ Insp. Craford	238-7758
		☐ Insp. Gomez	238-7253
	Date: 3 March 03		

Cole Bro.

OAKLAND FIRE SERVICES AGENCY/OFFICE OF EMERGENCY SERVICES
HAZARDOUS MATERIALS UNIT
1605 Martin Luther King Jr. Way, Oakland, CA 94612 • (510) 238-3938

HAZARDOUS MATERIALS INSPECTION REPORT

		UNAUTHORIZED OPERATION	V	C	N	OBSERVATIONS
400	**Hazardous Materials Release Response Plans and Inventory (HMRRP/Business Plan)**					
401	25507	Failure to report a release/threatened release.			✓	
402	25504	Emergency Response Plan inadequate	✓			
403	25509	Emergency contacts not provided/current	✓			
404	25504	Personnel training program is inadequate	✓			
405	25504	Hazardous Materials Chemical Inventory is not attached, is not accurate, or is incomplete	✓			
406	25509	Site map is not attached or is not sufficient	✓			
408	255339(a)	Acutely Hazardous Materials Registration not filed			✓	
408		Material Safety Data Sheets are not located where the Business Emergency plan (BEP) indicates they should be	✓			
409		The BEP indicates the facility maintains hazardous materials response equipment, and the equipment listed is not in place and in operable condition	✓			
410		Hazardous materials are not located in the designated areas as indicated on the site map	✓			
411		Containers are not clearly labeled with the chemical name and hazard class	✓			
412		Containers are in poor condition or are leaking	✓			
413		Secondary containment is inadequate	✓			
414		Emergency procedures are not adequately posted	✓			
415		Monitoring records are not complete or are not current	✓			

V=Violation C=Compliance N=Not applicable/addressed/Unknown

HAZARDOUS WASTE GENERATOR INSPECTION REPORT

FACILITY NAME: ~~Cole~~ Amba Bro. Wrecking | EPA I.D.#: CALC00082798

ADDRESS: 1797 12th St. | DATE: 3 Mar 03

	CODE SECTION	COMPLIANCE YES	NO	N/A
1. IDENTIFICATION NUMBER				
(a) Obtained EPA I.D. Number	66262.12(a)	√		
(b) Transporter and TSDF Have EPA I.D.#	66265.12(c)	√		
2. PRE-TRANSPORT REQUIREMENTS				
(a) HW Containers Labeled	66262.31	√		
(b) HW Label Properly Filled Out	66262.32(14)	√		
(c) HW Accumulation of Time Not Exceeded	66262.34 (c)	√		
(d) Accumulation Date Indicated	66262.34(f)		√	
(e) Description of HW Contents	66262.34(f)	√		
(f) HW Containers in Good Condition	66265.171	√		
(g) HW Compatible with Containers	66265.172	√		
(h) HW Containers Closed/Sealed	66265.173	√		
(I) HW Storage Area Inspected Weekly	66265.174	√		
(j) Tank & Tank Equip. Inspected Daily	66265.195			√
(k) Incompatible HW in Separate Containers	66265.199			√
(i) Proper Management of Used Oil Filters	66266.130	√		
3. RECORDKEEPING AND REPORTING				
(a) HW Analysis Kept 5 Yrs./Land Disposal	66262.11	√		
(b) Biennial Report Submitted to State	66262.41			√
4. MANIFEST/RECEIPTS				
(a) HW Shipped with Proper Manifest	66262.20	√		
(b) Manifests Kept for Last 3 Years	66262.40(a)	√		
(c) HW Analysis Kept for 3 Years	66262.40(c)			√
(d) Manifests Received from TSDF	66262.42			√
5. TRAINING				
(a) Training Program Provided	66265.16	√		
(b) Personnel Trained & Supervised	66265.16(b)	√		
(c) HW Personnel Trained within 6 Months	66265.16(b)		√	
(d) Training Records Kept on Site	66265.16(d)		√	
(e) Training Records Maintained for 3 Years	66265.16(e)		√	
(f) Training Records Complete	66265.16(1,2)		√	
Source Reduction Plan Completed	25244.19			√

	CODE SECTION	COMPLIANCE YES	NO	N/A
6. CONTINENCY/BUSINESS PLAN				
(a) Contingency Plan Complete	66265.52(a-f)		√	
(b) Copy of Plan on Site	66265.53		√	
(c) Contingency/Business Plan Submitted	66265.53(b)		√	
(d) Plan Amended as Necessary	66265.54		√	
(e) ER Coordinator Familiar w/Plan	66265.55		√	
7. PREPAREDNESS AND PREVENTION				
(a) Internal Commun./Alarm Provided	66265.32(a)	√		
(b) A Device to Call Outside Provided	66265.32(b)	√		
(c) Spill Control Systems Available	66265.32(c)	√		
(d) Maintain ER Equipment	66265.33	√		
(e) Security Measure	66265.14	√		
(f) Maintain Adequate Aisle Space	66265.35	√		
(g) Arrangements w/Local Agencies	66235.37	√		
8. EMERGENCY PROCEDURES				
(a) Character/Source/Extent of ER Determined	66265.56	√		
(b) Proper Agencies Notified of Health Hazard	66265.56	√		
(c) ER Data Submitted to DTSC & LIA	66265.56	√		
(d) Uncontrol. Release HW Property Handled	66235.56			√
9. WASTE STREAMS				
(a) Waste Oil		√		
(b) Non-Halogenated Solvents/Parts Cleaner				√
(c) Ethylene Glycol/Antifreeze				√
(d) Oily Sludges				√
(e) Other:				
(f) Other:				
(g) Other:				
(h) Other:				

All above code sections refer to the California Code of Reg. Title 22

Pollution Prevention	Health & Safety Code				

REMARKS:

OAKLAND FIRE DEPARTMENT/OFFICE OF EMERGENCY SERVICES
HAZARDOUS MATERIALS UNIT

1605 Martin Luther King Jr. Way, Oakland, CA 94612 • (510) 238-3938

HAZARDOUS MATERIALS INSPECTION REPORT

Site Number	Facility Name	Facility Address	Zip Code
461	Cole Bro. Auto Wreckers	1797 12th St	07

Auto dismantling

Inspection Report CALOOOO82798

[X] **PERMISSION TO INSPECT GRANTED**

Waste oil — unlabeled

open containers of waste oil — Must only be open during fillings ops.

Soil heavily Stained!

2100 cuft of O2 (g) / Acetylene / Propane

No waste manifest on Site!

No HMBP on Site!

GENERATOR FILE

No MSDS Sheets on Site

Motor Parts covered w/ auto Fluids improperly Stored. Items must be Stored on pallets + Protected from the rain!

Facility Contact/Print Name:	Inspected By:			
Floyd Cole	KM	[ ]		
Facility Contact/Signature:	238-3938	[✓]	Insp. Matthews	238-2396
		[ ]	Insp. Craford	238-7758
		[ ]	Insp. Gomez	238-7253
	Date:	26 Feb 03		

Cole Bros.

OAKLAND FIRE SERVICES AGENCY/OFFICE OF EMERGENCY SERVICES
HAZARDOUS MATERIALS UNIT
1605 Martin Luther King Jr. Way, Oakland, CA 94612 • (510) 238-3938

HAZARDOUS MATERIALS INSPECTION REPORT

		UNAUTHORIZED OPERATION	V	C	N	OBSERVATIONS
400	**Hazardous Materials Release Response Plans and Inventory (HMRRP/Business Plan)**					
401	25507	Failure to report a release/threatened release.			✓	
402	25504	Emergency Response Plan inadequate	✓			
403	25509	Emergency contacts not provided/current	✓			
404	25504	Personnel training program is inadequate	✓			
405	25504	Hazardous Materials Chemical Inventory is not attached, is not accurate, or is incomplete	✓			
406	25509	Site map is not attached or is not sufficient	✓			
408	255339(a)	Acutely Hazardous Materials Registration not filed			✓	
408		Material Safety Data Sheets are not located where the Business Emergency plan (BEP) indicates they should be	✓			
409		The BEP indicates the facility maintains hazardous materials response equipment, and the equipment listed is not in place and in operable condition	✓			
410		Hazardous materials are not located in the designated areas as indicated on the site map	✓			
411		Containers are not clearly labeled with the chemical name and hazard class	✓			
412		Containers are in poor condition or are leaking	✓			
413		Secondary containment is inadequate	✓			
414		Emergency procedures are not adequately posted	✓			
415		Monitoring records are not complete or are not current	✓			

V=Violation C=Compliance N=Not applicable/addressed/Unknown

HAZARDOUS WASTE GENERATOR INSPECTION REPORT

NAME: Cole Bros. | EPA I.D.#: CAL000082798

ADDRESS: 1797 12th Street | DATE:

	CODE SECTION	COMPLIANCE YES	NO	N/A		CODE SECTION	COMPLIANCE YES	NO	N/A
1. IDENTIFICATION NUMBER					**6. CONTINENCY/BUSINESS PLAN**				
(a) Obtained EPA I.D. Number	66262.12(a)				(a) Contingency Plan Complete	66265.52(a-f)		✓	
(b) Transporter and TSDF Have EPA I.D.#	66265.12(c)				(b) Copy of Plan on Site	66265.53		✓	
2. PRE-TRANSPORT REQUIREMENTS					(c) Contingency/Business Plan Submitted	66265.53(b)		✓	
(a) HW Containers Labeled	66262.31	✓			(d) Plan Amended as Necessary	66265.54		✓	
(b) HW Label Properly Filled Out	66262.32(14)		✓		(e) ER Coordinator Familiar w/Plan	66265.55		✓	
(c) HW Accumulation of Time Not Exceeded	66262.34 (c)		✓		**7. PREPAREDNESS AND PREVENTION**				
(d) Accumulation Date Indicated	66262.34(f)		✓		(a) Internal Commun./Alarm Provided	66265.32(a)	✓		
(e) Description of HW Contents	66262.34(f)		✓		(b) A Device to Call Outside Provided	66265.32(b)	✓		
(f) HW Containers in Good Condition	66265.171	✓			(c) Spill Control Systems Available	66265.32(c)	✓		
(g) HW Compatible with Containers	66265.172	✓			(d) Maintain ER Equipment	66265.33	✓		
(h) HW Containers Closed/Sealed	66265.173	✓			(e) Security Measure	66265.14	✓		
(I) HW Storage Area Inspected Weekly	66265.174	✓			(f) Maintain Adequate Aisle Space	66265.35	✓		
(j) Tank & Tank Equip. Inspected Daily	66265.195			✓	(g) Arrangements w/Local Agencies	66235.37			✓
(k) Incompatible HW in Separate Containers	66265.199			✓	**8. EMERGENCY PROCEDURES**				
(l) Proper Management of Used Oil Filters	66266.130	✓			(a) Character/Source/Extent of ER Determined	66265.56	✓		
3. RECORDKEEPING AND REPORTING					(b) Proper Agencies Notified of Health Hazard	66265.56	✓		
(a) HW Analysis Kept 5 Yrs./Land Disposal	66262.11	✓			(c) ER Data Submitted to DTSC & LIA	66265.56	✓		
(b) Biennial Report Submitted to State	66262.41			✓	(d) Uncontrol. Release HW Property Handled	66235.56			✓
4. MANIFEST/RECEIPTS					**9. WASTE STREAMS**				
(a) HW Shipped with Proper Manifest	66262.20	✓			(a) Waste Oil		✓		
(b) Manifests Kept for Last 3 Years	66262.40(a)	✓			(b) Non-Halogenated Solvents/Parts Cleaner		✓		
(c) HW Analysis Kept for 3 Years	66262.40(c)	✓			(c) Ethylene Glycol/Antifreeze		✓		
(d) Manifests Received from TSDF	66262.42	✓			(d) Oily Sludges				✓
5. TRAINING					(e) Other:				
(a) Training Program Provided	66265.16		✓		(f) Other:				
(b) Personnel Trained & Supervised	66265.16(b)		✓		(g) Other:				
(c) HW Personnel Trained within 6 Months	66265.16(b)		✓		(h) Other:				
(d) Training Records Kept on Site	66265.16(d)		✓						
(e) Training Records Maintained for 3 Years	66265.16(e)		✓		All above code sections refer to the California Code of Reg. Title 22				
(f) Training Records Complete	66265.16(1,2)		✓						
Source Reduction Plan Completed	25244.19			✓	Pollution Prevention	Health & Safety Code			

REMARKS:

BW 7-15-94

Alameda County Urban Runoff Clean Water Program
A Consortium of Local Agencies
Municipality: OAKLAND
Agency Conducting Inspection: ENV. HEALTH
Inspector: DON HWANG

Date of inspection: 6/15/94
Date of last inspection: 12/10/93

Standard Industrial and Commercial Business Follow-up Inspection Report This form should only be used after a Standard Inspection Report has been completed and a follow-up inspection was required.

1. Name of Facility: COLE BROS. AUTO WRECKING
2. Site Address: 1797 - 12TH ST., OAKLAND 94607
3. Name of Contact: FLOYD COLE
4. Phone No. of Contact: 444-4359
5. Has the facility been issued a notice or violation during or subsequent to a previous visit? ☑ yes ☐ no
   If yes, describe notice or violation. SPILLED OIL ON GROUND, AUTO PARTS OUTSIDE UNCOVERE
   If no, describe reason for follow-up. _____
6. Indicate type of follow-up inspection being conducted.
   ☑ first follow-up inspection ☐ second follow-up inspection
7. Time to Perform Inspection: _____

8. Type of Potential Discharge	Potential Discharge Eliminated	Comments
Illicit Connection	☐ yes ☐ no	
Discharge Location of Drain Unknown	☐ yes ☐ no	
Illegal Discharge to Storm Drain	☐ yes ☐ no	
Activity Area and/or Material Exposure to Storm Water	~~☐ yes~~ ☑ no	
Other (please specify) _____	☐ yes ☐ no	
_____	☐ yes ☐ no	
_____	☐ yes ☐ no	

9. Is additional follow-up required?
   ☐ no further follow-up inspection necessary
   ☑ date of next follow-up inspection is scheduled for 30 DAYS.
   ☐ further follow-up inspection to be scheduled at a later date
   ☐ case referred to City of Oakland for enforcement action (describe why below under "Comments")
   ☐ enforcement action is taken: (Circle one) warning notice informal violation formal violation
   ☐ case referred to City Attorney or County District Attorney

10. Comments 1) SPILLED OIL ON DIRT BY CARNATION TRUCK BODY - REMOVE OIL CONTAMINATED DIRT, STORE IN COVERED CONTAINER FOR DISPOSAL AS HAZARDOUS WASTE.
2) USED AUTOMOTIVE PARTS OILY, GREASY, + LEAK + UNCOVERED - STORE SO FLUIDS, OILS, GREASE ARE CONTAINED (WON'T FLOW OR WATER WON'T WASH FLUIDS TO DIRT OR STORM DRAIN. COVER - TARP, OR PUT IN COVERED NON LEAK CONTAINER, OR PLACE UNDER OVER HANG. CONTAINMENT OF FLUID IS REQUIRED IN ADDITION TO COVERING. AT SOUTHWEST CORNER OF LOT - BRAKE DRUMS/DISCS, REAR AXLES, ENGINES, CATALYTIC CONVERTERS, RADIATORS. MIDDLE OF LOT - ENGINES, TRANSMISSIONS, DRIVE SHAFTS, PICK UP BEDS WITH OIL + GREASE UNCOVERED.

Facility Representative Signature: Floyd Cole Date: 6-15-94

Print Facility Rep. Name: _____ Inspector's Signature: Don Hwang

3) APPLY FOR "GENERAL PERMIT" TO DISCHARGE STORMWATER. STORMWATER POLLUTION PREVENTION PLAN ALSO REQUIRED.

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

Hazardous Materials Division Inspection Form

Site ID# 928 Site Name COLE BROS AUTO WRECKERS Today's Date 7/21/92

Site Address 1797-12 TH ST EPA ID# ____

City OAKLAND Zip 94607 Phone ____

MAX Amt. Stored > 500lbs/55g/200cf? (Y) N
Hazardous Waste generated per month? ____

Inspection Categories:
- ✓ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
- ___ II. Business Plans, Acute Hazardous Materials
- ___ III. Underground Tanks

The marked items represent violations of the Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

I.A GENERATOR (Title 22)

	1. Waste ID	* 66471
✓	2. EPA ID	66472
	3. > 90 days	66508
	4. Label dates	66508
	5. Biennial	66493
Manifest	6. Records	66492
	7. Correct	66484
	8. Copy sent	66492
	9. Exception	66484
	10. Copies Rec'd	66492
Misc.	11. Treatment	66871
	12. On-site Disp. (H.S.&C.)	25189.5
	13. Ex Haz. Waste	66570
Prevention	14. Communications	67121
✓	15. Aisle Space	67124
	16. Local Authority	67126
	17. Maintenance	67120
	18. Training	67105
Contin. gency	19. Prepared	67140
	20. Name List	67141
	21. Copies	67141
	22. Emg. Coord. Trng.	67144
Containers, Tanks	23. Condition	67241
	24. Compatibility	67242
	25. Maintenance	67243
	26. Inspection	67244
	27. Buffer Zone	67246
	28. Tank Inspection	67259
	29. Containment	67245
	30. Safe Storage	67261
	31. Freeboard	67257

I.B TRANSPORTER (Title 22)

	32. Applic./Insurance	66828
	33. Comp. Cert./CHP Insp.	66448
	34. Containers	66465
Manifest	35. Vehicles	66465
	36. EPA ID #s	66531
	37. Correct	66541
	38. HW Delivery	66543
	39. Records	66544
Con'ts	40. Name/ Covers	66545
	41. Recyclables	66800

Rev 6/88

Comments:

WASTE OIL - 6 DRUMS

2/14/92 ARTESIAN OIL RECOVERY
2306 MAGNOLIA ST, OAKLAND 94607
839-4234, CAD980638449,
MANIFEST # 87162481 - 500 GAL

1) SPILLED OIL SATURATED IN LOT WHICH WAS MOSTLY UNPAVED. DISCONTINUE DISCHARGE OF OIL ONTO GROUND. WORK PLAN FOR CLEAN UP WILL BE REQUIRED.
2) SPILLED WASTE OIL BY WASTE OIL DRUMS. CAP OPENINGS WHEN NOT IN USE. REMOVE SPILLED OIL FROM TOP OF DRUMS - 7 DAYS.
3) WASTE OIL DRUMS UNLABELED. LABEL WITH HAZARDOUS WASTE LABELS PROVIDED - 7 DAYS.
4) AISLE SPACE REQUIRED FOR ACCESS OF EMERGENCY EQUIPMENT - 30 DAYS.
5) OBTAIN EPA ID #.

Contact: ____

Title: ____ Inspector: ____

Signature: Lloyd Cole Signature: Don Hwang

PRIVATE PROPERTY
SEDIMENT SAMPLING REPORT
ETTIE STREET WATERSHED
OAKLAND, CALIFORNIA

January 25, 2006

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A Report Prepared for:

City of Oakland PWA-WSD
250 Frank Ogawa Plaza, Suite 5301
Oakland, California

PRIVATE PROPERTY
SEDIMENT SAMPLING REPORT
ETTIE STREET WATERSHED
OAKLAND, CALIFORNIA

Project No. 44277/5.4

Prepared by

Alvaro Dominguez
Professional Staff - Environmental Science

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Project Engineer

Lynne Srinivasan
Environmental Group Manager

KLEINFELDER, INC.
1970 Broadway, Suite 710
Oakland, California 94612
(510) 628-9000

January 25, 2006

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TABLE OF CONTENTS

Chapter		Page
1	**INTRODUCTION**	1
	1.1 PREVIOUS INVESTIGATION	1
	1.2 SELECTION OF PRIVATE PROPERTY SAMPLING LOCATIONS	1
2	**SAMPLING AND ANALYSIS**	3
	2.1 SAMPLE COLLECTION	3
	2.2 ANALYTICAL PROGRAM	3
	2.3 DATA QUALITY	4
3	**RESULTS**	5
	3.1 COMPARISON CRITERIA	5
	3.2 ANALYTICAL RESULTS	5
4	**REFERENCES**	7

TABLES

1 Summary of Private Property Onsite Sampling Analyses

PLATES

1 Onsite Sampling Locations

APPENDIX

A Field Notes
B Sampling Forms
C Analytical Laboratory Report

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2) Difficulty locating the property owners,

3) Sampling could not be performed without owner notification, and

4) There were no current activities on the vacant lots that might contribute to PCBs levels in sediment.

In addition, one commercial/industrial property (Precision Casting) was not accessible due to difficulties locating the property owners and lack of response to inquiries for property access.

The locations of these 18 facilities and one residence are shown on Plate 1.

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1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) prepared this report to document the private property sampling and analytical results for sediment collected from properties previously identified as potential sources of polychlorinated biphenyls (PCBs) to the Ettie Street Pump Station and San Francisco Bay waters in the Kleinfelder report "Sediment Sampling Report Ettie Street Pump Station Watershed Oakland, California," dated, July 29, 2005.

The State Water Resources Control Board (SWRCB) awarded the City of Oakland a Proposition 13 Grant (Grant) in the amount of $460,000 to further investigate, identify, and abate sources of PCBs in the Ettie Street Watershed. This private property sediment sampling report was prepared under the requirements of Task 5.4 of the Grant documentation.

1.1 PREVIOUS INVESTIGATION

Kleinfelder's July 29, 2005 report describes the analytical results of PCBs detected in sediments collected from the public right-of-way areas in front of or near facilities that were considered potential sources of PCB-containing sediments. Sediment samples were collected from public right-of-way locations that appeared to drain runoff from the facilities of potential concern.

1.2 SELECTION OF PRIVATE PROPERTY SAMPLING LOCATIONS

Private property sampling locations within the Ettie Street Pump Station Watershed were selected based on several factors, including:

- Exceedances of environmental screening levels (ESL) in public right-of-way sediment samples,
- Field observations, and
- The ability to gain access to the properties.

Of the 32 locations exhibiting elevated PCB concentrations (greater than the ESL) (Kleinfelder, 2005), 24 could be associated with nearby businesses; the 8 remaining locations were illegal dumping sites located within the public right-of ways. Of the 24 locations associated with businesses, 19 were accessible and were sampled (79 percent). Four of the areas not sampled were vacant lots; vacant lots were not sampled for one or more of the following reasons:

1) The properties were fenced with no identifying placards,

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2 SAMPLING AND ANALYSIS

Based on the public right-of-way sampling analytical results, a total of 25 composite sediment samples from 18 business facilities and one residential property were collected. The names of the businesses and their respective addresses are listed in Table 1. Kleinfelder, in coordination with the City of Oakland, performed private property sampling between August 22 and October 10, 2005.

2.1 SAMPLE COLLECTION

Private property sampling was performed as part of the City's annual Certified Unified Program Agency (CUPA) hazardous materials facility inspections. City of Oakland Fire Department Hazardous Materials Division staff requested authorization from site owners or managers to collect sediment samples as part of the City's annual inspection of hazardous materials. City of Oakland Public Works staff accompanied Kleinfelder staff in performing an initial site reconnaissance to select areas from which to collect the samples. At each property, three to four locations were selected in order to obtain a three- or four-point composite sample. At two of the business facilities, Custom Alloy Scrap Sales and Giampolini Painting, more than one composite sample was collected in order to better characterize the conditions at properties with multiple addresses and/or a large areal extent. In addition, duplicate samples were collected from two randomly selected facilities. Private property sampling locations were selected based on:

- Observed activities considered to be potentially associated with PCB-containing materials,
- Areas accumulating sediments in drainage locations, i.e. onsite storm drains and/or depressions, as well as areas with poor pavement conditions, and
- Work or storage areas containing electrical equipment that was observed to be out in the open and not adequately covered.

Samples were collected in accordance with the methodology specified in the Sampling and Analysis Plan (Applied Marine Sciences, 2004b)

2.2 ANALYTICAL PROGRAM

Sediment samples were delivered in ice water chilled coolers to Columbia Analytical in Kelso, WA, via overnight courier service, under chain of custody protocols. Samples were analyzed for PCB congeners following the United States Environmental Protection Agency (EPA) Method 8082, for total solids by EPA Method 160.3, and for total organic carbon (TOC) and grain size following the Puget Sound Estuary Protocols. Samples were analyzed on a standard turnaround time, approximately six weeks per batch.

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2.3 DATA QUALITY

Analytical data quality objectives (DQOs) were presented in Section 3.3 of the Quality Assurance Project Plan (QAPP) and specified in Tables 3 (Data Quality Objectives for Analysis of Organic Pollutants in Sediment Samples), 4 (Data Quality Objectives for Analysis of Total Organic Carbon and Grain Size in Sediment Samples), and 5 (Data Quality Objectives for Analysis of Organic Pollutants in Aqueous Samples) (Applied Marine Sciences, 2004a). The specified DQOs were met for the data collected from the private property sampling locations.

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3 RESULTS

This section presents a summary of the private property sampling results for PCBs and a comparison of the results to current environmental screening levels. Certified analytical laboratory reports are included in Appendix C.

3.1 COMPARISON CRITERIA

The Cal-EPA and the RWQCB have developed risk-based guidelines to address environmental and human health protection goals posed by different pollutants, including PCBs, in residential and industrial/commercial land uses.

Cal-EPA established California Human Health Screening Levels (CHHSLs) for PCBs in shallow soil (less than 3 meters below ground surface [bgs]) of 89 micrograms per kilogram (µg/Kg) for residential sites and 300 µg/Kg for industrial sites. CHHSLs represent a screening level for human exposure only (Cal EPA, 2005). The RWQCB established ESLs for PCBs in shallow soil (less than 3 meters bgs), where groundwater is not a potential source of drinking water, of 220 µg/Kg for residential sites and 740 µg/Kg for industrial sites (RWQCB, 2005).

Because the purpose of the Grant is to reduce PCB loadings into San Francisco Bay via the Ettie Street Pump Station and because the RWQCB is the lead regulatory agency for the Grant, the ESLs were selected as the screening criteria for this evaluation. Private property sampling results were compared to the commercial/industrial soil PCB ESL of 740 µg/Kg for the industrial properties and the residential soil ESL of 220 µg/Kg for the residential property.

3.2 ANALYTICAL RESULTS

Table 1 presents a summary of the private property sampling results. PCB concentrations ranged from 40 µg/Kg to 93,411 µg/Kg. Out of the 25 samples collected, 13 exceeded the industrial soil ESL. These 13 samples corresponded to 9 businesses as follows:

- Granite Expo (3430 Wood Street) – 93,411 µg/Kg
- Giampolini Painting (2838 Hannah Street) - 793 and 17,725 µg/Kg
- Custom Alloy Scrap Sales (CASS) (2711 Peralta Street) – ranging from 1,776 to 14,733 µg/Kg collected four separate locations referred to as East, West, Central, and North (see Table 1)
- ACM Asbestos (3428-3434 Helen Street) - 10,618 µg/Kg

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- California Electric (3015 Adeline Street) – 6,077 µg/Kg
- Amtech Lighting (1266 14th Street) – 5,695 µg/Kg
- Martinez Brothers Trucking (1639 18th Street) – 1,954 µg/Kg
- Allied Painters (3425 Ettie Street) – 1,754 µg/Kg
- Cole Brothers Auto Wreckers (1797 12th Street) – 1,663 µg/Kg

In addition, the PCB concentration (370 µg/Kg) detected at the residential property (2939 Union Street) exceeded the residential soil ESL of 220 µg/Kg.

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4 REFERENCES

Kleinfelder, Inc. 2005. Sediment Sampling Report, Ettie Street Pump Station Watershed, Oakland California. July 29.

Applied Marine Sciences. 2004a. Quality Assurance Project Plan for the City of Oakland PCB Abatement Grant Project in the Ettie Street Pump Station Watershed, Oakland, California. September 17.

Applied Marine Sciences. 2004b. Sampling and Analysis Plan for the City of Oakland PCB Abatement Grant Project in the Ettie Street Pump Station Watershed, Oakland, California. November 23.

Regional Water Quality Control Board. 2005. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater – Volume 1: Summary Tier 1 Lookup Tables. February.

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TABLE

Table 1. Summary of Private Property Sampling Analyses

Ettie Street Pump Station Watershed PCB Grant Project

City of Oakland

Map ID	Proposed Abatement Area	Site Address	Site Name or Description	Public Right of Way PCBs[1] (µg/Kg)	Private Property Sampling PCBs[1] (µg/Kg)	% Solids	% Fines	% TOC
2	6	**1797 12th St.**	**Cole Brothers Auto Wreckers**	**3,814**	**1,663**	99	27	6.76
5	near 8	**1266 14th St.**	**Amtech Lighting**	71	**5,695**	99	20	6.47
8	7	**1639 18th St.**	**Martinez Bros. Trucking**	**2,510**	**1,954**	99	18.67	3.64
38	5	**3015 Adeline**	**California Electric**	**1,141**	**6,077**	98.3	10.9	10.3
56 South	2	**2838 Hannah**	**Giampolini Painting**	**2,383**	**17,725**	95.6	17.48	5.23
56 North	2	**2838 Hannah**	**Giampolini Painting**	**2,383**	**793**	99	23.8	2.39
63-64-65	1	**3428-3434 Helen St.**	**ACM - Asbestos Abatement**	**7,348**	**10,618**	100	22.0	2.36
82	3	**2601 Peralta**	**CASS (west facility)**	**903**	**8,210**	98.9	18.12	8.94
84	3	**2711 Peralta**	**CASS (east facility)**	**2,221**	**14,733**	98.9	18.63	9.51
84	3	**2730 Peralta**	**CASS (central facility)**	**3,736**	**3,628**	98.8	18.12	9.43
86	3	**2812 Peralta**	**CASS (north facility)**	597	**1,776**	98.3	17.5	7.36
87	4	3426 Peralta	Alliance Metals	**765**	40	80	20	9.23
91	NP, close to area 3	2850 Poplar	Starving Students Moving Co.	286	402	98.4	19.28	10.3
91		1266 28th Street	Estate Mattres Co.	286	189	98.9	24.84	9.01
92	NP	2928 Poplar & 1275 30th St.	Chemical Storage/Electrical Repair	220	222	100	16.18	7.18
111	NP	2939 Union St.	Residential	266	370[2]	98.3	35.77	8.3
122	9	**3430 Wood St.**	**Granite Expo**	**1,220**	**93,411**	100	16	3.39
50	10	**3425 Ettie St.**	**Allied Painter**	**750**	**1,754**	98.6	15.82	11
77	NP	2126 Market St.	Harold's Body Shop	264	117	87.1	19.28	4.73
77	NP	2127 Market St.	Harold's Body Shop (Duplicate)	264	116	87.4	18.55	6.95
80	NP	2226 Myrtle	JAC Truck Repair	143.0	102	72.3	8.73	14.2
112	NP	914 West Grant	Auto Repair	133.0	190	98.7	19.39	9.39
97	NP	1998 San Pablo	Chef Edwards	299	202	98.7	10.84	3.18
97		1998 San Pablo	Chef Edwards (Duplicate)	299	327	98.8	15.82	2.89
104	NP	2801 San Pablo	Enrique's Auto Repair	507	718	86.3	18.23	5.35

Notes:

PCB Polychlorinated Biphenyls by EPA Method 8082
NP Site Not included in Proposed Abatement Area
TOC Total Organic Carbon
µg/Kg micrograms per Kilogram
BOLD Bold font indicates PCB concentrations exceeding the RWQCB industrial soil ESL of 740 ug/Kg
[1] Sediment Sampling Report, Ettie Street Pump Station Watershed (Kleinfelder, 2005)

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KLEINFELDER

SHEET 2 OF 3

PROJECT NO. 44277 / 5.4

PROJECT Ettle St. WS - PCB Onsite Sampling

DATE 8/22/05

CREWS Alvaro Dominguez / Jeff Graves

Various equipment observed dispersed on the area, some that appears Electrical equipment. A storm drain is observed near the property corner near the intersection of Poplar St & 16th. the cover of the storm drain was removed. Not much sediment was in the storm drain catch, but much had accumulated outside. these sediments are to be collected and considered as a single sampling location.
SEDIMENT was also observed accumulating @ the center of this parking/storage area. SEDIments are to be collected from this area as well.

10- Decide to label each brush w/ the sampling # and to save the brushes in case they are needed for future reference. Sampling efforts start.

11:20 Samples have been collected & are being stored in Jars.
11:25 Decon procedures. Sample ID = 082205-S-DD-01

Next sampling location will be Cole Bros. 1797 12th street.

11:35 Arrive @ Cole Bros location. Facility is now open. Proceed to w/ William & Jesse to request permission for inspection/sampling. the owner is called and upon his arrival we proceede to walk the premises & identify the sampling locations.
No apparent source of PCB is identified. Decide to collect samples from the Gate on Pine & in the area along the fence on Pine Street. Towards the center of the site, sediment observed accumulating near a shed, outside of which radiators and a few car batteries were observed. Decide to collect those sediments. A work bench was observed next to the office area, sediment accumulating there will also be collected.

Sample id = 082205-S-AD-02

M-4A

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SHEET 3 OF 3

PROJECT NO. 44277 / 5.4

PROJECT Ettie St. WS - PCB onsite Sampling
CREW 3 Alvaro Dominguez /

DATE 8-22-05

11[55] Samples are stored in glass jars & decon is underway
Decide to meet @ 1[15] @ Martinez Bros Trucking - 1639 18th Street.

12[05] Break for Lunch.

1[10] Arrive @ 1639 18th Street.
1[15] Jesse Arrives @ Site and shortly there after William arrives.
1[20] Jesse William and I go into Martinez Bros & ask permission for Inspection / sampling.
Access is granted. William & I walk premises - Decide to sample an area where sediment accumulate along a fence on the west side of property (behind office Building), near an electrical transformer observed by the fence close to 17th Street from Cracks in the center of the lot, and from Sediment accumulating along the Eastern Wall.
- the site is a large Parking Area w/ a small Bldg serving as office.

2- Samples have been collected & Stored in Jars. Decon procedures begin
The Manager/owner of the site comes out and informs us that he has changed his mind and that he does not want us to take the samples w/us, thus refusing us the originally granted ac permission.
Sediment is returned to ~ approximate areas where it was collected -
Site sample had been labeled
082205-S-AD-03

After Decon, William decides to collect quits for the day. Will start again tomorrow @ the CASS facility. 82-84-86 @ 2730 Peralta.

M-4A

Cole Brothers – 1797 12th Street

California Environmental Protection Agency
Department of Toxic Substances Control
Environmental Chemistry Laboratory (Inorganic Section)
700 Heinz Ave., Suite 100, Berkeley, CA 94710
Phone: (510) 540-3003

For ECL No.: AQ00407
to AQ00408
Authorization No.: 06EC0086
Page 1
of 1

ANALYTICAL LABORATORY REPORT - For Total Metal Analysis

Requestor's Name: Edgardo Gillera
Address: 700 Heinz Ave., Suite 200
Berkeley, CA 94710
Site of Sampling: Cole Brothers Auto Wrecking
1797 12th Street
Oakland, CA 94607

Date Collected: 10/24/2006
Date Received: 10/24/2006
Date Digested: 10/26/2006
Date Analyzed: 10/31/2006

Analytical Procedure: EPA-SW 846

Samples are digested with 1:1 HNO3 (and 30% H2O2, and 1:1 HCl, if applicable) over a hot plate. Digests are cooled, filtered and made to final volume with deionized H2O. Metal analysis of the digests is by ICPAES (EPA #6010B).

Method: 3050B for soilds; 3010A for liquids; 3005A for drinking water. Units: mg/Kg

ECL Number:	AQ00407	AQ00408				Method	Method
Collector's No.:	CLB1	CLB2				Blank	Detection
Sample Type:	Soil	Soil					Limit
Analyte							
Arsenic-As	25.1	27.3				ND	0.05
Barium-Ba	628	578				ND	0.04
Beryllium-Be	ND	ND				ND	0.01
Cadmium-Cd	26.1	15.5				ND	0.02
Chromium-Cr	90.2	66.5				ND	0.04
Cobalt-Co	15.5	9.41				ND	0.03
Copper-Cu	256	237				ND	0.1
Lead-Pb	1720	1280				ND	0.05
Molybdenum-Mo	9.70	ND				ND	0.05
Nickel-Ni	134	63.0				ND	0.05
Selenium-Se	ND	ND				ND	0.05
Thallium-Tl	ND	ND				ND	0.04
Vanadium-V	29.2	25.9				ND	0.02
Zinc-Zn	4490	1780				ND	0.04

comments: ND=Not Detected

Merlyn de Guzman 11/2/06
Staff Chemist Date
Merlyn De Guzman

Zenaida Odion 11/2/06
Sample Prepared By Date
Zenaida Odion

Merlyn de Guzman 11/2/06
for Supervisor Date
Jamail Garcha
MG (Rev) 11/2/06

source file: C:\pe\Administrator\Reports\31OCT06.csv

California Department of Toxic Substances Control
Environmental Chemistry Laboratory
700 Heinz Avenue Suite 100, Berkeley, CA 94710, Ph (510) 540-3003
Laboratory Report For...Polychlorinated Biphenyls (PCB's)

For ECL No.s AQ00407
to AQ00408

Auth. No. 06EC0086 S
Page 1
of 3

Requestor: Edgardo Gillera
Address: 700 Heinz Ave., Suite 200
Berkeley, CA 94710

Date Collected: 10/24/2006
Date Received by Lab: 10/24/2006
Date Extracted: 12/11/2006
Data Analyzed: 12/19/2006
Extraction Method: EPA 3546
Analysis Method: EPA 8082

Sampling Location: Cole Brothers Auto Wrecking
1797 12th Street
Oakland, CA 94607

Extraction Holding Time Met ?: no
Analysis Holding Time Met ?: yes

Extraction Methods: EPA 3510C For aqueous samples: Separatory funnel extraction with methylene chloride.
EPA 3550B For solid samples: sonication extraction with hexane/acetone(1:1).Solvent exchange to hexane.
EPA 3546 For solid samples: Microwave extraction with hexane/acetone(1:1). Solvent exchange to hexane.
EPA 3580A For oils & organic liquid samples: Solvent dilution with hexane.

Cleanup Method: EPA 3665A- Shake the hexane extract with conc. Sulfuric acid till the extract is clear. Wash with DI water.

Analytical Method: EPA 8082 -- Analysis by DB-5 capillary column and gas chromatograph with electron capture detection.

ECL Number: ---->		AQ00407	AQ00408				Method	
Collector's Sample #		CLB1	CLB2				blank	QL
Sample Matrix:		Soil	Soil				solvent	
Units:		mg/Kg	mg/Kg				mg/Kg	mg/Kg
Compound	CAS #							
Aroclor 1016	12674-11-2	ND	ND				ND	1.0
Aroclor 1221	11104-28-2	ND	ND				ND	1.0
Aroclor 1232	11141-16-5	ND	ND				ND	1.0
Aroclor 1242	53469-21-9	ND	ND				ND	1.0
Aroclor 1248	12672-29-6	ND	ND				ND	1.0
Aroclor 1254	11097-69-1	ND	ND				ND	1.0
Aroclor 1260	11096-82-5	3.4	2.0				ND	1.0
Aroclor 1262	37324-23-5	ND	ND				ND	1.0

Surrogate Standard Recovery: Unit: Percent

Decachlorobiphenyl	2051-24-3	84	89				110	

Note: QL = Quantitation Limit = Lowest calibration standard x dilution factor
ND = Not detected or detected but below half QL D = Detected but below QL NA = Not Analyzed NT=Nontarget peak

Comments:

Analyzed by: Sardara Gill — Signature: Sardara S Gill — Date: 12-22-2006

Reviewed by: Juliet Tabajonda — Signature: Juliet Tabajonda — Date: 12/22/06

Approved by: Modan Gill — Signature: Modan S. Gill — Date: 12. 22. 06

PCB REFERRAL SITE INFORMATION

The purpose of this form is to provide the Department of Toxic Substances Control and the Regional Water Quality Control Board with sufficient information to require site owner/operators to conduct follow-up investigations and/or PCB cleanup actions. Please use additional pages, as necessary, to complete your responses.

Referring Agency:	City of Oakland
Staff Contact Name:	Terri Fashing
Phone:	(510) 238-7276
Email Address:	tfashing@oaklandca.gov
Date of Referral:	March 19 2026

1. Name of Site: Yenlin Air Conditioning

2. Address City County ZIP: 1268 48th Ave and 1309 49th Ave, Oakland, Alameda County, 94601

3. APN(s): 034 225601602

4. Provide a Site Location Map and a Site Diagram showing significant features.

Parcel Area: 0.33 acres
Area Covered by Structures: 0.32 acres
See attached Figure 1 for the Site Location Map. Site Diagram is not available for the site.

5. Current Owner

Name:	Y&N Li Family Limited Partnership
Address:	16205 Silverleaf Drive
City, County & Zip Code:	San Lorenzo, Alameda County, CA 94580
Phone:	(510) 534-4296
E-mail Address:	Yenlinlico@gmail.com
Contact:	Ann Li

6. Background: Current Business Operations

Name:	Li Yenlin Refrigeration Co
Period of Operation:	April 2000 - Present
Type:	Air conditioning and ducts sales and repair services. Warehouse with open area in the back (1309 49th Avenue).

7. Background: Previous Business Operations (if known)
Unknown.

8. Summarize any available information that may indicate hazardous substances, pollutants, or contaminants OTHER than PCBs have been associated with the site.
Unknown.

PCB REFERRAL SITE INFORMATION

9. Describe the known and suspected sources of PCBs at the site.

Unknown. There is heavy equipment (e.g., a small forklift) present on the site.

10. Has sampling or other investigation been conducted in the vicinity of the property? Yes No

On 6/4/2024, a composite sample (SLB-9) was collected from the site and in the nearby area. The analytical results indicated a PCBs concentration of 1.67 mg/kg in the composite area.

On 9/9/2024, follow-up sampling was conducted at each of the properties comprising the EC-9 sample. A sample taken from the sidewalk and driveway adjacent in front of the site (SLB-9L) found a PCBs concentration of 1.51 mg/kg. A sample taken from the driveway in back of the property (SLB-9H) found a PCBs concentration of 0.715 mg/kg.

On 6/9/2025, the property was inspected by the City and ACCWP, and onsite samples were collected. A sample collected from the outdoor space in the back found a PCBs concentration of 1.23 mg/kg PCBs.

See attached Figure 2 for sample locations and results from 9/9/2024 and 6/9/2025.

11. Is the site subject to the general industrial stormwater permit? Yes No

12. Is there currently a potential for exposure of the community or workers to hazardous substances, pollutants, or contaminants at the site? Yes No Unknown

Elevated PCBs concentrations have been detected at the site. The site is currently occupied by Li Yenlin Refrigeration Co., which offers sales and repair services, and there remains a potential risk of exposure to the community or workers if the contaminated soil is disturbed.

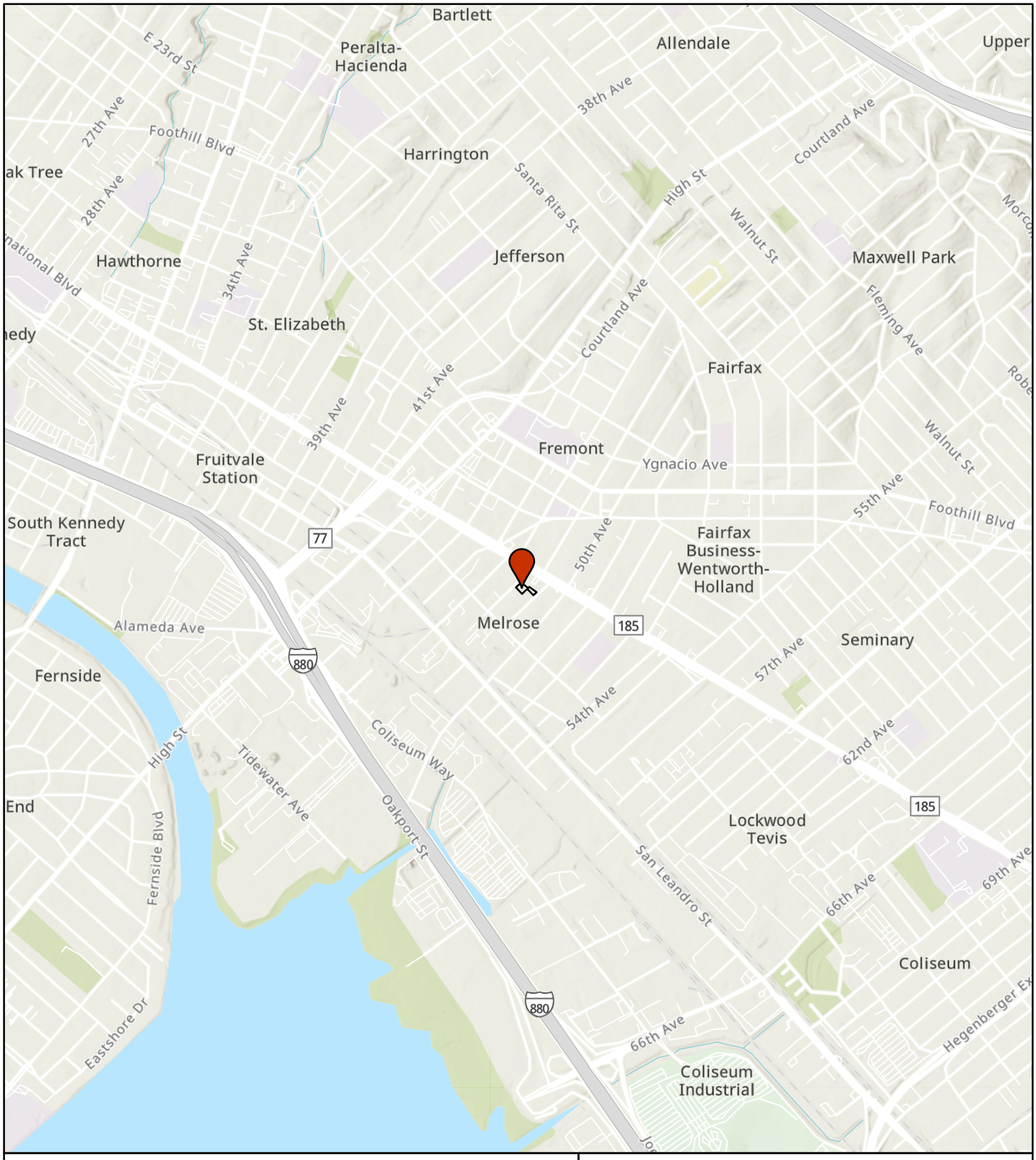
13. Are any Federal, State or Local regulatory agencies currently involved with the site?
Yes No

14. Provide any other pertinent site information not covered above: None.

15. Describe enhanced control measures that will be implemented at the site.

The City may install full trash capture devices in the downstream storm drain inlets located on the northeast corner of E 12 St and 48th Ave and the northwest corner of E12 St and 49th Ave. ACCWP will assist the City with inlet clean out in 2026.

Attachments:
Figure 1. Site Location Map
Figure 2. Sample Location Map



Legend

Yenlin Air Conditioning

APN 034 225601602

N

0 2,000 Feet

Site Location Map

1268 48th Ave and 1309 49th Ave
Oakland, CA 94601

cleanwater PROGRAM

Figure 1

March 2026

\\Oakland-01\data\GIS\MRP Mapping\AC_CC_POCs Monitoring Planning 2025\AC_CC_Referral Site Mapping 2025.aprx\Site Locations 12/22/2025 5:14 PM (Emily.Meyers)

Sample ID	Sample Date	Total PCBs (mg/Kg or ppm)
YENLIN-S-01	6/9/2025	1.231
SLB_9-F	9/9/2024	0.173
SLB_9-G	9/9/2024	0.129
SLB_9-H	9/9/2024	0.715
SLB_9-J	9/9/2024	0.087
SLB_9-K	9/9/2024	0.126
SLB_9-L	9/9/2024	1.51

APPENDIX D

Source Area Investigations of Mercury and PCBs – Standard Operating Procedure

ALAMEDA COUNTYWIDE
cleanwater
PROGRAM

MEMBER AGENCIES:

Alameda

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

County of Alameda

Alameda County Flood Control and Water Conservation District

SOURCE AREA INVESTIGATIONS OF MERCURY AND PCBS STANDARD OPERATING PROCEDURE

FINAL

January 2026

ACKNOWLEDGEMENTS

This Standard Operating Procedure was completed, in part, with funding from a San Francisco Bay Water Quality Improvement Fund grant issued by the United States Environmental Protection Agency (EPA) to the City of San Pablo, supported by matching contributions from Bay Area countywide stormwater management programs and member agencies. The City of San Pablo applied for and was awarded the grant to implement the *PCBs TMDL Special Studies and Implementation Project* on behalf of the Bay Area Municipal Stormwater Collaborative member agencies. EPA Water Quality Improvement Fund Grant Award No. W9-97T23001-0.

TABLE OF CONTENTS

1. INTRODUCTION 1

2. BACKGROUND 1
   2.1 Mercury and PCBs Total Maximum Daily Loads (TMDL) 1
   2.2 Municipal Regional Permit 1

3. OVERVIEW 3

4. DESKTOP EVALUATION 4

5. FIELD PREPARATION 5
   5.1 Pre-Field Activities 5
   5.2 PCBs Factsheets and Training Material 6
   5.3 Access to Field Assessment Database 6
   5.4 Field and Sampling Equipment 6
   5.5 Sampling Coordination 7
   5.6 Health and Safety 7

6. FIELD INSPECTION 8
   6.1 Moderate Source Area Investigation 8
   6.2 Documentation 11
   6.3 Surface Soil/Sediment Testing 12
   6.4 Review Site Inspection 12

7. CONTROL MEASURE ASSESSMENT 12
   7.1 No Action 12
   7.2 Control Measures Plans for Properties with *Moderately* Elevated Mercury or PCBs 12
   7.3 Referral or Abatement of *Highly* Elevated Mercury or PCBs Source Properties 13

8. REFERENCES 14

LIST OF TABLES

Table 3-1. Standard Operating Procedures Tasks and Roles
Table 4-1. Sources Reviewed During Records Review
Table 5-1. ACCWP Monitoring Contractor
Table 5-2. Laboratory Analytical Methods for Analytes in Soil/Sediment
Table 5-3. Specifications for Sample Handling for Analytes in Soil/Sediment
Table 6-1. Guide for Identifying and Sampling Potential Sources of Mercury
Table 6-2. Guide for Identifying and Sampling Potential Sources of PCBs

LIST OF FIGURES

Figure 1: Alameda County Focus Area Example
Figure 2: Standard Operating Procedures for Identifying Source Areas

LIST OF APPENDICES

Appendix A: Process of Selecting and Implementing Specific Control Measures
Appendix B: Template Letter – Request for On-site Inspection and Sampling
Appendix C: PCBs Factsheets, Training Material, and Survey 123 Guidance
Appendix D: Site Assessment Field Form
Appendix E: Example Task Hazard Analysis
Appendix F: Surface Soil/Sediment Sampling Procedures
Appendix G: Site Inspection Follow-up Letters *(to be added in an addendum)*
Appendix H: Pollutant Control Plan Template

ACRONYMS AND ABBREVIATIONS

ACCWP	Alameda Countywide Clean Water Program
ASTM	American Society for Testing and Materials
BASMAA	Bay Area Stormwater Management Agencies Association
DTSC	California Department of Toxic Substances Control
EPA	Environmental Protection Agency (U.S.)
MDL	Method Detection Limit
MQO	Measurement Quality Objective
MRP	Municipal Regional Permit
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
O&M	Operations and Maintenance
PCBs	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
QA	Quality Assurance
QAO	Quality Assurance Officer
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
ROW	Right-of-way
SMARTS	Stormwater Multiple Application and Report Tracking System
SIC	Standard Industrial Classification
SOP	Standard Operating Procedure
TMDL	Total maximum daily load

1. INTRODUCTION

This *Standard Operating Procedure (SOP) for PCBs and Mercury Source Area Investigations* describes how the Alameda Countywide Clean Water Program (ACCWP) or a member agency will conduct site visits within focus areas to determine if there is a readily identifiable property or area that disproportionally contributes polychlorinated biphenyls (PCBs) or mercury into the municipal separate storm sewer system (MS4). The outcomes of the investigations will help identify appropriate control measures that could be implemented to address elevated PCBs or mercury contributions to the MS4.

ACCWP has conducted source area investigations in high priority areas since 2009. This program is continuing the search for properties, including moderate PCBs or mercury sources in addition to the more elevated PCBs or mercury sources previously targeted. In addition, this program will implement efforts to gain access to and collect samples on private properties.

2. BACKGROUND

2.1 Mercury and PCBs Total Maximum Daily Loads (TMDL)

Fish tissue monitoring in San Francisco Bay (Bay) has revealed bioaccumulation of PCBs, mercury, and other pollutants. The levels found are thought to pose a health risk to people consuming fish caught in the Bay. As a result of these findings, California issued an interim advisory on the consumption of fish from the Bay. The advisory led to the Bay being designated as an impaired water body on the Clean Water Act "Section 303(d) list" due to PCBs, mercury, and other pollutants. In response, the San Francisco Bay Regional Water Quality Control Board (Water Board) has developed TMDL water quality restoration programs targeting PCBs and mercury in the Bay. The general goals of the TMDLs are to identify sources of PCBs and mercury to the Bay and implement actions to control the sources and restore water quality.

MS4s are one of the PCBs and mercury source/pathways identified in the TMDLs. Local public agencies (i.e., Municipal Regional Permit[1] (MRP) Permittees) subject to requirements via NPDES permits are required to implement control measures to reduce PCBs and mercury from entering stormwater runoff and the Bay. These control measures, also referred to as BMPs, are the tools that Permittees can use to assist in restoring water quality in the Bay.

2.2 Municipal Regional Permit

NPDES permit requirements for Phase I municipal stormwater programs and Permittees in the Bay Area are included in the MRP, which was issued to 70 cities, counties, and flood control districts in 2009 and initially reissued in 2015. The current MRP (i.e., MRP 3.0; Order No. R2-2022-0018) became effective on July 1, 2022. Consistent with the TMDL plans, Provisions C.11. and C.12 of the MRP require the implementation of control programs, including source and treatment control

[1] California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (Order No. R2-2022-0018; NPDES Permit No. CAS612008). May 11, 2022.

measures and pollution prevention strategies, to reduce mercury and PCBs in urban stormwater runoff.

Provisions C.11.b and C.12.b require Permittees to investigate, through monitoring, likely mercury and PCBs source properties and then take action to abate mercury or PCBs sources or refer properties to the Water Board for land areas found to be contributing substantial amounts of mercury or PCBs or where high mercury (≥ 0.5 mg/kg) or PCBs (≥ 1.0 mg/kg) concentrations are found. Permittees must implement interim enhanced operations and maintenance (O&M) measures for source properties referred to the Water Board.

MRP Provisions C.11.c and C.12.c require the Permittees to implement or cause to be implemented control measures to achieve mercury and PCBs load reductions. In response, the ACCWP prepared the *Old Industrial Area Control Measure Plan* (ACCWP, 2024). This report fulfilled the MRP requirements for providing a plan and schedule for implementing control measures in old industrial areas to achieve mercury and PCBs load reductions. As described in the *Old Industrial Area Control Measure Plan,* ACCWP analyzed existing monitoring data to identify known or suspected areas with moderate or high concentrations of mercury or PCBs. These areas, referred to as "focus areas," are in the cities of Berkeley, Emeryville, Oakland, and San Leandro as shown in Figure 1. Additional focus areas will be assessed if identified through ongoing monitoring conducted by the ACCWP in compliance with MRP Provisions C.11.b/C.12.b.

Section 3.2 of the *Old Industrial Area Control Measure Plan* describes the general process of identifying focus areas, confirming the presence of elevated levels of mercury or PCBs, and implementing appropriate treatment control measures. The associated flow chart is provided in Appendix A and summarized below:

1. Identify and map focus areas using monitoring data collected prior to July 1, 2022. Focus areas group existing moderate or high data points (soil/sediment concentrations ≥ 0.2 mg PCBs/kg or ≥ 0.3 mg/kg mercury) into smaller management areas. The Regional Monitoring Program's Priority Margin Unit watersheds (i.e., the Emeryville Crescent and San Leandro Bay watersheds) are also focus areas.

2. Resample the focus areas to confirm the presence of moderate or elevated levels of mercury or PCBs. If the resampling determines that an area is not moderately contaminated (i.e., PCBs < 0.2 mg/kg and mercury < 0.3 mg/kg), revise the focus area map to indicate the result of the monitoring.

3. For confirmed source properties (i.e., parcels associated with PCBs ≥ 1.0 mg/kg or mercury ≥ 0.5 mg/kg), refer the property to the Water Board and implement enhanced O&M measures at the site. Alternatively, abate or cause the property to be abated directly. Source properties will be referred to the Water Board as they are identified throughout the permit term unless the Permittee causes abatement of the property.

4. For focus areas with confirmed moderate levels of PCBs or mercury (i.e., parcels associated with PCBs ≥ 0.2 mg/kg and < 1.0 mg/kg or mercury ≥ 0.3 mg/kg and < 0.5 mg/kg), conduct site visits on parcels, as described in this SOP, to determine if there is a readily identifiable PCBs source and pathway to the MS4.

5. If no specific source property is identified, but a property is confirmed as having moderate contamination, the property owner can assess and implement actions on the property to contain or treat the source.

6. If no specific property is identified as a source of moderate contamination, select and implement controls for the moderate area in the ROW (i.e., treatment or enhanced operations and maintenance) based on site constraints, local infrastructure, and drainage patterns.

3. OVERVIEW

The purpose of the activities described in this SOP is to identify parcels or areas that disproportionately contribute moderately or highly elevated mercury or PCBs concentrations to the MS4. Sites with moderately elevated mercury or PCBs may be addressed through voluntary actions by the responsible party or as required by enforcement actions taken by a Permittee. Sites with highly elevated mercury or PCBs may be addressed through voluntary actions by the responsible party or as required by enforcement actions taken by the Water Board or other regulatory agencies.

Permittees with focus areas within their jurisdictions should review their existing municipal codes to ensure that they have adequate authority to conduct on-site mercury and PCBs inspections and surface soil/sediment sampling. Permittees may seek input from their City Attorneys as needed and consider updating their municipal code if necessary to more fully support the implementation of the new or enhanced programs as described in this SOP.

The SOP is organized as follows:

- Section 4 – Desktop Evaluation
- Section 5 – Field Preparation
- Section 6 – Field Investigation
- Section 7 – Control Measure Assessment

These steps are illustrated in Figure 2, below.

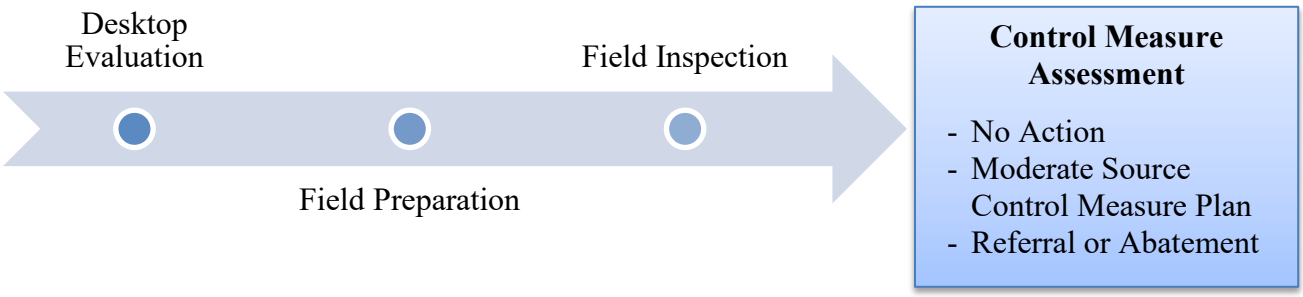


Figure 2. Standard Operating Procedures for Identifying Source Areas

A summary of these steps and roles is provided in Table 3-1, below.

Table 3-1. Standard Operating Procedures Tasks and Roles

Task	Lead	Support
Desktop Evaluation	ACCWP	
Field Preparation and Inspection		
- Prepare for and conduct ROW composite monitoring	ACCWP	
- Notify property owners of upcoming on-site inspection	Municipality	ACCWP
- Conduct on-site inspection	ACCWP	Municipality
Control Measure Assessment		
- Notify property owners of inspection results	ACCWP	Municipality
- Moderate sites – develop pollution control plan	Property owners	ACCWP Municipality
- Moderate sites – implement pollution control plan	Property owners	
- High sites – referral form and coordinate submission to Regional Water Board	ACCWP	Municipality
- High sites – implement enhanced O&M in the ROW	Municipality	ACCWP

4. DESKTOP EVALUATION

For focus areas with confirmed moderate and high levels of PCBs (PCBs ≥ 0.2 mg/kg) (i.e., identified in the *Old Industrial Control Measure Plan* or through ongoing monitoring under Provisions C.11.b/C.12.b), ACCWP will conduct a desktop evaluation and records review to identify specific sites for inspection and on-site sampling. The publicly available databases and information to be reviewed during desktop evaluation are shown in Table 4-1.

Table 4-1. Sources Reviewed During Records Review

Database or Information Review	Maintained by Agency/Entity	Reference Link
Aerial and Satellite Photographs	Google Maps, Google Earth	https://www.google.com/maps
EnviroStor	California Department of Toxic Substances Control (DTSC)	http://www.envirostor.dtsc.ca.gov/public/
GeoTracker	State Water Resources Control Board	http://geotracker.waterboards.ca.gov/
HazMat – Spill Release Reporting	California Office of Emergency Services	https://www.caloes.ca.gov/office-of-the-director/operations/response-

Database or Information Review	Maintained by Agency/Entity	Reference Link
		operations/fire-rescue/hazardous-materials/spill-release-reporting/
Parcel Viewer	Alameda County Office of the Assessor	https://www.acassessor.org/homeowners/assessment-resources/parcel-viewer/
Stormwater Multiple Application and Report Tracking System (SMARTS)[1]	State Water Resources Control Board	https://smarts.waterboards.ca.gov/

[1]Metal recycling businesses are to be screened using Standard Industrial Classification (SIC) Code 5093 for scrap and waste materials.

The monitoring data collected to date along with the parcel identification criteria listed below should be used to select priority sites for inspection and on-site sediment sampling:

- Monitoring data collected in the right-of-way (ROW) with moderate PCBs results
- Metal recycling businesses/sites on SMARTS
- PCBs listed as a potential contaminant of concern on EnviroStor or GeoTracker for contaminated sites that have not been remediated
- Previously identified PCBs spills sites
- Vacant parcels
- Parcels with outdoor activities and storage

5. FIELD PREPARATION

As desktop analysis of focus areas is completed and priority sites are identified, field crews will implement the field preparation procedures outlined in this section. The timing of the inspections will be determined based on the outcomes of prioritization efforts established during the desktop evaluation, personnel availability, weather conditions, and site access.

5.1 Pre-Field Activities

Prior to the start of field activities, the following should be performed.

- Contact the property owner to coordinate inspection (see Appendix B)
- Review PCBs Factsheets and Training Material (Section 5.2 and Appendix C)
- Access and review the field assessment form (Section 5.3)
- Obtain appropriate equipment and personal protective equipment (Section 5.4)
- Coordinate sampling effort with the monitoring consultant (Section 5.5)
- Update hospital and urgent care information in the health and safety plan (Section 5.6)

5.2 PCBs Factsheets and Training Material

Mercury and PCBs are conveyed to the MS4 and receiving water bodies primarily through mercury or PCBs associated with sediment transported during storm events. Sites with exposed soils, unpaved areas, and degraded pavement, buildings, or infrastructure are particularly susceptible. Properties may have potential for non-stormwater discharges containing mercury or PCBs if there are mercury or PCBs containing equipment or materials on-site. PCBs factsheets and training materials are provided in Appendix C and should be reviewed prior to field investigation.

5.3 Access to Field Assessment Database

The field assessment database will be accessed and managed using ArcGIS Survey123 (Survey123). A Survey123 Guidance document is also provided in Appendix C. Inspectors will access the database using desktop and handheld devices equipped with internet access. Request for database access is required and, when approved, an ArcGIS Online (AGOL) username and password will be provided. If the inspector already has an AGOL account, their username and password can be linked to the database. It is recommended that access be requested within a week leading up to mobilization.

Once access is obtained, field forms within Survey123 will be used and accessed on a mobile device for documenting source area investigations. A blank copy of the database form is provided in Appendix D and can be printed out and used if Survey123 is not available. If hard copies of the survey form are used during an inspection, GPS coordinates should be recorded for each site, and survey results should be manually input into the database.

5.4 Field and Sampling Equipment

The following field equipment is recommended for the inspectors conducting the site assessment:

- Camera
- iPad with database/maps
- Flashlight
- Manhole pick or storm drain grate puller
- Keys - Coordinate to get access
- Pens
- Field binder (containing this SOP)
- Task Hazard Analysis (THA)
- Level D PPE

ACCWP's monitoring contractor (Section 5.5) will provide and be responsible for the sampling equipment.

5.5 Sampling Coordination

The inspector will work with ACCWP's monitoring contractor to lead sample collection and analysis. The contact information for the monitoring contractor is provided in Table 5-1. Each surface soil/sediment sample will be analyzed for mercury and PCBs. The analytical methods are listed in Table 5-2 and the number and type of sample containers, volumes, preservatives, and holding times are listed in Table 5-3. The monitoring contractor will lead sample preparation, handling, chain of custody, and QA/QC procedures which are referenced in Section 6.3 and described in detail in Appendix F.

Table 5-1. ACCWP Monitoring Contractor

Contractor	Company	Phone Number	Email
Paul Salop	Applied Marine Science (AMS)	925-373-7142	salop@amarine.com

Table 5-2. Laboratory Analytical Methods for Analytes in Soil/Sediment

Analyte	Sampling Method	Recommended Analytical Method	Reporting Units
Mercury	Grab	EPA 7471A, 7473, or 1631	µg/kg
PCBs	Grab	EPA 1668, 8082, or 8270M	µg/kg

Table 5-3. Specifications for Sample Handling for Analytes in Soil/Sediment

Analyte	Analyte Group	Sample Container Material & Property	Minimum Container Amount	Preservative	Holding Time (at 6º C)
Mercury	Inorganics	60-mL I-Chem 200 series clear glass jar with Teflon lid-liner	100 g	Cool to 6º C and in the dark	1 year at -20º C; Samples must be analyzed within 28 days of collection or thawing.
PCBs	Synthetic Organics	Pre-cleaned 250-mL I-Chem 200 Series amber glass jar with Teflon lid liner	500 mL (two jars)	Cool to 6° C within 24 hours, then freeze to ≤-20° C	1 year at -20º C; Samples must be analyzed within 14 days of collection or thawing.

5.6 Health and Safety

An example Health and Safety Plan or task hazard analysis (THA) has been developed for the field investigations and provided in Appendix E. In Part A of the THA, the Permittee is responsible for

completing the highlighted sections with program-related personnel information and ensuring the information is accurate and up to date. The inspector will update the site location details and nearby hospital information in the THA before each site assessment. Any changes or additional hazards observed during the site assessment should also be documented in the THA. All field staff participating in the site assessment must review and sign the THA prior to visiting the sites. Sections in the THA requiring updates are highlighted in yellow.

Field staff are to wear Occupational Safety and Health Administration (OSHA) Level D personal protective equipment (PPE) as site assessments are conducted on industrial facilities where activities are unfamiliar. The required OSHA Level D PPE includes:

- Safety glasses
- Hard-toed boots
- Protective clothing
- Hard hat
- Hearing protection
- High-visibility vest
- Outer boots
- Outer gloves (Work gloves and Nitrile gloves)

6. FIELD INSPECTION

Properties may have potential for non-stormwater discharges containing mercury or PCBs if there are mercury or PCBs containing equipment or materials on-site. On-site field investigations aim to assess potential sources and pathways of these contaminants.

6.1 Moderate Source Area Investigation

The next step in the source investigation is to conduct on-site visits to the identified potential moderately contaminated properties and the public ROW adjacent to the properties. During the site visit, the inspector should inspect the entire public ROW in the vicinity of the previously identified moderate sample. The inspector should note the condition of the storm drain and whether there is sediment accumulation within the storm drain.

Assuming access to the property has been granted, the inspector should inspect the exterior faces of the buildings as well as the outdoor areas for any potential sources of PCBs and mercury. The PCBs and mercury source investigation training materials are included in Appendix C. Inspectors should take digital photographs of notable features like old and cracked chipping paint, the presence of a boneyard, stockpiled electrical equipment, etc. Inspectors should look for potential indicators of past and current pollutant use and/or release from the property to the adjacent public ROW and storm drain.

Inspectors should look for the following potential PCBs sources including, but not limited to, the following:

- Electrical equipment (e.g., transformers)
- Outdoor hazardous material/waste storage areas (e.g., tanks, drums), especially with poor housekeeping
- Signs related to hazardous materials and wastes
- Recycling/scrap yards/bone yards
- Building demolition, renovation, or window replacement sites
- Unusually stressed vegetation
- Unidentified puddles or stains

These observations can assist in evaluating the potential migration of sediment-bound pollutants from potential source properties to stormwater conveyances.

Table 6-1 and Table 6-2 provide a guide in identifying sources of mercury and PCBs respectively, the type of facilities to inspect, what an inspector should look for when visiting a facility, items to note in the field, and where to potentially sample.

Table 6-1. Guide for Identifying and Sampling Potential Sources of Mercury

Mercury Uses	What to Look for When Visiting a Facility	Items to Note in the Field	Where to Potentially Sample
• Batteries • Compact Fluorescent Light Bulbs (CFLs) • Thermometers • Barometers • Temperature and pressure gauges • Dental Amalgam	• Fluorescent light bulbs • Old gauges and meters • Unidentified drums, tanks, or barrels	• Note if the manufacturers label says equipment contains mercury • Shattered or broken equipment • Leaking equipment • Unidentified puddles or stains • Drain plugged with stopper, seal, or mat.	• Downspouts near roof gutters • Corner of building where sediment may accumulate • Swales of storm drain inverts • Within or around on-site basins or sumps • Planters situated in areas near suspect mercury media (i.e., paint, caulking, transformer, etc.) • Former/current waste staging areas and bone yards
• Mercury switches and relays in older cars • Mercury switches in older appliances	• Cars manufactured before 2003 may contain mercury switches or relays • Older appliances including chest freezers, space heaters, clothes dryers, washing machines	• Old discarded cars • Old discarded and stockpiled appliances • Stockpiles of construction & demolition debris	

Table 6-2. Guide for Identifying and Sampling Potential Sources of PCBs

PCBs Uses	What to Look for When Visiting a Facility	Items to Note in the Field	Where to Potentially Sample
• In electrical equipment as a dielectric oil • As an additive in hydraulic and lube oils • In wire insulation	• Electrical transformers • Fluorescent light ballasts • Hydraulic oil reservoirs • Unidentified drums, tanks, or barrels • Old electrical wiring	• Pre-1978 • Note if the manufacturers label says equipment contains PCBs • Oil-filled equipment • Disconnected equipment • Leaking equipment • Unidentified puddles or stains • Drain plugged with stopper, seal, or mat.	• Downspouts near roof gutters • Corner of building where sediment may accumulate • Swales of storm drain inverts • Within or around on-site basins or sumps • Planters situated in areas near suspect PCBs media (i.e., paint, caulking, transformer, etc.) • Old loose building materials (caulk or paint) • Former/current waste staging areas and bone yards
• As a plasticizer in paints and caulks • In Galbestos roofing/siding	• Applied externally and used within buildings pre-1978 • Old paint • Old window and door caulk • Impacted concrete and masonry bricks • Paint sand blast waste • Old roofing/siding	• Pre-1978 • Old peeling, crumbing paint and caulking • Old discarded roofing and siding • Stockpiles of construction & demolition debris • Salvage yards, scrap metal yards, bone yards, and waste staging areas • Recycling areas	

6.2 Documentation

Source area investigation documentation is to be conducted on a handheld device/iPad via Survey123, access is summarized in Section 5.3 above. During or in the office after investigations, inspectors will complete the survey form provided in Appendix D. If sampling is conducted, inspectors will also record the sample ID, location on the site, date, time, and whether the sample was a composite.

6.3 Surface Soil/Sediment Testing

The sampling and analysis procedures defined in this SOP include surface soil/sediment sampling to identify properties with moderately elevated PCBs and mercury. As part of the monitoring efforts, the inspector will work with the monitoring contractor to collect surface soil/sediment samples from areas identified in Table 6-1 and Table 6-2 for analysis of PCBs and mercury. If moderate pollutant concentrations are confirmed, Permittees will work directly with the property owners to cause the implementation of appropriate on-site controls.

Sampling procedures outlined in this SOP follow monitoring guidelines implemented in previous source area investigations described in the Quality Assurance Project Plan: Clean Watersheds for a Clean Bay – Implementing the San Francisco Bay's PCBs and Mercury TMDLs with a Focus on Urban Runoff (BASMA, 2011). These procedures are described in Appendix F.

6.4 Review Site Inspection

Inspectors implementing the procedures defined in this SOP are to review the site assessments conducted on Survey123. To review the database, staff are to ensure the Survey123 entries were properly uploaded and can be confirmed by accessing the database as described in Section 5.3 above. As part of the review, staff are to:

- Confirm all entries in the database are correct and accurate
- Photos taken on Survey123 are representative of the site conditions
- Document sampling conducted on Survey123 is accurate

If documentation was not conducted on Survey123, staff are required to transcribe the results on the Survey123 portal online. After upload, staff are to review the data once again to confirm the items transcribed are correct and accurate and implement the steps listed above.

7. CONTROL MEASURE ASSESSMENT

When the sampling results of the potential source properties are received, property owners will be notified of the inspection results. Example follow up template letters are provided in Appendix G. Based on the resulting sediment sample concentration, one of three actions may be taken to minimize the potential migration of mercury and PCBs to the MS4. The three actions are summarized below.

7.1 No Action

If sediment samples of a source property show PCBs concentrations less than < 0.2 mg/kg and mercury concentrations < 0.3 mg/kg, then the focus area map will be revised to indicate that the property is not a source.

7.2 Control Measures Plans for Properties with *Moderately* Elevated Mercury or PCBs

If sediment samples of a source property show moderately elevated PCBs or mercury concentrations (PCBs ≥ 0.2 mg/kg and < 1.0 mg/kg or mercury ≥ 0.3 mg/kg and < 0.5 mg/kg), the Permittee will work directly with the property owner to cause the implementation of appropriate

on-site controls to prevent the release of mercury or PCBs to stormwater. The Permittee may require the responsible party to develop and implement a site-specific *Control Measures Plan,* as outlined in Appendix H. The *Control Measures Plan* will identify all applicable mercury or PCBs sources and transport pathways on the property (e.g., stormwater runoff, wind, vehicle tracking, etc.) and the appropriate controls or BMPs that will be used to intercept each identified PCBs or mercury source/transport pathway.

7.3 Referral or Abatement of *Highly* Elevated Mercury or PCBs Source Properties

If sediment samples of a source property show highly elevated mercury or PCBs concentrations (mercury ≥ 0.5 mg/kg; PCBs ≥ 1.0 mg/kg or PCBs ≥ 0.5 mg/kg plus other lines of evidence), the Permittees will take actions to cause the property to be abated or refer that property to the Water Board for further action.

For confirmed highly elevated source properties, the Permittee will implement or cause to be implemented one or a combination of interim enhanced O&M measures in the street or storm drain infrastructure adjacent to the source property during the source property abatement process to prevent further contaminated sediment from entering the MS4. For those source properties that choose self-abatement (i.e., by the Permittee or the property owner), the Permittee will provide the Water Board with sufficient documentation that the source property abatement has effectively eliminated the transport of PCBs or mercury offsite and from entering the MS4 infrastructure for all transport mechanisms that apply to the site (e.g., stormwater runoff, wind, vehicle tracking).

8. REFERENCES

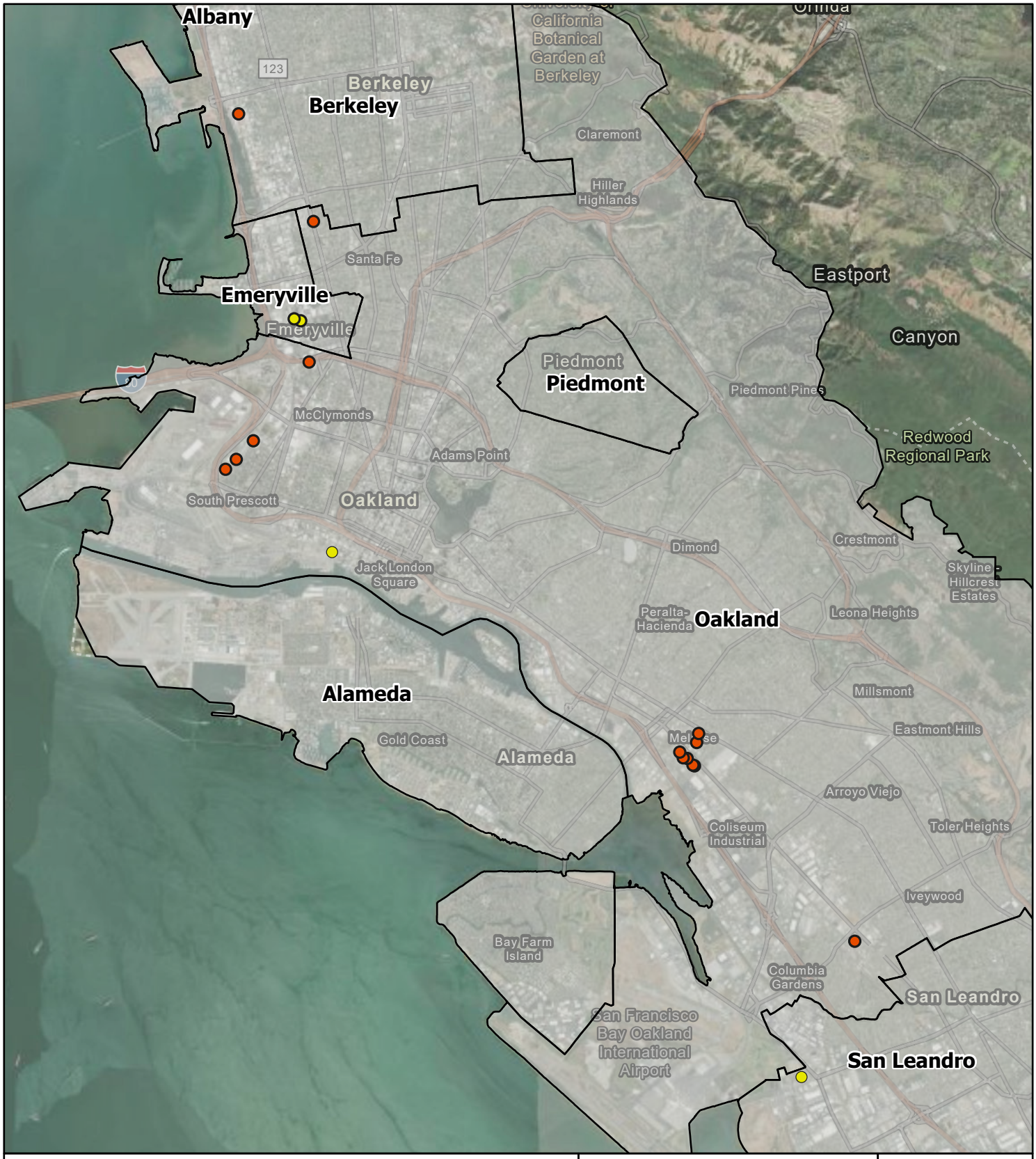
Alameda Countywide Clean Water Program (ACCWP), 2024. *Alameda County Old Industrial Area Control Measure Plan, Revised Version 1.2.* Prepared by the ACCWP and submitted to the California Regional Water Quality Control Board, San Francisco Bay Region. October 2024.

AMS 2004. *Sampling and Analysis Plan for the City of Oakland PCB Abatement Grant Project in the Ettie Street Pump Station Watershed, Oakland, CA. SWRCB Agreement No. 03-156-552-0.* Prepared for Kleinfelder, Inc., City of Oakland, and the California State Water Resources Control Board.

BASMAA, 2011. *Quality Assurance Project Plan: Clean Watersheds for a Clean Bay – Implementing the San Francisco Bay's PCBs and Mercury TMDLs with a Focus on Urban Runoff, EPA San Francisco Bay Water Quality Improvement Fund Grant # CFDA 66.202.* Prepared by Applied Marine Sciences, Inc. July 26, 2011

BASMAA 2014. *BASMAA Regional Monitoring Coalition Standard Operating Procedures for Creek Status Monitoring.* Prepared by AMS, ARC, and EOA for the Regional Monitoring Coalition. Version 2, January 2014.

FIGURE



Sediment Sample (collected 2024)

- <0.2 mg/kg PCBs & >0.3 mg/kg Hg
- 0.2 - 1.0 mg/kg PCBs
- City Limits

N

0 10,000 Feet

Alameda County

Moderate PCBs & Mercury Focus Area

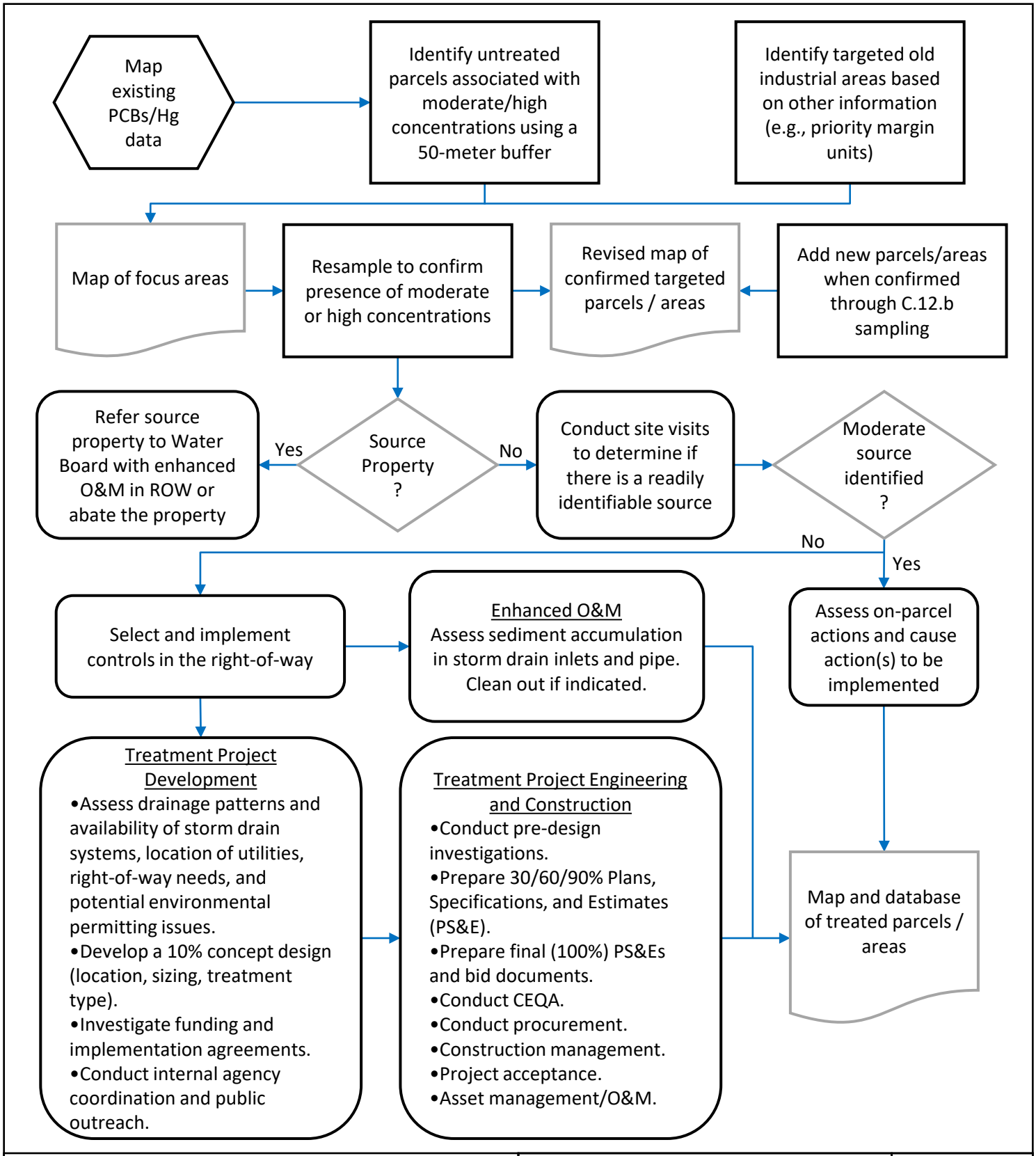
ALAMEDA COUNTYWIDE cleanwater PROGRAM

October 2025

Figure 1

P:\GIS\Alameda Countywide Clean Water Program (ACCWP)\Old Industrial Source Property Investigation\ACCWP SP Identification&Referral\ACCWP_OI_SP\ACCWP_OI_SP.aprx\Moderate PCBs and Moderate Mercury Focus Area 2 1/17/2025 5:23 PM (Yaxin.Jin)

APPENDIX A
Process of Selecting and Implementing Specific Control Measures



Notes:

PROCESS OF SELECTING AND IMPLEMENTING SPECIFIC CONTROL MEASURES

January 2026

Appendix A

APPENDIX B

Template Letter – Request for On-site Inspection and Sampling

[City logo]

The City of [name]
sender address line 1
sender address line 2

DRAFT - Template Letter – Request for On-site Inspection and Sampling

Month/Date/Year
Property Owner/Manager Name
Address

[Consider adding a sentence indicating that translation can be available upon request]

Subject: Upcoming Stormwater Inspection - NPDES Provision C.11 Mercury Controls and Provision C.12 Polychlorinated Biphenyls (PCBs) Controls

Dear Owner / Facility Manager,

The City of [name] is inspecting private parcels to meet requirements of the Federal Clean Water Act and State issued regional municipal stormwater permit. The permit requires the City of [name] to implement a stormwater control program for mercury and polychlorinated biphenyls (PCBs), which includes source control, treatment control, and pollution prevention measures.[1] A Stormwater Inspector will be visiting your property, located at [site address] , within the next month or so during business hours. This inspection should take approximately 30 minutes and include only outdoor areas of the property.

Storm drains flow directly into creeks and the San Francisco Bay without treatment. Because of this direct connection, mercury and PCBs-contaminated sediment that flows into a storm drain can easily cause pollution. It is the responsibility of your property owner/manager to ensure that only rainwater enters the storm drains at your property and that sediment on your property is controlled and prevented from mixing with stormwater runoff. Routine inspection of the City's infrastructure has confirmed the presence of elevated mercury or PCBs in the storm drain infrastructure in your neighborhood. To investigate potential sources of elevated mercury and PCBs, the Inspector will conduct an onsite inspection of and may collect sediment samples from your property.

Please see the enclosed background information on PCBs in industrial settings. Since this inspection program is being implemented by the City of [name] to meet our Permit requirements, private parcels investigated for mercury and PCBs will not be charged for stormwater inspections at this time.

For any questions concerning the stormwater inspection, please contact [name of city contact] at [email] or [phone number].

[1] Under the San Francisco Bay Municipal Regional Stormwater Permit (MRP) National Pollutant Discharge Elimination System (NPDES), Order No. R2-2022-0018, Provision C.11 – Mercury Controls and C.12 - Polychlorinated Biphenyls (PCBs) Controls, the City of [name] is required to investigate land areas that likely contribute mercury or PCBs to MS4s and take actions to abate mercury or PCBs sources. The City of [name] has the legal authority to enforce these requirements under the [municipal code].

Respectfully submitted,

_____
Signature

[name of city contact]
[title]

Attachment: Identifying PCBs in Industrial Settings

APPENDIX C

PCBs Factsheets,Training Material, and Survey 123 Guidance

Identifying PCBs in Industrial Settings

This fact sheet is for inspectors of industrial and commercial sites to help them identify PCB-containing equipment. The fact sheet San Francisco Bay PCBs TMDL – Implementation at Cleanup & Spill Sites contains information on PCBs analytical methods and cleanup strategies.

Description

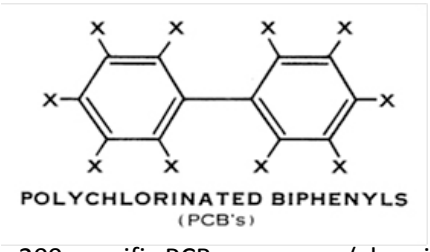
PCBs (polychlorinated biphenyls) are a group of manmade chemicals that were used in a wide range of industrial applications starting around WWII and ending in 1978. PCBs were often added to a wide variety of products to enhance certain properties, such as heat resistance, plasticity, stability (resistance to weathering), etc. Even though PCB production was banned in 1978, equipment and other materials containing PCBs can still be found today. PCBs-containing oils were valued for their stability and persistence; the same qualities that make them last so long in the environment. About 75% of all PCBs produced went into oils used in transformers and other electric equipment. This oil is a blend of PCBs dissolved into a solvent like chlorobenzene. PCBs continue to be generally released through surface spills from leaking equipment (transformers, hydraulic equipment, etc.) or improper storage and disposal. Once in the environment, PCBs attach to the finer particles in soil and can be transported via stormwater runoff to creeks and the Bay. Due to their inherent stability and wide range of uses over a long period of time, PCBs contaminated soil is widespread and is often undetected. By understanding their uses, sources, and characteristics, inspectors can identify areas or materials and products that are likely to be contaminated by PCBs.

Characteristics of PCBs

- Non-curing organic resin
- Oily to tarry texture
- Highly stable molecule
- Not water soluble
- Soluble in oil/fat/solvents
- Very fire retardant
- Does not oxidize
- Primarily used as an additive

Uses of PCBs

- Transformer and Capacitor Oils
- Specialty Hydraulic and Lube Oil
- Plasticizer (Paint, Caulk)
- Inks, Carbon Paper, Casting Wax, Wire Insulation, Other



There are 209 specific PCB congeners (chemicals) which were mixed into compounds (often called arochlors) and sold under a variety of trade names listed below.

PCBs were used in insulating fluid inside capacitors.

Potential PCB-Containing Items

- Pre-1978 Transformers – can be any type and size. Industries with high power requirements are very likely to have PCB transformers in substations or powerhouses, inside, around, or on top of buildings, or in underground vaults.
- Pre 1978 electrical equipment and wire insulation and heat transfer systems
- Electric motors
- Hydraulic systems – such as in heavy equipment and transport vehicles
- Building demolition waste (aging paints, caulking, insulated cable, water proofing, asphalt roofing materials)
- Metal composite siding or roofing material (trade name “Galbestos”)

Potential PCBs Sources and Sites

- Scrap metal recycling
- Auto salvage/crushing yards, auto wreckers
- Auto Repair Shops
- Copper recyclers
- Demolition/salvage companies
- Concrete/asphalt recycling (joint materials and impacted concrete)
- Electrical equipment rebuilders
- Electrical contractors
- Foundries, forges, rolling mills (impacted feedstock, casting wax, hydraulic fluids)
- Shipyards/ locomotive repair, heavy equipment repair
- Dredge spoils

PCBs were widely used in coolants and insulating fluid in electrical equipment such as transformers.

Galbestos roofing/siding was banned in 1973, but can still be found on buildings. Highly aged, it can be a significant source of PCBs in runoff.

A typical pre-1979 PCB-containing fluorescent light ballast (FLB)

Only magnetic fluorescent light ballasts contained PCBs. A typical non-PCB containing light ballast will have a “No PCBs” marking on the top and the text “electronic ballast.”

PCB Labeling

PCB-containing equipment generally must be properly labelled and registered. A label that says “PCB containing” indicates that PCBs in the equipment are above 50 ppm. A label that says “non PCB containing” means that PCBs may be present, but are below 50 ppm; thus it is reasonable to require PCB sampling where equipment labeled as “non PCB containing” has leaked or spilled. The green “no PCBs” label means that the equipment does not contain PCBs at any concentration.

>50 ppm

May contain <50 ppm PCBs

Does not contain PCBs

PCB Trade Names

Aroclor, Askarel, Chlorextol, Dykanol, EED-18, Kennechlor, "Non-flammable Liquid", Pyranol, Saf-T-Khul, Santotherm. Labels containing any of these trade names indicate that PCBs are likely present.

PCB Inspection Tip

Determining the date of suspect equipment and materials is key to identifying the presence of PCBs. Equipment made post-1978 will not contain PCBs. Most electrical equipment contains an identification label which includes a date of manufacture. If no date is present and the equipment is suspect of being pre-1978 vintage, the manufacturer can confirm if PCBs were used in its manufacture.

Inspection Guidance

1. Ask if the site has an inventory of PCB equipment/items. Are PCB items inspected regularly? Any spills reported? Note any missing or incomplete records.
2. Look for potential PCB-containing items, which are listed above.
3. Are all PCB-containing or formerly PCB-containing equipment and materials labeled? (see labels above)
4. Are all such equipment and materials intact, and in secondary containment structures?
5. Check for spills.
6. If the site is suspected to have PCBs spillage
   a. Are soils in spill area subject to off-site transport by wind, rain, or vehicular transport?
   b. Note the locations of all storm drains in the site and the nearest storm drains in the street.

Additional Resources

- PCB Inspection Manual, USEPA, August 2004: https://www.epa.gov/sites/production/files/2013-09/documents/pcbinspectmanual.pdf
- Protocol for Conducting Environmental Compliance Audits of Facilities with PCBs, Asbestos, and Lead-based Paint Regulated under TSCA, USEPA, March 2000: https://www.epa.gov/sites/production/files/documents/apcol-tsca.pdf
- Learn about PCBs, USEPA: https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs
- San Francisco Bay PCBs Total Maximum Daily Load (TMDL): San Francisco Bay PCBs TMDL Project

POLYCHLORINATED BIPHENYLS (PCBS)
SAMPLE COLLECTION TRAINING

PCBS
WHAT ARE THEY?

- NON-CURING ORGANIC RESIN
- OILY TO TARRY TEXTURE
- HIGHLY STABLE MOLECULE
- NOT WATER SOLUBLE – HYDROPHOBIC
- COMBINE OR DISSOLVE IN LIPIDS OR FAT - LIPOPHILIC
- SOLUBLE IN OIL/SOLVENT -
- VERY FIRE RETARDANT
- DOES NOT OXIDIZE
- PRIMARILY USED AS AN ADDITIVE

USES OF PCBS

- TRANSFORMER/CAPACITOR OIL – 75%
- HYDRAULIC AND LUBE OIL – 6%
- PLASTICIZER (PAINT, CAULK) - 8%
- INKS, CARBON PAPER, CASTING WAX, WIRE INSULATION, OTHER - 11%

WHAT'S THE PROBLEM WITH PCBS?

- VERY PERSISTENT IN ENVIRONMENT
- FOUND IS DEPOSITIONAL MATERIAL
- ADHERES TO SEDIMENT
- BIO-ACCUMULATES IN FISH/ANIMAL TISSUE
- WORKS WAY UP FOOD CHAIN
- HUMAN HEALTH THREAT VIA DIRECT EXPOSURE, CONSUMPTION OF FISH

WHAT'S BEING DONE?

- BANNED FROM PRODUCTION 1978
- REGULATIONS FOR CONTINUED USE OF PCB-CONTAINING EQUIPMENT (TSCA)
- TMDL ADOPTED FOR S.F. BAY
- PCBS IN BUILDING MATERIAL PROGRAM FOR DEMOLITION – BASMAA
- STORMWATER MANAGEMENT
- ID & CUT-OFF UPLAND SOURCES TO BAY
- CAPPING AND DREDGING IMPACTED SEDIMENT AREAS

FINDING PCB SOURCES
THINGS TO CONSIDER

- PRIMARY SOURCES OLD (PRE-1978)
- EXTENSIVELY USED IN ELECTRICAL EQUIPMENT AS A DIELECTRIC OIL – TRANSFORMER AND BALLASTS
- ADDITIVE IN OILS, PAINTS, CAULKS, CASTING WAXES, ETC.
- PAINTS/CAULKS AGING (30+ YRS.) AND NOW RELEASING PCBS
- ALREADY RELEASED TO ENVIRONMENT

TYPES OF SITES TO SUSPECT

- HEAVY SCRAP METAL YARDS (NOT AUTO WRECKERS)
- COPPER RECYCLERS
- DEMOLITION/SALVAGE COMPANIES
- CONCRETE/ASPHALT RECYCLING (JOINT MATERIALS AND IMPACTED CONCRETE)
- ELECTRICAL EQUIPMENT REBUILDERS
- ELECTRICAL CONTRACTORS
- FOUNDRIES, FORGES, ROLLING MILLS (IMPACTED FEEDSTOCK, CASTING WAX, HYDRAULIC FLUIDS)
- SHIP MAINTENANCE YARDS
- OLDER MACHINE SHOPS
- OLDER AERONAUTICAL MANUFACTURING

ELECTRICAL EQUIP. 75% PCB USED

PRIMARILY POST-1978 EQUIPMENT

HOW OLD IS THIS TRANSFORMER?

SUSPECT PCBS?

- PRE-1978
- NOTE MFG. LABEL
- OIL FILLED
- LEAKING
- PROBLEM?

NOTE PCB LABEL ON SIDE

LABELS FOR EQUIPMENT CONTAINING 50 MG/KG OR MORE PCBS

CAUTION
CONTAINS
PCBs
(Polychlorinated Bipheyls)
A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761 For Disposal Information contact the nearest U.S. EPA Office
In case of accident or spill, call toll free the U.S. Coast Guard National Response Center 800-424-8802
Also contact
Tel. No.

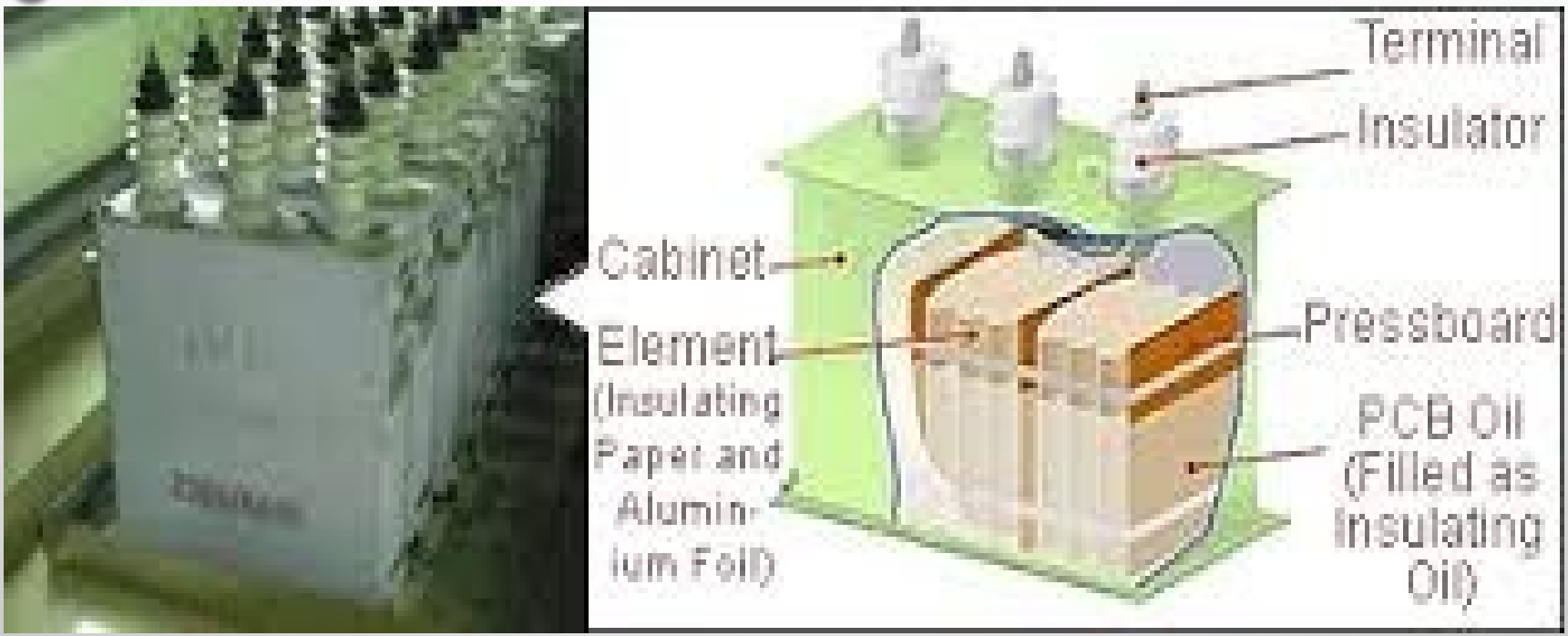
NO
PCBs
NON DETECTABLE FOR PCB

1940S MANUFACTURING BUILDING

PCBS HIGHLY SUSPECTED

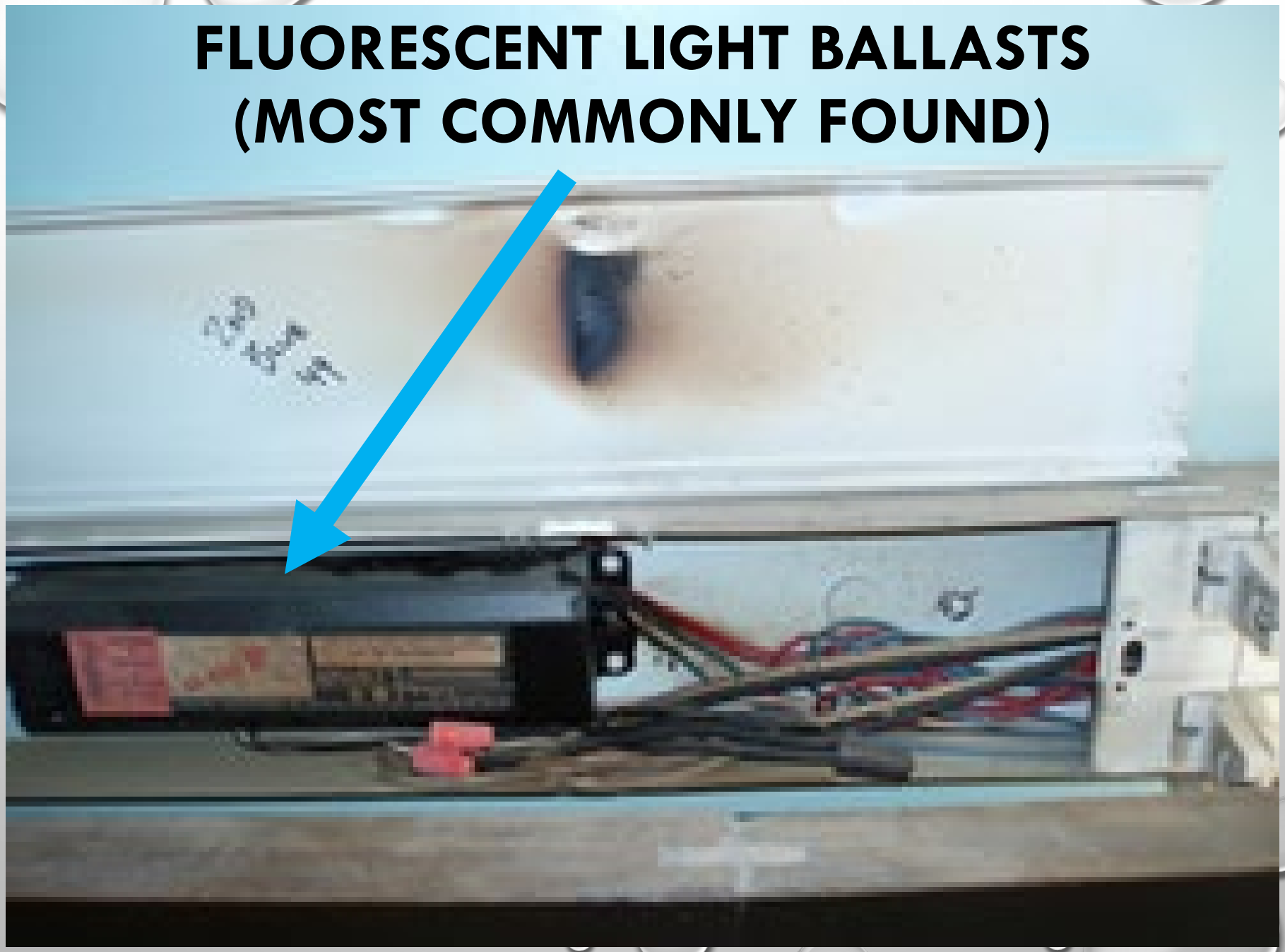
- PRE-1978
- OIL FILLED
- COPPER FILLED
- DISCONNECTED
- THIEF READY
- TSCA VIOLATION
- NOTE DRAIN PLUG

WHAT DO YOU THINK?



CAPACITOR
(SUSPECT OIL FILLED OLDER EQUIP.)

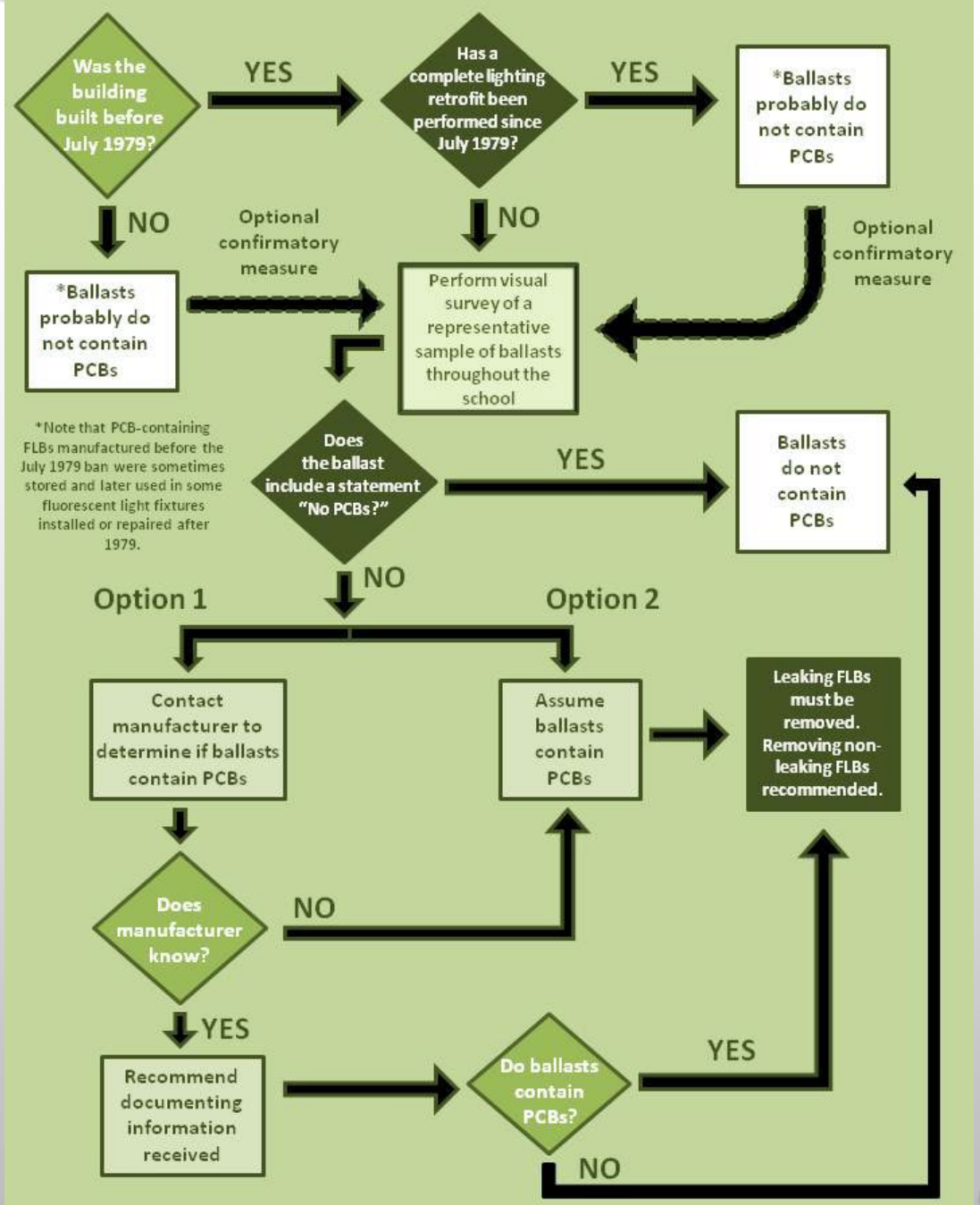
FLUORESCENT LIGHT BALLASTS (MOST COMMONLY FOUND)



A typical pre-1979 PCB-containing fluorescent light ballast (FLB)

A typical Non-PCB containing fluorescent light ballast. The ballast has a "No PCBs" marking on the top of the ballast and the text "electronic ballast". Only magnetic fluorescent light ballasts contained PCBs.

