APPENDIX A
Health Risk Assessment

Project Construction Health Risk Assessment

The discussion below presents a detailed health risk assessment (HRA) of impacts from the construction of the 2401 Broadway project (proposed project) in Oakland to existing receptors in the vicinity of the project site. The proposed project would not include any operational sources of TACs.

This construction HRA consists of three principal components:

1. Estimation of TAC emissions from project construction,
2. Estimation of TAC concentrations at existing sensitive receptors from the project's construction emissions using refined air dispersion modeling, and
3. Estimation of health risks from construction using the modeled concentrations at receptors and exposure parameters and comparison to significance thresholds developed by the BAAQMD and adopted by the City of Oakland.

The HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[1] and the Bay Area Air Quality Management District (BAAQMD) *Air Toxics New Source Review (NSR) Program Health Risk Assessment Guidelines*.[2]

1. Estimation of TAC Emissions from Project Construction

The primary TAC of concern emitted during project construction is Diesel Particulate Matter (DPM), a primary component of diesel exhaust from construction equipment and heavy duty trucks transporting materials to and from the project site. In August 1998, the CARB identified DPM as a TAC. DPM is a complex mixture of numerous individual gaseous and particulate compounds emitted from diesel-fueled combustion engines and contains at least 40 different TACs. DPM is formed primarily through the incomplete combustion of diesel fuel. DPM is removed from the atmosphere through physical processes including atmospheric fall-out and washout by rain. Humans can be exposed to airborne DPM by deposition on water, soil, and vegetation; although

[1] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[2] BAAQMD, *BAAQMD Air Toxics New Source Review (NSR) Program Health Risk Assessment Guidelines*, January 2016.

the main pathway of exposure is inhalation. Studies indicate that DPM poses the greatest health risk among airborne TACs.

For purposes of this assessment, consistent with OEHHA guidelines, exhaust emissions of PM_{10} are represented as DPM. Exhaust PM_{10} emissions from project construction were derived from CalEEMod (Version 2016.3.1) using the following assumptions:

- Construction of 80 units of residential apartments, a 167-room hotel, 26,600 square feet of retail use and 22,425 square feet of area for parking and circulation;
- Construction was assumed to begin in March 2018 and last for a period of 24 months;
- The length of the various construction phases (e.g., demolition, grading, building construction, etc.) were provided by the project applicant (shown in **Table A-1**);
- The number and types of construction equipment used for each phase[3], their size and activity level as well as the number of construction related worker, vendor and hauling trips during each phase were based on CalEEMod defaults for a 1.21 acre site (shown in **Tables A-2 and A-3**);
- Demolition of 15,500 square feet of existing structures; and
- Off-haul of 4,000 cubic yards of material during the grading phase.

TABLE A-1
PROJECT CONSTRUCTION SCHEDULE[a]

Construction Phase	Duration	Number of Workdays[b]
Demolition	3/5/2018 – 4/27/2018	40
Site Preparation	4/28/2018 – 5/11/2018	10
Grading	5/12/2018 – 7/20/2018	50
Building Construction	7/21/2018 – 2/28/2020	420
Architectural Coating	8/5/2019 – 10/25/2019	60
Paving	2/3/2020 – 2/28/2020	20
Total number of workdays over the construction duration[c]		520

[a] Provided by applicant.
[b] Number of workdays are calculated assuming Monday – Friday construction. No construction on weekends is assumed.
[c] Accounts for overlapping phases of construction.

[3] Cement and mortar mixers were removed from the default CalEEMod equipment list for paving as all cement and mortar used onsite was assumed to be brought in pre-mixed.

TABLE A-2
CONSTRUCTION EQUIPMENT USED BY PHASE[a]

Equipment	Number	No. of days Used	No. of Hours/Day Used
Demolition			
Concrete/Industrial Saw	1	40	8
Rubber Tired Dozer	1	40	8
Tractors/Loaders/Backhoes	3	40	8
Site Preparation			
Grader	1	10	8
Rubber Tired Dozer	1	10	7
Tractors/Loaders/Backhoes	1	10	8
Grading			
Grader	1	50	6
Rubber Tired Dozer	1	50	6
Tractors/Loaders/Backhoes	1	50	7
Building Construction			
Cranes	1	420	6
Forklifts	1	420	6
Generator Sets	1	420	8
Tractors/Loaders/Backhoes	1	420	6
Welders	3	420	8
Architectural Coating			
Air Compressor	1	60	6
Paving			
Pavers	1	20	6
Paving Equipment	1	20	8
Rollers	1	20	7
Tractors/Loaders/Backhoes	1	20	8

[a] CalEEMod defaults for a 1.21 acre construction site. Cement and mortar mixers were not included in the inventory as all cement and mortar used on site would be brought in pre-mixed.

TABLE A-3
VEHICLE TRIPS BY CONSTRUCTION PHASE[a]

Construction Phase	Worker Commute Trips/Day	Vendor Trips/Day	Total Number of Hauling Trips
Demolition	13	0	71
Site Preparation	8	0	0
Grading	8	0	500
Building Construction	116	32	0
Architectural Coating	23	0	0
Paving	10	0	0

[a] CalEEMod default one-way vehicle trips.

Exhaust PM_{10} emissions from on-site construction equipment and off-site vendor and hauling trips during the different phases were extracted from the CalEEMod output and are presented in **Table A-4** for both the uncontrolled and the mitigated scenarios. The mitigated scenario assumes use of Tier 4 engines as the best available control technology for all construction equipment as required by the SCA AIR-1(w) [City SCA-19(w)] for larger projects. As required by the BAAQMD Guidelines, fugitive emissions are not included in this assessment and are addressed separately through dust control measures implemented as part of SCA AIR-1.

TABLE A-4
TOTAL PM_{10} EXHAUST EMISSIONS FROM PROJECT CONSTRUCTION

	Uncontrolled Scenario	With SCA Scenario
On-Site DPM (as PM_{10} Exhaust) (tons)	0.26	0.008
Off-Site DPM (as PM_{10} Exhaust) (tons)	0.006	0.006
Total DPM (as PM_{10} Exhaust) (tons)	0.266	0.014
Number of construction workdays	520	520
Emission Rate (grams/second) [a, b]	0.0158	0.0005

[a] Emission rate calculated assuming 8 hours of construction per day, Monday to Friday.
[b] Emission rate calculated assuming only 10 percent of off-site emissions as contributing to concentrations in the project vicinity.

2. Estimation of Ambient Concentrations at Existing Sensitive Receptors

Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. The results of a dispersion analysis are used to assess pollutant concentrations at or near an emission source. The results of such an analysis allow predicted concentrations of pollutants to be compared directly to air quality standards and other criteria such as health risks based on modeled concentrations.

An air dispersion model is a mathematical formulation that is used to estimate the air quality concentrations at specific locations (receptors) surrounding a source of emissions given the rate of emissions, topography and prevailing meteorological conditions. The air dispersion model used in this assessment was the United States Environmental Protection Agency (EPA) AERMOD air dispersion model that is approved by the BAAQMD for air pollutant dispersion assessments. Specifically, the AERMOD model was used to estimate concentrations of DPM emissions at sensitive receptor locations using the proposed project's emission rate shown in **Table A-5**.

Both on-site emissions from construction and off-site emissions from heavy duty trucks were modeled together as an area source extending over the entire project site (see **Figure A-1**). Only 10 percent of off-site emissions were considered in the modeling effort as contributing to concentrations in the project vicinity. The release height for the source was specified as 5 meters above ground to account for the top of the equipment exhaust stack where the emissions are released to the atmosphere and the increase in the height of the emissions due to its heated exhaust. A variable emissions rate was used to represent project construction activity that is expected to take

TABLE A-5
EXPOSURE PARAMETERS USED

Receptor Age	Exposure Duration (ED) [a] (years)	Age Sensitivity Factors (ASF)	Fraction of time at Home (TAH) (%)	Daily Breathing Rate (DBR) [b] (L/kg-day)
Residential Receptor - Infant				
3rd trimester	0.25	10	0.85	361
0 – 2 years	2	10	0.85	1090
2 – 16 years	1	3	0.72	572
Residential Receptor - Child				
2 – 16 years	3	3	0.72	572
Residential Receptor - Adult				
>16 years	3	1	0.73	261

[a] Per BAAQMD guidance, a minimum 3 year exposure duration is assumed to estimate risks from project construction.
[b] BAAQMD Air Toxics New Source Review Program HRA Guidelines recommend using the 95th percentile rate for age groups less than 2 years old and the 80th percentile rate for age groups that are greater than or equal to 2 years old.

place only on weekdays for 8 hours per day between 8 a.m. and 4 p.m. Five years of meteorological data from the Metropolitan Oakland International Airport was used to represent wind conditions at the project site.

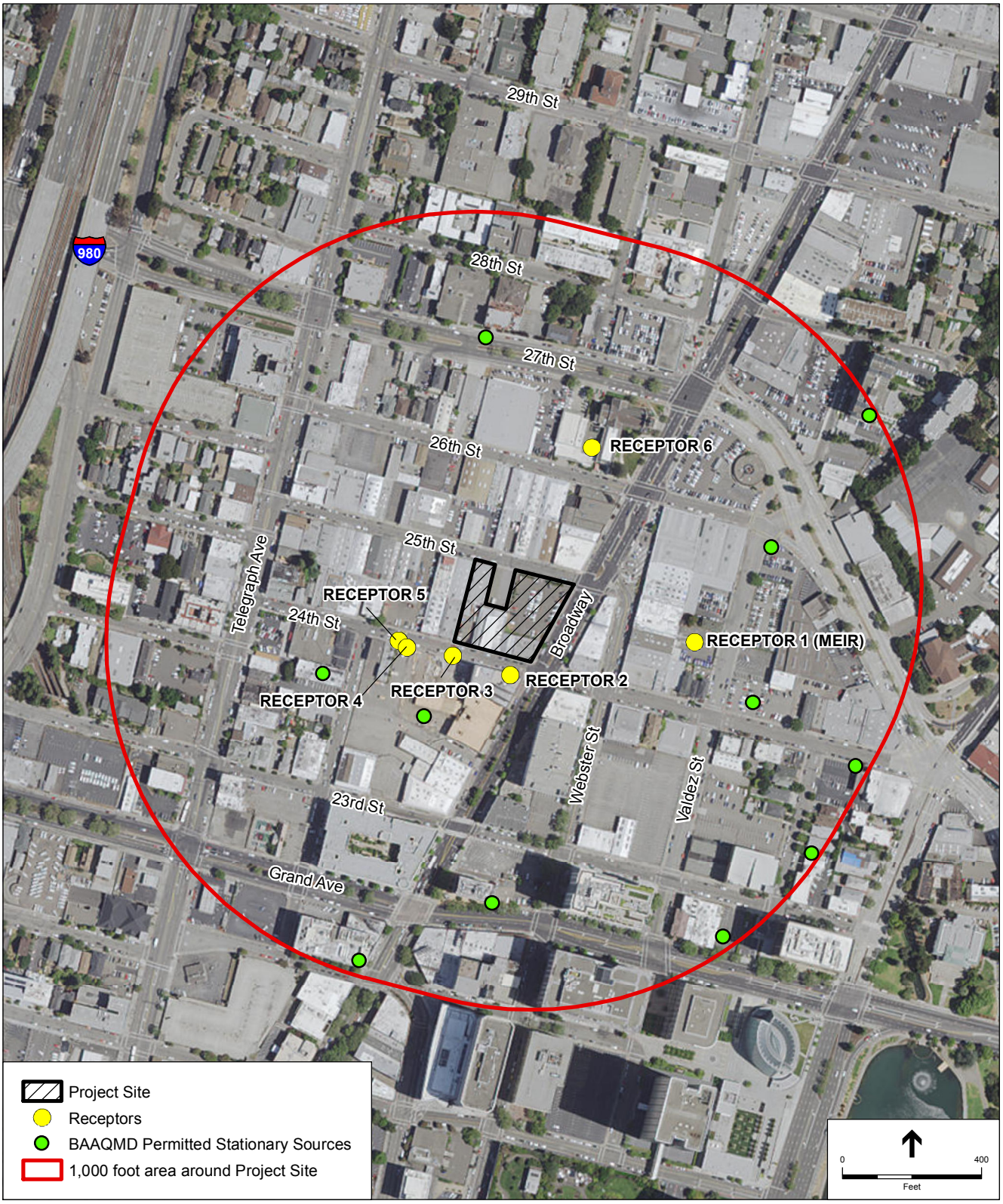
Sensitive receptors in the form of existing residential uses are generally located to the south and east of the project site. The closest sensitive receptors are located approximately 70 feet south of the project site across 24th Street. Receptors to the east are located farther away at approximately 350 feet from the project site across Broadway. Six discrete receptors around the project site were included in the modeling effort and are shown in Figure A-1.

The results of the dispersion modeling showed that the maximum annual concentration of 0.12 micrograms per cubic meter ($\mu g/m^3$) for the uncontrolled (unmitigated) scenario would occur at Receptor 1 to the east of the project site. This would be considered the Maximum Exposed Individual Receptor (MEIR). With the use of Tier 4 construction equipment required to comply with SCA AIR-1(w), annual concentration at the MEIR would reduce to 0.033 $\mu g/m^3$.

3. Assessment of Health Risks from Project Construction to Existing Receptors

Assessment of health risks from project construction was conducted following methodologies and exposure parameters recommended in OEHHA's Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.[4] OEHHA's 2015 revisions to its Guidance Manual are primarily designed to ensure that the greater sensitivity of children to cancer and other health risks is reflected in HRAs. For example, OEHHA now recommends that risks be analyzed separately for

[4] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html



SOURCE: ESRI; ESA

2401 Broadway . 160823

Figure A-1

Location of Sensitive Receptors,
Cumulative Sources and Boundary of Influence

multiple age groups, focusing especially on young children and teenagers, rather than the past practice of analyzing risks to the general population, without distinction by age. OEHHA also now recommends that statistical "age sensitivity factors" be incorporated into a HRA, and that children's relatively high breathing rates be accounted for. On the other hand, the Guidance Manual revisions also include some changes that would reduce calculated health risks. For example, under the former guidance, OEHHA recommended that residential cancer risks be assessed by assuming 70 years of exposure at a residential receptor; under the revised Guidance Manual, this assumption is lessened to 30 years. This is based on studies showing that 30 years is a reasonable estimate of the 90th to 95th percentile of residency duration in the population. For short term projects such as construction activities, OEHHA recommends using the actual project duration. To ensure that short-term projects do not result in unanticipated higher cancer impacts due to short duration high-exposure rates, the BAAQMD recommends that the cancer risk be evaluated assuming that the average daily dose for short-term exposure lasts a minimum of three years for projects lasting three years or less.

Based on OEHHA recommendations, the cancer risk to residential receptors assumes that exposure occurs 24 hours per day for 350 days per year while accounting for a percentage of time at home. OEHHA evaluated information from activity pattern databases to estimate the fraction of time at home (FAH) during the day. This information was used to adjust exposure duration and cancer risk based on the assumption that a person is not present at home continuously for 24 hours and therefore exposure to emissions is not occurring when a person is away from their home.

Cancer risk at the MEIR was estimated using the OEHHA recommended method shown in the following equations and the cancer risk exposure parameters shown in Table A-5. Estimates were made using the mandatory minimum pathways, which for DPM is only through inhalation.

$$Risk_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

$Risk_{inh\text{-}res}$ = Residential inhalation cancer risk
$DOSE_{air}$ = Daily Inhalation Dose
CPF = Cancer Potency Factor for DPM = 1.1
ASF = Age Sensitivity Factors
ED = Exposure Duration in each age group (years)
AT = Averaging Time over lifetime cancer risk (years) = 70 years
FAH = Fraction of Time at Home (%)

$$DOSE_{air} = C_{air} \times DBR \times A \times EF \times 10^{-6}$$

C_{air} = Concentration of TAC in air ($\mu g/m^3$)
DBR = Daily Breathing Rate
A = Inhalation Absorption factor = 1.0 for DPM
EF = Exposure Frequency = 350/365 = 0.96

Chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental DPM exposure concentration

from the proposed project to a reference exposure level (REL) that could cause adverse health effects. The RELs are published by OEHHA based on epidemiological research. The chronic reference exposure level for DPM was established by the California OEHHA as 5 μg/m^3.[5]

Estimated health risks and maximum $PM_{2.5}$ concentration to receptors of different age groups at the MEIR are shown in **Table A-6** below and compared to the BAAQMD project-level thresholds that have been adopted by the City of Oakland.

TABLE A-6
MAXIMUM HEALTH RISKS FROM PROJECT CONSTRUCTION

Health Risk at MEIR	Maximum Cancer Risk (in a million)	Chronic Risk (Hazard Index)	Maximum $PM_{2.5}$ concentration
Uncontrolled Scenario			
Residential Receptor - Infant	37	0.024	0.115
Residential Receptor - Child	7	0.024	0.115
Residential Receptor - Adult	1	0.024	0.115
With Tier 4 Equipment			
Residential Receptor - Infant	1	0.008	0.004
Residential Receptor - Child	0.2	0.008	0.004
Residential Receptor - Adult	<0.1	0.008	0.004
Project-level Threshold	10	1.0	0.3
Significant?	**No**	**No**	**No**

As shown in the table, health risks (cancer and chronic) to receptors of all age groups and $PM_{2.5}$ concentrations resulting from project construction would be less than the applicable significance thresholds with the use of Tier 4 equipment for construction. Therefore the TAC impact of project construction on existing receptors would be less than significant.

Cumulative Health Risks to New Project Receptors

Based on the findings of the Broadway Valdez District Specific Plan (BVDSP) Environmental Impact Report (EIR) and the City of Oakland's current Standard Condition of Approval (SCA) 20 (referred to as SCA AIR-2 in this document), the proposed project is required to undergo a health risk analysis to determine the potential cumulative health risks to new sensitive receptors at the project site from project, existing and reasonably foreseeable future sources of toxic air contaminants (TACs).

SCA AIR-2: Exposure to Air Pollution (Toxic Air Contaminants), requires projects that propose to build sensitive uses (such as residences, schools, daycare centers, parks, nursing homes or medical facilities) and are located within 1,000 feet of major sources of air pollution (permitted

[5] California Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, June 2014, http://www.oehha.ca.gov/air/allrels.html

stationary sources, freeways, roadways with traffic greater than 10,000 vehicle per day, rail lines, etc.) to conduct a screening analysis in accordance with the BAAQMD Guidelines to assess risk to proposed receptors. If the risk to proposed receptors exceeds the health screening criteria, projects shall be required to incorporate appropriate measures into the project design in order to reduce the potential health risk.

The proposed project includes residential uses and is located within 1,000 feet of several BAAQMD permitted stationary sources and roadways with traffic volumes greater than 10,000 vehicles per day. Therefore, the analysis presented below includes a screening level assessment of the cumulative risk to new receptors from existing and proposed sources of TACs within 1,000 feet of the project site.

The BAAQMD's CEQA Air Quality Guidelines include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the tallying of health risk from permitted stationary sources, major roadways and any other identified substantial air toxic sources in the vicinity of a project site (i.e., within a 1,000-foot radius) and then adding the individual sources to determine whether the BAAQMD's cumulative health risk thresholds are exceeded. The cumulative screening analysis for the proposed new receptors is shown in **Table A-7**.

1. Existing Stationary Sources within 1,000 feet of the Project Site

BAAQMD has developed a geo-referenced database of permitted stationary emissions sources throughout the San Francisco Bay Area and the Stationary Source Screening Analysis Tool[6] for estimating cumulative health risks from the permitted stationary sources. Based on this, eleven permitted stationary sources of TAC emissions were identified within 1,000 feet of the project site. Preliminary health risk screening values for three of these sources that operate diesel engines were refined using the BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool[7] to represent the attenuated health risks at the MEIR. The screening values for one other facility that operates diesel engines (BAAQMD Plant 19269) was not refined because the values were based on a site-specific health risk assessment.

2. Existing Mobile Sources within 1,000 feet

BAAQMD has also developed a geo-referenced database of highways and roadways throughout the San Francisco Bay Area to be used in conjunction with the Highway Screening Analysis Tool and the Roadway Screening Analysis Calculator[8] for estimating risks from highways and major roadways. There are no highways within 1,000 feet of the project site. BAAQMD *CEQA Air Quality Guidelines* also require the inclusion of surface streets within 1,000 feet of the proposed project with annual average daily traffic of 10,000 or greater. Upon review of nearby roadways, Broadway, Telegraph Avenue, 27th Street and Grand Avenue meet the criteria. The health risk

6 Bay Area Air Quality Management District, *Stationary Source Screening Analysis Tool*, May 30, 2012.
7 Bay Area Air Quality Management District, *Diesel Internal Combustion (IC) Engine Distance Multiplier*, June 13, 2012.
8 Bay Area Air Quality Management District, *Roadway Screening Analysis Calculator*, April 16, 2015.

TABLE A-7
CUMULATIVE HEALTH IMPACTS TO NEW RECEPTORS

Source	Source Type	Distance from Project (feet)	Cancer Risk (persons per million)	Chronic Hazard Impact	$PM_{2.5}$ Concentration (µg/m3)
Existing Stationary Sources (BAAQMD Plant Number) within 1,000 feet					
Westlake Christian Terrace (19269)	Diesel Engine	975	12.9	0.005	0.013
CalStears (16640)	Diesel Engine	980	1.01	0.009	0.002
Essex Portfolio LLC (19971)	Diesel Engine	675	1.14	0.006	0.0003
State of California Department of Transportation (14195)	Diesel Engine	725	3.84	0.019	0.007
Johnson Plating Works Inc. (3490)	Not Specified	355	0.05	0.0	0.0
Oakland Fleet Fueling Facility (G9464)	Not Specified	650	NA	NA	NA
Oakland Acura (12498)	Not Specified	600	0.0	0.0	0.0
Autotrends (15482)	Not Specified	625	0.0	0.0	0.0
VIP Auto Collision Repair (19344)	Not Specified	960	0.0	0.0	0.0
Hanzel Auto Body Works (3927)	Not Specified	940	0.0	0.0	0.0
Q & S Automotive (12434)	Not Specified	230	0.0	0.0	0.0
Major Roadways (with more than 10,000 AADT) within 1,000 feet					
Broadway	Roadway	20	9.2	--	0.17
27th Street	Roadway	575	1.3	--	0.02
Telegraph Avenue	Roadway	570	1.6	--	0.03
Grand Avenue	Roadway	750	2.6	--	0.05
Backup Generators at Proposed Projects within 1,000 feet					
24th and Harrison	Diesel Engine	650	0.8	0.04	0.015
2315 Valdez/2330 Webster	Diesel Engine	600	0.9	0.04	0.016
2302 Valdez	Diesel Engine	760	0.6	0.04	0.011
2270 Broadway	Diesel Engine	575	0.9	0.04	0.016
2400 Valdez	Diesel Engine	600	0.9	0.04	0.016
2345 Broadway (HIVE)	Diesel Engine	190	4.1	0.04	0.075
2425 Valdez	Diesel Engine	400	1.6	0.04	0.029
2630 Broadway	Diesel Engine	560	0.9	0.04	0.016
2305 Webster	Diesel Engine	525	1.0	0.04	0.018
Cumulative Impacts			46	0.4	0.5
Cumulative Impacts using BAAQMD multiplier to existing and proposed stationary sources and roadways to account for 2015 OEHHA revisions[a]			62	0.36	0.5
City of Oakland Cumulative Significance Criteria (new receptors)			100	10	0.8
Potentially Significant Impact?			No	No	No

NOTE: NA = Not Available

[a] Cumulative totals may not add up due to rounding

SOURCE: BAAQMD, 2012; BAAQMD, 2015; ESA, 2017.

screening values at the MEIR and the new receptors from nearby major roadways were estimated using the BAAQMD's county-specific Roadway Screening Analysis Calculator[7] and are also presented in Table A-7.

3. Other Project Developments Proposed within 1,000 feet

In addition to existing TAC sources, there are nine proposed developments within 1,000 feet of the project site that are either under construction or could be constructed in the near future, and future operations would include maintenance and testing of a backup diesel generator. The BAAQMD does not issue permits for stationary sources that result in an excess cancer risk greater than 10 in one million or a chronic HI greater than 1.0. Conservatively assuming each proposed generator would result in a maximum excess cancer risk of 10 in one million due to emissions of diesel particulate matter, the BAAQMD's Risk and Hazards Emissions Screening Calculator (Beta Version) was used to estimate the equivalent screening-level health risk values for chronic HI and annual average $PM_{2.5}$ concentrations. The health risk screening values were then refined based on the distance from each source to the receptors using the BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool and are shown in Table G-7.

Note that the cancer risks estimated from the BAAQMD assessment tools (roadways and permitted stationary sources) and shown in Table A-7 are based on an older set of exposure parameters that do not reflect the revised OEHHA cancer risk parameters dealing with daily breathing rates, time at home factors, and exposure duration. The cancer risks estimated from the BAAQMD's assessment tools for these emission sources, therefore, were increased using a BAAQMD provided multiplier of 1.3744 to account for the revised exposure parameters.[9]

Conclusion

As shown in Table A-7, the screening analysis, which is based on conservative assumptions, indicates that the cumulative excess cancer, chronic risk (HI) and $PM_{2.5}$ concentration at the project receptors would be less than the City's cumulative. Therefore, this would constitute a less than significant cumulative impact to the new receptors.

[9] Kirk, Alison, Email Communication with ESA, December 20, 2016.

2401 Broadway - Existing Uses

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Automobile Care Center	15.50	1000sqft	1.21	15,500.00	0
Regional Shopping Center	7.10	1000sqft	0.00	7,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Existing use data

Vehicle Trips - Trip rate adjusted based on data from F&P

Energy Use -

Water And Wastewater - 100 percent aerobic treatmet assumed

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.36	1.21
tblLandUse	LotAcreage	0.16	0.00
tblVehicleTrips	ST_TR	23.72	19.80
tblVehicleTrips	ST_TR	49.97	29.18
tblVehicleTrips	SU_TR	11.88	9.92
tblVehicleTrips	SU_TR	25.24	14.74
tblVehicleTrips	WD_TR	23.72	19.80
tblVehicleTrips	WD_TR	42.70	24.93
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0151	0.1419	0.0816	1.3000e-004	5.1000e-004	8.9400e-003	9.4600e-003	1.4000e-004	8.3700e-003	8.5000e-003	0.0000	11.6311	11.6311	2.8200e-003	0.0000	11.7016
2017	0.4473	2.2491	1.6369	2.6400e-003	0.0251	0.1393	0.1643	0.0106	0.1338	0.1444	0.0000	225.4577	225.4577	0.0460	0.0000	226.6085
Maximum	**0.4473**	**2.2491**	**1.6369**	**2.6400e-003**	**0.0251**	**0.1393**	**0.1643**	**0.0106**	**0.1338**	**0.1444**	**0.0000**	**225.4577**	**225.4577**	**0.0460**	**0.0000**	**226.6085**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0151	0.1419	0.0816	1.3000e-004	5.1000e-004	8.9400e-003	9.4600e-003	1.4000e-004	8.3700e-003	8.5000e-003	0.0000	11.6310	11.6310	2.8200e-003	0.0000	11.7016
2017	0.4473	2.2491	1.6369	2.6400e-003	0.0251	0.1393	0.1643	0.0106	0.1338	0.1444	0.0000	225.4575	225.4575	0.0460	0.0000	226.6082
Maximum	**0.4473**	**2.2491**	**1.6369**	**2.6400e-003**	**0.0251**	**0.1393**	**0.1643**	**0.0106**	**0.1338**	**0.1444**	**0.0000**	**225.4575**	**225.4575**	**0.0460**	**0.0000**	**226.6082**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-18-2016	3-17-2017	0.8048	0.8048
2	3-18-2017	6-17-2017	0.7508	0.7508
3	6-18-2017	9-17-2017	0.7507	0.7507
4	9-18-2017	9-30-2017	0.1061	0.1061
		Highest	0.8048	0.8048

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1001					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	88.4168	88.4168	3.3600e-003	1.0500e-003	88.8126
Mobile	0.1786	0.8731	1.6388	3.4200e-003	0.2186	7.1400e-003	0.2258	0.0588	6.7800e-003	0.0656	0.0000	313.5966	313.5966	0.0230	0.0000	314.1706
Waste						0.0000	0.0000		0.0000	0.0000	12.0191	0.0000	12.0191	0.7103	0.0000	29.7768
Water						0.0000	0.0000		0.0000	0.0000	0.7020	4.3616	5.0636	2.6100e-003	1.5700e-003	5.5960
Total	**0.2811**	**0.8954**	**1.6575**	**3.5500e-003**	**0.2186**	**8.8400e-003**	**0.2275**	**0.0588**	**8.4800e-003**	**0.0673**	**12.7211**	**406.3750**	**419.0960**	**0.7392**	**2.6200e-003**	**438.3559**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1001					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	88.4168	88.4168	3.3600e-003	1.0500e-003	88.8126
Mobile	0.1786	0.8731	1.6388	3.4200e-003	0.2186	7.1400e-003	0.2258	0.0588	6.7800e-003	0.0656	0.0000	313.5966	313.5966	0.0230	0.0000	314.1706
Waste						0.0000	0.0000		0.0000	0.0000	12.0191	0.0000	12.0191	0.7103	0.0000	29.7768
Water						0.0000	0.0000		0.0000	0.0000	0.7020	4.3616	5.0636	2.6100e-003	1.5700e-003	5.5960
Total	**0.2811**	**0.8954**	**1.6575**	**3.5500e-003**	**0.2186**	**8.8400e-003**	**0.2275**	**0.0588**	**8.4800e-003**	**0.0673**	**12.7211**	**406.3750**	**419.0960**	**0.7392**	**2.6200e-003**	**438.3559**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

2401 Broadway - Existing Uses - Alameda County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	11/14/2017	11/27/2017	5	10	
2	Building Construction	Building Construction	1/24/2017	10/30/2017	5	200	
3	Demolition	Demolition	12/18/2016	1/13/2017	5	20	
4	Grading	Grading	1/18/2017	1/23/2017	5	4	
5	Paving	Paving	10/31/2017	11/13/2017	5	10	
6	Site Preparation	Site Preparation	1/14/2017	1/17/2017	5	2	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 33,900; Non-Residential Outdoor: 11,300; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

2401 Broadway - Existing Uses - Alameda County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	7.00	4.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1178					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2800
Total	**0.1195**	**0.0109**	**9.3400e-003**	**1.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2800**

3.2 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	2.0000e-005	1.9000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0384	0.0384	0.0000	0.0000	0.0384
Total	**2.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0384**	**0.0384**	**0.0000**	**0.0000**	**0.0384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1178					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2800
Total	**0.1195**	**0.0109**	**9.3400e-003**	**1.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2800**

3.2 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	2.0000e-005	1.9000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0384	0.0384	0.0000	0.0000	0.0384
Total	**2.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0384**	**0.0384**	**0.0000**	**0.0000**	**0.0384**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2965	1.9237	1.4357	2.2000e-003		0.1231	0.1231		0.1188	0.1188	0.0000	185.4162	185.4162	0.0390	0.0000	186.3909
Total	**0.2965**	**1.9237**	**1.4357**	**2.2000e-003**		**0.1231**	**0.1231**		**0.1188**	**0.1188**	**0.0000**	**185.4162**	**185.4162**	**0.0390**	**0.0000**	**186.3909**

3.3 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2700e-003	0.0574	0.0137	1.1000e-004	2.6300e-003	4.9000e-004	3.1100e-003	7.6000e-004	4.7000e-004	1.2300e-003	0.0000	10.7595	10.7595	7.4000e-004	0.0000	10.7779
Worker	3.3000e-003	2.6500e-003	0.0263	6.0000e-005	5.5300e-003	4.0000e-005	5.5800e-003	1.4700e-003	4.0000e-005	1.5100e-003	0.0000	5.3748	5.3748	1.9000e-004	0.0000	5.3794
Total	**5.5700e-003**	**0.0600**	**0.0399**	**1.7000e-004**	**8.1600e-003**	**5.3000e-004**	**8.6900e-003**	**2.2300e-003**	**5.1000e-004**	**2.7400e-003**	**0.0000**	**16.1342**	**16.1342**	**9.3000e-004**	**0.0000**	**16.1574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2965	1.9237	1.4357	2.2000e-003		0.1231	0.1231		0.1188	0.1188	0.0000	185.4160	185.4160	0.0390	0.0000	186.3907
Total	**0.2965**	**1.9237**	**1.4357**	**2.2000e-003**		**0.1231**	**0.1231**		**0.1188**	**0.1188**	**0.0000**	**185.4160**	**185.4160**	**0.0390**	**0.0000**	**186.3907**

3.3 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2700e-003	0.0574	0.0137	1.1000e-004	2.6300e-003	4.9000e-004	3.1100e-003	7.6000e-004	4.7000e-004	1.2300e-003	0.0000	10.7595	10.7595	7.4000e-004	0.0000	10.7779
Worker	3.3000e-003	2.6500e-003	0.0263	6.0000e-005	5.5300e-003	4.0000e-005	5.5800e-003	1.4700e-003	4.0000e-005	1.5100e-003	0.0000	5.3748	5.3748	1.9000e-004	0.0000	5.3794
Total	**5.5700e-003**	**0.0600**	**0.0399**	**1.7000e-004**	**8.1600e-003**	**5.3000e-004**	**8.6900e-003**	**2.2300e-003**	**5.1000e-004**	**2.7400e-003**	**0.0000**	**16.1342**	**16.1342**	**9.3000e-004**	**0.0000**	**16.1574**

3.4 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.1416	0.0789	1.2000e-004		8.9400e-003	8.9400e-003		8.3600e-003	8.3600e-003	0.0000	11.1196	11.1196	2.8000e-003	0.0000	11.1897
Total	**0.0148**	**0.1416**	**0.0789**	**1.2000e-004**		**8.9400e-003**	**8.9400e-003**		**8.3600e-003**	**8.3600e-003**	**0.0000**	**11.1196**	**11.1196**	**2.8000e-003**	**0.0000**	**11.1897**

3.4 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.8000e-004	2.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.5115	0.5115	2.0000e-005	0.0000	0.5120
Total	**3.5000e-004**	**2.8000e-004**	**2.7800e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.5115**	**0.5115**	**2.0000e-005**	**0.0000**	**0.5120**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0148	0.1416	0.0789	1.2000e-004		8.9400e-003	8.9400e-003		8.3600e-003	8.3600e-003	0.0000	11.1196	11.1196	2.8000e-003	0.0000	11.1897
Total	**0.0148**	**0.1416**	**0.0789**	**1.2000e-004**		**8.9400e-003**	**8.9400e-003**		**8.3600e-003**	**8.3600e-003**	**0.0000**	**11.1196**	**11.1196**	**2.8000e-003**	**0.0000**	**11.1897**

3.4 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.8000e-004	2.7800e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.5115	0.5115	2.0000e-005	0.0000	0.5120
Total	**3.5000e-004**	**2.8000e-004**	**2.7800e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.5115**	**0.5115**	**2.0000e-005**	**0.0000**	**0.5120**

3.4 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1338	0.0778	1.2000e-004		8.2400e-003	8.2400e-003		7.7000e-003	7.7000e-003	0.0000	10.9834	10.9834	2.7800e-003	0.0000	11.0528
Total	**0.0138**	**0.1338**	**0.0778**	**1.2000e-004**		**8.2400e-003**	**8.2400e-003**		**7.7000e-003**	**7.7000e-003**	**0.0000**	**10.9834**	**10.9834**	**2.7800e-003**	**0.0000**	**11.0528**

3.4 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.5000e-004	2.4400e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4991	0.4991	2.0000e-005	0.0000	0.4995
Total	**3.1000e-004**	**2.5000e-004**	**2.4400e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4991**	**0.4991**	**2.0000e-005**	**0.0000**	**0.4995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1338	0.0778	1.2000e-004		8.2400e-003	8.2400e-003		7.7000e-003	7.7000e-003	0.0000	10.9834	10.9834	2.7800e-003	0.0000	11.0528
Total	**0.0138**	**0.1338**	**0.0778**	**1.2000e-004**		**8.2400e-003**	**8.2400e-003**		**7.7000e-003**	**7.7000e-003**	**0.0000**	**10.9834**	**10.9834**	**2.7800e-003**	**0.0000**	**11.0528**

3.4 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.5000e-004	2.4400e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4991	0.4991	2.0000e-005	0.0000	0.4995
Total	**3.1000e-004**	**2.5000e-004**	**2.4400e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4991**	**0.4991**	**2.0000e-005**	**0.0000**	**0.4995**

3.5 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0366	0.0141	3.0000e-005		1.7500e-003	1.7500e-003		1.6100e-003	1.6100e-003	0.0000	2.6216	2.6216	8.0000e-004	0.0000	2.6417
Total	**3.2000e-003**	**0.0366**	**0.0141**	**3.0000e-005**	**9.8300e-003**	**1.7500e-003**	**0.0116**	**5.0500e-003**	**1.6100e-003**	**6.6600e-003**	**0.0000**	**2.6216**	**2.6216**	**8.0000e-004**	**0.0000**	**2.6417**

3.5 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1229	0.1229	0.0000	0.0000	0.1230
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1229**	**0.1229**	**0.0000**	**0.0000**	**0.1230**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0366	0.0141	3.0000e-005		1.7500e-003	1.7500e-003		1.6100e-003	1.6100e-003	0.0000	2.6216	2.6216	8.0000e-004	0.0000	2.6417
Total	**3.2000e-003**	**0.0366**	**0.0141**	**3.0000e-005**	**9.8300e-003**	**1.7500e-003**	**0.0116**	**5.0500e-003**	**1.6100e-003**	**6.6600e-003**	**0.0000**	**2.6216**	**2.6216**	**8.0000e-004**	**0.0000**	**2.6417**

3.5 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1229	0.1229	0.0000	0.0000	0.1230
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1229**	**0.1229**	**0.0000**	**0.0000**	**0.1230**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0000e-003	0.0613	0.0458	7.0000e-005		3.7100e-003	3.7100e-003		3.4200e-003	3.4200e-003	0.0000	6.2044	6.2044	1.8700e-003	0.0000	6.2510
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0000e-003**	**0.0613**	**0.0458**	**7.0000e-005**		**3.7100e-003**	**3.7100e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**6.2044**	**6.2044**	**1.8700e-003**	**0.0000**	**6.2510**

3.6 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.5000e-004	2.4400e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4991	0.4991	2.0000e-005	0.0000	0.4995
Total	**3.1000e-004**	**2.5000e-004**	**2.4400e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4991**	**0.4991**	**2.0000e-005**	**0.0000**	**0.4995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0000e-003	0.0613	0.0458	7.0000e-005		3.7100e-003	3.7100e-003		3.4200e-003	3.4200e-003	0.0000	6.2044	6.2044	1.8700e-003	0.0000	6.2510
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0000e-003**	**0.0613**	**0.0458**	**7.0000e-005**		**3.7100e-003**	**3.7100e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**6.2044**	**6.2044**	**1.8700e-003**	**0.0000**	**6.2510**

3.6 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.5000e-004	2.4400e-003	1.0000e-005	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4991	0.4991	2.0000e-005	0.0000	0.4995
Total	**3.1000e-004**	**2.5000e-004**	**2.4400e-003**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4991**	**0.4991**	**2.0000e-005**	**0.0000**	**0.4995**

3.7 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9300e-003	0.0222	8.4000e-003	2.0000e-005		1.0500e-003	1.0500e-003		9.6000e-004	9.6000e-004	0.0000	1.6005	1.6005	4.9000e-004	0.0000	1.6128
Total	**1.9300e-003**	**0.0222**	**8.4000e-003**	**2.0000e-005**	**5.8000e-003**	**1.0500e-003**	**6.8500e-003**	**2.9500e-003**	**9.6000e-004**	**3.9100e-003**	**0.0000**	**1.6005**	**1.6005**	**4.9000e-004**	**0.0000**	**1.6128**

3.7 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0614	0.0614	0.0000	0.0000	0.0615
Total	**4.0000e-005**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0614**	**0.0614**	**0.0000**	**0.0000**	**0.0615**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9300e-003	0.0222	8.4000e-003	2.0000e-005		1.0500e-003	1.0500e-003		9.6000e-004	9.6000e-004	0.0000	1.6005	1.6005	4.9000e-004	0.0000	1.6128
Total	**1.9300e-003**	**0.0222**	**8.4000e-003**	**2.0000e-005**	**5.8000e-003**	**1.0500e-003**	**6.8500e-003**	**2.9500e-003**	**9.6000e-004**	**3.9100e-003**	**0.0000**	**1.6005**	**1.6005**	**4.9000e-004**	**0.0000**	**1.6128**

3.7 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0614	0.0614	0.0000	0.0000	0.0615
Total	**4.0000e-005**	**3.0000e-005**	**3.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0614**	**0.0614**	**0.0000**	**0.0000**	**0.0615**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1786	0.8731	1.6388	3.4200e-003	0.2186	7.1400e-003	0.2258	0.0588	6.7800e-003	0.0656	0.0000	313.5966	313.5966	0.0230	0.0000	314.1706
Unmitigated	0.1786	0.8731	1.6388	3.4200e-003	0.2186	7.1400e-003	0.2258	0.0588	6.7800e-003	0.0656	0.0000	313.5966	313.5966	0.0230	0.0000	314.1706

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	306.90	306.90	153.76	283,936	283,936
Regional Shopping Center	177.00	207.18	104.65	299,777	299,777
Total	483.90	514.08	258.41	583,713	583,713

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.549789	0.045822	0.190768	0.114406	0.020727	0.005237	0.020995	0.039952	0.001967	0.003604	0.005612	0.000271	0.000852
Regional Shopping Center	0.549789	0.045822	0.190768	0.114406	0.020727	0.005237	0.020995	0.039952	0.001967	0.003604	0.005612	0.000271	0.000852

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	64.0788	64.0788	2.9000e-003	6.0000e-004	64.3299
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	64.0788	64.0788	2.9000e-003	6.0000e-004	64.3299
NaturalGas Mitigated	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	24.3381	24.3381	4.7000e-004	4.5000e-004	24.4827
NaturalGas Unmitigated	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	24.3381	24.3381	4.7000e-004	4.5000e-004	24.4827

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	417880	2.2500e-003	0.0205	0.0172	1.2000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	22.2997	22.2997	4.3000e-004	4.1000e-004	22.4322
Regional Shopping Center	38198	2.1000e-004	1.8700e-003	1.5700e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0384	2.0384	4.0000e-005	4.0000e-005	2.0505
Total		**2.4600e-003**	**0.0224**	**0.0188**	**1.3000e-004**		**1.7000e-003**	**1.7000e-003**		**1.7000e-003**	**1.7000e-003**	**0.0000**	**24.3381**	**24.3381**	**4.7000e-004**	**4.5000e-004**	**24.4827**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	417880	2.2500e-003	0.0205	0.0172	1.2000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	22.2997	22.2997	4.3000e-004	4.1000e-004	22.4322
Regional Shopping Center	38198	2.1000e-004	1.8700e-003	1.5700e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0384	2.0384	4.0000e-005	4.0000e-005	2.0505
Total		**2.4600e-003**	**0.0224**	**0.0188**	**1.3000e-004**		**1.7000e-003**	**1.7000e-003**		**1.7000e-003**	**1.7000e-003**	**0.0000**	**24.3381**	**24.3381**	**4.7000e-004**	**4.5000e-004**	**24.4827**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	134075	39.0040	1.7600e-003	3.6000e-004	39.1568
Regional Shopping Center	86194	25.0748	1.1300e-003	2.3000e-004	25.1731
Total		**64.0788**	**2.8900e-003**	**5.9000e-004**	**64.3299**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	134075	39.0040	1.7600e-003	3.6000e-004	39.1568
Regional Shopping Center	86194	25.0748	1.1300e-003	2.3000e-004	25.1731
Total		**64.0788**	**2.8900e-003**	**5.9000e-004**	**64.3299**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1001					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.1001					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0118					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0118					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.0636	2.6100e-003	1.5700e-003	5.5960
Unmitigated	5.0636	2.6100e-003	1.5700e-003	5.5960

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	1.45826 / 0.893771	3.7214	1.9200e-003	1.1500e-003	4.1127
Regional Shopping Center	0.525915 / 0.322335	1.3421	6.9000e-004	4.2000e-004	1.4833
Total		**5.0636**	**2.6100e-003**	**1.5700e-003**	**5.5960**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	1.45826 / 0.893771	3.7214	1.9200e-003	1.1500e-003	4.1127
Regional Shopping Center	0.525915 / 0.322335	1.3421	6.9000e-004	4.2000e-004	1.4833
Total		**5.0636**	**2.6100e-003**	**1.5700e-003**	**5.5960**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.0191	0.7103	0.0000	29.7768
Unmitigated	12.0191	0.7103	0.0000	29.7768

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	59.21	12.0191	0.7103	0.0000	29.7768
Regional Shopping Center	7.46	0.0000	0.0000	0.0000	0.0000
Total		**12.0191**	**0.7103**	**0.0000**	**29.7768**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	59.21	12.0191	0.7103	0.0000	29.7768
Regional Shopping Center	7.46	0.0000	0.0000	0.0000	0.0000
Total		**12.0191**	**0.7103**	**0.0000**	**29.7768**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX B

Historic Resource Evaluation

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CAREY & CO. | A TreanorHL Company

August 29, 2017

2401 Broadway
Oakland, California

HISTORIC RESOURCE & PROJECT EVALUATION

INTRODUCTION

Signature Development Group is proposing a development project located along Broadway between 24th and 25th Streets, within the boundaries of the National Register-eligible 25th Street Garage District and in an Area of Primary Importance (API) as determined by the City of Oakland. The 2401 Broadway and 437 25th Street properties are within the development site, and the 444 24th Street and 443 25th Street properties are located immediately adjacent. This report reexamines the potential historic significance of the subject properties and evaluates the proposed project for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards), including compatibility with the character-defining features of the historic district.

METHODOLOGY

Carey & Co. conducted a site visit on September 28, 2016 to evaluate the existing conditions of the historic district. Additional research was completed at the Oakland Planning Department and the DPR form for the 25th Street Garage District was reviewed to identify the significance and character-defining features of the district. These activities were undertaken to address, in part, the Broadway Valdez District Specific Plan's Mitigation Measure CUL-1.b):

> "Although the Plan Area has been surveyed by the City of Oakland's OCHS [Oakland Cultural Heritage Survey] and as part of the Broadway Valdez Specific Plan effort by ESA in 2009, evaluations and ratings may change with time and other conditions. There may be previously unidentified historical resources which would be affected by future development activities. For any future projects on or immediately adjacent to buildings 50 years old or older between 2013 and 2038, which is the build-out horizon for the Specific Plan (i.e., by the end of the Plan period, buildings constructed prior to 1988), the City shall require specific surveys and evaluations of such properties to determine their potential historical significance at the federal, state, and local levels. Intensive-level surveys and evaluations shall be completed by a qualified architectural historian who meets the *Secretary of the Interior's Standards*."[1]

We also reviewed a set of design documents from BAR Architects including graphic representations and design drawings (dated July 25, 2017). Based on the findings, the proposed

[1] ESA, *Broadway Valdez District Specific Plan, Draft Environmental Impact Report,* September 2013, page 4.4-38.

development's potential effects to the District are discussed below. The project was evaluated for its compatibility with the district in terms of size and scale, massing, composition, materials, and features. This evaluation takes into consideration the Broadway Valdez District Specific Plan's Mitigation Measure CUL-1.a) Avoidance, Adaptive Reuse, or Appropriate Relocation of Historically Significant Structures.

PROJECT DESCRIPTION

The U-shape project site is located on the east end of the block bounded by 25th Street to the north, Broadway to the east, 24th Street to the south and Telegraph Avenue to the west. Except for the parking lot located at the southwest corner of Broadway and 25th Street, the project site is located within the city's 25th Street Garage District. The project site is comprised of (1) a noncontributing one-story office/service building at 2401 Broadway, (2) a contributing one story plus mezzanine building at 437 25th Street, and (3) two auto-storage lots (one noncontributing and the other outside the district).

Table 1. Properties within and around the project area.

Address	Project Area	Current use	Proposed use	25th Street Garage District
2401 Broadway	Within	Commercial/Light industrial	Mixed-use	Noncontributor
2407-2435 Broadway	Within	Auto-storage lot	Mixed-use	Outside the district
422 24th Street	Within	Auto-storage lot	Mixed-use	Noncontributor
444 24th Street	Outside	Warehouse	NA	Contributor
427-433 25th Street	Outside	Auto-storage lot	NA	Outside the district
437 25th Street	Within	Auto-storage	Mixed-use	Contributor
443 25th Street	Outside	Warehouse	NA	Contributor

Figure 1. Aerial view of the subject lots, the porject area outlined in dashed red line (edited from Google Earth, retrieved January 4, 2017).

The proposed project would retain and restore the 24th Street and Broadway façades of 2401 Broadway and construct 216,000 sf of new development including hotel, residential and commercial uses. At 2401 Broadway, a seven-story, 73'-6" tall new mixed-used building would be constructed and set back above the existing façade. The rest of the structure would be built almost up against the front lot line to the north along Broadway. Along 25th Street, the seven-story building would wrap around, terminating at a parking lot that is not included in the development site. Along 24th Street, the seven-story building would also wrap and the façade of 2401 Broadway would be restored with the new seven-story building constructed behind and above it. About three-quarters of the way to the west along 24th Street, the building would step down to four stories or about 42 feet. This height would continue for the remainder of the project along 24th Street.

Along 25th Street, to the west side of the parking lot that is not in the project, is 437 25th Street. This structure will be retained with a new two-story, roof top addition that would be approximately 50 feet at the top of the roof.

Along the primary facades on Broadway and partially on 24th and 25th Streets, the design would include retail uses with glazed storefronts on the ground floor, and hotel and residential uses with punched openings on the upper floors. The design would restore and incorporate the façades of the existing buildings. The mass of the proposed building would be broken up with changes in massing, wall planes, materials/color, and fenestration pattern.

Figures 2 and 3. Perspective views of the proposed building; view from southeast (top) and from northeast (bottom).

Figure 4. Exterior elevations of the proposed building.

25th STREET GARAGE DISTRICT SUMMARY

The 25th Street Garage District generally occupies most of the both sides of the block of 25th Street between Broadway and Telegraph Avenue, and parts of the east end of the same blocks on 24th and 26th Streets. The 1985 DPR Form notes that the buildings in the District fill their lots with no setback and are one-story brick truss-roofed garages built between 1920 and 1929. Elevations are typically polychrome or ornamental bond pressed brick with stepped or peaked parapets, multi-lite metal-sash windows, and garage doors. Interiors feature concrete floors, hollow tile side walls, and concrete or wood posts supporting the roof beams.[2]

[2] City of Oakland, *Oakland Cultural Heritage Survey, 25th Street Garage District,* June 30, 1985, page 1.

Oakland's center for auto sales (on the avenues) and service (concentrated on the side streets) shifted to Upper Broadway beyond 20th Street in the early 1910s and continued through the 1920s. The development in the district stopped after 1929 until the late 1940s.[3] The district was found eligible for the National Register "as a concentrated, intact, and homogenous group of buildings of a distinctive type, dating from a specific period of Oakland's economic development." The DPR form indicates that of the 29 properties in the district, 24 are contributors and 5 are non-contributors (two would contribute if restored; three were too recent in date and type in 1985).[4] The period of significance is from 1920 to 1929.

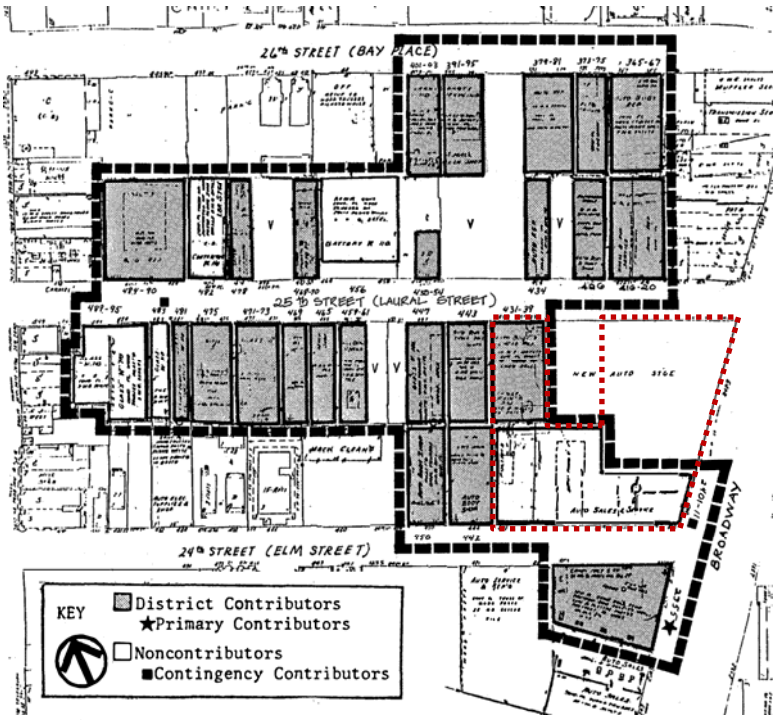

Figure 5. Map of the 25th Street Garage District, the porject area outlined in dashed red line (cropped and edited from *25th Street Garage District,* 1985).

Character-Defining Features

The following character defining features were culled from the DPR 523 District Record Form and direct observation:

- One-story, single-frontage, truss-roofed massing
- Building facades flush with the street
- Polychrome or ornamental bond brick on primary elevations
- Stepped or peaked parapets
- Two or three large bays
- Multi-lite metal-sash windows and garage doors
- Minimal ornamentation

Integrity

The 25th Street Garage District retains a high degree of integrity. The district remains in the location where it was first developed. The majority of the individual properties dates from the

[3] Ibid., pages 5-8.
[4] Ibid., page 2.

period of significance (1920-1929) and retains sufficient individual integrity to be contributors. Some buildings have received alterations including change of fenestration pattern, parapet infills or door replacements, but in many cases this work does not detract from the buildings' contributory status. Contributors retain the majority of visible exterior materials (brick, metal, glass) that were used in construction. Although one district contributor was demolished and three new buildings were constructed since 1985, the setting is mostly intact. The district is largely associated with Oakland's auto history. Currently, the service/garage-related nature of the area is evolving into more of a mixed-use character, but the association has not been diminished. Overall, the 25th Street Garage District maintains a high degree of integrity.

Two properties, 2401 Broadway (noncontributing) and 437 25th Street (contributing), are within the boundaries of the 25th Street Garage District and the proposed development site. The Oakland Cultural Heritage Survey rated 2401 Broadway as Eb-1* and as a contingency contributor to the district; a potential contributor if restored. The building has not received any restoration or major exterior alteration since then; therefore, retains its noncontributory status. 437 25th Street is rated as C1+ and is a district contributor that retains a high degree of integrity to maintain its status.

Two contributing properties, 444 24th Street and 443 25th Street, are immediately adjacent to the development site. They are district contributors that retain a high degree of integrity to maintain their statuses. The contributing buildings within the project site (i.e. 437 25th Street) and adjacent to the project site (444 24th Street and 443 25th Street) retain their character-defining features, such as their one-story massing, brick elevations, and shaped peaked or stepped parapets.

SECRETARY OF THE INTERIOR'S STANDARDS ANALYSIS

In case of new construction, the Secretary of the Interior's Standards are applied to determine the compatibility of the proposed project with the character-defining features and contributory properties of the 25th Street Garage District. The proposed project should be compatible with the district, and especially with the surrounding buildings.

The proposed project interprets the character-defining features of the district using a contemporary language that assures both differentiation and compatibility. The following evaluation addresses the compatibility of the proposed building's design in relation to the character defining features of the 25th Street Garage District. The proposed project conforms to the Standards as follows.

Standard 1: *A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.*

The project at 2401 Broadway includes a multi-story mixed-use building. Although mixed-use buildings are not typical of the historic district, they are located along Broadway, so this use is consistent with the Broadway Valdez District Specific Plan and existing uses in area. The proposed project would also continue to serve the local population and contribute to the feeling of the district. Therefore, the proposed project complies with Rehabilitation Standard 1.

Standard 2: *The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.*

The proposed project would not remove historic materials or alter features and spaces that characterize the 25th Street Garage District. Therefore, the historic character of the District would be retained. The proposed project complies with Rehabilitation Standard 2.

Standard 3: *Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.*

The proposed design does not include or incorporate any false-historic features and would be contemporary in character. Therefore, it complies with Rehabilitation Standard 3.

