GARDEN GROVE

A G E N D A

GARDEN GROVE PLANNING COMMISSION

November 16, 2023 - 7:00 PM

COMMUNITY MEETING CENTER
11300 STANFORD AVENUE

Meeting Assistance: Any person requiring auxiliary aids and services, due to a disability, to address the Planning Commission, should contact the Department of Community & Economic Development at (714) 741-5312 or email planning@ggcity.org 72 hours prior to the meeting to arrange for special accommodations. (Government Code §5494.3.2).

Agenda Item Descriptions: Are intended to give a brief, general description of the item. The Planning Commission may take legislative action deemed appropriate with respect to the item and is not limited to the recommended action indicated in staff reports or the agenda.

Documents/Writings: Any revised or additional documents/writings related to an item on the agenda distributed to all or a majority of the Planning Commission within 72 hours of a meeting, are made available for public inspection at the same time (1) in the Planning Services Division Office at 11222 Acacia Parkway, Garden Grove, CA 92840, during normal business hours; and (1) at the Community Meeting Center at the time of the meeting.

Public Comments: Members of the public who attend the meeting in-person and would like to address the Planning Commission are requested to complete a yellow speaker card indicating their name and address, and identifying the subject matter they wish to address. This card should be given to the Recording Secretary before the meeting begins. General comments are made during "Oral Communications" and are limited to three (3) minutes and to matters the Planning Commission has jurisdiction over. Persons wishing to address the Planning Commission regarding a Public Hearing matter will be called to the podium at the time the matter is being considered. Members of the public who wish to comment on matters before the Commission, in lieu of doing so in person, may submit comments by emailing public-comment@ggcity.org no later than 3:00 p.m. the day of the meeting. The comments will be provided to the Commission as part of the meeting record.

PLEASE SILENCE YOUR CELL PHONES DURING THE MEETING.

REGULAR MEETING AGENDA

ROLL CALL: CHAIR LINDSAY, VICE CHAIR CUNNINGHAM
COMMISSIONERS ARBGAST, CUEVA, LARICCHIA, PAREDES, RAMIREZ

PLEDGE OF ALLEGIANCE TO THE FLAG OF THE UNITED STATES OF AMERICA

A. ORAL COMMUNICATIONS - PUBLIC

B. APPROVAL OF MINUTES – October 19, 2023

C. PUBLIC HEARING(S) (Authorization for the Chair to execute Resolution shall be included in the motion.)

C.1. SITE PLAN NO. SP-129-2023

APPLICANT: THE JAGER CO., LTD
LOCATION: NORTH OF BIXBY AVENUE, BETWEEN CARTHAY CIRCLE AND PEACOCK COURT AT 9691 BIXBY AVENUE

REQUEST: A request for Site Plan approval to construct a three-story, 27-unit residential apartment complex and associated site improvements on a 0.83-acre lot. The proposal includes three (3) affordable housing units for "very-low income" households. Inclusion of the three (3) very low-income units qualifies the project for a density bonus, concessions, waivers, and reduced parking pursuant to the State Density Bonus Law, and the project has been designed to incorporate certain concessions and waivers of development standards pursuant to the State Density Bonus Law. All existing on-site improvements will be demolished to accommodate the proposed development. The site is in the R-2 (Limited Multiple Residential) zone. In conjunction with the request, the Planning Commission will also consider a determination that the project is categorically exempt from the California Environmental Quality Act (CEQA) pursuant to section 15332 – In-Fill Development Projects – of the state CEQA guidelines.

STAFF RECOMMENDATION: Approval of Site Plan No. SP-129-2023, pursuant to the recommended Conditions of Approval.

D. MATTERS FROM COMMISSIONERS

E. MATTERS FROM STAFF

F. ADJOURNMENT

GARDEN GROVE PLANNING COMMISSION
Community Meeting Center
11300 Stanford Avenue, Garden Grove, CA 92840

Meeting Minutes
Thursday, October 19, 2023

CALL TO ORDER: 7:01 p.m.

ROLL CALL:

Commissioner Arbgast
Commissioner Cueva
Commissioner Cunningham
Commissioner Laricchia
Commissioner Lindsay
Commissioner Paredes
Commissioner Ramirez

Absent: Paredes

Commissioner Paredes joined the meeting at 7:02 p.m.

PLEDGE OF ALLEGIANCE: Led by Commissioner Cueva

ORAL COMMUNICATIONS – PUBLIC – None.

October 5, 2023 MINUTES:

Action: Received and filed.

Motion: Arbgast Second: Laricchia

Ayes:	(7)	Arbgast, Cueva, Cunningham, Laricchia, Lindsay, Paredes, Ramirez
Noes:	(0)	None
Absent:	(0)	None

PUBLIC HEARING – AMENDMENT NO. A-038-2023, CITY OF GARDEN GROVE, CITYWIDE

Applicant: CITY OF GARDEN GROVE
Date: October 19, 2023

Request: A City-initiated zoning text amendment to Title 9 (Land Use) of the Garden Grove Municipal Code pertaining to retail sale by delivery of medicinal cannabis and development standards for mechanical equipment, maximum hardscape coverage within front yard setbacks,

and substitute landscaping. The proposed code amendment would update portions of Chapters 9.08, 9.12, 9.16, and 9.18 (Single-Family Residential Development Standards, Multifamily Residential Development Standards, Commercial, Office Professional, Industrial, and Open Space Development Standards, and Mixed Use Regulations and Development Standards, respectively) of Title 9 of the City of Garden Grove Municipal Code to specify standards for the screening of mechanical equipment within an exterior equipment enclosure in residential zones; to clarify how the maximum permitted hardscape coverage in the front yard setback in residential, commercial, industrial, and open space zones is calculated; and to update the standards for artificial turf in all zones. In addition, the proposed code amendment would amend existing provisions of Chapter 9.52 (Cannabis Activities) of Title 9 of the Garden Grove Municipal Code in a manner consistent with the recently enacted Medicinal Cannabis Patients' Right of Access Act to permit the retail sale by delivery of medicinal cannabis in the City from licensed facilities located outside of the City, subject to specified regulations. The proposed code amendment is exempt from the provisions of the California Environmental Quality Act.

Action: Resolution Nos. 6071-23 (Cannabis) and 6072-23 (Landscape) were approved.

Motion: Arbgast Second: Ramirez

Ayes:	(7)	Arbgast, Cueva, Cunningham, Laricchia Lindsay, Paredes, Ramirez
Noes:	(0)	None
Absent:	(0)	None

PRESENTATION - CIVIC CENTER REVITALIZATION PROJECT UPDATE: Staff gave a brief presentation on the completed tasks, the current status, and the next steps for the Civic Center Revitalization Project.

MATTERS FROM COMMISSIONERS: None.

MATTERS FROM STAFF: Staff mentioned the November 2nd meeting would be cancelled, then gave a brief description of the agenda items for the November 16th, December 7th, and December 21st Planning Commission meetings.

ADJOURNMENT: At 8:02 p.m.

_____

Judith Moore
Recording Secretary

COMMUNITY DEVELOPMENT DEPARTMENT
PLANNING STAFF REPORT

AGENDA ITEM NO.: C.1.	**SITE LOCATION:** North side of Bixby Avenue, between Peacock Court, and Carthay Circle, at 9691 Bixby Avenue
HEARING DATE: November 16, 2023	**GENERAL PLAN:** Low Medium Density Residential (LMR)
CASE NOS.: Site Plan No. SP-129-2023	**ZONE:** R-2 (Limited Multiple Residential)
APPLICANT: The Jager Co., Ltd.	**APN:** 133-102-24
PROPERTY OWNER: Bixby Avenue Investment, LLC	**CEQA DETERMINATION:** Exempt-Section 15332 "In-Fill Development Projects"

REQUEST:

The applicant is requesting Site Plan approval to construct a three-story, 27-unit residential apartment complex and associated site improvements on a 0.83-acre lot. The proposal includes three (3) affordable housing units for "very-low income" households. Inclusion of the three (3) very low-income units qualifies the project for a density bonus, concessions, waivers, and reduced parking pursuant to the State Density Bonus Law, and the project has been designed to incorporate certain concessions and waivers of development standards pursuant to the State Density Bonus Law. All existing on-site improvements will be demolished to accommodate the proposed development.