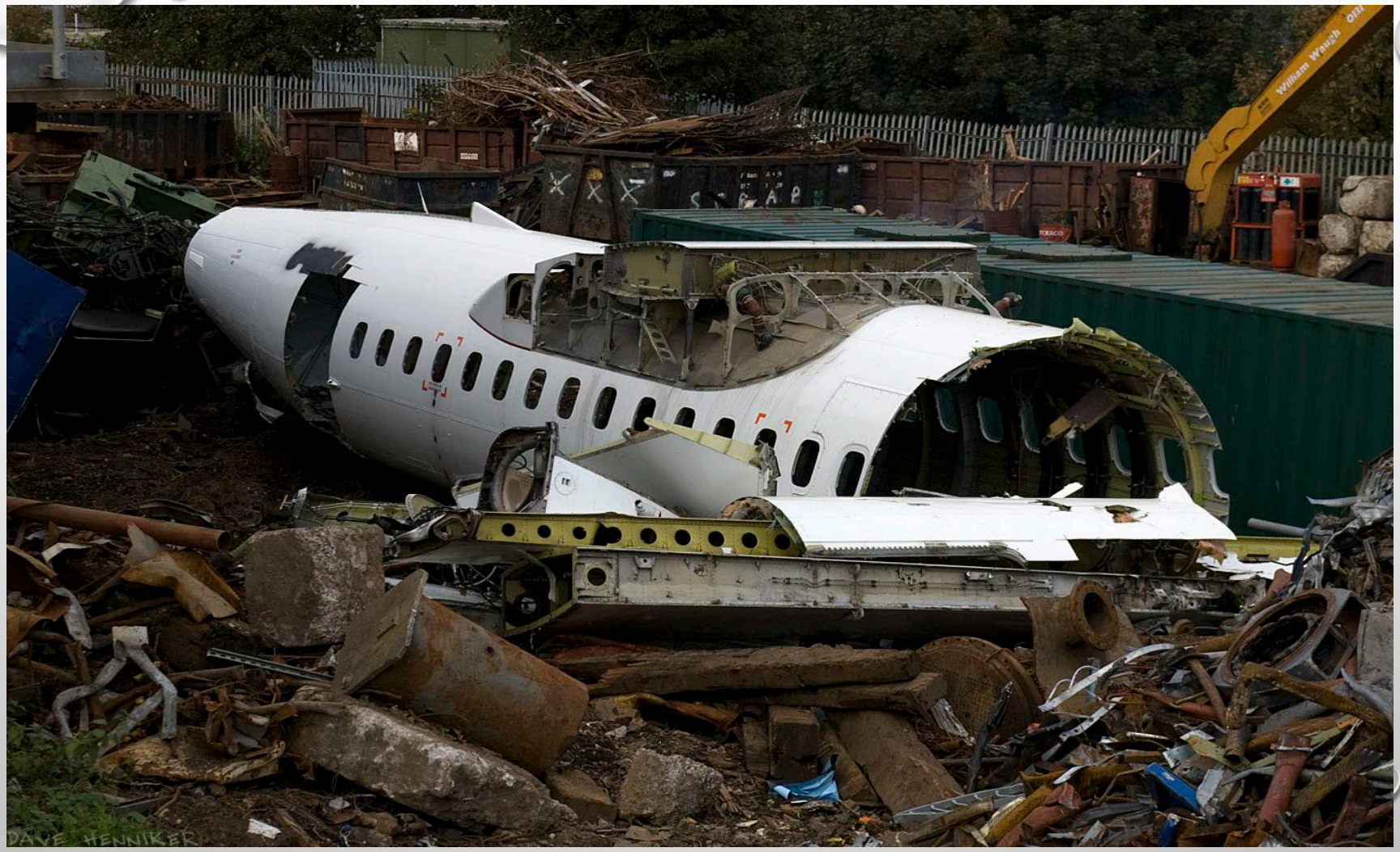
Figure 1: How to Identify PCB-containing Ballasts



GALBESTOS ROOFING/SIDING (NOTE: CONSIDER AGE OF ROOFING)

OLDER PAINTS AND CAULKS

SALVAGE/SCRAP AND BONE YARDS (MAJOR SOURCE OF PCBS)



PCB CONTAINING EQUIPMENT ENDS UP HERE

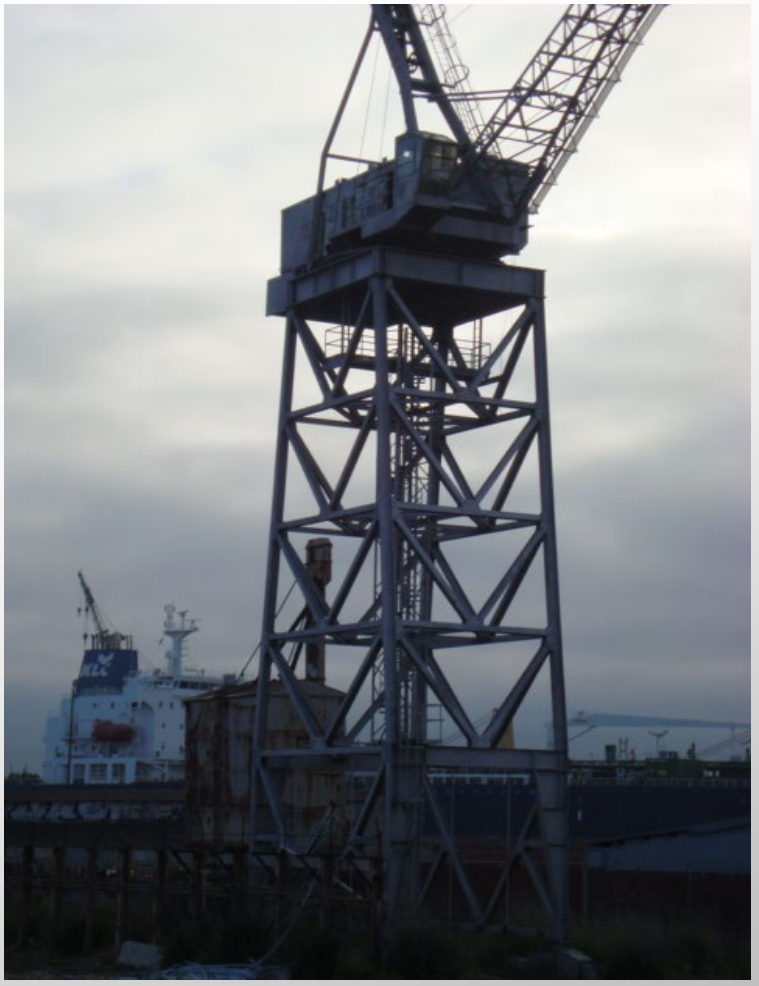
UNDERSTAND SCRAP PROCESSING

PCBS CAN BE ASSOCIATED WITH SHIPYARDS

OLD HEAVY INDUSTRIAL AND MANUFACTURING FACILITIES

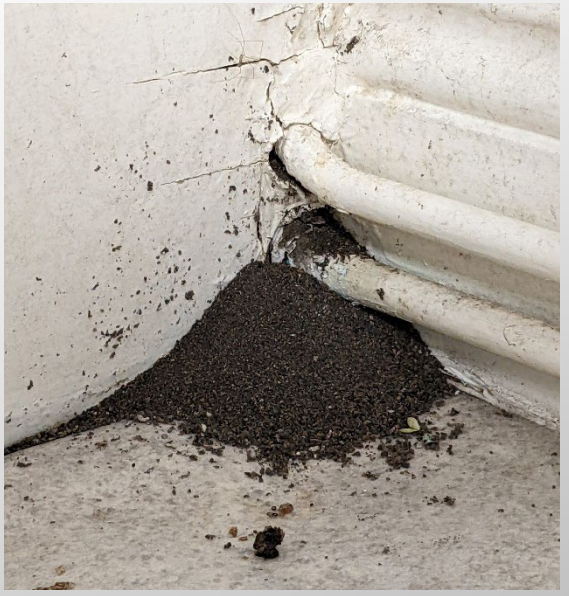
WHAT TO LOOK FOR WHEN SAMPLING A FACILITY:

- ELEC. EQUIP WITH BALLASTS.
- HYDRAULIC OIL RESERVOIRS
- OLD PAINT
- WINDOW AND DOOR CAULK
- PAINT SAND BLAST WASTE
- SEDIMENT NEAR SCRAP AREAS
- SEDIMENT NEAR RECYCLING YARDS



POTENTIAL ONSITE TARGET AREAS FOR SAMPLING:

- DOWNSPOUTS NEAR ROOF GUTTERS.
- CORNER OF BUILDING WHERE SEDIMENT MAY ACCUMULATE
- SWALES OF STORM DRAIN INVERTS
- OLD LOOSE BUILDING MATERIALS (CAULK OR PAINT)
- FORMER WASTE STAGING AREAS
- ONSITE BASINS OR SUMPS
- PLANTERS SITUATED IN AREAS NEAR SUSPECT PCB MEDIA (I.E., PAINT, CAULKING, TRANSFORMER, ETC)

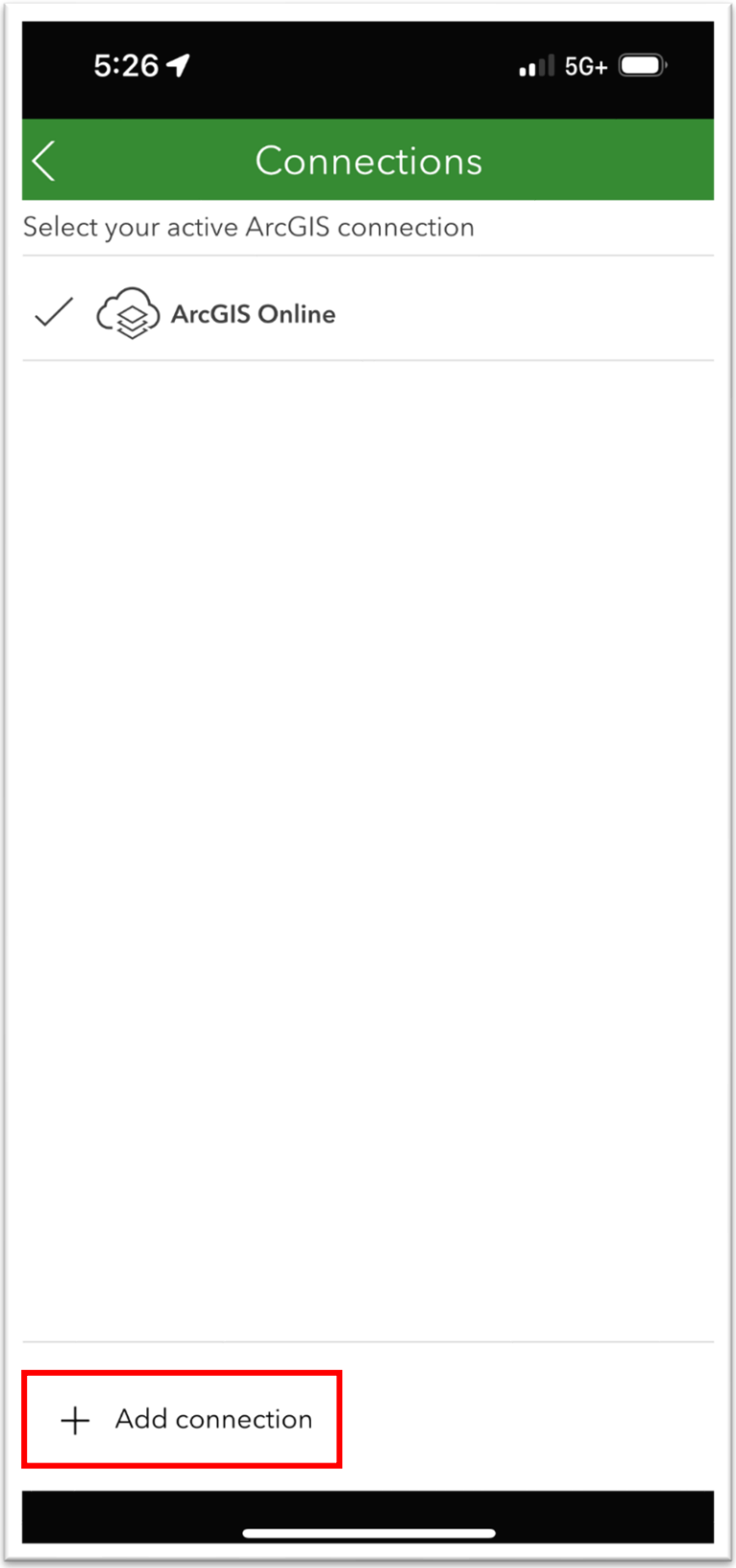


OTHER EXAMPLES OF TARGET AREAS FOR SAMPLING:

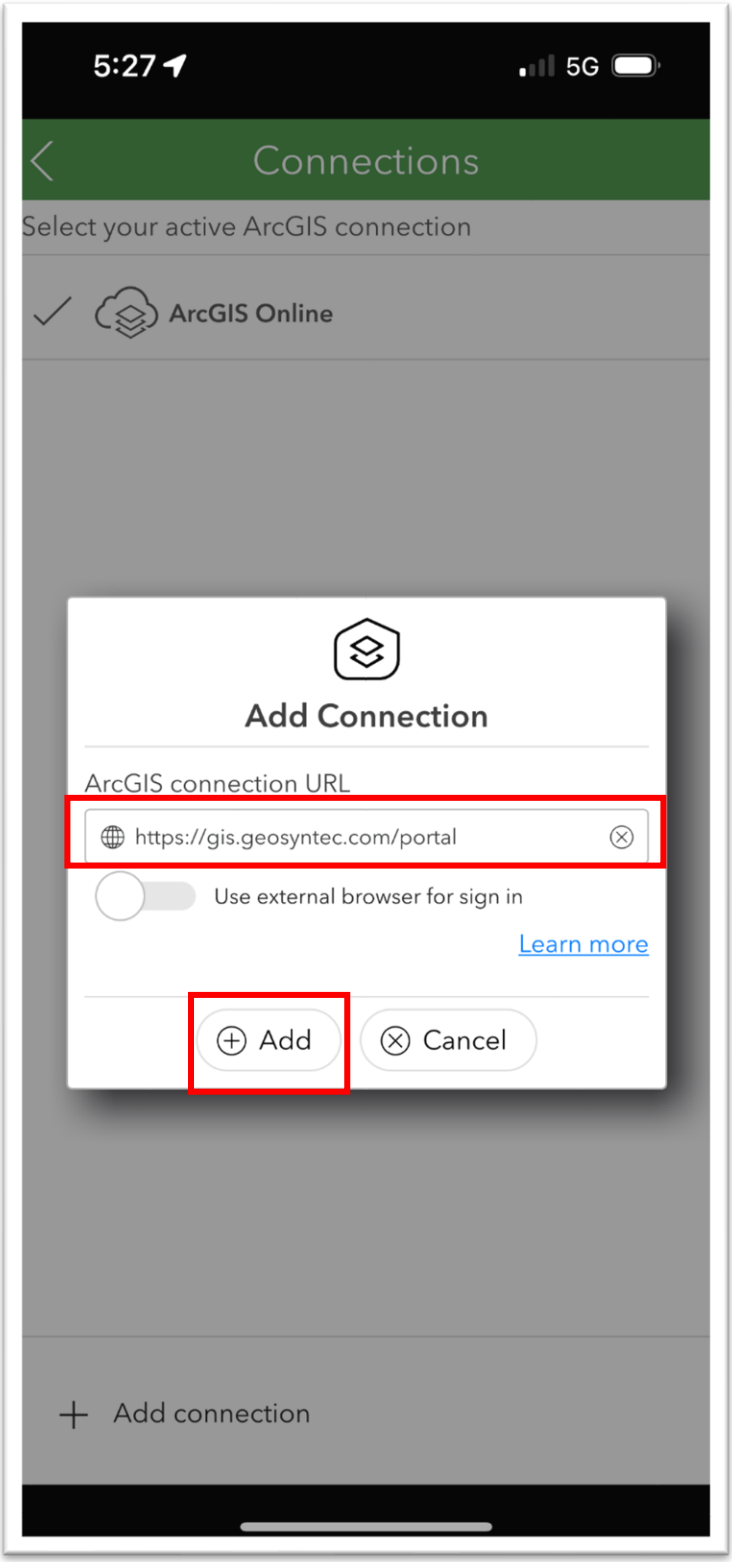
PCBOnSiteInspection_ACCWP Survey123 Guide

1. In Survey123 App, hit **Manage ArcGIS Connections**

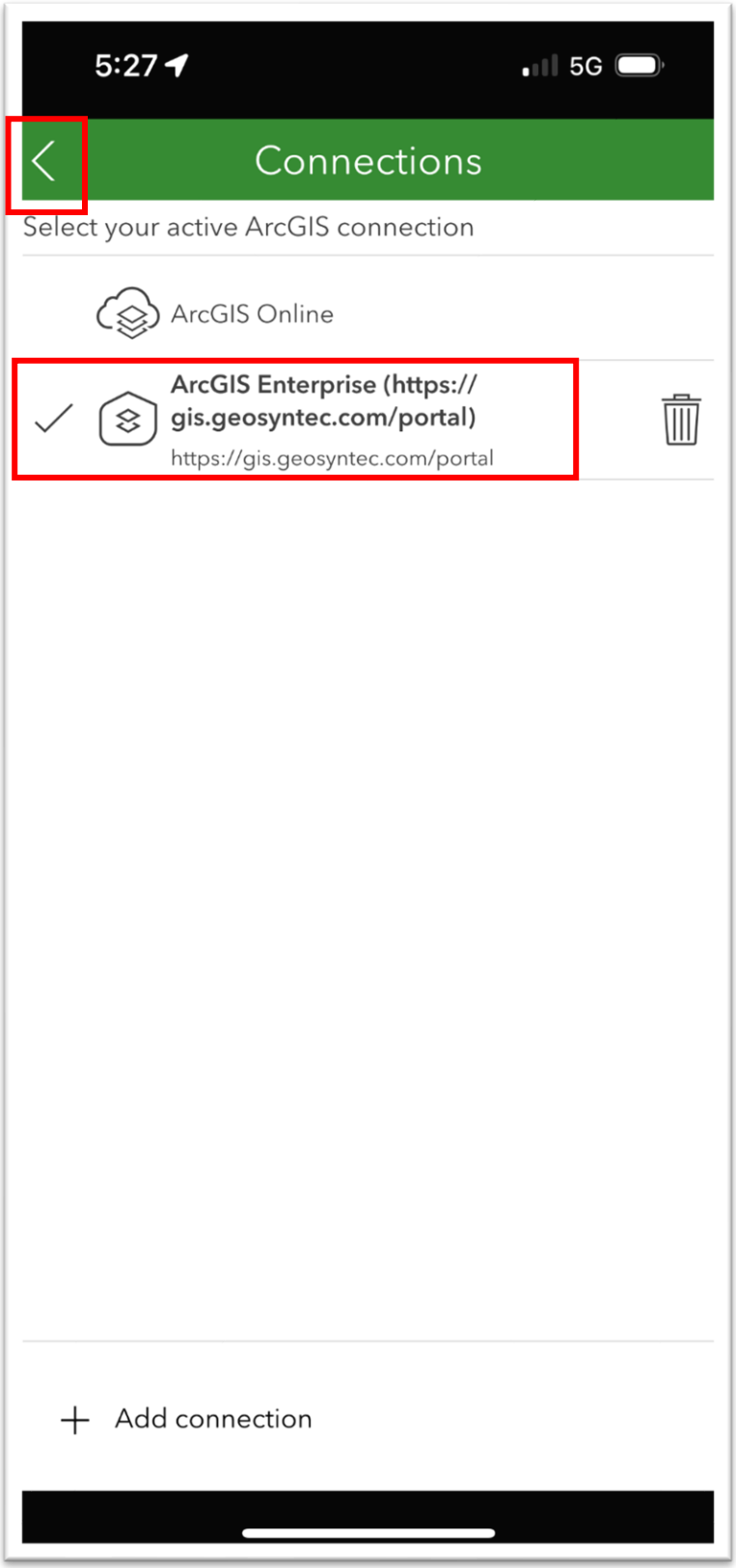
2. Hit **Add connection**



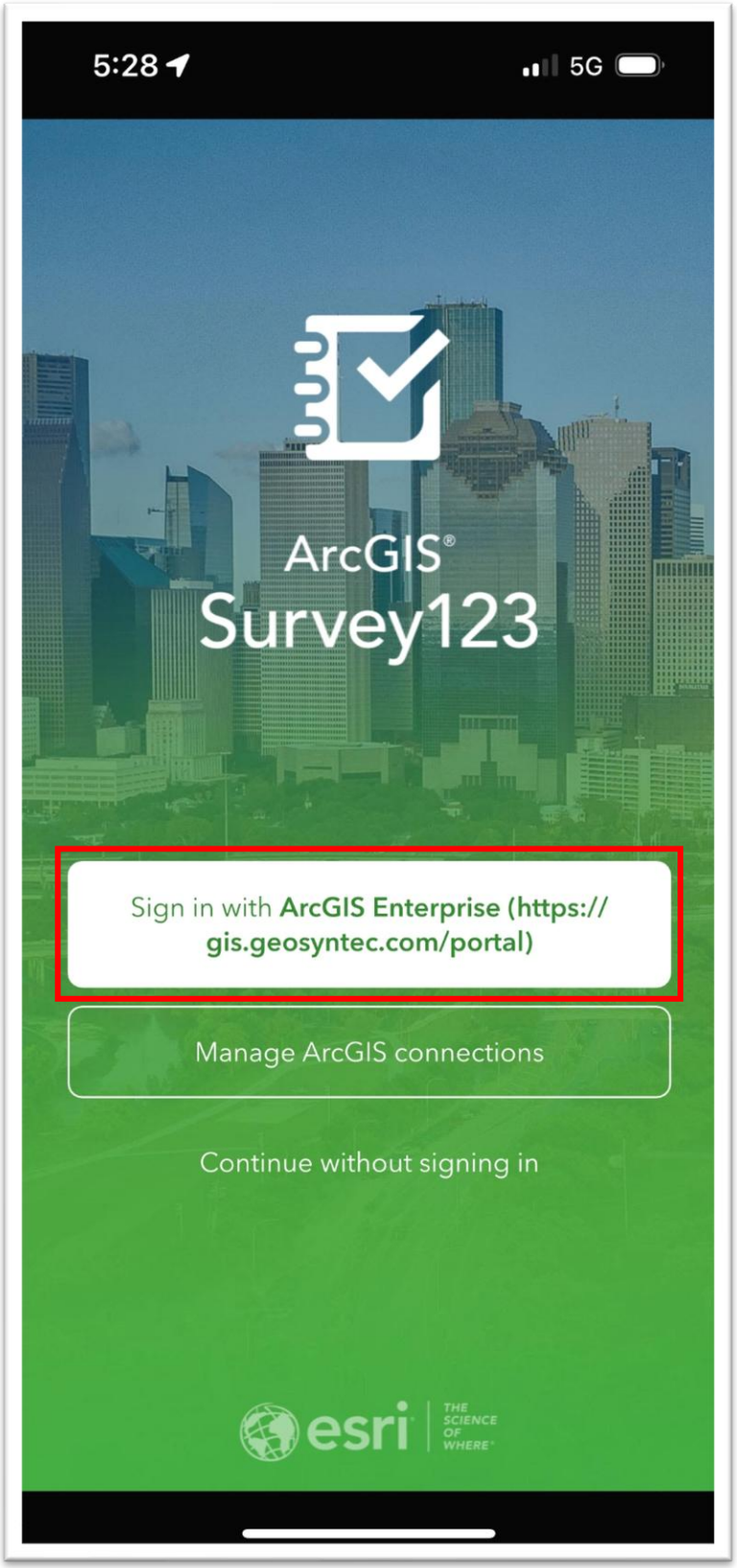
3. In the prompt window,
    a. Put the following URL: gis.geosyntec.com/portal
    b. Hit **Add**



4. Geosyntec Connection is selected, go back to the main page.



5. Select **Sign in with ArcGIS Enterprise**



6. Login in
    a. For Geosyntec employee:

    Username: Geosyntec\[Windows Username]

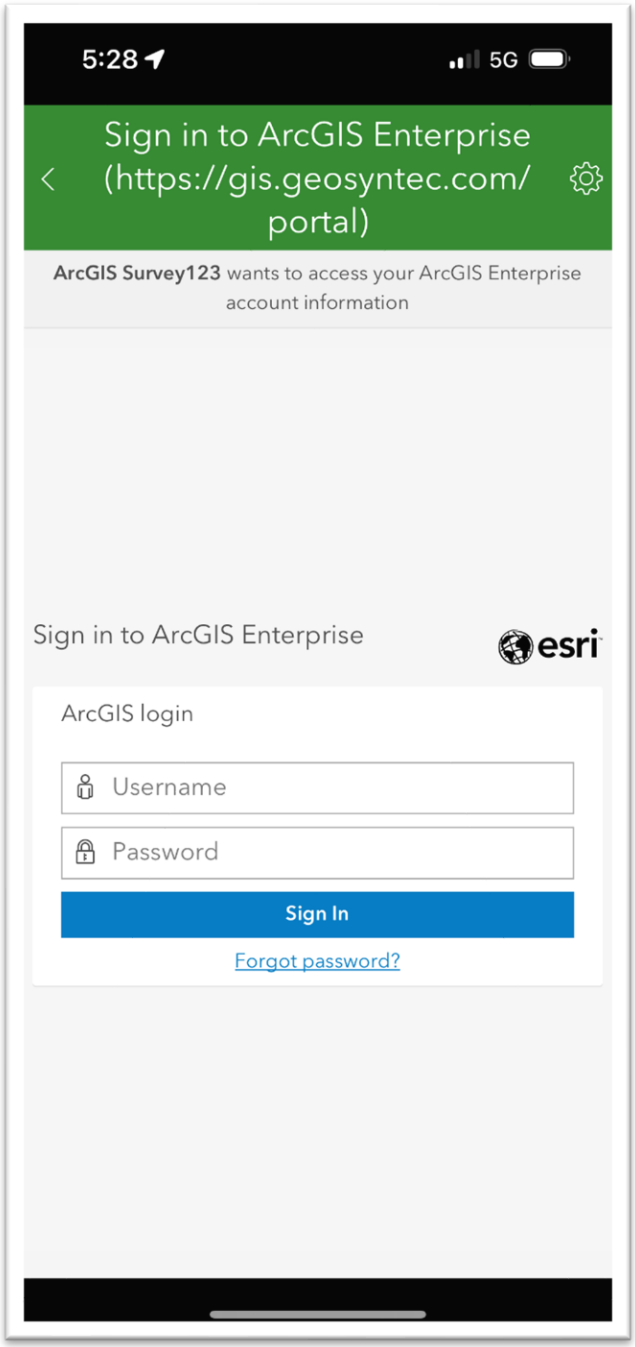
    (e.g. Geosyntec\howie.chen) (Windows username is the same as your email address)

    Password: Windows credential password

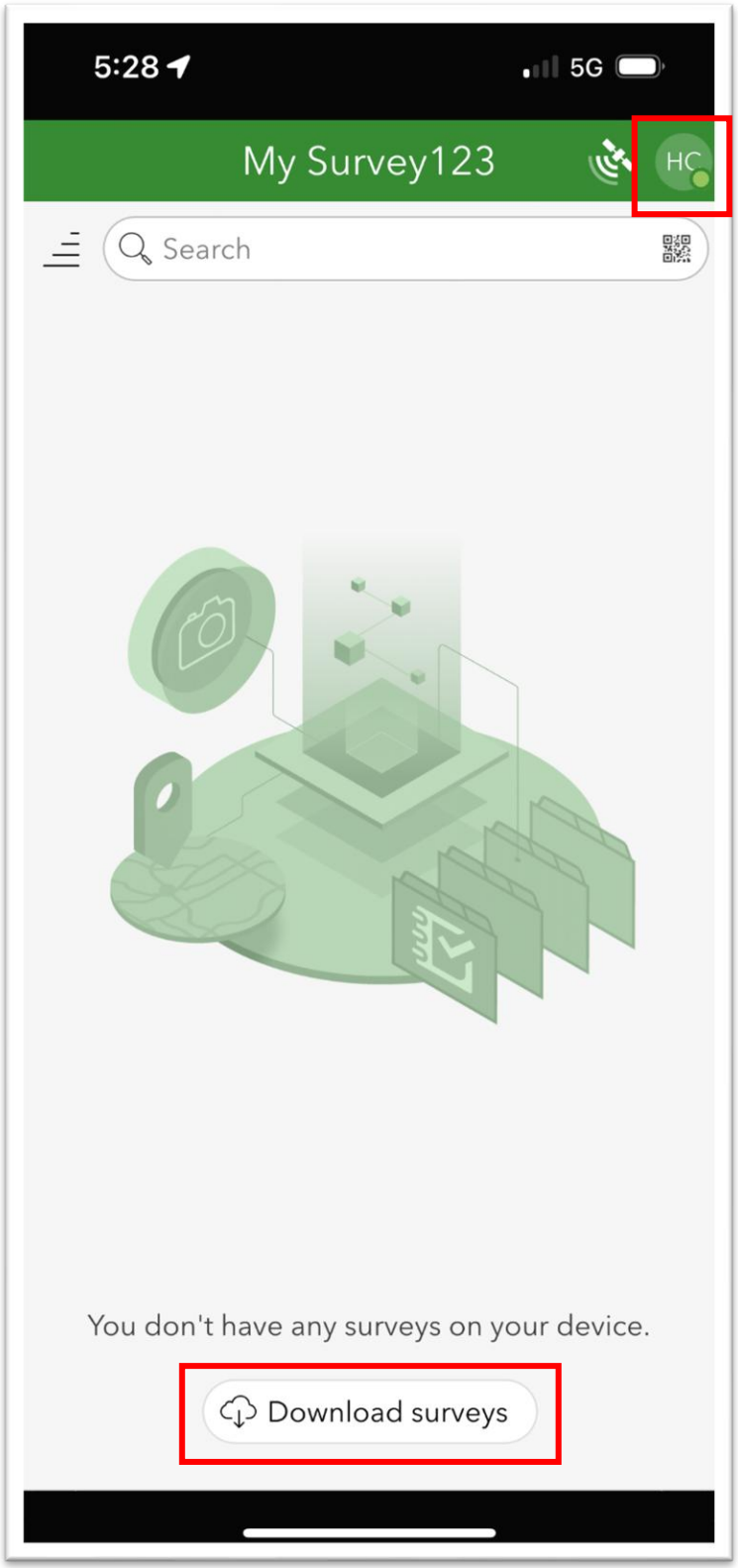
    (Your password to login to your work computer)

    b. For external users:

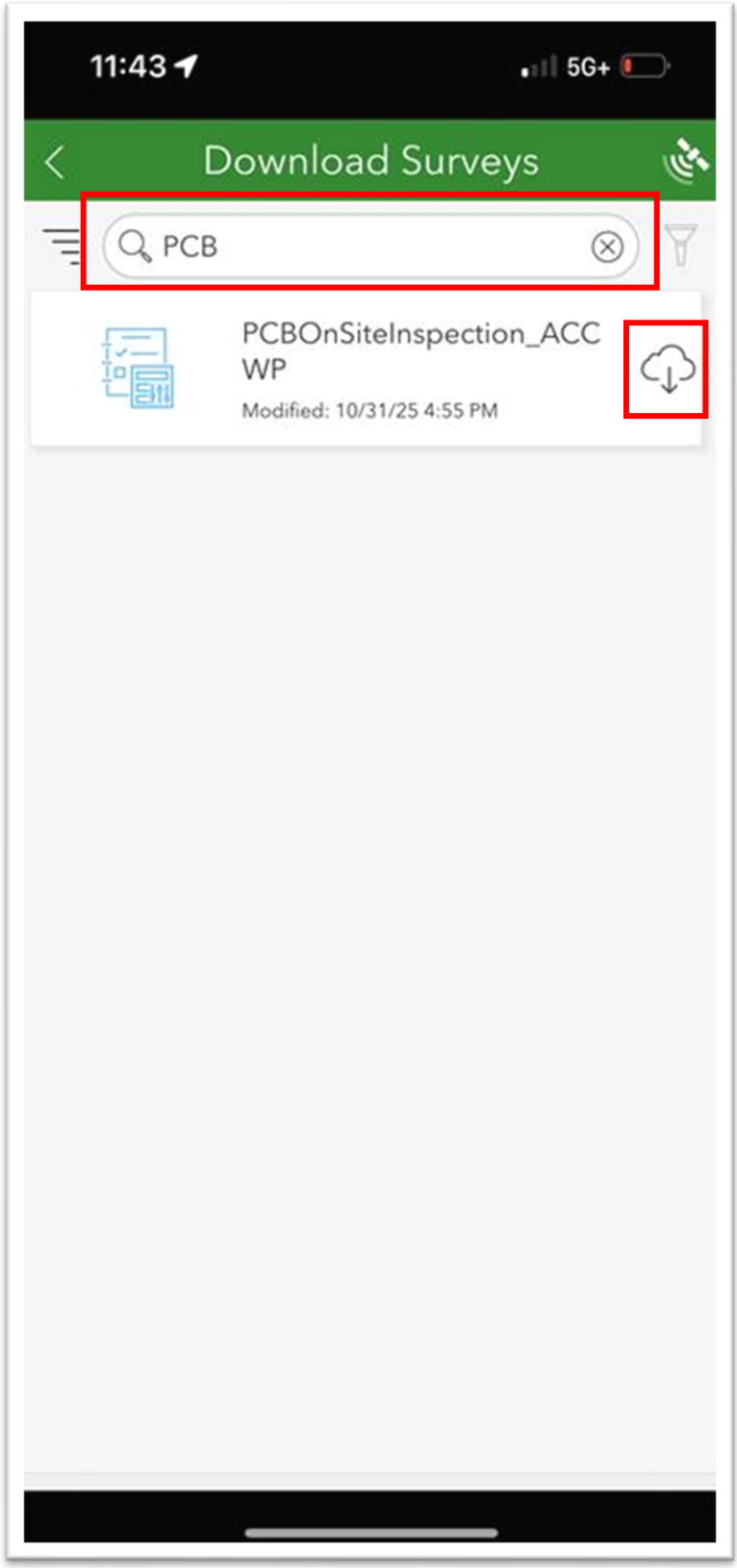
    Use the provided username and password to login



7. Hit **Download surveys**. Alternatively, hit your profile page in the upper right, then **Download surveys**.

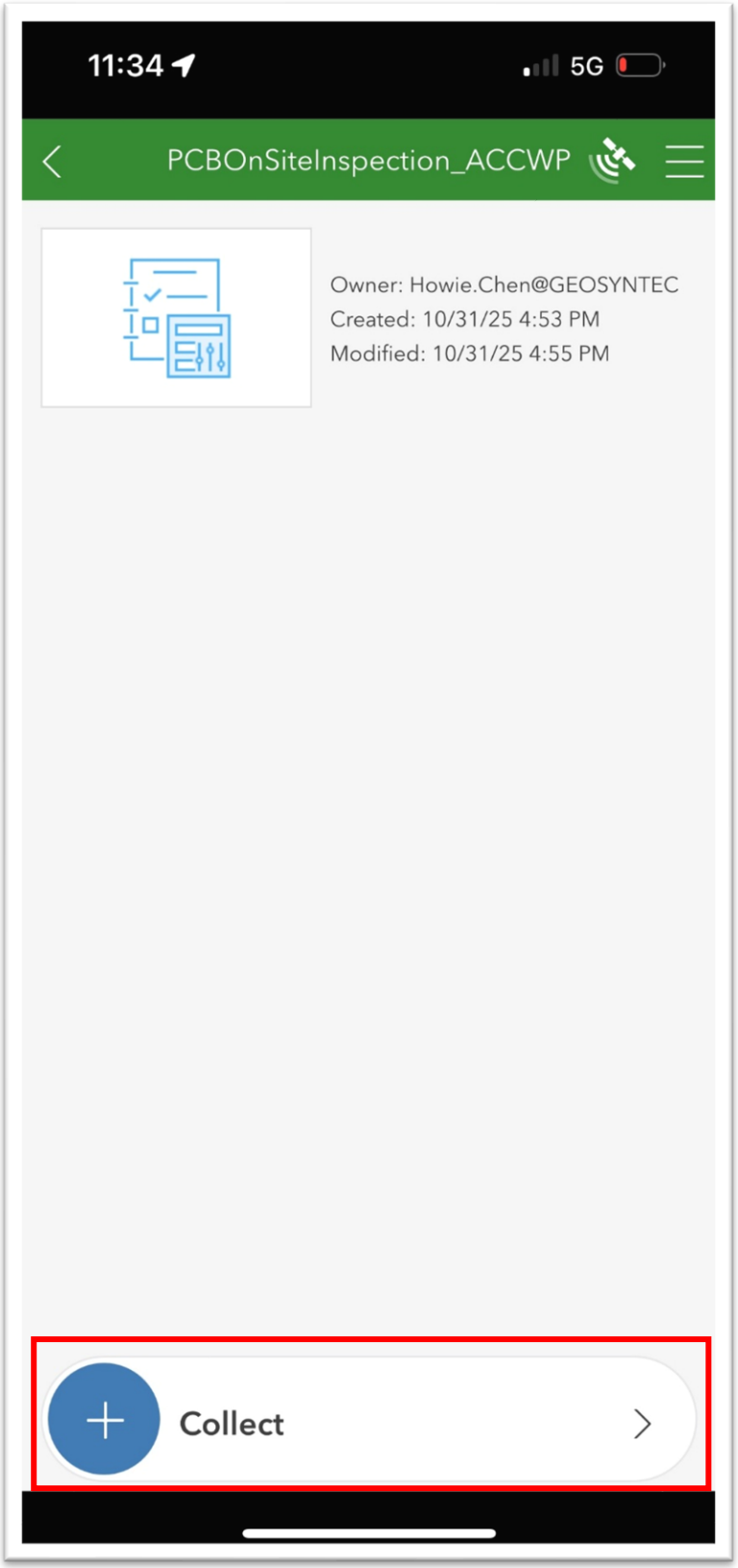


8. In the search bar, type in your survey name, then hit the download button.



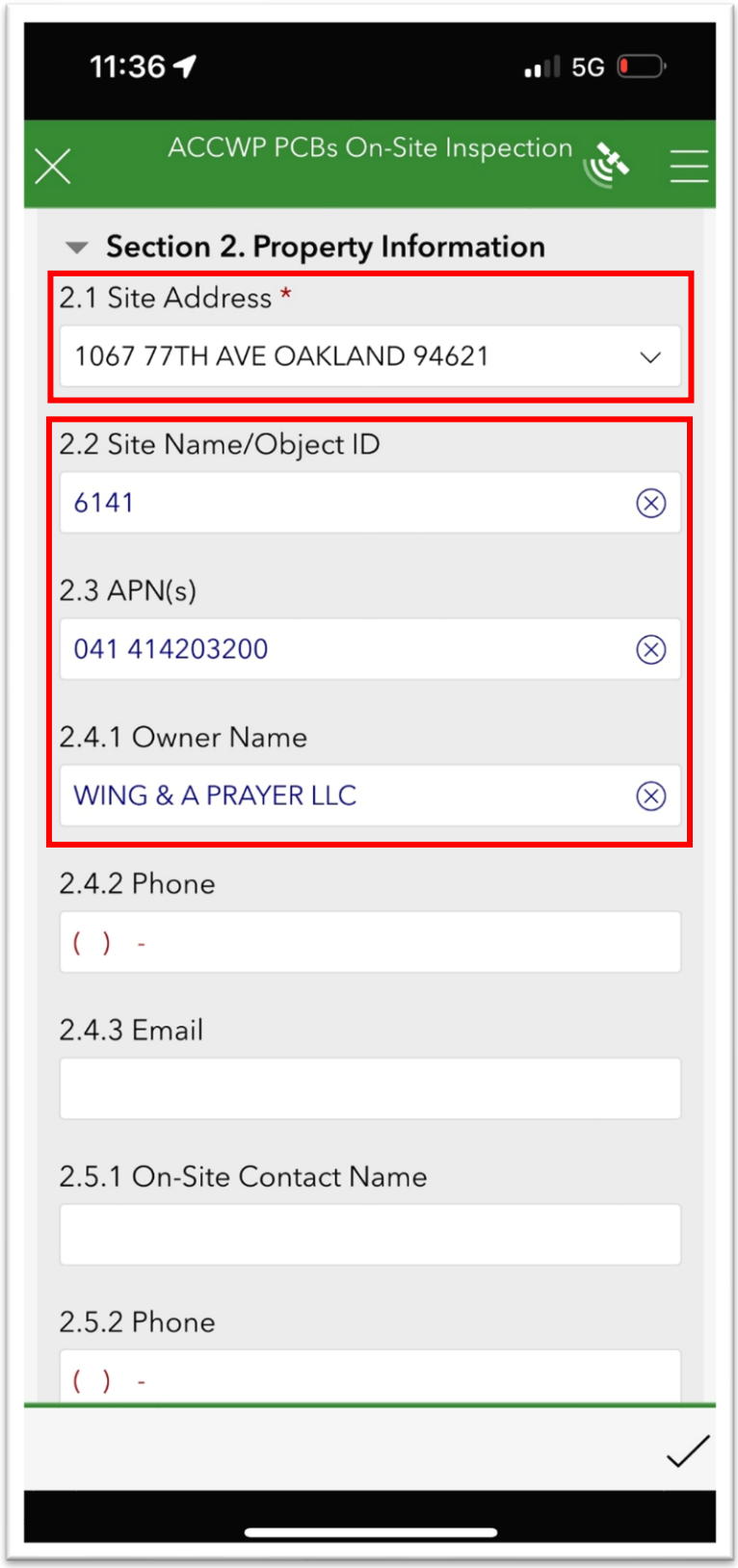
9. Once downloaded, go back to the main page, select your survey.

10. Hit **Collect** to start collecting a new record



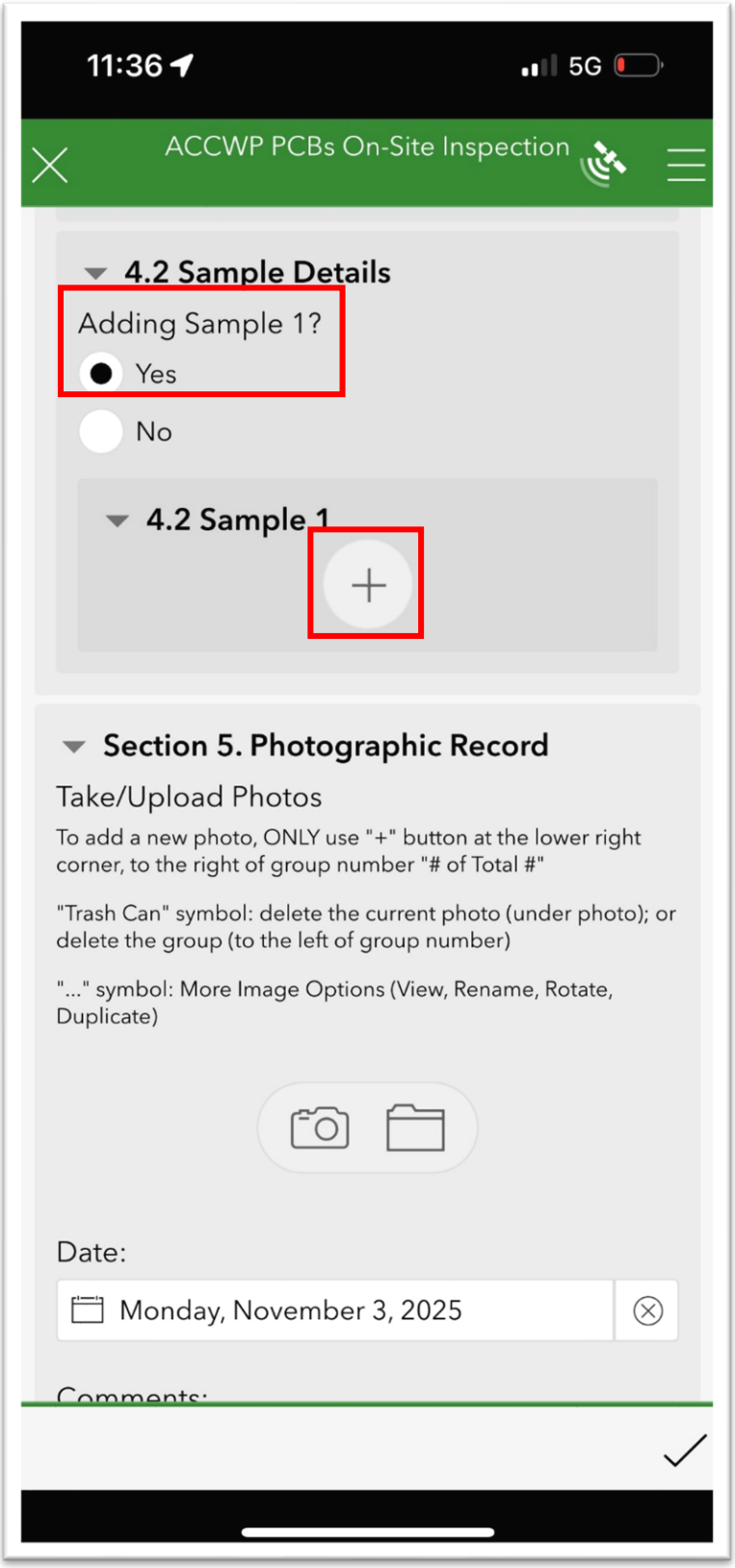
11. Field Form Feature - Auto-populate fields

When 2.1 Site Address is selected from the drop down, following questions will auto-populate.

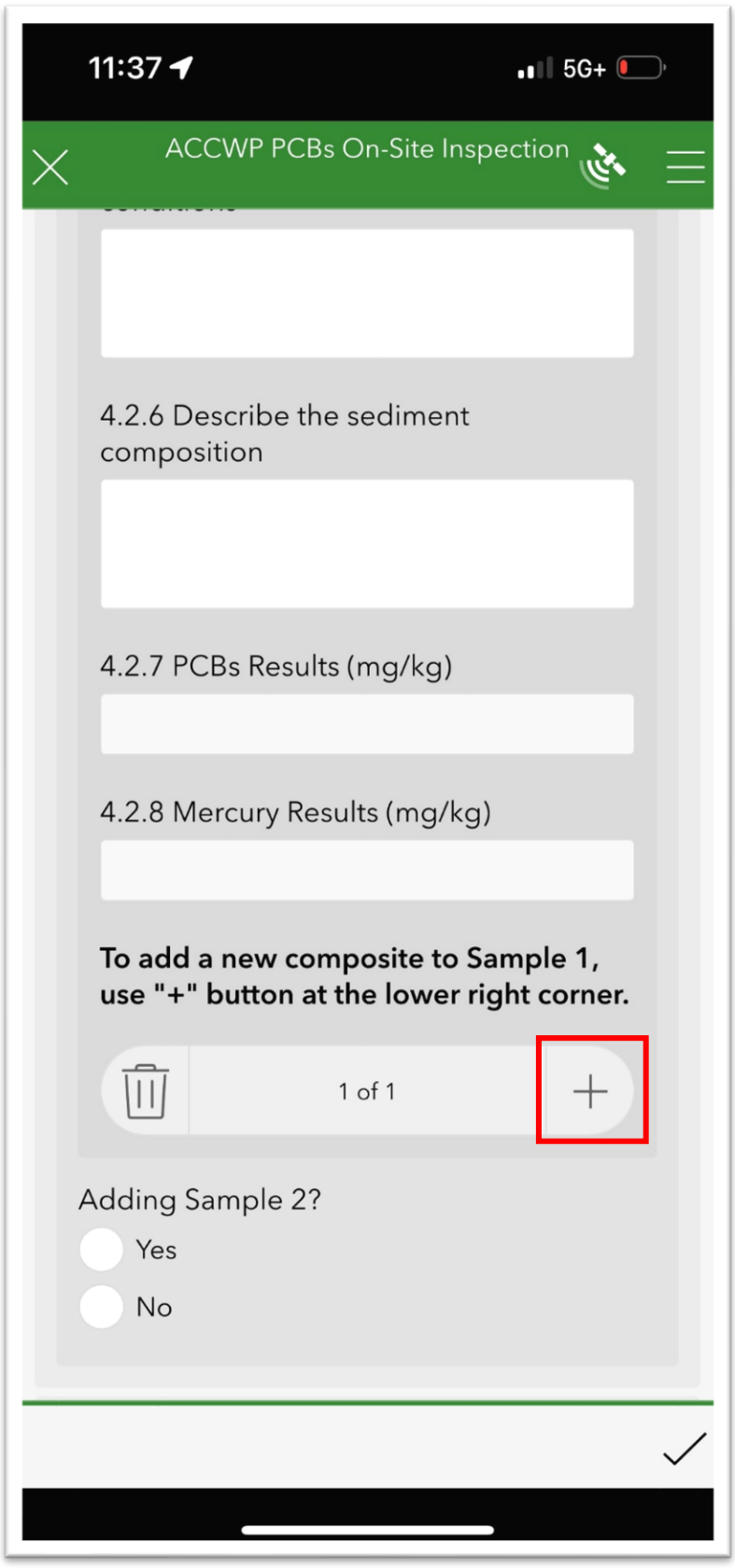


12. Field Form Feature – Sample Details

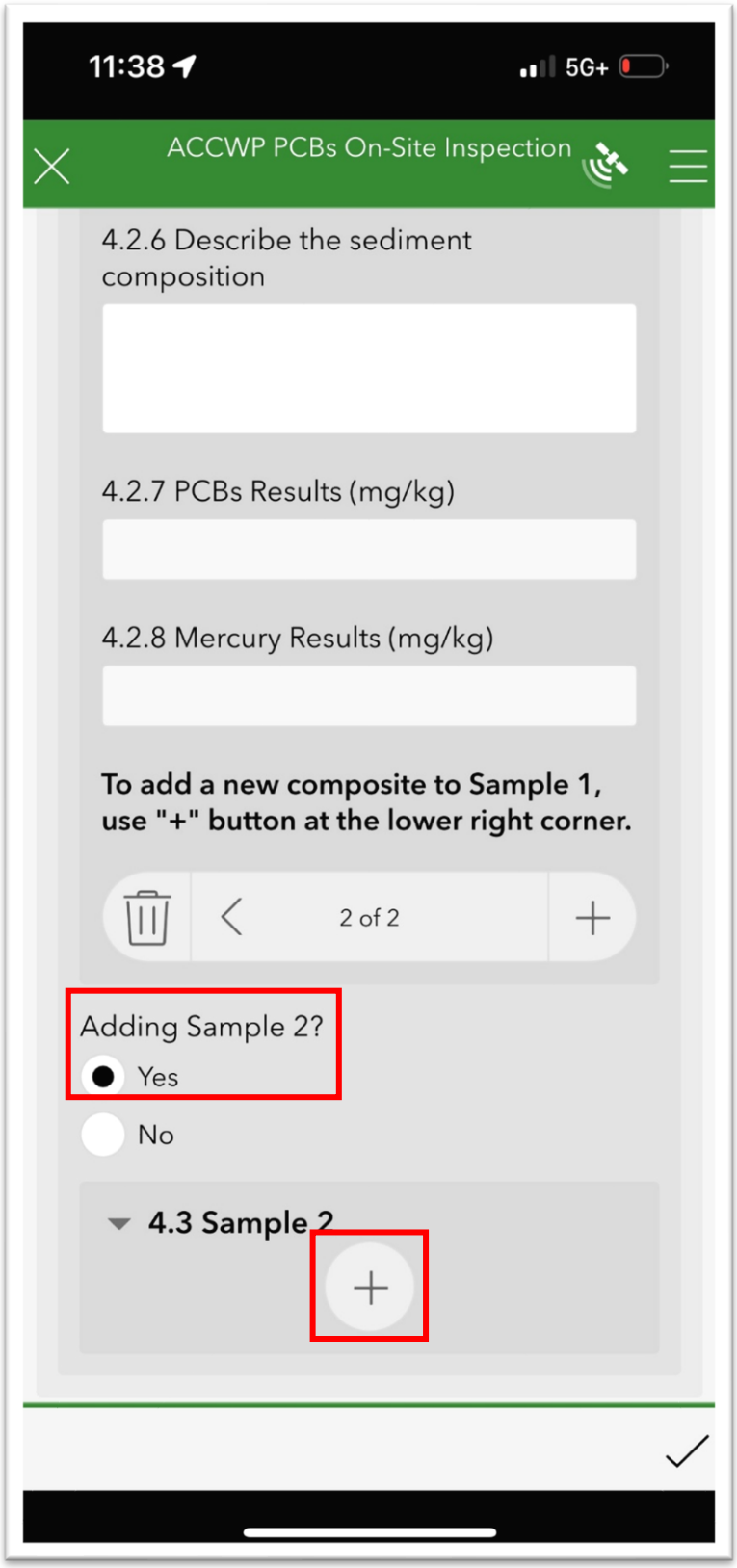
12a. Answer “Yes” to the Adding sample question will add a new sample group. Use “+” to add a new sub-sample location



12b. To add a new sub-sample within the current sample group, use “+” at the bottom.

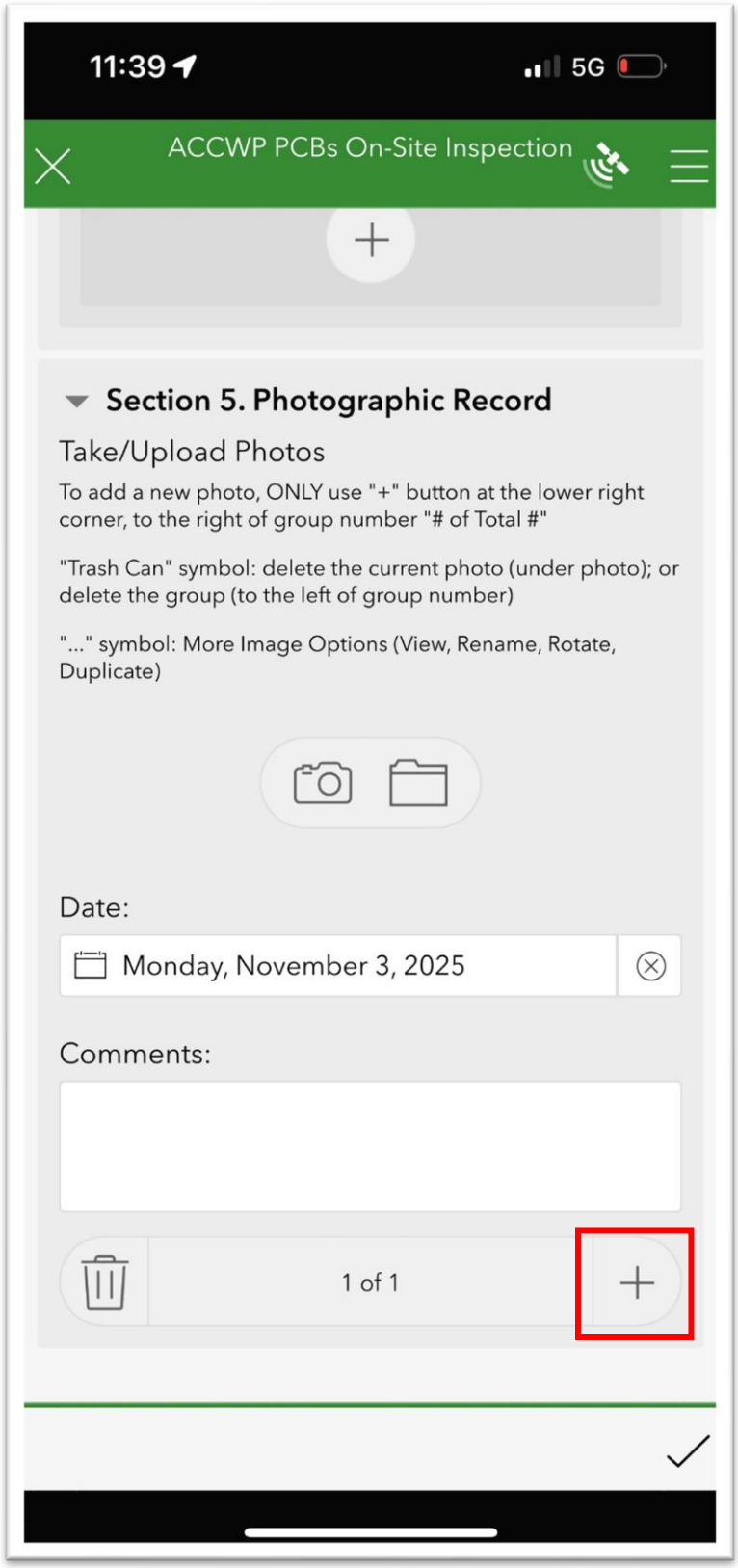


12c. To add a new sample group, answer “Yes” to the Adding sample question, and use “+” to add sub-samples as needed. Up to 6 sample groups can be added.

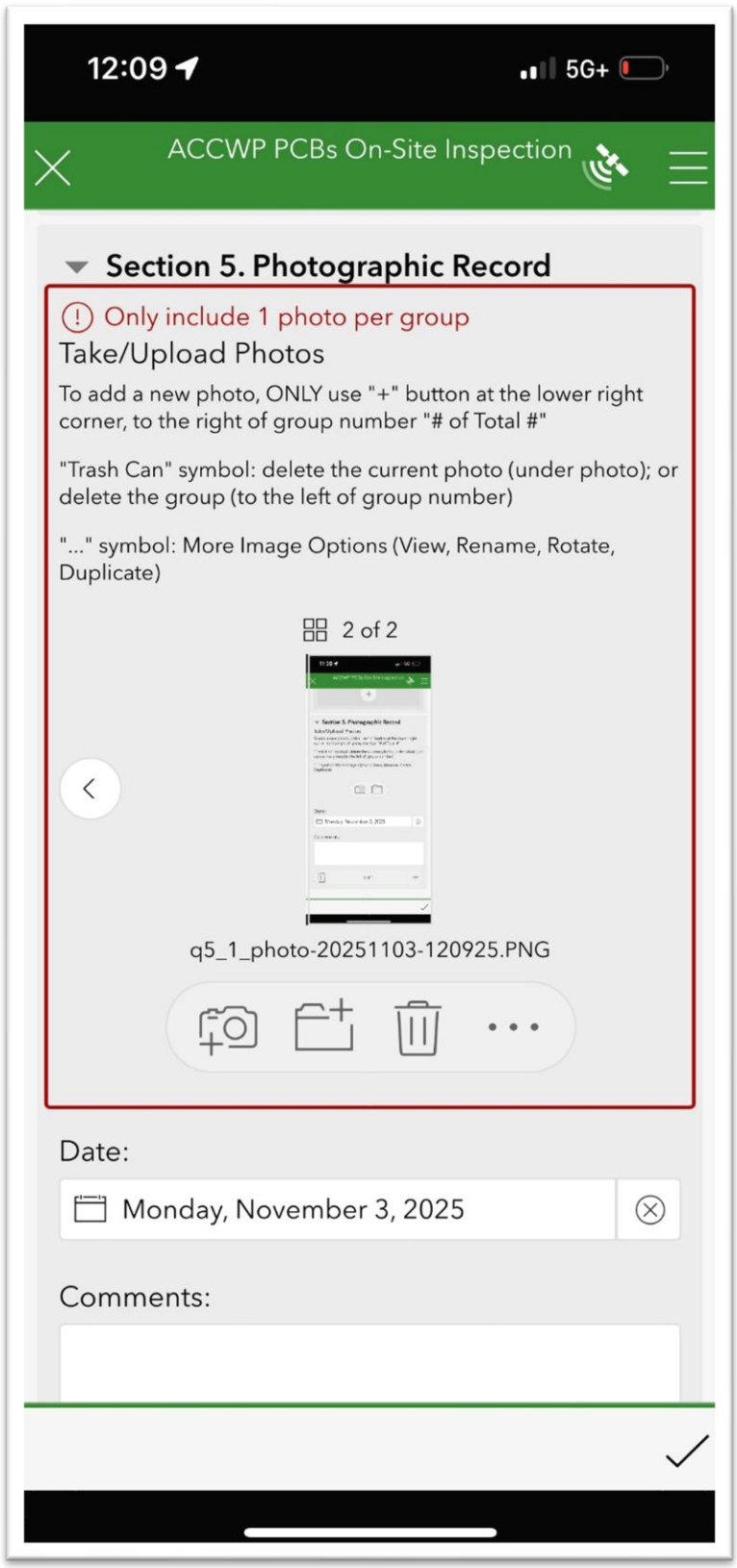


13. Field Form Feature – Photos

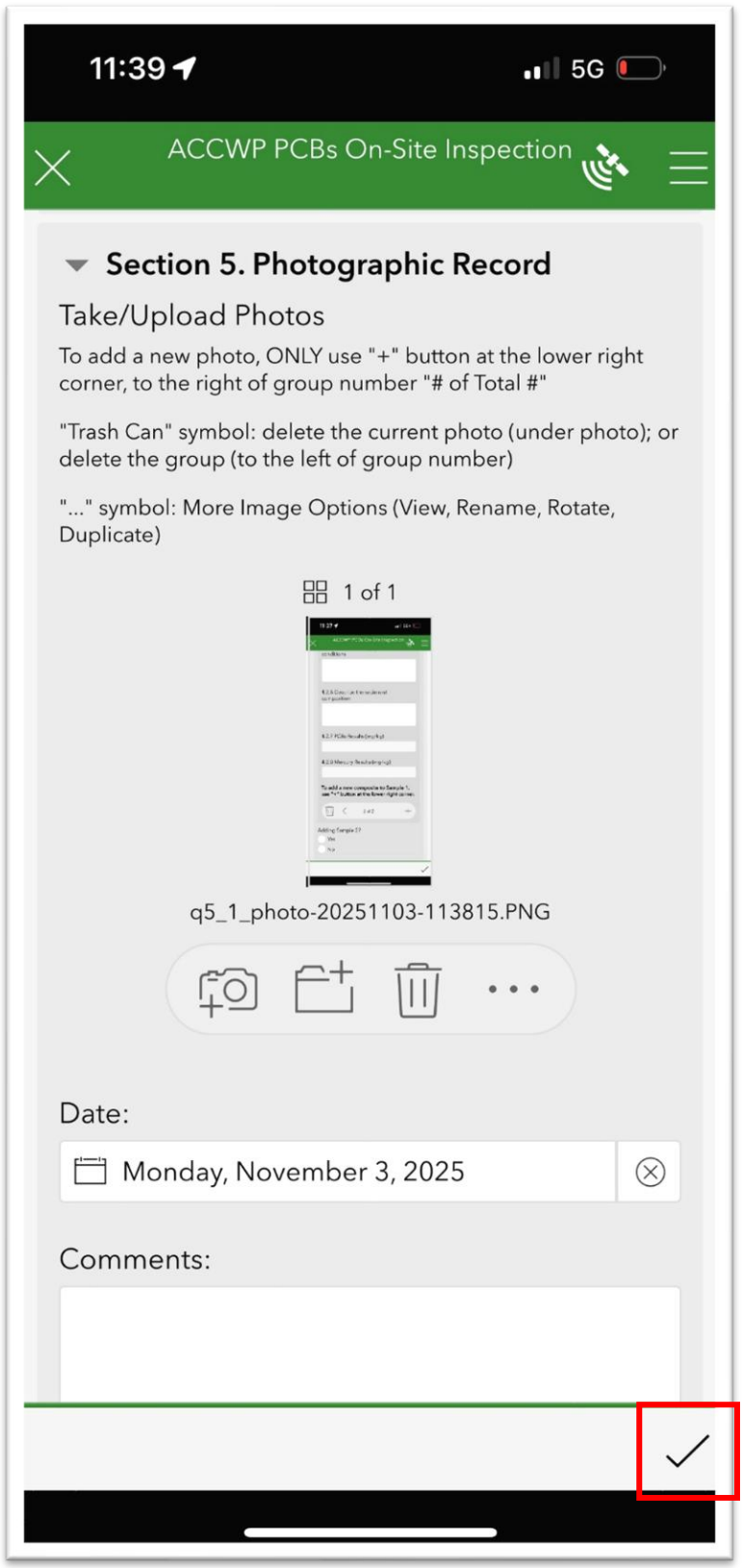
    Each photo group question only accept 1 photo. To add a new photo, use “+”



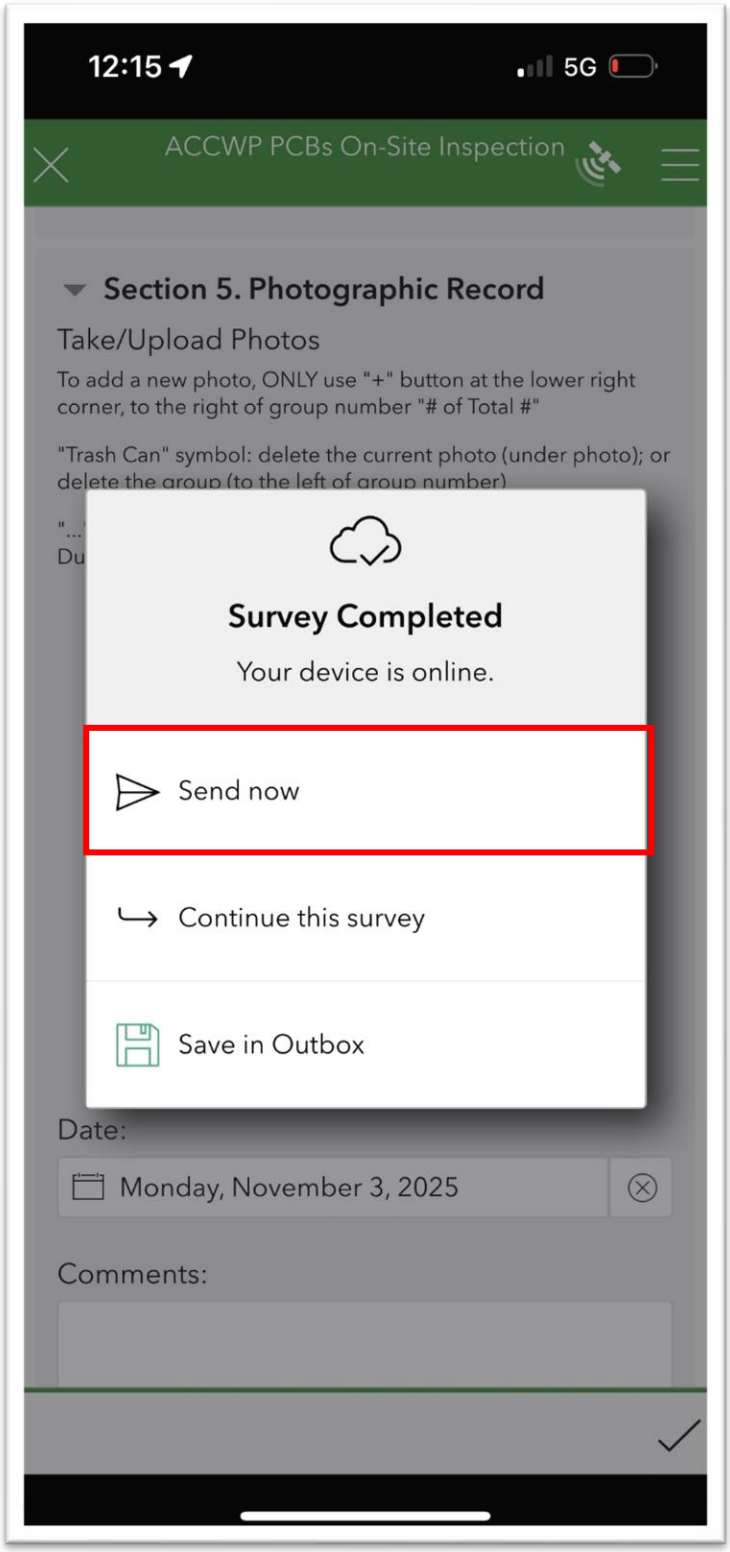
Can’t submit with multiple photos in one question



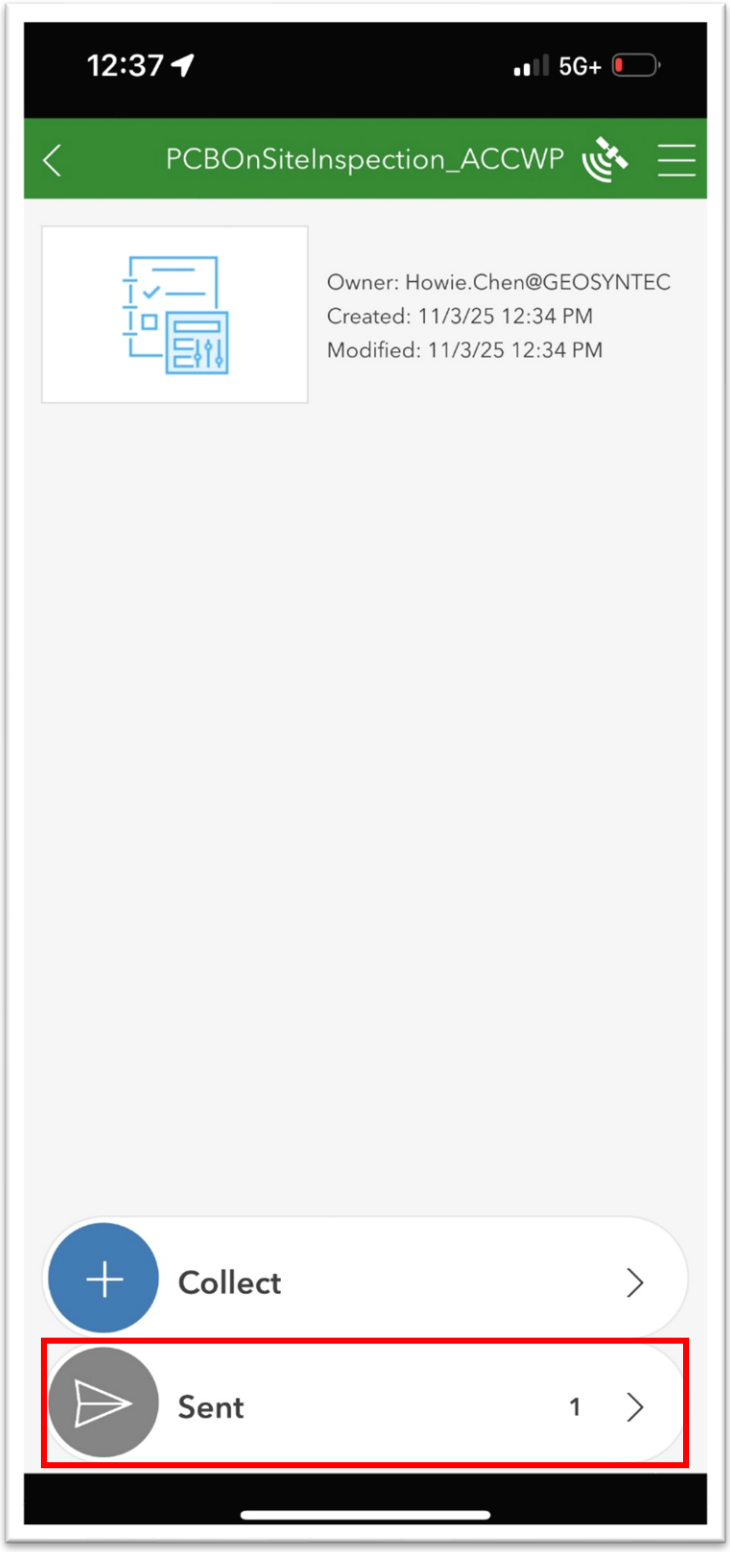
14. Complete the survey form. Hit the check mark at lower right when ready to submit



15. Only sent survey records will be uploaded to the server. Always send the survey, no matter if it's complete or not.



16. Sent survey can be found in the Sent box, and can be edited and resent.



12:37
5G+
Sent
Search
q1_1_date:11/3/25, q2_1_siteaddress:1067 77TH AVE OAKLAND 94621, q2_2_sitename:...
4.9 ft
Modified 11/3/25
Sent Survey
q1_1_date:11/3/25, q2_1_siteaddress: 1067 77TH AVE OAKLAND 94621, q2_2_sitename:6141, q2_3_apn:041 414203200, q2_4_1_ownername:WING & A PRAYER LLC
View
Edit and resend
List
Map
Empty

APPENDIX D
Site Assessment Field Form

Site Assessment Field Form

Section 1. Inspection Information

1.1 Date of Inspection: _____

1.2 Inspector Names: _____

1.3. Antecedent Rain Conditions: _____

Section 2. Property Information

2.1 Site Name: _____ 2.2 APN (s): _____

2.3 Site Address _____

2.4 Owner Name: _____ Phone: _____

Email: _____

2.5 On-Site Contact Name: _____ Phone: _____

Email: _____

2.6 Site inspection conducted? ☐ Yes ☐ No If no, why:_____

Section 3. Site Description

3.1 Description of current site use and activities: _____

_____

3.2 Approximate percentage of site that is paved or covered: _____

3.3 Description of pavement condition: _____

3.4 Description of unpaved surfaces: _____

3.5 Description of areas with sediment accumulation: _____

3.6 Location and description of on-site storm drain inlets or catch basins: _____

_____

3.7 Description of the site perimeter, including where runoff might leave the site: _____

_____

3.8 Existing Control Measure BMPs (check all that apply)

- ☐ Covered exterior areas
- ☐ Manual or mechanical sweeping of paved surfaces
- ☐ Inlet protection
- ☐ Perimeter control
- ☐ Entrance/exit stabilization
- ☐ None
- ☐ Other (Please describe): _____

Section 4. Surface Sediment Sampling

4.1 Samples Collection

4.1.1 Were soil/sediment samples collected for PCBs? YES ☐ NO ☐

4.1.2 Were soil/sediment samples collected for mercury? YES ☐ NO ☐

4.2 to 4.7 Sample Details

4.2.1 Sample ID: _____ Date/time: _____

4.2.2. Sample Type: Composite? YES ☐ NO ☐

4.2.3 Latitude(s): _____ Longitude(s): _____

4.2.4 Describe the sample location and conditions: _____

4.2.5. Describe the sediment composition: _____

4.2.6 PCBs Results (mg/kg):_____

4.2.7 Mercury Results (mg/kg):_____

4.3.1 Sample ID: _____ Date/time: _____

4.2.2. Sample Type: Composite? YES ☐ NO ☐

4.3.3 Latitude: _____ Longitude: _____

4.3.4 Describe the sample location and conditions: _____

4.3.5. Describe the sediment composition: _____

4.3.6 PCBs Results (mg/kg):_____

4.3.7 Mercury Results (mg/kg):_____

Site Assessment Field Form

Section 5. Site Photos

Photo Description (required for each photo)

APPENDIX E
Task Hazard Analysis

TASK HAZARD ANALYSIS

H&S procedures referenced herein should be consulted, as appropriate, to ensure requirements are met.

Part A – PROJECT/TASK INFORMATION

Project/Site Name:	Old Industrial Source Property Investigation Program	**Project Number/Org:**	CWR1031
Site Address:	To be updated daily according to site assessments.		
Task and Work Site Description:	A series of outdoor walk-through will be conducted in preparation for developing a PCBs and mercury soil/sediment sampling work plan. Staff will be present onsite and accompanied by client counsel, regional board staff, and/or site operators. The sites will be evaluated for potential PCBs and mercury sources. The site assessment list will be updated before each walk-through. The purpose of this site walk is to obtain a better understanding of the facility layouts, identify potential soil and sediment sampling areas, and verify that the potential sampling areas are not covered with materials/objects pertaining to the facility operations. The site assessments will occur during normal business hours. Photographs and notes will be taken. Soil sampling will be collected during, or after site assessments using procedures outlined in the Standard Operating Procedures. The potential constituents of concern on the site include PCBs, mercury, and metals in soil and sediments. Additional potential hazards associated with the facility operations of old industrial facilities, including onsite vehicle traffic and loose debris, may be present.		
Personnel:	**Name**	**Office Phone**	**Cell Phone**
Site Safety Lead/Officer	PLEASE UPDATE THE NAMES AND CONTACT INFO		
Task Technical Lead	PLEASE MAKE SURE THE INFO IS UP TO DATE		
Project Manager			
Project Director			
Local H&S Coordinator			
Regional H&S Manager			
Corporate H&S Director			
On-Site Subcontractor(s): ☐ Not Applicable	☐ Applicable; provide company name, work task and contact information for each subcontractor below:		
Client, Contact(s):	PLEASE UPDATE		

Part B - EMERGENCY RESPONSE and FIRST AID

IMPORTANT: After initial emergency response actions and incident stabilization, contact appropriate project staff and/or H&S personnel listed in Part A

Site-Specific Notes, Clarifications: Consider relevant risk factors & response procedures (fire/explosion, medical, chemicals/spills, security, site factors, weather, communications), as well as client/regulatory requirements and available of onsite/offsite emergency services (and the possible need for emergency contact numbers other than 911).	
Emergency Communication / Alerting	☒ Verbal ☒ Cell Phone ☐ Land Line ☐ 2-Way Radio ☐ Satellite Phone ☐ On-site alarm/signal system ☐ Other:
To Summon Police, Fire, Ambulance	☒ **DIAL 911**, for external responders ☐ **Other**:
Other Emergency Contacts *(such as security, spill responder, utility-related):*	
Nearest EMERGENCY ROOM Medical Services	Hospital Name: PLEASE UPDATE Address: Phone #: ☐ **See ATTACHMENT A, ROUTE to HOSPITAL**
Emergency Evacuation - Route, Rally/Muster Point, Shelter Location(s)	PLEASE UPDATE
EMERGENCY and FIRST AID EQUIPMENT required for this work task is listed in **PART C.2. – SAFETY EQUIPMENT LIST**	

PLEASE UPDATE THE FOLLOWING ITEMS

Attachment A: Maps of Site Locations
Attachment B: Route to Hospital
Attachment C: Risk Assessment for Working in High-Crime, High Security Risk Locations

PART C – HAZARD ANALYSIS and EQUIPMENT LIST *(Basis for Field Team Safety Orientations and On-Site Safety Discussions)*

C.1 ON-SITE TASK HAZARD ANALYSIS

INSTRUCTIONS:

- Begin your job safety analysis by reviewing **"Pointers"** (see lower right) and completing ***Part D "HAZARD ANALYSIS AND CONTROLS*** for your TASK(s).
- In **Columns 1 & 2** (below), list/describe **TASKS & WORK ASPECTS** and the associated **HAZARDS & RISKS.**
- In **Column 3** summarize **CONTROLS & SAFE WORK PRACTICES** (Brief summary descriptions with references to THA Sections).

REFERENCES - Copy and paste, as applicable, into **Column 3:**

See C.2. SAFETY EQUIPMENT LIST
See D.1. BASELINE HAZARD PREPAREDNESS
See D.2. SPECIAL TRAFFIC/VEHICLE/TRANSPORTHAZARDS
See D.3. WATER HAZARDS
See D.4. FALL HAZARDS
See D.5. HAND TOOLS
See D.6. POWERED TOOLS & EQUIPMENT
See D.7. DRILLING
See D.8. CONSTRUCTION, HEAVY/LIFT EQUIPMENT
See D.9. STORAGE OF BULK MATERIALS
See D.10. ELECTRICAL WORK TASKS
See D.11. UTILITY-RELATED HAZARDS
See D.12. CONFINED/ENCLOSED SPACES
See D.13. INFECTIOUS / PATHOGENIC BIOHAZARDS
See D.14. COMMERCIAL CHEMICAL PRODUCTS
See D.15. SITE CONTAMINANTS, CHEMICAL WASTES
See D.16. RADIATION HAZARDS (Other than Sunlight)
See D.17. HAZMAT/DANGEROUS GOODS SHIPPING.
See Part E AIR MONITORING, EXPOSURE MONITORING

ALWAYS "COLLAPSE" THESE INSTRUCTIONS IN COMPLETED THA!

1. TASKS/WORK ASPECTS	2. HAZARDS/RISKS	3. CONTROLS / SAFE WORK PRACTICES
Mobilization	Driving	Routine defensive driving techniques; be aware when driving/parking in high-security risk areas D.1. Routine Hazard Preparedness
	Site Operations	Coordinate/maintain communication with SIMS at all times D.1. Routine Hazard Preparedness
		Wear Level D PPE including hard hat and long sleeves C.2. Safety Equipment List
Site Assessment	Driving	Routine defensive driving techniques; be aware when driving/parking in high-security risk areas D.1. Routine Hazard Preparedness
	Traveling to sites	Stay cautious about potential heat and cold stress Part E Air Monitoring, Exposure Monitoring
	Historical Uses	Wear masks if necessary to avoid COVID exposure and allergic hazards D.13. Infectious / Pathogenic Biohazards
		Follow site-specific investigation procedures for waste soil and water; clean spills if any occur D.15 Site Contaminants, Chemical Wastes
Soil Sampling and Classification	Driving	Routine defensive driving techniques; be aware when driving/parking in high-security risk areas D.1. Routine Hazard Preparedness
	Traveling to sites	Stay cautious about potential heat and cold stress Part E Air Monitoring, Exposure Monitoring
	Site Operations	Coordinate/maintain communication with SIMS and subcontractors D.1. Routine Hazard Preparedness
		Wear Level D PPE including hard hat and long sleeves C.2. Safety Equipment List
	Sample Collection	Maintain line-of-sight when near equipment being used and engage personnel using equipment prior to approaching to avoid struck-by incidents

1. TASKS/WORK ASPECTS	2. HAZARDS/RISKS	3. CONTROLS / SAFE WORK PRACTICES
Soil Sampling and Classification		D.1. Routine Hazard Preparedness
		Wear Level D PPE including nitrile gloves and long sleeves C.2. Safety Equipment List
		Follow site-specific sample procedures for waste soil and water; clean spills if any occur D.15 Site Contaminants, Chemical Wastes
	Soil Classification	Maintain line-of-sight when near equipment being used and engage personnel using equipment prior to approaching to avoid struck-by incidents D.1. Routine Hazard Preparedness
		Wear Level D PPE including nitrile gloves and long sleeves C.2. Safety Equipment List
	Heavy Loads	Use proper lifting techniques, do not store heavy equipment above head height D.1. Routine Hazard Preparedness
		Lift with 2 people if exceeds 50 lbs D.1. Routine Hazard Preparedness
		Ensure heavy loads/equipment are staged firmly on the applicable surface D.1. Routine Hazard Preparedness
	Sample Transportation	Ensure samples in transportation are properly contained and labeled D.17. Hazmat/Dangerous Goods Shipping
Equipment Decontamination	Site Operations	Coordinate/maintain communication with SIMS and subcontractors D.1. Routine Hazard Preparedness
		Wear Level D PPE including hard hat and long sleeves C.2. Safety Equipment List
		Site operator and customers driving heavy equipment nearby D.8. Construction, Heavy Equipment, Lift Equipment
	Contaminated Soil and Water	Wear Level D PPE including eyewear, nitrile gloves and long sleeves C.2. Safety Equipment List
		Follow site-specific procedures for decontamination of personal PPE D.15 Site Contaminants, Chemical Wastes
	Spill Prevention	Place well-sealed lids on buckets when not in use C.2. Safety Equipment List
		Lay plastic sheeting underneath decontamination station C.2. Safety Equipment List

4. ON-SITE CHANGES, UNFORSEEN HAZARDS, THA "ADJUSTMENTS" (Recognized During Mobilization/Execution of Field Work)	
Date:	Notes: PLEASE UPDATE THIS SECTION IF CHANGES AND ADDITIONAL HAZARDS ARE OBSERVED OR NOTICED.
Date:	Notes:

C.2. SAFETY EQUIPMENT LIST (Gear to be brought to the work site by personnel, or availability at the work site confirmed)

Site-Specific Notes, Clarifications: Staff should ensure the safety equipment checked below is accessible and utilized during the site assessment and sampling events.

☒	**WEATHER, CLIMATE, SEASONAL**	☒ Project-provided drinking water ☐ Canopy for shade, weather protection	☒ Sunscreen ☐ Ice creepers (boot attachments)	☐ Rock salt, traction sand ☐ Portable heater (electric or kerosene)
		☐ Other:		
☒	**HYGIENE PROVISIONS**	☐ Hand washing equipment (soap & wash water)	☒ Hand sanitizer, disinfectant supplies	☐ Sanitary facility, porta-toilet
		☒ Other: Bathrooms are available on site		
☒	**BASIC PPE**	☒ Standard work clothes appropriate for task ☒ Hard-toed boots/shoes ☒ Hardhat	☒ Safety glasses ☒ Work gloves appropriate for task ☒ Noise/hearing protection	☒ High-visibility/reflective vest/apparel ☒ Nuisance dust mask (voluntary use)
☒	**BIOLOGICAL HAZARDS**	☐ Insect/tick repellant--DEET, picaridin, other ☐ Permethrin-treated work clothing ☐ Pant-leg "blousing"/gaiters (tick safe) ☐ Tick removal kit ☐ Wasp/hornet spray, insect fogging device, other ☐ Poison ivy protection (Ivy Block skin cream, Tecnu skin wash)	☐ Animal warning device (for bears/cougars/wolves/large animals) ☐ Snake chaps/gaiters, bite/scratch-resistant gloves, other protective gear for animal hazards ☒ Hand sanitizer, hand washing supplies, personal hygiene supplies for infectious hazard control ☒ Disinfectant solution and related supplies to mitigate source of infectious hazard ☐ Masks, face covers, gloves, barriers, related gear to mitigate infectious hazard transmission	
		☐ Other:		
☒	**SPECIAL HAZARD CONTROLS**	☐ Portable GFCI(s) for shock protection ☐ Electrical-hazard-rated boots, gloves ☐ Arc-resistant (AR) protection PPE for arc flash ☐ Flame-resistant (FR) clothing ☒ Work-area delineation supplies	☐ Lockout/tagout equipment ☐ Portable lighting ☐ Tripod/winch ☐ Ventilation equipment (fan, blower) ☐ Traffic control devices	☐ Personal fall protection apparatus ☐ Personal flotation device ☐ Ring buoy & rope ☐ Marine survival suit
		☐ Other:		
☒	**CHEMICAL PPE and CHEMICAL SAFETY GEAR**	☐ Goggles and/or face shield ☐ Chemical protective gloves ☐ Coveralls (Tyvek, or other) ☐ Outer boots, boot covers	☒ Disposable N95 respirator ☐ Half-face respirator (APR), cartridges ☐ Full-face respirator (APR), cartridges ☐ Exclusion Zone delineation supplies	☒ Decon solution, related supplies ☒ Receptacle for disposable PPE ☐ **Chemical hazard emergency gear – listed in "EMERGENCY EQUIPMENT" below**
		☐ Air monitoring equipment, worker exposure monitoring device(s):		
		☐ Other:		
☒	**EMERGENCY EQUIPMENT**	☐ **Air horn, alarm, alerting equipment** ☐ **2-Way radios; other communication device** ☒ **First aid kit(s) – on-site and/or in vehicles** ☒ **Fire extinguisher – on-site and/or in vehicles**	☒ **Eyewash bottle(s)** ☐ **15-min. eyewash station** ☐ **Emergency deluge shower** ☒ **Chemical spill kit/supplies**	**Vehicle emergency preparedness:** ☒ **Fire extinguisher, first aid kit** ☒ **Flares, lights, reflective device** ☒ **Roadside assistance service**
		Other:		

PART D – HAZARD ANALYSIS AND CONTROLS *(Site-Specific Safety Analysis and Information)*

D.1. "BASELINE" HAZARD PREPAREDNESS (This section applicable to ALL Tasks, covering natural hazards, driving/travel, basic safety, and PPE)

a. Weather/Climate/Altitude Hazards

☒ **Heat stress** – Prevent heat-related illness; At ambient temps > 80ºF (27ºC) **use HeatTracker to assess hazard**, implement mitigations accordingly.

☒ **Cold stress** – Prevent frostbite, hypothermia; multiple clothing layers, keep clothing dry, protect exposed skin, stay hydrated, frequent warming breaks.

☐ **Sunburn, conjunctivitis** – Sun blocker, shade canopy, wide-brimmed hat, long sleeves/pants; protect eyes from glare near water/snow/sand

☐ **Extreme weather** – Track weather, emergency plan: ID shelter/refuge, use weather app for lightning prediction at 10 mi./16 Km (use "30/30 rule" as backup).

☐ **Weather-related conditions** – Use appropriate precautions for ice/snow/slippery conditions, flood, mold, soft ground, downed trees/wires, fire hazards, other.

☐ **Acute Mountain Sickness (AMS)/Altitude Illness** – for work to be performed at ≥ 8,000 feet (2,450 meters) above sea level.

Site-Specific Notes: Staff should be cautious about potential heat and cold stress. During warm weather, staff should stay hydrated and limit physical activity in heat. During cold or wet weather, staff should bring appropriate clothing to stay dry and warm.

b. Biological Hazards

☐ **Insect/tick/arthropod hazards/vector-borne disease** – Use insect repellant, permethrin-treated clothing/gear, tick checks, tuck pants/shirt, tick removal tool, wasp spray, bug zapper/trap, mosquito netting, fogging, other barriers and protective devices, habitat treatment/removal, as applicable.

☐ **Plant hazards** – Know the hazards (e.g. poison ivy/oak/sumac, giant hogweed, poison hemlock, nettles, etc.), know the precautions for site habitat: barrier ointments, washes; long sleeves/pants, gloves, remove plants (avoid burning), launder work clothes (hot water/detergent), clean tools (alcohol or soap/water).

☐ **Animal hazards** – Know the hazards/precautions for work site: avoidance, repellants, PPE, warning devices, habitat/food source removal, infection controls.

☒ **Common unsanitary/allergenic hazards** – Use routine hygienic measures/precautions; hand washing/sanitizer, food hygiene, PPE, disinfectant cleaning.

☒ **Infectious/pathogenic** - For site-specific infectious hazards (viral, bacterial, bloodborne pathogens, mold, other), see **D.13 "Infectious/Pathogenic Biohazards."**

Site-Specific Notes: Staff should be cautious about COVID exposure and allergic hazards.

c. Routine Driving Hazards

☒ **Routine work travel** – Use routine safe/defensive driving practices (seat belts, safe speeds, eyes ahead, no tailgating, limit distractions, safe cell phone use, no texting, clear windows, account for weather/road conditions, adequate sleep, other measures as appropriate).

☒ **Unfamiliar location** – Before driving in roadway: view map, note key benchmark locations, plot your route and/or enter destination into navigation device.

☒ **Unfamiliar vehicle** – Before driving in roadway: become familiar with vehicle controls; adjust seat, mirrors, vents, heat/AC, audio, lights, check brakes.

☒ **Fatigue** – Minimize fatigue during long drives: frequent rest breaks, muscle stretches, eat light snacks-avoid heavy meals, stay hydrated, fresh air, no loud music, clean windshield; avoid/minimize long distance driving during your ordinary sleep hours; total *work time* and *drive time* should not exceed 14 hours per day.

Site-Specific Notes: Staff will be traveling to multiple locations in Alameda County. Staff should be cautious about vehicle and pedestrian traffic during driving and parking.

d. General Safety

☒ **General premises hazards** – Prevent slips/trips/falls (resulting from rough terrain, trip hazards, steep slope, slippery surfaces); maintain good housekeeping, be aware of on-site structures, utilities, overhead hazards, uneven/hazardous surfaces, obstacles, on-site traffic, restricted access/workspace.

☒ **Musculoskeletal hazards** – Prevent strains/sprains from strenuous tasks, overexertion, repetitive motion/ergonomic/lifting (seek help/lift-aids over 49 lbs.)

☒ **Worksite traffic hazards** – Implement measures to protect personnel (high-visibility/reflective clothing, on-person lighting, traffic control measures).

☒ **Hazardous energy** – Use caution near electrical equipment/wet locations, machinery/physical hazards, stay out of hazard zone/line-of-fire, don't touch.

☒ **Illumination hazards** – Illuminate work areas and/or access routes, use high-visibility and reflective clothing or on-person lighting, as appropriate.

☒ **Security: high potential for crime/workplace violence/security breach** – Complete a *Risk Assessment for Working in High-Crime, High Security Risk Locations in Attachment B*

☐ **Working alone –** Communicate a project-specific lone-work plan to coworkers, including procedures for periodic communication/contact.

Site-Specific Notes: Staff should be cautious about vehicle and pedestrian traffic, potential heat/cold stress, COVID exposure, potential crime, and allergic hazards. Staff working will be responsible for updating the project manager at the start of the site work and the end of the work (i.e. texting updates to ensure staff are safe and on track with tasks).

e. Basic Personal Protection

☒ **Head protection from overhead hazards** – Wear hardhat or "bump cap" as appropriate for hazard.

☒ **Hand protection** – Wear gloves to protect from physical, chemical and biological hazards; select glove type (or types) specific for the task & hazard(s)

☒ **Eye protection** – Wear safety glasses (with side shield or wrap around, either clear or shaded for sun protection), or other appropriate eye protection.

☒ **Foot protection, rough terrain** – Wear work boots/shoes with hard toes, ankle support, puncture resistance, traction, as appropriate for conditions.

☒ **Hearing protection** – use earplugs or earmuffs (or both) as appropriate for conditions; at a minimum where noise levels exceed 85 dBA.

☒ **Protective clothing/nuisance dust mask** – For general protection against dust, dirt, oily residues, unsanitary conditions, as needed.

☐ **Other personal protective gear** for task(s) covered in this THA is described in respective sections of this THA in Site-Specific Notes & Clarifications

Site-Specific Notes: Staff will be conducting site inspections and sampling at multiple locations in Alameda County with the potential of containing PCBs and mercury. Staff should be equipped with basic PPE at all times during the inspection and sampling.

H&S Documents:

D.2. SPECIAL TRAFFIC / VEHICLE / TRANSPORTATION HAZARDS ☒ Applicable ☐ Not Applicable, Not Anticipated

(For water-transportation hazards, see D.3. "Water Hazards"; For construction traffic hazards, see D.8. "Construction, Heavy Equipment, Lift Equipment")

Site-Specific Notes & Clarifications: Some site observations may be along the public right-of-way, roadways, and in public areas (i.e. parks, schools, etc). Staff will need to use best judgment in the field to assess GSI facilities safely and avoid standing on roadways, and ensure road crossings are safe prior to crossing roads.

☒	**THOROUGHFARE TRAFFIC HAZARDS** Where the worksite is located in/near vehicle thoroughfare (road, highway, parking lot, etc.). Hazards: Injury to worker and general public from collision involving moving vehicle.	☐ Prepare Management of Traffic (MOT) Plan (address location hazards / client and regulatory requirements). ☒ Wear DOT-approved reflective vests where exposed to traffic hazards. ☒ Where possible, park vehicles as protective shield from oncoming traffic. ☒ Configure work area and support vehicles to minimize worker exposure to traffic hazards. ☐ Use DOT signal devices and/or signage to re-route vehicles around work area, site entrances/exits. ☐ Use DOT-trained flaggers or police detail where appropriate or required.
☐	**SPECIAL VEHICLE HAZARDS** Off-Road Driving or use of non-typical vehicle, heavy vehicle, work truck, van, UTV/ATV Hazards: Worker injury due to vehicle collision, rollover	☐ For off-road driving, do not exceed capability of vehicle, beware of wet conditions, keep speed low, avoid unsafe orientation on slopes. ☐ UTV/ATV-specific procedures for training, use roll-bar or helmet, operate per manufacturer's instructions. ☐ Special Skills Required for Vehicle type – For vehicles requiring special skills (such as windowless van, heavy work vehicle, utility vehicle, similar) ensure operator is provided training and/or has appropriate operator skills through experience.
☐	**TOWING/HAULING LOADS** Hazards: Vehicle accident, occupant injury from shifting load, unsafe equipment, un-roadworthiness of trailer and/or vehicle.	☐ Ensure load within vehicle is firmly secured (rope, straps, load configuration) to prevent shifting during travel. ☐ Slings, chains, strap, rope and related equipment used for towing, hauling, load-securing shall be appropriate for use, and used in a manner as to prevent an unsafe condition (generally, bungee cords not appropriate). ☐ For trailer use, verify tow-hitch components are compatible, hitch/safety chains secure, signal/braking lights operational, rear-view mirrors effective, tires inflated to proper pressure and tread acceptable.
☐	**RAILROAD RIGHT-OF-WAY HAZARD** Hazards: Struck by train in R.R. right-of-way; electrical shock from third rail or overhead electrical lines	☐ Coordinate with rail company or on-site host facility and implement required safety and security measures. ☐ Site workers shall receive safety training/certification (per railroad owner/operator) for railroad work.
☐	**AIRPORT HAZARDS** (on the ground) Hazard: Injury due to proximity on/near airport runway, flight path.	☐ Coordinate safety requirements with airport personnel and implement required safety measures. ☐ Site workers shall receive safety training/certification (per airport owner/operator) for airport work.
☐	**LIGHT AIRCRAFT/HELICOPTER USE** Hazards: Injury from collision during taxi/take-off/landing, aircraft crash and related general aviation hazards	☐ Review certifications/licenses/experience of pilot, airworthiness certificate for aircraft, safety practices of operator, aircraft safety rating, safety equipment/provisions on aircraft. ☐ Passengers shall adhere to general passenger safety practices, and requirements of owner/operator/pilot. ☐ For transport of HazMat/Dangerous Goods, see **D.17., "Transport/Shipping of Hazmat/Dangerous Goods"**
☐	**USE OF AERIAL "DRONE"** Hazards: Airspace interference, collision with ground personnel, general public, infrastructure.	☐ For use of aerial drone--a.k.a. *small unmanned aerial system* (sUAS), *remote piloted aircraft* (RPA) or *unmanned aerial vehicle* (UAV)--review/adhere to requirements for regulatory certifications, authorizations & approvals, and pre-mob planning for pre-flight-, in-flight-, and post-flight checks, and unplanned events.

D.3. WATER HAZARDS (Working Over/On/Near Water, Ash Ponds, Quicksand, Soft Ground) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**WATER HAZARDS** **Work/travel in watercraft or on equipment over water or over coal ash impoundment/pond:** ☐ Workboat, barge, over-water structures ☐ Water transportation ☐ Hazardous currents (river, tidal/riptide) ☐ Towing, trailer, roadway ☐ Other – describe above **Walking/wading into water, on shoreline, riverbank, dock, bulkhead, abutment, coal ash:** ☐ Wading/walking into/near water, wetland ☐ Hazardous tidal zone or surf ☐ Water release, flash flood ☐ Coal ash pond, quicksand, soft ground ☐ Open culvert, arroyo, drainage/irrigation ditch ☐ Ice hazard on or near waterbody **Diving** ☐ Scientific SCUBA diving **Hazards** (as applicable): - Drowning, cold immersion - Boating collision, navigation, fog, darkness - Fire/fuel hazards - Entrapment (mud/silt/coal ash/quicksand) - Slip/fall hazards – ice, mud, silt, wet surfaces - Weather, heat/cold stress - Equipment failure, hypoxia - Chemical contaminant and/or biological hazard	**General water-safety measures for all work near water:** ☐ Wear regulatory-approved personal flotation device (PFD) where drowning hazard is present. ☐ Bring emergency rescue and/or signaling equipment (ring buoy and rope, reaching device, flares) ☐ For fall protection over water, see **D.4. "Fall Hazards."** ☐ For electrical hazards associated with water/wet locations, see **D.10. "Electrical Work Tasks."** **Boating-specific:** ☐ Use fuel safety practices, fire extinguisher present in boat. ☐ Develop/follow float plan, monitor weather, navigate/communicate as planned. ☐ Confirm navigation/communication equipment operable before heading onto water. ☐ For work over very cold water, have immersion survival suit available. ☐ For tidal, flash flood, dam release hazards, plan/locate work accordingly. ☐ For towing a boat trailer, see **D.2. "Special Driving/Traffic/Transportation Hazards."** **Wading in water or walking along shore/bank or on dock/pier/abutment:** ☐ For ice/slip hazards, wear ice creepers, sand work area, use tether, other appropriate measures. ☐ For work on ice over water, verify safe thickness, have ring buoy & rope available ☐ For unsure/slippery footing in water, use wading staff, high-traction soles on waders. ☐ Have lifesaving skiff/boat available in circumstances where other rescue means are inadequate. ☐ Monitor hazardous tides, weather for flash floods, know water release schedule. **For soft ground, ash ponds, quicksand:** ☐ Wear personal flotation device (PFD), as appropriate for the work task and work environment. ☐ Bring emergency rescue equipment (ring buoy and rope, reaching device) ☐ If walking on ash/quicksand, provide stable walking/working surface (4'x8' plywood, or similar) **For diving:** ☐ Develop a diving safety plan approved by a diving coordinator **For chemical contaminant and/or biological/infectious hazard:** ☐ See **Section(s) D.1.b., "Biological Hazards**, **D.13., "Infectious/Allergenic Biohazards," D.14., "Commercial Chemical Products," and/or D.15., "Site Contaminants, Chemical Wastes"**

D.4. FALL HAZARDS (Falls to Lower Levels)

☐ **Applicable** ☒ **Not Applicable, Not Anticipated**

Site-Specific Notes & Clarifications:

☐	**WORKING AT HEIGHTS (GENERAL)** Hazards: - Injury from falls onto lower surface or falls into hazardous equipment, chemicals, water - Overhead utilities/obstructions - Impalement hazard (such as from falling onto unprotected rebar and similar surface projections) - Hazard posed to ground personnel from falling tools, equipment, materials	***Fall protection "trigger heights"***: ***Built environment*** *– US & CAN: 4 ft. (1.2 m.);* ***Construction:*** *US: 6 ft., 10 ft. for scaffolds; CAN: 10 ft. (3 m)* Protect from ***primary*** (fall) hazards: ☐ Restrict access to hazard (barriers, tape, sign) ☐ Ensure safe access to height (ladder, stair, lift) ☐ Ensure guardrails/stair-rails/handrails present ☐ Ensure covers in place over holes ☐ Use designated "watch person/monitor" ☐ Use tether or positioning device ☐ Use personal fall apparatus (PFA) ☐ Use fall protection net Protect from ***secondary*** (collateral) hazards: ☐ Protect site ground personnel from falling objects (restrict access, toe-boards, tether tools) ☐ Install caps on protruding rebar and similar ☐ Working over water; see **D.3, "Water Hazards"** ☐ Working over hazardous machinery/equipment; see **D.6, "Power-Tools/Powered Equipment"** ☐ Overhead electrical; See **D.11. "Utility-Related Hazards"** ☐ Working over chemical hazards; See **D.14 and/or D.15 for chemical and/or contaminant hazards.**
☐	**LADDER / STAIRS** ☐ Extension/straight ladders ☐ Step ladders ☐ Fixed/installed ladders ☐ Portable/mobile stairs ☐ Job-made or scaffold stairs Hazards: - See general fall hazards, above.	☐ Follow safe work practices: • Use ladders according to safe practices and manufacturer's instructions. • Maintain 3 points of contact at all times on ladder; keep center of gravity within side rails. • Do not use metal (conductive) ladder near electrical hazard. • Extension/straight ladders shall be properly footed, secured, angled, extend above upper work surface. • Stepladders are set on level ground or properly shimmed, spreaders locked; do not climb/stand on top step, top cap, or rear non-climbing side; use step ladder of sufficient reach height for work. • Equip stairs with stair handrails where more than 4 steps, and for stairway height of 4' or more. • Ensure portable stairs are stable, plumb, and of sufficient reach height for task.

☐	**SCAFFOLD** ☐ Supported scaffold ☐ Suspended scaffold ☐ Free-standing/mobile scaffold Hazards: - See general fall hazards, above - Equipment collapse	☐ Follow safe work practices: • Identify/coordinate operations with the scaffold "Competent Person." • Supported scaffold level, stable, proper attachments, tiebacks, planking, • Suspended scaffolds anchored properly. • Guardrails or personal fall apparatus required above 10 feet. • Proper means of accessing scaffold (proper ladders, stair tower); don't climb scaffold frames. • Total height of free-standing scaffold shall not exceed four times the minimum base dimension. • Don't exceed load limits, distribute loads evenly, stage materials in quantities sufficient for immediate use.
☐	**AERIAL BOOM/SCISSOR LIFT** Hazards: - See general fall hazards, above - Struck-by, run-over, tip over - Caught between (pinch points) - Fluid leaks/fuel hazards or battery-related hazards	☐ Follow safe work practices: • Operators shall be trained and certified. • Equipment is inspected after mobilization and is in good condition. • Harness & lanyard worn whenever operating a boom lift (optional for scissors lift). • Overhead hazards and surface obstructions shall be reviewed with operators prior to use.
☐	**WARNING!** Confirmed or possible close proximity to **OVERHEAD ELECTRICAL UTILITY LINES.**	☐ Follow safe work practices per **D.11., "Utility-Related Hazards"**

D.5. HAND TOOLS (Manual, Hand-Powered) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**MANUAL HAND TOOL INJURIES** ☐ Struck by ☐ Pinch points/crushing injuries ☐ Puncture ☐ Cutting blade/laceration risk ☐ Flying objects, eye hazards ☐ Other, describe above	☐ Proper tool for the job, maintain in good condition, use vise/clamp to hold work piece, proper follow through, Self and nearby personnel shall stay clear of "line of fire," use appropriate work gloves, keep blades sharp, use wrist strap when dropped tool poses a hazard. ☐ Utility/folding/collapsible knives and fixed-blade knives/cutting tools are *not* permitted, unless specifically authorized. Cutting tools with auto-retracting blades, or with enclosed/guarded blades are permitted. Use cut-resistant heavy work gloves, as applicable. ☐ Ground surface penetration (hand auger, probe) – requires utility clearance; see **D.11. "Utility-Related Hazards"**
☐	MUSCULOSKELETAL (MSK) HAZARDS ☐ Risk of acute physical MSK trauma (strains, sprains, soft tissue injuries) ☐ Risk of cumulative/chronic MSK trauma, repetitive motion injuries	☐ For tools requiring high exertion (shovel, hand auger, sledgehammer, pickaxe, slide hammer, similar): do stretching exercises to prepare, clear hazard zone, use stable body position, take rest breaks, avoid overexertion. ☐ For recognized musculoskeletal hazard, acute or chronic, resulting from unsafe acute exertion, or ergonomic/repetitive motion/cumulative trauma risks, seek advice on controls **from Corporate H&S Dept**.

D.6. POWERED TOOLS & EQUIPMENT (For Drilling & Heavy Equipment, see D.7 & D.8) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**Type of powered tools/equipment:** ☐ "Power tools" ☐ Powered portable equipment ☐ Powered fixed equipment **Energy/power source:** ☐ DC battery- or solar-powered ☐ AC electric-powered ☐ 120V ☐ 240V ☐ 480V ☐ Extension/flexible cords	☐ General safe work practices for operation of powered tools and equipment: • Inspect before each use to ensure safe operating condition. • Clear personnel from hazard zone; keep personnel out of the "line-of-fire;" heed warning labels/signage. • Arrange worksite for safe access to equipment and sufficient work area clearance for safe use of tool; confirm no overhead obstructions; ensure adequate illumination. • Secure long hair/loose clothing/hanging jewelry near moving/rotating parts. • Ensure point-of-operation, mechanical power transmission, other moving parts are guarded with protective devices (as applicable); do not override interlocks, guards, protective devices. • Do not make any equipment modifications that create a greater hazard or bypass safety design features. • Use tool/equipment in accordance with manufacturer's use and safety instructions. • Use PPE and/or other safety protections, as appropriate, for eye/hearing/hand/head/body protection. • Provide training or verify operator competency for use of power tool/equipment. • Use ventilation, wet methods, respirators, other applicable means to mitigate inhalation hazard.

	☐ Fuel-powered (gas or liquid) ☐ Pneumatic ☐ Hydraulic ☐ Gunpowder-actuated **Hazards of Power Tools and Powered Equipment:** ☐ Eye/hand/body injury ☐ Point-of-operation hazards ☐ Pinch points, moving parts ☐ Line-of-fire hazards, struck by ☐ Fire/explosion, ignition sources ☐ Burns from hot surfaces, steam ☐ Noise ☐ Inhalation/atmospheric hazards ☐ Working at heights, falls ☐ Overhead obstruction(s) ☐ Musculoskeletal hazards ☐ Potential (stored) energy ☐ Illumination	• Move power cords/pressurized hoses to protect from damage during tool/equipment use. • For spark/heat generating tool/equipment, have fire extinguisher available, remove combustible/flammable materials, or use other means to control fire hazard (e.g. fire watch, fireproof blanket). • Use safe lifting practices and/or lift aids for moving heavy portable equipment, and use safe operating procedures to protect from acute strains/sprains, overexertion, and cumulative trauma injuries. • Implement safe work practices for compressed air, pressurized systems (pneumatic/hydraulic), stored energy. ☐ <u>Additional requirements for power tools:</u> • Use vise/clamp/work bench or other means to hold/secure a portable/moveable work piece. • Don't carry electrical tools/equipment by the power cord; don't carry pneumatic tools by hoses. • Disconnect tool/equipment from power source before changing bits, blades or making adjustments. ☐ <u>Additional requirements for fixed powered equipment:</u> • Implement lockout/tagout controls for repairs/adjustments/tooling changes. • Equip pneumatic hoses with whip checks; ensure factory fittings are used for high-pressure hose connections. ☐ For climbing/fall hazards associated with large equipment, see **D.4. "Fall Hazards."** ☐ For electrical hazards, see **D.10. "Electrical Work Tasks."** ☐ For ground surface penetration, see **D.11. "Utility-Related Hazards."** ☐ For fuel-safety practices, see **D.14. "Commercial Chemical Products."** ☐ For air monitoring of atmospheric hazards, see **Part E, "Air Monitoring, Worker Exposure Monitoring."**
☐	**WELDING, CUTTING, HOT WORK** ☐ Arc-welding (electrical arc) ☐ Gas-welding/cutting (fuel gases) Hazards: - UV/IR light-eye/skin burns - hot-work hazards/fire - toxic metal welding fumes - compressed gases (physical hazards, fire, oxygen deficiency) - electrical shock	☐ <u>General safe work practices for operators of welding equipment:</u> • Hot work permit system shall be implemented. • Operator properly protected (eye protection, clothing, apron, etc.). • Fire hazard controls (watcher, fire extinguisher, water, remove combustibles from work area). • Protect nearby personnel from hazardous UV, IR light (shielding, curtain); see **D.16. "Radiation Hazards."** ☐ For welding gas cylinders, secure them upright with caps on when stored or not in use; protect cylinders from damage; NEVER secure gas cylinders to metal welding bench used for electrical arc welding; see **D.14. "Commercial Chemical Products."** ☐ For arc welding, follow electrical safe work practices; see **D.10. "Electrical Work Tasks."** ☐ For inhalation hazards from welding fumes (toxic metals) and gases (asphyxiant, flammable), see **D.14. "Commercial Chemical Products."**
☐	**PORTABLE ELECTRIC GENERATOR** Hazards: - Electrical shock - Carbon monoxide inhalation hazard - Fuel-related fire hazard - Injury from mechanical or lifting hazard - Burns from hot surfaces	☐ <u>Follow general safe work practices for Powered Tools & Equipment (above), and as follows:</u> • Use in accordance with manufacturer's instructions, including instructions for grounding the generator. • Keep generator and work area dry. • Never use indoors, or near building air intake vents due to carbon monoxide hazard. • Provide for ventilation and/or air monitoring where hazardous accumulation of exhaust emissions is possible. • Use hearing protection in close proximity to operating generator (where noise level exceeds 85 dBA). • Use power cords/extension cords specified by instructions. • Use ground-fault circuit interrupters (GFCIs) in accordance with manufacturer's instructions; see **D.10. "Electrical Work Tasks."** • Shut down equipment before refueling; see safe practices for flammable/combustible liquids in **D.14. "Commercial Chemical Products."**
☐	**PNEUMATIC / HYDRAULIC HAZARDS** ☐ Air compressor ☐ Compressed air system ☐ High-pressure liquid ☐ Pressurized steam (For compressed gas cylinders, see **D.14. "Commercial Chemical Products")**	☐ Never direct outlet nozzle toward body; use guards, restraints, engineering controls as appropriate. ☐ Never use compressed air for cleaning clothes you are wearing. ☐ If compressed air is used for cleaning, restrict pressure to 30 psi or below, equip nozzle with chip guard. ☐ Use PPE for eye (goggles or face shield)/hand/head/hearing/skin protection, as appropriate for the hazard. ☐ Ensure tank, hoses, fittings are in good repair using factory fittings, equipped with whip-checks. ☐ If pressure relief device poses a hazard to workers, reconfigure or shield device or restrict access by workers.

☐	**PORTABLE HEATER** ☐ electric ☐ fuel-powered Hazards: - Shock (electrical) - Carbon monoxide emissions and fuel-related fire hazards (fueled) - Fires/burns from hot surfaces.	☐ Follow general safety practices for Operation of Equipment/Machinery (above), and as follows: • Keep heater dry and locate heater on level surface away from high traffic areas to prevent tipping. • Never use fuel-powered heaters indoors, or near air intake vents, due to carbon monoxide hazard. • Provide ventilation and/or air monitoring where hazardous accumulation of exhaust emissions is possible. • Keep combustible materials at least 3 feet from hot surfaces. • Plug electric heaters directly into wall outlet (don't use extension cord or power strip). • For electric heaters, see **D.10., "Electrical Work Tasks."** • Shut down fuel-powered equipment before refueling; see safe practices for flammable/combustible liquids and/or compressed gases in **D.14. "Commercial Chemical Products."**
☐	**LOCKOUT/TAGOUT (LO/TO) OF HAZARDOUS ENERGY** To prevent unplanned equipment start-up or release of energy when under maintenance/repair.	☐ Prepare site-specific written LO/TO *program*, and equipment-specific written LO/TO *procedures* (as applicable); implement control procedures for hazardous energy sources, provide locks/tags, train workers, designate "authorized" personnel, notify "affected" personnel.

D.7. DRILLING (Test Boring, Direct Push, Construction Drilling) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**DRILLING & DIRECT PUSH** Includes hazards posed by drilling rig and associated equipment, heavy support vehicles, trailer/towing hazards, and similar mobile equipment. Hazards: - Struck-by equipment - Run over, roll-over - Caught between (pinch points) - Manual lifting, musculoskeletal - Fuel/fluid leaks, fuel hazards - Suspended equipment - Roadway hazards.	☐ Follow safe work practices, as applicable: • Non-drilling personnel shall stay clear of drilling work zone when drill rig in operation. • Equipment shall be maintained in good repair, inspected daily upon mobilization; backup alarms and emergency stop operational, machine guards in place, whip checks on high pressure lines. • Leaks or defective safety equipment will be repaired before use. • Establish eye contact with operator and use hand signals prior to approaching the rig. • Use PPE near operating rig (eye/head/hearing/hand/foot protection, high visibility vests or equivalent). • Arrange personal/support vehicles to protect drill team and not obstruct travel lanes or other operations. • Operators/helpers must maintain safe distance from moving parts; secure loose hair/clothing, equipment. • Drill rigs will only be moved with masts lowered. • Maximum safe slope for rig will be followed, drill rig leveled, appropriate blocking/cribbing as needed. • Use safe practices for fuel handling/storage/transport; spill equipment available for fuel/fluid leaks. • Ventilate exhaust and conduct air monitoring, as appropriate, when drilling indoors. • Never climb drill mast without appropriate fall protection. • Use precautions for overhead and underground utilities
☐	**MECHANICAL LIFTING, RIGGING** Applies to lifting truck-mounted boom rig (e.g., drill rig), and all other drilling-related mechanical/electrical hoist equipment. Hazards: - Mechanical hazards - Elevated loads	☐ In addition to general drilling & direct push safety practices (above), as applicable: • Slings, chains, rope, wire rope, as well as sheaves, boom, and attachments used for lifting/hoisting shall be maintained in good condition, inspected daily, and used/stored in a manner as to protect from damage. • Do not exceed loading limits of lifting equipment; perform work in accordance with equipment load chart. • Hooks will be equipped with safety latches. • Ensure anchor points for winch or other lift device are engineered for intended use. • Ensure personnel are not positioned beneath elevated loads.
☐	**WARNING!** Confirmed or possible close proximity to **OVERHEAD or UNDERGROUND UTILITIES.**	☐ Follow safe work practices per **D.11. "Utility-Related Hazards."**

D.8. CONSTRUCTION, HEAVY EQUIPMENT, LIFT EQUIPMENT ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**WORKING NEAR MOBILE HEAVY EQUIPMENT, ON-SITE VEHICLES** Hazards: - Struck-by - Caught between - Run over, roll over - Overhead hazards/obstructions - Elevated loads	☐ For personnel on-foot/on-the-ground near operating heavy equipment, follow safe work practices: • High visibility vests for all personnel in construction vehicle work area, on-site roadways and travel lanes. • Maintain unobstructed vision: wear shaded eyewear only in bright sun; don't wear hoods. • Erect barriers and post signs to identify and isolate the equipment hazard zone, if possible. • Stay out of swing radius of equipment, both in front and operating end, as well as at the back of equipment. • Stay out of the travel path of operating heavy equipment. • When crossing vehicle pathway behind moving equipment, cross at a distance not less than 30 feet. • When approaching equipment, always be able to see operator so he/she can see you. • Make eye contact with operator and use hand signals or make radio contact prior to approaching equipment. • Operator shall provide "all off" hand signal when it is safe to approach within swing radius of equipment.

☐	**OPERATION OF MOBILE HEAVY EQUIPMENT** Hazards: - Struck-by - Run over, roll over - Caught between (pinch points) - Fluid leaks/fuel-/fire-hazards - Overhead hazards/obstructions - Potential for body entrapment/crushing - Rotating equipment, moving parts.	☐ Operators shall follow safe work practices for operation of heavy equipment: • Only trained/qualified persons allowed to operate heavy equipment. • Wear seat belts; roll-over protection system present/deployed; do not exceed maximum safe slope. • No passengers on moving/operating equipment except where passenger seat/restraint is present. • Equipment inspected daily upon mobilization; maintained in good repair, backup alarms, windows clear. • Leaks or defective safety equipment should be repaired before use; fire extinguisher present. • Maintain eye contact with ground personnel and use hand signals to direct their approach near equipment. • High visibility vests for all personnel in construction vehicle work area, on-site roadways and travel lanes. • Cease operation if personnel enter swing radius, travel path or hazard zone of moving parts, elevated loads. • Use safe practices for fuel handling/storage/transport; spill equipment available for fuel/fluid leaks. • Equipment locked, secured, brakes set, buckets/forks lowered, extendable parts retracted, when not in use. • Shut down/lock out equipment to prevent crush situation beneath or between moving parts of equipment. • Ensure personal/support vehicles are parked/located to not obstruct equipment travel lanes/operating zones. • Mark temporary roadways clearly, provide berms/stops where needed.
☐	**TRENCHING/EXCAVATION** Hazards: - Cave-in, entrapment - Hazardous atmosphere - Water accumulation - Falls into excavations - Utility-related hazards - Undermining structures & foundations	☐ Safe work practices when personnel will enter trenches/excavations: • Activities under supervision/oversight of Competent Person, conduct daily inspection of excavation. • Excavated materials placed at least 2' from trench sidewall. • Prevent water accumulation in trench. • Sloping & shoring for trenches/excavations >20' deep must be approved by a Professional Engineer. • Sloping/shoring/trench box for excavations >5' when persons enter trench/excavation. • Sloping/shoring/trench box for shallow (<5') trench/excavation with cave-in hazard. • Workers in trenches shall be within 25 feet of ladder or sloped entryway. • Excavations shall be protected by perimeter fencing (not barricade tape), if potential for personnel to fall into. • If potential for atmospheric hazard, see **D.12. "Confined/Enclosed Spaces"**
☐	**FORKLIFT** Hazards: - Struck-by - Run over/roll over/tip over - Overhead utilities/obstructions - Caught between (pinch points) - Unstable/falling loads - Elevated forks - Fluid leaks	☐ In addition to general safety practices for heavy equipment (above), as applicable: • Qualified operator, per established forklift training (certificate is required); operator must be approved by Director of Health and Safety. • Equipment inspected daily and documented on Forklift Preoperational Inspection Checklist. • Do not exceed lifting load limits. • Forklift shall not be moved/driven with empty forks in raised position. • When not in use, forks lowered, brake set, controls in neutral, key removed.
☐	**AERIAL BOOM/SCISSOR LIFT** Hazards: - Falls from basket - Overhead utilities/obstructions - Struck-by, run over, tip over - Caught between (pinch points) - Tip over - Fluid leaks.	☐ Follow safe work practices: • Operators shall be appropriately trained and certified. • Equipment is inspected after mobilization and is in good condition. • Harness & lanyard worn when operating a boom lift (optional for scissor lift). • Overhead hazards and surface obstructions shall be reviewed with operators/riders prior to use.
☐	**CRANES** Hazards: – electrocution by overhead utility – injury in swing radius – injury from falling load – crane tipping over due to overbalancing, high winds, unstable ground, unsafe slope, bad placement of outriggers – injury from mechanical hazards	☐ In addition to general safety practices for Operation of Heavy Equipment (above), as applicable: • Only qualified persons operate cranes (certificate required). • Critical Lift Plan & Checklist prepared/executed (See Procedure) prior to mobilization. • Equipment shall be inspected prior to mobilization and daily by crane operator. • Crane operator will remain at the controls at all times during operation. • Crane operation must be performed under the direction of an appointed signal person at all times using hand signals and/or voice/radio communication. • Crane shall be level and stable (solid ground or crane mats/timbers, outriggers if present, cribbing); over-reaching or exceeding load limits is prohibited. • Keep area beneath suspended loads clear of personnel; tag lines used to maneuver load. • Rigging procedures – see Mechanical Lifts with Rigging, below.
☐	**MECHANICAL LIFTS WITH RIGGING** Applies to lifting by rigging attached to crane, truck-mounted boom rig (e.g. drill rig), heavy equipment,	☐ In addition to general safety practices for Operation of Heavy Equipment and Cranes (above), as applicable: • Slings, chains, rope, wire rope, as well as sheaves, boom and attachments used for lifting/hoisting shall be maintained in good condition, inspected daily, and used/stored in a manner as to protect from damage. • Coordinate lifting operations with competent person. • Do not exceed loading limits of lifting equipment; perform work in accordance with equipment load chart.

	mechanical/electrical hoist, similar equipment. Hazards: – Mechanical hazards, – Elevated loads	• Hooks will be equipped with safety latches. • Ensure anchor points for winch or other lift device (such as davit arm) are engineered for intended use. • Ensure personnel are not positioned beneath elevated loads and that tag lines are used where appropriate.
☐	**WARNING!** Confirmed or possible close proximity to **OVERHEAD or UNDERGROUND UTILITIES.**	☐ Follow safe work practices per **D.11. "Utility-Related Hazards"**
☐	**DEMOLITION**	☐ Develop/implement a demolition safety plan.
☐	**BLASTING, UNEXPLODED ORDNANCE**	☐ Develop/implement safety plan for blasting, unexploded ordnance, as applicable.
☐	**PUBLIC AT RISK, SITE SECURITY**	☐ During site operations protect public (overhead protection, fencing, barriers, warning signs). ☐ During off hours, protect public with fencing, barriers, warning signs/lights, other measures as appropriate. ☐ Lock/secure hazardous materials and/or equipment.

D.9. STORAGE/HANDLING OF BULK MATERIALS (for *Chemical* Storage, see D.14 & 15) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:		
☐	**BULK STORAGE HAZARDS:** Collapse/movement of stacked/stored bags, blocks, containers, pipe, boxes, equipment, and similar. ☐ Stack/pallet/rack/shelf ☐ CONEX-box storage, or similar	☐ Store materials in stable manner (stacked, racked, blocked, interlocked, tied, wrapped, or otherwise secured) to prevent tipping, sliding, rolling, falling or collapse. ☐ Do not exceed load limits and ensure storage structure is stable, robust, secure for intended load. ☐ Ensure stored materials do not block aisles, passageways, electrical panels, emergency equipment, emergency access/egress routes, vehicle routes.
☐	**LIFTING/MANUAL MATERIAL HANDLING HAZARDS**	☐ During manual handling of materials and equipment, use safe lifting practices and/or lift aids; do stretches and use safe postures to protect from acute strains/sprains, overexertion, and cumulative trauma injuries.

D.10. ELECTRICAL WORK TASKS ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:		
☐	**USE OF BATTERIES, BATTERY-POWERED EQUIPMENT <50 V, OR OTHER DC EQUIPMENT < 50 V** Potential fire hazard (if terminals are shorted), eye/skin hazards (when electrolyte is replenished), inhalation hazard in enclosed spaces.	☐ Follow safe work practices to control hazards of voltage, shock, arcing, overheating, hazardous gases, irritant electrolytes, secondary hazards. ☐ Prevent short-circuiting of terminals when battery is in use (segregated from tools, metal objects) and during transport (use battery transport container or install guard/cover on positive terminal). ☐ For batteries requiring replenishment of electrolyte, use PPE for eye and skin protection, and have eyewash equipment at hand; see discussion of *acids/caustics/corrosives* in **D.14. "Commercial Chemical Products."**
☐	**"NORMAL OPERATION" OF ELECTRICAL EQUIPMENT CONNECTED TO AC OR DC POWER SOURCE ≥ 50 V:** Electrically powered tools, equipment, machinery, extension cords, portable generators, working near electrical equipment. Hazards: – Electrical shock – Fire Hazard – Secondary hazards (falls, other injuries).	☐ Follow "normal operation" requirements: • All electrical enclosures/guards/covers must be in place/closed/secured. • Electrical equipment maintained per codes/standards/manufacturer's recommendations. • Ensure no indication of damage or impending failure (heat, smoke, buzzing, odors, arcing, melting). • Operate equipment in accordance with manufacturer's standard operating procedures. ☐ Follow general electrical safety work practices to minimize shock hazard and secondary hazards: • Control water-related/wet-location hazards in a manner appropriate for the job tasks/equipment/tool. • Never touch electrical equipment if you are wet or standing/kneeling in water or on wet surfaces. • Use extension cords/power cords properly, rated for use conditions and current draw, prevent damage. • Inspect tool/equipment/extension cords/power cords before each use; remove from use if damaged. • Use GFCI-protected outlet or portable GFCI in wet/moist locations, outdoors, basements, concrete floors. • Do not enter any space delineated by an electrical approach boundary.
☐	**HANDS-ON DIAGNOSTICS/REPAIR ON CIRCUIT(S) CONNECTED TO POWER SOURCE < 50 V:** ☐ AC ☐ DC ☐ Battery and/or solar power ☐ Capacitor(s) ☐ Stray voltage from soil electrodes	☐ Implement electrical safe work practices pertaining to: • Workers trained appropriately for the task. • Shock prevention measures. • Eye/skin protection for arcing hazards. • Protection from secondary hazards.

☐	**WORK WITHIN *"APPROACH BOUNDARY"* OF EXPOSED, ENERGIZED (OR POTENTIALLY ENERGIZED) CONDUCTORS AND/OR CIRCUIT PARTS CONNECTED TO POWER SOURCE 50-600 V*:** ☐ AC ☐ DC ☐ 3-phase ☐ Battery and/or solar power ☐ Capacitor(s) ☐ Induced voltage ☐ Stray voltage ≥50V from soil electrodes *** Working on >600 V not permitted for personnel**	☐ Prepare project-specific written "Electrical Safety Program" addressing (at a minimum): • Workers trained/designated as "Qualified Electrical Workers" per NFPA 70E (US)/CSA Z462 (CAN) • Assess risks of electrical shock (voltage levels and sources), arc flash hazard and secondary hazards. • Affix electrical hazard warning label to electrical enclosure(s) to be accessed. • Physically delineate arc flash- or limited approach boundary, whichever is farthest from hazard source. • Only "qualified" workers allowed within approach boundaries; prevent entry by non-qualified personnel. • Establish electrically safe working condition; work on live circuits prohibited (except for diagnostic testing). • Use PPE for shock/arc flash protection, as required. • Use other safe procedures/equipment required for the task, such as lockout/tagout.
☐	**LOCKOUT/TAGOUT (LO/TO) OF ELECTRICAL ENERGY** To prevent unplanned start-up or release of energy when equipment is under maintenance/repair.	☐ Prepare site-specific written LO/TO *program*, and equipment-specific written LO/TO *procedures* (as applicable); implement control procedures for hazardous energy sources, provide locks/tags, train workers, designate "authorized" personnel, notify "affected" personnel.
☐	**WARNING!** Confirmed or possible close proximity to **OVERHEAD ELECTRICAL UTILITY LINES.**	☐ Follow safe work practices per **D.11. "Utility-Related Hazards."**

D.11. UTILITY-RELATED HAZARDS

☐ **Applicable** ☒ **Not Applicable, Not Anticipated**

Site-Specific Notes & Clarifications:

☐	**OVERHEAD, ABOVE-GROUND UTILITIES**	☐ Do not cross approach boundaries with personnel or equipment; employ other appropriate precautions for the conditions (specify above). ☐ Use additional controls, as applicable: shielding, flagging, observer/monitor, or, ☐ Arrange for power company/utility owner to de-energize power line.
☐	**UNDERGROUND UTILITIES**	☐ Confirm appropriate underground utility clearance procedures have been completed prior to ground penetrations, and employ other utility clearance/locator practices, as appropriate for conditions. ☐ Hand digging/augering or vacuum post-holing within 3' of utility locations or other high-risk condition.

D.12. CONFINED / ENCLOSED SPACES (Including Hazardous Indoor Spaces)

☐ **Applicable** ☒ **Not Applicable, Not Anticipated**

Site-Specific Notes & Clarifications:

☐	**Type of CONFINED/ENCLOSED/ HAZARDOUS INDOOR Workspace:** ☐ Indoors (occupied) ☐ Indoors (abandoned, vacant) ☐ Basement, crawl space, attic ☐ Tunnel, shaft, inspection gallery ☐ Storage bin, locker ☐ Culvert, catch basin, sewer ☐ Well vault, utility vault, manhole ☐ Tank, vessel, silo, vat, hopper ☐ Trench, excavation ☐ Machine/equipment pit ☐ Transportation container, railcar ☐ Other – describe above **Confirmed or potential hazards:** ☐ Flammable/explosive ☐ Oxygen deficiency	**REQUIREMENTS:** 1. **Contact Corp. H&S Department** will determine applicability of confined space entry regulations, and to determine safe work practices for entry into any confined, enclosed or hazardous indoor spaces. 2. **Classify the work task** by checking **one** of the following: ☐ **CONFINED SPACE** classified by regulatory authority as a "**Permit-Required Confined Space**" or otherwise specifically-regulated as a **confined space** in the worksite's geographic jurisdiction. ☐ **CONFINED/ENCLOSED/INDOOR space NOT specifically regulated as a Confined Space;** develop site-specific entry procedure **per applicable regulatory and safety requirements**. 3. **Delineate tasks, hazards and controls** associated with the work in **Section C.1. "Summary of Tasks, Hazards and Controls,"** and in applicable sections in **Parts C, D and E of this THA**; incorporate or attach applicable safety provisions such as, but not limited to, the following: • Risk assessment; entry plan, entry permit system/safety checklist. • Air monitoring for atmospheric hazards. • Entry roles (supervisor, entrant, attendant), buddy system, regulatory training requirement. • Protect non-entry personnel from unauthorized entry (labels, signage, barriers) • Ingress/egress (stairway, ramp, ladder, tripod/winch, harness/lifeline, etc.). • Communication/alerting/rescue/emergency plan.

	☐ Hydrogen sulfide ☐ VOCs ☐ Carbon monoxide ☐ Combustible dust ☐ Combustion/exhaust emissions ☐ Welding/cutting fumes ☐ Electrical ☐ Mechanical equipment ☐ Entrap, engulf, drowning ☐ Building-related hazards ☐ Other – describe above	• Entry hazard controls: - Isolate, clean, purge, inert, lockout/tagout, fire prevention. - *Dilution* ventilation to introduce fresh air - *Exhaust* ventilation to control point source of emissions. - Use duct/stack to direct hazardous emissions away from work area. - Respiratory protection. - Use PPE and safety gear to protect from chemical/physical/biological hazards. - Fall protection. - Traffic control.

D.13. INFECTIOUS / PATHOGENIC BIOHAZARDS ☒ Applicable ☐ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications: Staff should be cautious about COVID exposure and allergic hazards.

☒	**HAZARD TYPE:** ☒ Contagious respiratory illness ☐ Vector-borne infectious risk ☐ Wastewater, sewer, landfill ☐ Animal/human waste ☐ Wildlife contact, infectious risk ☐ Mold, fungi, valley fever ☐ Bloodborne pathogens ☐ Discarded syringes ☐ Medical waste ☐ Other (describe above)	☒ Follow internal guidance for mitigating airborne respiratory illness transmission (as applicable). ☐ Implement vector-protective measures (see also **Section D.1.b., "Biological Hazards"**) ☐ Use "Standard/Universal Precautions" as applicable to mitigate exposures to infectious/pathogenic hazards. ☒ Low hazard – use basic hygiene: on-site hand washing (soap & water preferred) and protective apparel/PPE. ☐ Med/high hazard – added PPE (gloves/barriers/respirator/dust mask), decon, remediation, as appropriate. ☐ For bloodborne human pathogens follow Bloodborne Pathogen Program and Standard/Universal Precautions. ☐ Contact HR Dept. for project-specific immunization (e.g. tetanus/diphtheria/pertussis [Tdap], hepatitis A/B). ☐ Implement remedial actions to mitigate infectious hazard source (remove syringes, clean up unsanitary waste/debris, decon/disinfect surfaces, etc.) as appropriate for the scope/scale of work.

D.14. COMMERCIAL CHEMICAL PRODUCTS (per HAZCOM or WHMIS) ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes & Clarifications:

☐	**PRODUCTS REGULATED BY HAZCOM[1] (US) or WHMIS[2] (CAN)**	☐ Safety Data Sheets (SDSs) available, either on site or readily available within same work shift, containers labelled properly, workers trained/oriented on hazards. ☐ For subcontractor/contractor use of chemical products, confirm SDS availability for affected on-site workers.
	[1] OSHA Hazard Communication Standard (United States); [2] Workplace Hazardous Material Information System (Canada)	
☐	**GENERAL SAFE WORK PRACTICES FOR FIELD USE OF CHEMICALS**	☐ Consult SDS for H&S hazards, symptoms of exposure; ensure workers have been apprised of safe practices. ☐ Handle with care, maintain good housekeeping, provide adequate illumination in work area. ☐ Pour/dispense/transfer liquid chemicals on stable work surface. ☐ Use chemicals in well-ventilated area; use fans/blowers/exhaust for active ventilation, as appropriate. ☐ Have eyewash bottles, eyewash station, deluge capabilities, commensurate for the hazard, readily available. ☐ Have spill/neutralization equipment, appropriate for the chemicals, readily available. ☐ Conduct air monitoring as appropriate; see **Part E, "Air Monitoring, Worker Exposure Monitoring."**
☐	**STORAGE/TRANSPORT OF CHEMICALS/HAZMAT** ☐ **Non-Emergency (Routine) Chemical Storage** Risk of personal contact and/or incidental release ☐ **HAZMAT Transport** ☐ **Risk of Emergency Spill/Release** ☐ **CFTAS (Chemical Facility Anti-Terrorism Standards) Applicability:** On-site overnight storage of non-waste chemical product at quantity ≥25 gal(115L) or ≥250 lbs. (115 kg)	☐ Transport chemicals only in sealed containers, secured to prevent shifting/breakage during travel. ☐ Store chemicals only in sealed containers; overnight storage in squirt/spray bottles prohibited. ☐ Store flammable/combustible liquids in chemical storage cabinets, or other appropriate storage arrangement. ☐ For liquids, provide secondary containment during storage. ☐ Segregate incompatible chemicals during storage. ☐ For *incidental release/spill;* maintain spill kit suitable for low flammability/toxicity/quantity/volatility release. ☐ DOT/TDG/IATA-Regulated transport: see **D.17. "Hazmat/Dangerous Goods Shipping/ Transportation.** ☐ For *emergency spills*: describe spill/release hazard and response plan/procedure above, and indicate emergency response contact in Part B, "Emergency Response and First Aid." ☐ Locate emergency gear (eyewash, fire extinguisher, spill kit, safety signage) near storage area, as applicable. ☐ For CFTAS-applicable chemical storage, a safety and chemical management plan must be prepared and reviewed by a H&S Professional before bringing material to the site. (Does not apply to materials brought on to the site for daily work purposes and transported away at the end of each day)

☐	**COMPRESSED GAS CYLINDERS** ☐ Flammable ☐ Non-flammable ☐ Toxic ☐ Asphyxiant ☐ Oxygen	☐ Secure cylinders upright, caps on when not in use. ☐ Handle with care; use and store cylinders in a manner and location to prevent damage. ☐ Propane cylinders not in use must be stored outdoors in a cage or similar secure ventilated enclosure. ☐ Ensure acetylene cylinders are NOT secured to steel arc welding bench. ☐ Segregate oxygen and fuel gases by distance (20') or fire-rated barrier. ☐ Control ignition sources. ☐ "No smoking" signage at cylinder storage area for flammable gases.
☐	**FLAMMABLE/COMBUSTIBLE LIQUIDS**	☐ Use proper fuel safety can (metal fuel container with self-closing spout and flame arrestor preferred). ☐ Control/remove ignition sources near storage and use areas. ☐ Grounding and bonding where appropriate. ☐ Ensure a Type B or ABC fire extinguisher is readily available.
☐	**ACIDS, CAUSTICS, OTHER CORROSIVES**	☐ Use appropriate protection for eyes/face (goggles/face shield) and skin (gloves, sleeves, apron). ☐ Use eyewash, deluge shower, drench hose, hand washing (with water), as appropriate. ☐ For severe eye hazards (due to high corrosivity, large quantity), 15-min. eyewash required.
☐	**TOXIC**	☐ For toxic substances, use/store in a manner to control exposure hazards (inhalation, ingestion, skin contact, skin absorption); use active ventilation and/or PPE as appropriate.
☐	**EMISSIONS FROM FUEL COMBUSTION, HOT PROCESSES** ☐ Gasoline ☐ Diesel ☐ Propane/Natural Gas ☐ Welding/cutting/hot work ☐ Vehicle/equipment exhaust ☐ Other	☐ Position outdoor personnel upwind of exhaust source. ☐ Avoid "idling" of equipment when not in use. ☐ Use *passive ventilation* (air infiltration/air currents) to disperse atmospheric hazards in breathing zone. ☐ Use *dilution ventilation* (blowers/fans) to provide fresh air to work area and dissipate atmospheric hazards. ☐ Use *exhaust ventilation* (hood/duct/exhaust stack/blower) to capture/divert exhaust from work area. ☐ Use respiratory protection for high levels of smoke, exhaust particulates, soot. ☐ Conduct air monitoring as appropriate; see **Part E," Air Monitoring, Worker Exposure Monitoring."**
☐	**OTHER HAZARDS**	☐ Describe other hazardous substances and safety measures under "Site-Specific Notes & Clarifications," above.

D.15. SITE CONTAMINANTS, CHEMICAL WASTES

☒ **Applicable** ☐ **Not Applicable, Not Anticipated**

Site-Specific Notes & Clarifications: Polychlorinated biphenyls and mercury in soil and sediment. Waste soil and water will be containerized and sampled.

CHECK ALL THAT APPLY. Provide site-specific notes/clarifications above.

☒ Soil/groundwater contaminants (historical release)	☐ Explosive dust	☐ Potential for flammable gas (methane)
☐ Recent release, known high concentrations	☐ Oxygen deficiency	☐ Corrosive, acids/caustics, strong irritants
☐ Former chemical disposal site, landfill	☐ Chlorinated volatile organic compounds (VOCs)	☐ Asbestos abatement work
☐ Urban fill, residual contaminants	☐ BTEX, petroleum derived VOCs	☐ Pesticides, herbicides, fungicides
☐ Containerized waste (drums, process equipment)	☐ Fuel oils, petroleum, waste oil, lubricants	☐ Sensitizers
☐ Buried drums (known or potential)	☒ Metals, metal compounds, metal dusts	☐ Radioactive contaminants
☐ Large containers, potential for spills	☐ Elemental mercury	☐ Controlled substances, drugs
☐ Contaminated building surfaces	☐ Polyaromatic hydrocarbons (PAHs)	☐ Wildfire smoke
☐ Unexploded ordnance	☐ Potential for flammable vapors	☐ Other - describe above

NOTE: For sites with one or more **"high-risk contaminants"** (below) designated/recognized as a *contaminant of concern*, or *exceeding an environmental reporting threshold*, or representing a *potential exceedance of an action level or exposure limit*, the THA must be reviewed by the H&S Dept. before initiating the work:

☐ Asbestos	☐ Chromium VI (hexavalent chromium)	☐ Lead
☐ Arsenic/arsenic compounds	☐ Crystalline Silica (airborne)	☐ Methylene chloride
☐ Benzene	☐ Dioxins	☒ Polychlorinated biphenyls (PCBs)
☐ Beryllium	☒ Mercury	☐ Vinyl chloride
☐ Cadmium	☐ Hydrogen Cyanide (HCN)	

☒	**FOR WORK CONSISTING OF CLEANUP OPERATIONS, CORRECTIVE ACTIONS, PRELIMINARY INVESTIGATIONS at an "UNCONTROLLED HAZ. WASTE SITE" (per HAZWOPER, 29 CFR 1910.120 or equivalent), delineate procedures in "Site-Specific Notes and Clarifications" (or attachments) addressing the following, as applicable to the work:** – Workers attend **pre-work orientation** on hazards, risks, on-site safety measures, emergency contingencies. – Implement **site control plan** - delineate Exclusion Zone(s), Contaminant Reduction Zone(s), Support Zone (aka EZ, CRZ, SZ). – Include **site map/figure** depicting work locations and other relevant site-specific information.

	– Site workers in EZ or CRZ shall have **40-hour HAZWOPER training**, current 8-hour refresher, 3 days supervised field experience. – Site supervisor(s) shall have **8-hour Supervisor training**. – Site workers in EZ or CRZ shall participate in **medical monitoring** program, as applicable. – Implement **site-specific procedures** for worker protection via engineering controls, work practices, personal protective equipment (PPE), air monitoring, decontamination procedures, spill containment, emergency preparedness and response. – Conduct **air monitoring**, as appropriate; see **Part E," Air Monitoring, Worker Exposure Monitoring."** – **PPE program: S**pecify **Levels of Protectio**n and specific PPE to be used for applicable tasks; o **Level D**: No respirator, no chemical protective clothing, standard work clothes, basic PPE; (COVID-19 face covers allowed) o **Modified Level D**: No respirator, chemical protective clothing as appropriate; (COVID-19 face covers allowed) o **Level C**: Air-purifying respirator, chemical protective clothing as appropriate; **consult with Corp. H&S Dept. required**. o **Level B**: Air-supplied respirator, chemical protective clothing/suit as appropriate; **consult with Corp. H&S Dept. required**. o **Level A**: Fully encapsulating suit, self-contained breathing apparatus (SCBA); **Level A prohibited for personnel.**	
☐	**FOR SITE WITH CHEMICAL CONTAMINANTS OR WASTE BUT NOT REGULATED BY HAZWOPER** – Workers shall be knowledgeable/aware of chemical hazards thru safety training/orientation and availability of hazard information. – Implement controls to minimize worker exposure through engineering controls, work practices, PPE, decon, as appropriate. – Evaluate worker exposure via air monitoring/sampling, as applicable; see **Part E, "Air Monitoring, Worker Exposure Monitoring."**	
☒	**STORAGE/TRANSPORT OF IDW*** **Spill/Release Risk:** ☒ Risk of *incidental spill/release* ☐ Risk of *emergency spill/release* * *Investigation-Derived Waste*	☒ Describe site-specific procedures above for spill containment, container handling, as applicable. ☒ For liquids, provide secondary containment during storage. ☐ Segregate incompatible chemicals during storage. ☐ Locate emergency gear (eyewash, fire extinguisher, spill kit, safety signage) near storage area, as applicable. ☒ For *incidental spills*; spill kit on-site for low-hazard releases (low-flammability/toxicity/quantity/volatility) ☐ For *emergency spills*: describe spill/release hazard and response plan/procedure above, and indicate Emergency response contact in Part B, "Emergency Response and First Aid." ☒ DOT/TDG/IATA-Regulated transport: see **D.17. "Hazmat/Dangerous Goods Shipping/Transportation."**
☐	**OFF-SITE MIGRATION OF AIRBORNE CONTAMINANTS**	☐ Implement controls to minimize hazard migration (dust suppression, covers, foam, etc.). ☐ Community/perimeter air monitoring will be conducted per perimeter air monitoring plan; see **E.3 "Fence Line/Perimeter Air Monitoring."**

D.16. RADIATION HAZARDS (Other than Sunlight) ☐ Applicable ☒ Not Applicable, Not Anticipated

D.17. SHIPPING/TRANSPORTATION HAZMAT/DANGEROUS GOODS ☒ Applicable ☐ Not Applicable, Not Anticipated

MODE(S) OF TRANSPORT:	☒ Road	☐ Rail	☐ Air	☐ Sea	☐ Inland Waterway	☐ International
IMPORTANT: Ensure that each individual who will be involved in shipping/transportation of hazardous material is current with required training (awareness, function-specific, safety, security) in accordance with applicable regulatory authority (DOT, FAA, IATA, TDG), and ensure adherence to applicable regulations.						
Site-Specific Notes & Clarifications: Waste has not been classified yet, but will be sampled, profiled, and disposed of by qualified personnel.						