Standard 4: *Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*

Not applicable.

Standard 5: *Distinctive features, finishes, and construction techniques or examples of fine craftsmanship that characterize a property will be preserved.*

Not applicable.

Standard 6: *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacements of a distinctive feature, the new feature will match the old in design, color, texture and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.*

The proposed design would rehabilitate the front façade of 437 25th Street. The large street level openings, the mezzanine windows, the peaked parapet, and the original brickwork will be preserved. The easternmost window will be replaced by a storefront and the westernmost window with a garage door, both of which would be compatible with the building and the district. The rehabilitation would not affect the building's or the district's overall character and historical significance. Therefore, it complies with Rehabilitation Standard 6.

Standard 7: *Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.*

Not applicable.

Standard 8: *Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures will be undertaken.*

If cultural resources are discovered during ground disturbance activities, the Oakland Standard Conditions of Approval for Archaeological, Paleontological and Human Remains would be implemented.

Standard 9: *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*

The proposed project would be compatible with the district in terms of size, scale, massing, composition, features, and materials.

Size and Scale

One-story massing is a character-defining feature of the 25th Street Garage District. Most of the buildings in the district are one- or two-story tall with the exception of the four-story building located at 2355 Broadway. The proposed development would extend seven stories on Broadway with lower buildings along 24th and 25th Street. Although at seven stories the height of the building would result in a significantly taller building than those characteristic of the historic district, this height is along Broadway and responds to the scale and building forms of this prominent city artery. The building steps down to four stories (42-50 feet) towards west along 24th and 25th streets, which creates a transition from Broadway into the district—better meeting its neighbors and the scale of the district. The additional height along Broadway would not impair the ability of the historic district to continue to convey its historic significance.

Massing and Composition

Most of the contributing buildings in the district occupy the entire width of the lot and create continuous street walls. The proposed massing and elevations will address this feature. The east, north, and south elevations are segregated horizontally between a tall ground floor commercial story with storefronts, and hotel or residential units above. The existing four-story building at 2355 Broadway is similar in its massing and composition. The vertical articulation of the facades will break up the massing to better relate to its neighbors. The project consists of retaining and rehabilitating the east and south façades of 2401 Broadway including a vertical addition set back slightly from both. At 437 25th Street, building massing is retained and the addition is set back from the primary elevation to minimize the visual effect on the historic district and the contributing resource.

The project consists of retaining and rehabilitating the east and south façades of 2401 Broadway including a vertical addition set back slightly from both. At 437 25th Street, building massing is retained and the addition is set back 30 feet from the primary elevation to minimize the visual effect on the historic district and the contributing resource. The proposed new building façades are set back from the existing/restored façades to reinforce the fact that development has occurred over time. But in other portions of the proposed project, in non-historic building locations, the façades are moved out to hold the street frontage, which is also a character defining attribute of the district.

The proposed building massing contributes to the character of the immediate vicinity by holding the street frontage, and having active uses at the ground level—retail, restaurant, hotel and residential entries. In addition, proposed façade design changes correspond with changes in use within building or to demarcate significant points of entry to the building interior.

Features
The proposed design does not include or incorporate any false-historic features and would be contemporary in character. The buildings have flat roofs with straight parapets. Although not characteristic, the proposed sawtooth roof at 437 25th Street would not impair the district's significance. The proposed large openings and storefronts on the first floors are typical of the district. At 437 25th Street, the addition includes proposed multi-lite industrial windows that are compatible with the contributing building and the district.

Materials
The district is characterized by common materials such as polychrome or ornamental bond pressed brick, multi-lite metal-sash windows, and garage doors. The proposed building will be constructed of high-quality materials such as brick, concrete, stucco, metal panel cladding, and glazing which are all found in the district and the vicinity, and are therefore compatible.

The proposed building would be a contemporary, but compatible design that references the character-defining features of the surrounding historic district and the neighborhood. It is compatible with the district in terms of size and scale, composition, features, and materials. The massing is compatible in terms of lot occupancy, solid-to-void ratio, and façade articulation. Therefore, it complies with Rehabilitation Standard 9.

Standard 10: *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

If new construction associated with the proposed project were to be removed in the future, the essential form and integrity of the 25th Street Garage District would be unimpaired. Therefore, the proposed project complies with Rehabilitation Standard 10.

In conclusion, 2401 Broadway is a non-contributor and the proposed work would not change its status. 437 25th Street is a contributor, and the proposed roof demolition, façade work, and two-story addition will not diminish its status as a contributor. The building's character-defining features, including the peaked parapet, large openings, and brick construction, will be preserved. Neither the demolition of 2401 Broadway nor the construction of the proposed project would cause the district to lose its current historic status. The demolition of a non-contributing property would not significantly affect the overall character of the district and would not materially alter the district's integrity or eligibility as an API. The replacement project would be a contemporary, but compatible design that references the character-defining features of the historic district. The project will be in conformance with the Secretary's Standards.

POTENTIAL IMPACTS

The proposed development will retain and rehabilitate the front façades of 2401 Broadway and restore and preserve the building at 437 25th Street, but include an addition to the roof of this structure. Both buildings will receive partial demolitions and vertical additions. 2401 Broadway is a noncontributor and the proposed work would not change its status. 437 25th Street is a contributor, and the proposed roof demolition, façade work, and two-story addition will not diminish its status as a contributor. The building's character-defining features, including the peaked parapet, large openings, and brick construction, will be preserved.

The proposed development is immediately adjacent to 444 24th Street and 443 25th Street, contributors to the district. Construction of the project may have a direct and indirect impact on these buildings by construction activies (see the City of Oakland's SCA 57, *Vibrations Adjacent to Historic Structures*).

Integrity of the 25th Street Garage District

The aspects of integrity, as defined and applied to the proposed intrusions upon the 25th Street Garage District, are as follows:

- The 25th Street Garage District will remain in the location where it was first developed; therefore, retains integrity of location.
- The District has been subject to a number of design alterations since its 1985 documentation. Three new buildings were constructed (448 25th St, 478 25th St, 385 26th St), one contributor at 450 25th Street was demolished, and architectural features of six contributors were altered. Common alterations include fenestration pattern, replacement doors (i.e. garage doors) and parapet infill. Majority of the buildings still retain their character-defining features, so the integrity of design remains high. Although additional construction of a large-scale project within the district and partial demolitions of contributors will have an effect on the district's overall design, the proposed development will not impair the character-defining features of the district. Therefore, the district will continue to communicate its integrity of design.
- Setting is the physical environment of a historic property, and it refers to the character of the place in which the property played its historical role. Contributors exist in the similar physical conditions under which they were documented in 1985, including: topography, block and lot layout, street design, neighborhood composition of commercial frontage on Broadway and service/industrial frontage on numbered streets, and relationships between buildings. The proposed development would not alter these conditions; therefore, integrity of setting is retained.
- The most common material of the District is pressed brick, metal and glass. Contributors retain the majority of visible exterior materials that were used in construction**.** The proposed development would use compatible materials not to affect the material integrity of the district.
- Evidence of original workmanship still exists on district contributors. The proposed development would not affect the workmanship of the existing buildings.
- Contributors retain design, materials, workmanship, and setting that cumulatively relate the feeling of the 1920s. The proposed development would retain the existing elevations of the contributors and the new construction would be compatible with the district. Therefore, the integrity of feeling would not be impaired.
- The District is largely associated with Oakland's auto history. Although the service/garage-related nature of the area is evolving into more of a mixed-use character, the association has not been diminished. The proposed mixed-use building would include commercial uses on the first floor, which would not diminish the integrity of association.

CITY OF OAKLAND STANDARD CONDITION OF APPROVAL

The proposed project is being constructed immediately adjacent to two contributing resources to the 25th Street Garage District. As a result, there could be direct impacts from construction activities such as excavation undermining existing foundations, construction equipment coming in contact with existing walls, demolition or other construction activities. City of Oakland Standard Condition of Approval (SCA) NOI-7: *Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities* (see 2401 Broadway Project CEQA Analysis Attachment A) would be applicable to the proposed project to address potential direct and indirect impacts from construction activities:

> SCA NOI-7 (Standard Condition of Approval 66): *Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities*
> Requirement: The project applicant shall submit a Vibration Analysis prepared by an acoustical and/or structural engineer or other appropriate qualified professional for City review and approval that establishes pre-construction baseline conditions and threshold levels of vibration that could damage the structure and/or substantially interfere with activities located at 444 24th Street and 443 25th Street. The Vibration Analysis shall identify design means and methods of construction that shall be utilized in order to not exceed the thresholds. The applicant shall implement the recommendations during construction.

As a part of implementing this SCA, the project applicant has proposed to prepare a Historic Property Protection Plan in conjunction with construction plans. Prior to the start of the proposed development, the project applicant will hire a historical architect and a structural engineer to undertake an existing condition study of 444 24th Street, 437 25th Street and 443 25th Street.5 The purpose of the study would be to establish the baseline condition of the buildings prior to construction, including the location and extent of any visible cracks or spalls. The documentation would take the form of written descriptions and photographs, and would include those physical characteristics of the resources that convey their historic significance and that justify their inclusion on, or eligibility for inclusion on, the National Register, California Register, and local register. Implementation of the Historic Property Protection Plan would include

1a. The historical architect and structural engineer shall monitor the three buildings during construction and any changes to existing conditions would be reported, including, but not limited to, expansion of existing cracks, new spalls, or other exterior deterioration. Monitoring reports shall be submitted to the general contractor in charge of construction and a designated representative of the project applicant on a periodic basis. The structural engineer shall consult with the historical architect, especially if any problems with character-defining features of a historic resource are discovered. If, in the opinion of the structural engineer in consultation with the historical architect, substantial adverse effects to historic resources related to construction activities are found during construction, the monitoring team shall inform the general contractor in charge of construction and a designated representative of the project applicant. The project applicant shall adhere to the monitoring team's recommendations for corrective measures, including halting construction in situations where construction activities would imminently endanger historic resources. The project applicant shall establish the appropriate frequency of

[5] Although the building located at 437 25th Street is part of the proposed project, the building will be retained and, as such, will need to be protected from adjacent construction activities.

monitoring and reporting, which shall reflect the demolition and construction methods and schedule of the project. Site visit reports and documents associated with claims processing shall be provided to the general contractor in charge of construction and a designated representative of the project applicant.

1b. The historical architect shall establish a training program for construction workers involved in the project that emphasizes the importance of protecting historic resources. This program shall include information on recognizing historic fabric and materials, and directions on how to exercise care when working around and operating equipment near the historic structures, including storage of materials away from historic buildings. It shall also include information on means to reduce vibrations from construction, and monitoring and reporting of any potential problems that could affect the historic resources in the area. A provision for establishing this training program shall be incorporated into the construction contract, and the construction contract provisions shall be reviewed and approved by the general contractor in charge of construction, by affidavit, and by a designated representative of the project applicant.

APPENDIX

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BROADWAY HOTEL & RESIDENCE

ENTITLEMENTS PACKAGE UPDATE
07.25.17

BAR ARCHITECTS

SIGNATURE DEVELOPMENT

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PROJECT TEAM

OWNER:

T: (510) 251-9270

EMAIL: JCHOY@SIGNATUREDEVELOPMENT.COM

ARCHITECT:

908 BATTERY STREET #300

T: (415) 293-5700

EMAIL: JGOODWIN@BARARCH.COM

CIVIL ENGINEER:

1931 SAN MIGUEL DRIVE, SUITE 100
WALNUT CREEK, CA 94596
T: (925) 932-6868

EMAIL: SHARTSTEIN@DKCONSULTING.COM

LANDSCAPE ARCHITECT:

T: (925) 254-5422

EMAIL: BRUCEJ@JETT.LAND

BUILDING & SITE DATA

BUILDING GROSS FLOOR AREA	216,316 SF
D-BV-1 SITE AREA	30,158 SF
CC-3 SITE AREA	22,620 SF
TOTAL SITE AREA	+/- 1.21 ACRES (+/- 52,778 SF)
FLOOR AREA RATIO	216,316 SF / 52,778 SF = 4.10
HOUSING DENSITY	72 D.U. / 1.21 ACRES = 59.5 D.U./ACRE

BUILDING & ZONING CODE

CONSTRUCTION TYPE	I-A, III-A
OCCUPANCY GROUP	R-1, R-2, M
BUILDING HEIGHT / STOREYS	73'-6" TOP OF ROOF / 84'-4" TOP OF PENTHOUSE ROOF / 7 STOREYS
USE	RESI., HOTEL, RETAIL, RESTAURANT
ZONING DESIGNATION	CC-3, D-BV-1
CODE EDITION	CBC 2016

D.U. COUNT & MIX

1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
JR 1	20	28%
STUDIO	6	8%
TOTAL	72	

KEY COUNT & MIX

ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

PARKING REQUIREMENT

AREA - COMMERCIAL GROUND AND MEZZANINE

* REFERENCE AREA PLAN DIAGRAMS SHEET A25		
LEVEL 1	BAR	401 SF
LEVEL 1	CAFE	1,285 SF
LEVEL 1	HOTEL	7,801 SF
LEVEL 1	RESTAURANT	4,806 SF
LEVEL 1	RETAIL	14,616 SF
LEVEL 2	HOTEL	11,448 SF
TOTAL		40,357 SF

40,789 / 600 = **68** SPACES FOR GROUND AND MEZZANINE LEVEL USES

AREA - COMMERCIAL UPPER LEVELS

* REFERENCE AREA PLAN DIAGRAMS SHEET A25		
LEVEL 3	BAR	4,030 SF
LEVEL 3	HOTEL	18,716 SF
LEVEL 4	BAR	2,031 SF
LEVEL 4	HOTEL	18,707 SF
LEVEL 5	HOTEL	11,982 SF
LEVEL 6	HOTEL	11,980 SF
LEVEL 7	HOTEL	11,982 SF
ROOF	HOTEL	557 SF
TOTAL		79,984 SF

79,984 / 1,000 = **80** SPACES FOR UPPER LEVEL USES

TOTAL COMMERCIAL PARKING REQUIRED = 80 + 68 = **148 SPACES**

Required Parking		Oakland Planning Code Section
Residential Activities		*17.116.060*
Total DU	72	
Space per DU in D-BV-1	0.5	
Total Res. Parking Required	36	
50% Max. Shared Parking Reduction		*17.116.110.D*
Residential Parking	36	
Commercial Parking	148	
Total Parking Before Reduction	184	
TOTAL PARKING REQUIRED	92.0	
Total Parking Provided	129	

LONG TERM BICYCLE PARKING:

RESIDENTIAL IN D-BV-1 ZONE (17.117.090): 1 PER 2 D.U.
72 UNITS / 2 = 36 BIKE SPACES
REST./RETAIL (COMMERCIAL 17.117.110)
IN D-BV-1 ZONE: 1 PER 8,000 SF
40,308 SF / 8,000 SF = 5 BIKE SPACES
IN CC-3 ZONE: 1 PER 12,000 SF
6,462 SF / 12,000 SF = 1 BIKE SPACE
HOTEL/TRANSIENT: 1 PER 20 ROOMS
159/20 = 8 BIKE SPACES

TOTAL LONG TERM BIKE PARKING REQ'D = **50 BIKE SPACES**

GROSS AREA BY LEVEL

LEVEL 1	
BAR	401 SF
CAFE	1,285 SF
HOTEL	7,801 SF
PARKING	18,533 SF
RESIDENTIAL	3,048 SF
RESTAURANT	4,806 SF
RETAIL	14,616 SF
	50,490 SF
LEVEL 2	
HOTEL	11,448 SF
RESIDENTIAL	194 SF
	11,642 SF
LEVEL 3	
BAR	4,030 SF
HOTEL	18,716 SF
RESIDENTIAL	14,540 SF
	37,287 SF
LEVEL 4	
BAR	2,031 SF
HOTEL	18,707 SF
RESIDENTIAL	14,748 SF
	35,486 SF
LEVEL 5	
HOTEL	11,982 SF
RESIDENTIAL	14,701 SF
	26,683 SF
LEVEL 6	
HOTEL	11,980 SF
RESIDENTIAL	14,701 SF
	26,681 SF
LEVEL 7	
HOTEL	11,982 SF
RESIDENTIAL	14,701 SF
	26,683 SF
ROOF	
HOTEL	557 SF
RESIDENTIAL	808 SF
	1,365 SF
TOTAL GROSS AREA	216,316 SF

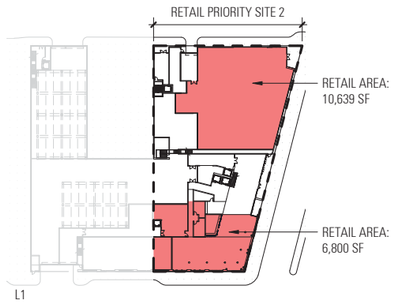
SHEET INDEX

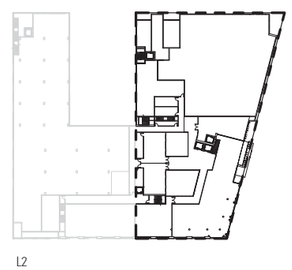
A0	COVER SHEET
A1	PROJECT INFORMATION
A2	SITE PHOTOS
A3	SITE PLAN
A4	PERSPECTIVE VIEW - VIEW FROM SE
A5	PERSPECTIVE VIEW - VIEW FROM NE
A6	FLOOR PLAN - LEVEL 1
A7	FLOOR PLAN - LEVEL 2
A8	FLOOR PLAN - LEVEL 3
A9	FLOOR PLAN - LEVEL 4
A10	FLOOR PLAN - LEVEL 5
A11	FLOOR PLAN - LEVEL 6
A12	FLOOR PLAN - LEVEL 7
A13	ROOF PLAN
A14	COLOR & MATERIALS
A15	PERSPECTIVE VIEW - BROADWAY ENTRY
A16	ELEVATIONS - SOUTH AND BROADWAY
A17	ELEVATIONS - NORTH AND WEST
A18	ENLARGED SECTION - HOTEL
A19	ENLARGED SECTION - RESIDENTIAL
A20	BUILDING SECTIONS
A21	BUILDING SECTIONS
A22	HOTEL KEY PLANS
A23	RESIDENTIAL UNIT PLANS
A24	GREEN BUILDING COMPLIANCE
A25	COMMERCIAL PARKING AREA PLANS
C1	COVER SHEET
C2	GENERAL NOTES
C3	DETAILS
C4	DETAILS
C5	TOPOGRAPHIC SURVEY
C6	DEMOLITION PLAN
C7	SITE PLAN
C8	MASS GRADING PLAN
C9	FINE GRADING PLAN
C10	UTILITY PLAN
C11	EROSION CONTROL PLAN
C12	EROSION CONTROL NOTES & DETAILS
C13	C.3 EXHIBIT
L1	LANDSCAPE PROGRAM
L2	PUBLIC STREETSCAPE PLAN
L3	LEVEL 2 - HOTEL BREAKOUT COURTYARDS
L4	LEVEL 3 - HOTEL VIEWING GARDEN
L5	LEVEL 3 - HOTEL VIEWING GARDENS
L6	LEVEL 3 - BAR & LOUNGE TERRACE
L7	LEVEL 3 - RESIDENTIAL AMENITY COURTYARD
L8	LEVEL 8 - RESIDENTIAL ROOF DECK

RETAIL PRIORITY SITE 2 CONFORMANCE

-BV
- -1):
- RESIDENTIAL FACILITY ALLOWED IN D BV 1
- MAXIMUM BUILDING BASE HEIGHT = 85 FT

RETAIL AREA PROVIDED:	LEVEL 1	17,439 SF
	TOTAL	17,439 SF



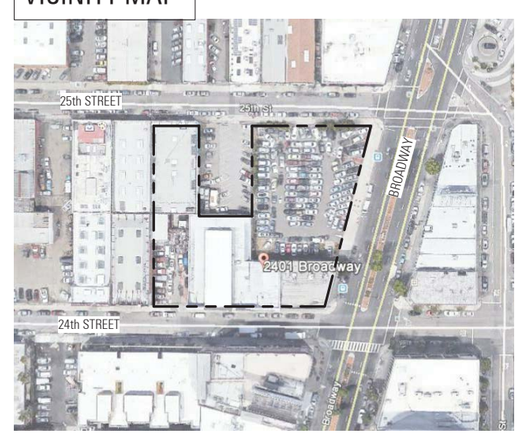


OPEN SPACE REQUIREMENT

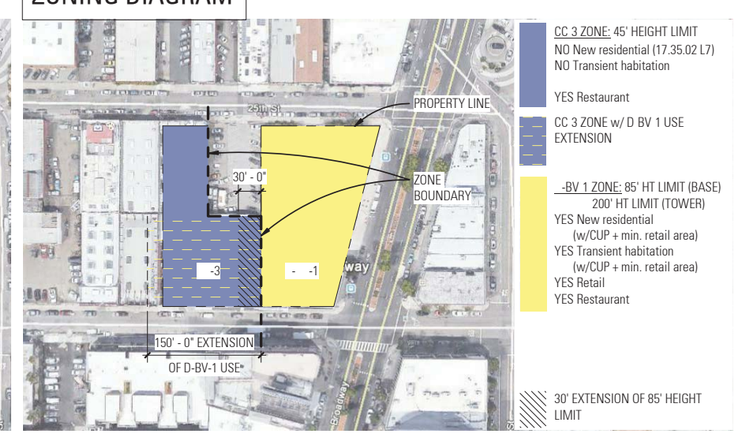
PER TABLE 17.101C.06, 75 SF OPEN SPACE REQUIRED PER D.U.
75 SF X 72 UNITS = 5,400 SF OPEN SPACE REQUIRED

OPEN SPACE PROVIDED:	LEVEL 3	PODIUM AMENITY	3,071 SF
	ROOF	ROOF DECK AMENITY	2,948 SF
	TOTAL		6,019 SF

VICINITY MAP



ZONING DIAGRAM



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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

PROJECT INFORMATION

07.25.17	17001	BAR architects	A1

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3

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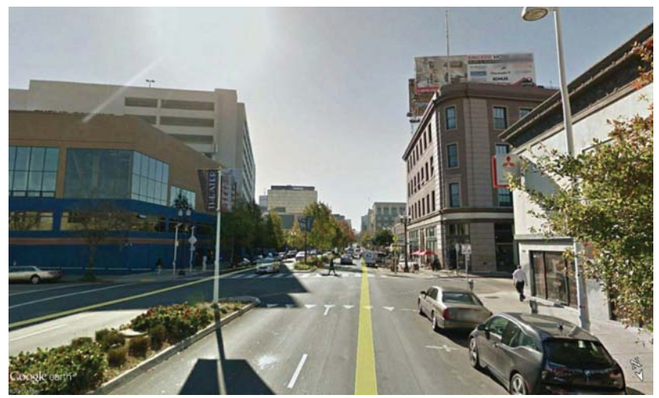

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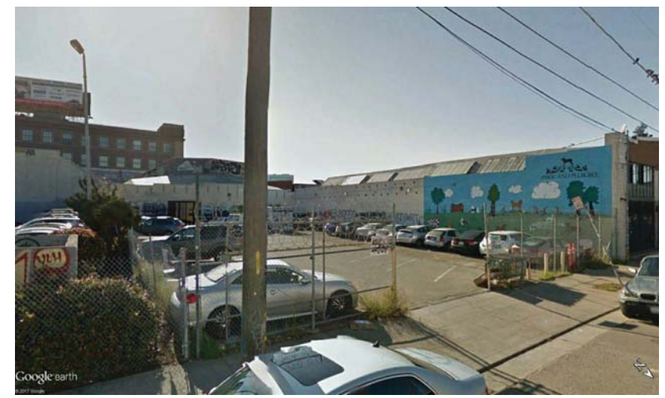

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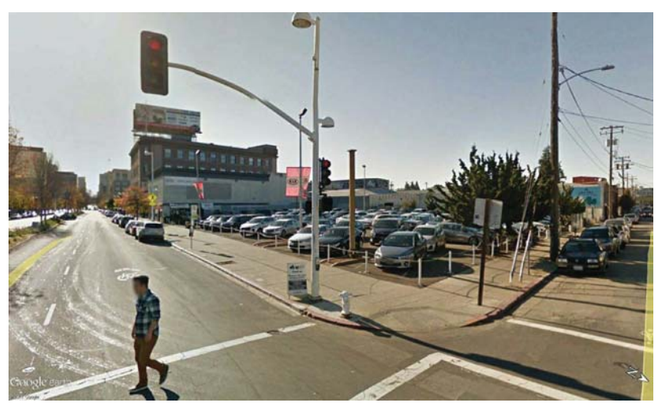

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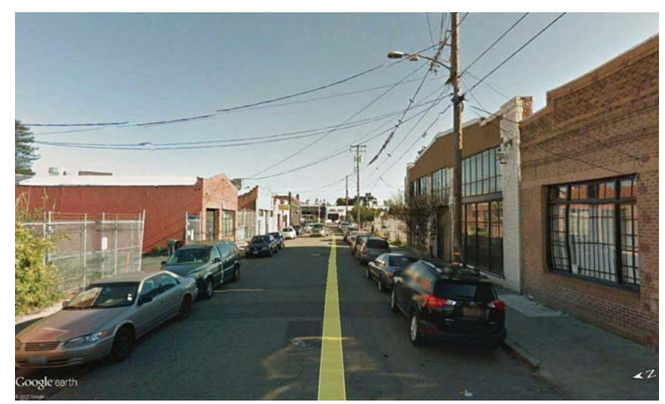

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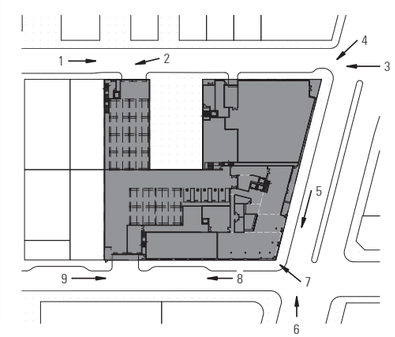

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

SITE PHOTOS

05.22.17	17001	BAR architects		A2

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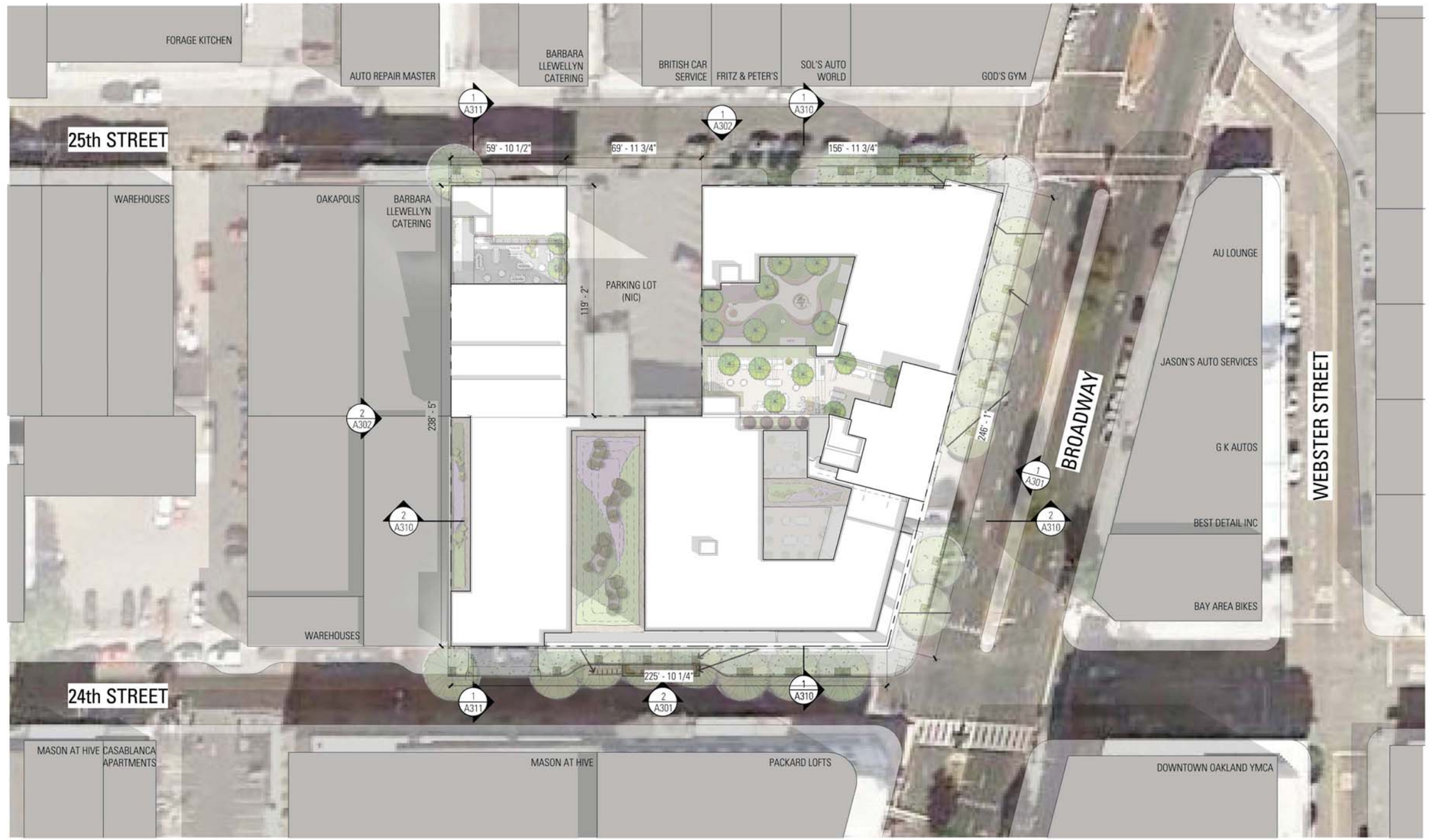

SITE PLAN

1" = 30'-0"

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

SITE PLAN

05.19.17	17001	BAR architects	15' 60' 0 30'	A3

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

PERSPECTIVE VIEW - VIEW FROM SE

07.25.17	17001	BAR architects		A4

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

PERSPECTIVE VIEW - VIEW FROM NE

05.22.17	17001	BAR architects		A5

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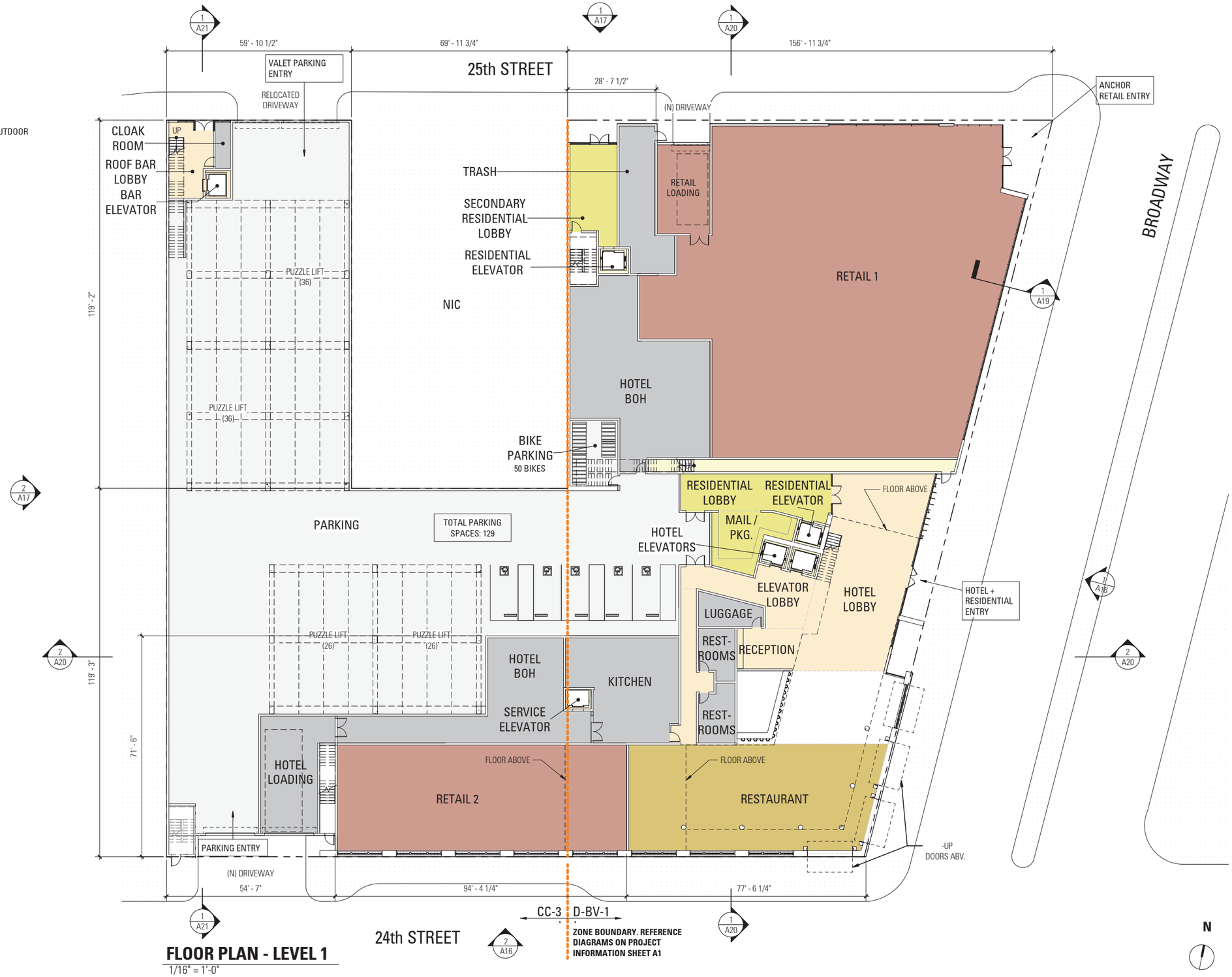
LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 1	
BAR	401 SF
CAFE	1,285 SF
HOTEL	7,801 SF
PARKING	18,533 SF
RESIDENTIAL	3,048 SF
RESTAURANT	4,806 SF
RETAIL	14,616 SF
LEVEL 1 TOTAL	50,490 SF



FLOOR PLAN - LEVEL 1

1/16" = 1'-0"

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 1

07.25.17	17001	BAR architects	8' 32' 0 16'	A6

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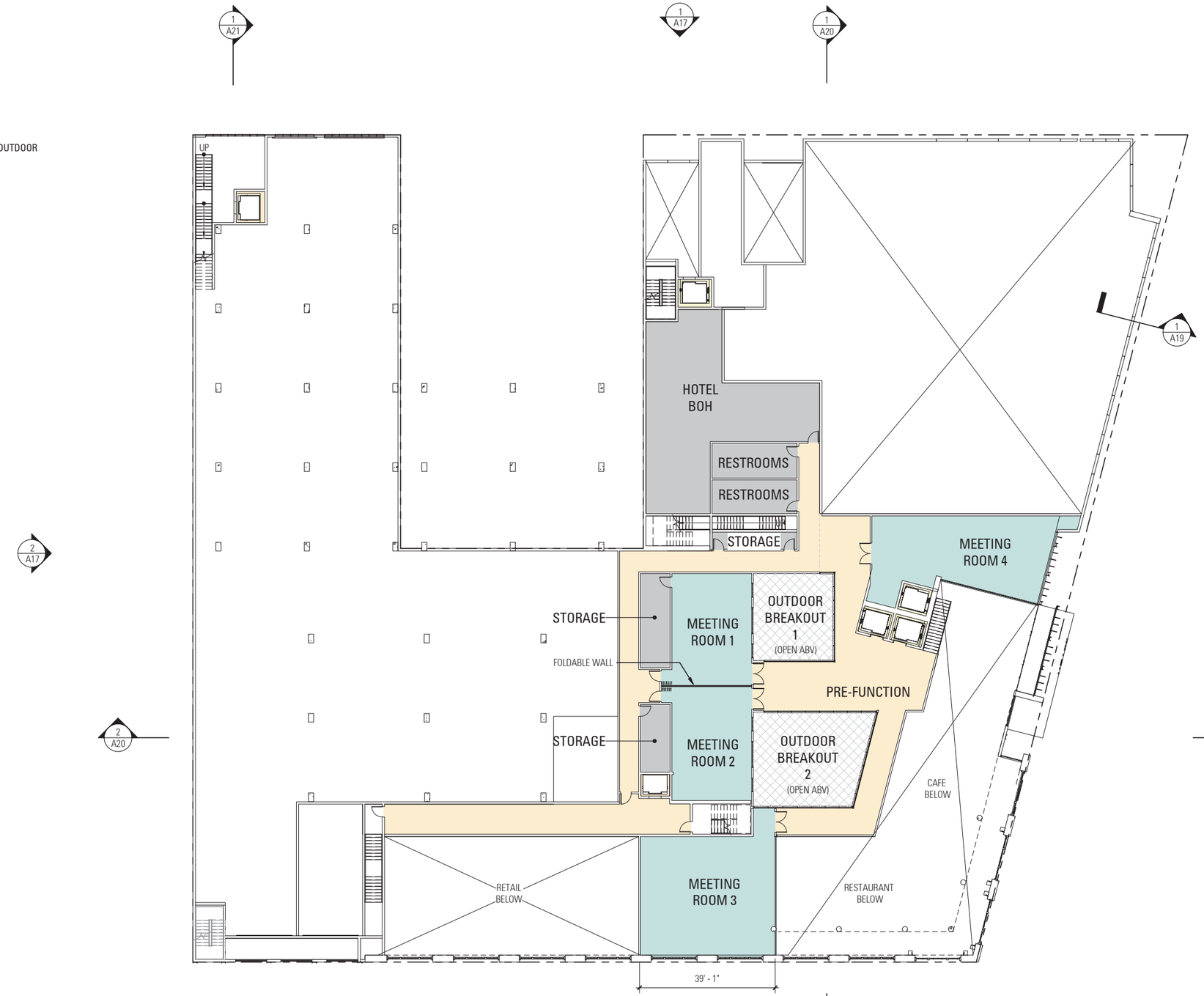
LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 2	
HOTEL	11,448 SF
RESIDENTIAL	194 SF
LEVEL 2 TOTAL	11,642 SF



FLOOR PLAN - LEVEL 2

1/16" = 1'-0"

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 2

07.25.17	17001	BAR architects	0 8' 16' 32'	A7

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LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 3	
BAR	4,098 SF
HOTEL	18,523 SF
RESIDENTIAL	14,540 SF
LEVEL 3 TOTAL	37,161 SF

RESIDENTIAL AREA EFFICIENCY		
RENTABLE	57,244 SF	78%
CORE	15,264 SF	
AMENITY	836 SF	
GROSS	73,344 SF	

RESIDENTIAL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
STUDIO	6	8%
JR 1	20	28%
1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
TOTAL	72	

HOTEL AREA EFFICIENCY		
RENTABLE	55,417 SF	70%
CORE	18,107 SF	
AMENITY	6,084 SF	
GROSS	79,608 SF	

HOTEL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

FLOOR PLAN - LEVEL 3

1/16" = 1'-0"

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 3

05.22.17 | 17001 | BAR architects | 8' 32' 0 16' | A8

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LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 4	
BAR	2,043 SF
HOTEL	18,642 SF
RESIDENTIAL	14,748 SF
LEVEL 4 TOTAL	35,433 SF

RESIDENTIAL AREA EFFICIENCY		
RENTABLE	57,244 SF	78%
CORE	15,264 SF	
AMENITY	836 SF	
GROSS	73,344 SF	

RESIDENTIAL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
STUDIO	6	8%
JR 1	20	28%
1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
TOTAL	72	

HOTEL AREA EFFICIENCY		
RENTABLE	55,417 SF	70%
CORE	18,107 SF	
AMENITY	6,084 SF	
GROSS	79,608 SF	

HOTEL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

FLOOR PLAN - LEVEL 4

1/16" = 1'-0"

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 4

05.22.17	17001	BAR architects	8' 32' 0 16'	A9

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LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 5	
HOTEL	11,981 SF
RESIDENTIAL	14,701 SF
LEVEL 5 TOTAL	26,682 SF

RESIDENTIAL AREA EFFICIENCY		
RENTABLE	57,244 SF	78%
CORE	15,264 SF	
AMENITY	836 SF	
GROSS	73,344 SF	

RESIDENTIAL UNIT TYPE BREAKDOWN

UNIT TYPE	COUNT	ACTUAL
STUDIO	6	8%
JR 1	20	28%
1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
TOTAL	72	

HOTEL AREA EFFICIENCY		
RENTABLE	55,417 SF	70%
CORE	18,107 SF	
AMENITY	6,084 SF	
GROSS	79,608 SF	

HOTEL UNIT TYPE BREAKDOWN

UNIT TYPE	COUNT	ACTUAL
ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

FLOOR PLAN - LEVEL 5
1/16" = 1'-0"

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 5

05.22.17	17001	BAR architects	8' 32' 0 16'	A10

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LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 6	
HOTEL	11,970 SF
RESIDENTIAL	14,701 SF
LEVEL 6 TOTAL	26,671 SF

RESIDENTIAL AREA EFFICIENCY		
RENTABLE	57,244 SF	78%
CORE	15,264 SF	
AMENITY	836 SF	
GROSS	73,344 SF	

RESIDENTIAL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
STUDIO	6	8%
JR 1	20	28%
1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
TOTAL	72	

HOTEL AREA EFFICIENCY		
RENTABLE	55,417 SF	70%
CORE	18,107 SF	
AMENITY	6,084 SF	
GROSS	79,608 SF	

HOTEL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

FLOOR PLAN - LEVEL 6

1/16" = 1'-0"

N

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 6

05.22.17	17001	BAR architects	8' 32' 0 16'	A11

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LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - LEVEL 7	
HOTEL	11,971 SF
RESIDENTIAL	14,701 SF
LEVEL 7 TOTAL	26,672 SF

RESIDENTIAL AREA EFFICIENCY		
RENTABLE	57,244 SF	78%
CORE	15,264 SF	
AMENITY	836 SF	
GROSS	73,344 SF	

RESIDENTIAL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
STUDIO	6	8%
JR 1	20	28%
1-BED	20	28%
2-BED	21	29%
3-BED	5	7%
TOTAL	72	

HOTEL AREA EFFICIENCY		
RENTABLE	55,417 SF	70%
CORE	18,107 SF	
AMENITY	6,084 SF	
GROSS	79,608 SF	

HOTEL UNIT TYPE BREAKDOWN		
UNIT TYPE	COUNT	ACTUAL
ALT KING	2	1%
EXEC KING	31	19%
EXEC KING (ADA)	3	2%
STD	108	68%
STD (ADA)	5	3%
SUITE	8	5%
SUITE (ADA)	1	1%
SUITE (LOFT)	1	1%
TOTAL	159	

FLOOR PLAN - LEVEL 7

1/16" = 1'-0"

N

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

FLOOR PLAN - LEVEL 7

05.22.17	17001	BAR architects	8' 32' 0 16'	A12

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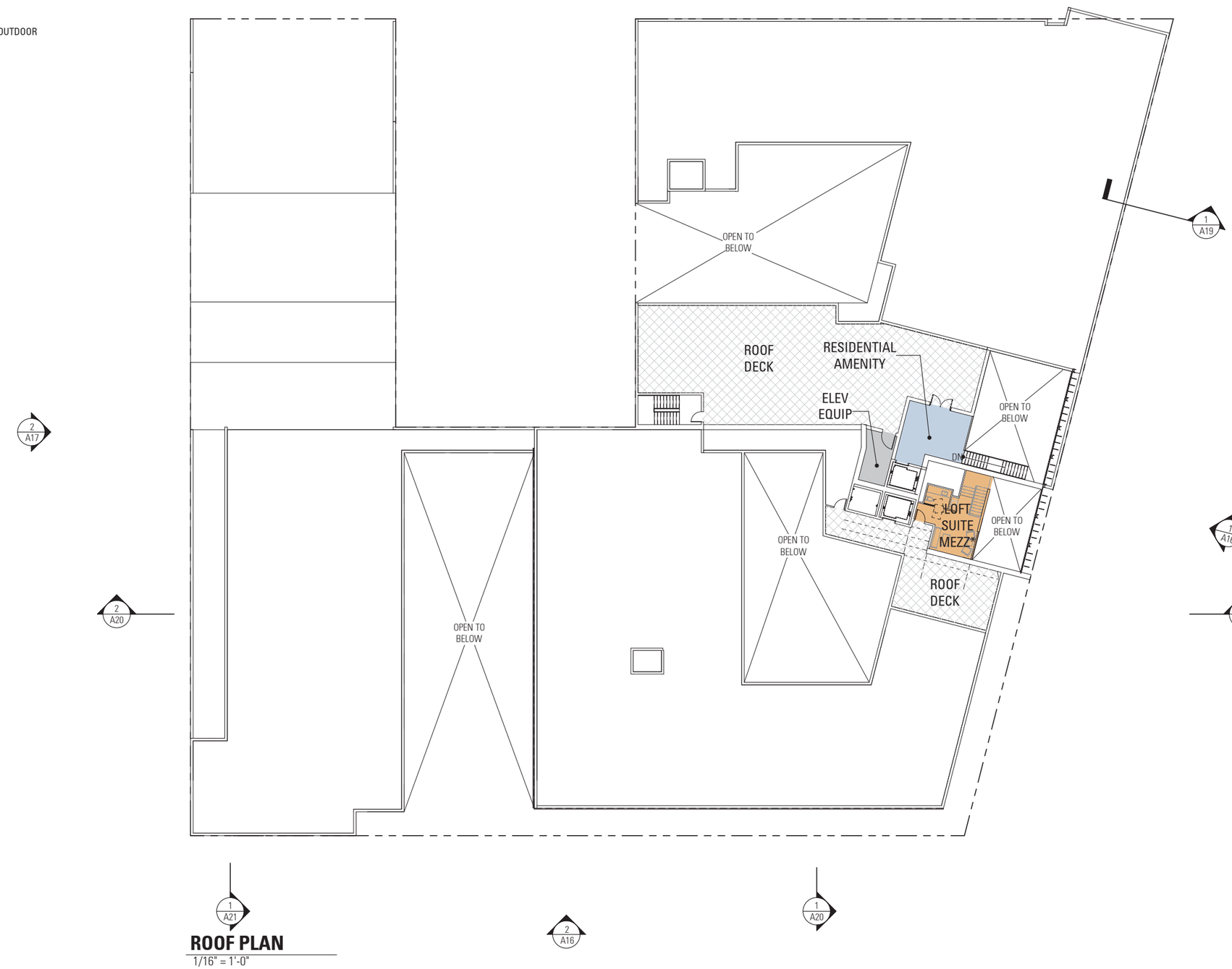
LEGEND

- HOTEL
- HOTEL CIRCULATION
- HOTEL AMENITY
- RESIDENTIAL
- RESIDENTIAL CIRCULATION
- RESIDENTIAL AMENITY
- RETAIL
- RESTAURANT
- SERVICE / BOH
- OUTDOOR

GROSS AREA - ROOF	
HOTEL	557 SF
RESIDENTIAL	808 SF
ROOF TOTAL	1,365 SF



ROOF PLAN

1/16" = 1'-0"

5/22/2017 9:49:38 AM C:\0 REVIT\17001 2401 Broadway Hotel-CENTRAL_COConnor.rvt

BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

ROOF PLAN

05.22.17	17001	BAR architects	8' 32' 0 16'	A13

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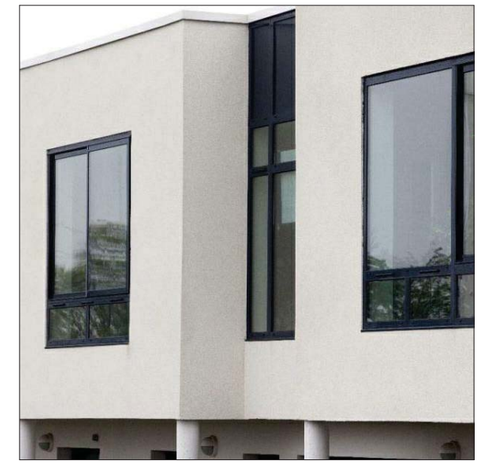
METAL CHANNEL TRIM

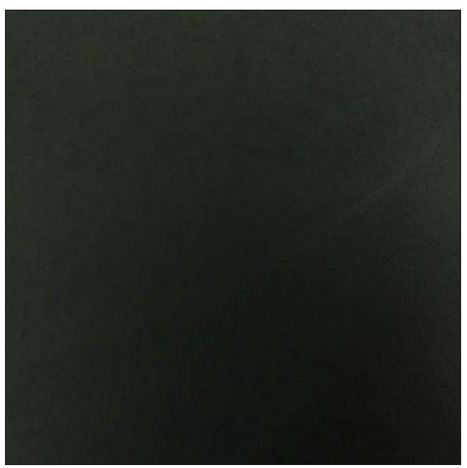
FRITTED GLASS SUNSCREEN

BRICK



DARK WINDOWS

GLASS BALCONY RAIL

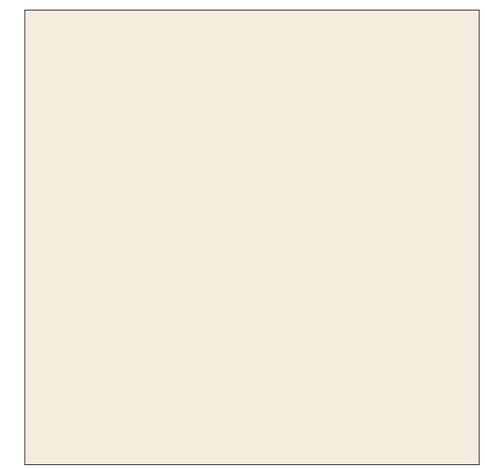


METAL PANEL

CONCRETE

STOREFRONT

MTL TILT DOOR



STUCCO

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

COLOR & MATERIALS

05.22.17	17001	BAR architects		A14

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

PERSPECTIVE VIEW - BROADWAY ENTRY

07.12.17	17001	BAR architects		A15

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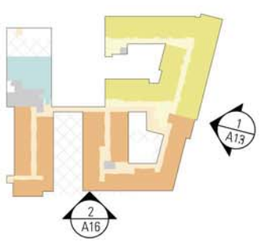
2 A16 EXTERIOR ELEVATION - SOUTH (24TH STREET)

1/16" = 1'-0"

1 A16 EXTERIOR ELEVATION - EAST (BROADWAY)

1/16" = 1'-0"



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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

ELEVATIONS - SOUTH AND BROADWAY

07.12.17	17001	BAR architects	8' 32' 0 16'	A16

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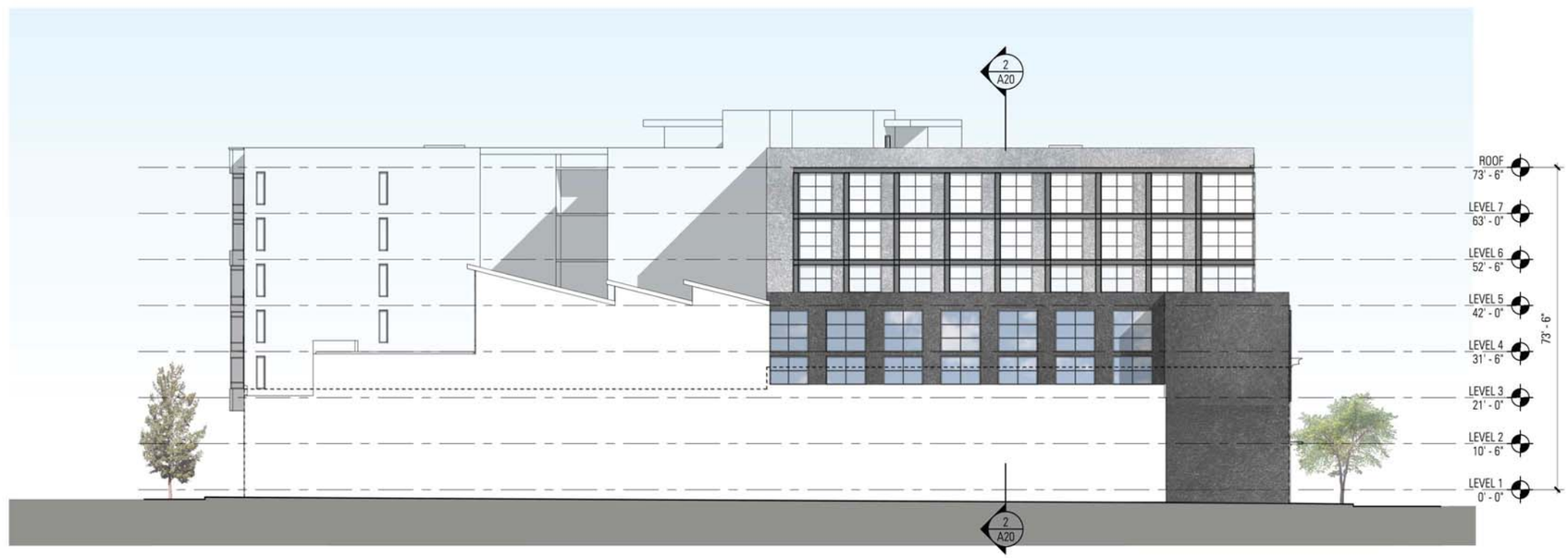
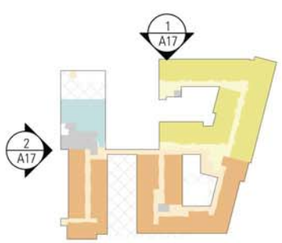
1 A17 EXTERIOR ELEVATION - NORTH (25TH STREET)

1/16" = 1'-0"



2 A17 EXTERIOR ELEVATION - WEST

1/16" = 1'-0"



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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

ELEVATIONS - NORTH AND WEST

05.22.17	17001	BAR architects	8' 32' 0 16'	A17

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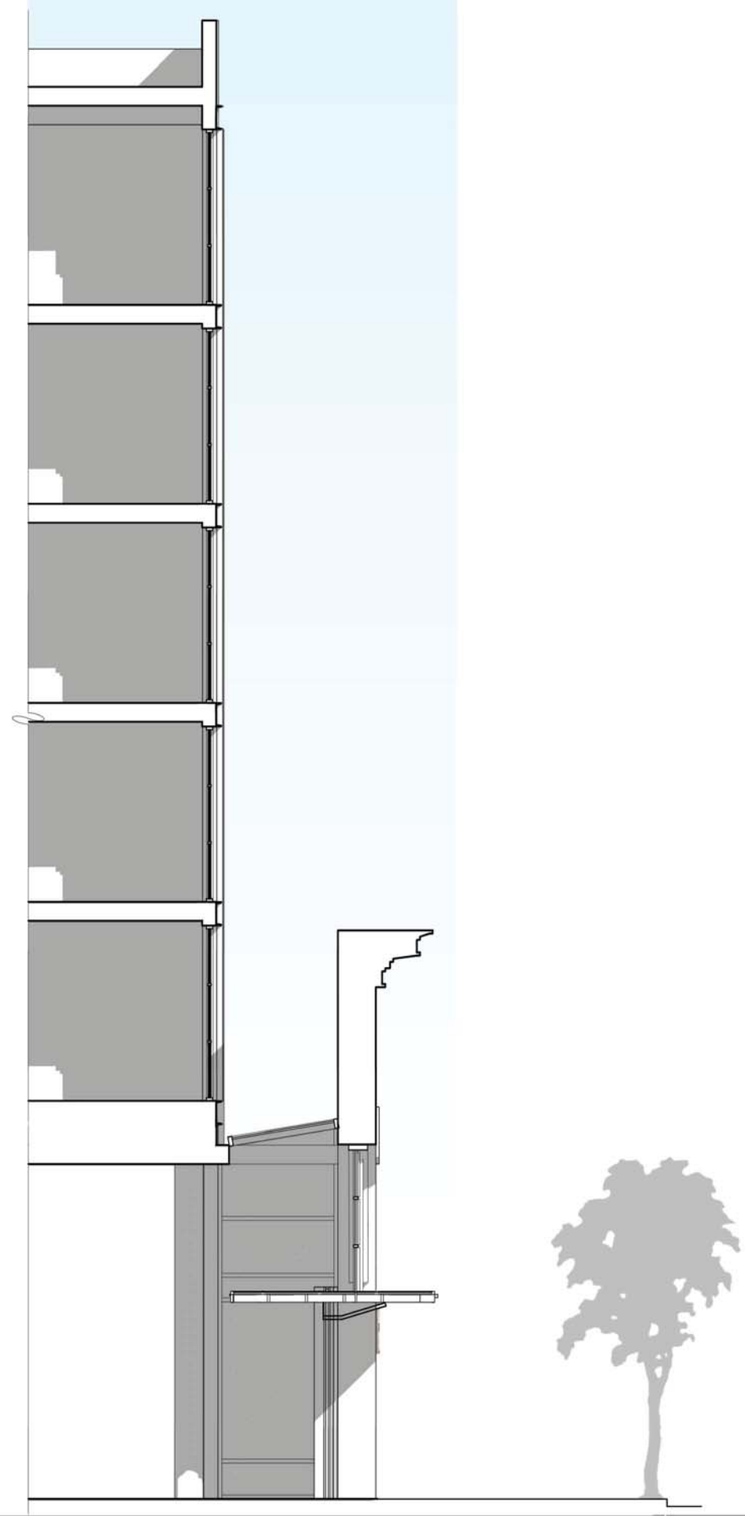