BACKGROUND:

The project site is approximately 36,120 square feet (0.83 acres) and is located on the north side of Bixby Avenue, between Carthay Circle and Peacock Court. The subject site has a General Plan Land Use designation of Low Medium Density Residential (LMR) and is zoned R-2 (Limited Multiple Residential). The property abuts an R-2 zoned property to the east, R-1 (Single Family Residential) zoned properties to the north, to the west, and across Bixby Avenue to the south. Surrounding uses to the subject property include single-family residential dwellings to the north and across Bixby Avenue to the south, multi-family residential developments to the east, and a religious facility, Our Lady Help of Christian, to the west.

The site is improved with multiple single-story buildings that have been used as a Preschool and Children Daycare, Precious Years Children Center, since 1999. Per

City's Business License records, the daycare business ceased its operation in February 2022, and the buildings have been left vacant. After purchasing the building in 2022, the applicant has submitted a request for Site Plan approval to construct a new three-story multi-family residential building that consists of a parking garage on the ground floor and twenty-seven (27) dwelling units on the second and third floors, which include three (3) affordable units for "very-low income" households. All existing site improvements will be demolished to accommodate the proposed project.

The General Plan Land Use designation of Low Medium Density Residential (LMR) is intended to allow smaller scale multi-family housing, and is a transition between the detached single-family areas and the higher density multi-family areas. The LMR is implemented, in part, by the R-2 zone, which allows residential developments with densities of up to 21 units per acre. The proposed Project is consistent with the goals and policies of the General Plan, including:

- Policy LU-3.2: Support development of multi-family housing that provides a diversity of densities, types, and prices that meet the needs of all household income levels.
- Policy LU-3.3: Encourage developers to build housing projects at or maximum allowable densities.
- Goal LU-4: The City seeks to develop uses that are compatible with one another.
- LU-IMP-3D: Front multi-family housing on local streets with appropriate setbacks to be consistent with neighborhood development patterns.
- Policy LU-2.4: Assure that the type and intensity of land use shall be consistent with that of the immediate neighborhood.
- Policy 2.3 of the Housing Element: Provide density bonuses and other financial and regulatory incentives to facilitate the development of affordable housing.

With the inclusion of three (3) affordable housing units for "very-low income" households, pursuant the State Density Bonus Law, the project qualifies for a density bonus of 50% of the base density, reduced parking ratios, and the following three (3) concessions and two (2) waivers /modifications of development standards set forth in the Garden Grove Municipal Code :

1. A concession to deviate from the forty-foot (40'-0") side-yard stepback requirement at the third floor to be at twenty-nine feet and six inches (29'-6") (Sections 9.12.040.020.A and 9.12.040.050.A.3),
2. A concession to deviate from the maximum 50% lot coverage requirement to be at 53.4% (Section 9.12.040.020.A),

3. A concession to deviate from the minimum one-bedroom unit size requirement of 700 square feet to be reduced to 656 square feet (Section 9.12.040.020.E),

4. A waiver to deviate from the twenty-five foot (25'-0") front setback requirement at the third floor to be at twenty feet (20'-0") (Section 9.12.040.020.A.), and

5. A waiver to deviate from the front, side and rear setback requirements to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area (Section 9.12.040.020.D).

An Affordable Housing Regulatory Agreement consistent with the State Density Bonus Law and Section 9.60.050 of the Garden Grove Municipal Code will be recorded to ensure affordability of the very low income units for 55 years.

PROJECT STATISTICS:

	Provided	Code Requirement	Meets Code
Lot Size	36,120 square feet (0.83 acres)	7,200 square feet	Yes
Density	27 units	18[1] units maximum (21 units per acre)	**Density Bonus**
Lot coverage	53.4%	50%	**Concession requested**
Total Parking	50 spaces	34 spaces[2]	Yes
Recreation Area Total	8,125.45 square feet	8,100 square feet (27 units x 300 sf)	Yes
Common Area - Active	5,553.45 square feet		
Private	2,593 square feet		
Building Setbacks			
1st & 2nd floor			
South (Front)	20'-0"	20 feet	Yes
North (Rear)	40'-11"	20 feet	Yes
East (Side)	12'-6"	10 feet	Yes
West (Side)	29'-6"	10 feet	Yes
3rd floor			
South (Front)	20'-0"	25 feet	**Waiver requested**

[1] The State's Density Bonus Law (DBL) requires all fractional units for affordable housing projects to be rounded up to the next whole number. In this case, the base density is calculated at 17.43 units; thus, it will be rounded up to 18 units per State law.

[2] Parking ratios under the State Density Bonus are also be rounded up to the next whole number.

	Provided	Code Requirement	Meets Code
North (Rear)	40'-11"	40 feet	Yes
East (Side)	12'-6"[3]	15 feet	**Waiver requested**
West (Side)	29'-6"	15 feet	Yes
Building Stepbacks (if adjacent to R-1)			
2nd floor (west side)	29'-6"	20 feet	Yes
3rd floor (west side)	29'-6"	40 feet	**Concession requested**
3rd floor (north side)	39'-6"[4]	40 feet	**Concession requested**
Building Height	33'-4"[5]	35 feet maximum	Yes
Stories – Maximum	3 stories	3 stories	Yes
Unit size			
1-bedroom unit	656 square feet	750 square feet	**Concession requested**
2-bedroom unit	935 square feet	900 square feet	Yes
3-bedroom unit	1,136 square feet	1,050 square feet	Yes

DISCUSSION:

STATE DENSITY BONUS LAW:

The State Density Bonus Law, or "SDBL," (Section 65915 et seq. of the California Government Code) entitles applicants to a density bonus, concessions, waivers, and reduced parking to encourage the construction of affordable housing units. By providing affordable units for very-low income households, the project qualifies for the following incentives.

Density Bonus

Pursuant to Section 9.12.040.020.A of the Garden Grove Municipal Code, the R-2 zone allows for a maximum base density of 21 units per acre, which yields eighteen (18) units for the 0.83-acre lot. With the inclusion of three (3) affordable units for "very-low income" households, the project is providing 17% of its density for affordable housing. Thus, pursuant to the State Density Bonus Law, the applicant is entitled to a Density Bonus of 50%, resulting in nine (9) additional units above the maximum density permitted in the R-2 zone, for a total of twenty-seven (27) units. Thus, the project proposes the maximum residential density allowed under the SDBL.

[3] Measured from the property line to the outer edge of the balcony. .
[4] Measured from the property line to the outer edge of the balcony
[5] Measured from the highest grade to the roof top.

Reduced Parking Ratio

As an affordable housing project, the project is entitled to the reduced parking ratios set forth in the SDBL. The SDBL requires a minimum of one (1) parking space for each zero- to one-bedroom unit, and one and half (1.5) parking spaces for each two- to three-bedroom unit. Based on the proposed plan, the project is required to provide a minimum of 34 spaces, as shown in Table A below. In addition, tandem parking, which normally would not be allowed by the Garden Grove Municipal Code, may also be provided to satisfy the required on-site parking under the SDBL.

Table A- Parking Spaces Required per Unit

Type of unit	Number of units	Parking ratio	Required parking
One-bedroom	14 units	1 space per unit	14
Two-bedroom	2 units	1.5 spaces per unit	3
Three-bedroom	11 units	1.5 spaces per unit	16.5
Total	27 units	**Total**	34 spaces (33.5 spaces)

The project has been designed to comply with the parking requirements of the SDBL. The project will provide 34 tandem parking spaces and 16 single parking spaces, for a total of 50 spaces. Thus, the project exceeds the minimum required parking under the SDBL by 16 spaces.

