
DUST MONITORING PLAN
801 Brannan Street
San Francisco, California
SMED985

Prepared For:

Equity Residential
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Chicago, Illinois 60606-2609

Prepared By:

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Jeffrey F. Ludlow, PG
Principal

26 March 2014
731615201

LANGAN TREADWELL ROLLO

26 March 2014

Rebecca Becker
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Chicago, Illinois 60606-2609

**Subject: Dust Monitoring Plan
801 Brannan Street
San Francisco, California
SMED 985
Langan Project No. 731615201**

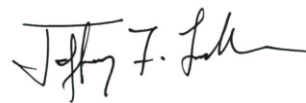
Dear Ms. Becker:

Langan Treadwell Rollo (Langan) is pleased to present this Dust Monitoring Plan, to be implemented during construction of the proposed development at 801 Brannan Street in San Francisco, California. This Dust Monitoring Plan was prepared to comply with Article 22B of the San Francisco Public Health Code.

Sincerely yours,
Langan Treadwell Rollo



Veronica M. Tiglao, PE
Senior Project Engineer



Jeffrey F. Ludlow, PG
Principal



Attachments

cc: Elyse D. Heilshorn, P.E. - City and County of San Francisco, Department of Public Health

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**DUST MONITORING PLAN
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San Francisco, California
SMED 985**

1.0 INTRODUCTION

This Dust Monitoring Plan, prepared on behalf of Equity Residential, presents the proposed dust monitoring procedures and general dust control measures to be implemented during the pending construction activities at 801 Brannan Street ("Site") in San Francisco, California (Figure 1). This Dust Monitoring Plan was prepared to comply with Article 22B of the San Francisco Public Health Code.

2.0 BACKGROUND

2.1 Site Description

The Site is located on the city block bounded by Brannan Street to the northwest, 7th Street to the northeast, Townsend Street to the southeast, and 8th Street to the southwest, in San Francisco, California (see Figure 1). A Site Location Map depicting land use within 1,000 feet of the Site is included as Figure 2; no sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing and convalescent facilities) were identified within 1,000 feet.

The approximately 5.21-acre Site is rectangular in shape, with plan dimensions of approximately 300 feet by 725 feet (see Figure 2). The Site is currently occupied by a large structure formerly in use as an exhibition hall and an associated asphalt-paved parking lot.

2.2 Site Background

Based on information obtained during our document review, previous occupants at the Site have included Pacific Woodenware and Cooperage and several small buildings (1887); a drayage company, box factory, bottle yard, and hay and unspecified warehouse (1899); Western Pacific Railroad Freight Depot and multiple railroad spurs (1913 to 1980); and Concourse Exhibition Center (1980s to 2000s).

Previous investigations encountered fill to depths of up to 11 feet below ground surface (bgs). Laboratory analysis of soil samples indicate that most of the fill at the Site would be considered

a California hazardous waste for off-site disposal based on total and soluble lead concentrations. Additionally, up to 29,000 milligrams per kilogram (mg/kg) Total Recoverable Petroleum Hydrocarbons (TRPH), 280 mg/kg total petroleum hydrocarbons as motor oil (TPHmo), and 740 mg/kg total petroleum hydrocarbons as diesel (TPHd) were detected in soil. Minor concentrations of the volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, and xylene (BTEX) were also detected, at concentrations ranging from 0.0055 mg/kg to 0.16 mg/kg.

Groundwater has been encountered between about 9 to 12 feet bgs. Laboratory analysis of groundwater samples collected at the Site detected up to 12 milligrams per liter (mg/L) TRPH, 1.9 mg/L TPHmo, and 1 mg/L TPHd (Stellar Environmental Solutions, Inc., 2011).

2.3 Proposed Development

Approximately 0.87 acres of land at the northeast corner of the Site will be dedicated to the City of San Francisco. The remainder of the proposed development will mainly consist of a 6-story residential structure with commercial spaces, residential units, and parking garages on the ground floor, as well as publically accessible open space. There are no basements planned, so the proposed excavation will primarily consist of what is needed for elevator pits, pile caps, and/or utilities. The maximum anticipated excavation from existing Site conditions is about 5 feet bgs.

Dust generating activities that are anticipated as part of the work include soil handling and movement during Site grading, temporary soil stockpiling, excavation, and vehicular traffic on unpaved surfaces.

3.0 DUST MONITORING PLAN

3.1 General

Real-time dust monitoring will generally be conducted during potential dust generating activities, as described above in Section 2.3. Please note that this Dust Monitoring Plan does not include worker health and safety monitoring, monitoring for volatiles or methane gas, or dust monitoring within the work zone. These items will be addressed in the H&S Plan which has been prepared by the contractor and will be submitted under separate cover.