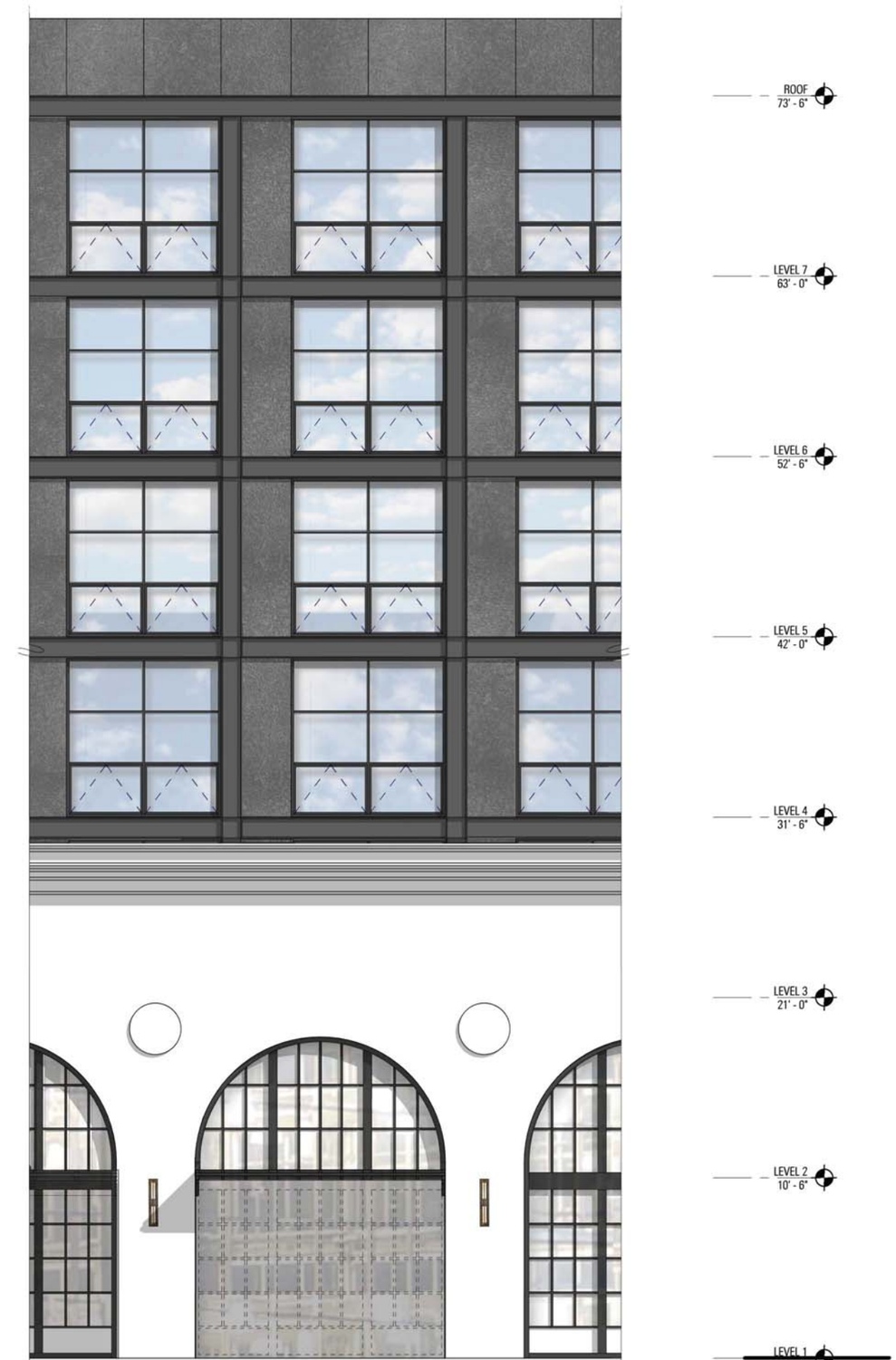

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HOTEL WALL SECTION (L)
1/4" = 1'-0"

ENLARGED ELEVATION (R)
1/4" = 1'-0"

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

ENLARGED SECTION - HOTEL

07.12.17	17001	BAR architects	0 2' 4' 8'	A18

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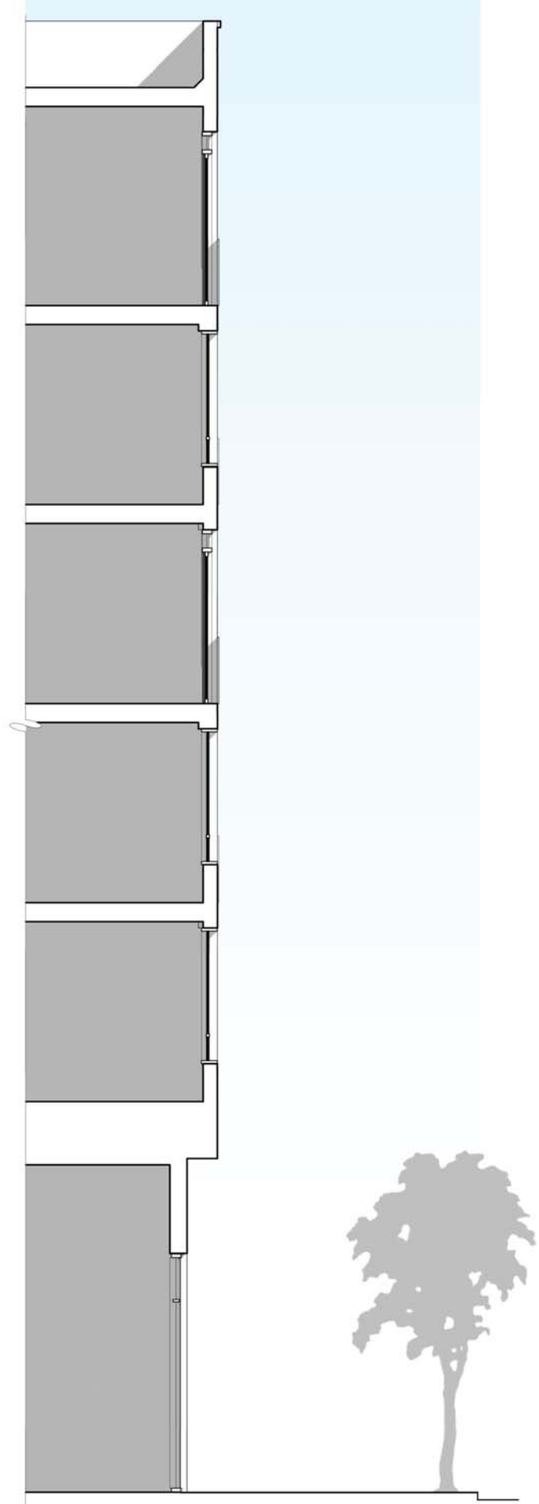

RESIDENTIAL WALL SECTION (L)
1/4" = 1'-0"

ENLARGED ELEVATION (R)
1/4" = 1'-0"

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

ENLARGED SECTION - RESIDENTIAL

05.19.17	17001	BAR architects	0 2' 4' 8'	A19

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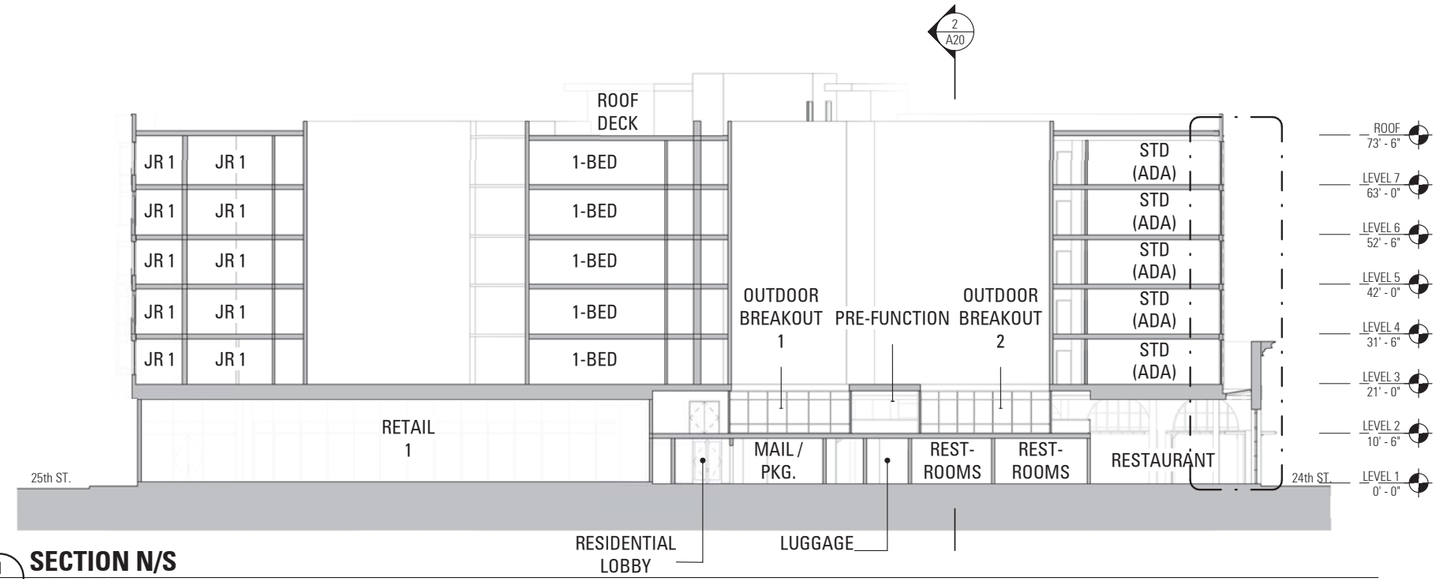
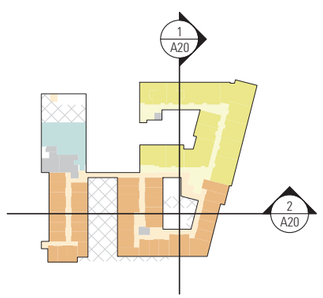
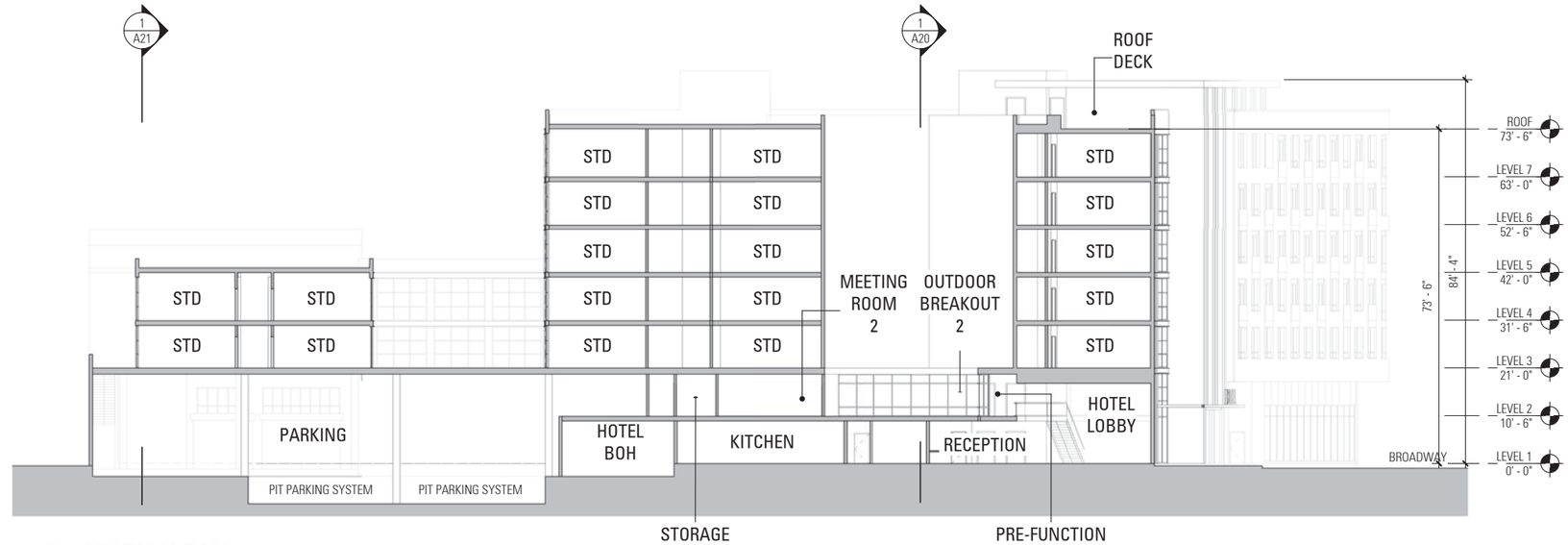


1 A20 **SECTION N/S**
1/16" = 1'-0"





2 A20 **SECTION E/W**
1/16" = 1'-0"

5/22/2017 9:50:31 AM C:\0 REVIT\17001 2401 Broadway Hotel-CENTRAL_COConnor.rvt

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

BUILDING SECTIONS

05.22.17	17001	BAR architects	8' 32' 0 16'	A20

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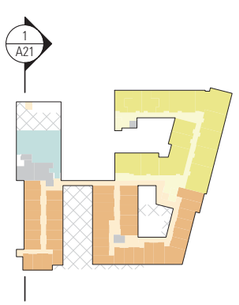

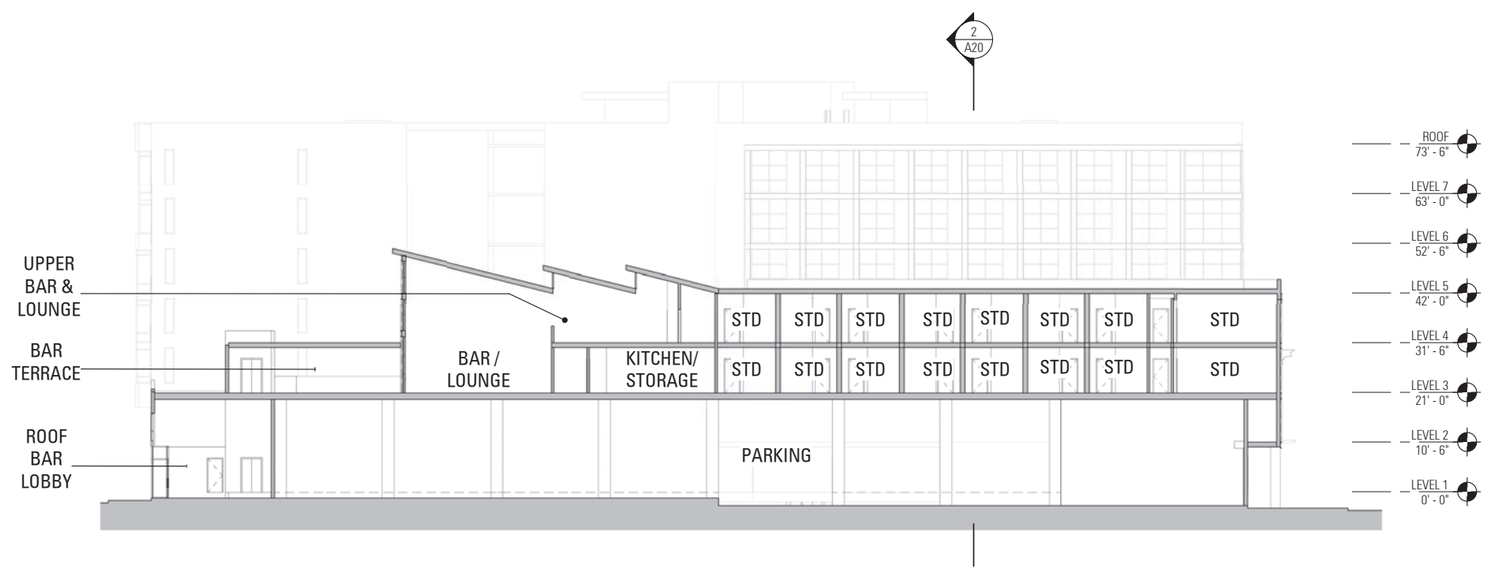

1 A21 **SECTION THROUGH ROOF BAR**
1/16" = 1'-0"

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

BUILDING SECTIONS

05.22.17	17001	BAR architects	0 8' 16' 32'	A21

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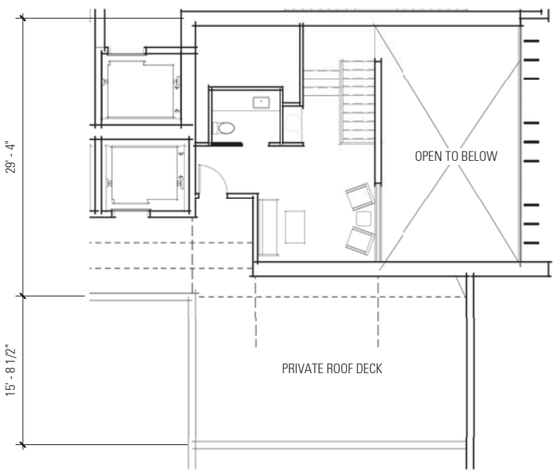
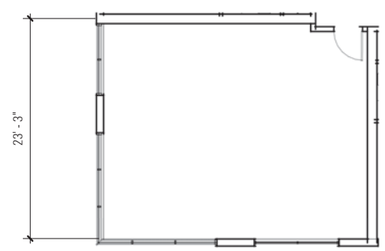
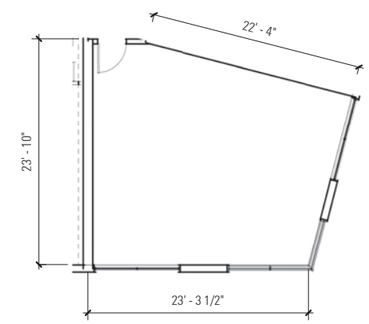


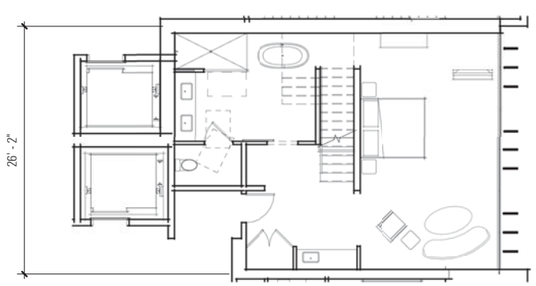
LOFT SUITE - ROOF LEVEL
1/8" = 1'-0"



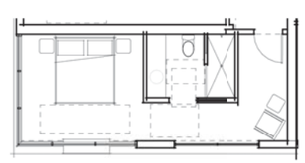
SUITE - SW
1/8" = 1'-0"



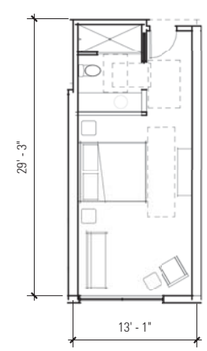
SUITE - SE
1/8" = 1'-0"



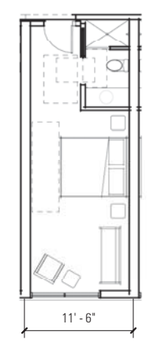
LOFT SUITE - LEVEL 7
1/8" = 1'-0"



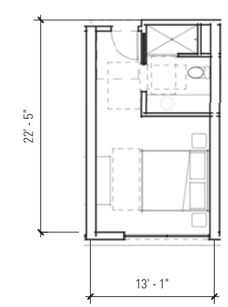
EXECUTIVE KING - SW CORNER
1/8" = 1'-0"



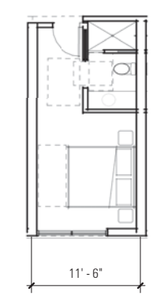
EXECUTIVE KING - 13'-1"
1/8" = 1'-0"



EXECUTIVE KING - 11'-6"
1/8" = 1'-0"



STANDARD KING - 13'-1"
1/8" = 1'-0"



STANDARD KING - 11'-6"
1/8" = 1'-0"

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

HOTEL KEY PLANS

05.22.17	17001	BAR architects	4' 16' 0 8'	A22

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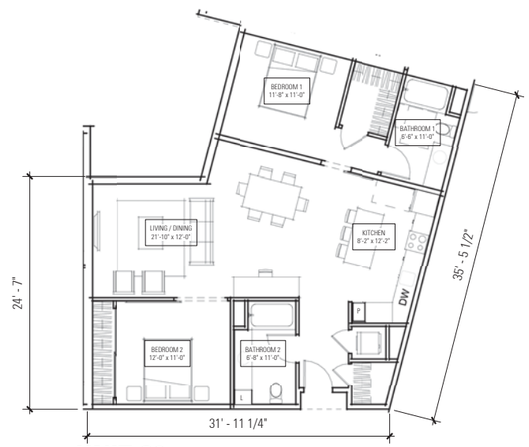
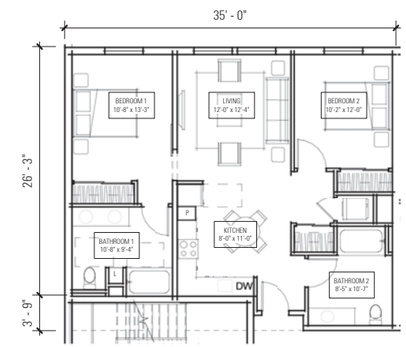
UNIT D1
1/8" = 1'-0"

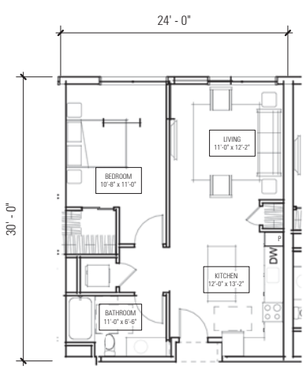


UNIT C3
1/8" = 1'-0"

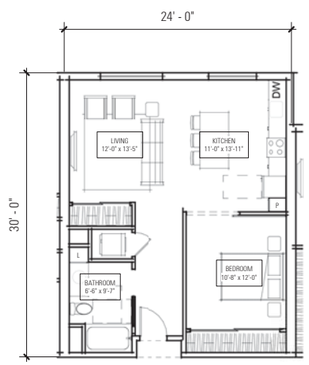


UNIT C2
1/8" = 1'-0"

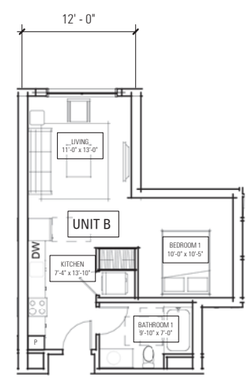
UNIT C1
1/8" = 1'-0"



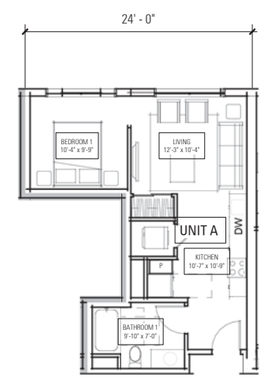
UNIT B2
1/8" = 1'-0"



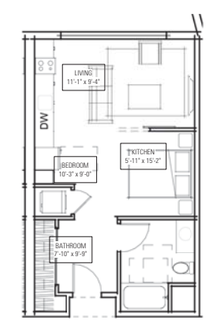
UNIT B1
1/8" = 1'-0"



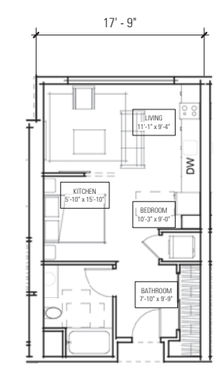
UNIT A3.2
1/8" = 1'-0"



UNIT A3.1
1/8" = 1'-0"



UNIT A2
1/8" = 1'-0"



UNIT A1
1/8" = 1'-0"

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

RESIDENTIAL UNIT PLANS

05.22.17	17001	BAR architects	0 4' 8' 16'	A23

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LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name:
Date:

Y	?	N			
			Credit	Integrative Process	1

13	0	0		**Location and Transportation**	**16**
			Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1			Credit	High Priority Site	2
5			Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
			Credit	Reduced Parking Footprint	1
			Credit	Green Vehicles	1

6	0	0		**Sustainable Sites**	**10**
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
			Credit	Site Development - Protect or Restore Habitat	2
			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
			Credit	Light Pollution Reduction	1

7	0	0		**Water Efficiency**	**11**
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
4			Credit	Indoor Water Use Reduction	6
			Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

6	0	0		**Energy and Atmosphere**	**33**
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
			Credit	Enhanced Commissioning	6
			Credit	Optimize Energy Performance	18
5			Credit	Advanced Energy Metering	1
			Credit	Demand Response	2
			Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
			Credit	Green Power and Carbon Offsets	2

2	0	0		**Materials and Resources**	**13**
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
			Credit	Building Life-Cycle Impact Reduction	5
			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

5	0	0		**Indoor Environmental Quality**	**16**
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
			Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
			Credit	Interior Lighting	2
			Credit	Daylight	3
			Credit	Quality Views	1
			Credit	Acoustic Performance	1

1	0	0		**Innovation**	**6**
			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

0	0	0		**Regional Priority**	**4**
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1

40	0	0	**TOTALS**	Possible Points:	**110**

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

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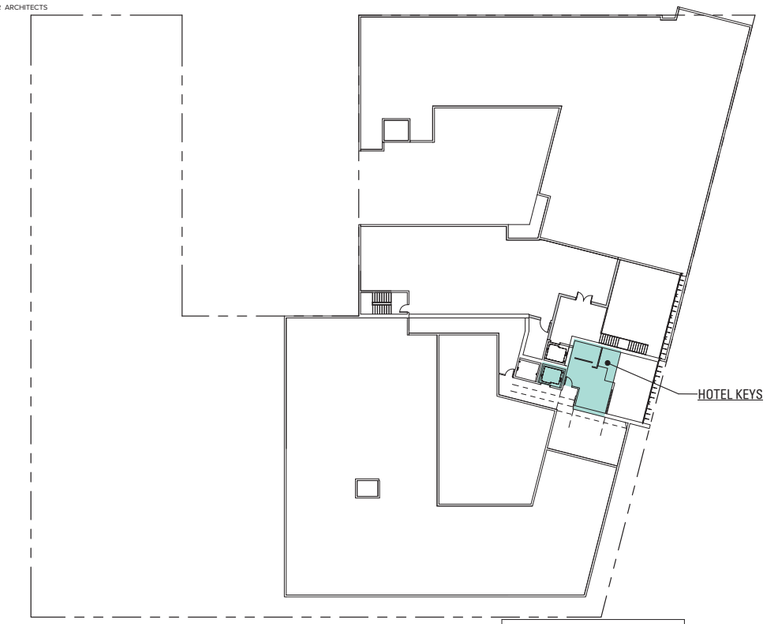
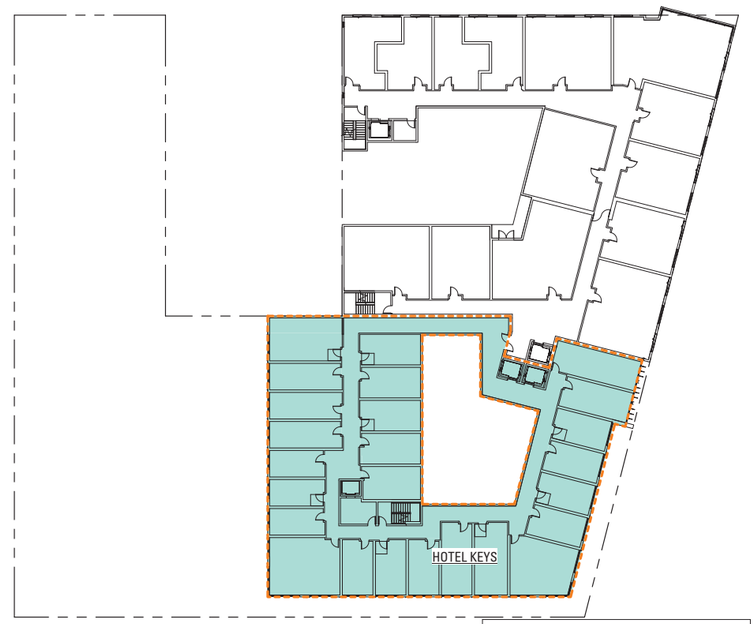


ROOF - PARKING ANALYSIS
1" = 30'-0"

AREA - ROOF	
HOTEL	557 SF
ROOF TOTAL	557 SF



LEVELS 5-7 - PARKING ANALYSIS
1" = 30'-0"

AREA - LEVEL 5 (6, 7 SIM.)	
HOTEL	11,982 SF
LEVEL 5 - 7 TYPICAL	11,982 SF

LEVELS 5-7 TOTAL = 35,946 SF

LEVEL 4 - PARKING ANALYSIS
1" = 30'-0"

AREA - LEVEL 4	
BAR	2,031 SF
HOTEL	18,707 SF
LEVEL 4 TOTAL	20,738 SF

LEVEL 3 - PARKING ANALYSIS
1" = 30'-0"

AREA - LEVEL 3	
BAR	4,030 SF
HOTEL	18,716 SF
LEVEL 3 TOTAL	22,746 SF

LEVEL 2 - PARKING ANALYSIS
1" = 30'-0"

AREA - LEVEL 2	
HOTEL	11,448 SF
LEVEL 2 TOTAL	11,448 SF

TO BE INCLUDED AS MEZZANINE FOR PARKING COUNTS

LEVEL 1- PARKING ANALYSIS
1" = 30'-0"

AREA - LEVEL 1	
BAR	401 SF
CAFE	1,285 SF
HOTEL	7,801 SF
RESTAURANT	4,806 SF
RETAIL	14,616 SF
LEVEL 1 TOTAL	28,909 SF

7/24/2017 5:26:16 PM C:\0 REVIT\17001 2401 Broadway Hotel-CENTRAL_KDuncan.rvt

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

COMMERCIAL PARKING AREA PLANS

07.25.17 | 17001 | BAR architects | A25

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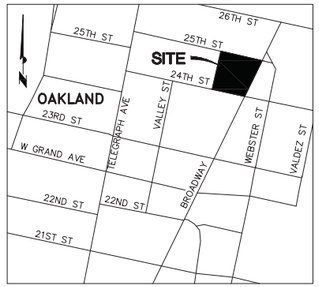
2401 BROADWAY

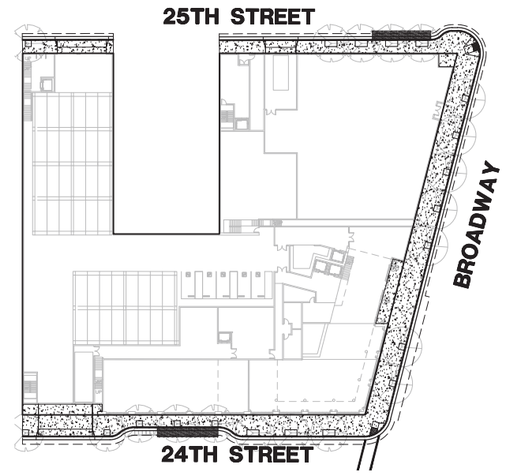
DESIGN DEVELOPMENT

OAKLAND, CALIFORNIA



VICINITY MAP

NOT TO SCALE



SITE MAP

50' 0' 25' 50' 100' 200'

(IN FEET)
1 INCH = 50 ft.

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
AP	ANGLE POINT
ARV	AIR RELEASE VALVE
BC	BEGINNING OF CURVE
BFP	BACKFLOW PREVENTER
BOV	BLOW-OFF VALVE
BOW	BACK OF WALK
BW	BOTTOM OF WALL
BVC	BEGINNING OF VERTICAL CURVE
C&G	CURB & GUTTER
CB	CATCH BASIN
CTV	CABLE TELEVISION
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONF.	CONFORM TO
CONST	CONSTRUCT
COTG	CLEANOUT TO GRADE
CR	CURB RETURN
D/W	DRIVEWAY
DIA	DIAMETER
DR	DRIVE
DTL	DETAIL
DWG	DRAWING
(E)	EAST
EC	END OF CURVE
EG	EXISTING GRADE
ELEC	ELECTRICAL
EP	EDGE OF PAVEMENT
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
EVC	END OF VERTICAL CURVE
EX	EXISTING
(F)	FUTURE
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FF	FINSIH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FI	FIELD INLET
FL	FLOW LINE
F-MAIN	FORCE MAIN
G	GAS
GB	GRADE BREAK
GR	GRATE
HCR	HANDICAP RAMP
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
INTX	INTERSECTION
INV	INVERT
IRR	IRRIGATION
JP	JOINT POLE
L	LEFT
LE	LANDSCAPE EASEMENT
LF	LINEAL FEET
LIP	LIP OF GUTTER
LP	LOW POINT
MAX	MAXIMUM
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MIN	MINIMUM
MON	MONUMENT
(N)	NORTH
NEC.	NECESSARY
OC	ON CENTER
PCC	PONT OF COMPOUND CURVE
PG	PAVEMENT GRADE
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PR	PEDESTRIAN RAMP
PSDE	PRIVATE STORM DRAIN EASEMENT
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
R	RIGHT
(R)	RADIAL
RCP	REINFORCED CONCRETE PIPE
REC	RECORD INFORMATION
RD	ROAD
RL	RESTRAIN LENGTH
R/W	RIGHT OF WAY
(S)	SOUTH
SBL	SETBACK LINE
SD	STORM DRAIN
SDHW	STORM DRAIN HEADWALL
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SHT	SHEET
S-LAT	SANITARY SEWER LATERAL
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SSRI	SANITARY SEWER RODDING INLET
STD	STANDARD
S/W	SIDEWALK
T	TELEPHONE
TC	TOP OF CURB
TD	TRENCH DRAIN
TG	TOP OF GRADE
T-MAIN	TRANSMISSION MAIN
TS	TOP OF SLAB
TW	TOP OF WALL
TYP	TYPICAL
VC	VERTICAL CURB
W	WATER MAIN
(W)	WEST
W-LAT	WATER LATERAL
[ ]	RECORD INFORMATION

TWO DAYS BEFORE YOU DIG
CALL USA TOLL FREE
811
CALL BEFORE YOU DIG

CAUTION:

CONTRACTOR TO EXERCISE EXTREME CAUTION TO AVOID DAMAGING EXISTING UNDERGROUND UTILITIES. OBSTRUCTIONS INDICATED ARE FOR INFORMATION ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE LOCATION AND DEPTH WITH THE APPROPRIATE AGENCIES. NEITHER THE OWNER NOR THE ENGINEER ASSUMES RESPONSIBILITY THAT THE OBSTRUCTIONS INDICATED WILL ACTUALLY BE THE OBSTRUCTIONS ENCOUNTERED. POTHOLING IS REQUIRED.

DESIGN TEAM

1. DEVELOPER/CONTRACTOR: SIGNATURE DEVELOPMENT GROUP
   2335 BROADWAY, SUITE 200
   OAKLAND, CA 94612
   (510) 251-9276
   CONTACT – JAMIE CHOY

2. CIVIL ENGINEER: dk CONSULTING
   1931 SAN MIGUEL DRIVE, SUITE 100
   WALNUT CREEK, CA 94596
   (925) 932-6868
   CONTACT – SCOTT E HARTSTEIN

3. ARCHITECT: BAR ARCHITECTS
   901 BATTERY STREET, SUITE 300
   SAN FRANCISCO, CA 94111
   (415) 293-5700
   CONTACT – BRADLEY SUGARMAN

4. LANDSCAPE ARCHITECT: BRUCE JETT ASSOCIATES, INC.
   2 THEATRE SQUARE, STE 218
   ORINDA, CA 94563
   (925) 254-5422
   CONTACT – JESSE MARKMAN

5. GEOTECHNICAL ENGINEER: ENGEO, INC.
   2010 CROW CANYON PLACE, SUITE 250
   SAN RAMON, CA 94583
   (925) 866-9000
   CONTACT – JEFF FIPPIN

PROJECT INFORMATION

1. PROJECT INFORMATION: APN: 008-0674-036, -005
   008-0674-004, -003-1
   SIZE: ±1.21 ACRES
   ZONING: D-BV1
   CC-3

2. TITLE REPORT: CHICAGO TITLE COMPANY
   OWNERS POLICY TITLE NO.
   14-58205703-B-KD
   DATED NOVEMBER 21, 2014

3. BASIS OF BEARINGS: THE MONUMENT LINE ON 24TH STREET TAKEN AS NORTH 78°04'52" WEST, PARCEL MAP 9872 (314M53) SHOWN AS NORTH 78°05'47" WEST.

4. BENCHMARK: TOP OF CURB WEST RETURN OF THE NORTHWEST CORNER OF 23RD STREET AND TELEGRAPH AVENUE, WITH AN ELEVATION OF 17.684 FEET PER THE CITY OF OAKLAND MONUMENT BENCHMARK No 37Jc ON BOOK 18 AT PAGE 71.

5. TOPOGRAPHIC SURVEY BUILDING LOCATIONS ARE BASED UPON AERIAL SURVEY PERFORMED ON SEPTMEBER 17, 2015 AND FIELD VERIFIED ON SEPTEMBER 29, 2015 AND ARE PRELIMINARY. AN UPDATE TO THE BUILDING FACE TO FOLLOW.

LEGEND

EXISTING	PROPOSED	
		BOUNDARY
		RIGHT-OF-WAY
		ADJACENT PROPERTY
		MONUMENT LINE
		CURB AND GUTTER LINE
GV		GAS LINE, FIELD LOCATED, VALVE
(G)		RECORD GAS LINE
E		ELECTRIC LINE, BOX
C		COMMUNICATION MANHOLE AND LINE, PACIFIC BELL
S CO		RECORD SANITARY SEWER LINE, MANHOLE, CLEANOUT
		RECORD STORM DRAIN LINE, FIELD INLET
D	D	STORM DRAIN LINE, MANHOLE, CURB INLET
	C.3	C.3 TREATMENT
WV	W V	WATER LINE, FIELD LOCATED, VALVE, METER, FH
(W)		RECORD WATER LINE
		SAWCUT LINE
15		CONTOUR LINE
SS		SANITARY SEWER, SS LATERAL
		UTILITY POLE WITH GUY ANCHOR
		VEGETATION, TREE
		FENCE
		FIRE HYDRANT
		ELECTROLIER
		POST
		SIGN
		OTHER MANHOLE, AS NOTED
		UTILITY VALVE
		FOUND STANDARD STREET MONUMENT
		MISSING STREET MONUMENT
		CALTRANS CURB RAMP
		DRIVEWAY
		CONCRETE SIDEWALK
		PARKLET
		BULB OUT
40		LOT NUMBER
[10"SS]		RECORD UTILITY INFORMATION
P=		PROPORTION FACTOR
SFNF		SEARCHED FOR, NOT FOUND
M-M		MONUMENT TO MONUMENT
NPS		NOT A PART OF THIS SURVEY
×15.00	×15.00	SPOT ELECTION
3.0%	3.0%	SLOPE

SHEET INDEX

SHEET	DESCRIPTION
C1.0	COVER SHEET
C1.1	GENERAL NOTES
C2.0	DETAILS
C2.1	DETAILS
C3.0	TOPOGRAPHIC SURVEY
C4.0	DEMOLITION PLAN
C5.0	SITE PLAN
C6.0	MASS GRADING PLAN
C6.1	FINE GRADING PLAN
C7.0	UTILITY PLAN
C8.0	EROSION CONTROL PLAN
C8.1	EROSION CONTROL NOTES & DETAILS
C9.0	C.3 EXHIBIT

F:\17001 BROADWAY\CAD\PLANS\C1-151020 DD Cover.dwg

BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

COVER SHEET

05.22.17 | 17001 | BAR architects | dk CONSULTING | C1

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GENERAL NOTES

1. THE ENGINEER ASSUMES NO RESPONSIBILITY BEYOND THE ADEQUACY OF HIS DESIGN CONTAINED HEREIN.
2. ALL STAKING REQUESTS SHALL BE DIRECTED TO THE ENGINEER AT LEAST 2 WORKING DAYS PRIOR TO ACTUAL NEED. THE PROTECTION OF THOSE STAKES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY ADDITIONAL STAKING OR RESTAKING WILL BE DONE ONLY AS DIRECTED AND AUTHORIZED BY THE OWNER OR HIS AUTHORIZED AGENT.
3. OBSTRUCTIONS INDICATED ARE FOR INFORMATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION AND DEPTH WITH THE APPROPRIATE AGENCIES. NEITHER THE OWNER NOR THE ENGINEER ASSUMES RESPONSIBILITY THAT THE OBSTRUCTIONS INDICATED WILL ACTUALLY BE THE OBSTRUCTIONS ENCOUNTERED. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 642-2222, TWO WORKING DAYS PRIOR TO ANY EXCAVATION.
4. CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS.
5. THE CONTRACTOR WILL LIMIT CONSTRUCTION ACTIVITIES TO MONDAYS THROUGH FRIDAYS FROM THE HOURS SPECIFIED IN THE ENCROACHMENT PERMIT. CONSTRUCTION WILL NOT BE ALLOWED LATER THAN THESE HOURS AND/OR ON SATURDAYS, SUNDAYS OR FEDERAL HOLIDAYS UNLESS PRIOR APPROVAL IS GRANTED BY THE CITY AFTER CONSULTATION WITH ADJACENT USES.
6. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY, PROJECT ENGINEER, HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF OWNER OR ENGINEER.
7. IF IT APPEARS THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT dk CONSULTING (925) 932-6868 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
8. ALL EXISTING ELEVATIONS SHOWN ARE AS MEASURED IN THE FIELD, UNLESS OTHERWISE NOTED.
9. THE WORKSITE SHALL BE MAINTAINED IN AN ORDERLY FASHION. FOLLOWING THE CESSATION OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE.
10. THE CONTRACTORS SHALL FIT ALL INTERNAL COMBUSTION ENGINES WITH MUFFLERS AND SHALL LOCATE NOISE-GENERATING EQUIPMENT SUCH AS AIR COMPRESSORS, CONCRETE PUMPERS AND POWER GENERATORS AS FAR AWAY FROM EXISTING RESIDENCES AS POSSIBLE. UNNECESSARY IDLING OF ENGINES SHALL BE PROHIBITED. NEIGHBORS ADJACENT TO CONSTRUCTION AREA SHALL BE NOTIFIED OF THE CONSTRUCTION SCHEDULE IN WRITING. THE TELEPHONE NUMBER OF THE DESIGNATED DISTURBANCE COORDINATOR SHALL BE POSTED AT THE SITE.
11. CONTRACTOR SHALL OBTAIN ALL APPROPRIATE PERMITS FROM REQUIRED AGENCIES OR PUBLIC UTILITIES PRIOR TO COMMENCEMENT OF WORK.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RESTORATION OF ALL EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY HIS PERFORMANCE OF THE WORK SHOWN HEREIN AT HIS EXPENSE. SAID REPAIRS SHALL BE PERFORMED AS DIRECTED BY THE CITY ENGINEER.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROMPT CLEAN UP OF ANY MATERIALS SPILLED OR DROPPED ON ANY ABUTTING STREETS DURING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THESE STREETS BY CONSTRUCTION VEHICLES ASSOCIATED WITH SUCH CONSTRUCTION. THE CITY ENGINEER MAY REQUIRE THE OWNER TO POST A CASH DEPOSIT PRIOR TO THE START OF CONSTRUCTION TO CAUSE TIMELY CLEAN UP AND REPAIR OF STREETS.
14. CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO WORK AREA THROUGHOUT CONSTRUCTION.
15. CONTRACTOR TO PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, AND OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY AND TO MAINTAIN TRAFFIC CONTROL AND AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
16. CONTRACTOR SHALL NOT DISTURB OR DESTROY ANY PERMANENT SURVEY POINTS WITHOUT THE CONSENT OF THE CITY ENGINEER. ANY PERMANENT MONUMENTS OR POINTS DESTROYED SHALL BE REPLACED BY A SURVEYOR AT THE CONTRACTOR'S EXPENSE.
17. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 2009 EDITION, THE CITY OF OAKLAND MODIFICATIONS TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND STANDARD DETAILS FOR PUBLIC WORK CONSTRUCTION 2002 EDITION AS AMENDED AND SUPPLEMENTED BY THE CITY OF OAKLAND.

GRADING NOTES

1. IN THE EVENT AN ARCHEOLOGICAL RESOURCE IS DISCOVERED DURING DEMOLITION AND/OR CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE CITY AND EARTHWORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOA AND/OR SOPA HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF DEEMED NECESSARY PRIOR TO COMMENCEMENT OF ACTIVITIES. THE ARCHAEOLOGIST SHALL BE HIRED AT THE APPLICANT'S EXPENSE.
2. IN THE EVENT A UNIQUE PALEONTOLOGICAL RESOURCE OR SITE IS DISCOVERED DURING DEMOLITION AND/OR CONSTRUCTION, THE APPLICANT SHALL STOP WORK IMMEDIATELY AND NOTIFY THE CITY. A CERTIFIED ARCHAEOLOGIST SHALL BE HIRED AT THE APPLICANT'S EXPENSE TO INVESTIGATE THE DISCOVERY AND RECOMMEND FURTHER ACTIONS PRIOR TO COMMENCEMENT OF ACTIVITIES.
3. IN THE EVENT HUMAN REMAINS ARE DISCOVERED DURING DEMOLITION AND/OR CONSTRUCTION, THE APPLICANT SHALL STOP WORK IMMEDIATELY AND NOTIFY THE CITY. A CERTIFIED ARCHAEOLOGIST SHALL BE HIRED AT THE APPLICANT'S EXPENSE TO INVESTIGATE THE DISCOVERY AND RECOMMEND FURTHER ACTIONS PRIOR TO COMMENCEMENT OF ACTIVITIES.
4. IF FOSSILS OF POTENTIAL SCIENTIFIC SIGNIFICANCE ARE FOUND DURING CONSTRUCTION, GRADING WITHIN 50 FEET OF THE FOSSIL LOCATION SHALL BE SUSPENDED UNTIL THE SIGNIFICANCE OF THE FIND HAS BEEN EVALUATED BY A PALEONTOLOGIST. THE CITY SHALL BE NOTIFIED WITHIN 24 HOURS AND ADVISED OF THE EVALUATION OF THE PALEONTOLOGIST. RESUMPTION OF WORK IN THE FOSSIL AREA SHALL REQUIRE WRITTEN APPROVAL FROM THE CITY OF OAKLAND PLANNING DEPARTMENT.
5. ALL CHEMICALS AND PETROLEUM PRODUCTS STORED ON-SITE DURING CONSTRUCTION SHALL BE WITHIN A BERMED CONTAINMENT AREA OR OTHER APPROPRIATE FACILITY. THE HANDLING, STORAGE AND DISPOSAL OF ANY HAZARDOUS MATERIALS USED ON THE SITE WILL BE IN ACCORDANCE WITH A BUSINESS PLAN (OR EQUIVALENT) ON FILE WITH THE COUNTY HEALTH SERVICES DEPARTMENT, HAZARDOUS MATERIALS DIVISION. ALL REFUELING AND VEHICLE MAINTENANCE ACTIVITY SHALL BE LOCATED AWAY FROM ANY DRAINAGE PATHWAYS. REFER TO EROSION CONTROL PLAN.
6. ALL GRADING, SITE PREPARATION, PLACING AND COMPACTION OF FILL TO BE DONE IN ACCORDANCE WITH CITY OF OAKLAND ORDINANCE; ALSO UNDER THE DIRECT SUPERVISION OF THE GEOTECHNICAL ENGINEER. SUBSEQUENT TO COMPLETION OF WORK, THE GEOTECHNICAL ENGINEER SHALL SUBMIT TO THE CITY OF OAKLAND ENGINEERING DEPARTMENT A REPORT STATING THAT ALL WORK HAS BEEN DONE TO ITS SATISFACTION.
7. ALL REVISIONS TO THIS PLAN MUST BE REVIEWED BY THE CITY OF OAKLAND ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION AND SHALL BE ACCURATELY SHOWN ON REVISED PLANS STAMPED AND DISTRIBUTED BY THE ENGINEERING DEPARTMENT PRIOR TO THE WORK BEING ADVANCED AND ACCEPTANCE OF THE WORK AS COMPLETE.
8. ALL TRENCHES SHALL BE SHORED IN ACCORDANCE WITH CAL-OSHA "CONSTRUCTION SAFETY ORDERS" CURRENT EDITION. ALSO AS SPECIFIED BY THE GEOTECHNICAL ENGINEER. CONTRACTOR MUST HAVE VALID TRENCH SHORING PERMIT ISSUED BY CAL-OSHA.
9. THE EXCAVATION TRENCH WIDTH FOR ALL PIPES, WITH THE EXCEPTION OF C.I.P.P., SHALL BE A MINIMUM OF 24" GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE. ONE-HALF OF THE MINIMUM DIMENSION SHALL BE AVAILABLE ON EITHER SIDE OF THE PIPE. THE SAFETY REQUIREMENTS OF THE OCCUPATION SAFETY AND HEALTH ACT FOR TRENCH SHORING AND BRACING SHALL BE COMPLIED WITH WHERE APPLICABLE.
10. THE CONTRACTOR SHALL PROVIDE THE NECESSARY SAFETY TESTING OF EQUIPMENT AND PERSONNEL.
11. CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF THE DIVISION OF INDUSTRIAL SAFETY PERTAINING TO "CONFINED SPACES". ANY MANHOLES, CULVERT, DROP INLET OR TRENCH WHICH COULD CONTAIN AIR WHICH IS NOT READILY VENTILATED MAY BE CONSIDERED A "CONFINED SPACE"
12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO IMMEDIATELY NOTIFY THE CITY OF OAKLAND ENGINEERING INSPECTOR AND THE DESIGN ENGINEER UPON DISCOVERY OF ANY FIELD CONFLICTS.
13. ANY DEVIATIONS OR CHANGES IN THESE PLANS WITHOUT OFFICIAL APPROVAL OF THE DESIGN ENGINEER SHALL ABSOLVE THE DESIGN ENGINEER OF ANY AND ALL RESPONSIBILITY OF SAID DEVIATION OR CHANGE.
14. DURING THE GRADING OPERATION THE CONTRACTOR SHALL CONTROL THE GENERATION OF DUST BY FULLY SPRINKLING THE SITE AS DETERMINED TO BE NEEDED BY THE COUNTY GRADING INSPECTOR IN ACCORDANCE WITH THE COUNTY GRADING ORDINANCE.
15. COMPACTION TESTS WILL BE PERFORMED ON ALL STREET WORK TO VERIFY THE COMPACTION CONFORMS TO CITY OF OAKLAND STANDARDS AND THE GEOTECHNICAL REPORT (ENGEO INC PROJECT NO. 12215.000.000 DATED JULY 28, 2015). THE TEST OF SUBGRADE TO BE PERFORMED BY THE GEOTECHNICAL ENGINEER. INSPECTION OF ROCK AND PAVING TO BE PERFORMED BY THE CITY OF OAKLAND. (TWO WORKING DAYS NOTICE REQUIRED) WHERE UNSTABLE OR UNSUITABLE MATERIALS ARE ENCOUNTERED DURING SUBGRADE PREPARATION, THE AREA IN QUESTION SHALL BE OVER EXCAVATED AND REPLACED BY SELECT BACKFILL AS DIRECTED IN THE FIELD BY THE GEOTECHNICAL ENGINEER. ANY SLIDE REPAIR WORK, SUBDRAIN INSTALLATION, AND LINED DITCH WORK SHALL BE INSPECTED BY THE CITY OF OAKLAND ENGINEERING DEPARTMENT. A REPORT FROM THE GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE CITY OF OAKLAND ENGINEERING DEPARTMENT REGARDING THE SLIDE REPAIR AND/OR SUBDRAIN INSTALLATION. CUT AND GRADED SLOPES SHALL BE PERIODICALLY INSPECTED DURING GRADING OPERATION BY AN ENGINEERING GEOLOGIST OR GEOTECHNICAL ENGINEER WITH PERIODIC PROGRESS REPORTS AND A GRADING COMPLETION REPORT.
16. APPLICANT SHALL COMPLY WITH ALL RULES, REGULATIONS AND PROCEDURES OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM.

IMPROVEMENT NOTES

1. PRODUCTS AND MATERIALS SPECIFIED ARE SUBJECT TO CHANGE WITH APPROVED EQUIVALENCE. JURISDICTION SHALL REVIEW AND APPROVE PROPOSED SUBSTITUTIONS. SHOULD THE CONTRACTOR REQUEST A CHANGE OF MATERIALS, THE CONTRACTOR SHALL PAY FOR THE COST INVOLVED IN PLAN CHANGES AND PROCESSING THE CHANGE THROUGH THE APPROPRIATE AGENCY.
2. THE CONTRACTOR IS REQUIRED TO OBTAIN AN ENCROACHMENT PERMIT FOR ALL WORK WITHIN EXISTING CITY RIGHTS OF WAY. APPLICATIONS FOR ENCROACHMENT PERMIT, SUBMITTED MORE THAN 90 DAYS PAST ENGINEERING "REVIEWED" DATE STAMP, MAY REQUIRE ADDITIONAL TIME TO PROCESS. FOR FURTHER PERMIT INFORMATION, CONTACT THE ENGINEERING DEPARTMENT AT (510) 238-3659.
3. TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), PART 6 – TEMPORARY TRAFFIC CONTROL AND THE 2009 EDITION OF MUTCD.
4. IN CONFORM PAVING AREAS, IF A FULL STREET STRUCTURAL SECTION IS NOT FOUND AT THE APPARENT EDGE OF PAVEMENT, FURTHER STREET EXCAVATION WILL BE REQUIRED UNTIL THE FULL SECTION IS ENCOUNTERED. PAVING CONFORMS SHALL BE MADE AT A SMOOTHLY TRIMMED BUTT JOINT. DO NOT OVERLAP EXISTING PAVEMENT.
5. TRENCH BACKFILL, WHICH LIES WITHIN EITHER EXISTING OR NEW ROADWAYS, SHALL CONFORM TO THE CITY OF OAKLAND STANDARD DETAIL D-22 FOR TRENCH BACKFILL.
6. THE CONTRACTOR IS RESPONSIBLE FOR MATCHING EXISTING PAVEMENT, SIDEWALK, SURROUNDING LANDSCAPING AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURB AND GUTTER, GRADING, ETC. AND TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES, LOW SPOTS OR HAZARDOUS CONDITIONS.
7. ALL ELECTRICAL AND GAS UTILITIES TO BE PROVIDED BY P.G.& E. AND INSTALLED UNDERGROUND PRIOR TO THE CONSTRUCTION OF CURB, GUTTER AND SIDEWALKS.
8. ANY COST OF RELOCATING UTILITIES DUE TO IMPROVEMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL UNDERGROUND UTILITIES WITHIN THE RIGHT-OF-WAY, INCLUDING MAINS, LATERALS AND CROSSINGS, SHALL BE INSTALLED, BACKFILLED AND COMPLETED PRIOR TO THE COMMENCEMENT OF CURB, GUTTER AND SIDEWALK CONSTRUCTION.
10. ALL UNDERGROUND FACILITIES SHALL BE INSTALLED PRIOR TO THE CONSTRUCTION OF CURB AND FINAL PREPARATION OF SUBGRADE AND PLACEMENT OF BASE MATERIAL. CURB AND GUTTER SHALL BE COMPLETE PRIOR TO THE PLACEMENT OF STREET BASE MATERIAL, UNLESS OTHERWISE APPROVED.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL NECESSARY UTILITY RELOCATION WITH THE APPROPRIATE UTILITY AGENCY.
12. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR FINAL GRADE OF CONCRETE UNLESS FORMS ARE CHECKED PRIOR TO POURING.
13. ALL PEDESTRIAN IMPROVEMENTS SHALL CONFORM WITH THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS AND THE AMERICANS WITH DISABILITIES ACT.
14. ALL WORK SHALL CONFORM TO THE CITY OF OAKLAND STANDARDS.