Concessions and Waivers

The applicant has requested three (3) concessions and two (2) waivers pursuant to the SDBL to facilitate the proposed development.

Concessions

The SDBL provides that an applicant is entitled to three (3) "concessions or incentives" if it offers to restrict 17% of the housing units for very-low income households. A "concession or incentive" includes a reduction in site development standards or a modification of zoning code requirements or architectural design requirements. The SDBL provides that a city must grant a requested concession or incentive unless it makes a written finding, based upon substantial evidence, that the concession or incentive: (1) Does not result in identifiable and actual cost reductions to provide for affordable housing costs or for the targeted units; (2) would have a specific, adverse impact upon public health and safety or on any real property that is listed in the California Register of Historical Resources and for which there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact without rendering the development unaffordable to low-income and moderate-income households; or (3) would be contrary to state or federal law.

The following concessions are requested for the Project:

Concession 1: The applicant requests a deviation from Section 9.12.040.020.A and Section 9.12.040.050.A.3 of the Municipal Code to allow a reduction of the side-yard stepback requirement at the third floor from forty feet (40'-0") to twenty-nine feet and six inches (29'-6"). Both aforementioned sections of the Code require the third floor of the new building to be forty feet (40'-0") away from any shared property lines with R-1 zoned properties with the intent to preserve the privacy of the existing single-family residential developments in the surrounding area. The subject property abuts R-1 zoned properties to the north (rear) and to the west (side). Since the proposed building is measured at forty feet and eleven inches (40'-11") from the northerly property line and twenty-nine feet and six inches (29'-6") from the westerly property line, the requested concession is only applicable to the west side of the property. The R-1 zoned property abutting the subject site to the west is improved with a religious facility, Our Lady Help of Christian. The religious facility consists of multiple one-story buildings centrally located on the site, a large landscaped area in the front, a large parking lot at the rear, and a drive aisle located along the shared property line with the subject site. No single-family residential dwellings are located along the westerly property line.

Concession 2: The applicant requests a deviation from the maximum 50% lot coverage requirement under Section 9.12.040.020.A of the Municipal Code, to be at 53.4% for the project, which includes the entire building footprint.

Concession 3: The applicant requests a deviation from the minimum one-bedroom unit size requirement of 700 square feet under Section 9.12.040.020.E of the Municipal Code to allow a one-bedroom unit size of 656 square feet. The project will provide a total of fourteen (14) one-bedroom units, each with a floor area of 656 square feet. Although smaller than the required minimum unit size by 44 square feet, each unit will provide a fully functional living quarters, including a full kitchen, a living area, a bedroom, a full bathroom, and a stacked laundry facility.

Waivers

The State Density Bonus Law provides that, in addition to a density bonus and concessions or incentives, an applicant may also request waivers or reduction of development standards that will have the effect of physically precluding the construction of the proposed development, with the required density bonus and concessions or incentives permitted by the SBDL. Similar to a concession or incentive, a city must waive or reduce a development standard that would physically preclude construction of the proposed development unless the waivers or reduction (1) would have a specific, adverse impact upon health or safety, and for which there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact; (2) would have an adverse impact on any real property that is listed in the California Register of Historical Resources; or (3) would be contrary to state or federal law.

The following waivers are requested for the Project:

Waiver 1: The applicant requests a waiver or reduction of development standards under Section 9.12.040.020 of the Municipal Code, which requires the project to provide a minimum front setback of twenty-five feet (25'-0") to the third floor. The project proposes a twenty-foot (20'-0") front setback to the third floor, which is similar to the proposed twenty-foot (20'-0") front setbacks to the first and the second floors. As a result of this waiver, the building's front façade will be flush from top to bottom. The proposed design will incorporate varying roof lines, textures, and architectural articulation to eliminate a box-shaped design, and to create the effect of different massing on the front building façade.

Waiver 2: The applicant requests a waiver or reduction of development standards under Section 9.12.040.020.D of the Municipal Code, which prohibits patios and balconies to encroach into the front, side and rear setback. The proposed design will have the balcony, or "deck" area as labeled on plan, to encroach up to two feet and six inches (2'-6") into the required front, side, and rear setback. The proposed structure will be outside of setback areas: twenty feet (20'-0") from the southerly (front) property line, forty feet and eleven inches (40'-11") from the northerly (rear) property line, fifteen (15'-0") from the easterly (side) property line, and twenty-nine feet six inches (29'-6") feet from the westerly (side) property line (granted under Concession 1, as discussed above). Each balcony will have a depth of seven feet (7'-0"). Only the outer portion of the balcony will be cantilevered, and encroach up to two feet and six inches (2'-6") into the front, side and rear setback area. This encroachment will also act as an architectural feature to break up the façade plane.

Concessions and Waivers Justification

The justification of the requested concessions and waivers, as provided by the applicant, is that implementation of the front setback and stepback at the third floor, the maximum lot coverage percentage, and the minimum unit size requirements, all together, would require the project to provide an additional story or an underground parking structure to accommodate 27 units. The construction of an additional story or an underground parking would have a significant negative financial impact on the project resulting in infeasibility to achieve maximum density allowed under the Density Bonus Law. A copy of the density bonus application for the project is attached as Attachment 3, and includes the applicant's justification for granting the concessions and waivers to facilitate the development of the project.

SITE PLAN:

Site Design and Circulation

The proposed three-story residential complex will consist of a parking structure located on the ground floor, thirteen (13) units and common recreational areas on the second floor, and fourteen (14) units on the third floor. The proposed structure

will be set back at twenty feet (20'-0") from the southerly (front) property line, forty feet eleven inches (40'-11") from the northerly (rear) property line, twelve feet six inches (12'-6") from the easterly (side) property line, and twenty-nine feet six inches (29'-6") feet from the westerly (side) property line.

The site will be accessible from the existing driveway approach on Bixby Avenue, which will be widened to thirty feet (30'-0") to comply with City Standards. The existing power pole located in front of the existing driveway approach will be removed and undergrounded per the City's standards.

The driveway approach will be connected to a new twenty-five foot (25'-0") drive aisle, located along the westerly property line, providing vehicular access from the public right-of-way to the site, including access to the parking garage on the ground floor, the trash enclosure, and the emergency fire lane. To accommodate emergency fire access, a hammerhead turnaround, meeting Orange County Fire Authority (OCFA) and City Standards, will be provided at the end of the drive aisle. The hammerhead turnaround is required to be clear of parking and any other obstructions. A gate will be installed across the drive aisle at a distance of one-hundred and five feet (105'-0") measured from the front property line to secure the rear property line. A Knox box will be provided for trash truck services and emergency fire access only.

A five-foot (5'-0") wide walkway, along the easterly property line, will provide pedestrian access from the public right-of-way to the building's main lobby on the first floor, the parking garage, and the active recreational area located at the northeast corner (rear) of the property. The pedestrian walkway will be gated and fitted with a Knox box for emergency access. The lobby area, which will be oriented towards Bixby Street, will provide additional pedestrian access to the complex from the street through the front entrance.

Parking

The project provides a total of fifty (50) parking spaces, which exceeds the minimum parking requirements under the SDBL by sixteen (16) spaces. All of the parking spaces will be located inside the parking garage that occupies the entire ground floor of the building. The layout of the parking garage includes twelve (12) standard parking stalls and one (1) ADA (Americans with Disabilities Act) stall located along the west side, three (3) ADA stalls located along the south side, and 34 tandem spaces located on the east side. To ensure adequate parking is provided for each unit, each parking stall will be specifically assigned to each unit as shown in the proposed plan. An automatic garage roll-up gate is also included in the design.