3.2 Dust Monitoring Equipment

The dust monitors to be used, such as the Thermo Electron Corporation MIE Model pDR-1200 or equivalent, shall be capable of:

- Continuous, unattended, real-time monitoring, data-logging, and data transmission.
- Measurement of air-borne particulates 10 micrometers in size (PM-10) or less.
- Measurement of a 10-minute time-weighted average (TWA).
- A detection limit range of between 1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and 400,000 $\mu\text{g}/\text{m}^3$.
- Triggering visual alarms. The visual alarm will consist of a flashing light, or similar, to alert on-site monitoring and/or contractor personnel an action level has been exceeded. Remote alarms may also be used. The remote alarm would consist of a text message, email, phone message, or similar, to alert off-site monitoring personnel an action level has been exceeded.

3.3 Sampling Frequency

The dust monitors will be set up by dust monitoring personnel at the upwind dust monitoring location, for two days prior to the start of any soil invasive and potential dust-generating activity conducted at the Site to establish the baseline dust conditions.

Except in the case of heavy fog or precipitation events, the dust monitors will be set up on a daily basis, for the first four weeks of soil invasive and potential dust-generating activity conducted at the Site (eg, at the beginning of excavation). The dust monitors will be set up by dust monitoring personnel at the start of each work-day at least 1 hour prior to the start of the dust generating activity, and taken down at the conclusion of each work-day. Additionally, dust monitoring personnel will be present on-site to monitor field conditions and consult with contractor personnel on suitable dust suppression measures at:

- The start of each new dust-generating activity, and for one to two days thereafter depending on the observed Site conditions.
- The day after an exceedance of the daily average action level, if any (see Section 3.5).
- The day of and/or the day after an exceedance of the 10-minute TWA action level, if any (see Section 3.5).

- The day of and/or the day after visual observation of fugitive dust, if any (see Section 3.6).
- The day of and/or the day after neighbor complaints of dust, if any (see Section 5.2).

Dust monitoring will continue for a minimum of four work weeks, with at least one week in which no exceedances of the dust action levels has occurred, and until the appropriate dust suppression measures have been established for the project.

Dust monitoring will not be conducted when there is fog or a precipitation event since (1) a nuisance dust condition is not anticipated in the case of heavy fog or precipitation and (2) dust monitors are subject to damage in the presence of excessive moisture.

3.4 Sampling Locations

At a minimum, two dust monitors will be placed at the Site perimeter. One dust monitor will be placed at an upwind location, and one dust monitor will be placed at a downwind location. Wind direction will be evaluated based on a wind sock or flag located at the Site as well as a weather forecasting and reporting website such as <http://www.wunderground.com>. Dust monitor locations will be re-located throughout the day in the case of significant changes in the wind direction. The locations of the dust monitors will be recorded in dedicated field logs (see Section 5.1).

3.5 Action Levels and Corrective Actions

The California Air Resources Board (CARB) has promulgated an ambient air quality standard for PM-10 of 50 ug/m³ averaged over a 24 hour period (CARB, 2012). If the daily average from perimeter monitoring exceeds 50 ug/m³, additional dust control measures will be implemented per Table 1 and Section 4.0. The daily average will be calculated over a 24 hour period based on (1) the continuous dust monitoring data collected over the course of the work day and (2) the monitoring data collected from the start of the work day prior to the start of the dust generating activities, extrapolated over the remainder of the 24 hour period.

Visual and remote alarms on the perimeter dust monitors will be set to trigger if the PM-10 level exceeds 250 ug/m³ averaged over 10 minutes. If the visual and remote alarms are triggered, additional dust control measures will be implemented per Table 1 and Section 4.0.

Table 1
Action Levels and Required Actions

Dust Condition	Required Actions
PM-10 concentration exceeds daily average of 50 ug/m ³	Review baseline dust conditions. Review work procedures. Implement additional dust control measures as needed to prevent future exceedences of the 50 ug/m ³ daily average and/or minimize dust concentrations over the baseline dust conditions. Example additional dust control measures provided in Section 4.0.
PM-10 concentration exceeds 10-minute TWA of 250 ug/m ³	Particulate monitor goes into alarm. Stop work and apply more aggressive dust control measures, per Section 4.0 or similar, until the 10 minute average concentration drops below 250 ug/m ³ .
Visible fugitive dust migrating off-site	Stop work and apply more aggressive dust control measures, per Section 4.0 or similar, until there are no visible dust clouds migrating off-site.
Neighbor complaints	Implement more aggressive dust control measures, per Section 4.0 or similar.

3.6 Fugitive Dust

Fugitive dust migration from the Site will be visually assessed by dust monitoring personnel and/or contractor personnel. If, during the course of the work, fugitive dust is observed migrating from the Site, additional dust control measures will be implemented per Table 1 and Section 4.0.