PART E – AIR MONITORING, WORKER EXPOSURE MONITORING

E.1. AIR MONITORING ☐ Applicable ☒ Not Applicable, Not Anticipated

Site-Specific Notes, Clarifications:		
AIR-TESTING PARAMETERS - Select site-specific testing parameters; list associated equipment in Part C.2, Safety Equipment List.		
☐ **VOCs** ☐ **PID** (Photoionization detector): **X** eV ☐ **FID** (Flame ionization detector) ☐ **Colorimetric indicator tubes** – describe above	☐ **O_2** (Oxygen) – oxygen meter ☐ **LEL** (Lower Explosive Level) - LEL meter ☐ **H_2S** (Hydrogen Sulfide) – H_2S detector ☐ **CO** (Carbon monoxide) – CO detector	☐ **Particulates** - total dust meter ☐ **% Methane** – methane meter ☐ **Calibration kit** for each parameter ☐ Other:

SUBSTANCE-SPECIFIC (PRE-SET) ACTION LEVELS - Sustained breathing zone action levels (sustained general work-area levels for LEL).			
☐	**O_2** (Oxygen)	**19.5-23%**	Acceptable to continue work without O_2-focused respiratory protection.
		<19.5%	STOP WORK, ventilate to raise O_2 to >19.5% for re-entry. For persistent hazard, contact Corp. H&S Dept.
		>23.0%	STOP WORK, ventilate to lower O_2 to <23% for re-entry. For persistent hazard, contact Corp. H&S Dept.
☐	**LEL** (Lower Explosive Limit)	IMPORTANT:	Confirm sufficient oxygen is present (min. 8-12%) to ensure accurate LEL readings.
		<10% LEL	Acceptable to continue working in work area; continue to monitor LEL.

	≥10% LEL	STOP WORK. Implement controls (reposition workers, ventilate, contain/eliminate source, etc.); resume work ONLY when LEL readings are <10%, sustained.
☐ **H_2S** (Hydrogen Sulfide)	**< 1 ppm**	Acceptable to continue work without H_2S-focused respiratory protection.
	1-10 ppm	Implement controls (reposition workers, ventilate, contain/eliminate source, scheduling, etc.) to limit exposures to <1ppm, or use APR* with *VOC/acid-gas* cartridges (yellow); do not exceed MUC* for respirator type; confirm acceptability of respirator usage with H&S Dept.
	> 10 ppm	Implement controls (reposition workers, ventilate, contain/eliminate source, scheduling, etc.) to limit exposures to <10ppm (with respirator), or <1ppm (without respirator). For persistent levels >10 ppm, STOP WORK, contact task lead, PM or H&S Dept.
☐ **CO** (Carbon Monoxide)	**< 25 ppm**	Acceptable to continue work without CO-focused respiratory protection.
	≥ 25 ppm	Implement controls (reposition workers, ventilate, contain/eliminate source, scheduling, etc.) to limit exposures to <25ppm. For persistent levels >25ppm, STOP WORK, contact PM and/or H&S Dept.
☐ **WILDFIRE SMOKE** (AQI for PM 2.5)	**≤150**	In this **Air Quality Index (AQI)** range, it's acceptable to continue work without respiratory protection.
	151-500	Voluntary use of N95 respirator is appropriate.
	>500	STOP WORK, or use APR* with approval of H&S Dept.
☐ **<OTHER>**		
SITE-DERIVED ACTION LEVELS – Sustained breathing zone action levels; derived based on site contaminants; REVIEW WITH CORP. H&S DEPT. REQUIRED.		
☐ **VOCs** (Volatile Organic Compounds)	**< X ppm**	Acceptable to continue work without VOC-focused respiratory protection.
	> " ppm	Implement controls (reposition workers, ventilation, containment, eliminate source, etc.) to lower VOC exposures to less than specified action level, or use APR* with approval of Corp. H&S Dept.
	X to X ppm	Use APR* with *VOC* cartridges (yellow or black); do not exceed MUC** for respirator type; confirm procedures for respirator usage with H&S Dept.
	> X ppm	STOP WORK. Implement controls, for persistent levels greater than action contact PM and/or H&S Dept.
☐ **AIRBORNE DUST** (Total Particulates)	**< X mg/m³**	Acceptable to continue work without particulate-focused respiratory protection.
	> " mg/m³	Implement controls (water spray, reposition workers, ventilation, containment, etc.) to lower dust levels to less than specified action level, or use APR* with approval of H&S Dept.
	X to X mg/m³	Use APR* with particulate cartridges appropriate for the hazard; do not exceed MUC** for respirator type; confirm procedures for respirator usage with H&S Dept.
	> mg/m³	STOP WORK. Implement controls. For persistent levels greater than action level, contact PM and/or Corp H&S Dept.
☐ **<OTHER>**		
* Air-purifying respirator ** Maximum use concentration		

E.2. OTHER WORKER EXPOSURE MONITORING / SAMPLING

☒ Applicable ☐ Not Applicable, Not Anticipated

☒ Heat/Cold Stress Testing/Monitoring	☐ Wildfire Smoke – Tracking AQI (Air Quality Index)	☐ <Other>
☐ Air Sampling *(sample collection, passive dosimeter)*	☐ Ionizing or Non-ionizing Radiation Testing	☐ <Other>
☐ Wipe/Bulk Sampling *(to evaluate worker exposure)*	☐ Noise Testing	

Site-Specific Notes, Clarifications: Staff should be cautious about potential heat and cold stress when doing site assessments during hot/cold weather. During warm weather, staff should stay hydrated and limit physical activity in the heat. During cold or wet weather, staff should bring appropriate clothing to stay dry and warm.

E.3. FENCELINE / PERIMETER AIR MONITORING

☐ Applicable ☒ Not Applicable, Not Anticipated

Fence line/perimeter air monitoring to be conducted in accordance with a separate **"Perimeter Air Monitoring Plan"** for this work; results from *fence line/perimeter* air monitoring shall NOT be used as the sole basis for determining *work zone* atmospheric hazards.

Site-Specific Notes, Clarifications:

PART F – APPROVALS, ACKNOWLEDGEMENTS

F.1. THA PREPARATION, REVIEW/APPROVAL SIGNATURES A THA is typically prepared by project staff, often with input from an HSC, with review/approval, at a minimum, by PM and/or Field Lead. Corporate H&S staff must be consulted as required or otherwise deemed appropriate*.

PREPARER(S)	*Printed Name*	*Signature*	*Date*
	PLEASE UPDATE		

THA REVIEWED/ APPROVED BY: (Project Manager or PM- Designee, at a minimum)**	***Printed Name***	***Signature***	***Date***
	PLEASE UPDATE		

* At a minimum, Corp. H&S **must** review/approve the THA review when staff will encounter "high hazards/high risks," or perform critical tasks, such as (but not limited to):

- Work at heights >10', use personal fall apparatus
- Work at height near overhead electrical utility lines
- Operate a UTV/ATV, aerial lift or fork-lift
- Tow a trailer on roadway
- Oversee a hot-work permit system
- Enter a hazardous confined/enclosed space
- Use of unmanned aerial vehicle (drone)
- High-risk ergonomic/musculoskeletal hazard
- Implement lockout/tagout controls
- Enter a trench/excavation >5' deep
- Function as a construction "Competent Person"
- Operate a pneumatic or powder-actuated tool
- "Qualified" Electrical testing & maintenance >50 V
- High risk, non-typical infectious/pathogenic hazard
- Derive action levels for VOCs or toxic dusts
- Instrument monitoring for critical exposure risks
- Wear a respirator
- Presence of "high-risk" contaminant(s)
- Sustained exposure to wildfire smoke $AQI_{PM\ 2.5}$ >150
- Exposure to radioactive isotopes (a, b, g)
- High-risk exposure to: non-ionizing (microwave, EMF, UV, IR) or ionizing (radio-isotope, x-ray) radiation.
- On-site risk of emergency chemical spill
- Applicability of Chemical Anti-Terrorism Standards

Corporate H&S **must** also be consulted when subcontractors (*under oversight*) perform high hazard/high risk work (such as demolition, blasting, crane critical lifts, confined space entry, testing/maintenance of electrical systems, lockout/tagout, HAZWOPER cleanup activities). Consultation with Corp. H&S is encouraged for all questions/concerns regarding worker safety, regulatory compliance, risk/liability aspects, or project-specific safety requirements.

** It is recommended that THAs be approved/signed by both the PM *and* Field Lead (or alternate PM designee), unless due to small scope/scale or routine nature of task, or staff unavailability, only one approval is deemed sufficient by PM. Additional review and approval will be performed by Corp. H&S for high-hazard/high-risk tasks, or as otherwise requested.

F.2. FIELD CREW ACKNOWLEDGEMENTS

Please sign below to acknowledge you reviewed and understand this THA, participated in project safety briefing and had an opportunity to ask questions about the information herein.

Printed Name	Signature	Employee No.	Date
FIELD STAFF	PLEASE REVIEW AND SIGN THIS DOCUMENT PRIOR TO THE SITE ASSESSMENT		

F.3. SUBCONTRACTOR'S FIELD CREW ACKNOWLEDGEMENTS ☐ Applicable ☐ Not Applicable

Please sign below to acknowledge this THA was made available to you, and you had an opportunity to ask questions about the information herein.

Printed Name	Signature	Company Name	Date
SUBCONTRACTOR FIELD STAFF – IF APPLICABLE	PLEASE REVIEW AND SIGN THIS DOCUMENT PRIOR TO THE SITE ASSESSMENT		

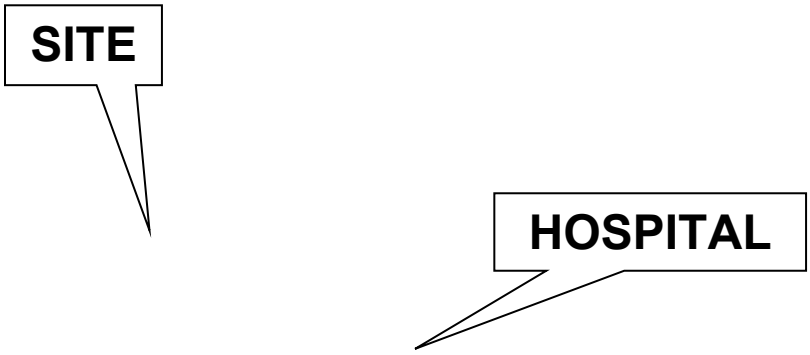
ATTACHMENTS:

Attachment A: Maps of Site Locations
Attachment B: Route to Hospital
Attachment C: Risk Assessment for Working in High-Crime, High Security Risk Locations

Attachment A – MAPS OF SITE LOCATIONS

Attachment B – ROUTE TO HOSPITAL EMERGENCY ROOM

Hospital Name:
Address:
Phone Number:
Driving Directions to Local Hospital



Attachment C –
RISK ASSESSMENT FOR WORKING IN HIGH-CRIME, HIGH SECURITY RISK LOCATIONS

APPENDIX F
Surface Soil/Sediment Sampling Procedures

ALAMEDA COUNTYWIDE
cleanwater
PROGRAM

MEMBER AGENCIES:

Alameda

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

County of Alameda

Alameda County Flood Control and Water Conservation District

MERCURY AND PCBS SOURCE AREA INVESTIGATION SOP:

SEDIMENT SAMPLING PROCEDURES

January 2025

TABLE OF CONTENTS

1. INTRODUCTION 1

2. FIELD EQUIPMENT 1

3. FIELD SAMPLING PROCEDURES 2

4. SAMPLE DOCUMENTATION 3
   - 4.1 Field Datasheets 3
   - 4.2 Field Log 3
   - 4.3 Photographs 3
   - 4.4 Sample Labeling 4
   - 4.5 Sample Chain-Of-Custody Forms and Custody Seals 4

5. EQUIPMENT DECONTAMINATION PROCEDURES 4

6. DISPOSAL OF RESIDUAL MATERIALS 5

7. PACKAGING AND SHIPPING INSTRUCTIONS 6

8. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) 6
   - 8.1 Field Blanks 6
   - 8.2 Field Duplicate Samples 7
   - 8.3 Background Samples 7

9. REFERENCES 8

1. INTRODUCTION

Sampling procedures described herein follow those implemented in previous source area investigations as described in the *Quality Assurance Project Plan: Clean Watersheds for a Clean Bay – Implementing the San Francisco Bay's PCBs and Mercury TMDLs with a Focus on Urban Runoff* (BASMA, 2011). These procedures are described below.

2. FIELD EQUIPMENT

A list of recommended sampling equipment is presented in Table 2-1. Appropriate sampling equipment is prepared in the laboratory a minimum of four days prior to sampling. Prior to sampling, all equipment will be thoroughly cleaned. Equipment is soaked (fully immersed) for three days in a solution of Alconox, Liquinox, or similar phosphate-free detergent and deionized water. Equipment is then rinsed three times with deionized water. Equipment is next rinsed with a dilute solution (1-2%) of hydrochloric acid, followed by a rinse with reagent grade methanol, followed by another set of three rinses with deionized water. All equipment is then allowed to dry in a clean place. The cleaned equipment is then wrapped in aluminum foil or stored in clean Ziploc bags until used in the field.

Table 2-1. List of Sampling Equipment

Description of Equipment	Material (if applicable)
Sample scoops	Stainless steel or Kynar coated
Sample trowels	Stainless steel or Kynar coated
Compositing bucket	Stainless steel or Kynar coated
Hand auger	Stainless steel
Broom (for street dust collection)	Natural fiber
Sample containers (with labels)	Section 5.2.4
Methanol, Reagent grade (Teflon squeeze bottle with refill)	
Hydrochloric acid, 1-2%, Reagent grade (Teflon squeeze bottle with refill)	
Liquinox detergent (diluted in Teflon squeeze bottle with refill)	
Deionized / reverse osmosis water	
Plastic scrub brushes	
Container for storage of sampling derived waste, dry	
Container for storage of sampling derived waste, wet	
Wet ice	
Dry ice (for samples requiring immediate freezing)	

Description of Equipment	Material (if applicable)
Coolers, as required	
Aluminum foil (heavy duty recommended)	
Protective packaging materials	Bubble / foam bags
Splash proof eye protection	
PPE for sampling personnel, including traffic management as required	
Gloves for dry ice handling	Cotton, leather, etc.
Gloves for sample collection, reagent handling	Nitrile
Field datasheets	
Chain of custody (COC) forms	
Shipping materials (as required)	
GPS	

Equipment that is pre-cleaned includes:

- Kynar (or similar) coated sample scoops, trowels, etc.
- Kynar (or similar) coated compositing buckets
- Wash bottles for deionized water, hydrochloric acid, and methanol
- Hand augers

3. FIELD SAMPLING PROCEDURES

For collection of sediment samples, the following steps will be completed:

1. Organize the sampling supplies in the vicinity of the sampling area.
2. Wear disposable gloves, safety glasses, and other PPE.
3. Using a scraper, disposable paper funnel, or scoop, place the sediment into a 16-ounce glass jar.
4. Close the lid, label the sample, put the sample container(s) in a resealable bag, and place in a cooler containing ice.
5. Mark the sample location with a sample ID. Photograph the sample location.
6. To collect another sample, change gloves, and repeat steps 3 through 5.
7. Complete sampling records in the field notes and complete the COC form.
8. Pack the samples for courier service, personal delivery, or shipment to the analytical laboratory.

4. SAMPLE DOCUMENTATION

4.1 Field Datasheets

All field data gathered by this project will be recorded on standardized field data entry forms. These forms are shown in Appendix D of the main SOP. Field data sheets shall include at a minimum: date, names of crew members, narrative description of the sampling site (general location), other relevant catchment information such as constructions activities, weather conditions, sample matrix, whether soil / sediment is submerged or exposed, method used to collect sample, and sample IDs collected for analysis or archive. Additionally, a minimum of one set of latitude/longitude per sample site shall be obtained from an appropriate GPS unit and recorded at time of sampling.

4.2 Field Log

In addition to completing field data sheets, sampling personnel should record relevant information in a bound log. All information should be recorded in permanent ink. Any changes made to recorded information will be made using a single strike-through and will be initialed and dated by the person making the change. Information will be photocopied/scanned and delivered to Field Lead, or representative along with field datasheets. All entries should be legible and signed by the individual making the entries.

In addition to the sampling information, the following specific information will also be recorded in the field log for each day of sampling:

- Team members and their responsibilities
- Time of arrival / entry on site and time of site departure
- Other personnel on site
- Summary of any meetings or discussions with property owner or agency personnel
- Deviations from sampling plans, site safety plans, and SOP procedures
- Changes in personnel and responsibilities with reasons for the changes

4.3 Photographs

Photographic documentation is an important part of sampling procedures. An associated photo log will be maintained documenting sites and subjects associated with photographs. The date function on the camera, if available, shall be turned on. A copy of all photographs should be provided to the Data Manager at the conclusion of sampling efforts and maintained for grant duration.

For each photograph taken, the following information shall be recorded in a separate field photography log (see Appendix D):

- Time, date, location
- Description of the subject photographed
- Name of person taking the photograph

4.4 Sample Labeling

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples will have pre-assigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information: station location, date of collection, analytical parameter(s), and method of preservation. Every sample, including samples collected from a single location but going to separate laboratories, will be assigned a unique sample number.

Each sediment sample collected will be labeled according to the following naming convention:

WWW-N-MMDDYY

where:

WWW	- Site code (as shown on the database)
N	- Sequential Number (i.e., 1, 2, 3…etc.)
MMDDYY	- Date (month/day/year)

4.5 Sample Chain-Of-Custody Forms and Custody Seals

All sample shipments for analyses will be accompanied by a chain of custody record. Contractors will be expected to supply their own form, or to use forms supplied by contract laboratories. COCs will be completed and sent with the samples for each laboratory and each shipment (e.g., each day). If multiple coolers are sent to a single laboratory on a single day, multiple forms will be completed and sent with the samples for each cooler.

The COC will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of the field contractor. The sampling team leader or designee will sign the COC in the "relinquished by" box and note date and time.

A self-adhesive custody seal will be placed across the lid of each sample at a point of closure. The shipping containers in which samples are stored (usually an ice chest or designated dry ice shipper) will be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping. All custody seals will be signed and dated.

5. EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination of sampling equipment used for implementation of this SOP must be conducted consistently as to ensure the quality of samples collected. All equipment that comes into contact with potentially contaminated soil or water will be decontaminated. Decontamination will occur prior to and after each use of a piece of equipment.

The following, to be carried out in sequence, is the procedure for the decontamination of field

sampling equipment. It is adapted from those employed for use with the Regional Monitoring Program for Water Quality in the San Francisco Estuary (David et al. 2001) and consistent with decontamination procedures used for the prior BASMAA watershed characterization and source control investigations (e.g., AMS 2004).

- Nonphosphate detergent and deionized / reverse osmosis water (DI/RO) wash, using a brush
- DI/RO rinse
- 1 – 2% HCl acid rinse
- DI/RO rinse
- Reagent grade methanol rinse in a decontamination bucket
- DI/RO rinse (three times)

Equipment will be decontaminated in a predesignated area on plastic sheeting or other material capable of containing overspill. Clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

6. DISPOSAL OF RESIDUAL MATERIALS

In the process of collecting environmental samples, the field teams will generate different types of potentially contaminated Investigation Derived Waste (IDW) that include the following:

- Used personal protective equipment (PPE)
- Decontamination fluids
- Soil remaining after compositing

The EPA's National Contingency Plan (NCP) requires that management of IDW generated during sampling comply with all applicable or relevant and appropriate requirements (ARARs) to the extent practicable. The sampling plan will follow the Office of Emergency and Remedial Response (OERR) Directive 9345.3-02 (May 1991), which provides the guidance for the management of IDW. In addition, other legal and practical considerations that may affect the handling of IDW will be considered.

Sampling wastes generated through implementation of the SOP soil/sediment sampling will be contained and managed as described below:

- Used personal protective equipment (PPE) and disposable equipment will be double bagged and placed in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill.
- Decontamination fluids that will be generated in the sampling event will consist of dilute hydrochloric acid, reagent-grade solvent, DI/RO water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow collection for off-site disposal in municipal sanitary systems. No wastewater will be left on-site at the conclusion of sampling.

- At the discretion of sampling personnel, soil/sediment residuals may be placed back onto the site in the sample locations. If required (e.g., suspected contaminated material), the residuals will be containerized in 5-gallon buckets and stored at an appropriate storage facility until disposal requirements are known.

7. PACKAGING AND SHIPPING INSTRUCTIONS

All sample containers will be placed in appropriate shipping containers. The following summarizes the packaging procedures that will be followed for low concentration samples that are to be shipped cold (i.e., not frozen).

- When ice is used, pack it in ziplocked, double plastic bags. If applicable, seal the drain plug of the cooler with duct tape to prevent melting ice from leaking out of the cooler.
- The bottom of the cooler should be lined with bubble wrap to prevent breakage during shipment.
- Check screw caps for tightness.
- Ensure sample labels are securely fastened and legible.
- Wrap all glass sample containers in bubble wrap / bubble bags to prevent breakage.
- Place samples in a sturdy cooler(s). Enclose the appropriate COC(s) in a zip-lock plastic bag affixed to the underside of the cooler lid.

8. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

Field personnel will strictly adhere to Section 5.1 to ensure the collection of representative, uncontaminated samples. Sampling methods are designed to be consistent with those employed for the previous BASMAA investigations in order to facilitate comparability with prior results. The most important aspects of quality control associated with sample collection are as follows:

- Field personnel will be thoroughly trained in the proper use of sample collection equipment and will be able to distinguish acceptable versus unacceptable samples in accordance with pre-established criteria presented in this SOP.
- Field personnel will be thoroughly trained to recognize and avoid potential sources of sample contamination (e.g., dirty hands, ice used for cooling).
- Samplers and utensils that come in direct contact with the sample will be made of non-contaminating materials (e.g., glass, inert chemical coatings) and will be thoroughly cleaned between sampling stations.
- Sample containers will be pre-cleaned and of the recommended type.

Aspects of relevance to the sampling program are described below.

8.1 Field Blanks

No field blanks will be analyzed as part of the SOP sampling operations. As all samples are anticipated to be of the soil/sediment matrix, equipment, trip, and field blanks are of limited value

to the quality control process. Similarly, as laboratories are now consistently using electronic temperature gauges that do not require sample immersion, temperature blanks are not required to be submitted with field samples to laboratories.

8.2 Field Duplicate Samples

As all samples collected under SOP are soil/sediment matrix, there is anticipated to be a large degree of heterogeneity associated with sample matrix and therefore variability within analytical results. Field duplicate (FD) samples will assist with interpretation of analytical results by providing an indication of this variability.

FD samples will be collected at a rate of ten percent of sample locations or once per day, whichever is less frequent. Identification of tentative locations for collection of FDs will be made through the sampling design process. Field Crews will have the discretion to alter locations based upon schedule or site conditions. Contributing factors to be considered within the sampling design process or by sampling crews for determination or relocation of FD locations include soil/sediment availability, interval spacing over course of sampling (i.e., minimum of one FD per sampling day), and analysis conducted.

Soil samples will be homogenized with a trowel in sample-dedicated compositing buckets where sample volume allows. Homogenized material from the bucket will then be transferred to the appropriate wide-mouth glass jars for both the regular and duplicate samples. All jars designated for a particular analysis (e.g., PCBs) will be filled sequentially before jars designated for another analysis are filled (e.g., metals). Duplicate samples will be preserved, packaged, and sealed in the same manner as other samples of the same matrix. A separate sample number and station number will be assigned to each duplicate, and it will be submitted blind to the laboratory.

8.3 Background Samples

Background samples will not be collected.

9. REFERENCES

AMS 2004. Sampling and Analysis Plan for the City of Oakland PCB Abatement Grant Project in the Ettie Street Pump Station Watershed, Oakland, CA. SWRCB Agreement No. 03-156-552-0. Prepared for Kleinfelder, Inc., City of Oakland, and the California State Water Resources Control Board.

BASMAA, 2011. Quality Assurance Project Plan: Clean Watersheds for a Clean Bay – Implementing the San Francisco Bay's PCBs and Mercury TMDLs with a Focus on Urban Runoff, EPA San Francisco Bay Water Quality Improvement Fund Grant # CFDA 66.202. Prepared by Applied Marine Sciences, Inc. July 26.

David, N., Bell, D., and J. Gold, 2001. Field Sampling Manual for the Regional Monitoring Program for Trace Substances.

APPENDIX G

Site Inspection Follow-up Letters

(to be added in an addendum)

APPENDIX H
Pollutant Control Plan Template

Pollutant Control Plan[1]

[PROPERTY]
[DATE]

Introduction

[Permittee] has required this property to develop a Stormwater Control Plan to identify potential sources of polychlorinated biphenyls (PCBs) and sediment to the [Permittee] municipal separate storm sewer system (MS4) and/or local water body and document best management practices (BMPs) currently implemented or planned to reduce the amount and presence of PCBs or PCB-laden sediment being transported from the property and contributing to ongoing water quality issues. Historical land use and recent water quality testing by [Permittee] indicate the property is a likely contributor of a moderate level of PCBs in the MS4 or local water bodies.

Background

The Municipal Regional Stormwater NPDES Permit (MRP) for stormwater runoff discharges in the San Francisco Bay Area (SFBRWQCB 2022[2]) is a National Pollutant Discharge Elimination System (NPDES) permit issued to medium to large municipalities per requirements of the federal Clean Water Act. This MRP includes requirements for [Permittee] to investigate land areas that likely contribute PCBs to MS4s. These source investigations identify properties (i.e., source areas) that contribute moderate to high levels of PCBs to [Permittees] MS4s. Once these source areas have been identified, Permittees are required to take actions to control PCB sources to the MS4 or refer the properties to the San Francisco Bay Regional Water Quality Control Board for follow-up measures.

The [Permittee] developed a program to specifically identify and address properties in old industrial and other land areas that contribute moderate levels of PCBs to Permittee MS4s. PCBs are considered moderately elevated if sediment concentrations are between 0.2 milligrams per kilogram (mg/kg) and 0.5 mg/kg. Concentrations of contaminants identified on, or nearby, this property are not at the level of concern for human health but are high enough for a water quality concern.

PCBs are transferred to the MS4 and local water bodies primarily through PCB-laden sediment during storm events. Historic pollution from past use continues to linger in Bay Area soils today, which can make their way to storm drain systems that drain to the San Francisco Bay. Rainfall carries sediment found on sidewalks, streets, and other paved surfaces into storm drain systems. Sites with exposed soils, unpaved areas, degrading pavement, buildings, or infrastructure are particularly susceptible to supply sediment. Properties may have potential for non-stormwater discharges containing PCBs if there are equipment or materials on-site that contain PCBs.

Plan Development

[Permittee] has provided some of the site information, description, and previous investigation results for this plan. The property owner/site manager added and updated, as needed, to the information provided in the plan and provided the BMPs that are currently being implemented or the schedule for implementation. The property owner/site manager will continue to assess the effectiveness and adequacy of the BMPs implemented and update BMPs and BMP maintenance as needed to effectively prevent PCBs and PCB-laden sediment from entering the MS4 or local waterway.

The property owner/site manager will contract with knowledgeable professionals for implementation of BMPs, as needed (stormwater treatment measure design and installation, building demolition and proper disposal of materials, etc.).

---

[1] Pollutant Control Plan Template was developed by the San Mateo Countywide Water Pollution Prevention Program and the Santa Clara Valley Urban Runoff Pollution Prevention Program, March 2024.

[2] California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (Order No. R2-2022-0018; NPDES Permit No. CAS612008). May 11, 2022

Pollutant Control Plan Template

Section 1. Best Management Practices (BMPs)
Complete the following sections to indicate the BMPs being implemented to prevent potential sources of PCBs from leaving the property including sediment, non-stormwater discharges (hydraulic fluid leaks, oil spills, etc.), and polluted stormwater.

1.1 General BMPs

☐ Train employees, describe (frequency, topics, etc.): _____

_____

☐ Inspect site for any changes in conditions of structures, paved areas, unpaved surfaces, etc. If site conditions change, this document will be updated, as needed. Describe (schedule, etc.):

_____

☐ Manual or mechanical sweeping. Describe (manual or mechanical, area swept, schedule, etc.): _____

_____

☐ Repair broken or cracked paved areas. _____

☐ Use dry cleaning methods for spills, leaks and general cleaning (sweep, wipe surfaces, absorbent materials to clean up spills/leaks, etc.): _____

☐ If washdown is needed, storm drain drains are blocked and the wash water is contained, collected and pumped to the sanitary sewer. Describe: _____

_____

☐ Inspect catch basins and inlets for structural integrity and sediment accumulation and clean as needed. Describe (frequency, responsible party performing inspections/cleaning, etc.):

_____

☐ Clean all storm drain inlets before the rain season to remove sediment and accumulated debris:

_____

☐ Other: _____

_____

1.2 Building Maintenance

☐ Do not pressure wash structures.

☐ Collect all wash water and dispose in sanitary sewer if using wet wash methods.

☐ Building repair and remodeling will follow [Permittee]'s PCBs in priority building materials screening assessment process and implement enhanced temporary BMPs during the demolition and construction phases.

☐ Deteriorating building components/materials with the potential for containing PCBs will be replaced/repaired (describe schedule).

☐ Deteriorating building components/materials with the potential for containing PCBs will utilize the following containment BMPs to keep materials from depositing on other surfaces.

1.3 Equipment/Activity Source Control BMPs

☐ Spill Cleanup Procedures (documents on-site)

☐ Use dry clean up methods and dispose of material properly

☐ Inspect equipment for leaks (Describe frequency): _____

☐ Spill kits are easily accessible and located in areas of concern

☐ Spills are cleaned up immediately

☐ Secondary containment (Describe equipment and secondary containment): _____

_____

☐ Tarp or cover stockpiles, degrading machines, etc.

☐ Other: _____

_____

1.4 Erosion Control BMPs

☐ Divert run-on stormwater around erodible surfaces. Describe BMPs used and maintenance plan:_____

_____

☐ Stabilize loose soil. Describe (area and how stabilized, such as vegetation, decomposed granite, gravel mulch, degradable mulch, geotextiles, etc.): _____

☐ Fence off unpaved areas (keep people/vehicles from entering the area). Describe:_____

1.5 Sediment Control BMPs

☐ Inlet protection. Describe BMPs used and maintenance plan: _____

☐ Perimeter control. Describe BMPs used and maintenance plan:_____

☐ Exit stabilization. Describe BMPs used and maintenance plan: _____

1.6 Stormwater Treatment Measures

☐ Installed stormwater treatment measures. Describe type of stormwater treatment, area treated and maintenance plan:_____

☐ Planned stormwater treatment measures. Describe type of stormwater treatment, area treated and schedule for installation/construction:

Pollutant Control Plan Template

Section 2. References and Attachments

List, provide links, or attach applicable references, including additional descriptions of BMPs implemented. For example, applicable CASQA BMP Handbook fact sheets, ACCWP BMP fact sheets, PCBs fact sheets, etc.

Type response here…

Credit: Pollutant Control Plan Template developed by the San Mateo Countywide Water Pollution Prevention Program and the Santa Clara Valley Urban Runoff Pollution Prevention Program, March 2024.

APPENDIX E

PCBs Loads Avoided Resulting from the Removal of Municipally Owned PCBs-Containing OFEE

Geosyntec consultants

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Oakland, California 94607
PH 510.836.3034
www.geosyntec.com

FINAL Memorandum

Date:	August 28, 2026
To:	Sandy Mathews, Alameda County Clean Water Program
From:	Lisa Austin, Senior Principal; Lisa Welsh, Senior Scientist; and Emily Meyers, Professional
Subject:	PCBs in Electrical Utilities Management Program – FY2025/26 Alameda Municipal Power Load Reductions Geosyntec Project Number: 26001318

1. BACKGROUND

Municipal Regional Stormwater Permit (MRP; Order No. R2-2022-0018) Provision C.12.e requires Permittees to manage polychlorinated biphenyls (PCBs) in oil-filled electrical equipment (OFEE) for municipally owned electrical utilities in the MRP program area. Alameda Municipal Power (AMP) is the only municipally owned electrical utility in Alameda County.

This technical memorandum documents the following item for AMP, as required by MRP Provision C.12.e.iii.(4): a summary of the actions undertaken during the reporting year that removed municipally owned PCBs-containing OFEE along with the loads avoided and the details of the calculations and assumptions used to estimate the load reduced. The requirement, per Provision C.12.e.iii.(5), for AMP to submit the estimated PCBs loads reduced during the permit term associated with municipally owned OFEE removal resulting from maintenance programs and system upgrades, is addressed in the *Mercury and PCBs Control Measures – 2026 Update*.

2. PCBS LOAD REDUCTION CALCULATION METHOD

On behalf of the MRP Permittees, the Bay Area Stormwater Management Agencies Association (BASMAA) conducted a regional Stressor/Source Identification Project (SSID) for PCBs from electrical utilities in the San Francisco Bay Area.[1] While AMP was not one of the three municipally owned electrical utilities in the MRP area that participated in the project, AMP's OFEE PCBs load reductions are calculated using the methods and assumptions presented in Section 4.0 of this BASMAA report. In accordance with the BASMAA analysis, all equipment

[1] Located here: https://basmaa.org/wp-content/uploads/2021/04/basmaa-elec-utility-ssid-report-final_8-20-20.pdf

that was installed or purchased prior to 1985 (i.e., pre-1985 OFEE) were assumed to potentially contain PCBs.

3. OFEE REMOVED AND LOADS AVOIDED

In Fiscal Year (FY) 2025/26, AMP did not scrap, remove, or bring any PCBs-containing OFEE back into service. AMP also did not further characterize any PCBs-containing OFEE during FY 2025/26. The updated AMP inventory of PCBs-containing OFEE is provided in Attachment 1.

OFEE PCBs load reductions were calculated using the methods and assumptions presented in the *Mercury and PCBs Control Measures - 2023 Update* and the BASMAA study. AMP OFEE inventory included the following equipment types: single-phase and three-phase padmount transformers, poletop transformers, switches, and capacitors. AMP provided the purchase year, installation date, removal date, measured PCBs concentrations and oil capacity for most of their active and removed OFEE (Attachment 1). The oil volume and PCBs concentrations were used in the load reduction calculations whenever available. The following additional assumptions and approaches were made based on AMP inventory data:

- PCBs concentrations labeled "<1 ppm" were assumed to equal 1 ppm.
- Unknown oil volume for individual OFEE was assumed equal to the oil volume of similar OFEE in the AMP inventory (similar meaning same equipment type, kVA (1,000 volt-amps) rating, secondary voltage, and manufacturer).
- OFEE brought back into service are re-categorized as active instead of removed.
- "Stock" or "reserved" equipment without a purchase year are not included in the analysis, assuming that they were more likely purchased after 1985.
- OFEE that did not have a COID or Manufacturer Serial Number are not included in the analysis.
- OFEE that do not have PCBs result and do not have mineral oil, are not included in the analysis.

The potential mass of PCBs in pre-1985 OFEE was calculated from the mass of oil in these OFEE multiplied by the OFEE's measured PCBs concentration or range of assumed PCBs concentrations when the concentration was unknown (see Section 4.2.1 of the BASMAA report for assumed ranges).

Table 1 below summarizes the estimated loads avoided resulting from the removal of PCBs-containing OFEE through maintenance programs and system upgrades prior to 2002, for the period 2002 to June 30, 2022, and for each of the subsequent fiscal years. The low end of the mass range for an OFEE category is the sum using the minimum values for assumed PCBs. The

high end of the range is the sum using the maximum values for assumed PCBs. During FY 2025/26, there was a 0.0-gram PCBs reduction in AMP's inventory.

Table 1: Estimated Potential Mass of PCBs in Alameda Municipal Power's OFEE Inventory

OFEE Category	No. of Pre-1985 OFEE	PCBs (kg)
All Active	**533**	**0.13**
All Removed	**224**	**0.096 - 0.134**
Removed prior to 2002	7	0.0001
Removed 2002 to June 2022	192	0.090 - 0.128
Removed FY 2022/23	12	0.0036
Removed FY 2023/24	3	0.0005
Removed FY 2024/25	7	0.0007
Removed FY 2025/26	0	0
Removal year not provided	3	0.0010
Unknown oil age	**110**	**0.07 - 0.45**
Total	**867**	**0.293 - 0.712**

Table 2 below summarizes the estimated loads to stormwater avoided. This calculation assumes 0.05% of PCBs mass leaks from OFEE each year and 99% of the materials leaked are cleaned up such that only 1% remain on erodible surface and are available for wash off, in accordance with the BASMAA report.

Table 2: Estimated PCBs Loads to Stormwater from Alameda Municipal Power's OFEE Inventory

OFEE Category	PCBs Stormwater Loads (mg/yr)
All Active OFEE	**0.66**
All Active OFEE (includes active "Unknown oil age" OFEE)	**0.91 - 1.94**
All Removed OFEE	**0.48 - 0.67**
Removed Prior to 2002	0.001
Removed 2002 to June 2022	0.45 - 0.64
Removed FY 2022/23	0.02
Removed FY 2023/24	0.002
Removed FY 2024/25	0.004
Removed FY 2025/26	0
Removal Year Not Provided	0.005
All Removed OFEE (includes removed "Unknown oil age" OFEE)	**0.56 - 1.6**
Unknown Oil Age (includes known active and removed status)	**0.33 - 2.2**
Total	**1.47 - 3.56**

During the MRP permit term to date (i.e., July 1, 2022, through June 30, 2026), AMP reduced its PCB loads to stormwater by approximately 0.03 mg/yr by removing PCB-containing OFEE as part of its maintenance programs and system upgrades.

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Attachment 1
Alameda Municipal Power Oil-Filled Electrical Equipment Inventory through June 2026

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**0484**	77J549226	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1977	IN SERVICE	28956	SERVICE MAP SHOWS T-185 AND DATA BASE /SINGLE LINE SHOWS L-185 NEED FIELD VERIFICATION
TRANSFORMER	**0486**	PAJ1387	300	STD	208/120	3	PAD	<1	MINERAL OIL	225	1969	IN SERVICE	31397	
TRANSFORMER	**0487**	J935037T72A	112.5	GE	208/120	3	PAD	<1	MINERAL OIL	75	1972	IN SERVICE	27393	
TRANSFORMER	**0491**	PAJ1386	300	STD	208/120	3	PAD	1	MINERAL OIL	225	1969	SCRAPPED OR SOLD	1/7/2014	LIVE FRONT
TRANSFORMER	**0492**	78JH787081	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1978	SCRAPPED OR SOLD	42405	
TRANSFORMER	**0506**	80JC175270	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1980	IN SERVICE	29538	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**0507**	79JL088061	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	29538	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**0517**	L851017YFLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	IN SERVICE	8/11/1976	
TRANSFORMER	**0530**	836002718	75	RTE	208/120	3	PAD	<1	MINERAL OIL	100	1983	IN SERVICE	30599	
TRANSFORMER	**0535**	80JC171050	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1980	IN SERVICE	11/13/1980	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**0581**	L445043T73A	500	GE	480/277	3	PAD	<1	MINERAL OIL	250	1974	IN SERVICE	11/24/1993	
TRANSFORMER	**1006**	H891125M69A	25	GE	120/240	1	PAD	<1	MINERAL OIL	40	1969	SCRAPPED OR SOLD	41360	LIVE FRONT FROM LT 520. DRAINED & READY FOR SCRAP. OLD XFMR FROM BUREAU OF ELECT. THAT'S FADED SO BAD THAT IT LOOKS YELLOW
TRANSFORMER	**1007**	L191896T73	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1973	IN SERVICE	4/10/1975	
TRANSFORMER	**1008**	3067622083	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	2/12/1985	
TRANSFORMER	**1010**	78JH789284	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	25	1978	SCRAPPED OR SOLD	42405	
TRANSFORMER	**1012**	78JH789267	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1978	IN SERVICE	28982	
TRANSFORMER	**1023**	M592776TBRA	75	GE	480/277	3	PAD	<1	MINERAL OIL	100	1979	IN SERVICE	29159	
TRANSFORMER	**1032**	N180925YLSA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1979	IN SERVICE		NEED FIELD VERIFY. MISSING SERIAL NUMBER. WE FIND S/N FROM SOLD FOR JUNK LIST
TRANSFORMER	**1035**	H896814M70A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1970	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. LT-525 WORKING BUT ITS REALLY OLD, FAED AND PAINT CHIPS ALL OVER (DIRT YARD
TRANSFORMER	**1036**	J820142M71A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	10	1971	IN SERVICE		
TRANSFORMER	**1042**	L851015YFLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	SCRAPPED OR SOLD	12/9/2020	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1044**	H891126M69A	25	GE	120/240	1	PAD	<1	MINERAL OIL	40	1969	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. LIVE FRONT FROM LT-523. OLD XFMR FROM BUREAU OF ELECT. STARTING TO TURN YELLOW.
TRANSFORMER	**1046**	H42143467M	150	GE	208/120	3	PAD	<1	MINERAL OIL	150	1968	IN SERVICE	5/6/1971	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1051**	K852423T72A	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1973	IN SERVICE	27067	
TRANSFORMER	**1052**	K807475Y72A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	10	1972	IN SERVICE	10/11/1973	
TRANSFORMER	**1056**	K852420T72A	50	GE	120/240	1	PAD	8	MINERAL OIL	60	1973	SCRAPPED OR SOLD	2/5/2016	8 PPM PCB. FROM LT-539 3458 CAPELLA
TRANSFORMER	**1057**	K531907M71A	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1971	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1058**	K786083Y72A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1972	SCRAPPED OR SOLD	44174	
TRANSFORMER	**1059**	L456360T74A	75	GE	208/120	3	PAD	4	MINERAL OIL	100	1974	IN SERVICE	6/10/1975	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1065**	74F758123	225	WH	208/120	3	PAD	19	MINERAL OIL	175	1974	SCRAPPED OR SOLD	12/1/2016	
TRANSFORMER	**1073**	79JB914048	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	34101	
SWITCH	**1077**	79143A	2WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	SCRAPPED OR SOLD	44139	
TRANSFORMER	**1078**	77K576323	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1977	IN SERVICE	10/23/1979	
TRANSFORMER	**1079**	J815621M70A	75	GE	208/120	3	PAD	4	MINERAL OIL	100	1970	IN SERVICE	12/15/1992	
TRANSFORMER	**1081**	K786082Y72A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1972	SCRAPPED OR SOLD	6/24/2020	
TRANSFORMER	**1082**	M599188TFRA	150	GE	208/120	3	PAD	<1	MINERAL OIL	150	1979	IN SERVICE	35306	
TRANSFORMER	**1083**	K852421T72A	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1973	REMOVED	8/19/2020	
TRANSFORMER	**1084**	H896785M70A	25	GE	120/240	1	PAD	<1	MINERAL OIL	40	1970	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. BOE LT-526 REALLY OLD XFMR BUT STILL WORKING FADED TO MULTI-COLOR
TRANSFORMER	**1086**	83VG533003	25	ME	120/240	1	PAD	3	MINERAL OIL	40	1983	IN SERVICE	6/27/1985	
TRANSFORMER	**1087**	61SD816	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1961	OK TO SCRAP	11/3/2017	ACCOUNTING REPORTING
SWITCH	**1089**	8067A	3WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	IN SERVICE	5/14/1984	
TRANSFORMER	**1093**	83JE947131	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	1/21/1988	
TRANSFORMER	**1094**	77M616051	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1978	IN SERVICE	29735	
SWITCH	**1095**	79145B	3WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	REMOVED	43973	
SWITCH	**1095**	79145B	3WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	IN SERVICE	2/13/1980	
TRANSFORMER	**1099**	80JC189181	112.5	WH	208/120	3	PAD	<1	MINERAL OIL	150	1980	IN SERVICE	8/25/1981	

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1107**	3067620183	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	2/12/1985	
TRANSFORMER	**1110**	79JK083082	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE		
TRANSFORMER	**1111**	K852422T72A	50	GE	120/240	1	PAD	25	MINERAL OIL	60	1973	SCRAPPED OR SOLD	1/8/2014	RECE'D DOWN CARD ON 12/23/2013. 25 PPM DID NOT TEST - JUNK
TRANSFORMER	**1112**	83JE950024	25	WH	120/240	1	PAD	<1		40	1983	IN SERVICE	10/9/1986	
TRANSFORMER	**1115**	80JC175268	37.5	GE	120/240	1	PAD	3		40	1980	IN SERVICE	2/5/1982	
TRANSFORMER	**1118**	73VB005002	50	ME	120/240	1	PAD	<1		60	1973	SCRAP	9/27/2023	IN SERVICE 2/7/1974, REMOVED 2/1/2023
TRANSFORMER	**1125**	79JK085126	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	6/30/1981	
TRANSFORMER	**1126**	N003766TMRA	150	GE	480/277	3	PAD	<1	MINERAL OIL	150	1979	REMOVED	3/21/2023	RETURNED 2/23/2023 (ORGINAL INSTALL 4/7/2023) EBMUD JOB
TRANSFORMER	**1127**	79JK083053	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	1/2/1981	
TRANSFORMER	**1128**	L169883T73	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1973	IN SERVICE	11/7/1978	
TRANSFORMER	**1129**	80JC171010	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1980	IN SERVICE	40163	
TRANSFORMER	**1130**	J820141M71A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	10	1971	REMOVED	3/12/2019	
TRANSFORMER	**1132**	J820908M71A	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1971	IN SERVICE	8/11/1971	
TRANSFORMER	**1137**	73VB005001	50	ME	120/240	1	PAD	<1	MINERAL OIL	60	1973	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**1138**	816002055	225	RTE	480/277	3	PAD	<1	MINERAL OIL	175	1981	IN SERVICE		
TRANSFORMER	**1139**	H896786M70A	25	GE	120/240	1	PAD	<1	MINERAL OIL	40	1970	IN SERVICE	10/23/1970	
TRANSFORMER	**1140**	80JC171075	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1980	IN SERVICE	5/5/1983	
TRANSFORMER	**1141**	K856331T73A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1973	IN SERVICE	1/31/1983	
TRANSFORMER	**1144**	L191897T73	50	GE	120/240	1	PAD	<1		60	1973	IN SERVICE	3/8/1976	
TRANSFORMER	**1145**	L443683T73A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1973	IN SERVICE	30981	
SWITCH	**1146**	79143C	2WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	SCRAPPED OR SOLD	42405	AS PER JIM MCANALLY
TRANSFORMER	**1149**	G740774-67	75	GE	120/240	1	PAD	<1	MINERAL OIL	40	1967	REMOVED	3/14/2019	
TRANSFORMER	**1152**	J820907M71A	50	GE	120/240	1	PAD	<1		60	1971	IN SERVICE	4/12/1971	
TRANSFORMER	**1153**	H896813M70A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1970	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. LT-524 WORKING, BUT ITS REALLY OLD. FADED WITH PAINT CHIPS & SCRATCHES. (DIRT YARD)
TRANSFORMER	**1155**	673154679	45	HOW	208/120	3	PAD	<1	MINERAL OIL	60	1980	IN SERVICE		
TRANSFORMER	**1160**	J935038T72A	112.5	GE	208/120	3	PAD	<1	MINERAL OIL	75	1972	SCRAPPED OR SOLD	3/27/2013	10-CA OIL L-97. SEVERE RUST ON THE BOTTOM OF XFMR. A BIG CHUNK MISSING FROM THE CORNOR DURE TO RUST. SHOULD BE SCRAPPED SINCE WE DO NOT CARRY THIS SIZE.
TRANSFORMER	**1163**	836006297!	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1983	IN SERVICE	7/24/1984	
TRANSFORMER	**1164**	N003729TLRA	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1979	IN SERVICE	6/21/1982	BLDG. 43 & 45 (SEWAGE AND CHIEFS HUT)
TRANSFORMER	**1165**	L453287T74A	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1974	IN SERVICE	34517	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1169**	79JL088118	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	SCRAPPED OR SOLD	12/17/2013	LT-550 LEAKING FROM BUSHING. SCRAP
TRANSFORMER	**1173**	821000921	50	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	REMOVED	7/31/2021	UEL-99965 (ALAMEDA MARINA)
TRANSFORMER	**1174**	H858878K69A	75	GE	120/240	1	POLE	<1	MINERAL OIL	30	1969	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**1175**	L453638T74A	300	GE	208/120	3	PAD	<1	MINERAL OIL	225	1974	IN SERVICE	37034	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1176**	80JC189157	112.5	WH	208/120	3	PAD	<1	MINERAL OIL	150	1980	IN SERVICE	4/17/1981	
TRANSFORMER	**1179**	H858879K69A	75	GE	120/240	1	POLE	<1	MINERAL OIL	30	1969	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**1186**	3048000383	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	9/28/1982	
TRANSFORMER	**1188**	K860156T72A	500	GE	480/277	3	PAD	<1	MINERAL OIL	240	1972	IN SERVICE	10/7/1998	
TRANSFORMER	**1192**	81JK561008	75	WH	120/240	1	PAD	<1	MINERAL OIL	40	1981	IN SERVICE	30288	
TRANSFORMER	**1195**	79JK085119	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	5/11/1993	
TRANSFORMER	**1197**	3088070384	50	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1984	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1198**	3067630883	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	2/11/2002	ADD IN SINGLE LINE
TRANSFORMER	**1235**	L722140TFNA	1000	GE	480/277	3	PAD	<1	MINERAL OIL	500	1977	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**1242**	3067620483	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	30953	
TRANSFORMER	**1255**	H839414K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	3/10/1969	
TRANSFORMER	**1256**	6206424	10	LM	120/240	1	POLE	<1	MINERAL OIL	10	1964	IN SERVICE		NEED FIELD VERIFY. MISSING SERIAL NUMBER
TRANSFORMER	**1265**	67AK6368	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1968	IN SERVICE	25086	ADD IN SINGLE LINE
TRANSFORMER	**1269**	80JG26618	225	WH	480/277	3	PAD	<1	MINERAL OIL	175	1980	IN SERVICE	7/14/1999	ENGG V/S DISPATCH IS NOT MATCH SERIAL NUMBER. (ENGG. DATABASE S/N 80JG26618 V/S DISPATCH DATABASE S/N A11E510KPT) NEED FIELD VERIFY

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1270**	72J310134	75	WH	208/120	3	PAD	2.2	MINERAL OIL	100	1972	SCRAPPED OR SOLD	1/7/2014	MOTEL CANNOT GET SW 'B'
TRANSFORMER	**1273**	L169882T73A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1973	IN SERVICE	27172	
TRANSFORMER	**1274**	J815622M70A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1970	IN SERVICE	10/13/1970	
SWITCH	**1278**	8066B	2WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	IN SERVICE	3/20/1989	
SWITCH	**1291**	79143B	2WAY	TRA			PAD		MINERAL OIL	355		SCRAPPED OR SOLD	11/30/2012	
TRANSFORMER	**1296**	68AA7279	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1969	IN SERVICE	12/6/1969	
TRANSFORMER	**1297**	3067622483	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**1298**	78K824233	150	WH	480/277	3	PAD	<1	MINERAL OIL	150	1978	IN SERVICE	36418	
TRANSFORMER	**1301**	B406001	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1951	IN SERVICE	5/2/1994	ADD IN SINGLE LINE
TRANSFORMER	**1307**	H858551K69A	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	5/6/1998	
TRANSFORMER	**1308**	H858553K69	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	4/28/2014	XFMR REMOVE DUE TO RELOCATION ELECTRICAL FACILITIES AT POGGI ST
TRANSFORMER	**1309**	69VJ003039	10	MCG CP	120/240	1	PAD	<1	MINERAL OIL	10	1969	IN SERVICE	35304	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1311**	H858556K69A	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**1313**	811153149	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	5/7/2014	XFMR REMOVE DUE TO RELOCATION ELECTRICAL FACILITIES AT POGGI ST
TRANSFORMER	**1316**	77A142303	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	6/13/1991	
TRANSFORMER	**1324**	76A354102	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1976	IN SERVICE	6/13/1991	
TRANSFORMER	**1325**	76A354100	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1976	IN SERVICE	6/13/1991	
TRANSFORMER	**1332**	82VL022008	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	8/16/1988	
TRANSFORMER	**1333**	77VC505004	37.5	ME	120/240	1	POLE	<1		20	1977	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1337**	67L7797	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1967	IN SERVICE		ADD IN SINGLE LINE
TRANSFORMER	**1344**	64SJ313	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1964	SCRAPPED OR SOLD	3/27/2013	LEAKING OIL FORM TOP COVER SEAL TOP SEAL GASKET IRREPAIRABLE.
TRANSFORMER	**1347**	58SB42	167	WH	120/240	1	POLE	<1	MINERAL OIL	70	1958	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**1348**	58SF0456	167	WH	120/240	1	POLE	<1	MINERAL OIL	70	1958	IN SERVICE	3/9/2005	
TRANSFORMER	**1350**	59SJ1738	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1959	IN SERVICE	12/29/2000	ADD IN SINGLE LINE.
TRANSFORMER	**1352**	74AK17139	25	WH	120/240	1	PAD	<1	MINERAL OIL	15	1974	IN SERVICE	8/27/1996	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1357**	74AC11123	250	WH	120/240	1	POLE	<1	MINERAL OIL	75	1974	SCRAPPED OR SOLD	6/6/2014	ESNA PRIMARY BUSHINGS RECOMMENDED FOR SCRAP
TRANSFORMER	**1391**	81JJ535201	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1984	SCRAPPED OR SOLD	1/7/2014	FOR DISPOSAL
TRANSFORMER	**1392**	821080451	25	RTE	120/240	1	PAD	<1	MINERAL OIL	40	1982	SCRAPPED OR SOLD	1/7/2014	TESTED BY GOW ON 8/25/2011 - FAIL, SCRAP SEC SW INOP
TRANSFORMER	**1393**	81JJ535159	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1984	IN SERVICE	3/20/1998	
TRANSFORMER	**1394**	821080450	25	RTE	120/240	1	PAD	<1	MINERAL OIL	40	1982	IN SERVICE	12/8/1999	
TRANSFORMER	**1400**	82A212906	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	8/30/1986	
TRANSFORMER	**1401**	83A442495	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	8/29/1986	
TRANSFORMER	**1402**	83A442496	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	1/21/1986	
TRANSFORMER	**1411**	H894999M69A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1970	SCRAPPED OR SOLD	10/17/2017	AS PER MICHAEL RU EMAIL ON 12/16/2016REMOVE T-255 AND IN SERVICE L-255 120/208 XFMR
TRANSFORMER	**1416**	81D2158401	75	HDD	208/120	3	PAD	<1	MINERAL OIL	60	1981	REMOVED	5/16/2024	IN SERVICE 12/12/2002, 2NDARY FED FROM L-1431
TRANSFORMER	**1419**	74E741033	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1974	IN SERVICE	32383	
TRANSFORMER	**1420**	82A212910	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE		
TRANSFORMER	**1421**	64SL119	100	STD	120/240	1	POLE	<1	MINERAL OIL	40	1964	IN SERVICE	3/29/2005	
TRANSFORMER	**1422**	82VL022007	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	9/4/1985	
TRANSFORMER	**1423**	3067622683	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	4/24/1985	
TRANSFORMER	**1425**	3067620683	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	4/1/1985	
TRANSFORMER	**1426**	82A212908	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	2/11/1986	
TRANSFORMER	**1427**	J747807K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	2/11/1986	
TRANSFORMER	**1428**	74E726033	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1974	IN SERVICE	32875	
TRANSFORMER	**1430**	851062A-2	150	SQD	480/277	3	PAD	8.59	MINERAL OIL	150	1986	REMOVED	2/23/2021	
TRANSFORMER	**1438**	84JH246124	167/10	WH	240/120	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	8/15/1995	
TRANSFORMER	**1440**	84JH246200	167/10	WH	240/120	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	34972	
TRANSFORMER	**1441**	83JF964016	167/10	WH	240/120	3	PAD	<1	MINERAL OIL	150	1983	IN SERVICE	34972	
TRANSFORMER	**1442**	76E230003	167	WH	120/240	1	PAD	<1	MINERAL OIL	90	1976	IN SERVICE	39182	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1451**	84JH239220	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1984	IN SERVICE	36786	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1461**	S-55F1561	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1955	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1462**	83VG533002	25	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	9/28/1988	
TRANSFORMER	**1465**	83VG533001	25	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	7/21/1987	
TRANSFORMER	**1467**	K467014K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	REMOVED	43775	
TRANSFORMER	**1469**	81JD435037	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1981	IN SERVICE	2/28/1984	
TRANSFORMER	**1472**	69F012420	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1969	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. LIVE FRONT FROM LT 519 OLD XFMR FROM BOE WITH PAINT TURNING YELLOW
TRANSFORMER	**1473**	83VH507001	50	ME	120/240	1	PAD	<1	MINERAL OIL	60	1983	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP.
TRANSFORMER	**1476**	83VG534002	37.5	ME	120/240	1	PAD	<1	MINERAL OIL	40	1984	IN SERVICE	12/4/1985	
TRANSFORMER	**1477**	83VG534005	37.5	ME	120/240	1	PAD	<1		40	1983	IN SERVICE	4/1/1992	
SWITCH	**1478**	79144B	3WAY	TRA			PAD		MINERAL OIL	355		SCRAPPED OR SOLD	11/30/2012	
TRANSFORMER	**1480**	79C932078	75	WH	480/277	3	PAD	<1	MINERAL OIL	100	1979	IN SERVICE	29264	
TRANSFORMER	**1481**	L851016YFLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	IN SERVICE	5/16/2001	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1488**	79JK081156	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1979	STOCK	5/18/2025	WAS IN SVC 5/21/1980 - REFURBISH 5/18/2025
TRANSFORMER	**1489**	79JL088075	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	REMOVED	8/12/2024	Note: in service 6/21/2011 - 8/12/2024 LBM REMOVED due to fault
TRANSFORMER	**1490**	79JK081135	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1979	SCRAPPED OR SOLD	41796	
TRANSFORMER	**1491**	78JH787035	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1978	IN SERVICE	11/17/1979	
TRANSFORMER	**1492**	79JL088049	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1980	REMOVED	6/21/1995	Oil leak seondary service, targeted for refurbishment IN SERVICE 6/21/1995,
TRANSFORMER	**1494**	L457309T74A	500	GE	480/277	3	PAD	<1	MINERAL OIL	250	1974	IN SERVICE	10/12/2001	
TRANSFORMER	**1496**	L460480T74A	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1974	IN SERVICE	28802	
TRANSFORMER	**1498**	L833067YDLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	IN SERVICE		
TRANSFORMER	**1499**	77M616023	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1978	IN SERVICE	1/26/1995	DISPATCH DATA SHOWS 77H616023, ENG. DATA & AS400 SHOWS S/N 77M616023
TRANSFORMER	**1500**	L833068YDLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	IN SERVICE	28804	
TRANSFORMER	**1501**	L833069YDLA	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1975	IN SERVICE	10/10/2001	
TRANSFORMER	**1502**	78JH789275	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1978	IN SERVICE	29041	
TRANSFORMER	**1503**	78JH787106	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1978	IN SERVICE	39968	
SWITCH	**1505**	L-464088P	2WAY	GE		3	PAD	<1	MINERAL OIL	280	1978	IN SERVICE	2/1/1980	FIELD VERIFY BY JIM MCRORY ON 10/31/2006.
TRANSFORMER	**1506**	79JK083095	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	3/25/1980	
TRANSFORMER	**1507**	79JK083067	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	STOCK	5/6/2025	IN SVC 3/25/1980 - REFURBISHED 5/6/2025
TRANSFORMER	**1508**	79JK081112	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1979	STOCK	5/18/2025	IN SERVICE 3/25/1980 - REMOVED FOR OIL LEAK / SNT REFURB 10/16/2023 / RECVD 5/6/2025
TRANSFORMER	**1510**	78JH789255	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1978	IN SERVICE	3/25/1980	
TRANSFORMER	**1513**	83JE948018	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	3/6/1985	
TRANSFORMER	**1514**	83VG534004	37.5	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	3/28/1985	
TRANSFORMER	**1516**	83VH507003	50	ME	120/240	1	PAD	<1	MINERAL OIL	60	1983	IN SERVICE	8/13/1985	
TRANSFORMER	**1517**	79JK085142	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1518**	79JK085135	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	3/1/1980	
TRANSFORMER	**1519**	83VG534001	37.5	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	3/29/1984	
TRANSFORMER	**1520**	84JM331207	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	7/1/1985	
TRANSFORMER	**1521**	84JM331066	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	31229	
TRANSFORMER	**1522**	81D2158501	75	WH	208/120	3	PAD	<1	MINERAL OIL	60	1981	IN SERVICE	31034	
TRANSFORMER	**1523**	83VH507004	50	ME	120/240	1	PAD	<1	MINERAL OIL	60	1983	IN SERVICE	3/25/1985	
SWITCH	**1524**	7945A	2WAY	TRA		3	PAD	<1	MINERAL OIL	280	1979	IN SERVICE	10/14/2000	
TRANSFORMER	**1525**	77K577075	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1977	IN SERVICE	8/8/1979	
TRANSFORMER	**1526**	84JM331264	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	31240	
TRANSFORMER	**1527**	78H777332	225	WH	208/120	3	PAD	<1	MINERAL OIL	175	1978	IN SERVICE	29070	
TRANSFORMER	**1533**	79JL088108	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	SCRAPPED OR SOLD	10/30/2020	
TRANSFORMER	**1534**	80JC175263	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1980	SPARE	8/1/2006	THIS XFMR IS NOT IN USE, JUST COVER PAD FOR SAFETY ISSUED. (SPARE)
TRANSFORMER	**1535**	79JA088090	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	7/7/1980	
TRANSFORMER	**1536**	80JC175265	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1980	REMOVED	7/9/2020	
TRANSFORMER	**1537**	81JJ535188	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1984	IN SERVICE	5/1/2014	
TRANSFORMER	**1542**	83JE948049	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	30664	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1544**	83VH508001	75	ME	120/240	1	PAD	<1	MINERAL OIL	60	1984	IN SERVICE	31324	
TRANSFORMER	**1545**	83VH507002	50	ME	120/240	1	PAD	<1	MINERAL OIL	60	1983	IN SERVICE	31033	
TRANSFORMER	**1549**	83VG534003	37.5	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	32156	
TRANSFORMER	**1550**	83VG534006	37.5	ME	120/240	1	PAD	<1	MINERAL OIL	40	1983	IN SERVICE	32009	
SWITCH	**1553**	L-464089P	3WAY	GE		3	PAD	<1	MINERAL OIL	280	1978	IN SERVICE	10/29/2007	RESERVED FOR AC
TRANSFORMER	**1555**	673164679	45	HOW	208/120	3	PAD	<1	MINERAL OIL	60	1980	IN SERVICE	3/13/1980	
TRANSFORMER	**1561**	84VC508001	75	ME	120/240	1	PAD	<1	MINERAL OIL	60	1984	IN SERVICE	32965	
TRANSFORMER	**1562**	836006296	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1983	IN SERVICE	30833	
TRANSFORMER	**1563**	84JH240241	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1984	IN SERVICE	11/9/1984	
TRANSFORMER	**1565**	84ZC901003	750	ME	480/277	3	PAD	<1	MINERAL OIL	400	1984	REMOVED	42880	
SWITCH	**1566**	831116045	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1983	IN SERVICE	2/13/1983	
TRANSFORMER	**1567**	84ZC901002	750	ME	480/277	3	PAD	<1	MINERAL OIL	400	1984	SCRAPPED OR SOLD	2/5/2016	UP/DOWN CARD ONE COPY TO DISPATCH ON 12/20/2013
TRANSFORMER	**1568**	84ZC901001	750	ME	480/277	3	PAD	<1	MINERAL OIL	400	1984	IN SERVICE	2/17/2021	UP/DOWN CARD ONE COPY TO DISPATCH ON 12/20/2013
TRANSFORMER	**1569**	826007024	45	RTE	208/120	3	PAD	<1	MINERAL OIL	60	1982	SCRAPPED OR SOLD	2/24/2012	
SWITCH	**1571**	831115337	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1983	IN SERVICE	10/13/2004	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1584**	84ZK704001	750	ME	480/277	3	PAD	<1	MINERAL OIL	400	1984	IN SERVICE	5/8/2020	
SWITCH	**1585**	841137915	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1984	IN SERVICE	1/15/1985	
TRANSFORMER	**1586**	80D1957502	500	HDD	480/277	3	PAD	<1	MINERAL OIL	250	1980	IN SERVICE	7/27/1984	
TRANSFORMER	**1587**	836005708	500	RTE	480/277	3	PAD	<1	MINERAL OIL	250	1983	IN SERVICE	10/1/2001	
TRANSFORMER	**1588**	826006969	300	RTE	480/277	3	PAD	<1	MINERAL OIL	225	1982	IN SERVICE	8/14/2000	
TRANSFORMER	**1589**	L453986T74A	500	GE	480/277	3	PAD	<1	MINERAL OIL	250	1974	IN SERVICE	11/21/1996	
TRANSFORMER	**1590**	L460355T74AA	300	GE	208/120	3	PAD	1	MINERAL OIL	180	1974	SCRAPPED OR SOLD	1/7/2014	BROKEN PRI SW
TRANSFORMER	**1591**	L453637T74AA	300	GE	208/120	3	PAD	1	MINERAL OIL	180	1974	SCRAPPED OR SOLD	1/7/2014	BROKEN PRI SW
TRANSFORMER	**1592**	846003342	150	RTE	208/120	3	PAD	1	MINERAL OIL	190	1984	SCRAPPED OR SOLD	1/7/2014	MISSING HV SW HANDLE
TRANSFORMER	**1593**	74E731055	75	WH	208/120	3	PAD	<1	MINERAL OIL	60	1974	IN SERVICE	12/13/2006	
TRANSFORMER	**1594**	L457311T74A	500	GE	480/277	3	PAD	<1		250	1974	IN SERVICE	9/19/2007	
SWITCH	**1604**	831115336	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1984	IN SERVICE	10/27/2004	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1605**	816007380	150	RTE	480/277	3	PAD	<1	MINERAL OIL	150	1982	IN SERVICE	12/10/1982	
TRANSFORMER	**1607**	830658-1	45	SQD	208/120	3	PAD	<1	MINERAL OIL	60	1984	IN SERVICE	5/8/1984	
TRANSFORMER	**1609**	79JK083108	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	SCRAPPED OR SOLD	1/7/2014	
TRANSFORMER	**1615**	L450057T74A	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1974	IN SERVICE	27169	
TRANSFORMER	**1621**	3067622383	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	2/24/2009	
TRANSFORMER	**1623**	3067621283	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**1624**	79JK081090	37.5	WH	120/240	1	PAD	<1	MINERAL OIL	40	1979	SCRAPPED OR SOLD	2/5/2016	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1626**	830656-1	112.5	SQD	208/120	3	PAD	<1	MINERAL OIL	75	1984	IN SERVICE	5/18/1984	
TRANSFORMER	**1631**	L457310T74AA	500	GE	480/277	3	PAD	<1	MINERAL OIL	240	1974	SCRAPPED OR SOLD	6/6/2014	EMT TESTED ON 8/28/2011 - FAIL
TRANSFORMER	**1632**	82A212909	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	10/15/1992	
TRANSFORMER	**1637**	69VJ003034	10	ME	120/240	1	POLE	<1	MINERAL OIL	10	1969	REMOVED	1/1/2000	
TRANSFORMER	**1651**	H858343K69A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1969	SCRAPPED OR SOLD	43025	
TRANSFORMER	**1652**	83JM081065	150	WH	480/277	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	31390	
SWITCH	**1657**	841137184	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1984	IN SERVICE	1/30/1988	
TRANSFORMER	**1658**	72A5046	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1972	IN SERVICE	6/9/2001	
TRANSFORMER	**1661**	L456361T74A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1974	IN SERVICE	5/8/1984	
TRANSFORMER	**1671**	L456123T74A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1974	IN SERVICE	10/23/1984	
SWITCH	**1676**	831115338	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1983	IN SERVICE	4/22/1986	
TRANSFORMER	**1692**	70ZL65502	150	ME	208/120	3	PAD	<1	MINERAL OIL	150	1970	IN SERVICE	37099	
TRANSFORMER	**1699**	82A212905	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	3/21/1984	
SWITCH	**1703**	81JC425255	1WAY	WH		3	PAD	<1	MINERAL OIL	110	1981	IN SERVICE	6/12/1981	
TRANSFORMER	**1704**	845109A-1	75	SQD	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	31363	
TRANSFORMER	**1706**	76E235024	112.5	WH	208/120	3	PAD	<1	MINERAL OIL	75	1976	SCRAPPED OR SOLD	2/28/2012	
TRANSFORMER	**1707**	83JF963056	167/10	WH	240/120	3	PAD	<1	MINERAL OIL	225	1983	IN SERVICE	12/29/1983	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1708**	81JK559036	167	WH	120/240	1	PAD	<1	MINERAL OIL	90	1981	IN SERVICE	8/27/2013	
TRANSFORMER	**1710**	L952819YFMA	75	GE	120/240	1	PAD	<1	MINERAL OIL	40	1976	IN SERVICE	12/17/1976	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1712**	PAJ1384	300	STD	208/120	3	PAD	1	MINERAL OIL	225	1969	SCRAPPED OR SOLD	1/7/2014	LIVE FRONT REMOVED 4/20/2012
TRANSFORMER	**1714**	84JH240169	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1984	IN SERVICE	11/9/1984	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1718**	78H777294	300	WH	208/120	3	PAD	<1	MINERAL OIL	225	1978	IN SERVICE	36698	FIELD VERIFY BY JIM MCRORY ON 11/14/2006.
TRANSFORMER	**1720**	J935965T72A	300	GE	208/120	3	PAD	<1	MINERAL OIL	225	1972	IN SERVICE	8/29/2002	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1721**	J932446T71A	500	GE	480/277	3	PAD	<1	MINERAL OIL	250	1972	IN SERVICE	1/31/1972	
TRANSFORMER	**1722**	J935039T72A	112.5	GE	208/120	3	PAD	<1	MINERAL OIL	75	1972	IN SERVICE	1/14/1974	
TRANSFORMER	**1723**	74H799038	225	WH	208/120	3	PAD	<1	MINERAL OIL	175	1974	IN SERVICE	9/24/1974	
SWITCH	**1725**	81JC425254	2WAY	WH		3	PAD	<1	MINERAL OIL	280	1981	IN SERVICE	9/1/1998	FUSE SWITCH SMALL PADESTALL
SWITCH	**1725**		25							280		IN SERVICE		FUSE SWITCH SMALL PADESTALL
TRANSFORMER	**1726**	J935040T72A	112.5	GE	208/120	3	PAD	<1	MINERAL OIL	75	1972	IN SERVICE	12/2/1975	
TRANSFORMER	**1728**	816007379	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1981	IN SERVICE	35893	
TRANSFORMER	**1732**	79C935321	150	WH	208/120	3	PAD	<1	MINERAL OIL	100	1979	IN SERVICE	6/21/1982	FEEDING BLDG. 10 (MSSI)
TRANSFORMER	**1734**	846003343	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	6/12/1985	FEEDING BLDG. 50 COMMAND CENTER
TRANSFORMER	**1735**	81D2047001	225	HDD	208/120	3	PAD	<1	MINERAL OIL	175	1981	IN SERVICE	12/30/1982	FEEDING BUILDINGS 51 & 52 (COMMAND CENTER/COMMANDER'S HEADQUARTERS
TRANSFORMER	**1736**	85JE439226	300	WH	208/120	3	PAD	<1	MINERAL OIL	225	1984	IN SERVICE	6/4/1987	
TRANSFORMER	**1741**	M596699TERA	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1979	IN SERVICE	29585	
TRANSFORMER	**1742**	836002717	75	RTE	208/120	3	PAD	<1	MINERAL OIL	100	1983	IN SERVICE	30635	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1745**	PAJ1388	300	STD	208/120	3	PAD	<1	MINERAL OIL	225		REMOVED	12/28/2024	IN SERVICE 6/18/1998
TRANSFORMER	**1746**	830654-1	45	SQD	480/277	3	PAD	<1	MINERAL OIL	60	1984	IN SERVICE	31125	
TRANSFORMER	**1750**	79JK081173	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1979	IN SERVICE	29194	
TRANSFORMER	**1751**	H889617M68A	150	GE	208/120	3	PAD	<1	MINERAL OIL	50	1968	IN SERVICE	9/2/1969	
TRANSFORMER	**1752**	866004983	300	RTE	208/120	3	PAD	2	MINERAL OIL	225	1986	IN SERVICE	4/8/1987	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**1753**	PAJ1385	300	STD	208/120	3	PAD	<1	MINERAL OIL	225	1969	IN SERVICE	25808	
TRANSFORMER	**1754**	H895222M69A	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1969	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1758**	79JB913269	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	7/3/1980	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1759**	73VB005003	50	WH	120/240	1	PAD	1	MINERAL OIL	60	1973	SCRAPPED OR SOLD	1/7/2014	
TRANSFORMER	**1760**	81JK561124	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1981	SCRAPPED OR SOLD	2/5/2016	XFMR LEAKING LOC-146
TRANSFORMER	**1761**	81JK561115	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1981	STOCK	5/18/2025	IN SERVICE 1/12/83, REMOVED / REFURB 5/6/2025
TRANSFORMER	**1762**	83VG533004	25	ME	120/240	1	PAD	<1	MINERAL OIL	40	1984	IN SERVICE	6/24/1986	
TRANSFORMER	**1763**	63SG1260	300	WH	208/120	3	PAD	<1	MINERAL OIL	225	1963	SCRAPPED OR SOLD	12/1/2016	
TRANSFORMER	**1765**	73H550076	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1974	IN SERVICE	31905	
TRANSFORMER	**1766**	77D446116	112.5	WH	208/120	3	PAD	<1	MINERAL OIL	75	1977	IN SERVICE	9/21/1977	
TRANSFORMER	**1770**	84JE187246	150	WH	480/277	3	PAD	<1	MINERAL OIL	150	1984	SCRAPPED	1/26/2023	IN SERCVICE 12/14/1985
TRANSFORMER	**1771**	83JM083084	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1983	IN SERVICE	33252	
TRANSFORMER	**1773**	836002624	112.5	RTE	480/277	3	PAD	<1	MINERAL OIL	75	1983	IN SERVICE	9/22/1983	
SWITCH	**1779**	841137185	2WAY	RTE		3	PAD	<1	MINERAL OIL	280	1984	IN SERVICE	9/1/1987	
TRANSFORMER	**1781**	836005709	500	RTE	480/277	3	PAD	<1	MINERAL OIL	250	1983	REMOVED	9/10/2016	
TRANSFORMER	**1782**	84JH240300	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1984	IN SERVICE	10/2/1986	
TRANSFORMER	**1785**	77J554067	150	WH	480/277	3	PAD	<1	MINERAL OIL	150	1977	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**1786**	84JH240271	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1984	IN SERVICE	8/20/1987	
TRANSFORMER	**1787**	846003344	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	8/24/1984	
TRANSFORMER	**1788**	846003340	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1984	IN SERVICE	3/14/1996	FIELD VERIFY BY JIM MCRORY ON 10/31/2006.
TRANSFORMER	**1790**	826007061	75	RTE	480/277	3	PAD	<1	MINERAL OIL	100	1983	REMOVED	2/12/2020	
TRANSFORMER	**1792**	87ZK556-002	500	ME	480/277	3	PAD	<1	MINERAL OIL	250		IN SERVICE	6/30/2001	
TRANSFORMER	**1795**	84JM332057	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	7/22/1986	
TRANSFORMER	**1800**	M332550YJNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	SCRAPPED OR SOLD	6/24/2020	
TRANSFORMER	**1801**	M273755YHNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	9/8/1981	NEED VERIFY XFMR INFO. MISSING SERIAL NUMBER
TRANSFORMER	**1802**	77A142380	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	IN SERVICE	7/29/1981	
TRANSFORMER	**1803**	77A142387	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE		ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**1804**	M338234YJNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	8/14/1981	
TRANSFORMER	**1805**	67AF13950	75	WH	120/240	1	POLE	<1	MINERAL OIL	15	1967	IN SERVICE	1/3/1984	ADD IN SINGLE LINE
TRANSFORMER	**1817**	M332548YJNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	IN SERVICE	12/20/1977	ADD IN SINGLE LINE
TRANSFORMER	**1821**	77A142385	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	IN SERVICE	7/29/1981	
TRANSFORMER	**1823**	M273758YNHA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	6/2/1981	
TRANSFORMER	**1824**	19857-978	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	9/23/1980	
TRANSFORMER	**1825**	M530043YFPA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1978	IN SERVICE	3/17/1981	
TRANSFORMER	**1827**	L647647K74A	25	GE	240/480	1	POLE	<1	MINERAL OIL	15	1974	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1830**	M273752YHNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	29781	
TRANSFORMER	**1831**	C52039	37.5	KUH	240/480	1	POLE	<1	MINERAL OIL	20	1956	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. TAGGED FOR SCRAP IN 2009
TRANSFORMER	**1832**	C50238	37.5	KUH	240/480	1	POLE	<1	MINERAL OIL	20	1956	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR DISPOSAL. TAGGED FOR SCRAP IN 2009
TRANSFORMER	**1838**	M273753YHNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	3/24/1981	
TRANSFORMER	**1839**	175804K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	REMOVED	9/17/2019	
TRANSFORMER	**1842**	79A044405	50	WH	240/480	1	POLE	<1	MINERAL OIL	10	1979	REMOVED	2/17/2022	(IN SERVICE FROM 3/31/2003) UEL-99965 - OH TO UG CONVERSION (POLE ABANDONMENT)
TRANSFORMER	**1843**	79A044404	50	WH	240/480	1	POLE	<1	MINERAL OIL	10	1979	REMOVED	2/17/2022	(IN SERVICE FROM 3/31/2003) UEL-99965 - OH TO UG CONVERSION (POLE ABANDONMENT)
TRANSFORMER	**1845**	K508712K72A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	REMOVED	3/5/2021	REMOVE BY MIKE SHERMAN
TRANSFORMER	**1846**	J783677K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	10/28/1971	
TRANSFORMER	**1851**	79A044403	50	WH	240/480	1	POLE	<1	MINERAL OIL	10	1979	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. BLACK BURNT MARKED AREA ON SECONDARY BUSHING.
TRANSFORMER	**1853**	J785917K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	9/30/1993	
TRANSFORMER	**1853**	J785917K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE		
TRANSFORMER	**1855**	72AB1950	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1972	IN SERVICE	26393	
TRANSFORMER	**1856**	58SL1774	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1959	IN SERVICE	10/6/1980	
TRANSFORMER	**1857**	175803K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	IN SERVICE	7/14/1981	
TRANSFORMER	**1858**	K467738K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	2/28/1972	
TRANSFORMER	**1860**	J784925K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	10/28/1971	
TRANSFORMER	**1861**	58SF90	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1958	OK TO SCRAP	11/3/2017	ACCOUNTING REPORTING
TRANSFORMER	**1862**	J786176K71A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1971	IN SERVICE	10/26/1971	
TRANSFORMER	**1864**	73AL22042	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1974	SCRAPPED OR SOLD	42405	
TRANSFORMER	**1865**	J786179K71A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1971	SCRAPPED OR SOLD	3/27/2013	DRAINED. READY FOR SCRAP. BUSHING LEAKING UNDER LOAD. CSP STYLE. MINOR SCRATCHES & CHIPS W/RUST. RECOMMENDED FOR SCRAP.
TRANSFORMER	**1870**	J786180K71A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1971	SCRAPPED OR SOLD	2/28/2012	
TRANSFORMER	**1871**	503192378	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	IN SERVICE	10/21/1981	
TRANSFORMER	**1872**	71AK15337	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1972	IN SERVICE	26393	
TRANSFORMER	**1873**	J768459K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	10/26/1992	
TRANSFORMER	**1874**	83A523383	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	1/16/1985	
TRANSFORMER	**1875**	J784925K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE		NEED FIELD VERIFY. MISSING SERIAL NUMBER
TRANSFORMER	**1877**	3067621983	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	3/21/1985	
TRANSFORMER	**1878**	77A020750	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1977	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1880**	J785916K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	8/21/1989	Leak UEL 1266 used for replacing with 37.5kVA
TRANSFORMER	**1883**	2109102	15	AC	120/240	1	POLE	<1	MINERAL OIL	10	1948	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1885**	3067621083	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	7/22/1983	
TRANSFORMER	**1887**	3067621383	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	7/22/1983	
TRANSFORMER	**1889**	3067621783	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	7/25/1983	
TRANSFORMER	**1893**	811153142	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	6/11/2014	
TRANSFORMER	**1894**	811153146	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	SCRAPPED	1/26/2023	IN SERVICE 12/22/2000
TRANSFORMER	**1895**	811153147	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP. CAME BACK IN NON-WORKING CONDITION. ELECTRICALLY BAD WITH PAINT CRACKS ON THE TOP WHERE IT MEET ONE OF THE BUSHING
TRANSFORMER	**1896**	77A142379	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	6/3/1981	
TRANSFORMER	**1898**	811153154	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	12/2/1982	
TRANSFORMER	**1902**	M265525YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	28465	
TRANSFORMER	**1911**	M338240YJNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	28545	
TRANSFORMER	**1912**	831117855	50	RTE	120/240	1	POLE	<1	MINERAL OIL	25	1983	IN SERVICE	7/1/1985	
TRANSFORMER	**1919**	128720	37.5	FPE	120/240	1	POLE	<1	MINERAL OIL	20	1966	IN SERVICE	24274	
TRANSFORMER	**1928**	K511865K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	IN SERVICE	8/31/1976	
TRANSFORMER	**1931**	S-55D092	25	WH	120/240	1	POLE	2	MINERAL OIL	15	1955	IN SERVICE		DISPATCH HAVE NO RECORD
TRANSFORMER	**1933**	77VC505001	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	4/15/1977	ADD IN SINGLE LINE.
TRANSFORMER	**1935**	M332552YJNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	IN SERVICE	10/11/1978	ADD IN SINGLE LINE

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**1936**	73AL22048	37.5	WH	120/240	1	POLE	<1		20	1974	IN SERVICE	28024	
TRANSFORMER	**1937**	77VC505006	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1977	SCRAPPED OR SOLD	2/5/2016	ADD IN SINGLE LINE
TRANSFORMER	**1941**	77A142386	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	IN SERVICE	11/22/1982	ADD IN SINGLE LINE
TRANSFORMER	**1942**	84AA033211	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1984	IN SERVICE	1/16/1985	ADD IN SINGLE LINE
TRANSFORMER	**1945**	68AB15845	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	4/8/1993	
TRANSFORMER	**1951**	77VD509005	50	ME	120/240	1	POLE	<1	MINERAL OIL	10	1977	IN SERVICE	8/19/1977	ADD IN SINGLE LINE
TRANSFORMER	**1952**	170156	167	STD	120/240	1	PAD	<1	MINERAL OIL	70	1962	IN SERVICE	12/29/1983	
TRANSFORMER	**1958**	M332440YJNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	28543	ADD IN SINGLE LINE
TRANSFORMER	**1960**	K466255K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	31616	
TRANSFORMER	**1964**	68AB6168	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1968	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**1966**	73AC16688	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1973	IN SERVICE	8/27/1973	
TRANSFORMER	**1967**	73AC16727	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1973	IN SERVICE	8/27/1973	
TRANSFORMER	**1975**	5442184	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1950	IN SERVICE	7/1/1982	
TRANSFORMER	**1978**	M573832YHNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	IN SERVICE	4/15/1990	
TRANSFORMER	**1980**	70AD14856	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1970	IN SERVICE	4/15/1990	
TRANSFORMER	**1982**	N180930YLSA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1980	IN SERVICE	7/1/1982	
TRANSFORMER	**1983**	811153150	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	12/22/2000	IN SERVICE 12/22/2000
TRANSFORMER	**2002**	N9178N25CC1	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1967	IN SERVICE	3/15/2001	
TRANSFORMER	**2006**	L456122T74A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1974	IN SERVICE	2/20/1991	FEEDING BLDG. 2 (CHILD DEVELOPMENT CENTER)
SWITCH	**2007**	L-464091P	2WAY	GE		3	PAD	<1	MINERAL OIL	280	1979	REMOVED	5/15/2023	IN SERVICE 4/23/1986 REPLACED DUE TO RUSTING
TRANSFORMER	**2022**	67AB127	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1969	IN SERVICE	12/6/1969	
TRANSFORMER	**2034**	80D1957501	500	HDD	480/277	3	PAD	<1	MINERAL OIL	250	1980	IN SERVICE	7/30/1982	
TRANSFORMER	**2038**	M592829TCRA	150	GE	208/120	3	PAD	<1	MINERAL OIL	150	1979	IN SERVICE	6/21/1982	
TRANSFORMER	**2040**	81D2158701	300	HDD	480/277	3	PAD	<1	MINERAL OIL	225	1981	IN SERVICE	1/14/2012	
SWITCH	**2044**	881156150	3WAY	RTE		3	PAD	<1		270		IN SERVICE	37002	
TRANSFORMER	**2045**	H858342K69A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1969	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**2046**	N003728TLRA	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1979	REMOVED	5/19/2016	IN SERVICE 75 KVA XFMR DUE TO MAINTENANCE.
TRANSFORMER	**2056**	H858557K69A	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	11/17/2008	
TRANSFORMER	**2058**	68AA1883	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1969	IN SERVICE	12/6/1969	
TRANSFORMER	**2059**	3048000483	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1982	REMOVED	9/15/2020	
TRANSFORMER	**2061**	83A442500	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	12/6/1983	
TRANSFORMER	**2064**	811153148	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	8/3/1982	
TRANSFORMER	**2070**	3067620283	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	10/19/1983	
TRANSFORMER	**2071**	82VL022001	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	1/27/1986	
TRANSFORMER	**2072**	3067630583	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	10/1/1983	
TRANSFORMER	**2073**	82VL022004	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	10/1/1983	
TRANSFORMER	**2075**	82VL022009	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	1/17/1983	
TRANSFORMER	**2076**	68AA2819	75	WH	120/240	1	POLE	<1		30	1968	IN SERVICE	11/17/2008	
TRANSFORMER	**2077**	82VL022002	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	4/15/2013	
TRANSFORMER	**2078**	82VL022015	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	30333	
TRANSFORMER	**2079**	82VL022006	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	1/17/1983	
TRANSFORMER	**2080**	3048000182	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	9/28/1982	
TRANSFORMER	**2081**	82VL022012	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	1/17/1983	
TRANSFORMER	**2083**	3048000283	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	9/28/1982	
TRANSFORMER	**2122**	84JM331140	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1984	IN SERVICE	5/12/1985	
TRANSFORMER	**2123**	836007992	300	RTE	480/277	3	PAD	<1	MINERAL OIL	225	1984	IN SERVICE	31925	
TRANSFORMER	**2141**	64SB1641	37.5	WH	240/480	1	POLE	<1	MINERAL OIL	20	1967	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP
TRANSFORMER	**2142**	64SB1650	37.5	WH	240/480	1	POLE	<1	MINERAL OIL	20	1967	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP
TRANSFORMER	**2144**	N003730TLRA	75	GE	208/120	3	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	1/22/1991	FEEDING BLDGS 13, 14, 18, 19 & 20 MSB/MOTORPOOL/FBI/AMMO SHED/HEADQUARTERS
SWITCH	**2178**	881156150	3WAY	RTE		3	PAD	<1	MINERAL OIL	270		IN SERVICE	9/15/2014	
TRANSFORMER	**2187**	89C36265	750	PAU	480/277	3	PAD	25	MINERAL OIL	237	1989	IN SERVICE	1/2/2021	
TRANSFORMER	**2192**	89C36261	225	PAU	208/120	3	PAD	<1	MINERAL OIL	114	1972	IN SERVICE	33105	
TRANSFORMER	**2200**	M600937TFRA	150	GE	208/120	3	PAD	<1	MINERAL OIL	150	1979	IN SERVICE	40345	
TRANSFORMER	**2204**	820252-1	1000	SQD	480/277	3	PAD	<1		342		IN SERVICE	8/6/1998	
TRANSFORMER	**2205**	M096216TKMA	50	GE	240/480	1	PAD	<1		25	1976	IN SERVICE	31670	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**2206**	M096217YLMA	50	GE	240/480	1	PAD	<1		25	1976	IN SERVICE	9/15/1986	
TRANSFORMER	**2207**	M096215YLMA	50	GE	240/480	1	PAD	<1		25	1976	IN SERVICE	31670	
TRANSFORMER	**2213**	L461223T74A	225	GE	208/120	3	PAD	<1	MINERAL OIL	175	1974	IN SERVICE	2/23/1978	
TRANSFORMER	**2214**	H858805K69A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1969	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2216**	L457308T74A	500	GE	480/277	3	PAD	<1	MINERAL OIL	250	1974	IN SERVICE	4/21/1976	
TRANSFORMER	**2217**	77K578307	100	WH	120/240	1	PAD	<1	MINERAL OIL	75	1977	STOCK	10/17/2017	
TRANSFORMER	**2218**	74H798058	300	WH	208/120	3	PAD	<1	MINERAL OIL	225	1974	IN SERVICE	28362	FIELD VERIFIED BY JIM M.
TRANSFORMER	**2221**	82D2198201	300	HDD	480/277	3	PAD	<1	MINERAL OIL	225	1982	IN SERVICE	5/7/1996	
TRANSFORMER	**2230**	71AM3844	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	2/17/1988	
TRANSFORMER	**2231**	71AM3837	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	32190	
TRANSFORMER	**2232**	71AM3848	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	32190	
TRANSFORMER	**2235**	3067622583	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	11/10/1986	
TRANSFORMER	**2236**	3067622883	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	11/12/1986	
TRANSFORMER	**2245**	3067621583	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	7/25/1983	
TRANSFORMER	**2246**	82A430864	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1982	IN SERVICE	1/12/1984	
TRANSFORMER	**2247**	58SF819	75	WH	120/240	1	POLE	<1	MINERAL OIL	30	1958	SCRAPPED OR SOLD	12/17/2013	FROM ST. CHARLESH/LINCOLN. LEAKING SELF PROTECTING AND RECOMMEND SCRAPING.
TRANSFORMER	**2257**	82A430862	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1982	IN SERVICE	10/5/2012	
TRANSFORMER	**2260**	831117857	50	RTE	120/240	1	POLE	<1	MINERAL OIL	25	1984	IN SERVICE	12/11/1987	
TRANSFORMER	**2261**	82VL022010	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	12/11/1987	
TRANSFORMER	**2263**	64SF936	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1964	IN SERVICE	1/18/1988	
TRANSFORMER	**2264**	3067620783	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	10/26/1987	
TRANSFORMER	**2272**	82VL022013	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	7/26/2011	REPLACE AMP#1865 LOC#724 3257 CENTRAL AVE
TRANSFORMER	**2273**	82VL022011	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	11/2/2012	
TRANSFORMER	**2274**	811153153	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	4/2/1986	
TRANSFORMER	**2275**	811153151	25	RTE	120/240	1	PAD	<1	MINERAL OIL	15	1982	IN SERVICE	36838	
TRANSFORMER	**2279**	N180929YLSA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1980	IN SERVICE	31504	
TRANSFORMER	**2284**	M352547YJNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25		IN SERVICE		NEED FIELD VERIFY. MISSING BOE # & SERIAL NUMBER
TRANSFORMER	**2285**	3067630983	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	2/26/1986	
TRANSFORMER	**2286**	M265524YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	2/27/1986	
TRANSFORMER	**2287**	59SG1421	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1959	IN SERVICE	7/23/1986	
TRANSFORMER	**2293**	503182378	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	IN SERVICE	7/6/1982	
TRANSFORMER	**2294**	83VG035001	50	ME	240/480	1	POLE	<1	MINERAL OIL	10	1983	STOCK	10/17/2017	
TRANSFORMER	**2295**	83VG035002	50	ME	240/480	1	POLE	<1	MINERAL OIL	10	1983	STOCK	10/17/2017	
TRANSFORMER	**2296**	3067620883	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	30715	NEED FIELD VERIFY. MISSING SERIAL NUMBER
TRANSFORMER	**2298**	H867455K69A	10	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	1/15/2013	EMAIL RECEIVED FROM JIM MCANALLY FOR NEW CODES FOR THE 10 & 15 KVA 120/240V XFMR
TRANSFORMER	**2299**	73AL5738	10	WESCO	120/240	1	POLE	1	MINERAL OIL	10	1973	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2306**	J747792K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	7/11/1990	
TRANSFORMER	**2316**	3067621483	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	2/3/1984	
TRANSFORMER	**2317**	K486955K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	8/8/1991	
TRANSFORMER	**2318**	K486969K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	10/19/1972	
TRANSFORMER	**2319**	K475074K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	5/15/1972	
TRANSFORMER	**2320**	K507412K72A	25	GE	120/240	1	POLE	<1	MINERAL OIL	25	1972	SCRAPPED OR SOLD	12/11/2020	
TRANSFORMER	**2321**	77VC505005	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1977	SCRAPPED OR SOLD	11/4/2020	
TRANSFORMER	**2322**	73AL22052	37.5	WH	120/240	1	POLE	1	MINERAL OIL	20	1973	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2323**	73AC16632	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1974	SCRAPPED OR SOLD	3/27/2013	SELF PROTECTED STYLE. AMP IS NO MORE USING THIS STYLE OF XFMR
TRANSFORMER	**2326**	72AB1138	25	WH	120/240	1	POLE	16	MINERAL OIL	15	1972	SCRAPPED OR SOLD	2/5/2016	SELF PROTECTING. CAME DOWN FROM 3250 FERNSIDE WITH 16 PPM PCB.
TRANSFORMER	**2327**	72AB1983	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1972	IN SERVICE	26420	
TRANSFORMER	**2328**	K486959K72A	37.5	GE	120/240	1	POLE	17	MINERAL OIL	20	1972	SCRAPPED OR SOLD	2/5/2016	SELF PROTECTING. CAME DOWN FROM 870 WALNUT WITH 17 PPM PCB.
TRANSFORMER	**2329**	K475078K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	IN SERVICE	5/1/1972	
TRANSFORMER	**2332**	K514480K73A	37.5	GE	120/240	1	POLE	<1		20	1973	IN SERVICE	3/5/1973	
TRANSFORMER	**2333**	K511875K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	SCRAPPED OR SOLD	2/5/2016	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**2334**	3067630283	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	30607	
TRANSFORMER	**2340**	73AL21055	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1974	IN SERVICE	2/22/1977	ADD IN SINGLE LINE
TRANSFORMER	**2341**	811153145	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	8/3/1982	
TRANSFORMER	**2342**	3067622983	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	1/27/1986	
TRANSFORMER	**2348**	K502902K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2353**	H858880K69A	75	GE	120/240	1	POLE	<1	MINERAL OIL	30	1969	IN SERVICE	6/25/1982	
TRANSFORMER	**2354**	76A353574	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1976	IN SERVICE	8/23/1977	ADD IN SINGLE LINE
TRANSFORMER	**2355**	69AL5615622	37.5	WH	120/240	1	POLE	12.98	MINERAL OIL	20	1970	REMOVED	12/22/2019	
TRANSFORMER	**2356**	N180927YLSA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1980	IN SERVICE	12/10/1982	
TRANSFORMER	**2357**	82VL022003	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	8/24/1993	
TRANSFORMER	**2358**	3067631083	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	10/1/1983	
TRANSFORMER	**2360**	82A430861	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1982	IN SERVICE	10/1/1983	
TRANSFORMER	**2364**	K511869K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	IN SERVICE	4/27/1973	
TRANSFORMER	**2365**	M265526YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	8/23/1977	ADD IN SINGLE LINE
TRANSFORMER	**2367**	73AL2113	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1973	IN SERVICE	8/23/1977	ADD IN SINGLE LINE
TRANSFORMER	**2370**	3067630383	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	10/24/1983	ADD IN SINGLE LINE
TRANSFORMER	**2371**	83A523385	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**2373**	K503904K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	SCRAPPED OR SOLD	2/11/1980	IN SERVICE 2/11/1980
TRANSFORMER	**2381**	K499103K72A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**2383**	73AE10916	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1973	IN SERVICE	2/22/1977	ADD IN SINGLE LINE
TRANSFORMER	**2384**	76A353576	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1976	IN SERVICE	8/23/1977	ADD IN SINGLE LINE
TRANSFORMER	**2385**	36169-1778	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2386**	68AB15847	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	3/4/1969	
TRANSFORMER	**2388**	73AK22614	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1973	SCRAPPED OR SOLD	2/5/2016	AMP IS NO MORE USING THIS STYLE OF XFMR. REMOVE XFMR ON LOC#4835 ON 1/29/2014.
TRANSFORMER	**2391**	M265528YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	12/6/1977	
TRANSFORMER	**2395**	M265527YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	28415	
TRANSFORMER	**2405**	1203667	25	RTE	240/480	1	POLE	<1	MINERAL OIL	15	1961	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2406**	5Y59155	167	WAG	240/480	1	POLE	<1	MINERAL OIL	70	1968	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. TAGGED FOR SCRAP IN 2009
TRANSFORMER	**2410**	8102081702	50	KUH	240/480	1	POLE	<1	MINERAL OIL	10	1981	IN SERVICE		
TRANSFORMER	**2411**	8102081701	50	KUH	240/480	1	POLE	<1	MINERAL OIL	10	1981	IN SERVICE		
TRANSFORMER	**2412**	1203665	25	RTE	240/480	1	POLE	<1	MINERAL OIL	15	1961	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP
TRANSFORMER	**2413**	1203666	25	RTE	240/480	1	POLE	<1	MINERAL OIL	15	1961	SCRAPPED OR SOLD	3/27/2013	DRAINED & READY FOR SCRAP
TRANSFORMER	**2419**	811007105	50	RTE	240/480	1	POLE	<1	MINERAL OIL	25	1981	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2427**	3059080382	100	KUH	240/480	1	POLE	<1	MINERAL OIL	40	1982	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2428**	3059060262	100	KUH	240/480	1	POLE	<1	MINERAL OIL	40	1982	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2429**	3059080182	100	KUH	240/480	1	POLE	<1	MINERAL OIL	40	1982	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2432**	5Y59157	167	WAG	240/480	1	POLE	<1	MINERAL OIL	70	1968	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP
TRANSFORMER	**2433**	5Y60013	167	WAG	240/480	1	POLE	<1	MINERAL OIL	70	1968	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. TAGGED FOR SCRAP IN 2009
TRANSFORMER	**2443**	M530049YFPA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1978	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. SELF PROTECTING XFMR. SEVERE PAINT CRACKING AT THE BOTTOM OF BOTH BUSHING & STARTING RUST. THE STRAP THAT HOLDS THE LID TIGHT ALSO HAS PAINT CHIP
TRANSFORMER	**2444**	K475601K72A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1972	SCRAPPED OR SOLD	12/9/2020	
TRANSFORMER	**2500**	H858552K69A	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**2501**	H858558K69A	15	GE	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	33044	
TRANSFORMER	**2504**	J785895K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER	**2505**	GV592935	37.5	LM	120/240	1	POLE	3	MINERAL OIL	20	1968	SCRAPPED OR SOLD	40968	
TRANSFORMER	**2508**	175802K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1973	IN SERVICE	10/17/1990	
TRANSFORMER	**2514**	J761473K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	SCRAPPED OR SOLD	11/4/2020	
TRANSFORMER	**2515**	J762623K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	SCRAPPED OR SOLD	11/4/2020	
TRANSFORMER	**2516**	J754880K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER	**2517**	J773401K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**2520**	H863589K69A	75	GE	120/240	1	POLE	<1	MINERAL OIL	30	1969	IN SERVICE	11/2/1979	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**2522**	64SB828	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1964	SCRAPPED OR SOLD	3/27/2013	DRAIN & READY FOR SCRAP. BAD SECONDARY WINDINGS
TRANSFORMER	**2529**	M530041YFPA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1978	IN SERVICE	29662	
TRANSFORMER	**2532**	73AK22626	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1973	IN SERVICE	4/18/1994	
TRANSFORMER	**2533**	229051178	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	SCRAPPED	1/26/2023	IN SERVICE 4/6/1993
TRANSFORMER	**2536**	36167-1778	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	8/20/1992	
TRANSFORMER	**2537**	H555530K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**2539**	M332434YJNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER	**2540**	H838964K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	IN SERVICE	5/7/1971	
TRANSFORMER	**2543**	73AK10796	10	WH	120/240	1	POLE	<1	MINERAL OIL	10	1973	IN SERVICE	33582	
TRANSFORMER	**2545**	H877830K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	4/1/1970	
TRANSFORMER	**2546**	811153143	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**2547**	71A141698	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2548**	77A302011	37.5	WH	120/240	1	POLE	1	MINERAL OIL	20	1978	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2549**	H877831K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	4/1/1970	
TRANSFORMER	**2552**	69AD3878	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1969	IN SERVICE	11/25/1969	
TRANSFORMER	**2553**	J738350K70A	10	GE	120/240	1	PAD	<1	MINERAL OIL	10	1969	IN SERVICE	25686	
TRANSFORMER	**2555**	19854-978	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	5/28/1992	
TRANSFORMER	**2558**	229041178	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	2/28/1980	
TRANSFORMER	**2559**	361711778	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	2/28/1980	
TRANSFORMER	**2560**	3091510578	37.5	HOW	120/240	1	POLE	<1	MINERAL OIL	20	1979	IN SERVICE	2/28/1980	
TRANSFORMER	**2565**	F691046-63	100	GE	120/240	1	PAD	<1	MINERAL OIL	40	1963	IN SERVICE	12/3/1963	
TRANSFORMER	**2568**	76E228009	100	WH	120/240	1	PAD	<1	MINERAL OIL	75	1976	IN SERVICE	8/24/1976	ENGG V/S DISPATCH DATABASE OK
TRANSFORMER	**2576**	K534989M71A	50	GE	120/240	1	PAD	<1	MINERAL OIL	60	1971	IN SERVICE	8/16/1972	
TRANSFORMER	**2578**	68AA2815	75	WH	120/240	1	POLE	<1	MINERAL OIL	30	1968	IN SERVICE	12/22/2000	
TRANSFORMER	**2579**	J820140M71A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	10	1971	IN SERVICE	8/16/1972	
TRANSFORMER	**2580**	J738353K70A	10	GE	120/240	1	PAD	<1	MINERAL OIL	10	1969	IN SERVICE	4/28/1970	
TRANSFORMER	**2585**	391952579	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	REMOVED	2/6/2023	Replaced with (#6455) 20A140908 9/7/2021
TRANSFORMER	**2586**	73AC16731	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1973	IN SERVICE	11/14/1973	FIELD VERIFY BY KARL ON 6/20/2008
TRANSFORMER	**2587**	3067630483	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	10/8/1992	
TRANSFORMER	**2590**	659263278	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	REMOVED	2/6/2023	Replaced with (#6454) 20A160607 9/7/2021
TRANSFORMER	**2591**	77VC505008	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	28345	XFMR AMP # 2591 IS OK
TRANSFORMER	**2593**	391932579	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	REMOVED	2/6/2023	Replaced with (#6495) 21A041543 9/7/2021
TRANSFORMER	**2594**	62SF2006	10	WH	120/240	1	POLE	<1	MINERAL OIL	10	1962	REMOVED	12/5/2019	NEED FIELD VERIFY. MISSING SERIAL NUMBER
TRANSFORMER	**2596**	L676749K74A	25	GE	240/480	1	POLE	<1	MINERAL OIL	15	1974	IN SERVICE	7/28/1974	
TRANSFORMER	**2597**	66AC13541	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1968	REMOVED	42564	
TRANSFORMER	**2599**	K514487K73A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1973	IN SERVICE	11/14/1973	FIELD VERIFY BY KARL ON 6/20/2008
TRANSFORMER	**2600**	K502915K72A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1972	SCRAPPED OR SOLD	6/6/2014	10-CA OIL. PAINT CHIPS & RUST THROUGHOUT THE ENTIRE XFMR, ESPECIALLY ON THE LID & AROUND BUSHINGS. SELF PROTECTING & RECOMMENDED FOR SCRAP.
TRANSFORMER	**2601**	K486310K72A	10	WH	120/240	1	POLE	<1	MINERAL OIL	10	1972	SCRAPPED OR SOLD	6/6/2014	PAINT DISCOLORING FADED. RUSTED ALL ROUND (CSP) XFMR. RECOMMENDED TO BE SCRAPED.
TRANSFORMER	**2602**	M530047YFPA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1978	IN SERVICE	4/8/1993	
TRANSFORMER	**2603**	G422464-65	100	GE	120/240	1	POLE	<1	MINERAL OIL	40	1965	IN SERVICE	10/12/1965	
TRANSFORMER	**2604**	H533919-67K	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1967	IN SERVICE	2/1/1995	
TRANSFORMER	**2607**	L676748K74A	25	GE	240/480	1	POLE	<1	MINERAL OIL	15	1974	IN SERVICE	7/28/1974	
TRANSFORMER	**2609**	3067630185	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	10/8/1992	
TRANSFORMER	**2612**	59SJ1564	100	WH	120/240	1	POLE	<1	MINERAL OIL	40	1959	IN SERVICE	6/30/1965	
TRANSFORMER	**2613**	G421123	10	GE	120/240	1	POLE	<1	MINERAL OIL	10	1965	IN SERVICE	10/12/1965	
TRANSFORMER	**2615**	H877826K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	4/1/1970	
TRANSFORMER	**2616**	58SB1191	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1958	SCRAPPED OR SOLD	6/6/2014	AS PER JIM MCANALLY EMAIL ON 2/24/2012 11:59AM. DAMAGED INSULATOR AND AGE
TRANSFORMER	**2619**	811153152	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	6/14/1983	
TRANSFORMER	**2621**	73AK1849	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1973	SCRAPPED OR SOLD	10/17/2017	
TRANSFORMER	**2622**	3088070284	50	KUH	120/240	1	POLE	<1	MINERAL OIL	50	1984	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**2623**	7032940	10	LM	120/240	1	POLE	<1	MINERAL OIL	10	1964	IN SERVICE	6/30/1965	

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**2624**	9812441	37.5	GE	120/240	1	POLE	1.54	MINERAL OIL	20	1954	IN SERVICE	4/24/1962	
TRANSFORMER	**2626**	3067622783	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	10/8/1999	
TRANSFORMER	**2627**	811153140	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	6/14/1983	
TRANSFORMER	**2628**	811153141	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1982	IN SERVICE	6/14/1983	
TRANSFORMER	**2629**	H858833K69A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1969	IN SERVICE	11/14/1973	FIELD VERIFY BY KARL ON 6/20/2008
TRANSFORMER	**2637**	3067620583	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	10/8/1999	
TRANSFORMER	**2638**	3067622283	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	36441	
TRANSFORMER	**2641**	84AA033210	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1984	IN SERVICE	9/4/1987	
TRANSFORMER	**2642**	J757422K70A	50	GE	120/240	1	POLE	<1	MINERAL OIL	10	1970	IN SERVICE	35269	
TRANSFORMER	**2646**	73AK6015	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1973	IN SERVICE	12/13/1974	
TRANSFORMER	**2649**	73AK14752	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1973	IN SERVICE	3/1/1984	
TRANSFORMER	**2651**	4646478	50	AC	120/240	1	PAD	<1	MINERAL OIL	25	1967	IN SERVICE		FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**2653**	73AK14759	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1973	IN SERVICE	3/1/1984	
TRANSFORMER	**2659**	150682	50	HIL	120/240	1	POLE	<1	MINERAL OIL	60	1959	SCRAPPED OR SOLD	3/27/2013	DRAINED READY FOR SCRAP. TAGGED BAD. INTERNAL SHORT.
TRANSFORMER	**2660**	61SJ2717	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1962	IN SERVICE	9/1/1983	
TRANSFORMER	**2661**	J781770K71A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1971	IN SERVICE	31967	
TRANSFORMER	**2667**	H531109-67	25	GE	120/240	1	POLE	21	MINERAL OIL	15	1967	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2685**	82VL022005	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1982	REMOVED	45006	REMOVED 2/23/2023
TRANSFORMER	**2686**	82A431274	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1982	IN SERVICE	5/13/1996	
TRANSFORMER	**2688**	3088070183	50	KUH	120/240	1	POLE	<1	MINERAL OIL	15	1984	IN SERVICE	3/2/1984	
TRANSFORMER	**2693**	3067621183	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	9/13/1983	
TRANSFORMER	**2694**	73AE10893	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1973	IN SERVICE	27534	
TRANSFORMER	**2696**	3067630683	37.5	KUH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	12310	
TRANSFORMER	**2701**	H839413K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	2/3/1970	
TRANSFORMER	**2703**	H839412K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	2/3/1970	
TRANSFORMER	**2707**	66AD7977	15	WH	120/240	1	POLE	4	MINERAL OIL	10	1966	IN SERVICE	36505	
TRANSFORMER	**2710**	60SJ1541	10	WH	120/240	1	POLE	68	MINERAL OIL	10	1961	SCRAPPED OR SOLD	12/11/2013	
TRANSFORMER	**2711**	58SB45	167	WH	120/240	1	POLE	<1	MINERAL OIL	70	1958	SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER	**2715**	H839415K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	2/3/1970	
TRANSFORMER	**2720**	77A142391	37.5	WH	120/240	1	POLE	1	MINERAL OIL	20	1978	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2740**	69AK6241	10	WH	120/240	1	POLE	<1	MINERAL OIL	10	1969	IN SERVICE	3/1/1984	
TRANSFORMER	**2742**	60SK1111	10	GE	120/240	1	POLE	2.03	MINERAL OIL	10	1960	REMOVED	1/21/2020	
TRANSFORMER	**2745**	M191131YDNA	100	GE	240/480	1	POLE	<1	MINERAL OIL	40	1977	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2746**	83A523384	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1984	IN SERVICE	3/1/1984	
TRANSFORMER	**2749**	M191130YDNA	100	GE	240/480	1	POLE	<1	MINERAL OIL	40	1977	SCRAPPED OR SOLD	2/29/2012	
TRANSFORMER	**2755**	77A152359	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	IN SERVICE	9/27/1978	
TRANSFORMER	**2757**	F95303364K	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1965	IN SERVICE	4/1/1984	
TRANSFORMER	**2763**	77A141697	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1978	IN SERVICE	9/13/1978	
TRANSFORMER	**2764**	G421119	10	GE	120/240	1	POLE	<1	MINERAL OIL	10	1965	IN SERVICE	10/12/1965	
TRANSFORMER	**2765**	7032938	10	LM	120/240	1	POLE	<1	MINERAL OIL	10	1964	IN SERVICE	6/30/1965	
TRANSFORMER	**2768**	63SC1354	37.5	WH	120/240	1	POLE	6	MINERAL OIL	20	1963	IN SERVICE	4/3/1963	
TRANSFORMER	**2769**	4639332	167	GE	120/240	1	POLE	<1	MINERAL OIL	70		REMOVED	6/30/2021	DEL MONTE - OVHD TO UG
TRANSFORMER	**2770**	836002655	150	RTE	208/120	3	PAD	<1	MINERAL OIL	150	1983	IN SERVICE	31147	
TRANSFORMER	**2772**	59SC676	100	STD	120/240	1	PAD	<1	MINERAL OIL	40	1959	IN SERVICE	23755	
TRANSFORMER	**2774**	3067620983	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	9/19/1984	
TRANSFORMER	**2776**	459932178	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	SCRAPPED OR SOLD	11/9/2021	DEL MONTE - OVHD TO UG
TRANSFORMER	**2780**	62SJ62	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1962	IN SERVICE	9/28/1962	
TRANSFORMER	**2781**	63SC1166	10	WH	120/240	1	PAD	<1	MINERAL OIL	10	1963	IN SERVICE	12/3/1963	
TRANSFORMER	**2786**	F69104963	100	GE	120/240	1	PAD	<1	MINERAL OIL	40	1963	IN SERVICE	23321	
TRANSFORMER	**2787**	58SF820	75	WH	120/240	1	POLE	<1	MINERAL OIL	30	1958	IN SERVICE	4/1/1985	
TRANSFORMER	**2794**	83A442497	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	3/7/1990	
TRANSFORMER	**2806**	73K605042	150	WH	208/120	3	PAD	<1	MINERAL OIL	150	1973	SCRAPPED OR SOLD	8/9/2022	ORIGINAL REMOVED 8/14/2019
TRANSFORMER	**2807**	L722286TFNA	150	GE	208/120	3	PAD	<1	MINERAL OIL	150	1977	IN SERVICE	7/17/1978	
TRANSFORMER	**2903**	K467739K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	6/8/1990	
TRANSFORMER	**2911**	58SF1075	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1958	IN SERVICE	7/13/1987	
TRANSFORMER	**2913**	4879320	15	WH	120/240	1	POLE	<1	MINERAL OIL	10	1948	IN SERVICE	8/18/1987	

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**3007**	61SH1552	10	GE	120/240	1	PAD	5.85	MINERAL OIL	10	1961	REMOVED	9/24/2019	FIELD VERIFY BY JIM MCRORY ON 11/6/2006
TRANSFORMER	**3012**	L119310Y73A	50	GE	120/240	1	PAD	<1		25	1973	REMOVED	9/24/2019	FIELD VERIFY BY JIM MCRORY ON 11/6/2006
TRANSFORMER	**3025**	59SJ1563	100	STD	120/240	1	POLE	<1		40	1959	IN SERVICE	6/30/1965	
TRANSFORMER	**3035**	L679740K74A	100	GE	240/480	1	POLE	<1	MINERAL OIL	40	1974	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3037**	L679741K74A	100	GE	240/480	1	POLE	<1	MINERAL OIL	40	1974	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3040**	H840264K68A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1968	IN SERVICE	1/22/2001	
TRANSFORMER	**3042**	H840265K68A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1968	REMOVED	1/22/2025	REPLACED WITH #6507 37.5 KVA
TRANSFORMER	**3046**	L679742K74A	100	GE	240/480	1	POLE	<1	MINERAL OIL	40	1974	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3050**	H868274K70A	10	GE	120/240	1	POLE	<1	MINERAL OIL	10	1970	SCRAPPED OR SOLD	6/6/2014	EMAIL RECEIVED FROM JIM MCANALLY FOR NEW CODES FOR THE 10 & 15 KVA 120/240V XFMR
TRANSFORMER	**3051**	72AA8729	250	WH	120/240	1	POLE	<1	MINERAL OIL	75	1972	SCRAPPED OR SOLD	6/6/2014	ESNA PRIMARY BUSHINGS RECOMMENDED FOR SCRAP
TRANSFORMER	**3053**	3103238	167	KUH	120/240	1	PAD	<1	MINERAL OIL	70	1967	IN SERVICE	24820	
TRANSFORMER	**3056**	58SA337	167	WH	120/240	1	PAD	<1	MINERAL OIL	70	1958	IN SERVICE	23755	
TRANSFORMER	**3057**	E236727-59	100	GE	120/240	1	POLE	2	MINERAL OIL	40	1959	IN SERVICE	12/11/1961	ADD IN SINGLE LINE
TRANSFORMER	**3061**	L229692K73A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1974	IN SERVICE	11/17/2014	
TRANSFORMER	**3067**	67AD8124	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1967	IN SERVICE	12/11/1999	
TRANSFORMER	**3068**	AV114305	75	LM	120/240	1	POLE	<1	MINERAL OIL	30	1962	IN SERVICE	10/25/1989	
TRANSFORMER	**3075**	82VL022014	37.5	ME	120/240	1	POLE	<1	MINERAL OIL	20	1982	IN SERVICE	4/4/1983	
TRANSFORMER	**3076**	L229687K73A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1974	SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER	**3077**	N180928YLSA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1980	IN SERVICE	10/25/1989	
TRANSFORMER	**3078**	G422465-65	100	GE	120/240	1	POLE	<1	MINERAL OIL	40	1965	IN SERVICE	10/12/1965	
TRANSFORMER	**3080**	62SJ61	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1962	IN SERVICE	11/13/1989	
TRANSFORMER	**3081**	3273236	50	WH	120/240	1	POLE	<1	MINERAL OIL	15	1944	SCRAPPED OR SOLD	10/17/2017	ADD IN SINGLE LINE
TRANSFORMER	**3082**	58SF1073	50	WH	120/240	1	PAD	<1	MINERAL OIL	25	1958	IN SERVICE	3/8/1966	FIELD VERIFY BY JIM MCRORY ON 11/20/2006.
TRANSFORMER	**3084**	J747808K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	IN SERVICE	31138	
TRANSFORMER	**3091**	63SD821	100	STD	120/240	1	POLE	<1	MINERAL OIL	40	1963	IN SERVICE	8/12/1977	ADD IN SINGLE LINE. 8/12/1977 in service. 9/26/2022 Returned from the field.
TRANSFORMER	**3094**	3067621683	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3097**	J784924K71A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1971	IN SERVICE	8/30/1971	
TRANSFORMER	**3099**	H863585K69A	75	GE	120/240	1	POLE	<1	MINERAL OIL	30	1969	IN SERVICE	27252	
TRANSFORMER	**3100**	PAJ1391	300	STD	208/120	3	PAD	<1	MINERAL OIL	210	1969	IN SERVICE	12/1/1970	
TRANSFORMER	**3113**	K856629T73A	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1973	IN SERVICE	27983	
TRANSFORMER	**3116**	L191970T73	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1973	IN SERVICE	10/7/1979	
TRANSFORMER	**3117**	58SF1068	50	WH	120/240	1	POLE	<1	MINERAL OIL	25	1958	IN SERVICE	4/15/1990	
TRANSFORMER	**3118**	62SF2008	10	WH	120/240	1	PAD	<1	MINERAL OIL	10	1962	IN SERVICE	23321	
TRANSFORMER	**3119**	L191969T73	37.5	GE	120/240	1	PAD	<1	MINERAL OIL	40	1973	IN SERVICE	8/11/1976	
TRANSFORMER	**3123**	J815823M70A	75	GE	208/120	3	PAD	<1	MINERAL OIL	100	1970	IN SERVICE	3/10/1971	
TRANSFORMER	**3124**	83JD932083	225	WH	208/120	3	PAD	<1	MINERAL OIL	175	1983	IN SERVICE	30881	
TRANSFORMER	**3134**	361781778	50	HOW	120/240	1	POLE	<1	MINERAL OIL	25	1979	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3138**	J762624K70A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1970	REMOVED	3/11/2021	
TRANSFORMER	**3140**	M530048YFPA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1978	SCRAPPED OR SOLD	2/5/2016	ADD IN SINGLE LINE
TRANSFORMER	**3144**	L229684K73A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1974	IN SERVICE	31391	
TRANSFORMER	**3149**	150679	50	HIL	120/240	1	POLE	<1	MINERAL OIL	60	1959	IN SERVICE	1/7/1964	
TRANSFORMER	**3150**	63SC1164	10	WH	120/240	1	POLE	<1	MINERAL OIL	10	1963	IN SERVICE	23383	
TRANSFORMER	**3151**	150681	50	HIL	120/240	1	POLE	<1	MINERAL OIL	60	1959	IN SERVICE	23383	
TRANSFORMER	**3162**	150678	50	HIL	120/240	1	POLE	<1	MINERAL OIL	60	1959	IN SERVICE	1/7/1964	
TRANSFORMER	**3166**	6943136	25	WH	120/240	1	POLE	<1	MINERAL OIL	15	1964	SCRAPPED OR SOLD	2/5/2016	
SWITCH	**3169**	841137183	2WAY	ABC		3	PAD	<1	MINERAL OIL	280	1984	IN SERVICE	3/20/1989	
SWITCH	**3171**	8066A	2WAY	TRA		3	PAD	<1	MINERAL OIL	280	1980	IN SERVICE	1/13/1989	
TRANSFORMER	**3172**	M265529YGNA	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1977	IN SERVICE	4/17/1979	
TRANSFORMER	**3173**	M338238YJNA	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1977	IN SERVICE	4/17/1979	
TRANSFORMER	**3236**	83VG035003	50	ME	240/480	1	POLE	<1	MINERAL OIL	10	1983	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3374**	67K17977	25	WH	120/240	1	POLE	120.13	MINERAL OIL	15	1967	REMOVED	2/20/2017	WE FOUND THIS XFMR IS NOT IN OUR DATABASE INCLUDES AS400
TRANSFORMER	**3392**	63SC1362	37.5	WH	120/240	1	POLE	<1	MINERAL OIL	20	1963	SCRAPPED OR SOLD	2/5/2016	
TRANSFORMER	**3398**	3067620383	25	KUM	120/240	1	POLE	<1	MINERAL OIL	15	1983	IN SERVICE	2/3/1984	

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
SWITCH	**3567**	4Q9011073	2WAY	CP		3	PAD	<1		280		IN SERVICE	33674	FIELD VERIFY BY JIM MCRORY ON 10/31/2006.
TRANSFORMER	**3638**	73J588702	500	WH	480/277	3	PAD	<1	MINERAL OIL	250	1973	SCARP	9/27/2023	Installed 8/20/2020, removed 2/1/2023
TRANSFORMER	**3646**	3067630783	37.5	KUM	120/240	1	POLE	<1	MINERAL OIL	20	1983	IN SERVICE	2/11/2002	
TRANSFORMER	**3828**	3173313498	167	HOW	120/240	1	PAD	29	MINERAL OIL	138	1998	STOCK	10/17/2017	
TRANSFORMER	**3829**	3173333498	167	HOW	120/240	1	PAD	7	MINERAL OIL	138	1998	SCRAPPED OR SOLD	12/11/2020	ACCOUNTING REPORTING
TRANSFORMER	**4014**	98J76456	150	PAU	480/277	3	PAD	<1	MINERAL OIL	125	1968	SCRAPPED OR SOLD	6/24/2020	ACCOUNTING REPORTING
TRANSFORMER	**4187**	81JJ535174	25	WH	120/240	1	PAD	<1	MINERAL OIL	40	1984	IN SERVICE	8/16/2012	EMT TESTED ON 8/22/2011 - PASS
PRIMARY METERING	**4193**	SPMD31521-22		SHL		3	PAD	<1	MINERAL OIL	2.2		IN SERVICE	3/11/1991	
TRANSFORMER	**4195**	5455144	75	GE	120/240	1	PAD	<1	MINERAL OIL	40	1965	IN SERVICE	7/22/1965	
SWITCH	**4210**	4Q0027173	2WAY	CP		3	PAD	<1	MINERAL OIL	280		IN SERVICE		
TRANSFORMER	**4430**	80JK330124	75	WH	208/120	3	PAD	<1	MINERAL OIL	100	1980	SCRAPPED OR SOLD	2/5/2016	REMOVE 4 KV TRANSFORMER
SWITCH	**4453**	CP570901766	2WAY	CP		3	PAD	<1		126		IN SERVICE		
SWITCH	**4454**	CP570901764	2WAY	CP		3	PAD	<1		126		IN SERVICE		
TRANSFORMER	**4462**	BF0526001	300	ME	208/120	3	PAD	<1	MINERAL OIL	225	1952	OK TO SCRAP	11/3/2017	ACCOUNTING REPORTING
TRANSFORMER	**4485**	CP0755153524	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	IN SERVICE	6/24/2020	
TRANSFORMER	**4716**	H843100K68A	50	GE	120/240	1	POLE		MINERAL OIL	25	1968	REMOVED	7/2/2019	
TRANSFORMER	**4719**	H841842K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	7/2/2019	
TRANSFORMER	**4720**	H840036K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE	7/2/2019	
TRANSFORMER	**4721**	H843102K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	REMOVED	7/2/2019	
TRANSFORMER	**4722**	H841234K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4723**	H540295K67	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1967	REMOVED	7/2/2019	
TRANSFORMER	**4724**	H841236K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4725**	H840030K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4726**	L212264K73A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1974	REMOVED	7/2/2019	
TRANSFORMER	**4731**	H840035K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4732**	H841235K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4736**	H840032K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4736**	H840033K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4737**	H841753K68A	25	GE	120/240	1	POLE	<1	MINERAL OIL	15	1968	REMOVED	7/2/2019	
TRANSFORMER	**4738**	H843104K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	REMOVED	7/2/2019	
TRANSFORMER	**4739**	H842421K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	7/2/2019	
TRANSFORMER	**4740**	H840031K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	REMOVED	43648	
TRANSFORMER	**4742**	H845799K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	IN SERVICE		
TRANSFORMER	**4744**	H845800K68A	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1968	IN SERVICE		
TRANSFORMER	**4746**	H841845K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE		
TRANSFORMER	**4752**	H841239K68A	37.5	GE	120/240	1	POLE	<1	MINERAL OIL	20	1968	IN SERVICE		
TRANSFORMER	**4760**	22294-7	10	JER	120/240	1	POLE	<1	MINERAL OIL	10		IN SERVICE		
CAPACITOR	**6002**	U083233	200	GE			POLE	<1	MINERAL OIL	2.9	1982	IN SERVICE	3/22/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6003**	U083234	200	GE			POLE	<1	MINERAL OIL	2.9	1982	IN SERVICE	3/22/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6004**	U083240	200	GE			POLE	<1	MINERAL OIL	2.9	1982	IN SERVICE	3/22/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
TRANSFORMER	**6020**	79JB913252	50	WH	120/240	1	PAD	<1	MINERAL OIL	60	1979	IN SERVICE	7/3/1980	
TRANSFORMER	**6169**	M332553YJNA	50	GE	120/240	1	POLE	<1	MINERAL OIL	25	1977	IN SERVICE	10/11/1978	NO AMP # BEFORE, SER. MAP POLE#3697 DUPLICATE, SO THIS LOC POLE #3857 309 BRUSH ST. NEW AMP#6169
CAPACITOR	**6178**	X461149	100	GE		1	POLE	<1	MINERAL OIL	2.2		REMOVED	7/1/2011	
CAPACITOR	**6251**	82050474	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/25/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6252**	82030362	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/25/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6253**	82030475	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/25/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6254**	82030368	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	OFF LINE	3/24/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6255**	82030370	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	OFF LINE	3/24/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6256**	82030371	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	OFF LINE	3/24/1982	FIELD VISIT BY DANIEL GRACIA ON 8/15/2011
CAPACITOR	**6257**	82080813	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/16/2011
CAPACITOR	**6258**	82080845	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/16/2011
CAPACITOR	**6259**	82080844	100	SANGAMO			POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/16/2011
CAPACITOR	**6272**	U094037	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/18/2011
CAPACITOR	**6273**	U094036	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	30151	FIELD VISIT BY DANIEL GRACIA ON 8/18/2011
CAPACITOR	**6274**	U094030	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/18/2011

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
CAPACITOR	**6281**	82080555	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	4/1/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6282**	82080560	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	4/1/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6283**	82080558	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	4/1/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6284**	U094031	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6285**	U094036	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6286**	U094029	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6287**	U094034	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6288**	U094025	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	7/19/1982	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6289**	U094028	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	SCRAPPED OR SOLD	2/5/2016	FIELD VISIT BY DANIEL GRACIA ON 8/23/2011
CAPACITOR	**6293**	81460205	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	30036	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6294**	81460296	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	30036	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6295**	81460294	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	30036	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6296**	82080559	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	32853	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6297**	82080864	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	12/11/1989	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6298**	82080866	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1981	IN SERVICE	12/11/1989	FIELD VISIT BY DANIEL GRACIA ON 8/22/2011
CAPACITOR	**6311**	82080825	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	4/22/1982	
CAPACITOR	**6312**	82080853	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	4/22/1982	
CAPACITOR	**6313**	82080812	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	4/22/1982	
CAPACITOR	**6320**	8280831	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	30063	FIELD VISIT BY DANIEL GRACIA ON 8/26/2011
CAPACITOR	**6322**	82050448	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	30063	FIELD VISIT BY DANIEL GRACIA ON 8/26/2011
CAPACITOR	**6335**	82030485	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	9/30/1986	
CAPACITOR	**6336**	82030499	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	9/30/1986	
CAPACITOR	**6337**	82030715	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	9/30/1986	
CAPACITOR	**6338**	U094026	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	10/27/1992	FIELD VISIT BY DANIEL GRACIA ON 9/1/2011
CAPACITOR	**6339**	U094062	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	10/27/1992	FIELD VISIT BY DANIEL GRACIA ON 9/1/2011
CAPACITOR	**6340**	U094027	100	GE		1	POLE	<1	MINERAL OIL	1.5	1982	IN SERVICE	10/27/1992	FIELD VISIT BY DANIEL GRACIA ON 9/1/2011
CAPACITOR	**6344**	82030738	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	OFF LINE	32850	
CAPACITOR	**6345**	82050460	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	OFF LINE	12/8/1989	
CAPACITOR	**6346**		100			1	POLE	<1	MINERAL OIL	2.2		OFF LINE	12/8/1989	
CAPACITOR	**6347**	82D90907	100	GRAW EDISON		1	POLE	<1	MINERAL OIL	1.65	1982	IN SERVICE	12/8/1989	
CAPACITOR	**6350**	81460114	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/30/2011
CAPACITOR	**6351**	81460055	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/30/2011
CAPACITOR	**6352**	81460164	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	3/23/1982	FIELD VISIT BY DANIEL GRACIA ON 8/30/2011
CAPACITOR	**6353**	82050487	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	4/22/1982	FIELD VISIT BY DANIEL GRACIA ON 9/2/2011
CAPACITOR	**6354**	82052464	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	30063	FIELD VISIT BY DANIEL GRACIA ON 9/2/2011
CAPACITOR	**6355**	82030486	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2	1982	IN SERVICE	4/22/1982	FIELD VISIT BY DANIEL GRACIA ON 9/2/2011
CAPACITOR	**6376**	82030378	100	SANGAMO		1	POLE	<1	MINERAL OIL	2.2		IN SERVICE	2/16/2016	
CAPACITOR	**6383**	S321546	200	GE		3	POLE	<1	MINERAL OIL	2.9		IN SERVICE	7/23/2015	
TRANSFORMER	**9005**	32386-5	1500	ZINSCO	480/277	3	PAD	<1	MINERAL OIL	270		IN SERVICE	10/29/2007	RESERVED FOR AC
SWITCH	**9016**					3	PAD	<1	MINERAL OIL	280		IN SERVICE		
SWITCH	**9017**					3	PAD	<1	MINERAL OIL	280		IN SERVICE		
SWITCH	**9018**		5WAY			3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9019**								MINERAL OIL	280		REMOVED	2/8/2021	
SWITCH	**9020**		3WAY			3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9030**	609-78-0076	3WAY	G&W		3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9031**	93030	3WAY	TRAYER		3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9032**	81113B	4WAY	TRAYER		3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9034**	81113F	4WAY	TRAYER		3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9035**		4WAY						MINERAL OIL	300		IN SERVICE		
SWITCH	**9036**		4WAY	TRAYER		3	PAD	<1	MINERAL OIL	300		IN SERVICE		
SWITCH	**9037**	SC-506-5000-1	3WAY	GS		3	PAD	<1	MINERAL OIL	300		REMOVED	10/17/2017	
TRANSFORMER	**9040**	M156381	3000	GE	480/277	3	PAD	<1		400		IN SERVICE		
TRANSFORMER	**9042**	225U502-4968B	225	VIR	208/120	3	PAD			140		IN SERVICE		
TRANSFORMER	**9047**	PLA-0141	750	BAL	480/277	3	PAD	<1	MINERAL OIL	294		IN SERVICE		
TRANSFORMER	**9048**	PJK-5008	750	STD	480/277	3	PAD	<1		294		IN SERVICE		
TRANSFORMER	**9050**	826000806	75	RTE	208/120	3	PAD	<1	MINERAL OIL	100		REMOVE	6/4/2024	Removed/replaced from REUSE project UEL 99960 by L-1173

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ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER	**9051**	821014938	167	RTE	120/240	1	PAD	<1	MINERAL OIL	70	1982	IN SERVICE		
TRANSFORMER	**9054**	821014395	100	RTE	120/240	1	PAD	<1		40	1982	IN SERVICE		
TRANSFORMER	**9055**	821014394	100	RTE	120/240	1	PAD	<1		40	1982	IN SERVICE		
TRANSFORMER	**9056**	821005702	50	RTE	120/240	1	PAD	<1		60	1982	IN SERVICE		
TRANSFORMER	**9057**	821006257	75	RTE	120/240	1	PAD	<1		40	1982	IN SERVICE		
TRANSFORMER	**9058**	826000807	75	RTE	208/120	3	PAD	<1		100	1982	IN SERVICE		
TRANSFORMER	**9060**	79G016164	225	WH	208/120	3	PAD	<1	MINERAL OIL	175	1979	IN SERVICE		ALAMEDA POINT SITE A - DEMOLITION WORK
TRANSFORMER	**9061**	821006255	37.5	RTE	120/240	1	PAD	<1	MINERAL OIL	40	1982	IN SERVICE		FIELD VERIFIED BY JIM M. NO BOE #
TRANSFORMER	**9062**	821005701	25	RTE	120/240	1	PAD	<1	MINERAL OIL	13		IN SERVICE		
TRANSFORMER	**9063**	821005700	25	RTE	120/240	1	PAD	<1	MINERAL OIL	13		IN SERVICE		
TRANSFORMER	**9064**	821006256	37.5	RTE	120/240	1	PAD	<1	MINERAL OIL	40	1982	IN SERVICE		
TRANSFORMER	**9066**	19081-001	300	FP	208/120	3	PAD	<1	MINERAL OIL	205		IN SERVICE		ALAMEDA POINT SITE A - DEMOLITION WORK
TRANSFORMER	**9067**	EF06294387	75	ATL	120/240	1	PAD	<1	MINERAL OIL	60		IN SERVICE		
TRANSFORMER	**9100**	58SF311	100	STD	120/240	1	PAD	<1	MINERAL OIL	40	1958	IN SERVICE	32793	
AIR SWITCH	**A0325**								MINERAL OIL	2.2		IN SERVICE		
AIR SWITCH	**A0337**						POLE		MINERAL OIL	2.2		IN SERVICE		
AIR SWITCH	**A0513**						POLE		MINERAL OIL	2.2		IN SERVICE		ADD IN SINGLE LINE
AIR SWITCH	**A0731**						POLE		MINERAL OIL	1.5		IN SERVICE		
AIR SWITCH	**A0735**						POLE		MINERAL OIL	2.2		IN SERVICE		
TRANSFORMER		2961	1500	SIEMENS	480/277	3	PAD	<1	MINERAL OIL	250		IN SERVICE		1500/2000 DRY XFMR
TRANSFORMER		12892	750	T&R	480/277	3	PAD	3	MINERAL OIL	250		IN SERVICE		ALAMEDA POINT SITE A - DEMOLITION WORK
TRANSFORMER		13633	1000	INTEL	480/277	3	PAD	<1		450		IN SERVICE		
TRANSFORMER		271690	5	LM	120/240	1	POLE		MINERAL OIL	10		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		2654777	5	ALLIS	120/240	1	POLE	<1	MINERAL OIL	10		SCRAPPED OR SOLD	10/17/2017	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		2882159	2000	ALLIS	480/277	3	PAD	<1	MINERAL OIL	453		SCRAPPED OR SOLD	6/6/2014	WE REPLACED T-8468 TO T-1216. WE DID NOT HAVE ANY INFO.
TRANSFORMER		3550793	2000	MGM	480/277	3	PAD	<1	MINERAL OIL	453		SCRAPPED OR SOLD	6/6/2014	WE REPLACED T-8468 TO T-1216. WE DID NOT HAVE ANY INFO.
TRANSFORMER		7937782	1000	GE	480/277	3	PAD	<1	MINERAL OIL	450		SCRAPPED OR SOLD	6/6/2014	
TRANSFORMER		8550798	2000	MGM	4160/240	3	PAD	<1	MINERAL OIL	200	1953	REMOVED		ALAMEDA POINT SITE A - DEMOLITION WORK
TRANSFORMER		811137713	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1981	REMOVED	3/30/2025	FIELD VERIFY BY JOE ON 12/10/2010; IN SERVICE 12/10/2010, UEL-1330 RESHAP REMOVED
TRANSFORMER		811137714	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1981	REMOVED	3/30/2025	FIELD VERIFY BY JOE ON 12/10/2010; IN SERVICE 12/10/2010, UEL-1330 RESHAP REMOVED
TRANSFORMER		811137715	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1981	REMOVED	3/30/2025	FIELD VERIFY BY JOE ON 12/10/2010; IN SERVICE 12/10/2010, UEL-1330 RESHAP REMOVED
TRANSFORMER		811138171	37.5	RTE	120/240	1	POLE	<1	MINERAL OIL	21	1981	IN SERVICE	12/10/2010	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		811138176	50	RTE	120/240	1	POLE	<1	MINERAL OIL	28	1981	IN SERVICE	12/10/2010	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		811138177	50	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1981	IN SERVICE		
TRANSFORMER		811148844	25	RTE	120/240	1	POLE	<1	MINERAL OIL	15	1981	IN SERVICE	12/10/2010	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		886010481	1000	RTE	480/277	3	PAD	<1	MINERAL OIL	33		IN SERVICE		
TRANSFORMER		891083142	37.5	RTE	120/240	1	POLE		MINERAL OIL	20		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		891092084	75	RTE	120/240	1	POLE		MINERAL OIL	33		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		891092085	75	RTE	120/240	1	POLE	<1	MINERAL OIL	33		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		891092086	75	RTE	120/240	1	POLE	<1	MINERAL OIL	33		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		891092087	75	RTE	120/240	1	POLE	<1	MINERAL OIL	33		REMOVED	10/17/2017	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		901108200	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901108201	100	CP	120/240	1	PAD	<1	MINERAL OIL	40		IN SERVICE		
TRANSFORMER		901108202	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		901109297	75	CP	120/240	1	PAD	<1	MINERAL OIL	55		IN SERVICE		
TRANSFORMER		901110960	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901110961	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901110962	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901110963	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901110964	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		SER.MAP SHOWS 100KVA, SINGLE LINE & DATABASE SHOWS 167KVA. NEED FIELD VERIFICATION

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

ITEM	CO ID.	MFG SERIAL NO	SIZE	MFG	SEC VOLT	PHASE	TYPE	PPM	TYPE OF OIL	OIL GALLONS	PURCHASE YEAR	STATUS	DATE	COMMENTS
TRANSFORMER		901111510	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		901111511	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901111512	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		901111513	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901111514	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112355	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112356	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112357	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112358	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112359	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		901112904	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		901112905	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112906	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112907	167	CP	120/240	1	PAD	<1	MINERAL OIL	70		IN SERVICE		
TRANSFORMER		901112908	167	CP	120/240	1	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		8991079995	15		120/240	1	POLE	<1		10		SCRAPPED OR SOLD	12/1/2016	
TRANSFORMER		8991079996	15		120/240	1	POLE	<1		10		SCRAPPED OR SOLD	12/1/2016	
TRANSFORMER		8991079997	15		120/240	1	POLE	<1		10		SCRAPPED OR SOLD	12/1/2016	
TRANSFORMER		21495-5	5	JERRY	120/240	1	POLE	<1	MINERAL OIL	10		SCRAPPED OR SOLD	3/27/2013	4 KV XFMR AT ALAMEDA POINT
TRANSFORMER		21495-6	50	JERRY	120/240	1	POLE	<1	MINERAL OIL	10		SCRAPPED OR SOLD	3/27/2013	4 KV XFMR AT ALAMEDA POINT
TRANSFORMER		22395-10	75	JERRY	120/240	1	POLE	<1	MINERAL OIL	30		SCRAPPED OR SOLD	3/27/2013	4 KV XFMR AT ALAMEDA POINT
TRANSFORMER		32386-1	1000	ZINSCO	480/277	3	PAD	<1	MINERAL OIL	450		IN SERVICE		
TRANSFORMER		32386-2	1500	ZINSCO	480/277	3	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		32386-3	1000	ZINSCO	480/277	3	PAD	<1		250		IN SERVICE		
TRANSFORMER		32386-9	1500	ZINSCO	480/277	3	PAD	<1	MINERAL OIL	270		IN SERVICE		
SWITCH		6886-1	2WAY	CP		3	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		76H297020	500	WH	208/120	3	PAD	<1	MINERAL OIL	250		IN SERVICE		
SWITCH		8552B	3WAY	TRAYER		3	PAD	<1	MINERAL OIL	270		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, L-1207 SCRAP DRAINED B-162
TRANSFORMER		86ZE669001	75	MCG	120/240	1	POLE	<1	MINERAL OIL	250		IN SERVICE	12/10/2010	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		870277-A	500		480/277	3	PAD		MINERAL OIL	250		IN SERVICE		
TRANSFORMER		870277-A	500	SD	480/277	3	PAD		MINERAL OIL	250		IN SERVICE		
TRANSFORMER		87-51107	2000		480/277	3	PAD			33		IN SERVICE		
TRANSFORMER		900385-A1	75	STD	208/120	3	PAD	<1		250		IN SERVICE		
TRANSFORMER		F68895063K	15	GE	120/240	1	POLE		MINERAL OIL	10		SCRAPPED OR SOLD	3/27/2013	ALAMEDA POINT, 4KV TRANSFORMER
TRANSFORMER		HH13728	37.5	MAG	120/240	1	POLE	<1	MINERAL OIL	250		IN SERVICE	12/10/2010	FIELD VERIFY BY JOE ON 12/10/2010
TRANSFORMER		M122014	12000	GE	4160/240	3	PAD	<1		500		REMOVED		
TRANSFORMER		P173815	45	GE	208/120	3	PAD	<1		250		IN SERVICE		
TRANSFORMER		PAB03820001	1500	ABB	480/277	3	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		PAB03822	1500	ABB	480/277	3	PAD	<1	MINERAL OIL	250		IN SERVICE		
TRANSFORMER		PGG-1388	10000	STD	4160/240	3	PAD	<1		500		REMOVED		

Note: Red text are assumptions made by Geosyntec Consultants, Inc. for the purpose of completing load reduction calculations.