Unit Design

The proposed project will provide twenty-seven (27) units that include fourteen (14) one-bedroom units, two (2) two-bedroom units, and eleven (11) three-bedroom units. Thirteen (13) units will be located on the second floor, and fourteen (14) units

will be located on the third floor. Residents can access the units through the elevator and staircase located on the southeast corner of the building or the staircase located on the northwest corner of the building.

The units will range in size from 656 square feet to 1,136 square feet, and will share the same floor plan design concept. Each unit will consist of a living area, a kitchen and dining area, a laundry facility, bedroom(s), bathroom(s), and balcony area. Table B below provides details of each unit type.

Table B – Unit design

Unit Type	Bedroom/Bathroom	Living Area	Private Recreation Areas	Total Number of Units
A	1 bedroom and 1 bathroom	656 s.f.	98 s.f.	14 units
B	2 bedrooms and 2 bathrooms	935 s.f.	99 s.f.	2 units
C	3 bedrooms and 2 bathrooms	1,136 s.f.	93 s.f.	11 units
			Total	**27 units**

Open Space and Recreational Area

Section 9.12.040.050.J of the Municipal Code requires the proposed development to provide a minimum of 8,100 square feet of open space that is calculated at 300 square feet per unit. Each unit is required to be provided a minimum of sixty (60) square feet of private open space that can be in form of a patio, yard, balcony, immediately adjacent deck, or combination thereof. Furthermore, the Code requires that the minimum horizontal dimension of the private open space to be six feet (6'-0") in any direction.

The private open space is designed to comply with the size and dimension requirements of the Code. All of the units will be provided with more than ninety square feet of balcony area, labeled as "deck area" on the proposed plan. Detailed dimensions and square footages of the private open space of each unit type is shown in Table C below. The private open space will be conveniently located next to the living area. The proposed design exceeds the minimum private open space requirement by approximately 30 square feet for each unit.

Since the site is over 14,400 square feet, and will be improved with more than five (5) units, the Code also requires the development to include common open space and active recreation area in addition to the required private open space for each unit.

The proposed design includes common open space and active recreation areas that accommodate different types of recreational activities, which include the following: Area 1 - a ground level open space area located at the northeast corner (rear) of the property; Areas 2 and 3 - two (2) active open space areas centrally located on the second floor of the building; and Area 4 - a clubhouse and business center located on the second floor toward the south side of the building.

Table C – Required Open Space

Private open space				
Type	**Quantity**	**Location**	**Dimension**	**Area (s.f.)**
A	14	Adjacent to the living area	7'-0" x 14'-0"	98 (x 14)
B	2		7'-0" x 14'-1.5"	99 (x 2)
C	11		7'-0" – 13'-6"	93 (x 11)
			Total private open space area	*2,593*

Common open space				
Area	**Type**	**Location**	**Dimension**[6]	**Area (s.f.)**
1	Active	Ground-level	40'-1" x 38'-6"	2,469
2	Active	Second floor	20'-0" x 41'-0"	932.24
3	Active	Second floor	20'-0" x 41'-0"	968.21
4	Indoor	Second floor	28'-0" x 43'-0"	1,163
			Total common open space area	*5,553.45*

Total (private + common)	**8,125.45**

As shown in Table C, the combined square footage of both private open space and common active recreational area is 8,125.45 square feet, which exceeds the minimum open space required by Code by 25.45 square feet.

Municipal Code requirements allow active recreation areas to be provided in multiple separate locations throughout the site. However, any one active recreation area is required to meet the minimum standards of 900 square feet in area with minimum dimension of thirty feet (30'-0") in any direction. The Code allows the dimensions of an active recreation area to be reduced to twenty feet (20'-0") in any direction, provided the active recreation area maintain a minimum size of 900 square feet or more. Each common active open space area will complies with the Code's minimum requirements for size and dimensions.

Amenities

In addition to the minimum size and dimension requirements, the Code requires multi-family residential developments to provide specific amenities as shown in the Multi-family Residential Development Amenity Standards[7] Table within the required active open space.

The required amenities are additive based on the number of units. The proposed design includes an ample amount of amenities that will be distributed evenly across the site. Table D shows the list of provided amenities and their location. Depending

[6] Open space Area 1 is oddly shaped, and only the shorter dimensions are taken for consideration.

[7] Section 9.12.040.050.J.7.d of the Municipal Code.

on the type of amenity, the project meets or exceeds the minimum required by the Code.

Table D – List of Amenities

No. of Units	Required	Provided	Location	Meet Code
0-5	3 Barbeque with table seating	3 Barbeque with table seating	1 at Area 1 1 at Area 2 1 at Area 3	Yes
up to 10	Community Garden Area Min. 54 square feet	56 square feet	Area 1	Yes
up to 15	Outdoor Active Use Area – 1,350 square feet	4,369.45square feet[8]	Area 1, 2, and 3	Yes
up to 20	Provide One of Two: ● 4 workstations ● 250 square foot indoor or outdoor gym	8 workstations	Area 4 (Business Center)	Yes
up to 35	Provide Two of Three: ● 4 workstations ● 250 square foot indoor or outdoor gym ● Clubhouse with 400 sf Kitchen	8 workstations and 799 square foot clubhouse with kitchen	Area 4 (Business Center and Club House)	Yes

Site Landscaping

Section 9.12.040.090 (Landscaping Requirements) requires all areas that are not designated for walkways, parking spaces, drive aisles, and private recreation areas, to be fully landscaped and irrigated. In addition, the applicant is required to provide a landscape and irrigation plan that complies with the requirements of the Municipal Code. The project proposes landscaping in all required setbacks, with the exception of areas designated for drive aisles or walkways, using a variety of plant materials. Additional landscaped areas along the westerly and northerly sides of the building are also included in the design to create buffers between vehicular access and the building. All of the landscaped areas will be fitted with automatic irrigation systems that comply with the City's Water Efficiency Guidelines.

[8] Combined square footage of Area 1 (2,469 s.f.), Area 2 (932.24 s.f.) and Area 3 (968.21 s.f.)

Building Architecture

The proposed multi-family apartment building will be three (3) stories in height and will incorporate a modern contemporary architectural style. The building design includes stucco exteriors, fiber cement siding, and flat roofs that are common characteristics found in this type of architecture. The design incorporates varying parapet, and roof lines at different height to provide further architectural articulation. In addition, the design also incorporates accent materials, and architectural exterior features such as decorative columns and cantilevered balconies to break down the overall building massing and façade plane. The building elevations portray a white, grey and earthy red color scheme, which will be complimentary and architecturally compatible with the immediate neighborhood.

California Environmental Quality Act

Staff has initially determined that the proposed development is exempt from the California Environmental Quality Act ("CEQA"), pursuant to Section 15332 (In-Fill Development Projects) of the CEQA Guidelines (14 Cal. Code Regs., Section 15303). As set forth in the Class 32 exemption, the proposed project is: (1) consistent with the applicable General Plan designation and all applicable General Plan policies as well as with applicable zoning designation and regulations; (2) the proposed development occurs within City limits on a project site of no more than five acres substantially surrounded by urban uses; (3) the project site has no value as habitat for endangered, rare or threatened species; (4) approval of the project would not result in any significant effects relating to traffic, noise, air quality or water quality; and (5) the site can be adequately served by all required utilities and public services.