F:\Projects\2015\15-1020-2401 BROADWAY\DWG\DD-2401 Broadway\02-151020 DD General Notes.dwg

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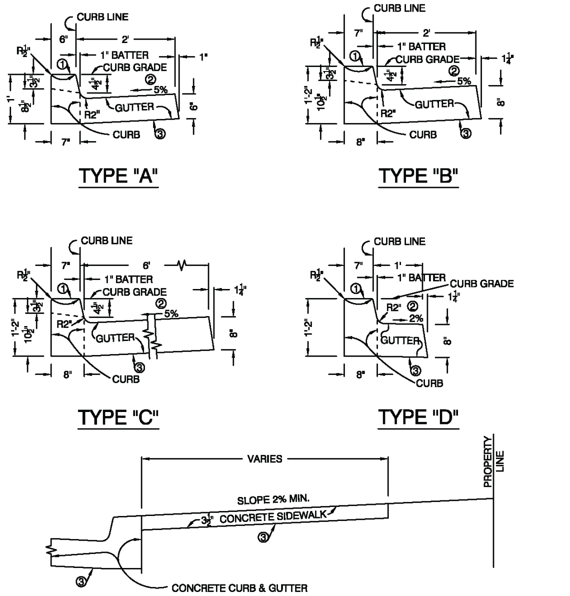


NOTES

1. OMIT THIS PORTION OF CURB AT DRIVEWAYS.
2. STANDARD SLOPE EXCEPT AS SHOWN ON PLANS.
3. PLACE 4" OF PROCESSED MISCELLANEOUS BASE UNDER CURB, GUTTER AND SIDEWALK UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE SIGNED CITY OF OAKLAND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION IS AVAILABLE FOR PURCHASE FROM THE CONTRACT ADMINISTRATION DEPARTMENT.

CITY OF OAKLAND | DESIGN AND CONSTRUCTION SERVICES DEPARTMENT

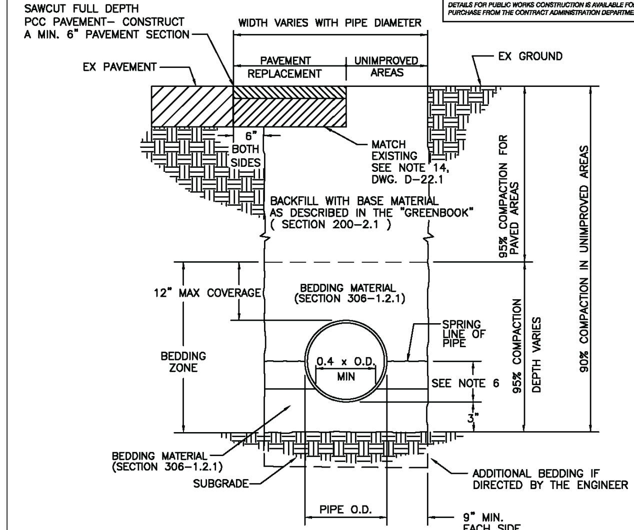
CONCRETE CURB AND GUTTER

ENGINEERING DESIGN MANAGER — DATE: JANUARY 2002 — REV. DATE: — DWG. S-1

PAVEMENT TYPES

TYPE A	TYPE B	TYPE C	TYPE D	TYPE F
6" P.C.C . PER SECTION 201-1.1.2	3" A.C. PER SECTION 306-1.5.2	4" A.C. PER SECTION 306-1.5.2	3" A.C. PER SECTION 306-1.5.2	VARIABLE DEPTH A.C. PER SECTION 306-1.5.2
18" A.B. PER SECTION 306-1.3.1	6" P.C.C . PER SECTION 201-1.1.2	18" A.B. PER SECTION 306-1.3.1	18" A.B. PER SECTION 306-1.3.1	
	12" A.B.PER SECTION 306-1.3.1			

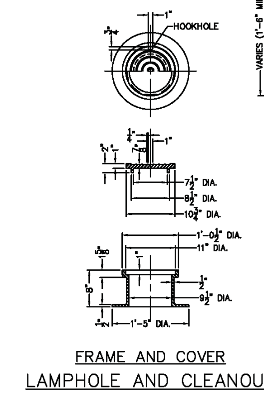
NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE SIGNED CITY OF OAKLAND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION IS AVAILABLE FOR PURCHASE FROM THE CONTRACT ADMINISTRATION DEPARTMENT.

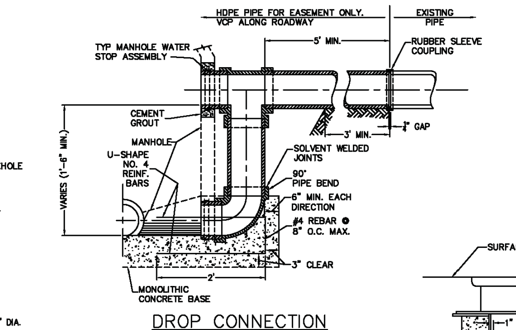


CITY OF OAKLAND | DESIGN AND CONSTRUCTION SERVICES DEPARTMENT

TRENCH DETAIL

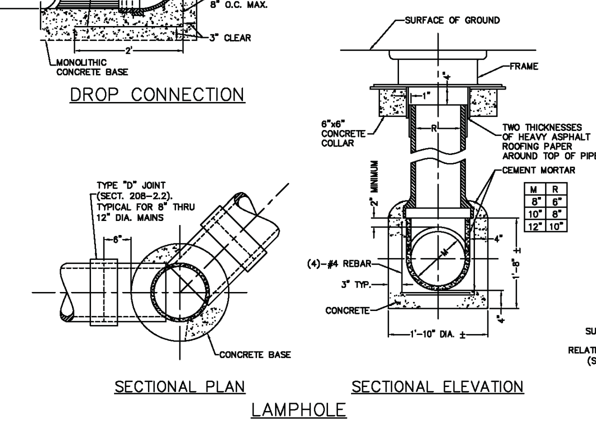
ENGINEERING DESIGN MANAGER — DATE: JANUARY 2002 — REV. DATE: — DWG. D-22.0



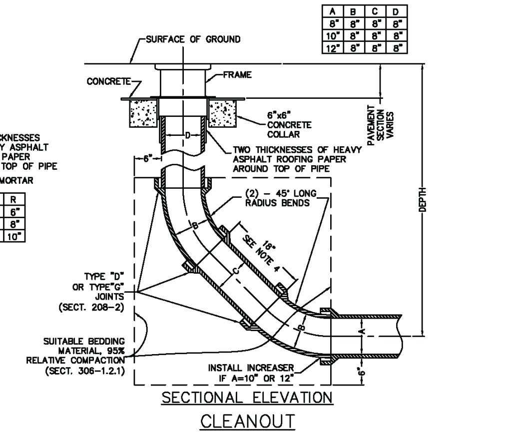


DROP CONNECTION

1. COVERS, PANS AND FRAMES TO CONFORM TO SECTION 206-3.
2. ALL CONTACT AND BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY.
3. PANS SHALL BE PLACED IN ALL LAMPHOLES.
4. FOR CLEANOUT LESS THAN 4' DEEP, OMIT 18" SECTION.



M	R
8"	6"
10"	8"
12"	10"



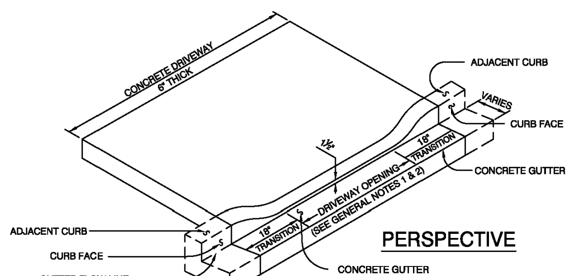
A	B	C	D
8"	8"	8"	8"
10"	8"	8"	8"
12"	8"	8"	8"

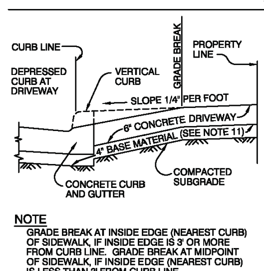
NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE SIGNED CITY OF OAKLAND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION IS AVAILABLE FOR PURCHASE FROM THE CONTRACT ADMINISTRATION DEPARTMENT.

CITY OF OAKLAND | DESIGN AND CONSTRUCTION SERVICES DEPARTMENT

LAMPHOLE, CLEANOUT AND DROP CONNECTION

ENGINEERING DESIGN MANAGER — DATE : FEBRUARY 2002 — REV. DATE : — DRAWING D-2

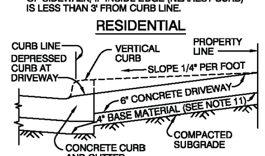




NOTE

GRADE BREAK AT INSIDE EDGE (NEAREST CURB) OF SIDEWALK, IF INSIDE EDGE IS 3' OR MORE FROM CURB LINE. GRADE BREAK AT MIDPOINT OF SIDEWALK, IF INSIDE EDGE (NEAREST CURB) IS LESS THAN 3' FROM CURB LINE.

RESIDENTIAL



OTHER THAN RESIDENTIAL

TYPICAL SECTIONS

GENERAL NOTES

1. IN ALL COMMERCIAL, INDUSTRIAL, OR SPECIAL DISTRICTS, THE DRIVEWAY OPENINGS SHALL BE NOT LESS THAN TWELVE (12) FEET IN WIDTH NOR MORE THAN THIRTY-FIVE (35) FEET IN WIDTH.
2. IN RESIDENTIAL DISTRICTS, THE DRIVEWAY OPENINGS SHALL BE NOT LESS THAN TEN (10) FEET IN WIDTH NOR MORE THAN NINETEEN (19) FEET IN WIDTH; PROVIDED, HOWEVER, A DRIVEWAY OPENING SERVING TWO OR MORE PARCELS MAY BE TWENTY-NINE (29) FEET IN WIDTH. FOR THE SPECIAL CASE OF FOUR UNIT RESIDENTIAL BUILDINGS, THE DRIVEWAY OPENING MAY BE TWENTY-SEVEN (27) FEET IN WIDTH.
3. DRIVEWAYS SERVING A SINGLE PARCEL OF PROPERTY OR SERVING ANY OF SEVERAL ADJACENT PARCELS UNDER SINGLE OWNERSHIP SHALL BE SEPARATED BY AT LEAST TWENTY-FIVE (25) FEET OF FULL VERTICAL CURB.
4. DRIVEWAYS SERVING SEPARATE BUT ADJOINING PARCELS OF PROPERTY UNDER DIFFERENT OWNERSHIPS SHALL BE SEPARATED BY AT LEAST TEN (10) FEET OF FULL VERTICAL CURB.
5. DRIVEWAYS SERVING CORNER LOTS SHALL BE SO LOCATED THAT:
   (A) A DRIVEWAY ON EITHER STREET SHALL BE AT LEAST TWENTY FIVE (25) FEET FROM THE PROJECTED CURVE LINE OF THE INTERSECTING STREET.
   (B) NO PART OF THE DRIVEWAY SHALL EXTEND INTO THE CURB RETURN A DISTANCE GREATER THAN FIVE (5) FEET.
6. DRIVEWAYS SHALL FORM AN ANGLE OF 30° OR LESS OFF OF A LINE PERPENDICULAR TO OR RADIAL TO THE STREET ALIGNMENT, FOR A DISTANCE OF EITHEEN (18) FEET BEHIND THE PROPERTY LINE MEASURED ALONG THE SHORTEST SIDE OF SAID DRIVEWAY.
7. ALL DRIVEWAY CURB TRANSITIONS SHALL BE EIGHTEEN (18) INCHES WITH STANDARD SIX-INCH HIGH CURBS.
8. NO DRIVEWAY SHALL BE CONSTRUCTED OR RECONSTRUCTED WITHIN THIRTY (30) INCHES OF ANY EXISTING OBSTRUCTION IN THE STREET AREA.
9. REFER TO CHAPTER 12.04 OF THE OAKLAND MUNICIPAL CODE REGULATING THE CONSTRUCTION AND REPAIR OF SIDEWALKS, DRIVEWAYS AND CURBS.
10. CONCRETE SHALL BE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI IN ACCORDANCE WITH SUB-SECTION 201-1 UNLESS OTHERWISE NOTED.
11. BASE MATERIAL SHALL CONFORM TO SUB-SECTION 200-2.5 UNLESS OTHERWISE NOTED.
12. EXPANSION JOINTS 1/4" THICK SHALL EXTEND THROUGH THE ENTIRE THICKNESS OF THE SIDEWALK AT EACH SIDE OF DWYS, CURB RETURNS, AS DIRECTED BY THE ENGINEER TO CONFORM TO EX. CONDITIONS.

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CITY OF OAKLAND | ENGINEERING DESIGN SERVICES DIVISION

CONCRETE DRIVEWAY

ENGINEERING DESIGN MANAGER — DATE: JANUARY 2002 — REV. DATE: — DWG. S-2

NOTES:

1. Excavated material shall not be used to fill voids caused by overexcavation; such voids shall be filled with compacted bedding material. Unless directed by the Engineer, no separate payment will be made for overexcavation.
2. Import backfill material shall conform to Subsection 306-1.31
3. Aggregate base shall conform to crushed miscellaneous base (Section 200-2.4) or better. The base material must be approved by the Engineer.
4. The streets of Oakland are generally paved with either AC, PCC, or a combination of the two. The existing pavement may differ from the replacement Pavement Type (A to F) indicated on the plans.
5. Compaction by jetting is not permitted.
6. When flexible pipe (HDPE, etc.) is used, pipe shall be backfilled to the spring line, compacted and backfill tested prior to completing initial backfill.
7. The compacted temporary resurfacing shall be a minimum of 2" thick placed on the required base, and shall be removed prior to placing the permanent paving.
8. Backfill testing is required and results shall be approved by the Engineer prior to paving.
9. No longitudinal joints or seams are allowed in bike lanes. If a longitudinal joint is constructed due to the Contractor's work or this requirement, the Contractor shall remove a minimum of 2" of asphalt from the pavement across the entire bike lane using a method approved by the City and then resurface the bike lane to the Engineer's satisfaction.
10. During backfill operations, the trench shall be backfilled, compacted, and tested to the spring line of any utilities crossing the trench before proceeding with further backfill.
11. Unless specified otherwise, measurement for payment of additional bedding, imported backfill and temporary paving (when listed as separate pay items) shall be based upon the trench widths defined on this detail. The lower trench width for 8" pipe shall be 30".
12. Clean and tackcoat sides of excavation and between paving courses with spray application of SS-1 emulsion before placing asphalt-concrete pavement section.
13. If the distance to the edge of gutter is less than 3' from one trench edge, the pavement replacement shall extend to the edge of existing gutter.
14. In areas where existing paving consists of rubberized AC, the trench area should be repaved with the equivalent pavement section of rubberized AC. As an alternate, a dense graded AC section equivalent to two-times the the thickness of the rubberized AC may be substituted.

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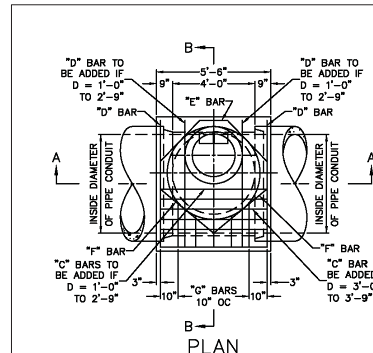
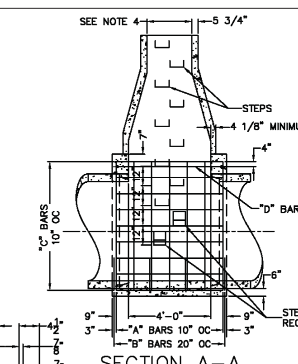
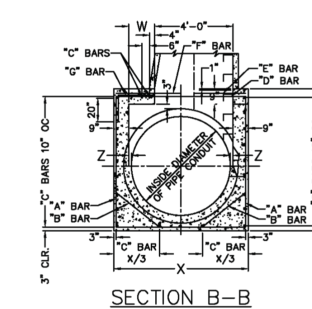
CITY OF OAKLAND | DESIGN AND CONSTRUCTION SERVICES DEPARTMENT

TRENCH DETAIL

ENGINEERING DESIGN MANAGER — DATE: JANUARY 2002 — REV. DATE: — DWG. D-22.1

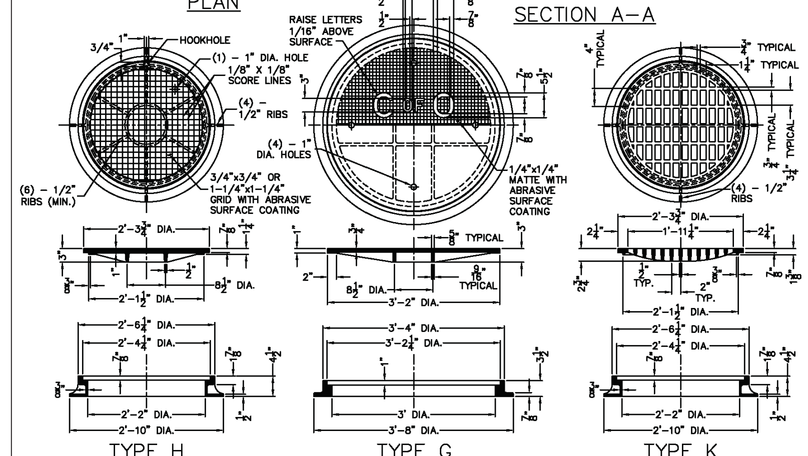






GENERAL NOTES

1. PRECAST CONCRETE SHAFT IS OPTIONAL WHEN "D" IS 4'-0" OR GREATER.
2. ALL CONTACT AND BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY.
3. CONVERSION TO METRIC EQUIVALENTS SHALL BE IN ACCORDANCE WITH ASTM A-380.
4. SHAFT OPENING FOR TYPE "H" FRAMES AND COVERS SHALL BE 2'-0" DIAMETER.
5. STEPS SHALL BE 3/4" DIAM. HOT DIPPED GALVANIZED STEEL ROD OR FIBERGLASS. SEE SHEET D-11 FOR STEP DETAILS.
6. ALL STEEL A305 REINFORCING STEEL NO. 4 BARS.
7. REINFORCING STEEL MAY BE SPREAD TO ADMIT SMALL PIPES ENTERING MANHOLE SIDES.
8. WHERE TWO SIZES OF PIPE ENTER AND LEAVE A MANHOLE, USE DIMENSIONS AND QUANTITIES FOR THE LARGER SIZE PIPE.



FRAME AND COVER DETAILS

INSIDE DIAMETER OF PIPE CONDUIT	MANHOLE DIMENSIONS W	X	Y	Z	CUBIC YARDS OF CONCRETE	"A" BAR NO.	"A" BAR LENGTH	"B" BAR (1'-10") NO.	"B" BAR LENGTH	"C" BAR (5'-2") NO.	"C" BAR LENGTH	"D" BAR NO.	"D" BAR LENGTH	"E" BAR (2'-1") NO.	"E" BAR LENGTH	"F" BAR NO.	"F" BAR LENGTH	"G" BAR (1'-8") NO.	"G" BAR LENGTH	POUNDS OF REINFORCING STEEL
36"		5'-6"	4'-9"	6"	2.88	7	14'-0"	4	7'-8"	17	5'-2"			2	6'-10"					153.8
39"		5'-6"	5'-1/2"	4 1/2"	2.93	7	14'-7"	4	7'-4"	19	5'-2"			2	6'-10"					164.0
42"		5'-6"	5'-4"	3"	2.97	7	15'-2"	4	7'-0"	19	5'-2"			2	6'-10"					164.4
45"		5'-6"	5'-7 1/2"	1 1/2"	3.00	7	15'-9"	4	6'-8"	19	5'-2"			2	6'-10"					166.5
48"	4"	5'-10"	6'-2"	2"	3.30	7	17'-2"	4	7'-0"	19	5'-2"	2	5'-6"	2	6'-10"	SEE	"E" BAR			181.1
51"	7"	6'-1"	6'-5 1/2"	2"	3.60	7	18'-0"	4	7'-2"	19	5'-2"	2	5'-9"	2	6'-10"	SEE	"E" BAR	5	2'-9"	193.9
54"	10"	6'-4"	6'-9"	2"	3.80	7	18'-10"	4	7'-5"	23	5'-2"	2	6'-0"	1	6'-10"	2	2'-9"	5	3'-0"	206.9
57"	1'-1"	6'-7"	7'-1/2"	2"	4.10	7	19'-8"	4	7'-7"	23	5'-2"	2	6'-3"	1	6'-10"	2	3'-4"	5	3'-3"	213.2
60"	1'-4"	6'-10"	7'-4"	2"	4.20	7	20'-6"	4	7'-10"	23	5'-2"	2	6'-6"	1	6'-10"	2	3'-9"	5	3'-6"	219.5
63"	1'-7"	7'-1"	7'-7 1/2"	2"	4.50	7	21'-4"	4	8'-1"	25	5'-2"	2	6'-9"	1	6'-10"	2	4'-1"	5	3'-9"	239.2
66"	1'-10"	7'-4"	7'-11"	2"	4.90	7	22'-2"	4	8'-3"	25	5'-2"	2	7'-0"	1	6'-10"	2	4'-5"	5	4'-0"	245.3
69"	2'-1"	7'-7"	8'-2 1/2"	2"	5.20	7	23'-0"	4	8'-5"	26	5'-2"	2	7'-3"	1	6'-10"	2	4'-9"	5	4'-3"	254.6
72"	2'-4"	7'-10"	8'-6"	2"	5.30	7	23'-10"	4	8'-8"	28	5'-2"	2	7'-6"	1	6'-10"	2	5'-1"	5	4'-6"	267.7
75"	2'-7"	8'-1"	8'-9 1/2"	2"	5.70	7	24'-8"	4	8'-11"	28	5'-2"	2	7'-9"	1	6'-10"	2	5'-4"	5	4'-9"	273.7

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CITY OF OAKLAND | DESIGN AND CONSTRUCTION SERVICES DEPARTMENT

MANHOLE TYPE 2 (FOR 36" TO 75" DIA. PIPE CONDUIT)

ENGINEERING DESIGN MANAGER — DATE : FEBRUARY 2002 — REV. DATE : — DRAWING D-12

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

DETAILS

05.22.17 | 17001 | BAR architects | dk CONSULTING PLANNING · ENGINEERING · CONSTRUCTION | C3

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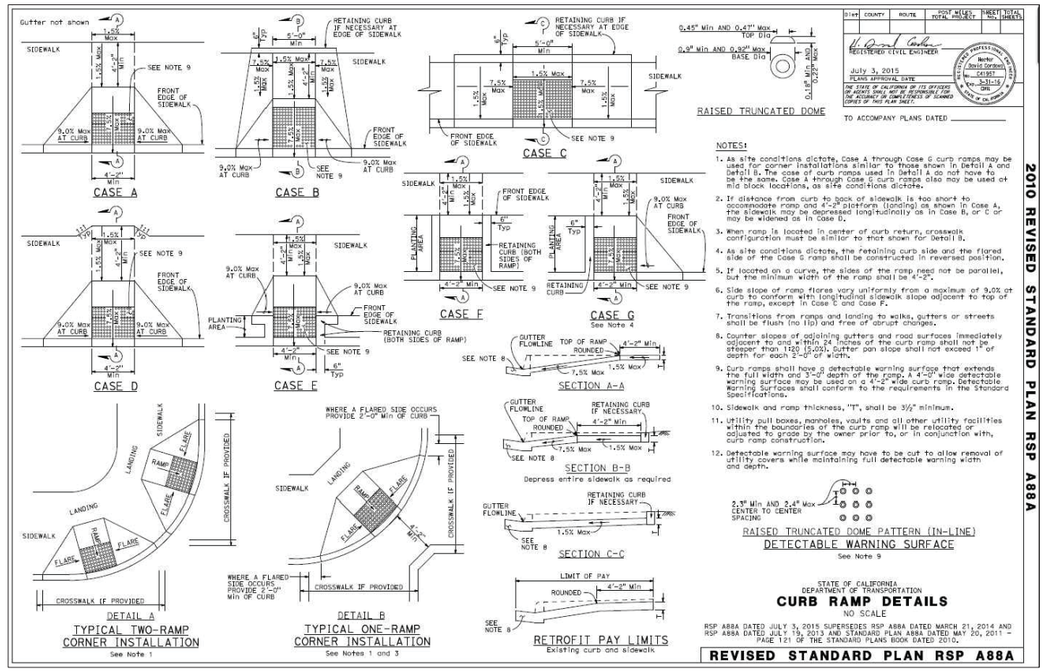


NOTES:

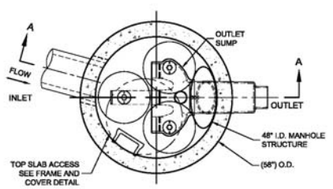
1. As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions dictate.
2. If distance from curb to back of sidewalk is too short to accommodate ramp and 4'-0" platform (landing) as shown in Case A, the sidewalk may be depressed longitudinally as in Case B, or C or may be widened as in Case D.
3. When ramp is located in center of curb return, crosswalk configuration must be similar to that shown for Detail B.
4. As site conditions dictate, the retaining curb side and the flared side of the Case G ramp shall be constructed in reversed position.
5. If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4'-0".
6. Side slope of ramp flares vary uniformly from a maximum of 9.0% at curb to conform with longitudinal sidewalk slope adjacent to top of the ramp, except in Case E and Case F.
7. Transitions from ramps and landing to walks, gutters or streets shall be flush (no lip) and free of abrupt changes.
8. Counter slopes of adjoining gutters and road surfaces immediately adjacent to and within 24 inches of the curb ramp shall not be steeper than 1:20 (5.0%). Gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.
9. Curb ramps shall have a detectable warning surface that extends the full width and 3'-0" depth of the ramp. A 4'-0" wide detectable warning surface may be used on a 4'-0" wide curb ramp. Detectable warning surfaces shall conform to the requirements in the Standard Specifications.
10. Sidewalk and ramp thickness, "T", shall be 3½" minimum.
11. Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
12. Detectable warning surface may have to be cut to allow removal of utility covers while maintaining full detectable warning width and depth.

STORMFILTER DESIGN NOTES

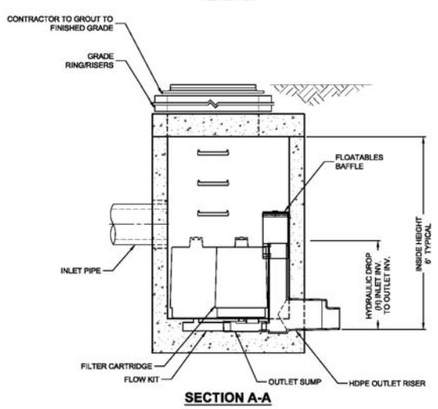
STORMFILTER TREATMENTCAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (3). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 3 CARTRIDGES.
Ø48" MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.0 CFS. IF THE SITE CONDITIONS EXCEED 1.0 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

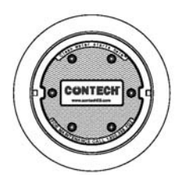
CARTRIDGE HEIGHT	27"		18"		LOW DROP	
RECOMMENDED HYDRAULIC DROP (-I)	3.05'		2.3'		1.8'	
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)	22.5	11.25	15	7.5	10	5



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 40A



SECTION A-A



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
# OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (CSF, PERLITE, ZPG, GAC, PHS)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

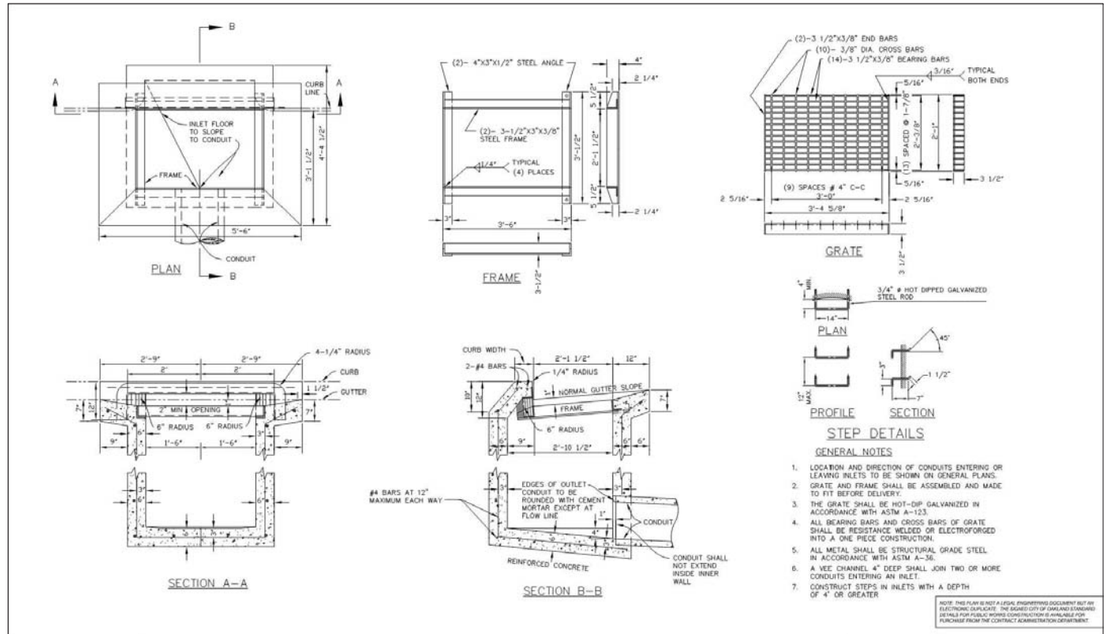
* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 39 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
5. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES, CONTRACTOR TO REMOVE THE 8 INCH OUTLET STUB AT MOLDED IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
6. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH48
STORMFILTER
STANDARD DETAIL



GENERAL NOTES
1. LOCATION AND DIRECTION OF CONDUITS ENTERING OR LEAVING INLETS TO BE SHOWN ON GENERAL PLANS.
2. GRATE AND FRAME SHALL BE ASSEMBLED AND MADE TO FIT BEFORE DELIVERY.
3. THE GRATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123.
4. ALL BEARING BARS AND CROSS BARS OF GRATE SHALL BE RESISTANCE WELDED OR ELECTROFORGED INTO A ONE PIECE CONSTRUCTION.
5. ALL METAL SHALL BE STRUCTURAL GRADE STEEL IN ACCORDANCE WITH ASTM A-36.
6. A VEE CHANNEL 4" DEEP SHALL JOIN TWO OR MORE CONDUITS ENTERING AN INLET.
7. CONSTRUCT STEPS IN INLETS WITH A DEPTH OF 4" OR GREATER

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CITY OF OAKLAND
DESIGN AND CONSTRUCTION SERVICES DEPARTMENT
TYPE "B" INLET
ENGINEERING DESIGN MANAGER
DATE: JANUARY 2003
REV. DATE:
DRWG. D-4

\\5fil\26ft-Files\Projects\Old\Fil\Old 1402Cir 2401 BroadwayRRG&DWG\DWG\DRD_2401 Broadway\04-151020 DD Details 2.dwg

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

DETAILS

05.22.17 | 17001 | BAR architects | CONSULTING | C4

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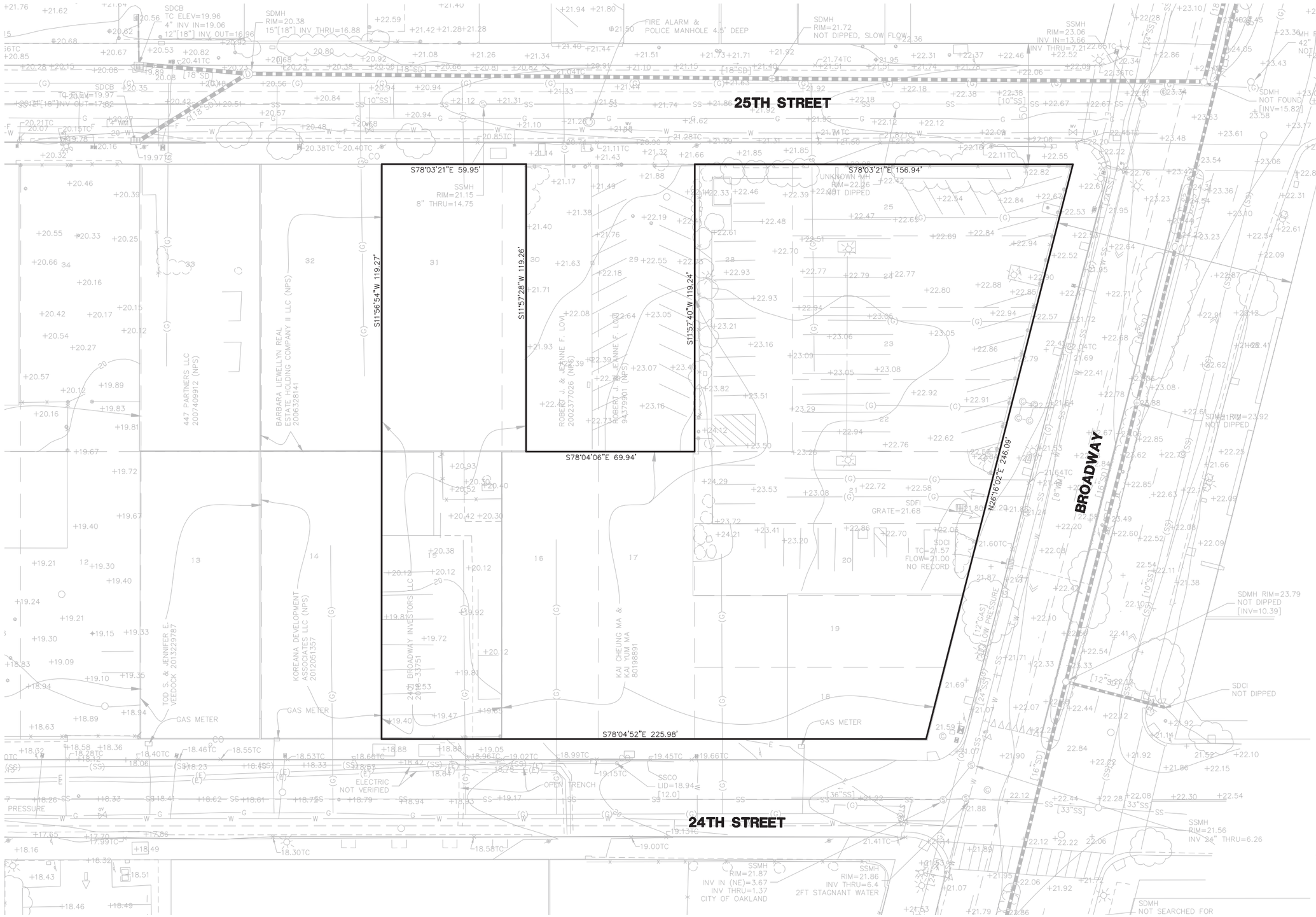

AREA:
AREA = ±1.21 ACRES

ASSESSORS PARCEL NUMBER:
008-0674-036, -005
008-0674-004, -003-1

TOPOGRAHPIC SURVEY:
BUILDING LOCATIONS ARE BASED UPON AERIAL SURVEY PERFORMED ON SEPTMEBER 17, 2015 AND FIELD VERIFIED ON SEPTEMBER 29, 2015 AND ARE PRELIMINARY. AN UPDATE TO THE BUILDING FACE TO FOLLOW.

TITLE REPORT:
CHICAGO TITLE COMPANY
OWNERS POLICY TITLE NO. 14-58205703-B-KD
DATED NOVEMBER 21, 2014

BENCH MARK:
TOP OF CURB WEST RETURN OF THE NORTHWEST CORNER OF 23RD STREET AND TELEGRAPH AVENUE, WITH AN ELEVATION OF 17.684 FEET PER THE CITY OF OAKLAND MONUMENT BENCHMARK No 37Jc ON BOOK 18 AT PAGE 71.

BASIS OF BEARINGS:
THE MONUMENT LINE ON 24TH STREET TAKEN AS NORTH 78°04'52" WEST, PARCEL MAP 9872 (314M53) SHOWN AS NORTH 78°05'47" WEST.

TWO DAYS BEFORE YOU DIG
CALL USA TOLL FREE
811
CALL BEFORE YOU DIG

20 0' 10 20 40 80
(IN FEET)
1 INCH = 20 ft.

F:\17001\CAD\ALTA\C5-TOPO-17001-BROADWAY.dwg

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

TOPOGRAPHIC SURVEY

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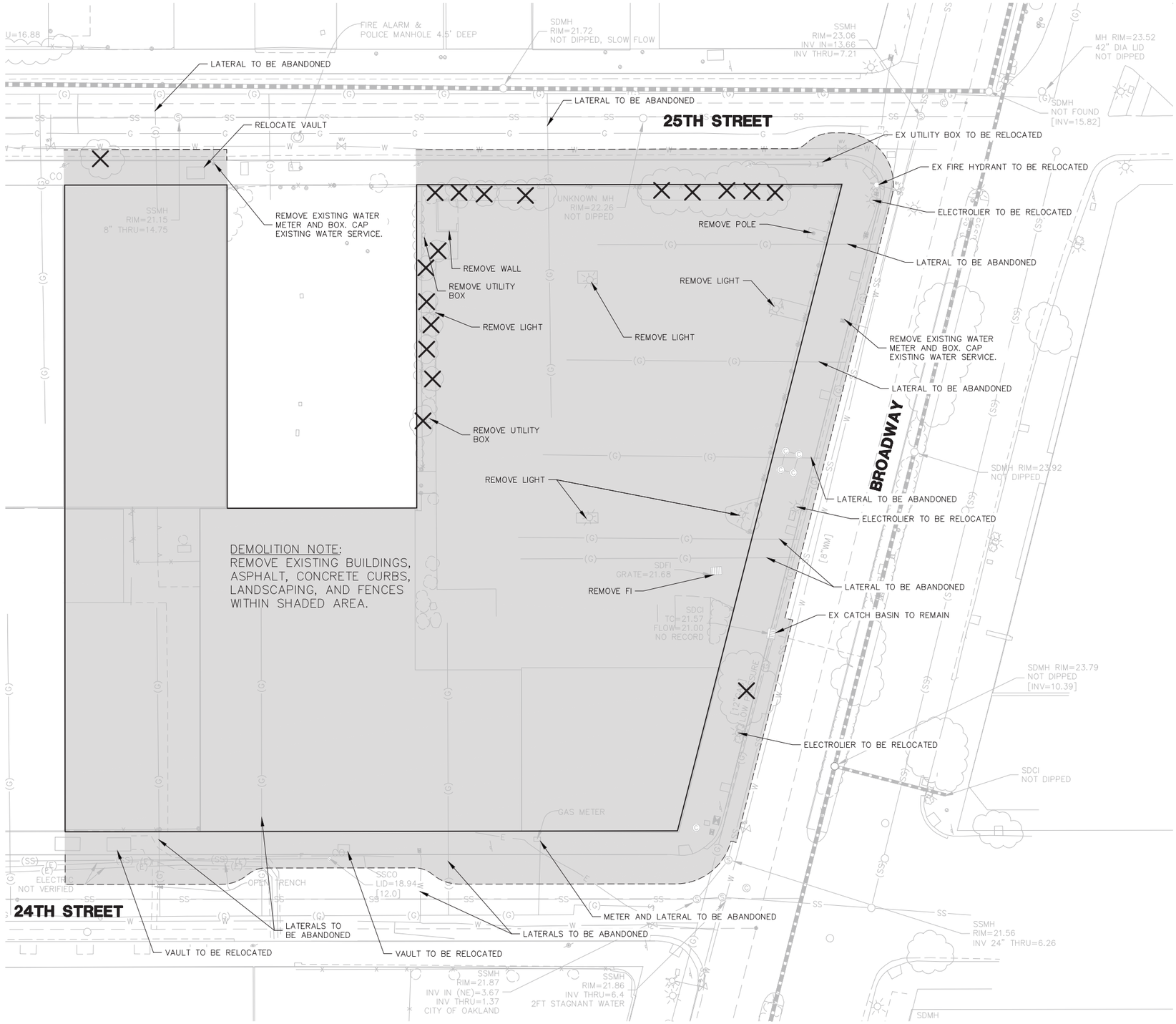

LEGEND

- LIMIT OF DEMOLITION
- SAWCUT LINE
- REMOVE TREE

DEMOLITION NOTES

1. ALL UNDERGROUND UTILITIES SHALL REMAIN AND BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
2. TURN OFF ALL UTILITIES SERVING THE EXISTING BUILDING PRIOR TO DEMOLITION OF THE BUILDING.
3. DUST CONTROL MEASURES SHALL BE IMPLEMENTED DURING DEMOLITION.
4. SEE JOINT TRENCH PLAN FOR DRY UTILITY RELOCATION AND DRY UTILITY BOXES TO BE REMOVED, MODIFIED, OR ADJUSTED TO GRADE.
5. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING USA AT 1-800-227-2600, OR 811.
6. TRAFFIC AND PEDESTRIAN CONTROL PLANS SHALL BE PREPARED PRIOR TO ANY SIDEWALK OR LANE CLOSURES.
7. PRIOR TO ANY DEMOLITION, EXISTING TREES TO REMAIN SHALL BE PROTECTED AS REQUIRED BY PROJECT ARBORIST.
8. ALL OTHER STRUCTURES SHALL REMAIN AND TO BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
9. ALL WORK INVOLVING CROSS WALK STRIPING, PAINTING OF CURB FACES, REMOVAL AND/OR PLACEMENT OF NEW STREET SIGNS, PARKING STALL STRIPING, AND REPLACING OF PARKING METERS NEED TO BE REVIEWED AND APPROVED BY PUBLIC WORKS TRANSPORTATION SERVICES DIVISION.

20 0' 10 20 40 80

(IN FEET)
1 INCH = 20 ft.

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BROADWAY HOTEL

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DEMOLITION PLAN

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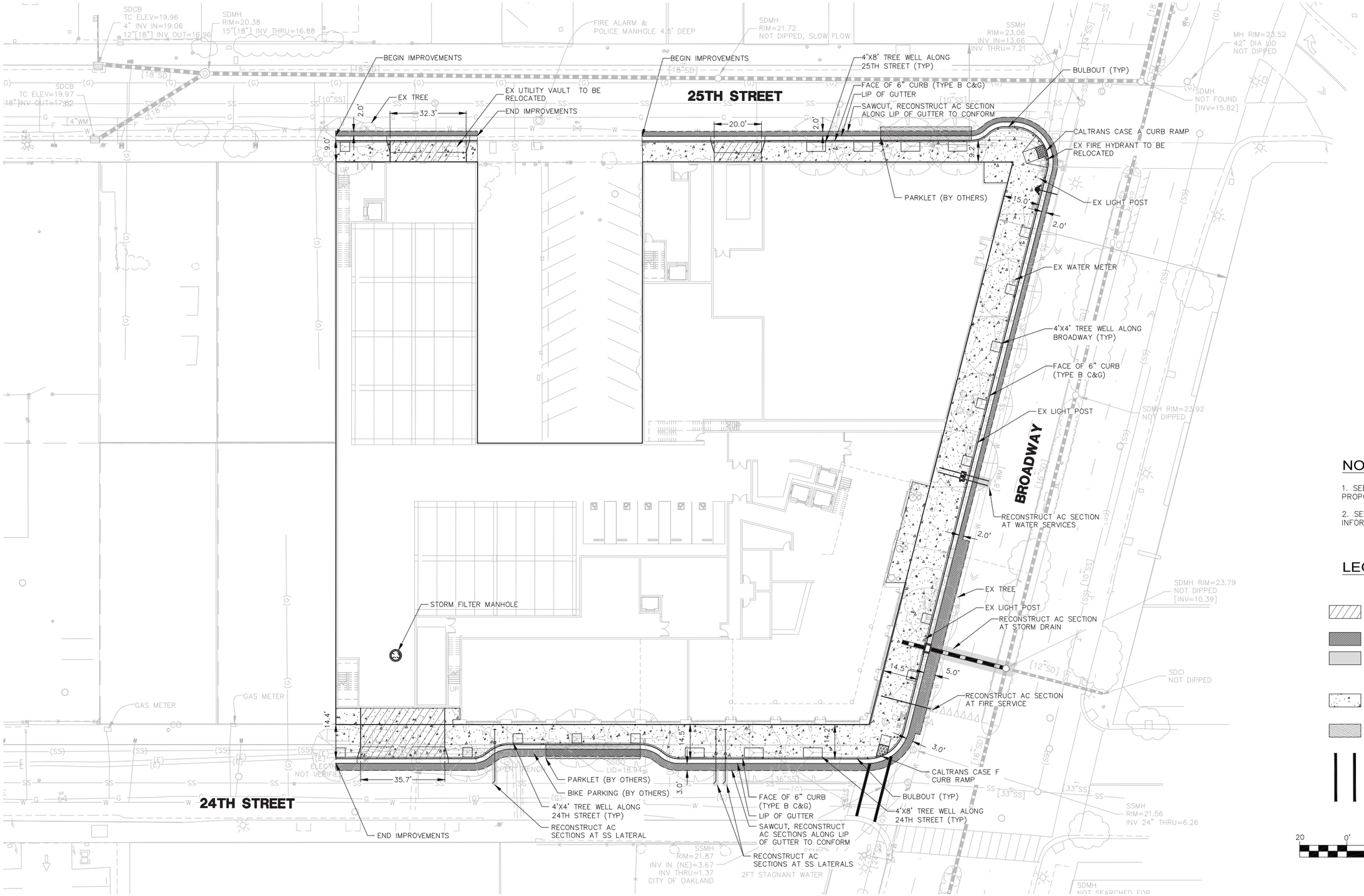

NOTES

1. SEE FINE GRADING PLAN FOR PROPOSED GRADES.
2. SEE UTILITY PLAN FOR UTILITY INFORMATION.

LEGEND

- CONCRETE DRIVEWAY (CITY OF OAKLAND STANDARD DRAWING S-2) 6" PCC OVER 4" AB
- 24" TO 60" MINIMUM AC PLUG
- RECONSTRUCT ASPHALT CONCRETE – MATCH EXISTING PAVEMENT SECTION
- SIDEWALK – PEDESTRIAN RATED (CITY OF OAKLAND STANDARD DRAWING S-1) SEE LANDSCAPE PLANS
- PARKLET (BY OTHERS)
- CROSSWALK

20 0' 10 20 40 80

(IN FEET)
1 INCH = 20 ft.

\\5fs\jobs-files\Projects\NEW\17001 Broadway Hotel\CAD\Broadway\07-151020 DD Site.dwg

BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

SITE PLAN

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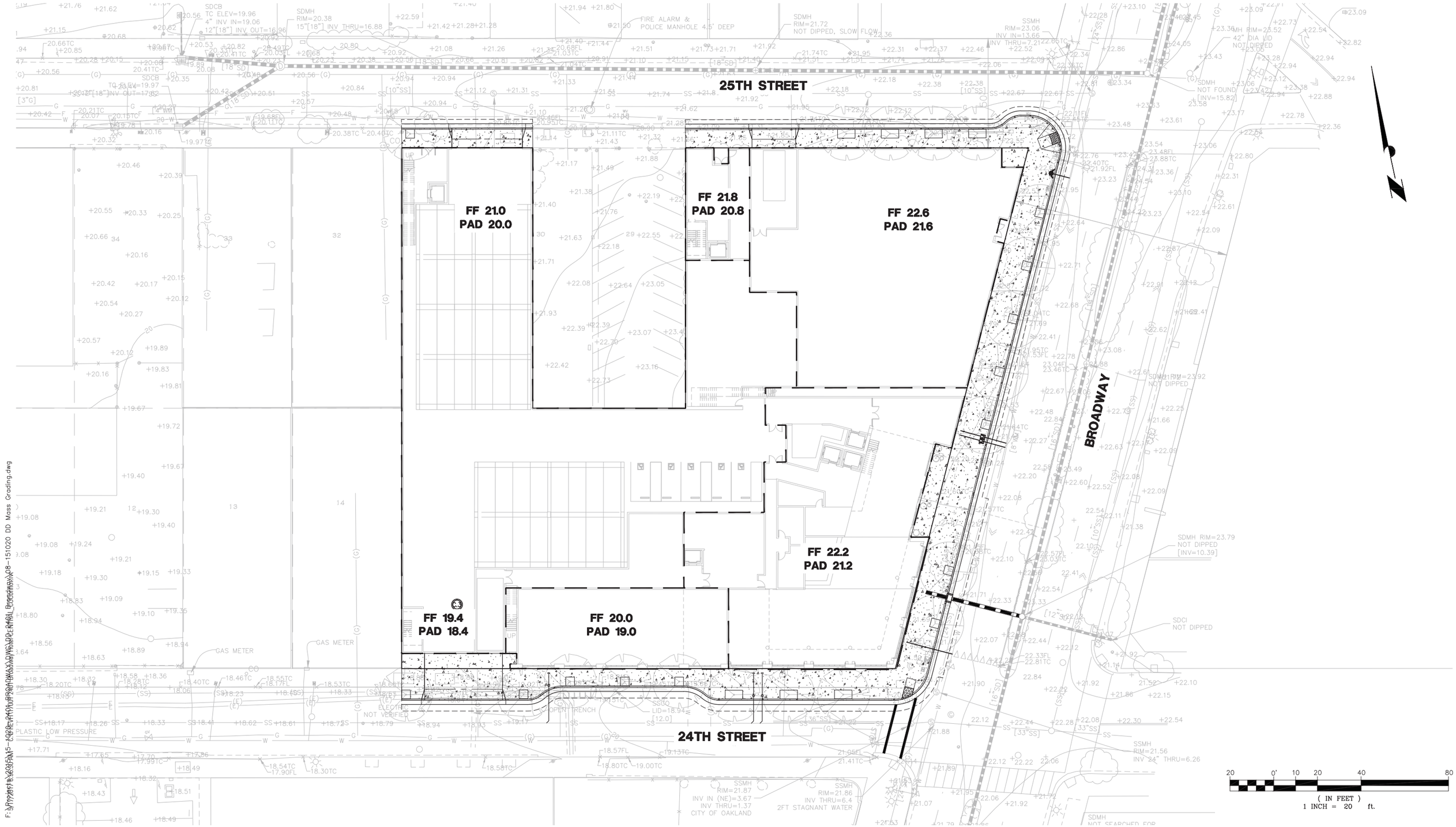

BROADWAY HOTEL

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MASS GRADING PLAN

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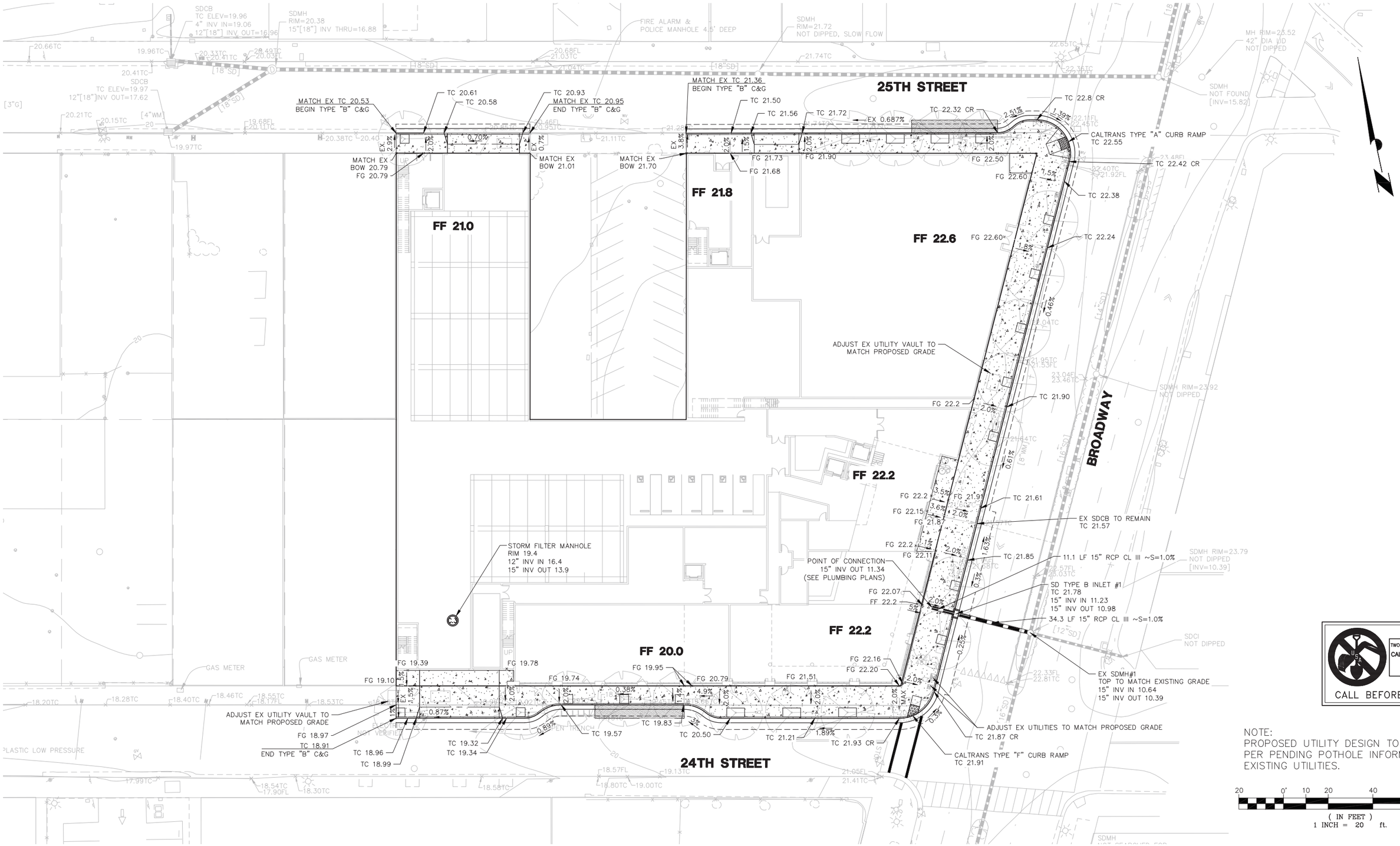

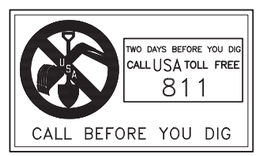

NOTE:
PROPOSED UTILITY DESIGN TO BE UPDATED PER PENDING POTHOLE INFORMATION ON EXISTING UTILITIES.

20 0' 10 20 40 80
(IN FEET)
1 INCH = 20 ft.