APPENDIX F

PCBs in Building Materials Management Program – Fiscal Year 2025/26 Data Summary

Geosyntec consultants

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FINAL Memorandum

Date:	August 28, 2026
To:	Sandy Mathews, Alameda Countywide Clean Water Program
From:	Lisa Austin, Senior Principal, Lisa Welsh, Senior Scientist, Grace Yao, Professional Staff Engineer, and Kiki Jin, Senior Staff Engineer
Subject:	PCBs in Building Materials Management Program – Fiscal Year 2025/26 Data Summary Geosyntec Project Number: 26001318

1. BACKGROUND

Municipal Regional Stormwater Permit (MRP; Order No. R2-2022-0018) Provision C.12.g requires Permittees to manage polychlorinated biphenyls (PCBs) containing materials and wastes during building demolition so that PCBs do not enter municipal storm drain systems. Provision C.12.g. applies to applicable structures containing building materials with PCBs concentrations of 50 ppm or greater at the time such structures undergo demolition. PCBs from these structures can enter storm drains during and/or after demolition through vehicle track-out, airborne releases, soil erosion, or stormwater runoff. Applicable structures include commercial, public, institutional, and industrial buildings constructed or remodeled between 1950 and 1980 undergoing full-building demolition. Single-family residential and wood frame structures are exempt.

The MRP Permittees developed and implemented a process, beginning in July 2019, for managing materials with PCBs concentrations of 50 ppm or greater in applicable structures when they undergo demolition. This technical memorandum documents the following items for the Alameda County Permittees, as required by MRP Provision C.12.g.iii.(3):

a. The number of applicable structures that applied for a demolition permit during the reporting year.

b. A running list of the applicable structures that applied for a demolition permit since July 1, 2019, the number of samples each structure collected, and the concentration of the PCBs in each sample.

c. For each applicable structure with PCBs concentrations of 50 mg/kg or greater, include the following: the project address, demolition date, and a brief description of the PCBs-containing materials.

d. For each structure that was constructed or remodeled between 1950 and 1980 and requires emergency demolition to protect public health and/or safety, provide the following: address, date the building was constructed, and date of demolition.

2. NUMBER OF APPLICABLE STRUCTURES

Table 1 below lists the number of applicable structures that applied for a demolition permit within Alameda County during Fiscal Year (FY) 2025/26 (i.e., from July 1, 2025, to June 30, 2026) and the number of samples in those buildings that were equal to or greater than 50 ppm.

Table 1: Number of Applicable Structures that Applied for a Demolition Permit in FY 2025/26

Permittee	# Applicable Structures[1]	# Applicable Structures With At Least One Sample ≥ 50 ppm PCBs	# Samples ≥ 50 ppm PCBs
Alameda	0	0	0
Albany[2]	1	TBD	TBD
Berkeley	0	0	0
Dublin	0	0	0
Emeryville	0	0	0
Fremont	2[3]	0	0
Hayward	0	0	0
Livermore	0	0	0
Newark	0	0	0
Oakland	5[4]	1	13
Piedmont	0	0	0
Pleasanton	0	0	0
San Leandro	-	-	-
Union City	0	0	0
Alameda County	0	0	0
Alameda County Total	**8**	**1**	**13**

Notes:

1. Information for San Leandro was not available at the time this memorandum was prepared.
2. Demolition permit issued to Albany applicant to meet a development deadline, with agreement to complete sampling ahead of performing demolition. Data will be provided in future reports, when available.
3. The two applicable structures in Fremont were abated through the asbestos mitigation program and were thus exempt from PCBs sampling.
4. Three applicable structures in Oakland were interconnected structures, and one PCBs sample was collected within the interconnected structure. The structures were also being inspected and abated under the lead and asbestos waste programs and thus exempt from PCBs sampling.

3. LIST OF APPLICABLE STRUCTURES

A running list of the applicable structures that applied for a demolition permit since July 1, 2019, the number of samples each structure collected, the concentration of PCBs in each sample with the address, estimated demolition date, and a brief description of the PCBs-containing materials, is provided in Attachment 1. No emergency demolition projects occurred in FY 2025/26.

4. DESCRIPTION OF PCBS CONTROL METHOD

On behalf of the MRP Permittees, the Bay Area Stormwater Management Agencies Association (BASMAA) conducted a regional project that developed an implementation framework, guidance materials, and tools for local agencies to ensure PCBs-containing materials and wastes are appropriately managed during building demolition. The Regional Project also provided training materials and a workshop for municipal staff, and an outreach workshop for the industry on implementing the framework/protocols developed via the project. The *PCBs in Priority Materials: Model Screening Assessment Applicant Package* document[1] was updated to include additional requirements in MRP 3.0 Provision C.12.g in May 2023.

Permittees implement the following process for this control measure:

- The municipality informs applicable demolition permit applicants that their projects are subject to the program for managing materials with PCBs, necessitating, at a minimum, an initial screening for priority PCBs–containing materials.
- For every applicable demolition project, applicants implement the BASMAA protocol for identifying building materials with PCBs concentrations of 50 ppm or greater and then complete and submit a version of BASMAA's model "PCBs Screening Assessment Form" (Screening Form) or equivalent to the municipality.
- The municipality reviews the Screening Form to make sure it is filled out correctly and is complete and works with the applicant to correct any deficiencies.
- The municipality then issues the demolition permit or equivalent, according to its procedures.
- The municipality sends each completed Screening Form for applicable structures and any supporting documents to its countywide program. The countywide program compiles the forms and works with the other MRP countywide programs to manage and evaluate the data and assist Permittees with associated MRP reporting requirements.

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[1] BASMAA 2018. PCBs in Priority Building Materials: Model Screening Assessment Applicant Package. Managing PCBs-Containing Building Materials during Demolition: Guidance, Tools, Outreach and Training. August. Revised November 2019 and May 2023.

Attachment 1
Running List of Applicable Structures for Alameda County Permittees

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY25-26	Oakland	OAK -2	465 25th Street, BLDG A	94612	8-674-6	9/15/2025	460A-PCB01	Fiberglass-1	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	CAULK-208	Caulk-1	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	RFMAS-102	Adhesive Mastic - 1	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	FLVCT-106	Adhesive Mastic - 2	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	FLVCT-107	Adhesive Mastic - 3	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	FLVCS-112	Adhesive Mastic - 4	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	FLVCT-209	Adhesive Mastic - 5	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	PUTTY-105	Rubber Window Gasket -1	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	GASKET-NNN	Rubber Window Gasket -2	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	GASKET-202	Rubber Window Gasket -3	ND	N
FY25-26	Oakland	Oak - 5	2502 W.14th	94612	018 050700108	mid-2025	FLUID	Wall Paint Sample 1	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-01	carpet mastic; concrete	4.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-02	carpet mastic; concrete	3.9	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-03	carpet mastic; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-04	carpet mastic; concrete	2.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-05	carpet mastic; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-13	baseboard mastic; drywall	3	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-14	baseboard mastic; drywall	8.8	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-15	baseboard mastic; drywall	4.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-16	baseboard mastic; drywall	4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-17	baseboard mastic; drywall	2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-18	baseboard mastic; drywall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-19	baseboard mastic; drywall	1.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-20	tile mastic; drywall	2.8	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-21	tile mastic; drywall	2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-22	tile mastic; drywall	2.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-23	tile mastic; drywall	1.8	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-24	tile mastic; drywall	2.5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-25	tile mastic; drywall	3.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	WTM-26	tile mastic; drywall	2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	SRI-32	fiberglass insulation; metal	12	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	PFI-33	tsi insulation; metal	6.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBG-34	fiberglass insulation; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-35	rubber gasket; metal	410	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-36	rubber gasket; metal	1100	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-37	rubber gasket; metal	700	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-38	rubber gasket; metal	2200	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-39	rubber gasket; metal	800	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-40	rubber gasket; metal	72	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-41	rubber gasket; metal	700	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-42	rubber gasket; metal	6.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-43	rubber gasket; metal	6.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-2-44	sink undercoat; ceramic	3.9	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-45	expansion joint; concrete	55	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-46	expansion joint; concrete	2.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-47	expansion joint; concrete	78	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-48	expansion joint; concrete	120	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-49	expansion joint ; concrete	110	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-53	carpet mastic; concrete	3.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	VWC-54	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	VWC-55	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	VWC-56	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-16	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-17	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-18	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-19	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-20	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-21	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-22	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-23	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC3-24	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-57	carpet mastic; concrete	5.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-58	carpet mastic; concrete	13	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-59	carpet mastic; concrete	1.7	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-60	carpet mastic; concrete	5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-61	carpet mastic; concrete	2.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-62	carpet mastic; concrete	6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FCM-63	carpet mastic; concrete	3.5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FTM-64	tile mastic; concrete	2.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FTM-65	tile mastic; concrete	2.5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FTM-66	tile mastic; concrete	2.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-67	baseboard mastic; concrete	2.7	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-68	baseboard mastic; concrete	4.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-69	baseboard mastic; concrete	3.3	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-70	baseboard mastic; concrete	ND	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-71	baseboard mastic; concrete	2.8	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-72	baseboard mastic; concrete	3.9	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	FBM-73	baseboard mastic; concrete	2.7	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	CTM-74	ceiling tile mastic; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	CTM-75	ceiling tile mastic; concrete	4.3	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	CTM-76	ceiling tile mastic; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	CTM-77	ceiling tile mastic; concrete	2.5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	CTM-78	ceiling tile mastic; concrete	4.1	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-79	rubber gasket; metal	13	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-80	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-81	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-82	rubber gasket; metal	9.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-83	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-84	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-85	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-86	rubber gasket; metal	12	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-1-87	rubber gasket; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-88	expansion joint; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-89	expansion joint; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-3-90	expansion joint; concrete	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-4-91	building mastic; concrete	27	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-4-92	building mastic; concrete	52	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-4-93	building mastic; concrete	14.1	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-94	window caulk; metal	6.3	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-95	window caulk; metal	5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-96	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-97	window caulk; metal	1.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-98	window caulk; metal	1.7	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-99	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-100	window caulk; metal	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-101	window caulk; metal	32	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC-5-102	window caulk; metal	73	Y
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-01	concrete; wall	1.54	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-02	concrete; wall	32.4	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-03	concrete; wall	16.6	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-04	concrete; wall	0.26	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-05	concrete; wall	1.88	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-06	concrete; wall	19.9	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-07	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-08	concrete; wall	19.7	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-09	concrete; wall	30.2	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-10	concrete; wall	0.19	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-11	concrete; wall	25.5	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC1-12	concrete; wall	31.1	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC2-13	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC2-14	concrete; wall	ND	N
FY25-26	Oakland	OAK-1	430 Broadway	94607	001 013900100	3/2/2026	MISC2-15	concrete; wall	ND	N
FY24-25	Alameda	459	101 West Tower	94501	n/a	12/1/2024	PCB02_1	Yellow pipe insulation	ND	N
FY24-25	Alameda	459	101 West Tower	94501	n/a	12/1/2024	PCB02_2	White Wall insulation	ND	N
FY24-25	Alameda	459	101 West Tower	94501	n/a	12/1/2024	PCB01	Black Foam Pipe insulation	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.6	white window caulking	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.13	white window putty for multi paneled windows	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.14	white window putty for multi paneled windows	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.15	window putty for medium single pane windows	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.16	window putty for large single pane windows	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.1	yellow mastic for flooring materials	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.2	yellow mastic for flooring materials	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.3	yellow mastic for flooring materials	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.4	yellow mastic for flooring materials	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.5	yellow mastic for flooring materials	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.8	yellow adhesive for carpet	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.9	yellow adhesive for carpet	ND	N

Attachment 1

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FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.1	yellow adhesive for carpet	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.11	gray gasket material	ND	N
FY24-25	Berkeley	Building A	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	1.12	black gasket material	ND	N
FY24-25	Berkeley	Building D	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	4.1	Window Putty for Small Single Pane Windows	ND	N
FY24-25	Berkeley	Building D	2403 & 2407 San Pablo Avenue, Berkeley, CA	94702	056-192800-100	10/1/2024	4.2	Window Putty for Large Single Pane Windows	ND	N
FY24-25	Emeryville	EM - 1	1601-1607 63rd St, Emeryville, CA	94608	49-1488-1-1	7/1/2024	Mastic - 1	First Floor Open Area - Mastic under 12x12" Pink Vinyl Floor Tile (Sample No. COB2335-PCB02A)	ND	N
FY24-25	Emeryville	EM - 1	1601-1607 63rd St, Emeryville, CA	94608	49-1488-1-1	7/1/2024	Mastic - 2	First Floor Open Area - Mastic under 12x12" Pink Vinyl Floor Tile (Sample No. COB2335-PCB02B)	ND	N
FY24-25	Emeryville	EM - 1	1601-1607 63rd St, Emeryville, CA	94608	49-1488-1-1	7/1/2024	Gasket -1	Exterior - Entry Door Door Gasket (Sample No. COB23350PCB01A)	ND	N
FY24-25	Emeryville	EM - 1	1601-1607 63rd St, Emeryville, CA	94608	49-1488-1-1	7/1/2024	Gasket - 2	Exterior - Entry Door Door Gasket (Sample No. COB23350PCB01B)	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	CAULK-208	Gray caulk along the connection of sheetmetal panels in the previous restrooms	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	RFMAS-102	Gray roofing patch mastics located on Main roof and Canopy roofs	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	FLVCT-106	12" square blue vinyl floor tiles w/white streaks with yellow glue on concrete,	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	FLVCT-107	12" square offwhite vinyl floor tiles w/white streaks with yellow glue on FLVCT-106 or concrete	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	FLVCT-112	Remnants of re/brown vinyl sheet flooring with related yellow glue over BRICK-113	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	FLVCT-209	12"x12" black with white streaks vinyl floor tiles with yellow mastic on concrete	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	PUTTY-105	White interior window glazing putty located on the East façade	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	GASKET-NNN	Gray rubber window gaskets located on thr roll-up Garage doors on the South façade	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	GASKET-202	Tan gasket between covers on top of transformer fluid tank	ND	N
FY24-25	Oakland	OAK-1	2502 West 14th, Oakland, CA	94612	018 050700108	Mid 2025	FLUID	Dielectric fluid in transformer fluid tank (Label indicated the dielectric fluid was tested to contain less than 5 PPM PCBs)	ND	N
FY24-25	Oakland	OAK-2	2441 W. 14th Street - Building 838	94612	018 050700108	Mid 2025	C838: CAULK-3	Gray interior/exterior caulking around window frames	ND	N
FY24-25	Oakland	OAK-3	2441 W. 14th Street - Building 830	94612	018 050700108	Mid 2025	B830: CAULK-107	Gray caulking on the fan unit duct on upper roof	ND	N
FY24-25	Oakland	OAK-3	2441 W. 14th Street - Building 830	94612	018 050700108	Mid 2025	B830: RFAG-104	Tar, felt and gravel roofing over metal substrate	ND	N
FY24-25	Oakland	OAK-3	2441 W. 14th Street - Building 830	94612	018 050700108	Mid 2025	B830: RFFLSH-105	Black rolled roofing flashing located at lower roof field edge and fan unit platform	ND	N
FY24-25	Oakland	OAK-3	2441 W. 14th Street - Building 830	94612	018 050700108	Mid 2025	B830: PUTTY-504	Hard gray interior window glazing putties	ND	N
FY24-25	Oakland	OAK-4	2441 W. 14th Street - Building 834	94612	018 050700108	Mid 2025	B834: DRCAULK-103	Gray exterior door caulking on West Building	ND	N
FY24-25	Oakland	OAK-4	2441 W. 14th Street - Building 834	94612	018 050700108	Mid 2025	B834: CLGL-203	12-inch square acoustical glued-on ceiling tiles with brown mastics over unpainted concrete decking	ND	N
FY24-25	Oakland	OAK-4	2441 W. 14th Street - Building 834	94612	018 050700108	Mid 2025	B834: RFAG-106	RFAG-106 - Built-up tar and gravel roofing over decking	ND	N
FY24-25	Oakland	OAK-4	2441 W. 14th Street - Building 834	94612	018 050700108	Mid 2025	B834: PUTTY-206	Gray and white interior window glazing putties	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-A1	Grey Elastic Window Caulking	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-A2	Grey Elastic Window Caulking	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-A3	Grey Elastic Window Caulking	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-B1	Black Roof Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-B2	Black Roof Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-B3	Black Roof Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-C1	Brown Wall Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-C2	Brown Wall Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-C3	Brown Wall Mastic	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-D1	Brown Hard Joint Caulking	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-D2	Brown Hard Joint Caulking	ND	N
FY24-25	Oakland	OAK-5	500 Lake Park Ave	94610	011 837-87-1	Late 2024	PCB-D3	Brown Hard Joint Caulking	ND	N
FY23-24	Berkeley	1	2538 Durant Avenue Berkeley, CA	94710	055-1876-021-01	N/A	P-1	Window Caulk	ND	N
FY23-24	Berkeley	1	2538 Durant Avenue Berkeley, CA	94710	055-1876-021-01	N/A	P-2	Roof mastic	ND	N
FY23-24	Berkeley	1	2538 Durant Avenue Berkeley, CA	94710	055-1876-021-01	N/A	P-3	Door caulk	ND	N

Attachment 1

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FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-1a	Window Caulking	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-1b	Concrete/Building Base Caulking	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-2a	Concrete/Building Base Caulking	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-2b	Concrete/Building Base Caulking	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-3a	Rubber Window Gasket	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-3b	Rubber Window Gasket	ND	N
FY23-24	Berkeley	2	3030 Telegraph Avenue Berkeley, CA	94705	052-1576-027-01	N/A	112922-PCB-3c	Rubber Window Gasket	ND	N
FY23-24	Berkeley	3	2555 College Avenue Berkeley, CA	94704	055-1847-020-00	N/A	PCB-2555-1	White Window Putty	ND	N
FY23-24	Berkeley	4	2720 Hillegass Avenue Berkeley, CA	94705	054-1711-027-00	N/A	COB2335-PCB02A	First Floor Open Area - Mastic under 12x12" Pink Vinyl Floor Tile	ND	N
FY23-24	Berkeley	4	2720 Hillegass Avenue Berkeley, CA	94705	054-1711-027-00	N/A	COB2335-PCB02B	First Floor Open Area - Mastic under 12x12" Pink Vinyl Floor Tile	ND	N
FY23-24	Berkeley	4	2720 Hillegass Avenue Berkeley, CA	94705	054-1711-027-00	N/A	COB2335-PCB01A	Exterior - Entry Door Door Gasket	ND	N
FY23-24	Berkeley	4	2720 Hillegass Avenue Berkeley, CA	94705	054-1711-027-00	N/A	COB2335-PCB01B	Exterior - Entry Door Door Gasket	ND	N
FY23-24	Emeryville	Em-01	1601-1607 63rd Street	94608	49-1488-1-1	N/A	COB2335-PCB02A	Mastic under 12x12 pink vinyl floor tile	ND	N
FY23-24	Emeryville	Em-01	1601-1607 63rd Street	94608	49-1488-1-1	N/A	COB2335-PCB02B	Mastic under 12x12 pink vinyl floor tile	ND	N
FY23-24	Emeryville	Em-01	1601-1607 63rd Street	94608	49-1488-1-1	N/A	COB2335-PCB01A	Exterior Entry Door Gasket	ND	N
FY23-24	Emeryville	Em-01	1601-1607 63rd Street	94608	49-1488-1-1	N/A	COB82335-PCB01B	Exterior Entry Door Gasket	ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-6		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-7		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-1		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-2		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-3		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-4		ND	N
FY23-24	Newark	Newark-1	37660 Timber Street	94560	N/A	N/A	PCB-5		ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	TSI-1-1	HVAC ductwork (2nd Floor)	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	TSI-1-2	HVAC ductwork (2nd Floor)	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	TSI-2-1	Fiberglass batting (1st Floor)	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	TSI-2-2	Fiberglass batting (1st Floor)	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	EDS-1	Exterior door sealant	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	EDS-2	Exterior door sealant	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	EWS-1	Exterior window sealant	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	EWS-2	Exterior window sealant	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	EWS-3	Exterior window sealant	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	RM-1	Roof Mastic 1	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	RM-2	Roof Mastic 2	ND	N
FY23-24	Oakland	OAK-03	1904 Adeline St	94607	005-0406-032-00	8/16/2023	RM-3	Roof Mastic 3	ND	N
FY23-24	Oakland	OAK-10	7825 San Leandro Street	94621	041-0417500302	8/14/2023	Oak10_1	Caulking	ND	N
FY23-24	Oakland	OAK-10	7825 San Leandro Street	94621	041-0417500302	8/14/2023	Oak10_2	Mastic	ND	N
FY23-24	Oakland	OAK-10	7825 San Leandro Street	94621	041-0417500302	8/14/2023	Oak10_3	Fiberglass	ND	N
FY23-24	Oakland	OAK-10	7825 San Leandro Street	94621	041-0417500302	8/14/2023	Oak10_4	Pattern shop window	21	N
FY23-24	Oakland	OAK-10	7825 San Leandro Street	94621	041-0417500302	8/14/2023	Oak10_5	Paint	ND	N
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_1	Caulk Sample 1	320	Y
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_2	Fiberglass Insulation Sample 1	78	Y
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_3	Thermal Insulation Sample 1	20	N
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_4	Adhesive Mastic Sample 1	87.4	Y
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_5	Window Gasket Sample 1	70	Y
FY23-24	Oakland	OAK-11	8301 MacArthur Blvd	94605	43-4621-1	2/4/2024	Oak11_6	Wall Paint Sample 1	228	Y
FY22-23	Berkeley	B2021-04997	2527 San Pablo Ave	94702	054-1781-015-01	4/1/2023	1	White Window Putty at 4'x3' Windows	ND	N
FY22-23	Berkeley	B2021-04997	2527 San Pablo Ave	94702	054-1781-015-01	4/1/2023	2	Storage Attic: Ceilings	ND	N
FY22-23	Berkeley	B2021-04997	2527 San Pablo Ave	94702	054-1781-015-01	4/1/2023	3	Office: Floors	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	1	Roof Mastic	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	2	Roof Mastic	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	3	Roof Mastic	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	4	Roof Mastic	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	5	Roof Mastic	ND	N
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	6	VFT Mastic	550	Y
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	7	VFT Mastic	450	Y
FY22-23	Berkeley	B2022-00683	747 Bancroft Way	94710	056-1957-007-01	6/1/2022	8	VFT Mastic	250	Y
FY22-23	Berkeley	B2022-00697	2099 MLK Jr Way	94704	057-20240130	7/6/2022	1	Black Window Sealant	ND	N
FY22-23	Berkeley	B2022-00697	2099 MLK Jr Way	94704	057-20240130	7/6/2022	2	Door Frames	ND	N
FY22-23	Berkeley	B2022-00697	2099 MLK Jr Way	94704	057-20240130	7/6/2022	3	Black Expansion Joint Caulking @ Floors	ND	N
FY22-23	Berkeley	B2022-00697	2099 MLK Jr Way	94704	057-20240130	7/6/2022	4	Beige Caulking at Roof Parapet	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	1	Ceiling tile	6.5	N

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FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	2	yellow carpet pad adhesive	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	3	pink fibergladd above ceiling	0.82	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	4	yellow fiberglass inside flex duct	0.76	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	5	inside widow frame to structural concrete	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	6	inside widow frame to structural concrete	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	7	adhesive gluing sheetrock to concrete on inside of window return	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	8	structural concrete wall to concrete sidewalk caulk	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	9	compression gasket window metal to glass	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	10	caulk from storefront window frame to stucco	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	11	metal door frame to structural concrete caulk	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	12	glaziers putty	ND	N
FY22-23	Berkeley	B2022-03254	2070 Allston Way, 2065 Kittredge St	94704	057-2027-006, 057-2027-007	2/1/2023	13	metal window frame to structural concrete original window	0.41	N
FY22-23	Emeryville	EM-01	5801 Christie Ave, Emeryville, CA	94608	49-1494-4-8	8/12/2022	EM-01-A	Caulking	7000	Y
FY22-23	Emeryville	EM-01	5801 Christie Ave, Emeryville, CA	94608	49-1494-4-8	8/12/2022	EM-01-B	Fiberglass Insulation	ND	N
FY22-23	Emeryville	EM-01	5801 Christie Ave, Emeryville, CA	94608	49-1494-4-8	8/12/2022	EM-01-C	Adhesive Mastic	ND	N
FY22-23	Emeryville	EM-01	5801 Christie Ave, Emeryville, CA	94608	49-1494-4-8	8/12/2022	EM-01-D	Window Gasket	3500	Y
FY22-23	Emeryville	EM-01	5801 Christie Ave, Emeryville, CA	94608	49-1494-4-8	8/12/2022	EM-01-E	Wall Paint	ND	N
FY22-23	Fremont	FRE-01	46350 Mission Street	94539	519 124407905, 519 124407802	TBD	M-1	Floor tile mastic	ND	N
FY22-23	Fremont	FRE-01	46350 Mission Street	94539	519 124407905, 519 124407802	TBD	M-2	Floor tile mastic	ND	N
FY22-23	Fremont	FRE-01	46350 Mission Street	94539	519 124407905, 519 124407802	TBD	M-3	Floor tile mastic	ND	N
FY22-23	Fremont	FRE-01	46350 Mission Street	94539	519 124407905, 519 124407802	TBD	TSI-1	Insulation	ND	N
FY22-23	Fremont	FRE-02	46494 Mission Street	94539	519 124408202	TBD	WS-1	Window sealant	ND	N
FY22-23	Fremont	FRE-02	46494 Mission Street	94539	519 124408202	TBD	WS-2	Window sealant	ND	N
FY22-23	Fremont	FRE-02	46494 Mission Street	94539	519 124408202	TBD	WS-3	Window sealant	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-11	Admin Bldg, under original black floor tile	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-12	Admin Bldg, interior paint	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-7	Admin Bldg, main floor northeast	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-8	Admin Bldg, main floor northeast	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-9	Admin Bldg, lower room, northwest corner	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-B-6	Admin Bldg, basement	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-E-1	Admin Bldg, glass block east wall	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-E-2	Admin Bldg, window east wall	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-E-3	Admin Bldg, east wall	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-E-4	Admin Bldg, east wall foundation base	ND	N
FY22-23	Oakland	OAK-01	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-R-5	Admin Bldg, roof	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-2-2	Plant building, packaging area, second floor windows	1.1	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-2-3	Plant building, packaging area, second floor steel column	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-2-4	Plant building, packaging area, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-R-1	Plant building, packaging area, roof	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-R-6	Plant building, roof, lower edge of exterior siding	5500	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	10-R-7	Plant building, roof, exterior corrogated siding	36000	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-10	Admin Bldg, under white floor tile north end	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-1	Plant building north end of exterior warehouse, main floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-10	Plant building north end of warehouse floor, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-11	Plant building north end of warehouse, first floor	10	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-12	Plant building, interior steel column	7.6	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-2	Plant building north end of warehouse, main floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-3	Plant building north end of exterior warehouse, back shop	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-13	Admin Bldg, fiberglass ceiling tile	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-4	Plant building north end of warehouse, main floor back shop	1.2	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	1-1-14	Admin Bldg, above white floor tile, northeast corner	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-5	Plant building north end of warehouse, back shop	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-6	Plant building north end of warehouse, first floor tile	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-7	Plant building north end of warehouse, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	11-1-8	Plant building north end of warehouse, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-10	Plant building, offices on south side, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-4	Plant building, maintanance office north side, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-5	Plant building, offices on south side, first floor ceiling tile	ND	N

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FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-6	Plant building, offices on south side, first floor tile	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-7	Plant building, offices on south side, first floor tile	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-8	Plant building, workshop on south side, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-1-9	Plant building, hallway floor on south side, first floor	1.2	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-11	Plant building, east side, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-12	Plant building, east side, second floor glass block windows	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-13	Plant building, west side, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-14	Plant building, west side upper walls, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-15	Plant building, center, second floor ceilings/trusses	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-17	Plant building, office on east side	1.4	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-17	Plan building, second floor steel truss	140	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-18	B12 horizontal support at NW part of building	5.5	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-19	B12 roof support at NE part of building	0.82	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-20	B12 vertical "L' support at SW part of building	4.2	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-21	B12 column I beam north center of building	11	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-22	B12 column I beam east wall	15	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-2-23	B12 steel support at south end of building	25	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-R-1	Plant building, exterior on east side, upper bay windows	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-R-16	Plant building, south side, skylight corrogated siding	25000	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	12-R-3	Plant building, office on east side, roof	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	13-1-5	Plant building warehousing, first floor wall under mezzanine	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	13-2-1	Plant building warehousing, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	13-2-2	Plant building warehousing, second floor	2.9	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	13-R-3	Plant building warehousing, roof	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	13-R-4	Plant building warehousing, roof skylight	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	6-1-1	Steel truss	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	6-1-2	interior concrete pad	3	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	6-E-3	exterior perimeter concrete foundation	270	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-1	Batch House, interior east side locker room	1.2	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-1-10	Plant building, steel structural I-beam	3100	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-1-11	Plant building, steel stair rail	100	Y
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-1-6	Plant building, furnace area office, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-1-9	Plant Building, steel buckstay column	39	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-2-1	Plant building, furnace area, second floor steel column	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-2-2	Plant building, west electric area, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-2-3	Plant building, west electric area, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-2-4	Plant building, west electric area, second floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-2-5	Plant building, south wall furnace area, second floor	1.4	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-B-12	Plant building, basement buckstay support	1.8	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-B-13	Plant building, basement structural steel column	5.3	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-B-7	Plant building, furnace area, basement steel columns	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-E-14	Plant building, exterior concrete perimeter foundation	3.9	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-E-15	Plant building,exterior south column	3.3	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	8-E-8	Plant Building, west steel column	0.41	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-1-7	Plant Building Lehr area, first floor steel beams	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-1-8	Plant Building Lehr area, first floor	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-2-1	Plant Building Lehr area, second floor on brick wall	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-2-11	Plant Building Lehr area, second floor tile	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-2-2	Plant Building Lehr area, second floor on brick wall	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-2-3	Plant Building Lehr area, second floor exterior window	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-2-9	Plant Building Lehr area, second floor bathrooms	0.9	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-R-4	Plant Building Lehr area, roof	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-R-5	Plant Building Lehr area, exterior corrogated siding	ND	N
FY22-23	Oakland	OAK-06	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	9-R-6	Plant Building Lehr area, exterior large upper windows	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-17	Batch house, paint on west wall	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-2	Batch House, interior east side control room	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-12	Batch House, east side interior	7000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-5	Batch House, interior on northeast side	5400	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-1-6	Batch House, interior on northeast side	11000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-2-3	Batch House, south wall on east side	53	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-2-4	Batch House, steel I-beams on east side	27000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-4-9	Batch House, interior central area	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-2-8	Batch House, interior eastern part	31000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-3-18	Batch house, interior truss in center ob building	93000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-14	Batch house window, first floor west	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-15	Batch House., on concrete, southwest corner	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-16	Batch house, canopy on south side steel	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-B-10	Batch House, basement stairs	8300	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-11	Batch House exterior on concrete foundation	240	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-21	Batch House, canopy north steel column	2.5	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-22	Batch House, new conveyor steel truss	0.9	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-23	Batch House, canopy steel truss	5.2	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-24	Batch House, north west corrogated siding	2.3	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-25	Batch House, bucket elevator	0.45	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-26	Batch House, bucket elevator support	ND	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-27	Batch house, south east concrete foundation	4.6	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-28	Batch house, south east corrogated siding	2.8	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-29	Batch House, northwest concrete foundation	5.5	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-30	Batch House, northwest glass storage concrete wall	2.5	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-7	Batch House, corragated side on east side	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-EXT-13	Concrete containment bin, east of batch house	ND	N
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-19	Batch House, Steel catwalk	38000	Y
FY22-23	Oakland	OAK-07	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	7-E-20	Batch House, canopy I-beam	51	Y
FY22-23	Oakland	OAK-20	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	20-R-1	Warehouse, roof	ND	N
FY22-23	Oakland	OAK-41	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	41-1-1	Warehouse 41, northeast side of plant, office main floor	ND	N
FY22-23	Oakland	OAK-41	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	41-1-2	Warehouse 41, northeast side of plant, office main floor	ND	N
FY22-23	Oakland	OAK-41	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	41-M-3	Warehouse 41, northeast side of plant, office mezzanine	1.6	N
FY22-23	Oakland	OAK-41	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	41-R-4	Warehouse 41, northeast side of plant, roof flashing	ND	N
FY22-23	Oakland	OAK-41	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	41-R-5	Warehouse 41, northeast side of plant, corrogated roof	ND	N
FY22-23	Oakland	OAK-42	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	42-2-1	Warehouse 42 north side of plant steel beams, second floor	1.6	N
FY22-23	Oakland	OAK-42	3600 Alameda Avenue	94601	33-2250-11-4	1/1/2023	42-2-2	Warehouse 42 north side of plant, second floor	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Caulking at NE Window	Caulking at NE Window	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Fiberglass Insulation Sample 1	Fiberglass Insulation Sample 1	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Fiberglass Insulation Sample 2	Fiberglass Insulation Sample 2	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Fiberglass Insulation Sample 3	Fiberglass Insulation Sample 3	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Black Roof Mastic Sample1	Black Roof Mastic Sample 1	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Black Roof Mastic Sample2	Black Roof Mastic Sample 2	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Black Roof Mastic Sample3	Black Roof Mastic Sample 3	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Black Roof Mastic Sample4	Black Roof Mastic Sample 4	ND	N
FY22-23	Pleasanton	SW Building	3300 Busch Rd	94566	946-1251-7-4	Jan. 2023	Gray/Black Roof Vent Mastic Sample 1	Gray/Black Roof Vent Mastic Sample 1	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-6A,B,C	East wing of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-7A,B,C	East wing of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-8A	Above Ceiling throughout Building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-9A	Above Ceiling throughout Building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-10A	Building Exterior	10	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-11A,B,C,D,E,F,G	Exterior Warehouse	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-12A	Exterior of framed panels - north wing	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-13A,B,C	Exterior of framed panels - north wing	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-14A	Exterior of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-15A,B,C,D,E	East and North wings of Building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-16A	Warehouse Walls	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-17A	Warehouse Walls	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-18A	Warehouse Walls	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-19A,B,C,D,E,F,G	Throughout roof of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-20A	Roof - North Wing	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-21A,B,C	Throughout roof of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-22A,B,C	Throughout roof of building	ND	N
FY22-23	San Leandro	1919 Williams	1919 Williams Street	94577	77A-700-009-06	TBD	PCB-23A,B,C	Throughout roof of building	ND	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-1	Door caulking	0.473	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-2	Window caulking	2.18	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-3	Window caulking	1.37	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-4	Window caulking	2.22	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-5	Window caulking	0.468	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-6	Window gasket	0.461	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-7	Window gasket	0.471	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-8	Window gasket	0.471	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-9	Window gasket	0.462	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-10	Window gasket	3.12	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-11	paint on concrete	0.481	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-12	paint on concrete	0.473	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-13	paint on concrete	0.47	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-14	paint on concrete	0.479	N
FY22-23	San Leandro	2194 Edison	2194 Edison Ave.	94577	0	2/1/2023	PCB-15	paint on concrete	0.479	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 1	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 2	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 3	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 4	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 5	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 6	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 7	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 8	Gray window putty - interior window frames	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 9	Gray window putty - interior window frames	ND	N

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FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 10	Yellow fiberglass pipe insultation	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 11	Yellow fiberglass pipe insultation	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 12	Yellow fiberglass pipe insultation	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 13	Black and gray roof patching/mastic - roofs	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 14	Black and gray roof patching/mastic - roofs	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 15	Black and gray roof patching/mastic - roofs	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 16	Black and yellow floor tile adhesive - floors	ND	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 17	Black and yellow floor tile adhesive - floors	2.9	N
FY22-23	Unincorporated County	AC-01	20478 Mission Blvd	94541	414 004605802	6/16/2022	PCB 18	Black and yellow floor tile adhesive - floors	2.8	N
FY22-23	Unincorporated County	AC-02	10570 Skyline Blvd	94546	085 000100201	5/5/2022	10570-RR-1EXT-C.7/1.3-P3	Tan window glazeirs putty	ND	N
FY22-23	Unincorporated County	AC-03	10570 Skyline Blvd	94546	085 000100201	5/5/2022	10570-POOL-P1	Gray caulk between concrete patio control joints	ND	N
FY22-23	Unincorporated County	AC-03	10570 Skyline Blvd	94546	085 000100201	5/5/2022	10570-POOL-P2	Gray caulk between pool clay tile coping and concrete patio	ND	N
FY22-23	Unincorporated County	AC-04	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB1	White window putty, south window	ND	N
FY22-23	Unincorporated County	AC-04	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB2	Black mastic, west lower wall	ND	N
FY22-23	Unincorporated County	AC-04	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB5	White caulking, roof exhause	ND	N
FY22-23	Unincorporated County	AC-05	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB3	Rubber window caulking, south window	ND	N
FY22-23	Unincorporated County	AC-05	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB4	White window putty, south window	ND	N
FY22-23	Unincorporated County	AC-06	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB6	White window putty, south window	ND	N
FY22-23	Unincorporated County	AC-06	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB7	Yellow fiberglass insulation, south A/C	ND	N
FY22-23	Unincorporated County	AC-07	21195 CENTER ST	94546	084C065000103	2/27/2023	PCB8	Yellow fiberglass insulation, house plenum	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	01-A	exterior front window	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	01-B	exterior front window	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	01-C	exterior front window	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	02-A	VSA	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	03-A	front door	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	04-A	parapet roof	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	04-B	parapet roof	ND	N
FY22-23	Unincorporated County	AC-08	16060 E 14TH ST	94578	080 005704100	3/9/2023	04-C	parapet roof	ND	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-3	Exterior Window Glazing	0.317	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-4	Exterior Window Glazing	0.324	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-11	Interior Window Glazing	0.322	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-12	Interior Window Glazing	0.328	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-1	Exterior Window Gasket	0.319	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-2	Exterior Window Gasket	0.325	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-3	Exterior Window Gasket	0.317	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1971-5	Exterior Brown Paint on Bldg.	0.333	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1957-6	Exterior Blue Paint on Bldg.	0.326	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1959-7	Exterior White Paint on Bldg.	0.318	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1951-8	Exterior Brown Paint on Bldg.	0.327	N
FY21-22	Berkeley	BER-1	1951-1975 Shattuck Ave.	94704	057-2046-001	2/15/2022	1951-29	Exterior Brown Paint on Bldg.	0.329	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-16	Exterior Window Caulking	3.33	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-17	Exterior Window Caulking	0.313	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-21	Exterior Window Caulking	3.17	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-23	Entry Door Caulking	3.21	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116B-24	Entry Door Caulking	3.28	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-13	Exterior Window Glazing	0.313	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-14	Exterior Window Glazing	0.317	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116B-25	Exterior Window Glazing	0.318	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2112-26	Side Window Glazing	0.322	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2112-27	Side Window Glazing	0.322	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2112-28	Back of Shop Window Glazing	0.32	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-18	Exterior Window Gasket	0.314	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-19	Exterior Window Gasket	0.332	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-22	Exterior Window Gasket	0.324	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2108-9	Exterior Red Paint on Wood	0.331	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2112-10	Exterior Purple Paint on Bldg.	0.331	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-15	Exterior Yellow Paint on CMU	0.331	N
FY21-22	Berkeley	BER-2	2109-2116 Berkeley Way	94704	057-2046-001	2/15/2022	2116A-20	Exterior Yellow Paint on CMU	0.331	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-01	Tan/Brown 3"x 6" Brick, 2 Inches from Exterior Sealant Seam	9	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-02	Brick Material Immediately Adjacent to Exterior Gray Seam Sealant (and 2 inches in)	3400	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-03	Exterior Gray Seam Sealant (adjacent to outer boundary of exterior brick walkway)	170000	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-04	Concrete Adjacent to Sealant Seam	2.6	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-05	Concrete Two Inches From Sealant Seam	1.2	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-06	Gray Window Frame Sealant on Concrete	1700	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-07	Black Sealant (Window Frame to Window)	9.5	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-08	Black/Gray Window Frame Sealant (Window Frame to Concrete)	80000	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-09	Black Window Sealant/ Window Frame to Window)	84	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-10	Gray Paint on basement conference room wall	17	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-11	Cream Paint on basement conference room wall	4.3	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-12	Yellow Mastic associated with 12-inch vinyl floor tile (VFT)	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-13	Cove Base Mastic	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-14	Brown mastic associated 9-inch acoustic ceiling tile	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-15	Cove base mastic	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-16	Black Window Seal/Soft Window Sealant (Window Frame to Window)	61	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-17	Black Soft Window Seal	19	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-18	Black Soft Window Seal	210	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-19	Mastic associated with 2-foot VFT	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-20	Black Rubber Window Seal	240	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	PCB-21	Cove Base Mastic	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-01	Wood Wall	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-02	Wood Wall	ND	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-03	Concrete	5.4	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-04	Concrete	1.7	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-05	Concrete	61	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-06	Concrete	1	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-07	Concrete	7.2	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-08	Concrete	1.3	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-09	Concrete	150	Y
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-10	Concrete	1.3	N
FY21-22	Berkeley	BER-3	2001 Ashby Ave.	94703	053-1591-018-03	2/4/2022	1112-11	Wood Wall	ND	N
FY21-22	Berkeley	BER-4	2345 Channing Way	94704	055-1884-001	4/14/2022	PCB-01	2nd Floor west stairs landing mastic	ND	N
FY21-22	Berkeley	BER-4	2345 Channing Way	94704	055-1884-001	4/14/2022	PCB-02	2nd Floor SW window caulking	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 8	Fiberglass Roof Deck Ins.	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 9	Fiberglass Roof Deck Ins.	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 10	Fiberglass Roof Deck Ins.	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 11	Fiberglass Roof Deck Ins.	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 12	Fiberglass Roof Deck Ins.	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 13	Fiberglass Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 14	Fiberglass Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 15	Fiberglass Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 16	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 17	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 18	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 19	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 20	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 21	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 22	Baseboard Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 23	Baseboard Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 24	Baseboard Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 25	Foam Pipe Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 26	Foam Pipe Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 27	Roof Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 28	Roof Mastic	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 29	HVAC Duct Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 30	HVAC Duct Insulation	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 1	Int. Window Gasket	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 2	Ext. Window Gasket	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 3	Ext. Window Caulk	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 4	Ext. Window Caulk	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 5	Ext. Door Gasket	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 6	Ext. Window Gasket	ND	N
FY21-22	Fremont	FRE-4	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-4 7	Ext. Window Gasket	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 10	Wall Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 11	Wall Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 12	Wall Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 13	Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 14	Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 15	Ceiling Insulation	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 4	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 5	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 6	Floor Tile Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 7	Wall Panel Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 8	Wall Panel Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 9	Wall Panel Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 16	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 17	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 18	Carpet Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 19	Roof Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 20	Roof Mastic	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 1	Window Gasket	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 2	Window Gasket	ND	N
FY21-22	Fremont	FRE-5	6700 Stevenson Blvd	94538	531 016503804	3/30/2022	FRE-5 3	Window Gasket	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-1	Black roof penetration	3.7	N

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Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-2	Black roof penetration	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-3	Black roof penetration	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-4	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-5	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-6	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-7	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-8	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-9	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-10	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-21	Black adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-22	Black adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-23	Black adhered to tile floor	13.3	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-24	Black adhered to tile floor	13.86	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-25	Black adhered to tile floor	52	Y
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-26	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-27	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-28	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-29	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-30	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-31	Yellow adhered to tile floor	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-32	Brown adhered to tile floor	3.89	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-33	Brown adhered to tile floor	2.6	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-34	Brown adhered to tile floor	2.77	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-35	Black adhered to tile floor	8	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-36	Black adhered to tile floor	12.53	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-37	Black adhered to tile floor	10.38	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-38	Gray adhered to tile floor	11.4	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-39	Gray adhered to tile floor	2.31	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-40	Gray adhered to tile floor	5.87	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-41	Yellow/brown adhered to tile floor	7.2	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-42	Yellow/brown adhered to tile floor	3.08	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-43	Yellow/brown adhered to tile floor	25	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-44	Gray	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-45	Gray	0.7	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-46	Gray	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-47	Gray	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-48	Gray	330	Y
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-49	Dark gray	0.75	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-55	White	ND	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-56	Pipe	0.97	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-57	Duct	15	N
FY21-22	Hayward	Hay-01 Bldg 1	24493 Clawiter Rd	94545	0	11/15/2021	PCB-58	Pipe	4.4	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-11	Black roof penetration	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-12	Black roof penetration	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-13	Black roof penetration	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-14	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-15	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-16	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-17	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-18	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-19	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-20	Black roof	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-50	White	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-51	White	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-52	White	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-53	White	ND	N
FY21-22	Hayward	Hay-01 Bldg 2	24493 Clawiter Rd	94545	0	11/15/2021	PCB-54	White	ND	N
FY21-22	Hayward	Hay-1	411 Industrial Parkway and Mission 29827/29857 Mission Blvd.	94544	0	8/11/2020	caulk-1	window gasket	1300	Y
FY21-22	Hayward	Hay-2	603 A Street	94541	431-0004-090-00	8/31/2021	PCB-C1	PCB-C1	76	Y
FY21-22	Hayward	Hay-2	603 A Street	94541	431-0004-090-00	8/31/2021	PCB-C2	PCB-C2	88	Y
FY21-22	Hayward	Hay-2	603 A Street	94541	431-0004-090-00	8/31/2021	PCB-C3	PCB-C3	140	Y
FY21-22	Oakland	B2104293	4675 Tidewater Ave	94601	034 230001304	9/15/2021	B2104293-1	Gray caulk	ND	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-1	Gray caulking on Door frame B317-01PCB	3.2	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-2	Gray caulking on Door frame B317-02PCB	8.8	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-3	Grey window putty on roof skylights B317-18PCB	6.3	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-4	Brown mastic on 1'x1' ACT interlocking B317-14PCB	0.52	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-5	Brown mastic on 1'x1' ACT interlocking B317-15PCB	0.43	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-6	Brown mastic on 1'x1' ACT interlocking B317-16PCB	2.2	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-7	Teal vinyl floor tile 12"x12" black mastic B317-04PCB	0.64	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-8	Teal vinyl floor tile 12"x12" black mastic B317-05PCB	0.63	N
FY21-22	Oakland	B2104526	1701 Maritime St	94607	0000032000102	10/1/2021	B2104526-9	Brown mastic on brown 4" covebase interior walls B317-10PCB	0.64	N
FY21-22	Oakland	B2105059	2400 Engineer Rd	94612	018 030500316	3/1/2022	B2105059-1	Beige caulking 1	56	Y
FY21-22	Oakland	B2105059	2400 Engineer Rd	94612	018 030500316	3/1/2022	B2105059-2	Gray caulking on CMU	21.7	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY21-22	Oakland	B2105316	347 E 18th St	94606	021 022300301	3/2/2022	B2105316-1	various	ND	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-1	Gray Caulking sample PCB29	0.94	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-2	Gray Caulking sample PCB30	0.62	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-3	Black Wall mastic sample PCB07	4.8	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-4	Tan wall mastic sample PCB08	2.1	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-5	Tan wall mastic sample PCB09	3.8	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-6	Brown ceiling tile mastic sample PCB13	3.5	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-7	Brown ceiling tile mastic sample PCB15	0.82	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-8	Black floor tile mastic sample PCB16	28	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-9	Black floor tile mastic sample PCB17	49	N
FY21-22	Oakland	RB2103586	2434 Chestnut St - Office	94607	005 043501801 and 005 043500004	3/15/2022	RB2103586-10	Black floor tile mastic sample PCB18	14	N
FY21-22	Oakland	RB2200719	1970 Seminary	94621	38-3211-1-4	7/1/2022	RB2200719-1	No suspect material present at site	ND	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB1	Window Sealant(gladd frame interface) East windows	50	Y
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB2	Window Sealant(gladd frame interface) Southwest windows	57	Y
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB3	2-foot by 4-foot fiberglass ceiling Center	ND	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB4	Yellow VFT mastic Center	23	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB5	Pink fiberglass insulation Center ceiling	ND	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB6	Black puck mastic South Wall	3.4	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB7	Wainscot mastic Restroom	ND	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB8	Yellow/orange paint North wall	14	N
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB9	Blue/purple paint Southeast wall	75	Y
FY21-22	San Leandro	AC-1	1188 E. 14th Street	94577	077-0447-014-06	8/6/2022	PCB10-EXT	Beige Paint on CMU Northwest wall	1.9	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB100	Yellow baseboard mastic Suite A	1.8	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB101	Yellow fiberglass insulation Lecture hall	0.6	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB102	Black floor mastic Lecture hall	ND	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB103	White paint 1st floor salon	ND	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB104	Aluminum door sealant Northern doors	ND	N
FY21-22	San Leandro	AC-2	1120 & 1124 Callan Street	94577	077-0447-015-06	8/6/2022	PCB105	Skylight sealant Roof near HVAC system	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-52	Gasket from access point to storage tank (sample 52)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-53	Gasket from access point to storage tank (sample 53)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-54	Gasket from access point to storage tank (sample 54)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-50	Orange paint on catwalk between storage tanks (sample 49)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-51	Orange paint on catwalk between storage tanks (sample 50)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-55	Orange paint on catwalk between storage tanks (sample 51)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-56	Grey paint on storage tanks (sample 55)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-57	Grey paint on storage tanks (sample 56)	ND	N
FY20-21	Alameda	COA-17	2015 Grand Street	94501	72-381-1	8/24/2020	COA-17-58	White paint on storage tanks (sample 57)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-27	Interior 12" pipe insulation in Compounding Room (sample 27)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-28	Interior 12" pipe insulation in Compounding Room (sample 28)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-29	Interior 12" pipe insulation in Compounding Room (sample 29)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-30	Interior 8" pipe insulation in Compounding Room (sample 30)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-30	Interior 8" pipe insulation in Compounding Room (sample 30)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-31	Interior 8" pipe insulation in Compounding Room (sample 31)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-32	Interior 4" pipe insulation in Compounding Room (sample 32)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-33	Interior 4" pipe insulation in Compounding Room (sample 33)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-34	Interior 4" pipe insulation in Compounding Room (sample 34)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-13	Floor tile mastic in Compounding Room (sample 13)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-14	Floor tile mastic in Compounding Room (sample 14)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-15	Ceiling tile mastic in Compounding Room (sample 15)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-16	Ceiling tile mastic in Compounding Room (sample 16)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-36	Roof mastic on Compounding Room (sample 36)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-37	Roof mastic on Compounding Room (sample 37)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-38	Roof mastic on Compounding Room (sample 38)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-39	Roof mastic on Compounding Room (sample 39)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-40	Roof mastic on Compounding Room (sample 40)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-17	Window gasket in Compounding Room (sample 17)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-18	Window gasket in Compounding Room (sample 18)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-43	Office door gasket in Compounding Room (sample 43)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-19	Blue paint on wall in Compounding Room (sample 19)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-20	Blue paint on wall in Compounding Room (sample 20)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-21	Blue paint on interior pipes in Compounding Room (sample 21)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-22	Blue paint on interior pipes in Compounding Room (sample 22)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-23	Blue paint on interior pipes in Compounding Room (sample 23)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-24	Silver paint on interior tank in Compounding Room (sample 24)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-25	Silver paint on interior tank in Compounding Room (sample 25)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-26	Silver paint on interior tank in Compounding Room (sample 26)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-41	Dark blue trim in Compounding Room (sample 41)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-42	Dark blue trim in Compounding Room (sample 42)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-44	Exterior white paint at Compounding Room (sample 44)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-45	Exterior grey paint at Compounding Room (sample 45)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-46	Grey paint on exterior pipes at Compounding Room (sample 46)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-47	Grey paint on exterior pipes at Compounding Room (sample 47)	ND	N
FY20-21	Alameda	COA-18	2015 Grand Street	94501	72-381-1	8/24/2020	COA-18-48	Grey paint on exterior pipes at Compounding Room (sample 48)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-10	Window putty at 2nd Floor in Main Warehouse (sample 10)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-11	Window putty at 2nd Floor in Main Warehouse (sample 11)	ND	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-12	Window putty at 2nd Floor in Main Warehouse (sample 12)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-13	Window putty at 1st Floor Offices in Main Warehouse (sample 13)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-14	Window putty at 1st Floor Offices in Main Warehouse (sample 14)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-15	Window putty at 1st Floor Offices in Main Warehouse (sample 15)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-43	Fiberglass insulation at Office Ceilings in Main Warehouse (sample 43)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-44	Fiberglass insulation at Office Ceilings in Main Warehouse (sample 44)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-45	Fiberglass insulation at Office Ceilings in Main Warehouse (sample 45)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-49	Fiberglass pipe insulation at UW in Main Warehouse (sample 49)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-50	Fiberglass pipe insulation at UW in Main Warehouse (sample 50)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-51	Fiberglass pipe insulation at UW in Main Warehouse (sample 51)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-16	Insulation HVAC ducts in Main Warehouse (sample 16)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-17	Insulation HVAC ducts in Main Warehouse (sample 17)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-18	Insulation HVAC ducts in Main Warehouse (sample 18)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-01	Ceiling tile mastic at Janitor in Main Warehouse (sample 01)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-02	Ceiling tile mastic at Janitor in Main Warehouse (sample 02)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-03	Ceiling tile mastic at Janitor in Main Warehouse (sample 03)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-04	Ceiling tile mastic at 1st Floor Offices in Main Warehouse (sample 04)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-05	Ceiling tile mastic at 1st Floor Offices in Main Warehouse (sample 05)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-06	Ceiling tile mastic at 1st Floor Offices in Main Warehouse (sample 06)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-07	Ceiling tile mastic at 2nd Floor Offices in Main Warehouse (sample 07)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-08	Ceiling tile mastic at 2nd Floor Offices in Main Warehouse (sample 08)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-09	Ceiling tile mastic at 2nd Floor Offices in Main Warehouse (sample 09)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-19	Baseboard mastic at 1st Floor Offices in Main Warehouse (sample 19)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-20	Baseboard mastic at 1st Floor Offices in Main Warehouse (sample 20)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-21	Baseboard mastic at 1st Floor Offices in Main Warehouse (sample 21)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-22	Baseboard mastic at 2nd Floor Offices in Main Warehouse (sample 22)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-23	Baseboard mastic at 2nd Floor Offices in Main Warehouse (sample 23)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-24	Baseboard mastic at 2nd Floor Offices in Main Warehouse (sample 24)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-25	Floor mastic black at 2nd Floor Offices in Main Warehouse (sample 25	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-26	Floor mastic black at 2nd Floor Offices in Main Warehouse (sample 26)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-27	Floor mastic black at 2nd Floor Offices in Main Warehouse (sample 27)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-28	Floor mastic black at 1st Floor Offices in Main Warehouse (sample 28	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-29	Floor mastic black at 1st Floor Offices in Main Warehouse (sample 29)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-30	Floor mastic black at 1st Floor Offices in Main Warehouse (sample 30)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-31	Floor mastic black at LW Buildout in Main Warehouse (sample 31)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-32	Floor mastic black at LW Buildout in Main Warehouse (sample 32)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-33	Floor mastic black at L W Buildout in Main Warehouse (sample 33)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-37	Roof mastic at UW Overhang in Main Warehouse (sample 3 7)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-38	Roof mastic at UW Overhang in Main Warehouse (sample 38)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-39	Roof mastic at UW Overhang in Main Warehouse (sample 39)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-46	Window gasket at 1st Floor Offices in Main Warehouse (sample 46)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-47	Window gasket at 1st Floor Offices in Main Warehouse (sample 4 7)	ND	N
FY20-21	Alameda	COA-19	2015 Grand Street	94501	72-381-1	1/1/2021	COA-19-48	Window gasket at 1st Floor Offices in Main Warehouse (sample 48)	ND	N
FY20-21	Alameda	COA-21	2015 Grand Street	94501	72-381-1	1/3/2021	COA-19-34	Floor Mastic at UW Buildout in Taylor Warehouse (sample 34)	ND	N
FY20-21	Alameda	COA-21	2015 Grand Street	94501	72-381-1	1/3/2021	COA-19-35	Floor Mastic at UW Buildout in Taylor Warehouse (sample 35)	ND	N
FY20-21	Alameda	COA-21	2015 Grand Street	94501	72-381-1	1/3/2021	COA-19-36	Floor Mastic at UW Buildout in Taylor Warehouse (sample 36)	ND	N
FY20-21	Alameda	COA-22	2015 Grand Street	94501	72-381-1	1/3/2021	COA-22-40	Roof mastic at Cooperage in Warehouse (sample 40)	ND	N
FY20-21	Alameda	COA-22	2015 Grand Street	94501	72-381-1	1/3/2021	COA-22-41	Roof mastic at Cooperage in Warehouse (sample 41)	ND	N
FY20-21	Alameda	COA-22	2015 Grand Street	94501	72-381-1	1/3/2021	COA-22-42	Roof mastic at Cooperage in Warehouse (sample 42)	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB05A	Concrete Floor Caulking 1	42	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB05A	Concrete Floor Caulking 3	44	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB05B	Concrete floor caulking 4	51	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB05B	Concrete Floor Caulking 2	52	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB01C	Carpet Adhesive + Tice Mastic	53	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB05C	Concrete floor caulking 5	180	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB01A	carpet adhesive Lobby	440	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB01C	VFT Mastic West Exit Lobby	740	Y
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB01A	Carpet Adhesive + Tice Mastic	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB07A	Concrete	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB07B	Concrete	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB07C	Concrete	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 061820 PCB07D	Concrete	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB01B	Carpet Adhesive + Tice Mastic	ND	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB01D	Carpet Adhesive + Tice Mastic	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB02A	Pink Fiberglass insulation	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB02B	Yellow Fiberglass insulation	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB03A	Window Gasket	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB03B	Window Gasket	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB03C	Window Gasket	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB04A	Subfloor VFT Mastic	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB04B	VFT Black Mastic	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB04C	VFT Black Mastic	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB06A	Exterior Paint North	ND	N
FY20-21	Dublin	DUB-1	6700 Golden Gate Drive	94568	941-1500-0047-07	TBD	ABC2019 PCB06B	Exterior Paint West	ND	N
FY20-21	Fremont	FRE-1	3820 Peralta Blvd	94536	501 147504902	9/8/2020	E19-2028B-7-17-1B	door caulking	ND	N
FY20-21	Fremont	FRE-1	3820 Peralta Blvd	94536	501 147504902	9/8/2020	E19-2028B-7-17-2B	window gasket	ND	N
FY20-21	Fremont	FRE-1	3820 Peralta Blvd	94536	501 147504902	9/8/2020	E19-2028B-7-17-3B	window caulking	ND	N
FY20-21	Fremont	FRE-1	3820 Peralta Blvd	94536	501 147504902	9/8/2020	E19-2028B-7-17-4B	Ceiling Insulation	ND	N
FY20-21	Fremont	FRE-1	3820 Peralta Blvd	94536	501 147504902	9/8/2020	E19-2020B-7-17-5B	Thermals System Insulation	1800	Y
FY20-21	Fremont	FRE-2	37438 Fremont Blvd	94536	501 147503502	9/8/2020	E19-2028B-7-17-1B	Window caulking	ND	N
FY20-21	Fremont	FRE-2	37438 Fremont Blvd	94536	501 147503502	9/8/2020	E19-2028B-7-17-2B	bulk material	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-001A	bulk material	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-002A	bulk material	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-003A	bulk material	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-004A	insulation pipe (kettle)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-005A	insulation pipe (kettle)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-006A	insulation pipe (kettle)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-007A	insulation steam pipe	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-008A	insulation steam pipe	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-009A	insulation steam pipe	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-010A	insulation kiln box	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-011A	insulation kiln box	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-012A	insulation exhaust stack	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-013A	insulation exhaust stack	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-014A	insulation exhaust stack	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-015A	kettle insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-016A	kettle insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-017A	kettle insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-018A	kiln flue insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-019A	kiln flue insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-020A	kiln flue insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-021A	floor mastic (lunch room)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-022A	floor mastic (lunch room)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-023A	Floor mastic (2nd fl, office)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-024A	Floor mastic (2nd fl, office)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-025A	floor mastic (control room)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-026A	floor mastic (control room)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-027A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-028A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-029A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-030A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-031A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-032A	roof deck insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-033A	roof deck insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-034A	roof deck insulation	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-035A	baseboard mastic	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-036A	baseboard mastic	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-037A	baseboard mastic	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-038A	window caulk/glaze (OF)	670	Y
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-039A	window caulk/glaze (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-040A	window caulk/glaze (OF)	76	Y
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-041A	insulation pipes (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-042A	insulation pipes (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-043A	insulation pipes (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-044A	baseboard mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-045A	baseboard mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-046A	baseboard mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-047A	carpet mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-048A	carpet mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-049A	carpet mastic (OF)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-050A	Roof mastic (PH)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-051A	Roof mastic (PH)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-052A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-053A	window caulk/glaze	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-054A	roof mastic (Sec)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-055A	roof mastic (Sec)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-056A	floor mastic (Sec)	ND	N
FY20-21	Fremont	FRE-3	37887 Shinn St	94536	507 037700301	3/15/2021	2008B80-057A	floor mastic (Sec)	ND	N

Attachment 1

Reporting Year	Permittee	Building ID	Project Address	Project Zip Code	Project APN	Project Demolition Date	Sample ID	Sample Description	Reported Concentration (mg/kg)	Concentration ≥ 50 mg/kg (Y/N)
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-01	office; beneath carpet	ND	N
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-02	office; beneath tiles	13	N
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-03	office; baseboards	1	N
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-04	roof; penetrations	ND	N
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-05	roof; sky light	ND	N
FY20-21	Fremont	FRE-4	37341 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-06	Roof; all layers	ND	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-07	entry; floor	1.3	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-08	entry; door threshold	2.8	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-09	upstairs; beneath carpet	ND	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-10	downstairs; concrete wall	1.3	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-11	downstairs; wall (concrete) & ceiling	110	Y
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-12	downstairs; concrete expansion joint (SE Wall)	28000	Y
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-13	upstairs; baseboards	1.1	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-14	wall cavities	0.71	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-15	downstairs; HVAC unit	ND	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-16	HVAC ducts	0.41	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-17	exterior; front windows	1.8	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-18	roof; HVAC unit seams	ND	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-19	roof; sky light	1.2	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-20	roof; penetrations	0.98	N
FY20-21	Fremont	FRE-5	37343 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-21	roof; all layers	ND	N
FY20-21	Fremont	FRE-6	37347 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-22	bathroom; beneath tiles	12	N
FY20-21	Fremont	FRE-6	37347 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-23	bathroom; baseboards	0.5	N
FY20-21	Fremont	FRE-6	37347 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-24	bathroom; behind wall paneling	ND	N
FY20-21	Fremont	FRE-6	37347 Blacow Rd	94536	501-0350-015 and 501-0350-016	4/23/2021	48532-25	upstairs; baseboards	ND	N

APPENDIX G

Mass of Mercury Recycled in Alameda County

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FINAL Memorandum

Date:	August 28, 2026
To:	Sandy Mathews, Alameda Countywide Clean Water Program
From:	Lisa Welsh, Senior Scientist, Grace Yao, Professional, and Kiki Jin, Senior Staff Engineer
Subject:	C.11.d Mercury Collection and Recycling Program – Fiscal Year 2025/26 Data Summary Geosyntec Project Number: 26013274

1. BACKGROUND

Municipal Regional Stormwater Permit (MRP; Order No. R2-2022-0018) Provision C.11.d requires Permittees to promote, facilitate, and/or participate in the collection and recycling of mercury-containing consumer products, devices, and equipment.

The Alameda Countywide Clean Water Program's (ACCWP) Permittees collect household hazardous waste (HHW) at multiple locations via StopWaste, a public agency governed by the Alameda County Waste Management Authority, the Alameda County Source Reduction and Recycling Board, and the Energy Council. Data was also compiled from the Fremont HHW facility and the Dublin-operated Temporary Household Hazardous Waste Collection Facility (THHWCF) events.

This technical memorandum documents the following items for the Alameda County Permittees, as required by MRP Provision C.11.d.iii.(1):

a. The mass of mercury-containing material collected throughout the region; and

b. The estimate of the mass of mercury contained in the recycled material.

2. MERCURY-CONTAINING MATERIAL DEVICE TYPES

The following mercury-containing devices are collected and recycled by StopWaste on behalf of the ACCWP permittees. The estimated total mass and mercury mass of each device type are provided below. The estimated mercury mass is consistent with the Source Control Load Reduction Accounting for Reasonable Assurance Analysis report (BASMAA 2022).

1. **Fluorescent Lamps**.
    - Estimated Mass: Each 4-ft-long fluorescent lamp is assumed to weigh 0.227 kilograms (kg) (0.5 lbs) (MASS 2007). Using this value, the unit weight of a fluorescent lamp per foot is estimated to be 0.057 kg.
    - Estimated Mercury Mass: The average mercury content for a four-foot linear fluorescent lamp is 8.3 milligrams (mg). This is equal to 2.075 mg (2.075×10^{-6} kilograms (kg)) per linear foot. (NEMA 2005)
2. **Compact Fluorescent Lamps (CFLs)**.
    - Estimated Mass**:** The weight of a single CFL is assumed to be 0.1 kg (0.22 lbs) based on the product information found under general hardware stores. (Philips 2023a)
    - Estimated Mercury Mass: The National Electrical Manufacturers Association (NEMA) announced that under the new voluntary commitment, effective October 1, 2010, participating manufacturers will cap the total mercury content in CFLs that are under 25 watts at 4 mg per unit, and CFLs that use 25 to 40 watts of electricity will be capped at 5 mg per unit. Each CFL recycled is assumed to have an average mass of 4.5 mg (4.5×10^{-6} kg). New CFLs are also assumed to have 4.5 mg on average. (NEMA 2010)
3. **High Intensity Discharge Lamps (HID).**
    - Estimated Mass: The weight of a single HID lamp is assumed to be 0.32 kg (0.7 lbs). (Philips 2023b)
    - Estimated Mercury Mass: The average content of an HID bulb is 0.5 milligrams (mg) of mercury (0.5×10^{-6} kg). (NEMA 2004)
4. **Thermostats.**
    - Estimated Mass: The average weight of one thermostat is approximately 0.34 kg (0.75 lbs). (TRC 2008)
    - Estimated Mercury Mass: The amount of mercury in a thermostat is determined by the number of ampoules. There are generally one or two ampoules per thermostat (average is about 1.4) and each ampoule contains an average of 2.8 grams (g) of mercury. Therefore, each thermostat recycled is assumed to contain approximately 4.0 g (4×10^{-3} kg) of mercury. Every pound of thermostat collected is then estimated to contain around 5.3×10^{-3} kg of mercury. (TRC 2008)
5. **Thermometers**.
    - Estimated Mass: Each glass mercury fever thermometer is assumed to weigh 0.05 kg (0.11 lbs). (Walmart 2023)
    - Estimated Mercury Mass: USEPA reports that glass mercury fever thermometers contain about 0.61 g (6.1×10^{-4} kg) of mercury. (USEPA 2012)

6. **Switches**. The Recycling Corporation reports that one mercury switch (from thermostats) contains 2.87 g (2.87×10^{-3} kg) of mercury[1]. (TRC 2010)
7. **Elemental Mercury.** Mercury collected in elemental form and measured in kg.

3. MASS OF MERCURY-CONTAINING MATERIAL RECYCLED

Table 1 lists the estimated total mass of mercury and mass of mercury-containing material recycled within Alameda County during Fiscal Year (FY) 2025/26 (i.e., from July 1, 2025, to June 30, 2026) for the device types listed above. Data reported is the estimated total mass of mercury-containing material shipped from Alameda County-operated HHW facilities and Alameda County-operated THHWCFs. Available data for FY 2025/26 is considered preliminary, and the final numbers may change before data is reported to CalRecycle. Revised estimates will be reported in the 2027 annual report, if changes are to be observed.

The mass of mercury recycled was estimated using the unit conversions listed above for total mass and mercury mass for each device type. The total estimated amount of mercury collected in Alameda County in FY 2025/26 was 19.1 kg, with the majority in the form of elemental mercury.

Table 1: Summary of Mercury Mass Collected in FY 2025/26

Mercury-containing Device/Equipment	Estimated Mass of Mercury-Containing Material Recycled (kg)[4]	Estimated Mass of Mercury Recycled (kg)
Fluorescent Lamps [1]	22,821	0.8
CFLs [2]	6,640	0.3
HID Headlamps	4,750	<0.01
Thermostats	26	0.3
Thermometers	144	1.8
Switches [3]	0	0.0
Elemental Mercury	16	15.9
Total Mass Recycled During FY 2025/26	**28,374**	**19.1**

[1] Only linear fluorescent lamps included.
[2] Only compact fluorescent lamps included.
[3] Only switches removed from thermostats should be included.
[4] Weights reported are net weight of waste article or container, not including the outer packaging (drum). In case of elemental mercury, a container such as a bottle may make up a significant portion of the weight of the waste.

[1] Mercury switches are also found in appliances, automobiles, homes, and industrial equipment. The mercury content varies from 1 to more than 200 grams each. For the purpose of this report, 2.87 g or mercury per switch is used for the calculation.

4. REFERENCES

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APPENDIX H

Supporting Data for Mercury and PCBs Load Reduction Estimates

Table H-1: ACCWP List of Source Property Referrals Available for PCBs Credit in MRP 3

Site Name	Location	Year Referred	Property Size (acres)	PCBs Load Reduced (g/yr)
AMG	3438 Helen Street, Oakland	FY 2017/18	0.43	1.1
Custom Alloy Scrap Sales	2601 Peralta St., Oakland	FY 2017/18	7.7	19.2
Precision Cast Products	1549 32nd Street and 2868 Hannah Street, Oakland	FY 2017/18	0.79	2.0
UPRR – Oakland Coliseum	700 73rd Avenue, Oakland	FY 2017/18	0.40	1.0
Yenlin Air Conditioning	1268 48th Ave, Oakland	FY 2025/26	0.33	0.8
Cole Brothers	1797 12th Street, Oakland	FY 2025/26	0.41	1.0
Former ABI Foundry	7825 San Leandro Street, Oakland	FY 2025/26	14.6	36.7
FY 2022/23 through FY 2025/26 Total			**24.6**	**61.9**
FY 2022/23 through FY 2025/26 Average			3.5	8.8
Estimated MRP 3 Total			**28.1**	**70.7**

Table H-2a: Estimated Mercury and PCBs Loads Reduced from Storm Drain Line Cleanouts[1]

Fiscal Year	Length of SD Lines Cleaned (ft)	Mercury Load Removed (g)	PCBs Load Removed (g)
FY 2022/23	7,780	6.7	9.1
FY 2023/24	14,594	12.5	17.0
FY 2024/25	7,571	6.5	8.8
FY 2025/26	6,886	5.9	8.0
FY 2022/23 through FY 2025/26 Total	**36,831**	**31.6**	**43.0**

[1]Estimates are from the Alameda County Old Industrial Control Measure Plan, Appendix D, October 2024. Mercury sediment concentration = 0.331 mg/kg; PCBs sediment concentration = 0.45 mg/kg.

Table H-2b: Average Annual Load Reduced from Storm Drain Cleanouts During MRP 3

Mercury Load Reduced (g/yr)	PCBs Load Reduced (g/yr)
7.9	10.8

Table H-3a: Estimated Mercury and PCBs Loads Reduced from Individual Green Infrastructure Projects Completed FY 2022/23 through FY 2025/26
See tables at the end of the appendix

Table H-3b: Summary of Mercury and PCBs Loads Reduced from Green Infrastructure Projects Completed During MRP 3

GSI Project Type	Old Industrial Area and Source Property[1] Area Treated (acres)	Total Area Treated (acres)	Mercury Load Removed (g/yr)	PCBs Load Removed (g/yr)
C.3.j Retrofit	4.8	30.4	0.9	0.9
C.3.b Redevelopment	94.7	652.7	35.2	28.8
Applicable Source Property GSI Retrofit Project	0.7	0.7	0.025	2.4
Applicable Source Property GSI Redevelopment Project	21.8	21.8	1.1	110.6
Applicable Old Industrial GSI Retrofit Project	0.1	0.1	0.003	0.0
Applicable Old Industrial GSI Redevelopment Project	31.2	31.2	1.6	8.1
FY 2022/23 through FY 2025/26 Total	**153.2**	**736.9**	**38.9**	**150.8**
Source Property Redevelopment Annual Average			0.3	27.6
GSI Retrofit and Redevelopment Annual Average			9.5	10.0
Source Property Redevelopment MRP 3 Total			**1.4**	**138.2**
GSI Retrofit and Redevelopment MRP 3 Total			**47.3**	**50.2**

Table H-4a: Estimated Mercury and PCBs Loads Reduced from Full Trash Capture Projects Completed FY 2022/23 through FY 2025/26
See tables at the end of the appendix

Table H-4b: Summary of Effective[1] Mercury and PCBs Loads Reduced from Full Trash Capture Projects Completed During MRP 3

FTC Device Type	Old Industrial Area and Source Property Area Treated (acres)	Effective Area Treated (acres)	Effective Mercury Load Removed (g/yr)	Effective PCBs Load Removed (g/yr)
Large FTC Device	230	66	0.7	3.4
Small FTC Device	692	178	1.7	10.0
FY 2022/23 through FY 2025/26 Total	**922**	**244**	**2.4**	**13.4**

[1]Implementation of full trash capture projects have a lower efficiency than GSI retrofit (i.e., 70 percent), which resulted in reduced load credited by a factor related to its efficiency relative to GSI retrofit (i.e., 0.29 and 0.26 for large and small FTC devices, respectively)

Table H-4c: Summary of Mercury and PCBs Loads Reduced from Full Trash Capture Projects Completed During MRP 3

FTC Device Type	Old Industrial Area and Source Property Area Treated (acres)	Total Area Treated (acres)	Mercury Load Removed (g/yr)	PCBs Load Removed (g/yr)
Large FTC Device	230	3,103	35.1	20.6
Small FTC Device	692	5,266	47.4	47.7
FY 2022/23 through FY 2025/26 Total[1]	**922**	**8,370**	**82.6**	**68.3**

[1]Assumes no new FTC devices installed in FY 2026/27

Table H-5a: Estimated Mercury and PCBs Loads Reduced from Diversion to POTW

Fiscal Year	Cumulative Annual Flow Diverted (MG)	Mercury Load Removed (g)	PCBs Load Removed (g)
FY 2022/23	60.9	2.2	0.9
FY 2023/24	104.6	3.8	1.6
FY 2024/25	118.2	4.3	1.8
FY 2025/26	130.6	4.7	2.0
FY 2022/23 through FY 2025/26 Total	**414**	**15.1**	**6.3**

Table H-5b: Average Annual Load Reduced from Diversion to POTW During MRP 3

Mercury Load Reduced (g/yr)	PCBs Load Reduced (g/yr)
3.8	1.6

Table H-6: Estimated Mercury Load Reduction from Collection and Recycling

Fiscal Year	Mercury Collected or Recycled (g)
FY 2022/23	66,506
FY 2023/24	70,035
FY 2024/25	41,942
FY 2025/26	19,075
FY 2022/23 through FY 2025/26 Total	**197,557**

Table H-6b: Annual Average Mercury Load Reduced to Stormwater[1]

Total Mercury Load Reduced to Stormwater (g)	Average Mercury Load Reduced to Stormwater (g/yr)
9,483	2,371

[1]Assumes 4.8% of total mercury, that, when improperly discarded, are transported to the Bay via urban stormwater

Table H-3: ACCWP GSI Retrofit and C.3.b Regulated Project Treatment Area and Load Reduced by Land Use Category

Project Name/Number	Project Address	Jurisdiction	Fiscal Year	Project Type	New Urban Area (acres)	Old Commercial Area (acres)	Old Industrial Area (acres)	Old Residential Area (acres)	Old Transportation Area (acres)	Open Space Area (acres)	Source Property Area (acres)	Total Area (acres)	PCBs Load Reduced (mg/yr)	Mercury Load Reduced (mg/yr)
Alameda Landing Public Waterfront Improvements	Mitchell Avenue @ Fifth Street, Alameda, CA 94501	Alameda	FY22-23	Applicable Source Property GSI Redevelopment Project							3.88	3.88	19,684.1	203.9
Banner Alameda Extra Storage	2390 Mariner Square Drive, Alameda, CA 94501	Alameda	FY22-23	C.3.b Redevelopment		0.57			0.59			1.16	56.5	65.8
Del Monte Clement Avenue Public Improvements	Clement Avenue at Sherman Street, Alameda, CA 94501	Alameda	FY22-23	C.3.b Redevelopment			2.69					2.69	695.3	141.4
Del Monte Warehouse Site Redevelopment	1501 Buena Vista Avenue, Alameda, CA 94501	Alameda	FY22-23	C.3.b Redevelopment			8.70					8.70	2,248.9	457.4
Mitchell Avenue Northside Improvements	Mitchell Avenue @ Fifth Street, Alameda, CA 94501	Alameda	FY22-23	Applicable Source Property GSI Retrofit Project							0.67	0.67	2,368.8	24.7
Alameda Adaptive Reuse PH 1 Saratoga	Saratoga	Alameda	FY23-24	Applicable Old Industrial GSI Redevelopment Project			4.50					4.50	1,163.6	236.7
Alameda Landing Northern Waterfront Improvements - Mitchell Avenue Greenway Phase 2	North of Mitchell Avenue, east from Avenue A	Alameda	FY23-24	Applicable Source Property GSI Redevelopment Project							0.74	0.74	3,779.7	39.2
Alameda Marina - Wrap A Phase	1777 Clement Avenue	Alameda	FY23-24	C.3.b Redevelopment			5.59					5.59	1,445.5	294.0
Dignity Village Housing	2350 Fifth Street	Alameda	FY23-24	C.3.b Redevelopment				0.83				0.83	2.0	46.8
Alameda City Parking Lot	Self-treating area	Alameda	FY24-25	Applicable Old Industrial GSI Redevelopment Project			0.01					0.01	3.4	0.7
Alameda Landing Waterfront – Residential PH 2&3 (Pulte Homes/Bay 37)	Mitchell and A Ave	Alameda	FY24-25	Applicable Source Property GSI Redevelopment Project							8.70	8.70	44,178.8	457.7
Clement Safety CIP	Clement conversion at Broadway	Alameda	FY24-25	C.3.j Retrofit								0.00	0.0	0.0
Clement Safety CIP project	Clement at Elm SE quad	Alameda	FY24-25	C.3.j Retrofit			0.00					0.00	0.2	0.0
Clement Safety Improvement Project	Clement between Elm and Oak	Alameda	FY24-25	Applicable Old Industrial GSI Retrofit Project			0.09					0.09	15.5	3.2
AHA North Housing PH 1 and Lakehurst BB	Mabuhey and Mosley	Alameda	FY25-26	C.3.b Redevelopment						1.89		1.89	0.0	152.7
Alameda Food Bank Warehouse Expansion	677 West Ranger Avenue, Alameda, CA 94501	Alameda	FY25-26	C.3.b Redevelopment			1.86					1.86	480.1	97.7
APC Medical Respite Center	1245 McKay Avenue, Alameda, CA	Alameda	FY25-26	C.3.b Redevelopment		0.86		0.08	0.05			0.99	44.7	56.2
North Housing BB 1	Moseley Ave and Mabuhay St	Alameda	FY25-26	C.3.b Redevelopment			0.14			0.57		0.71	35.5	53.4
Marin Ave Rehab Ph 1	Marin Ave and Key Route Blvd	Albany	FY22-23	C.3.j Retrofit		0.03		1.52	0.08			1.63	6.7	64.9
Chef's Touch Commercial Kitchen	577 Cleveland Ave	Albany	FY23-24	C.3.b Redevelopment			1.38					1.38	356.4	72.5
Codornices Creek	Codornices Creek and 8th St	Albany	FY23-24	C.3.j Retrofit			0.05	0.04				0.09	9.4	3.4
Verana Hill (SAHA)	755 Cleveland Ave	Albany	FY24-25	C.3.b Redevelopment			0.14			0.89		1.03	36.2	79.1
1951 Shattuck Avenue	1951 Shattuck Avenue	Berkeley	FY22-23	C.3.b Redevelopment		0.34			0.06			0.40	19.4	22.6
2012 Berkeley Way	2012 Berkeley Way	Berkeley	FY22-23	C.3.b Redevelopment		0.67			0.15			0.82	39.8	46.3
2100 San Pablo Avenue, A Residential Care Facility For The Elderly	2100 San Pablo Ave.	Berkeley	FY22-23	C.3.b Redevelopment		0.43		0.00	0.06			0.49	24.0	27.9
2150 Kittredge St	2150 Kittredge Street	Berkeley	FY22-23	C.3.b Redevelopment		0.64			0.13			0.77	37.5	43.7
2902 Adeline	2902 Adeline	Berkeley	FY22-23	C.3.b Redevelopment		0.13			0.04			0.17	8.2	9.5
3031 Telegraph Ave.	3031 Telegraph Avenue	Berkeley	FY22-23	C.3.b Redevelopment		0.63			0.08			0.71	34.6	40.4
Aquatic Ashby	3000 San Pablo Avenue	Berkeley	FY22-23	C.3.b Redevelopment		0.16	0.04		0.06			0.27	22.4	15.1
Bayer Bio Cell Park	800 Dwight Way	Berkeley	FY22-23	C.3.b Redevelopment			1.97					1.97	508.9	103.5
Berkeley Commons	600 Addison	Berkeley	FY22-23	Applicable Source Property GSI Redevelopment Project							8.46	8.46	42,940.6	444.8
Building No. 69 Cell Culture Technology Centers 2 & 3	800 Dwight Way	Berkeley	FY22-23	C.3.b Redevelopment			1.92					1.92	496.4	101.0
Morningstar of Berkeley	2000 Dwight Way	Berkeley	FY22-23	C.3.b Redevelopment		0.50		0.01	0.12			0.63	30.1	35.6
Shattuck Terrace Green Apartments	2190 Shattuck Avenue	Berkeley	FY22-23	C.3.b Redevelopment		0.35			0.11			0.46	22.4	26.1
Solar Car Wash	2434 San Pablo Ave.	Berkeley	FY22-23	C.3.b Redevelopment		0.73		0.00				0.74	35.6	41.6
The Lab Building 3	2246 Fifth Street	Berkeley	FY22-23	C.3.b Redevelopment		1.34	0.27		0.26			1.87	147.5	104.5
The Roost @ Blake	2035 Blake	Berkeley	FY22-23	C.3.b Redevelopment	0.33	0.17			0.01			0.52	9.2	11.9
University/Marina Bioretention Lane Reconfiguration	Marina Blvd and University Ave traffic circle	Berkeley	FY22-23	C.3.b Redevelopment				1.54				1.54	3.7	87.4
2015 Blake Street	2015 Blake Street	Berkeley	FY23-24	C.3.b Redevelopment		0.45		0.43	0.07			0.95	26.4	53.7
2099 MLK Housing	2099 MLK Jr Way	Berkeley	FY23-24	C.3.b Redevelopment	0.29			0.24				0.53	0.6	14.9
2520 Eight Sreet Parking Lot E	2520 Eight St	Berkeley	FY23-24	C.3.b Redevelopment			0.26					0.26	66.1	13.5
747 Bancroft	747 Bancroft	Berkeley	FY23-24	C.3.b Redevelopment			0.96					0.96	248.5	50.5
ArtHaus Telegraph Apartments	Apartments	Berkeley	FY23-24	C.3.b Redevelopment		0.55			0.08			0.63	30.7	35.8
BOYP	1207 Tenth St	Berkeley	FY23-24	C.3.b Redevelopment			0.31					0.31	79.2	16.1
Maudelle Miller Shirek Community	2001 Ashby Ave	Berkeley	FY23-24	C.3.b Redevelopment		0.56		0.01	0.04			0.60	29.1	34.2
Outfront Media Office Remodeling	1695 Eastshore Hwy	Berkeley	FY23-24	C.3.b Redevelopment			2.04					2.04	527.2	107.2
The LAB Parking Structure	2213 Fourth St	Berkeley	FY23-24	C.3.b Redevelopment		0.20	0.44					0.65	124.7	34.8
1701 San Pablo Ave (BUSD)	1701 San Pablo Ave	Berkeley	FY25-26	C.3.b Redevelopment		0.00		0.90				0.90	2.2	51.1
apartments	2587 Telegraph	Berkeley	FY25-26	C.3.b Redevelopment		0.42		0.01				0.43	20.6	24.4
St. Paul Ame Church	2024 Ashby Ave	Berkeley	FY25-26	C.3.b Redevelopment		0.50		0.02	0.03			0.55	25.9	31.0
Boulevard N2	tract 8306 (Madison)	Dublin	FY22-23	C.3.b Redevelopment			5.92					5.92	1,531.8	311.6
Boulevard Neighborhood 1	tract 8306 - Union	Dublin	FY22-23	C.3.b Redevelopment			3.55			0.07		3.61	916.9	191.8
Blvd N13 Lincoln	Tract 8366	Dublin	FY23-24	C.3.b Redevelopment			5.78					5.78	1,494.6	304.0
Creekside Business Park	5990 Gleason Dr & 5875 Arnold Rd	Dublin	FY23-24	C.3.b Redevelopment	11.47							11.47	0.0	41.3
Don Biddle Community Park	6100 Horizon Parkway	Dublin	FY23-24	C.3.b Redevelopment			30.86			0.10		30.97	7,980.7	1,631.7
Dublin Nissan/Infinity	3800 Kaiser Rd	Dublin	FY23-24	C.3.b Redevelopment						6.74		6.74	0.0	542.9
Quarry Lane Preschool	5600 Scarlett Drive	Dublin	FY23-24	C.3.b Redevelopment	0.06	2.60						2.66	126.4	147.5
Ashton (Dublin Station A3)	5421 Campbell Lane	Dublin	FY24-25	C.3.b Redevelopment	0.79			1.56				2.36	3.7	91.3
Avalon West	7688 Saint Patrick Way	Dublin	FY24-25	C.3.b Redevelopment		7.86		0.01	1.46	0.00		9.33	452.9	528.0
Dublin Transit Center Parking Garage	5560 Martinelli Way	Dublin	FY24-25	C.3.b Redevelopment						2.46		2.46	0.0	198.3
Dublin Ventures	6398 Dougherty Rd	Dublin	FY24-25	C.3.b Redevelopment	3.02							3.02	0.0	10.9
Tivoli Plaza-Grafton Plaza Retail	Summit Road	Dublin	FY24-25	C.3.b Redevelopment	0.01					5.39		5.40	0.0	434.6
Iron Horse Trail C.3.j. GSI Project	Amador Valley Blvd & Iron Horse Trail	Dublin	FY24-25	C.3.j Retrofit	8.77					2.21		10.98	3.1	149.9
Basis School	7950 Dublin Blvd.	Dublin	FY25-26	C.3.b Redevelopment		3.56			0.02			3.57	173.7	202.3
Emerald High School	3600 Central Parkway	Dublin	FY25-26	C.3.b Redevelopment	0.13					22.72		22.85	0.0	1,831.8
H Mart: DMA 1, 1A, 2	7884 Dublin Blvd - DMA 1, 1A, 2	Dublin	FY25-26	C.3.b Redevelopment		0.61						0.61	29.7	34.5
Happy Car Spa (formerly Kaiser Commercial Car Wash)	3930 Kaiser Rd	Dublin	FY25-26	C.3.b Redevelopment						1.23		1.23	0.0	98.8
Moller Ranch_Tassajara Hills_TM 8102	Palisades Dr. @ Tassajara Rd.	Dublin	FY25-26	C.3.b Redevelopment						146.45		146.45	0.0	11,803.5
Biomed Building B8/B9 Temp	1400-1450 53rd	Emeryville	FY24-25	C.3.j Retrofit			1.89					1.89	342.2	70.0
FMW Corp Yard	5679 Horton, FMW Corp Yard demo and remediation	Emeryville	FY25-26	C.3.b Redevelopment			1.66					1.66	429.2	87.3
47548 Kato Road	47548 Kato Road	Fremont	FY22-23	C.3.b Redevelopment	6.01							6.01	0.0	21.6
California Nursery Historical Park	36501 Niles Blvd	Fremont	FY22-23	C.3.b Redevelopment				17.98				17.98	43.1	1,017.4
Canyon View	243 Morrison Canyon Rd	Fremont	FY22-23	C.3.b Redevelopment	0.92		0.01	1.18				2.10	4.9	70.4
Centerville Pioneer	3858 Bonde Way	Fremont	FY22-23	C.3.b Redevelopment						1.44		1.44	0.0	115.8
Dusterberry Neighborhood Park	37510 Dusterberry Way	Fremont	FY22-23	C.3.b Redevelopment	0.00	3.52		0.17	0.11			3.80	176.6	214.9

Project Name/Number	Project Address	Jurisdiction	Fiscal Year	Project Type	New Urban Area (acres)	Old Commercial Area (acres)	Old Industrial Area (acres)	Old Residential Area (acres)	Old Transportation Area (acres)	Open Space Area (acres)	Source Property Area (acres)	Total Area (acres)	PCBs Load Reduced (mg/yr)	Mercury Load Reduced (mg/yr)
Irvington Senior Housing	**4038 Irvington Ave**	Fremont	FY22-23	C.3.b Redevelopment		0.18		0.00	0.01	1.17		1.36	9.2	105.4
Niles Gateway	**37899 Niles Blvd**	Fremont	FY22-23	C.3.b Redevelopment	0.00		7.43	0.01		0.02		7.46	1,921.3	393.1
Palm Ave Summerhill	**Tangelo Court**	Fremont	FY22-23	C.3.b Redevelopment					0.26	6.76		7.02	12.7	559.6
Premier Subaru Parking Lot	**5601 Cushing Pkwy**	Fremont	FY22-23	C.3.b Redevelopment	2.36							2.36	0.0	8.5
Walnut Ave Mixed Use	**3510 Beacon Ave**	Fremont	FY22-23	C.3.b Redevelopment						2.71		2.71	0.0	218.7
Chase Bank	**46645 Mission Blvd Fremont, CA 94539**	Fremont	FY23-24	C.3.b Redevelopment		0.92						0.92	44.7	52.1
Fremont and Capitol Mixed Use - Parking Structure	**39176 Fremont Blvd**	Fremont	FY23-24	C.3.b Redevelopment		0.91			0.00			0.91	44.5	51.8
Fremont Bank Headquarters	**39150 Fremont Blvd**	Fremont	FY23-24	C.3.b Redevelopment		0.41						0.41	19.8	23.1
Kato Site Improvements (Casting/F21)	**45500 Fremont Blvd**	Fremont	FY23-24	C.3.b Redevelopment			4.37					4.37	1,130.8	230.0
Link Warehouse	**47020 Kato Rd**	Fremont	FY23-24	C.3.b Redevelopment	11.46							11.46	0.1	41.3
Milmont Owner LLC	**49000 Milmont Dr**	Fremont	FY23-24	C.3.b Redevelopment	13.06		0.00			0.02		13.08	0.3	49.0
Mission Chevron Gas Station	**38010 Mission Blvd**	Fremont	FY23-24	C.3.b Redevelopment	0.00					1.47		1.47	0.0	118.6
Roberts Avenue Townhomes	**41354 Roberts Ave**	Fremont	FY23-24	C.3.b Redevelopment		1.82		0.04	0.12			1.98	94.5	112.2
Scannell Properties	**40517 Albrae Street**	Fremont	FY23-24	Applicable Old Industrial GSI Redevelopment Project			20.29					20.29	5,246.0	1,067.1
Seventh Day Adventist Church	**225 Driscoll Road**	Fremont	FY23-24	C.3.b Redevelopment		2.22			0.24			2.46	119.6	139.3
Starbucks	**43900 Ice House Terrace**	Fremont	FY23-24	C.3.b Redevelopment	0.51	0.77			0.08			1.35	40.9	49.5
Bell Street Gardens	**4103 Mowry Avenue, Fremont, CA 94538**	Fremont	FY24-25	C.3.b Redevelopment		1.05		0.00	0.06			1.11	53.8	62.9
Fremont and Capitol Mixed Use - Apartments	**39176 Fremont Blvd**	Fremont	FY24-25	C.3.b Redevelopment		1.02			0.09			1.11	54.1	63.0
Fremont Family Apartments (Allied Housing)	**34320 Fremont Blvd**	Fremont	FY24-25	C.3.b Redevelopment		1.20						1.20	58.5	68.2
Fremont Police Department Vehicle Storage Warehouse	**1958 Stevenson Blvd**	Fremont	FY24-25	C.3.b Redevelopment	0.34							0.34	0.0	1.2
Market Ready (EWA Fremont)	**44235 Nobel Dr**	Fremont	FY24-25	C.3.b Redevelopment	0.20							0.20	0.0	0.7
Pape Machinery	**43510 Osgood Rd Fremont, CA 94539**	Fremont	FY24-25	C.3.b Redevelopment	0.00	0.03			0.00	7.79		7.82	1.4	629.6
SHM	**6100 Stevenson Blvd**	Fremont	FY25-26	C.3.b Redevelopment	7.58		0.01					7.59	2.7	27.8
Boyce Trucking	**40745 Encyclopedia Cir**	Fremont	FY25-26	C.3.b Redevelopment	0.01					7.27		7.29	0.0	586.3
Enterprise Rent-A-Car	**5591 Cushing Pkwy**	Fremont	FY25-26	C.3.b Redevelopment						10.68		10.68	0.0	861.1
LAM - RGL Phase 2B Central Utility Building	**4650 Cushing Pkwy**	Fremont	FY25-26	C.3.b Redevelopment	0.42							0.42	0.0	1.5
Osgood Apartments I - Affordable Housing NMFD	**41829 Osgood Rd**	Fremont	FY25-26	C.3.b Redevelopment	0.02			0.71		0.67		1.39	1.7	94.0
Osgood Apartments Phase II	**41911 Osgood Rd**	Fremont	FY25-26	C.3.b Redevelopment	0.80			0.00		0.00		0.80	0.0	3.0
Serra Apartments	**42000 Osgood Rd Fremont, CA 94539**	Fremont	FY25-26	C.3.b Redevelopment		2.35		0.00	0.09	0.00		2.45	118.8	138.6
172	**172**	Hayward	FY23-24	C.3.b Redevelopment		0.55		0.01	0.08			0.65	31.0	36.6
173	**173**	Hayward	FY23-24	C.3.b Redevelopment		0.77			0.10			0.87	42.2	49.2
174	**174**	Hayward	FY23-24	C.3.b Redevelopment				0.01		0.48		0.49	0.0	38.9
175	**175**	Hayward	FY23-24	C.3.b Redevelopment	0.54							0.54	0.0	1.9
177	**177**	Hayward	FY23-24	C.3.b Redevelopment		0.00		0.20				0.20	0.6	11.2
179	**179**	Hayward	FY23-24	C.3.b Redevelopment			0.65			10.32		10.97	167.3	866.1
180	**180**	Hayward	FY23-24	C.3.b Redevelopment		0.00		0.42				0.42	1.1	23.8
181	**181**	Hayward	FY23-24	C.3.b Redevelopment		0.32		0.01	0.08			0.41	19.5	23.1
171 pollo loco	**pollo loco**	Hayward	FY23-24	C.3.b Redevelopment	0.49							0.49	0.0	1.7
D181334	**1665 Chestnut Street**	Livermore	FY22-23	C.3.b Redevelopment		1.51	0.00		0.03			1.54	75.0	87.1
D191897	**203 Vallecitos Road**	Livermore	FY22-23	C.3.b Redevelopment						5.93		5.93	0.0	477.7
PM10720 (CB210001)	**1754 N. Livermore Avenue**	Livermore	FY22-23	C.3.b Redevelopment	0.21					1.43		1.63	0.0	115.7
PM10757	**South L Street**	Livermore	FY22-23	C.3.b Redevelopment		3.65			0.39			4.04	196.4	228.7
PM10951	**I Street Garage**	Livermore	FY22-23	C.3.b Redevelopment		0.60	0.05		0.13			0.78	49.0	43.8
CB210003	**450 N. Livermore Avenue**	Livermore	FY23-24	C.3.b Redevelopment		0.78			0.02			0.80	39.0	45.4
CB210009	**6782 Patterson Pass**	Livermore	FY23-24	C.3.b Redevelopment	2.90							2.90	0.0	10.4
Tract 8173	**Old Frist Street**	Livermore	FY23-24	C.3.b Redevelopment		1.02	0.14					1.16	85.5	65.1
1067 CALCOT PL	**1067 CALCOT PL**	Oakland	FY22-23	Applicable Old Industrial GSI Redevelopment Project			1.24					1.24	321.4	65.4
1428 105th Ave	**1428 105th Ave**	Oakland	FY22-23	C.3.b Redevelopment		2.58	1.10		0.13	0.11		3.92	417.0	220.3
1705 Mandela Parkway	**1705 Mandela Parkway**	Oakland	FY22-23	C.3.b Redevelopment			0.01			0.35		0.36	2.8	28.5
238 13th St.	**238 13th St.**	Oakland	FY22-23	C.3.b Redevelopment		1.17			0.23			1.40	67.9	79.1
2401 Broadway	**2401 Broadway**	Oakland	FY22-23	C.3.b Redevelopment	0.22	0.61			0.14			0.97	36.5	43.3
24th & Harrison	**277 27th Street**	Oakland	FY22-23	C.3.b Redevelopment	1.14	1.47		0.82	0.15			3.58	80.7	142.3
6435 Coliseum Way	**6435 Coliseum Way**	Oakland	FY22-23	C.3.b Redevelopment	2.77		0.08					2.85	20.7	14.2
7120 Hawley Street	**3300 Hawley Street**	Oakland	FY22-23	C.3.b Redevelopment			0.46					0.46	119.1	24.2
825 6th Ave	**825 6th Ave**	Oakland	FY22-23	C.3.b Redevelopment			0.43	0.00				0.43	110.1	22.5
9500 Stearns Ave	**9500 Stearns Ave**	Oakland	FY22-23	C.3.b Redevelopment				37.47				37.47	89.9	2,120.8
A-1 Self Storage	**4356 Coliseum Way**	Oakland	FY22-23	C.3.b Redevelopment			0.82					0.82	212.8	43.3
Moxy Hotels	**2225 Telegraph Ave**	Oakland	FY22-23	C.3.b Redevelopment		0.36		0.00				0.36	17.6	20.6
2242 Magnolia St.	**2242 Magnolia St.**	Oakland	FY23-24	C.3.b Redevelopment		0.31	0.02		0.03			0.37	22.8	20.7
3511 E. 12th St.	**3511 E. 12th St.**	Oakland	FY23-24	C.3.b Redevelopment				2.07				2.07	5.0	117.4
385 14th St.	**385 14th St.**	Oakland	FY23-24	C.3.b Redevelopment		1.15			0.23			1.39	67.3	78.4
532 Union St.	**532 Union St.**	Oakland	FY23-24	C.3.b Redevelopment	0.61				0.01			0.62	0.4	2.6
9415 International Blvd.	**9415 International Blvd.**	Oakland	FY23-24	C.3.b Redevelopment		0.38			0.14	0.23		0.75	25.2	47.7
Audi of Oakland	**7201 Oakport St.**	Oakland	FY23-24	C.3.b Redevelopment	3.06	0.33			0.05			3.44	18.7	32.8
Oakland Museum of California	**1000 Oak St.**	Oakland	FY23-24	C.3.b Redevelopment		5.18			1.02			6.20	301.4	351.0
Park Blvd Intersection Improvement Project 1	**Park Blvd. at E. 38th St.**	Oakland	FY23-24	C.3.b Redevelopment		0.11		1.42	0.62			2.15	39.1	121.9
Park Blvd Intersection Improvement Project 2	**Park Blvd. at Excelsior Ave.**	Oakland	FY23-24	C.3.b Redevelopment		0.00	0.12	0.86	0.25			1.24	45.9	69.5
150 4th St.	**150 4th St.**	Oakland	FY24-25	C.3.b Redevelopment		1.15			0.22			1.38	66.9	78.0
155 4th Street	**155 4th Street**	Oakland	FY24-25	C.3.b Redevelopment		0.58			0.11			0.69	33.5	39.0
1670 7th St.	**1670 7th St.**	Oakland	FY24-25	C.3.b Redevelopment		0.61		0.07	0.04			0.71	31.6	40.4
1701 Campbell St.	**1701 Campbell St.**	Oakland	FY24-25	Applicable Old Industrial GSI Redevelopment Project			2.24					2.24	578.9	117.7
1708 Wood St.	**1708 Wood St.**	Oakland	FY24-25	Applicable Old Industrial GSI Redevelopment Project			2.07					2.07	535.7	109.0
1925 Brush St.	**1925 Brush St.**	Oakland	FY24-25	C.3.b Redevelopment		0.38			0.19			0.57	27.7	32.2
2121 Wood St.	**2121 Wood St.**	Oakland	FY24-25	C.3.b Redevelopment						2.56		2.56	0.0	206.0
2255 International Blvd.	**2255 International Blvd.**	Oakland	FY24-25	Applicable Old Industrial GSI Redevelopment Project			0.88					0.88	227.6	46.3
2400 Adeline St.	**2400 Adeline St.**	Oakland	FY24-25	C.3.b Redevelopment			0.54					0.54	140.1	28.5
2432 Chestnut St.	**2432 Chestnut St.**	Oakland	FY24-25	C.3.b Redevelopment			0.41	0.16				0.57	105.5	30.6

Project Name/Number	Project Address	Jurisdiction	Fiscal Year	Project Type	New Urban Area (acres)	Old Commercial Area (acres)	Old Industrial Area (acres)	Old Residential Area (acres)	Old Transportation Area (acres)	Open Space Area (acres)	Source Property Area (acres)	Total Area (acres)	PCBs Load Reduced (mg/yr)	Mercury Load Reduced (mg/yr)
3901 Broadway	**3901 Broadway**	Oakland	FY24-25	C.3.b Redevelopment		1.13	0.02		0.09			1.25	65.8	70.7
412 Madison St.	**412 Madison St.**	Oakland	FY24-25	C.3.b Redevelopment			0.58					0.58	151.0	30.7
683-685 9th St.	**683-685 9th St.**	Oakland	FY24-25	C.3.b Redevelopment			0.35					0.35	91.5	18.6
One Piedmont	**240 W. MacArthur Blvd.**	Oakland	FY24-25	C.3.b Redevelopment	0.27	0.23			0.04			0.54	13.0	16.1
Pho Huynh Hiep House of Noodles	**1402 E. 12th St.**	Oakland	FY24-25	C.3.b Redevelopment		0.31	0.08		0.14			0.53	41.7	29.7
Fruitvale Gap Closure Project	**Fruitvale Avenue between E 12th Street and Alameda**	Oakland	FY24-25	C.3.j Retrofit	0.33		2.73	0.01	0.01	0.03		3.10	494.5	104.1
2201 BRUSH STREET	**2201 BRUSH STREET**	Oakland	FY25-26	C.3.b Redevelopment		0.04	0.35					0.39	93.3	20.9
3927 WATTLING STREET	**3927 WATTLING STREET**	Oakland	FY25-26	C.3.b Redevelopment	1.65		0.12					1.77	30.4	12.2
4311 MACARTHUR BLVD	**4311 MACARTHUR BLVD**	Oakland	FY25-26	C.3.b Redevelopment		0.26			0.15	0.63		1.03	19.6	73.3
525 12TH STREET	**525 12TH STREET**	Oakland	FY25-26	C.3.b Redevelopment				0.52				0.52	1.2	29.2
820 W MACARTHUR BLVD	**820 W MACARTHUR BLVD**	Oakland	FY25-26	C.3.b Redevelopment	0.50			0.00				0.50	0.0	1.9
Mosswood Community Center	**3612 WEBSTER STREET**	Oakland	FY25-26	C.3.b Redevelopment				1.64				1.64	3.9	92.8
Sequoyah Country Club	**4550 HEAFEY ROAD**	Oakland	FY25-26	C.3.b Redevelopment						0.40		0.40	0.0	32.6
SMU City Center	**1150 CLAY STREET**	Oakland	FY25-26	C.3.b Redevelopment				0.13				0.13	0.3	7.2
7-11 and Shell Gas Station (B20-1268, PUD-134)	**3760 Hopyard Road**	Pleasanton	FY22-23	C.3.b Redevelopment		0.94						0.94	45.6	53.1
Valley Pump Station	**Pump Station on Valley Ave and Stanley Blvd**	Pleasanton	FY22-23	C.3.b Redevelopment	0.51							0.51	0.0	1.9
B19-2735 & B19-2736 Hotels and Restaurant	**7270 Johnson Dr and 7260 Johnson Dr**	Pleasanton	FY23-24	C.3.b Redevelopment	5.25							5.25	0.0	18.9
B21-3730 Classroom Building	**4463 Del Valle PW**	Pleasanton	FY23-24	C.3.b Redevelopment				3.05				3.05	7.3	172.8
B22-2890 (Phase II - Second school building(Stratford))	**3800 Stoneridge Drive**	Pleasanton	FY23-24	C.3.b Redevelopment	3.52							3.52	0.0	12.7
3716 Stanley Blvd Public Storage	**3716 Stanley Boulevard**	Pleasanton	FY24-25	C.3.b Redevelopment	5.47							5.47	0.0	19.7
B22-2964 Rosewood Commons - Parking Lot Improvments	**4406 - 4460 Rosewood Drive**	Pleasanton	FY24-25	C.3.b Redevelopment	50.47							50.47	0.0	181.7
Maple Lane	**903 Manor Drive**	San Leandro	FY22-23	C.3.b Redevelopment		1.93			0.12			2.05	99.8	116.2
7:11 Retail Store(G20-0003)	**525 Williams Street**	San Leandro	FY23-24	C.3.b Redevelopment		0.33		0.00	0.04			0.37	18.1	21.2
G22-0006	**2824 Halcyon - 18 Single Family Subdivision**	San Leandro	FY24-25	C.3.b Redevelopment				2.42				2.42	6.0	136.8
Mixed used 6 story development : Centro Callan (G22-0005)	**1188 East 14th Street**	San Leandro	FY24-25	C.3.b Redevelopment		1.31			0.34			1.65	80.2	93.4
Castlewood North Parking Lot	**707 Country Club Cr**	Unincorporated Alameda County	FY22-23	C.3.b Redevelopment						1.35		1.35	0.0	108.6
Anita Avenue	**From Castro Valley Boulevard to Somerset Avenue**	Unincorporated Alameda County	FY22-23	C.3.j Retrofit	0.03			1.68	0.44	0.04		2.19	18.3	86.7
E14th GI project	**E14th from 162nd Ave to Interstate 238**	Unincorporated Alameda County	FY22-23	C.3.j Retrofit	0.00	0.01	0.14	8.92				9.07	42.8	361.4
West Sunset Blvd & Garden Ave Sidewalk Improvement	**Hayward Acres community**	Unincorporated Alameda County	FY22-23	C.3.j Retrofit				1.19	0.27			1.46	11.6	58.1
145 Medford Ave. Hayward	**145 Medford Ave. Hayward**	Unincorporated Alameda County	FY23-24	C.3.b Redevelopment				0.65				0.65	1.6	36.7
17456 Almond Rd, Castro Valley	**17456 Almond Rd, Castro valley**	Unincorporated Alameda County	FY23-24	C.3.b Redevelopment				1.10				1.10	2.6	62.5
4175 Seven Hills Rd, Castro Valley	**4175 Seven Hills Rd Castro Valley**	Unincorporated Alameda County	FY23-24	C.3.b Redevelopment				0.39				0.39	0.9	21.9
Kaiser Hospital at 168th	**1440 168th Ave San Landro**	Unincorporated Alameda County	FY23-24	C.3.b Redevelopment		0.57		0.00				0.57	27.7	32.4
Castlewood Country Club	**707 Country Club Cr Pleasanton, CA**	Unincorporated Alameda County	FY24-25	C.3.b Redevelopment						0.01		0.01	0.0	0.8
Madrone Boulevard Commons	**16060 E.14th Street, San Leandro, CA 94578**	Unincorporated Alameda County	FY24-25	C.3.b Redevelopment		0.86						0.86	41.8	48.7
Ruby Street Apartments	**22447 Ruby St., Castro Valley, 94549**	Unincorporated Alameda County	FY24-25	C.3.b Redevelopment			0.02	2.64				2.66	11.7	150.4
Total Area/Load Reduction					**148.5**	**74.8**	**130.8**	**95.1**	**10.6**	**254.6**	**22.4**	**736.9**	**150,757**	**38,947**

Table H-4: ACCWP Full Trash Capture Project Treatment Area and Load Reduced by Land Use Category

Jurisdiction	Fiscal Year	Project Type	New Urban Area (acres)	Old Commercial Area (acres)	Old Industrial Area (acres)	Old Residential Area (acres)	Old Transportation Area (acres)	Open Space Area (acres)	Source Property Area (acres)	Total Area (acres)	PCBs Load Reduced by FTC in OI and SP areas (mg/yr)	Mercury Load Reduced by FTC in OI and SP areas (mg/yr)	Total PCBs Load Reduced (mg/yr)	Total Mercury Load Reduced (mg/yr)
Alameda	FY22-23	Large FTC Device		0.01		0.53	0.30			0.8	0.0	0.0	3.3	9.5
Alameda	FY22-23	Small FTC Device	1.02	2.62	3.07	11.05	3.45	0.00	1.07	22.3	1,123.0	39.5	1,182.2	216.0
Alameda	FY23-24	Small FTC Device	2.63	6.84	33.61	62.30	6.98	0.13	0.53	113.0	2,055.5	325.7	2,209.0	1,110.4
Alameda	FY24-25	Small FTC Device	8.27	4.36	15.20	0.87	0.02	0.00	0.07	28.8	771.0	145.6	810.6	205.4
Alameda	FY25-26	Small FTC Device	3.36	2.85	28.48	49.67	1.93	0.92	0.00	87.2	1,331.5	271.8	1,399.0	846.3
Albany	FY24-25	Small FTC Device	0.21		1.01		0.09			1.3	47.0	9.6	47.8	10.7
Berkeley	FY24-25	Small FTC Device				0.37				0.4	0.0	0.0	0.2	3.8
Berkeley	FY25-26	Small FTC Device	0.19	0.02		3.82	0.12			4.2	0.0	0.0	3.2	40.8
Dublin	FY23-24	Large FTC Device		1.28		6.30	3.10			10.7	0.0	0.0	46.5	121.8
Dublin	FY22-23	Small FTC Device	1.94					0.17		2.1	0.0	0.0	0.2	3.9
Dublin	FY23-24	Small FTC Device	15.52	8.88		0.00	0.24	6.51		31.2	0.0	0.0	82.1	199.7
Dublin	FY24-25	Small FTC Device	5.54	6.24	0.01	1.27	0.18	1.52		14.8	0.4	0.1	58.2	105.1
Dublin	FY25-26	Small FTC Device	14.66	5.17	0.56	4.86	18.93	17.21		61.4	26.0	5.3	243.4	564.1
Emeryville	FY25-26	Small FTC Device			0.00					0.0	0.2	0.0	0.2	0.0
Fremont	FY22-23	Small FTC Device	64.11	45.02	9.24	67.52	16.67	3.64		206.2	430.9	88.2	1,013.9	1,513.1
Fremont	FY23-24	Small FTC Device	51.38	24.40	0.80	65.64	9.29	4.03		155.5	37.1	7.6	371.3	1,122.4
Hayward	FY22-23	Large FTC Device	7.97	88.92	13.89	498.87	113.15	18.56		741.3	719.3	147.2	2,981.1	8,444.9
Hayward	FY24-25	Large FTC Device		22.06		123.75	13.21	0.96		160.0	0.0	0.0	415.1	1,828.5
Hayward	FY25-26	Large FTC Device	2.04	139.71	1.21	202.63	44.67	1.53		391.8	62.7	12.8	1,983.4	4,451.2
Hayward	FY22-23	Small FTC Device	85.71	259.77	213.93	1380.41	127.45	115.04		2,182.3	9,973.3	2,040.9	14,098.8	21,915.7
Hayward	FY23-24	Small FTC Device		0.00	0.00					0.0	0.1	0.0	0.2	0.0
Hayward	FY25-26	Small FTC Device		0.02		1.66	0.01	0.02		1.7	0.0	0.0	1.1	17.6
Livermore	FY23-24	Small FTC Device	0.69					2.30		3.0	0.0	0.0	0.2	34.1
Newark	FY22-23	Large FTC Device	1.15	6.75		0.00	0.02			7.9	0.0	0.0	66.4	78.1
Newark	FY22-23	Small FTC Device	449.32	59.90	218.92	459.48	9.65	91.48		1,288.8	10,205.9	2,088.5	11,089.9	9,173.7
Newark	FY24-25	Small FTC Device			8.33	5.33	0.21	0.02		13.9	388.5	79.5	393.0	136.6
Oakland	FY24-25	Large FTC Device	33.41	121.49	209.33	798.54	133.83	60.96		1,357.6	10,843.1	2,218.9	13,800.0	15,247.2
Oakland	FY24-25	Small FTC Device	18.87	39.15	92.91	233.67	45.34	4.22	0.01	434.2	4,344.0	886.5	5,208.6	4,226.0
Oakland	FY25-26	Small FTC Device	6.05	13.61	46.37	77.98	18.58	9.71	6.04	178.3	7,684.2	500.0	8,008.5	1,776.2
Piedmont	FY23-24	Small FTC Device		1.19		2.34	0.70			4.2	0.0	0.0	17.8	43.3
Pleasanton	FY24-25	Small FTC Device		0.01			0.02			0.0	0.0	0.0	0.3	0.3
Pleasanton	FY25-26	Small FTC Device		0.02			0.19			0.2	0.0	0.0	1.9	2.2
San Leandro	FY24-25	Large FTC Device	0.20	0.01	0.11	1.27	1.35			2.9	5.8	1.2	19.9	31.4
San Leandro	FY25-26	Small FTC Device	0.00			0.23	0.06	0.02		0.3	0.0	0.0	0.7	3.3
Uninc County	FY22-23	Large FTC Device		2.89	1.04	49.40	10.01	2.81		66.1	53.8	11.0	208.1	766.7
Uninc County	FY25-26	Large FTC Device	0.77	33.85	4.44	281.82	39.31	3.70		363.9	230.2	47.1	1,105.4	4,154.3
Uninc County	FY22-23	Small FTC Device	0.68	0.91	0.02	4.77	0.52	0.44		7.3	0.8	0.2	15.8	70.5
Uninc County	FY23-24	Small FTC Device	10.07	3.48	0.72	13.57	0.38	10.84		39.1	33.7	6.9	76.1	351.1
Uninc County	FY25-26	Small FTC Device	12.63	49.87	6.65	267.23	20.61	6.23		363.2	309.9	63.4	1,067.6	3,628.2
Union City	FY22-23	Small FTC Device	0.59	3.14	4.09	0.84	3.10	0.15		11.9	190.8	39.0	246.2	114.2
Union City	FY23-24	Small FTC Device	0.05	0.01	0.04	0.02	0.03			0.1	1.8	0.4	2.1	1.0
Union City	FY25-26	Small FTC Device	9.41		0.09					9.5	4.0	0.8	4.7	7.6
Total Area/Load Reduction			**808**	**954**	**914**	**4,678**	**644**	**363**	**8**	**8,370**	**50,874**	**9,038**	**68,284**	**82,577**

Bay Area Municipal Stormwater Collaborative

Regional Effectiveness Evaluation of the Protocols for Managing PCBs-Containing Materials During Building Demolition

Project Report

Submitted in Compliance with NPDES Permit No. CAS612008 – Provision C.12.g.iii.(5)

Prepared for:

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August 27, 2026

TABLE OF CONTENTS

List of Tables ii

List of Appendices ii

List of Abbreviations iii

1. Introduction 1
   1.1. Background 1
   1.2. Regulatory Requirements 1
   1.3. Project Purpose 3
   1.4. Organization of the Report 4
2. Building Demolition Protocols 5
   2.1. Development of the Protocols 5
   2.2. Implementation of the Building Demolition Protocols 7
   2.3. Regional Data Collection Process 8
3. Effectiveness Evaluation Methods 11
   3.1. Quantitative Evaluation Methods 11
   3.2. Qualitative Evaluation Methods 16
4. Results and Discussion 17
   4.1. Summary of the Data 17
   4.2. PCBs Loads Reduced 22
   4.3. Qualitative Evaluation 24
5. Conclusions 26
6. References 28

LIST OF TABLES

Table 3-1. Terms in MRP 2 Factsheet used in Equation 1 to stipulate the loading of PCBs to MS4s reduced by implementing the Building Demolition Protocols. 12

Table 3-2.Priority Building Material Quantities Assumed Based on Number of Samples Collected 14

Table 3-3. Conversion Factors to Calculate the Mass of Priority Building Materials for the Quantity Reported. 15

Table 4-1. Number of Applicable Structures Demolished per Fiscal Year containing Priority Building Materials with PCBs Concentrations ≥ 50 ppm by County. 17

Table 4-2. Summary Statistics of PCBs Concentrations ≥ 50 ppm in Priority Building Materials from Applicable Structures. 18

Table 4-3. Summary Statistics of PCBs Concentrations in Non-Priority Building Materials in Applicable Structures with PCBs concentrations ≥ 50 ppm. 19

Table 4-4. Calculated Mass of PCBs contained in Priority Building Materials per Applicable Structure with demonstrated PCBs concentrations ≥ 50 ppm. 19

Table 4-5. Summary Statistics of Calculated Mass of PCBs contained in Building Materials in Applicable Structures with PCBs Concentrations ≥ 50 ppm.....21

Table 4-6.Comparison of PCBs Load Reduced between MRP Assumed Values and Observed Values over the Protocol's Implementation between July 2019 and June 2025. 22

Table 4-7. Effect of Modifying Term 4 on PCBs Load Reduced over the Protocol's Implementation from July 2019 through June 2025. 23

LIST OF APPENDICES

Appendix A Managing PCBs in Building Demolition – Regional Collaboration for a Data Collection and Assessment Program, September 23, 2020.