4.0 GENERAL DUST CONTROL METHODS

Dust suppression measures will be implemented by the contractor in accordance with Article 22B of the San Francisco Public Health Code (City and County of San Francisco, 2012) and San Francisco Public Health Code Section 106A.3.2.6.3 (City and County of San Francisco, 2011). Based on the air monitoring results, visual observations of fugitive dust, and/or complaints of excessive dust generation by off-site parties, additional dust suppression measures may need

to be implemented. Dust suppression measures could include, but are not limited to, the following:

- Wetting down soil improvement operations; visibly dry disturbed soil surface areas; and visibly dry disturbed unpaved driveways, parking areas, and staging areas to prevent dust from becoming airborne.
- Wet sweeping or vacuuming paved streets, sidewalks, paths, and intersections where work is in progress.
- Covering stockpiles of excavated materials, backfill material, import material, gravel, sand, road base, and soil with polyethylene plastic sheeting, tarp, or other equivalent cover.
- Using dust enclosures, dust curtains, plastic tarps, windbreaks, and dust collectors as necessary to control dust.
- Utilizing alternate work methods.
- Implementing speed restrictions at the Site.
- Minimizing drop heights while loading transportation vehicles.
- Using tarpaulins or other effective covers for trucks transporting soils.
- If water is used as a primary form of dust control, applying it at least three times per day, per shift.
- Installing wheel washers to clean all trucks and equipment leaving the construction Site. If wheel washers cannot be installed, brushing off tires or tracks and spoil trucks before they reenter City streets to minimize deposition of dust-causing materials.
- Terminating excavation, grading, and other construction activities when winds speeds exceed 25 miles per hour.
- Sweeping the surrounding streets and sidewalks at least once per day to ensure that dust is not allowed to leave the construction area.

5.0 RECORDKEEPING AND REPORTING

5.1 Record Keeping

Site observations and monitoring results shall be recorded in dedicated field logs for each day of dust monitoring conducted. Information to be recorded in the dedicated field logs will, at a minimum, include:

- Dust monitoring personnel on-site, and location and type of dust monitoring equipment.
- Contractor personnel and equipment on-site.
- Weather conditions, including temperature, precipitation conditions, and wind direction and speed.
- Dust generating activities conducted.
- Dust suppression measures implemented.
- Daily average, minimum 10-minute TWA, and maximum 10-minute TWA.
- Exceedances of action levels or visible fugitive dust, if any, and additional dust suppression measures implemented.
- Conditions in which dust generating activities are conducted, but dust monitoring is not (eg, equipment malfunction, heavy fog or precipitation, etc.).

5.2 Project Signage

Signage will be posted at the project Site that will include the appropriate contractor contact information (ie, telephone number) for interested parties to contact in case of complaints, such as excessive dust generation. Signage will be posted at a location that is visible from the public right-of-way.

5.3 Weekly Reporting and Exceedance Notifications

A weekly summary report will be prepared and submitted to the SFDPH for each week of dust monitoring conducted. At a minimum, the weekly summary report will include information on the dust generating activities, dust suppression measures implemented, dust monitoring activities, daily averages, minimum daily 10-minute TWAs, maximum daily 10-minute TWAs, and action level exceedances, if any.

5.4 Closure Report

A summary of the dust monitoring activities will be prepared and included in the regulatory Closure Report to be prepared for the Site, once Site development activities are completed. At a minimum, information on the dust generating activities, dust suppression measures implemented, dust monitoring activities, and exceedances, if any, will be included. Dust monitoring data logs will be included as an appendix to the report.

REFERENCES

California Air Resources Board (CARB), 2012. *Ambient Air Quality Standards*. 7 June.
<http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

City and County of San Francisco, 2011. *City and County of San Francisco Building Industry Commission (BIC) Codes, Building, Electrical, Housing, Mechanical and Plumbing Codes, Section 106A.3.2.6, Construction Dust Control*. Ordinances approved through 30 November 2011 and Administrative Bulletins approved through 1 January 2011.

City and County of San Francisco, 2012. *San Francisco Health Code, Article 22B, Construction Dust Control Requirements*. Last amended by [Ordinance 229-12](#), File No. 120815, approved 14 November 2012, effective 14 December 2012.

Stellar Environmental Solutions, Inc., 2011. *Phase I Environmental Site Assessment and Limited Phase II Site Investigation Report*. 28 October.

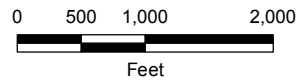
Treadwell & Rollo, 2013. *Site Mitigation Plan, 801 Brannan Street, San Francisco, California*. 4 December.