No Net Loss

Government Code Section 65863 requires jurisdictions to maintain adequate sites to accommodate their remaining unmet Regional Housing Needs Allocation (RHNA) by each income category at all times throughout the Housing Element planning period. A jurisdiction may not take any action to reduce a parcel's residential density unless it makes findings that the reduction is consistent with the General Plan, including the Housing Element, and that the remaining sites identified in its Housing Element sites inventory can accommodate its remaining unmet RHNA by each income category or it identifies additional sites so that there is no net loss of residential unit capacity. In addition, if a jurisdiction approves a development on a parcel identified in its Housing Element sites inventory with fewer units than shown in the Housing Element, the jurisdiction must either make findings that the Housing Element's remaining sites have sufficient capacity to accommodate the remaining unmet RHNA by each income level or identify and make available additional adequate sites to accommodate the remaining unmet RHNA for each income category. City approval of the proposed project will not reduce the allowed residential density for the subject site. In addition, the subject site is not identified in the Housing Element sites inventory. Therefore, No Net Loss findings are not required for this project.

SB 330 Compliance:

In 2019, the Legislature adopted and the Governor approved Senate Bill 330 (SB 330) enacting the Housing Crisis Act of 2019 (Government Code § 66300). Among its provisions, SB 330 imposed new requirements when a proposed new housing development would require the demolition of existing residential units. Pursuant to Government Code § 66300(d)(1), the City may not approve a housing development project that will require the demolition of residential dwelling units unless the project will create at least as many residential dwelling units as will be demolished. This proposed project will be constructed on a site that is currently improved with a children daycare, Precious Years Children Center. No existing residential units will be demolished. Therefore, no existing residential units are required to be replaced.

RECOMMENDATION:

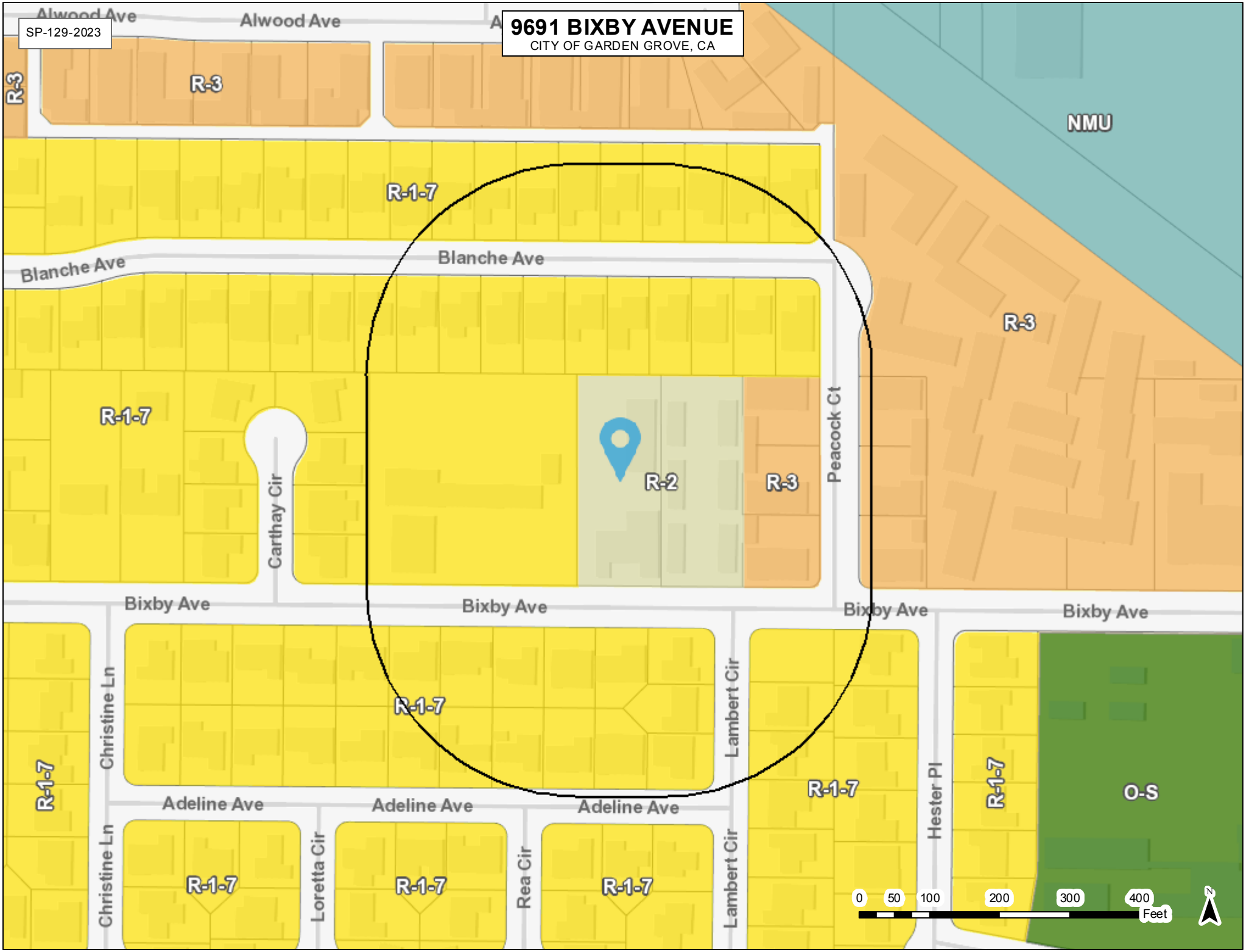
Staff recommends that the Planning Commission take the following action:

1. Adopt Resolution No. 6073-23 approving Site Plan No. SP-129-2023, subject to the recommended Conditions of Approval.

Maria Parra
Planning Services Manager

By: Huong Ly
Associate Planner

Attachment 1: Vicinity Map
Attachment 2: Plans
Attachment 3: Density Bonus Application
Attachment 4: Level of Service (LOS) and Vehicles Miles Traveled Analysis
Attachment 5: Air Quality and Greenhouse Gas Impact Analysis
Attachment 6: Noise Impact Analysis
Attachment 7: Hydrology Study
Attachment 8: Resolution No. 6073-23 with Exhibit "A"- Conditions of Approval


SP-129-2023
9691 BIXBY AVENUE
CITY OF GARDEN GROVE, CA
Alwood Ave
Alwood Ave
R-3
R-3
NMU
R-1-7
Blanche Ave
Blanche Ave
R-3
R-1-7
Carthay Cir
R-2
R-3
Peacock Ct
Bixby Ave
Bixby Ave
Bixby Ave
Bixby Ave
R-1-7
Christine Ln
Lambert Cir
R-1-7
Hester Pl
R-1-7
O-S
Adeline Ave
Adeline Ave
Adeline Ave
R-1-7
Christine Ln
R-1-7
Loretta Cir
R-1-7
Rea Cir
R-1-7
Lambert Cir
0
50
100
200
300
400
Feet
N

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

CONCEPTUAL PERSPECTIVE

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

BSB DESIGN
970 West 190th Street Suite 250
Torrance, CA 90502
t. 310. 217. 8885 f. 310. 217. 0425

JOB. MR210685.00
PRINTED: October 18, 2023

PROJECT SUMMARY

PROJECT SITE INFORMATION

APN #	ADDRESS	ZONING	NET LOT AREA (SF)	LOT AREA (ACRE)
133-102-24	9691 BIXBY AVENUE, GARDEN GROVE	R-2	**36,120 SF**	**.83 ACRES**

PROJECT CONSTRUCTION TYPE: 2 STORY TYPE V OVER 1 STORY TYPE I (PARKING / RESIDENTIAL) - 3 STORY TOTAL

SETBACKS		ALLOWED		PROPOSED	NOTES
		1ST AND 2ND FLOOR	3RD FLOOR		
	FRONT SETBACK	20'-0" MIN.	25'-0" MIN.	20'-0"	G.G.M.C. 9.12.040.020 General Development Standards
	SIDE SETBACK	10'-0" MIN.	15'-0" MIN.	12'-6" / 30'-6"	
	STREET SIDE SETBACK	10'-0" MIN.	15'-0" MIN.	N/A	
	REAR SETBACK	10'-0" MIN.	15'-0" MIN.	40'-11"	