Appendix B PCBs in Priority Building Materials: Model Screening Assessment Applicant Package, August 2018 (Revised November 2019 and May 2023).

Appendix C Construction Site Control Program Enhancement Options for Demolition Sites Subject to the PCBs Management Program, Technical Memorandum to Bay Area Municipal Stormwater Collaborative Steering Committee, May 1, 2023.

Appendix D Compiled Data for Priority Building Materials containing ≥ 50 ppm PCBs

LIST OF ABBREVIATIONS

BAAQMD	Bay Area Air Quality Management District
BAMSC	Bay Area Municipal Stormwater Collaborative
BASMAA	Bay Area Stormwater Management Agencies Association
Bay	San Francisco Bay
CCCWP	Contra Costa Clean Water Program
CEQA	California Environmental Quality Act
CWA	Clean Water Act
EO	Executive Officer
ft	Feet
ft^2	Square Feet
FY	Fiscal Year
kg/yr	Kilograms per Year
HVAC	Heating, Ventilation, and Air Conditioning
mg	Milligram
MPC	Monitoring and Pollutants of Concern Committee
MRP	Municipal Regional Permit
MRP 2	Municipal Regional Permit 2 (Order No. R2-2015-0049)
MRP 3	Municipal Regional Permit 3 (Order No. R2-2022-0018)
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
SFEI	San Francisco Estuary Institute
TAG	Technical Advisory Group
TMDL	Total Maximum Daily Load
TSI	Thermal System Insulation
USEPA	U.S. Environmental Protection Agency
Water Board	San Francisco Bay Regional Water Quality Control Board

1. INTRODUCTION

This report presents a regional effectiveness evaluation of the protocols for controlling polychlorinated biphenyls (PCBs) during building demolition (Building Demolition Protocols or Protocols) implemented by applicable municipalities in the San Francisco Bay Area, California. This report was prepared by EOA, Inc. and Geosyntec Consultants, Inc. on behalf of the Bay Area Municipal Stormwater Collaborative (BAMSC) member agencies in compliance with Provision C.12.g.iii.(5) of the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (Permit No. CAS612008), also known as the Municipal Regional Permit (MRP) (SFBRWQCB 2022).

1.1. Background

Fish tissue monitoring in San Francisco Bay (Bay) has revealed the bioaccumulation of PCBs, mercury, and other pollutants in Bay sportfish. The levels found are thought to pose a health risk to people consuming these fish, and as a result, an interim advisory has been issued on the consumption of sportfish from the Bay. The advisory led to the Bay being designated as an impaired water body on the Clean Water Act (CWA) "Section 303(d) list" due to elevated levels of PCBs and mercury. In response, the San Francisco Bay Regional Water Quality Control Board (Water Board) developed a Total Maximum Daily Load (TMDL) water quality restoration program targeting PCBs in the Bay. The general goals of the TMDL are to identify sources of PCBs to the Bay and implement actions to control the sources of PCBs to achieve water quality standards and restore beneficial uses (SFBRWQCB 2008). The PCBs TMDL identifies the regionwide urban stormwater runoff wasteload allocation as 2 kg/yr, with 1.6 kg/yr allocated to MRP Permittees, to be achieved by March 2030. The urban stormwater runoff requirements of the PCBs TMDL are being implemented through MRP Provision C.12.

PCBs in the past were often incorporated into building materials, such as caulk, and were most commonly used in buildings constructed between 1950 and 1980. When these buildings are demolished, PCBs-laden building materials can be released to the environment unless actions are taken to reduce or prevent these releases and the subsequent conveyance of the materials by urban stormwater runoff to the Bay. The program developed to manage PCBs during building demolition described in this report is the first of its kind, developed to reduce the release of PCBs from building materials during demolition.

1.2. Regulatory Requirements

1.2.1. MRP 2 (2015) Provision C.12.f

During the previous permit term (MRP 2, Order No. R2-2015-0049), the MRP required Permittees (i.e., those public agencies subject to MRP requirements) to develop and implement, or cause to be developed and implemented, an effective protocol for managing materials with PCBs concentrations of 50 parts per million (ppm) or greater in applicable structures at the time such structures undergo demolition, so that PCBs do not enter municipal separate storm sewer systems (MS4s). Applicable structures include, at a minimum, commercial, public, institutional, and industrial structures constructed or remodeled between 1950 and 1980 with building materials with PCBs concentrations of 50 ppm or greater. Single-family residential and wood frame structures are exempt. A Permittee is exempt from this requirement if the only buildings that existed pre-1980 within its jurisdiction were single-family residential and/or wood-frame buildings, as approved by the Water Board Executive Officer (EO).

Permittees were required to develop a Building Demolition Protocol by June 30, 2019, that includes each of the following components, at a minimum:

- The necessary authority to ensure that PCBs do not enter the MS4 from PCBs-containing materials in applicable structures at the time such structures undergo demolition
- A method for identifying applicable structures prior to their demolition.
- Method(s) for ensuring PCBs are not discharged to the MS4 from demolition of applicable structures.

By July 1, 2019, and thereafter, Permittees are required to:

- Implement or cause to be implemented a PCBs management protocol for ensuring PCBs are not discharged to the MS4 from demolition of applicable structures via vehicle track-out, airborne releases, soil erosion, or stormwater runoff.
- Develop an assessment methodology and data collection program to quantify, in a technically sound manner, PCBs loads reduced through implementation of the protocol for controlling PCBs during demolition of applicable structures.

1.2.2. MRP 3 (2022) Provision C.12.g

During the current permit term (MRP 3, Order No. R2-2022-0018), Permittees are required to continue to implement the Building Demolition Protocols developed during the previous permit term for managing PCBs-containing materials and wastes during building demolition so that PCBs do not enter the MS4. In addition, Permittees were required to implement the following enhancements to their PCBs in building materials control programs:

- Beginning July 1, 2023, for applicable structures containing building materials with PCBs 50 ppm or greater:
    - Demolition contractors must provide notification to the Permittee, Water Board, and United States Environmental Protection Agency (USEPA) at least one week (i.e., five working days) before any demolition is to occur.
    - Permittees must enhance their construction site control programs to minimize migration of PCBs into the MS4 during demolition activities.
- For permits approved after July 1, 2023, Permittees must verify that PCBs in demolished buildings are properly managed to minimize transport to the MS4 by obtaining documentation that the building materials with PCBs 50 ppm or greater were disposed appropriately according to state and federal regulations.
- Beginning in the 2023 rainy season, Permittees must inspect demolition sites with applicable structures containing building materials with PCBs 50 ppm or greater, pursuant to Provision C.6, to ensure that effective construction pollutant controls are used to prevent discharge into the MS4.

MRP 3 reporting requirements include the following:

- Permittees seeking exemption from Provision C.12.g requirements based on lack of applicable structures must submit documentation, such as historic maps or other historic records, that clearly demonstrates that the only structures that existed pre-1980 were single-family residential and/or wood-frame structures.

- In their 2023 Annual Report, Permittees shall discuss enhancements to their construction site control program to minimize migration of PCBs from demolition activities into the MS4.

- Beginning with their 2023 Annual Report, the Permittees shall provide each of the following items:

    1. The number of applicable structures that applied for a demolition permit during the reporting year

    2. A running list of the applicable structures that applied for a demolition permit since July 1, 2019, the number of samples each structure collected, and the concentration of PCBs in each sample.

    3. For each applicable structure, with PCBs concentrations of 50 ppm or greater, include the project address, the demolition date, and a brief description of the PCBs-containing materials.

    4. For each structure that was constructed or remodeled between the years 1950 and 1980 and requires emergency demolition to protect public health and/or safety, provide the address, date the building was constructed, and date of demolition.

- Beginning with their 2024 Annual Report, Permittees shall provide whether the site was inspected during demolition, and for those cases where notification and advance approval from the USEPA is not required and were approved for demolition after June 30, 2023, the hazardous waste manifest prepared for transportation of the material to a disposal facility.

- In their 2026 Annual Report, Permittees shall submit an evaluation of the effectiveness of the protocol for controlling PCBs during building demolition as well as supporting data. This should be conducted and reported at the regional level on behalf of all Permittees and shall be considered the Report of Waste Discharge for Provision C.12.g for the next permit reissuance.

- In their 2026 Annual Report, Permittees may submit for use in the subsequent permit term an updated assessment methodology and data collection program to quantify PCBs loads reduced through implementation of the protocol for controlling PCBs-containing materials and wastes during demolition of applicable structures.

1.3. Project Purpose

The purpose of this project was to conduct a regional evaluation of the effectiveness of the Permittees' Building Demolition Protocols for controlling PCBs during building demolition in compliance with MRP Provision C.12.g.iii.(5). This report provides the results of the

effectiveness evaluation, as well as supporting data, and serves as the Report of Waste Discharge for Provision C.12.g for the next permit reissuance.

1.4. Organization of the Report

The subsequent sections of this report are organized as follows:

- **Section 2.0 – Building Demolition Protocols.** This section provides an overview of the Building Demolition Protocols that were developed during MRP 2, updated during MRP 3, and have been implemented since July 1, 2019. This section also describes the regional data collection process.
- **Section 3.0 – Effectiveness Evaluation Methods**. This section describes the quantitative and qualitative methods that were used to evaluate the effectiveness of the Building Demolition Protocols for controlling PCBs from building materials during demolitions.
- **Section 4.0 – Results and Discussion**. This section presents the quantitative and qualitative results of the effectiveness evaluation of the Building Demolition Protocols, discusses strengths and limitations**,** and provides recommendations for continued implementation.
- **Section 5.0 – Conclusions.** This section summarizes the overall outcomes of the effectiveness evaluation and provides recommendations for continued implementation of the Protocols.

2. BUILDING DEMOLITION PROTOCOLS

This section provides an overview of the Building Demolition Protocols that were developed during MRP 2, updated during MRP 3, and have been implemented by MRP Permittees since July 1, 2019. This section also describes the regional data collection process.

2.1. Development of the Protocols

On behalf of MRP Permittees, the Bay Area Stormwater Management Agencies Association (BASMAA)[1] conducted a multi-year regional project during MRP 2 to assist Permittees in developing protocols for managing materials with PCBs concentrations of 50 ppm or greater during building demolition. The BASMAA project developed guidance, tools, and training materials, and conducted outreach.

At the outset of the project, a BASMAA Steering Committee was convened to provide project oversight and guidance. The Steering Committee included BASMAA Directors, countywide stormwater program staff, and Permittee staff from various relevant municipal departments. The Steering Committee met periodically throughout the project. In addition, a project technical advisory group (TAG) was formed from industry, regulatory, and Permittee representatives to provide review and input on selected project work products. Other efforts to engage key stakeholders included an industry stakeholder roundtable meeting and two larger stakeholder group meetings that included industry, regulatory, and municipal representatives.

Key BASMAA project deliverables provided to each Permittee to use as appropriate given local procedures and needs included:

- A protocol for assessment of prioritized PCBs-containing building materials prior to demolition, including a list of the five priority building materials (caulk, thermal insulation, fiberglass insulation, adhesive mastics, and rubber window gaskets) required for testing; PCBs sampling procedures; and sample collection frequency.

- Model language for municipal adoption (e.g., ordinance) of the new program to manage PCBs materials during building demolition and model supporting staff report and resolution.

- California Environmental Quality Act (CEQA) strategy and model notice of exemption.

- Supplemental demolition permit model application materials, including the PCBs in Priority Building Materials Screening Assessment Applicant Package (Screening Form, process flow charts, and applicant instructions).

- An analysis to assist municipalities that pursue cost recovery.

- A coordination/communication strategy for the project.

[1] BASMAA as a non-profit organization dissolved in 2021. The Bay Area Municipal Stormwater Collaborative (BAMSC) was formed soon after as an informal collaboration of the municipal stormwater programs in the San Francisco Bay Area.

- A technical memorandum summarizing any new information & decisions needed by BASMAA at the outset, including an annotated table of regulatory drivers and relevant requirements.

- Tools, Protocol, Outreach & Training: PCBs Materials Management during Building Demolition Project.

- Industry stakeholder outreach materials and a fact sheet for municipal staff.

- A spreadsheet tool used to develop the prioritized list of potential PCBs-containing building materials that the demolition program will focus on.

- A conceptual approach for an assessment methodology and data collection program to quantify PCBs loads reduced through managing PCBs-containing materials during building demolition (Appendix A).

The BASMAA project also conducted the following outreach and training tasks:

- Prepared training materials for municipal staff on adoption and implementation of the new protocols.

- Developed outreach materials and a standard presentation to inform industry stakeholders, including developers, planning firms, urban planning non-governmental organizations, demolition firms, property owners, property managers, and realtors, about the new Building Demolition Protocols.

- Using the above training materials, conducted training workshops (in-person and a webinar) for key municipal and countywide stormwater program staff.

- Conducted a webinar for industry stakeholders.

- Developed a list of Bay Area opportunities, including contact information and dates, for municipal and/or stormwater program staff to conduct additional outreach to industry stakeholders using the above industry outreach materials.

At the start of MRP 3, BAMSC conducted a follow-up regional project on behalf of all MRP Permittees to provide additional guidance and resources to assist Permittees with implementing the new MRP 3 C.12.g requirements. The regional project conducted the following tasks:

- Formed a regional Management of PCBs during Demolition Work Group to oversee the regional project that included countywide stormwater program and Permittee staff.

- Updated the existing BASMAA Model Applicant Package to accommodate the new MRP 3 tracking and reporting requirements (PCBs in Priority Building Materials: Model Screening Assessment Applicant Package, August 2018 (Revised November 2019 and May 2023)) (Appendix B).

- Developed a set of recommended construction inspection and control program enhancement options for use by Permittees, building on the existing C.6 inspection program (Construction Site Control Program Enhancement Options for Demolition Sites

Subject to the PCBs Management Program, Technical Memorandum to Bay Area Municipal Stormwater Collaborative Steering Committee, May 1, 2023) (Appendix C).

The key resources described above are provided in Appendices A, B, and C.

2.2. Implementation of the Building Demolition Protocols

MRP Permittees adopted Building Demolition Protocols (e.g., via local policy or ordinance) and trained local staff to implement the Protocols starting July 1, 2019, except for the Town of Clayton, which was exempted by the Water Board EO during MRP 2 due to lack of applicable structures. The City of Monte Sereno was later granted an exemption from implementing the Protocol on January 23, 2024 following their submittal of acceptable evidence that the only structures that existed pre-1980 within its jurisdiction were single-family residential and/or wood-frame structures (SFBRWQCB 2024).

Using the BASMAA/BAMSC Applicant Package and Screening Form, guidance, resources, and training, Permittees developed their own version of the Protocol tailored to the needs of their individual municipality. However, the overall process for all Permittees is similar and includes the following steps:

1. The municipality informs demolition permit applicants (applicants) that their projects are subject to the MRP Provision C.12.g requirements that require applicants to conduct a PCBs screening assessment. The PCBs screening assessment determines whether the building proposed for demolition is likely to have PCBs-containing building materials (i.e., *applicable structures*); and for applicable structures, determines whether PCBs are present in priority building materials at a concentration equal to or greater than 50 ppm.

2. Applicants must complete and submit the municipality's Applicant Package and Screening Form (Screening Form) modeled after the *PCBs in Priority Building Materials: Model Screening Assessment Applicant Package* (BASMAA 2023) or equivalent to the municipality. The Screening Form summarizes and certifies the information required by the municipality to issue a demolition permit. The Screening Form is divided into four parts:

    - **Part 1 – Owner and project information**. This part provides contact information for the building owner and project consultant, the project location, and the type of construction.

    - **Part 2 – Is the building subject to the screening requirement based on type, use, and age of the building?** This part includes questions to identify whether the project involves an *applicable structure*. Applicable structures are buildings that are proposed for complete demolition, were constructed or remodeled between 1950 and 1980, and are not wood-framed or single-family residential structures. Applicable structures are more likely to have PCBs-containing building materials. If the demolition does not involve applicable structures, the form may be certified (Part 4) and submitted to the municipality without completing Part 3.

    - **Part 3 – Report concentrations of PCBs in priority building materials.** Part 3 documents the results of the PCBs concentrations measured in *priority building materials*. Priority building materials include caulk, thermal insulation, fiberglass

insulation, adhesive mastics, and rubber window gaskets. For applicable structures, applicants must test priority building materials for PCBs. If PCBs in these materials are present at a concentration equal to or greater than 50 ppm, the Screening Form must document PCBs concentrations and the quantity of these materials removed prior to demolition, and any supporting documents (i.e., the consultant's report documenting the evaluation results and the QA/QC checklist) must be submitted to the municipality along with the completed Screening Form. BASMAA developed a "Protocol for Evaluating Priority PCBs-Containing Materials before Building Demolition (BASMAA 2019; Attachment C in Appendix B), which is provided with the Applicant Package and details how to conduct representative sampling and analysis of the priority building materials.

- **Part 4 – Certification.** The certification must be signed by the property owner or the owner's agent or legal representatives and the consultant who completed the application form. Completing and signing the certification indicates that: (1) the information provided by the applicant on the Screening Form is true, accurate, and complete; (2) the applicant understands the responsibility for knowing and complying with all relevant laws and regulations related to reporting, abating and handling and disposing of PCBs materials and wastes; (3) for sites with PCBs greater than or equal to 50 ppm, the applicant will notify the Water Board, USEPA, and the municipality at least five working days in advance of the start of demolition; and (4) beginning with MRP 3, the applicant will submit the hazardous waste manifest for the disposal of PCBs materials to the municipality within five working days of it becoming available.

3. The municipality reviews the Screening Form to make sure it is filled out correctly and is complete and works with the applicant to correct any deficiencies. The municipality then issues the demolition permit or equivalent, according to its procedures.

4. Starting with the 2023 rainy season, Permittees began inspecting demolition sites of applicable structures containing building materials with PCBs concentrations of 50 ppm or greater upon notification from the applicants that demolition was occurring pursuant to Provision C.6 to ensure that effective construction pollutant controls are used to prevent discharge into the MS4.

If building materials have been screened and determined to contain asbestos, lead, or other hazardous substances and will be abated under an associated waste program, that material need not be sampled for PCBs under this program as those materials will already be subject to appropriate abatement and disposal procedures.

2.3. Regional Data Collection Process

During MRP 2, Permittees worked together through the BASMAA Monitoring and Pollutants of Concern Committee (MPC) to develop a framework to comply with data collection and reporting requirements under Provision C.12.f. The overall data collection process is summarized here and described in detail in EOA 2020 (Appendix A). In addition, the regional data collection process has been updated more recently to also address reporting requirements under MRP 3, as described in this section.

The overall framework for the regional data collection process involves collection of data from individual permit applicants at the municipal level, followed by compilation of data for applicable structures at the countywide level for annual reporting, and data compilation at the regional level for the data evaluation presented in this report. The process is described below.

2.3.1. Applicant Data Collection

Each project proponent that requests a demolition permit from a given municipality must fill out the Applicant Package and Screening Form to summarize and certify the information required by the municipality to issue the demolition permit.

2.3.2. Municipal Data Collection and Reporting

The municipalities are responsible for collecting the completed Screening Forms and supporting documents prior to issuing the demolition permit. The municipality submits the completed Screening Forms for applicable structures and any supporting documents to its countywide stormwater program electronically at least annually. Screening Forms for non-applicable structures are not submitted to the countywide stormwater program but are maintained by the municipality. For active demolition sites each year, Permittees submit the following information with their Annual Reports:

- A list of structures with PCBs concentrations ≥ 50 ppm, including the project addresses and demolition dates, and a description of the PCBs-containing materials.

- For projects approved after June 30, 2023, whether the site was inspected during demolition, and the hazardous waste manifest prepared for transportation of material to a disposal facility for those cases where notification and advance approval from USEPA is not required.

2.3.3. Countywide Data Collection and Reporting

Upon receipt of the municipal data, each countywide stormwater program reviews the submitted Screening Forms and compiles the data into a countywide data management system. The data management system was developed at the regional level for consistency across the countywide stormwater programs. The data management system provides a mechanism for the countywide stormwater programs to gather and store the data submitted by the municipalities that is needed for annual reporting requirements and for the data evaluation. The data management system is an Excel spreadsheet-based tool for storing and managing the data from each Permittee. The tool also calculates the estimated loads avoided by the implementation of the Building Demolition Protocols using the assessment methodology and data inputs described in Section 3.

The countywide stormwater programs enter all of the pertinent information from the Screening Forms and supporting data into the data management system. This includes all the information that is needed for reporting and evaluation purposes. On an annual basis, the countywide stormwater program compiles and reports the following information on behalf of their members in their Program Annual Report:

- Documentation of (a) the number of applicable structures that applied for a demolition permit during the reporting year, and (b) a running list of the applicable structures that applied for a demolition permit (since the date the PCBs control protocol was

implemented) that had material(s) with PCBs at 50 ppm or greater, with the address, demolition date, and brief description of PCBs control method(s) used.

2.3.4. Regional Data Collection

The data management system described above was developed cooperatively by the countywide stormwater programs to facilitate the compilation and evaluation of the program data at the regional level. For this evaluation, the countywide stormwater programs merged their data into a single regional data set.

3. EFFECTIVENESS EVALUATION METHODS

This section describes the methods used to evaluate the effectiveness of the Building Demolition Protocols. The protocol effectiveness was evaluated both quantitatively and qualitatively based on six years of implementation of the Protocols by MRP Permittees, as described below.

3.1. Quantitative Evaluation Methods

Prior to MRP 2, Permittees worked together (through BASMAA) with Water Board staff to develop an assessment methodology framework to quantify PCBs loads reduced through implementation of the Building Demolition Protocols, summarized below and in the MRP 2 Fact Sheet (SFBRWQCB 2015). The basis for this methodology is described in BASMAA's 2014 Integrated Monitoring Report Part B (BASMAA, 2014) and in EOA 2020 (Appendix A). This assessment methodology provides the basis for the quantitative evaluation of the Building Demolition Protocols.

3.1.1. Overview of Assessment Methodology

The assessment started with a compilation of all the data gathered across the region on implementation of the Building Demolition Protocols, as described in Section 2.3. Information collected over six years (July 1, 2019, to June 30, 2025) was compiled into a single regional database containing information about PCBs sample results from priority building materials in applicable structures. This information was used to calculate the reduction in PCBs loading to stormwater runoff resulting from implementation of the program as described in Equation 1 and to validate the assumptions in the MRP about program implementation.

Equation 1. $Load\ of\ PCBs\ Reduced = N \bullet M \bullet SW \bullet E_f$

Where:

- N = Number of applicable structures with PCBs concentrations ≥ 50 ppm demolished each year (structures/yr)
- M = Average mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm (kg/structure)
- SW = Average fraction of PCBs that enters the MS4 due to demolition without demolition program controls (dimensionless fraction)
- E_f = Average fraction of PCBs prevented by new demolition program controls from entering MS4 (dimensionless fraction)

Table 3-1 presents the values assumed by the Water Board in MRP 2 for each of the four terms as stated the MRP 2 Factsheet. Based on these assumptions, the Water Board assigned a 2 kg/yr load reduction for implementing the Building Demolition Protocols across the MRP area (SFBRWQCB 2015).

Table 3-1. Terms in MRP 2 Factsheet used in Equation 1 to stipulate the loading of PCBs to MS4s reduced by implementing the Building Demolition Protocols.

Term	Variable	Description	MRP 2 Value	Units
1	*N*	Number of applicable structures demolished per year with PCBs concentrations ≥ 50 ppm	50	applicable structures/year
2	*M*	Average mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm	5	kg/applicable structure
3	*SW*	Average fraction of PCBs that enters the MS4 due to demolition without controls	0.01	dimensionless fraction
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	0.8	dimensionless fraction

[1]The term “controls” referred to existing construction controls in 2015.

The MRP 2 and MRP 3 Fact Sheets note that each of the terms could be represented by a range of values, and the information available to estimate the values of these terms shown in Table 3-1 was limited at the time of development in 2015. As part of this MRP 3 evaluation, the regional data compilation described above and additional literature searches were used to evaluate and refine, as appropriate, the values of the four terms. For the first two parameters, data evaluation was conducted using the information generated by the municipalities from the demolition control program. The last two parameters were evaluated using literature research. Additional information on the assumed values for each of these terms is provided below.

3.1.2. Term 1: Number of Applicable Structures Demolished Per Year

The MRP 2 Factsheet assumed that 50 applicable structures with PCBs concentrations 50 ppm or greater are demolished per year in the Bay Area (SFBRWQCB 2015). This value was based on data from the Bay Area Air Quality Management District (BAAQMD) on the number of building demolitions that had asbestos, as described in a San Francisco Estuary Institute report (SFEI 2011). BAAQMD regulations require that a "J Number" be obtained prior to applying for a permit for demolition of an existing structure or renovations removing greater than 100 square feet of asbestos material within the San Francisco Bay air basin. The quantity of “J Numbers” issued from April 2010 to March 2011 for commercial and industrial buildings in the SF Bay Area was 521. SFEI (2011) assumed that 46% of demolitions were of structures built between 1950 and 1980 and that 36% of those buildings had PCBs concentrations in caulk at 50 ppm or greater. Multiplying (521) x (0.46) x (0.36) results in an estimated 86 buildings demolished per year that were built between 1950 and 1980 and had PCBs concentration in caulks/sealants greater than or equal to 50 ppm. Based upon information in the SFEI 2011 study and considering that the scope of the program to manage PCBs during demolitions excludes wood frame and single-family residential buildings, Water Board staff assumed 50 applicable structures with PCBs concentrations 50 ppm of greater are demolished per year in the Bay Area (SFBRWQCB 2015).

As part of the Building Demolition Protocols that began in July 2019, applicants for demolition permits are required to submit a Screening Form for each applicable structure that documents whether the applicable structure has PCBs concentrations 50 ppm of greater. This information was compiled into a regional database and used to calculate a regional annual average number of applicable structures with PCBs concentrations 50 ppm or greater that were demolished throughout the MRP area and were subject to the Protocols.

3.1.3. Term 2: Average Mass of PCBs per Applicable Structure

The MRP 2 Factsheet assumed an average applicable structure with PCBs concentrations 50 ppm or greater in the Bay Area contains 5 kg of PCBs in caulk (SFBRWQCB 2015).

Equation 2 was used to calculate the average mass of PCBs per applicable structure that was subject to the Protocols using data provided on the Screening Forms. The PCBs concentrations in each priority building material (*Ci*) were provided on the Screening Form for each applicable structure in units of mg of PCBs per kg of priority building material[2] (ppm). The quantity of each priority building material (*Qi*) that was used in Equation 2 was provided on the Screening Form in units of linear feet (ft) for caulk and rubber window gaskets, and square feet (ft^2) for thermal or fiberglass insulation and mastic adhesives. The newly calculated average accounts for the five priority building materials that are addressed in the Protocols - caulk, rubber window gaskets, thermal insulation, fiberglass insulation, and adhesive mastics.

Equation 2. $Mass\ of\ PCBs\ per\ Structure\ (mg) = [\sum n\ (Ci \bullet Qi \bullet Fi)]$

Where:

Ci = Concentration of PCBs in priority building material i (ppm)

Qi = Quantity of priority building material i (linear feet or square feet)

Fi = Conversion factor – mass of priority building material per linear foot of priority building material i (kg/ft) or mass of priority building material i per square foot of priority building material i (kg/ft^2)

Estimate of Quantity of Material

When the concentration of PCBs was provided without an associated quantity of material, the quantity was estimated based on the number of samples collected for the specific material. As described in the BASMAA Building Demolition Protocol guidance on conducting the screening assessment (BASMAA 2019; Attachment C in Appendix B), a specific number of samples are required to be collected for each unique priority building material based on the estimated quantity of the material as shown in Table 3-2. The assumed quantity per sample, based on the midpoint of the quantity range of the suspect priority building material divided by the number of samples collected, is also shown in Table 3-2.

[2] The unit mg/kg is the unit reported by analytical laboratories and is equivalent to the unit part per million (ppm)

Table 3-2.Priority Building Material Quantities Assumed Based on Number of Samples Collected.

Priority Building Material Category	Quantity of Suspect Building Material (per BASMAA protocol)	Assumed Material quantity (Midpoint of the range)	Required Number of Samples Collected (per BASMAA protocol)	Assumed Quantity Per Sample for *Qi*
Caulks/gaskets	0-50 linear feet	25 linear feet	1	25 linear feet/sample
Caulks/gaskets	50-250 linear feet	150 linear feet	3	50 linear feet/sample
Caulks/gaskets	250-1,000 linear feet	625 linear feet	5	125 linear feet/sample
Caulks/gaskets	1,000-2,500 linear feet	1,750 linear feet	7	250 linear feet/sample
Caulks/gaskets	>2,500 linear feet	2,500 linear feet	9	278 linear feet
Mastics/adhesive	0-1,000 square feet	500 square feet	3	167 square feet/sample
Mastics/adhesive	1,000-5,000 square feet	3,000 square feet	5	600 square feet/per sample
Mastics/adhesive	>5,000 square feet	5,000 square feet	7	714 square feet/per sample

Estimate of Mass of Priority Building Materials

Conversion factors were used to estimate the mass of priority building materials for the quantity of material reported (or assumed) on the Screening Form. The conversion factors that were used for this calculation were developed as described in the assessment methodology (EOA 2020, Appendix A) based on data collected from common priority building material dimensions and densities used in typical building construction and were gathered through literature review, product technical specifications, building construction guidelines, and other relevant resources (Panke and Cook 1992, Scheffler and Connolly 1996, Jester 1995). The best (average or mid-range) value of the conversion factors that are provided in Table 2 of Appendix A is summarized in Table 3-3. In some cases, available data was incomplete or did not match the categories in Table 3-3. Conversion factors that are not specific to the priority building material's application or material type were therefore developed by averaging across applications/types, consistent with Appendix A, and are listed with the "Unspecified" values in Table 3-3.

Table 3-3. Conversion Factors to Calculate the Mass of Priority Building Materials for the Quantity Reported.

Priority Building Material Category	Descriptions of Typical Application	Conversion Factor	Units
Caulk	Around windows or window frames; around door frames	0.02	kg/ft
Caulk	Expansion joints between concrete sections (e.g., floor segments)	0.04	kg/ft
Caulk	Unspecified	0.03	kg/ft
Rubber Window Gaskets	Around window or window frames	0.03	kg/ft
Thermal or Fiberglass Insulation	Around HVAC systems/ heaters/ boilers	0.82	kg/ft^2
Thermal or Fiberglass Insulation	Around heated transfer piping	0.16	kg/ft^2
Thermal or Fiberglass Insulation	Inside walls or crawl spaces (loose fiberglass fill/batting)	0.21	kg/ft^2
Thermal or Fiberglass Insulation	Inside walls or crawl spaces (rigid fiberglass foam board)	0.17	kg/ft^2
Thermal or Fiberglass Insulation	Unspecified	0.32	kg/ft^2
Adhesive Mastics	Below carpet and floor tiles	0.10	kg/ft^2
Adhesive Mastics	On, under or between roofing materials and flashing	0.50	kg/ft^2
Adhesive Mastics	Unspecified	0.30	kg/ft^2

3.1.4. Term 3: Average fraction of PCBs that Enter the MS4 due to Demolition without Controls

The average fraction of PCBs that enter the MS4 due to demolition without controls was estimated at 0.01 based upon professional judgment (i.e., 1% of PCBs in building materials enter MS4s due to demolition without any construction site controls). The MRP 2 Factsheet (SFBRWQCB 2015) used this value in Equation 1 for Term 3 (see Table 3-1). An online search did not identify any new research or relevant studies that may have occurred more recently to update the value assumed for Term 3.

3.1.5. Term 4: Average fraction of PCBs Prevented by Controls from Entering MS4

The average effectiveness of standard construction phase controls at preventing PCBs from entering storm drains was estimated to be 80 percent, based mainly upon professional judgment (i.e., 80% of PCBs were prevented from entering MS4s by the construction practices

in place to manage PCBs during building demolition in 2015). The MRP 2 Factsheet (SFBRWQCB 2015) used this value in Equation 1 for Term 4 (see Table 3-1). As described in Section 1.1.2, the Permittees were required to enhance their construction site control programs to minimize migration of PCBs into the MS4 during demolition activities during MRP 3. Data are not available to assess the increase in effectiveness of the improvements, thus the analysis presented in Section 4 considers an increase in effectiveness to 85%, 90%, and 95%.

3.2. Qualitative Evaluation Methods

Since the start of this program, Permittees have participated in a number of forums to discuss implementation of the Building Demolition Protocols, including BAMSC MPC and countywide stormwater program meetings. During MRP 3, BAMSC conducted a regional project that formed a workgroup comprised of municipal staff and countywide stormwater program representatives to facilitate improved information sharing amongst Permittees and to discuss the need for minor updates to and guidance on the implementation of the Protocols. Subsequently, the Contra Costa Clean Water Program (CCCWP) developed a regionwide qualitative survey to identify common Permittee questions and needs in implementing the Building Demolition Protocols. The goals of the regional project were developed based on the results of this survey,

The intent of the BAMSC regional project and workgroup was to facilitate information sharing amongst Permittees on their experiences in implementing the program as well as discuss challenges and successes experienced to date. Information gained through this workgroup, Permittee discussions at BAMSC MPC, and discussions at countywide stormwater program meetings over the past year provided input for the qualitative evaluation.

4. RESULTS AND DISCUSSION

This section presents the quantitative and qualitative results of the effectiveness evaluation of the Building Demolition Protocols, discusses strengths and limitations**,** and provides recommendations for continued implementation.

4.1. Summary of the Data

The data collected by municipalities on applicable structures from the Screening Forms submitted between July 2019 and June 2025 (i.e., six years of data) were compiled into a regional data set that is presented in Appendix D. These data were used to calculate updated values for each of the terms in Equation 1 (Section 3.1.1) as summarized below.

4.1.1. Term 1: Number of Applicable Structures Demolished Per Year

A total of 63 Screening Forms for applicable structures that contained priority building materials with PCBs concentrations 50 ppm or greater were submitted by Permittees to the countywide stormwater programs from July 2019 to June 2025 (Table 4-1). The total number of applicable structures demolished per year varied significantly depending on the year, from a low of four in fiscal year (FY) 2023/2024 to a high of 19 applicable structures in FY 2019/2020.

Table 4-1. Number of Applicable Structures Demolished per Fiscal Year containing Priority Building Materials with PCBs Concentrations ≥ 50 ppm by County.

County	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Alameda	11	5	6	4	1	0
Contra Costa	0	2	3	0	0	2
Santa Clara	6	1	2	3	3	2
San Mateo	2	3	4	1	0	2
Solano	0	0	0	0	0	0
TOTAL	19	11	15	8	4	6

The data presented in Table 4-1 demonstrate that, on average,11 applicable structures per year were demolished that contained building materials with PCBs concentrations 50 ppm or greater. This is significantly less than the 50 applicable structures per year that was assumed for Term 1 in MRP 2. This average value (11 applicable structures per year) only accounts for structures that had PCBs concentrations 50 ppm or greater in priority building materials where the Screening Forms were submitted to municipalities by the project proponents.

The discrepancy between the observed and assumed number of applicable structures per year that contained building materials with PCBs concentrations 50 ppm or greater is likely due, at least in part, to the inputs used to estimate this number prior to MRP 2. The estimated number of applicable structures demolished per year was an assumed fraction of the total number of J Number permits issued by the BAAQMD from April 2010 to March 2011 (SFEI 2011). J Number permits are also issued for partial demolitions which are not included in the current Protocol.

This number was also based on a single year of data (April 2010 to March 2011) and does not consider periods of high and low economic activity which drives redevelopment.

4.1.2. Term 2: Average Mass of PCBs per Applicable Structure

The concentrations of PCBs in priority building materials were tabulated by the countywide stormwater programs for their respective county from laboratory reports/and or summary tables provided by the applicant to the Permittee. Summary statistics, calculated from the tabulated and aggregated data to assess the relative PCBs contributions from each respective material category, are detailed in Table 4-2. Region-wide, there were 256 samples that reported PCBs 50 ppm or greater. The priority building material category for caulks and sealants was the most common material identified with samples that had PCBs 50 ppm or greater (57%). The caulks and sealants priority building material category also demonstrated the highest mean (58,767 ppm), median (11,270 ppm), and maximum concentrations (537,000 ppm) for all priority building materials tested.

Table 4-2. Summary Statistics of PCBs Concentrations ≥ 50 ppm in Priority Building Materials from Applicable Structures.

Priority Building Material	# of Samples ≥ 50 ppm	Min	Mean	Median	Max
Caulks and Sealants	147	50	58,767	11,270	537,000
Rubber Window Gaskets	44	56	694	310	6,400
Thermal Insulation	6	66	452	191	1,800
Fiberglass Insulation	12	53	2,707	783	25,000
Adhesive/Mastics	47	50	2,231	250	36,000
TOTAL	**256**	--	--	--	--

A small number of applicants also submitted data for non-priority building materials that demonstrated PCBs concentrations of 50 ppm or greater. These materials were not required to be tested for PCBs but were nevertheless reported by applicants. These non-priority building materials included fiberglass ceiling tiles from a building in Santa Clara County (the City of San Jose) and two buildings in Alameda County (the cities of San Leandro and Oakland, respectively) that tested for paint and concrete substrate. Summary statistics were calculated from the tabulated and aggregated data for these non-priority building materials as shown in Table 4-3. Of the non-priority building materials tested and reported, paint was the common contributor based on the total number of samples that tested over 50 ppm for PCBs (n=17). Paints also demonstrated the highest mean (13,241 ppm), median (3,100 ppm), and maximum concentrations (93,000 ppm) for all non-priority building materials tested and reported by applicants. However, since only a small percentage of applicants submitted these data, they have not been included in the calculation of total PCBs mass per building presented in Table 4-4, thus the total mass value presented is conservative.

Table 4-3. Summary Statistics of PCBs Concentrations in Non-Priority Building Materials in Applicable Structures with PCBs concentrations ≥ 50 ppm.

Non-Priority Building Material	# Samples ≥ 50 ppm	Min	Mean	Median	Max
Concrete	3	54	88	61	150
Paint	17	51	13,241	3,100	93,000
Fiberglass Ceiling Tile	1	620	620	620	620

Using Equation 2 and the methodology described in Section 3.1.3, the total mass of PCBs in priority building materials per applicable structure was calculated for each applicable structure that had at least one sample with demonstrated PCBs concentrations of 50 ppm or greater in priority building materials (Table 4-4). For tested materials in which the quantities of materials were missing, the quantity was estimated using the total number of samples taken and tested for a respective material at the building (See Section 3.1.3).

Table 4-4. Calculated Mass of PCBs contained in Priority Building Materials per Applicable Structure with demonstrated PCBs concentrations ≥ 50 ppm.

County	Build ID	Calculated Mass of PCBs (kg)
Alameda	B2022-00683	0.10
	2022-23_EM-01	1.5
	2021-22_AC-1	0.00011
	B2105059	0.000042
	BER-3	1.5
	Hay-01 Bldg 1	0.0092
	Hay-1	0.0010
	Hay-2	0.0091
	411 Industrial Pkwy	0.0010
	DUB-1	0.53
	2020-21_FRE-1	0.058
	FRE-3	0.00077
	2020-21_FRE-5	0.087
	22300 City Center Dr.	0.66
	2019-20_Fre-1	0.0055
	GE Site - Slab G - Center	0.00050
	GE Site BLD - 01	0.013
	GE Site BLD - 02	0.00046
	GE Site BLD - 04	0.0091
	GE Site BLD - 08	0.000084
	GE Site BLD - 17	0.0065
	GE Site BLD - 18	0.00092
	GE Site BLD - 20	0.020
	Port BLD - 01	31
	OAK-07	0.000027
	OAK-06	5.6

County	Build ID	Calculated Mass of PCBs (kg)
	OAK-11	0.024
Contra Costa	SHIPPING/RECEIVING BLDG.	0.0019
	HELIUM BUILDING	0.000034
	CC-1	18
	102	2.1
	CON-01	0.035
	2800 Mitchell_Bldg300/310	0.0090
	D24012 (warehouse)	0.35
San Mateo	SMC-2	0.00033
	SMC-6	0.0082
	SMC-17	1.4
	SMC-28	0.0029
	SMC-29	170
	SM-42	0.0023
	SM-55	1.5
	SM-56	4.5
	SM-57	3.1
	SM-61	0.61
	SM-70	0.63
	SM-71	1.0
Santa Clara	SC-003B	0.013
	SC-005	0.26
	SC-028	0.020
	SC-031	0.034
	SC-043	0.010
	SC-053SJ	0.13
	SC-063	0.049
	SC-089	0.0046
	SC-091	22
	SC-099	8.3
	SC-103	0.32
	SC-109	13
	SC-126	0.013
	SC-136	0.0014
	SC-141	0.0080
	SC-155	0.051
	SC-156	0.054
TOTALS	**65**	**288**

Priority building materials in the 63 applicable structures reported to municipalities as part of the Building Demolition Protocols that had priority building materials 50 ppm or greater contained a total of 288 kg of PCBs, as calculated. The average mass for these applicable structures was 5 kg of PCBs per building (See Table 4-5), which is the same value that was estimated in MRP 2.

It is important to note that the overall range of PCBs contained in applicable structures varied widely (e.g., from <0.00003 kg up to 170 kg in a single structure). As such, the median calculated mass (0.024 kg) is much less than the average (5 kg). Applicable structures containing extremely high concentrations of PCBs significantly influence the mean and the total overall mass of PCBs removed through implementation of the Protocols. A single applicable structure (SMC-29) is responsible for more than half of the calculated mass captured by the Protocols. There were 170 kg of PCBs reported from this applicable structure, which is an order of magnitude higher than the next highest applicable structure (Port BLD -01; 31 kg). The high mass in SMC-29 is due to some of the highest concentrations of PCBs tested in caulk (up to 330,000 ppm) combined with the high quantity of caulk materials found in the building.

Table 4-5. Summary Statistics of Calculated Mass of PCBs contained in Building Materials in Applicable Structures with PCBs Concentrations ≥ 50 ppm.

# Samples ≥ 50 ppm	Min	Mean	Median	Max
63	0.000027	5	0.024	170

Importantly, the Protocol does not require PCBs testing (and submittal of the associated data) for priority building materials that are subject to asbestos, lead, or other hazardous materials abatement and disposal requirements. This “asbestos exemption” means that if priority building materials contain asbestos and will be abated under an associated waste program, that priority building material need not be sampled for PCBs under the Building Demolition Protocols. The purpose of this exemption was to reduce the burden on demolition permit applicants to test these materials for PCBs, as these materials were already subject to appropriate abatement and disposal procedures. While the existing asbestos, lead, and other hazardous materials programs require proper abatement and disposal of these materials, the amount of PCBs mass for those materials is not included on the Screening Forms and cannot be quantified. Thus, the average mass of PCBs per building reported in Table 4-5 is conservative and likely an underestimate.

4.1.3. Terms 3 and 4

A literature review was conducted to evaluate whether new information was available to support modifying the assumptions used for Term 3, the average fraction of PCBs that enter the MS4 due to demolition without controls, and Term 4, the average fraction of PCBs prevented from entering the MS4 through implementation of the Building Demolition Protocols. The review did not identify any recent studies that provide a quantitative estimate of the fraction of PCBs in building materials that may enter the MS4 during demolition in the absence of the protocols, nor did it identify studies that directly measured the effectiveness of the protocols under real-world demolition conditions. Therefore, no updates are proposed for Term 3. For Term 4, the analysis assumes the effectiveness of controls has increased from 80 % (0.8 for Term 4) to 85% (0.85), 90% (0.90), or 95% (0.95).

4.2. PCBs Loads Reduced

The PCBs loads reduced across the MRP region due to implementation of the Protocols from July 2019 to June 2025 were calculated using Equation 1 and the updated Terms 1 and 2 presented in Sections 4.1.1 and 4.1.2 (Table 4-6). Table 4-7 lists the PCBs load reduced using an assumption of 0.85, 0.90, or 0.95 for Term 4.

Table 4-6.Comparison of PCBs Load Reduced between MRP Assumed Values and Observed Values over the Protocol's Implementation between July 2019 and June 2025.

Term	Symbol	Term Definition	Units	MRP 2 Assumed Value	Observed Value[1]
1	*N*	Number of applicable structures demolished per year with PCBs concentrations ≥ 50 ppm	applicable structures/year	50	11
2	*M*	Average mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm	kg/applicable structure	5	5
3	*SW*	Average fraction of PCBs that enters the MS4 due to demolition without controls[1]	dimensionless fraction	0.01	0.01
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	dimensionless fraction	0.8	0.8
		PCBs Load Reduced[1]	**kg/yr**	**2**	**0.44**

1 PCBs load reduced calculated using Equation 1. $Load\ of\ PCBs\ Reduced = N \bullet M \bullet SW \bullet E$f.

Table 4-7. Effect of Modifying Term 4 on PCBs Load Reduced over the Protocol's Implementation from July 2019 through June 2025.

Term	Symbol	Term Definition	Units	Assumed Value	PCBs Load Reduced[1]
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	dimensionless fraction	0.8	0.44
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	dimensionless fraction	0.85	0.47
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	dimensionless fraction	0.90	0.50
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	dimensionless fraction	0.95	0.52

1 PCBs load reduced calculated using Equation 1. $Load\ of\ PCBs\ Reduced = N \bullet M \bullet SW \bullet E$f.

The calculated average annual PCBs loads to stormwater reduced due to six years of implementation of the Protocols was at least 0.44 kg per year. This result is less than 25% of the 2 kg/yr load avoidance that was assumed in MRP 2. This lower level of load reduction resulted from the lower average number of buildings demolished each year that were captured by the Protocols and had PCBs at 50 ppm or greater (11 applicable structures per year), compared with the number assumed for Term 1 in the MRP (50 applicable structures per year).

Despite the smaller-than-predicted PCBs loads reduced due to implementation of the Building Demolition Protocols, the data collected document that the Protocols have provided substantial reductions in the mass of PCBs released to stormwater that otherwise would have occurred in the absence of the Protocols over the past six years. Based on the total mass of PCBs in the buildings that were subject to the Protocols identified in Table 4-4 (288 kg), the total mass of PCBs to stormwater that was reduced over six years of implementation was 2.3 kg (288 kg * 0.01 * 0.80). This finding highlights the importance of the Building Demolition Protocols.

It is important to note that there is a finite inventory of applicable structures with PCBs concentrations 50 ppm or greater in the Bay Area. The number of buildings that are demolished in a given year is a function of large-scale processes such as economic or socio-economic and political shifts, which may occur as a result of physical phenomena (e.g., large seismic events) or other factors, such as that experienced during the COVID-19 pandemic. If there are fewer buildings demolished each year, it will take longer to achieve the maximum PCBs loads reduced. However, continued implementation of the Protocols is the best way to ensure that PCBs load reductions are realized.

4.3. Qualitative Evaluation

Forums to discuss implementation of the Protocols, three BAMSC regional workgroup meetings, and the CCCWP regionwide survey provided qualitative information to further evaluate the effectiveness of the Protocols. Among the information acquired were successes and challenges Permittees have encountered while implementing the Protocols, identification of additional implementation support, and areas for future Protocol improvements. The major takeaways from the regional workgroup, MPC meetings, countywide stormwater program discussions, and CCCWP survey include the following:

- The Protocols were an unprecedented program to regulate water quality pollutant of concern impacts of demolition projects that was informed by an extensive stakeholder (USEPA, Water Board, demolition contractors, environmental assessment consultants, and Permittees) engagement process during MRP 2. Some of the initial processes created and others that were added during MRP 3 have been found to be cumbersome or in need of clarification.

- Permittees have found that the low occurrence of demolition permit applications subject to the Building Demolition Protocols results in knowledge gaps across municipal staff that are on the front lines of informing permit applicants about the requirements of the Protocol and reviewing the completed Screening Forms and associated data to ensure they are complete. Additional tools and support are needed to provide ongoing instruction and information for staff overseeing implementation of the Protocols. The following recommendations were suggested to help fill the identified knowledge gaps.

    1. Create online recorded training for municipal staff who oversee implementation of the Protocols due to the infrequency of applicable structures in some municipalities and staff turnover.

    2. Develop additional guidance and tools for permittees to facilitate implementation of the Protocols (e.g., Instructions for Permittee implementation, flow charts, etc.).

    3. Develop a Frequently Asked Questions fact sheet that addresses many of the common Permittee questions that have arisen about how to implement the Protocols.

- Permittees have also found that it is difficult to conduct timely stormwater inspections prior to removal of PCBs-containing building materials due to existing language requiring notification prior to demolition, as opposed to prior to removal of PCBs-containing building materials.

The following recommendations were made to update the Building Demolition Protocols.

1. Simplify the forms and streamline the offramp process for non-applicable structures.

2. Clarify language and create and implement standard notification form(s) for the start of demolition and completion of demolition to facilitate inspections.

3. Remove the sampling exemption for projects with co-occurring asbestos abatements (i.e., the “asbestos exemption”).

Overall, Permittees feel they are effectively implementing the Protocols, but some updates and additional guidance (as noted above) could help improve implementation. Permittees will continue to discuss implementation of the Building Demolition Protocols at future BAMSC MPC and countywide stormwater program meetings to further identify additional questions and challenges with implementing the Protocols, as they arise, in an ongoing effort to improve the overall success of the Protocols.

5. CONCLUSIONS

The development and implementation of the Building Demolition Protocols has been an unprecedented effort to address releases of PCBs from building materials into urban stormwater runoff during demolition projects. The results of the effectiveness evaluation highlight several strengths and successes, as well as some important limitations and lessons learned that should be considered as the Protocol continues to evolve.

5.1.1. Strengths and Successes of the Building Demolition Protocols

Except for the two Permittees granted an exemption, all Permittees have implemented the Building Demolition Protocols since July 1, 2019. In addition, Permittees began implementing enhanced construction site controls to minimize migration of PCBs into the MS4 in 2023 (LWA 2023, Appendix C). As estimated, these efforts have prevented at least 2.3 kg of PCBs from release to urban stormwater and eventually the Bay, supporting Permittees in making progress towards achieving the urban stormwater PCBs TMDL wasteload allocation. Specific successes of the Building Demolition Protocols are identified here.

1. BASMAA/BAMSC provided important support and worked closely with Permittees and other stakeholders to develop the Building Demolition Protocols. The tools, guidance, and training provided to Permittees, demolition contractors, and other stakeholders have been a key factor in the overall successful implementation of these Protocols.

2. Since implementation began, there has been continued support to Permittees through the countywide stormwater programs on implementing the Building Demolition Protocols and with collecting and compiling the screening assessment data. These data collection efforts have produced a regional inventory of PCBs testing results for priority building materials that allows calculation of the PCBs mass that was prevented from reaching stormwater due to the Protocols.

3. The calculated average mass of PCBs per building was approximately 5 kg. This is an interesting outcome because the average mass of PCBs per building that was assumed in MRP 2 (i.e., Term 2) was also 5 kg. This result clearly supports continued use of 5 kg per building for Term 2. Data indicate that there is a wide range of PCBs mass per building across the 63 applicable structures that underwent the screening assessment, ranging from less than 1 kg up to 170 kg per building. Therefore, continuing to calculate the PCBs mass for each building that undergoes screening assessment will provide more specific information on the PCBs mass addressed via these Protocols. These results also highlight the importance of the screening assessments to identify buildings that have PCBs in priority building materials.

4. Six years of implementation have given municipal staff firsthand experience conducting screenings, reviewing technical documentation, coordinating notifications, and reviewing demolition inspection reports. Permittees have gained valuable insight into which parts of the Protocols work well and which may need revision.

5.1.2. Limitations and Challenges

Because of the novelty of the requirements to develop a program to manage PCBs-containing materials and wastes during building demolition activities, there have been many unknowns and challenges encountered in developing and implementing the Building Demolition Protocols.

Some specific limitations and challenges of the current Building Demolition Protocols are identified here.

- The calculated value for Term 1 (the average number of applicable structures that are demolished each year that had PCBs concentrations 50 ppm or greater in priority building materials) was lower than the assumed value in the MRP. There are several potential reasons that could be responsible for this difference, including:
    - Assumptions regarding the number of applicable structures demolished each year (i.e., 50) were based on a single year of data (April 2010-March 2011) for buildings regulated via the BAAQMD asbestos program, which in retrospect may not have been representative of the types of structures and demolitions covered by the Building Demolition Protocols.
    - Because asbestos and PCBs often co-occur in building materials, a portion of the applicable buildings in the Bay Area that contain materials with PCBs greater than 50ppm are not included in the regional PCBs inventory and therefore are not captured in the monitoring data submitted under the current protocols.
    - The economic conditions and/or assumptions about building life expectancy that existed at the time MRP 2 was developed may have changed, resulting in fewer building demolitions each year. As economic and other conditions that drive building demolition can vary over time, the number of building demolitions per year are expected to vary substantially in the future.
- Municipalities face challenges related to infrequent building-demolition activity, which leads to staff unfamiliarity with the Protocols. Staff turnover further results in uneven implementation and a need for continuous retraining.
- Current notification requirements (before demolition, not before PCBs-containing or other hazardous material removal) create barriers, often leaving municipalities with limited opportunity to verify pollutant controls before materials are disturbed.
- Some of the current forms are complex and detailed, while also leaving out some important information. These forms should be updated based on lessons learned during the first six years of implementation.
- The estimated amount of material removed is the most commonly incomplete data field in applicant package materials, resulting in a potential underestimate of material quantities based on the number of samples collected.

These types of limitations and challenges are difficult to avoid when developing an entirely new program. As implementation has moved forward, many challenges have been identified and addressed through regional and countywide collaboration. The ongoing regional coordination structure (through BAMSC MPC, countywide program meetings, and dedicated workgroups) continues to strengthen municipal implementation and foster shared problem-solving.

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Appendix A

MEMORANDUM

TO: **BASMAA MPC Committee**

FROM: **Lisa Sabin and Jon Konnan, EOA, Inc.**

DATE: **September 23, 2020**

SUBJECT: **Managing PCBs in Building Demolition – Regional Collaboration for a Data Collection and Assessment Program**

1. BACKGROUND

The San Francisco Bay Area Municipal Regional Stormwater Permit (SFBRWQCB 2015, referred to as the MRP) Provision C.12.f requires Permittees to manage PCBs-containing materials and wastes during building demolition activities. Provision C.12.f.ii(3) requires development of a data collection and assessment methodology program by July 1, 2019 to quantify PCBs loads reduced through implementation of the new program for controlling PCBs during building demolition, which began implementation on that date. Provision C.12.f.iii requires Permittees to submit the data collection and assessment methodology with their Fiscal Year (FY) 2019/20 Annual Reports, and states that this reporting should be at the regional level on behalf of all Permittees.

This technical memorandum provides administrative and technical support at the regional level for ongoing efforts by MRP Permittees to comply with data collection, evaluation, and reporting requirements under MRP Provision C.12.f. by:

- Documenting the regional process to collect data from the new program for controlling PCBs during building demolition;
- Presenting the assessment methodology to calculate PCBs loads reduced via the building demolition program;
- Documenting the results of additional literature searches and data gathering efforts conducted to set the stage for refining and reducing uncertainty in the parameters of the assessment methodology equation;
- Describing how data generated from the new demolition control program will be incorporated into the assessment methodology, including providing conversion factors needed for the load reduction calculations; and
- Addressing the MRP Provision C.12.f.iii requirement to submit the data collection and assessment methodology with their FY 2019/20 Annual Reports.

This technical memorandum was developed by the countywide stormwater management programs in the MRP area working together through the Bay Area Stormwater Management Agencies Association (BASMAA) Monitoring and Pollutants of Concern (MPC) Committee (via an informal regional collaboration). The information provided builds upon a previous BASMAA effort that outlined a conceptual approach for the regional data collection process and assessment methodology (BASMAA 2018).

2. REGIONAL DATA COLLECTION PROCESS

This section documents the regional data collection process for the new programs to manage PCBs-containing building materials during demolition that began on July 1, 2019. This process was developed through a collaborative effort by municipalities subject to the MRP, the associated countywide stormwater management programs, and BASMAA. The regional data collection process focuses on collecting, compiling, and evaluating the data generated by the new programs on a regional basis. In addition, when sufficient amounts of new data have been collected, the data will support:

- Development of a revised estimate of the reduction in PCBs loading to stormwater runoff resulting from implementation of the new program.
- Evaluation of various aspects of the PCBs management program and the effectiveness of potential future refinements.

The regional data collection process involves collection of data from individual permit applicants at the municipal level, followed by compilation of data for applicable structures[1] at the countywide level, and data evaluation and reporting at the regional level. The process is described below.

1. The municipality informs demolition permit applicants that their projects are subject to the MRP Provision C.12.f requirements, necessitating, at a minimum, an initial screening for priority PCBs–containing materials.
2. For every demolition project, applicants complete and submit a version of BASMAA's model "PCBs Screening Assessment Form" (Screening Form) or equivalent to the municipality. For non-applicable buildings, applicants simply check the boxes, certify, and submit to the municipality.
3. The municipality reviews the Screening Form to make sure it is filled out correctly and is complete and works with the applicant to correct any deficiencies.
4. The municipality then issues the demolition permit or equivalent, according to its procedures.
5. The countywide programs compile the completed Screening Forms and any supporting documents (at a minimum annually, but quarterly is preferred). Municipalities submit forms for applicable structures only to the countywide program; forms for exempt sites need not be submitted. The countywide program compiles the forms and works with the other MRP countywide programs to manage and evaluate the data, and to assist Permittees with associated MRP reporting requirements.

To facilitate a regional approach, the countywide programs developed a regional data management system to compile and evaluate all the data generated by the new programs to manage PCBs during building demolition. The data management system also provides a mechanism for Permittees to gather

[1] Applicable structures are buildings built or remodeled from January 1, 1950 through December 31, 1980, with the following exemptions: single-family residential buildings, wood-framed buildings, and partial building demolitions.

and store the data needed for other closely related reporting requirements, such as submitting the number of applicable structures that applied for a demolition permit that reporting year and a running list of those structures that had materials with PCBs concentrations ≥ 50 ppm, including addresses and estimated demolition dates, with their FY 2019/20 Annual Reports.

The regional data management system is an Excel spreadsheet-based tool for storing and managing the data from each Permittee. The tool also calculates the estimated loads avoided throughout the region via implementation of the new management program, using the assessment methodology and data inputs described below.

3. ASSESSMENT METHODOLOGY

This section describes the assessment methodology and refined data inputs for estimating the loads of PCBs to municipal separate storm sewer systems (MS4s) that are avoided due to implementation of new controls to manage PCBs in building materials during demolition activities. To-date, the load of PCBs reduced through management of PCBs during demolition has been calculated using Equation 1:

Equation 1. $$Load\ of\ PCBs\ Reduced = N \bullet M \bullet SW \bullet E_f$$

Where:

- N = Number of applicable structures with PCBs concentrations ≥ 50 ppm demolished each year (structures/yr)
- M = Average mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm (kg/structure)
- SW = Average fraction of PCBs that enters the MS4 due to demolition without new demolition program controls (dimensionless fraction)
- E_f = Average fraction of PCBs prevented by new demolition program controls from entering MS4 (dimensionless fraction)

The MRP 2.0 Factsheet (SFBRWQCB 2015) provides values for each of the four terms in Equation 1 that were used to stipulate the load reduction for implementing the new demolition control program across the MRP area, which was a total of 2 kg/yr. Table 1 presents the values used for each of the four terms in the Factsheet to derive the 2 kg/yr PCBs load reduction credit. The Factsheet notes that each of the terms could be represented by a range of values and the information available to estimate the values of these terms shown in Table 1 was limited.

BASMAA (2018) summarized the above MRP 2.0 Factsheet approach and other previous efforts to estimate PCBs loads from demolition and potential loads reduced by control programs. It also presented a conceptual approach to refining the 2 kg/year PCBs load reduction estimate by describing methods to potentially refine the values of each of the four Equation 1 parameters shown in Table 1. Building upon the approach described in that document, additional literature searches and data gathering efforts were conducted to set the stage for refining and reducing uncertainty in the values of the four terms. For the first two parameters, data will be incorporated as they are generated from the new demolition control programs. The results of these efforts are presented below.

Table 1. Terms in MRP 2.0 Factsheet (SFBRWQCB 2015) equation used to stipulate the loading of PCBs to MS4s avoided by implementing demolition control measures.

Term	Symbol	Term Definition	Value	Units
1	*N*	Number of applicable structures demolished per year with PCBs concentrations ≥ 50 ppm	50	structures/year
2	*M*	Average mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm	5	kg/structure
3	*SW*	Average fraction of PCBs that enters MS4s due to demolition without controls[1]	0.01	dimensionless fraction
4	E_f	Average fraction of PCBs prevented by controls[1] from entering MS4 (i.e., assumed effectiveness of controls)	0.8	dimensionless fraction

1. The term "controls" refers to the proposed new demolition management program, not existing construction controls.

Term 1: Number of Applicable Structures Demolished Per Year

Current Basis

A study conducted by the San Francisco Estuary Institute (SFEI) reported a medium estimate of 521 building demolitions per year in commercial and industrial land uses in the study area, based on Bay Area Air Quality Management District (BAAQMD) asbestos abatement permitting data.[2] The SFEI study also reported the following medium estimates: 46% of the demolished buildings were built between 1950 and 1980 and 36% had PCBs concentration in caulks/sealants greater than 50 ppm (Klosterhaus et al. 2011). Multiplying (521) x (0.46) x (0.36) results in an estimated 86 commercial and industrial buildings demolished per year that were built between 1950 and 1980 and had PCBs concentration in caulks/sealants greater than 50 ppm.

Based upon information in the SFEI study and considering that the scope of the program to manage PCBs during demolition is limited to exclude wood frame buildings, the MRP Factsheet assumed 50 applicable structures with PCBs concentrations ≥ 50 ppm are demolished per year in the Bay Area (SFBRWQCB 2015).

Basis for Refinement

Data gathered during the new demolition control programs will be used to document the number of applicable structures with PCBs concentrations ≥ 50 ppm that are demolished each year throughout the MRP area. These data will be used to calculate a regional annual average number of applicable

[2] The BAAQMD regulations require that a "J Number" be applied for and obtained before applying for a building permit for demolition of an existing structure or renovations removing greater than 100 square feet of asbestos material within the San Francisco Bay air basin.

structures with PCBs concentrations ≥ 50 ppm that are demolished. This regional annual average value will be used for Term 1 in Equation 1 (see Table 1).

As part of implementing the new demolition controls that began in July 2019, applicants for demolition permits are required to submit a Screening Form to the municipality with jurisdiction for each applicable structure. Permittees will submit these forms to their countywide stormwater programs, which will document the number of applicable structures with PCBs concentrations ≥ 50 ppm within each jurisdiction that are demolished each year. This information will be compiled in the regional database described previously (Section 2) and used to calculate an annual average number of applicable structures with PCBs concentrations ≥ 50 ppm that are demolished each year in the region. Use of these real-world data collected in the MRP area will substantially reduce the uncertainty that is currently associated with the estimated value for Term 1 that was used in the MRP 2.0 Factsheet.

Term 2: Average Mass of PCBs per Applicable Structure

Current Basis

The SFEI study included estimating the mass of PCBs in caulks in Bay Area buildings and releases to stormwater runoff during renovation and demolition (Klosterhaus et al. 2011). Using a blind sampling approach, the SFEI study collected 25 caulk samples from the exterior of ten commercial and industrial buildings constructed in the study area between 1950 and 1980. The study area was the portion of the San Francisco Bay Area covered by the MRP: Alameda, Contra Costa, Santa Clara, and San Mateo Counties, and the cities of Fairfield, Suisun, and Vallejo. The caulk samples were analyzed for PCBs, which were detected in 88% of the samples, with 40% exceeding 50 ppm, the concentration at which caulk falls under U.S. Environmental Protection Agency (USEPA) regulations (Federal Register 2010). Detectable PCBs concentrations ranged over six orders of magnitude, from 1 to 220,000 ppm. These data were consistent with previous studies in other cities (Klosterhaus et al. 2011).

A geographic information system (GIS)–based approach was then used to estimate the number, area, and volume of currently standing buildings in the study area that were built during the era of greatest PCBs use in caulk. The approach used historical imagery and contemporary land use and involved characterization of randomly selected buildings within the study area, with the result scaled up to extrapolate total building counts and areas in the MRP footprint. Various assumptions, including the frequency of anticipated PCBs detection and PCBs concentrations in the caulk, average mass of caulk per unit building volume, and average building volume, were then applied to calculate an estimate of the total PCBs mass in building caulk in the study area. The evaluation resulted in a mid–range estimate of 10,500 kg PCBs in caulk in buildings located in the study area (low and high estimates were 767 and 46,000 kg, respectively), which equated to an average of 4.7 kg PCBs per building (low and high estimates were 0.6 and 16 kg per building, respectively). The estimate included caulk located on both the interior and exterior of buildings (Klosterhaus et al. 2011). Based upon the information in the SFEI study, the MRP Factsheet assumed an average applicable structure with PCBs concentrations ≥ 50 ppm in the Bay Area contains 5 kg of PCBs (SFBRWQCB 2015).

Basis for Refinement

Data gathered as part of the new demolition control programs will be used to document the quantities and associated PCBs concentrations of priority materials in each applicable structure with PCBs concentrations ≥ 50 ppm. These data will be used to calculate a regional average mass of PCBs per

applicable structure with PCBs concentrations ≥ 50 ppm in priority materials. This calculated regional average mass will be used for the value of Term 2 in Equation 1 (see Table 1).

Because of the new program to manage PCBs in building materials during demolition activities, Permittees have the opportunity to gather real-world data to estimate the mass of PCBs in priority materials in each applicable structure with PCBs concentrations ≥ 50 ppm that is demolished in the region. Over time, these data will be compiled into a dataset that can be used to calculate a regional average mass. This calculated average will account for five priority building materials that potentially contain PCBs previously identified for the program (caulk, rubber window gaskets, thermal insulation, fiberglass insulation, and mastic adhesives), while the estimate in the MRP Factsheet (Table 1) is based upon caulk only.

The information provided in the Screening Form includes two types of data that are needed to calculate the mass of PCBs per applicable structure with PCBs concentrations ≥ 50 ppm: (1) the quantity of each priority material in the structure, and (2) the concentration of PCBs in each priority material in the structure. These data will be used as inputs in Equation 2 to calculate the total mass of PCBs in the five priority materials for each applicable structure with PCBs concentrations ≥ 50 ppm that undergoes demolition beginning July 1, 2019.

Equation 2. $$Mass\ of\ PCBs\ per\ Structure\ (mg) = [\sum_{i=1}^{n}(C_i \bullet Q_i \bullet F_i)]$$

Where:

C_i = Concentration of PCBs in priority material i (mg/kg)

Q_i = Quantity of priority material i (linear feet or square feet)

F_i = Conversion factor – mass of priority material per linear foot of priority material i (kg/ft) or mass of priority material i per square foot of priority material i (kg/ft^2)

Equation 2 only accounts for the PCBs mass associated with the five priority building materials, so may represent an underestimate of the total PCBs mass in a given building. However, the extent of the underestimate would be small if the five priority materials contain most of the PCBs mass in a building.

The PCBs concentrations in each priority material (C_i) that will be used in Equation 2 is provided on the Screening Form for each applicable structure in units of mg of PCBs per kg of priority material (mg/kg).[3]

[3] Please note that this memorandum does not provide guidance on determining a representative PCBs concentration when multiple samples are collected from a single homogeneous area of a building material, per the sampling protocol (e.g., applying average vs. geomean vs. median to determine central tendency when multiple sample results are available). This type of determination should be made once sufficient data are available about PCBs concentration distributions in building material samples (e.g., after two or three years of data have been collected).

The quantity of each priority material (Q_i) that will be used in Equation 2 is provided on the Screening Form in units of linear feet (ft) for caulk and rubber window gaskets, and square feet (ft^2) for thermal or fiberglass insulation and mastic adhesives. Conversion factors (F_i) for each priority material i were developed to provide the mass of priority material per linear foot or per square foot using Equation 3.

Equation 3. $$F_i = (D_i \times \rho_i)$$

Where:

F_i = mass of priority material i per linear foot (of caulk or rubber window gaskets) of i (kg/ft) or mass of priority material i per square foot (of insulation or mastic) of i (kg/ft^2)

D_i = Assumed dimensions of priority material i (ft^2 or ft)

- For caulk and rubber window gaskets, this represents the assumed cross-sectional area of the caulk bead or the gasket in square feet.
- For insulation and mastic, this represents the thickness of the layer of material in feet.

ρ_i = Assumed density of priority material i (kg/ft^3)

Conversion factors that were developed for each priority building material are shown in Table 2. For caulk and rubber window gaskets, the conversion factors estimate the mass of material per linear foot (kg/ft). For thermal or fiberglass insulation and mastic adhesives, the conversion factors estimate the mass of material per square foot (kg/ft^2). Table 2 identifies typical applications for each priority material and the associated conversion factors that were developed for that application. The conversion factors are presented as a range of values and a "Best" value based on the average or mid-range value.

To develop the conversion factors shown in Table 2, data on common priority material dimensions and densities used in typical building construction were gathered through literature review, product technical specifications, building construction guidelines, and other relevant resources (Panke and Cook 1992, Scheffler and Connolly 1996, Jester 1995). The ranges of assumed dimensions and densities that were used to develop the conversion factors are shown in Table 3. Additional information on the assumptions and data used to populate Table 3 and develop the conversion factors shown in Table 2 is presented below.

Product Dimensions

Multiple construction guides were consulted to identify typical dimensions for common applications of priority materials in building construction. For caulk or rubber gaskets, Table 3 provides a range of typical heights and widths of applications around windows and doorframes, and for caulk, also between concrete expansion joints. For fiberglass or thermal insulation, Table 3 provides a range of typical thicknesses for applications used around HVAC systems, heathers, boilers, and pipes, and inside walls or crawl spaces. For mastic adhesives, Table 3 provides typical thicknesses of the material used under or between roofing material and flashing or used on surfaces between carpet and floor tiles. These dimensions apply to newly applied or installed products and may not reflect the dimensions of an aged/weathered product but represent the best information currently readily available.

Table 2. Conversion factors developed to calculate the mass of each priority material per building.

Priority Material Category	Descriptions of typical application	Material[1,2,3]	Conversion Factors				
			Range			Best (Average or mid-range value)	Units
Caulk	Around windows or window frames; around door frames	polysulfide caulk	0.009	-	0.04	0.02	kg/ft
	Expansion joints between concrete sections (e.g., floor segments)	polysulfide caulk	0.01	-	0.15	0.04	kg/ft
Rubber Window Gaskets	Around windows or window frames	Butyl Rubber	0.02	-	0.06	0.03	kg/ft
Thermal or Fiberglass Insulation	Around HVAC systems/ heaters/boilers	Felt Insulation	0.09	-	2.3	0.82	kg/ft^2
		Unfaced Blanket Fiberglass	0.03	-	0.28	0.16	kg/ft^2
	Around heated transfer piping	Fiberglass Pipe Insulation	0.06	-	0.62	0.26	kg/ft^2
	Inside walls or crawl spaces	Loose Fiberglass Fill/Batting	0.17	-	0.24	0.21	kg/ft^2
		Rigid Fiberglass Foam Board	0.03	-	0.45	0.17	kg/ft^2
Adhesive Mastics	Below carpet and floor tiles	Floor Mastic	0.06	-	0.13	0.10	kg/ft^2
	On, under or between roofing materials and flashing	Roof Mastic	0.30	-	0.74	0.50	kg/ft^2

1. Panke and Cook, 1992.
2. Scheffler, M. and Connolly, J. 1996.
3. Jester, T.C. 1995.

Product Densities

The density information reported in Table 3 was gathered from readily available commercial literature on a range of reported densities for the five priority materials. Where possible, information on products that were used in the 1950s to 1980s time period and that were known to contain PCBs were used. However, because this type of product-specific information was not readily available, much of the information used to estimate typical product densities (and dimensions) was based on commercially available products that are currently in use for similar types of building and construction applications. For example, prior to 1980, polysulfide caulks and sealants were frequently formulated with PCBs and are commonly found in buildings constructed between 1950 and 1980. Although currently available polysulfide sealants do not contain PCBs, the densities of these types of sealants were used in Table 3 as reasonable approximations of the densities of polysulfide sealants used in the past. Similarly, the densities for other priority materials shown in Table 3 are primarily based on current use products that are similar to products used in the past.

In addition to the lack of technical data on products in use during the 1950s – 1980s, there is a lack of data about the impact of age and weathering on priority material densities. Loss of volatile material will reduce product densities over time, while other weathering factors, such as compression or stretching, may increase or decrease densities over time. In an attempt to better account for age and weathering, available literature was reviewed to identify information on the densities of priority materials in construction and demolition debris and wastes. This type of information was not found on the specific priority materials of interest. However, US EPA (2016) provides estimates for the weight to volume ratios (i.e., densities) of a number of construction and demolition (C&D) waste categories. These categories include concrete, asphalt paving, roofing, wood, gypsum board, metal, rock/gravel/dirt and sand, and bulk waste. The bulk waste category is a generic catchall grouping for the remainder of C&D debris that does not fit into one of the other categories. Although the materials that are included in this generic category are not specified, the priority materials would likely all fall into the generic bulk waste category when disposed.

Therefore, in the absence of other data, the density for C&D bulk waste may be somewhat comparable to the densities of aged/weathered priority materials and can be compared to the densities of new products provided in Table 3. The average priority material densities in Table 3 range from about 1 kg/ft^3 to 40 kg/ft^3, with an average of 12 kg/ ft^3 across all priority materials. The C&D bulk waste density of 8 kg/ft^3 fits within the range of the priority material densities reported in Table 3 and is about 30% less than the average density across all priority materials. This comparison is limited because of the unknown composition of C&D bulk waste but suggests the densities in Table 3 are reasonable approximations for aged/weathered materials.

Average Conversion Factors

Use of the conversion factors shown in Table 2 requires information on the application and material type of the priority building material. It is anticipated that in some cases the available data may be incomplete or may not match the categories in Table 2. Conversion factors that are not specific to the priority building material's application or material type were therefore developed by averaging across applications/types (Table 4). When calculating the mass of PCBs removed from a demolition site, conversion factors from Tables 2 and/or 4 should be selected as appropriate given the level of information available about the associated sample(s).

Table 3. Dimensions and densities for typical construction applications of priority materials used to develop conversion factors.

Priority Material Category	Descriptions of typical application	Material	Typical Product Dimensions (Inches)						Typical Product Density (kg/ft^3)		
			Width			Depth/Thickness					
			Low	Mid	High	Low	Mid	High	Low	Mid	High
Caulk[1,2,3,4,5]	Around windows or window frames; around door frames	polysulfide caulk	0.25	0.38	0.50	0.13	0.19	0.25		42	
	Expansion joints between concrete sections (e.g., floor segments)	polysulfide caulk	0.25	0.5	1	0.125	0.25	0.5		42	
Rubber Window Gaskets[5]	Around windows or window frames	butyl rubber	0.30	0.40	0.50	0.20	0.30	0.40		41	
Thermal/Fiberglass Insulation[5]	Around HVAC systems/ heaters/boilers	felt insulation[6]	n/a			1.0	3.0	5.0	1.1	3.3	5.4
		unfaced blanket fiberglass[7]				0.5	2.8	5		0.68	
	Around heated transfer piping	fiberglass pipe insulation[8]				1.0	2.0	3.0	0.68	1.6	2.5
	Inside walls or crawl spaces	loose fiberglass fill/batting[9]					3.5		0.59	0.70	0.82
		rigid fiberglass foam board[10]				1.0	2.5	4.0	0.32	0.84	1.4
Adhesive Mastics[5]	Below carpet and floor tiles	floor mastic[11]	n/a			0.13	0.19	0.25		6.2	
	On, under or between roofing materials and flashing	roof mastic[12]				0.13	0.19	0.25	29	32	36

1 Pfeiffer M.J., Darwin, D., 1987.
2 Panke, J.R. and John P. Cook. 1992.
3 Hammer & Hand. 2016.
4 M. Scheffler, M. and J. Connolly, J. 1996.
5 Jester, T.C. 1995.
6 Owens-Corning Thermafiber Industrial Felt
7 Owens-Corning unfaced fiber glass blanket
8 Owens-Corning fiberglass pipe insulation
9 Owens-Corning Loose fill insulation and NIST Fiberglass Batt (wall and ceiling insulation)
10 Owens-Corning Foamular Products - rigid polyurethane foam (PUR/PIR)
11 Latricrete Premium Mastic
12 Henry Company Pro-Grade Flashing Cement, Pro-Grade Plastic Cement and Pro-Grade Repair Cement

Table 4. Average conversion factors developed to calculate the mass of each priority material per building.

Priority Material Category	Conversion Factor	Units
Caulk	0.03	kg/ft
Rubber Window Gaskets	0.03	kg/ft
Thermal/Fiberglass Insulation	0.32	kg/ft^2
Adhesive Mastics	0.30	kg/ft^2

Term 3: Average fraction of PCBs that enters MS4 due to demolition without controls

Current Basis

The average fraction of PCBs that enters the MS4 due to demolition without controls has been estimated at 0.01, based upon professional judgment (i.e., 1% of PCBs in building materials enter MS4s due to demolition without additional controls beyond standard construction site controls). The MRP 2.0 Factsheet (SFBRWQCB 2015) used this value in Equation 1 for Term 3 (see Table 1).

The one percent value presumably incorporates losses to the environment both at the site and during disposal and recycling. Conceptually, this approach assumes that without controls, the transport and fate of the PCBs–containing materials that were in the demolished building fall within three general categories:

1. Released during the demolition (e.g., as part of an initially airborne plume of small particles) and settled in a "halo" around the site. Any wash waters used during the demolition (e.g., during cleaning of equipment, onsite or offsite) that are not fully contained and treated or disposed of could also transport PCBs–containing materials to the MS4.
2. Removed from the site and disposed of as part of the general waste stream (e.g., at a landfill), with some fraction potentially released to the environment during the handling, transport, and disposal process (e.g., during transportation of waste materials by truck to a landfill).
3. Removed from the site with recycled materials, with some fraction potentially released to the environment during the handling, transport, and recycling process (e.g., during transportation of waste materials by truck to a transfer station or recycling facility) or returned to the environment with recycled materials.

This methodology assumes that all PCBs–containing materials released into the environment via any of the above three categories eventually enter the MS4. For example, permanent storage in onsite or offsite pervious areas is assumed to be negligible. All three transport and fate categories are presumably

incorporated into the third term of Equation 1, the average fraction of PCBs that enters MS4s due to demolition without controls.

This methodology also assumes that the effectiveness of any existing controls (e.g., proper offsite disposal of PCBs–containing materials, erosion and sediment controls, and other routine construction site controls) is incorporated into the third term of Equation 1.

Basis for Refinement

BASMAA (2018) summarized the readily available information and studies on the release of PCBs to stormwater from building materials during demolition activities. Building upon those efforts, a follow-up literature review was conducted in 2019 to identify any additional information that could be used to refine the assumed fraction of PCBs that enters MS4s due to demolition without controls in Equation 1, Term 3 (see Table 1). This literature review was also conducted to identify new information that could be used to refine Term 4 (i.e., the fraction of PCBs prevented by controls from entering MS4s). This section summarizes the literature review efforts and identifies the outcomes for Term 3. The literature review outcomes for Term 4 are presented in the next section.

Literature Review

The literature review conducted in 2019 built upon the information summarized in BASMAA (2018). The Google search engine as well as specific scientific literature databases and government websites were searched, including:

- Google Scholar
- Google Books
- SpringerLink
- Wiley Online Library
- American Chemical Society
- ScienceDirect.com
- Elsevier
- US EPA Website

Major search terms (and similar variations or combinations of these terms) that were used included the following:

- PCBs transport and fate
- PCBs in soils/stormwater/demolition/building materials/building demolition/building renovation
- PCBs in caulk/rubber window gaskets/thermal insulation/fiberglass insulation/mastic
- PCBs contaminated sites/cleanup sites/remediation sites
- PCBs in school buildings
- Remediation of PCBs in buildings/building materials
- Construction and Demolition Debris/Waste

- Demolition dust and stormwater impacts
- Soil contamination from PCB-containing caulk/materials/buildings
- PCBs in soil after demolition
- PCB contamination from polysulfide sealants
- PCB-contaminated soil/demolition dust
- Mass of PCBs in Building materials
- Fate of PCBs in the environment/urban environment/caulk/building materials
- PCBs Source apportionment
- PCBs Waste characterization
- Accumulation rates of PCBs in soils
- PCB cleanup and disposal programs
- Managing remediation waste from PCB cleanups
- Handling and disposal of PCBs waste
- Improved recycling practices/BMP effectiveness and stormwater impacts
- PCBs sources/emissions/releases from caulk/buildings/schools
- PCBs emissions during demolition/renovation/abatement/replacement/removal of caulk
- Dust from demolition and construction sites

In addition, online searches were performed to identify any new research that had cited one or more of the studies previously described in BASMAA (2018). These citations were reviewed to identify any relevant studies that may have occurred more recently and relied upon these earlier studies.

Literature Review Outcomes

The 2019 literature review did not find any new information to validate, refine, or further reduce uncertainty in the assumed value that was used in the MRP 2.0 Factsheet for the fraction of PCBs entering MS4s due to demolition activity without controls in Equation 1, Term 3 (see Table 1). To date, the vast majority of research on the release of PCBs contained in building materials has focused on human health risks and quantifying human exposures via air, ingestion, and/or dermal pathways. It appears the release of PCBs to stormwater from building materials in general, and specifically during demolition or renovation activities has not been quantitatively studied, outside of the limited studies reported previously in BASMAA (2018). These earlier studies developed conceptual models and thought experiments to estimate the fraction of PCBs released based on the limited measurement data available. Without new measurement data, however, further attempts to improve upon these efforts and reduce uncertainty in the current estimate of Term 3 are not warranted.

BASMAA (2018) recommends exploring whether disposal and/or recycling practices have improved in recent years such that less PCBs would be lost to the environment via these pathways. Evidence was not found during the literature review of improved recycling or disposal practices implemented in the Bay Area in recent years that would result in reduced releases of PCBs to MS4s from demolition materials.

This finding is further supported by anecdotal information about recycling facilities in the South Bay Area. Over the past 5+ years Santa Clara Valley MRP Permittees have been investigating sources of PCBs to public ROWs in industrial areas and have frequently targeted facilities where demolition materials are brought on site for recycling. These investigations have documented poor housekeeping practices, visible scrap material and soils tracking off sites, and general lack of appropriate stormwater BMPs at many of these types of facilities which have resulted in citations during municipal stormwater inspections. Overall, these investigations have found large inconsistencies in materials handling practices across facilities, and even at the same facility over time. Although not a quantitative assessment, this information suggests that it is unlikely consistent improvements in recycling practices across facilities have occurred in recent years.

Term 4: Average fraction of PCBs prevented by new controls from entering MS4

Current Basis

The estimated fraction of PCBs prevented by new controls from entering MS4s has been estimated at 0.8, based mainly upon professional judgment (i.e., 80% of PCBs are prevented from entering MS4s due to the new programs to manage PCBs during building demolition). The MRP 2.0 Factsheet (SFBRWQCB 2015) used this value in Equation 1 for Term 4 (see Table 1).

Basis for Refinement

As described above, a review of readily available literature was conducted in 2019 to identify any new information that could be used to refine the assumed effectiveness of controls to prevent PCBs from entering MS4s (Term 4). The literature review efforts are summarized in the above section on Term 3. This section presents the outcomes of the literature review for Term 4.

Literature Review Outcomes

The 2019 literature review did not find any new information to validate, refine, or further reduce uncertainty in the assumed value that was used in the MRP 2.0 Factsheet for the fraction of PCBs prevented by new controls from entering MS4s. However, BASMAA (2018) identified two earlier studies that estimated 99% capture of PCBs contained in caulk removed from buildings using appropriate abatement measures (high power vacuums and power washing during removal). Based on these data, a reasonable assumption is that the new control programs will be similarly effective at capturing PCBs in priority materials that, prior to demolition, are removed from a building using appropriate abatement methods. Given the new programs are focused on controlling PCBs in priority materials only, the use of a lower (80%) value for the overall effectiveness of the controls at preventing PCBs from entering MS4s (Term 4) appears reasonable.

Using Data from New Program on PCBs Mass in Priority Building Materials

The new management program implemented by Permittees as of July 1, 2019 requires that demolition project proponents identify priority materials in applicable buildings, collect representative samples for analysis, and report the concentrations of PCBs. When a sample concentration is equal to or greater than 50 ppm, the estimated amount of material in the building associated with that sample (and presumably removed and properly disposed of before the demolition occurs) is also reported. These concentration and quantity data can be combined to determine the mass of PCBs presumably removed from the building before demolition. These data represent an estimate of the mass of PCBs removed from the building via removal of the priority materials (rather than the estimate provided in the MRP 2.0

Factsheet of the total mass of PCBs in the building in all PCBs-containing materials). Thus, the value of Term 4 in Equation 1 and Table 1 may be set to 1 when evaluating the PCBs load avoided using PCBs mass in priority building materials data from the new program, since it may be assumed that the program removes 100% of the priority materials with PCBs ≥ 50 ppm that were identified by the sampling protocol.

4. POTENTIAL FUTURE REFINEMENTS TO THIS METHODOLOGY

It should be noted that the new program for controlling PCBs during building demolition is in its early stages, having begun implementation only recently (i.e., on July 1, 2019). The data generated during the first fiscal year of the program have not yet been compiled and evaluated. As experience is gained in implementing the program and the associated data are collected and evaluated, and/or new information becomes available from any other source, the need may arise to revise the data collection and assessment methodology presented in this memorandum. As needed, staff from the countywide programs in the MRP area will work with MRP Permittee and Regional Water Board staff to make any future refinements to the program and methodology.

5. REFERENCES

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Appendix B

PCBs in Priority Building Materials:

Model Screening Assessment

Applicant Package

https://basmaa.org/archived-documents/

Appendix C

TECHNICAL MEMORANDUM

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DATE: May 1, 2023

TO: Bay Area Municipal Stormwater Collaborative Steering Committee

COPY TO:

SUBJECT: **Construction Site Control Program Enhancement Options for Demolition Sites Subject to the PCBs Management Program**

This memorandum transmits the construction site enhancement options deliverable of the Bay Area Municipal Stormwater Collaborative (BAMSC) Managing Project of Regional Benefit*: PCBs during Building Demolition – Guidance Update*.

This work product provides guidance for Permittees to identify appropriate construction site control program enhancements to minimize migration of PCBs into the storm drainage system during demolition in accordance with the requirements of the Municipal Regional Stormwater Permit (MRP 3.0) Provision C.12.g.

MRP 3.0 provides latitude for Permittees to select the enhancements best suited to their C.6 Construction Site Control Program. The options identified in this memorandum provide Permittees with a robust but flexible framework that allows for tailoring the enhancements to their C.6 Construction Site Control Programs for demolition sites subject to the PCBs Management Program. The options were reviewed by the Regional Project Workgroup and subsequently by the Countywide Programs and updated based on the input provided.

Per the requirements of MRP 3.0, the enhancements must be implemented no later than July 1, 2023, and rainy season inspections must commence with the 2023 rainy season.

Purpose and Background

In accordance with MRP 2.0 requirements, Permittees began requiring applicants for building demolition permits (or the equivalent) to evaluate the potential for polychlorinated biphenyl (PCBs) in select building materials (PCBs in Building Material Program). The evaluation process was outlined in the *PCBs in Priority Building Materials: Model Screening Assessment Applicant Package* (BASMAA 2018, Revised 2019). This process defines the buildings that must be evaluated (Applicable Structures[1]) and details the protocol to screen building materials for PCBs, resulting in the removal of priority PCBs-containing building materials prior to demolition.

MRP 3.0 Provision C.12.g requires that Permittees inspect demolition sites subject to the PCBs Management Program[2] during demolition (C.12.g.ii (3)) beginning with the 2023 rainy season (October 1-April 30). Provision C.12.g.ii (4) requires that Permittees enhance their construction site control programs to minimize migration of PCBs into the municipal separate storm sewer system (MS4) [3] during demolition beginning July 1, 2023.

This document outlines options for Permittees to enhance their construction site control programs to meet the requirements of MRP 3.0 Provisions C.12.g.ii (3) and (4), which state (emphasis added):

> *C.12.g.ii (3) Beginning the 2023 rainy season,* ***Permittees shall inspect demolition sites with applicable structures containing building materials with PCBs concentrations of 50 ppm or greater*** *pursuant to Provision C.6 to ensure that effective construction pollutant controls are used to prevent discharge into the MS4.*
>
> *C.12.g.ii (4)* ***Permittees shall enhance their construction site control program to minimize migration of PCBs into the MS4 from applicable structures containing building materials with PCBs concentrations of 50 ppm or greater*** *during demolition activities. Enhancements may include inspecting demolition sites monthly during demolition activities in the dry season (May – September) and requiring the demolition contractors to sweep the project sites and the streets around the property with street sweepers that will effectively remove sediment and dust. Implementation of enhancements shall begin no later than July 1, 2023.*

[1] Applicable Structures are defined as buildings constructed or remodeled between January 1, 1950 and December 31, 1980. Wood framed buildings and single-family residential buildings are not Applicable Structures regardless of the age of the building.

[2] For brevity, buildings subject to the PCBs Management Program are Applicable Structures containing building materials with PCBs concentrations ≥ 50 ppm.

[3] The MS4 is defined in MRP 3.0 as "A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains), as defined in 40 CFR 122.26(b)(8)…" See the MRP 3.0 Glossary for the full definition.

Construction and PCBs Control Programs Established During MRP 2.0

Permittees implement a Construction Site Control Program pursuant to MRP Provision C.6 and a program to ensure that PCBs containing materials are removed prior to the general demolition of applicable buildings (MRP Provision C.12.g).

Under the existing C.6 Construction Site Control Program, Permittees

- Require applicants for grading permits to develop, submit, and implement erosion control plans with site- and seasonally-specific best management practices (BMPs) (C.6.c and C.6.d);
- Provide wet season[4] reminders (C.6.e); and
- Inspect sites monthly during the wet season with follow-up inspections as warranted (C.6.e).

Under the PCBs in Building Material Program, Permittees require applicants to assess building materials for PCBs before issuing the demolition permit. If PCBs are detected, the applicant is responsible for properly handling and disposing of the PCBs-containing materials in accordance with state and federal laws and regulations before commencing general demolition (e.g., knocking down the structures).[5]

Construction Program Enhancement Options for Demolition Sites Subject to the PCBs Management Program

MRP 3.0 provides latitude for Permittees to select the enhancements best suited to their C.6 Construction Site Control Programs.

Table 1 summarizes the existing and required actions for the PCBs Management Program. The main addition is a wet season inspection of demolition sites subject to the PCBs Management Program. Note that if a project is otherwise subject to the C.6 construction site inspections, the requirement to conduct monthly wet season inspections applies.

The menu presented in **Table 2** provides inspection and other site control enhancement options for Permittees' consideration.

To address the requirements of C.12.g, Permittees need to implement the controls in **Table 1 and** select a set of options to enhance their Construction Site Control Program for demolition sites subject to the PCBs Management Program from **Table 2**.

The options provided in **Table 2** were identified by considering: existing C.6 Construction Site Control Program requirements; recommendations and requirements included in MRP 3.0; and other regulatory programs, such as the requirements in the 2022 Construction Stormwater General Permit (CGP).[6]

[4] Per MRP 3.0 Provision C.6.e, for the purposes of inspections, wet season is defined as October 1 through April 30.
[5] Removal of PCBs-containing materials is typically defined as part of the demolition phase, so this document uses the term *general demolition* to characterize the dismantling or knocking down of the structure that occurs following the PCBs-removal action.
[6] Order 2022-0057-DWQ.

It is up to each Permittee to select their enhancement option(s). For example, depending on a particular program, a Permittee may prefer to enhance their Construction Site Control Program by augmenting the number and type of inspections performed by municipal inspectors, while for other Permittees it may be preferable to specify BMPs for the applicant to implement. Once selected, Permittees will need to revise their Construction Site Control Program to implement the selected enhancement(s).

Table 3 provides a supplemental set of BMPs that could be established if a municipality chooses to require a specific set of BMPs for demolition projects, in accordance with the corresponding option provided in **Table 2**.

Overall, the process of selecting options from these tables is intended to provide Permittees with a robust but flexible framework that allows for tailoring the enhancements to their C.6 Construction Site Control Programs.

Table 1. C.12.g Baseline Controls for Demolition Sites Subject to the PCBs Management Program[7] (Implement all Controls)

Action	Practice	Notes
General Demolition Wet Season[8] Inspections	• Inspect demolition projects once during general demolition[9] during the wet season.	• Required by C.12.g ii (3). • Inspection would focus on the demolition activity and stormwater BMPs implemented for this activity. • If the site falls under the C.6.e Construction Site Inspection Program (i.e., ≥ 1 acre, hillside site, or high priority site) monthly inspections also apply.
Complete Any PCBs Abatement Action Before General Demolition Activities	• Require applicants to test the priority building materials for PCBs before demolition and to properly handle and dispose of any PCBs-containing materials in accordance with state and federal laws and regulations.	• Required by C.12.g.ii (1) • The PCBs in Building Materials Program requires testing of priority building materials for PCBs before demolition. If PCBs are detected, the materials must be properly handled and disposed in accordance with state and federal laws and regulations.
Construction Site Control Program BMP Requirements	• Review Erosion Control Plan BMPs related to the demolition phase submitted by applicant.	• Required by C.6.c and C.6.d. • Continue to implement the municipal program for reviewing applicant Erosion Control Plan and BMPs submittals.

[7] For brevity, this means demolition sites with applicable structures containing building materials with PCBs concentrations of 50 ppm or greater. See the *PCBs in Priority Building Materials: Model Screening Assessment Applicant Package* for additional detail on applicable structures.
[8] Per MRP 3.0 Provision C.6.e, for the purposes of inspections, wet season is defined as October 1 through April 30.
[9] Removal of PCBs-containing materials is typically defined as part of the demolition phase, so this table uses the term *general demolition* to characterize the dismantling or knocking down of the structure that occurs following the PCBs-removal action.

Table 2. C.12.g ii (4) Construction Site Control Program Enhancement Options for Demolition Sites Subject to the PCBs Management Program[10]
(Select an Appropriate Set of Options for your Municipality)

Enhancement Options	Practice	Notes
Municipal Inspection Options		
1. Demolition Phase Dry Season Inspection(s)[11]	• Dry season inspection(s) of demolition projects during general demolition.[12]	• This would be an enhanced effort;[13] dry season inspections are not required for C.6 projects. • Inspection frequency would be determined by the municipality. • Inspection(s) would focus on the demolition activity and BMPs implemented for this activity.
2. Demolition Phase Wet Season[14] Inspections	• Additional wet season inspections during general demolition.	• This would be an enhanced effort beyond the required single wet season inspection identified in **Table 1**. • Increased inspection frequency would be determined by the municipality. • Inspection(s) would focus on the demolition activity and BMPs implemented for this activity.
3. Pre-Con Inspection	• Inspection of demolition projects prior to commencement of the general demolition.	• This would be an enhanced effort; pre-con inspections are not required for C.6 projects. • Inspection would focus on the preparation of the demolition site and the BMPs planned to be implemented, and general stormwater awareness.

[10] For brevity, this means demolition sites with applicable structures containing building materials with PCBs concentrations of 50 ppm or greater. See the *PCBs in Priority Building Materials: Model Screening Assessment Applicant Package* for additional detail on applicable structures.
[11] The dry season is May 1 through September 30; see footnote 13.
[12] Removal of PCBs-containing materials is typically defined as part of the demolition phase, so this table uses the term *general demolition* to characterize the dismantling or knocking down of the structure that occurs following the PCBs-removal action.
[13] The term enhanced effort is relative to the MRP requirements for C.6 or C.12. Some municipalities may have programs that go beyond the MRP requirements. In this case these existing efforts would be characterized as enhancements relative to C.12.g (4) because they exceed the MRP requirements.
[14] Per MRP Provision C.6.e, for the purposes of inspections, wet season is defined as October 1 through April 30.

Table 2. C.12.g ii (4) Construction Site Control Program Enhancement Options for Demolition Sites Subject to the PCBs Management Program[10]
(Select an Appropriate Set of Options for your Municipality)

Enhancement Options	Practice	Notes
Specified Applicant BMP Options		
1. Street Sweeping – Demolition Phase	• Require daily sweeping of project and adjacent streets using vacuum or regenerative air sweepers to effectively remove sediment, dust, and debris throughout the general demolition phase.	• Part of C.6 sediment control BMP suite. • Adds minimum frequency. • Limits enhancement to the highest risk period.
2. Street Sweeping – All Phases	• Require daily sweeping of project and adjacent streets throughout the project using vacuum or regenerative air sweepers to effectively remove sediment, dust, and debris.	• Part of sediment control BMP suite. • Adds minimum frequency. • Enhancement throughout project to address potential pollutant halo effect.
3. Cover Demolition Debris – Wet Season	• Cover demolition debris with an impermeable liner (or equivalent) during wet season or when rain is forecast.	• Part of C.6 good site management BMP suite. • CGP minimum BMP for demolition sites. • Enhancement specifies covering demolition debris during the wet season.
4. Cover Demolition Debris – Wet and Dry Season	• Cover demolition debris with an impermeable liner (or equivalent) at all times.	• Part of C.6 good site management BMP suite. • Enhancement specifies covering demolition debris at all times to address both wind and water migration.
5. Specified BMPs for Demolition Projects	• Establishing a set of BMP requirements for demolition projects. See **Table 3** for an example set of BMPs. • Review Erosion Control Plans to ensure BMPs are included.	• MRP requires submittal and approval of Erosion Control Plans for C.6 regulated projects. • MRP requires use of site-specific, seasonally and phase appropriate BMPs. • This enhancement would specify BMPs for projects subject to the PCBs Management Program based on the C.6 BMP categories.

Table 3. Example Set BMPs Options for Demolition Project Erosion Control Plans (See Table 2 Option 5)

C.6 BMP Category	Specific BMP
Erosion Control	Provide temporary soil stabilization with hydroseeding, soil binders, or erosion control blankets for all disturbed soils within 14-days of the area becoming inactive.
Erosion Control	Provide temporary soil stabilization with erosion control blankets or geotextiles disturbed soils in the demolition zone when rain is predicted.
Erosion Control	Use water and/or dust palliatives to manage dust during the demolition process. Dust control water must be managed to prevent runoff or collected for proper disposal.
Run-on and Runoff Control	Use earth dikes, drainage swales and/or other controls to direct run-on away from demolition site and debris storage areas.
Run-on and Runoff Control	Use earth dikes, drainage swales and/or other controls to direct runoff from the site to sediment controls.
Sediment Control	Install site perimeter controls (e.g., wattles, silt fences) around the project site.
Sediment Control	Install perimeter controls (e.g., wattles, silt fences) around the demolition area and debris management areas.
Sediment Control	Install stabilized entrances to minimize sediment track-out.
Sediment Control	Sweep streets and pavement on the project site and adjacent streets using vacuum or regenerative air sweepers to effectively remove sediment, dust, and debris.
Sediment Control	Install inlet protection at all on-site and off-site storm drain inlets that receive project runoff.
Good Site Management Dust Management	Use manual tools or tools that employ misters, e.g., wet sanders to generate lower dust volumes. Water must be collected for proper disposal.
Good Site Management Dust Management	Construct work containment zones to prevent spread of potentially contaminated dust – use plastic sheeting, vacuum, and/or install a decontamination area.
Good Site Management Waste Management	Cover demolition debris with an impermeable liner or place into covered leak tight debris bins.
Good Site Management Waste Management	Properly dispose of wastes (debris, liquid, and BMPs). Maintain waste disposal records (e.g., manifests, bills of lading) and submit to the local agency and EPA as required.
Good Site Management Materials Management	Decontaminate equipment before storing outdoors or using in other parts of the project.
Non-Stormwater Management	Contain decontamination water in covered leak-tight containers inside a building or inside secondary containment.

Appendix D

Building ID	Building Contains Concentrations ≥ 50 ppm PCBs?	FY	County	Permittee	Priority Building Material Application	Application Sample Description	Total PCBs Concentration (ppm)	Concentration ≥ 50 ppm (Y/N)	Unique Material ID	Estimated Amount of Material	Material Units (linear-ft or ft^2)	Material Type used for conversion factor	Best (Average or mid-rage value) (kg/linear-feet) or (kg/ft2)	Best (Average or mid-rage value) PCBs Mass (kg)	Assumed Quantity? (Y/N) - GC
SC-003B	Yes	2019-20	Santa Clara	Mountain View	Thermal Insulation	300-DUCT-8 Fiberglass HVAC duct insulation with cloth tagging Attic	81	Y	SC-003B-1	1,000	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.013	
SC-005	Yes	2019-20	Santa Clara	Palo Alto	Caulk	Floor expansion joint	2,386	Y	SC-005-1	47	linear-ft	Caulk - expansion joints	0.04	0.0045	
SC-005	Yes	2019-20	Santa Clara	Palo Alto	Caulk	Floor expansion joint	11,270	Y	SC-005-1	47	linear-ft	Caulk - expansion joints	0.04	0.021	
SC-005	Yes	2019-20	Santa Clara	Palo Alto	Caulk	Floor expansion joint	14,250	Y	SC-005-1	47	linear-ft	Caulk - expansion joints	0.04	0.027	
SC-005	Yes	2019-20	Santa Clara	Palo Alto	Fiberglass Insulation	Black wrap and fiberglass insulation on pipe	676	Y	SC-005-2	1,935	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.21	
SC-028	Yes	2019-20	Santa Clara	Sunnyvale	Caulk	650-02-04 to 650-02-06 Gray Expansion Joint	1,100	Y	SC-028-1	450	linear-ft	Caulk - expansion joints	0.04	0.020	
SC-031	Yes	2019-20	Santa Clara	Sunnyvale	Caulk	525-07-017 to -019 Tan Expansion Joint	490	Y	SC-031-1	900	linear-ft	Caulk - expansion joints	0.04	0.018	
SC-031	Yes	2019-20	Santa Clara	Sunnyvale	Caulk	525-12-032 to -34 Gray Expansion Joint	630	Y	SC-031-2	650	linear-ft	Caulk - expansion joints	0.04	0.016	
SC-043	Yes	2019-20	Santa Clara	Sunnyvale	Caulk	Gray Expansion Joint Caulking, 390/394-PCB-A05	91	Y	SC-043-1	2,750	linear-ft	Caulk - expansion joints	0.04	0.010	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-2-B.7/4.0-PCB27 BLACK GASKET	11	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00036	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-2-C.5/1.0-PCB28 BLACK GASKET	10	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00033	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-2-D.5/1.0-PCB29 BLACK GASKET	16	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00052	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-2-E.5/1.0-PCB30 BLACK GASKET	11	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00036	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-2-EXT-B.1/2.5-PCB31 BLACK GASKET	6.7	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00022	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-3-C/2.8-PCB32 BLACK GASKET	7.1	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00023	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-3-E.1/1.0-PCB33 BLACK GASKET	29	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00094	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-3-B.9/1.0-PCB34 BLACK GASKET	63	Y	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.0020	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-3-A.9/1.7-PCB35 BLACK GASKET	66	Y	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.0022	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Rubber Window Gasket	170-3-F.0/3.5-PCB36 BLACK GASKET	6.9	N	SC-053SJ-1	1,092	linear-ft	Rubber Window Gaskets	0.03	0.00023	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Caulk	170-2-EXT-C/4-PCB45 GREY CAULK PRECASTED WINDOW FRAME CAULK	2,400	Y	SC-053SJ-2	2,400	linear-ft	Caulk - window/door frames	0.02	0.12	
SC-053SJ	Yes	2019-20	Santa Clara	San Jose	Caulk	170-MP-B.8/1.8/PCB51 GREY CAULK CAULK BETWEEN PRECAST AND DOOR FRAME	160	Y	SC-053SJ-2	2,400	linear-ft	Caulk - window/door frames	0.02	0.0077	
SC-063	Yes	2020-21	Santa Clara	Sunnyvale	Caulk	755-PCB-CAULK Exterior expansion joint caulking -A	1,200	Y	SC-063-1	467	linear-ft	Caulk - expansion joints	0.04	0.022	
SC-063	Yes	2020-21	Santa Clara	Sunnyvale	Caulk	755-PCB-CAULK Exterior expansion joint caulking -B	1,400	Y	SC-063-1	467	linear-ft	Caulk - expansion joints	0.04	0.026	
SC-063	Yes	2020-21	Santa Clara	Sunnyvale	Caulk	755-PCB-CAULK Exterior expansion joint caulking -C	47	N	SC-063-1	467	linear-ft	Caulk - expansion joints	0.04	0.00088	
SC-089	Yes	2021-22	Santa Clara	San Jose	Caulk	PCB-15A Sidewalk Seam Sealant - GreyBuilding 1, Exterior - Northern Side of Building at Central Concrete Walkway	2,300	Y	SC-089-1	50	linear-ft	Caulk - expansion joints	0.04	0.0046	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-D/4.5-P1 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	38	N	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.00038	
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-G/1-P2 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	570	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.0057	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-N/3.5-P3 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	540	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.0054	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-M.5/2-P5 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	1,200	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.012	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-H.6/1-P6 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	3,800	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.038	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-D/1.4-P7 CAULK GREY CONCRETE/CONCRETE N SOLID FLAT WORK CAULK JOINT	710	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.0071	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-2EXT-E.2/5-P17 CAULK TAN CONCRETE/CONCRETE Y SOLID CAULK PRE CAST WITH	260,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	2.9	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-F.8/5-P18 CAULK TAN CONCRETE/CONCRETE Y SOLID CAULK PRE CAST WITH	220,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	2.4	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-K.2/5-P19 CAULK TAN CONCRETE/CONCRETE Y SOLID CAULK PRE CAST WITH	220,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	2.4	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-H.2/5-P20 CAULK TAN CONCRETE/CONCRETE Y SOLID CAULK PRE CAST WITH	310,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	3.4	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-J.2/5-P21 CAULK TAN CONCRETE/CONCRETE Y SOLID CAULK PRE CAST WITH	250,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	2.8	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-G.8/5-P22 CAULK TAN CONCRETE/CONCRETE N SOLID LOOK LIKE REPLACEMENT CAULK	290,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	3.2	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-L.8/5-P23 CAULK TAN CONCRETE/CONCRETE N SOLID LOOK LIKE REPLACEMENT CAULK	230,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	2.6	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-D.2/5-P24 CAULK TAN CONCRETE/CONCRETE N SOLID LOOK LIKE REPLACEMENT CAULK	110,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	1.2	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-REXT-E.5/5-P25 CAULK TAN CONCRETE/CONCRETE N SOLID LOOK LIKE REPLACEMENT CAULK	110,000	Y	SC-091-2	278	linear-ft	Caulk - expansion joints	0.04	1.2	Y
SC-091	Yes	2021-22	Santa Clara	Santa Clara County	Caulk	03-110-1EXT-D/4.5-P26 CAULK GREY CONCRETE/CONCRETE Y SOLID QA #1 FLAT WORK	280	Y	SC-091-1	250	linear-ft	Caulk - expansion joints	0.04	0.0028	Y
SC-099	Yes	2022-23	Santa Clara	San Jose	Adhesive Mastic	145SMO-1-K.1/5.6-P5 Floor Tile Mastic On Concrete	2,500	Y	SC-099-1	13,250	ft2	Mastics - carpet/floor ties	0.1	3.3	
SC-099	Yes	2022-23	Santa Clara	San Jose	Adhesive Mastic	145SMO-1-D.8/1.2-P10 Floor Tile Adhesive	88	Y	SC-099-2	19,700	ft2	Mastics - carpet/floor ties	0.1	0.17	
SC-099	Yes	2022-23	Santa Clara	San Jose	Adhesive Mastic	145SMO-1-K.5/3.1-P18 Black Tar/Mastic On Concrete	459	Y	SC-099-1	13,250	ft2	Mastics - carpet/floor ties	0.1	0.61	
SC-099	Yes	2022-23	Santa Clara	San Jose	Adhesive Mastic	145SMO-1-J.0/3.5-P19 Black Tar/Mastic On Concrete	85	Y	SC-099-1	13,250	ft2	Mastics - carpet/floor ties	0.1	0.11	
SC-099	Yes	2022-23	Santa Clara	San Jose	Adhesive Mastic	145SMO-1-K.0/1.3-P24 Black Tar/Mastic On Concrete	1,950	Y	SC-099-1	13,250	ft2	Mastics - carpet/floor ties	0.1	2.6	
SC-099	Yes	2022-23	Santa Clara	San Jose	Caulk	145SMO-1EXT-A.0/2.5-P26 Grey Caulking Between Concrete Seams	29,100	Y	SC-099-3	500	linear-ft	Caulk - expansion joints	0.04	0.58	
SC-099	Yes	2022-23	Santa Clara	San Jose	Caulk	145SMO-1EXT-C.0/4.0-P28 Grey Caulk Between Concrete Sections	5,740	Y	SC-099-3	500	linear-ft	Caulk - expansion joints	0.04	0.11	
SC-099	Yes	2022-23	Santa Clara	San Jose	Caulk	145SMO-1EXT-M.0/3.8-P31 Grey Caulk Between Concrete Sections	43,000	Y	SC-099-3	500	linear-ft	Caulk - expansion joints	0.04	0.86	
SC-103	Yes	2022-23	Santa Clara	Sunnyvale	Caulk	Black Sealant on West Exterior Window Frames Between window panes and wood window frame)	41,000	Y	SC-103-1	350	linear-ft	Caulk - window/door frames	0.02	0.29	
SC-103	Yes	2022-23	Santa Clara	Sunnyvale	Fiberglass Insulation	Pink batt insulation on ducting above ceiling areas of SOC Bldg 400	53	Y	SC-103-2	3,250	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.029	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 01 Miscell. (Caulk) Expansion Joint (pebbled facade), Gray	150,000	Y	SC-109-1	168	linear-ft	Caulk - expansion joints	0.04	1.0	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 02 Miscell. (Caulk) Expansion Joint (pebbled facade), Gray	240,000	Y	SC-109-1	168	linear-ft	Caulk - expansion joints	0.04	1.6	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 03 Miscell. (Caulk) Expansion Joint (pebbled facade), Gray	500,000	Y	SC-109-1	168	linear-ft	Caulk - expansion joints	0.04	3.4	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 04 Miscell. (Caulk) Expansion Joint (pebbled facade), Gray	450,000	Y	SC-109-1	168	linear-ft	Caulk - expansion joints	0.04	3.0	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 05 Miscell. (Caulk) Expansion Joint (pebbled facade), Gray	510,000	Y	SC-109-1	168	linear-ft	Caulk - expansion joints	0.04	3.4	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 06 Miscell. (Gasket) Rubber Gasket Grey / Exterior / Interior Windows	1,700	Y	SC-109-2	980	linear-ft	Rubber Window Gaskets	0.03	0.050	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 07 Miscell. (Gasket) Rubber Gasket Grey / Exterior / Interior Windows	270	Y	SC-109-2	980	linear-ft	Rubber Window Gaskets	0.03	0.0079	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 08 Miscell. (Gasket) Rubber Gasket Grey / Exterior / Interior Windows	300	Y	SC-109-2	980	linear-ft	Rubber Window Gaskets	0.03	0.0088	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 09 Miscell. (Gasket) Rubber Gasket Grey / Exterior / Interior Windows	490	Y	SC-109-2	980	linear-ft	Rubber Window Gaskets	0.03	0.014	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 10 Miscell. (Gasket) Rubber Gasket Grey / Exterior / Interior Windows	290	Y	SC-109-2	980	linear-ft	Rubber Window Gaskets	0.03	0.009	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 11 Miscell. (Gasket) Rubber Gasket Black / Exterior / Interior Windows	210	Y	SC-109-3	480	linear-ft	Rubber Window Gaskets	0.03	0.0030	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 12 Miscell. (Gasket) Rubber Gasket Black / Exterior / Interior Windows	270	Y	SC-109-3	480	linear-ft	Rubber Window Gaskets	0.03	0.0039	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 13 Miscell. (Gasket) Rubber Gasket Black / Exterior / Interior Windows	180	Y	SC-109-3	480	linear-ft	Rubber Window Gaskets	0.03	0.0026	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 14 Miscell. (Gasket) Rubber Gasket Black / Exterior / Interior Windows	320	Y	SC-109-3	480	linear-ft	Rubber Window Gaskets	0.03	0.0046	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Rubber Window Gasket	P 15 Miscell. (Gasket) Rubber Gasket Black / Exterior / Interior Windows	350	Y	SC-109-3	480	linear-ft	Rubber Window Gaskets	0.03	0.0050	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 16 Miscell. (Mastic) Carpet Mastic / Yellow & Black	290	Y	SC-109-4	65	ft2	Mastics - carpet/floor ties	0.1	0.0019	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 17 Miscell. (Mastic) Carpet Mastic / Yellow & Black	200	Y	SC-109-4	65	ft2	Mastics - carpet/floor ties	0.1	0.0013	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 18 Miscell. (Mastic) Carpet Mastic / Yellow & Black	180	Y	SC-109-4	65	ft2	Mastics - carpet/floor ties	0.1	0.0012	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 19 Miscell. (Mastic) Carpet Mastic / Yellow & Black	230	Y	SC-109-4	65	ft2	Mastics - carpet/floor ties	0.1	0.0015	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 20 Miscell. (Mastic) Carpet Mastic / Yellow & Black	240	Y	SC-109-5	385	ft2	Mastics - carpet/floor ties	0.1	0.0092	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 21 Miscell. (Mastic) Carpet Mastic / Yellow & Black	41	N	SC-109-5	385	ft2	Mastics - carpet/floor ties	0.1	0.0016	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 22 Miscell. (Mastic) Carpet Mastic / Yellow & Black	46	N	SC-109-5	385	ft2	Mastics - carpet/floor ties	0.1	0.0018	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Adhesive Mastic	P 23 Miscell. (Mastic) Carpet Mastic / Yellow & Black	8.0	N	SC-109-5	385	ft2	Mastics - carpet/floor ties	0.1	0.00031	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 36 Miscell. (Caulking) Caulking Black / Windows Exterior	0.42	N	SC-109-6	82	linear-ft	Caulk - window/door frames	0.02	0.00000069	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 37 Miscell. (Caulking) Caulking Black / Windows Exterior	148	Y	SC-109-6	82	linear-ft	Caulk - window/door frames	0.02	0.00024	
SC-109	Yes	2022-23	Santa Clara	Mountain View	Caulk	P 38 Miscell. (Caulking) Caulking Black / Windows Exterior	170	N	SC-109-6	82	linear-ft	Caulk - window/door frames	0.02	0.00028	
SC-126	Yes	2023-24	Santa Clara	San Jose	Thermal Insulation	P043 Duct Insulation Yellow - Large Rectangular	300	Y	SC-126-1	200	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.010	
SC-126	Yes	2023-24	Santa Clara	San Jose	Thermal Insulation	P067 Duct Insulation Yellow Square	67	Y	SC-126-2	120	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.0013	
SC-126	Yes	2023-24	Santa Clara	San Jose	Thermal Insulation	P069 Duct Insulation Yellow - Large	66	Y	SC-126-3	160	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.0017	
SC-136	Yes	2023-24	Santa Clara	Sunnyvale	Caulk	PCB-4A Exterior Light Gray Expansion Joint Exterior Wall Joints	860	Y	SC-136-1	25	linear-ft	Caulk - expansion joints	0.04	0.00086	Y
SC-136	Yes	2023-24	Santa Clara	Sunnyvale	Caulk	PCB-4B Exterior Light Gray Expansion Joint Exterior Wall Joints	540	Y	SC-136-2	25	linear-ft	Caulk - expansion joints	0.04	0.00054	Y
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Caulk	P018 Caulk/Sealant Expansion Joint, Building-Sidewalk	66	Y	SC-141-1	50	linear-ft	Caulk - expansion joints	0.04	0.00013	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P008 Gasket Exterior Windows	100	Y	SC-141-2	495	linear-ft	Rubber Window Gaskets	0.03	0.0015	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P013 Gasket Exterior Windows	57	Y	SC-141-2	495	linear-ft	Rubber Window Gaskets	0.03	0.00085	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P014 Gasket Exterior Windows	288	Y	SC-141-2	495	linear-ft	Rubber Window Gaskets	0.03	0.0043	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P027 Gasket Interior Doors	79	Y	SC-141-3	140	linear-ft	Rubber Window Gaskets	0.03	0.00033	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P028 Gasket Interior Doors	79	Y	SC-141-3	140	linear-ft	Rubber Window Gaskets	0.03	0.00033	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P029 Gasket Interior Doors	78	Y	SC-141-3	140	linear-ft	Rubber Window Gaskets	0.03	0.00033	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P030 Gasket Interior Doors	40	N	SC-141-3	140	linear-ft	Rubber Window Gaskets	0.03	0.00017	
SC-141	Yes	2023-24	Santa Clara	Santa Clara	Rubber Window Gasket	P031 Gasket Interior Doors	22	N	SC-141-3	140	linear-ft	Rubber Window Gaskets	0.03	0.000092	
SC-155	Yes	2024-25	Santa Clara	Santa Clara County	Caulk	CK-4-1,2,3,4,5 Grey Caulking Interior: Concrete Walls, Columns (500 LF)	1,900	Y	SC-155-1	500	linear-ft	Caulk - expansion joints	0.04	0.038	
SC-155	Yes	2024-25	Santa Clara	Santa Clara County	Caulk	GK-8-1,2,3 Grey Exterior Expansion Joint Exterior: Partial Walls at Entrances (100 LF)	3,300	Y	SC-155-2	100	linear-ft	Caulk - expansion joints	0.04	0.013	
SC-156	Yes	2024-25	Santa Clara	Sunnyvale	Adhesive Mastic	PCB-5A Black Floor Mastic	210	Y	SC-156-1	500	ft2	Mastics - carpet/floor ties	0.1	0.011	Y
SC-156	Yes	2024-25	Santa Clara	Sunnyvale	Adhesive Mastic	PCB-6A Black Floor Mastic	860	Y	SC-156-2	500	ft2	Mastics - carpet/floor ties	0.1	0.043	Y
SMC-2	Yes	2019-20	San Mateo	Menlo Park	Caulk	Caulking - 13	55	Y	SMC-2-1	200	linear-ft	Caulk - unspecified	0.03	0.00033	
SMC-6	Yes	2019-20	San Mateo	South San Francisco	Rubber Window Gasket	Black Window/Door Frame Sealant - 1	247	Y	SMC-6-1	1,100	linear-ft	Rubber Window Gaskets	0.03	0.0082	
SMC-17	Yes	2020-21	San Mateo	San Carlos	Caulk	Wall Joint Sealant Samples (12)	52	Y	SMC-17-1	140	linear-ft	Caulk - expansion joints	0.04	0.00029	
SMC-17	Yes	2020-21	San Mateo	San Carlos	Caulk	Wall Joint Sealant Samples (12)	250,000	Y	SMC-17-1	140	linear-ft	Caulk - expansion joints	0.04	1.4	
SMC-28	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 4- Beige Caulk	97	Y	SMC-28-1	360	linear-ft	Caulk - expansion joints	0.04	0.0014	
SMC-28	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 3 - Beige Expansion Joints (PCB-11,12,13,14,15)	102	Y	SMC-28-2	360	linear-ft	Caulk - expansion joints	0.04	0.0015	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 10 - Grey HVAC Caulk (10-001,002,003)	0.17	N	SMC-29-1	175	linear-ft	Caulk - expansion joints	0.04	0.0000012	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 10 - Grey HVAC Caulk (10-001,002,003)	360	Y	SMC-29-1	175	linear-ft	Caulk - expansion joints	0.04	0.0025	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 14 - Black Caulk (14-001,002,003)	50	Y	SMC-29-2	100	linear-ft	Caulk - expansion joints	0.04	0.00020	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 14 - Black Caulk (14-001,002,003)	290	Y	SMC-29-2	100	linear-ft	Caulk - expansion joints	0.04	0.0012	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 15 - Black Caulk (15-001,002,003)	2,700	Y	SMC-29-3	16,750	linear-ft	Caulk - expansion joints	0.04	1.8	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 15 - Black Caulk (15-001,002,003)	180,000	Y	SMC-29-3	16,750	linear-ft	Caulk - expansion joints	0.04	121	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 16 - Grey Caulk (16-001,002,003)	170,000	Y	SMC-29-4	1,275	linear-ft	Caulk - expansion joints	0.04	8.7	

Appendix D- Regional Effectiveness Evaluation of the Protocol for Managing PCBs-containing Materials During Building Demolition Compiled Data for Priority Building Materials containing ≥ 50 ppm PCBs.