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BROADWAY HOTEL

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FINE GRADING PLAN

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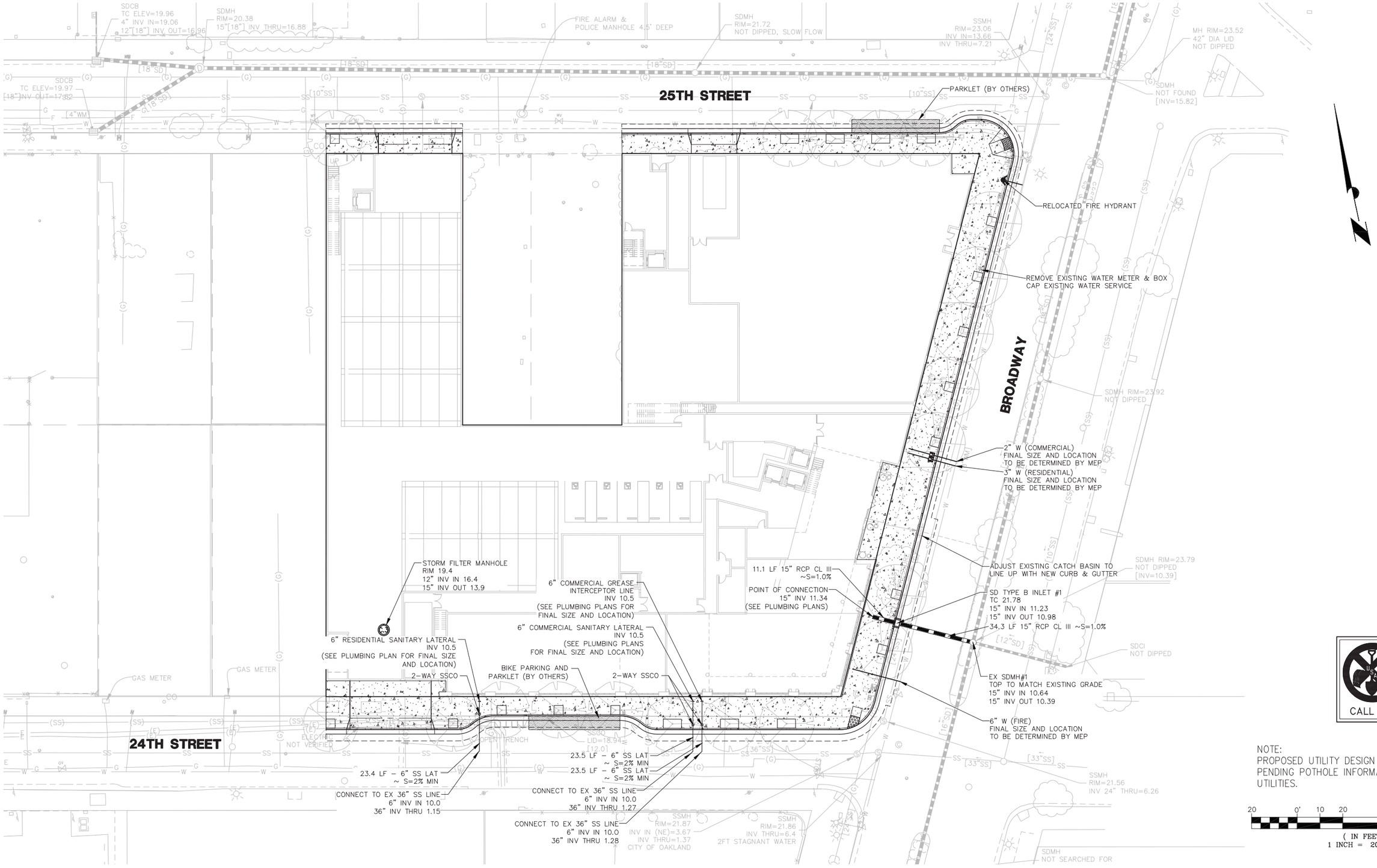

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CALL USA TOLL FREE
811
CALL BEFORE YOU DIG

NOTE:
PROPOSED UTILITY DESIGN TO BE UPDATED PER PENDING POTHOLE INFORMATION ON EXISTING UTILITIES.

20 0' 10 20 40 80
(IN FEET)
1 INCH = 20 ft.

F:\17001\CAD\15-C02RevH1\DP\DWG\DP\C10-151020 DD Utility.dwg

BROADWAY HOTEL

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UTILITY PLAN

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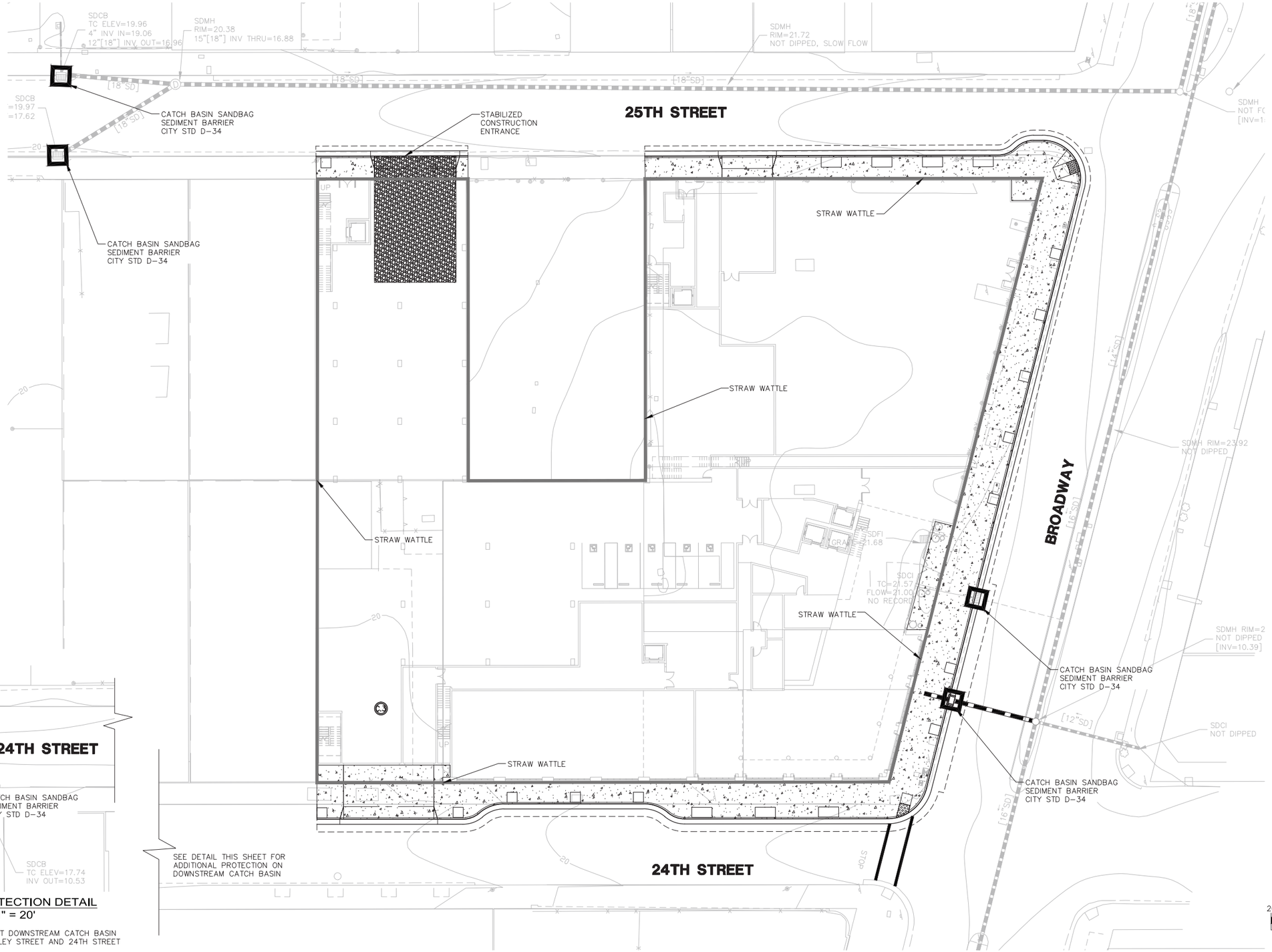

CATCH BASIN PROTECTION DETAIL
SCALE: 1" = 20'

NOTE: PROVIDE PROTECTION AT DOWNSTREAM CATCH BASIN AT THE INTERSECTION OF VALLEY STREET AND 24TH STREET

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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

EROSION CONTROL PLAN

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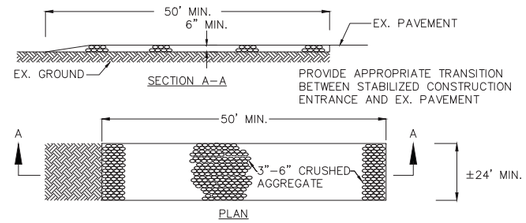
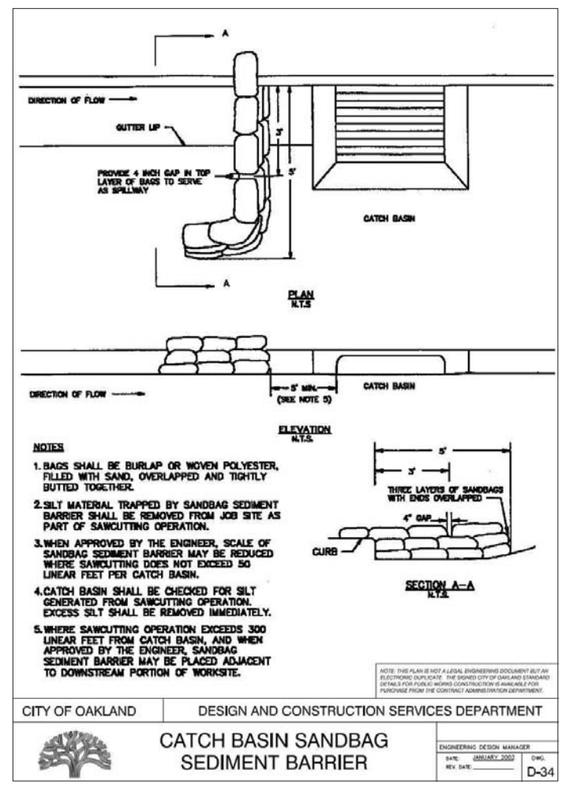


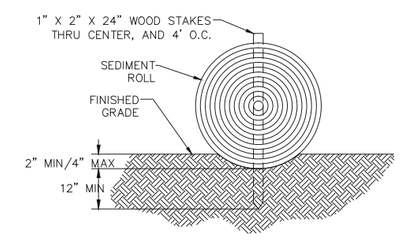
STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



EROSION CONTROL NOTES

1. TEMPORARY EROSION CONTROL DEVICES SHOWN ON GRADING PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED WHEN THE INSPECTOR SO DIRECTS AS THE WORK PROGRESSES.
2. EXCEPT AS OTHERWISE DIRECTED BY THE INSPECTOR, ALL DEVICES SHOWN ON THE EROSION CONTROL PLAN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY. ALL EROSION CONTROL FACILITIES MUST BE INSPECTED AND REPAIRED AT THE END OF EACH WORKING DAY DURING THE RAINY SEASON AND MAINTAINED DURING THE RAINY SEASON (OCTOBER 1 TO APRIL 15).
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PROVISIONS OF THE ASSOCIATION OF BAY AREA GOVERNMENTS (ABAG) "MANUAL OF STANDARDS FOR EROSION AND SEDIMENT CONTROL MEASURES" UNLESS OTHERWISE STATED WITHIN THESE GENERAL NOTES. CONTROL MEASURES ARE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DIVISION OF THE PUBLIC SERVICES DEPARTMENT. SCHEDULE AN ENGINEERING INSPECTION BY CALLING 925–943–5839 AT LEAST 48 HOURS PRIOR TO THE START OF ANY WORK.
4. ALL LOOSE SOIL AND DEBRIS SHALL BE REMOVED FROM THE STREET AREAS UPON STARTING OPERATIONS AND PERIODICALLY THEREAFTER AS DIRECTED BY THE INSPECTOR. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF TO ANY STORM DRAIN SYSTEM.
5. A CONCRETE WASHOUT IS REQUIRED FOR ALL CONCRETE WORK. THE WASHOUT SHALL CONSIST OF A CONTAINMENT AREA ENCLOSED BY AN EARTHEN DIKE. PLASTIC TARP, COVERING THE CONTAINMENT AREA AND EARTHEN DIKE, SHALL BE STAKED IN AT OUTSIDE EDGE OF EARTHEN DIKE.
6. ADDITIONAL CONTAINMENT METHODS MUST BE PROVIDED FOR ANY WASTE STORAGE AREA, STOCKPILE/MATERIAL STORAGE AREA AND/OR CONSTRUCTION TOILET AREA.
7. STAND–BY CREWS SHALL BE ALERTED BY THE PERMITTEE OR CONTRACTOR FOR EMERGENCY WORK DURING RAINSTORMS.
8. AFTER OCTOBER 1, ALL EROSION CONTROL MEASURES WILL BE INSPECTED DAILY AND AFTER EACH STORM. AFTER OCTOBER 1, BREACHES IN DIKES AND SWALES WILL BE REPAIRED AT THE CLOSE OF EACH DAY AND WHENEVER RAIN IS FORECAST.
9. AS A PART OF THE EROSION CONTROL MEASURES, UNDERGROUND STORM DRAIN FACILITIES AND CONCRETE SHALL BE INSTALLED COMPLETE AS SHOWN ON THE GRADING PLAN.
10. IF ANY GRADING OPERATIONS, OTHER THAN LOT FINISH GRADING, ARE TO BE PERFORMED DURING THE RAINY SEASON, OCTOBER 1 THROUGH APRIL 15, AN EROSION CONTROL PLAN MUST BE SUBMITTED BY SEPTEMBER 1 AND THE PLAN MUST BE APPROVED BY THE CITY OF OAKLAND PRIOR TO THE COMMENCEMENT OF ANY SUCH GRADING OPERATIONS.
11. SANDBAGS, STRAW WATTLES AND/OR STRAW BALES SHALL BE STOCKPILED ON SITE AND PLACED AT INTERVALS SHOWN ON EROSION CONTROL PLANS, WHEN THE RAIN FORECAST IS 40% OR GREATER, OR WHEN DIRECTED BY THE INSPECTOR.
12. SANDBAGS REFERRED TO IN THE PRECEDING ITEMS MUST BE FULL. APPROVED SANDBAG FILL MATERIALS ARE DECOMPOSED GRANITE AND/OR GRAVEL, OR OTHER MATERIALS APPROVED BY THE INSPECTOR.
13. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THESE PLANS IN THE FIELD, SUBJECT TO APPROVAL OF THE CITY ENGINEER.
14. EROSION CONTROL STRUCTURES SHALL BE ADJUSTED BY THE CONTRACTOR TO REFLECT ALL CHANGES IN DRAINAGE AS STREETS AND BUILDING PADS ARE BEING INSTALLED.



STRAW WATTLES DETAIL

NOT TO SCALE

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

EROSION CONTROL NOTES & DETAILS

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NOTES

1. ROOF LEADERS WILL DIRECT STORMWATER RUNOFF TO C.3 TREATMENT DEVICE
2. PROPOSED SOURCE CONTROL MEASURES:
   - DIRECT DISCHARGE FROM COVERED TRASH, FOOD WASTE, AND COMPACTOR ENCLOSURES TO THE SANITARY SEWER.
   - DISCHARGE FIRE SPRINKLER TEST WATER TO THE SANITARY SEWER.

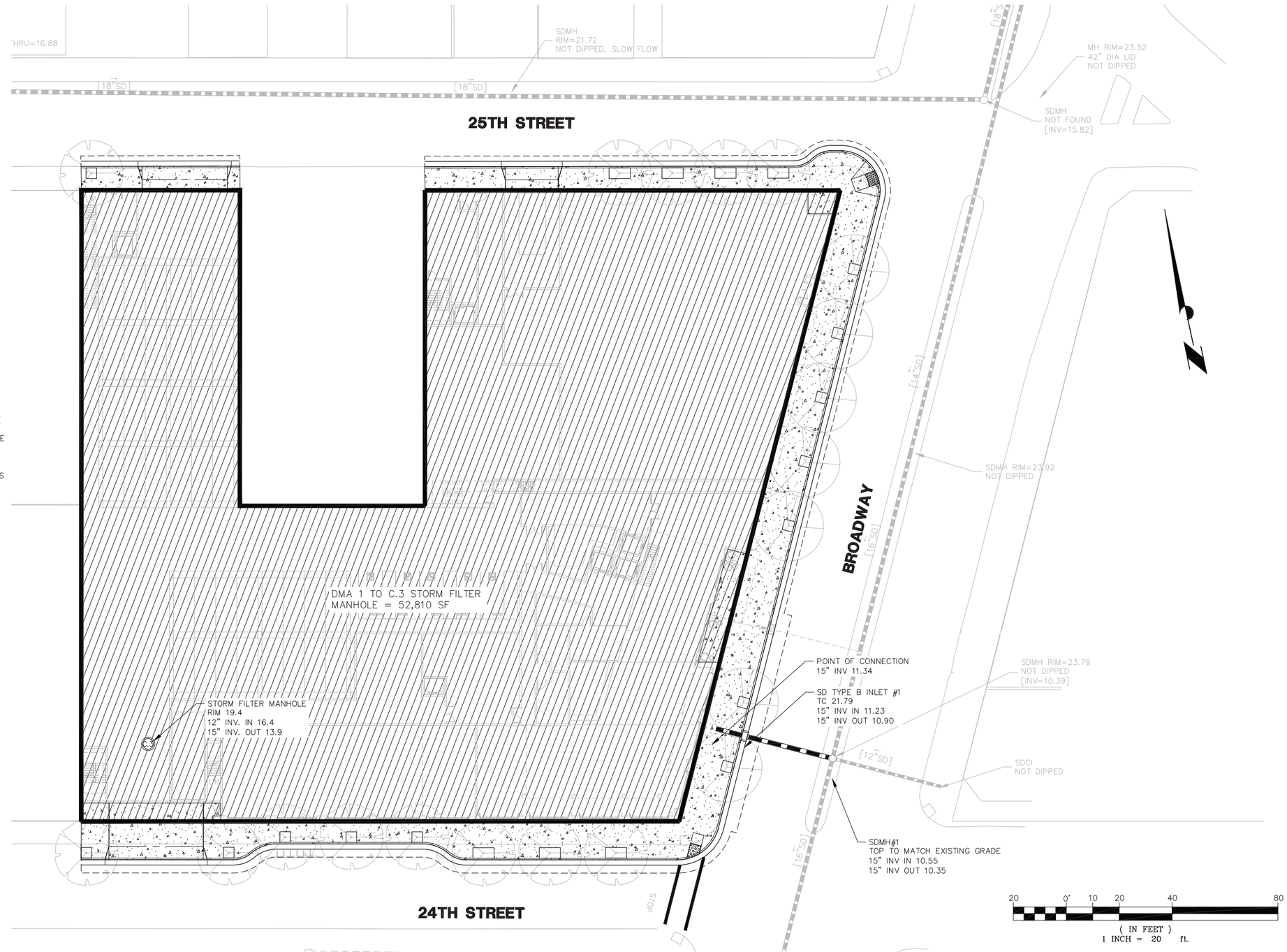
C.3 STORMWATER CONTROL EXHIBIT NOTES

1. CALCULATIONS ARE BASED ON THE ALAMEDA COUNTY CLEAN WATER PROGRAM'S "C.3 STORMWATER TECHNICAL GUIDANCE", VERSION 5.1, MAY 2, 2016 (GUIDEBOOK).
2. THE PROJECT TOTAL SITE AREA IS 1.21 ACRES AND THE TOTAL AREA OF LAND DISTURBED IS 1.50 ACRES.
3. THIS PROJECT PROPOSES TO CREATE 2,377 SQUARE FEET OF NEW IMPERVIOUS SURFACE AND WILL REPLACE 50,433 ACRES OF EXISTING IMPERVIOUS SURFACE AREA ON-SITE. THE TOTAL PRE-PROJECT IMPERVIOUS SURFACE AREA IS 1.16 ACRES ON-SITE. THE TOTAL POST-PROJECT IMPERVIOUS SURFACE AREA IS 1.21 ACRES ON-SITE.

   IN ADDITION, PROJECT PROPOSES TO REPLACE 11,951 SQUARE FEET OF EXISTING OFF-SITE IMPERVIOUS AREA, INCLUDING THE PUBLIC STREETS (SIDEWALK, DRIVEWAYS, AND ROAD). THE PRE-PROJECT OFF-SITE IMPERVIOUS AREA IS 12,383 SQUARE FEET, INCLUDING PUBLIC STREETS (ROAD AND SIDEWALK). THERE IS A REDUCTION OF OFF-SITE IMPERVIOUS AREA DUE TO THE ADDITIONS OF TREE GRATES ALONG 25TH STREET, BROADWAY, AND 24TH STREET.
4. PROVISION C.3 PROJECT REQUIREMENTS FOR CATEGORY B: LARGER INFILL PROJECTS UNDER APPENDIX J.3 INCLUDE:
   - 4.1. BE BUILT AS PART OF THE MUNICIPALITY'S STATED OBJECTIVE TO PRESERVE OR ENHANCE A PEDESTRAIN-ORENTED TYPE OF URBAN DESIGN.
   - 4.2. BE LOCATED IN A PERMITTEE'S DESIGNATED CENTRAL BUSINESS DISTRICT, DOWNTOWN CORE AREA OR DOWNTOWN CORE ZONING DISTRICT, NEIGHBORHOOD BUSINESS DISTRICT OR COMPARABLE PEDESTRIAN ORIENTED COMMERCIAL DISTRICT, OR HISTORIC PRESERVATION SITE AND/OR DISTRICT.
   - 4.3. CREATE AND/OR REPLACE GREATER THAN ONE-HALF ACRE, BUT NO MORE THAN 2 ACRES OF IMPERVIOUS SURFACE AREA.
   - 4.4. INCLUDE NO SURFACE PARKING, EXCEPT FOR INCIDENTAL SURFACE PARKING. INCIDENTAL SURFACE PARKING IS ALLOWED ONLY FOR EMERGENCY VEHICLE ACCESS, ADA ACCESSIBILITY, AND PASSENGER AND FREIGHT LOADING ZONES.
   - 4.5. HAVE AT LEAST 85% COVERAGE FOR THE ENTIRE PROJECT SITE BY PERMANENT STRUCTURES. THE REAMING 15% PORTION OF THE SITE IS TO BE USED FOR SAFETY ACCESS, PARKING STRUCTURE ENTRANCES, TRASH AND RECYCLING SERVICE, UTILITY ACCESS, PEDESTRIAN CONNECTIONS, PUBLIC USES, LANDSCAPING, AND STORMWATER TREATMENT.
5. DESIGN CRITERIA
   - 5.1. MEAN ANNUAL PRECIPITATION = 21 INCHES PER ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, FIGURE 9
   - 5.2. HYDRAULIC DESIGN CRITERIA: 0.2 INCHES PER HOUR RAINFALL INTENSITY
6. THIS PROJECT QUALIFIES AS A SPECIAL PROJECT UNDER CATEGORY B IN ACCORDANCE WITH THE ALAMEDA COUNTY CLEAN WATER PROGRAM'S "C.3 STORMWATER TECHNICAL GUIDANCE", VERSION 5.1. THE PERCENTAGE OF NON-LID TREATMENT IS 100%, RESULTING IN 1.21 ACRES OF STORMWATER RUNOFF TO BE TREATED BY HIGH FLOW-RATE MEDIA FILTERS.

LEGEND

EXISTING	PROPOSED	
		STORM DRAIN
	SD	STORM DRAIN MANHOLE
		CATCH BASIN
	C.3	STORM FILTER MANHOLE
		ROOF AREA DRAINING TO C.3 STORM FILTER MANHOLE



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BROADWAY HOTEL

2401 BROADWAY, OAKLAND, CA

C.3 EXHIBIT

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LANDSCAPE PROGRAM

LEGEND

1. PUBLIC STREETSCAPE
2. HOTEL BREAKOUT COURTYARD 1
3. HOTEL BREAKOUT COURTYARD 2
4. HOTEL VIEWING GARDEN 1
5. HOTEL VIEWING GARDEN 2
6. HOTEL VIEWING GARDEN 3
7. BAR & LOUNGE TERRACE
8. RESIDENTIAL AMENITY COURTYARD
9. RESIDENTIAL ROOF DECK AT CLUB ROOM

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BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

LANDSCAPE PROGRAM

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PUBLIC STREETSCAPE PLAN

STREET RETAIL DISPLAY
NEW PARKLET TO CREATE INDOOR / OUTDOOR EXPERIENCE

ACER RUBRUM 'BRANDYWINE' STREET TREES AND LOW PLANTING IN TREE WELL. SPACING TO MATCH CITY STANDARDS FOR 25TH STREET.

TRISTANIOPSIS LAURINA 'ELEGANT' STREET TREE IN 4X4 TREE WELL. SPACING TO MATCH CITY STANDARDS FOR BROADWAY CORRIDOR.

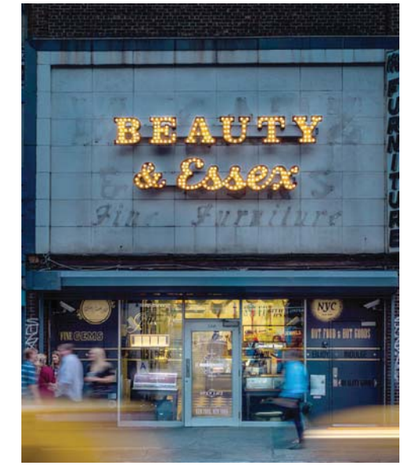
STREET RETAIL DISPLAY

GUEST DROP-OFF

ACER RUBRUM 'BRANDYWINE' STREET TREES AND LOW PLANTING IN TREE WELL. SPACING TO MATCH CITY STANDARDS FOR 24TH ST.

IN-STREET BICYCLE PARKING CORRAL

PARKLET TO CREATE INDOOR / OUTDOOR EXPERIENCE



Unique wayfinding

Street retail display

Parklet

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BROADWAY HOTEL
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PUBLIC STREETSCAPE PLAN

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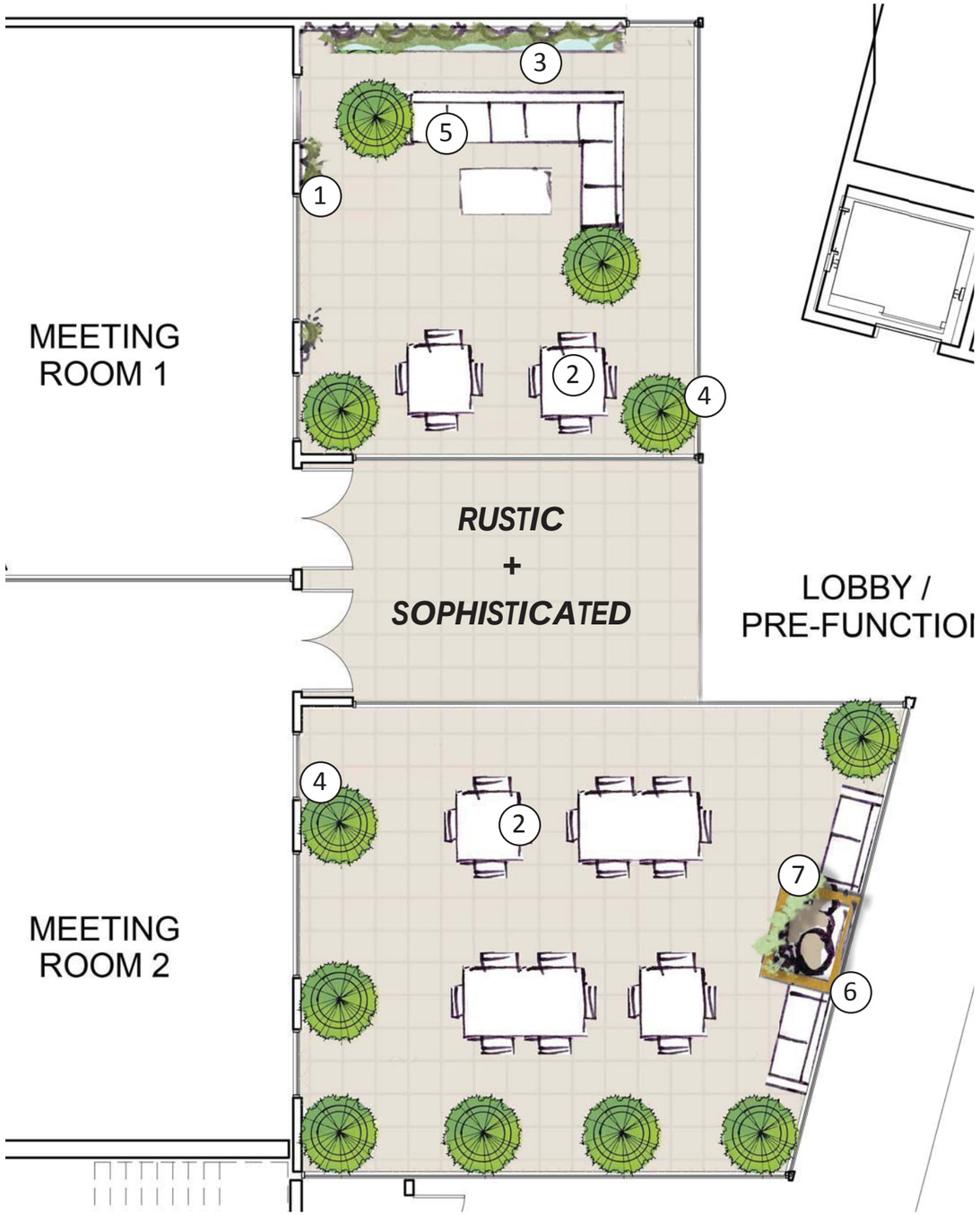
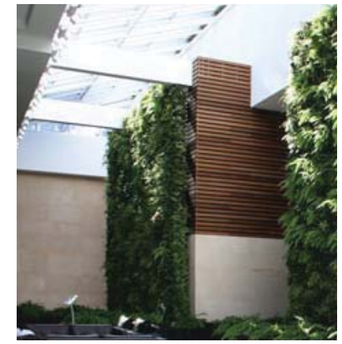
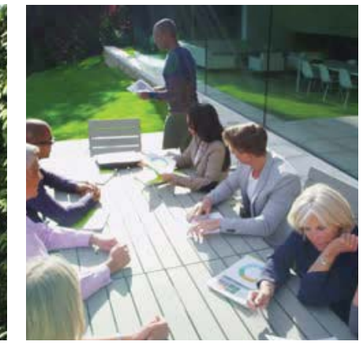
LEVEL 2 - HOTEL BREAKOUT COURTYARDS 1 & 2



1 Wall art



Atrium



2 Meeting tables

3 Wall water feature

4 Mobile planters

Lighting

5 Lounge seating

6 Reclaimed redwood mobile planter

7 Sculptural planting / Art

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BROADWAY HOTEL
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LEVEL 2 - HOTEL BREAKOUT COURTYARDS

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LEVEL 3 - HOTEL VIEWING GARDEN 1

Sculptural planting element

Landscape massing

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BROADWAY HOTEL
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LEVEL 3 - HOTEL VIEWING GARDEN

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LEVEL 3 - HOTEL VIEWING GARDENS 2 & 3

Emergent Landscape

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BROADWAY HOTEL
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LEVEL 3 - HOTEL VIEWING GARDENS

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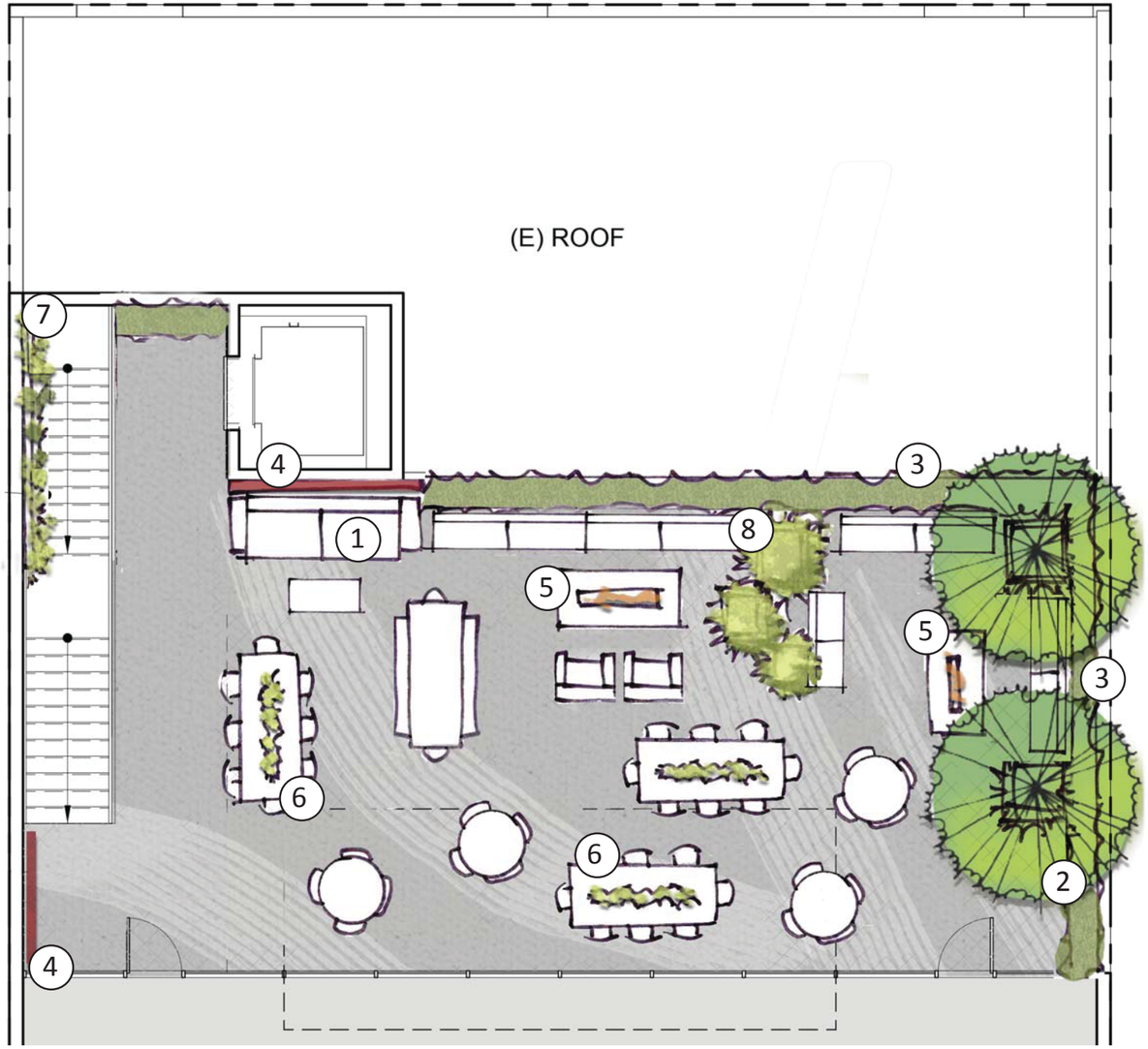
LEVEL 3 - BAR & LOUNGE TERRACE



1 Lounge furniture

Connection + community

2 Citrus trees + herbs

3 Reclaimed wood screening + planters

4 Local art

5 Firepits

6 Community tables

7 Greenwall

8 Cityscape planters

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BROADWAY HOTEL
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LEVEL 3 - BAR & LOUNGE TERRACE

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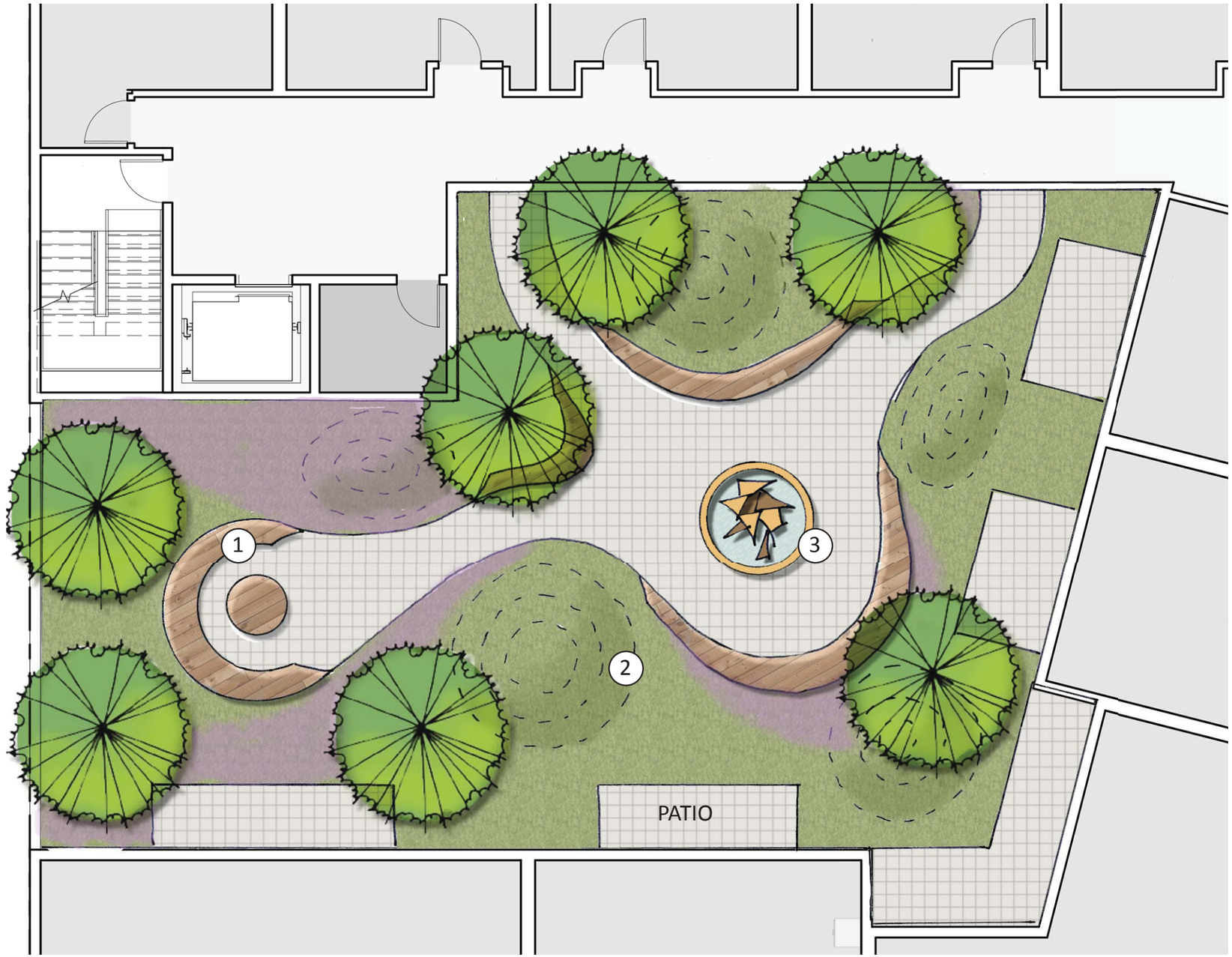
LEVEL 3 - RESIDENTIAL AMENITY COURTYARD



1 Curved seating

2 Landscape mounds

3 Art sculpture / Water feature

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LEVEL 3 - RESIDENTIAL AMENITY COURTYARD

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LEVEL 8 - RESIDENTIAL ROOF DECK AT CLUB ROOM

6 Lounge Seating

5 Bar Rail

1 Double sided fireplace

2 Outdoor kitchen

3 String lighting

4 Ornamental Vegetable + herb gardens

5/17/2017 8:56:30 AM C:\0 REVITS\17001 2401 Broadway Hotel-CENTRAL_COConnor.rvt

BROADWAY HOTEL
2401 BROADWAY, OAKLAND, CA

LEVEL 8 - RESIDENTIAL ROOF DECK

05.22.17	17001	BAR architects	JETT landscape Architecture + Design	L8

APPENDIX C

Greenhouse Gas Emissions Detail

Based on the findings of the Broadway Valdez District Specific Plan (BVDSP) Environmental Impact Report (EIR), the proposed 2401 Broadway (project) in the City of Oakland is required to determine if a Greenhouse Gas (GHG) Reduction Plan is required in accordance with the City of Oakland's current Standard Condition of Approvals (SCAs). The City's current SCA for a GHG Reduction Plan (SCA 38) applies to any project that meets **one or more** of the following three scenarios and has a net increase in GHG emissions:

Scenario A: Projects which:

(a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District [BAAQMD] to operate),

(b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND

(c) after a GHG analysis is prepared, would exceed both of the City's applicable thresholds of significance (1,100 metric tons of carbon dioxide equivalents [CO2e] annually and 4.6 metric tons of CO_2e per service population annually).

Scenario B: Projects which

(a) involve a land use development,

(b) Exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines,

(c) after a GHG analysis is prepared, would exceed at least one of the City's applicable thresholds of significance (1,100 metric tons of CO2e annually or 4.6 metric tons of CO_2e per service population annually), AND

(d) are considered to be "Very Large Projects."

Scenario C: Projects which

(a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND

(b) after a GHG analysis is prepared, would exceed the City's applicable threshold of significance (10,000 metric tons of CO_2e annually).

SCA 38 requires a project applicant to prepare a GHG Reduction Plan to increase energy efficiency and reduce GHG emissions to the greatest extent feasible below the BAAQMD's thresholds of significance. The GHG Reduction Plan would be required to include a detailed GHG emissions inventory and a comprehensive set of quantified GHG emissions reduction measures.

The BAAQMD's screening criteria are included in Table 3-1 of the *BAAQMD's 2010 CEQA Air Quality Guidelines*. The screening criteria indicate which projects, based on land use and size, would have impacts that would be considered less than significant without a quantitative analysis of project emissions. The City's numerical thresholds of significance for GHG emissions from proposed land use developments and stationary sources are also derived from the BAAQMD's 2010 CEQA Air Quality Guidelines.

Table C-1 compares the development proposed under the project to the criteria associated with each of the City of Oakland's three GHG emissions scenarios for SCA 38. For a project to be subject to SCA 38 (and be required to prepare a GHG Reduction Plan), the project must meet all the criteria of one or more of the scenarios. As indicated in Table C-1, the proposed project would trigger the GHG Reduction Plan requirement because all three criteria under Scenario A of SCA 38 are fully satisfied. Supporting analysis for the findings summarized in Table C-1 is provided below.

Comparison of Proposed Project with the City's Criteria for a "Very Large Project"

As outlined in Scenario B of SCA 38 (Table 1), the proposed project should be compared to the City's criteria for identifying a Very Large Project. The City defines a Very Large Project as any of the following:

i. Residential development of more than 500 dwelling units;

ii. Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

iii. Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

iv. Hotel/motel development of more than 500 rooms;

v. Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or

Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

TABLE C-1
COMPARISON OF PROPOSED PROJECT WITH SCERANIOS FOR SCA 38

Scenario	Criterion (a)	Criterion (b)	Criterion (c)	Criterion (d)	Applies to Project?
Scenario A	Involve land use development?	Exceeds BAAQMD's screening criteria?[a]	Exceeds both of the City's applicable thresholds?[b]	------	**Yes**
2401 Broadway	Yes (mixed use)	Yes (72 residential units, 159 room hotel, and 27,169 square feet retail)	Yes (see Table C-4)	------	
Scenario B	Involve land use development?	Exceeds BAAQMD's screening criteria?[a]	Exceeds one of the City's applicable thresholds?[b]	Very Large Project?	No
2401 Broadway	Yes (mixed use)	Yes (72 residential units, 159 room hotel, and 27,169 square feet retail)	Yes (see Table C-4)	No (see Table C-2)	
Scenario C	Involve a stationary source?	Exceeds the City's applicable thresholds?[c]	------	------	No
2401 Broadway	No (No backup generator)	No	------	------	

NOTES
[a] Based on Table 3-1 of the BAAQMD's 2010 *CEQA Air Quality Guidelines*, a mid-rise apartment building with 87 or less dwelling units OR a strip mall/regional shopping center with 19,000 or less square feet of area OR a hotel with 83 rooms or less would have GHG emission levels below the City's applicable thresholds.
[b] For land use developments, the City's threshold of significance are 1,100 metric tons of CO_2e annually and 4.6 metric tons of CO2e per service population annually.
[c] For stationary sources, the City's threshold of significance are 1,100 metric tons of CO_2e annually.

The project does not meet any of the Criteria A through E. The proposed 72 residential units are below the 500-dwelling-unit threshold. The retail component of the project would employ 54 persons (well below 1,000 persons) and at 27,169 square feet, would be less than 500,000 square feet of floor space. The project's hotel would include 159 rooms (less than 500 rooms required to qualify as a very large project). The proposed project does not include any commercial or industrial/manufacturing uses.

Criterion F is assessed in **Table C-2**, which shows the combined residential, retail and hotel uses, and evaluates each component of the project as a percentage of the criteria for Very Large Projects. If the sum of these percentages adds up to 100 or more, then the project would constitute a Very Large Project. As shown in Table C-2, the combined project components would not result in equivalent GHG emissions that represent a Very Large Project. Therefore, the proposed project would be not be considered a Very Large Project.

TABLE C-2
COMPARISON OF PROPOSED PROJECT WITH CRITERION F FOR A VERY LARGE PROJECT

Land Use	Unit Metric	Proposed Project	Very Large Project	Project Component's Percentage of a Very Large Project
Residential	Dwelling Units	72	500	14.4%
Retail	Square feet	27,169	500,000	5.4%
Hotel	Rooms	159	500	31.8%
Total of all Project Components				51.6%

Quantification of Project GHG Emissions

As outlined in Scenarios A, B, and C of SCA 38 (Table C-1), the project's GHG emissions from land use development and stationary sources (a backup generator) should be estimated and compared to the City's thresholds of significance to determine if a GHG Reduction Plan is required. The BAAQMD recommends using the most current version of the California Emissions Estimator Model (CalEEMod) to estimate construction and operational emissions of GHGs for a proposed project. CalEEMod utilizes widely accepted models for emission estimates combined with appropriate default data for a variety of land-use projects that can be used if site-specific information is not available. The primary input data used to estimate emissions associated with each of the project's land-use types are summarized in **Table C-3**. A copy of the CalEEMod output report for the project, which summarizes the input parameters, assumptions, and findings, is included in *Appendix A – Health Risk Assessment*.

TABLE C-3
SUMMARY OF LAND USE INPUT PARAMETERS FOR CALEEMOD

Project Land Use Type	CalEEMod Land Use Type	2401 Broadway Project Uses
Apartments	Apartments Mid Rise	72 units
Retail	Regional Shopping Center	27,169 square feet
Hotel	Hotel	159 rooms
Parking and Other Uses	Enclosed Parking with Elevator	18,500 square feet

Emissions of GHGs during project construction and operation were estimated using the CalEEMod input parameters summarized in Table C-3 and the following information:

- Debris from demolition of approximately 15,500 square feet of existing building space and 4,000 cubic yards of soil export was assumed to calculate emissions from off-site hauling trips.
- Based on the design of the East Bay Municipal Utility District's wastewater treatment plant, emissions estimated from wastewater treatment assumed a process with 100 percent aerobic biodegradation and 100 percent anaerobic digestion with cogeneration.
- Based on the project design, no woodstoves and only gas fireplaces (CalEEMod default number) were included in the project operations.
- Sequestration from landscaping was assumed to be negligible and, therefore, was not included in the analysis.
- PG&E's predicted carbon dioxide emission factor for year 2020 of 290 pounds of CO2 per megawatt hour.[1]

The 2016 California Building Energy Efficiency Standards (Title 24, Part 6) that became effective on January 1, 2017 use 28 percent less energy for lighting, heating, cooling, ventilation, and water heating for residential uses and five percent less energy for non-residential uses than the default

[1] Pacific Gas & Electric Company, Greenhouse Gas Emission Factors: Guidance for PG&E Customers, November 2015, Available online at: https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

2013 Standards used in CalEEMod.2016.3.1.[2] This energy use reduction was included in the analysis to estimate GHG emissions for the Project. The City of Oakland has also adopted a Green Building Ordinance for private development projects. In accordance with the Green Building Ordinance, the proposed project must implement mandatory measures from the statewide CALGreen Code and complete a Green Building Compliance Checklist (e.g., LEED or GreenPoint Rater).[3] Compliance with the mandatory measures described under the current CALGreen Code would reduce indoor water use by approximately 20 percent.[4] These GHG reductions were included in the analysis for the proposed project.

In accordance with the City of Oakland's CEQA guidance for evaluating the GHG thresholds of significance, the construction CO_2e emissions were annualized over a project life period of 40 years and then added to the estimated CO_2e emissions during operation. The average annual CO_2e emissions per service population were determined based on a service population of 288 persons.

According to the CEQA streamlining provisions described under Senate Bill (SB) 375, certain "mixed-use residential projects" that are consistent with the general use designation, density, building intensity, and applicable policies specified in a Sustainable Communities Strategy (SCS) do not need to analyze climate change impacts resulting from cars and light-duty trucks. As defined in Public Resources Code (PRC) Section 21159.28(d), a mixed-use residential project is a project where at least 75 percent of the total building square footage of the project consists of residential use or a "Transit Priority Project" as defined in PRC Section 21155(b). A Transit Priority Project must contain the following:

1) At least 50 percent residential use based on total building square footage and, if the project contains between 26 and 50 percent non-residential uses, a floor area ratio of not less than 0.75;
2) A minimum net density of at least 20 dwelling units per acre; and
3) Be within 0.5 mile of a major transit stop or high-quality transit corridor[5] included in a regional transportation plan.

The proposed project would be up to 198,310 square feet in size (excluding parking and circulation) with approximately 77,500 square feet of residential uses, and therefore would contain residential uses in approximately 39 percent of the total development area, which would be less than the 50 percent required to qualify the project as a Transit Priority Project. However, since the project will include up to 77,500 square feet of residential and 120,810 square feet of nonresidential uses (retail and hotel) over a site area of 52,708 square feet, both the residential floor area ratio (1.5) and non-residential floor area ratio (2.3) would exceed 0.75. The project site is 1.21 acres in area, and the proposed project would construct 72 dwelling units; therefore, the net density would be approximately 60 dwelling units per acre. The proposed project is within 0.5 miles of the 19th Street Oakland Bay Area Rapid Transit (BART) station, which is a major transit

[2] California Energy Commission, *2016 Building Energy Efficiency Standards – Frequently Asked Questions*, available at http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf
[3] Rating system and checklist determined by City of Oakland Planning Department based on square footage of each use.
[4] CaGreen, *2013 CalGreen Residential Mandatory Measures*, effective January 1, 2014.
[5] A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

stop; in addition, Broadway just east of the project site qualifies as a "High Quality Transit Corridor" because fixed bus route services are provided through AC Transit with service intervals no longer than 15 minutes during peak commute hours.

As discussed above, though the proposed project satisfies requirements 2) and 3), as it does not include residential uses in at least 50 percent of the total development area, it would not qualify as a Transit Priority Project (and thereby a mixed-use residential project per PRC Section 21159.28[d]). Therefore, project mobile source emissions have been included in the project GHG inventory and calculation of emissions per service population.

The total average annual CO_2e emissions and the total average annual CO_2e emissions per service population for the proposed project are compared to the City's thresholds in **Table C-4** below. The proposed project would not include a backup generator and thus not include emissions from stationary sources.

TABLE C-4
PROPOSED PROJECT GHG EMISSIONS[a]

Project Component	CO_2e[b] (metric tons per year)
Area Sources	3.8
Energy Emissions	411.1
Mobile Sources [c]	1436.4
Solid Waste	74.8
Water and Wastewater [e]	13.6
Annualized Construction Emissions (Over 40 Years)	21.5
Less Existing Emissions	- 438
Net Increase without Generator	**1,523**
City of Oakland Screening Threshold	1,100
Exceeds Threshold?	**Yes**
Service Population (150 residents and 204 employees) [f]	288
Net Project Emissions (without Generator) per Service Population	**5.29**
City Emissions per Service Population Threshold	4.6
Exceeds Threshold?	**Yes**

NOTES:
[a] Project operational emissions estimates were made using CalEEMod version 2016.3.1.
[b] CO_2e – Carbon dioxide equivalents
[c] GHG emissions from mobile sources relied on inputs from the Transportation Analysis by Fehr & Peers.
[d] Emissions from stationary sources such as backup generators are assessed under a separate 10,000 metric ton per year threshold which is not exceeded.
[e] 20 percent reduction in indoor water use assumed in compliance with CalGreen code.
[f] The service population is the total number of residents and employees of a project.

The project would exceed both the thresholds of 1,100 metric tons of CO_2e per year and 4.6 metric tons of CO_2e per service population. As an impact under the City's significance thresholds occurs when **both** thresholds are exceeded, the total operational GHG emissions would be considered significant.

Conclusion

The analysis above indicates that the proposed project would be required to prepare a GHG Reduction Plan as it meets all the criteria described under Scenario A of SCA 38.

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APPENDIX D

Site Management Plan

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PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared for:

Signature Land Advisors, Inc.
2335 Broadway, Suite 200
Oakland, California 94612

SITE MITIGATION AND CONTINGENCY PLAN
2401 BROADWAY
OAKLAND, CALIFORNIA
GeoTracker Global ID T0600102225

JANUARY 11, 2016

By:

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS iv

1.0 INTRODUCTION 1

2.0 BACKGROUND INFORMATION 1
- 2.1 Site and Vicinity Characteristics 1
- 2.2 Historical Use 2
- 2.3 Geology and Hydrogeology 2
- 2.4 Previous Environmental Investigations 3
- 2.5 Summary of Environmental Site Conditions 4
  - 2.5.1 Site-Wide General Subsurface Conditions 4
  - 2.5.2 Localized Subsurface Conditions 4
- 2.6 Proposed Site Development and Excavation Considerations 5

3.0 SITE MITIGATION PLAN 6
- 3.1 Responsibilities for SMP Implementation 6
- 3.2 Activities Covered by the SMP 7
- 3.3 Worker Health and Safety Training 7
- 3.4 Soil Management 7
  - 3.4.1 Planned Earthwork Activities 7
  - 3.4.2 Removal of Petroleum Hydrocarbon-Affected Soil and Assessment of Suspect VOC-Affected Soil 8
    - 3.4.2.1 Excavation and Materials Management 8
    - 3.4.2.2 Soil Verification Sampling and Analysis 9
  - 3.4.3 Soil Management Procedures 9
    - 3.4.3.1 Mass Grading 9
    - 3.4.3.2 Subgrade Utility Installation at Project Perimeter 10
  - 3.4.4 Contingency Procedures for Suspect Soil 10
  - 3.4.5 Soil Stockpiling and Sampling Procedures 11
  - 3.4.6 Decontamination Procedures 12
  - 3.4.7 Dust Control Procedures 12
- 3.5 Soil Disposal and Transportation Plan 13
- 3.6 Soil Importation 13
- 3.7 Groundwater Management 14
- 3.8 Historical Subsurface Features 14

4.0 REPORTING 14

5.0 REFERENCES 15

TABLE OF CONTENTS
(Continued)

ILLUSTRATIONS

APPENDICES (PROVIDED ON CD-ROM)

A – SUMMARY OF PREVIOUS ENVIRONMENTAL INVESTIGATIONS

DISTRIBUTION

LIST OF ILLUSTRATIONS

Plate 1 Site Location

Plate 2 Site Plan Showing Locations of Known or Suspected Contaminated Soil

1.0 INTRODUCTION

This Site Mitigation and Contingency Plan (SMP) has been prepared by PES Environmental, Inc. (PES) on behalf of Signature Land Advisors, Inc. (Signature) for redevelopment construction at the property located at 2401 Broadway in Oakland, California (the site or subject property; Plate 1). The site consists of approximately 0.868-acre of land on two parcels identified by Alameda County Assessor's Parcel Numbers (APNs) 8-674-4 and 8-674-3-1. PES was retained by Signature to develop procedures for soil and groundwater management, environmental health and safety, and contingency planning during redevelopment construction at the subject property.

The site is currently listed as an open Leaking Underground Storage Tank (LUST) case with the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) as the lead environmental regulatory agency. The case is identified on the State Water Resources Control Board (SWRCB) Geotracker website as Chrysler Dealership, 2417 Broadway, and the website lists benzene, gasoline, and waste, motor, hydraulic, and/or lubricating oil as the potential contaminants of concern. PES is assisting Signature in working with the RWQCB to obtain LUST case closure as part of the site redevelopment process.

This SMP was prepared to provide environmental consultants, construction contractors and workers, RWQCB, and Signature's other representatives with: (1) information regarding known environmental conditions at the site (including known and/or suspected soil and groundwater contamination at and beneath the site); (2) protocols for managing soil during site redevelopment activities; and (3) protocols for implementing contingencies to manage contaminated soil or other environmental conditions in the event they are identified during site redevelopment construction[1].

This SMP was prepared in accordance with PES' proposal dated September 2, 2015 (Reference No. 935.044.01.P05).

2.0 BACKGROUND INFORMATION

2.1 Site and Vicinity Characteristics

The subject property is comprised of two parcels located on approximately 0.868-acre of land within a mixed-use area of Oakland, California (Plate 1). Access to the site is from Broadway on the east side of the site, 25th Street on the north side of the site, and 24th Street on the south side of the site. The surrounding area is utilized for a mixed commercial/light industrial and residential purposes. As shown on Plate 2, the subject property is developed with a single commercial building on the southern portion of the site. The site is currently operated

[1] Based upon the proposed redevelopment, the activities described in this SMP, when implemented, will prepare the site for redevelopment without requiring building design and engineering controls for long-term environmental risk mitigation. Therefore such controls are not warranted and are not included in this SMP.

by Oakland Mitsubishi as a new/used auto dealership and associated auto maintenance and service shop.