DENSITY

21 DU/AC	18 DU.	BASE DENSITY (21 DU/AC) =	18 DU.	G.G.M.C. 9.12.040.020 General Development Standards
50% DENSITY INCREASE WITH STATE DENSITY LAW		18 DU x 0.5 =	9 DU.	
		TOTAL (32.5 DU/AC) =	**27 DU.**	

FLOOR AREA RATIO

		0.88	

FLOOR AREA

	TOTAL =	**31,826 SF**	
	RESIDENTIAL =	24,713 SF	
	DECK =	2,593 SF	
	CIRCULATIONS =	4,520 SF	

BUILDING HEIGHT

35'-0"	3 STORY / 35'-0" TOP OF ROOF STRUCTURE		G.G.M.C. 9.12.040.020 General Development Standards

LOT COVERAGE

BUILDING LOT COVERAGE (50% MAX.)	RESIDENTIAL / PRIVATE DECK	13,760 SF	38%	G.G.M.C. 9.12.040.020 General Development Standards
	CIRCULATION	2,073 SF	6%	
	VERTICAL CIRCULATION / MECHANICAL	806 SF	2%	
	TOTAL	**16,639 SF**	**46%**	
PARKING / PAVED AREA	PARKING / GARAGE STRUCTURE =	19,280 SF	53%	
	OPEN DRIVE AISLE =	8,062 SF	22%	
	PAVED AREA =	2,630 SF	7%	
LANDSCAPE / OUTDOOR AREA	LANDSCAPED AREA EXCLUDING COMMON AREA =	4,877 SF	14%	
	COMMON LANDSCAPED AREA =	1,271 SF	4%	

UNIT SUMMARY

PLAN	DESCRIPTION		QUANTITY	MIN. AREA		GROSS AREA	GROSS AREA SUBTOTAL	DECK	TOTAL DECK
UNIT A	1 BEDROOM / 1 BATH FLAT		14 UNITS	750 SF		656 SF	9,184 SF	98 SF	1,372 SF
UNIT B	2 BEDROOM / 2 BATH FLAT		2 UNITS	900 SF		935 SF	1,870 SF	99 SF	198 SF
UNIT C	3 BEDROOM / 2 BATH FLAT		11 UNITS	1,050 SF		1,136 SF	12,496 SF	93 SF	1,023 SF
PROJECT UNIT TOTAL			**27 UNITS**				**23,550 SF**		**2,593 SF**

PARKING SUMMARY

		PROPOSED			PROVIDED		PARKING BREAK DOWN
		MINIMUM REQUIRED					
	1 BR UNIT	1.0 SPACE PER UNIT	14 SPACES		GARAGE =	33 SPACES	STANDARD = 10 SPACES
	2 BR & 3BR UNIT	1.5 SPACES PER UNIT	20 SPACES		TANDEM GARAGE =	17 SPACES	TANDEM = 17 SPACES
							ACCESSIBLE = 2 SPACES
							EV / EV CAPABLE = 3 SPACES
							EV READY / CAPABLE = 18 SPACES
			TOTAL =	**34 SPACES**	**TOTAL =**	**50 SPACES**	**TOTAL = 50 SPACES**

BUILDING SUMMARY

	RESIDENTIAL / COMM. ROOM	DECK	CIRCULATIONS / LOBBY	MECHANICAL / VERTICAL CIRCULATION / GARAGE	NET BUILDING FLOOR AREA	TOTAL GROSS BUILDING FLOOR AREA
LEVEL 1			405 SF	17,885 SF	405 SF	18,290 SF
LEVEL 2	12,370 SF	1,250 SF	2,054 SF	745 SF	15,674 SF	16,419 SF
LEVEL 3	12,343 SF	1,343 SF	2,061 SF	745 SF	15,747 SF	16,492 SF
TOTAL	**24,713 SF**	**2,593 SF**	**4,520 SF**	**19,375 SF**	**31,826 SF**	**51,201 SF**
GARAGE				**17,885 SF**		

OPEN SPACE / AMMENITY SUMMARY

	REQUIRED G.G.M.U. 9.12.040.050 J Multi-Family Residential		PROPOSED	
COMMON OPEN SPACE	* 1,350 SF MIN. OUTDOOR ACTIVE OPEN SPACE REQUIRED WITH		PODIUM OPEN =	1,900 SF
	2 BBQ AREA WITH SEATING, COMMUNITY GARDEN AT 56 SF,		COMMUNITY RM. =	1,163 SF
	CLUBHOUSE WITH KITCHEN AT 400 SF AND BUSINESS CENTER		ON-GRADE OPEN =	2,469 SF
	210 SF COMMON OPEN SPACE / UNIT =	**5,670 SF**	**SUB-TOTAL =**	**5,532 SF**
PRIVATE OPEN SPACE				
	90 SF MIN. PRIVATE OPEN SPACE / UNIT =	**2,430 SF**	**PRIVATE DECK =**	**2,593 SF**
TOTAL OPEN SPACE	**300 SF COMBINED OPEN SPACE / UNIT TOTAL =**	**8,100 SF**	**TOTAL =**	**8,125 SF**

STORAGE

G.G.M.C. 9.12.040.050 E. Special Requirements

120 CF PER UNIT OF STORAGE SPACE	27 STORAGE SPACES AT 120 CF MIN. PROVIDED AT GARAGE

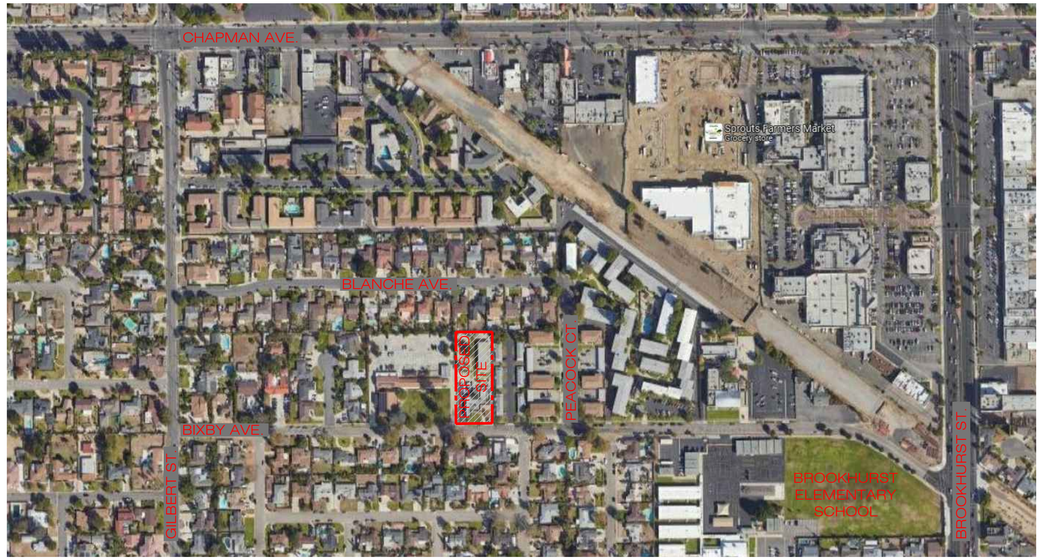
BICYCLE SUMMARY

G.G.M.U. 9.18.140.040 (E)

	REQUIRED		PROVIDED	
BICYCLE SPACE	1 SPACE PER 10 REQUIRED PARKING SPACES (34 SPACES/10) =		BICYCLE RACK LOCATED IN GARAGE =	6 SPACES
	BICYCLE SPACE REQUIRED	**3 SPACES**	**TOTAL PROVIDED BICYCLE SPACE =**	**6 SPACES**

AERIAL MAP

SCALE: N.T.S.