Building ID	Building Contains Concentrations ≥ 50 ppm PCBs?	FY	County	Permittee	Priority Building Material Application	Application Sample Description	Total PCBs Concentration (ppm)	Concentration ≥ 50 ppm (Y/N)	Unique Material ID	Estimated Amount of Material	Material Units (linear-ft or ft^2)	Material Type used for conversion factor	Best (Average or mid-rage value) (kg/linear-feet) or (kg/ft2)	Best (Average or mid-rage value) PCBs Mass (kg)	Assumed Quantity? (Y/N) - GC
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 16 - Grey Caulk (16-001,002,003)	330,000	Y	SMC-29-4	1,275	linear-ft	Caulk - expansion joints	0.04	17	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 17 - Light Grey Caulk (17-001,002,003)	18,000	Y	SMC-29-5	3,250	linear-ft	Caulk - expansion joints	0.04	2.3	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 17 - Light Grey Caulk (17-001,002,003)	110,000	Y	SMC-29-5	3,250	linear-ft	Caulk - expansion joints	0.04	14	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 18 - Grey Caulk (18-001,002,003)	7,560	Y	SMC-29-6	500	linear-ft	Caulk - expansion joints	0.04	0.15	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 18 - Grey Caulk (18-001,002,003)	174,000	Y	SMC-29-6	500	linear-ft	Caulk - expansion joints	0.04	3.5	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 19 - Black Caulk (19-001,002,003)	21	N	SMC-29-7	1,275	linear-ft	Caulk - expansion joints	0.04	0.0011	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Caulk	Type 19 - Black Caulk (19-001,002,003)	120	Y	SMC-29-7	1,275	linear-ft	Caulk - expansion joints	0.04	0.0061	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Fiberglass Insulation	Type 23 - Yellow Fiberglass Insulation (23-001,002,003)	520	Y	SMC-29-8	4,500	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.40	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Fiberglass Insulation	Type 23 - Yellow Fiberglass Insulation (23-001,002,003)	1,000	Y	SMC-29-8	4,500	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.77	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Fiberglass Insulation	Type 28 - Yellow Fiberglass Insulation (28-001,002,003)	890	Y	SMC-29-9	2,250	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.34	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Rubber Window Gasket	Type 20 - Black Gasket (20-001,002,003)	18	N	SMC-29-10	1,275	linear-ft	Rubber Window Gaskets	0.03	0.00069	
SMC-29	Yes	2020-21	San Mateo	Redwood City	Rubber Window Gasket	Type 20 - Black Gasket (20-001,002,003)	640	Y	SMC-29-10	1,275	linear-ft	Rubber Window Gaskets	0.03	0.024	
SM-42	Yes	2021-22	San Mateo	Menlo Park	Caulk	Expansion Caulk (211228.50-PCB12	340	Y	SM-42-1	50	linear-ft	Caulk - expansion joints	0.04	0.00068	
SM-42	Yes	2021-22	San Mateo	Menlo Park	Caulk	Expansion Caulk (211228.50-PCB13	790	Y	SM-42-1	50	linear-ft	Caulk - expansion joints	0.04	0.0016	
SM-55	Yes	2021-22	San Mateo	Redwood City	Fiberglass Insulation	406-13P Yellow Batt Insulation(Older)	1,200	Y	SM-55-1	1,500	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.31	
SM-55	Yes	2021-22	San Mateo	Redwood City	Adhesive Mastic	0427-01P Black Vinyl Floor Tile (VFT)Mastic(Under Faux Wood Flooring)	5,000	Y	SM-55-2	1,166	ft2	Mastics - carpet/floor ties	0.1	0.58	
SM-55	Yes	2021-22	San Mateo	Redwood City	Adhesive Mastic	0427-02P Black VFT Mastic(Under Faux Wood Flooring)	5,000	Y	SM-55-2	1,166	ft2	Mastics - carpet/floor ties	0.1	0.58	
SM-55	Yes	2021-22	San Mateo	Redwood City	Adhesive Mastic	0427-03P Black VFT Mastic(Under Faux Wood Flooring)	580	Y	SM-55-2	1,166	ft2	Mastics - carpet/floor ties	0.1	0.068	
SM-56	Yes	2021-22	San Mateo	South San Francisco	Fiberglass Insulation	0427-101P Pink Batt Insulation (Older)	25,000	Y	SM-56-1	1,000	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	4.3	
SM-56	Yes	2021-22	San Mateo	South San Francisco	Fiberglass Insulation	0427-102P Yellow Batt Insulation(Older)	1,200	Y	SM-56-2	1,000	ft2	Insulation - walls/crawl space rigid fiberglass	0.17	0.20	
SM-57	Yes	2021-22	San Mateo	Burlingame	Adhesive Mastic	1379-10-8-22	56	Y	SM-57-1	50	ft2	Mastics - carpet/floor ties	0.1	0.00028	
SM-57	Yes	2021-22	San Mateo	Burlingame	Adhesive Mastic	1379-10-8-24	290	Y	SM-57-1	50	ft2	Mastics - carpet/floor ties	0.1	0.0015	
SM-57	Yes	2021-22	San Mateo	Burlingame	Caulk	1379-10-8-28	43,000	Y	SM-57-2	375	linear-ft	Caulk - expansion joints	0.04	0.65	Y
SM-57	Yes	2021-22	San Mateo	Burlingame	Caulk	1379-10-8-29	56,000	Y	SM-57-2	375	linear-ft	Caulk - expansion joints	0.04	0.84	Y
SM-57	Yes	2021-22	San Mateo	Burlingame	Caulk	1379-10-8-30	64,000	Y	SM-57-2	375	linear-ft	Caulk - expansion joints	0.04	0.96	Y
SM-57	Yes	2021-22	San Mateo	Burlingame	Caulk	1379-10-8-31	15,000	Y	SM-57-2	375	linear-ft	Caulk - expansion joints	0.04	0.23	Y
SM-57	Yes	2021-22	San Mateo	Burlingame	Caulk	1379-10-8-32	15,000	Y	SM-57-3	700	linear-ft	Caulk - expansion joints	0.04	0.42	Y
SM-61	Yes	2022-23	San Mateo	South San Francisco	Rubber Window Gasket	PCB-03C Exterior-Front Office-North East	57	Y	SM-61-1	288	linear-ft	Rubber Window Gaskets	0.03	0.00049	
SM-61	Yes	2022-23	San Mateo	South San Francisco	Rubber Window Gasket	PCB-03D Exterior-Front Office-North	68	Y	SM-61-1	288	linear-ft	Rubber Window Gaskets	0.03	0.00059	
SM-61	Yes	2022-23	San Mateo	South San Francisco	Caulk	PCB-04C Exterior-Front Office-North East Window Caulking	24,000	Y	SM-61-2	128	linear-ft	Caulk - window/door frames	0.02	0.061	
SM-61	Yes	2022-23	San Mateo	South San Francisco	Caulk	PCB-04D Exterior-Front Office-North Window Caulking	84,000	Y	SM-61-2	128	linear-ft	Caulk - window/door frames	0.02	0.22	
SM-61	Yes	2022-23	San Mateo	South San Francisco	Caulk	PCB-04E Exterior-Front Office-West Window Caulking	130,000	Y	SM-61-2	128	linear-ft	Caulk - window/door frames	0.02	0.33	
SM-70	Yes	2024-25	San Mateo	Menlo Park	Caulk	Exterior Concrete Wall Expansion Joint Compound - NW Corner (PCB105A)	45,000	Y	SM-70-1	67	linear-ft	Caulk - expansion joints	0.04	0.12	
SM-70	Yes	2024-25	San Mateo	Menlo Park	Caulk	Exterior Concrete Wall Expansion Joint Compound - West Wall (PCB105B)	62,000	Y	SM-70-1	67	linear-ft	Caulk - expansion joints	0.04	0.17	
SM-70	Yes	2024-25	San Mateo	Menlo Park	Caulk	Exterior Concrete Wall Expansion Joint Compound - SW Corner (PCB105C)	35,000	Y	SM-70-1	67	linear-ft	Caulk - expansion joints	0.04	0.09	
SM-70	Yes	2024-25	San Mateo	Menlo Park	Caulk	Exterior Concrete Wall Expansion Joint Compound - East Wall (PCB105E)	96,000	Y	SM-70-1	67	linear-ft	Caulk - expansion joints	0.04	0.26	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Fiberglass Insulation	Yellow Fiberglass Duct Insulation (PCB108A)	1,700	Y	SM-71-1	2,400	ft2	Insulation - HVAC/blanket fiberglass	0.16	0.65	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Black Tile Mastic (PCB100A)	50	Y	SM-71-2	3,400	ft2	Mastics - carpet/floor ties	0.1	0.017	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow Tile Mastic (PCB101A)	2,800	Y	SM-71-3	332	ft2	Mastics - carpet/floor ties	0.1	0.093	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow Tile Mastic (PCB101B)	400	Y	SM-71-3	332	ft2	Mastics - carpet/floor ties	0.1	0.013	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow Tile Mastic (PCB101C)	510	Y	SM-71-3	332	ft2	Mastics - carpet/floor ties	0.1	0.017	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow Tile Mastic (PCB101D)	2,500	Y	SM-71-3	332	ft2	Mastics - carpet/floor ties	0.1	0.083	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow Tile Mastic (PCB101E)	3,300	Y	SM-71-3	332	ft2	Mastics - carpet/floor ties	0.1	0.11	
SM-71	Yes	2024-25	San Mateo	Menlo Park	Adhesive Mastic	Yellow/Black Tile and Carpet Mastic (PCB102E)	150	Y	SM-71-4	4,050	ft2	Mastics - carpet/floor ties	0.1	0.06	
Oak-11	Yes	2023-24	Alameda	Oakland	Caulk	Caulk Sample 1	320	Y	Oak-11_Caulk - unspecified	48	linear-ft	Caulk - unspecified	0.03	0.00046	
Oak-11	Yes	2023-24	Alameda	Oakland	Fiberglass Insulation	Fiberglass Insulation Sample 1	78	Y	Oak-11_Insulation - Fiberglass unspecified	86	ft2	Insulation - Fiberglass unspecified	0.32	0.0021	
Oak-11	Yes	2023-24	Alameda	Oakland	Adhesive Mastic	Adhesive Mastic Sample 1	87	Y	Oak-11_Mastics - unspecified	800	ft2	Mastics - unspecified	0.3	0.021	
Oak-11	Yes	2023-24	Alameda	Oakland	Rubber Window Gasket	Window Gasket Sample 1	70	Y	Oak-11_Rubber Window Gaskets	75	linear-ft	Rubber Window Gaskets	0.03	0.00016	
B2022-00683	Yes	2022-23	Alameda	Berkeley	Adhesive Mastic	VFT Mastic	550	Y	B2022-00683_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	0.046	
B2022-00683	Yes	2022-23	Alameda	Berkeley	Adhesive Mastic	VFT Mastic	450	Y	B2022-00683_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	0.038	
B2022-00683	Yes	2022-23	Alameda	Berkeley	Adhesive Mastic	VFT Mastic	250	Y	B2022-00683_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	0.021	
2022-23_EM-01	Yes	2022-23	Alameda	Emeryville	Caulk	Caulking	7,000	Y	2022-23_EM-01_Caulk - unspecified	2,000	linear-ft	Caulk - unspecified	0.03	0.42	
2022-23_EM-01	Yes	2022-23	Alameda	Emeryville	Rubber Window Gasket	Window Gasket	3,500	Y	2022-23_EM-01_Rubber Window Gaskets	10,000	linear-ft	Rubber Window Gaskets	0.03	1.1	
OAK-07	Yes	2022-23	Alameda	Oakland	Caulk	Batch House, south wall on east side (window caulking)	53	Y	OAK-07_Caulk - window/door frames	25	linear-ft	Caulk - window/door frames	0.02	0.000027	Y
OAK-06	Yes	2022-23	Alameda	Oakland	Adhesive Mastic	Plant building, roof, exterior corrogated siding (galbestos tar)	36,000	Y	OAK-06_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	3.0	Y
OAK-06	Yes	2022-23	Alameda	Oakland	Adhesive Mastic	Plant building, roof, lower edge of exterior siding (tar mastic)	5,500	Y	OAK-06_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	0.46	Y
OAK-06	Yes	2022-23	Alameda	Oakland	Adhesive Mastic	Plant building, south side, skylight corrogated siding (galbestos tar)	25,000	Y	OAK-06_Mastics - roofing/flashing	167	ft2	Mastics - roofing/flashing	0.5	2.1	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black Rubber Window Seal	240	Y	BER-3_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.00060	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black Sealant (Window Frame to Window)	10	N	BER-3_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.000024	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black Soft Window Seal	19	N	BER-3_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.000048	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black Soft Window Seal	210	Y	BER-3_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.00053	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black Window Sealant/Window Frame to Window)	84	Y	BER-3_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.00021	Y
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Black/Gray Window Frame Sealant (Window Frame to Concrete)	80,000	Y	BER-3_Caulk - window/door frames	380	linear-ft	Caulk - window/door frames	0.02	0.61	
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Brick Material Immediately Adjacent to Exterior Gray Seam Sealant (and 2 inches in)	3,400	Y	BER-3_Caulk - expansion joints	120	linear-ft	Caulk - expansion joints	0.04	0.016	
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Exterior Gray Seam Sealant (adjacent to outer boundary of exterior brick walkway)	170,000	Y	BER-3_Caulk - expansion joints	120	linear-ft	Caulk - expansion joints	0.04	0.82	
BER-3	Yes	2021-22	Alameda	Berkeley	Caulk	Gray Window Frame Sealanton Concrete	1,700	Y	BER-3_Caulk - window/door frames	380	linear-ft	Caulk - window/door frames	0.02	0.013	
BER-3	Yes	2021-22	Alameda	Berkeley	Rubber Window Gasket	Black Window Seal/Soft Window Sealant (Window Frame to Window)	61	Y	BER-3_Rubber Window Gaskets	480	linear-ft	Rubber Window Gaskets	0.03	0.00088	
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	0.45	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.000032	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	0.42	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.000030	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	13	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.00095	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	14	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.0010	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	52	Y	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.0037	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	8.0	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.00057	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	13	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.00089	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	Black adhered to tile floor	10	N	Hay-01 Bldg 1_Mastics - carpet/floor ties	714	ft2	Mastics - carpet/floor ties	0.1	0.00074	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Caulk	Gray	0.42	N	Hay-01 Bldg 1_Caulk - unspecified	125	linear-ft	Caulk - unspecified	0.03	0.0000016	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Caulk	Gray	0.70	N	Hay-01 Bldg 1_Caulk - unspecified	125	linear-ft	Caulk - unspecified	0.03	0.0000026	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Caulk	Gray	2.3	N	Hay-01 Bldg 1_Caulk - unspecified	125	linear-ft	Caulk - unspecified	0.03	0.0000086	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Caulk	Gray	2.2	N	Hay-01 Bldg 1_Caulk - unspecified	125	linear-ft	Caulk - unspecified	0.03	0.0000083	Y
Hay-01 Bldg 1	Yes	2021-22	Alameda	Hayward	Caulk	Gray	330	Y	Hay-01 Bldg 1_Caulk - unspecified	125	linear-ft	Caulk - unspecified	0.03	0.0012	Y
Hay-1	Yes	2021-22	Alameda	Hayward	Rubber Window Gasket	window gasket	1,300	Y	Hay-1_Rubber Window Gaskets	25	linear-ft	Rubber Window Gaskets	0.03	0.0010	
Hay-2	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	PCB-C1	76	Y	Hay-2_Mastics - unspecified	100	ft2	Mastics - unspecified	0.3	0.0023	
Hay-2	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	PCB-C2	88	Y	Hay-2_Mastics - unspecified	100	ft2	Mastics - unspecified	0.3	0.0026	
Hay-2	Yes	2021-22	Alameda	Hayward	Adhesive Mastic	PCB-C3	140	Y	Hay-2_Mastics - unspecified	100	ft2	Mastics - unspecified	0.3	0.0042	
B2105059	Yes	2021-22	Alameda	Oakland	Caulk	Beige caulking 1	56	Y	B2105059_Caulk - unspecified	25	linear-ft	Caulk - unspecified	0.03	0.000042	Y
2021-22_AC-1	Yes	2021-22	Alameda	San Leandro	Caulk	Window Sealant(gladd frame interface) East windows	50	Y	2021-22_AC-1_Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.000050	Y
2021-22_AC-1	Yes	2021-22	Alameda	San Leandro	Caulk	Window Sealant(gladd frame interface) Southwest windows	57	Y	2021-22_AC-1_Caulk - window/door frames	50	ft2	Caulk - window/door frames	0.02	0.000057	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	Carpet Adhesive + Tice Mastic	53	Y	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0048	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	Carpet Adhesive + Tice Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	Carpet Adhesive + Tice Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	Carpet Adhesive + Tice Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	carpet adhesive Lobby	440	Y	DUB-1_Mastics - carpet/floor ties	3,600	ft2	Mastics - carpet/floor ties	0.1	0.16	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	Subfloor VFT Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	VFT Black Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	VFT Black Mastic	25	N	DUB-1_Mastics - carpet/floor ties	900	ft2	Mastics - carpet/floor ties	0.1	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Adhesive Mastic	VFT Mastic West Exit Lobby	740	Y	DUB-1_Mastics - roofing/flashing	900	ft2	Mastics - roofing/flashing	0.5	0.33	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Caulk	Concrete Floor Caulking 1	42	N	DUB-1_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0018	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Caulk	Concrete Floor Caulking 2	52	Y	DUB-1_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0023	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Caulk	Concrete Floor Caulking 3	44	N	DUB-1_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0019	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Caulk	Concrete floor caulking 4	51	Y	DUB-1_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0022	Y
DUB-1	Yes	2020-21	Alameda	Dublin	Caulk	Concrete floor caulking 5	180	Y	DUB-1_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0079	Y
2020-21_FRE-1	Yes	2020-21	Alameda	Fremont	Thermal Insulation	Thermals System Insulation	1,800	Y	2020-21_FRE-1_Insulation - Fiberglass unspecified	100	ft2	Insulation - Fiberglass unspecified	0.32	0.058	
FRE-3	Yes	2020-21	Alameda	Fremont	Caulk	window caulk/glaze (OF)	670	Y	FRE-3_Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.00067	Y
FRE-3	Yes	2020-21	Alameda	Fremont	Caulk	window caulk/glaze (OF)	25	N	FRE-3_Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.000025	Y
FRE-3	Yes	2020-21	Alameda	Fremont	Caulk	window caulk/glaze (OF)	76	Y	FRE-3_Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.000076	Y
2020-21_FRE-5	Yes	2020-21	Alameda	Fremont	Adhesive Mastic	downstairs; wall (concrete) & ceiling	110	Y	2020-21_FRE-5_Mastics - carpet/floor ties	300	ft2	Mastics - carpet/floor ties	0.1	0.0033	
2020-21_FRE-5	Yes	2020-21	Alameda	Fremont	Caulk	downstairs; concrete expansion joint (SE Wall)	28,000	Y	2020-21_FRE-5_Caulk - expansion joints	75	linear-ft	Caulk - expansion joints	0.04	0.084	
411 Industrial Pkwy	Yes	2020-21	Alameda	Hayward	Rubber Window Gasket	Gasket sampled	1,300	Y	411 Industrial Pkwy_Rubber Window Gaskets	25	linear-ft	Rubber Window Gaskets	0.03	0.0010	

Appendix D - Regional Effectiveness Evaluation of the Protocol for Managing PCBs-containing Materials During Building Demolition Compiled Data for Priority Building Materials containing ≥ 50 ppm PCBs.

Building ID	Building Contains Concentrations ≥ 50 ppm PCBs?	FY	County	Permittee	Priority Building Material Application	Application Sample Description	Total PCBs Concentration (ppm)	Concentration ≥ 50 ppm (Y/N)	Unique Material ID	Estimated Amount of Material	Material Units (linear-ft or ft^2)	Material Type used for conversion factor	Best (Average or mid-rage value) (kg/linear-feet) or (kg/ft2)	Best (Average or mid-rage value) PCBs Mass (kg)	Assumed Quantity? (Y/N) - GC
2019-20_Fre-1	Yes	2019-20	Alameda	Fremont	Adhesive Mastic	Baseboard Mastic	50	Y	2019-20_Fre-1_Mastics - carpet/floor ties	1,100	linear-ft	Mastics - carpet/floor ties	0.1	0.0055	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Adhesive Mastic	Residual floor	29	N	22300 City Center Dr._Mastics - carpet/floor ties	83	ft2	Mastics - carpet/floor ties	0.1	0.00024	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Adhesive Mastic	Residual floor	4.4	N	22300 City Center Dr._Mastics - carpet/floor ties	83	ft2	Mastics - carpet/floor ties	0.1	0.000037	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Adhesive Mastic	Residual floor	66	Y	22300 City Center Dr._Mastics - carpet/floor ties	83	ft2	Mastics - carpet/floor ties	0.1	0.00055	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Window, black	7.8	N	22300 City Center Dr._Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.0000078	Y
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Window, black	135	Y	22300 City Center Dr._Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.00014	Y
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Window, black	29	N	22300 City Center Dr._Caulk - window/door frames	50	linear-ft	Caulk - window/door frames	0.02	0.000029	Y
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Expansion joint, gray	6,660	Y	22300 City Center Dr._Caulk - expansion joints	1,000	linear-ft	Caulk - expansion joints	0.04	0.27	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Expansion joint, gray	9,600	Y	22300 City Center Dr._Caulk - expansion joints	1,000	linear-ft	Caulk - expansion joints	0.04	0.38	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Caulk	Expansion joint, gray	114	Y	22300 City Center Dr._Caulk - expansion joints	1,000	linear-ft	Caulk - expansion joints	0.04	0.0046	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Rubber Window Gasket	Black	265	Y	22300 City Center Dr._Rubber Window Gaskets	20	linear-ft	Rubber Window Gaskets	0.03	0.00016	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Rubber Window Gasket	Black	660	Y	22300 City Center Dr._Rubber Window Gaskets	20	linear-ft	Rubber Window Gaskets	0.03	0.00040	
22300 City Center Dr.	Yes	2019-20	Alameda	Hayward	Rubber Window Gasket	Black	806	Y	22300 City Center Dr._Rubber Window Gaskets	20	linear-ft	Rubber Window Gaskets	0.03	0.00048	
GE Site - Slab G - Center	Yes	2019-20	Alameda	Oakland	Caulk	Wooden expansion joint material	125	Y	GE Site - Slab G - Center_Caulk - expansion joints	100	linear-ft	Caulk - expansion joints	0.04	0.00050	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Adhesive Mastic	Flooring adhesive	39	N	GE Site BLD - 01_Mastics - carpet/floor ties	47	ft2	Mastics - carpet/floor ties	0.1	0.00018	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Adhesive Mastic	Flooring adhesive	129	Y	GE Site BLD - 01_Mastics - carpet/floor ties	47	ft2	Mastics - carpet/floor ties	0.1	0.00060	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Adhesive Mastic	Flooring adhesive	174	Y	GE Site BLD - 01_Mastics - carpet/floor ties	47	ft2	Mastics - carpet/floor ties	0.1	0.00081	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	10	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.00037	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	26	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.00094	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	46	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.0016	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	8.3	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.00030	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	4.8	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.00017	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	82	Y	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.0029	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	12	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.00041	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	39	N	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.0014	
GE Site BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Interior window caulking	89	Y	GE Site BLD - 01_Caulk - window/door frames	1,778	linear-ft	Caulk - window/door frames	0.02	0.0032	
GE Site BLD - 04	Yes	2019-20	Alameda	Oakland	Adhesive Mastic	Flooring adhesive	66	Y	GE Site BLD - 04_Mastics - carpet/floor ties	600	ft2	Mastics - carpet/floor ties	0.1	0.0040	
GE Site BLD - 04	Yes	2019-20	Alameda	Oakland	Adhesive Mastic	Flooring adhesive	85	Y	GE Site BLD - 04_Mastics - carpet/floor ties	600	ft2	Mastics - carpet/floor ties	0.1	0.0051	
GE Site BLD - 08	Yes	2019-20	Alameda	Oakland	Rubber Window Gasket	Rubber Gasket	56	Y	GE Site BLD - 08_Rubber Window Gaskets	50	linear-ft	Rubber Window Gaskets	0.03	0.000084	Y
GE Site BLD - 18	Yes	2019-20	Alameda	Oakland	Caulk	Wooden expansion joint material	61	Y	GE Site BLD - 18_Caulk - expansion joints	167	linear-ft	Caulk - expansion joints	0.04	0.00041	
GE Site BLD - 18	Yes	2019-20	Alameda	Oakland	Caulk	Wooden expansion joint material	46	N	GE Site BLD - 18_Caulk - expansion joints	167	linear-ft	Caulk - expansion joints	0.04	0.00031	
GE Site BLD - 18	Yes	2019-20	Alameda	Oakland	Caulk	Wooden expansion joint material	32	N	GE Site BLD - 18_Caulk - expansion joints	167	linear-ft	Caulk - expansion joints	0.04	0.00021	
GE Site BLD - 20	Yes	2019-20	Alameda	Oakland	Fiberglass Insulation	Felt at Tank Saddles, Black	58	Y	GE Site BLD - 20_Insulation - HVAC/felt insulation	117	ft2	Insulation - HVAC/felt insulation	0.82	0.0055	
GE Site BLD - 20	Yes	2019-20	Alameda	Oakland	Fiberglass Insulation	Felt at Tank Saddles, Black	104	Y	GE Site BLD - 20_Insulation - HVAC/felt insulation	117	ft2	Insulation - HVAC/felt insulation	0.82	0.0099	
GE Site BLD - 20	Yes	2019-20	Alameda	Oakland	Thermal Insulation	Felt at Tank Saddles, Black	44	N	GE Site BLD - 20_Insulation - HVAC/felt insulation	117	ft2	Insulation - HVAC/felt insulation	0.82	0.0042	
Port BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Exterior wall seam sealant - West wall	537,000	Y	Port BLD - 01_Caulk - expansion joints	560	linear-ft	Caulk - expansion joints	0.04	12	
Port BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Exterior wall seam sealant - north wall	432,000	Y	Port BLD - 01_Caulk - expansion joints	560	linear-ft	Caulk - expansion joints	0.04	9.7	
Port BLD - 01	Yes	2019-20	Alameda	Oakland	Caulk	Exterior wall seam sealant - north wall	426,000	Y	Port BLD - 01_Caulk - expansion joints	560	linear-ft	Caulk - expansion joints	0.04	9.5	
GE Site BLD - 02	Yes	2019-20	Alameda	Oakland	Caulk	Exterior window glazing compound (Partial Areas - North and East Sides)	139	Y	GE Site BLD - 02_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.00035	
GE Site BLD - 02	Yes	2019-20	Alameda	Oakland	Caulk	Exterior window glazing compound (Partial Areas - North and East Sides)	18	N	GE Site BLD - 02_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.000044	
GE Site BLD - 02	Yes	2019-20	Alameda	Oakland	Caulk	Exterior window glazing compound (Partial Areas - North and East Sides)	15	N	GE Site BLD - 02_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.000038	
GE Site BLD - 02	Yes	2019-20	Alameda	Oakland	Caulk	Exterior window glazing compound (Partial Areas - North and East Sides)	11	N	GE Site BLD - 02_Caulk - window/door frames	125	linear-ft	Caulk - window/door frames	0.02	0.000028	
GE Site BLD - 17	Yes	2019-20	Alameda	Oakland	Caulk	Slab Expansion Joint Sealant,Clear/Gray	64	Y	GE Site BLD - 17_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0028	
GE Site BLD - 17	Yes	2019-20	Alameda	Oakland	Caulk	Slab Expansion Joint Sealant,Clear/Gray	53	Y	GE Site BLD - 17_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0023	
GE Site BLD - 17	Yes	2019-20	Alameda	Oakland	Caulk	Slab Expansion Joint Sealant,Clear/Gray	31	N	GE Site BLD - 17_Caulk - expansion joints	1,100	linear-ft	Caulk - expansion joints	0.04	0.0014	
SHIPPING/RECEIVING BLDG.	Yes	2021-22	Alameda	Richmond	Adhesive Mastic	9X9 GRAY FLOOR TILE/MASTIC	540	Y	SHIPPING/RECEIVING BLDG._Mastics - carpet/floor ties	35	ft2	Mastics - carpet/floor ties	0.1	0.0019	Y
SHIPPING/RECEIVING BLDG.	Yes	2021-22	Alameda	Richmond	Adhesive Mastic	GRAY VINYL BASE COVE/MASTIC	13	N	SHIPPING/RECEIVING BLDG._Mastics - carpet/floor ties	35	ft2	Mastics - carpet/floor ties	0.1	0.000046	
HELIUM BUILDING	Yes	2021-22	Alameda	Richmond	Caulk	FLOOR CAULKING	1.9	N	HELIUM BUILDING_Caulk - expansion joints	10	linear-ft	Caulk - expansion joints	0.04	0.00000076	Y
HELIUM BUILDING	Yes	2021-22	Alameda	Richmond	Caulk	FLOOR CAULKING	82	Y	HELIUM BUILDING_Caulk - expansion joints	10	linear-ft	Caulk - expansion joints	0.04	0.000033	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Coping selant	11	N	CC-1_Caulk - expansion joints	633	linear-ft	Caulk - expansion joints	0.04	0.00028	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Coping selant	14,000	Y	CC-1_Caulk - expansion joints	633	linear-ft	Caulk - expansion joints	0.04	0.35	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Coping selant	22,000	Y	CC-1_Caulk - expansion joints	633	linear-ft	Caulk - expansion joints	0.04	0.56	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Door frame sealant	33,000	Y	CC-1_Caulk - window/door frames	73	linear-ft	Caulk - window/door frames	0.02	0.048	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Door frame sealant	25,000	Y	CC-1_Caulk - window/door frames	73	linear-ft	Caulk - window/door frames	0.02	0.037	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Door frame sealant	75,000	Y	CC-1_Caulk - window/door frames	73	linear-ft	Caulk - window/door frames	0.02	0.11	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior door frame sealant	53,000	Y	CC-1_Caulk - window/door frames	60	linear-ft	Caulk - window/door frames	0.02	0.064	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior door frame sealant	24	N	CC-1_Caulk - window/door frames	60	linear-ft	Caulk - window/door frames	0.02	0.000029	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior door frame sealant	28	N	CC-1_Caulk - window/door frames	60	linear-ft	Caulk - window/door frames	0.02	0.000034	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	9,100	Y	CC-1_Caulk - window/door frames	5,111	linear-ft	Caulk - window/door frames	0.02	0.93	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	42	N	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.0086	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	48	N	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.010	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	10	N	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.0020	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	16	N	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.0033	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	21,000	Y	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	4.3	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	67	Y	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.014	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	21	N	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	0.0043	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior siding panel sealant	23,000	Y	CC-1_Caulk - expansion joints	5,111	linear-ft	Caulk - expansion joints	0.04	4.7	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	10	N	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.000040	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	35,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.14	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	13	N	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.000052	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	30,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.12	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	14,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.056	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	41,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.16	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	26,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.10	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	24,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.10	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Exterior window frame sealant	22,000	Y	CC-1_Caulk - window/door frames	200	linear-ft	Caulk - window/door frames	0.02	0.088	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Thermal Insulation	Fiberglass pipe insulation	400	Y	CC-1_Insulation - fiberglass piping	9,000	linear-ft	Insulation - fiberglass piping	0.26	0.94	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	37,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.99	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	890	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.024	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	17,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.45	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	16,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.43	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	20,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.53	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	14,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.37	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	17,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.45	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	37,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.99	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Gray interior window sealant	18,000	Y	CC-1_Caulk - window/door frames	1,333	linear-ft	Caulk - window/door frames	0.02	0.48	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	1,000	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.040	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	570	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.023	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	420	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.017	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	1,800	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.072	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	1,300	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.052	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	320	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.013	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	500	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.020	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	560	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.022	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Rubber Window Gasket	Gray rubber window seal	1,300	Y	CC-1_Rubber Window Gaskets	1,333	linear-ft	Rubber Window Gaskets	0.03	0.052	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Walkway expansion joint sealant	10	N	CC-1_Caulk - expansion joints	60	linear-ft	Caulk - expansion joints	0.04	0.000024	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Walkway expansion joint sealant	10	N	CC-1_Caulk - expansion joints	60	linear-ft	Caulk - expansion joints	0.04	0.000024	
CC-1	Yes	2021-22	Contra Costa	Contra Costa County	Caulk	Walkway expansion joint sealant	16,000	Y	CC-1_Caulk - expansion joints	60	linear-ft	Caulk - expansion joints	0.04	0.038	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-contrete panels	130,000	Y	102_Caulk - expansion joints	133	linear-ft	Caulk - expansion joints	0.04	0.69	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-contrete panels	82,000	Y	102_Caulk - expansion joints	133	linear-ft	Caulk - expansion joints	0.04	0.44	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-contrete panels	74,000	Y	102_Caulk - expansion joints	133	linear-ft	Caulk - expansion joints	0.04	0.39	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-exterior vent	80	Y	102_Caulk - expansion joints	20	linear-ft	Caulk - expansion joints	0.04	0.000064	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-exterior vent	25	N	102_Caulk - expansion joints	20	linear-ft	Caulk - expansion joints	0.04	0.000020	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-wall panels	54	Y	102_Caulk - expansion joints	800	linear-ft	Caulk - expansion joints	0.04	0.0017	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-wall panels	120	Y	102_Caulk - expansion joints	800	linear-ft	Caulk - expansion joints	0.04	0.0038	
102	Yes	2020-21	Contra Costa	Contra Costa County	Caulk	Caulk-wall panels	60	Y	102_Caulk - expansion joints	800	linear-ft	Caulk - expansion joints	0.04	0.0019	
102	Yes	2020-21	Contra Costa	Contra Costa County	Fiberglass Insulation	Fiberglass-insulation/jacket	38	N	102_Insulation - Fiberglass unspecified	10	linear-ft	Insulation - Fiberglass unspecified	0.32	0.00012	
102	Yes	2020-21	Contra Costa	Contra Costa County	Adhesive Mastic	Mastic - Baseboard	20	N	102_Mastics - carpet/floor ties	50	linear-ft	Mastics - carpet/floor ties	0.1	0.00010	

Appendix D - Regional Effectiveness Evaluation of the Protocol for Managing PCBs-containing Materials During Building Demolition Compiled Data for Priority Building Materials containing ≥ 50 ppm PCBs.

Building ID	Building Contains Concentrations ≥ 50 ppm PCBs?	FY	County	Permittee	Priority Building Material Application	Application Sample Description	Total PCBs Concentration (ppm)	Concentration ≥ 50 ppm (Y/N)	Unique Material ID	Estimated Amount of Material	Material Units (linear-ft or ft^2)	Material Type used for conversion factor	Best (Average or mid-rage value) (kg/linear-feet) or (kg/ft2)	Best (Average or mid-rage value) PCBs Mass (kg)	Assumed Quantity? (Y/N) - GC
102	Yes	2020-21	Contra Costa	Contra Costa County	Adhesive Mastic	Mastic - Baseboard	25	N	102_Mastics - carpet/floor ties	50	linear-ft	Mastics - carpet/floor ties	0.1	0.00013	
102	Yes	2020-21	Contra Costa	Contra Costa County	Adhesive Mastic	Mastic - Baseboard	25	N	102_Mastics - carpet/floor ties	50	linear-ft	Mastics - carpet/floor ties	0.1	0.00013	
102	Yes	2020-21	Contra Costa	Contra Costa County	Adhesive Mastic	Mastic - Baseboard	6,300	Y	102_Mastics - carpet/floor ties	50	linear-ft	Mastics - carpet/floor ties	0.1	0.032	
102	Yes	2020-21	Contra Costa	Contra Costa County	Rubber Window Gasket	Rubber - Wall panel	230	Y	102_Rubber Window Gaskets	2,200	ft2	Rubber Window Gaskets	0.03	0.015	
102	Yes	2020-21	Contra Costa	Contra Costa County	Rubber Window Gasket	Rubber - Wall panel	1,400	Y	102_Rubber Window Gaskets	2,200	ft2	Rubber Window Gaskets	0.03	0.092	
102	Yes	2020-21	Contra Costa	Contra Costa County	Rubber Window Gasket	Rubber - Wall panel	6,400	Y	102_Rubber Window Gaskets	2,200	ft2	Rubber Window Gaskets	0.03	0.42	
102	Yes	2020-21	Contra Costa	Contra Costa County	Rubber Window Gasket	Rubber - Wall panel	510	Y	102_Rubber Window Gaskets	2,200	ft2	Rubber Window Gaskets	0.03	0.034	
CON-01	Yes	2019-20	Contra Costa	Concord	Caulk	Caulk	550	Y	CON-01_Caulk - unspecified	2,100	linear-ft	Caulk - unspecified	0.03	0.035	
D24012 (warehouse)	Yes	2024-25	Contra Costa	Walnut Creek	Caulk	Expansion Joint Caulking	17,000	Y	D24012 (warehouse)_Caulk - expansion joints	166	linear-ft	Caulk - expansion joints	0.04	0.11	
D24012 (warehouse)	Yes	2024-25	Contra Costa	Walnut Creek	Caulk	Expansion Joint Caulking	15,000	Y	D24012 (warehouse)_Caulk - expansion joints	166	linear-ft	Caulk - expansion joints	0.04	0.10	
D24012 (warehouse)	Yes	2024-25	Contra Costa	Walnut Creek	Caulk	Expansion Joint Caulking	21,000	Y	D24012 (warehouse)_Caulk - expansion joints	166	linear-ft	Caulk - expansion joints	0.04	0.14	
2800 Mitchell_Bldg300/310	Yes	2024-25	Contra Costa	Walnut Creek	Caulk	Penetration Mastic (Caulk)	120	Y	2800 Mitchell_Bldg300/310_Mastics - roofing/flashing	150	ft2	Mastics - roofing/flashing	0.5	0.0090	

B A M S C

Bay Area Municipal Stormwater Collaborative

SOURCE CONTROL LOAD REDUCTION ACCOUNTING

FOR REASONABLE ASSURANCE ANALYSIS

Prepared for

Bay Area Municipal Stormwater Collaborative

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TABLE OF CONTENTS

1. INTRODUCTION 1
1.1 Background 1
1.2 Report Overview 2
1.3 Source Control Load Reduction Accounting Basis 2

2. PROGRAM FOR SOURCE AREA IDENTIFICATION AND ABATEMENT 5
2.1 Program Description 5
2.2 Loads Reduced Accounting Methodology 5

3. PROGRAM FOR CONTROL MEASURES IN OLD INDUSTRIAL AREAS 7
3.1 Program Description 7
3.2 Loads Reduced Accounting Methodology 7
3.2.1 Moderate Property Controls 7
3.2.2 Operations and Maintenance Activities 8
3.2.3 Parcel-Based Redevelopment 9
3.2.4 Stormwater Retrofit Projects 10

4. PROGRAM FOR CONTROLLING PCBS FROM BRIDGES AND OVERPASSES 12
4.1 Program Description 12
4.2 Loads Reduced Accounting Methodology 12

5. PROGRAM FOR MANAGING PCBS FROM ELECTRICAL UTILITIES 15
5.1 Program Description 15
5.2 Loads Reduced Accounting Methodology 15

6. PROGRAM FOR MANAGING PCBS-CONTAINING MATERIALS AND WASTE DURING BUILDING DEMOLITION 17
6.1 Program Description 17
6.2 Loads Reduced Accounting Methodology 17

7. PROGRAM FOR MERCURY LOAD AVOIDANCE AND REDUCTION 19
7.1 Program Description 19
7.2 Loads Avoided/Reduced Accounting Methodology 19

8. PROGRAM UPDATES AND REFINEMENTS 22

9. REFERENCES 23

LIST OF TABLES

Table 1-1: Land Use-Based Yields for PCBs and Mercury....4
Table 3-1: Land Use-Based Average Sediment Concentrations for PCBs and Mercury 9
Table 4-1: Bridge Load Calculation Data Inputs....13
Table 4-2: Total Calculated Loads for Bridges within the MRP Area, Built and/or Reconstructed Prior to 1981 13
Table 4-3: Long-Term Load Reduction (i.e., Replacement of PCBs-Containing Joints in All Older Bridges)....14
Table 5-1: Estimated PCBs Loads Reduced due to the Electrical Utilities Management Program Since the Start of the PCBs TMDL in Approximately 2005, apportioned by County. 16
Table 6-1: Terms Used to Estimate the Loading of PCBs in Building Materials for MRP 2.0 .17
Table 6-2: Load Reduction Allocated by County during MRP 2.0 18
Table 7-1: Mercury Recycling Conversion Factors and References 20

LIST OF APPENDICES

Appendix A: Land Use-Based Yield Analysis
Appendix B: Urban Sediment Concentration Statistics
Appendix C: Old Industrial Land Use Area Summary
Appendix D: Enhanced Inlet Cleaning Efficiency Factor Data Analysis for Storm Drain Inlets with and without Inlet-based Full Trash Capture Devices
Appendix E: Enhanced Street Sweeping Efficiency Factors
Appendix F: Mercury and PCBs Load Reduction from Storm Drain Cleanouts
Appendix G: Large Full Trash Capture Device Efficiency Factor Data Analysis
Appendix H: Load Reduction Credit for Controlling PCBs from Bridges and Overpasses Program

ACRONYMS AND ABBREVIATIONS

ACCWP	Alameda Countywide Clean Water Program
BAMSC	Bay Area Municipal Stormwater Collaborative
BASMAA	Bay Area Stormwater Management Agencies Association
CCCWP	Contra Costa Clean Water Program
GSI	Green Stormwater Infrastructure
GIS	Geographic Information System
IMR	Integrated Monitoring Report
mg/ac/yr	milligram per acre per year
mg/kg	milligram per kilogram
MPC	Monitoring and Pollutants of Concern Subcommittee
MRP	Municipal Regional Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
OFEE	Oil-Filled Electrical Equipment
PCBs	Polychlorinated Biphenyls
PG&E	Pacific Gas and Electric Company
POC	Pollutants of Concern
POTW	Publicly Owned Treatment Works
RAA	Reasonable Assurance Analysis
ROW	Right-of-Way
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SFEI	San Francisco Estuary Institute
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SSA	Solano Stormwater Alliance
TMDL	Total Maximum Daily Load
WY	Water Year

1. INTRODUCTION

1.1 Background

In 2016, Municipal Regional Permit (MRP; SFBRWQCB, 2015[1]) Provisions C.11.b and C.12.b required the Permittees to develop and implement an assessment methodology and data collection program to quantify mercury and polychlorinated biphenyls (PCBs) loads reduced through implementation of pollution prevention, source control, and treatment control measures. The Bay Area Stormwater Management Agencies Association (BASMAA) prepared the report *Interim Accounting Methodology for TMDL Loads Reduced* (BASMAA, 2017a), which was approved by the San Francisco Bay Regional Water Quality Control Board (Water Board) for use during the MRP permit term from January 1, 2016, through June 30, 2022 (known as "MRP 2.0"). The Permittees used this assessment methodology to demonstrate progress towards achieving the load reductions required in MRP 2.0. In 2021 and 2022, BASMAA revised the Interim Accounting Methodology to address the requirements of MRP 2.0 Provisions C.11.b.iii.(3) and C.12.b.iii.(3), which required the Permittees to submit, for Executive Officer approval, refinements to the Interim Accounting Methodology to assess mercury and PCBs load reductions in the next permit term (i.e., MRP 3.0). The *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report was approved by the Water Board in January 2022.

MRP 2.0 Provisions C.11.d and C.12.d required the Permittees to prepare plans and schedules for mercury and PCBs control measure implementation and a reasonable assurance analysis (RAA) demonstrating that those control measures will be sufficient to attain the mercury total maximum daily load (TMDL) wasteload allocations by 2028 and the PCBs TMDL wasteload allocations by 2030. MRP 3.0 Provisions C.11.f and C.12.h require the Permittees to revise the TMDL Control Measure Plan and RAA reports submitted in 2020. The *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report was used by the Permittees for source control load reduction accounting in the 2020 and 2026 RAAs and for load reduction accounting during MRP 3.0, which is due to the Water Board in the September 2026 Annual Report.

This report refines the *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report for the purposes of source control load reduction accounting during the next permit term (i.e., MRP 4.0) in compliance with MRP Provisions C.11.a.iii.(3) and C.12.a.iii.3. The Bay Area Municipal Stormwater Collaborative (BAMSC)[2] developed this report on behalf of all MRP Permittees.

This document does not describe the methods used to predict the loads reduced through the implementation of green stormwater infrastructure (GSI) in the RAAs. The RAA modeling methodologies are described in the countywide RAA reports that were submitted to the Water

[1] Reissued November 19, 2015 with effective date January 1, 2016, to 77 Phase I municipal stormwater Permittees in five Bay Area counties which are among over 90 local agencies comprising the Bay Area Stormwater Management Agencies Association (BASMAA).

[2] The Bay Area Municipal Stormwater Collaborative was organized by the Bay Area Stormwater Management Agency Association (BASMAA) Board of Directors to continue the information sharing and permittee advocacy functions of BASMAA in an informal manner after BASMAA's dissolution.

Board in September 2020 (ACCWP, 2020; CCCWP, 2020; FSURMP, 2020; SMCWPPP, 2020; and SCVRURPPP, 2020) and the revised RAA reports that were submitted in March 2026 (ACCWP, 2026a; CCCWP, 2026; SSA, 2026; SMCWPPP, 2026; and SCVURPPP, 2026).

1.2 Report Overview

The load reduction accounting methodologies are presented in Sections 2 through 7 of this document for the following mercury and PCBs source control measure programs:

- Source Property Identification and Abatement
- Control Measures in Old Industrial Areas, including
  - Moderate Property Controls
  - Operations and Maintenance Control Measures
  - Parcel-Based Redevelopment
  - Treatment control measures
- Management of PCBs in Stormwater Infrastructure
- Management of PCBs in Electrical Utilities
- Management of PCBs-Containing Materials and Wastes During Building Demolition
- Mercury Load Avoidance and Reduction.

The appendices present:

- A summary of how the land use-based PCBs and mercury yields were developed
- A statistical summary of the observed urban sediment concentrations for PCBs and mercury
- A summary of the investigation status of old industrial land areas for each county
- Large, non-inlet-based full trash capture device efficiency factor data analysis
- Enhanced inlet cleaning efficiency factor data analysis for storm drain inlets with and without inlet-based full trash capture devices
- Enhanced street sweeping efficiency factors
- An estimate of load reductions for the Management of PCBs in Stormwater Infrastructure Program

1.3 Source Control Load Reduction Accounting Basis

The source control load reduction accounting methodology outlined in this report is based on relative yields of mercury and PCBs from different land use categories. This methodology was first outlined in the 2014 Integrated Monitoring Reports (IMRs) (ACCWP, 2014; CCCWP, 2014; SCVURPPP, 2014; SMCWPPP, 2014) and was described in the MRP 2.0 Fact Sheet. The method involves using default factors for PCBs and mercury load reduction credits resulting from

foreseeable control measures. The *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* (BASMAA, 2022) report updated and refined the accounting system to account for new information; justified the assumptions, analytical methods, sampling schemes, and parameters used to quantify the load reduction for each type of control measure; and indicated what information will be collected and submitted to confirm the calculated load reduction for each unit of activity for each control measure.

As described in the MRP 2.0 Fact Sheet, a land use-based yield is an estimate of the mass of a contaminant contributed by an area of a particular land use per unit time. Essentially, different land uses yield different amounts of pollutants because they differ in the degree of contamination resulting from varying intensities of historic or ongoing pollutant use. The land use categories used to calculate land use-based yields were identified from studies conducted to identify potential sources and source areas of concern (POC), as described below.

The Regional Watershed Spreadsheet Model (RWSM) was developed as part of the Regional Monitoring Program's Small Tributaries Loading Strategy as a regional-scale planning tool primarily for the purpose of estimating long-term average annual pollutant loads from the small tributaries surrounding San Francisco Bay, and secondarily to provide supporting information for prioritizing watersheds or areas within watersheds for management actions (Wu et al., 2016). The RWSM is structured around three stand-alone empirical models: the hydrology model, the sediment model, and the pollutant models. The hydrology model uses runoff coefficients based on land use-soil-slope combinations to estimate annual runoff from a watershed. The sediment model uses a function of geology, slope, and land use to simulate suspended-sediment transport in the landscape while accounting for watershed storage factors. The pollutant model is essentially a "concentration map" that can be driven by either the hydrology model (for pollutant concentrations in water) or the sediment model (for pollutant concentrations on fine sediment particles as particle ratios[3] for specific land use or source areas. Starting in 2010, a multi-year effort was undertaken to systematically develop and calibrate the RWSM. Calibration was completed[4] and the model was released in 2018.

The Regional Monitoring Program is developing a Watershed Dynamic Model (WDM) to estimate regional- and sub-regional-scale loads for the Bay Area. To date, the WDM has been used to simulate hydrology and suspended sediment transport over a 26-year period (Water Years 1994-2023) and is currently being extended to model PCBs and mercury loads. The WDM will incorporate land use-based yields (i.e., potency factors) for PCBs and mercury, but these values are not yet available.

Mercury and PCBs source property yields were derived as the product of a representative mercury or PCBs concentration in shallow surface soils at known source properties and a representative

[3] Particle ratios = pollutant concentration in water (ng/L) / suspended sediment concentration (mg/L), equivalent to mg/kg.
[4] The calibration for PCBs is "reasonable" but there remains a lower confidence in the calibration for mercury (SFEI, 2017).

soil/sediment yield for Old Industrial land use areas. The derivation of the estimated yields for the mercury and PCBs source properties is described in Appendix A.

PCBs were more heavily used in older industrial areas, so older industrial land use areas yield a much higher mass of PCBs per unit area than newer urban land use areas. The estimated average yields of PCBs and mercury from the RWSM are summarized for six land-use yield categories in Table 1-1.[5] These yields are assigned based on land use but may also be assigned by the Permittees based on monitoring data and/or inspection results (e.g., to assign the Source Property yield to a parcel mapped as Old Industrial). These yield values have been developed using the best available data and the best available technical approach at this time. The Permittees may re-evaluate these yields in the future as more information becomes available (i.e., to incorporate the WDM potency factors).

Table 1-1: Land Use-Based Yields for PCBs and Mercury

Land Use Category	Assumed Average PCBs Yield (mg/ac/yr)	Assumed Average Mercury Yield[1] (mg/ac/yr)
Source Property	5,129	652
Old Industrial	259	53
Old Commercial / Old Transportation	49	57
Old Residential	2.8	57
New Urban	0.4	4
Agriculture/Open Space	0.4	81

mg/ac/yr – milligrams per acre per year
Source: RWSM Toolbox v1.0 Pollutant Model, Pollutant Spreadsheet Model Calculations – Region. Spreadsheet dated 6/9/2017.
1. The model calibration for PCBs is "reasonable," but there remains a lower confidence in the calibration for mercury (Wu et al., 2017).

Appendix B presents concentration statistics for PCBs and mercury observed in street and storm drain sediment collected by the BAMSC agencies or the Regional Monitoring Program from 1999 through 2025. The data are summarized by the predominant land use[6] within the vicinity of where the sediment was collected.

[5] Land use category definitions (see Appendix A for details): Old Industrial was industrial land use before 1968, Old Commercial/Old Transportation were commercial or transportation land uses as of 1974, Old Residential was residential land use as of 1974, New Urban are all urban land uses developed after 1974, Agricultural/Open Space land uses include all agricultural or open space land use classifications.
[6] Arterials and highways are included in the Old Transportation land use category, while smaller roadways are included with the adjacent land use category.

2. PROGRAM FOR SOURCE AREA IDENTIFICATION AND ABATEMENT

2.1 Program Description

The Source Area Identification and Abatement Program involves investigations of properties (i.e., parcels) located in historically industrial land use or other land use areas where PCBs (or mercury) were used, released, and/or disposed of, and/or where sediment concentrations are significantly elevated above urban background levels[7] and are being transported to the municipal separate storm sewer system (MS4). Once a source property is identified, the source of PCBs (or mercury) on the property may be abated or caused to be abated directly by the Permittee, or the Permittee may choose to refer the source property to the Water Board for investigation and abatement.

2.2 Loads Reduced Accounting Methodology

The amount of PCBs or mercury loads (i.e., annual mass or milligrams per year (mg/yr)) reduced will be assessed for source properties using the following accounting method:

$$\boldsymbol{Load\ Reduced = SP_A \bullet (SP_Y - OCOT_Y)}$$

Where:

SP_A = Source property area (acres (ac))

SP_Y = Source property mercury or PCBs yield (mg/ac/yr)

$OCOT_Y$ = Old Commercial/Old Transportation land use mercury or PCBs yield (mg/ac/yr)

Thus, the PCBs load reduced in mg/yr will be calculated as the area of the source property in acres multiplied by 5,080 mg/ac/yr (i.e., 5,129 – 49 mg/ac/yr). The mercury load reduced in mg/yr will be calculated as the area of the source property in acres multiplied by 603 mg/ac/yr (i.e., 652 – 49 mg/ac/yr).

Fifty percent of this load reduction will be credited to the Permittee for properties that are referred to the Water Board for abatement at the time of referral. This credit is contingent on implementation of enhanced operation and maintenance (O&M) measures or stormwater treatment in the vicinity of the referred source property to remove historically deposited contaminated sediment from storm drain structures and to prevent further contaminated sediment from being discharged to the storm drain system. Enhanced O&M measures will continue until the source property has been abated or for 10 years, whichever occurs first. The remaining fifty percent load reduction for referred properties will be credited to the Permittee upon completion of the abatement process or at ten years, whichever occurs first. The Water Board will notify the Permittee when the abatement process is complete.

[7] See Appendix B for a statistical summary of urban sediment concentrations.

If a source property has been abated without referral to the Water Board, either through voluntary actions by the property owner or the use of municipal enforcement powers, then all of the load reduction calculated using the methodology above will be credited to the Permittee at the time that the abatement is complete. The Permittee shall provide documentation to the Water Board demonstrating that abatement has effectively eliminated the transport of PCBs or mercury to the MS4 or directly to the Bay for all transport mechanisms applicable to the site (e.g., stormwater runoff, wind, vehicle tracking). The documentation shall include information on the type and extent of abatement that has occurred (e.g., whether sources of PCBs to the MS4 have been eliminated through soil removal, capping, paving, walls, plugging/removal of internal storm drains, etc.). Documentation may be from a cleanup regulatory agency such as the US Environmental Protection Agency (USEPA) or the California Department of Toxic Substances Control (DTSC). For sites with ongoing industrial activities, water or sediment monitoring data demonstrating the effective elimination of PCB transport offsite into the MS4 or to the Bay should be provided.

For source properties that include a combination of industrial area and area that is not likely to be a source of PCBs (e.g., unimpacted open space area), the source property yield will only be applied to the portion of the property that is industrial area.

3. PROGRAM FOR CONTROL MEASURES IN OLD INDUSTRIAL AREAS

3.1 Program Description

This program includes a variety of control measures that may be implemented to reduce loads of PCBs and mercury within old industrial areas, known or suspected source areas, or areas with evidence of moderate to high PCBs or mercury soil concentrations pursuant to MRP Provisions C.11.c and C.12.c. These control measures, which may be implemented on parcels or within the right-of-way (ROW), include:

- Moderate property controls
- Operations and maintenance
- Implementation of GSI through new development and redevelopment activities
- Retrofit of treatment controls (including GSI and non-GSI treatment) into existing developed areas on private and public parcels and within the public ROW
- Full trash capture systems
- Diversion to publicly owned treatment works (POTW)

Appendix C provides a summary of old industrial land use area in each county.

3.2 Loads Reduced Accounting Methodology

The following load reduction accounting methodologies will be used to calculate the PCBs and mercury loads reduced by control measures implemented in old industrial or moderately contaminated areas.

3.2.1 Moderate Property Controls

Properties with elevated levels of PCBs or mercury that are not source properties (i.e., old industrial properties or properties with evidence of moderate PCBs soil concentrations, generally soil/sediment concentrations greater than 0.2 mg/kg and less than 1 mg/kg for PCBs or greater than 0.3 mg/kg and less than 1.0 mg/kg for mercury) will be abated through voluntary actions by the property owner or the use of municipal enforcement powers. To prevent the release of on-site PCBs and mercury into the MS4, the local Permittee will require property owners to develop and implement a site-specific Pollution Control Plan for their property. The Pollution Control Plan should prevent the transport of PCBs or mercury to the MS4 or directly to receiving waters.

The amount of PCBs loads reduced will be calculated for moderate property controls using the following accounting method:

$$\boldsymbol{Load\ Reduced} = \boldsymbol{P_A} \bullet (\boldsymbol{OI_Y} - \boldsymbol{NU_Y})$$

Where:

P_A = Property area (acres (ac))

OI_Y = Old Industrial land use mercury or PCBs yield (mg/ac/yr)

NU_Y = New Urban land use mercury or PCBs yield (mg/ac/yr)

Thus, the PCBs load reduced in mg/yr will be calculated as the area of the controlled property in acres multiplied by 258.6 mg/ac/yr (i.e., 259 – 0.4 mg/ac/yr). The mercury load reduced in mg/yr will be calculated as the area of the controlled property in acres multiplied by 49 mg/ac/yr (i.e., 53 – 4 mg/ac/yr).

3.2.2 Operations and Maintenance Activities

Routine MS4 O&M activities include street sweeping, drain inlet cleaning, and pump station maintenance. In addition, culverts and channels are also routinely desilted. Enhancements to routine operations and new targeted actions, such as storm drain line and street flush and capture, may improve the Permittees' ability to reduce PCBs and mercury in stormwater.

Storm drain line flush and capture is a maintenance process used to remove accumulated sediment, debris, and pollutants from storm sewer pipes to prevent clogging and flooding. The process typically involves blocking the downstream end of a pipe, using high-pressure water to scour the pipe's interior, and then capturing the wash water (along with associated sediment and debris) for proper disposal. These actions use specialized equipment such as hydro-jetters and Vactor trucks. Street flush and capture similarly uses high-pressure water to scour sediment from streets surfaces and specialized equipment to capture the wash water and associated sediment. Sediment that is removed during these activities must be captured and properly disposed of to achieve pollutant load reductions.

3.2.2.1 Inlet Cleaning (With and Without Inlet-Based Full Trash Capture Devices) and Street Sweeping

Load reductions for inlet cleaning and street sweeping will be calculated as follows:

$$\boldsymbol{Annual\ Load\ Reduced = P_A \bullet P_Y \bullet EE_f}$$

Where:

P_A = Catchment area for O&M measure (acres)

P_Y = Area-weighted mercury or PCBs yield (mg/acre-year) for the O&M catchment area based on land use yield

EE_f = Enhancement Efficiency factor for O&M control measure (See Appendix D for inlet cleaning with and without inlet-based full trash capture devices and Appendix E for street sweeping).

3.2.2.2 Pump Station Cleanout, Storm Drain Line Flush and Capture, Street Flush and Capture, and Culvert/Channel Desilting

Load reductions for pump station cleanout, storm drain line flush and capture, street flush and capture, and culvert/channel desilting will be calculated as follows:

$$\textbf{Load Reduced} = \textbf{[M • Conc] / RF}$$

Where:

Load Reduced = Estimate of mercury or PCBs load reduction from the O&M activity (mg/yr)

M = Mass of sediment removed (kg). For storm drain line flush and capture, the mass of sediment per length of storm drain can be estimated as 1.4 kg/ft of pipe flushed (see Appendix F) in the absence of project-specific measurements.

Conc = Average concentration of mercury or PCBs in sediments collected by the O&M control measure for the tributary land use (mg/kg); see Table 3-1 for land use-based sediment concentrations to calculate area-weighted concentrations or alternatively use project-specific measurements.

RF = Recurrence frequency of the action in years.

Table 3-1: Land Use-Based Average Sediment Concentrations for PCBs and Mercury

Land Use Category	Average PCBs Concentration (mg/kg)	Average Mercury Concentration (mg/kg)
Source Property	32.5	4.13
Old Industrial	0.42	0.33
Old Commercial / Old Transportation	0.30	0.23
Old Residential	0.071	0.46
New Urban	0.042	0.51
Agriculture/Open Space	0.050	0.29

mg/kg – milligrams per kilogram

3.2.3 Parcel-Based Redevelopment

When contaminated areas are redeveloped, the pollutant yield of the area will be reduced through a variety of mechanisms (e.g., removal, capping, or paving contaminated sediment, and GSI treatment of post-development runoff). The amount of PCBs and mercury load reduction can be estimated by multiplying the project area by the difference in land use-based yield. Permittees may also use monitoring data to quantify the load reduction resulting from a redevelopment project.

The Permittees will quantify and report the amount of PCBs and mercury loads reduced for parcel-based redevelopment projects using the following accounting method (unless project specific monitoring data are available):

$$\boldsymbol{Annual\ Load\ Reduced = P_A \bullet (P_Y - NU_Y)}$$

Where:

P_A = New development/redevelopment project area (ac)

P_Y = Existing PCBs or mercury yield (mg/ac/yr) (i.e., yield for the land-use prior to new development/redevelopment)

NU_Y = New Urban PCBs or mercury yield (mg/ac/yr)

3.2.4 Stormwater Retrofit Projects

The Permittees will quantify and report the amounts of PCBs and mercury loads reduced through the implementation of stormwater retrofit projects (i.e., projects that provide treatment for existing developed areas without redevelopment of the drainage catchment). Retrofit projects may be implemented as a regional project, a ROW project, or parcel-based project. Treatment types include GSI, non-GSI treatment (e.g., high-flow rate media filters), large (non-inlet based) full trash capture devices (i.e., hydrodynamic separators (HDS) units, gross solids removal devices (GSRDs), and baffle boxes), and diversion to POTW. Retrofit projects will use the following accounting method:

$$\boldsymbol{Annual\ Load\ Reduced = P_A \bullet P_Y \bullet E_f}$$

Where:

P_A = Tributary area treated (acres)

P_Y = Area-weighted PCBs or mercury yield (mg/acre/year)

E_f = Efficiency factor, assumed as follows:

- GSI and non-GSI (i.e., high rate media filter) treatment control measures sized in accordance with MRP Provision C.3.d, are assumed to be 85%[8].
- Treatment control measures that do not meet the MRP Provision C.3.d sizing standard will conduct a project specific analysis to determine the effectiveness factor.

[8] The efficiency factor for all treatment control measures sized in accordance with MRP Provision C.3.d is assumed to be 85% based on the LID monitoring conducted by the BAMSC stormwater programs in MRP 3 (ACCWP, 2026b). High rate media filters are shown to have equivalent TSS removal performance in WRF, 2020.

- Large full trash capture devices are assumed to be 20%[9].
- Diversion to POTW is assumed to be 91%[10].

[9] See Appendix G for large full trash capture device unit efficiency factor data analysis.
[10] SFBRWQCB, 2021.

4. PROGRAM FOR CONTROLLING PCBS FROM BRIDGES AND OVERPASSES

4.1 Program Description

For this control measure, Permittees will track development of a Caltrans specification for managing PCBs-containing caulks and sealants on bridges or roadway overpasses during bridge replacement or joint maintenance. The Caltrans standard specifications for removal, handling, and disposal of caulk or sealant materials during infrastructure replacement or joint maintenance projects will be used to prevent the release of PCBs to the MS4. The Caltrans specification will be applied to all applicable public bridges or roadway overpass structures when the bridge infrastructure is replaced or undergoes joint maintenance.

4.2 Loads Reduced Accounting Methodology

A detailed load reduction accounting methodology is provided in Appendix H and summarized here.

Total PCBs load contained in bridges built and/or reconstructed prior to 1981 within the jurisdictions subject to the MRP was estimated using the following equation:

$$Total\ Load_{PCBs,Bridges} = Density_{sealant} * Concentrations_{PCBs} * \Sigma Volume_{sealant,bridges}$$

Where:

$Density_{sealant}$ = average sealant density [kg/m^3]

$Concentration_{PCBs}$ = concentration of PCBs based on BASMAA monitoring data [mg/kg]

$\Sigma Volume_{sealant,bridges}$ = Volume of sealant in all applicable bridges [m^3]

The volume of joint sealant was calculated using an assumed cross-section of sealant, multiplied by the assumed length of applied sealant:

$$Volume_{sealant,bridges} = Cross\ section_{sealant} * Length_{sealant}$$

Where:

$Cross\ section_{sealant}$ = Cross-section of applied sealant (square inch)

$Length_{sealant}$ = Length of applied sealant (feet)

A summary of the data inputs is provided in Table 4-1. The derivation of the values presented in Table 4-1 is described in Appendix H.

Table 4-1: Bridge Load Calculation Data Inputs

Input	Result	Units	Source
Density of Sealant	1,100	kg/m^3	Takhar, 2013
Cross-Section of Sealant	1	square inch	Caltrans, 2007
PCBs Concentration	184	mg/kg	See Appendix H

The estimated total PCBs load contained in bridges built and/or reconstructed prior to 1981 within the jurisdictions subject to the MRP is provided in Table 4-2.

Table 4-2: Total Calculated Loads for Bridges within the MRP Area, Built and/or Reconstructed Prior to 1981

County	Total Sealant PCBs Mass - Joints Only (kg)	Total Sealant PCBs Mass - Joints and Longitudinal Seal (kg)	Number of Bridges[1]
Alameda	3.8	11.2	340
Contra Costa	1.7	7.3	277
San Mateo	2.5	7.2	254
Santa Clara	3.7	10.1	473
Solano	0.9	3.2	133
Total	**12.6**	**39.0**	**1,477**

1. U.S. Department of Transportation Federal Highway Administration, 2019. National Bridge Inventory. Visited 24 March 2020.

To estimate the load reduction associated with long-term bridge or expansion joint replacement, it is assumed that an ongoing PCBs release rate from bridge joints is mitigated through bridge joint maintenance and whole bridge replacement projects. The load reduction estimation assumes that PCBs in caulk are leaching from bridge joints and longitudinal seals over their lifetime. When that PCBs-containing caulk is replaced or removed through maintenance or replacement projects, the source of PCBs release is removed, and the associated annual released load is also removed. PCBs leaching from the material could occur through incremental wear or through larger damage (e.g., pieces of caulk torn out) over the caulk's lifetime.

Lacking a literature-based release rate of sealant over time, two potential average annual release rates (i.e., average over the life of the seal) were assumed to calculate an estimated load reduction from removing the joint seal – 0.5% and 1.0%. Appendix H details how these values were selected. These average annual release rates were applied to the estimated mass of the 1,477 bridges that met the identified age criteria (Table 4-3). These releases would be eliminated by removing the joint seal via joint replacement or bridge replacement.

Table 4-3: Long-Term Load Reduction (i.e., Replacement of PCBs-Containing Joints in All Older Bridges)

County	Total Sealant PCBs Load Reduced - Joints Only (g/year)	Total Sealant PCBs Load Reduced - Joints Only (g/year)	Total Sealant PCBs Load Reduced - Joints and Longitudinal Seal (g/year)	Total Sealant PCBs Load Reduced - Joints and Longitudinal Seal (g/year)
	0.5% annual loss rate over life	1% annual loss rate over life	0.5% annual loss rate over life	1% annual loss rate over life
Alameda	19	38	56	112
Contra Costa	8	17	37	73
San Mateo	12	25	36	72
Santa Clara	19	37	50	101
Solano	5	9	16	32
Total	63	126	195	390

This load reduction would occur no later than 2080, assuming all older joints are removed/replaced within 100 years of installation.

5. PROGRAM FOR MANAGING PCBS FROM ELECTRICAL UTILITIES

5.1 Program Description

PCBs are present in some electrical equipment still in service in the Bay Area, and through ongoing efforts, the equipment and/or PCBs are gradually being replaced. Electrical utilities in the Bay Area continuously remove PCBs-containing electrical equipment (i.e., oil-filled electrical equipment, or OFEE) from active service due to ongoing maintenance programs. Removal and proper disposal of PCBs-containing OFEE stops any active PCBs releases and prevents future PCBs releases from occurring. Therefore, each piece of PCBs containing OFEE that is removed from service and disposed of properly represents an additional mass of PCBs that is prevented from release to the MS4. The Electrical Utilities Management Program includes improved procedures for documenting removal and disposal of PCBs-containing OFEE as part of ongoing equipment maintenance practices.

For this control measure, Permittee-owned electrical utilities will document the removal of PCBs containing OFEE from the start of the TMDL and, in the future, until all PCBs containing OFEE have been removed from active service, and provide data to support calculations of the associated stormwater load reductions resulting from these efforts. Additionally, it is anticipated that non-municipally owned regional electrical utilities that are not currently subject to PCBs load reduction requirements (i.e., Pacific Gas and Electric, PG&E) have been and will continue to remove PCBs-containing OFEE and document these efforts, past and present, consistent with methods used by applicable MRP permittees. Over the past several years, Water Board staff have been meeting with PG&E representatives to discuss these efforts. Although PG&E has not provided documentation of its efforts, it has informed Water Board staff that all PG&E-owned PCBs containing OFEE in the Bay Area will be removed by approximately 2040.

5.2 Loads Reduced Accounting Methodology

The baseline TMDL-normalized load of PCBs from electrical equipment to the San Francisco Bay via stormwater runoff in 2005 is 1.1 kg/yr (McKee et. al., 2006, BASMAA 2020). This is the best estimate available to represent the stormwater load of PCBs to the Bay from PCBs-containing OFEE at the start of the PCBs TMDL, and it represents the maximum PCBs load reduction that can be realized by removing all PCBs-containing OFEE across the Bay Area. Municipally owned electrical utilities serve less than 3% of the Bay Area population, while PG&E serves more than 97% of the Bay Area population (BASMAA 2020). Consequently, the rate of PCBs-containing OFEE removals (and associated PCBs loads reduced) is driven primarily by PG&E efforts.

The load of PCBs reduced through implementation of the Electrical Utilities Management Program will be assessed using the following assumptions and accounting:

- The baseline stormwater load of PCBs from OFEE at the start of the TMDL in approximately 2005 is 1.1 kg/yr (1,100 g/yr). This value is the TMDL-normalized annual load of PCBs from OFEE to the San Francisco Bay, based on data reported in McKee et al. (2006).

- The rate of PCBs-containing OFEE removals (and associated PCBs loads reduced/avoided) is driven primarily by PG&E efforts because PG&E provides electrical utility services to over 97% of the Bay Area population.
- PCBs-containing OFEE removals occur at approximately the same rate for both municipally owned and non-municipally owned electrical utilities across the Bay Area.
- PCBs containing OFEE removals have been and will continue to occur at an approximately linear rate between 2005 and 2040, providing 31.4 kg of additional PCBs load reduction each year (i.e., 1,100 kg/yr PCBs ÷ 35 years = 31.4 kg PCBs reduced annually).
- All PCBs-containing OFEE will be removed from service by 2040 at which time the full 1,100 g/yr of PCBs loads reduced will be realized.

All Permittees will receive a share of the total 1,100 g/yr PCBs load reductions achieved by 2040 as a result of program implementation based on the accepted countywide apportionment method (e.g., population), as shown in Table 5-1.

Table 5-1: Estimated PCBs Loads Reduced due to the Electrical Utilities Management Program Since the Start of the PCBs TMDL in Approximately 2005, apportioned by County.

County	Proportion of the MRP Population	Total PCBs Loads Reduced by 2040 (g/yr)
Alameda County	31%	344.67
Contra Costa County	18.7%	205.33
San Mateo County	13%	135.67
Santa Clara County	31%	344.67
Solano County	6.3%	69.67

6. PROGRAM FOR MANAGING PCBS-CONTAINING MATERIALS AND WASTE DURING BUILDING DEMOLITION

6.1 Program Description

The MRP Permittees have developed and implemented a process, beginning in July 2019, for managing materials with PCBs concentrations of 50 ppm or greater in applicable structures at the time such structures undergo demolition. Applicable structures include commercial, public, institutional, and industrial buildings constructed or remodeled between 1950 and 1980 that are undergoing full-building demolition. Single-family residential and wood-frame structures are exempt.

6.2 Loads Reduced Accounting Methodology

The load of PCBs reduced through the implementation of the PCBs in the Building Materials Management Program will be assessed using the following accounting method:

$$Load\ of\ PCBs\ Reduced = [\sum_{i=1}^{n}(N_i \bullet M_i \bullet SW_i)] \bullet E_f$$

Where:

N_i = Number of applicable buildings demolished each year (units/yr)

M_i = Average mass of PCBs per applicable building (mg/unit)

SW_i = Average fraction of PCBs that enters the MS4 due to demolition without controls (%)

E_f = Average fraction of PCBs prevented by controls from entering MS4 (%)

Reasonable values were used by the Water Board to assign the load reduction for this control measure in MRP 2.0. Permittees received a total of 2,000 g/yr (2 kg/yr) PCBs load reduction value in 2019 when protocols for managing PCBs-containing materials during demolition, as required in MRP 2.0 Provision C.12.f., were developed and implemented. Table 6-1 lists the four terms and the assumed values used to derive the 2 kg/yr credit. These values may be updated based on future data, as described below.

Table 6-1: Terms Used to Estimate the Loading of PCBs in Building Materials for MRP 2.0

Term	Estimated Value	Units
Number of applicable buildings[1] demolished per year	50	buildings/year
Average mass of PCBs per applicable building	5	kg
Average fraction of PCBs that enters MS4s due to demolition without controls[2]	0.01	dimensionless fraction

Term	Estimated Value	Units
Average fraction of PCBs prevented by controls[2] from entering MS4	0.8	dimensionless fraction

[1]Applicable buildings: constructed from 1950 through 1980 with PCBs concentration in caulks/sealants greater than 50 ppm, excluding single family residential and wood frame buildings.
[2]The term "controls" refers to the proposed new demolition management program, not existing construction controls.

The 2 kg/yr PCBs load reduction stipulated during MRP 2.0 will be retained. The portion of the load reduction assigned to each county, based on population ratios used for the TMDL, is provided in Table 6-2.

Table 6-2: Load Reduction Allocated by County during MRP 2.0

County	Load Reduced in MRP 2.0 (g/yr)
Alameda	626.67
Contra Costa	373.33
San Mateo	246.67
Santa Clara	626.67
Solano	126.67

7. PROGRAM FOR MERCURY LOAD AVOIDANCE AND REDUCTION

7.1 Program Description

Mercury load avoidance and reduction includes several source control measures listed in the California Mercury Reduction Act, adopted by the State of California in 2001. These source controls include material bans, reductions of the amount of mercury allowable for use in products, and mercury device recycling. The following source control bans are included:

- Sale of cars that have light switches containing mercury
- Sale or distribution of fever thermometers containing mercury without a prescription
- Sale of mercury thermostats
- Manufacturing, sale, or distribution of mercury-added novelty items

In addition, fluorescent lamp manufacturers continue to reduce the amount of mercury in lamps sold in the U.S. They have significantly reduced mercury levels in fluorescent linear tube lamps and streetlamps. The use of mercury-containing bulbs has also decreased due to their replacement with LED lamps.

Mercury Device Recycling Programs resulting in Mercury load reduction generally include three types of programs that promote and facilitate the collection and recycling of mercury–containing devices and products:

1. Permittee-managed household hazardous waste (HHW) drop-off facilities and curbside or door-to-door pickup
2. Private business take-back and recycling programs (e.g., Home Depot)
3. Private waste management services for small and large businesses

7.2 Loads Avoided/Reduced Accounting Methodology

The load avoidance/reduction methodology for this control measure is:

$$Hg\ Mass\ Avoided\ =\ Hg\ Mass_{L/S/T} \cdot Num_{L/S/T} \cdot T$$

Hg Mass Avoided = Hg Mass$_{L/S/T}$ • Num$_{L/S/T}$ • T

Where:

$Hg\ Mass_{L/S/T}$ = Average mass of total mercury in each lamp (L), switch (S), and thermostat (T) recycled in the year of interest (Assume: 35mg per kilogram of linear fluorescent lamp or CFL; 2.9g per switch; and 4g per thermostat).

$Num_{L/S/T}$ = Number or weight of lamps (L), switches (S), and thermostats (T) discarded into the environment improperly in the year of interest.

T = % of total mercury in lamps (L), switches (S), and thermostats (T) that, when improperly discarded, are transported to the Bay via urban stormwater (Assume 4.8%).

Table 7-1 provides conversion factors and references for the assumed values used in these calculations.

Table 7-1: Mercury Recycling Conversion Factors and References

Item	Conversion and Citation
Fluorescent Lamps	The average mercury content for a four-foot linear fluorescent lamp is 8.3 milligrams (mg). This is equal to 2.075 mg (2.075 X 10 -6 kilograms (kg)) per linear foot. Source: NEMA 2005. Fluorescent and Other Mercury-Containing Lamps and the Environment: Mercury Use, Environmental Benefits, Disposal Requirements. National Electrical Manufacturers Association. March 2005. 14p.
Compact Fluorescent Lamps (CFLs)	The National Electrical Manufacturers Association (NEMA) announced that under the new voluntary commitment, effective October 1, 2010, participating manufacturers will cap the total mercury content in CFLs that are under 25 watts at 4 mg per unit, and CFLs that use 25 to 40 watts of electricity will be capped at 5 mg per unit. Each CFL recycled is assumed to have an average mass of 4.5 mg (4.5 X 10 -6 kg). New CFLs are also assumed to have 4.5 mg on average. Source: NEMA 2010. NEMA Lamp Companies Agree to Reduction in CFL Mercury Content Cap. Accessed April 11, 2012.
High Intensity Discharge (HID) Lamps	The average content of a HID bulb is 0.5 milligrams of mercury (0.5 x 10^{-6} kg). Source: NEMA Opposition to Ban on Mercury Containing Headlamps, 2004.
Thermostats	The amount of mercury in a thermostat is determined by the number of ampoules. There are generally one or two ampoules per thermostat (average is 1.4), and each ampoule contains an average of 2.8 grams (g) of mercury. Therefore, each thermostat recycled is assumed to contain approximately 4.0 g (0.004 kg) of mercury. Source: TRC 2008. Thermostat Recycling Corporation's Annual Report for the U.S. Prepared by the Thermostat Recycling Corporation. Each thermostat recycled is assumed to contain approximately 4.0 g (0.004 kg) of mercury. The average weight of one thermostat is 12 ounces. There are 1.3333 thermostats in a pound of thermostats (1 pound/0.75 pounds = 1.33 thermostats. It is estimated that 0.005333 kg of mercury is recycled for every pound of thermostat recycled (1.333*0.004= 0.005333). Source: Average weight of a thermostat obtained from retail websites (www.amazon.com).

Item	Conversion and Citation
Switches	The Recycling Corporation reports that one mercury switch contains 2.87 g (0.00287 kg) of mercury. Source: TRC 2010. Thermostat Recycling Corporation's Annual Report for California. Prepared by the Thermostat Recycling Corporation. Prepared for the State of California's Office of Pollution Prevention and Green Technology, Department of Toxic Substances Control. March 31, 2010.

8. PROGRAM UPDATES AND REFINEMENTS

The accounting methodology outlined in this report may be updated and refined to account for significant new information as it becomes available. If needed, the proposed updates will be submitted as an addendum to this report for Executive Office approval during the MRP 4.0 permit term.

9. REFERENCES

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APPENDIX A
Land Use-Based Yield Analysis

APPENDIX A. LAND USE-BASED YIELD ANALYSIS

A.1 Methodology

The methodology presented in this appendix was developed to assist the MRP Permittees in identifying which watershed characteristics correlate with areas that have high, moderate, and low rates of pollutant-of-concern (POC) loading (i.e., mercury and PCBs) to receiving waters via stormwater runoff. The methodology was developed using the collective local understanding of the types of land areas, facilities, and activities that generate POCs, with a focus on PCBs. The ultimate goal of the analysis was to provide first-order estimates of POC loading rates from high, moderate, and low likelihood source areas and to assist Permittees in identifying areas for implementing POC load reduction measures that would have the greatest load reduction benefit.

A.1.1 Source Area Mapping

Documented uses and sources of PCBs and mercury in the urban environment and the results of PCBs source identification and abatement studies described in the 2014 Integrated Monitoring Report (IMR) Part B (BASMAA, 2014) have been used to identify PCBs source areas. Findings demonstrate that PCBs (and to a lesser extent mercury) sources are generally associated with watershed areas where equipment containing POCs was transported or used and facilities that recycle POCs or POC-containing devices and equipment. These sources include current and historic metal, automotive, and hazardous waste recycling and transfer stations; electrical properties and power plants; and rail lines. These sources are typically located in areas that were industrialized between the late 1920's and the late 1970's, the timeframe when PCBs and mercury production were the greatest in the U.S.

To assist Permittees in identifying potential POC sources and source areas, a number of preliminary GIS data layers were developed using existing and historical information on land use and facility types that were located in the Bay Area during the early to mid-20th century. GIS data layers included a revised "Old Industrial" land use layer that attempted to depict industrial areas that were present in the year 1968; an "Old Urban" land use layer that depicts urban areas developed by 1974, other than those depicted as Old Industrial; points depicting current facilities that have the potential to have or have had PCBs on-site; and historical and current rail lines where PCBs may have been transported.

A.1.1.1 Old Industrial Land Areas

Three sets of data layers were acquired and served as the primary sources of information used to create the Old Industrial data layer: 1) the 2005 version of the Association of Bay Area Governments (ABAG) land use data layers for the five Bay Area counties, which depicts current industrial land use areas; 2) 1968 aerial photographs for the Bay Area at 30,000 scale acquired from the United States Geological Survey's (USGS) Earth Explorer website; and 3) the most currently available County Assessor parcel data layers for Bay Area counties. Through the development of the Old Industrial layer, two data layers were created. The first depicts industrial land areas in 1968 that are not currently characterized as industrial by ABAG. This data layer was created by panning through 1968 aerial photography and identifying industrial land areas outside of the areas characterized as industrial land use in roughly 2005 by ABAG. The purpose of this layer was to identify potential industrial facilities that were present in 1968 but possibly

redeveloped or incorrectly identified within the ABAG land use data. The second data layer that was created depicts areas characterized by ABAG in 2005 as industrial land uses that were clearly not industrial in the 1968 aerial photographs. Most of these areas were developed into industrial land uses after 1968 and are most commonly agricultural in the aerial photographs. All parcels that were identified as at least partially industrial in 1968 were visually checked in the data layer to provide greater confidence in their accuracy. Minor edits were then made based on this quality assurance check. If there was uncertainty as to whether a parcel in the 1968 photographs was industrial, then the parcel was classified based on the ABAG land use data. As a final check, the 1968 aerial photographs were also compared to current aerial photographs, and each parcel that had been redeveloped was attributed with the current land use, even if that land use remained industrial.

A.1.1.2 Old and New Urban Land Areas

Old Urban and New Urban land use data layers that depict areas urbanized prior to and after 1974, respectively, were developed using an urban extents data layer from 1974, the closest year to 1968 when the data were available. All areas that were within the urban extent in 1974 were defined as Old Urban; those areas that fell outside of this definition were classified as New Urban. Old Urban areas have been further divided into residential and park areas versus commercial areas in the current land use classification schema.

A.1.1.3 Identification of Potential POC Associated Facilities

Point data were collected for a number of facility types that may be associated with either PCBs or mercury. These facility types include those associated with electrical generation, known mercury emitters, metal manufacturing, drum recycling, metal recycling, shipping, automotive recycling, general recycling, and those known to have or historically have had PCBs in use. This information was primarily gathered by the San Francisco Estuary Institute (SFEI) as part of the Urban Stormwater Best Management Practices (BMPs) Proposition 13 Grant project and contains data from a variety of sources, including the California Air Resources Board, EnviroStor, Superfund, Department of Toxic Substances Control, and the State Water Resource Control Board.

Certain facility types for which point data were developed were mapped in greater detail to develop polygons to allow area calculations to be performed. Of particular interest for PCBs were the several hundred electrical substations in the Bay Area. Areas for these facilities were delineated using current and 1968 aerial photographs to attribute whether each facility was built prior to or after 1968. Additionally, military, port, and railroad land use areas were developed using ABAG 2005 land use data and the latest assessor's parcel data. Military parcels were further edited to only include developed areas.

Land use and facility data layers created as part of this effort were then combined to create one contiguous data layer. This data layer was attributed with additional information such as city, county, and watershed.

A.2 Regional Watershed Spreadsheet Analysis

A.2.1 Background

The Regional Watershed Spreadsheet Model (RWSM) was developed as part of the Regional Monitoring Program's (RMP) Small Tributaries Loading Strategy as a regional-scale planning tool primarily for the purpose of estimating long-term average annual loads from the small tributaries surrounding San Francisco Bay, and secondarily to provide supporting information for prioritizing watersheds or areas within watersheds for management actions (Wu et al., 2016).

The RWSM is structured with three stand-alone empirical models: the hydrology model, the sediment model, and the pollutant model (Wu et al., 2016). The hydrology model uses runoff coefficients based on geospatially identified land use-soil-slope combinations, along with rainfall based on PRISM average precipitation[1] to estimate annual runoff from a defined watershed area. The sediment model uses a function of geology, slope, and land-use to simulate suspended sediment transport in the landscape of a defined watershed while adjusting for watershed storage factors. The pollutant model is a spreadsheet model that combines land use-based pollutant concentrations (i.e., pollutant concentrations in water or pollutant concentrations on fine sediment particles as particle ratios[2] corresponding with specific land use types or source areas) with land use-based hydrology model output or sediment model output. Land use-based loading results are compiled to obtain pollutant loading across a defined watershed.

Starting in 2010, a multi-year effort was undertaken to systematically develop and calibrate the RWSM for San Francisco Bay watersheds using RMP data. Calibration was completed[3] and the model was released in 2018 (SFEI, 2018). For further details about each component of the model, see the RWSM User Manual (SFEI, 2018).

A.2.2 RWSM Results

The estimated average PCBs and mercury yields from the RWSM Toolbox v1.0 Pollutant Model, "Pollutant Spreadsheet Model Calculations – Region" for the modeled land use yield categories are provided in Table A-1 below. The "Region" spreadsheet results were developed using RMP data from well-sampled watersheds to calibrate pollutant concentration coefficients and applying the resulting coefficients to the region to get average pollutant yield results (Gilbreath, 2019).

[1] 800-m grid, from PRISM Climate Group, Oregon State University.
[2] Particle ratios = pollutant concentration in water (ng/L) / suspended sediment concentration (mg/L), equivalent to mg/kg.
[3] The calibration for PCBs is "reasonable" but there remains a lower confidence in the calibration for mercury (Wu et al., 2017).

Table A-1: RWSM Land Use-Based Yields for PCBs and Mercury

Land Use Category	Average PCBs Yield (mg/ac/yr)	Average Mercury Yield[1] (mg/ac/yr)
Old Industrial and Source Areas	259	53
Old Commercial and Old Transportation	49	57
Old Residential	2.8	57
New Urban	0.4	4
Agriculture/Open Space	0.4	81

mg/ac/yr – milligrams per acre per year

Note: RWSM Toolbox v1.0 Pollutant Model, Pollutant Spreadsheet Model Calculations - Region. Spreadsheet dated 6/9/2017.

1. The model calibration for PCBs is "reasonable," but there remains a lower confidence in the calibration for mercury (Wu et al., 2017).

Table A-2 below presents the RWSM Toolbox v1.0 Pollutant Model, "Pollutant Spreadsheet Model Calculations – Region" results for PCBs and mercury average concentrations in runoff for the five RWSM modeled land use categories (SFEI, 2018).

Table A-2: Regional Watershed Spreadsheet Model PCBs and Mercury Concentrations in Runoff

Land Use Category	Total PCBs (ng/L)	Total Mercury[1] (ng/L)
Old Industrial and Source Areas	204	40
Old Commercial and Old Transportation	40	63
Old Residential	4	63
New Urban	0.2	3
Agriculture/Open Space	0.2	80

1. The model calibration for PCBs is "reasonable," but there remains a lower confidence in the calibration for mercury (Wu et al., 2017).

A.3 Source Area/Property PCBs Yield

The derivation of the estimated PCBs source property yield is described below. The PCBs source property yield was derived as the product of a representative PCBs concentration in surface soils at known source properties and a representative soil/sediment yield for old industrial areas.

Table A-3 and Table A-4 present descriptive statistics for measured concentrations of PCBs from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties. This dataset includes 1,180 PCBs surface soil samples from 52 source property locations. All samples included in the analysis were collected on-site at the source properties, either from storm drain infrastructure, or from surface soils in the 0 to 0.5-foot depth interval, based on the assumption that the top six inches of soil would have the most potential to mobilize off-site via wind or rainfall erosion, with a few exceptions. Data collected from the 0 to 1.0-foot depth interval were included for the General Electric site in Oakland, 2201 Bay Road in Redwood City, and G-C Lubricants in San Carlos, as data for these sites were only reported for this wider range and not broken down into more refined depth categories. The range of PCBs concentration (mg/kg) in surface soils for individual Bay Area source properties is provided in Table A-3 and the summary statistics for all sites combined are provided in Table A-4.

Table A-3: Site-specific PCBs concentration in surface soil collected on-site from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties.

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
1411 Industrial Rd, San Carlos	1.7	236	418	5	EKI Environment and Water, 2018. Letter from EKI to Mark Johnson, RWQCB, October 8, 2018. Subject: PCB Storm Drain Sediment Sampling Results 1411 Industrial Road, San Carlos, CA (EKI B80090.00); CW4CB Final Report/database
270 Industrial Road and 495 Bragato Rd. (Delta Star Inc./Tiegel Manufacturing Co.), San Carlos	3.4	28.4	122	14	GHD, 2016. Incremental Sampling Investigation Report. August 4.
280 Valley Drive, Brisbane	5.1	5.1	5.1	1	SMCWPPP POC Monitoring
505 Bayshore, Redwood City	0.006	42.2	548	71	Langan, 2024. Amended Site Cleanup Plan, 505 E Bayshore Road, Redwood City, CA. West, 2024. Revised Remedial Action Plan, Site-Bank and Off-Site, 505 E Bayshore Road, Redwood City, CA. Prepared for Alan Steel & Supply Co. West, 2025. Remedial Action Implementation Report, Site-Bank and Off-Site Sediment, 505 E. Bayshore Road, Redwood City, CA.
2201 Bay Road (Tyco Engineered Products), Redwood City	0.08	86.7	1,910	62	Earth Tech Inc, 2006. Summary Report of Soil and Groundwater Investigations, Tyco Engineered Products and Services/Tyco Thermal Controls, 2201 Bay Road, Redwood City, CA. Geomatrix, 2008. Site Investigation Report, Tyco Thermal Control, Inc, 2201 Bay Road, Redwood City, CA. AMEC Environmental & Infrastructure Inc, 2012. Supplemental Investigation Report, 2201 Bay Road, Redwood City, CA. SCS Engineers, 2013. Remedial Action Completion Report Phase II, Tyco Thermal Controls, 2201 Bay Road, Redwood City, CA. SCS Engineers, 2011. Revised Decommissioning and Demolition Plan, Tyco Thermal Controls, 2201 Bay Road, Redwood City, CA. AMEC Foster Wheeler, 2015. Storm Drain Investigation Completion Report, Pentair Thermal Management, Redwood City, CA.

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
166 Harbor Way (Caltrans Maintenance Facility), South San Francisco	0.028	46.2	310	51	Geocon, 2023. Soil Investigation Report, 166 Harbor Way. June 2023.
2100 Bay Road (Cooley Landing), East Palo Alto	0.033	0.38	1.6	13	Ninyo & Moore. 2010. Remedial Action Plan Cooley Landing 2100 Bay Road, East Palo Alto, CA
2575 Sand Hill Road SLAC (National Accelerator Laboratory, Menlo Park	0.037	5.9	36	60	SLAC. 2013. Final Remedial Investigation Report, West SLAC/ Campus Area/ IR-8 Drainage Channel Operable Unit SLAC. 2015. Feasibility Study for the Research Yard - SSRL / IR-6 Drainage Channel Operable Unit
977 Branston Rd, San Carlos (G-C Lubricants, former California Oil Recyclers, CORI, site)	0.06	207	1,470	13	California Oil Recyclers, Inc, San Carlos – California. EPA ID #CAD980695761. PCB Remediation Plan, 3/25/2004
Redwood City Rail Spur between Bay Road and Charter Street	0.57	954	3,520	10	Interim Site Stabilization Work Plan, WEST Environmental, 6/7/2013
2081 Bay Road, East Palo Alto (Romic Environmental Technologies)	ND	0.75	18.8	33	Revised Comprehensive Site-wide Sampling and Analysis Program Report, Former Romic Environmental Technologies. Iris Environmental, 6/12/2013
300 Constitution Drive, Menlo Park (Tyco Electronics, formerly Raychem, Menlo Park)	0.08	86.7	1,910	31	Results of Soil Sampling Railroad Right-of-Way, Near Willow Road Menlo Park. GRA Associates, Sept. 2004.
335 Brokaw Road, Santa Clara	3.93	3.93	3.93	1	SCVURPPP POC Monitoring
280 Martin Ave., Santa Clara	3.56	3.56	3.56	1	SCVURPPP POC Monitoring
1255 Yard Court, San Jose	0.03	0.84	1.65	2	SCVURPPP POC Monitoring
1645 Old Bayshore Highway, San Jose	17.7	17.7	17.7	1	SCVURPPP POC Monitoring
1800 South Monterey Road (Sims Metal), San Jose	1.79	2.70	3.61	2	SCVURPPP POC Monitoring
Union Pacific Railroad at Schallenberger Road, San Jose	0.19	0.97	2.80	4	SCVURPPP POC Monitoring

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
Union Pacific Railroad Leo Avenue, San Jose	0.02	12.9	127	45	CW4CB Final Report/database GHD, 2017. Remedial Investigation Report. Union Pacific Railroad Property, Leo Avenue ROW, San Jose, CA. September.
1788 Rogers Ave (Alco Iron and Metal), San Jose	0.42	0.68	0.93	2	SCVURPPP POC Monitoring
1693 Monterey Road (Glencore Recycling), San Jose	4.19	4.58	4.96	2	SCVURPPP POC Monitoring
Kings Row, San Jose	1.09	1.09	1.09	1	SCVURPPP POC Monitoring
1200 Piper Dr (Former North American Transformer), Milpitas	0.01	1.53	12.9	25	Terrasearch, Inc. 2005. Phase II Environmental Site Assessment at Proposed Residential Development · Former North American Transformer Site 1200 Piper Drive Terrasearch, Inc. 2005. Remedial Action Plan at Proposed Residential Development · Former North American Transformer Site 1200 Piper Drive.
1775 Monterey Road (Pollack Properties), San Jose	7.33	7.33	7.33	1	SCVURPPP POC Monitoring
700 Los Esteros Road, San Jose (SJ-SC Regional Wastewater Facility, San Jose)	ND	4.89	98	94	TSCA PCB Cleanup Completion Report, 09-30-2019
1420-1600 Monterey Road, San Jose (Sun Garden)	ND	0.47	2.0	5	Site Assessment Report, Sun Garden Center, Western Developer Tract (Phase I). Cornerstone Earth Group, June 24, 2014
3600 Alameda Ave., Oakland	0.009	1.10	10.1	12	Apex, 2025. Summary of Tables of Historical Data for 3600 Alameda Avenue, 3600 Alameda Redevelopment, 3600 Alameda Avenue, Oakland, California, Apex Companies, LLC, 7 October 2025.
7825 San Leandro St., Oakland	0.14	2.81	14	9	ACCWP POCs Monitoring
818 West Gertrude Ave, Richmond (Fass Metals)	2.62	4.56	7.4	3	CCCWP POCs Monitoring
901 Sanford Ave, Richmond (H&H Recycling)	1.58	2.87	4.16	2	CCCWP POCs Monitoring
1530 Wood Street, Oakland (One Stop)	1.03	1.03	1.03	1	ACCWP POCs Monitoring
600 South 4th Street, Richmond, (Sims Metals, Inc)	0.15	0.70	1.72	4	CCCWP POCs Monitoring

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
1268 48th Ave, Oakland (Yenlin Air Conditioning)	1.23	1.23	1.23	1	ACCWP POCs Monitoring
3430 Wood Street, Oakland (Granite Expo)	93.4	93.4	93.4	1	ibid
1797 12th St, Oakland (Cole Brothers Auto Wrecker)	1.67	5.22	8.78	2	ibid
3015 Adeline St, Oakland (California Electric)	6.08	6.08	6.08	1	ibid
1266 14th St, Oakland (Amtech Lighting)	5.70	5.70	5.70	1	ibid
3425 Ettie St, Oakland (Allied Painter)	1.75	1.75	1.75	1	ibid
2838 Hannah St, Oakland (Former Giampolini)	17.7	17.7	17.7	1	ibid
3428-3434 Helen Street, Oakland (ACM)	10.6	10.6	10.6	1	ibid
1639 18th St, Oakland (Martinez Bros Trucking)	1.95	1.95	1.95	1	ibid
2601-2812 Peralta St, Oakland (Custom Alloy Scrap Sales)	1.78	7.09	14.7	4	ibid
280 West MacArthur Blvd, Oakland (Kaiser Oakland)	0.01	1.67	27.2	101	Forensic Analytical Environmental Health Consultants, 2017. PCB Soil and Sediment Waste Characterization and Disposal Plan, Kaiser Permanente Medical Center Oakland Legacy Tower Demolition Project, 280 West MacArthur Boulevard, Oakland, CA. Revised April 21, 2017.
710 73rd Avenue, Oakland (Former Aero Plating)	0.01	101	790	8	Fugro Consultants, Inc. 2016. Limited Soil Sampling Investigation, 710 73rd Avenue, Oakland, CA. January.
700 73rd Avenue, Oakland (Union Pacific Railroad)	0.92	88.2	1,100	14	CDM Smith, 2014. Report of Findings for Data Gaps Investigation Phase B - On-site Investigations, Union Pacific Railroad Company Property, 700 73rd Avenue, Oakland, CA. November 14.
5441 International Boulevard, Oakland (General Electric)	0.03	248	11,000	134	Geosyntec Consultants, 2009. Feasibility Study Report for the GE Site at 5441 International Boulevard, Oakland, CA. June.
4560 Horton Street, Emeryville (Former Southern Pacific Railroad)	0.03	0.4	1.91	6	EKI, 2016. Corrective Action Work Plan – Shallow Soil Excavation, Former SPRR Parcel South of 53rd Street, Emeryville, CA. June 29.

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
One Cyclotron Rd, Berkeley (Lawrence Berkeley National Laboratory)	0.002	3.23	135	227	Lawrence Berkeley National Laboratory, 2016. Quarterly and Semiannual Progress Reports for the LBNL Hazardous Waste Facility Permit. Environmental Restoration Program. August 1993 through February 2016.
CC-SPL-600-P	1.29	1.29	1.29	1	Contra Costa County 2015 POC Sampling
San Diego St, Richmond (San Diego St)	0.03	0.12	1.2	14	Arcadis, 2016. San Diego Street Transformer Oil Release Cleanup and Closure Report, West End of San Diego Street, Richmond, CA, February.
1014 Chesley Ave, Richmond (World Oil)	0.01	0.79	6.5	70	APEX, 2018. PCB Characterization Report, World Oil Corporation Property, 1014 Chesley Avenue, Richmond, California. July 13.
1215 Willow Pass Road, Pittsburg (Molino)	0.02	1.19	5.6	10	Ground Zero Analysis, 2016. Phase II Investigation at 1215 Willow Pass Road, Pittsburg, November 11.
Average for All Properties		**32.5**			

Table A-4: Summary of PCBs concentrations in surface soil collected on-site from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties.

Statistic	PCBs (mg/kg)
Maximum	11,000
90th Percentile	34
75th Percentile	5.2
Average	**47.8**
Median	0.83
25th Percentile	0.10
10th Percentile	0.02
Minimum	ND
N	1,180

The Bay Area-wide average of PCBs in surface soil from known source properties, based on individual property averages, is 32.5 mg/kg (Table A-3) and the average based on individual sample concentrations is 47.8 mg/kg (Table A-4). An average concentration is the appropriate metric for the yield estimate, as it is representative of the total expected loading, which is affected by very high concentrations.

A sediment yield for Old Industrial land uses within the Santa Clara Basin watersheds was estimated based on a Loading Simulation Program – C++ (LPSC) watershed model developed for the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) as part of their reasonable assurance analysis (SCVURPPP 2020). The sediment yield estimated from the LPSC watershed model represents baseline hydrology and water quality, specifically sediment and solids. The median, LPSC-modeled sediment yield from Old Industrial land uses in the Santa Clara Basin is 39 grams/m^2/year or 157.8 kg/acre/year. Using the average PCBs concentrations

estimated with the two different approaches - 32.5 mg/kg (average of the site average) and 47.8 mg/kg (average of all data) from surface soils on Bay Area source properties presented above and the median Old Industrial sediment yield of 157.8 kg/acre, the estimated PCBs yield from source properties is 5,129 mg/acre/year and 7,559 mg/acre/year, respectively.

A.4 Source Area/Property Mercury Yield

The derivation of the estimated yield of the mercury source property is described below. The mercury source property yield was derived as the product of a representative mercury concentration in surface soils at known source properties and a representative soil/sediment yield for old industrial areas.

Table A-5 and Table A-6 present descriptive statistics for measured concentrations of mercury from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties. This dataset includes 19 mercury surface soil samples collected on-site at 13 source property locations. All soil samples included in the analysis were collected from the 0 to 0.5-foot depth interval, based on the assumption that the top 6 inches of soil would have the greatest potential to be mobilized off-site by wind or rainfall erosion. The range of mercury concentration (mg/kg) in surface soils for individual Bay Area source properties is provided in Table A-5, and the summary statistics for all sites combined are provided in Table A-6.

Table A-5: Site-specific mercury concentration in surface soil collected on-site from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties.

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
543 S 8th St, Richmond	1.11	1.11	1.11	1	CCCWP on-site sampling 2025
901 Sanford Ave, Richmond	0.098	1.17	1.95	3	CCCWP on-site sampling 2025
215 Leo Avenue, San Jose	6.9	6.9	6.9	1	CW4CB Final Report/database
220 Leo Avenue, San Jose	4.1	4.5	4.9	2	CW4CB Final Report/database
245 Leo Avenue, San Jose	15	15	15	1	CW4CB Final Report/database
275 Leo Avenue, San Jose	1.8	1.8	1.8	1	CW4CB Final Report/database
Alco Iron and Metal, San Jose	1.9	3.8	5.6	2	SCVURPPP POC Monitoring
Leo Ave Railroad	3.3	4.95	6.6	2	CW4CB Final Report/database
Pollack Properties	1.88	1.88	1.88	1	SCVURPPP POC Monitoring
Schnitzer Recycling Yard, Berryessa Road, San Jose	1.37	1.37	1.37	1	SCVURPPP POC Monitoring

Site Location	Minimum (mg/kg)	Average (mg/kg)	Maximum (mg/kg)	Count	Reference
Silicon Valley Power, Lafayette Street, Santa Clara	4.9	4.9	4.9	1	SCVURPPP POC Monitoring
Sims Metal, San Jose	1.5	5	8.5	2	SCVURPPP POC Monitoring
Z-Con Specialty, San Jose	1.32	1.32	1.32	1	SCVURPPP POC Monitoring
Average for All Properties		**4.13**			

Table A-6: Summary of mercury concentration in surface soil collected on-site from source properties located in Alameda, Contra Costa, Santa Clara, and San Mateo Counties.

Statistic	Mercury (mg/kg)
Maximum	15
90th Percentile	7.22
75th Percentile	5.25
Average	**3.90**
Median	1.95
25th Percentile	1.48
10th Percentile	1.28
Minimum	0.098
N	19

Based on the data reviewed, the Bay Area-wide average of mercury in surface soil from known source properties, based on individual property averages, is 4.13 mg/kg (Table A-5) and the average based on individual sample concentrations is 3.90 mg/kg (Table A-6). An average concentration is the appropriate metric for the yield estimate, as it is representative of the total expected loading, which is affected by very high concentrations.

Using the same median sediment yield for Old Industrial land uses used for PCBs (39 grams/m^2/year or 157.8 kg/acre/year) and the average mercury concentrations of 4.13 mg/kg and 3.90 mg/kg presented above, the estimated mercury yield from source properties is 652 mg/acre/year and 615 mg/acre/year, respectively.

A.5 Limitations and Uncertainty

Land use is used as a surrogate for actual PCBs and mercury source areas. Although many sources have been identified, the locations and sizes of additional sources are difficult to determine at this level of analysis. While categorized the same for modeling and analysis purposes, similar land use in different locations may have very different sources and thus distinctly different concentrations of PCBs and mercury in runoff.

It is difficult to quantitatively assess the implications of these limitations on the projected magnitude of loads, especially as analysis shifts from regional to more refined spatial scales. The

projected loads should be considered a first-order approximation and reflective of the central tendency of the data for the Bay Area as a whole.

A.6 References

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APPENDIX B
Urban Sediment Concentration Statistics

APPENDIX B. URBAN SEDIMENT CONCENTRATION STATISTICS

B.1 Descriptive Statistics

Table B-1 and Table B-2 and Figure B-1and Figure B-2 present descriptive statistics for the PCBs and mercury street and storm drain sediment dataset that BAMSC has compiled to date. This dataset includes 2,170 PCBs samples and 1,977 mercury samples taken within the street right-of-way and storm drain conveyance system from 1999 through June, 2026. The predominant land use in the vicinity of the sediment collection site is summarized in the data.

Table B-1: PCBs concentrations in sediment (mg/kg) collected from streets and stormwater conveyance systems in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties from 1999 through 2026.

Statistic	Old Industrial	Old Urban - Commercial/ Transportation	Old Urban - Residential/ Parks	New Urban	Ag/Open	All
Maximum	50.57	16.81	0.48	0.27	0.34	51
90th percentile	0.70	0.19	0.19	0.07	0.15	0.62
75th percentile	0.164	0.071	0.084	0.040	0.042	0.144
Mean	**0.42**	**0.30**	**0.07**	**0.04**	**0.05**	**0.38**
Median	0.04	0.04	0.03	0.04	0.03	0.04
GeoMean	0.06	0.04	0.02	0.02	0.02	0.06
25th percentile	0.02	0.02	0.01	0.01	0.01	0.02
10th percentile	0.009	0.009	0.003	0.007	0.003	0.008
Minimum	ND	ND	ND	ND	ND	ND
n	1,911	74	70	58	57	2,170

Table B-2: Mercury concentrations in sediment (mg/kg) collected from streets and stormwater conveyance systems in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties from 1999 through 2026.

Statistic	Old Industrial	Old Urban - Commercial/ Transportation	Old Urban - Residential/ Parks	New Urban	Ag/Open	All
Maximum	20.60	1.72	4.52	12.54	4.26	20.60
90th percentile	0.64	0.58	0.69	0.54	0.47	0.64
75th percentile	0.27	0.24	0.37	0.29	0.20	0.27
Mean	**0.33**	**0.23**	**0.46**	**0.52**	**0.29**	**0.34**
Median	0.140	0.110	0.171	0.167	0.109	0.140
GeoMean	0.36	0.14	0.18	0.20	0.12	0.32
25th percentile	0.078	0.078	0.080	0.113	0.051	0.078
10th percentile	0.050	0.060	0.040	0.074	0.030	0.050
Minimum	0.0045	0.0150	0.0147	0.0480	0.0200	0.0045
n	1,743	63	66	55	50	1,977

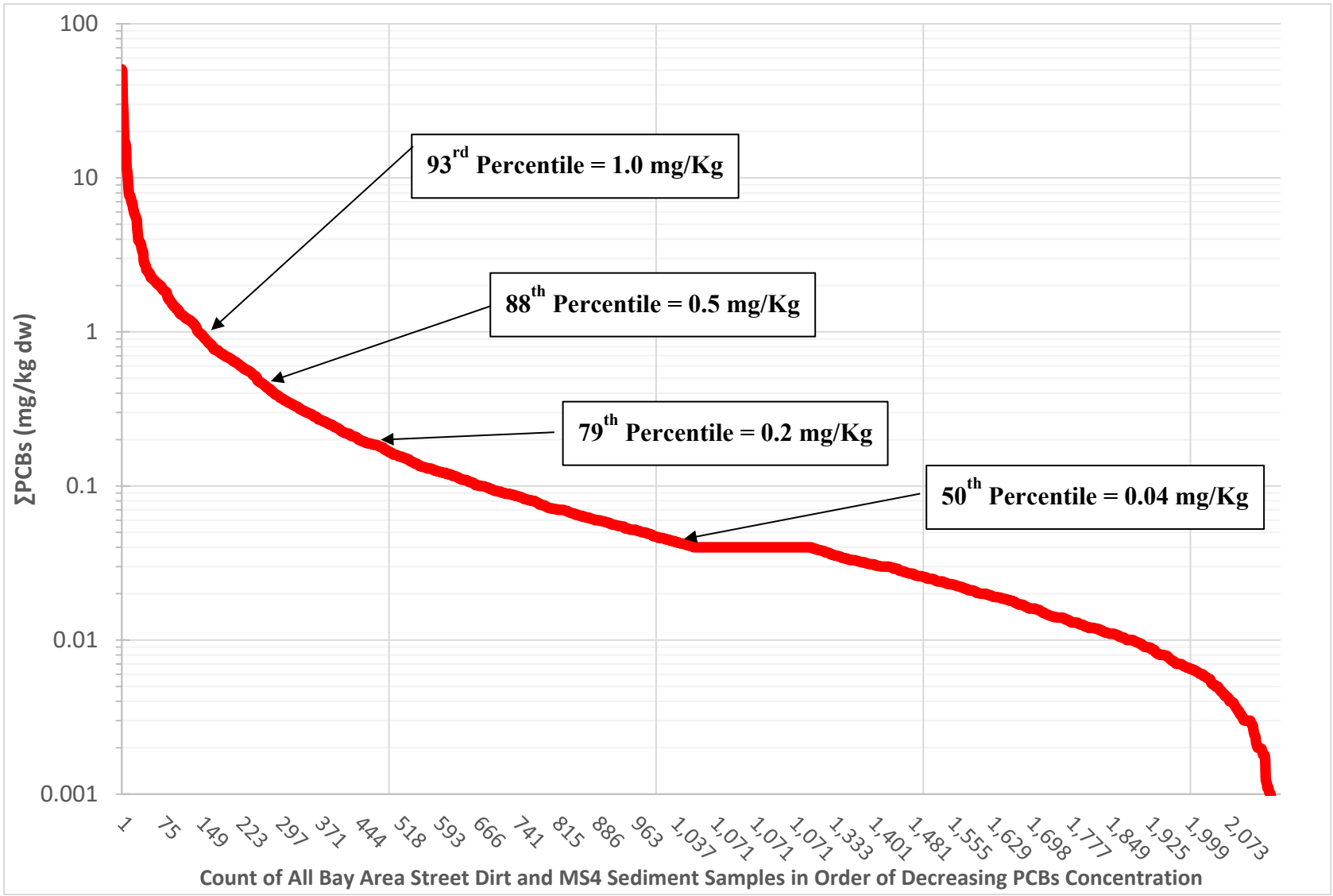

Figure B.1 Total PCBs concentrations in sediment collected from streets and stormwater conveyance systems in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties from 1999 through 2026. Includes data associated with all land-use categories (i.e., old industrial, old urban-commercial/transportation, old urban-residential/parks, new urban, and agriculture/open-space).

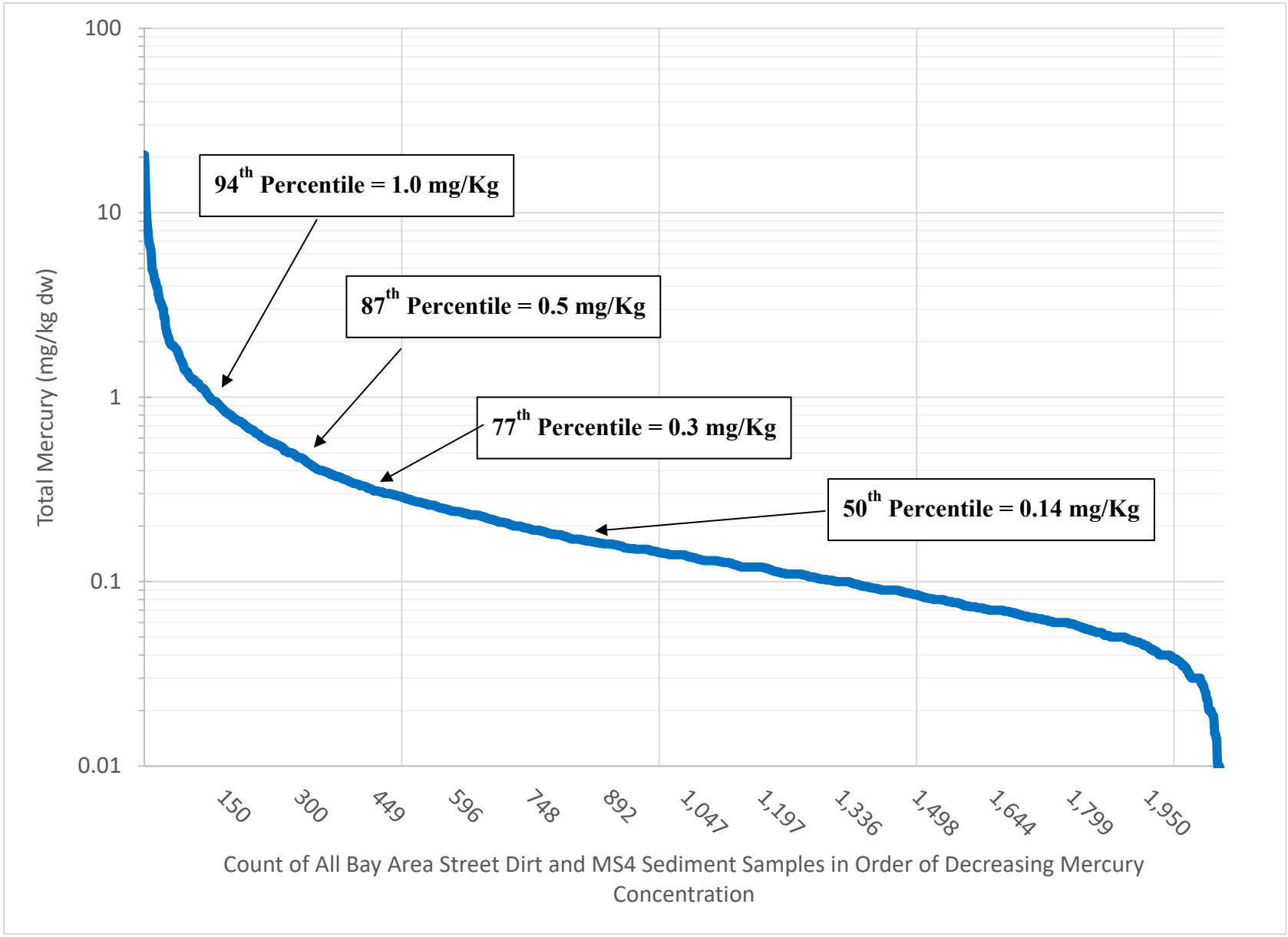

Figure B.2 Total mercury concentrations in sediment collected from streets and stormwater conveyance systems located in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties from 1999 through 2026. Includes data associated with all land-use categories (i.e., old industrial, old urban-commercial/transportation, old urban-residential/parks, new urban, and agriculture/open-space).

APPENDIX C
Old Industrial Land Use Summary

APPENDIX C. OLD INDUSTRIAL LAND USE SUMMARY

C.1 Description of the Analysis

Table C-1 and Table C-2 summarize the extent and investigation status of Old industrial land use areas across the five-county region. Table C-1 presents the total baseline old industrial acreage and tracks progress to date, including areas that have been redeveloped, addressed through source property investigations or abatement, or otherwise determined to have low potential for PCBs based on monitoring data collected in the ROW or on-site. The remaining acreage represents parcels that have not yet been fully characterized and therefore remain the focus of ongoing and future source identification efforts. These data were updated for investigations conducted through June 2026.

Table C-2 further characterizes the remaining old industrial parcels by investigation status. Only a small portion of the remaining acreage has been confirmed through site-specific data as having moderate or high PCBs concentrations. A subset of parcels is currently under investigation based on elevated PCBs concentrations observed in right-of-way sampling, while the majority of the remaining acreage has not yet been evaluated with site-specific data.

Table C-1: Old industrial areas in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties.

Category Description	ACCWP (acres)	CCCWP (acres)	SCVURPPP (acres)	SMCWPPP (acres)	SSA (acres)
Total Baseline Old Industrial	12,035[a]	12,394[a]	9,590[b]	6,372[c]	1,407
ROW	1,491	802	2,116	1,202	67
Old Industrial Parcels	10,544	11,592	7,474	5,170	1,340
Redeveloped Parcel Area	1,180	904	2,582	877	593
Referred or Abated PCBs Source Properties	90	84	151	10	0
Confirmed Low Parcel Area	2,774	3,795	3,778	2,557	397
Remaining Old Industrial Parcel Area	**6,499**	**6,808**	**963**	**1,726**	**350**

[a]Excludes Port of Oakland, Caltrans-owned areas, and properties that discharge directly to San Franciso Bay (i.e., not the MS4).

[b]Excludes the federally-owned Moffett Federal Airfield, which is subject to the State Water Resources Control Board Industrial General Permit NPDES Permit. CAS000001 (Order No. 2014-0057-DWQ).

[c]Excludes the San Francisco International Airport (SFO), which is subject to NPDES Permit CA0038318 (Order R2-2025-0002) issued to the City and County of San Francisco .

Table C-2: Breakdown of remaining old industrial parcel area via investigations conducted through June 2026 in Alameda, Contra Costa, Santa Clara, San Mateo, and Solano Counties.

Category Description	ACCWP (acres)	CCCWP (acres)	SCVURPPP (acres)	SMCWPPP (acres)	SSA (acres)
Confirmed moderate based on-site data	17	45	28	21	0
Confirmed high (Source Properties) based on on-site data	139	171	43	124	0
Under investigation moderate, based on moderate PCBs in ROW	161	38	63	97	0
Under investigation high, based on high PCBs in ROW	69	-	57	502	0
Remaining area to be investigated	6,114	6,554	771	982	350

APPENDIX D

Enhanced Inlet Cleaning Efficiency Factor Data Analysis for Storm Drain Inlets with and without Inlet-based Full Trash Capture Devices

APPENDIX D. ENHANCED INLET CLEANING EFFICIENCY FACTOR DATA ANALYSIS FOR STORM DRAIN INLETS WITH AND WITHOUT INLET-BASED FULL TRASH CAPTURE DEVICES

D.1 Purpose and Approach

The purpose of this appendix is to document findings of analyses conducted to determine the enhanced efficiency factors (EE_f) for sediment removal associated with enhanced storm drain inlet maintenance, including increasing the frequency of storm drain inlet cleaning, and the use of small (inlet-based, catch basin insert) full trash-capture (FTC) devices that are expected to capture larger amounts of trash, sediment and vegetation. First, the pollutant removal efficiency was calculated for the baseline control measure, which was assumed to be the annual cleanout of storm drain inlets without FTC devices. The efficiency factors were then developed for the following enhancements: (1) increased frequency of cleanouts at inlets without FTC devices; and (2) twice yearly cleanouts at inlets with FTC devices.

Based on a review of available literature, there are limited data available on the reductions of pollutants (including sediment) associated with different storm drain inlet maintenance frequencies. No studies were found that assessed the reduction of either PCBs or mercury due to enhanced inlet cleaning frequencies. Two studies in particular, Woodward Clyde (1994) and Caltrans (2003), however evaluated the increase in the removal of material (i.e., sediment, vegetation, and trash) from inlets under different cleaning frequencies. Results from both studies indicated that the annual volume of material removed from inlets increased with cleaning frequency.

The Caltrans (2003) *Drain Inlet Cleaning Efficacy Study* was designed to measure the potential increases in material volume/mass and water quality benefits due to increased inlet cleaning frequencies on freeways. The study was conducted from 1996 through 2000. The volume and mass of material removed under annual, biannual, and three times per year cleaning frequencies at 55 to 90 inlets, depending on the year, were measured.

The Woodward Clyde (1994) *Storm Inlet Pilot Study* was conducted in Alameda County in 1993. This study was also designed to measure the potential increases in material volume and mass due to increased inlet cleaning frequencies. A total of 15 inlets draining residential, industrial, or commercial land uses were monitored. The volume and mass of material removed under annual, biannual, quarterly, and monthly cleaning frequencies were measured.

None of the inlets in the two studies identified above were equipped with FTC devices. To evaluate pollutant reductions associated with cleanouts of storm drain inlets equipped with small FTC devices, a recent study (SCVURPPP, 2016) documented cleanout volumes of materials removed from inlets equipped with FTC devices. The SCVURPPP (2016) *Storm Drain Trash Monitoring and Characterization* study focused on litter/trash, but also removed and measured other debris (defined as sediment and vegetation) from 119 inlets equipped with small FTC devices. These devices typically require cleaning frequencies of at least twice per year. Each of the 119 inlets was initially cleaned at the start of the project. The volume of trash and debris that accumulated within the inlets was removed and measured during two subsequent monitoring

events. The accumulation period between each monitoring event ranged from four to five months. The data were used to estimate the annual average volumes of trash and debris captured in each inlet. The annual volume of debris removed was converted to a mass using the average density of debris removed from inlets during the Woodward Clyde (1994) study, which was 38 pounds per cubic foot.

The percent increase of annual mass of debris removed from storm drain inlets during cleanouts, as measured in each of the three studies described above, is presented in Figure D-1. Caltrans removals for inlet cleaning without FTC devices appear to be much greater than removal efficiencies measured during the Woodward Clyde study and therefore may not be realistic for the purposes of developing conservative efficiency factors for load reduction accounting. The Woodward Clyde study results were used to represent the enhanced efficiency due to increased cleanout frequency of storm drain inlets without FTC devices. The results of the SCVURPPP (2016) study indicate that the use of inlet-based FTC devices, combined with an increased cleaning frequency of twice annually, appears to substantially increase the annual mass of debris that is captured and removed from these storm drain inlets during cleanouts.

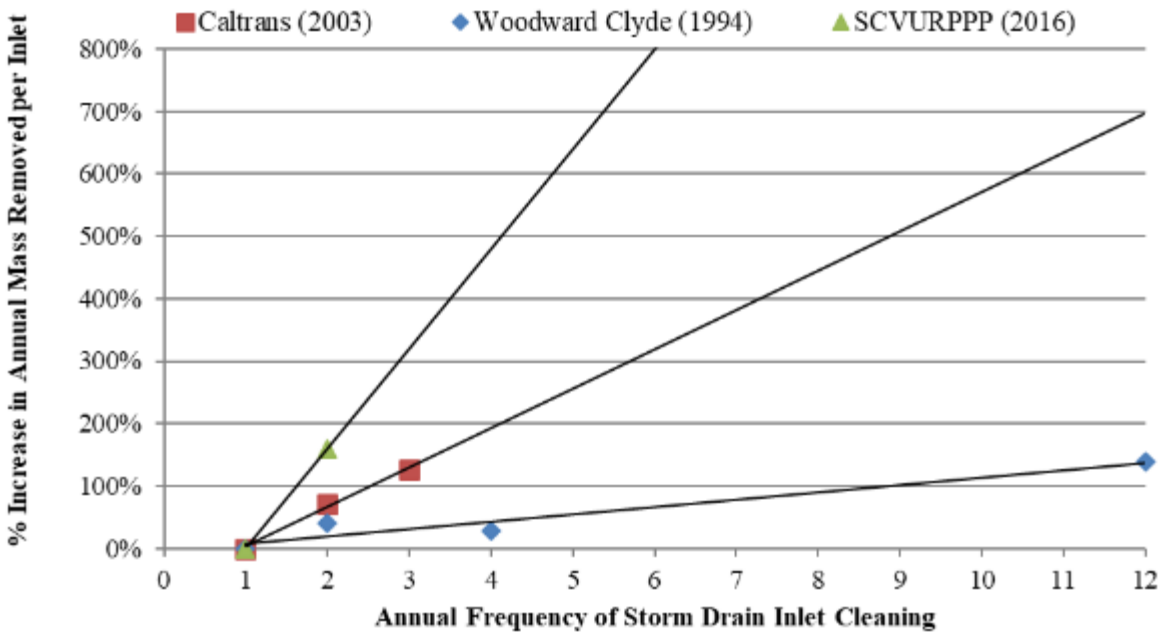

Figure D.1: Reported results of increases in annual mass of debris (e.g., sediment and vegetation) removed as a result of increased cleaning frequency for storm drain inlet with and without small full trash-capture (FTC) devices.