2.2 Historical Use

Available historical records indicate that the site was developed for residential uses prior to 1889 and was steadily developed for residential and commercial purposes between 1889 and 1939. A windmill and associated 3,000-gallon water tank were present on the southern portion of the subject property prior to 1902 (however, no information was available regarding a potential water supply well associated with the windmill and tank). By 1939, several commercial/light industrial structures were present on the site. Between 1968 and 1970 the property was redeveloped into the current configuration: an "L"-shaped commercial/light industrial building located on the south side of the site and associated paved parking, driveways, and landscaped areas located on the northern portion of the site. No significant development appears to have occurred at the subject property since approximately 1970 (PES, 2015a).

A review of historical records indicate that the subject property has been utilized for various commercial/light industrial uses, including auto-related uses (i.e. auto service, repair, and sales), since 1925. Past business operations at the subject property have included Motor Parts Co. (circa 1925), Dahl Chevrolet Co. (circa 1933 through 1938), Western Laboratories (circa 1933 through 1938), Ser-vus Cleaners (circa 1938), Nash Motor Garage (circa 1945 through 1955), Pac Leather Finishing (circa 1950), and Saturn of Oakland Sales (circa 2006 through 2008; PES, 2015a). The subject property is currently occupied by a new/used car dealership and associated car maintenance and service shop operated by Oakland Mitsubishi.

2.3 Geology and Hydrogeology

Regional surficial geology is characterized as Holocene- to Pleistocene-age alluvial fan and fluvial deposits comprised primarily of unconsolidated sandy or silty clay generally grading downward to gravelly sand or sandy gravel; fine-grained, natural levee deposits consisting of sandy or clayey silt and sandy or silty clay; well-sorted fine-grained sand deposits of the Merritt sand formation; and areas of artificial fill (Graymer, 2000).

The site is underlain by interbedded deposits of unconsolidated fine- to coarse-grained soil to the maximum explored depth of 24 feet below ground surface (bgs). In general, shallow soil encountered at the site consists of interbedded silty and clayey sand, silt, sandy silt, clay, and silty clay from the ground surface to depths of approximately 21 feet bgs. An interval of saturated silty to clayey sand, apparently limited in lateral extent, was encountered between depths of approximately 13 and 14 feet bgs in borings advanced in the southwestern portions of the site (SB-3 through SB-6). Wet sandy gravel was encountered between depths of approximately 21 and 23 feet bgs, underlain by stiff clay to the maximum explored depth of 24 feet bgs. First encountered groundwater at the site was generally observed at depths ranging from 19 feet bgs to 22.5 feet bgs (PES, 2015b).

2.4 Previous Environmental Investigations

In July 1994, Epigene International (Epigene) removed two USTs (including one approximately 295-gallon waste oil UST and one approximately 575-gallon gasoline UST) from beneath the off-site sidewalk adjacent to the southern boundary of the site and two in-ground hydraulic lifts from beneath the southwestern portion of the site. The locations of the former USTs and former hydraulic lifts are shown on Plate 2. Soil samples collected from the waste oil UST (including from beneath the concrete vault) and gasoline UST excavations indicated releases had occurred from the two USTs. Soil samples collected from beneath each of the two former hydraulic lifts reported the presence of long-chain petroleum hydrocarbons in soil (Epigene, 1994). Pertinent information from the Epigene report is provided in Appendix A.

A draft Phase I Environmental Site Assessment (ESA) prepared by PES on June 11, 2015 identified the following Recognized Environmental Conditions (RECs) in connection with the site:

- A LUST case is currently open for the subject property for documented release of hydrocarbons from two former USTs and two former hydraulic lifts removed in 1994. The extent of contamination in soil and groundwater has not been defined; and

- Based on documented volatile organic compound (VOC) impacts to groundwater in the vicinity of the subject property and the groundwater flow direction, there is the potential for vapor intrusion concerns to the subject property.

In order to further characterize subsurface conditions at the site and identify recommended next steps pursuant to LUST case closure, PES conducted a subsurface investigation at the subject property in June and July 2015. In a document entitled *Subsurface Investigation Report and Request for Case Closure* dated August 3, 2015 and correspondence entitled *Supplemental Soil Analytical Data* dated September 1, 2015, PES concluded that, based on the investigation results, soil, soil vapor and groundwater conditions at the site meet the criteria for LUST case closure in accordance with the State Water Resources Control Board (SWRCB) Low-Threat Underground Storage Tank Case Closure Policy (the LTCP; SWRCB, 2012). PES also concluded that, based on the results of the subsurface investigation, there does not appear to be a significant risk to human health or the environment due to the historical release of petroleum hydrocarbons from the former off-site USTs and former on-site hydraulic lifts, documented VOC contamination from off-site source(s) in groundwater, or current and former vehicle repair and maintenance activities conducted at the site. However, based on the documented and/or suspected presence of soil and groundwater contamination at the site not associated with the LUST case, as discussed below, PES recommended a SMP for redevelopment construction be prepared for the site.

A summary of the current conceptual model of environmental site conditions is presented in Section 2.5. Additional discussion of previous environmental investigations conducted at the

site, as well as copies of pertinent information from previous environmental documents prepared for the site, are presented in Appendix A.

2.5 Summary of Environmental Site Conditions

2.5.1 Site-Wide General Subsurface Conditions

During the June 2015 investigation, metals including arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc were detected in soil samples collected across the site at concentrations below their respective residential Environmental Screening Level (ESL; RWQCB, 2013) values with the exception of arsenic, which was detected above the residential and commercial ESLs but within naturally-occurring background ranges for the San Francisco Bay area (PES, 2015b). Concentrations of metals in site soil are below levels which would indicate characteristics of a hazardous waste if removed from the site.

Analysis of grab groundwater samples collected in June and July 2015 identified chlorinated VOCs, including trichloroethene (TCE), cis-1,2-dichloroethene (DCE), trans-1,2-DCE, vinyl chloride, 1,1-dichloroethane (DCA), 1,2-DCA, 1,1-DCE, and 1,1,2-trichloroethane (TCA) in groundwater across the site. Select VOCs (specifically TCE, 1,1-DCA and 1,1-DCE) detected at the site are consistent with VOCs identified in groundwater at hydraulically upgradient and downgradient properties in the site vicinity (PES, 2015a). Furthermore, concentrations of chlorinated VOCs generally appear to decrease in the downgradient (southerly) direction across the site, suggesting an upgradient off-site source (PES, 2015b). Concentrations of chlorinated VOCs detected in site groundwater exceed the drinking water ESLs but are below the ESLs for potential vapor intrusion concerns. Drinking water in the City of Oakland is provided by the East Bay Municipal Utility District (EBMUD) and shallow groundwater is not used for water supply. Therefore, the presence of chlorinated VOCs in groundwater beneath the site does not present a significant threat to human health at the site.

The June and July 2015 investigation identified low concentrations of VOCs, including toluene, ethylbenzene and xylenes, in soil vapor beneath the site; all of the VOCs detected in soil vapor were below residential ESL values (i.e., the most conservative, health-protective ESLs).

2.5.2 Localized Subsurface Conditions

During the June and July 2015 investigation, total petroleum hydrocarbons quantified as gasoline (TPHg) and naphthalene were detected in shallow soil samples collected beneath the present-day parts and chemical storage room at the site (boring location SV-7; Plate 2). Concentrations of TPHg exceeded the residential and/or commercial ESL in soil samples collected from boring SV-7. Naphthalene was not detected at concentrations at or above the residential ESL (Appendix A). Sub-slab vapor, soil vapor, and soil data collected in the vicinity of the parts and chemical storage room indicate the TPHg impact to soil is limited in lateral extent and not associated with the former off-site USTs or former hydraulic lifts at the site (Appendix A). The vertical extent of TPHg-impacted soil has not been defined. Localized

petroleum hydrocarbon impact to shallow soil at the site will be mitigated through implementation of this SMP as described in Section 3.4.2.

TPHg, total petroleum hydrocarbons quantified as diesel (TPHd), and total petroleum hydrocarbons quantified as heavy oil (TPHho) were detected in soil the vicinity of the former in-ground hydraulic lifts, all below their respective residential ESL values. Petroleum hydrocarbons were not detected in off-site soil samples collected adjacent to the former gasoline and waste oil USTs; however, TPHg, TPHd, and low concentrations of polycyclic aromatic hydrocarbons (PAHs) were detected in groundwater adjacent to the former gasoline and waste oil USTs. Concentrations of TPHg and TPHd exceeded the drinking water ESL in the groundwater sample collected adjacent to the former waste oil UST (boring location SB-6). As noted above, drinking water in the City of Oakland is provided by EBMUD and shallow groundwater is not used for water supply.

In June 2015, tetrachloroethene (PCE) was identified in sub-slab vapor (sample locations SSV-1 and SSV-4; Plate 2) at concentrations above indoor air ESLs (after applying the default attenuation factor recommended by the California Environmental Protection Agency, Department of Toxic Substances Control [DTSC][2]) in limited areas beneath the site building. A supplemental investigation in July 2015 was conducted to further define the extent of PCE at the site and included soil vapor and soil sampling beneath the building. The results of the supplemental sampling and analysis indicate that soil and soil vapor beneath and surrounding the impacted sub-slab vapor samples do not appear to be impacted with PCE and the impact to sub-slab vapor appears to be localized or associated with off-site source(s). Although no source of the VOCs was confirmed by the supplemental sampling, these areas are identified in this SMP as areas with potential to encounter VOC-impacted soil (Plate 2).

2.6 Proposed Site Development and Excavation Considerations

The planned redevelopment consists of: (1) demolition and removal of the existing commercial building, pavement, and landscaping; (2) site grading; (3) construction of the foundation system for the new building including limited excavations for concrete mat foundations, elevator and/or car stacker pits, and underground utility installations; and (4) construction of a new multi-story commercial/residential building and associated parking and landscaped areas. The ground level of the planned development will consist of parking and retail space, with residential units above. Construction activities for the proposed development are expected to result in a currently undetermined volume of material that will be excavated and removed from the site during the early stages of construction.

[2] In order to estimate concentrations of VOCs in sub-slab vapor which would theoretically result in an indoor air concentration above the applicable indoor air ESL, the DTSC (2011) recommends applying a default attenuation factor of 0.05 to the sub-slab vapor analytical result.

3.0 SITE MITIGATION PLAN

The results of subsurface investigations conducted by PES at the subject property indicate localized petroleum hydrocarbon-affected soil is present beneath the parts and chemical storage area of the existing site building. As such, portions of the material anticipated to be excavated at the site is not suitable for unrestricted on- or off-site use. Due to the history of commercial/light industrial (in particular, auto-related) use of the site, the potential exists for encountering additional, previously unidentified soil and/or groundwater contamination at the site not associated with the LUST case. This SMP has been prepared to provide site management procedures to be implemented during construction.

Construction management procedures presented herein consist of: (1) worker health and safety procedures; (2) procedures for management of on-site soils during construction; and (3) protocols for off-site disposal of excess soil. Contingency procedures for assessing previously unidentified affected soils, if any, that may be encountered during site work are also included.

Hazardous substances in soil across the site will be removed as part of redevelopment construction and concentrations of VOCs in groundwater do not present a significant threat to human health at the site. Therefore, design features to mitigate future site occupant exposure to hazardous substances in soil and groundwater do not appear warranted.

3.1 Responsibilities for SMP Implementation

Signature or designated personnel shall oversee implementation of the SMP at the site. Signature and the General Contractor shall make all third-party subcontractors working at the site aware of the requirements of the SMP, and provide an electronic copy and hard-copy to all subcontractors that are performing activities covered by this SMP (see Section 3.2) and may encounter suspect subsurface conditions during execution of their work.

Prior to the initiation of construction activities that are covered under this SMP, Signature shall confirm the Owner's project representative and project environmental consultant (Consultant) listed below. Regular and 24-hour emergency contact information for these individuals shall be confirmed and updated as necessary. A project contact sheet shall be provided to the General Contractor and posted in an accessible and suitable location at the subject property.

Project Responsibility	Company Name	Contact Person	Phone Number Normal/24-hr
Owner Representative	Signature Development Group	Jamie Choy	(510) 251-9276
General Contractor	TBD_____	TBD_____	TBD_____
Earthwork Subcontractor	TBD_____	TBD_____	TBD_____
Utility Subcontractor	TBD_____	TBD_____	TBD_____
Environmental Consultant	PES Environmental, Inc.	Kyle Flory, P.G.	(415) 899-1600/ (415) 497-2729

3.2 Activities Covered by the SMP

The following activities, when performed on the subject property, constitute the work covered under this SMP:

- **Subsurface Construction or Repair** – any activity occurring beneath the existing grade level, including mass excavation for construction of the planned site building;
- **Utility Line Work** – any subterranean inspection, excavation, or repair of electrical, telephone, water, sanitary sewer or storm drains occurring within or outside of existing vaults;
- **Groundwater Extraction or Construction De-watering** – any activity involving collection and removal of shallow groundwater during or after construction; and
- **Other** – other subgrade activities not expressly listed above.

3.3 Worker Health and Safety Training

In addition to following the SMP, the general contractor, and each of its subcontractors, will work under the guidance of a site-specific health and safety plan (HASP) and injury and illness prevention plan (IIPP). The purpose of these documents is to provide general guidance regarding the work hazards that may be encountered during each phase of site construction activities, including potential chemicals of concern that may be encountered on-site. The HASP will be prepared in accordance with California Occupational Safety and Health Administration (CAL-OSHA) Construction Safety Orders within Title 8 CCR.

3.4 Soil Management

3.4.1 Planned Earthwork Activities

Planned earthwork activities for the redevelopment project will begin with demolition and removal of the existing site building, pavement materials, and landscaping (e.g., lawn, trees, shrubs). Thereafter, the site will be graded smooth and firm to allow for construction equipment access.

Excess soil (volume to be determined) generated during earthwork operations at the site will require removal from the site. Because space limitations and sequencing of soil excavation may preclude significant stockpiling on the site, excess soil may be direct-loaded at the time of excavation and transported off-site for disposal or off-site reuse, as appropriate based on pre-characterization data (refer to Section 3.4.3 below). In support of direct-loading and off-haul, the general contractor (or its earthwork subcontractor) will profile the soil in place in advance of excavation, using analytical data from the 2015 investigation by PES (supplemented by additional data collection if required by the acceptance facility), and obtain landfill or off-site

end user acceptance, as applicable, prior to the excavation activities. Further details regarding soil profiling are provided below.

3.4.2 Removal of Petroleum Hydrocarbon-Affected Soil and Assessment of Suspect VOC-Affected Soil

Documented petroleum hydrocarbon-affected soil has been identified at one location in the vicinity of the parts and chemical storage room at the site (Plate 2). Based on prior investigation results, the petroleum hydrocarbon-affected soil exhibits chemical characteristics which will likely result in classification as non-hazardous waste for off-site transportation and disposal. Following site demolition, the lateral and vertical limits of soil requiring removal from the site due to levels of petroleum hydrocarbons in excess of residential screening levels and management as non-hazardous waste will be established in accordance with the procedures described in Section 3.4.4 below, and using the location shown on Plate 2 (estimated as a 20 by 20-foot area centered on boring location SV-7) as the initial assessment area. The following presents the procedures for excavation of the petroleum hydrocarbon-affected soil and collection of verification soil samples.

The soil in the vicinity of sub-slab vapor samples SSV-1 and SSV-4 will be assessed by the environmental consultant during mass grading operations (Section 3.4.3.1). The potential areas of suspect VOC-affected soil are presented on Plate 2. The environmental consultant will observe soil conditions for the presence of evidence of contamination, such as discoloration and/or odors. If suspect soils are identified, excavation activities will be halted and the environmental consultant will be notified so that further assessment and mitigation, if necessary, will be conducted in accordance with procedures outlined in Section 3.4.4.

3.4.2.1 Excavation and Materials Management

Although the removal of the petroleum hydrocarbon-affected soil is not a soil aeration process, some volatilization may occur during excavation and soil management activities. Consequently, guidelines and notification requirements set by the Bay Area Air Quality Management Division (BAAQMD) in Regulation 8, Rule 40 of the BAAQMD Rules and Regulations for aeration of contaminated soil may apply to the soil removal. Therefore, notification will be provided by the General Contractor to BAAQMD as required.

Soil affected with concentrations of TPHg in excess of the residential ESL will be excavated from an area having plan dimensions of approximately 400 square feet (approximately 20 feet by 20 feet) to an estimated depth of 8 feet bgs. The approximate area of excavation is shown on Plate 2. Therefore, the volume of excavated soil is estimated to be approximately 120 cubic yards (in-place). The environmental consultant will provide a field engineer or geologist to observe the excavation activities.

The excavated soils will be visually inspected for signs of contamination (e.g., staining). The excavated soil will be placed on plastic sheeting and covered at the end of the work day.

During the period the excavation area is open, appropriate barricades and flagging may be placed around it for safety purposes.

3.4.2.2 Soil Verification Sampling and Analysis

To confirm that the target cleanup goals (residential ESLs) are achieved, verification soil samples from the excavation bottom and sidewalls will be collected for laboratory analysis after the limits of the excavation has been reached. The approximate planned locations of the verification soil samples are shown on Plate 2.

Following verification soil sample collection, the sample containers will be labeled for identification and immediately placed in a chilled, thermally insulated cooler containing "blue-ice" packs or bagged ice. The soil samples will be sent under chain-of-custody documentation to a California-certified laboratory for chemical analysis. The verification soil samples will be analyzed for TPHg using U.S. EPA Test Method 8015B and naphthalene using U.S. EPA Test Method 8260B.

If the verification sample results indicate the target cleanup goals have been attained, no further excavation will be conducted and the excavation will be backfilled with clean fill as described below and in accordance with the geotechnical engineer's specifications. If the verification sample analysis indicates the target cleanup goals have not been attained, further excavation and confirmation sampling will be conducted, to the extent practicable.

Based on prior investigation results, it is expected that the majority of soil to be removed from the site as part of the planned redevelopment activities may exhibit chemical characteristics suitable for unrestricted on- or off-site reuse. However, based on the volume of soil to be removed from the site, additional characterization may be required to comply with requirements of the receiving facility.

3.4.3 Soil Management Procedures

Soil management procedures detailed in the following sections will be implemented during mass grading, utility installation and construction of the new building foundation. Soil management and handling activities shall be conducted in accordance with applicable federal, state, and local regulations including that for construction dust control.

3.4.3.1 Mass Grading

During mass grading operations, soil will be removed from the site in preparation for construction of the ground-level parking and retail areas. The environmental consultant will be present during excavation to observe exposed and excavated soil for the presence of evidence of contamination, such as unusual discoloration and/or odors. If identified, further evaluation of the suspect soil will be conducted in accordance with contingency procedures outlined in Section 3.4.4.

3.4.3.2 Subgrade Utility Installation at Project Perimeter

Limited quantities of soil may be generated during subgrade utility and building foundation installation for the new development. During excavation as part of these activities, the general contractor (or the excavation subcontractor), will observe soil conditions for the presence of evidence of contamination, such as discoloration and/or odors. If suspect soils are identified, excavation activities will be halted and the environmental consultant will be notified so that further assessment and mitigation, if necessary, can be conducted in accordance with procedures outlined in Section 3.4.4.

3.4.4 Contingency Procedures for Suspect Soil

In the event that suspect soils, that have not been previously identified or evaluated, are identified through visual or olfactory observations during grading and excavation, work shall be halted in the area of suspected materials. The suspect area will be cordoned off using delineators and caution tape, or similar materials, and the soil management contingency procedures described below will be instituted. Contingency measures will be conducted by HAZWOPER-trained environmental professionals and/or workers following a HASP as discussed in Section 3.2.

Preliminary assessment of the previously unidentified suspect soil will include confirmation that access control measures installed by the general contractor/manager are adequate to provide necessary protection to on-site workers and the public during the evaluation phase. Confirmation will consist of visual assessment of the installed barriers as well as monitoring of the air outside the secured area.

Air sampling will be conducted around the perimeter of the secured area using a photoionization detector (PID) meter to measure VOCs in the breathing zone and a lower explosive limit (LEL)/oxygen (O_2) meter to measure concentrations of combustible gases and available oxygen. If the air sampling suggests that the control measures are improperly positioned to provide necessary protection to on-site workers, the barriers will be relocated as necessary.

The environmental consultant will conduct a preliminary assessment of the suspect soil to determine if there are conditions that present a significant risk to human health or the environment based on field observations and/or laboratory analysis. This assessment may include collecting representative samples using hand and/or mechanized equipment at an appropriate frequency determined by the environmental consultant. The soil samples would then be submitted to a California-certified analytical laboratory for testing in accordance with U.S. Environmental Protection Agency (EPA)-approved methods. The analytical program will be developed by the environmental consultant based on on-site historical chemical use, visual observations and field measurements. If the preliminary assessment suggests that the conditions are consistent with prior site observations described above and covered under this SMP, then the environmental consultant will terminate implementation of these procedures

and release the suspect areas to the general contractor for continuation of the grading and excavation process.

After the evaluation is complete, the environmental consultant will provide Signature and the general contractor with conclusions regarding potential risks posed by identified soils to human health and the environment as well as recommendations for proper management (including removal and disposal) of such soils.

3.4.5 Soil Stockpiling and Sampling Procedures

Space limitations and sequencing of soil excavation may preclude stockpiling of significant quantities of excess soil during mass grading activities. Therefore, excess soil will likely be direct-loaded at the time of excavation and transported off-site for disposal or off-site reuse.

In the event that stockpiling of soil for further characterization is deemed necessary and feasible prior to or during mass grading activities, the procedures described in this section will be followed. The stockpiles will be lined with polyethylene plastic sheeting (10 mil [0.010 inch] minimum thickness) beneath and above the soil to prevent stormwater runon/runoff and fugitive dust emissions. Stockpiled soil will be covered and secured at the end of each day.

The soil sampling procedures and analytical program for stockpiled soil are as follows:

- One discrete soil sample will be collected per 100 cubic yards of excavated soil unless otherwise required by the landfill disposal facility;
- Soil samples will be collected using a pre-cleaned hand trowel and transferred into laboratory-supplied glass containers or stainless steel tubes, as appropriate;
- Following soil sample collection, the containers will be labeled for identification and immediately placed in a chilled, thermally insulated cooler containing bagged ice or blue ice. The cooler containing the samples will then be delivered under chain-of-custody protocol to a state-certified laboratory; and
- The discrete samples collected from the soil stockpiles will be submitted for laboratory analysis for one or more compounds based on prior investigation data and/or site observations. Analyses may be conducted for VOCs, petroleum hydrocarbons, metals, and/or other compounds as required by the landfill or receiving facility for waste characterization purposes. If necessary, extraction procedures and further metals analyses will be conducted on the samples to determine if the soils are hazardous based on leaching characteristics.

3.4.6 Decontamination Procedures

Equipment used for soil excavation and loading (including heavy equipment and truck tires) will be cleaned using dry methods (stiff-bristled brushes/brooms or wire brushes) before leaving the site. In the event, dry methods are not feasible, equipment requiring decontamination will be cleaned using high-pressure hot water washes. Decontamination fluids will be containerized and stored on-site in appropriate containers (e.g., 55-gallon drums) pending characterization and appropriate disposal. During soil excavation and loading, the work areas will be kept reasonably clean and free of excessive soil or debris. Care will be exercised to minimize the potential for tracking soil out of the work area.

3.4.7 Dust Control Procedures

Depending upon the soil conditions, during excavation there is a potential to generate a nuisance dust condition and odors. As noted in the City of Oakland General Administrative Code 15.04.035, dust control measures shall be based on "Best Management Practices" and shall be used throughout all phases of construction. Examples of dust mitigation activities include:

- Watering active construction areas to control dust emissions;
- Trucks hauling soil, sand, and other loose materials should be covered, or required to maintain at least 2 feet of freeboard;
- Apply water to unpaved and staging areas, or apply non-toxic soil stabilizers as necessary to control dust; and
- If visible soil material is carried onto adjacent public streets, streets should be swept daily (with water sweepers).

To complement air monitoring efforts that may be conducted under an applicable HASP, dust monitoring may be implemented by others to evaluate the effectiveness of dust control measures.

To the extent feasible, the presence of airborne contaminants will be evaluated during the excavation and management of the petroleum hydrocarbon-impacted soil identified at the site (vicinity of boring SV-7) through the use of portable monitoring equipment. Information gathered will be used to ensure the adequacy of the levels of protection being employed at the site during excavation of this soil, and may be used as the basis for upgrading or downgrading levels of personal protection, at the discretion of the Site Safety Officer and as described in the site-specific HASP.

The following air sampling equipment will/may be utilized for dust and odor monitoring:

- Photo-Ionization Detector (PID); and

- Dust monitor (MiniRAM, Dataram, or similar).

The PID will serve as the primary instrument for personal exposure monitoring during excavation of soil identified to contain petroleum hydrocarbons or soil suspected to be contaminated. The instrument will utilized to fully characterize potential employee exposure and the need for equipment upgrades/downgrades.

3.5 Soil Disposal and Transportation Plan

Following acceptance of the excavated soil at an appropriately-licensed disposal or receiving facility, the soil will be loaded in licensed haul trucks (end-dumps or transfers) and transported off the site following appropriate California and Federal waste manifesting procedures. The appropriate waste manifest documentation will be provided to truck drivers hauling the affected soil off-site. As each truck is filled, an inspection will be made to verify that the waste soil is securely covered, to the extent practicable, and that the tires of the haul trucks are reasonably free of accumulated soil prior to leaving the site. A street sweeper will be made available, as needed, to keep the loading area clean. The soil will be wetted, as necessary, to reduce the potential for dust generation during loading and transportation activities. Transportation routes have been developed to minimize transporting the affected soil through residential areas. The affected soil will be transported via surface streets to the closest suitable freeway, which is Interstate 980/State Highway 24. The proposed routes for transportation on Interstate 980/State Highway 24 are as follows:

- To Interstate 980 West: Head south on Broadway toward West Grand Avenue; turn right onto West Grand Avenue; after approximately ½-mile, turn left onto Brush Street; continue on Brush Street for approximately ¼-mile, then use the two left lanes to take the I-980 W ramp; merge onto I-980 W; and

- To Interstate 980 East/State Highway 24 East: Head south on Broadway toward West Grand Avenue; turn right onto West Grand Avenue; after approximately ¼-mile, turn right onto Northgate Avenue; after approximately ¼ mile, use the left lane to take the ramp onto I-980 E/CA-24 E.

The remainder of the freeway route(s) will be established upon selection of the appropriate landfill(s).

3.6 Soil Importation

While not anticipated, potential fill materials utilized at the site will be selected and tested in accordance with the DTSC *Information Advisory, Clean Imported Fill Material, October 2001* (DTSC Advisory). Specific laboratory analyses will be based on the fill source characteristics, once the borrow source area has been determined.

3.7 Groundwater Management

Based on the depth to groundwater observed during subsurface investigations described above (approximately 19 to 22.5 feet bgs, with possible shallow perched saturated zone between approximately 13 to 14 feet bgs beneath the southwestern portion of the site) and the anticipated depth of grading activities, redevelopment activities may require construction dewatering.

In the event construction dewatering is necessary, procedures and methodologies will be developed for de-watering by the general contractor or its designee prior to commencing excavation activities. It is anticipated that extracted groundwater, if any, will either be: (1) discharged to the sanitary sewer under a batch wastewater discharge permit obtained from EBMUD; (2) treated on-site through a portable treatment system, as appropriate, and then discharged to the sanitary sewer or storm drain under a National Pollutant Discharge Elimination System (NPDES) permit; or (3) hauled off-site for disposal or recycling. If the water is discharged to the sanitary sewer or storm drain then it may need to be filtered to remove inert suspended sediments. Groundwater will be characterized in accordance with applicable permitting requirements for discharge or disposal.

3.8 Historical Subsurface Features

Historical documents indicate a windmill and associated 3,000-gallon water tank were present on the southern portion of the site prior to 1902. No information was available regarding a potential water supply well associated with the windmill and tank. However, the potential exists to encounter abandoned water supply wells or other historical subsurface features (e.g. dry wells, sumps, or leach fields) during site grading and excavation activities.

In the event that previously unidentified subsurface features or potential environmental concern are encountered during grading and excavation, work shall be halted in the area of the identified feature. The suspect area will be cordoned off using delineators and caution tape, or similar materials, and the environmental consultant will be contacted to conduct a preliminary assessment of the feature(s) to determine if there are conditions that present a significant risk to human health or the environment based on field observations and/or laboratory analysis.

After the evaluation is complete, the environmental consultant will provide Signature and the general contractor with conclusions regarding potential risks posed by identified features to human health and the environment as well as recommendations for proper management (potentially including removal, destruction, and/or disposal) of the feature(s). Further management or removal of historical site features (e.g. destruction of improperly-abandoned wells) will be preceded by notifications to the appropriate regulatory agencies.

4.0 REPORTING

Following the completion of the SMP activities described herein, a SMP Implementation report will be prepared and submitted to RWQCB. The report will document the completed SMP

activities, including disposition of the material excavated for construction and, if applicable, sampling and analysis performed during implementation of this SMP.

5.0 REFERENCES

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ILLUSTRATIONS

PES Environmental, Inc.
Engineering & Environmental Services

Site Location
Site Mitigation and Contingency Plan
2401 Broadway
Oakland, California

PLATE
1

935.044.01.003	935-04401003_SMCP_1-2	DRAFT	10/15
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Explanation

- Approximate Property Boundary
- AST-WC Aboveground Storage Tank - Waste Coolant
- AST-WO Aboveground Storage Tank - Waste Oil
- Previous Soil and Grab Groundwater Sampling Location
- Previous Soil and Soil Vapor Sampling Location
- Previous Sub-slab Vapor Sampling Location
- Previous Supplemental Soil Vapor/Soil Sampling Location
- Sample Location exhibiting known petroleum hydrocarbon affected soil
- 20 by 20 foot area of potential petroleum hydrocarbon-affected soil
- 20 by 20 foot area of potential volatile organic compound-affected soil
- Planned Excavation Bottom Verification Soil Sample Location
- Planned Excavation Sidewall Verification Soil Sample Location

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SCALE IN FEET

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Aerial Photo: June 9, 2014 (Google 2015)

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan Showing Locations of Known or Suspected Contaminated Soil
Site Mitigation and Contingency Plan
2401 Broadway
Oakland, California

PLATE
2

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
935.044.01.003	935-04401003_SMCP_1-2	DRAFT	10/15

APPENDIX A

SUMMARY OF PREVIOUS ENVIRONMENTAL INVESTIGATIONS

APPENDIX A

SUMMARY OF PRIOR ENVIRONMENTAL INVESTIGATIONS

The following sections provide a summary of site characterization activities and other environmental actions conducted at the subject property and vicinity. Previous subsurface sample locations are included on Plate 2. Copies of pertinent information from previous environmental documents prepared for the site are included below.

A.1 1994 Underground Storage Tank and Hydraulic Lift Removal and Soil Sampling

According to Epigene (1994), two USTs (one approximately 295-gallon waste oil UST and one approximately 575-gallon gasoline UST) were removed from beneath the off-site sidewalk along the southern boundary of the subject property and two in-ground hydraulic lifts removed from the site in July 1994. The locations of the former USTs and former hydraulic lifts are shown on Plate 2. The waste oil UST was encased within a concrete vault, and Epigene noted that there were no obvious holes in the concrete at the time of removal, however, the soil surrounding the UST inside the vault was observed to be contaminated. The soil was removed from the vault and one soil sample was collected from approximately 6 inches below the concrete vault (at a depth of approximately 8 feet bgs). Soil beneath the gasoline UST was removed to a depth of approximately 11 to 12 feet bgs and one soil sample was collected from each of the four sidewalls of the excavation at depths ranging from 8.5 to 10 feet bgs.

The soil samples collected from the waste oil UST and gasoline UST excavations yielded maximum concentrations of total petroleum hydrocarbons quantified as diesel (TPHd), total petroleum hydrocarbons quantified as gasoline (TPHg), benzene, toluene, ethyl benzene, xylenes, and lead total threshold limit concentration (TTLC) of 1,500 milligrams per kilogram (mg/kg), 570 mg/kg, 7.4 mg/kg, 60 mg/kg, 32 mg/kg, 190 mg/kg and 12 mg/kg, respectively. Soil samples collected from beneath each of the two former hydraulic lifts reported total petroleum hydrocarbons quantified as hydraulic oil at concentrations of 450 mg/kg and 1,800 mg/kg (Epigene, 1994).

A May 1995 *Proposed Workplan for Subsurface Investigation of Potential Soil and Groundwater Contamination for Site Located at 2417 Broadway, Oakland* prepared by Epigene (1995) proposed the installation of three monitoring wells and the advancement of three soil borings on site to assess the extent of groundwater and soil contamination. Based on the review of available records, it appears the Epigene workplan was never implemented.

A.2 2012 Transfer of Regulatory Oversight

Based on the results of the sampling conducted at the time of the removal of the USTs and hydraulic lifts, a LUST case was opened by the Alameda County Environmental Health Department (ACEH). On March 22, 2012, ACEH transferred oversight of the LUST case to the RWQCB (ACEH, 2012). The SWRCB Geotracker website identifies the subject property as an open LUST cleanup site. The case is listed on the website as Chrysler Dealership

located at 2417 Broadway, and the website lists benzene, gasoline, and waste, motor, hydraulic, and/or lubricating oil as the potential contaminants of concern.

A.3 2015 Draft Phase I Environmental Site Assessment

A draft Phase I Environmental Site Assessment (ESA) was prepared by PES on June 11, 2015. As part of the draft Phase I ESA, regulatory records and historical documents were reviewed in connection with the open LUST case at the site. The findings are discussed in Sections A-1 and A-2 above.

According to the draft Phase I ESA, grab groundwater results from previous investigations at Milligan & Casentini Property (385 26th Street) and the Negherbon Properties (2301 Broadway), located 240 feet northwest and 50 feet south of site, respectively, identified VOCs in groundwater in the vicinity of the subject property. VOC impacts to groundwater identified at the Milligan and Casentini property have not been defined. VOC impacts at the Negherbon properties appear to be sourced at locations north of that property. Groundwater has been documented to flow to the south. Based on documented VOC impacts to groundwater in the vicinity of the subject property, and the groundwater flow direction, the draft Phase I ESA identified the potential for vapor intrusion concerns for the subject property.

The draft Phase I ESA identified the following Recognized Environmental Conditions (RECs) in connection with the site:

- A LUST case is currently open for the subject property for documented release of hydrocarbons from two former USTs and two former hydraulic lifts removed in 1994. The extent of contamination in soil and groundwater has not been defined; and

- Based on documented VOC impacts to groundwater in the vicinity of the subject property and the groundwater flow direction, there is the potential for vapor intrusion concerns to the subject property.

In addition, historical records reviewed for the draft Phase I ESA indicate that the subject property has been utilized for commercial/light industrial purposes, primarily auto-related purposes (i.e. auto service, auto repair, auto sales), since approximately 1925.

A.4 2015 Subsurface Investigation

In order to further characterize subsurface conditions at the site and identify recommended next steps pursuant to LUST case closure, PES conducted a subsurface investigation at the subject property in June and July 2015. The investigation results are documented in a report entitled *Subsurface Investigation Report and Request for Case Closure* dated August 3, 2015 and correspondence entitled *Supplemental Soil Analytical Data* dated September 1, 2015. On June 29 and 30, 2015, sub-slab vapor, soil vapor, soil, and grab groundwater sampling activities were conducted using manual methods and direct push drilling technology at 16 locations at the site as shown on Plate 2, including:

- Six borings (SB-1 through SB-6) advanced to approxima*te depths of 12 to 24 feet bgs at various locations at the s*ite and in the public right-of-way to evaluate sha*llow soil and groundwater conditi*ons associated with potential on-site and off-site sources of VOCs and/or petroleum hydrocarbons, including the former USTs and former in-ground hydraulic lifts;

- Four temporary sub-slab vapor probes (SSV-1 through SSV-4) installed at various locations beneath the on-site building to evaluate potential vapor intrusion concerns associated with potential releases of petroleum hydrocarbons and VOCs from potential on-site and off-site sources; and

- Six temporary soil vapor probes (SV-1 through SV-6) installed at a depth of approximately 5 feet bgs in exterior areas of the site (i.e. the parking lot) to evaluate shallow soil vapor conditions associated with potential releases of petroleum hydrocarbons and VOCs from potential on-site and off-site sources.

Following receipt and evaluation of the results of the sampling activities conducted on June 29 and 30, 2015, PES performed supplemental soil vapor and shallow soil sampling at the site on July 14, 2015. The additional sample locations, shown on Plates 2, included:

- Five temporary soil vapor probes (SV-7 through SV-11) were installed at approximately 5 feet bgs at locations within the site building to further evaluate the lateral and vertical extent of VOCs detected in sub-slab vapor during the June 29 and 30, 2015 investigation.

Findings Pertaining to Historical Auto-Related and Other Industrial Uses

The investigation identified low concentrations of VOCs, including toluene, ethylbenzene and xylenes, in soil vapor beneath the site; all of the VOCs detected in soil vapor were below residential ESL values (i.e., the most conservative, health-protective ESLs). TPHg, TPHd, and TPHho were detected in soil the vicinity of the former in-ground hydraulic lifts, all below their respective residential ESL values.

TPHg and naphthalene were detected in shallow soil samples collected beneath the present-day parts and chemical storage room at the site (SV-7). Concentrations of TPHg exceeded the residential and/or commercial ESL in soil samples collected from boring SV-7; however, naphthalene was not detected at concentrations at or above the residential ESL. Sub-slab vapor, soil vapor, and soil data collected in the vicinity of the parts and chemical storage room indicate the TPHg impact to soil is limited in extent and not associated with the former USTs or former hydraulic lifts at the site.

Petroleum hydrocarbons were not detected in soil samples collected adjacent to the former gasoline and waste oil USTs, however, TPHg, TPHd, and low concentrations of PAHs were detected in groundwater adjacent to the former gasoline and waste oil USTs. Concentrations of TPHg and TPHd exceeded the drinking water ESL in the groundwater sample collected adjacent to the former waste oil UST (SB-6). However, drinking water is supplied by East

Bay Municipal Utility District (EBMUD) and shallow groundwater is not used for water supply in the City of Oakland. Therefore, the presence of petroleum hydrocarbons in groundwater in the vicinity of the former USTs does not pose a significant threat to human health or the environment at the site.

Metals, including arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc, were detected in soil samples collected across the site at concentrations below their respective residential ESL values with the exception of arsenic, which was detected above the residential and commercial ESLs but within naturally-occurring background ranges for the San Francisco Bay area.

Findings Pertaining to Vapor Intrusion Concerns from Potential Off-Site Sources

The investigation identified concentrations of PCE in sub-slab vapor at or above indoor air ESLs (after applying the default attenuation factor) in limited areas beneath the site building. Supplemental investigation was conducted to further define the extent of PCE at the site and included soil vapor and soil sampling beneath the building. The results of the supplemental sampling and analysis indicate that soil and soil vapor beneath and surrounding the impacted sub-slab vapor samples do not appear to be impacted with PCE and the impact to sub-slab vapor appears to be localized or associated with off-site source(s). Additional sampling of soil or soil vapor in the vicinity of the impacted sub-slab vapor samples does not appear warranted based on the results of the supplemental sampling conducted.

Grab groundwater analytical results identified chlorinated VOCs, including TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, 1,1-DCA, 1,2-DCA, 1,1-DCE, and 1,1,2-TCA in groundwater across the site. Select VOCs (specifically TCE, 1,1-DCA and 1,1-DCE) detected at the site are consistent with detections of VOCs during investigations at both hydraulically upgradient and downgradient properties in the site vicinity. Furthermore, concentrations of chlorinated VOCs generally appear to decrease in the downgradient (southerly) direction across the site, suggesting an upgradient off-site source.

Detected concentrations of chlorinated VOCs exceed the drinking water ESLs, however, all VOCs detected in site grab groundwater samples were below the ESLs for potential vapor intrusion concerns. As noted above drinking water is provided by EBMUD and shallow groundwater is not used for water supply in the City of Oakland. Therefore, the presence of chlorinated VOCs in groundwater beneath the site does not pose a significant threat to human health at the site.

Low-Threat LUST Case Closure Evaluation

The subsurface analytical data collected at the site during the June and July 2015 investigation was evaluated with respect to the SWRCB Low-Threat Underground Storage Tank Case Closure Policy (the LTCP; SWRCB, 2012). PES concluded the site meets both the general and media-specific criteria for low-threat closure as required by the LTCP.

However, based on the documented and/or suspected presence of soil and groundwater contamination at the site not associated with the LUST case (see above), PES recommended a SMP for redevelopment construction be prepared for the site.

Table 1 - Summary of Results of Sample Analysis in PPM

Sample ID	Depth (FT)	TPH Gas	TPH Diesel	Benzene	Toluene	Ethyl-benzene	Xylene	Total Lead
T-1 Center	8	910	570	ND	0.76	ND	4.4	5.0
T-2 East	8.5	1500	NA	7.4	60	32	190	12
T-2 South	9	1500	NA	ND	15	15	15	NA
T-2 S.W.	8.5	450	NA	0.49	1.4	5.9	22	5.8
T-2 North	10	280	NA	0.57	4.3	2.6	12	NA
Stockpile** 1-4	-	120	51	0.16	0.86	0.89	4.9	28
Pit North	8	NA	450*	NA	NA	NA	NA	NA
Pit South	7	NA	1800*	NA	NA	NA	NA	NA
		39	660	NO				

b=26 TPH=190 beneath hydraulic lifts

*TPH as hydraulic oil; ** four to one composite; NA is not analyzed, ND is not detected.

Table 2 - Results of 8240 Analysis for Spoilpile

ANALYTE	RESULT (ug/Kg)	REPORTING LIMIT (ug/Kg)	BLANK RESULT (ug/Kg)	BLANK SPIKE RESULT (%)
ACETONE	47	25	N.D.	--
BENZENE	42	5.0	N.D.	129
BROMODICHLOROMETHANE	N.D.	5.0	N.D.	--
BROMOFORM	N.D.	5.0	N.D.	--
BROMOMETHANE	N.D.	5.0	N.D.	--
2-BUTANONE	N.D.	5.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	5.0	N.D.	--
CHLOROBENZENE	N.D.	5.0	N.D.	105
CHLOROETHANE	N.D.	5.0	N.D.	--
2-CHLOROETHYLVINYLETHER	N.D.	5.0	N.D.	--
CHLOROFORM	N.D.	5.0	N.D.	--
CHLOROMETHANE	N.D.	5.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	5.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	5.0	N.D.	--
1,2-DICHLOROETHANE	N.D.	5.0	N.D.	--
1,1-DICHLOROETHENE	N.D.	5.0	N.D.	120
1,2-DICHLOROETHENE (CIS)	N.D.	5.0	N.D.	--
1,2-DICHLOROETHENE (TRANS)	N.D.	5.0	N.D.	--
1,2-DICHLOROPROPANE	N.D.	5.0	N.D.	--
1,3-DICHLOROPROPENE (CIS)	N.D.	5.0	N.D.	--
1,3-DICHLOROPROPENE (TRANS)	N.D.	5.0	N.D.	--
ETHYL BENZENE	2600	120	N.D.	--
2-HEXANONE	N.D.	5.0	N.D.	--
METHYLENE CHLORIDE	N.D.	25	N.D.	--
4-METHYL-2-PENTANONE	N.D.	5.0	N.D.	--
STYRENE	N.D.	5.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	5.0	N.D.	--
TETRACHLOROETHENE	N.D.	5.0	N.D.	--
TOLUENE	1600	120	N.D.	108
1,1,1-TRICHLOROETHANE	N.D.	5.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	5.0	N.D.	--
TRICHLOROETHENE	N.D.	5.0	N.D.	96
TRICHLOROFLUOROMETHANE	N.D.	5.0	N.D.	--
VINYL ACETATE	N.D.	5.0	N.D.	--
VINYL CHLORIDE	N.D.	5.0	N.D.	--
XYLENES (TOTAL)	19000	120	N.D.	--

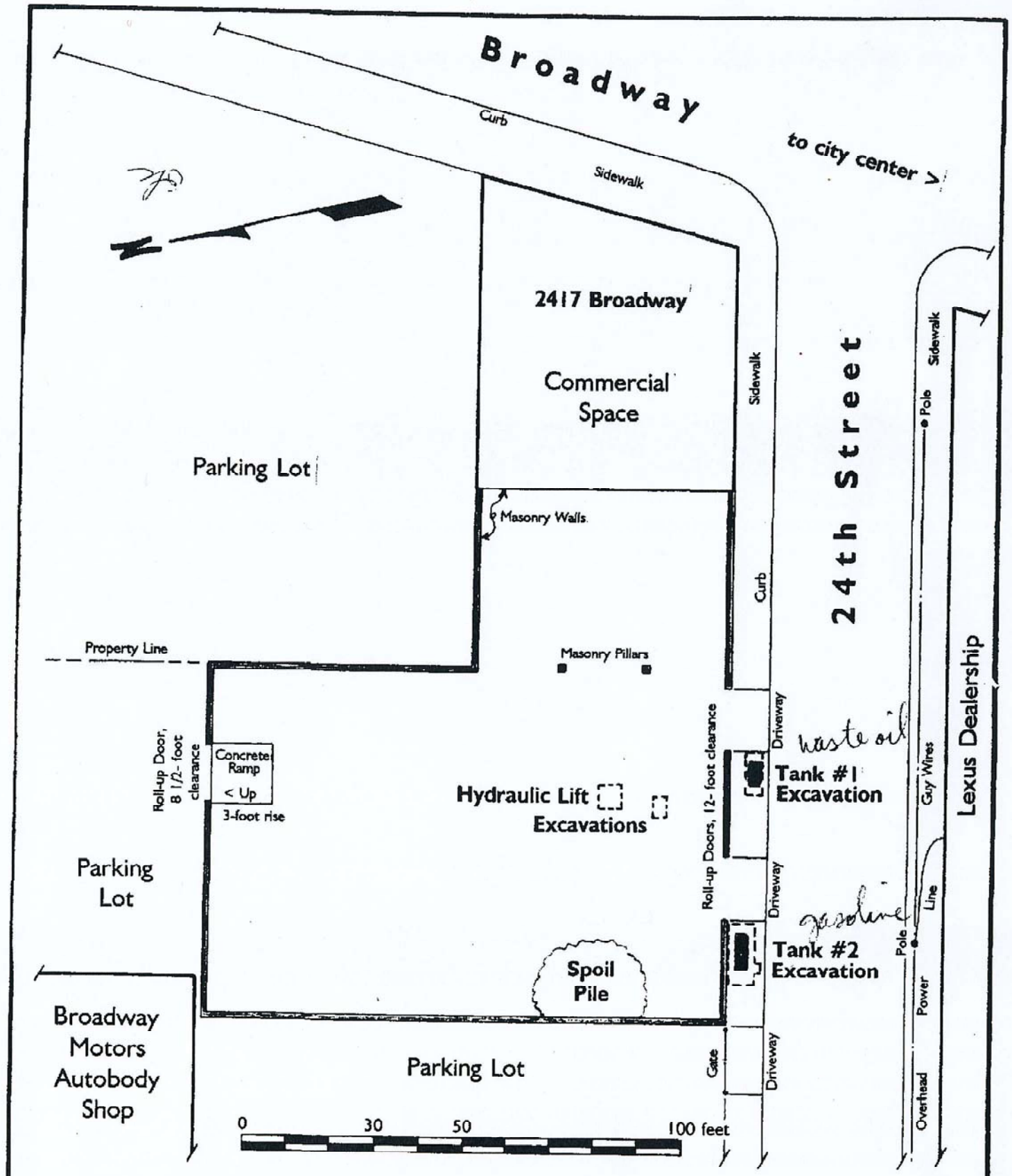
Table 3 - Results of CAM 17 Metals Analysis for Spoilpile

Lab Id	40176				Detection Limit	
Client ID	S-1 to 4					
Matrix	Soil					
Extraction°	TTLC				TTLC	STLC
Compound	Concentration*	Concentration*	Concentration*	Concentration*	mg/kg	mg/L
Antimony (Sb)	ND				1.00	0.05
Arsenic (As)	ND				2.5	0.25
Barium (Ba)	140				0.2	0.01
Beryllium (Be)	ND				0.2	0.01
Cadmium (Cd)	ND				0.2	0.01
Cobalt (Co)	9.4				0.4	0.02
Chromium (Cr)	39				0.02	0.005
Copper (Cu)	45				0.3	0.015
Lead (Pb)	---				0.6	0.03
Mercury (Hg)	ND				0.08	0.004
Molybdenum (Mo)	ND				0.4	0.02
Nickel (Ni)	44				0.4	0.02
Selenium (Se)	ND				5.0	0.1
Silver (Ag)	1.5				0.2	0.01
Thallium (Tl)	ND				2.00	0.1
Vanadium (V)	29				0.4	0.02
Zinc (Zn)	70				0.2	0.01
% Recovery Surrogate						
Comments						

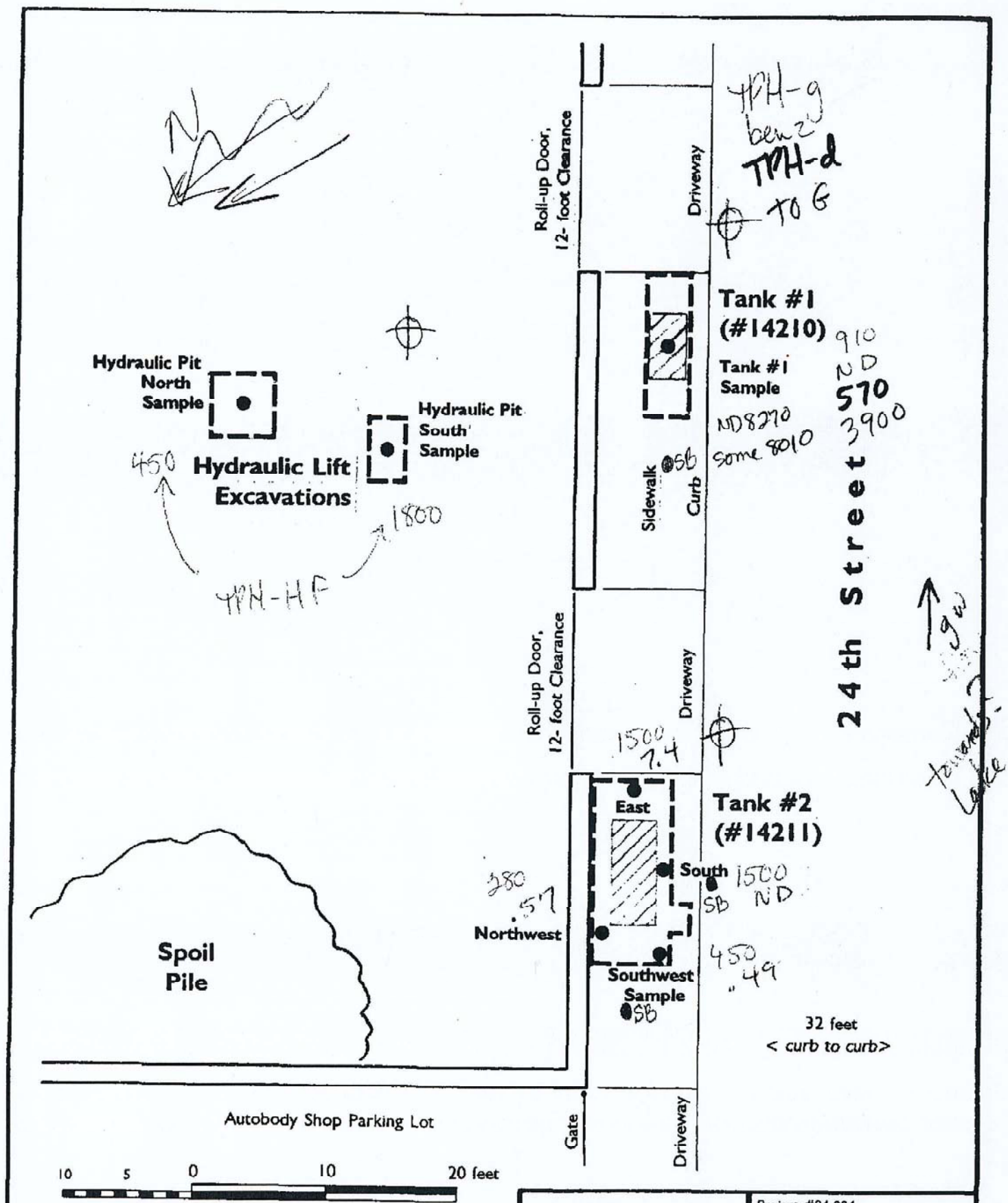
* water samples are reported in mg/L, soil samples in mg/kg and all TCLP & STLC extracts in mg/L

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC from CA Title 22

a) aqueous sample that contains greater than ~ 2 vol. % sediments; the sediments are extracted with the liquid, in accordance with EPA methodologies, and can significantly increase reported metals values.



EPIGENE INTERNATIONAL	Project #94-084 2417 Broadway, Oakland, California.
Fig. 2	**SITE PLAN**



our agreed-upon SB/MW locations

Table 1
Summary of Sub-Slab Vapor Analytical Results
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Date Sampled	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	cis-1,2-DCE ($\mu g/m^3$)	Vinyl Chloride ($\mu g/m^3$)	1,1-DCE ($\mu g/m^3$)	1,1,1-TCA ($\mu g/m^3$)	1,1-DCA ($\mu g/m^3$)	Chloroethane ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	o-Xylene ($\mu g/m^3$)	1,3,5-TMB ($\mu g/m^3$)	1,2,4-TMB ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Oxygen (%vol)	1,1-DFA (Leak Check Compound) (ppmV)
SSV-1	SSV-1	6/30/2015	**115** [2]	**7.31**	ND(3.97)	ND(2.56)	ND(3.97)	ND(5.46)	ND(4.05)	ND(2.64)	ND(4.26)	ND(3.19)	ND(3.77)	ND(4.34)	ND(4.34)	ND(4.34)	ND(4.92)	ND(4.92)	ND(5.24)	**20.4**	ND(10.0)
SSV-2	SSV-2	6/30/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(5.46)	ND(4.05)	ND(2.64)	ND(4.26)	ND(3.19)	ND(3.77)	**12.7**	**144**	**263**	**444**	**1,020**	ND(5.24)	**19.1**	ND(10.0)
SSV-3	SSV-3	6/30/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(5.46)	ND(4.05)	ND(2.64)	ND(4.26)	ND(3.19)	ND(3.77)	ND(4.34)	ND(4.34)	ND(4.34)	**5.60**	**9.34**	ND(5.24)	**20.4**	ND(10.0)
SSV-4	SSV-4	6/30/2015	**42.7** [2]	ND(13.4)	ND(9.91)	ND(6.39)	ND(9.91)	ND(13.6)	ND(10.1)	ND(6.60)	**19.2**	ND(7.99)	**31.2**	ND(10.9)	**66.0**	**39.9**	**42.8**	**98.8**	ND(13.1)	**14.2**	**147** [3]
Residential Exposure ESL (Indoor Air) [1,2]			*0.41*	*0.59*	*7.3*	*0.031*	*210*	*5,200*	*1.5*	*31,000*	*940*	*0.084*	*310*	*0.97*	*100*		*NE*	*NE*	*0.072*	*NE*	*NE*
Commercial/industrial Exposure ESL (Indoor Air) [1,2]			*2.1*	*3.0*	*31*	*0.16*	*880*	*22,000*	*7.7*	*130,000*	*3,900*	*0.42*	*1,300*	*4.9*	*440*		*NE*	*NE*	*0.36*	*NE*	*NE*

Notes:
Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.
PCE = Tetrachloroethene.
TCE = Trichloroethene.
DCE = Dichloroethene.
DCA = Dichloroethane.
TCA = Trichloroethane.
TMB = Trimethylbenzene.
DFA = Difluoroethane.
$\mu g/m^3$ = Micrograms per cubic meter.
%vol = Percent by volume.
ppmV = Parts per million by volume.
ND(6.78) = Not detected at or above the indicated laboratory method reporting limit.
NE = Not established.
1. ESL = December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table E-3 Ambient and Indoor Air Screening Levels.
2. In order to estimate concentrations of VOCs in sub-slab vapor which would theoretically result in an indoor air concentration above the applicable indoor air ESL, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC, 2011) recommends applying a default attenuation factor of 0.05 to the sub-slab analytical result.
3. The analytical result for sample SSV-4 contained leak check compound at a concentration of 0.42 percent of the analytical result for the sample collected within the shroud (i.e., 147 ppmV ÷ 35,100 ppmV x 100%), which is below the 5 percent maximum acceptable amount according to the Advisory – Active Soil Gas Investigations (DTSC, 2012).