SHEET INDEX

0.1	TITLE SHEET	3.1	CONCEPTUAL PERSPECTIVE
0.2	PROJECT INFORMATION	3.2	CONCEPTUAL PERSPECTIVE
		3.3	BUILDING ELEVATIONS
1.0	SITE PLAN	3.4	LINE OF SIGHT EXHIBIT
1.1	TRASH PICKUP PLAN		
1.2	SIGHT DISTANCE DIAGRAM	4.1	UNIT PLANS
		4.2	CONCEPTUAL OPEN SPACE PLAN
2.1	GROUND LEVEL BUILDING PLAN	4.3	CONCEPTUAL OPEN SPACE PLAN
2.2	PODIUM LEVEL BUILDING PLAN		
2.3	THIRD LEVEL BUILDING PLAN	5.1	MATERIAL BOARD
2.4	ROOF PLAN		

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

PROJECT INFORMATION

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

BSB DESIGN
970 West 190th Street Suite 250
Torrance, CA 90502
t. 310. 217. 8885 f. 310. 217. 0425

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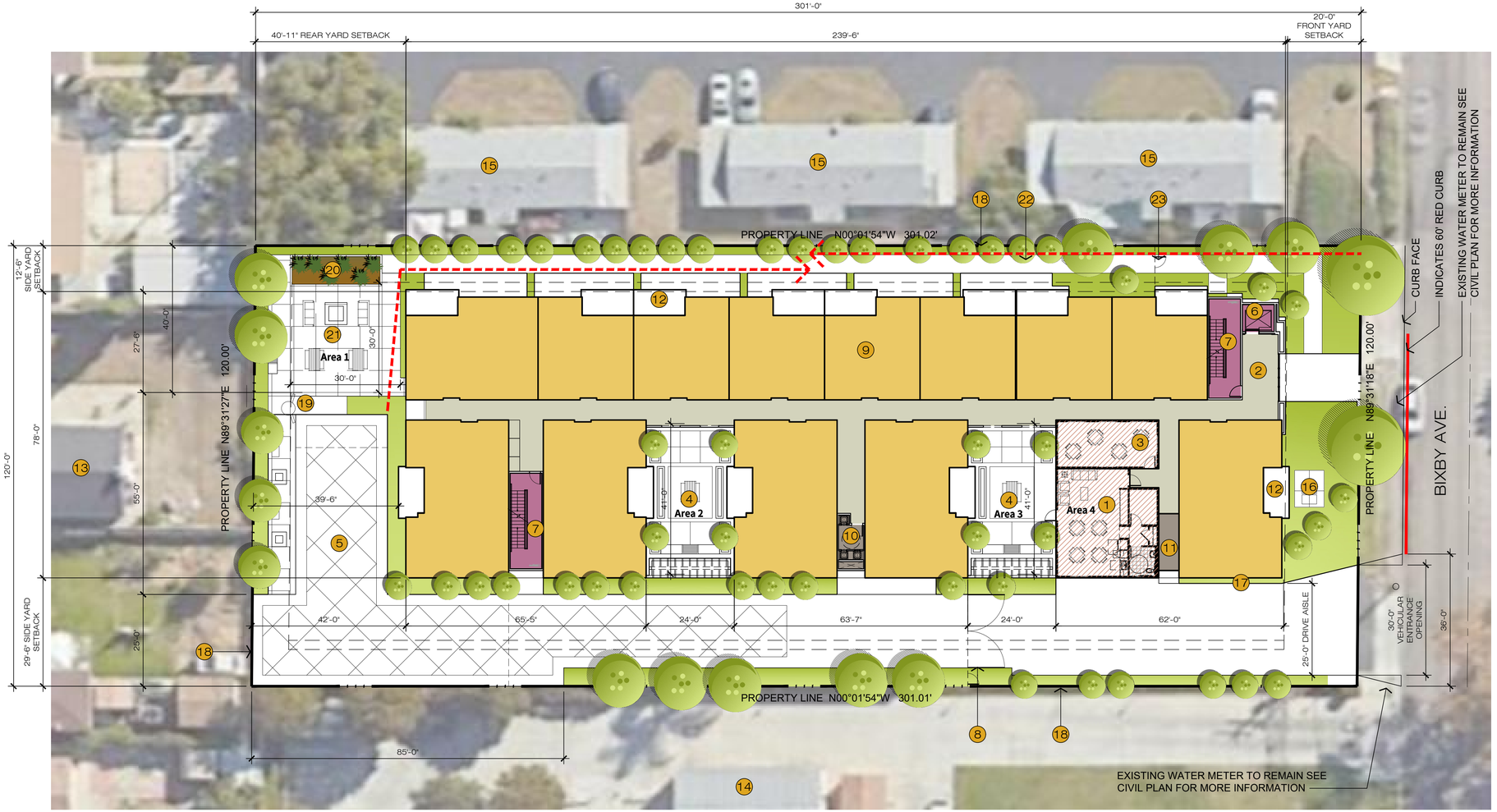


NOTE:
ALL WORKS SHALL COMPLY WITH THE LATEST CA BUILDING STANDARDS CODE AT TIME OF PERMIT APPLICATION.

SOIL REPORT COMPLYING CBC CHAPTER 18 IS REQUIRED AND SHALL BE SUBMITTED AT TIME OFPERMIT APPLICATION.

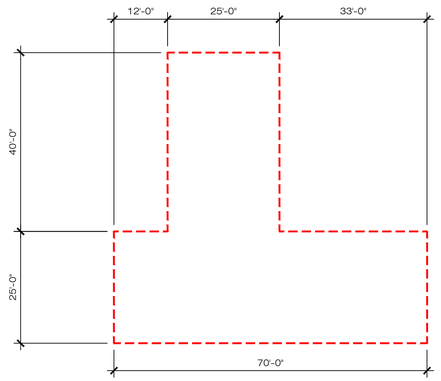
AUTOMATIC FIRE SPRINKLER ACCORDING TO CBC CHAPTER 9 IS REQUIRED THROUGHOUT.

MULTISTORY DWELLING UNITS CONTAINED IN BUILDINGS WITH ELEVATORS SHALL COMPLY WITH SECTION CB 1102A.3.2. THE STORY OF THE UNIT THAT IS SERVED BY THE BUILDING ELEVATOR IS CONSIDERED A GROUND FLOOR AND THE PRIMARY ENTRY FLOOR TO THE UNIT AND SHALL COMPLY WITH THE FOLLOWING:

1. AT LEAST 1 POWDER ROOM OR BATHROOM SHALL BE LOCATED ON THE PRIMARY ENTRY LEVEL.
2. AT LEAST 1 KITCHEN SHALL BE LOCATED ON THE PRIMARY ENTRY LEVEL.
3. ALL ROOMS OR SPACES LOCATED ON THE PRIMARY ENTRY LEVEL SHALL BE SERVED BY AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH DIVISION IV.

AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDING OR FACILITY ENTRANCES WITH ALL ACCESSIBLE SPACES, ELEMENTS AND COVERED MULTIFAMILY DWELLING UNITS.

ALL EXTERIOR EXITS SHALL BE CONNECTED TO PUBLIC SIDEWALK BY AN ACCESSIBLE ROUTE. THE ACCESSIBLE ROUTE SHALL BE THE MOST PRACTICAL DIRECT ROUTE AND TO THE MAXIMUM EXTENT FEASIBLE, COINCIDE WITH THE ROUTE FOR THE GENERAL PUBLIC AND BUILDING RESIDENTS.