Based on the above findings, Table D-1 presents a conservative estimate of the enhanced efficiency factors for more frequent cleaning of storm drain inlets without FTC devices, and the enhanced efficiency factors for cleaning storm drain inlets equipped with inlet-based FTC

devices at least twice per year. For the purposes of load reduction accounting, the method assumes the following:

- Based on an analysis of 36 Alameda County and San Mateo Permittee storm drain inlet cleaning datasets from 1996 through 2009, on average, municipalities clean their inlets once per year (annually);
- Based on the same dataset, an average of 100 kg of material (sediment, vegetation, and litter) is removed from each inlet annually (see descriptive statistics below);

Statistic	Mass (Kg) of Material Removed Annually per Inlet
Maximum	4,049
90th Percentile	476
75th Percentile	284
Mean	268
Geometric Mean	**100**
Median	91
25th Percentile	41
10th Percentile	21
Minimum	5
# of Municipalities in Dataset	36

- Each inlet (on average) receives drainage from a catchment of 1 acre (BASMAA, 2014), equating to a unit material removal rate of 100 kg per acre per year;
- The mass fraction of material removed during cleanouts that is associated with PCBs and mercury yields (i.e., sediment <63um) is approximately 15% on average (McKee et al., 2006);
- The annual suspended sediment load to each inlet is roughly 134 kg per year on average based on the modeled value for Old Urban land use (Paradigm Environmental, 2020, see attachment to Appendix A); and
- Based on the assumptions above, roughly 15 kg of sediment associated with PCBs and mercury is removed from each inlet cleaned on an annual frequency, equating to about an 11% reduction of PCBs and mercury via annual cleaning (i.e., 15 kg / 134 kg). This is the control measure effectiveness of annual cleaning of storm drain inlet without FTC devices.

Assuming the baseline control measure effectiveness for annual cleaning of 11%, data from the studies cited above were used to calculate the enhanced efficiency factors for storm drain inlet cleaning at increasing frequencies for inlets without FTC devices, and twice-yearly cleaning of inlets that have been equipped with small FTC devices, as shown in Table D-1.

Table D-1: Enhanced efficiency factors (EEf) for increased storm drain inlet cleaning frequencies for storm drain inlets both with and without small full trash-capture (FTC) devices.

	Enhanced Cleaning Frequency for Inlets without FTC devices – Annually	Enhanced Cleaning Frequency for Inlets without FTC devices – Biannually	Enhanced Cleaning Frequency for Inlets without FTC devices – Quarterly	Enhanced Cleaning Frequency for Inlets without FTC devices – Monthly	Enhanced Cleaning Frequency for Inlets with FTC Devices – Biannually
Original Cleaning Frequency – No Cleaning or New Inlet	0.11	0.16	0.16	0.27	0.29
Original Cleaning Frequency – Annually		0.05	0.05	0.16	0.18

D.2 References

BASMAA (2014). San Francisco Bay Area Stormwater Trash Generation Rates - Final Technical Report. Bay Area Stormwater Management Agencies Association. Prepared by EOA, Inc. Oakland. June.

Caltrans (2003). Drain Inlet Cleaning Efficacy Study. California Department of Transportation. CTSW-RT-03-057.36.1. June.

McKee, L., P. Mangarella, B. Williamson, J. Hayworth, and L. Austin (2006). Review of methods used to reduce urban stormwater loads: Task 3.4. A Technical Report of the Regional Watershed Program: Oakland, CA, San Francisco Estuary Institute SFEI Contribution #429: 150 pp.

Paradigm Environmental (2020). Technical Memorandum: Modeled Yield Estimates from SCVURPPP (all ABAG HRUs). January 7, 2020.

SCVURPPP (2016). Storm Drain Trash Monitoring and Characterization Project. Santa Clara Valley Urban Runoff Pollution Prevention Program. Prepared by EOA, Inc. August.

Woodward-Clyde. 1994. Storm Inlet Pilot Study. Prepared for the Alameda County Urban Runoff Clean Water Program.

APPENDIX E
Enhanced Street Sweeping Efficiency Factors

APPENDIX E. ENHANCED STREET SWEEPING EFFICIENCY FACTORS

E.1 Description of the Analysis

The Clean Watersheds for Clean Bay (CW4CB)[4] Task 4 pilot projects evaluated enhancements of municipal operation and maintenance activities that remove sediments and associated pollutants, including PCBs and mercury. This objective coincided with Municipal Regional Stormwater NPDES Permit (MRP, Order R2-2009-0074) Provision C.12.d, which required MRP Permittees to evaluate at the pilot scale in five drainages, ways to enhance existing sediment removal and management practices such as municipal street sweeping, curb clearing parking restrictions, inlet cleaning, catch basin cleaning, stream and stormwater conveyance system maintenance, and pump station cleaning via increased effort and/or retrofits. MRP Provision C.12.d also required Permittees to evaluate existing information on high-efficiency street sweepers, with the goal of evaluating the cost-effectiveness of high-efficiency street sweeping relative to reducing pollutant loads.

Appendix B-1 of the CW4CB Final Report summarizes the results of the Task 4 enhanced street sweeping pilot project that occurred in four pilot study areas (two sites in Richmond and one each in San Jose and Sunnyvale). This study entailed collecting monitoring data in each pilot study area representative of the baseline sweeping condition. The monitoring data were then used to calibrate the Windows Source Loading and Management Model (WinSLAMM) to evaluate sediment, PCBs, and mercury in the pilot study areas. Once WinSLAMM calibrated using the pilot study data, it was used to model street sweeping performance in the pilot study areas during the baseline condition for sediment, PCBs, and mercury. WINSLAMM was also used to model the effectiveness of various street sweeping scenarios for the pilot study areas for removing sediment, PCBs, and mercury. The modeled scenarios included (1) different sweeper types, (2) sweeping frequencies, and (3) street roughness values. The modeled scenarios assumed parking controls were in effect.

The results of the scenario analysis are presented in Table E-1 and Table E-2 below for PCBs and mercury, respectively.

[4] For more information, see Clean Watersheds for a Clean Bay (CW4CB) – BASMAA.

Table E-1: Change in PCBs Mass Removal Efficiency (%) from Initial Street Sweeping Scenario to Final Scenario.

Scenario				Final	Final	Final	Final	Final	Final	Final	Final
	Sweeper Type			Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
		Street Roughness		Rough	Intermediate	Rough	Intermediate	Rough	Intermediate	Intermediate	Rough
			Frequency	Once per 4 weeks	Once per 4 weeks	Once per 2 weeks	Once per 2 weeks	Once per week	Once per week	Twice per week	Twice per week
Initial	None	None	None	9.9%	14%	15%	18%	19%	21%	21%	22%
Initial	Vacuum	Intermediate	Once per week	-11%	-7%	-6%	-3%	-2%	0%	0%	1%
Initial	Vacuum	Intermediate	Once per 2 weeks	-8%	-4%	-3%	0%	1%	3%	3%	3%
Initial	Vacuum	Intermediate	Once per 4 weeks	-4%	0%	1%	4%	5%	7%	7%	8%
Initial	Vacuum	Intermediate	Twice per week	-11%	-7%	-6%	-3%	-2%	0%	0%	1%
Initial	Vacuum	Rough	Once per week	-9%	-5%	-4%	-1%	0%	2%	2%	2%
Initial	Vacuum	Rough	Once per 2 weeks	-5%	-1%	0%	3%	4%	6%	6%	6%
Initial	Vacuum	Rough	Once per 4 weeks	0%	4%	5%	8%	9%	11%	11%	12%
Initial	Vacuum	Rough	Twice per week	-12%	-8%	-6%	-3%	-2%	-1%	-1%	0%

Notes:
Change in efficiency resulting from change in sweeping scenario represented by negative values (reduction in efficiency) and positive values (increase in efficiency).

Table E-2: Change in Mercury Mass Removal Efficiency (%) from Initial Street Sweeping Scenario to Final Scenario.

Scenario				Final	Final	Final	Final	Final	Final	Final	Final
	Sweeper Type			Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
		Street Roughness		Rough	Intermediate	Rough	Intermediate	Rough	Intermediate	Intermediate	Rough
			Frequency	Once per 4 weeks	Once per 4 weeks	Once per 2 weeks	Once per 2 weeks	Once per week	Once per week	Twice per week	Twice per week
Initial	None	None	None	9.1%	10%	10%	10%	10%	11%	11%	11%
Initial	Vacuum	Intermediate	Once per week	-1%	0%	0%	0%	1%	2%	2%	2%
Initial	Vacuum	Intermediate	Once per 2 weeks	0%	0%	0%	0%	1%	2%	2%	2%
Initial	Vacuum	Intermediate	Once per 4 weeks	0%	0%	1%	1%	1%	2%	2%	2%
Initial	Vacuum	Intermediate	Twice per week	-1%	0%	0%	0%	1%	2%	2%	2%
Initial	Vacuum	Rough	Once per week	-2%	-2%	-2%	-2%	-1%	0%	0%	0%
Initial	Vacuum	Rough	Once per 2 weeks	-2%	-2%	-2%	-2%	-1%	0%	0%	0%
Initial	Vacuum	Rough	Once per 4 weeks	-1%	-1%	-1%	-1%	0%	1%	1%	1%
Initial	Vacuum	Rough	Twice per week	-2%	-2%	-2%	-2%	-1%	0%	0%	0%

Notes:
Change in efficiency resulting from change in sweeping scenario represented by negative values (reduction in efficiency) and positive values (increase in efficiency).

APPENDIX F
Mercury and PCBs Load Reduction from Storm Drain Cleanouts

APPENDIX F. MERCURY AND PCBS LOAD REDUCTION FROM STORM DRAIN LINE CLEANOUTS

F.1 Background

Municipal Regional Stormwater Permit (MRP) Provisions C.11.c and C.12.c require the Permittees to, within the permit term, implement or cause to be implemented control measures to achieve mercury and polychlorinated biphenyls (PCBs) load reductions. The Alameda County Permittees within San Francisco Bay Regional Water Quality Control Board Region 2 must implement control measures on 664 acres of old industrial land use area that have not been redeveloped or treated with GSI or other treatment controls or alternatively reduce loads of mercury by 28 grams per year (g/yr) and PCBs by 121 g/yr, by June 30, 2027.

One of the mercury and PCBs treatment control measures that will be implemented by the Alameda County Permittees during this permit term to control urban runoff from areas containing known or suspected sources or areas with evidence of moderate to high mercury or PCBs soil concentrations is enhanced operation and maintenance (O&M) practices, and, specifically, storm drain line cleaning. This memorandum estimates mercury and PCBs loads reduced (and equivalent old industrial acres treated) resulting from the City of Oakland storm drain line cleanout activities.

F.2 Methodology

Load reductions have been estimated in accordance with the approved *Source Control Load Reduction Accounting for Reasonable Assurance Analysis* report (BASMAA, 2022).

Geosyntec used the following method for estimating mercury and PCBs load reduction for storm drain line cleanout:

$$Load\ Reduced = L \cdot M \cdot Conc$$

Where:

$Load\ Reduced$ = Estimated mercury or PCBs load reduction from storm drain line cleanouts (g/yr)

L = Average annual length of the storm drain line cleanout (ft/yr)

M = Unit mass of sediments removed per foot of storm drain line cleanout (kilograms (kg)/ft)

$Conc$ = Mean concentration of mercury or PCBs in sediments within old industrial land use areas (milligrams (mg)/kg)

The following subsections summarize the inputs and assumptions used to estimate the individual components of the load reduction calculation: *L*, *M*, and *Conc*.

F.2.1 Storm Drain Line Cleanout Length, *L*

The City of Oakland (City) provided Geosyntec with a list of storm drain cleanouts across the City that occurred from 2021 to 2023. The address, pipe cleanout length, and cleanout date were provided for each cleanout event. Using the address, Geosyntec selected the cleanouts conducted within the Emeryville Crescent and San Leandro Bay watersheds and within 200 ft of old industrial land use areas. The total annual cleanout lengths for 2021, 2022, and 2023 and the three-year average were calculated (Table F-1). The three-year average of 5,520 ft was assumed to be representative of the average annual length of the storm drain line cleanout for estimated load reductions.

Table F-1: City of Oakland Storm Drain Cleanout Events and Pipe Length Summary

Year	Number of Storm Drain Line Cleanouts	Length of Storm Drain Line Cleanouts (ft)
2021	34	4,780
2022	27	4,010
2023	31	7,780
Total	92	16,570
Average Annual	**31**	**5,520**

F.2.2 Unit Mass of Sediment Removed, *M*

Two sources of input for the unit mass of sediments removed by storm drain cleanout were considered:

1. The Leo Avenue Pilot Project from the Clean Watersheds for a Clean Bay grant project conducted by the Bay Area Stormwater Management Agencies Association (BASMAA, 2017). The calculated mass of solids per linear foot of the storm drain line was 3.8 kg/ft. Due to Leo Avenue's unique location and configuration, the sediment accumulation rate was likely higher than the typical accumulation rate of a larger storm drain system.

2. Geosyntec estimated the corresponding unit mass of one inch of sediment accumulation in an average pipe is 1.37 kg per linear foot. The calculation was performed by first determining the length-weighted average pipe diameter, 29.7 inches, of all storm drain pipes within the priority watersheds and old industrial areas. With the one-inch sediment accumulation assumption, the unit volume of the sediment accumulated was calculated to be 0.050 cubic feet per foot length of the pipe. Using the dry bulk density of the sediment from the Leo Avenue pilot project, 0.965 g/cm^3, the unit mass of sediment in a linear foot of storm drain pipe was estimated to be 1.37 kg/ft. Following the same approach, the unit mass of sediment corresponding to a two-inch accumulation was calculated to be 3.82 kg/ft.

Table F-2 below summarizes the three unit mass values of the sediment removed from one foot of storm drain pipe.

Table F-2: Summary of Unit Mass of Sediment Removed Per Foot of Storm Drain Pipe

Assumption / Source	Unit Mass of Sediment Removed (kg/ft)
Leo Avenue Pilot Project	3.80
One-inch Accumulation Assumption	1.37
Two-inch Accumulation Assumption	3.82

F.2.3 Mercury and PCBs Concentration, *Conc*

The mercury and PCBs mean sediment concentrations associated with old industrial land uses were calculated using the available sediment sampling data collected from within the combined old industrial areas of Alameda County and Contra Costa County from 2001 to 2022. A total of 187 and 241 data points were used for the analyses of mercury and PCBs, respectively. Sediment sampling results located within fifty meters of known source properties were removed to prevent overestimation of mercury and PCBs concentrations.

The data were first transformed by taking the natural logarithm of each data point, assuming that environmental data is lognormally distributed. The total number of data points are summarized in Table F-3 below. The log-transformed mercury and PCBs datasets were next assessed for normality using the Shapiro-Wilk test. The test results are shown in Table F-3. A p-value below 0.05 indicates that the sample did not come from a normally distributed population. The p-values of the mercury and PCBs data distributions were 0.172 and 0.080, respectively, thus indicating that both datasets follow the lognormal distribution (Figure F-1):

Table F-3: Data Count and Shapiro-Wilk Test Results

Pollutant of Concern	Data Count	W	p	Conclusion
Mercury	187	0.99	0.172	Lognormal distribution
PCBs	241	0.99	0.080	Lognormal distribution

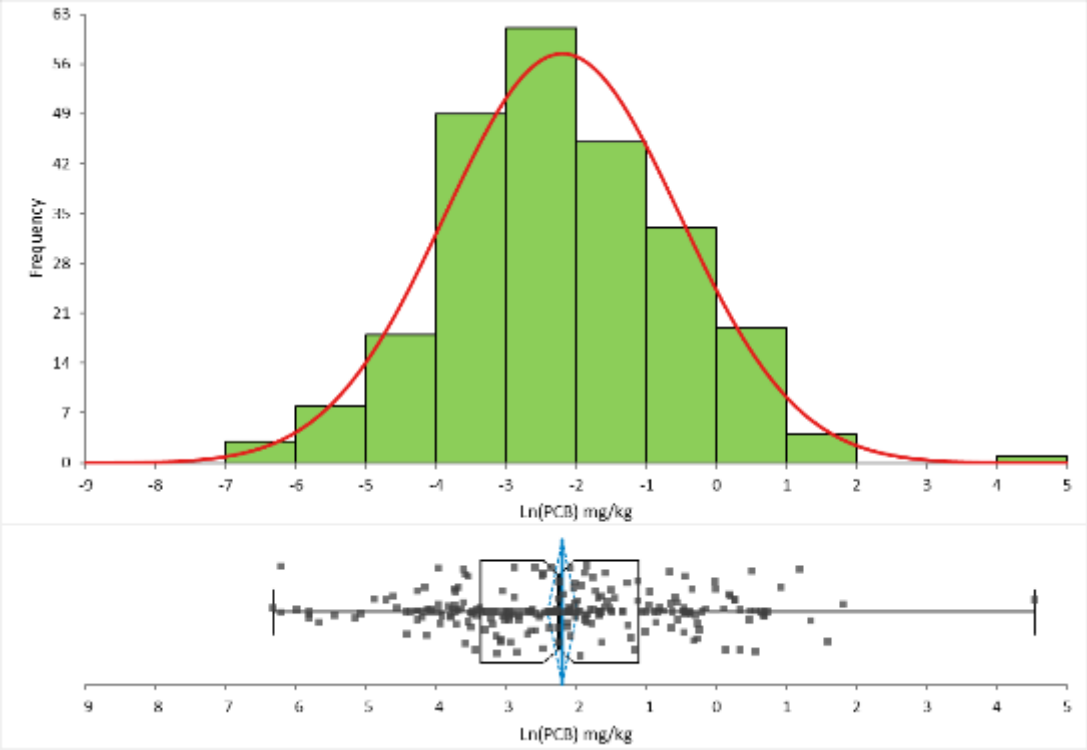

Figure F.1: Distribution of sampling results for PCBs. For the box scatter plot, the median is shown as the bold line (with a 95% confidence interval shown as a notch on the box), the mean as the blue line (with 95% confidence interval shown as a dashed diamond), the 1st and 3rd quartiles as the edges of the box, and minimum/maximum as end caps.

The mean concentrations of the natural log-transformed distributions were then calculated using the natural logs of the mean and the standard deviation as shown in the equation below:

$$Mean = \exp(\mu_{ln} + 0.5\sigma_{ln}^2)$$

Where:

exp = e to the power of

μ_{ln} = the mean of the natural log-transformed distribution

σ_{ln}= the standard deviation of the natural log-transformed distribution

The back-transformed mean sediment concentrations associated with old industrial land uses for mercury and PCBs are 0.331 and 0.450 mg/kg, respectively (Table F-4).

Table F-4: Arithmetic Mean Mercury and PCB Concentrations (mg/kg)

Pollutant of Concern	μ	σ	Arithmetic Mean Concentration (mg/kg)
Mercury	-1.492	0.879	0.331
PCBs	-2.20	1.672	0.450

F.3 Results

Using the equation and inputs defined in Section 2, the load reduction results for storm drain line cleanouts are shown in Table F-5 below. Details on the calculation inputs are provided in Table F-6 below. The PCBs load reductions were estimated to range from 3.4 g/yr to 9.5 g/yr. The mercury load reductions were estimated to range from 2.5 g/yr to 7.0 g/yr.

As defined in the MRP, implementing treatment controls on 664 acres of old industrial land use is equivalent to reducing mercury by 28 g/yr and PCBs by 121 g/yr. The potential PCBs load reduction achieved by storm drain line cleanout in the City of Oakland priority watersheds of 3.4 to 9.5 g/yr is equivalent to treating 19 to 52 acres of old industrial area.

Table F-5: Storm Drain Line Cleanout Load Reduction Summary

Parameter	PCBs Low	PCBs High	Mercury Low	Mercury High
L (ft)	5520	5520	5520	5520
M (kg/ft)	1.37	3.82	1.37	3.82
Conc (mg/kg)	0.45	0.45	0.33	0.33
Annual Load Reduction (g/yr)	**3.4**	**9.5**	**2.5**	**7.0**
Equivalent Area Treated (ac)	**19**	**52**	**59**	**166**

Table F-6: Details of the City of Oakland Storm Drain Line Cleaning in Old Industrial Areas in the Priority Emeryville Crescent and San Leandro Bay Watersheds

Parameter Description	Unit Mass Estimate Based on Leo Avenue Assumption[1]	Unit Mass Estimate Based on Two Inch Assumption[1]	Unit Mass Estimate Based on One Inch Assumption[1]	Units
Total length of storm drain line cleanouts within old industrial areas in the priority watersheds from 2021 to 2023	16,570	16,570	16,570	ft
Length of average annual storm drain line cleaned within old industrial areas in the priority watersheds	5,520	5,520	5,520	ft/yr
Volume of sediment removed per linear foot of storm drain line	-	0.140	0.050	ft^3/ft
Measured sediment bulk density (dry weight) from the Leo Avenue Watershed Pilot Project (CW4CB 2017)	0.965	0.965	0.965	g/cm^3
Calculated mass of solids removed per linear foot of storm drain line	3.80	3.82	1.37	kg/ft
Calculated mean mercury concentration in sediment associated with old industrial land uses	0.331	0.331	0.331	mg/kg
Calculated mean PCBs concentration in sediment associated with old industrial land uses	0.450	0.450	0.450	mg/kg

Parameter Description	Unit Mass Estimate Based on Leo Avenue Assumption[1]	Unit Mass Estimate Based on Two Inch Assumption[1]	Unit Mass Estimate Based on One Inch Assumption[1]	Units
Calculated annual mercury load reduced from storm drain cleanout within old industrial areas in the priority watersheds	6.9	7.0	2.5	g/yr
Calculated annual PCBs load reduced from storm drain cleanout within old industrial areas in the priority watersheds	9.4	9.5	3.4	g/yr
Acres of old industrial area treated per PCBs g/yr reduced, from the MRP (664 acres:121 g PCBs/yr)	5.5	5.5	5.5	acres
Equivalent acres of old industrial area treated for annual PCBs load reduced	52	52	19	acres

Notes:

[1]See Table F-2 for summary of unit mass of sediment removed per foot of storm drain pipe

F.4 References

Bay Area Stormwater Management Agencies Association (BASMAA), 2017. Storm Drain System Cleaning and Video Inspection Pilot Project – Leo Avenue Watershed, San Jose, CA, April 2017

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APPENDIX G
Large Full Trash Capture Device Efficiency Factor Data Analysis

APPENDIX G. LARGE FULL TRASH CAPTURE DEVICE EFFICIENCY FACTOR DATA ANALYSIS

G.1 Purpose and Approach

The purpose of this appendix is to document findings of studies and analyses conducted to determine the effectiveness for removing total suspended solids (TSS), PCBs, and mercury by large (non-inlet-based) trash capture devices, including hydrodynamic separator (HDS) units, gross solids removal devices (GSRDs), and baffle boxes. Other types of non-inlet-based trash capture devices, such as trash netting devices and trash booms, are assumed to remove negligible amounts of sediment, PCBs, and mercury, so are not included in this appendix. Inlet-based devices, including inlet baskets and connector pipe screens, are discussed in Appendix G. For the purposes of load reduction accounting, the method assumes that HDS units, GSRDs, and baffle boxes reduce PCBs and mercury concentrations in direct proportion to TSS reduction.

G.2 HDS Units

Percent Removal of TSS. Percent removal of TSS in HDS units was calculated from the BASMAA Clean Watersheds for a Clean Bay (CW4CB) Task 5 Leo Avenue pilot project data (BASMAA 2017a). For this project, a prefabricated Contech HDS unit called the Continuous Deflective Separator (CDS) was retrofitted into the existing storm drain system in the Leo Avenue Watershed in San Jose.

Influent and effluent water quality was sampled at four events as summarized in Table G-1 below. The CDS unit removed an average of 30% of TSS coming into the unit.

Table G-1: Percent Removal of TSS at Leo Ave CDS Unit

Event	Date	Sample Location	TSS (mg/L)	% Removal
1	28-Feb-14	Inflow	110	NA
1	28-Feb-14	Outflow	91	17%
2	29-Mar-14	Inflow	230	NA
2	29-Mar-14	Outflow	190	17%
3	31-Oct-14	Inflow	62	NA
3	31-Oct-14	Outflow	7.5	88%
4	02-Dec-14	Inflow	82	NA
4	02-Dec-14	Outflow	84.5	-3%
			Average	**30%**

The International Stormwater BMP Database was evaluated for potentially useful studies. Twenty studies of manufactured devices were identified as useful for analysis. These studies had a total of 334 paired inflow/outflow data points for TSS. Percent removal was calculated for each paired data point and then averaged for the BMP. The results for these studies along with descriptions of land use type and watershed size and imperviousness are presented in Table G-2 below. Average percent removal ranged from -85% (i.e., an increase in TSS concentration in

TSS concentration in outflow compared to inflow) to 73% and averaged 19% across all studies (including the City of San Jose's Leo Avenue unit).

The dataset was also analyzed by removing BMPs that were treating just roads or highways, parking lots, or college campuses. In this scenario, ten studies remained that had mixed, other, or unknown land use type. The average percent removal of TSS from the BMPs evaluated in this group of studies was slightly higher at 22%.

Table G-2: Percent Removal of TSS for Studies in BMP Database

Site and BMP	Device Model	Land Use Type	Watershed % impervious	Watershed Area (ac)	Average TSS % Removal[1]
OP Soccer Complex: PMSU56_40_40	Contech CDS, Model PMSU56_40_10	Parking lots adjacent to soccer fields.	90	3.98	-85%
NW Birch Place CDS unit: Continuous Deflective Separation unit	CDS Unit	Low Density Residential: 47.4% Office Commercial: 42.2% Multi-Family Residential: 10.3%	--	45.0	-14%
Broadway Outfall: CDS Unit	CDS	--	--	132	-6%
University of New Hampshire F3: Continuous Deflective Separation	CDS	College Campus: 100%	100	0.32	-5%
Lake O Sediment Demo: CDS Unit	PSW56_53	--	--	--	-3%
I-210 / Orcas Ave: Orcas	CDS	Roads/Highway: 100%	100	1.11	-3%
USGS_WI_HSD_DD: Hydrodynamic Settling Device	Downstream Defender®, manufactured by Hydro International.	--	84	1.90	-1%
I-210 / Filmore Street: Filmore CDS	CDS	Roads/Highway: 100%	100	2.50	2%
University of New Hampshire F2: Environment 21 V2B1	Environment 21 V2B1	College Campus: 100%	100	0.32	5%
University of New Hampshire F1: Vortechnics	Vortechnics	College Campus: 100%	100	0.32	13%
USGS_WI_HSD: HSD	Hydrodynamic Settling Device, Contech	The HSD treats a 0.25-acre deck section of the westbound I–794 freeway	100	0.25	26%
Harrisburg Public Works Yard: PAYardTerreKleene	Terre Kleen	--	90	3.21	28%

Site and BMP	Device Model	Land Use Type	Watershed % impervious	Watershed Area (ac)	Average TSS % Removal[1]
SC_StructBMP3: BMP3	Vortechnics	BMP3 is located along the westbound lane of S.C. Highway 802	--	--	29%
Indian River Lagoon CDS Unit: CDS Unit	CDS	Open Space: 38% Light Industrial: 32% Office Commercial: 19%	11	61.5	30%
Leo Avenue: HDS Unit[2]	Contech CDS	--	--	--	30%
SC_StructBMP1&2: BMP2	CDS Technologies	BMP2 is located along the southbound lane of U.S. Highway 21	100	1.11	39%
University of New Hampshire E1: Aqua Swirl	Aqua Swirl	College Campus: 100%	100	0.99	40%
Timothy Edwards Middle School: Vortechs No 5000	Vortechs	--	80	1.95	45%
VC: VC	Vortcapture	Residential area with lots of organic matter/leaf litter loading	--	--	53%
Marine Village Watershed: VortechsTM Stormwater Treatment System	Vortechs	Office Commercial: 50% Medium Density Residential: 45% Unknown: 5%	95	9.34	72%
NJ Manasquan Bank: NJManasquanCDS	High Efficiency Continuous Deflective Separator (CDS), Model 20_25	--	79	0.89	73%

Notes: -- indicates information was not provided.
1. Based on analysis of paired inflow/outflow results.
2. Leo Ave CW4CB study. Not a BMPDB Study.

The manufacturer's removal efficiency claims and the tested removal efficiencies of six of the BMPs evaluated in the studies were summarized as reported in the Massachusetts Stormwater Technology Evaluation Project (MASTEP) clearinghouse database (Table G-3).

Table G-3: Percent Removal of TSS for Six Manufactured Devices from MASTEP

Product (BMP)	Manufacturer	Manufacturer's Removal Efficiency claim	Tested Removal Efficiency
Aqua-Swirl	Aqua Shield	85%	84-87%
CDS	Contech	70%	65-95%
Vortechs	Contech	35-85%	35-64%
Downstream Defender	Hydro International	90%	70%

Product (BMP)	Manufacturer	Manufacturer's Removal Efficiency claim	Tested Removal Efficiency
V2B1	Environment 21	80%	65%
Terre Kleen	Terre Hill	78%	17-50%
		Average[1]	**56%**

Notes: 1. Average based on low end of reported efficiency range.

Based on the above findings, 20% is a conservative estimate of the average percent removal of TSS by HDS units.

Percent Removal of PCBs and Mercury. To further evaluate the pollutant removal performance of HDS units, BASMAA (2019) conducted a combined monitoring and modeling study in 2017 and 2018 based on the removal of solids captured within HDS unit sumps. The Project collected samples of the solids captured and removed from eight different HDS unit sumps during cleanouts. The solid samples were analyzed for PCBs and mercury concentrations. Maintenance records and construction plans for these HDS units were reviewed to develop estimates of the average volume of solids removed per cleanout and the typical number of cleanouts per year. This information was combined with the measured pollutant concentrations to calculate the annual mass of PCBs and mercury captured in the sumps and removed during cleanouts. Next, the annual pollutant loads discharged from each HDS unit catchment were estimated using two different load calculation methods. Method #1 used the land use-based pollutant yields described in the BASMAA Interim Accounting Methodology (BASMAA 2017b) to estimate catchment loads. Method #2 used the Regional Watershed Spreadsheet Model (RWSM, Wu et al. 2017) to estimate runoff volumes and stormwater concentrations and calculate catchment-specific loads. Finally, HDS unit performance was evaluated for both catchment load estimates by calculating the average annual percent removal of PCBs and mercury due to the annual mass removal of solids from the HDS unit sumps. Results are presented in Table G-4.

For catchment loads calculated using Method #1 (land use-based yields), the median percent PCBs removal across all eight units ranged from 5% to 10%, while the mean ranged from 17% to 28%. For catchment loads calculated using Method #2 (RWSM runoff volume x concentration), the median percent PCBs removal ranged from 15% to 32%, while the mean ranged from 23% to 36%. Variability in removal rates was high between individual units, ranging from almost no removal to 100% removal of the estimated loads. For mercury, across all eight units, the median percent removal for catchment loads calculated using Method #1 (land use-based yields) ranged from 3% to 4%, while the mean ranged from 5% to 8%. For all units under Method #1, the removal rates were lower for mercury than for PCBs. For catchment loads calculated using Method #2 (RWSM runoff volume x concentration) the median removal ranged from 13% to 19%, while the mean ranged from 28% to 35%. Similar to PCBs, removal rates for mercury in individual HDS units were highly variable (Table G-4).

Table G-4: HDS Unit Performance - Annual Percent Removal Calculated for Two Catchment Load Estimates

HDS Unit ID	PCBs Removal Method #1 Low	PCBs Removal Method #1 High	PCBs Removal Method #2 Low	PCBs Removal Method #2 High	Mercury Removal Method #1 Low	Mercury Removal Method #1 High	Mercury Removal Method #2 Low	Mercury Removal Method #2 High
1	80%	100%	100%	100%	26%	40%	100%	100%
2	8%	18%	10%	22%	4%	6%	65%	98%
3	4%	9%	21%	45%	2%	3%	8%	12%
4	38%	83%	27%	59%	5%	7%	17%	26%
5	0.06%	0.13%	0.21%	0.46%	0.1%	0.2%	1.1%	1.6%
6	5%	11%	20%	43%	0.01%	0.02%	0.1%	0.2%
7	0.6%	1.4%	0.5%	1.1%	0.06%	0.09%	2%	3%
8	1.4%	3.1%	7%	16%	3%	4%	27%	41%
Median	**5%**	**10%**	**15%**	**32%**	**3%**	**4%**	**13%**	**19%**
Mean	**17%**	**28%**	**23%**	**36%**	**5%**	**8%**	**28%**	**35%**

The BASMAA study results were highly variable and limited by the small sample size. However, pollutant load reductions achieved by HDS units, on average, approach or even exceed 20%, the value identified as a conservative estimate of TSS removal by HDS units in the analysis presented previously. These results support the continued use of a 20% efficiency factor for calculating the annual average PCBs and mercury loads reduced by HDS units.

G.3 Gross Solids Removal Devices

Caltrans conducted the Gross Solids Removal Devices (GSRDs) Pilot Program to develop and evaluate the performance of non-proprietary, full trash capture devices that could be retrofitted into existing highway drainage systems or incorporated into new highway projects (Sobelman et al.). The GSRD Pilot Program consisted of multiple phases with each phase representing one pilot study. The pilot studies consisted of one or more devices that were developed from concept through design and installation, with two years of pilot testing of overall performance. Five phases were constructed and monitored covering eleven designs. Four general types of GSRDs were developed and studied: linear, inclined screen, baffle box, and v-screen. Of the many configurations tested, the most promising devices, based on considerations of particle capture, clogging, passing design flow, drainage, stage capacity and maintenance requirements, were the Linear Radial (louvered modular well casing), the Inclined Screen (parabolic wedgewire screen) and the Inclined Screen (sloped flat wedge-wire screen). The linear radial and inclined screen devices have been certified by the Los Angeles Regional Water Quality Control Board as being full capture devices. Standard designs were developed for these screen systems that provided the best solids removal performance in the pilot tests.

The results of the first phase of the pilot program, which tested the linear radial and inclined screen devices, are summarized in Table G-5 below.

Table G-5: GSRD Unit Performance Observed by Caltrans (2003)

Device Type	Gross Solids Capture Efficiency by Wet Weight (%) 2000 – 2001	Gross Solids Capture Efficiency by Wet Weight (%) 2001 – 2002
Linear Radial 1 (I-10)	100[1]	100
Linear Radial 2 (I-210)	97	87
Linear Radial 2 (I-5)	94	100
Inclined Screen 1 (SR-170)	100	100
Inclined Screen 2 (I-210)	83[2]	100
Inclined Screen 2 (US-101)	86[2]	73[2]
Average	**93%**	**93%**

Notes:

1 Material collected in the bypass bag was presumed to be windblown.

2 GSRD overflowed. Gross solids escaped the overflow structure and were unaccounted for. As a result, the calculated capture efficiencies are overstated.

Source: Caltrans, 2003.

Based on the above findings and assuming that the mass fraction of material associated with PCBs and mercury yields (i.e., sediment <63 µm) is approximately 15% on average of the captured debris (McKee et al., 2006), then the percent removal of PCBs and mercury by GSRDs is approximately 14% (93% gross solids removal x 15% of captured debris that is associated with PCBs and mercury).

G.4 Baffle Boxes

Baffle boxes are subsurface rectangular vaults that are placed inline in the stormwater system to reduce pollutant loadings by capturing sediments, gross solids, and associated pollutants. Treatment mechanisms typically include filtration, hydrodynamic separation, and adsorption. Several different types of baffle boxes are available commercially and have footprints that vary in size from approximately 10 square feet to over 200 square feet. These subsurface vaults are commonly subdivided into a series of chambers by vertical baffles that interrupt the stormwater flow and promote capture of suspended particles by sedimentation.

The treatment effectiveness of the Nutrient Separating Baffle Box ® (NSBB) by Suntree Technologies has been recently evaluated by the manufacturer to assess the suspended sediment removal efficiency under controlled conditions (Suntree Technologies, 2018). The NSBB contains an additional basket screen that is located above the top of the chamber baffles. The screen captures floating and suspended solids and holds them out of the water column during nonflow periods (Suntree Technologies, 2018). The performance evaluation was conducted on the NSBB model 3-6-72, which has an effective sedimentation area (i.e., footprint) of 18 square feet (6 feet by 3 feet). Additional details of this and other models can be found on the Suntree Technologies, Inc. website. Influent suspended sediment concentrations were measured at 200 mg/L with a median particle size of 100 µm; influent flow rates ranged from 0.35 to 1.75 cfs. Resulting annualized TSS removal efficiency ranged from approximately 51 to 68 percent, with

a weighted annualized TSS removal efficiency of 62.9%. The annualized TSS removal efficiency for different flow rates is shown in Table G-6 below.

Table G-6: Nutrient Separating Baffle Box (Model 3-6-72) TSS Removal Efficiency

Mean Flow Rate Tested (cfs)	Measured Removal Efficiency	Annual Weighting Factor	Weighted Removal Efficiency
0.35	67.9%	0.25	16.98%
0.70	65.8%	0.3	19.74%
1.05	63.1%	0.2	12.62%
1.40	56.4%	0.15	8.46%
1.75	50.6%	0.1	5.06%
Weighted Annualized TSS Removal Efficiency			**62.9%**

Source: Suntree Technologies, Inc., 2018

A similar baffle box, the Debris Separating Baffle Box, is sold by Bio Clean. It is assumed that the unit processes in the two proprietary baffle box devices are similar, thus the expected removal efficiencies would be the same.

Based on the above study and assuming that the mass fraction of material associated with PCBs and mercury yields (i.e., sediment <63 µm) is approximately 63% of the captured sediment, then the percent removal of PCBs and mercury by baffle boxes is approximately 40% (63% TSS removal with a median particle size of 100 µm x 63% of material that is associated with PCBs and mercury). Given the limited data available on the effectiveness of baffle boxes in reducing PCBs and mercury, however, and the similarity of the baffle box to the mechanistic removal processes used in HDS systems, a conservative estimate is being used for PCB and mercury reduction for baffle boxes. The pollutant removal efficiency that will be used for baffle boxes is 20%, the same as HDS systems.

G.5 References

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APPENDIX H
Load Reduction Credit for Controlling PCBs from Bridges and Overpasses

APPENDIX H. LOAD REDUCTION CREDIT FOR CONTROLLING PCBS FROM BRIDGES AND OVERPASSESPROGRAM

H.1 Background

The BASMAA study *Evaluation of PCBs in Caulk and Sealants in Public Roadway and Storm Drain Infrastructure* (BASMAA, 2018) sampled caulk and sealant materials from public roadway and storm drain infrastructure around the Bay Area. The overall approach to the sampling program was to work cooperatively with multiple Bay Area municipal agencies to identify public right-of-way locations where PCBs were potentially used in caulk or sealant applications on roadway and storm drain infrastructure. These locations were identified primarily based on the time period that the infrastructure was originally constructed and/or repaired, with a focus on the 1970's - the most recent time period PCBs were still in widespread use. The project team collected 54 caulk or sealant samples from public infrastructure in these locations; 11 of these were collected from concrete bridges or overpasses. The Project Team then reviewed the information collected about each sample to determine how to group the samples for compositing prior to PCBs analysis. A total of 20 composite samples were then analyzed for PCBs concentrations. Ten of these composites were associated with concrete roadways, sidewalks, or bridges.

H.2 Total Estimated PCBs Load in Older Bridges

The U.S. Department of Transportation Federal Highway Administration National Bridge Inventory (USDOT, 2019) was used to estimate the total potential PCBs load contained in older bridges located within the jurisdictions subject to the MRP.

H.2.1 Equations Used to Estimate PCBs Load

The equation used to estimate the total PCBs load contained in bridges built and/or reconstructed prior to 1981 within the jurisdictions subject to the MRP is as follows:

$$\text{Total Load}_{\text{PCBs, Bridges}} = \text{Density}_{\text{sealant}} * \text{Concentration}_{\text{PCBs}} * \sum \text{Volume}_{\text{sealant, bridges}}$$

Where:

$\text{Density}_{\text{sealant}}$ = average sealant density [kg/m^3]

$\text{Concentration}_{\text{PCBs}}$ = empirically derived concentration of PCBs [mg/kg]

$\sum \text{Volume}_{\text{sealant, bridges}}$ = Volume of sealant in all applicable bridges [m^3]

The volume of joint sealant was calculated using an assumed cross-section of sealant, multiplied by the assumed length of applied sealant:

$$\text{Volume}_{\text{sealant, bridges}} = \text{Cross-Section}_{\text{sealant}} * \text{Length}_{\text{sealant}}$$

Where:

$\text{Cross-Section}_{\text{sealant}}$ = Cross-section of applied sealant

$\text{Length}_{\text{sealant}}$ = Length of applied sealant

H.2.2 Data Used to Estimate Load

Data used to estimate load were obtained from BASMAA, 2018; a study of Bay Bridge sealant summarized by Hardeep Takhar of the California Department of Transportation (Caltrans) in 2013; and bridge dimensional information available from the National Bridge Inventory (USDOT, 2019). A summary of the data inputs is provided in Table H-1 below.

Table H-1: Bridge Load Calculation Data Inputs

Input	Result	Units	Source
Density of Sealant	1,100	kg/m^3	Takhar, 2013
Cross-Section of Sealant	1	square inch	Caltrans, 2007
PCBs Concentration	184	mg/kg	See Section 2.2.1

The derivation of the representative concentration of PCBs in sealant applied to bridges is described below.

H.2.2.1 PCBs Concentration

In order to compute a reasonable estimate of the expected PCBs concentration in caulking material in bridges in the MRP area, a data set consisting of 20 composite samples from BASMAA (2018) and four grab samples from the demolition of the Bay Bridge (Takhar, 2013) was analyzed.

Of the 20 BASMAA composite samples, 10 were identified as representative of caulking used on bridges based on the location from which the samples were taken (i.e., five of the composite samples were taken from bridges and five were from concrete roadway surfaces, sidewalks, and curbs and gutters). The remaining composite samples were judged to be non-representative, as they were taken from storm drain structures, asphalt roadways, metal pipes, and electrical utility poles and boxes. Table H-2 below summarizes the BASMAA study results for the concrete roadway, sidewalk, and bridge composite samples (BASMAA, 2018). Table H-3 summarizes the Bay Bridge caulk measurements (Takhar, 2013).

Table H-2: Sample Descriptions and PCBs Concentrations for Roadway and Bridge Composite Samples from the BASMAA Regional Infrastructure Caulk and Sealant Sampling Program (BASMAA, 2018)

Composite ID	Total PCBs (mg/kg)	Type of Structure(s) Sampled	Caulk/Sealant Application	Sample Appearance (Color/ Texture)	# of samples in composite	Sample ID's in composite	Structure Construction Date
A	4,967	Concrete Bridge	Caulk between expansion joints	Black Pliable Foam	2	10	1960-70's
A	4,967	Concrete Bridge	Caulk between expansion joints	Black Pliable Foam	2	13	<1960
B	4,150	Concrete Bridge	Caulk between expansion joints	Black Pliable	3	9 30 31	1960-70's 1960-70's <1960

Composite ID	Total PCBs (mg/kg)	Type of Structure(s) Sampled	Caulk/Sealant Application	Sample Appearance (Color/ Texture)	# of samples in composite	Sample ID's in composite	Structure Construction Date
C	0.78	Concrete Bridge	Caulk between expansion joints	Brown Fibrous	2	20 26	1960-70's 1960-70's
D	0.70	Concrete Bridge	Sealant between concrete surfaces or between concrete and wood surface	Black Hard/Brittle	3	27 29 32	<1960 1960-70's <1960
E	ND	Concrete Roadway Surface	Caulk between expansion joints	Black Hard/Brittle	5	35 36 37 38 39	<1980 <1980 <1980 <1980 <1980
F	ND	Concrete Sidewalk	Caulk between expansion joints	Black Hard/Brittle	3	2 7 46	<1960 <1960 <1980
G	ND	Concrete Sidewalk	Caulk between joints	Brown Fibrous	2	16 17	1960-70's 1960-70's
H	ND	Concrete Sidewalk /Curb/Gutter	Caulk between joints	White/Gray Hard/Brittle or Pliable	3	1 8 18	<1980 1960-70's 1960-70's
I	0.06	Concrete Sidewalk /Curb/Gutter	Crack Sealant	White Hard/Brittle or White Pliable	2	23 24	<1980 <1980
S	2.5	Concrete Bridge	Prefabricated joint filler	Black Pliable	1	12	<1960

A photo log of the samples taken from concrete bridges is provided in Attachment 1.

Table H-3: Concentrations of PCBs in Caulks Measured from the Bay Bridge

Description	Result (mg/kg)
PCBs Concentration (Bay Bridge Upper Roadway Sample)	1.01
PCBs Concentration (Bay Bridge Upper Roadway Sample)	1.65
PCBs Concentration (Bay Bridge Upper Roadway Sample)	0.705
PCBs Concentration (Bay Bridge Roadway Barrier Wall)	3.71
Bay Bridge Average Concentration	1.77

Source: Takhar, 2013

The complete dataset (i.e., results summarized in Table H-2 and Table H-3 and other non-representative samples) contains 10 non-detect (all in the BASMAA (2018) dataset) and 14

detected values. After removing the 10 data points considered unrepresentative of bridges, the representative dataset contains 4 non-detect and 10 detected values (i.e., Table H-2 and Table H-3 summarized values). For the purposes of this analysis, both the complete and the presumed representative subset of the PCBs-in-caulk datasets were analyzed independently.

The non-detect values were imputed using a regression-on-order statistics method prior to estimating summary statistics using a maximum likelihood estimation approach as described in the sections below.

H.2.2.2 Handling Censored (Non-Detect) Results

Since estimation of common descriptive statistics of censored datasets can be heavily biased with simply substituted values, a robust regression-on-order statistics (ROS) method, as described by Helsel and Cohn (1988), was utilized to provide probabilistic estimates of non-detects (NDs). When applying the ROS method, ND values are imputed based on their plotting positions relative to the probability distribution estimated from the detected data. Imputed values are always less than their detection limits, but if the dataset includes multiple detection limits, some imputed values may be larger than some of the detected values. For the PCBs-in-caulk dataset, method detection limits (MDLs) for individual samples were not reported, but an overall MDL of 0.05 µg/kg was included in the BASMAA report and NDs are only reported for samples when every individual congener was not detected.

Maximum Likelihood Estimation

The lognormal probability distribution is often used to represent positively skewed contaminant concentrations (Singh et al., 1997). As such, the PCBs-in-caulking dataset has been assumed to arise from a population that is lognormally distributed, which implies that the standard deviation is proportional to the mean and the data are bounded by zero. A random variable, x, is said to be lognormally distributed if the distribution of $y = \ln(x)$ is normally distributed with a mean, μ_y, and variance, σ_y^2. The mathematical equation for lognormal distribution is:

$$\boldsymbol{f_x(x) = \frac{1}{\sqrt{2\pi}\sigma x}\exp\left[-\frac{1}{2}\left(\frac{lnx-\mu}{\sigma}\right)^2\right]\ x > 0} \qquad \textbf{Equation 1}$$

Where:

- μ is mean of the untransformed random variable x,
- σ^2 is the variance of the untransformed random variable x, and
- x is the variable of interest.

The lognormal distribution parameters of x are related to the normal parameters of y with the following equations:

$$\boldsymbol{\mu_x = \exp\left(\mu_y + 0.5\sigma_y^2\right)} \qquad \textbf{Equation 2}$$

$$\boldsymbol{\sigma_x{}^2 = \mu\sqrt{\exp(\sigma_y^2) - 1}} \qquad \textbf{Equation 3}$$

When a dataset is a random sample from a lognormal distribution, the Maximum Likelihood Estimate (MLE) of the parameter, μ_y, is simply the sample mean of the log-transformed data (Singh et al., 1997). Similarly, the MLE of the parameter, σ_y^2, is the sample variance of the log-

transformed data. However, for small sample datasets with a few extreme values, such as the PCB-in-caulk dataset, severe transformation bias can occur when estimating the arithmetic mean, μ_x, and arithmetic standard deviation, σ_x. Because of this, an alternative method for computing the expected value is needed as described below.

Advancing the assumption that the sample data arise from a lognormal distribution, a probability weighted mean can be computed as:

$$\widehat{\boldsymbol{\mu}}_{\boldsymbol{x}} = \frac{\sum_{i=1}^{n}(x_i * w_i)}{\sum_{i=1}^{n} w_i} \qquad \textbf{Equation 4}$$

Where:

- $\hat{\mu}_x$ is probability-weighted mean of the untransformed random variable x;
- x_i is the ith sample value; and
- w_i is weight of the ith sample value, which is assumed equal to the probability of occurrence, $p(x_i)$, and can be computed by fitting the data to a lognormal probability density function (PDF).

The lognormal PDF can be constructed by computing the theoretical percentiles and plotting against the probability of a standard lognormal PDF. Any percentile, P_k, of x can be computed using the parameters of y as follows:

$$\boldsymbol{P_k = \exp(\mu_y + z_k \sigma_y)} \qquad \textbf{Equation 5}$$

Where:

- z_k is the kth percentiles of the standard normal distribution.

Results and Conclusions

As stated above, the available data was evaluated in two separate dataset configurations:

1. All data including the potentially unrepresentative values (*N = 24)*
2. Roadway and bridge-only data excluding the potentially unrepresentative values (*N = 14).*

In both configurations, lognormal distributions were fit to datasets where the non-detect values had been imputed with ROS. Figure H-1 below shows lognormal probability plots along with a best-fit line demonstrating the lognormality of the data.

Table H-4 provides summary statistics after applying ROS to the datasets. As shown, the data mean and data median are significantly different, which again supports the lognormal distribution assumption. The arithmetic mean values computed from Equation 2, however, are unrealistic considering the values are larger than any of the sample values – this is a result of transformation bias. The probability weighted mean values are believed to be the most accurate representation of the central tendency of PCBs in caulk for bridges in the MRP area based on the two datasets because this adjusts for the likely probability of occurrence of the extreme values observed in the data while preserving all sample data in the calculation.

Figure H-2 and Figure H-3 show the PDFs of the best-fit lognormal distributions. Each observed or imputed value drawn along the PDF is used to indicate the probabilities of occurrence, which were used to determine the weights for the probability weighted mean values.

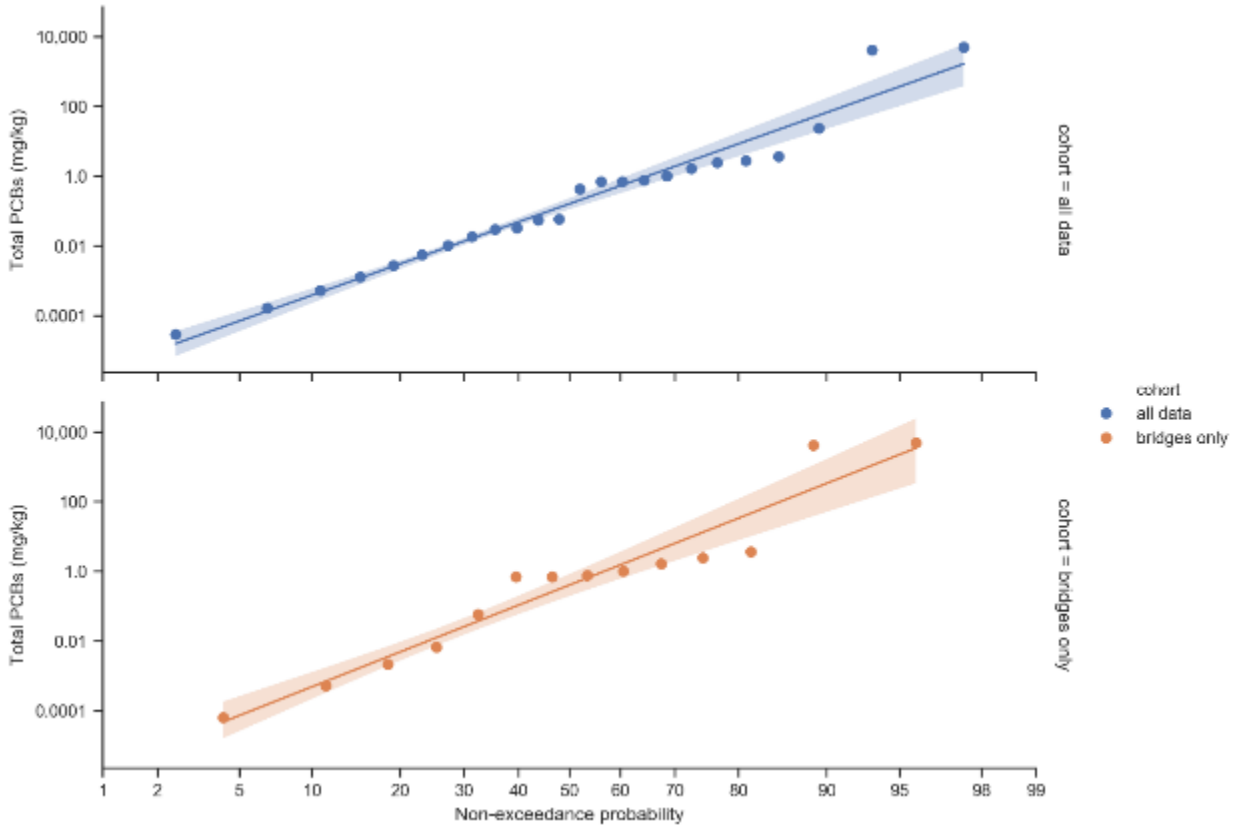

Figure H.1: Lognormal probability plots. The shaded bands indicate the 95% confidence interval around the best-fit lines.

Table H-4: Summary Statistics

Statistic	All Data	Roadway/Bridge Only
Sample Count (Total; NDs)	24; 10	14; 4
Data Mean, mg/kg	381	652
Data Standard Deviation, mg/kg	1292	1663
Data Median, mg/kg	0.25	0.74
Lognormal Mean (μy)	-1.82	-0.891
Lognormal Standard Deviation(σy)	4.57	5.02
Arithmetic Mean (μx), mg/kg	8,927	334,514
Probability Weighted Mean ($\hat{\mu}_x$), mg/kg	49.5	184

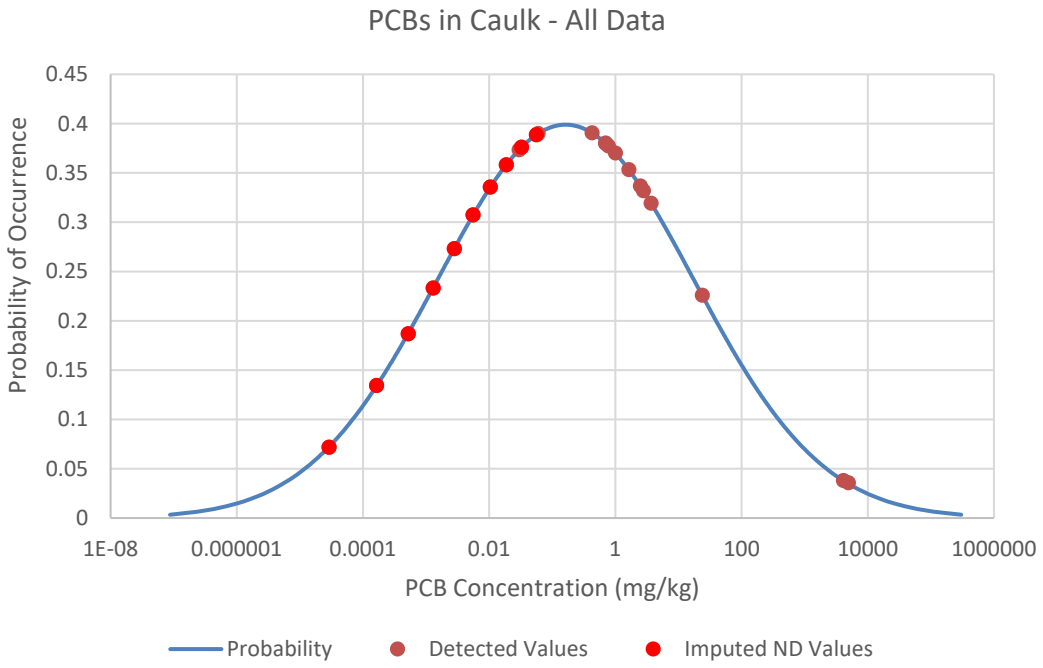

Figure H.2: Lognormal distribution plot for all available Total PCBs data, showing the weights of the detected and imputed values

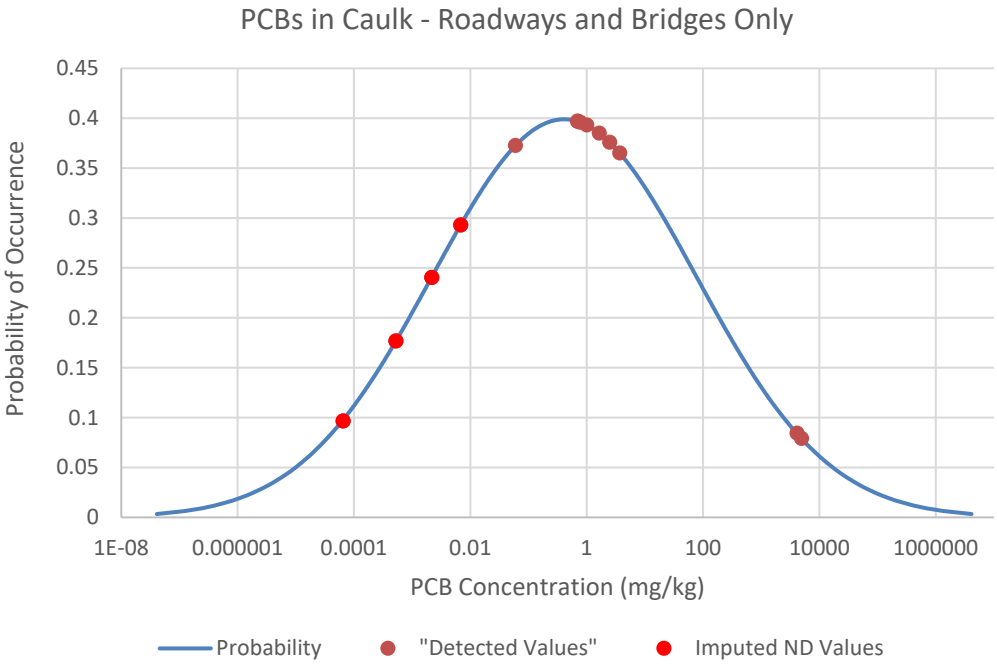

Figure H.3: Lognormal distribution plot for Total PCBs data from roadways and bridges only, showing the weights of the detected and imputed values

H.2.2.3 Length of Applied Sealant

While it is evident from the BASMAA (2018) study photos that sealant may be applied to many concrete connections within any given bridge, this estimate focuses on the locations most exposed to weather and traffic and therefore most likely to leach into the environment. The sealant application locations of focus in this study include the bridge expansion joints (e.g., at connections between bridge spans), and the longitudinal seam between the bridge deck and the sidewalk and/or bridge side rail.

The federal bridge database used for this analysis contains information about dimensions of bridges located within the MRP jurisdictions. The length of sealant used to calculate total potential PCBs mass was estimated using database values as follows:

$$\text{Length}_{\text{sealant, joints}} = (N_{span} + 1) * \text{Width}_{deck}$$

Where:

N_{span} = The number of bridge spans

Width_{deck} = Bridge deck width

Assuming there are seams along either side of the bridge at the sidewalk or wall, the longitudinal seam was calculated as:

$$\text{Length}_{\text{sealant, longitudinal seam}} = 2 * \text{Length}_{bridge}$$

H.2.3 Total Estimated PCBs Load in Bridges

A summary of the total calculated loads for bridges within the MRP coverage boundary, built and/or reconstructed prior to 1981, and specific bridge types[5], per the Nation Bridge Inventory, is provided in Table H-5.

Table H-5: Total Calculated Loads for Bridges within the MRP Area, Built and/or Reconstructed Prior to 1981

County	Total Sealant PCBs Mass - Joints Only (kg)	Total Sealant PCBs Mass - Joints and Longitudinal Seal (kg)	Number of Bridges
Alameda	3.8	11.2	340
Contra Costa	1.7	7.3	277
San Mateo	2.5	7.2	254
Santa Clara	3.7	10.1	473
Solano	0.9	3.2	133
Total	**12.6**	**39.0**	**1,477**

[5] 0 – Other; 01 – Slab; 02 – Stringer/Multi-beam or Girder; 03 – Girder and Floorbeam System; 04 – Tee Beam; 05 – Box Beam or Girders – Multiple; or 06 – Box Beam or Girders – Single or Spread.

The average mass of PCBs in MRP bridges with the characteristics described, based on the calculation, is approximately 8.5 grams, accounting for joint sealant only, and 26 grams, accounting for both joint and longitudinal sealant.

H.3 Long Term Load Reduction Estimate

H.3.1 Methodology

To estimate the load reduction associated with long-term bridge or expansion joint replacement, it is assumed that an ongoing PCBs release rate from bridge joints is mitigated through bridge joint maintenance and whole bridge replacement projects. The load reduction estimation is based on the assumption that PCBs in caulk are leaching from bridge joints and longitudinal seals over their lifetime. When that PCBs-containing caulk is replaced or removed through maintenance or replacement projects, the source of PCBs release is removed, and the associated annual released load is also removed. PCBs leaching from the material could occur through incremental wear or through larger damage (e.g., pieces of caulk torn out) over the lifetime of the caulk.

While volumetric or mass-based losses of joint seals over time were not found in literature, publications that describe joint maintenance and failure were reviewed to justify the assumption of leaching over time. Compression and strip seal type joints, which could potentially be expected to consist of PCBs-containing material, have an expected lifetime of 8 to 16 years, according to a survey conducted for an NCHRP study on bridge joints (NCHRP, 2016). Despite this recommended lifetime, an extrapolated rate of joint replacement in the Bay Area demonstrates that joints are being replaced at a much lower frequency. According to three Permittee preventative maintenance plans available on Caltrans' Highway Bridge Program funding website (Caltrans, 2019), approximately 3% of bridges meeting the characteristics described above are scheduled for joint replacement over the next five-year funding period. An additional 1.5% of bridges are scheduled for replacement over the same five-year period (presumptively replacing the joints). At this rate, replacing the joints via joint maintenance or bridge replacement projects in all 1,477 bridges would take over 110 years.

The concept that older, likely PCBs-containing joints persist in the older MRP bridges is borne out through the findings of the BASMAA (2018) study, which found very high PCBs concentrations in composite samples from a random selection of representative bridge infrastructure. This outcome is also consistent with a finding from a 2003 NCHRP report (NCHRP, 2003), which found through interviews with transportation agencies that "agencies indicated that they tend not to respond to joint problems unless there is a safety hazard or when the deck is being rehabilitated or replaced. Other than reactive efforts, joint repair and rehabilitation, in most agencies, is associated with deck rehabilitation." Additionally, while guidance documents typically define joint replacement needs in terms of visual degradation of the joint, along with other factors, the NCHRP study stated that agencies often defined failure of a deck joint as leakage, physical damage, or traffic hazard. These conditions could be taken to interpret that agencies are only replacing severely damaged or degraded joints (NCHRP, 2003).

Older joints could be considered more likely to leach into the environment, as the sealant material accumulates damage over time. Typical types of joint seal damage described by the Wyoming Department of Transportation, Aeronautics Division Airport Pavement Management

Program (2020) include: (1) stripping of joint sealant, (2) extrusion of joint sealant, (3) weed growth, (4) hardening of the filler (oxidation), (5) loss of bond to the slab edges, and (6) lack or absence of sealant in the joint. These damage types are also consistent with those described in NCHRP (2016). Most of these damage types either directly refer to stripping of the sealant from the joint or create a condition in which the sealant is more likely to be released from the joint when subjected to traffic loads (i.e., conditions such as extrusion, hardening/becoming more brittle, loss of bond). Examples of damaged joint seals from this source are provided in Attachment 2.

H.3.2 Load Reduction Calculation

Lacking a literature-based release rate of sealant over time, two potential annual release rates are provided for the load reduction calculation. Based on the assumption that the joint seal may become degraded over time, it is possible that the sealant releases little during the initial operation period and more as the joint sealant ages. Another possible release pathway is through leaching into surrounding concrete and subsequent degradation of the concrete. Two potential average annual release rates (i.e., average over the life of the seal) were assumed to calculate an estimated load reduction from removing the joint seal – 1% and 0.5%. These average annual release rates were applied to the estimated mass for the 1,477 bridges meeting the identified age criteria (Table H-6). These releases would be eliminated through removal of the joint seal through joint replacement or bridge replacement.

Table H-6: Long-Term Load Reduction (i.e., Replacement of PCBs-Containing Joints in All Older Bridges)

County	Total Sealant PCBs Load Reduced - Joints Only (g/year)	Total Sealant PCBs Load Reduced - Joints Only (g/year)	Total Sealant PCBs Load Reduced - Joints and Longitudinal Seal (g/year)	Total Sealant PCBs Load Reduced - Joints and Longitudinal Seal (g/year)
	1% annual loss rate over life	0.5% annual loss rate over life	1% annual loss rate over life	0.5% annual loss rate over life
Alameda	38	19	112	56
Contra Costa	17	8	73	37
San Mateo	25	12	72	36
Santa Clara	37	19	101	50
Solano	9	5	32	16
Total	126	63	390	195

This is the assumed load reduction by 2080, based on the assumption that all older joints will be removed/replaced within 100 years of installation (this is consistent with recent Caltrans replacement frequency calculated above).

H.4 References

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Attachment 1: BASMAA Bridge Sample Photos

Composite A

Composite B

Composite S

Composite C

Composite D

Attachment 2: Images of Joint Seal Damage

Joint sealant damage is any condition that enables soil or rocks to accumulate in the joints or allows significant infiltration of water. Accumulation of incompressible materials prevents the slabs from expanding and may result in buckling, shattering, or spalling. A pliable joint filler bonded to the edges of the slabs protects the joints from accumulation of materials and also prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are: (1) stripping of joint sealant, (2) extrusion of joint sealant, (3) weed growth, (4) hardening of the filler (oxidation), (5) loss of bond to the slab edges, and (6) lack of absence of sealant in the joint..

Source: Wyoming Department of Transportation, Aeronautics Division Airport Pavement Management Program

Severity	Distress Example	Description
Low		Joint sealer is in generally good condition throughout the sample. Joint seal damage is at low severity if a few of the joints have sealer which has debonded from but is still in contact with the joint edge. This condition exists if a knife blade can be inserted between sealer and joint face without resistance.
Medium		Sealant needs replacement within two years. Joint seal damage is at medium severity if a few of the joints have any of the following conditions: (a) joint sealer is in place, but water access is possible through visible openings no more than 1/8 in (3 mm) wide. If a knife blade cannot be inserted easily between sealer and joint face, this condition does not exist; (b) pumping debris are evident at the joint; (c) joint sealer is oxidized and "lifeless" but pliable (like a rope), and generally fills the joint openings; or (d) vegetation in the joint is obvious, but does not obscure the joint opening.

Severity	Distress Example	Description
High		Joint sealer is in generally poor condition over the entire surveyed sample. Sealant needs immediate replacement. Joint seal damage is at high severity if 10% or more of the joint sealer exceeds limiting criteria listed above, or if 10% or more of sealer is missing.

Appendix G

Asset Management

Asset Management Work Group Online Training Attendance Report

Climate Change Adaptation Report

ACCWP Introduction to Asset Management and Condition Assessment Training
March 10, 2026
Attendance List

	First Name	Last Name	Agency/Organization
1	Paige	Pearson	ACPWA
2	James	Barse	City of Alameda
3	Echo	Lee	City of Alameda
4	David	Lam	City of Albany
5	Uranchimeg	Altankhuyag	City of Berkeley
6	Giovanni	Ortiz	City of Berkeley
7	Mary	Skramstad	City of Berkeley
8	Shannan	Young	City of Dublin
9	Martin	Bailey	City of Fremont
10	Daniel	Matlock	City of Fremont
11	Kenneth	Shih	City of Fremont
12	Michelle	Sim	City of Fremont
13	Jennifer	Rieben	City of Livermore
14	Michael	Wells	City of Livermore
15	Maria	Javier-Rosales	City of Newark
16	Michael	Perlmutter	City of Oakland
17	Rita	Di Candia	City of Pleasanton
18	Bryan	Toledo	City of Pleasanton
19	Chloe	Celniker	LWA
20	Zaida	Cholico	LWA
21	Sandy	Mathews	LWA
22	Elizabeth	Yin	LWA
23	Michael	Liquori	NCE

BAY AREA MUNICIPAL STORMWATER (BAMS) COLLABORATIVE

Climate Change Adaptation Report for the San Francisco Bay Region

Submitted in compliance with the San Francisco Bay Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit, Order No. R2-2022-0018, Provision C.21.b.v.

Prepared on behalf of:

Alameda Countywide Clean Water Program

Contra Costa Clean Water Program

San Mateo Countywide Water Pollution Prevention Program

Santa Clara Valley Urban Runoff Pollution Prevention Program

Solano Stormwater Alliance

FINAL: August 27, 2026

CONTENTS

Executive Summary iv

1 Introduction 1

1.1 Background 1

1.2 Purpose 2

1.3 Approach 2

2 Asset Management Plans and Asset Inventory 4

2.1 Asset Management Plans 4

2.2 Asset Types and Considerations 5

2.3 Linkage Between Asset Management Programs and Climate Impacts on Assets 5

3 Bay Area Climate Threat Assessment 8

3.1 Bay Area Climate Projections for the Next 50 Years 8

3.1.1 Sea Level Rise and Coastal Flooding 9

3.1.2 Extreme Heat, Precipitation, and Wildfire 11

3.1.3 Climate Projection Scenario Guidance 13

3.2 Existing, New, and Increasing Climate-Related Threats to Bay Area Assets 13

3.2.1 Sea Level Rise and Coastal Flooding 14

3.2.2 Groundwater Rise, Saltwater Intrusion, and Tidal Exacerbation 14

3.2.3 Extreme Precipitation, Inland Flooding, and Erosion 14

3.2.4 Urban Heat, Drought, and Energy Outages 15

3.2.5 Wildfire 15

3.3 Potential Hazards to Assets Due to Changes in Climate 15

3.3.1 Scale of Hazards 15

3.3.2 Asset Impacts 16

3.3.3 Community and Equity Considerations 17

4 Geospatial Vulnerability of Assets 19

4.1 Existing Permittee Assets 19

4.2 New Assets 20

5 Adaptation Strategies 22

5.1 Policy and Planning Strategies 22

5.1.1 Benefits of GSI for Climate Resilience 22

5.1.2 Integrating GSI and Climate Policies and Programs 23
5.1.3 GSI and Equity (with respect to climate impacts) 23
5.1.4 Working with the Public and Other Local Organizations 24
5.1.5 GSI Siting – New and Existing GSI Asset Policies 24
5.1.6 GSI Scope and Scale 25
5.1.7 Examples of Climate Action and Resiliency Plans 25
5.2 Engineering and Landscaping Design Strategies 28
5.2.1 CRRG GSI Design and Construction Adaptation Strategies 28
5.2.2 Bay Area Precipitation Record Updates 28
5.2.3 CCAR GSI Design and Construction Adaptation Strategies 29
5.3 Operation and Maintenance Strategies 41
5.3.1 Landscape Maintenance Strategies 41
5.4 Implementation and Adaptive Management 46
5.4.1 Adaptation Strategies for Existing Assets 46
5.4.2 Adaptation Strategies for New Assets 46
5.4.3 Bay Area Stakeholder Involvement with Adaptation Strategies 46
6 Summary and Recommendations 48
7 References 51
Appendices 52

LIST OF FIGURES

Figure 3-1. Four types of coastal flood hazards 9
Figure 3-2. Extent of coastal flood hazards under four climate scenarios 10
Figure 5-1. The Climate/Energy Feedback Loop 27
Figure 5-2. Uncomposted Wood Mulch 34
Figure 5-3. Composted Wood Mulch 34
Figure 5-4. Poorly pruned rushes 42
Figure 5-5. Rushes with recommended minimal pruning 42
Figure 5-6. Simple vegetation layout, at planting stage 43
Figure 5-7. Simple planting design, at maturity 43
Figure 5-8. Bioretention sod at installation 43
Figure 5-9. Bioretention sod after a few months of growth 43
Figure 5-10. CRRG O&M Recommendations 45

LIST OF TABLES

Table EX-1. Summary of CCAR Potential Asset Adaptation Strategies v
Table 2-1. Asset Control Types, Categories, and Classes 6
Table 2-2. Asset Control Types, Categories, and Related Climate Change Impacts 7
Table 3-1. Climate Scenarios 9
Table 3-2. Summary of Climate-Related Threats and Associated Asset Vulnerabilities 16
Table 5-1. Summary of CRRG Design and Construction Adaptation Strategies 28
Table 6-1. Summary of CCAR Potential Asset Adaptation Strategies 48

ACRONYMS

ACCWP: Alameda Countywide Clean Water Program

ART: Adapting to Rising Tides

AMP: Asset Management Plan

BAAD: Bay Area Air District

BAMS Collaborative: Bay Area Municipal Stormwater Collaborative

BASMAA: Bay Area Stormwater Management Agencies Association

BCDC: Bay Conservation and Development Commission

BMP: best management practice

BSM: biotreatment soil media

CAP/CARP/CAAP: climate action/adaptation/resilience plan

CASQA: California Stormwater Quality Association

CBOs: community-based organizations

C/CAG: City/County Association of Governments of San Mateo County

CCAR: Climate Change Adaptation Report

CCCWP: Contra Costa Clean Water Program

CoF: consequence of failure

CoSMoS: Coastal Storm Modeling System

CRC: Climate Resilient Communities

CRRG: Climate Resilience Resources Guide

GCM: global climate model

GILE: Green Infrastructure Leadership Exchange

GSI: green stormwater infrastructure

IDF: intensity-duration-frequency

LID: low impact development

LoF: likelihood of failure

MRP: Municipal Regional Stormwater Permit

MS4: municipal separate storm sewer system

MWELO: Model Water Efficient Landscape Ordinance

NOAA: National Oceanic Atmospheric Administration

NPDES: National Pollutant Discharge Elimination System

O&M: operation and maintenance

OPC: Ocean Protection Council

RCP: representative concentration pathway

RSAP: Regional Shoreline Adaptation Plan

SCVURPPP: Santa Clara Valley Urban Runoff Pollution Prevention Program

SLR: sea level rise

SMCWPPP: San Mateo Countywide Water Pollution Prevention Program

SSA: Solano Stormwater Alliance

USGCRP: United States Global Change Research Program

WHC: water holding capacity

WUI: wildland urban interface

GLOSSARY

Asset management: Ongoing and long-term management of stormwater systems to ensure that there is sufficient investment for maintenance, repair, replacement, and upgrades of the components to maintain the system's service life and minimize potential for damage or failures.

Bay Area Municipal Stormwater Collaborative (BAMS Collaborative): An association of Bay Area stormwater permittees that share information and resources to assist stormwater permit compliance.

Bioretention: A type of LID/GSI measure designed to retain stormwater runoff, filter stormwater runoff through biotreatment soil media and plant roots, and either infiltrate stormwater runoff to underlying soils, as allowed by site conditions, or release treated stormwater runoff to the storm drain system, or both.

Biotreatment Soil Media (BSM): An engineered media for treating stormwater runoff that meets the specification developed by BASMAA and approved by the Water Board in 2016, per the requirements in MRP Provision C.3, and consists of specific types and amounts of sand and compost.

Climate change: Long-term shifts in average weather patterns at local, regional, or global scales. Climate change effects can result in warming, droughts and water scarcity, fires, rising sea levels, flooding, catastrophic storms, and declining biodiversity.

Climate change vulnerability: The degree to which a system is susceptible to, or unable to function with, adverse effects of climate change, including climate variability and extremes.

Cloudburst: Events in which an extreme amount of precipitation falls in a short period of time, which can create flood conditions.

Coastal flood: Covering or accumulation of water over normally dry coastal land as a result of high or rising tides or storm surges.

Community-based organizations (CBOs): Public or private nonprofit organizations aimed at making desired improvements to a community's social health, well-being, and overall functioning.

Underserved Populations/Communities: Groups that have limited or no access to resources or that are otherwise disenfranchised. These areas often suffer more from a variety of economic, health, and environmental burdens which may be related, such as poverty, unemployment, air and water pollution, presence of hazardous wastes, poor infrastructure, and short-term or chronic health issues.

Drawdown: A process wherein a stormwater treatment facility drains and returns to the dry weather condition.

Erosion: The wearing away and transport of the land surface by natural forces such as wind or water.

Evapotranspiration: The sum of processes by which water moves from the land surface to the atmosphere via evaporation and transpiration.

Extreme heat: Rising long-term average temperatures and increased heat waves, which are periods of excessive heat, often combined with excessive humidity.

Filtration: Process in which suspended solids or other substances are removed from water, such as stormwater runoff, using one or more types of filter media.

Fire weather: Weather conditions conducive to triggering and sustaining wildfires, usually based on a set of indicators and combinations of indicators including temperature, soil moisture, humidity, and wind.

Flow-through Planter: A type of LID/GSI measure designed to treat stormwater by intercepting runoff from a roof or other impervious surface and slowly draining it through biotreatment soil media into an underdrain.

Green stormwater infrastructure (GSI): Stormwater and rainwater infrastructure that uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, GSI refers to the patchwork of natural and landscaped areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood, street, or site, GSI refers to stormwater management systems that mimic nature by soaking up, storing, and/or improving the quality of water.

Green streets: A holistic stormwater management approach that incorporates vegetation, soil, and engineered systems (e.g., permeable pavements) to slow, filter, and cleanse stormwater runoff across entire, or segments of, streets.

Grey infrastructure: Conventional stormwater infrastructure in the built environment which utilizes concrete or other impervious structures for stormwater management such as gutters, channels, and pipes.

Groundwater recharge: Natural or artificial replenishment of groundwater supplies through infiltration or injection of water, typically captured stormwater.

Heavy precipitation with pluvial flood: Overflowing or accumulation of water over areas that are not normally submerged and often caused by unusually heavy rain. Pluvial floods are rain floods versus river (fluvial) floods.

Hydrologic benefits: Refers to GSI benefits related to stormwater volume and flow, such as reducing peak flow, minimizing local flooding, infiltration for groundwater recharge, and direct or indirect reuse.

Hydrological drought: A period with large runoff and water deficits in rivers, lakes, and reservoirs.

Imperviousness: Surfaces such as roads, sidewalks, rooftops, and parking lots that prevent or significantly inhibit rainfall from infiltrating into native soils and groundwater.

Infiltration: Flow of water into and through subsurface soils, where it may reach underlying groundwater.

Localized flooding: Smaller-scale ponding or flooding that occurs in low-lying areas after a rain event and caused by localized drainage problems within the watershed.

Low Impact Development: A land planning and engineering design approach with a goal of reducing stormwater runoff and mimicking a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source, or onsite.

Municipal Regional Stormwater Permit (MRP): The regional stormwater permit issued by the San Francisco Bay Regional Water Quality Control Board to 103 permittees, including municipalities and other agencies.

Municipal separate storm sewer (MS4s): A system of conveyances owned or operated by a public body, which are designed or used for collecting or conveying stormwater and discharging to surface waters.

National Pollutant Discharge Elimination System (NPDES) permit: An authorization, license, or equivalent control document issued by EPA or a U.S. state agency to implement the requirements of the NPDES program, under the CWA. The NPDES program was established to regulate municipal sanitary sewer and industrial discharges and was expanded in 1987 to incorporate stormwater.

Nature-based solutions: Actions to protect, sustainably manage, or restore natural ecosystems, or mimic natural processes, that address societal challenges such as climate change, human health, food and water security, and disaster risk reduction effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. Examples include large open natural spaces, riparian areas, wetlands, living shorelines, and greening of steep hillsides, all of which provide hydrology and water quality benefits.

Non-potable uses: Water used for non-drinking purposes, such as toilet flushing, clothes washing, and irrigation.

One Water: One Water is an approach that views and manages all water—whether from the tap, a stream, a storm, an aquifer, or a sewer—in a collaborative, integrated, inclusive, and holistic manner that centers around core principles of water equity, water affordability and water access. The One Water approach is important in managing finite water resources for long-term resilience and reliability to meet both community and ecosystem needs.

Operations and maintenance (O&M): Regular performance of activities required to inspect and implement preventative and corrective of facilities (i.e., GSI measures) in perpetuity.

Pervious pavement: A porous urban surface composed of pavers, concrete, or asphalt with an underlying stone reservoir which catches precipitation and surface runoff and allows it to infiltrate into the native soil .

Regional project: Larger-scale GSI measures that capture and manage runoff from a large drainage area upstream of the project.

Resilience: The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.

Retention: The capture and long-term storage of stormwater, where it will either eventually infiltrate to subsurface soils and groundwater or evaporate.

River flood: Overflowing or accumulation of water over areas that are not normally submerged and often caused by unusually heavy rain. Fluvial floods are river floods versus rain (pluvial) floods.

Stormwater capture and use: Refers to systems, such as cisterns or rain barrels, designed to capture, retain, and treat stormwater for direct beneficial use at the point of capture, such as irrigation.

Treatment media: Different types of media, such as sand or carbon, that are used to treat stormwater runoff by filtering out pollutants.

Urban heat island: Urbanized areas that experience higher temperatures than surrounding and outlying areas due to the greater retention and reflection of heat by structures and impervious surfaces, as compared to areas with more vegetation and soil.

Watershed: An area of land that drains rainfall and runoff into a specific waterbody, which can vary greatly in size. Some watersheds encompass many smaller subwatersheds.

EXECUTIVE SUMMARY

The Bay Area Municipal Stormwater (BAMS) Collaborative, an association of Bay Area stormwater management agencies, developed this Climate Change Adaptation Report (CCAR) to jointly satisfy a requirement of the Municipal Regional Stormwater Permit (MRP) issued by the San Francisco Bay Regional Water Quality Control Board (Water Board) in 2022. Provision C.21.b.v of the MRP requires Permittees to identify potential climate change-related threats to stormwater assets, assess potential impacts that may occur over the next 50 years, and identify approaches to address those potential impacts. The CCAR includes projected impacts and descriptions of stormwater management adaptation strategies, policies, and programs to assist Permittees address the coming changes.

Climate change is affecting stormwater management programs in Northern California and worldwide. How Bay Area Permittees respond to impacts on stormwater quality-related assets from climate change over the remainder of this century remains to be seen, and flexible strategies will be needed to address potentially costly impacts if current climate projections are realized. However, Permittees can improve climate resiliency with thoughtful planning, foresight and creativity. Applying integrated, adaptive approaches when integrating green stormwater infrastructure (GSI) into land development and transportation projects can lessen future impacts to Permittees' hard assets. Given the anticipated high costs municipalities may incur in adapting to rising tides and other impacts, prioritizing cost-effective approaches with the greatest benefits will be crucial.

The CCAR is intended to provide a menu of potential adaptation approaches for Permittee consideration and future evaluation, rather than establishing regional recommendations, expectations, or new standards for design, operation, maintenance, or asset management. Given the significant costs that may be associated with climate adaptation, Permittees need flexibility to evaluate the appropriateness, feasibility, effectiveness, and cost implications of specific adaptation measures based on local priorities, available resources, asset conditions, and future regulatory direction.

The CCAR builds on the Climate Resilience Resources Guide (CRRG) developed by the Green Infrastructure Leadership Exchange (GILE) and the San Mateo Countywide Water Pollution Prevention Program (GILE, 2023). While various types of stormwater assets will be affected by climate change and are considered in the CCAR, the report focuses on GSI assets, continuing the CRRG's focus on that infrastructure category. However, vulnerability of all assets, including GSI, non-low impact development (LID) controls, and trash controls, is addressed.

The CRRG provides strategy recommendations to improve GSI climate resilience in four practice categories: policies, planning, design, and operations and maintenance. It also identifies four categories of climate-related vulnerabilities that apply to GSI: human health and vulnerable populations, biodiversity, urban heat island, and water scarcity/stress. The CRRG lists recommendations to assist permittees with design, construction, and maintenance adaptation strategies for GSI measures related to those vulnerabilities and climate impact drivers.

While the CRRG was national in scope, the CCAR takes a Bay Area-specific approach to those topics, with customized adaptation strategies for the region. Following an introduction and linkage to Bay Area Permittees' Asset Management Plans, the CCAR describes Bay Area climate

projections over the next 50 years and anticipated climate threats and potential hazards to Bay Area stormwater quality assets. These sections are followed by potential adaptation strategies in the areas of policy and planning, engineering and landscape design, and operation and maintenance. Finally, the CCAR presents a summary of the potential strategies and recommendations for next steps at the Permittee, countywide, and regional levels.

The feasibility and applicability of each potential adaptation strategy identified in the CCAR can be evaluated by individual Permittees and Countywide Stormwater Programs as opportunities arise and as resources allow. The potential strategies are summarized in Table EX-1 with more specific information in Sections 2, 3, 4 and 5.

Table EX-1. Summary of CCAR Potential Asset Adaptation Strategies

Issue	Potential CCAR Adaptation Strategies
1. GSI-related Planning	• Coordinate GSI planning with other municipal plans including climate adaptation, action and resilience plans; general plan updates; urban forestry; and other plans related to sustainability, transportation, public works, and community outreach. • Consider watershed and "One Water" approaches, where appropriate, to coordinate implementation of projects that improve the resilience, maintenance, or long-term performance of stormwater quality-related assets. • Participate in and utilize countywide, regional, and state-wide planning efforts, as appropriate, to increase effectiveness.
2. GSI-related Policies	• Integrate GSI into other appropriate and related policies. • Consider GSI siting priorities related to addressing equity and climate impacts on historically disadvantaged and/or affected neighborhoods as appropriate. • Work together with CBOs and other organizations to get buy-in from residents and businesses related to GSI approaches and projects.
3. Asset Vulnerability and Siting (all asset types)	• Review asset locations in comparison to regional maps that show where sea level rise and other climate-related hazards are projected to impact existing and future assets. • Consider design, maintenance, and/or relocation strategies to address impacts.
4. Sizing Guidance (all asset types)	• Update rainfall records to include the most current data and incorporate the data into revised tools and guidance for stormwater quality asset sizing criteria as appropriate.
5. GSI Design and Construction	• Review guidance documents, standard/typical stormwater control measure/GSI details and specifications for updates to improve resilience and prepare for climate impacts. • Collaborate regionally on revisions to the BSM specification. • Consider changes to plant palettes, irrigation systems, mulch details, infiltration designs, inlet/outlet structures, underdrains, tree-based GSI, rainwater harvesting systems, pervious pavement reflectivity, urban soils, etc., to address potential climate impacts. • Integrate feedback from maintenance practices and experience into designs and construction.
6. GSI Operation and Maintenance	• Consider options for hard stormwater asset and vegetation maintenance practices that provide cost-effective adaptation strategies • Create conditions for more resilient landscapes (e.g., healthy plants and diverse habitats with native plants, animals and pollinators) • Train professionals and create green jobs with GSI maintenance education to improve the performance of GSI systems.

1 INTRODUCTION

The Climate Change Adaptation Report (CCAR) was developed in compliance with Provision C.21.b.v of the Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit (MRP) adopted by the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) as Order No. R2-2022-0018 in 2022. The MRP regulates stormwater discharges from municipal separate storm sewer systems (MS4s) owned and/or operated by 79 cities, counties, and other public agencies (i.e., Phase I Permittees) in the San Francisco Bay Area. This report was cooperatively developed for these Permittees through the Bay Area Municipal Stormwater (BAMS) Collaborative.[1]

1.1 BACKGROUND

Provision C.21 of the current MRP (known as MRP 3) requires that each Permittee develop and implement an Asset Management Plan that includes an asset inventory, condition assessment, and actions to address the maintenance of stormwater quality-related hard assets constructed during MRP 3 and previous permit terms pursuant to relevant MRP Provisions (e.g., C.2, C.3, C.10). The effects of climate change are expected over time to potentially influence the condition, performance and maintenance of existing assets as well as the design and construction of future assets. Therefore, it is prudent for Permittees to assess the range and scale of potential climate-related impacts on stormwater control measures in the Bay Area and to evaluate how these impacts may affect current and future infrastructure planning/policy, design, maintenance, and rehabilitation/replacement best practices to ensure effective climate adaptation and resilience of public infrastructure.

MRP Provision C.21.b.v requires Permittees to:

"Complete a Climate Change Adaptation Report to identify potential climate change-related threats to assets and appropriate adaptation strategies. The report shall assess existing, new, and increasing threats from climate change to the condition of Permittees' inventoried hard assets over the next 50 years and identify approaches that Permittees may implement to address those threats, such as the modification of design standards and countywide technical guidance documents."

The CCAR is required to be submitted to the Regional Water Quality Control Board with the Permittees' 2026 Annual Reports. The CCAR was prepared as part of a BAMS Collaborative Project of Regional Benefit on behalf of all MRP Permittees. The preparation of the CCAR was overseen by the BAMS Collaborative CCAR Work Group with representatives from the Alameda Countywide Clean Water Program (ACCWP), Contra Costa Clean Water Program (CCCWP), San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), and Solano Stormwater Alliance (SSA), and their member agencies.

[1] The BAMS Collaborative was organized in 2021 by the Board of Directors for the Bay Area Stormwater Management Agencies Association (BASMAA) to continue the information sharing and permittee advocacy functions of BASMAA in an informal manner after BASMAA's dissolution. The BAMS Collaborative continues BASMAA's mission to encourage information sharing and cooperation, and to develop products and programs that are required and/or more cost-effectively completed regionally than locally.

1.2 PURPOSE

The CCAR's purpose is to:

- Assess and evaluate the range of Bay Area-specific threats (including types and scales) from climate change to the condition, performance, and maintenance of Permittees' inventoried hard assets (as defined in MRP 3) over the next 50 years;
- Identify and recommend Bay Area-specific, stormwater-related strategies to adapt to expected changes and increase climate resilience, such as the modification of planning approaches, policies, design standards, and design and maintenance guidance and procedures.

1.3 APPROACH

The CCAR will serve as a regional framework with guidance for Permittees in adapting assets to address climate-related risks and offering direction that can be incorporated into countywide Provision C.3 guidance manuals and asset management plans, as appropriate. The CCAR was developed at a regional scale but includes strategies that may be implemented at the countywide and/or local levels.

The MRP requires that the CCAR assess threats from climate change to the condition of Permittees' inventoried hard assets, which generally fall into one of three types of stormwater quality controls: Low Impact Development (LID)/Green Stormwater Infrastructure (GSI); non-LID controls (such as high flow rate media systems); and trash controls. Section 2 describes the categories and classes of assets within these control types and the associated types of threats. While climate change-related storm intensity and sea level rise will potentially impact most types of stormwater quality-related hard assets (with the severity depending on location), a broader range of climate change effects including urban heat, drought, biodiversity loss, and saltwater intrusion will impact vegetated systems, primarily the LID/GSI types. For this reason, the majority of the CCAR analyses and strategies focus on LID/GSI systems.[2]

The CCAR builds upon research conducted by other public agencies around the country and the world related to climate adaptation strategies for GSI. That work has been compiled by the Green Infrastructure Leadership Exchange (GILE), Geosyntec Consultants, and SMCWPPP in the Climate Resilience Resources Guide (CRRG 2023), which outlines GSI planning, design, and O&M considerations to address climate resilience.

Other key resources for the CCAR included:

- The San Mateo County City/County Association of Governments (C/CAG) OneWatershed Climate Resilience Framework Project, an equitable climate adaptation approach focused on integrated watershed management;
- The San Mateo County Flood and Sea Level Rise Resiliency District ("OneShoreline") guidance on public infrastructure resilience planning and design standards;
- Climate scenarios presented in the San Francisco Bay Conservation and Development Commission (BCDC) Regional Shoreline Adaptation Plan;

[2] The geospatial vulnerability of all asset control types is discussed in Section 4.

- Cal-Adapt online climate data tools;
- Resilient and regenerative landscaping guidance; and
- Local Climate Action Plans, Urban Forestry plans, and GSI Plans as applicable.

MRP Permittees have implemented LID programs and measures on parcel-based projects since 2003 using guidance such as BASMAA's "Start at the Source" guide[3] and subsequently developed technical guidance for the design and implementation of LID in public and private development and redevelopment projects. LID measures have improved urban resilience to climate change by reducing reliance on gray infrastructure[4] and helping to restore natural hydrologic processes. As Permittee programs have expanded with GSI planning and implementation, these benefits have increased. Using GSI Plans, municipal Permittees had identified locations for GSI implementation and strategies for improvement. Permittees have also worked to increase the public's awareness of GSI and how GSI benefits communities, as described in their GSI Plans and annual reports.

As required by MRP Provision C.21.b.v, the CCAR describes the adaptation strategies that are currently being implemented or may be implemented by Permittees in the future to address the impacts of climate change on water quality assets and, specifically, GSI. These strategies are detailed in Section 5.

[3] More information can be found at: https://basmaa.org/wp-content/uploads/2021/04/basmaa_start-at-the-source-site-design-guidance-manual_1999.pdf

[4] Gray infrastructure is defined in the CCAR as conventional stormwater infrastructure in the built environment which utilizes concrete or other impervious structures for stormwater management such as gutters, channels, and pipes.

2 ASSET MANAGEMENT PLANS AND ASSET INVENTORY

2.1 ASSET MANAGEMENT PLANS

As mentioned in Section 1.1, each Bay Area Permittee subject to the MRP was required to develop and implement an Asset Management (AM) Plan that includes an asset inventory, condition assessment, and actions to address the operation and maintenance (O&M) of publicly owned stormwater quality-related hard assets. Permittees completed AM Plans and submitted them to the Regional Water Board with their FY 2024-25 Annual Reports.

The AM Plan provides a rational framework for long-term O&M planning, comprising the following elements:

- Identifying and categorizing assets;
- Characterizing the conditions of assets;
- Prioritizing O&M activities;
- Managing and analyzing asset data; and
- Determining current and future costs.

The AM Plans include approaches for evaluating the condition of assets based on a set of parameters. Typical parameters for LID/GSI and Non-LID systems include:

- For vegetated systems - plant health, plant coverage, presence of weeds, presence of mulch, and presence/condition of irrigation system;
- For both vegetated and non-vegetated systems - presence of trash/debris; level of erosion/sedimentation; structural issues; drainage and standing water; and clogging or blockage of inlets or outlets.

A strategy for prioritizing and scheduling O&M of inventoried assets may be informed by the findings from a risk analysis. Assets that are determined to be at higher risk of failure can be prioritized for maintenance, allowing greater access to necessary resources for maintaining their condition. Assets with a lower risk of failure will still need access to resources for maintenance, but at a lower level or frequency.

Two primary components for determining risk are: Likelihood of Failure (LoF) and Consequence of Failure (CoF). LoF is a measure of the probability that an asset will fail due to considerations such as asset condition, function, location, or age. An asset's condition can be the sole basis for the LoF, but if more information is available, it can be determined as a composite score or consideration that includes information such as asset age, maintenance history, and capacity. Other LoF factors for LID/GSI and Non-LID may include consideration of location in a high pedestrian traffic area and the presence of pumps to convey runoff into a treatment measure.

CoF is a measure of the magnitude of impact (e.g., on public safety, water quality, and permit compliance) an asset will have if it fails. Potential CoF for LID/GSI and Non-LID include size of drainage area (i.e., small, medium, or large area, with the larger resulting in greater impact to water quality), cost of repair/replacement, and proximity to public space (i.e., visibility and negative public opinion).

2.2 ASSET TYPES AND CONSIDERATIONS

The asset inventory consists of three primary stormwater control types: LID/GSI; non-LID treatment systems; and trash controls. The asset categories and classes identified for each of these control types are presented in Table 2-1. Table 2-2 presents an overview of the climate change-related threats that may impact each control type and asset category.

As discussed in Section 1.3, most of the climate impact discussion within the CCAR focuses on vegetated LID/GSI and vegetated non-LID systems (i.e., systems with living components that are most affected by threats of increased heat, drought, biodiversity loss, etc.). However, structural non-LID systems and trash capture assets are included in the vulnerability assessment in Section 4, as all assets may be threatened by storm intensification, sea level rise and accompanying groundwater rise. The sizing of non-LID systems and trash capture assets may also be adjusted as rainfall records and sizing guidance are updated, as described in Section 5.2.2.

2.3 LINKAGE BETWEEN ASSET MANAGEMENT PROGRAMS AND CLIMATE IMPACTS ON ASSETS

The condition assessment and risk analysis approach described in Section 2.1 is based on traditional AM concepts but is a relatively new concept for stormwater quality hard assets. The approach will be tested and adaptively managed over time as experience is gained with implementation and more data are gathered.

The influence of climate change on LID/GSI and vegetated non-LID assets will be addressed in both the short term and long term. In the short term, the condition assessments can provide direct observation of the effects of heat, drought, and flooding on the parameters listed in Section 2.1 (e.g., plant health and coverage, erosion, standing water, etc.). Based on these observations, actions such as replanting or shoring up inlet areas to prevent erosion can be taken as appropriate to restore conditions as part of routine maintenance or minor rehabilitation of an asset. While it may not be clear whether these effects are directly caused by climate change or other factors, maintenance frequencies and associated costs may increase as these types of conditions are observed more often.

In the long term, climate impacts could result in the need for more significant maintenance, rehabilitation, or replacement of an asset, especially as the asset ages. In cases where major rehabilitation or replacement is required, Permittees may consider maintenance actions guided the design considerations for climate resilience presented in Section 5.2 of the CCAR.

At this stage of implementation of AM programs, it is difficult to say exactly how climate impacts will influence a particular asset's O&M frequency and prioritization. Consideration of climate-related exposure may be integrated into AM programs as they evolve. The risk analyses or best professional judgment based on condition assessments may need to consider additional parameters. For example, exposure of an asset to a specific climate hazard based on its location (such as flooding, sea level rise, and/or groundwater rise) could become a more important factor in assessing its LoF.

The costs of AM programs are likely to increase as more rehabilitation or significant maintenance is required. To prepare for these scenarios and adaptively manage AM programs, it will be

important for Permittees to focus on collecting asset-specific maintenance and cost data to inform long-term actions.

Table 2-1. Asset Control Types, Categories, and Classes

Control Type	Asset Category	Asset Class
LID/GSI	Biotreatment Systems	• Bioretention lined with underdrain • Bioretention unlined with underdrain • Bioretention unlined w/o underdrain • Flow-through planter lined with underdrain • Tree well filter with bioretention soil with underdrain • Tree well filter with bioretention soil w/o underdrain • Green Roof
	Infiltration Systems	• Infiltration trench • Subsurface infiltration system • Dry wells • Pervious pavement with underdrain • Pervious pavement w/o underdrain
	Capture and Use Systems	• Rainwater harvesting (e.g., cisterns) • Stormwater capture and use (regional)
Non-LID Treatment Systems	High Flow Rate Media Systems	• Media filters (e.g., Vault-based high flowrate media filters) • Media filter with vegetation (e.g., Tree-box-type high flowrate biofilters) • Sand filters
	Others	• Extended detention basin • Vegetated swale • Constructed wetlands • Hydromodification vault • Hydromodification basin • Water Quality Pond
Trash Controls	Full Trash Capture Systems/Devices	• Hydrodynamic separator • Debris separating baffle box • GSRD - Gross solids removal device • Netting devices • Surface inlet baskets/screens • Outflow screens (e.g., CPS)
	Partial Trash Capture Devices	• Auto retractable screen (ARS) • Fixed screen
	Other Types of Trash Control Devices	• Interceptors • Debris Rack • Media Filters

Table 2-2. Asset Control Types, Categories, and Related Climate Change Impacts

Control Type	Asset Category	Storm Intensity/ Flooding	Sea Level Rise	Ground-water Rise	Salt-water Intrusion	Heat	Drought	Biodiversity Loss
LID/GSI	Biotreatment Systems	●	●	●	●	●	●	●
	Infiltration Systems (non-vegetated)	●	●	●				
	Capture and Use Systems	●	●					
Non-LID Treatment Systems	High Flow Rate Media Systems (vegetated)	●	●	●	●	●	●	●
	High Flow Rate Media Systems (non- vegetated)	●	●	●				
	Other Types of Non-LID Systems (older vegetated systems)	●	●	●	●	●	●	●
Trash Controls	Full Trash Capture Systems/Devices	●	●	●				
	Partial Trash Capture Devices	●	●					
	Other Types of Trash Control Devices	●	●					

3 BAY AREA CLIMATE THREAT ASSESSMENT

To support the development of the CCAR, information was collected from Bay Area planning agencies to summarize climate projections, climate-related threats to stormwater quality assets, and assessments of impacts to these assets. Publicly available regional datasets and planning tools were used to provide a consistent approach when considering future climate conditions relevant to asset planning and adaptation over the 21st century.

Section 3.1 summarizes regional climate projections relevant to stormwater quality assets, including sea level rise and coastal flooding, as well as projected changes in temperature, precipitation, drought, and wildfire conditions over the next 50 years. Section 3.2 builds on these projections by describing existing, new, and increasing climate-related threats to assets, such as flooding, groundwater rise, saltwater intrusion, and compound stressors, that are expected to intensify under future climate conditions. Section 3.3 then examines how these threats may translate into specific hazards and potential impacts to assets, including considerations related to scale, vulnerability, and community and equity outcomes.

3.1 BAY AREA CLIMATE PROJECTIONS FOR THE NEXT 50 YEARS

Climate projections and the potential threats to assets presented in the CCAR are based on the BCDC 2024 Regional Shoreline Adaptation Plan (RSAP) and California's Fourth Climate Change Assessment San Francisco Bay Area Region Report (Ackerly et al. 2018). Combined, these datasets represent the best available data for the Bay Area at the time the CCAR was produced.[5]

- BCDC's RSAP projections are derived from the California Ocean Protection Council (OPC) Sea Level Rise Guidance: 2024 Science and Policy Update. The projections reflect a range of plausible future conditions to support risk-informed planning over multiple time horizons. This dataset provides regionally consistent sea level rise scenarios intended to support shoreline and near-shore planning across the Bay Area.
- California's Fourth Climate Change Assessment is based on statistically downscaled climate projections from 32 global climate models into California-specific daily temperature and precipitation data (Pierce et al. 2018). The projections provide statewide coverage at approximately six-kilometer resolution to support regional and local climate impact analyses projections.

In addition to the figures presented in the section below, Appendix A provides six tables that summarize key regional and county-level climate projection resources available to Permittees to understand local climate impacts. The tables provide links to data platforms, planning tools, and guidance documents that Permittees may reference to inform consideration of future climate conditions across planning, project development, retrofit, and maintenance activities.

[5] California's Fifth Climate Change Assessment San Francisco Bay Area Region Report is expected to be completed Summer 2026.

3.1.1 Sea Level Rise and Coastal Flooding

Sea level rise is one of the most significant and well-documented climate threats facing the Bay Area. Sea level rise, coastal flood hazards, and groundwater rise projections are drawn from BCDC's RSAP. These scenarios are summarized in Table 3-1 below.

Table 3-1. Climate Scenarios (based on California OPC 2024 Sea Level Rise Guidance)

Time Frame	Emissions Scenario	California SLR Guidance Scenario
2050	Intermediate	0.8 feet (9.6 inches)
2100	Intermediate	3.1 feet (37 inches)
2100	Intermediate-High	4.9 feet (59 inches)
2100	High	6.6 feet (79 inches)

The RSAP recommends that adaptive planning for sea level rise threats to existing and planned infrastructure be conducted using the four sea level rise scenarios. The four coastal flood hazards: tidal inundation, storm surge, emergent groundwater, and shallow groundwater are illustrated in Figure 3-1 below.

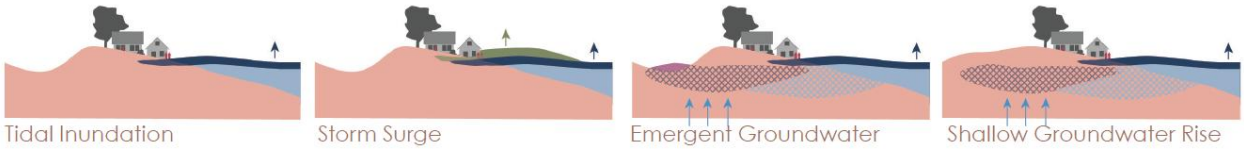

Figure 3-1. Four types of coastal flood hazards (BCDC 2024)

Data from Adapting to Rising Tides (ART) Sea Level Rise flood maps are used to represent future flooding from sea level rise, tidal inundation, and storm surge, while United States Geological Survey's (USGS) Coastal Storm Modeling System (CoSMoS) groundwater hazard maps represent shallow groundwater and emergent groundwater (BCDC 2025). Figure 3-2 is from the 2024 RSAP and provides a planning-level overview of projected sea level rise and coastal flooding conditions under the selected sea level rise scenarios. Permittees can view and download the data for the figure on the RSAP Atlas map viewer.[6] Figure 3-2 is included for informational purposes and is not intended to represent site-specific conditions or to substitute for project-level analyses.

[6] More information can be found at: https://rsap-atlas.bcdc.ca.gov/; to view the figure, select Coastal Flood Hazards under the Map Layers list.

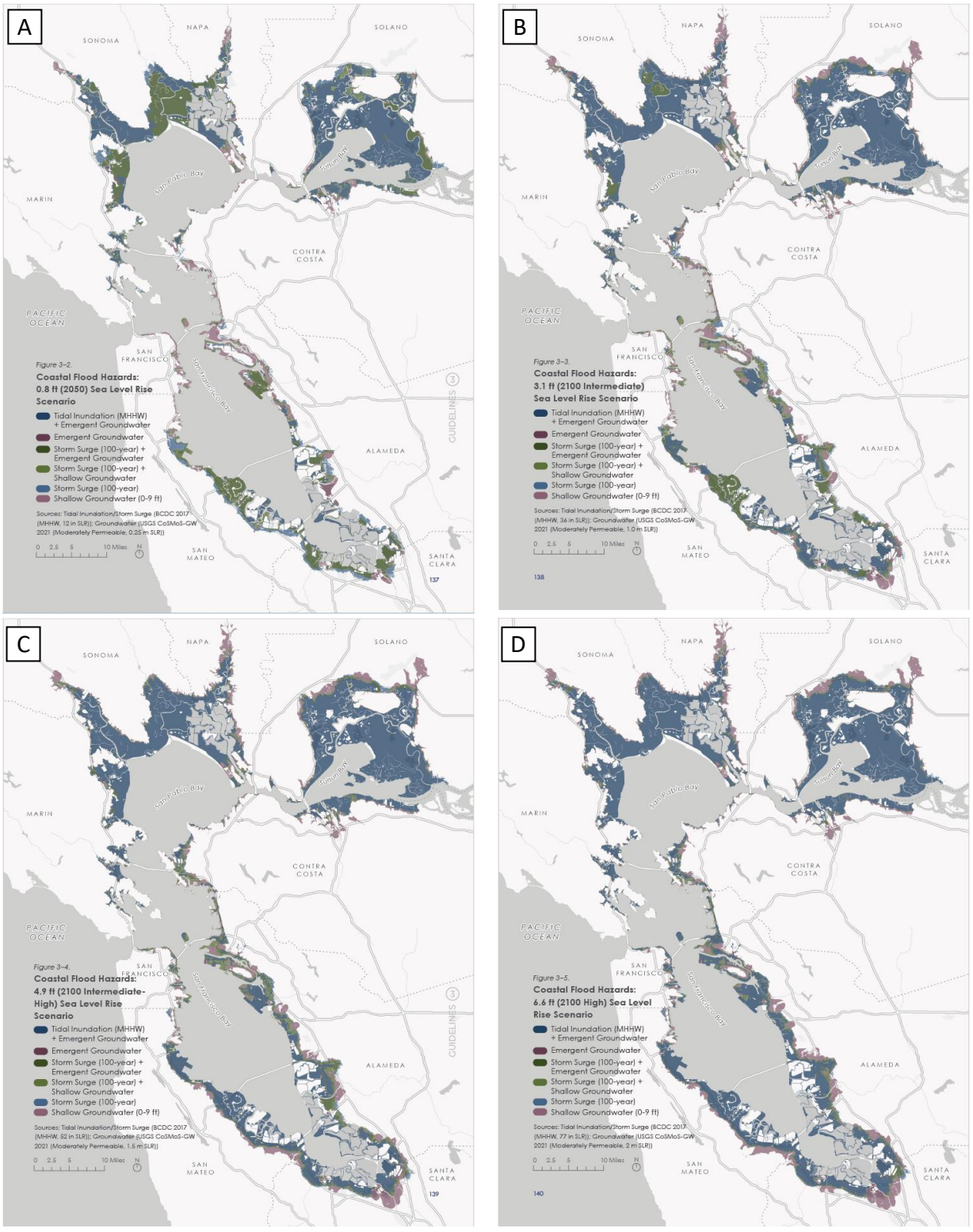

Figure 3-2. Extent of coastal flood hazards under four climate scenarios: (A) 2050 intermediate, (B) 2100 intermediate, (C) 2100 intermediate-high, and (D) 2100 high (BCDC 2024). Full page versions of these maps are available on pages 137-140 at: https://www.bcdc.ca.gov/wp-content/uploads/sites/354/2024/12/regional-shoreline-adaptation-plan.pdf

Sea level rise is already affecting portions of the Bay Area and is projected to accelerate through the mid and late-21st century. Observed sea levels in the Bay Area have risen by approximately 8-9 inches since 1900 (Ackerly et. al. 2018). Under intermediate-to-high emissions scenarios, regional sea level rise of approximately 1-3 feet by 2050 and up to 3-6.5 feet by 2100 is projected for San Francisco Bay (OPC 2024).

3.1.2 Extreme Heat, Precipitation, and Wildfire

Regional climate projections and historical trends in temperature, precipitation, snowpack, extreme storms, drought, and sea level are summarized in California's Fourth Climate Change Assessment San Francisco Bay Area Summary Report (2018). The report examines projections from 2006 to 2100 under two emissions scenarios: Representative Concentration Pathway (RCP)[7] 4.5, where global greenhouse gas emissions peak around 2040 and then decline, and RCP 8.5, where emissions rise through 2100. Key findings for temperature, precipitation, drought, and wildfire are below:

1. *Temperature*: Average and extreme ambient air temperatures are projected to increase across the Bay Area, with inland areas experiencing greater warming than coastal locations. Heat waves are expected to become longer, more frequent, and more severe. The Bay Area is expected to warm by approximately 3.3°F by mid-century under RCP 4.5, increasing to about 4.4°F under RCP 8.5. Differences between emissions pathways become more pronounced by late century, with projected warming of roughly 4.2°F under RCP 4.5 versus 7.2°F under RCP 8.5. Coastal cooling from fog and onshore winds is expected to buffer some of the surface temperature increase in coastal and bay regions, while Bay Area regions further inland warm at a faster rate (Cal-Adapt, Ackerley et al. 2018). How climate change will alter the highly localized processes and microclimates remains uncertain.
2. *Precipitation*: While total annual precipitation is expected to remain variable, heavy rainfall events are projected to deliver a greater proportion of annual rainfall over shorter durations. Climate projections indicate an increase in the frequency and intensity of extreme precipitation events in California, including in the Bay Area, driven in part by stronger atmospheric rivers[8] under warming conditions (Cal-Adapt; USGCRP 2023). End-of-century projections indicate that the largest daily precipitation events (measured in inches of rainfall per day) increase by roughly 6 to 21% under RCP 4.5, with increases of up to 37% under RCP 8.5 (Ackerley et. al. 2018).
3. *Drought*: Regional climate assessments project an increase in the frequency and duration of droughts in California due to rising temperatures, increased evapotranspiration, and highly variable precipitation patterns (California's Fourth Climate Change Assessment, USGCRP 2023).

[7] RCPs are defined as a numeric value that represents the increase in radiative forcing in the year 2100 above pre-industrial levels (e.g., RCP 8.5 represents +8.5 Watts per square meter over pre-industrial levels by the end of the century).

[8] An atmospheric river is a long, narrow band of concentrated water vapor in the atmosphere that transports moisture, typically from tropical regions, and can produce heavy rain or snow when it reaches land.

4. *Wildfire*: Future wildfire risk in the Bay Area is expected to be influenced by both climate change and land-use patterns. California's Mediterranean climate is inherently fire-prone, with wet winters fostering vegetation growth and dry summers drying fuels to highly flammable conditions. In the San Francisco Bay region, despite a strong coastal-to-inland moisture gradient, fire risk is not generally limited by fuel availability. A warming climate, prolonged drought, and shifting precipitation patterns are expected to lead to more frequent fires and greater area burned, particularly in wildland–urban interface zones (Ackerly et. al. 2018). However, risk may decline in some areas as development becomes more densely urbanized.

Cal-Adapt provides publicly accessible information on projected changes in temperature, precipitation, extreme heat, drought, and other climate variables under RCP 4.5 and RCP 8.5. Countywide climate projections are illustrated using figures developed from Cal-Adapt's climate tools[9] from the Fourth Climate Change Assessment. As examples of information available to Permittees, a figure was generated by Cal-Adapt for each County, illustrating projections of the following for RCP 4.5 and RCP 8.5:

1. Number of extreme heat days per year, defined as days between April and October when daily maximum temperatures exceed the 98th percentile of observed historical conditions (1961–1990);
2. Maximum amount of daily precipitation (over a 24-hour period) each year; and
3. Annual average acres burned.

These figures, provided in Appendix B, show the average and range of results from four global climate models, selected to represent a range of potential conditions. The Cal-Adapt climate tools calculate projected averages for modeled historical and two projected time horizons: mid-century (2035-2064) and end-century (2070-2099). Cal-Adapt data can also be downloaded to analyze climate projections from the four global climate models at a local level. Permittees are encouraged to consult Cal-Adapt directly to select datasets, scenarios, and planning horizons appropriate to their specific project context.

User-facing Cal-Adapt tools based on the Fifth California Climate Change Assessment are currently being expanded and expected to be rolled out throughout 2026. The Cal-Adapt Analytics Engine[10] provides access for highly technical users to California's most up-to-date climate data, developed for the Fifth California Climate Change Assessment.

For extreme precipitation, global climate model (GCM) rainfall projections available through Cal-Adapt can be statistically downscaled to an hourly timescale for use in continuous simulation hydrologic models used for GSI sizing; however, this process can be complex and uncertain. One study found that temporal downscaling smoothed peak intensities, requiring additional statistical matching of daily totals to historical storm hyetographs to better represent short-duration extremes (Havens et al. 2020).

[9] More information and Cal-Adapt climate tools can be found at: https://cmip5.cal-adapt.org/tools
[10] More information and Cal-Adapt Analytics Engine datasets are available at: https://analytics.cal-adapt.org/data/

Another resource for evaluating future precipitation patterns is the set of updated rainfall intensity-duration-frequency (IDF) curves[11] developed by Lawrence Berkeley National Laboratory and the Pathways Climate Institute in Volume 2 of the *San Francisco Bay Area Precipitation in a Warmer World* report (Mak et al. 2023), which incorporates projected changes in precipitation for 2050 and 2100 under a high-emissions scenario. These curves indicate increasing intensity under a warming climate across a range of storm durations and frequencies and include methods for scaling results from National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 stations (e.g., Downtown San Francisco and SFO) to other Bay Area locations and time horizons under different climate scenarios. For full trash capture devices, which are designed to treat the 1-year, 1-hour storm, these updated, locally scaled IDF projections could be considered when designing or retrofitting devices to ensure they continue to perform effectively under future precipitation patterns.

3.1.3 Climate Projection Scenario Guidance

Consistent with the scenario-based approach used for sea level rise and other climate threats in this section, it is recommended that Permittees evaluate planned and/or existing stormwater quality assets and their performance across a range of future climate conditions rather than relying on a single projection or historical design standard. This includes consideration of multiple emissions scenarios (e.g., RCP 4.5 and RCP 8.5 or equivalent) and planning horizons (mid-century and end-of-century), consistent with the datasets presented in Sections 3.1.1 and 3.1.2 and available through tools such as Cal-Adapt.

For precipitation, where projections indicate increasing variability and more intense storm events but remain uncertain in magnitude and timing, this approach may be applied by evaluating a range of potential changes in storm intensity until the NOAA Atlas 15 Volume 2[12] is released. NOAA's Atlas 15 Volume 2 will provide precipitation frequency estimates projected into the future instead of a current snapshot.

Evaluating multiple scenarios provides a consistent basis for design assumptions, helps bracket uncertainty, and supports risk-informed and adaptive decision-making for planning, retrofit, and asset management activities.

3.2 EXISTING, NEW, AND INCREASING CLIMATE-RELATED THREATS TO BAY AREA ASSETS

Regional climate assessments show changes in precipitation patterns, temperature, sea level, wildfire activity, and extreme events that are expected to increasingly affect stormwater infrastructure and presumed water quality outcomes in the Bay Area. In addition, climate stressors are increasingly likely to occur in combination, for example, prolonged drought followed by extreme precipitation, or sea level rise coinciding with major storm events. These compound conditions can exceed original design assumptions for stormwater quality assets, resulting in reduced performance, accelerated degradation, or cascading failures. Recognizing and planning for these interactions is critical to ensuring

[11] IDF curves describe the relationship between the probability of a given amount of rain falling (intensity), for a certain amount of time (duration), and how often this combination will impact the area of interest (frequency).
[12] More information on the release of NOAA Atlas 15 at https://water.noaa.gov/about/atlas15

long-term resilience and regulatory reliability. The subsections below summarize key climate-related threats to assets in the Bay Area.

3.2.1 Sea Level Rise and Coastal Flooding

Sea level rise increases the frequency, depth, and duration of coastal flooding, particularly when combined with king tides[13], storm surge[14], and extreme precipitation. Low-lying shoreline areas are expected to experience more frequent nuisance flooding, episodic inundation during storm events, and permanent inundation over time, particularly under compound flood conditions. These processes threaten developed shorelines and stormwater infrastructure (BCDC 2024, USGCRP 2023). For stormwater quality assets, these impacts introduce site-specific constraints on inundation frequency and reduced downstream discharge capacity that Permittees may consider when planning new facilities, evaluating system performance, and establishing maintenance needs.

3.2.2 Groundwater Rise, Saltwater Intrusion, and Tidal Exacerbation

Rising sea levels are increasingly linked to rising groundwater tables in low-lying areas adjacent to the Bay (i.e., as sea levels rise, so will groundwater levels). Recent studies and regional planning efforts have identified groundwater rise as a growing but often less-recognized climate threat, capable of extending inland beyond mapped coastal flood zones, particularly where elevated groundwater, high tides, and intense rainfall occur concurrently (BCDC 2024).

Groundwater rise can cause persistent or seasonal flooding, reduce subsurface drainage capacity, and mobilize legacy contamination in soil and fill materials. In shoreline and estuarine areas, saltwater intrusion into groundwater systems may increase as hydrostatic pressure increases. Tidal backwater effects in stormwater conveyance systems are expected to worsen as higher mean sea levels reduce hydraulic gradients and increase the duration of tidally influenced conditions (BCDC 2024, OPC 2024). For GSI specifically, groundwater rise may limit storage volume and infiltration, and salinity may affect soil and plant health.

3.2.3 Extreme Precipitation, Inland Flooding, and Erosion

More intense precipitation, longer dry periods, and increased wildfire activity are projected to increase sediment, debris, and pollutant loading to stormwater systems. These changes increase the risk of inland flooding along creeks, channels, and urban drainage networks, particularly in highly impervious watersheds. More intense rainfall also elevates erosion risk in both urban and natural channels, leading to channel instability, sediment transport, and downstream deposition. Projected increases in extreme precipitation and erosion highlight the importance of evaluating asset design assumptions related to sizing, sediment management, and maintenance demands, particularly in areas prone to inland flooding.

Extreme precipitation impacts may be amplified when they follow wildfire or extended drought conditions, because vegetation loss, soil disturbance, hydrophobic soils, and accumulated sediment or debris can increase runoff rates, erosion, and pollutant loading. In coastal and low-

[13] A king tide is the highest predicted high tide of the year, caused by the alignment of the moon and sun.
[14] A storm surge is the temporary rise in sea level driven by storm winds, above the normal tide.

lying areas, inland flooding may also coincide with elevated Bay water levels, tidal backwater, or groundwater rise, reducing drainage capacity and prolonging flooding.

3.2.4 Urban Heat, Drought, and Energy Outages

Longer dry periods and more severe droughts are projected due to increased evapotranspiration and precipitation variability. These conditions exacerbate urban heat island effects in densely developed areas (USGCRP 2023). Extreme heat and extended dry periods have direct implications for the hydraulic and biological functions of GSI and other vegetated treatment systems, and can interact with other stressors by weakening vegetation, reducing soil moisture, increasing irrigation demand, and limiting the ability of vegetated stormwater quality assets to recover before subsequent intense storm events.

Energy systems are also vulnerable to these conditions. Extreme heat increases electricity demand, while drought can constrain energy generation and transmission. Climate-driven power outages, including public safety shutoff events, are expected to remain a regional risk (Ackerley et. al. 2018). If extreme heat conditions contribute to power outages, electrically dependent stormwater assets, monitoring systems, pumps, or irrigation systems may face additional operational constraints during periods when system performance is already stressed.

3.2.5 Wildfire

Wildfire frequency and severity are projected to increase statewide, including in watersheds contributing runoff to Bay Area urban systems. Even when wildfires occur outside dense urban centers, their impacts extend across the region. Wildfire impacts are often realized through subsequent climate stressors, particularly extreme precipitation events that occur before burned watersheds have stabilized. Postfire conditions can alter watershed hydrology, increase erosion and sediment transport, and affect downstream loading of stormwater treatment controls during subsequent storm events. These cascading effects may be exacerbated when postfire storms coincide with already saturated conditions, elevated groundwater, or constrained downstream discharge capacity. Additionally, these impacts may occur in urban areas far removed from burn locations, which are typically closer to wildland-urban interfaces, highlighting the importance of regional watershed considerations in GSI planning.

3.3 POTENTIAL HAZARDS TO ASSETS DUE TO CHANGES IN CLIMATE

3.3.1 Scale of Hazards

Assets in the Bay Area, especially GSI, are exposed to climate-driven threats that operate across multiple spatial and temporal scales. While individual GSI features are typically small and distributed, climate stressors often act at the watershed, neighborhood, or regional scale, influencing hydrology, groundwater levels, vegetation health, and maintenance demands beyond individual asset boundaries.

For example, extreme precipitation events can exceed design storage and infiltration capacity over short durations, particularly at facilities without dedicated overflow bypass or with limited bypass capacity, leading to surface bypass, localized flooding, erosion, and sediment accumulation; repeated exceedances can gradually reduce long-term performance at site to watershed scales. In contrast, drought affects GSI and other vegetated assets over seasonal to multi-year timescales

through increased sediment loading, vegetation stress, and maintenance demands. Rising temperatures, sea-level rise, and groundwater rise operate at neighborhood to regional scales over decades but can impair GSI functionality in the short term through prolonged saturation, reduced infiltration capacity, saline intrusion, or structural degradation when hydrologic thresholds are exceeded. Vulnerabilities of GSI and other assets under specific climate threats are detailed below in Section 3.3.2.

This underscores the importance of evaluating asset vulnerability at multiple scales and time horizons. Climate-related impacts may not cause immediate failure but can incrementally reduce system function, reliability, and service life. Understanding the type, magnitude, and scale of these hazards, in combination with site conditions, design assumptions, and maintenance capacity, is critical for prioritizing adaptation strategies, informing design modifications, and ensuring long-term resilience of assets across the Bay Area.

3.3.2 Asset Impacts

Finding ways to increase the "resilience" of GSI and other assets is key to improving their performance and cost-effectiveness in the face of climate change impacts. Understanding how climate threats may affect assets helps Permittees identify appropriate adaptation strategies (see Sections 4 and 5) to address anticipated impacts within their jurisdictions. The vulnerabilities summarized in Table 3-2 include identified stressors affecting GSI and other assets under changing climate conditions. Similar to findings from other municipal green infrastructure guidance (e.g., Denver Green Continuum Streets Guidelines), projected increases in precipitation intensity, heat, and drought can affect GSI performance through increased sediment loading, vegetation stress, and maintenance demands.

Table 3-2. Summary of Climate-Related Threats and Associated Asset Vulnerabilities

Climate Threat	Asset Vulnerabilities	Additional Considerations
Sea level rise and coastal flooding	• Permanent or episodic inundation during extreme tides or storm surge events. • Reduced drainage gradients or tidal backwater in systems with underdrains. • Prolonged submergence in saltwater may increase corrosion of metal devices. • Other vulnerabilities related to groundwater rise due to sea level rise (see two rows below).	Particularly relevant to infiltration-based GSI and trash capture devices in shoreline-adjacent and tidally influenced watersheds, which will increase due to sea level rise.
Extreme precipitation	• Exceed the design storage and infiltration capacity of systems sized using historical rainfall records. • Increase the likelihood of surface flooding, bypass flows, and reduced treatment and capture effectiveness. • Cause erosion, scour, or damage to surface inlets, overflow structures, and conveyance elements.	N/A

Climate Threat	Asset Vulnerabilities	Additional Considerations
	• Cause damage or clogging of trash capture devices due to larger mobilization of trash, sediment, debris, and floatables. • Mobilize previously captured pollutants, reducing net water quality benefits.	
Groundwater rise	• Reduced infiltration, sub-surface storage, and hydraulic capacity. • Vegetation stress, reduced vigor, or mortality, due to altered soil chemistry. • Limited discharge capacity of underdrains, outlets, and overflow/bypass structures.	Particularly relevant to infiltration-based GSI and trash capture devices but also applies to those systems with underdrains.
Extreme heat and drought	• Vegetation stress, reduced vigor, or mortality, particularly where plant palettes are not drought-tolerant. • Higher evapotranspiration losses, leading to drier soil conditions between storm events. • Accelerated degradation of system materials, such as liners and plastic components, under prolonged heat exposure. • Increased maintenance demands, such as irrigation, replanting, or media rehabilitation.	Retrofit stormwater treatment systems often use electrically powered pumps to raise stormwater into treatment systems, which are at risk during power outages caused by extreme heat.
Wildfire	• Overloading of media with ash and fine particulates. • Degraded soil structure and reduced permeability. • Increased nutrients, metal concentrations, and other toxic contaminants that may affect treatment performance.	