Table 2
Summary of Soil Vapor Analytical Results
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Date Sampled	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	cis-1,2-DCE ($\mu g/m^3$)	Vinyl Chloride ($\mu g/m^3$)	1,1-DCE ($\mu g/m^3$)	1,1-DCA ($\mu g/m^3$)	Chloroethane ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	o-Xylene ($\mu g/m^3$)	1,2,4-TMB ($\mu g/m^3$)	1,3,5-TMB ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Oxygen (%vol)	1,1-DFA (Leak Check Compound) (ppmV)
SV-1	SV-1	5.0	6/29/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	ND(2.64)	ND(4.26)	**9.39**	**23.1**	**4.69**	**28.3**	**9.64**	**17.0**	ND(4.92)	ND(5.24)	**3.70**	ND(10.0)
SV-2	SV-2	5.0	6/29/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	**28.1**	ND(4.05)	ND(2.64)	ND(4.26)	**9.10**	**44.5**	**11.2**	**56.1**	**18.0**	**15.9**	ND(4.92)	ND(5.24)	**10.6**	ND(10.0)
SV-3	SV-3	5.0	6/29/2015	ND(17.0)	ND(13.4)	**11.7**	ND(6.39)	**29.4**	**170**	ND(6.60)	ND(10.6)	**16.3**	**27.8**	ND(10.9)	**27.2**	ND(10.9)	**16.6**	ND(12.3)	ND(13.1)	**1.51**	ND(10.0)
SV-4	SV-4	5.0	6/29/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	ND(2.64)	ND(4.26)	**3.45**	**18.9**	**6.51**	**33.0**	**10.5**	**11.1**	ND(4.92)	ND(5.24)	**3.92**	ND(10.0)
SV-5	SV-5	5.0	6/29/2015	ND(13.6)	ND(10.7)	ND(7.93)	ND(5.11)	ND(7.93)	**50.8**	ND(5.28)	ND(8.52)	**12.3**	**21.1**	ND(8.68)	**31.7**	**12.2**	**15.1**	ND(9.83)	ND(10.5)	**1.90**	ND(10.0)
SV-6	SV-6	5.0	6/29/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	**6.49**	ND(4.26)	**10.7**	**35.6**	**7.55**	**41.2**	**13.4**	**19.8**	**4.92**	ND(5.24)	**10.4**	ND(10.0)
SV-7	SV-7	5.0	7/14/2015	ND(13,600)	ND(10,700)	ND(7,930)	ND(5,110)	ND(7,930)	ND(8,100)	ND(5,280)	ND(8,520)	ND(6,390)	ND(7,540)	ND(8,680)	ND(8,680)	ND(8,680)	ND(9,830)	ND(9,830)	--	--	ND(20.0)
SV-8	SV-8	5.0	7/14/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	ND(2.64)	--	--	--	--	--	--	--	--	--	--	ND(10.0)
SV-9	SV-9	5.0	7/14/2015	ND(6.78)	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	ND(2.64)	--	--	--	--	--	--	--	--	--	--	ND(10.0)
SV-10	SV-10	5.0	7/14/2015	**47.7**	ND(5.37)	ND(3.97)	ND(2.56)	ND(3.97)	ND(4.05)	ND(2.64)	--	--	--	--	--	--	--	--	--	--	ND(10.0)
SV-11	SV-11	5.0	7/14/2015	ND(10.2)	ND(8.06)	ND(5.95)	ND(3.83)	ND(5.95)	ND(6.07)	ND(3.96)	ND(6.39)	**13.8**	**10.7**	ND(6.51)	ND(6.51)	ND(6.51)	ND(7.37)	ND(7.37)	--	--	ND(15.0)
Residential Land Use ESL (Soil Gas) [1]				*210*	*300*	*3,700*	*16*	*100,000*	*760*	*16,000,000*	*470,000*	*42*	*160,000*	*490*	*52,000*		*NE*	*NE*	*36*	*NE*	*NE*
Commercial/industrial Land Use ESL (Soil Gas) [1]				*2,100*	*3,000*	*31,000*	*160*	*880,000*	*7,700*	*130,000,000*	*3,900,000*	*420*	*1,300,000*	*4,900*	*440,000*		*NE*	*NE*	*360*	*NE*	*NE*

Notes:
Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.
PCE = Tetrachloroethene.
TCE = Trichloroethene.
DCE = Dichloroethene.
DCA = Dichloroethane.
TMB = Trimethylbenzene.
DFA = Difluoroethane.
bgs = Below ground surface.
$\mu g/m^3$ = Micrograms per cubic meter.
%vol = Percent by volume.
ppmV = Parts per million by volume.
ND(6.78) = Not detected at or above the indicated laboratory method reporting limit.
NE = Not established.
-- = Not applicable/not analyzed.
1. ESL = December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table E-2 Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion.

Table 3
Summary of Soil Analytical Results - Petroleum Hydrocarbons and VOCs
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Date Sampled	TPHg (mg/kg)	TPHd (mg/kg)	TPHho (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	m,p-Xylenes (µg/kg)	o,Xylene (µg/kg)	Naphthalene (µg/kg)	Fuel Oxygenates (µg/kg)	Other VOCs (µg/kg)
SB-1	SB-1-4.5-5.0	4.5	6/29/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.36)	ND(1.36)	ND(1.36)	ND(1.36)	ND(1.36)	ND(2.71)	--	ND
	SB-1-9.5-10.0	9.5	6/29/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.33)	ND(1.33)	ND(1.33)	ND(1.33)	ND(1.33)	ND(2.65)	--	ND
SB-2	SB-2-4.5-5.0	4.5	6/29/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.40)	ND(1.40)	ND(1.40)	ND(1.40)	ND(1.40)	ND(2.79)	--	--
	SB-2-9.5-10.0	9.5	6/29/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.49)	ND(1.49)	ND(1.49)	ND(1.49)	ND(1.49)	ND(2.97)	--	--
SB-3	SB-3-4.5-5.0	4.5	6/30/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.42)	ND(1.42)	ND(1.42)	ND(1.42)	ND(1.42)	ND(2.84)	--	--
	SB-3-9.5-10.0	9.5	6/30/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.48)	ND(1.48)	ND(1.48)	ND(1.48)	ND(1.48)	ND(2.95)	--	--
SB-4	SB-4-4.5-5.0	4.5	6/30/2015	ND(1.00)	**33.9** [AC]	**45.0**	ND(1.58)	ND(1.58)	ND(1.58)	ND(1.58)	ND(1.58)	ND(3.15)	--	--
	SB-4-9.5-10.0	9.5	6/30/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.02)	ND(1.02)	ND(1.02)	ND(1.02)	ND(1.02)	ND(2.04)	--	--
	SB-4-13.5	13.5	6/30/2015	**122**	**30.1** [AC]	**99.3**	--	--	--	--	--	--	--	--
SB-5	SB-5-4.5-5.0	4.5	6/30/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.64)	ND(1.64)	ND(1.64)	ND(1.64)	ND(1.64)	ND(3.28)	ND	ND
	SB-5-9.5-10.0	9.5	6/30/2015	ND(1.00)	ND(10.0)	ND(10.0)	ND(1.26)	ND(1.26)	ND(1.26)	ND(1.26)	ND(1.26)	ND(2.51)	ND	ND
SB-6	SB-6-4.5-5.0	4.5	6/30/2015	--	--	--	ND(1.55)	ND(1.55)	ND(1.55)	ND(1.55)	ND(1.55)	ND(3.09)	--	--
	SB-6-9.5-10.0	9.5	6/30/2015	--	--	--	ND(1.66)	ND(1.66)	ND(1.66)	ND(1.66)	ND(1.66)	ND(3.31)	--	--
SV-3	SV-3-4.5-5.0	4.5	6/29/2015	--	--	--	ND(1.57)	ND(1.57)	ND(1.57)	ND(1.57)	ND(1.57)	ND(3.14)	--	--
SV-4	SV-4-4.5-5.0	4.5	6/29/2015	--	--	--	ND(1.61)	ND(1.61)	ND(1.61)	ND(1.61)	ND(1.61)	ND(3.21)	--	--
SV-5	SV-5-4.5-5.0	4.5	6/29/2015	--	--	--	ND(1.54)	ND(1.54)	ND(1.54)	ND(1.54)	ND(1.54)	ND(3.07)	--	--
SV-6	SV-6-4.5-5.0	4.5	6/29/2015	--	--	--	ND(1.50)	ND(1.50)	ND(1.50)	ND(1.50)	ND(1.50)	ND(3.00)	--	--
SV-7	SV-7-2.5-3.0	2.5	7/14/2015	**124**	--	--	ND(199)	ND(199)	ND(199)	ND(199)	ND(199)	**644**	--	**314, 440** [1]
	SV-7-4.5-5.0	4.5	7/14/2015	**1,070**	--	--	ND(375)	ND(375)	ND(375)	ND(375)	ND(375)	**1,070**	--	**3,020, 3,130, 3,600, 4,930** [2]
SV-10	SV-10-2.5-3.0	2.5	7/14/2015	ND(1.00)	--	--	--	--	--	--	--	--	--	ND
	SV-10-4.5-5.0	4.5	7/14/2015	ND(1.00)	--	--	--	--	--	--	--	--	--	ND
Residential land use ESL (Shallow Soil <3 m bgs) [3]				*100*	*100*	*100* [6]	*44*	*2,900*	*3,300*	*2,300*		*1,200*	--	--
Commercial/industrial land use ESL (Shallow Soil <3 m bgs) [4]				*500*	*110*	*500* [6]	*44*	*2,900*	*3,300*	*2,300*		*1,200*	--	--
Residential land use ESL (Deep Soil >3 m bgs) [5]				*500*	*110*	*500* [6]	*44*	*2,900*	*3,300*	*2,300*		*1,200*	--	--

Notes:
Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.
VOCs = Volatile organic compounds.
TPHg = Total petroleum hydrocarbons quantified as gasoline.
TPHd = Total petroleum hydrocarbons quantified as diesel (C12-23).
TPHho = Total petroleum hydrocarbons quantified as heavy oil (C24-C34).
Fuel oxygenates include methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alchohol (TBA)
bgs = Below ground surface.
mg/kg = Milligrams per kilogram.
µg/kg = Micrograms per kilogram.
ND(1.36) = Not detected at or above the indicated laboratory method reporting limit.
-- = Not applicable/not analyzed.
NE = Not established.
AC = Heavier hydrocarbons contributing to diesel range quantitation.
1. n-butylbenzene and sec-butylbenzene detected at concentrations of 314 µg/kg and 440 µg/kg, respectively.
2. n-butylbenzene, sec-butylbenzene, isopropylbenzene, and n-propylbenzene detected at concentrations of 3,020 µg/kg, 3,130 µg/kg, 3,600 µg/kg, and 4,930 µg/kg, respectively.
3. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table A-1. Shallow Soil Screening Levels (<3 m bgs), Residential Land Use (groundwater is a current or potential drinking water resource).
4. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table A-2. Shallow Soil Screening Levels (<3 m bgs), Commercial/industrial Land Use (groundwater is a current or potential drinking water resource).
5. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table C-1. Deep Soil Screening Levels (>3 m bgs), Residential Land Use (groundwater is a current or potential drinking water resource).
6. ESL for TPHmo.

Table 4
Summary of Soil Analytical Results - Metals
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Date Sampled	Antimony (mg/kg)	Arsenic [1] (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
SB-2	SB-2-4.5-5.0	4.5	6/29/2015	ND(2.50)	**4.95**	**93.1**	ND(2.50)	ND(2.50)	**33.8**	**7.17**	**17.5**	**5.46**	ND(0.100)	ND(2.50)	**36.7**	ND(2.50)	ND(2.50)	ND(2.50)	**32.0**	**46.3**
SB-4	SB-4-4.5-5.0	4.5	6/30/2015	ND(2.50)	**4.71**	**112**	ND(2.50)	ND(2.50)	**36.6**	**7.44**	**12.4**	**11.7**	ND(0.100)	ND(2.50)	**34.3**	ND(2.50)	ND(2.50)	ND(2.50)	**27.9**	**31.9**
SB-5	SB-5-4.5-5.0	4.5	6/30/2015	--	--	--	--	--	--	--	--	**4.08**	--	--	--	--	--	--	--	--
	SB-5-9.5-10.0	9.5	6/30/2015	--	--	--	--	--	--	--	--	**3.99**	--	--	--	--	--	--	--	--
SB-6	SB-6-4.5-5.0	4.5	6/30/2015	ND(2.50)	**2.71**	**154**	ND(2.50)	ND(2.50)	**32.2**	**10.8**	**13.8**	**5.09**	ND(2.50)	ND(2.50)	**36.5**	ND(2.50)	ND(2.50)	ND(2.50)	**28.8**	**29.1**
	SB-6-9.5-10.0	9.5	6/30/2015	ND(2.50)	ND(2.50)	**123**	ND(2.50)	ND(2.50)	**30.8**	**11.6**	**11.0**	**5.28**	ND(2.50)	ND(2.50)	**22.9**	ND(2.50)	ND(2.50)	ND(2.50)	**30.2**	**18.4**
SV-3	SV-3-4.5	4.5	6/29/2015	ND(2.50)	**2.79**	**188**	ND(2.50)	ND(2.50)	**28.2**	**8.88**	**14.4**	**11.1**	**0.152**	ND(2.50)	**28.8**	ND(2.50)	ND(2.50)	ND(2.50)	**25.2**	**23.8**
SV-6	SV-6-4.5	4.5	6/29/2015	ND(2.50)	ND(2.50)	**81.0**	ND(2.50)	ND(2.50)	**27.0**	**4.40**	**8.11**	**4.97**	**0.134**	ND(2.50)	**18.2**	ND(2.50)	ND(2.50)	ND(2.50)	**26.4**	**14.3**
Residential land use ESL (Shallow Soil <3 m bgs) [2]				*20*	*0.39*	*750*	*4.0*	*12*	*1,000* [4]	*23*	*230*	*80*	*6.7*	*40*	*150*	*10*	*20*	*0.78*	*200*	*600*
Commercial/industrial land use ESL (Shallow Soil <3 m bgs) [3]				*40*	*1.6*	*1,500*	*8.0*	*12*	*2,500* [4]	*80*	*230*	*320*	*10*	*40*	*150*	*10*	*40*	*10*	*200*	*600*

Notes:

Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.

bgs = Below ground surface.

mg/kg = Milligrams per kilogram.

ND(2.50) = Not detected at or above the indicated laboratory method reporting limit.

-- = Not applicable/not analyzed.

NE = Not established.

1. Background concentrations of arsenic in soil in the San Francisco Bay Area, calculated as the 95th pencentile of 1,395 data points, is 17 mg/kg (LBL, 2002).
2. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table A-1. Shallow Soil Screening Levels (<3 m bgs), Residential Land Use (groundwater is a current or potential drinking water resource).
3. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table A-2. Shallow Soil Screening Levels (<3 m bgs), Commercial/industrial Land Use (groundwater is a current or potential drinking water resource).
4. ESL value is for total chromium.

Table 5
Summary of Grab Groundwater Analytical Results - VOCs
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	1,1,2-TCA (µg/L)	Chloroform (µg/L)	Toluene (µg/L)	Other VOCs (µg/L)
SB-1	SB-1-GW	6/29/2015	**2.24**	**2.58**	**1.26**	**0.770**	**79.4**	**5.57**	**21.3**	**9.54**	**0.680**	**0.500**	ND
SB-2	SB-2-GW	6/29/2015	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	**4.29**	ND(0.500)	1.64	ND(0.500)	ND(0.500)	ND(0.500)	ND
SB-3	SB-3-GW	6/30/2015	**5.26**	**0.960**	**1.43**	**1.08**	**46.4**	**1.22**	**24.8**	**7.26**	ND(0.500)	ND(0.500)	ND
SB-5	SB-5-GW	6/30/2015	**1.15**	**1.08**	**0.940**	**1.72**	**43.4**	**2.52**	**15.1**	**3.20**	ND(0.500)	ND(0.500)	ND
SB-6	SB-6-GW	6/29/2015	**1.72**	**1.14**	**1.19**	**1.63**	**62.3**	**3.26**	**19.4**	**5.61**	ND(1.00)	ND(1.00)	ND
Groundwater ESL (groundwater is a drinking water resource) [1]			*5.0*	*6.0*	*10*	*0.5*	*5.0*	*0.5*	*6.0*	*5.0*	*80*	*40*	--
Groundwater ESL - Residential Land Use (vapor intrusion) [2]			*130*	*3,100*	*14,000*	*1.8*	*NE*	*100*	*16,000*	*NE*	*170*	*95,000*	--

Notes:
Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.
VOCs = Volatile organic compounds.
TCE = Trichloroethene.
DCE = Dichloroethene.
DCA = Dichloroethane.
DCE = Dichloroethene.
TCA = Trichloroethane.
µg/L = Micrograms per liter.
ND(0.500) = Not detected at or above the indicated laboratory method reporting limit.
-- = Not applicable/not analyzed.
NE = Not established.
1. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table F-1a. Groundwater Screening Levels (groundwater is a current or potential drinking water resource).
2. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table E-1. Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion (volatile chemicals only) - Fine-Coarse Mix - Residential Land Use.

Table 6
Summary of Grab Groundwater Analytical Results - Petroleum Hydrocarbons, PAHs, and PCBs
Subsurface Investigation
2401 Broadway, Oakland, California

Sample Location	Sample ID	Date Sampled	Petroleum Hydrocarbons				PAHs					PCBs (µg/L)
			TPHg (mg/L)	TPHd (mg/L)	TPHmo (mg/L)	TPHho (mg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Other PAHs (µg/L)	
SB-4	SB-4-GW	6/30/2015	ND(0.050)	ND(0.143)	--	ND(0.143)	--	--	--	--	--	ND
SB-5	SB-5-GW	6/30/2015	**0.052**	ND(0.143)	--	ND(0.143)	ND(0.010)	ND(0.010)	**0.013**	ND(0.010)	ND	--
SB-6	SB-6-GW	6/30/2015	**0.583**	**0.181**	--	ND(0.068)	**0.020**	**0.016**	ND(0.010)	**0.025**	ND	--
Groundwater ESL (groundwater is a drinking water resource) [1]			*0.1*	*0.1*	*0.1*	*NE*	*20*	*3.9*	*6.1*	*4.6*	--	*0.014*

Notes:

Detections are shown in bold. Results equal to or exceeding applicable regulatory screening levels are shaded.

TPHg = Total petroleum hydrocarbons quantified as gasoline.

TPHd = Total petroleum hydrocarbons quantified as diesel.

TPHmo = Total petroleum hydrocarbons quantified as motor oil.

TPHho = Total petroleum hydrocarbons quantified as heavy oil.

PAHs = Polycyclic aromatic hydrocarbons.

PCBs = Polychlorinated biphenyls.

mg/L = Milligrams per liter.

µg/L = Micrograms per liter.

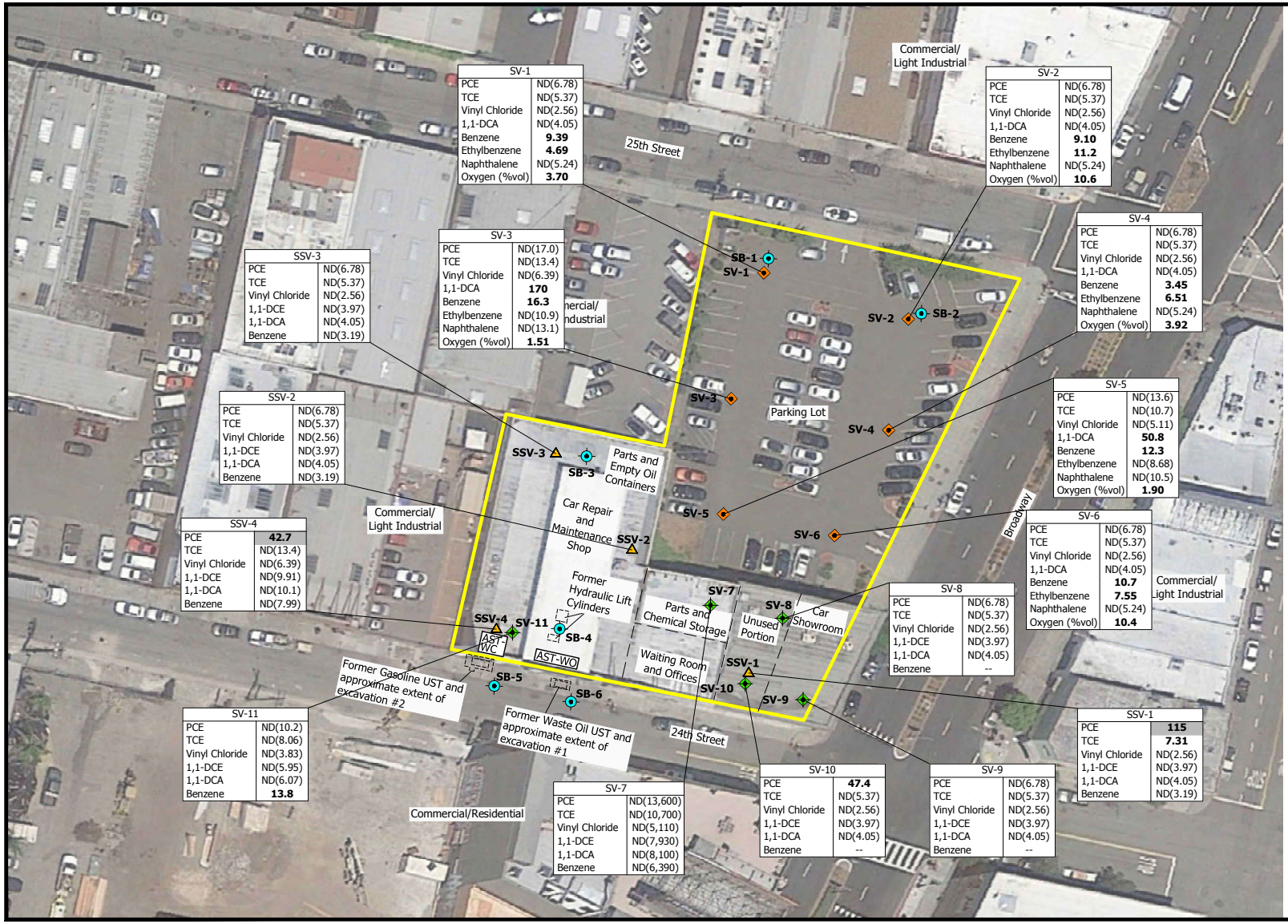
ND(0.143) = Not detected at or above the indicated laboratory method reporting limit.

ND = Not detected.

-- = Not applicable/not analyzed.

NE = Not established.

1. December 2013 Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB) Environmental Screening Levels (ESLs), Table F-1a. Groundwater Screening Levels (groundwater is a current or potential drinking water resource).



SV-1	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCA	ND(4.05)
Benzene	**9.39**
Ethylbenzene	**4.69**
Naphthalene	ND(5.24)
Oxygen (%vol)	**3.70**

SV-2	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCA	ND(4.05)
Benzene	**9.10**
Ethylbenzene	**11.2**
Naphthalene	ND(5.24)
Oxygen (%vol)	**10.6**

SV-3	
PCE	ND(17.0)
TCE	ND(13.4)
Vinyl Chloride	ND(6.39)
1,1-DCA	**170**
Benzene	**16.3**
Ethylbenzene	ND(10.9)
Naphthalene	ND(13.1)
Oxygen (%vol)	**1.51**

SV-4	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCA	ND(4.05)
Benzene	**3.45**
Ethylbenzene	**6.51**
Naphthalene	ND(5.24)
Oxygen (%vol)	**3.92**

SV-5	
PCE	ND(13.6)
TCE	ND(10.7)
Vinyl Chloride	ND(5.11)
1,1-DCA	**50.8**
Benzene	**12.3**
Ethylbenzene	ND(8.68)
Naphthalene	ND(10.5)
Oxygen (%vol)	**1.90**

SV-6	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCA	ND(4.05)
Benzene	**10.7**
Ethylbenzene	**7.55**
Naphthalene	ND(5.24)
Oxygen (%vol)	**10.4**

SV-7	
PCE	ND(13,600)
TCE	ND(10,700)
Vinyl Chloride	ND(5,110)
1,1-DCE	ND(7,930)
1,1-DCA	ND(8,100)
Benzene	ND(6,390)

SV-8	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	--

SV-9	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	--

SV-10	
PCE	**47.4**
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	--

SV-11	
PCE	ND(10.2)
TCE	ND(8.06)
Vinyl Chloride	ND(3.83)
1,1-DCE	ND(5.95)
1,1-DCA	ND(6.07)
Benzene	**13.8**

SSV-3	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	ND(3.19)

SSV-2	
PCE	ND(6.78)
TCE	ND(5.37)
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	ND(3.19)

SSV-4	
PCE	**42.7**
TCE	ND(13.4)
Vinyl Chloride	ND(6.39)
1,1-DCE	ND(9.91)
1,1-DCA	ND(10.1)
Benzene	ND(7.99)

SSV-1	
PCE	**115**
TCE	**7.31**
Vinyl Chloride	ND(2.56)
1,1-DCE	ND(3.97)
1,1-DCA	ND(4.05)
Benzene	ND(3.19)

Explanation

- Approximate Property Boundary
- AST-WC Aboveground Storage Tank - Waste Coolant
- AST-WO Aboveground Storage Tank - Waste Oil
- Soil and Grab Groundwater Sampling Location
- Soil and Soil Vapor Sampling Location
- Sub-slab Vapor Sampling Location
- Supplemental Soil Vapor/Soil Sampling Location
- ND(4.05) Not detected at or above the indicated laboratory reporting limit
- **9.39** Detections shown in bold
- -- Not Analyzed
- Concentrations detected above respective Environmental Screening Levels (ESLs) are shaded

PCE = Tetrachloroethene
TCE = Trichloroethene
1,1-DCE = 1,1-Dichloroethene
1,1-DCA = 1,1-Dichloroethane
All results in micrograms per cubic meter ($\mu g/m^3$) except where noted

0 50
SCALE IN FEET

N

Aerial Photo: June 9, 2014 (Google 2015)

PES Environmental, Inc.
Engineering & Environmental Services

Summary of Sub-Slab Vapor and Soil Vapor Analytical Results
Subsurface Investigation
2401 Broadway
Oakland, California

PLATE
3

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
935.044.01.002	935-04401002_PhII_1-5	MJ	7/15

SB-1	4.5 ft bgs	9.5 ft bgs
TPHg	ND(1.00)	ND(1.00)
TPHd	ND(10.0)	ND(10.0)
TPHho	ND(10.0)	ND(10.0)
BTEX	All ND	All ND
Other VOCs	All ND	All ND

SB-2	4.5 ft bgs	9.5 ft bgs
TPHg	ND(1.00)	ND(1.00)
TPHd	ND(10.0)	ND(10.0)
TPHho	ND(10.0)	ND(10.0)
BTEX	All ND	All ND

SV-3	4.5 ft bgs
TPHg	--
TPHd	--
TPHho	--
BTEX	All ND

SB-3	4.5 ft bgs	9.5 ft bgs
TPHg	ND(1.00)	ND(1.00)
TPHd	ND(10.0)	ND(10.0)
TPHho	ND(10.0)	ND(10.0)
BTEX	All ND	All ND

SV-4	4.5 ft bgs
TPHg	--
TPHd	--
TPHho	--
BTEX	All ND

SB-4	4.5 ft bgs	9.5 ft bgs	13.5 ft bgs
TPHg	ND(1.00)	ND(1.00)	**122**
TPHd	**33.9**	ND(10.0)	**30.1**
TPHho	**45.0**	ND(10.0)	**99.3**
BTEX	All ND	All ND	--

SV-5	4.5 ft bgs
TPHg	--
TPHd	--
TPHho	--
BTEX	All ND

SV-6	4.5 ft bgs
TPHg	--
TPHd	--
TPHho	--
BTEX	All ND

SB-5	4.5 ft bgs	9.5 ft bgs
TPHg	ND(1.00)	ND(1.00)
TPHd	ND(10.0)	ND(10.0)
TPHho	ND(10.0)	ND(10.0)
BTEX	All ND	All ND
Other VOCs	All ND	All ND

SB-6	4.5 ft bgs	9.5 ft bgs
TPHg	--	--
TPHd	--	--
TPHho	--	--
BTEX	All ND	All ND

SV-10	2.5-3.0 bgs	4.5-5.0 bgs
TPHg	ND(1.00)	ND(1.00)
TPHd	--	--
TPHho	--	--
BTEX	--	--
Other VOCs	All ND	All ND

SV-7	2.5-3.0 bgs	4.5-5.0 bgs
TPHg	**124**	**1070**
TPHd	--	--
TPHho	--	--
BTEX	All ND	All ND
Napthalene	**644**	**1070**
Other VOCs	All ND[1]	All ND[2]

Explanation

- Approximate Property Boundary
- AST-WC Aboveground Storage Tank - Waste Coolant
- AST-WO Aboveground Storage Tank - Waste Oil
- Soil and Grab Groundwater Sampling Location
- Soil and Soil Vapor Sampling Location
- Sub-slab Vapor Sampling Location
- Supplemental Soil Vapor/Soil Sampling Location
- ND(10.0) Not detected at or above the indicated laboratory method reporting limit
- **99.3** Detections shown in bold
- -- Not Analyzed
- Concentrations detected above respective Environmental Screening Levels (ESLs) are shaded

TPHg = Total petroleum hydrocarbons quantified as gasoline
TPHd = Total petroleum hydrocarbons quantified as diesel
TPHho = Total petroleum hydrocarbons quantified as heavy oil
BTEX = Benzene, Toluene, Ethylbenzene and Total Xylenes
VOCs = Volatile Organic Compounds
TPH results in milligrams per kilogram (mg/kg)
BTEX results in micrograms per kilogram (µg/kg)
[1] n-butylbenzene and sec-butylbenzene detected at concentrations of 314 µg/kg and 440 µg/kg, respectively.
[2] n-butylbenzene, sec-butylbenzene, isopropylbenzene, and n-propylbenzene detected at concentrations of 3,020 µg/kg, 3,130 µg/kg, 3,600 µg/kg, and 4,930 µg/kg, respectively.

0 50
SCALE IN FEET
N

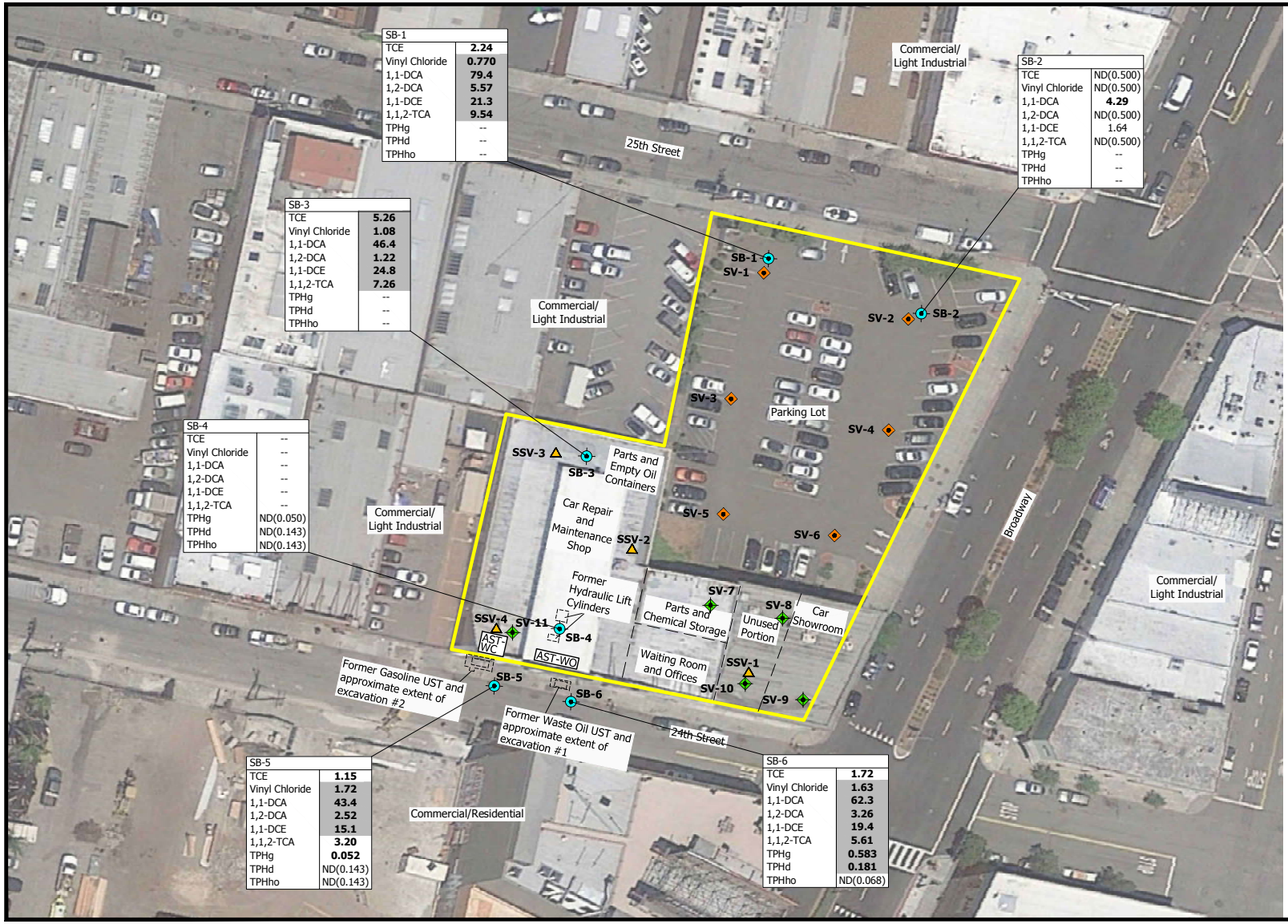
Aerial Photo: June 9, 2014 (Google 2015)

PES Environmental, Inc.
Engineering & Environmental Services

Summary of Soil Analytical Results - Organics
Subsurface Investigation
2401 Broadway
Oakland, California

PLATE
4

935.044.01.002	935-04401002_PhII_1-5	MJ	7/15
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



SB-1	
TCE	**2.24**
Vinyl Chloride	**0.770**
1,1-DCA	**79.4**
1,2-DCA	**5.57**
1,1-DCE	**21.3**
1,1,2-TCA	**9.54**
TPHg	--
TPHd	--
TPHho	--

SB-2	
TCE	ND(0.500)
Vinyl Chloride	ND(0.500)
1,1-DCA	**4.29**
1,2-DCA	ND(0.500)
1,1-DCE	1.64
1,1,2-TCA	ND(0.500)
TPHg	--
TPHd	--
TPHho	--

SB-3	
TCE	**5.26**
Vinyl Chloride	**1.08**
1,1-DCA	**46.4**
1,2-DCA	**1.22**
1,1-DCE	**24.8**
1,1,2-TCA	**7.26**
TPHg	--
TPHd	--
TPHho	--

SB-4	
TCE	--
Vinyl Chloride	--
1,1-DCA	--
1,2-DCA	--
1,1-DCE	--
1,1,2-TCA	--
TPHg	ND(0.050)
TPHd	ND(0.143)
TPHho	ND(0.143)

SB-5	
TCE	**1.15**
Vinyl Chloride	**1.72**
1,1-DCA	**43.4**
1,2-DCA	**2.52**
1,1-DCE	**15.1**
1,1,2-TCA	**3.20**
TPHg	**0.052**
TPHd	ND(0.143)
TPHho	ND(0.143)

SB-6	
TCE	**1.72**
Vinyl Chloride	**1.63**
1,1-DCA	**62.3**
1,2-DCA	**3.26**
1,1-DCE	**19.4**
1,1,2-TCA	**5.61**
TPHg	**0.583**
TPHd	**0.181**
TPHho	ND(0.068)

Explanation

- Approximate Property Boundary
- AST-WC — Aboveground Storage Tank - Waste Coolant
- AST-WO — Aboveground Storage Tank - Waste Oil
- Soil and Grab Groundwater Sampling Location
- Soil and Soil Vapor Sampling Location
- Sub-slab Vapor Sampling Location
- Proposed Supplemental Soil Vapor/Soil Sampling Location
- ND(0.500) — Not detected at or above the indicated laboratory method reporting limit
- **2.24** — Detections shown in bold
- -- — Not Analyzed
- Concentrations detected above respective Environmental Screening Levels (ESLs) are shaded

TCE = Trichloroethene
1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
1,1,2-TCA = 1,1,2-Trichloroethane
TPHg = Total petroleum hydrocarbons quantified as gasoline
TPHd = Total petroleum hydrocarbons quantified as diesel
TPHho = Total petroleum hydrocarbons quantified as heavy oil
TPH results in milligrams per liter (mg/L)
All other results in micrograms per liter (µg/L)

Aerial Photo: June 9, 2014 (Google 2015)

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Summary of Grab Groundwater Analytical Results
Subsurface Investigation
2401 Broadway
Oakland, California

PLATE
5

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
935.044.01.002	935-04401002_PhII_1-5	MJ	7/15

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LOG OF SOIL BORING SB-1

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				ASPHALT
				DARK BROWN GRAVEL WITH SILT AND SAND (GW) 7.5YR 3/3, moist, loose, well - graded, (70% gravel, 20% sand, 10% fines)
				BLACK SILT WITH SAND (ML) 10YR 2/1, moist, stiff, (0% gravel, 20% sand, 80% fines)
				DARK GRAYISH BROWN CLAY (CL) 10YR 4/2, moist, stiff
0.3		5		Sample ID: SB-1-4.5-5.0
				DARK GRAYISH BROWN CLAYEY SAND (SC) 10YR 4/2, moist, loose, (0% gravel, 70% sand, 30% fines)
				DARK GRAYISH BROWN CLAY (CL) 10YR 4/2, moist, stiff, (0% gravel, 70% sand, 30% fines)
				Color change to YELLOWISH BROWN (10YR 5/4)
0.0				Sample ID: SB-1-9.5-10.0
		10		
				Increase in sand to (0% gravel, 30% sand, 70% fines)
				YELLOWISH BROWN CLAY WITH SAND (CL) 10YR 5/4, moist, medium stiff
				YELLOWISH BROWN CLAY 10YR 5/4, moist, stiff
		15		
				Brick fragments and gravel at 17.5 feet bgs
				Color change to BROWN (10 YR 5/3)
				∇
		20		
				DARK YELLOWISH BROWN GRAVEL WITH SAND (GW) 10YR 4/6, wet, dense, well - graded, brick debris present
				YELLOWISH BROWN CLAY 10YR 5/4, moist, stiff
				Boring terminated at 24 feet bgs.
		25		

PROFESSIONAL GEOLOGIST
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No. 9125
EXP. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	24 feet
LOGGED BY	M. EDDY	DATE STARTED	6/29/15
DRILL RIG	DP	DATE COMPLETED	6/29/15

PLATE
B-1

PES Environmental, Inc.
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LOG OF SOIL BORING SB-2

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				ASPHALT
				DARK BROWN GRAVEL WITH SILT AND SAND (GW) 7.5YR 3/3, moist, loose, well - graded, (70% gravel, 20% sand, 10% fines)
				DARK BROWN CLAY WITH GRAVEL (CL) 7.5 YR 3/3, moist, stiff, subangular 0.2- to 1-inch diameter gravel, trace sand, (20% gravel, 5% sand, 75% fines)
0.0		5		Sample ID: SB-2-4.5-5.0
				Brick fragments present
0.0		10		Sample ID: SB-2-9.5-10.0
				Concrete fragments at 10.5 feet bgs
				YELLOWISH BROWN GRAVELLY CLAY WITH SAND (CH) 10YR 5/4, moist, stiff, (40% gravel, 20% sand, 40% fines), brick debris present
		15		YELLOWISH BROWN CLAY (CL) 10YR 5/4, moist, very stiff, (0% gravel, 0% sand, 100% fines)
		20		YELLOWISH BROWN CLAY WITH SAND (CL) 10YR 5/4, moist, very stiff, (0% gravel, 20% sand, 80% fines)
				Boring terminated at 22 feet bgs.
		25		

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PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	22 feet
LOGGED BY	M. EDDY	DATE STARTED	6/29/15
DRILL RIG	DP	DATE COMPLETED	6/30/15

PLATE
B-2

PES Environmental, Inc.
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LOG OF SOIL BORING SB-3

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				BLACK SILT WITH SAND (ML) 2.5Y 2.5/1, dry, stiff, (5% gravel, 10% sand, 85% fines)
0.0		5		BROWN SILT WITH SAND (ML) 2.5YR 4/3, moist, stiff, (5% gravel, 10% sand, 85% fines) Sample ID: SB-3-4.5-5.0
0.0		10		Sample ID: SB-3-9.5-10.0
				BROWN SAND (SP) 7.5 YR 4/3, wet, loose, poorly graded, medium - to coarse grained.
				Boring terminated at 12 feet bgs.
		15		
		20		
		25		

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EXP. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	12 feet
LOGGED BY	M. EDDY	DATE STARTED	6/29/15
DRILL RIG	DP	DATE COMPLETED	6/29/15

PLATE
B-3

PES Environmental, Inc.
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LOG OF SOIL BORING SB-4

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				DARK BROWN SILT WITH SAND (ML) 7.5YR 3/2, moist, medium, very fine-grained sand, (0% gravel, 20% sand, 80% fines)
0.0		5		Sample ID: SB-4-4.5-5.0
				DARK YELLOWISH BROWN SILTY SAND (SM) 10YR 4/4, moist, stiff, fine - to medium - grained sand, (0% gravel, 70% sand, 30% fines)
0.8		10		Sample ID: SB-4-9.5-10.0
				OLIVE GRAY SILTY SAND (SM) 5Y 4/2, moist, stiff, very fine- to very fine-grained sand, (0% gravel, 60% sand, 40% fines), strong organic odor
20.5				
80.0				OLIVE GRAY SAND WITH SILT AND GRAVEL (SW-SM) 5Y 4/2, moist, medium - to coarse - grained sand, well graded subangular 0.2- to 0.5-inch diameter gravel, (20% gravel, 70% sand, 10% fines), petroleum odor present
		15		
				YELLOWISH BROWN CLAY WITH SAND (CL) 10YR 5/6, moist, very stiff, medium - to coarse - grained sand, (0% gravel, 15% sand, 85% fines)
		20		3-inch saturated interval beginning at 20 feet bgs, soft
				Boring terminated at 22 feet bgs
		25		

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Exp. 5/17
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PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	22 feet
LOGGED BY	M. EDDY	DATE STARTED	6/30/15
DRILL RIG	DP	DATE COMPLETED	6/30/15

PLATE
B-4

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LOG OF SOIL BORING SB-5

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				ASPHALT
				BROWN SAND (SW) 7.5 YR 4/3, loose, fine - to medium - grained sand, (0% gravel, 100% sand, 0% fines), possible fill sand
0.0		5		Sample ID: SB-5-4.5-5.0
				GRAY SILTY SAND (SM) 5Y 5/1, moist, medium dense, fine - grained, (0% gravel, 70% sand, 30% fines)
0.0		10		Sample ID: SB-5-9.5-10.0
				YELLOWISH BROWN CLAY WITH SAND (CL) 10YR 5/6, moist, very stiff, medium - to coarse - grained sand, (0% gravel, 15% sand, 85% fines), 2-inch gravel interval beginning at 13.5 feet bgs
		15		
				Mottling at 17 feet bgs Increase in sand to (0% gravel, 35% sand, 65% fines)
		20		
				YELLOWISH BROWN GRAVEL WITH CLAY AND SAND (GP-GC) 10YR 5/6, wet, stiff, medium- to fine-grained sand, subangular 0.2- to 0.5-inch diameter gravel, (60% gravel, 20% sand, 20% fines)
				Boring terminated at 24 feet bgs.
		25		

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Exp. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	24 feet
LOGGED BY	M. EDDY	DATE STARTED	6/30/15
DRILL RIG	DP	DATE COMPLETED	6/30/15

PLATE
B-5

PES Environmental, Inc.
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LOG OF SOIL BORING SB-6

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				ASPHALT
				BROWN SAND (SW) 7.5 YR 4/3, loose, fine - to medium - grained sand, (0% gravel, 100% sand, 0% fines), possible fill sand
				BLACK CLAY WITH SAND (CL) 5Y 2.5/1, moist, stiff, fine-grained sand, (0% gravel, 20% sand, 80% fines)
		5		Sample ID: SB-6-4.5-5.0
				GRAY SILTY SAND (SM) 5Y 5/1, moist, medium dense, fine - grained, (0% gravel, 70% sand, 30% fines)
		10		Sample ID: SB-6-9.5-10.0
				∇ 4-inch saturated zone beginning at 12.5 feet bgs
				YELLOWISH BROWN CLAY WITH SAND (CL) 10YR 5/6, moist, very stiff, medium - to coarse - grained sand, (0% gravel, 15% sand, 85% fines)
		15		
				YELLOWISH BROWN GRAVEL WITH CLAY AND SAND (GP-GC) 10YR 5/6, wet, stiff, medium - to coarse - grained sand, subangular 0.2- to 0.5-inch diameter gravel, (60% gravel, 20% sand, 20% fines)
		20		
				Boring terminated at 24 feet bgs.
		25		

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Exp. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	20 feet
LOGGED BY	M. EDDY	DATE STARTED	6/30/15
DRILL RIG	DP	DATE COMPLETED	6/30/15

PLATE
B-6

PES Environmental, Inc.
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LOG OF SOIL BORING SV-7

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				BLACK SILTY CLAY (CL) damp, soft, medium plasticity, trace fine - grained sand, moderate organic odor.
15.8				
				Grades with decreasing silt below 2.5 feet bgs. SV-7-2.5-3.0
261				
				Greenish gray, firm, medium plasticity, ~20% fine - grained sand, strong organic odor below 3.5 feet bgs.
368				
517				SV-7-4.5-5.0
		5		Boring terminated at 5 feet bgs.
		10		
		15		
		20		
		25		
		30		

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Exp. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	5 feet
LOGGED BY	M. JONES	DATE STARTED	7/14/15
DRILL RIG	GEOPROBE 450M	DATE COMPLETED	7/14/15

PLATE
B-7

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LOG OF SOIL BORING SV-8

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				TILE AND CONCRETE
				DARK GRAYISH BROWN SILTY CLAY (CL) damp, firm, with fine - grained sand, medium plasticity, no odor.
0.0				
0.0				DARK YELLOWISH BROWN CLAY (CH) damp, firm, high plasticity, no odor. SV-8-4.5-5.0
		5		Boring terminated at 5 feet bgs.
		10		
		15		
		20		
		25		
		30		

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PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	5 feet
LOGGED BY	M. JONES	DATE STARTED	7/14/15
DRILL RIG	GEOPROBE 450M	DATE COMPLETED	7/14/15

PLATE
B-8

PES Environmental, Inc.
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LOG OF SOIL BORING SV-9

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				DARK GRAYISH BROWN SILTY CLAY (CL) damp, firm, trace fine sand, medium plasticity.
				DARK YELLOWISH BROWN CLAY (CH) damp, firm, fine - grained sand, high plasticity, no odor. SV-9-4.5-5.0
		5		Boring terminated at 5 feet bgs.
		10		
		15		
		20		
		25		
		30		

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EXP. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	5 feet
LOGGED BY	M. JONES	DATE STARTED	7/14/15
DRILL RIG	GEOPROBE 450M	DATE COMPLETED	7/14/15

PLATE
B-9

PES Environmental, Inc.
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LOG OF SOIL BORING SV-10

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				DARK GRAYISH BROWN SILTY CLAY (CL) damp, firm, trace fine sand, medium plasticity, mild organic odor.
11.7				
				SV-10-2.5-3.0
0.1				
0.4				DARK YELLOWISH BROWN CLAY (CH) damp, firm, fine - grained sand, high plasticity, no odor. SV-10-4.5-5.0
		5		Boring terminated at 5 feet bgs.
		10		
		15		
		20		
		25		
		30		

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No. 9125
EXP. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	5 feet
LOGGED BY	M. JONES	DATE STARTED	7/14/15
DRILL RIG	GEOPROBE 450M	DATE COMPLETED	7/14/15

PLATE
B-10

PES Environmental, Inc.
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LOG OF SOIL BORING SV-11

PID (ppm)	Blows/6-in.	DEPTH (FT)	GRAPHICS	MATERIALS DESCRIPTION
				CONCRETE
				DARK GRAYISH BROWN CLAYEY SILT (ML) damp, soft, low plasticity, no odor.
0.1				Dark yellowish brown below 3 feet bgs, trace fine gravel.
				VERY DARK GRAYISH BROWN CLAY (CH) damp, firm, high plasticity, trace fine - grained sand, no odor.
0.0				SV-11-4.5-5.0
		5		Boring terminated at 5 feet bgs.
		10		
		15		
		20		
		25		
		30		

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MORGAN G. JONES
No. 9125
EXP. 5/17
STATE OF CALIFORNIA

PROJECT		REVIEWED BY	MJ
LOCATION	2401 Broadway, Oakland	DIAMETER OF HOLE	2.25 inches
JOB NUMBER	0935.044.01.002	TOTAL DEPTH OF HOLE	5 feet
LOGGED BY	M. JONES	DATE STARTED	7/14/15
DRILL RIG	GEOPROBE 450M	DATE COMPLETED	7/14/15

PLATE
B-11

DISTRIBUTION

SITE MITIGATION AND CONTINGENCY PLAN
2401 BROADWAY
OAKLAND, CALIFORNIA
GeoTracker Global ID T0600102225

JANUARY 11, 2016

COPY NO. _____

		Copy No.
3 Copies	Signature Land Advisors, Inc. 2335 Broadway, Suite 200 Oakland, California 94612 Attention: Mr. Jamie Choy	1 – 3
2 Copies	PES Job Files	4 - 5
1 Copy	Unbound Original	6

APPENDIX E

Greenhouse Gas Reduction Plan

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Prepared for:
Signature Development Group

Prepared By:
Ramboll Environ US Corporation
San Francisco, California

Date
August 2017

Project Number
03-43604A

GREENHOUSE GAS REDUCTION PLAN

24TH AND BROADWAY
OAKLAND, CALIFORNIA

RAMBOLL ENVIRON

CONTENTS

1.	**INTRODUCTION**	**1**
1.1	Project Description and Overview	1
1.2	SCA GHG-1	2
2.	**SUMMARY OF GHG EMISSIONS**	**3**
2.1	Summary of Existing Conditions GHG Emissions	3
2.2	Proposed One-time Project GHG Emissions	3
2.2.1	Summary of Construction GHG Emissions	3
2.2.2	Summary of Land-Use Change and Vegetation GHG Emissions	3
2.3	Proposed Ongoing Project GHG Emissions	3
2.3.1	Methodology for Project Emissions Inventories	4
2.4	Current State and Local Requirements that Reduce GHG Emissions	6
2.4.1	State and Local Requirements	6
2.4.2	Comparison of 2005 BAU and 2020 Project Emissions Inventories	7
3.	**PROPOSED GHG REDUCTION MEASURES**	**9**
3.1	GHG Reduction Measures	9
3.2	Additional Potential GHG Reductions Not Quantified	10
4.	**IMPLEMENTATION AND ANNUAL REPORTING**	**11**
4.1	Plans for Future Reporting	11
5.	**SUMMARY**	**12**

TABLES

Table 1: Project Land Uses

Table 2: Summary of Full Buildout 2005 BAU Project and 2020 Project Greenhouse Gas Emissions (MT/yr CO_2e)

Table 3: Summary of Options for Mitigation Measures That Would Achieve the City's SCA GHG-1 Requirements

APPENDICES

Appendix A: Supporting Calculations

ACRONYMS AND ABBREVIATIONS

ARB:	[California] Air Resources Board
BAAQMD:	Bay Area Quality Management District
BAU:	business as usual
CEQA:	California Environmental Quality Act
CO_2:	Carbon Dioxide
CO_2e:	Carbon Dioxide Equivalent
CPUC:	California Public Utilities Commission
ECAP:	Energy and Climate Action Plan
EIR:	Environmental Impact Report
ESA:	Environmental Science Associates
GGRP:	Greenhouse Gas Reduction Plan
GHG:	Greenhouse Gas
MT:	metric ton
MT/yr:	metric ton per year
N_2O:	nitrous oxide
PG&E:	Pacific Gas and Electric Company
SCA:	Standard Condition of Approval
SP:	service population
TDM:	Transportation Demand Management
VMT:	vehicle miles traveled

1. INTRODUCTION

The City of Oakland, California, requires a greenhouse gas (GHG) Reduction Plan (GGRP) for the 24th and Broadway Project ("Project") as a standard condition of approval (SCA). The Project is pursuing environmental entitlements under the California Environmental Quality Act (CEQA), with the City of Oakland as the lead agency. Under SCA GHG-1, the City of Oakland requires a GGRP that requires the Project to increase energy efficiency and reduce GHG emissions below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance, as defined in the City's Energy and Climate Action Plan (ECAP).

1.1 Project Description and Overview

The Project site is comprised of 1.21 acres at 2401 Broadway, which includes 2417 Broadway, 422 24th Street, and 437 25th Street, and consists of four parcels. The site is bounded by two vacant single-story commercial/industrial buildings to the west, 24th Street to the south, Broadway to the east, and a small surface parking lot and 25th Street to the north. The project site is located in Subdistrict 3 of the Valdez Triangle Subarea of the BVDSP Plan Area, Retail Priority Site 2, and is northeast of Uptown Oakland and northwest of Lake Merritt.

The project site is accessible from Interstate 580, approximately 0.7 miles to the north, and Interstate 980/State Route 24, approximately 0.5 miles to the west. Multiple transit routes serve the project site, including Alameda-Contra Costa County Transit District (AC Transit) Routes 6, 51A, 651, 800, 851, and the Broadway Shuttle. The 19th Street Bay Area Rapid Transit District (BART) station is approximately 0.5 miles south of the site, and the MacArthur BART station is approximately 1.3 miles northwest of the site.

The Project site is currently occupied by two surface parking lots and a Mitsubishi and Kia service and parts center.

The Proposed Project would demolish the existing buildings and surface parking lots and would construct one three- to six-story mixed- used building. Table 1 shows the breakdown of proposed land uses.

Table 1. Project Land Uses

Land Use	Size	Units	Service Population
Hotel	159	Rooms	144
Apartment	72	Dwelling Units	135
Total Commercial Space (i.e., supermarket, health club, restaurant, other)	27,169	Square Feet	54
Parking Garage with Elevator	18,490	Square Feet	

The Project is anticipated to be fully built and occupied in the year 2020, with a service population (SP) (residents and employees) of 333. The existing service population consists of 45 employees.

1.2 SCA GHG-1

The City of Oakland applies *SCA GHG-1: Greenhouse Gas (GHG) Reduction Plan* to all projects which result in a net increase in GHG emissions. This GGRP is responsive to the requirements of SCA GHG-1, namely that the "project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval." The basic requirements of SCA GHG-1 are stated below, in text from SCA GHG-1:

> The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO_2e per year or 4.6 metric tons of CO_2e per year per service population). The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), (c) a comprehensive set of quantified additional GHG reduction measures available to further reduce GHG emissions beyond the adjusted GHG emissions, and (d) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented.

The GGRP shall be implemented beginning with Project construction, for instance construction of physical GHG reduction measures incorporated into the design of the Project. During and after construction, the applicant is committed to ongoing monitoring and reporting to ensure that GHG reduction measures are being implemented.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either of the two potentially applicable numeric BAAQMD CEQA Thresholds, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue as directed by SCA GHG-1.

As part of this GHG Reduction Plan, Ramboll Environ prepared a detailed GHG emissions inventory for the project under a 2005 "business-as-usual" (BAU) scenario (hereafter called the "2005 BAU Project") with no consideration of regulatory standards adopted thereafter designed to reduce GHG emissions or other energy efficiencies. This 2005 BAU Project inventory is compared to an "adjusted" baseline GHG emissions inventory for the Project (hereafter called the "Project scenario"), taking into consideration energy efficiencies included as part of the Project (including the City's Standard Conditions of Approval, project design features, other City requirements, and federal, state and other local regulatory standards enacted since 2005). GHG emission sources associated with the Project include both on-site and off-site sources. On-site sources include off-road mobile equipment (loaders, tractors, etc.) during construction, on-road vehicles, and area sources such as hearths. Off-site sources include on-road vehicles and emissions from solid waste disposal. GHG emissions from purchased electricity, including for the supply, distribution, and treatment of water, are off-site sources. A summary of this analysis is provided in Section 2.