FIGURES



Notes:

1. Aerial source: Orthophoto mosaic of San Francisco proper (2012), provided by the County and City of San Francisco.
2. Map displayed in California State Plane Coordinate System , Zone III, North American Datum of 1983 (NAD83), US Survey Feet.



801 BRANNAN STREET
San Francisco, California

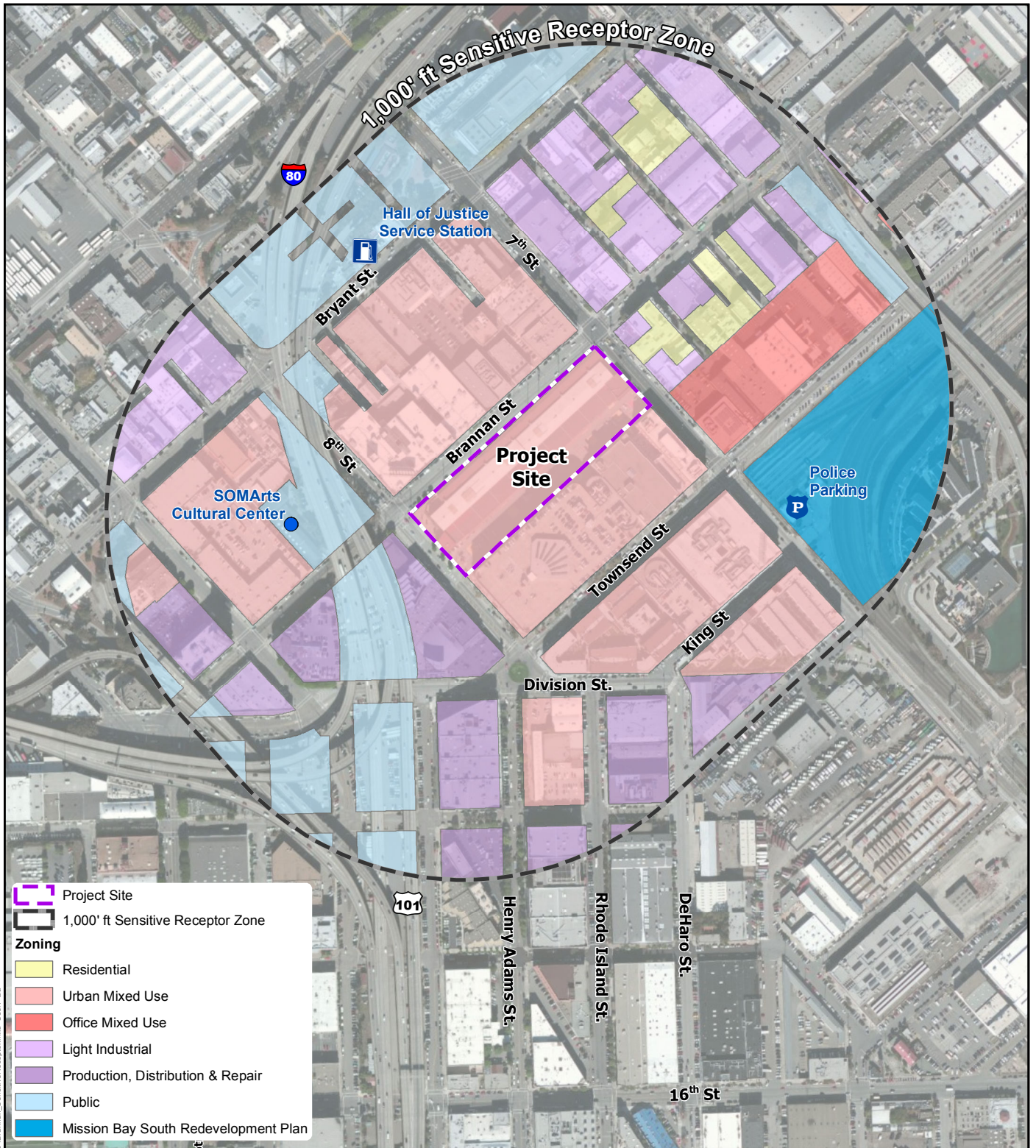
VICINITY MAP

LANGAN TREADWELL ROLLO

Date 2/25/2014

Project 731615201

Figure 1



Project Site

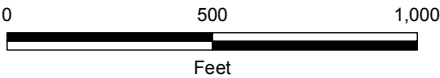
1,000' ft Sensitive Receptor Zone

Zoning

- Residential
- Urban Mixed Use
- Office Mixed Use
- Light Industrial
- Production, Distribution & Repair
- Public
- Mission Bay South Redevelopment Plan

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801 BRANNAN STREET
San Francisco, California

**SITE LOCATION &
SENSITIVE RECEPTOR ZONE**

LANGAN TREADWELL ROLLO

Date 2/25/2014

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Figure 2