3.3.3 Community and Equity Considerations

Climate change disproportionately affects low-income and historically underserved communities, creating compounded risks for both residents and the GSI intended to support them. In the Bay Area, many of these communities are located in lower-lying areas with increased vulnerability to sea-level rise, groundwater rise, and flooding (C/CAG and Caltrans 2021). These conditions place heightened and overlapping stressors on GSI assets and the surrounding built environment. Because vulnerability and risk are a composite of exposure, sensitivity, potential impact or consequences, and available resources (or adaptive capacity), areas projected to experience the highest exposure to climate change threats in the future may differ from those at greatest risk of impact from that exposure.

Climate-driven stressors such as extreme heat, drought, and flooding introduce equity-related threats that can affect long-term performance, maintenance needs, and community acceptance of

GSI. Hotter and drier conditions may increase vegetation stress and maintenance demands in neighborhoods with limited municipal resources, while flooding and sea-level rise can reduce GSI effectiveness or accelerate asset degradation where drainage infrastructure is constrained. Without intentional planning, these dynamics risk reinforcing inequities by concentrating environmental burdens while limiting access to GSI resilience benefits.

Equitable distribution of GSI is therefore a critical consideration in climate resilience planning; however, GSI implementation is often driven by technical feasibility, regulatory requirements, development patterns, and/or opportunities to support gray infrastructure improvements, which can unintentionally deprioritize underserved areas. As a result, communities most exposed to climate threats, such as those located in low-lying areas near the Bay or in a floodplain, often overlap with socially vulnerable communities shaped by historical disinvestment and inequitable infrastructure planning. These overlapping conditions can contribute to higher risks of underinvestment and delayed or less effective implementation of stormwater infrastructure.

Addressing these challenges requires integrating social and equity-based considerations alongside engineering criteria during GSI planning and design. This includes combining physical climate data with social, demographic, and infrastructure indicators to better understand vulnerability and prioritize investments.

An example of an equity-centered, watershed-scale approach aligned with these principles is the San Mateo County OneWatershed Climate Resilience Framework (C/CAG 2025).[15] The framework integrates climate hazard exposure data with community-scale input to identify climate vulnerabilities and prioritize resilience investments across water infrastructure in San Mateo County. It was developed through a community co-creation process that engaged residents, community leaders, and a collaborating community-based organization, ensuring that lived experiences from historically underserved communities were incorporated alongside technical analyses of climate threats such as flooding, sea-level rise, extreme heat, and drought. By defining vulnerability as a function of exposure, sensitivity, impact, and adaptive capacity, the OneWatershed Framework helps differentiate between areas with high climate exposure and those at greatest risk due to social inequities, limited resources, or inadequate infrastructure.

Early, consistent, and inclusive public engagement, ideally in partnership with community-based organizations, can help align GSI projects with community priorities, address concerns related to maintenance and neighborhood impacts, and build trust and adaptive capacity over time.

To support consistent and transparent consideration of equity in climate resilience planning, Permittees may consider incorporating a set of qualitative and quantitative indicators when evaluating vulnerability and prioritizing GSI investments. Example indicators may include urban heat or flood vulnerability indices, tree canopy coverage, and disadvantaged community status using tools such as CalEnviroScreen[16] or regional datasets like the Metropolitan Transportation Commission's Equity Priority Communities.[17]

[15] More information can be found at: https://flowstobay.org/onewatershed/
[16] More information can be found at: https://oehha.ca.gov/calenviroscreen
[17] More information can be found at: https://mtc.ca.gov/planning/transportation/access-equity-mobility/equity-priority-communities

4 GEOSPATIAL VULNERABILITY OF ASSETS

This section continues to describe the risks of climate change impacts to stormwater quality assets, focusing on climate threats and vulnerabilities that are closely associated with the geospatial location of assets, including LID/GSI, non-LID systems, and trash capture devices. Strategies and resources that local agencies can use to identify existing vulnerable assets and plan for installation of future assets in less vulnerable locations are provided below.

4.1 EXISTING PERMITTEE ASSETS

The key locations where existing assets could be at risk due to the effects of climate change include:

1. Low-lying areas near the Bay or coastal shorelines where assets could be permanently or episodically inundated from sea level rise, tidal flows, storm surge, and groundwater rise, as well as increased runoff volumes from the contributing upstream watershed;
2. Areas with a higher risk of wildfire, such as in hilly, windy areas or areas in the wildland-urban interface (WUI); and
3. Those parts of the Bay Area where droughts and heat waves could be more extreme and impact vegetated assets more significantly.

Table 3-2 describes the specific asset vulnerabilities related to those types of locations.

A key adaptation strategy is to assess the vulnerability of a Permittee's inventory of assets based on location, understand the potential impacts to maintenance of those assets, and adjust maintenance programs accordingly. For low-lying Bay or coastal shorelines, Permittees can view and download data from the Adapting to Rising Tides Sea Level Rise flood maps from the BCDC 2024 Regional Shoreline Adaptation Plan, as described in Section 3.1.1, to assess which of their existing assets may be at risk from sea level rise and associated threats. There are several ways of conducting these vulnerability assessments, depending on the size of the asset inventory being managed by a Permittee:

1. Permittees with a relatively small asset inventory can pan and zoom with online maps and tools to locate existing assets, and note which ones are vulnerable to sea level rise and associated threats. Then appropriate steps can be taken to assess and track how asset conditions are impacted in these areas and adjust inspection and maintenance frequencies as needed.
2. For Permittees with larger asset inventories, a more efficient process would be to download geospatial data, view in GIS with asset layers and other information to delineate vulnerable areas, tag assets that are more at risk, assess and track how asset conditions are impacted, and adjust risk analyses and/or asset management plans accordingly.

A similar approach can be taken to evaluate heat, drought, and wildfire threat. As described in Section 3.2.1, Cal-Adapt provides publicly accessible information on projected changes in temperature, precipitation, extreme heat, drought, and other climate variables under two climate scenarios. Appendix B contains figures illustrating countywide climate projections developed from Cal-Adapt's climate tools from the Fourth Climate Change Assessment. The figures illustrate the number of extreme heat days per year, the maximum amount of daily precipitation each year, and

the average annual acres burned. Cal-Adapt data can also be downloaded to analyze climate projections at a local level. Permittees are encouraged to consult Cal-Adapt directly to select datasets, scenarios, and planning horizons appropriate to their specific project context. The selection of the predicted climate scenario is up to each jurisdiction and should be consistent with local climate/sustainability plans.

Once existing asset locations have been assessed for climate risk, this information can be factored into asset management programs to guide maintenance level and frequency, as those programs evolve. Some existing GSI assets in low-lying areas near the Bay, including large underground full trash capture devices, that cannot be relocated to higher ground may need to be retrofitted with alternative outlet structures or stormwater pumps to convey runoff from underdrains now impeded by sea-level rise, tidal surges, or groundwater intrusion.

4.2 NEW ASSETS

For treatment systems associated with Regulated Projects, locations are determined by the project. Climate threats associated with that location may not be avoided but can be mitigated through the design strategies presented herein. The resources described under Section 4.1, Existing Permittee Assets, can be used to determine the expected severity of the climate threat at a particular location and the associated level of risk to be considered during design and future maintenance efforts. If it is determined that the risks cannot be successfully mitigated at that location, alternative (offsite) compliance may need to be considered.

Planning for non-regulated GSI retrofit projects may be able to take the geospatial nature of climate threats into account (unless GSI is being incorporated into a project with a set location). Again, the same resources mentioned above can be used to evaluate opportunities for GSI projects at select locations with reduced risk of inundation, flooding, wildfire, drought, and heat effects. This could result in cost savings for future maintenance and a longer facility useful life. An adaptation planning strategy could include deprioritizing the installation of future assets in locations of greater vulnerability.

Watershed-scale or One Water approaches can be used, where appropriate, to coordinate implementation of projects that improve the resilience, maintenance, or long-term performance of stormwater quality-related assets. An example of watershed-scale, climate-resilient project planning is the San Bruno Creek OneWatershed Climate Resilience Plan Pilot Study (C/CAG 2026), which demonstrates application of the OneWatershed Framework (C/CAG 2025) in the San Bruno Creek watershed. The following approach from the OneWatershed Framework (or similar) could be applied to guide planning and implementation of new GSI assets:

1. *"Identify multiagency, multi-stakeholder collaborative partnerships specific to the communities in the target watershed.*
2. *Assess watershed-scale vulnerability of water infrastructure and assets to climate hazards*
    a. *Compile climate change hazard and community vulnerability data available, along with local studies.*
    b. *Conduct a community vulnerability assessment to understand community sensitivity to, potential impact from, and adaptive capacity to moderate harm from climate threats.*

c. *Use the outcomes of 2a and 2b to identify vulnerable infrastructure assets within the watershed.*

3. *Identify and prioritize climate resilience projects."*

Additional details and lessons learned from applying this approach are provided in the San Bruno Creek OneWatershed Climate Resilience Plan Pilot Study (C/CAG 2026).

5 ADAPTATION STRATEGIES

Section 5 presents discussions of climate change adaptation strategies related to: policy and planning; location of assets; community engagement; engineering and landscape design; operation and maintenance; and implementation and adaptive management. These discussions focus primarily on GSI and vegetated non-LID systems; although many of the strategies can be applied to other types of assets as well.

5.1 POLICY AND PLANNING STRATEGIES[18]

5.1.1 Benefits of GSI for Climate Resilience

Municipalities can better prepare for climate change impacts by understanding how it affects their GSI assets and the benefits of climate resilience. The CRRG identifies six benefits from creating more climate resilient assets in advance of increasing climate impacts, including:

1. Managing localized urban flooding;
2. Preventing and reducing erosion;
3. Reducing urban heat impacts;
4. Improving air quality;
5. Water supply augmentation; and
6. Human health benefits.

While the most severe impacts of climate change may be decades away, there are incentives to act in the near term. Early adoption of policies and plans that include strategies for adapting to climate change can lead to:

- Lower cost to implement asset changes with more time to plan and finance adaptations;
- Lower cost of maintaining assets that are more resilient to impacts;
- Lower risk to other community assets when GSI assets are resilient and less likely to fail;
- Improved functioning of existing traditional infrastructure and/or postponed infrastructure upgrades;
- More resilient GSI assets that are better at protecting pollinators, plants, and wildlife, which can provide biodiversity benefits; and
- Better outcomes for GSI assets that can take many years to attain maximum benefits, such as large stature trees.

While locating, designing and installing more resilient GSI assets may have higher upfront costs, the long-term benefits could exceed the initial investments. For example, on a municipal-wide scale, policies that prevent GSI from being located in areas projected to be impacted by sea level rise could reduce costs. On green street projects, policies requiring that stormwater curb extension designs include a high-flow bypass, a feature that is not currently included in most bioretention areas, will incur capital costs to implement, but including that feature could reduce maintenance costs in the long-term by reducing erosion and mulch issues. Engaging community and policymakers throughout the process helps to broaden support so that chosen strategies

[18] References to climate action plans, One Water initiatives, urban forestry programs, equity considerations, and related planning efforts are included only as examples of planning coordination opportunities where they support adaptation of stormwater quality-related assets. These references are not intended to expand the scope of MRP Provision C.21.b.v or establish new planning requirements for Permittees.

deliver the desired effects and benefits.

5.1.2 Integrating GSI and Climate Policies and Programs

Another method for municipalities to realize the benefits of adaptation planning, such as those listed in Section 5.1.1, is to integrate GSI goals and concepts into climate action plans, policies and programs, such as those cited in Section 5.1.7, and work with community-based organizations (CBOs) on their plans and programs. One example of integrating resilience and CBO partnerships in the San Francisco Bay Area is the use of regenerative landscaping principles, first developed in Alameda County by StopWaste through the Bay-Friendly landscaping program. Working with local watershed organizations, the next generation of workers can be trained to design and maintain GSI measures that incorporate resilient design and maintenance features.

5.1.3 GSI and Equity (with respect to climate impacts)

Including resilience considerations in approaches for planning and siting GSI can simultaneously improve climate resilience, quality of life factors, and underperforming infrastructure. Where local agencies elect to consider equity, adaptation investments for stormwater quality-related assets may be prioritized based on documented climate-related vulnerabilities or service needs.

For example, as described in the CRRG, C/CAG used a multi-pronged set of equity criteria, including projected increases in urban heat and low rates of vehicle ownership, to prioritize GSI as part of its Sustainable Streets Master Plan and GSI projects. The City of Tucson's "Tucson Clean and Beautiful" program offers utility rebate programs that fund GSI with trees to reduce urban heat. Tucson also uses the Tree Equity Score software developed by American Forests, which uses canopy coverage, climate, demographic, and socioeconomic data.

The CBO, Climate Resilient Communities, worked with the C/CAG and other stakeholders to create the OneWatershed Climate Resilience Framework (Framework). The Framework supports collaborative efforts across the County to achieve long-term, strategic climate resilience. Using a "community co-creation" approach with quantitative data for direction and local knowledge to implement multi-benefit projects that address resilience and regulatory needs, the Framework integrates equity seamlessly into the project goals, input and process.

The organization Save the Bay created a vision for Bay Smart Communities in 2019[19] to answer questions related to climate change, water resources, and environmental justice. The effort brought together multiple stakeholders, including the CBO, Breakthrough Communities[20] in Oakland, and resulted in a report and a "Bay Smart Communities" program that charts a course for future actions integrating GSI, urban forestry, equity, transportation, growth and water resources.

It is well documented that poor neighborhoods in the US have not received as much investment in urban forestry compared with wealthier neighborhoods, resulting in a lower average tree canopy coverage. Using metrics that are based on infrastructure level of service, as opposed to economic or racial metrics, can consider equity and be seen as a more neutral approach. However, to avoid "green gentrification" that may result from improvements in formerly neglected neighborhoods, some jurisdictions integrate their Capital Improvement Program planning with other policies and

[19] More information can be found at: https://savesfbay.org/bay-smart-communities/
[20] More information can be found at: https://www.breakthroughcommunities.info/

programs that create and preserve affordable housing to avoid displacement.

The City of Boise, Idaho, uses two metrics for prioritizing GSI projects: canopy coverage and localized flooding. The City looks for areas with minimal street trees and underperforming gray infrastructure when deciding where to build and retrofit existing City infrastructure. In the City's Capital Improvement Program, planting of new street trees that also function as stormwater treatment systems is prioritized. These "tree well filters" often use suspended pavement systems that both increase the soil volume for new trees and provide space for bioretention to treat roadway runoff from adjacent impervious roadway surfaces. More soil volume allows trees to grow to large stature without causing heaving of sidewalks and other problems. This strategy reduces localized flooding and provides more shade for the neighborhood as the trees grow over time. The strategy also prioritizes infrastructure improvements in neighborhoods that may have been neglected in the past and where the greatest need exists.

5.1.4 Working with the Public and Other Local Organizations

Watershed organizations, such as "Friends of Creek" groups, and schools are other examples of community stakeholders that municipalities can partner with for success. The CRRG's Section 3.3 provides more details on how community outreach and engagement can create triple-bottom-line successes and bring communities together to address the impacts of climate change. For example, the San Francisco Estuary Institute, has several programs that make connections between the San Francisco Bay, water resources and resilient landscaping. A project in 2018 produced the San Francisco Bay Shoreline Adaptation Atlas which provides information on sea level rise and adaptations to climate change.[21]

Another organization working on integrating climate resiliency and GSI is the Watershed Project in Richmond. The Watershed Project created the North Richmond Collaborative Shoreline Adaptation Project which brings together the community and various stakeholders in the North Richmond area to address challenges and adaptation strategies.[22]

5.1.5 GSI Siting – New and Existing GSI Asset Policies

As discussed in Section 3, existing and future GSI assets near the Bay will face greater challenges due to the impacts of climate change. Therefore, policies and plans may need to be updated to include strategies for retrofitting existing impacted assets and for designing/siting new GSI.

The OneShoreline Planning Policy Guidance (OneShoreline 2023) from San Mateo County contains many recommendations for adaptation-related policies and model actions that can be included in municipal plans and Development Standards. One of the Guidance's model actions recommends that municipalities collaborate with OneShoreline to evaluate and, if necessary and feasible, amend building codes, zoning ordinances, and other standards to ensure that development projects adequately assess impacts from sea level rise, shallow groundwater, and other factors

[21] More information can be found at https://www.sfei.org/projects/san-francisco-bay-shoreline-adaptation-atlas
[22] More information can be found at https://thewatershedproject.org/our-programs/climate-ready-communities/shoreline/

affecting siting and design. It also includes a specific stormwater-related recommendation that the assets be designed to function under "Future Conditions"[23] for the life of the project.

Other potential siting policies include the following:

- Prioritize siting new public GSI and trash control assets upland from the Bay and out of the projected sea level rise-affected areas, where feasible. This will likely be a challenge for large trash control devices that are often located at the bottom of the watersheds for maximum cost-effectiveness.
- Promote GSI measures that can be located above grade, such as flow-through planters and green roofs, in vulnerable areas to avoid groundwater issues and rising water levels. In 2017, the City and County of San Francisco enacted the Better Roofs program with requirements that new and redevelopment projects use green/living roofs and/or solar PV systems.[24]
- Consider including GSI siting and technical information in municipal development guidelines for Priority Development Areas (sections of Bay Area communities that have been designated for new and redevelopment) to set expectations and standards for project proponents. An example of such guidelines is Emeryville's Stormwater Guidelines for Green, Dense Redevelopment (City of Emeryville 2005).

5.1.6 GSI Scope and Scale

Given the likely disruption climate change will bring to the Bay Area, there are questions about the benefits a small number of GSI systems in a watershed can realistically provide. A watershed approach is always the goal for stormwater management and may be even more needed in the future. Larger-scale regional GSI assets may become more prevalent in the future, such as the "Cloudburst" strategies and designs for flood parks and other areas first developed in Copenhagen, Denmark, and now in use in New York City and Hoboken, New Jersey.

A local example of a flood park is in Hayward. The park was constructed by the Alameda County Flood Control and Water Conservation District in 2015. The district's "creative solution was to build a detention basin to temporarily hold excess water during heavy rainstorms. The two-acre detention basin was built at a playing field near Mt. Eden High School, owned by the Hayward Unified School District. The entire field was dug out and deepened to hold up to 3 feet of stormwater. The basin was then graded so that once the Hayward Unified School District completes its improvements, it can be used as an ADA-compliant soccer field when dry."[25]

5.1.7 Examples of Climate Action and Resiliency Plans

Permittees have been developing climate action plans for over twenty years. Some plans include resilience and adaptation strategies related to stormwater management. As plans are developed

[23] The document uses the term "Future Conditions" to refer to water-related hazards associated with climate change such as, but not limited to, sea level rise, flooding, etc.
[24] More information can be found at: https://sfplanning.org/resource/zoning-administrator-bulletin-no-11-better-roofs-ordinance

and/or updated, GSI measures that utilize the strategies in the CCAR can be integrated into actions in those plans. Where local climate action plans identify projects affecting stormwater infrastructure, Permittees may consider coordinating implementation to improve the resilience of stormwater quality-related assets.

Examples of Bay Area regional and local climate action plans that include consideration of resilience strategies related to GSI include the following:

- Bay Area Air District (Air District), Bay Area Regional Climate Action Plan (2026). The Air District coordinated with many other regional agencies to summarize State goals and approach to climate action, current trends, legislation, and aspects of the actions from over 80 city and county climate-related plans in the Bay Area. Guided by nine foundational climate action principles, developed in partnership with Bay Area CBOs focused on climate justice and equity, the plan lists diverse greenhouse gas reduction actions to improve the climate and create a more resilient Bay Area. While the plan focuses on reducing GHG emissions and air pollution, it also contains resilience, sustainability, and regenerative actions that integrate rural/agricultural and urban issues related to water, greening, stormwater, nature-based solutions, and urban forestry.
- City of San José, Climate Adaptation and Resilience Plan (2026). The plan identifies foundational measures, policies, and strategies to help increase climate resilience and better protect vulnerable communities throughout San José. One of the plan's structural measures highlights the importance of GSI and the use of nature-based solutions to help reduce flooding risks, improve water quality, and strengthen long-term climate resilience (City of San José 2026).
- City of Mountain View, Biodiversity and Urban Forest Plan (2026). The plan includes discussion of GSI systems, habitat, vulnerable species, pollinators and other topics not typically included in urban forest plans.
- City of East Palo Alto, 2030 Climate Action Plan (2023). The 2023 plan is an update to the City's 2011 Climate Action Plan and includes adaptation strategies, GSI, climate resilience and projects with SMCWPPP and Climate Resilient Communities (CRC), securing grant funding to construct rain gardens on residential properties for to reduce localized flooding.
- In Contra Costa County, several municipalities have adopted climate action, resilience, and/or adaptation plans that include GSI:
    - Contra Costa County, Climate Action and Adaptation Plan Update (2024). The plan includes actions such as "NI-5: Minimize heat island effects through the use of cool roofs, green infrastructure, tree canopy, cool paint and pavement, and other emerging strategies.
    - City of El Cerrito, Climate Action & Adaptation Plan (2024). The plan contains GSI integration, a climate vulnerability assessment and an adaptation section aimed at extreme heat, wildfire smoke, flooding, and other local hazards. Equity and engagement are embedded.
    - City of Richmond, Sea Level Rise Adaptation & Resiliency Plan (in development). The plan's fact sheet includes references to natural systems and stormwater.

- City of Walnut Creek, Sustainability Action Plan (2023). The plan covers adaptation and resilience incorporating GSI and urban forestry in over 125 actions organized into near-/mid-/long-term timeframes, including air-quality response, local resilience hubs, waste-and-materials resilience, and transport/land-use measures that reduce risk during heat or smoke events.
- City of San Ramon, Climate Action Plan (2025). The plan has sections on nature-based solutions and integrates the City's GI Plan with nature-based carbon sequestration strategies.
- City of Martinez, Climate Action Plan (2009). The first climate action plan in the County, it contains adaptation components and is useful as a baseline reference.

Outside of the Bay Area, there are many examples of GSI integration with climate change adaptation. The City and County of Denver created the Green Continuum Streets Guidelines (City/County of Denver 2021). The guidelines present findings on current and projected increases in urban heat in the region, with a focus on heat in street environments. The guidelines present strategies to reduce roadway heat primarily through enhanced street tree planting. Figure 5-1 includes the graphic from the guidelines that demonstrates a key concept of climate change: some feedback loops can be either negative or positive, depending on the actions taken. If landscaping and tree canopy are reduced, urban heat and energy consumption increase – exacerbating climate change. But the opposite action can create a regenerative feedback loop: when urban areas are retrofitted with stormwater forestry systems, urban cooling and carbon sequestration are achieved – reducing greenhouse gas emissions and cooling the planet.

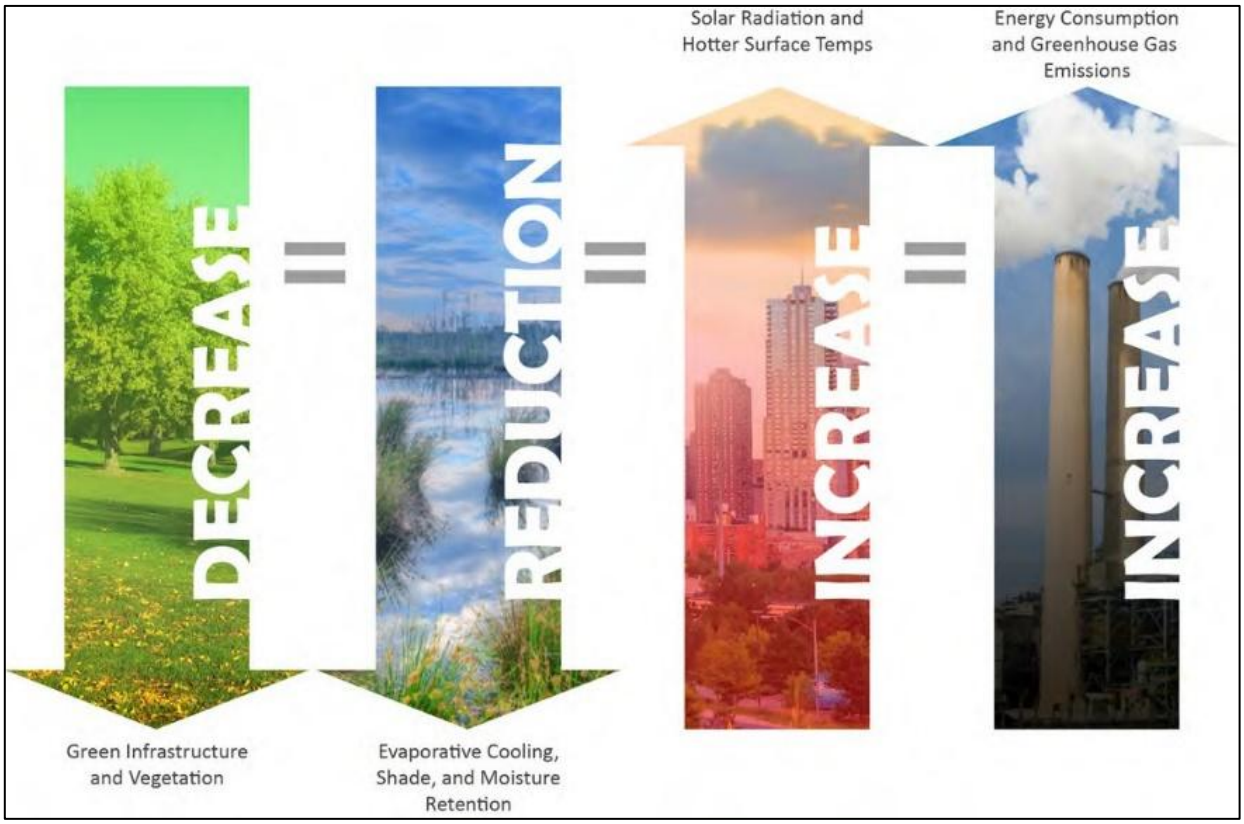

Figure 5-1. The Climate/Energy Feedback Loop – Credit: City/County of Denver

Similar to Denver's research, the Environmental Protection Agency has compiled information on urban heat and reduction strategies using vegetation, trees, and GSI on its website.[26]

5.2 ENGINEERING AND LANDSCAPING DESIGN STRATEGIES

To adapt to a changing climate, engineered GSI systems will likely need modifications to typical design and construction practices, as well as a feedback process for adaptive management. This section of the CCAR identifies possible strategies for creating more resilient, beneficial stormwater infrastructure, along with ideas for adaptive management.

5.2.1 CRRG GSI Design and Construction Adaptation Strategies

As described earlier, the CCAR builds on the CRRG's work by applying the adaptation strategies identified at the national scale to the conditions and impacts relevant to the Bay Area. The design and construction adaptation strategies identified in the CRRG are summarized in Table 5-1.

Table 5-1. Summary of CRRG Design and Construction Adaptation Strategies

GSI Measure Category	CRRG Design and Construction Adaptation Strategy
1. Infiltration	• Manage increased flows • Retain more water • Prevent sea-level rise backup into underdrains • Create conditions for cooler and shadier systems
2. Collection and Use	• Manage increased flows • Retain more water • Prevent subsurface water intrusion • Prevent sea-level rise backup into underdrains
3. Vegetated LID	• Manage increased flows • Retain more water • Increase vegetation health/resilience • Create conditions allowing larger, more resilient trees • Prevent subsurface water intrusion • Prevent sea-level rise backup into underdrains • Find new water sources for vegetation

5.2.2 Bay Area Precipitation Record Updates

The MRP contains flow-based, volume-based, and combination flow/volume-based sizing criteria for LID/GSI and non-LID systems. The application of some of these criteria, such as capture of 80% of average annual runoff, is based on tools developed in the early 2000's using historical rainfall data.

Recent scientific research has demonstrated that storms will become more intense and extreme precipitation will occur more frequently as a result of climate change. The degree of severity depends on which future warming scenarios are represented in predictive climate models.

[26] More information can be found at: https://www.epa.gov/heatislands/using-trees-and-vegetation-reduce-heat-islands

However, as discussed in Section 3, it is challenging to accurately convert daily precipitation predictions from downscaled Global Climate Models, such as those available from Cal-Adapt, to representative hourly time series required to run hydrologic models for analysis of stormwater capture facilities. One study showed that the Global Climate Model scenarios produce a wide range of results for the sizing of GSI facilities with a 48-hour drawdown time or less, making it difficult to recommend a future planning scenario for GSI sizing (Havens, et al. 2020).

Another resource described in Section 3 is the set of updated rainfall intensity-duration-frequency (IDF) curves developed by Lawrence Berkeley National Laboratory and the Pathways Climate Institute in Volume 2 of the San Francisco Bay Area Precipitation in a Warmer World report (Mak et al. 2023). For full trash capture devices, which are designed to treat the 1-year, 1-hour storm, these updated, locally scaled IDF projections could be considered when designing or retrofitting devices to ensure they continue to perform effectively under future precipitation patterns.

While predicting future rainfall patterns is challenging, the historic rainfall records for the sizing tools can at a minimum be extended up to current times. Using more recent rainfall data, Permittees can update tools such as sizing tables/curves and modeling software that assist designers in sizing stormwater quality assets that are more resilient to current and near-term conditions. These tools include the following:

- The Bay Area Hydrology Model (BAHM), which was updated in 2023 to extend the rainfall time series from 2013 to 2022;
- Sizing worksheets for volume-based, flow-based, and combination flow/volume-based LID/GSI measures; and
- Guidance documents that provide sizing calculations for treatment measures.

5.2.3 CCAR GSI Design and Construction Adaptation Strategies

Drawing on work from the CRRG and other sources, the CCAR identifies a suite of related and additional strategies municipalities may consider using to modify plans, designs, and construction details to improve resilience. Most of the strategies focus on biotreatment systems, specifically ensuring that they support healthy plant growth while also improving water quality and meeting design, engineering, construction, and maintenance needs. The CCAR strategies are examples of potential future considerations and not necessarily regional recommendations or expectations. The strategies are summarized in Table 6-1.

Biotreatment Soil Media (BSM) Specification

Healthy plants and biotreatment performance are dependent on the right soil media. The changing climate is affecting the performance of the typical soil media used for bioretention areas, called Biotreatment Soil Media (BSM). BASMAA, now known as the BAMS Collaborative, created the BASMAA Regional BSM Specification in 2010 and last updated it in 2016. It is expected that the BASMAA BSM specification will be reviewed for possible changes during the upcoming MRP reissuance to improve performance and respond to climate impacts.

The BSM Specification has two options for the creation of an acceptable BSM, including testing and supplier information:

- Option 1 (the “typical method”) allows vendors to produce or obtain the compost and sand

components, test them separately, then blend the components within given percentage ranges. The blended BSM is provided to customers with test results from compost and sand testing laboratories using BSM samples collected and tested within 120 days of delivery. It does not require that the final media be tested again for permeability or other parameters, however that information is often provided voluntarily by the suppliers.

- Option 2 (the "alternative method") allows for more flexibility on the part of the supplier related to the components or "ingredients" in the BSM but does require the vendor to obtain additional testing results from a geotechnical laboratory related to the permeability of a BSM sample after it has been compacted using one of two standard compaction tests. Option 2 is not used very often because of the risk of creating a BSM product that does not meet the specification requirements and the costs of the additional laboratory testing.

The BASMAA BSM specification has several advantages that have been realized over the last 10 years:

- It has created a relatively simple and standardized method that BSM suppliers have become accustomed to, which has created a relatively consistent BSM product across the marketplace in the Bay Area for new and redevelopment projects to purchase for their newly installed biotreatment systems.
- It does not require extensive or expensive laboratory testing.
- It uses commonly available materials – compost and "concrete sand" - that typically meet similar specifications from other agencies, such as Caltrans, which makes obtaining the materials easier and more affordable.
- The cost is similar to the prices of other landscape planting media.
- The compost fraction provides readily available nutrients to plants in the landscape by feeding the soil in a regenerative method instead of relying on synthetic fertilizers that feed the plants directly.
- The relatively high fraction of the sand component in the BSM specification – compared with typical planting soil - creates a product with a relatively high permeability, which allows the biotreatment system to treat runoff in a smaller footprint, taking up less land in a region with extremely high land costs. This keeps the overall cost of constructing LID treatment systems down in development projects, reducing cost pressure on land developers and the purchasers/users of completed projects.
- The high permeability of the BSM allows biotreatment areas to dry out within 72 hours, avoiding standing water and possible vector problems (primarily mosquitoes).
- Supplying BSM uses a large amount of compost, which helps compost producers with market development, and California municipalities comply with State regulations that require the procurement of compost and mulch to stimulate the market for these products.

The "typical method" in Option 1 of the BASMAA BSM specification also creates a product that has these disadvantages:

- The large amounts of sand (60-70%) create a media with low water-holding capacity

(WHC). The BSM therefore dries out quickly after each storm.

- The low WHC of the BSM results in either high levels of irrigation needed to keep plants healthy or increased water-related stress for the vegetation if there is no irrigation system and the vegetation needs to survive with only natural rainfall/runoff. The amount of irrigation needed and/or levels of water-related stress in vegetation correlate with increases in the average temperature of the climate where the biotreatment facility is located. In milder areas of the Bay Area, vegetation in biotreatment facilities can survive without irrigation, but in hotter areas it can suffer – even with high irrigation.
- Trees (especially large ones) planted in BSM require more irrigation than small plants and shrubs and will require even more during the next extended drought.
- The relatively large amounts of compost (30-40%) and sand with no other components to provide soil structure create a BSM that may export nutrients in some situations. However, there is evidence that export diminishes over time as the roots of the plants grow into the full BSM profile and when beneficial bacteria and fungi become established.[27] Additionally, the amount of compost and organic matter in the BSM gradually declines as it mineralizes, and as nutrients are taken up by the plants.
- Many suppliers in the Bay Area have had trouble meeting the ¼ inch sieve requirement in the compost gradation.

There are amendments that have promising characteristics for improving BSM performance. Biochar appears to be a powerful new strategy for improving soil structure, water holding capacity, soil life, pollutant removal and sequestering carbon. Adding 10 percent biochar to the BSM "recipe" can double water holding capacity.[28]

Bearing in mind the advantages and disadvantages described above with the existing BSM specification, there are several possible strategies to consider:

- Review research being done by others on BSM specifications around North America and recommend modifications to the BASMAA BSM specification to improve the WHC.
- Consider creating two separate BSM specifications for biotreatment areas with and without underdrains.
- Encourage use of the "alternative method" of the BSM specification to create products that have more WHC, such as by using biochar and other amendments.
- For improved tree health in biotreatment areas, consider "hybrid" design approaches to soil media. A hybrid design could include use of the typical BSM in one part of the system and a more standard planting soil in an adjacent area of the system that tree roots can be encouraged to grow into over time.

[27] More information can be found at: BSM Literature Review (BASMAA 2016) https://basmaa.org/wp-content/uploads/2021/01/basmaaliteraturereviewbioretentiondesignfortreehealth.pdf and BSM Report (Owen et al. 2023) https://repository.library.noaa.gov/view/noaa/33059/noaa_33059_DS1.pdf

[28] More information can be found at: https://link.springer.com/article/10.1186/2251-6832-4-44

Biotreatment Area Plant Palette

When biotreatment areas were first designed in the Bay Area, it was thought that they would function like marshy or riparian landscapes that were regularly inundated or wet for extended periods. Therefore, the plant palette would match that design philosophy. However, it has become apparent that, given the combination of the sandy BSM specification and the Bay's Mediterranean climate, biotreatment areas are wet for only brief periods, and the BSM dries out quickly after rain events. This has led to changes in design over the last few years, with drought-tolerant plant palettes from dry landscapes being considered.

In addition, the State of California has many regulations and programs related to the efficient use of water and irrigation for vegetation, including through the Department of Water Resources,[29] the increasingly strict Model Water Efficient Landscape Ordinance (MWELO),[30] and regulations for irrigated turf in AB 1572.[31] These State regulations have affected plant and irrigation designs.

Possible strategies to consider in response to these changes include:

- Continue selecting plants that are drought-tolerant and perform well in very sandy soils.
- Consider the use of "bioretention sod" products that are typically blends of drought-tolerant, native turf grasses designed for biotreatment areas. While some agencies have various issues with tall grass landscapes, these products can:
    - Avoid the use of mulch because they have 100% soil coverage;
    - Have "instant" plant establishment - as a rolled-out sod product – providing less potential erosion of the BSM underneath the sod;
    - Include grass species with roots that can grow to reach native soils beneath the BSM (e.g., some native bunch grass roots can grow 10 feet deep); and,
    - Use mechanical equipment for raised height grass mowing, possible resulting in lower maintenance costs compared to the typical biotreatment area design with bunch grasses and mulch that require more manual labor. For more information, see landscape maintenance strategies in Section 5.3.1.

Mulch Considerations

Mulch is defined as the layer of material covering bare soil – it can consist of rock, wood or other materials. Stormwater landscapes have special mulch needs, and the most suitable type can vary depending on the system design, plant palette and the location's microclimate.

Rock mulch has often been used to protect sandy BSM from erosion – especially in biotreatment areas that receive higher flows with significant erosion potential. Historically, Bay Area biotreatment area designs have often featured a "dry creek bed" aesthetic that uses a lot of rock. Increasing urban heat and more frequent droughts from climate change is causing designers to re-examine that practice. In hotter parts of the Bay Area, excessive rock mulch retains heat that can have negative impacts on vegetation and plant water use. For these reasons, many stormwater

[29] More information can be found at: https://water.ca.gov/Programs/All-Programs/Climate-Change-Program
[30] More information can be found at: https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance
[31] More information can be found at: https://saveourwater.com/#1

programs are now recommending the application of wood mulch in stormwater landscapes.

A minimum of three inches of recycled wood mulch over exposed soil areas is required by the MWELO in most new landscapes with some exceptions. Wood mulch has many benefits[32]:

- Reduces the growth of unwanted plants;
- Regulates soil temperature and evaporation;
- Decreases the need for watering of plants;
- Adds aesthetic value; and
- Protects soil from erosion by wind and water forces.

In particular, wood mulch is recommended[33] over rock mulch because wood mulch:

- Adds organic matter to the soil;
- Provides nutrients for soil microorganisms and plants;
- Creates demand for locally produced recycled material such as tree trimmings, including branches, twigs, leaves, and bark;
- Improves soil structure;
- Increases soil water retention;
- Absorbs rainwater and releases it slowly; and
- Keeps organic materials out of landfills.

Industrial (high heat) composting of the wood mulch before application in a biotreatment area provides additional benefits[34]:

- Reduces pathogens that may occur in vegetation, such as Sudden Oak Death and pests[35];
- Helps the mulch float less and knit together to stay in place;
- Inoculates the mulch with beneficial flora and fauna[36];
- Increases moisture content and water-holding capacity;
- Decreases flammability;[37] and
- Adds compost particles and organic matter.

The decreased flammability of composted wood mulch[38] can also be of use in those biotreatment

[32] More information can be found at: https://ucanr.edu/site/uc-master-gardener-program-contra-costa-county/article/mulch-its-got-you-covered
[33] More information can be found at: https://ucanr.edu/program/uc-master-gardener-program/mulch
[34] More information can be found at: https://www.biocycle.net/whats-unique-about-composted-mulches/
[35] More information can be found at: https://www.researchgate.net/publication/6823308_Composting_is_an_effective_treatment_option_for_sanitization_of_Phytophthora_ramorum-infected_plant_material
[36] More information can be found at: https://calrecycle.ca.gov/organics/compostmulch/
[37] More information can be found at: https://naes.agnt.unr.edu/PMS/Pubs/1510_2011_95.pdf
[38] More information can be found at: https://firesafemarin.org/wp-content/uploads/Mulch-Shaorun-et-al.-FSJ.pdf

areas that are near or in the Wildland-Urban Interface or areas that may have a higher risk of fire[39] including urban biotreatment areas where people are more likely to toss burning cigarette butts.

To create consistency in the marketplace for composted wood mulch used in bioretention areas and provide a standard for permittees and designers to reference, Bay Area agencies partnered to develop the "Biotreatment Wood Mulch" or "BWM" specification in 2022.[40] Some Bay Area GSI guidance documents are now recommending the pairing of BWM and BSM in biotreatment areas.

Figures 5-2 and 5-3 show images of uncomposted and composted mulch for comparison.

Figure 5-2. Uncomposted Wood Mulch

Figure 5-3. Composted Wood Mulch

In summary, mulch-related strategies for combating the effects of increased urban heat and droughts from climate change include:

- Using composted wood mulch;
- Including a deeper mulch section (4-6 inches) over the BSM as needed; and
- Reducing the use of large rock and gravel mulches (except as needed for erosion protection).

See Section 5.3.1 for more information on mulch maintenance strategies.

Irrigation Practices

As with mulch and soil, climate change impacts such as heat and drought are affecting plant health through the lens of water usage of vegetation in biotreatment areas.

There are several types of strategies related to irrigation and climate change adaptation:

- Irrigation design for water conservation;
- Irrigation design for plant health; and
- Irrigation water sources.

[39] More information can be found at: https://firesafemarin.org/create-a-fire-smart-yard/mulch/

[40] More information can be found at: https://scvurppp.org/wp-content/uploads/2021/08/Biotreatment-Area-Wood-Mulch-Spec-8-1-21-Final.pdf

Conservation of water is critical for the future of California's arid and Mediterranean landscapes. Irrigation controllers with "smart" features that can detect current and future rain events are now required for certain new and retrofitted landscapes, but many controllers without those features still exist.

The design and maintenance of irrigation systems in bioretention areas can be critical to vegetation health. As the knowledge of bioretention area design improves and maintenance best management practices are further developed with feedback given to designers, it is now understood that irrigation system designs for typical landscapes may not work best for bioretention areas. The BSM plays a large role in the differences. In a typical landscape, water from drip emitters flows out in a pyramidal pattern in the section view of the soil. But in a bioretention area, the BSM is so permeable that the water flows directly downward without spreading. This can lead to irrigation water "missing" the plant roots if the emitter is not directly above the root area of the plant. To address that problem, some designers are moving to overhead spray irrigation emitters (with pop-up emitters) instead of emitters that are on the soil surface or subsurface.

Diversifying the sources of irrigation water can have several advantages, including: a more resilient and diverse water portfolio during droughts, more plant diversity with high-water demand plants, and saving potable water for the highest and best uses.

However, there are potential challenges with alternative sources of water for irrigation of biotreatment areas including: regulatory barriers for the use of non-potable water (e.g., public health concerns); higher salt content in recycled water from wastewater treatment facilities which can harm sensitive plant species; irrigation system maintenance challenges (e.g., additional pre-treatment equipment and increased sediment that can block emitters); and erratic or limited supplies in some seasons.

Strategies that could be employed related to irrigation design and water sources:

- Conserve irrigation water by replacing irrigation controllers in existing landscapes;
- Compare water use rates and plant health resulting from surface drip, subsurface drip, and overhead spray;
- Consider using overhead spray for biotreatment area plant health as needed; and
- Consider diversifying the sources of irrigation water for biotreatment areas to increase resilience and conserve potable water.

Biotreatment Infiltration and Groundwater Issues

Most biotreatment systems in the Bay Area are not lined with impermeable materials to allow beneficial infiltration of stormwater into native soil and to provide more soil volume for vegetation. However, with sea level rise, it is projected that salty/brackish Bay water could intrude into groundwater areas near the Bay margin, and seasonal groundwater levels could rise. This could cause groundwater to rise into biotreatment areas, depending on factors such as coincidence of storms and high tide, the depth of the biotreatment area, historical fill practices, local soil types, depth to groundwater, and local geology. Rising groundwater can also create upward hydraulic pressure on a GSI system. If the rising groundwater is salty or brackish, it could affect the health of the plants in the GSI measures.

Strategies to counteract these impacts can include:

- Lining and/or containerizing more biotreatment areas with impermeable materials (adding weight to counteract any uplift if needed; and
- Shallower biotreatment design and construction, where feasible.

Underdrains in High-Seasonal Groundwater and Tidal Locations

A significant number of new GSI built in the Bay Area as part of new and redevelopment projects is in low-lying areas near the Bay. As the soil in those areas is most often clayey bay mud, GSI systems typically have underdrains that are connected to storm drain pipes that discharge to the Bay. As sea levels rise in combination with storm surges and high tides, these underdrains are likely to fail to perform if their outlets are submerged more often. Higher groundwater levels could also rise into underdrains in unlined biotreatment or pervious pavement systems and could result in temporary flooding, biofouling, and/or standing water in GSI systems for extended periods of time.

Design strategies to address these conditions could include the following:

- Installing flap gates, backflow preventers, or other types of systems in underdrains or adjacent storm drain pipes that can reduce backflow from rising Bay waters;
- Consider using pumps to convey treated water from underdrains to discharge points (not recommended due to the reliability and maintenance needs of pumps, but may be necessary in some situations).

Trees in GSI

Integrating trees into urban GSI can provide many additional benefits beyond typical trees in streets or parking lots but there are important considerations to get the GSI design right. Large trees in GSI can provide critical shade and cooling of people, smaller biotreatment area vegetation, soil, pavement and buildings that will be crucial with a hotter and drier climate. The CRRG identifies these benefits, including reducing and infiltrating runoff and improving water quality. Trees can be an important strategy in mitigating urban climate change impacts, but it is essential to recognize that the warmer, drier, and windier climate is already stressing urban forests. The CCAR identifies some additional strategies for the Bay Area to assist trees in GSI to be more resilient in a Mediterranean climate and the conditions in typical biotreatment areas. While there are important engineering, design, and maintenance concepts and practices that can be used to improve the resiliency and ecosystem services of urban trees, there are also keystone policies that can have a bigger impact on the urban forest, such as the establishment of minimum soil volumes for new tree planting and better funding of forestry programs.

Some of the challenges with maintaining healthy and resilient trees in GSI include:

- BSM: As described in the BSM section, there are challenges with the current BSM water holding capacity and soil structure, which can affect trees even more than small plants and shrubs. The same strategies for improving the BSM apply to trees as well.

- Irrigation and drought: Closely related to irrigation challenges, the main difference with trees in GSI compared to small plants and shrubs is the quantity of water that may be needed to keep large trees alive during drought periods – especially if only BSM is provided for root growth.
- Shift in species: There is a movement among some arborists and landscape architects to specify more tree species from hotter climates in recognition of the changing climate. This trend will likely involve experimentation and stimulate debate.
- Pathogens and pests: Climate change and world trade are continuing to create conditions where plant-related diseases and insects that are deleterious to certain tree species are causing severe damage. While researchers are developing and identifying disease-resistant tree varieties, it does not appear to be fast enough to counter the spread of these diseases. However, with better tree planting conditions and maintenance, trees may become more resilient and resistant. If trees are less stressed, they may be able to fight off pests and disease more easily. Healthy planting soil for new trees that supports and is inoculated with the flora and fauna such as described in the "soil-food web,"[41] can be crucial to maintaining tree health.
- Wind: Similar to disease and insects, more severe wind events are damaging many urban trees, causing many to wonder if trees are worth planting. But the structural issues of planting trees in small pits are not new. With improved planting conditions and stronger root systems, trees will be less likely to fall over.
- Fire: Species of trees that are more susceptible to combustion and the spreading of fire should be considered carefully when planted in or near urban sections of the Bay Area. This could include some non-native tree species.
- Groundwater: Infiltration of Bay water into shallow groundwater areas and groundwater rise, especially water with a higher salt content, could severely affect trees near the Bay.

Strategies for adaptation include:

- Provide more rootable soil volume using better designs: more open space, suspended pavement systems, etc.
- Provide better WHC and soil structure in BSM and/or designs where tree roots can access soil with better WHC.
- Keep soil and tree roots cool with suspended pavement systems and composted wood mulch (but keeping mulch at least 6 inches away from tree trunk flares).
- Inspect nursery stock before and during planting.
- Enhance programs for urban forest planting, structural pruning, and maintenance as resources allow.

[41] More information can be found at: https://en.wikipedia.org/wiki/Soil_food_web

Rainwater Harvesting and Use

Rainwater harvesting in cisterns (larger, typically non-residential systems) is uncommon in the Bay Area, for several reasons. Holding large amounts of rainwater during the rainy season to use in the dry season is usually cost-prohibitive for sites with relatively small landscapes and there are regulations that make certain uses of rainwater more challenging.[42] The rare Bay Area successful rainwater harvesting system typically exists where there is high toilet flushing demand or high irrigation demand, such as a hospital or a golf course. However, rainwater harvesting will likely become more common and important in the future as climate change impacts increase and the current impediments to use change. As weather patterns change, become more erratic, and deviate more frequently from historic patterns, and as potable water prices increase, the holding and using of rainwater may begin to have a different cost calculation.

New designs, products and systems are entering the market, offering more options for GSI designers. For example, could rooftop tanks on buildings that function as tuned liquid mass dampers for seismic safety (such as the 50,000-gallon tank on the 62-story One Rincon Hill South Tower in San Francisco) be used as cisterns for rainwater harvesting? Similarly, One Rincon's 50,000-gallon water tank in the basement, being used for firefighting purposes, could possibly be combined with a rainwater harvesting system. Above and below-ground cisterns and structural cells for holding water may be used more effectively in the Bay Area's GSI systems in the future. Designs can be better integrated to consider holding water after rain events and releasing it to supplement and/or replace scarce irrigation supplies in the future. The designs need to be cognizant of the fact that soils need to dry out occasionally between storms, but, similar to the rise of "smart irrigation controllers," we may see the rise of "smart cistern controllers" and other more complex rainwater-use systems.

Potential strategies include:

- Consider different capacities of water-holding systems above and below ground in combination with biotreatment areas to measure benefits.
- Consider using data from existing Bay Area systems with cisterns as stand-alone measures or integrated with subsurface infiltration chambers to measure actual performance versus modeled/estimated performance.

Pervious Pavement Surfacing for Heat Reduction

Pervious pavement, as with any other type of pavement, can be constructed with high-albedo materials to increase sunlight reflection and reduce heat absorption, thereby reducing the urban heat island effect. While that option may not be as feasible with porous asphalt due to its typical dark color, there does not seem to be any impediment to light-colored concrete pavers or pervious concrete products. Some jurisdictions and/or building codes have specifications and/or

[42] More information can be found at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/onsite_nonpotable_reuse_regulations.html

requirements related to cool roofs, so cool pavement could be a similar practice and requirement, while also adding the advantages of pervious pavement to the discussion.

Strategies to consider:

- Consider GSI policies and/or design specifications that require lighter color, more reflective (high albedo) pavement products;
- Consider policies and/or grant programs with incentives for pervious pavement and higher incentives for pavement with high albedo.

Urban Soil Restoration

Protecting existing landscapes, trees and healthy soils in new development projects is a key strategy of the LID approach. Improving and restoring urban soils can also be a key strategy for adapting to climate impacts through improved permeability, groundwater recharge, water-holding capacity, healthier plants and trees, and reduced irrigation demand. All of these changes create a more resilient urban landscape that can be critical during heat waves and droughts. But soils in urban areas are often already degraded from previous pavement, roadway, and building construction and/or from historic practices, including compaction and lime soil stabilization treatments or contamination from concrete slurry, pesticides, and other chemicals.

Restoring urban soils is a key aspect of China's "sponge city" concept,[43] developed by landscape architect and planner Kongjian Yu in the early 2000s and adopted as one of the country's nationwide urban construction policies in 2014. Similar to Copenhagen's "cloudburst" approach,[44] Australia's Sustainable Urban Design[45] and the USA's LID approach, sponge cities use new designs for parks, streets and other infrastructure to slow, spread and sink stormwater. But sponge cities focus more on the restoration of urban soils and use nature-based concepts, such as living soils and the "soil-food-web" concepts[46], that have also been developed in the United States by Dr. Elaine Ingham and others. The "Soils for Salmon" program[47] in the Seattle area and the Bay Area's home composting education program known as ReScape regenerative principles (formerly known as Bay-Friendly Landscaping) are also good examples of holistic soil practices and programs for urban soil renewal. Soil permeability and structure are greatly improved with the incorporation of organic content into the soil and the inoculation of microscopic and macroscopic animals, plants, and fungi, which is typically achieved with compost addition.

Microforests, also known as Miyawaki forests, are small, densely planted, and fast-growing urban landscapes, typically on retrofitted and impacted land, that can have a big effect on soil permeability and health. The fast-growing and dense vegetation and trees can create shade, cooling and biodiversity improvements in relatively short periods of time. The Berkeley Unified

[43] More information can be found at: https://en.wikipedia.org/wiki/Sponge_city
[44] More information can be found at: https://www.asla.org/awards-events-main-landing/honors-awards/pro-student-awards/2016-professional-awards/171784
[45] More information can be found at: https://www.susdrain.org/delivering-suds/using-suds/background/sustainable-drainage.html
[46] More information can be found at: https://soilfoodweb.com/how-it-works/
[47] More information can be found at: https://www.soilsforsalmon.org/

School District and the City of Berkeley have installed several microforest projects.[48] A microforest project in New Jersey saw a 50-fold increase in permeability a few years after soil restoration and planting.[49]

Strategies to consider:

- Incorporate organic content into soils before planting (typically with compost) to improve soil structure, carbon sequestration and soil life. This is typically required now in California as part of the Department of Water Resources MWELO regulations. See the BSM strategy section for information on the benefits and challenges of using compost in GSI.
- Use compost and mulch as soil amendments and soil improvements, as these actions restore soils, increase water holding capacity, sequester carbon, and can count towards procurement requirements for cities and counties regulated by the State's recovered organic waste program (SB 1383).[50]
- Incentivize urban microforest projects and consider integrating the projects with GSI design features.

Manage Increased Flows from More Extreme Storm Intensities

More intense storms will be challenging for biotreatment system resilience, but there are some design strategies that can be considered. The GSI approach of "slow it, spread it, sink it" can be applied.

In typical Bay Area urban roadways with center crowns, curbs, gutters and sidewalks, most of the runoff flow is designed to be concentrated and conveyed in the gutter during rain events with the destination of a storm drain. While concentration of flow is a typical aspect of traditional gray infrastructure, flow concentration is in opposition to GSI principles. In stormwater curb extensions, intense rain events can cause significant erosion, mulch disturbance, and/or plant damage because the design of the curb extension inherently places the inlet in the gutter area and concentrates the runoff stream. "Flow spreading" and "flow splitting" design elements can be utilized to dilute the flow into more manageable volumes and reduce the impacts of rain intensity.

Examples of flow spreading, conveyance, or energy dissipating systems include "green gutters" (described in SMCWPPP's GI Design Guide[51]), check dams, channels, runnels, trench drains, dry creek beds, bioswales, valley gutters, riprap, strategically placed blockages, and forebays. These types of systems can be constructed of pervious and/or impervious materials using roughened

[48] More information can be found at: http://berkeleyca.gov (http://berkeleyca.gov/sites/default/files/documents/2024-10-29 Item 14 Council Referral and Contract%20 Green Pocket Forest for Miyawaki Forest Design and Installation(1).pdf)
[49] More information can be found at: The New York Times (https://www.nytimes.com/2025/07/22/climate/new-jersey-tiny-forests.html?unlocked_article_code=1.dlA.Mh9W._EuaQf7EOxVP&smid=url-share)
[50] More information can be found at: https://calrecycle.ca.gov/organics/slcp/faq/recycledproducts/
[51] More information can be found at: https://flowstobay.org/data-resources/resources/green-infrastructure-design-guide/

surfaces, multiple openings, and/or flush curbs to slow and distribute runoff to multiple entry areas into the main vegetated section of the bioretention area.

Examples of flow splitting systems can include open or closed boxes or vaults with weirs, channels, and/or pipes set at elevations to divert low flows to GSI and high flows back to gray infrastructure. These systems need to be carefully engineered to meet permit-required hydraulic sizing criteria and not erroneously bypass stormwater around treatment systems.

Mirroring the redundancy of natural systems can also assist the designer of GSI in creating resilient and higher performing treatment measures that do not fail readily from one poorly designed element in the system. A single inlet that is easily blocked by one large plastic bag, causing flow to bypass a whole GSI measure, is an example of non-redundant design.

5.3 OPERATION AND MAINTENANCE STRATEGIES

5.3.1 Landscape Maintenance Strategies

As climate impacts increase stress on vegetation, erosion of BSM, and possibly loading of sediment in biotreatment areas, proper operation and maintenance practices will be critical to sustaining the performance of stormwater treatment systems. Typical biotreatment measures in the Bay Area have used small- to medium- sized native and other Mediterranean-climate-appropriate perennial plants, such as bunch grasses surrounded by wood mulch, for the last twenty years or so. Maintaining those landscapes typically involves manual labor. But with a changing climate, these vegetation maintenance practices can be reviewed to see if any changes are warranted or would increase GSI asset resilience. For the most part, maintenance practices are dependent on the landscape design (see related sections in Section 5.2.2), but additional climate adaptation strategies can be considered for operation and maintenance.

Potential adaptation strategies for maintenance are summarized in Table 6-1. These strategies are examples of potential future considerations and not necessarily regional recommendations or expectations.

Landscape design's influence over maintenance

As discussed in the design and construction strategies section, decisions on the elements (e.g., plant palette, mulch, irrigation and inlets) of vegetated stormwater treatment systems can lead to success or failure in the short and long terms and can create challenges for cost-effective maintenance. Maintenance of vegetated systems is likewise crucial to success. Impacts from climate change such as increased urban heat, drought, and more intense storms will exacerbate and possibly expose any problems with those decisions more rapidly. Maintenance adaptation strategies are partly reliant on landscape design and construction factors but can also be stand-alone measures.

In the first ten years of vegetated stormwater treatment system implementation in the Bay Area (i.e., from the late 90's to mid-2000's), "bioswales" were often built with conventional turf grasses, such as fescues, that were regularly mowed and mimicked the aesthetic of existing decorative, non-functional turf areas in parking lots and areas around commercial buildings. This approach also had the added advantage of using a landscape type that maintenance crews were familiar with, thereby minimizing the new maintenance training needed. But as the concepts of Integrated

Pest Management and other holistic, sustainable landscape practices, such as the principles of Bay-Friendly Landscaping,[52] became more common, turf-centered biotreatment began to be questioned. Practitioners began to look for other designs to avoid the environmental impacts of mowing, pesticides, chemical fertilizers and heavy water use that turf upkeep usually involves.

A planting design using bunch grasses and mulch eventually became the standard in the Bay Area. However, the new designs were not implemented with sufficient training for landscape maintenance professionals, who have appeared to struggle with how to maintain them. For example, the most commonly-used plant species in the Bay Area – the California Gray Rush (*Juncus patens*) – should be cared for differently from turf grass and common bunch grasses for the best plant outcomes and does not need much pruning. The lack of adequate maintenance training, in addition to the desire of clients to keep landscapes "tidy," often results in rushes being damaged with unnecessary pruning, as shown in Figure 5-4 below. The desired condition is shown in Figure 5-5. Unfortunately, the unneeded maintenance creates plant stress. Repeated poor care causes vegetation decline and eventual replacement after a few years, resulting in poor aesthetics and increased costs.

Figure 5-4. Poorly pruned rushes (ball shape)

Figure 5-5. Rushes with recommended minimal pruning

Other maintenance issues relate to irrigation systems that rely on drip emitters (see Section 5.2.2) and, along with the sandy BSM, can exacerbate the plant care problems. In addition, complex landscape designs with many plant species of plants in scattershot placement do not help maintenance crews care for them properly, when especially many look similar after maturity and during dry summer periods. More feedback from maintenance crews to landscape architects and engineers is needed to inform and improve the design process.

Simpler plant and irrigation designs – especially for roadway GSI assets - can improve plant health, reduce maintenance costs, and lead to more resilient biotreatment areas that can better survive future droughts and heat waves. In street applications of GSI, such as the stormwater curb extension shown in Figure 5-6, simple plant layouts can allow maintenance crews to more easily identify plants and maintain irrigation lines and emitters. Figure 5-7 shows what the simple plant

[52] More information on Bay-Friendly Landscaping (now known as ReScape) can be found at: www.rescapeca.org

layout looks like after a few months, when the vegetation has matured. The two plant species are still easy to locate, identify, and manage. The straight lines of the plant rows can also help maintenance crews find the emitters if they are also placed parallel to those lines.

Figure 5-6. Simple vegetation layout, at planting stage (Credit: City of San José)

Figure 5-7. Simple planting design, at maturity (Credit: City of San José)

Bioretention sod has challenges and benefits that merit further discussion for GSI, including possible increased climate resiliency. It often uses native grasses that can be mowed mechanically. Figure 5-8 shows the appearance of biotreatment sod upon installation. Figure 5-9 shows the sod after plant establishment. More discussion and consideration of sod as an option is needed to determine which grass varieties, mowing frequencies, grass heights, and irrigation types are optimal for maintenance. Typically, drip emitters are used for biotreatment area irrigation, but sod may perform better when used with overhead irrigation spray. Municipal maintenance budgets are limited and there may be cost savings with sod if it can be maintained with mechanical equipment, such as electric mowers, rather than with manual labor, as is typical with biotreatment areas.

Figure 5-8. Bioretention sod at installation

Figure 5-9. Bioretention sod after a few months of growth

In summary, possible landscape maintenance strategies include:

- Consider simple vegetation layouts to save on labor costs, maintain irrigation systems more easily, and maintain plants in a healthy condition more easily.
- Retrofit irrigation emitters to overhead spray where appropriate.
- Provide more training and education for GSI maintenance professionals.
- Consider bioretention sod for biotreatment areas.

Increase the use and depth of composted wood mulch

As discussed in the design and construction strategies section of the CCAR, the right mulch can be a very important resiliency strategy in stormwater landscapes to retain moisture, protect the BSM from erosion, and cool the soil, reducing plant stress. Therefore, addressing the maintenance of mulch is also an adaptation strategy.

Mulch is required by the State's MWELO regulations to be maintained at a depth of three inches. This requirement is a minimum, so deeper mulch is an option and may provide greater benefits for plant health and cost savings in weed control. More frequent inspection and/or replacement of mulch to ensure maintenance of the three-inch (or greater) depth is also an option.

For example, Caltrans has utilized a wood mulch depth of 6 inches in locations where maintenance crews, due to budget constraints, are not expected to be able to visit very often. Mulch should be kept several inches away from plant stems, tree trunks and root flares to avoid root and stem rot, but otherwise it can be an effective way to keep the soil cool and moist during droughts and heat waves. This saves water, improves plant health, and increases resiliency. Wood mulch also decomposes, adding organic matter to the soil and improving water-holding capacity. Composted wood mulch is even more effective in providing these benefits due to its increased water-holding capacity and inoculation with beneficial microbes and fungi.

Maintenance strategies to consider include:

- Ensure mulch is inspected to verify that the required mulch depth is maintained;
- Increase the required depth of mulch where appropriate; and
- Require the use of composted wood mulch and refer to the regional composted wood mulch specification.

The CRRG also provides recommendations (see Figure 5-10) for reviewing operation and maintenance procedures to improve climate resilience, which may be useful. Similar types of activities and data collection are being conducted as part of Permittees' asset management programs.

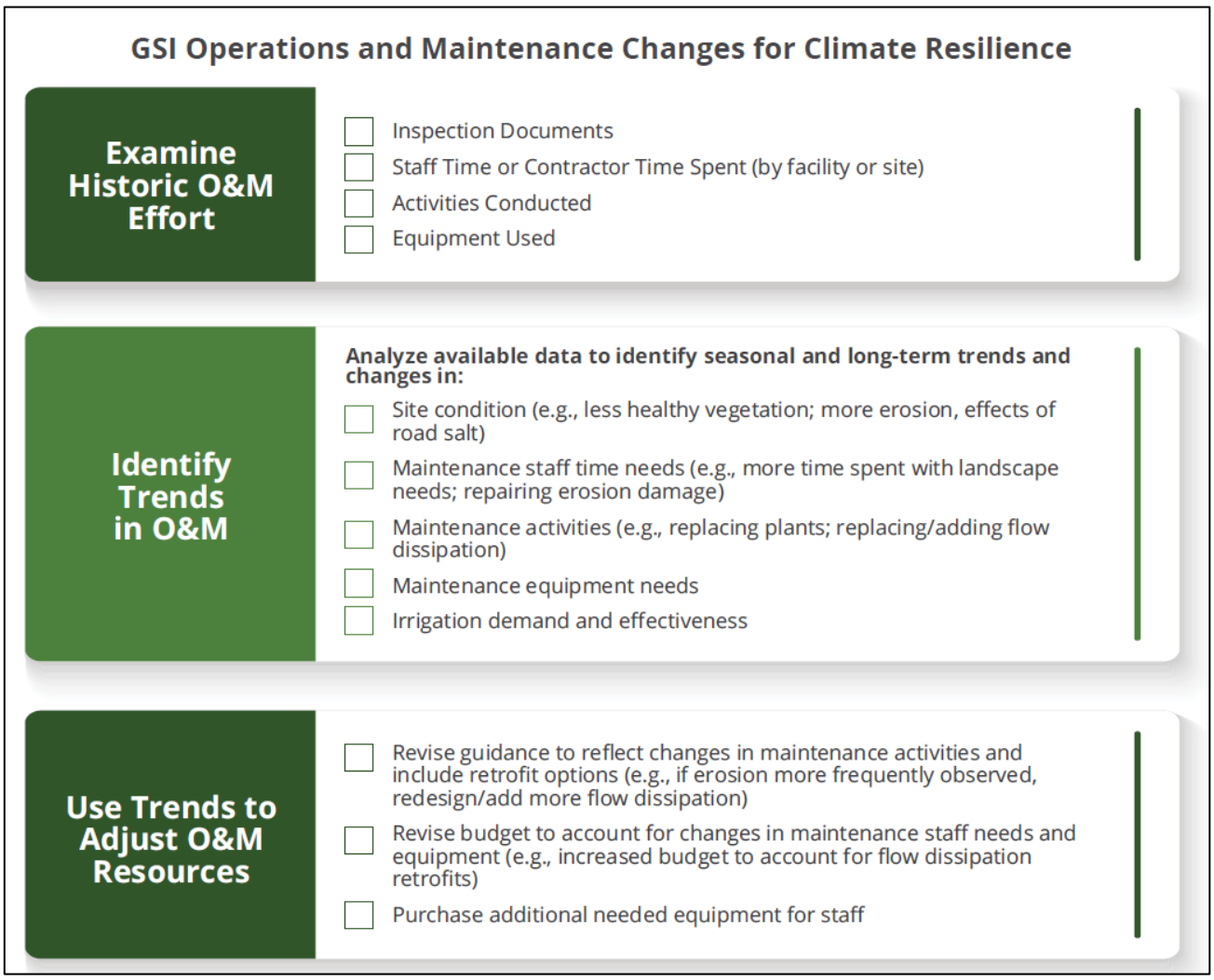

Figure 5-10. CRRG O&M Recommendations

5.4 IMPLEMENTATION AND ADAPTIVE MANAGEMENT

As the impacts of climate change continue to be felt in the Bay Area and affect stormwater quality assets, Permittees may need to implement appropriate management actions. These actions will be most effective if they are based on coordination with and feedback from municipal staff involved with asset planning, design, engineering, construction, and maintenance, in order to learn from successes and mistakes. This section summarizes potential adaptive approaches for existing and new assets, and identifies stakeholder organizations that may assist with the process.

5.4.1 Adaptation Strategies for Existing Assets

Permittees can use adaptive management to take advantage of opportunities to improve previously constructed assets that may not be performing optimally and consider utilizing the adaptation strategies in the CCAR. These opportunities may include:

- Assets with design or construction defects;
- Assets that are difficult to maintain due to various factors, such as a lack of irrigation water connection.
- Assets that could take advantage of newer technologies to improve performance; and
- Proprietary systems that are no longer maintainable or are not performing well.

Existing assets that need rehabilitation can be prioritized based on Permittees' asset management programs. These prioritization approaches include criteria determined by the Permittee, such as the importance of the asset, observed conditions that may reflect the severity of climate change impacts, and the consequences of failure if the asset is not rehabilitated. Once an asset is identified for rehabilitation, using the design, construction, and maintenance strategies in the CCAR may be useful and help avoid the need for extensive rehabilitation in the future.

5.4.2 Adaptation Strategies for New Assets

The planning and siting of new assets can be examined using adaptation strategies in Sections 4 and 5 and include the following considerations:

- Locate assets where sea level rise, groundwater intrusion, and other impacts of climate change will have the least potential for damage.
- Locate assets where they will have the most potential for multiple beneficial outcomes, including improved water quality, equity, and environmental justice as appropriate.

5.4.3 Bay Area Stakeholder Involvement with Adaptation Strategies

Involving more stakeholder organizations can assist in adapting stormwater quality assets to climate change and may result in more successful strategies. Stakeholders may include:

- CBOs and other organizations involved with watersheds, resiliency, climate change, transportation, environmental justice and/or equity such as Save the Bay, Acterra, the Watershed Project, Grassroots Ecology, Transform, Breakthrough Communities, and Climate Resilient Communities;
- Community organizations involved with GSI design, construction, and maintenance such as ReScape;

- Business and trade organizations such as the Bay Area Chapters of the California Landscape Contractors Association, American Society of Civil Engineers and the American Society of Landscape Architects, and the Bay Area Business Council;
- Bay Area parts of California's public universities (including the UC Extension), colleges and school districts and private education organizations;
- Agricultural organizations such as the Resource Conservation Districts, ranchers and farmers;
- Bay Area tribal organizations including recognized federal tribes as well as non-recognized tribal organizations;
- Public health organizations;
- Technology companies involved in data collection, GIS mapping, and interpretation;
- News organizations and journals such as "KneeDeep Times"[53] that educate the public on watershed issues;
- Regional planning and regulatory agencies such as the Association of Bay Area Governments, the Bay Area Air District, the Metropolitan Transportation Commission, the Bay Conservation and Development Commission and the Regional Water Board;
- Regional organizations representing public agencies, such as the Bay Area Clean Water Agencies (BAWCA), Bay Area Flood Protection Agencies (BAFPA), and the Bay Area Planning Directors Association (BAPDA);
- Regional scientific research organizations such as the San Francisco Estuary Institute; and,
- Regional government organizations such as the San Francisco Estuary Partnership and the Bay Area Regional Collaborative which coordinate regional climate action, adaptation, and sustainability efforts across the San Francisco Bay Area.

[53] More information is available at: https://www.kneedeeptimes.org/

6 SUMMARY AND RECOMMENDATIONS

The CCAR is intended to provide a menu of potential adaptation approaches for consideration and future evaluation, rather than establishing requirements, expectations, or new standards for design, operation, maintenance, or asset management. Given the significant costs that may be associated with climate adaptation, Permittees and other organizations need the flexibility to evaluate the appropriateness, feasibility, effectiveness, and cost implications of specific adaptation measures based on priorities, available resources, asset conditions, and future regulatory direction. Implementation of any Permittee-related adaptation strategy should occur through each Permittee's planning, design, asset management, and capital improvement processes.

The feasibility and applicability of each potential adaptation strategy identified in the CCAR can be evaluated as opportunities arise and as resources allow. Potential strategies to be considered for implementation at the Permittee(P), Countywide Program (C), and Regional (R) levels are summarized in Table 6-1.

Table 6-1. Summary of CCAR Potential Asset Adaptation Strategies and Implementation Levels

Category	Potential CCAR Adaptation Strategies	Permittee Level	Countywide Program Level	Regional Level
1. GSI-related Planning	• Coordinate GSI planning with other municipal plans including climate adaptation, action and resilience plans; general plan updates; urban forestry; and other plans related to sustainability, transportation, public works, and community outreach.	♦		
	• Consider watershed and "One Water" approaches, where appropriate, to coordinate implementation of projects that improve the resilience, maintenance, or long-term performance of stormwater quality-related assets	♦	♦	♦
	• Participate in and utilize countywide, regional, and state-wide planning efforts, as appropriate, to increase effectiveness.	♦	♦	♦
2. GSI-related Policies	• Integrate GSI into other appropriate and related policies.	♦		
	• Consider GSI siting priorities related to addressing equity and climate impacts on historically disadvantaged and/or affected neighborhoods as appropriate.	♦		
	• Work together with CBOs and other organizations to get buy-in from residents and businesses on GSI approaches and projects.	♦	♦	
3. Asset Vulnerability and Siting (all asset types)	• Review asset locations in comparison to regional maps that show where sea level rise and other climate-related hazards are projected to impact existing and future assets.	♦		
	• Consider design, maintenance, and/or relocation strategies to address impacts.	♦		

Category	Potential CCAR Adaptation Strategies	Permittee Level	Countywide Program Level	Regional Level
4. Sizing Guidance (all asset types)	• Update rainfall records to include the most current data and incorporate the data into revised tools and guidance for stormwater quality asset sizing criteria as appropriate.		♦	♦
5. GSI Design and Construction	• Review guidance documents, standard/typical stormwater control measure/GSI details and specifications for updates to improve resilience and prepare for climate impacts.	♦	♦	♦
	• Collaborate regionally on revisions to the BSM specification.		♦	♦
	• Consider changes to plant palettes, irrigation systems, mulch details, infiltration designs, inlet/outlet structures, underdrains, tree-based GSI, rainwater harvesting systems, pervious pavement reflectivity, urban soils, etc., to address potential climate impacts.	♦	♦	
	• Integrate feedback from maintenance practices and experience into designs and construction.	♦		
6. GSI Operation and Maintenance	• Consider options for hard stormwater asset and vegetation maintenance practices that provide cost-effective adaptation strategies	♦	♦	♦
	• Create conditions for more resilient landscapes (e.g., healthy plants and diverse habitats with native plants, animals and pollinators)	♦	♦	
	• Train professionals and create green jobs with GSI maintenance education to improve the performance of GSI systems.	♦	♦	♦

Permittees, Countywide Stormwater Programs, and regional organizations can consider the following next steps related to the potential strategies in Table 6-1, as resources allow:

A. Permittees:

1. Consider using information in local climate action/resilience plans to guide decision-making for asset management and updating those plans with GSI information when feasible and appropriate.
2. Update GSI Plans and/or Asset Management Plans with climate adaptation strategies from the CCAR when appropriate.
3. Update policies, ordinances, and/or standard operating procedures as appropriate to address anticipated climate change impacts on stormwater quality assets.

B. Countywide Stormwater Programs:

1. Update Countywide guidance on LID, GSI, and trash controls as appropriate to include

recommended CCAR strategies. For example, update stormwater treatment measure sizing guidance using recent rainfall data, such as that compiled for the Bay Area Hydrology Model.

2. Provide guidance/training to Permittees and share information with regional partners.
3. Participate in regional coordination at the BAMS Collaborative.

C. BAMS Collaborative and other regional organizations:

1. Participate in BSM specification updates in collaboration with Regional Water Board staff.
2. Share information, guidance and strategies with member agencies and other regional organizations.
3. Continue to participate in promotion of GSI implementation, including climate adaptation strategies, in partnership with other regional organizations and the California Stormwater Quality Association.

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APPENDIX A
Region-wide and County Climate Data and Planning Resources

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-1. Region-Wide Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Sea level rise and coastal flooding	Adapting to Rising Tides Bay Area: Regional Sea Level Rise Vulnerability and Adaptation Study (2020)	Regional Study	Outlines the worst-case scenario for impacts and consequences to four critical regional system, transportation networks, vulnerable communities, future growth areas, and natural lands, for different flooding scenarios in the absence of action.
Sea level rise and coastal flooding	Regional Shoreline Adaptation Plan: One Bay Vision, Strategic Regional Priorities, and Subregional Shoreline Adaptation Plan Guidelines (2024)	Regional Plan	Plan to address rising sea levels in San Francisco Bay. Local governments in the Bay Area are required to develop Subregional Shoreline Adaptation Plans (Plans), per SB 272. The RSAP Atlas is a tool to help create Plans that comply with these requirements. It includes region-wide data on coastal flood hazards, community vulnerability, existing conditions, Strategic Regional Priorities, and nature-based adaptation suitability.
Sea level rise and coastal flooding	ART Bay Shoreline Flood Explorer (2017)	Interactive Tool, Data Download	Intended to be used as a planning guide to understand where our shoreline is at risk from current and future flooding from sea level rise and storms. The flooding depicted is not inherently tied to any time or emissions-based projections. Its use of a Total Water Level approach emphasizes various flooding scenarios to focus attention on incremental action, despite uncertainties in predicting storms and the rate of sea level rise.
Sea level rise and coastal flooding	RSAP Atlas (Beta) (2024)	Interactive Tool, Data Download	Provides access to regional datasets to help local governments develop Plans. It contains data on coastal flood hazards, community vulnerability, environmental assets, and critical infrastructure. Use of the Atlas is not required, but helps ensure alignment with RSAP Guidelines and standards for Plans. You can generate Plan submittals using the Plan Assistant, explore coastal flood hazards and exposure, and download data for further analysis.
Sea level rise, coastal flooding, and groundwater	Hazard Map – Our Coast, Our Future (n.d.)	Interactive Tool, Data Download	Provides coastal California resource managers and land use planners with resources to understand, visualize, and adapt to sea level rise, coastal storms, and emergent groundwater. It is a platform for data visualization, synthesis, and download of all output products from the USGS CoSMoS in California.
Wildfire	CalFire Fire Hazard Severity Zone Viewer (2024)	Interactive Tool	Viewer shows very high, high, and moderate fire hazard severity zones in local and state responsibility areas.
Extreme Precipitation	San Francisco Bay Area Precipitation in a Warmer World (2023)	San Francisco Study	Volumes 1 and 2 collectively provide climate-informed projections of future rainfall (IDF curves) in the Bay Area and translate those projections into practical methods, datasets, and design guidance for updating stormwater infrastructure planning and engineering. Includes guidance on how to scale IDF curves projections to other Bay Area NOAA Atlas 14 stations.
Extreme precipitation, extreme heat, wildfire, drought, and sea level rise	Tools | Cal-Adapt (2018)	Data Visualization, Data Download	Provides a way to explore peer-reviewed data that portrays how climate change might affect California at the state and local level. This data is available through downloads, visualizations, and the Cal-Adapt API for your research, outreach, and adaptation planning needs.

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-2. Alameda County Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Sea level rise and coastal flooding	Adapting to Rising Tides: Alameda County Shoreline Vulnerability Assessment (2015)	Countywide Study	Includes spatial mapping of flood exposure, evaluation of impacts to infrastructure, communities, and natural resources, and scenario-based projections of future conditions. It also compiles adaptation strategies and planning considerations organized by asset type and risk, along with a framework for assessing vulnerability and prioritizing responses at a regional scale.
Flooding, drought and wildfires	Alameda County Local Hazard Mitigation Plan (2021)	Countywide Plan	Identifies the natural hazards in our area, determines how they will impact our community, and develops strategies to lessen the effects of those hazards and create a more disaster-resilient Alameda County. The plan includes a discussion of Climate Change Adaptation.
Sea level rise, coastal flooding, and groundwater	Hayward Regional Shoreline Adaptation Master Plan (2021)	Hayward Plan	Evaluates shoreline conditions, climate risks, and vulnerable assets, and identifies how sea level rise will impact natural habitats and critical infrastructure over time. It presents a coordinated set of multi-benefit adaptation strategies—combining nature-based and engineered solutions—along with conceptual designs and a preferred shoreline approach. The document also includes policy guidance, project prioritization, and cost considerations to serve as a roadmap for long-term shoreline resilience and implementation.
Sea level rise and coastal flooding	Oakland/Alameda Resilience Study (2016)	Oakland and Alameda Study	Evaluates current and future risks from sea level rise, storm flooding, and seismic hazards to critical infrastructure, communities, and natural systems within a focused study area. It includes detailed exposure and vulnerability assessments across multiple sectors and assets, identifies key cross-cutting planning issues, and analyzes how interconnected systems and community characteristics influence risk. It also develops adaptation responses and implementation approaches through a collaborative, multi-agency process to improve long-term resilience.
Sea level rise, coastal flooding, and groundwater	Alameda Shoreline Adaptation Plan (in progress)	Alameda Plan	Anticipated completion by the end of 2027. This plan will identify strategies, adaptation pathways, and priority projects to address sea level rise, groundwater impacts, and existing flood risks along the shoreline. It will also evaluate potential land use changes and policy options, and include an implementation plan to guide future action.
Wildfire	Community Wildfire Protection Plan for Alameda County (2025)	Countywide Plan	Provides a comprehensive, scientifically based analysis of wildfire related to the hazards and risk of wildland-urban-interface areas in Alameda County. The plan contains an assessment of wildfire hazards and risk. It prioritizes actions to address hazardous fuels and reduce structural ignitability.

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-3. Contra Costa County Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Sea level rise, coastal flooding, drought, wildfires, extreme heat and extreme precipitation	Contra Costa County Hazard Mitigation Plan (2024)	Countywide Plan	The plan identifies potential hazards that could negatively impact County operations and assesses the risk and vulnerability of life safety and County assets for each hazard. This plan also establishes strategies and priorities to mitigate risk from natural, human-caused, and technological hazards, identifies specific mitigation projects to pursue for each identified hazard, guides the County in associated risk management activities, and establishes eligibility for future mitigation program funds.
Sea level rise and coastal flooding	Adapting to Rising Tides: Contra Costa County Assessment and Adaptation Project (2017)	Countywide Study	Summarizes a comprehensive planning process that includes detailed exposure and vulnerability assessments across multiple sectors, asset categories, and representative sites to understand risks from sea level rise and flooding. It presents key planning issues and a suite of adaptation responses that link identified vulnerabilities to potential strategies, partnerships, and actions. The report also includes evaluation criteria and implementation guidance to support decision-making and advance climate resilience planning across the county.
Sea level rise and coastal flooding	Contra Costa Resilient Shoreline Plan (in progress)	Countywide Plan	Will use existing assessments, reports, and studies as a foundation to inform localized sea level rise adaptation strategies and implementation measures while coordinating efforts to address sea level rise impacts across the entire 90-mile Contra Costa shoreline and aligning with regional sea level rise adaptation efforts. These localized adaptation strategies and implementation measures will be rooted in science and aligned with community values. Integral to the Plan development process will be a participatory engagement process to ensure that all relevant and interested stakeholders have the resources and support to fully engage in this work and that the Plan centers community members' vision and priorities for a resilient shoreline.
Sea level rise, coastal flooding, and groundwater	Richmond Sea Level Rise Adaptation and Resiliency Plan (in progress)	Richmond Plan and Story Map	Will investigate Richmond's vulnerability to sea level rise and create a management framework for sea level rise adaptation. The plan will include a sea level rise vulnerability analysis, an adaptation vision document reflecting the community's sea level rise goals, and the identification of specific adaptation measures to promote shoreline restoration and protection.
Sea level rise, coastal flooding, and groundwater	Contra Costa Hazardous Materials Commodity Flow Study with Special Focus on Sea Level Rise and Flood Risk (2019)	Countywide Study	The study focused on determining the potential effects/consequences of a chemical spill on critical and vulnerable populations and facilities in the shoreline communities of Contra Costa County. The primary focus of the Flow Study was to look at these potential effects/consequences with respect to hazardous chemical transport by rail through the County, particularly within areas of the county where rail lines may be susceptible to rising tides and flooding risks from climate change.

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-4. San Mateo County Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Sea level rise, coastal flooding, drought and wildfires	San Mateo County Local Hazard Mitigation Plan (2021)	Countywide Plan	Evaluates hazard vulnerabilities and outlines mitigation actions that local jurisdictions will implement to minimize injuries, property damage, and community disruptions caused by disasters. It addresses both natural and human-caused hazards, including flooding, drought, wildfires, landslides, severe weather, terrorism, cyber threats, pandemics, and the impacts of climate change. The Department of Emergency Management is starting the process of organizing the resources required for the plan to update it.
Sea level rise and coastal flooding	County of San Mateo Sea Level Rise Vulnerability Assessment (2018)	Countywide Plan	Assessment takes a risk-based approach, using best available existing data, to understand and communicate about the County's vulnerability to sea level rise. It lays the groundwork for the preparation of a transparent decision-making process for near- and long-term steps. The approach supports a sea level rise preparedness strategy that identifies risks to life and safety, recognizes the natural and beneficial functions of the County's natural areas, and considers impacts and benefits to community populations, especially those with increased vulnerability.
Sea level rise, coastal flooding and groundwater	County of San Mateo South Coast Sea Level Rise Vulnerability Assessment and Adaptation Report (2022)	Countywide Plan	Includes an introduction and overview of sea level rise science, an overview of the South Coast's past and present social and geographic settings, including a summary of social vulnerability, a sea level rise vulnerability assessment, and an adaptation report. The vulnerability assessment provides projections of the extent of coastal hazards and of the physical and economic impacts to community assets like buildings, roads, farmland, and coastal access infrastructure. The adaptation report provides an overview of sea level rise adaptation strategies and provides an example adaptation pathway for an at-risk stretch of State Route 1.
Extreme heat	San Mateo County Extreme Heat Dashboard (2021)	Interactive Tool	Shows the predicted number of high heat days that will occur in the future. Users can select a Temperature Threshold to see how many days per year will be hotter than that temperature during a certain Year Range. Users can select a Carbon Pathway to understand how different levels of green gas emissions will affect air temperature, Geography to see heat predictions at the census block, block group, and city levels, Population Characteristic to understand where communities may be more vulnerable to heat impacts, and Statistic Type, which will allow users to compare the average and maximum temperatures produced by climate models.
Extreme precipitation, extreme heat, wildfire, drought, sea level rise, coastal flooding and groundwater	San Mateo County OneWatershed Dashboard (2025)	Interactive Tool	Displays results of the climate impact shared-risk analysis for San Mateo County OneWatershed assets. The shared-risk analysis will examine the location and relative magnitude of climate impacts to water infrastructure and resources in San Mateo County based on existing studies and reports compiled during the data inventory process.

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-5. Santa Clara County Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Sea level rise, flooding, drought, wildfires, extreme precipitation and extreme heat	Santa Clara County Multi-Jurisdictional Hazard Mitigation Plan (2023)	Countywide Plan	Identifies natural and human-caused hazards, evaluates community risk and vulnerabilities, and outlines long-term strategies to reduce loss of life, property damage, and future disaster costs. The plans are designed to break the cycle of damage, repair, and repetitive losses by focusing on proactive mitigation actions.
Wildfire	Santa Clara County Community Wildfire Protection Plan (2023)	Countywide Plan	Provides a countywide scale of wildfire risk and protection needs, brings together all responsible wildfire management and suppression entities in the planning area to address the identified needs and provides a framework for future planning and implementation of necessary mitigation measures.
Extreme heat, wildfire and drought	County of Santa Clara Climate Impact Compendium (n.d.)	Resource Webpage	The County of Santa Clara Public Health Department, in collaboration with the Office of Sustainability and funding from the Centers for Disease Control, has developed a compendium of climate impact data and resources. Use the tools within it to learn about the people and places most vulnerable to climate impacts. Jurisdictions can use these tools to identify and address inequities, encourage engagement with communities at higher risk, build local plans, and support regional solutions.
Extreme heat, wildfire, sea level rise and riverine flooding	Silicon Valley 2.0 Climate Change Preparedness Tool (2025)	Interactive Tool	Supports the entire County of Santa Clara with climate risk assessment, adaptation and resilience planning. Users can use the tool to (1) learn how the County's climate is expected to change over the next century, (2) understand the impacts of climate change to the different County areas, (3) identify which infrastructure assets are at risk by different climate-related impacts, and to what degree, (4) learn which socially vulnerable communities are most vulnerable to climate hazards, and (5) assess the level of economic risk climate change poses to infrastructure assets.
Riverine flooding and extreme heat	Santa Clara County Resilience Project Mapping (2023)	Interactive Tool	This tool locates High-Value Intervention Areas (HVIAs) - socially vulnerable areas with the highest natural hazard risk - to help identify where nature-based solutions, which integrate natural features into the built environment, can provide a positive impact, regionally and locally. This tool also identifies important community assets and opportunities, such as schools, parks, community centers, and existing and planned projects from agencies near or within the HVIAs. Community members and planners can leverage these community assets and opportunities to implement nature-based solutions and improve resilience to climate impacts.

Appendix A – Region-wide and County Climate Data and Planning Resources

Table A-6. Solano County Climate Data and Planning Resources

Climate Data or Planning Resource	Resource Name (with link)	Resource Type	Description
Flooding, drought, wildfire, extreme precipitation, extreme heat and sea level rise	Solano County Multi-Jurisdictional Hazard Mitigation Plan (2022)	Countywide Plan	Identifies risks and ways to minimize damage from natural and manmade disasters. The plan is a comprehensive resource document that serves many purposes such as enhancing public awareness, creating a decision tool for management, promoting compliance with State and Federal program requirements, enhancing local policies for hazard mitigation capability, and providing inter-jurisdictional coordination.
Sea level rise	Solano County Sea Level Rise Strategic Plan (2011)	Countywide Plan	Provides an overview of sea level rise and investigates its potential effects on Solano County. The SLRSP further identifies properties and resources susceptible to sea level rise and presents protection and adaptation strategies. It evaluates both a short-term and a long-term scenario, assessing vulnerabilities using 16 inches of SLR at mid-century (2050) and 55 inches at the end of the century (2100).
Sea level rise, coastal flooding and groundwater	Solano Bayshore Resiliency Project (in progress)	Project that will result in Countywide Plans	A collaborative, multi-jurisdictional adaptation planning effort facilitated through the Solano Resiliency Roundtable and aligned with BCDC's Regional Shoreline Adaptation Plan. This project includes comprehensive community outreach and engagement, sea level rise vulnerability assessment, and development of a multi-jurisdictional regional shoreline action plan for unincorporated Solano County and the cities of Vallejo, Fairfield, Suisun City, and Benicia.
Wildfire	Solano County Community Wildfire Protection Plan (2023)	Countywide Plan	The plan aims to provide a comprehensive assessment of wildfire risk and protection needs across the county, bringing together various stakeholders involved in wildfire management and suppression. By identifying gaps and deficiencies, the CWPP provides a framework for future planning and implementation of mitigation measures. It also includes a list of actionable projects to mitigate the identified risks.

APPENDIX B
Local Climate Change Snapshots by County

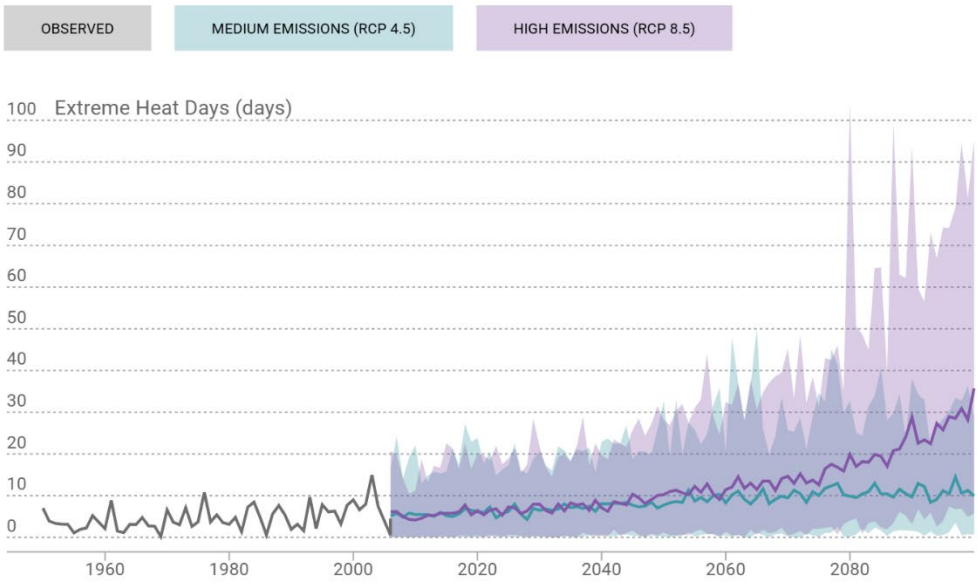
Local Climate Change Snapshot for San Mateo County

California

Extreme Heat Days

Number of days in a year when daily maximum temperature is above a threshold temperature of 85.7 °F

Note: Threshold temperature used in this tool is location specific. It is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at a location.



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect San Mateo County boundary.

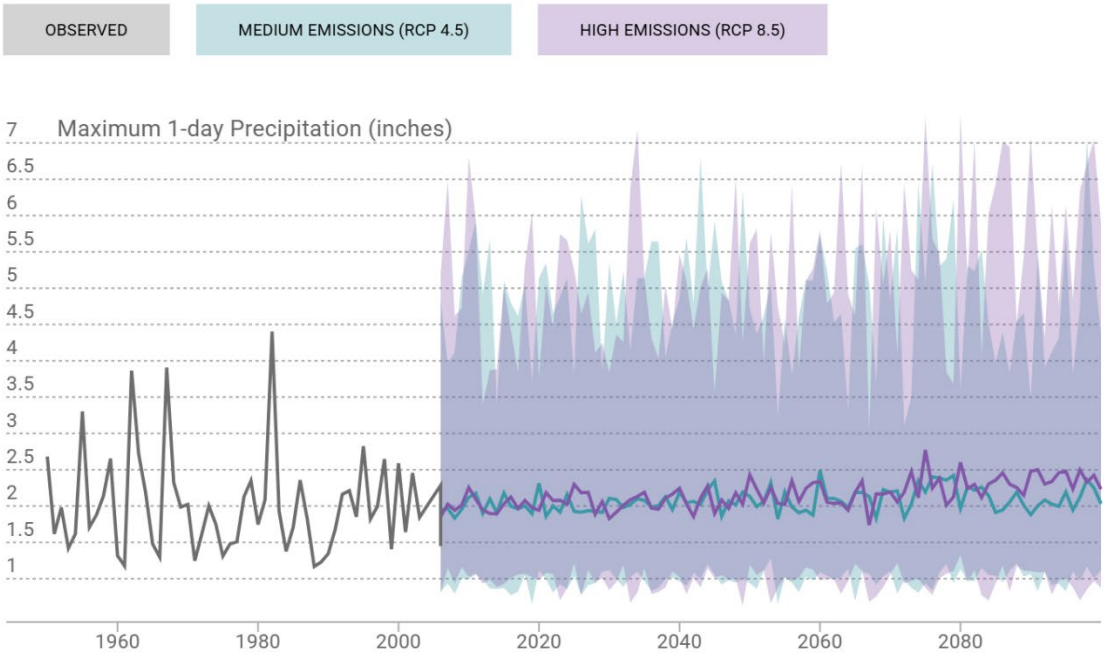
4Threshold temperature for a location is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at that location.

Local Climate Change Snapshot for San Mateo County

California

Maximum 1-day Precipitation

The maximum daily precipitation amount for each year. In other words, the greatest amount of daily rain or snow (over a 24 hour period) for each year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

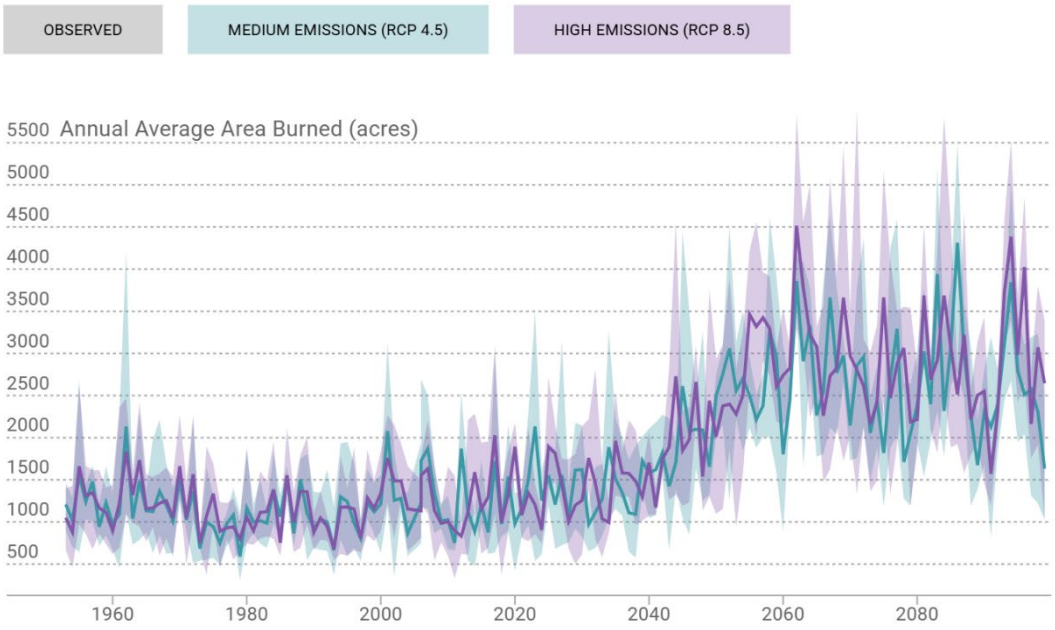
3Data presented are aggregated over all LOCA grid cells that intersect San Mateo County boundary.

Local Climate Change Snapshot for San Mateo County

California

Annual Average Area Burned

Average of the area projected to be at risk to burning in a year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect San Mateo County boundary.

4San Mateo County boundary may contain locations outside the combined fire state and federal protection responsibility areas. These locations were excluded from wildfire simulations and have no climate projections.

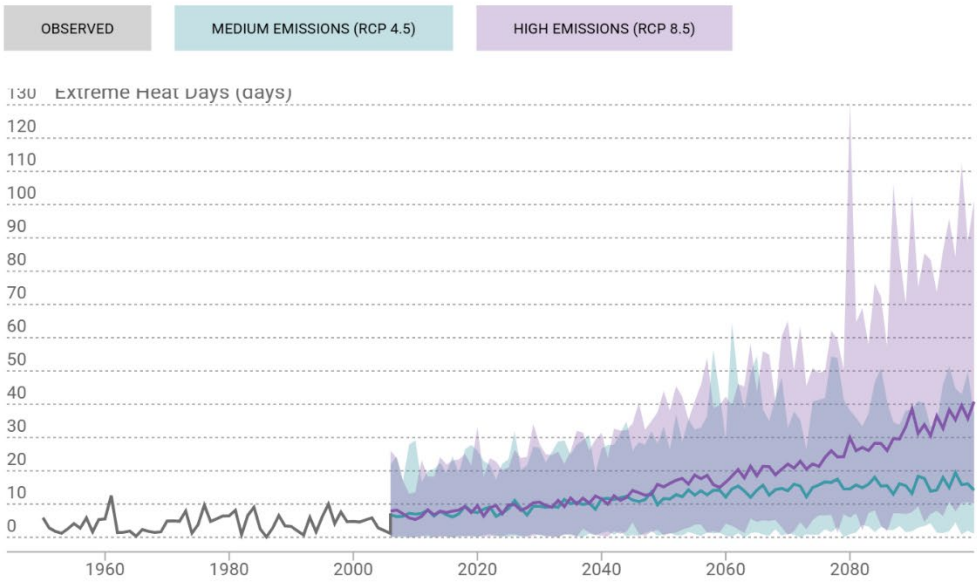
Local Climate Change Snapshot for Santa Clara County

California

Extreme Heat Days

Number of days in a year when daily maximum temperature is above a threshold temperature of 92.7 °F

Note: Threshold temperature used in this tool is location specific. It is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at a location.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Santa Clara County boundary.

4Threshold temperature for a location is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at that location.

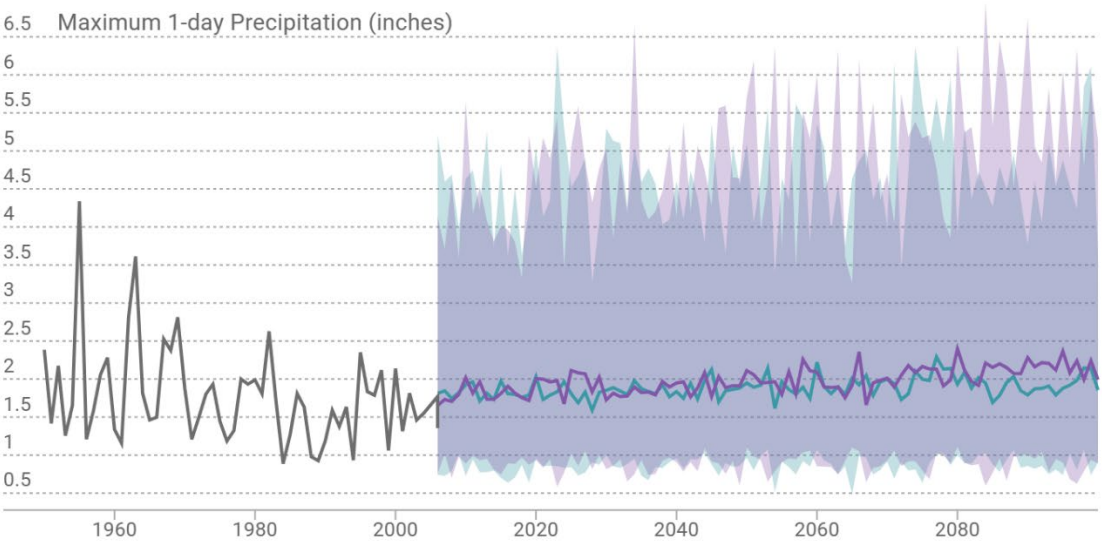
Local Climate Change Snapshot for Santa Clara County

California

Maximum 1-day Precipitation

The maximum daily precipitation amount for each year. In other words, the greatest amount of daily rain or snow (over a 24 hour period) for each year.

OBSERVED | MEDIUM EMISSIONS (RCP 4.5) | HIGH EMISSIONS (RCP 8.5)



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

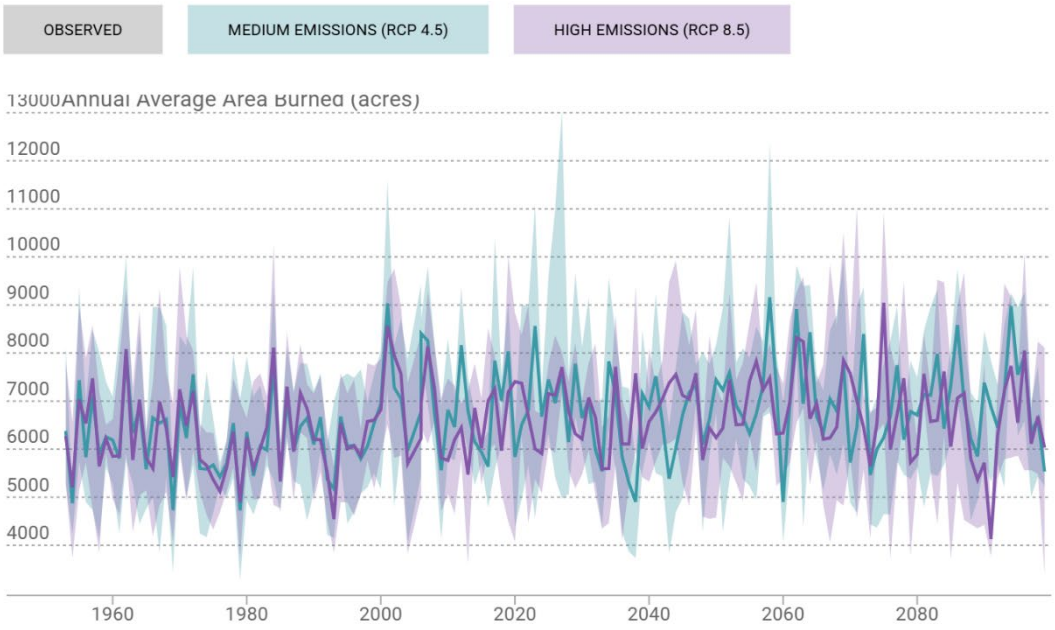
3Data presented are aggregated over all LOCA grid cells that intersect Santa Clara County boundary.

Local Climate Change Snapshot for Santa Clara County

California

Annual Average Area Burned

Average of the area projected to be at risk to burning in a year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Santa Clara County boundary.

4Santa Clara County boundary may contain locations outside the combined fire state and federal protection responsibility areas. These locations were excluded from wildfire simulations and have no climate projections.

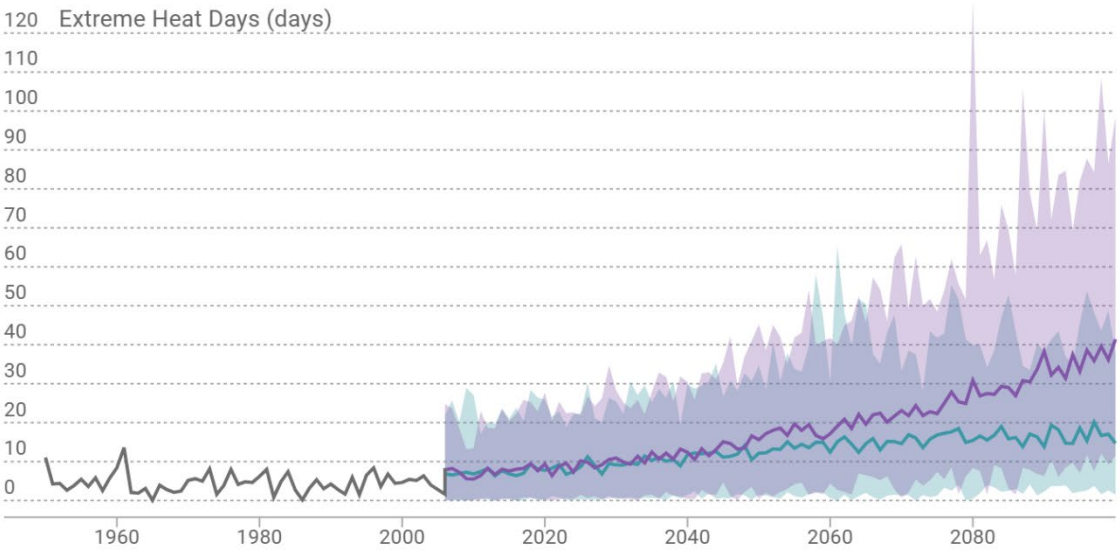
Local Climate Change Snapshot for Alameda County

California

Extreme Heat Days

Number of days in a year when daily maximum temperature is above a threshold temperature

OBSERVED | MEDIUM EMISSIONS (RCP 4.5) | HIGH EMISSIONS (RCP 8.5)



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

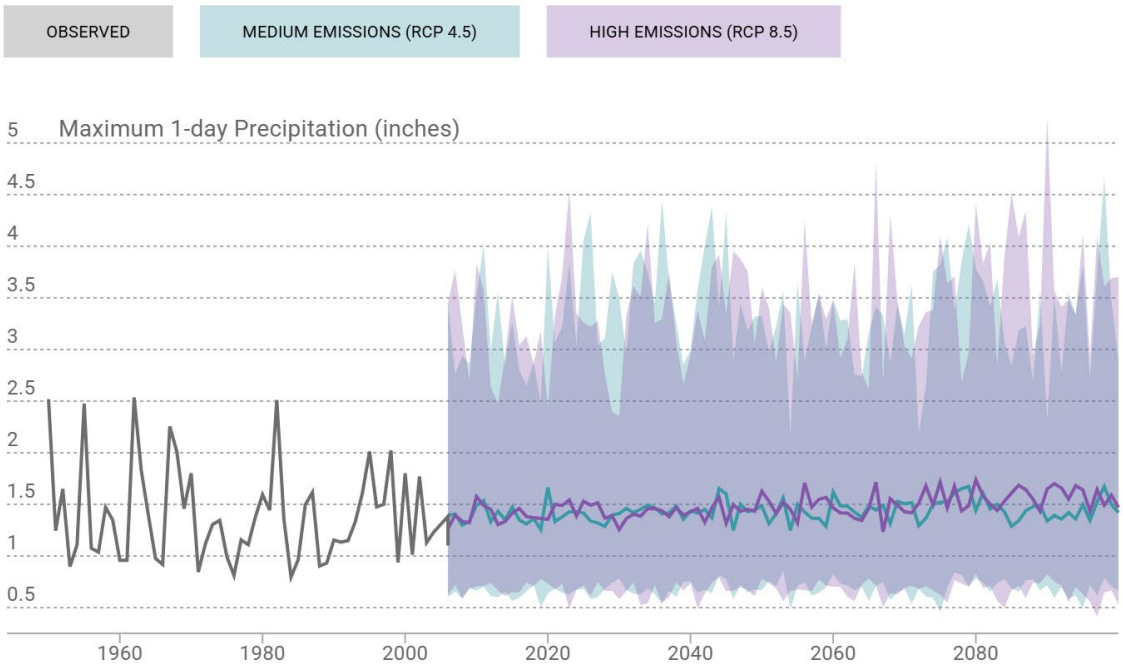
3Data presented are aggregated over all LOCA grid cells that intersect Alameda County boundary.

Local Climate Change Snapshot for Alameda County

California

Maximum 1-day Precipitation

The maximum daily precipitation amount for each year. In other words, the greatest amount of daily rain or snow (over a 24 hour period) for each year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

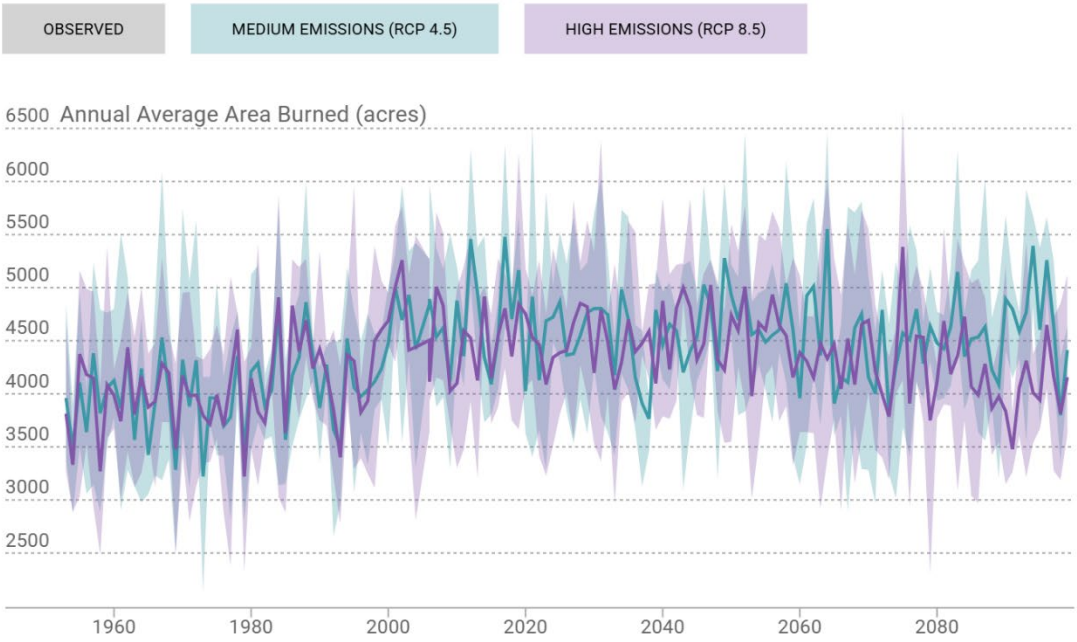
3Data presented are aggregated over all LOCA grid cells that intersect Alameda County boundary.

Local Climate Change Snapshot for Alameda County

California

Annual Average Area Burned

Average of the area projected to be at risk to burning in a year.



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Alameda County boundary.

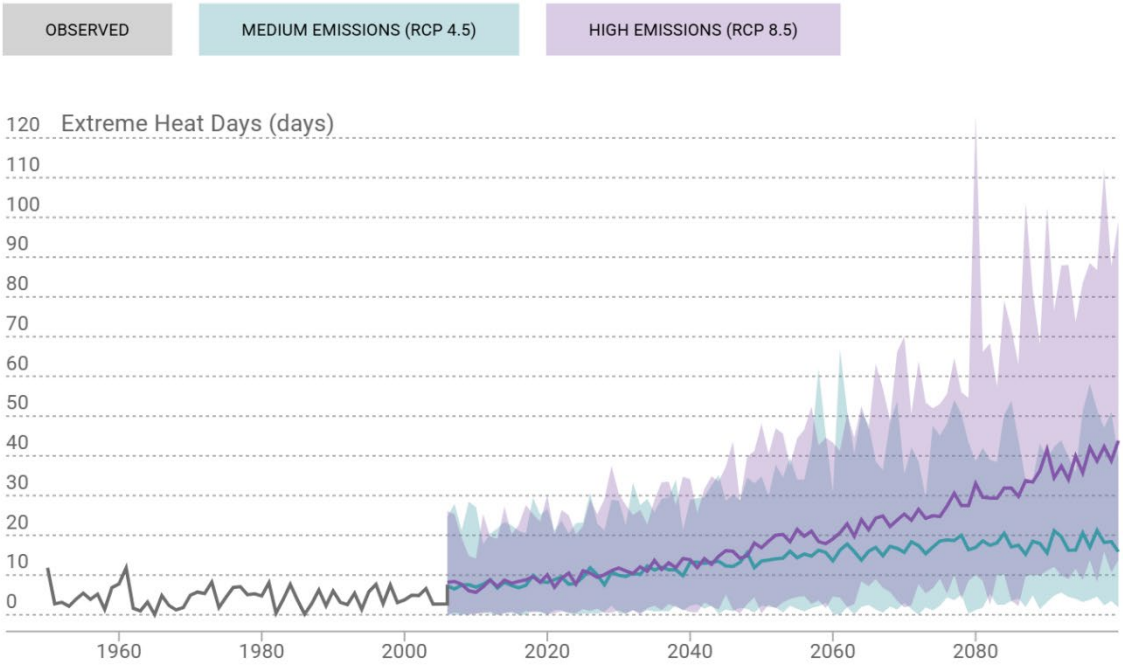
4Alameda County boundary may contain locations outside the combined fire state and federal protection responsibility areas. These locations were excluded from wildfire simulations and have no climate projections.

Local Climate Change Snapshot for Contra Costa County

California

Extreme Heat Days

Number of days in a year when daily maximum temperature is above a threshold temperature



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

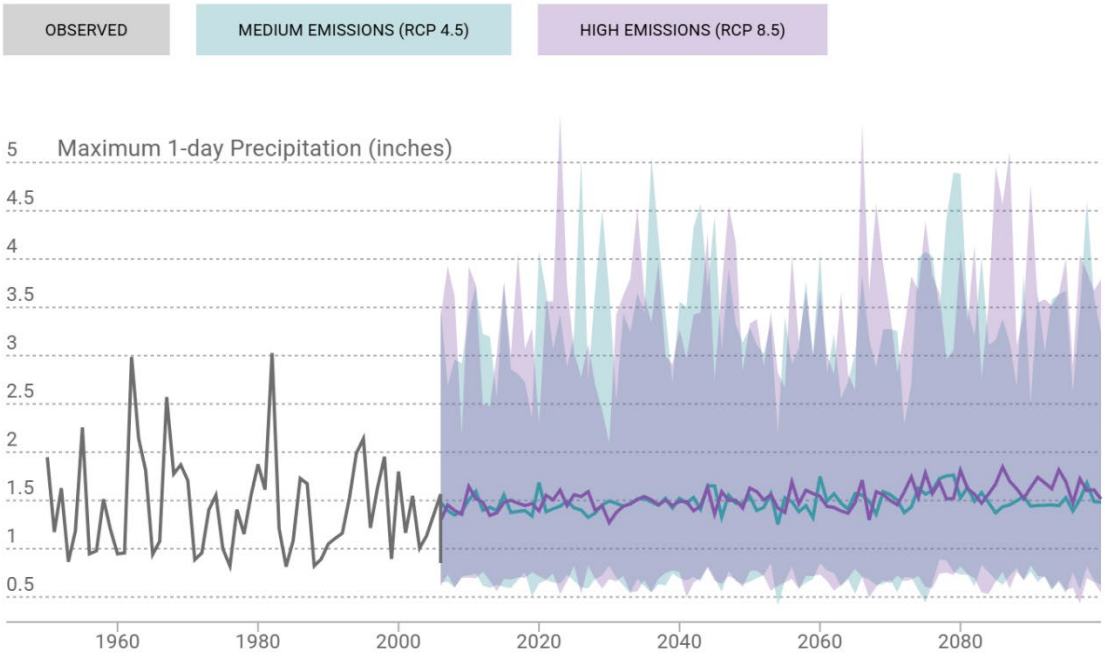
3Data presented are aggregated over all LOCA grid cells that intersect Contra Costa County boundary.

Local Climate Change Snapshot for Contra Costa County

California

Maximum 1-day Precipitation

The maximum daily precipitation amount for each year. In other words, the greatest amount of daily rain or snow (over a 24 hour period) for each year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

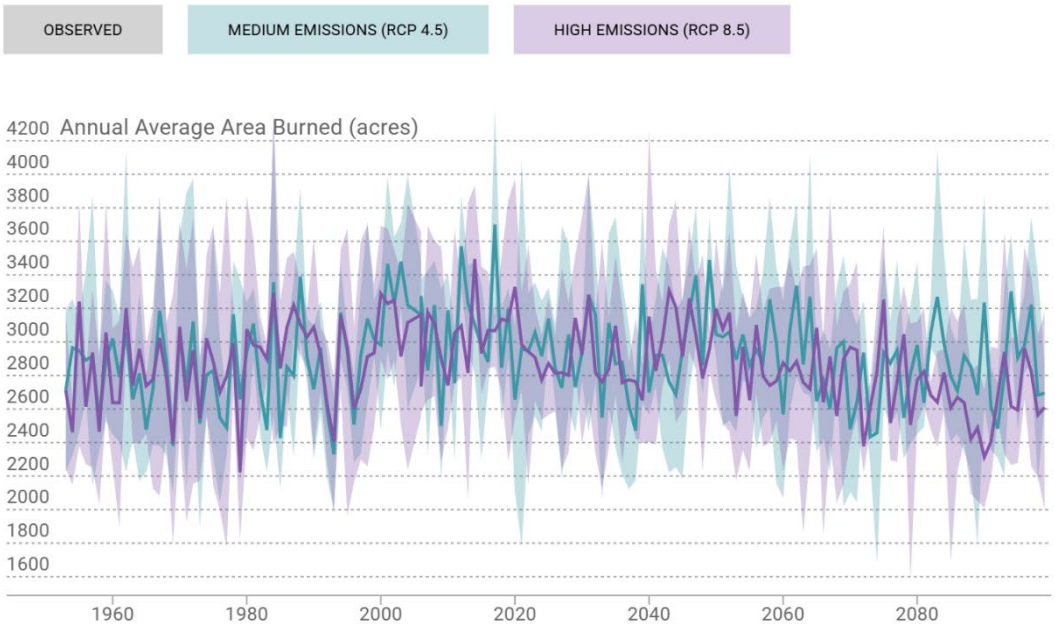
3Data presented are aggregated over all LOCA grid cells that intersect Contra Costa County boundary.

Local Climate Change Snapshot for Contra Costa County

California

Annual Average Area Burned

Average of the area projected to be at risk to burning in a year.



1Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.

2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Contra Costa County boundary.

4Contra Costa County boundary may contain locations outside the combined fire state and federal protection responsibility areas. These locations were excluded from wildfire simulations and have no climate projections.

Local Climate Change Snapshot for Solano County

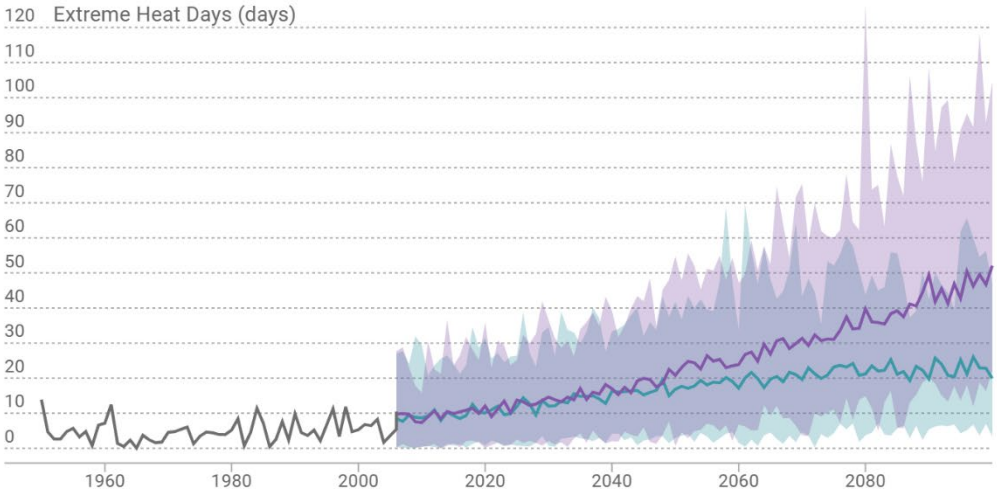
California

Extreme Heat Days

Number of days in a year when daily maximum temperature is above a threshold temperature of 100.2 °F

Note: Threshold temperature used in this tool is location specific. It is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at a location.

OBSERVED | MEDIUM EMISSIONS (RCP 4.5) | HIGH EMISSIONS (RCP 8.5)



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

3Data presented are aggregated over all LOCA grid cells that intersect Solano County boundary.

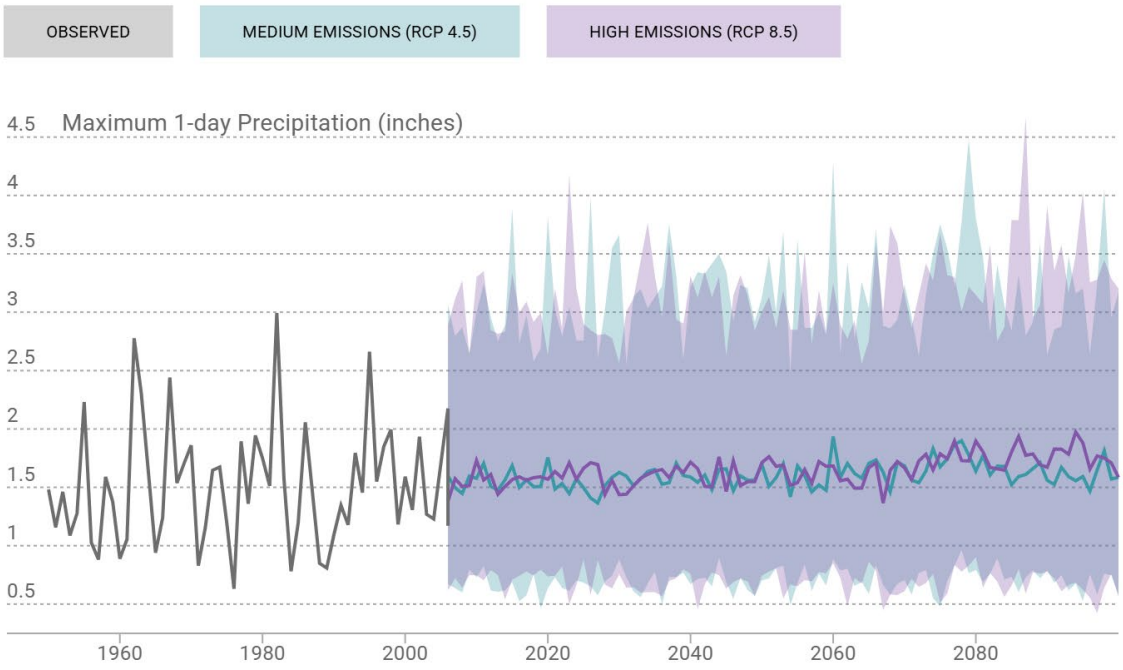
4Threshold temperature for a location is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at that location.

Local Climate Change Snapshot for Solano County

California

Maximum 1-day Precipitation

The maximum daily precipitation amount for each year. In other words, the greatest amount of daily rain or snow (over a 24 hour period) for each year.



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2Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.

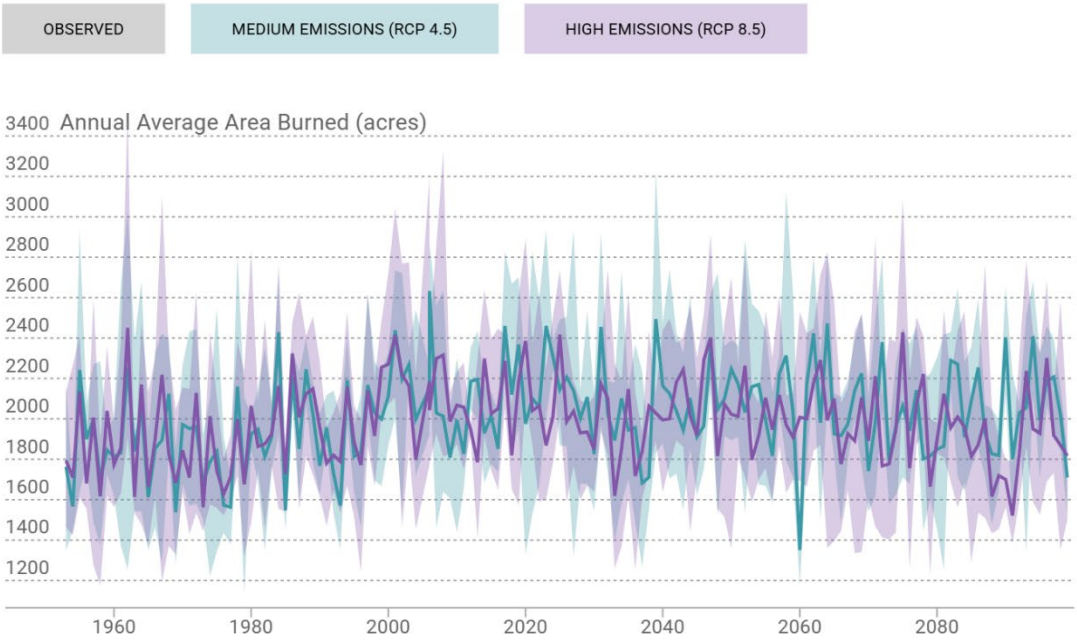
3Data presented are aggregated over all LOCA grid cells that intersect Solano County boundary.

Local Climate Change Snapshot for Solano County

California

Annual Average Area Burned

Average of the area projected to be at risk to burning in a year.



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3Data presented are aggregated over all LOCA grid cells that intersect Solano County boundary.

4Solano County boundary may contain locations outside the combined fire state and federal protection responsibility areas. These locations were excluded from wildfire simulations and have no climate projections.