2. SUMMARY OF GHG EMISSIONS

Emissions representing two operational years were considered: 2005 and 2020 representing the baseline year for the City of Oakland's GHG reduction goal the year when construction of the project is anticipated to be complete, respectively.

The inventories for each year were based on information from the Project Description, information provided by the Project Sponsor to Environmental Science Associates (ESA) for the CEQA Analysis Document, as well as information from the Project traffic consultant. Ramboll Environ prepared a detailed GHG emissions inventory for the project under a 2005 BAU scenario with no consideration of project design features or other energy efficiencies. ESA prepared the "adjusted" baseline GHG emissions inventory for the project in the CEQA Analysis Document, taking into consideration energy efficiencies included as part of the project (including project design features and other City requirements). Details on the emissions inventories are provided below for the existing conditions, Project construction, and the proposed Project.

Methods for the Project scenario are discussed here for informational purposes and to compare to the 2005 BAU scenario only. Ramboll Environ estimated emissions for the 2005 BAU, but relied on CEQA Analysis Document emissions for the Project scenario.

2.1 Summary of Existing Conditions GHG Emissions

As noted above, at the time of the Notice of Preparation of the Project EIR, existing uses included two surface parking lots and a Mitsubishi and Kia service and parts center. As described further in the CEQA Analysis Document, the existing land uses emit 438 metric tons (MT) of carbon dioxide equivalents (CO_2e) per year. These emissions will be eliminated due to the Project so are subtracted from the Project GHG inventory.

2.2 Proposed One-time Project GHG Emissions

2.2.1 Summary of Construction GHG Emissions

ESA calculated construction emissions using the California Emission Estimator Model version 2016.3.1 (CalEEMod®) and construction activity. Total construction emissions are 861 metric tons (MT) of carbon dioxide equivalents (CO_2e). For inclusion in the ongoing GHG emissions inventory, this amount is annualized over the anticipated 40-year life of the Project, to an amount of 22 MT CO_2e per year. The same activity was used to estimate emissions in the BAU scenario, but 2005 emission factors were used.

2.2.2 Summary of Land-Use Change and Vegetation GHG Emissions

Permanent vegetation changes that occur as a result of land use development constitute a one-time change in the carbon sequestration capacity of a project site. In this case, no construction is proposed in open space areas, and redevelopment will be landscaped with trees where feasible. This will result in an overall negligible change in carbon sequestration once the vegetation reaches a steady state (i.e., new vegetation replaces dying vegetation). Consequently, vegetation change results in a negligible change in GHG emissions for this Project.

2.3 Proposed Ongoing Project GHG Emissions

Two analyses were prepared for proposed Project emissions, to reflect the Project and 2005 BAU scenarios. The use of 2005 BAU to represent the Project without adjustment for statewide and Project design GHG reduction measures is consistent with the emissions

reductions goal described in SCA GHG-1. The Project emissions were estimated by ESA in the CEQA Analysis Document. Accordingly, it includes all local, state, and federal measures expected to be implemented by 2020, including the SCAs. The Project scenario does not include the benefits of the Transportation Demand Management (TDM) program or solid waste reductions required by the City of Oakland Zero Waste target. These reductions are included in the GHG reduction measures in Section 3.

2.3.1 Methodology for Project Emissions Inventories

The Project operations were analyzed for the years 2005 and 2020, as discussed earlier. ESA's analysis of Project GHG emissions uses CalEEMod® version 2016.3.1. Consistent with the methodology in the Oakland ECAP, Ramboll Environ analyzed the 2005 BAU Project as if it was operating in 2005, and using CalEEMod® version 2016.3.1. Methods for the Project scenario are discussed here for informational purposes and to compare to the 2005 BAU scenario only. Ramboll Environ estimated emissions for the 2005 BAU, but relied on CEQA Analysis Document emissions for the Project scenario.

The GHG inventories are divided by source category to cover

1. Area Sources
2. Purchased electricity use not related to water usage
3. Natural gas use
4. Water usage, including purchased electricity use
5. Waste
6. Mobile Sources.

Each source category is discussed separately below.

2.3.1.1 Area Sources

The proposed Project includes area sources such as architectural coatings, consumer products use, hearths, and landscaping equipment. CalEEMod® does not consider architectural coatings and consumer products to be sources of GHG.

Hearth emissions for the 2020 Project were calculated with CalEEMod®. BAAQMD Rule 6-3-306 does not allow wood stoves in new building construction after November 1, 2016, so the percentage of dwelling units with wood stoves was assumed to be zero. The CalEEMod® default count of dwelling units with wood stoves was assumed to be zero, while the default number of dwelling units were assumed to still have natural gas fireplaces.

Hearth emissions for the 2005 BAU Project were calculated with CalEEMod®, assuming the default mix of wood and natural gas hearths. Although BAAQMD Rule 6-3-306 does not allow wood stoves in new building construction after November 1, 2016, the 2005 BAU Project does not reflect the implementation of this new rule, as the new rule is not considered business as usual for 2005 activity levels.

The Project land uses will employ gasoline and diesel landscaping equipment. Emissions from lawn and garden equipment are estimated using CalEEMod®. CalEEMod®'s emissions estimates are based on emission factors for the landscaping equipment from the California Air Resources Board (ARB) OFFROAD2011 model.

2.3.1.2 Purchased Electricity Not Related to Water Use

The Project includes operational emissions associated with purchased electricity for lighting, heating, household electronics, electric vehicle charging, and other uses not associated with water supply, treatment, and distribution. CalEEMod® estimates emissions based electricity use and carbon intensity of electricity.

CalEEMod® provides default electricity intensities based on the type and size of land uses associated with the Project. ESA adjusted the building envelope electricity usage for the 2020 Project to account for the 2016 Title 24 building energy efficiency standards, which will be in effect at the commencement of Project construction. The 2005 BAU Project inventory relies on the historical energy consumption data in CalEEMod®, which is more representative of energy consumption in 2005.

For estimating GHG emissions from electricity use for the 2020 Project, the Pacific Gas and Electric Company (PG&E) CO_2 intensity factor for 2020 was used in place of the default carbon intensity in CalEEMod®.[1] This intensity factor takes into account the State's Renewable Portfolio Standard (RPS) that requires 33% of electricity to be renewable in 2020. The 2005 BAU Project uses the default CalEEMod® CO_2 intensity factor. The default carbon intensity is from PG&E's 2008 carbon intensity for electricity. This intensity takes into consideration some benefit of the 2010 RPS goals due to the ramp up of renewables, so is conservative to assume for 2005.

2.3.1.3 Natural Gas

The Project emits GHGs from on-site natural gas combustion. ESA estimated 2020 Project emissions using CalEEMod® based on the type and size of land uses associated with the Project. Consistent with the approach for electricity use, ESA adjusted the building envelope natural gas usage for the Project to account for the 2016 Title 24 building energy efficiency standards, which apply to the Project. The 2005 BAU Project inventory relies on the historical energy consumption data in CalEEMod®, which is more representative of energy consumption in 2005.

2.3.1.4 Water Use, Including Purchased Electricity

Electricity is required to supply, treat, and distribute water and wastewater, and as such water use is a source of GHG emissions. The water use estimate for the Project is the CalEEMod® default for the Project land uses for Alameda County, minus a 20 percent reduction in indoor water consumption to comply with mandatory CalGreen requirements. As with GHG emissions from purchased electricity not related to water use, ESA used the PG&E CO_2e intensity factor for 2020 in place of the default energy intensity in CalEEMod® for the 2020 Project. As described in Section 2.3.1.2, the CalEEMod® emission factor for 2005 CO_2 intensity is used for water-related purchased electricity emissions from the 2005 BAU Project. Based on the design of the East Bay Municipal Utility District's wastewater treatment plan, emissions estimated from wastewater treatment assumed a process with 100 percent aerobic biodegradation and 100 percent anaerobic digestion with cogeneration. The indoor water demand is 20 percent higher for 2005 BAU than the 2020 Project, while the outdoor water demand is the same for 2005 as for the 2020 Project.

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[1] Pacific Gas and Electric Company (PG&E). Greenhouse Gas Emission Factors: Guidance for PG&E Customers. November 2015. Available online at: http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

2.3.1.5 Waste

Waste generated by the Project will result in GHG emissions, which ESA estimated using CalEEMod®. The Oakland ECAP accounts for the City of Oakland Zero Waste goal, which reduces GHG emissions from waste by 89% between 2005 and 2020. However, this reduction has not been incorporated into the Project scenario, so the waste disposal is the same in the 2005 BAU and 2020 Project scenarios.

2.3.1.6 Mobile Sources

The Project would generate vehicle trips from residents traveling to and from the site and non-residents traveling to and from the site for work or commercial purposes. ESA relied on the trip generation data in the transportation impact analysis prepared by Fehr & Peers to estimate 2020 Project emissions using CalEEMod®. These trips incorporate a 43% reduction due to proximity to BART and other transit. This reduction is based on the City of Oakland *Transportation Impact Review Guidelines*[2] for projects less than 0.5 miles from Bay Area Rapid Transit (BART).

The Project is next to BART. One of the goals of Oakland's ECAP is to "encourage dense, transit-oriented, mixed-use development including housing, retail services and/or employment opportunities centered on transit hubs and corridors." Thus, the proximity to BART is a project feature that reduces GHG emissions compared to a "business as usual" case. As discussed above, trips for the Project were based on Institute of Transportation Engineers (ITE) *Trip Generation* (9th Edition) and were reduced by 43% due to the Project's proximity to BART for the Project analysis in the EIR. The rates generated directly from ITE would likely not be a representative BAU trip rate because they represent suburban new development. Thus, these BAU trip rates are reduced by 23.1% to represent an urban development that is not adjacent to BART.[3] The 23.1% reduction is consistent with a reduction for an urban development a mile away from BART from City of Oakland *Transportation Impact Study Guidelines*, which is the same source for the 43% reduction used for the Project. The 2005 BAU Project mobile source GHG emissions rely on emission factors for 2005, which is consistent with method used in the ECAP analysis.

2.3.1.7 Existing Land Uses

The Project site is currently occupied by two surface parking lots and a Mitsubishi and Kia service and parts center. Emissions from these land uses would be displaced by the Project. Emissions from existing land uses were estimated by ESA to be 438 MT CO_2e/year.

2.4 Current State and Local Requirements that Reduce GHG Emissions

2.4.1 State and Local Requirements

The following state programs and existing City requirements will reduce GHG emissions from the 2005 BAU scenario:

- The Project Transportation Demand Management (TDM) program will reduce trips by 20%, which reduces on-road mobile source emissions. This benefit is incorporated in the GHG reduction measures in Section 3.

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[2] City of Oakland. 2017. Transportation Impact Review Guidelines. Land Use Development Projects. April 17. Available online at: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak063581.pdf

[3] The Transportation and Circulation Section of the EIR estimated 2,900 daily trips for the Project from ITE Trip Generation (9th Edition). With the 23.1% reduction, the BAU is assumed to have 2,230 trips per day

- The Pavley Act and ACC programs reduce on-road vehicle fleet emissions
- The City of Oakland's Zero Waste goal will reduce GHG emissions from waste by 89%. This benefit is incorporated in Section 3.
- The Renewable Portfolio Standard will reduce GHG from PG&E electricity generation
- The BAAQMD Rule 6-3 eliminates wood-fired hearths in new homes, thereby reducing GHG emissions per hearth
- Increased penetration of electric vehicles will reduce GHG emissions from on-road mobile sources, even without assuming mandated changes to charging infrastructure
- Increased residential and nonresidential building energy efficiency due to 2016 Title 24 standards (in compliance with SCA GHG-2)

These requirements, other than the TDM and Zero Waste goal, are considered as part of the Project scenario.

2.4.2 Comparison of 2005 BAU and 2020 Project Emissions Inventories

Table 2 shows the 2005 BAU Project and 2020 Project GHG inventories, with a column showing the percent reduction in emissions from the 2005 BAU Project inventory by source category.

Emissions from area sources (hearths and landscaping), decrease by 34% from the 2005 BAU Project scenario due to the replacement of wood-fired hearths with natural gas fireplaces, as required by BAAQMD Rule 6-3.

Emissions related to purchased electricity and natural gas decrease by 59% and 9%, respectively, due to the combined impacts of increased building energy efficiency and reductions in the carbon intensity of electricity provided by PG&E. These reductions are from the Title 24 building energy efficiency standards and the state Renewables Portfolio Standard.

Emissions related to water use, which are from wastewater treatment and the purchased electricity used to supply, distribute and treat the water, are reduced by 52%, due to the state Renewables Portfolio Standard lowering the carbon intensity of purchased electricity between the 2005 BAU Project and 2020 Project scenarios.

Between the 2005 BAU Project and 2020 Project scenarios, emissions from waste are constant, as this analysis did not take into account Oakland's Zero Waste goal.

On-road mobile source emissions decrease by 34% between the 2005 BAU Project scenario and the 2020 Project scenario. This is due to the reduction in trips for the Project due to its location next to BART. Also, the fleet average emission factors from CalEEMod® show that the vehicle fleet is more efficient by 2020.

Table 2: Summary of Full Buildout 2005 BAU Project and 2020 Project Greenhouse Gas Emissions (MT/yr CO_2e)

Source Category	GHG Emissions for 2005 BAU Project, Full Buildout (MT CO_2e/yr)	GHG Emissions for 2020 Project, Full Buildout (MT CO_2e/yr)	Percent Reduction from 2005 BAU Project
Hearths and Landscaping	6	3.8	34%
Purchased Electricity	473	193	59%
Natural Gas	240	218	9%
Water Use	28	14	52%
Waste Disposed	75	75	0%
Traffic	2,163	1,436	34%
Annualized Construction	23	22	8%
Total	3,009	1,962	35%
Existing Emissions	--	468	--
Net Increase	--	1,523	--
Net Service Population	--	288	--
Net Project Emissions per Service Population	--	5.29	--

Table 2 shows that the Project achieves a 35% reduction from the 2005 BAU Project scenario and a net project emission per service population of 5.29 MT CO_2e/SP/year.

3. PROPOSED GHG REDUCTION MEASURES

SCA GHG-1 requires the GGRP to both reduce GHG emissions per service population to below 4.6 MT CO_2e/SP/year. As shown in Section 2.4.2, the Project emissions are 35% below the 2005 BAU emissions and 5.29 MT CO_2e/SP/year. This section describes the reduction measures that are proposed to achieve the emissions reductions required by SCA GHG-1.

3.1 GHG Reduction Measures

To meet the SCA GHG-1 requirements, even after complying with other SCAs, local, and state regulations, the Project must reduce its GHG emissions to below 4.6 MT CO_2e/SP/year. To meet the 4.6 MT CO_2e/SP/year limit, the Project must reduce its emissions to 1,763 MT CO_2e/year, which is a 41% reduction from BAU and a net increase of 1,325 MT CO_2e/year. This equates to an additional reduction of 198 MT CO_2e/year.

As discussed below and summarized in Table 3, Ramboll Environ proposes a menu of measures that either singularly or in combination would accomplish the required numeric reductions. Note not all the measures identified below need to be implemented. This GGRP requires the project applicant to implement any mix or fraction of the measures listed in Table 3, provided that the mix results in an additional reduction of 198 MT CO_2e/year.

Table 3: Summary of Options of Mitigation Measures That Would Achieve The City's SCA GHG-1 Requirements

Source Category	Mitigation Measure	Reduction from Project (MT CO_2e)	Percent Reduction from BAU
Hearths	Elimination of natural gas fireplaces	2.9	0.1%
Solid Waste	Comply with Oakland Zero Waste 2020 target (89% reduction in waste)	67	2.2%
On-Road Exhaust	Comply with TDM Plan (20% reduction in mobile trips)	287	9.5%
	Install three electric vehicle chargers in commercial parking lots[A]	59	2.0%

Notes
[A] To achieve this reduction, vehicles would need to be charging for a total of 24 hours per day. This can be achieved with 3 chargers charging vehicles for 8 hours per day or with more chargers and fewer hours per day per charger. Additional chargers can be installed for additional reductions.

The measures are described as follows:

- Hearths: Natural gas combustion in decorative fireplaces (hearths) emits GHGs. By eliminating all hearths, GHG emissions from hearths for the Project are eliminated.

- Solid Waste: The Oakland ECAP accounts for the City of Oakland Zero Waste goal, which reduces GHG emissions from waste by 89% between 2005 and 2020.[4] By complying with the City of Oakland goal, solid waste emissions for the Project will be reduced by 89% from Business-as-Usual.
- TDM Plan: As required by SCA TRA4, the Project will implement a TDM program to reduce trips by 20%. The trips reduction will have a direct effect on running exhaust emissions from on-road vehicles. If trips are reduced by a different percentage, this reduction in emissions can be scaled linearly.
- Electric Vehicle Chargers: The Project can install electric vehicle charging stations in commercial parking lots to encourage electric vehicle adoption and use. Gasoline and diesel cars emit GHGs through fuel combustion, while electric vehicle charging results in indirect GHG emissions from fossil fuels used to generate electricity. The different between the indirect electricity GHG emissions and the fossil fuel combustion emissions for the miles assumed to be provided by the charging stations is the GHG benefit due to this measure.

3.2 Additional Potential GHG Reductions Not Quantified

The Project could reduce emission from mobile sources by installing electric car chargers in residential garages, which is anticipated to increase electric car penetration. The current assumptions of CalEEMod® do not account for changes in infrastructure that would encourage electric cars, promoting early adoption. Building electric vehicle chargers into new homes may lead to a higher localized use of electric vehicles, which would reduce the Project's mobile GHG emissions inventory. This analysis conservatively does not quantify any benefit from the installation of electric car chargers in residential garages. Furthermore, installing additional chargers in the commercial areas will further decrease GHG emissions. This analysis conservatively assumed only three chargers, charging vehicles for 8 hours per day each. However, with additional chargers, more electric vehicles can charge and reduce emissions further.

The California Public Utilities Commission (CPUC) has set a goal that by 2020, all new residential construction in California will be of Zero Net Energy (ZNE) homes. "ZNE" is defined as producing as much energy as what is consumed over the course of a year. This is anticipated to be codified in the 2019 Title 24 building energy efficiency standards. The current CPUC goal for commercial buildings is that they are also ZNE by 2030. This Project will comply with the Title 24 building energy efficiency standards in place at the time of construction. To the extent that homes built after 2019 are designed to meet future Title 24 standards, the emissions reductions in the Project scenario would exceed what is shown here, leading to lower emissions per service population and a greater percent reduction from 2005 BAU.

[4] City of Oakland. Zero Waste. Available at: http://www2.oaklandnet.com/Government/o/PWA/o/FE/s/IDR/o/ZW/index.htm. Accessed: August 2017.

4. IMPLEMENTATION AND ANNUAL REPORTING

Following submission of this GGRP to the City of Oakland, the City must approve the plan. Subsequent to approval by the City, the master developer and subsequent builders will implement the approved GGRP during construction, including "1) submitting drawings of GGRP measures to the City Planning Director or his/her designee for review and approval, 2) implementing off-site measures, or 3) purchasing carbon credits." For the Project, this may include submitting drawings of proposed electric vehicle charging stations.

In the operational phase of the Project, the Homeowners Association and commercial tenants will prepare and submit annual GGRP monitoring reports to the City of Oakland until the goals of SCA GHG-1 are fully attained. Full attainment is reached when project GHG emissions are below 4.6 MT CO_2e/SP/year, as confirmed by the City through an established monitoring program.

4.1 Plans for Future Reporting

Reports that verify annual operational inventories will be submitted to the City of Oakland on an ongoing basis. The GHG emissions metrics discussed in Sections 2.4.2 can be used to determine the overall inventory once the Project is in operation, although with time the emissions inventory methods may evolve. Monitoring of the GGRP by the City of Oakland will begin with Project construction, and the project applicant will begin reporting of Project emissions, after full Project construction and occupancy. If in five successive years (including at least one year reflecting complete development/occupancy of the entire Project), the Project is found to meet the stated GGRP goal, additional monitoring and reporting shall not be required.

5. SUMMARY

This GHG Reduction Plan demonstrates the Project can meet the goals of SCA GHG-1. Specifically, the goals met by this GGRP are to increase energy efficiency and reduce GHG emissions to below the applicable BAAQMD CEQA Threshold of Significance pertaining to an efficiency metric based on the Project's total population, and to reduce GHG emissions below 4.6 MT CO_2e/SP/year, consistent with the City's ECAP.

APPENDIX A
SUPPORTING CALCULATIONS

2401 Broadway - Hotel Option

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	18.49	1000sqft	0.00	18,533.00	0
Hotel	159.00	Room	0.00	93,594.00	0
Apartments Mid Rise	72.00	Dwelling Unit	1.21	77,466.00	135
Regional Shopping Center	27.16	1000sqft	0.00	27,169.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2005 operational year

Land Use - Revised Land Use

Construction Phase - Phase projections 2005

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment

Off-road Equipment

Trips and VMT

Demolition

Grading

Vehicle Trips - 23.1% reduction from default ITE trip rates

Energy Use - Using historical data

Water And Wastewater - 20% more indoor water use

Stationary Sources - Emergency Generators and Fire Pumps

- none

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	200.00	420.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	50.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	PhaseEndDate	6/22/2007	6/22/2004
tblConstructionPhase	PhaseEndDate	3/2/2007	3/1/2005
tblConstructionPhase	PhaseEndDate	4/29/2005	4/29/2003
tblConstructionPhase	PhaseEndDate	7/22/2005	7/22/2003
tblConstructionPhase	PhaseEndDate	3/30/2007	3/30/2005
tblConstructionPhase	PhaseEndDate	5/13/2005	5/13/2003
tblConstructionPhase	PhaseStartDate	3/31/2007	3/31/2004
tblConstructionPhase	PhaseStartDate	7/23/2005	7/23/2003
tblConstructionPhase	PhaseStartDate	3/5/2005	3/5/2003
tblConstructionPhase	PhaseStartDate	5/14/2005	5/14/2003

tblConstructionPhase	PhaseStartDate	3/3/2007	3/3/2005
tblConstructionPhase	PhaseStartDate	4/30/2005	4/30/2003
tblGrading	AcresOfGrading	18.75	1.21
tblGrading	AcresOfGrading	5.00	1.21
tblGrading	MaterialExported	0.00	4,000.00
tblLandUse	BuildingSpaceSquareFeet	18,490.00	18,533.00
tblLandUse	BuildingSpaceSquareFeet	230,868.00	93,594.00
tblLandUse	BuildingSpaceSquareFeet	72,000.00	77,466.00
tblLandUse	BuildingSpaceSquareFeet	27,160.00	27,169.00
tblLandUse	LandUseSquareFeet	18,490.00	18,533.00
tblLandUse	LandUseSquareFeet	230,868.00	93,594.00
tblLandUse	LandUseSquareFeet	72,000.00	77,466.00
tblLandUse	LandUseSquareFeet	27,160.00	27,169.00
tblLandUse	LotAcreage	0.42	0.00
tblLandUse	LotAcreage	5.30	0.00
tblLandUse	LotAcreage	1.89	1.21
tblLandUse	LotAcreage	0.62	0.00
tblLandUse	Population	206.00	135.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2005
tblVehicleTrips	ST_TR	6.39	5.10
tblVehicleTrips	ST_TR	8.19	6.58
tblVehicleTrips	ST_TR	49.97	31.06
tblVehicleTrips	SU_TR	5.86	4.32
tblVehicleTrips	SU_TR	5.95	5.03
tblVehicleTrips	SU_TR	25.24	15.10
tblVehicleTrips	WD_TR	6.65	4.69
tblVehicleTrips	WD_TR	8.17	6.27
tblVehicleTrips	WD_TR	42.70	32.73
tblWater	AerobicPercent	87.46	100.00

tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2003	1.0287	5.6817	4.1564	0.0377	0.2232	0.3386	0.5619	0.0991	0.3357	0.4348	0.0000	397.6519	397.6519	0.0860	0.0000	399.8013
2004	4.1524	6.3144	6.7739	0.0434	0.1437	0.4156	0.5593	0.0389	0.4131	0.4520	0.0000	498.4300	498.4300	0.1255	0.0000	501.5680
2005	0.2294	1.0876	0.8687	8.2500e-003	0.0230	0.0736	0.0966	6.2200e-003	0.0733	0.0795	0.0000	92.0932	92.0932	0.0203	0.0000	92.5996
Maximum	**4.1524**	**6.3144**	**6.7739**	**0.0434**	**0.2232**	**0.4156**	**0.5619**	**0.0991**	**0.4131**	**0.4520**	**0.0000**	**498.4300**	**498.4300**	**0.1255**	**0.0000**	**501.5680**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2003	1.0287	5.6817	4.1564	0.0377	0.2232	0.3386	0.5619	0.0991	0.3357	0.4348	0.0000	397.6516	397.6516	0.0860	0.0000	399.8011
2004	4.1524	6.3144	6.7739	0.0434	0.1437	0.4156	0.5593	0.0389	0.4131	0.4520	0.0000	498.4297	498.4297	0.1255	0.0000	501.5677
2005	0.2294	1.0876	0.8687	8.2500e-003	0.0230	0.0736	0.0966	6.2200e-003	0.0733	0.0795	0.0000	92.0931	92.0931	0.0203	0.0000	92.5996
Maximum	**4.1524**	**6.3144**	**6.7739**	**0.0434**	**0.2232**	**0.4156**	**0.5619**	**0.0991**	**0.4131**	**0.4520**	**0.0000**	**498.4297**	**498.4297**	**0.1255**	**0.0000**	**501.5677**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**3-5-2005**	**6-4-2005**	0.2518	0.2518
		Highest	0.2518	0.2518

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0865	0.0123	0.8512	4.8000e-004		0.0353	0.0353		0.0353	0.0353	3.2825	2.2252	5.5077	6.6900e-003	2.2000e-004	5.7391
Energy	0.0241	0.2169	0.1693	1.3100e-003		0.0166	0.0166		0.0166	0.0166	0.0000	709.8834	709.8834	0.0259	8.7800e-003	713.1474
Mobile	2.5096	10.1746	27.1881	0.0724	1.5266	0.2235	1.7501	0.4117	0.2129	0.6246	0.0000	2,154.4214	2,154.4214	0.3254	0.0000	2,162.5566
Stationary	0.0308	0.1376	0.0785	1.5000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003	0.0000	14.2799	14.2799	2.0000e-003	0.0000	14.3300

Waste						0.0000	0.0000		0.0000	0.0000	30.1827	0.0000	30.1827	1.7838	0.0000	74.7764
Water						0.0000	0.0000		0.0000	0.0000	3.7985	21.6231	25.4216	0.0141	8.4600e-003	28.2948
Total	**3.6510**	**10.5414**	**28.2870**	**0.0743**	**1.5266**	**0.2800**	**1.8066**	**0.4117**	**0.2694**	**0.6811**	**37.2637**	**2,902.4330**	**2,939.6966**	**2.1578**	**0.0175**	**2,998.8443**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0865	0.0123	0.8512	4.8000e-004		0.0353	0.0353		0.0353	0.0353	3.2825	2.2252	5.5077	6.6900e-003	2.2000e-004	5.7391
Energy	0.0241	0.2169	0.1693	1.3100e-003		0.0166	0.0166		0.0166	0.0166	0.0000	709.8834	709.8834	0.0259	8.7800e-003	713.1474
Mobile	2.5096	10.1746	27.1881	0.0724	1.5266	0.2235	1.7501	0.4117	0.2129	0.6246	0.0000	2,154.4214	2,154.4214	0.3254	0.0000	2,162.5566
Stationary	0.0308	0.1376	0.0785	1.5000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003	0.0000	14.2799	14.2799	2.0000e-003	0.0000	14.3300
Waste						0.0000	0.0000		0.0000	0.0000	30.1827	0.0000	30.1827	1.7838	0.0000	74.7764
Water						0.0000	0.0000		0.0000	0.0000	3.7985	21.6231	25.4216	0.0141	8.4600e-003	28.2948
Total	**3.6510**	**10.5414**	**28.2870**	**0.0743**	**1.5266**	**0.2800**	**1.8066**	**0.4117**	**0.2694**	**0.6811**	**37.2637**	**2,902.4330**	**2,939.6966**	**2.1578**	**0.0175**	**2,998.8443**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Demolition	Demolition	3/5/2003	4/29/2003	5	40	
2	Site Preparation	Site Preparation	4/30/2003	5/13/2003	5	10	
3	Grading	Grading	5/14/2003	7/22/2003	5	50	
4	Building Construction	Building Construction	7/23/2003	3/1/2005	5	420	
5	Paving	Paving	3/3/2005	3/30/2005	5	20	
6	Architectural Coating	Architectural Coating	3/31/2004	6/22/2004	5	60	

Acres of Grading (Site Preparation Phase): 1.21

Acres of Grading (Grading Phase): 1.21

Acres of Paving: 0

Residential Indoor: 156,869; Residential Outdoor: 52,290; Non-Residential Indoor: 181,145; Non-Residential Outdoor: 60,382; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42

Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	1,533.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	500.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	108.00	31.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1461	0.9484	0.3898	5.5200e-003		0.0679	0.0679		0.0679	0.0679	0.0000	48.3009	48.3009	0.0119	0.0000	48.5982
Total	**0.1461**	**0.9484**	**0.3898**	**5.5200e-003**		**0.0679**	**0.0679**		**0.0679**	**0.0679**	**0.0000**	**48.3009**	**48.3009**	**0.0119**	**0.0000**	**48.5982**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0702	0.8351	0.3220	6.1700e-003	0.0130	0.0312	0.0442	3.5600e-003	0.0299	0.0334	0.0000	63.4968	63.4968	7.3400e-003	0.0000	63.6803
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5800e-003	6.9800e-003	0.0584	4.0000e-005	2.0600e-003	8.0000e-005	2.1400e-003	5.5000e-004	7.0000e-005	6.2000e-004	0.0000	2.1952	2.1952	3.4000e-004	0.0000	2.2038
Total	**0.0758**	**0.8421**	**0.3803**	**6.2100e-003**	**0.0150**	**0.0313**	**0.0463**	**4.1100e-003**	**0.0299**	**0.0340**	**0.0000**	**65.6920**	**65.6920**	**7.6800e-003**	**0.0000**	**65.8841**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1461	0.9484	0.3898	5.5200e-003		0.0679	0.0679		0.0679	0.0679	0.0000	48.3008	48.3008	0.0119	0.0000	48.5981
Total	**0.1461**	**0.9484**	**0.3898**	**5.5200e-003**		**0.0679**	**0.0679**		**0.0679**	**0.0679**	**0.0000**	**48.3008**	**48.3008**	**0.0119**	**0.0000**	**48.5981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0702	0.8351	0.3220	6.1700e-003	0.0130	0.0312	0.0442	3.5600e-003	0.0299	0.0334	0.0000	63.4968	63.4968	7.3400e-003	0.0000	63.6803
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5800e-003	6.9800e-003	0.0584	4.0000e-005	2.0600e-003	8.0000e-005	2.1400e-003	5.5000e-004	7.0000e-005	6.2000e-004	0.0000	2.1952	2.1952	3.4000e-004	0.0000	2.2038
Total	**0.0758**	**0.8421**	**0.3803**	**6.2100e-003**	**0.0150**	**0.0313**	**0.0463**	**4.1100e-003**	**0.0299**	**0.0340**	**0.0000**	**65.6920**	**65.6920**	**7.6800e-003**	**0.0000**	**65.8841**

3.3 Site Preparation - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0270	0.0000	0.0270	0.0146	0.0000	0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1746	0.0631	1.0100e-003		9.8600e-003	9.8600e-003		9.8600e-003	9.8600e-003	0.0000	9.0478	9.0478	1.8400e-003	0.0000	9.0938
Total	**0.0226**	**0.1746**	**0.0631**	**1.0100e-003**	**0.0270**	**9.8600e-003**	**0.0369**	**0.0146**	**9.8600e-003**	**0.0244**	**0.0000**	**9.0478**	**9.0478**	**1.8400e-003**	**0.0000**	**9.0938**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	8.6000e-004	1.0700e-003	8.9800e-003	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	8.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.3377	0.3377	5.0000e-005	0.0000	0.3391
Total	**8.6000e-004**	**1.0700e-003**	**8.9800e-003**	**1.0000e-005**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**8.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.3377**	**0.3377**	**5.0000e-005**	**0.0000**	**0.3391**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0270	0.0000	0.0270	0.0146	0.0000	0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1746	0.0631	1.0100e-003		9.8600e-003	9.8600e-003		9.8600e-003	9.8600e-003	0.0000	9.0478	9.0478	1.8400e-003	0.0000	9.0938
Total	**0.0226**	**0.1746**	**0.0631**	**1.0100e-003**	**0.0270**	**9.8600e-003**	**0.0369**	**0.0146**	**9.8600e-003**	**0.0244**	**0.0000**	**9.0478**	**9.0478**	**1.8400e-003**	**0.0000**	**9.0938**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	1.0700e-003	8.9800e-003	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	8.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.3377	0.3377	5.0000e-005	0.0000	0.3391
Total	**8.6000e-004**	**1.0700e-003**	**8.9800e-003**	**1.0000e-005**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**8.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.3377**	**0.3377**	**5.0000e-005**	**0.0000**	**0.3391**

3.4 Grading - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1138	0.0000	0.1138	0.0622	0.0000	0.0622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0935	0.7175	0.2606	4.1400e-003		0.0409	0.0409		0.0409	0.0409	0.0000	37.0545	37.0545	7.6100e-003	0.0000	37.2448
Total	**0.0935**	**0.7175**	**0.2606**	**4.1400e-003**	**0.1138**	**0.0409**	**0.1547**	**0.0622**	**0.0409**	**0.1031**	**0.0000**	**37.0545**	**37.0545**	**7.6100e-003**	**0.0000**	**37.2448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0229	0.2724	0.1050	2.0100e-003	4.2300e-003	0.0102	0.0144	1.1600e-003	9.7400e-003	0.0109	0.0000	20.7100	20.7100	2.3900e-003	0.0000	20.7698
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	5.3700e-003	0.0449	3.0000e-005	1.5800e-003	6.0000e-005	1.6400e-003	4.2000e-004	6.0000e-005	4.8000e-004	0.0000	1.6886	1.6886	2.7000e-004	0.0000	1.6953
Total	**0.0272**	**0.2777**	**0.1499**	**2.0400e-003**	**5.8100e-003**	**0.0102**	**0.0160**	**1.5800e-003**	**9.8000e-003**	**0.0114**	**0.0000**	**22.3986**	**22.3986**	**2.6600e-003**	**0.0000**	**22.4651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					0.1138	0.0000	0.1138	0.0622	0.0000	0.0622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0935	0.7175	0.2606	4.1400e-003		0.0409	0.0409		0.0409	0.0409	0.0000	37.0545	37.0545	7.6100e-003	0.0000	37.2448
Total	**0.0935**	**0.7175**	**0.2606**	**4.1400e-003**	**0.1138**	**0.0409**	**0.1547**	**0.0622**	**0.0409**	**0.1031**	**0.0000**	**37.0545**	**37.0545**	**7.6100e-003**	**0.0000**	**37.2448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0229	0.2724	0.1050	2.0100e-003	4.2300e-003	0.0102	0.0144	1.1600e-003	9.7400e-003	0.0109	0.0000	20.7100	20.7100	2.3900e-003	0.0000	20.7698
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2900e-003	5.3700e-003	0.0449	3.0000e-005	1.5800e-003	6.0000e-005	1.6400e-003	4.2000e-004	6.0000e-005	4.8000e-004	0.0000	1.6886	1.6886	2.7000e-004	0.0000	1.6953
Total	**0.0272**	**0.2777**	**0.1499**	**2.0400e-003**	**5.8100e-003**	**0.0102**	**0.0160**	**1.5800e-003**	**9.8000e-003**	**0.0114**	**0.0000**	**22.3986**	**22.3986**	**2.6600e-003**	**0.0000**	**22.4651**

3.5 Building Construction - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4602	1.9316	1.1062	0.0134		0.1546	0.1546		0.1546	0.1546	0.0000	113.2657	113.2657	0.0375	0.0000	114.2039
Total	**0.4602**	**1.9316**	**1.1062**	**0.0134**		**0.1546**	**0.1546**		**0.1546**	**0.1546**	**0.0000**	**113.2657**	**113.2657**	**0.0375**	**0.0000**	**114.2039**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0682	0.6206	0.3912	4.4800e-003	0.0118	0.0219	0.0337	3.4100e-003	0.0210	0.0244	0.0000	48.6670	48.6670	8.4000e-003	0.0000	48.8771
Worker	0.1344	0.1681	1.4062	8.9000e-004	0.0495	1.9200e-003	0.0515	0.0132	1.7800e-003	0.0150	0.0000	52.8877	52.8877	8.3000e-003	0.0000	53.0952
Total	**0.2025**	**0.7887**	**1.7974**	**5.3700e-003**	**0.0613**	**0.0239**	**0.0852**	**0.0166**	**0.0228**	**0.0394**	**0.0000**	**101.5547**	**101.5547**	**0.0167**	**0.0000**	**101.9724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4602	1.9316	1.1062	0.0134		0.1546	0.1546		0.1546	0.1546	0.0000	113.2656	113.2656	0.0375	0.0000	114.2038
Total	**0.4602**	**1.9316**	**1.1062**	**0.0134**		**0.1546**	**0.1546**		**0.1546**	**0.1546**	**0.0000**	**113.2656**	**113.2656**	**0.0375**	**0.0000**	**114.2038**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0682	0.6206	0.3912	4.4800e-003	0.0118	0.0219	0.0337	3.4100e-003	0.0210	0.0244	0.0000	48.6670	48.6670	8.4000e-003	0.0000	48.8771
Worker	0.1344	0.1681	1.4062	8.9000e-004	0.0495	1.9200e-003	0.0515	0.0132	1.7800e-003	0.0150	0.0000	52.8877	52.8877	8.3000e-003	0.0000	53.0952
Total	**0.2025**	**0.7887**	**1.7974**	**5.3700e-003**	**0.0613**	**0.0239**	**0.0852**	**0.0166**	**0.0228**	**0.0394**	**0.0000**	**101.5547**	**101.5547**	**0.0167**	**0.0000**	**101.9724**

3.5 Building Construction - 2004

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0394	4.3627	2.4986	0.0303		0.3491	0.3491		0.3491	0.3491	0.0000	255.8243	255.8243	0.0848	0.0000	257.9434
Total	**1.0394**	**4.3627**	**2.4986**	**0.0303**		**0.3491**	**0.3491**		**0.3491**	**0.3491**	**0.0000**	**255.8243**	**255.8243**	**0.0848**	**0.0000**	**257.9434**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1539	1.4016	0.8836	0.0101	0.0267	0.0496	0.0762	7.7100e-003	0.0474	0.0551	0.0000	109.9203	109.9203	0.0190	0.0000	110.3949
Worker	0.3035	0.3798	3.1761	2.0100e-003	0.1119	4.3400e-003	0.1162	0.0298	4.0200e-003	0.0338	0.0000	119.4532	119.4532	0.0188	0.0000	119.9220
Total	**0.4575**	**1.7814**	**4.0596**	**0.0121**	**0.1385**	**0.0539**	**0.1924**	**0.0375**	**0.0514**	**0.0889**	**0.0000**	**229.3735**	**229.3735**	**0.0377**	**0.0000**	**230.3169**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0394	4.3627	2.4986	0.0303		0.3491	0.3491		0.3491	0.3491	0.0000	255.8240	255.8240	0.0848	0.0000	257.9431
Total	**1.0394**	**4.3627**	**2.4986**	**0.0303**		**0.3491**	**0.3491**		**0.3491**	**0.3491**	**0.0000**	**255.8240**	**255.8240**	**0.0848**	**0.0000**	**257.9431**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1539	1.4016	0.8836	0.0101	0.0267	0.0496	0.0762	7.7100e-003	0.0474	0.0551	0.0000	109.9203	109.9203	0.0190	0.0000	110.3949
Worker	0.3035	0.3798	3.1761	2.0100e-003	0.1119	4.3400e-003	0.1162	0.0298	4.0200e-003	0.0338	0.0000	119.4532	119.4532	0.0188	0.0000	119.9220

Total	**0.4575**	**1.7814**	**4.0596**	**0.0121**	**0.1385**	**0.0539**	**0.1924**	**0.0375**	**0.0514**	**0.0889**	**0.0000**	**229.3735**	**229.3735**	**0.0377**	**0.0000**	**230.3169**

3.5 Building Construction - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1440	0.6072	0.3607	4.8500e-003		0.0505	0.0505		0.0505	0.0505	0.0000	41.0100	41.0100	0.0118	0.0000	41.3038
Total	**0.1440**	**0.6072**	**0.3607**	**4.8500e-003**		**0.0505**	**0.0505**		**0.0505**	**0.0505**	**0.0000**	**41.0100**	**41.0100**	**0.0118**	**0.0000**	**41.3038**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0197	0.2132	0.1054	1.6300e-003	4.2700e-003	6.1700e-003	0.0104	1.2400e-003	5.9000e-003	7.1400e-003	0.0000	17.6377	17.6377	3.3200e-003	0.0000	17.7207
Worker	0.0297	0.0323	0.2852	2.1000e-004	0.0179	4.0000e-004	0.0183	4.7700e-003	3.7000e-004	5.1400e-003	0.0000	18.8863	18.8863	2.2600e-003	0.0000	18.9427
Total	**0.0495**	**0.2455**	**0.3906**	**1.8400e-003**	**0.0222**	**6.5700e-003**	**0.0288**	**6.0100e-003**	**6.2700e-003**	**0.0123**	**0.0000**	**36.5240**	**36.5240**	**5.5800e-003**	**0.0000**	**36.6635**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1440	0.6072	0.3607	4.8500e-003		0.0505	0.0505		0.0505	0.0505	0.0000	41.0100	41.0100	0.0118	0.0000	41.3038
Total	**0.1440**	**0.6072**	**0.3607**	**4.8500e-003**		**0.0505**	**0.0505**		**0.0505**	**0.0505**	**0.0000**	**41.0100**	**41.0100**	**0.0118**	**0.0000**	**41.3038**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0197	0.2132	0.1054	1.6300e-003	4.2700e-003	6.1700e-003	0.0104	1.2400e-003	5.9000e-003	7.1400e-003	0.0000	17.6377	17.6377	3.3200e-003	0.0000	17.7207
Worker	0.0297	0.0323	0.2852	2.1000e-004	0.0179	4.0000e-004	0.0183	4.7700e-003	3.7000e-004	5.1400e-003	0.0000	18.8863	18.8863	2.2600e-003	0.0000	18.9427
Total	**0.0495**	**0.2455**	**0.3906**	**1.8400e-003**	**0.0222**	**6.5700e-003**	**0.0288**	**6.0100e-003**	**6.2700e-003**	**0.0123**	**0.0000**	**36.5240**	**36.5240**	**5.5800e-003**	**0.0000**	**36.6635**

3.6 Paving - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0346	0.2335	0.1048	1.5500e-003		0.0165	0.0165		0.0165	0.0165	0.0000	13.7265	13.7265	2.8300e-003	0.0000	13.7971
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0346**	**0.2335**	**0.1048**	**1.5500e-003**		**0.0165**	**0.0165**		**0.0165**	**0.0165**	**0.0000**	**13.7265**	**13.7265**	**2.8300e-003**	**0.0000**	**13.7971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	1.4200e-003	0.0126	1.0000e-005	7.9000e-004	2.0000e-005	8.1000e-004	2.1000e-004	2.0000e-005	2.3000e-004	0.0000	0.8327	0.8327	1.0000e-004	0.0000	0.8352
Total	**1.3100e-003**	**1.4200e-003**	**0.0126**	**1.0000e-005**	**7.9000e-004**	**2.0000e-005**	**8.1000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**0.8327**	**0.8327**	**1.0000e-004**	**0.0000**	**0.8352**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0346	0.2335	0.1048	1.5500e-003		0.0165	0.0165		0.0165	0.0165	0.0000	13.7265	13.7265	2.8300e-003	0.0000	13.7971
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0346**	**0.2335**	**0.1048**	**1.5500e-003**		**0.0165**	**0.0165**		**0.0165**	**0.0165**	**0.0000**	**13.7265**	**13.7265**	**2.8300e-003**	**0.0000**	**13.7971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3100e-003	1.4200e-003	0.0126	1.0000e-005	7.9000e-004	2.0000e-005	8.1000e-004	2.1000e-004	2.0000e-005	2.3000e-004	0.0000	0.8327	0.8327	1.0000e-004	0.0000	0.8352
Total	**1.3100e-003**	**1.4200e-003**	**0.0126**	**1.0000e-005**	**7.9000e-004**	**2.0000e-005**	**8.1000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**0.8327**	**0.8327**	**1.0000e-004**	**0.0000**	**0.8352**

3.7 Architectural Coating - 2004

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.6150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.1527	0.0675	8.9000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	7.6598	7.6598	2.1400e-003	0.0000	7.7134
Total	**2.6413**	**0.1527**	**0.0675**	**8.9000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**	**0.0000**	**7.6598**	**7.6598**	**2.1400e-003**	**0.0000**	**7.7134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0142	0.0177	0.1482	9.0000e-005	5.2200e-003	2.0000e-004	5.4200e-003	1.3900e-003	1.9000e-004	1.5800e-003	0.0000	5.5725	5.5725	8.7000e-004	0.0000	5.5943
Total	**0.0142**	**0.0177**	**0.1482**	**9.0000e-005**	**5.2200e-003**	**2.0000e-004**	**5.4200e-003**	**1.3900e-003**	**1.9000e-004**	**1.5800e-003**	**0.0000**	**5.5725**	**5.5725**	**8.7000e-004**	**0.0000**	**5.5943**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.6150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.1527	0.0675	8.9000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	7.6598	7.6598	2.1400e-003	0.0000	7.7133
Total	**2.6413**	**0.1527**	**0.0675**	**8.9000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**	**0.0000**	**7.6598**	**7.6598**	**2.1400e-003**	**0.0000**	**7.7133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0142	0.0177	0.1482	9.0000e-005	5.2200e-003	2.0000e-004	5.4200e-003	1.3900e-003	1.9000e-004	1.5800e-003	0.0000	5.5725	5.5725	8.7000e-004	0.0000	5.5943
Total	**0.0142**	**0.0177**	**0.1482**	**9.0000e-005**	**5.2200e-003**	**2.0000e-004**	**5.4200e-003**	**1.3900e-003**	**1.9000e-004**	**1.5800e-003**	**0.0000**	**5.5725**	**5.5725**	**8.7000e-004**	**0.0000**	**5.5943**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.5096	10.1746	27.1881	0.0724	1.5266	0.2235	1.7501	0.4117	0.2129	0.6246	0.0000	2,154.4214	2,154.4214	0.3254	0.0000	2,162.5566
Unmitigated	2.5096	10.1746	27.1881	0.0724	1.5266	0.2235	1.7501	0.4117	0.2129	0.6246	0.0000	2,154.4214	2,154.4214	0.3254	0.0000	2,162.5566

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	337.68	367.20	311.04	780,858	780,858
Enclosed Parking with Elevator	0.00	0.00	0.00		
Hotel	996.93	1,046.22	799.77	1,853,963	1,853,963
Regional Shopping Center	888.95	843.59	410.12	1,427,300	1,427,300
Total	2,223.56	2,257.01	1,520.93	4,062,122	4,062,122

4.3 Trip Type Information

	Miles	Trip %	Trip Purpose %

Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Hotel	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Apartments Mid Rise	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Regional Shopping Center	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	471.5488	471.5488	0.0213	4.4100e-003	473.3965
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	471.5488	471.5488	0.0213	4.4100e-003	473.3965
NaturalGas Mitigated	0.0241	0.2169	0.1693	1.3100e-003		0.0166	0.0166		0.0166	0.0166	0.0000	238.3346	238.3346	4.5700e-003	4.3700e-003	239.7509
NaturalGas Unmitigated	0.0241	0.2169	0.1693	1.3100e-003		0.0166	0.0166		0.0166	0.0166	0.0000	238.3346	238.3346	4.5700e-003	4.3700e-003	239.7509

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	676438	3.6500e-003	0.0312	0.0133	2.0000e-004		2.5200e-003	2.5200e-003		2.5200e-003	2.5200e-003	0.0000	36.0973	36.0973	6.9000e-004	6.6000e-004	36.3118
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.64361e+006	0.0197	0.1786	0.1500	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.4371	194.4371	3.7300e-003	3.5600e-003	195.5926
Regional Shopping Center	146169	7.9000e-004	7.1700e-003	6.0200e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.8002	7.8002	1.5000e-004	1.4000e-004	7.8465
Total		**0.0241**	**0.2170**	**0.1693**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**	**0.0000**	**238.3346**	**238.3346**	**4.5700e-003**	**4.3600e-003**	**239.7509**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	676438	3.6500e-003	0.0312	0.0133	2.0000e-004		2.5200e-003	2.5200e-003		2.5200e-003	2.5200e-003	0.0000	36.0973	36.0973	6.9000e-004	6.6000e-004	36.3118
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	3.64361e+006	0.0197	0.1786	0.1500	1.0700e-003		0.0136	0.0136		0.0136	0.0136	0.0000	194.4371	194.4371	3.7300e-003	3.5600e-003	195.5926
Regional Shopping Center	146169	7.9000e-004	7.1700e-003	6.0200e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.8002	7.8002	1.5000e-004	1.4000e-004	7.8465
Total		**0.0241**	**0.2170**	**0.1693**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**	**0.0000**	**238.3346**	**238.3346**	**4.5700e-003**	**4.3600e-003**	**239.7509**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	265818	77.3294	3.5000e-003	7.2000e-004	77.6324
Enclosed Parking with Elevator	124912	36.3385	1.6400e-003	3.4000e-004	36.4808
Hotel	900374	261.9292	0.0118	2.4500e-003	262.9555
Regional Shopping Center	329832	95.9518	4.3400e-003	9.0000e-004	96.3278
Total		**471.5488**	**0.0213**	**4.4100e-003**	**473.3965**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	265818	77.3294	3.5000e-003	7.2000e-004	77.6324
Enclosed Parking with Elevator	124912	36.3385	1.6400e-003	3.4000e-004	36.4808
Hotel	900374	261.9292	0.0118	2.4500e-003	262.9555
Regional Shopping Center	329832	95.9518	4.3400e-003	9.0000e-004	96.3278
Total		**471.5488**	**0.0213**	**4.4100e-003**	**473.3965**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0865	0.0123	0.8512	4.8000e-004		0.0353	0.0353		0.0353	0.0353	3.2825	2.2252	5.5077	6.6900e-003	2.2000e-004	5.7391
Unmitigated	1.0865	0.0123	0.8512	4.8000e-004		0.0353	0.0353		0.0353	0.0353	3.2825	2.2252	5.5077	6.6900e-003	2.2000e-004	5.7391

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7754					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1661	3.8200e-003	0.2288	4.6000e-004		0.0327	0.0327		0.0327	0.0327	3.2825	1.3483	4.6307	5.2800e-003	2.2000e-004	4.8268
Landscaping	0.0271	8.4600e-003	0.6224	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.8769	0.8769	1.4200e-003	0.0000	0.9123
Total	**1.0865**	**0.0123**	**0.8512**	**4.9000e-004**		**0.0353**	**0.0353**		**0.0353**	**0.0353**	**3.2825**	**2.2252**	**5.5077**	**6.7000e-003**	**2.2000e-004**	**5.7391**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7754					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1661	3.8200e-003	0.2288	4.6000e-004		0.0327	0.0327		0.0327	0.0327	3.2825	1.3483	4.6307	5.2800e-003	2.2000e-004	4.8268
Landscaping	0.0271	8.4600e-003	0.6224	3.0000e-005		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	0.8769	0.8769	1.4200e-003	0.0000	0.9123
Total	**1.0865**	**0.0123**	**0.8512**	**4.9000e-004**		**0.0353**	**0.0353**		**0.0353**	**0.0353**	**3.2825**	**2.2252**	**5.5077**	**6.7000e-003**	**2.2000e-004**	**5.7391**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	25.4216	0.0141	8.4600e-003	28.2948
Unmitigated	25.4216	0.0141	8.4600e-003	28.2948

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.69109 / 2.95743	12.0553	6.1800e-003	3.7100e-003	13.3144
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	4.03332 / 0.448146	8.2322	5.2200e-003	3.1700e-003	9.3064
Regional Shopping Center	2.01181 / 1.23304	5.1341	2.6500e-003	1.5900e-003	5.6739
Total		**25.4216**	**0.0141**	**8.4700e-003**	**28.2948**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	4.69109 / 2.95743	12.0553	6.1800e-003	3.7100e-003	13.3144
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	4.03332 / 0.448146	8.2322	5.2200e-003	3.1700e-003	9.3064
Regional Shopping Center	2.01181 / 1.23304	5.1341	2.6500e-003	1.5900e-003	5.6739
Total		**25.4216**	**0.0141**	**8.4700e-003**	**28.2948**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	30.1827	1.7838	0.0000	74.7764
Unmitigated	30.1827	1.7838	0.0000	74.7764

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	33.12	6.7231	0.3973	0.0000	16.6561
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	87.05	17.6704	1.0443	0.0000	43.7776
Regional Shopping Center	28.52	5.7893	0.3421	0.0000	14.3428
Total		**30.1827**	**1.7838**	**0.0000**	**74.7764**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
Apartments Mid Rise	33.12	6.7231	0.3973	0.0000	16.6561
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Hotel	87.05	17.6704	1.0443	0.0000	43.7776
Regional Shopping Center	28.52	5.7893	0.3421	0.0000	14.3428
Total		**30.1827**	**1.7838**	**0.0000**	**74.7764**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	750	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0308	0.1376	0.0785	1.5000e-004		4.5300e-003	4.5300e-003		4.5300e-003	4.5300e-003	0.0000	14.2799	14.2799	2.0000e-003	0.0000	14.3300
Total	**0.0308**	**0.1376**	**0.0785**	**1.5000e-004**		**4.5300e-003**	**4.5300e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**14.2799**	**14.2799**	**2.0000e-003**	**0.0000**	**14.3300**

11.0 Vegetation

GHG Emissions Reduction Associated with Non-Residential EV Charging Stations (2020)
24th and Broadway Oakland

Estimating GHG Emissions Reduction to Replace Conventional Vehicle with Electric Vehicle in 2020		
	Passenger Vehicle	
PG&E electricity emission factor[1]	0.13	(MT CO_2/MWh)
Fuel Economy[2]	0.3	(KWh/mile)
CO_2 emission while running[3]	310	(g/mile)
Annual VMT reduction per station[4]	73,000	(VMT/charging station/year)
Estimated Benefit from Installing Electric Vehicle Charging Stations		
GHG emissions of gasoline vehicle[5]	23	(MT CO_2/year)
GHG emissions of electric vehicle	3	(MT CO_2/year)
GHG reduction per charging station per year[6]	19.7	(MT CO_2/year)
Number of chargers[7]	3	-
Total GHG Reduction	59	(MT CO_2/year)

Notes:

1. CO_2 intensity factor for PG&E accounts for CO_2 emissions rates under the 2020 33% Renewable Portfolio Standard.

2. Fuel economy of a passenger vehicle obtained From US Department of Energy, 2013. Benefits and Considerations of Electricity as a Vehicle Fuel. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: July 2017.

3. CARB, 2015. EMFAC 2014, running exhaust emission rate for CO_2 for vehicles in Alameda County, aggregated for all models and speeds, averaged over all seasons for 2020. Passenger vehicles are estimated to be LDA, LDT1, or LDT2 gasoline or diesel vehicles. Available at: http://www.arb.ca.gov/emfac/. Accessed: July 2017.

4. Annual VMT reduction for passenger vehicles estimated based on assumption of eight hours of charge time for a ChargePoint Level 2 charging station. Based on one charging port per station; a dual-port station would achieve two times this reduction.

5. GHG emissions calculated using annual VMT reduction and CO_2 emission rate. Nitrous oxide and methane are conservatively not included.

6. GHG emissions reduction is a difference of GHG emissions of conventional vehicles and GHG emissions of electric vehicles. Nitrous oxide and methane are conservatively not included.

7. Project specific estimate.

Abbreviations

CO_2 - carbon dioxide
EV - electric vehicle
g - grams
GHG - greenhouse gas
km - kilometer
kW - kilowatt
KWh - kilowatt hour
lb - pound
MT - metric ton
MWh - megawatt hour
PG&E - Pacific Gas & Electric
VMT - vehicle miles traveled