REQUIRED / PROVIDED AMENITY SPACE

ACTIVE OPEN SPACE -	1,350 SF
COMMUNITY GARDEN -	56 SF
CLUBHOUSE WITH KITCHEN -	400 SF
BBQ PIT & TABLE SEATINGS -	3
BUSINESS CENTER -	4 STATIONS
WATER FOUNTAIN	
SEATING BENCHES	

MIN. HAMMERHEAD DIMENSION PER O.C. FIRE AUTHORITY

LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- PARKING
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- 150' HOSE PULL

KEY NOTE

1. CLUB ROOM
2. LOBBY
3. BUSINESS CENTER
4. PODIUM OPEN SPACE / BBQ AREA
5. FIRE DEPARTMENT / TRASH TRUCK TURN-AROUND POSTED WITH 'NO PARKING' SIGN THROUGH OUT
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. ELECTRICALLY OPERATED FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
9. 2 STORY TYPE V APARTMENT OVER PARKING
10. TRASH ROOM
11. IDF ROOM
12. PRIVATE DECK, TYP. (90 SF MIN.)
13. EXISTING ADJACENT SINGLE STORY HOUSE
14. EXISTING ADJACENT SINGLE STORY SCHOOL
15. EXISTING ADJACENT SINGLE STORY DUPLEX
16. PROPOSED TRANSFORMER LOCATION
17. PROPOSED UTILITY METER LOCATION
18. PROPOSED 6' HIGH CMU PERIMETER WALL
19. PROPOSED NEW FIRE HYDRANT LOCATION
20. COMMUNITY GARDEN (56 SF TOTAL)
21. ACTIVE OPEN SPACE / BBQ AREA
22. PEDESTRIAN WALK WAY (5'-0" WIDE MIN.)
23. PEDESTRIAN GATE

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

SITE PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

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scale: 1/16" = 1'-0"
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t. 310. 217. 8885 f. 310. 217. 0425

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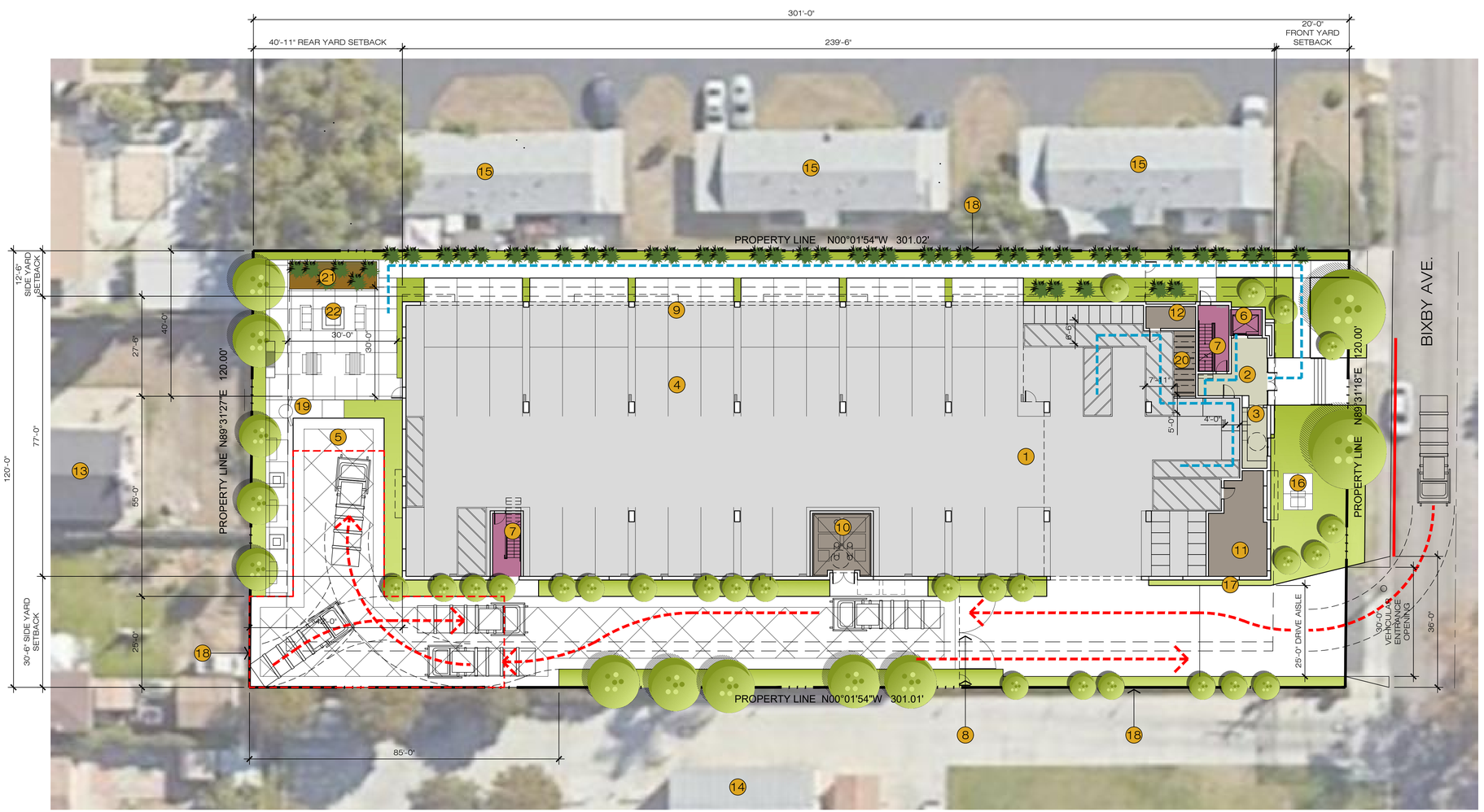
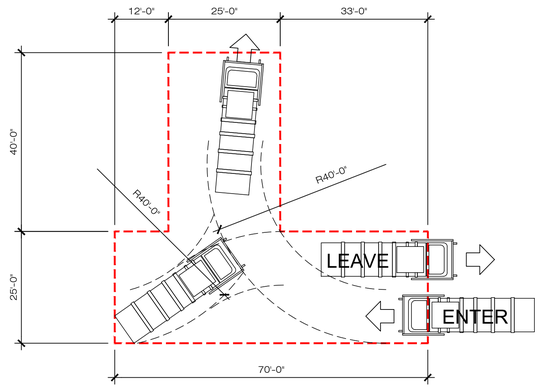
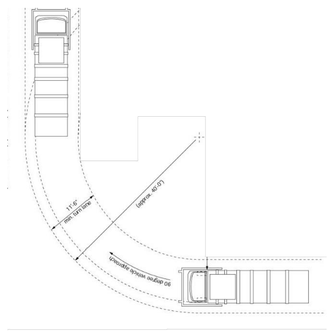




TRASH TURNING RADIUS FOR
35' LONG TRASH TRUCK



LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- PARKING
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- PROPOSED TRASH RETRIEVER ROUTE
- ADA / PEDESTRIAN ROUTE

KEY NOTE

1. ROLL UP GARAGE GATE
2. LOBBY
3. MAIL ROOM
4. 9'-0" x 19'-0" STANDARD PARKING STALL TYP.
5. FIRE DEPARTMENT / TRASH TRUCK TURN-AROUND POSTED WITH 'NO PARKING' SIGN THROUGH OUT
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
9. 9'-0" X 19'-0" TANDEM PARKING STALL TYP.
10. TRASH ROOM
11. ELECTRICAL ROOM
12. ELEVATOR MACHINE ROOM
13. EXISTING ADJACENT SINGLE STORY HOUSE
14. EXISTING ADJACENT SINGLE STORY SCHOOL
15. EXISTING ADJACENT SINGLE STORY DUPLEX
16. PROPOSED TRANSFORMER LOCATION
17. PROPOSED UTILITY METER LOCATION
18. PROPOSED 6' HIGH PERIMETER WALL
19. PROPOSED NEW FIRE HYDRANT LOCATION
20. BICYCLE STORAGE
21. COMMUNITY GARDEN (56 SF TOTAL)
22. ACTIVE OPEN SPACE

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

TRASH PICKUP PLAN

APPLICANT:
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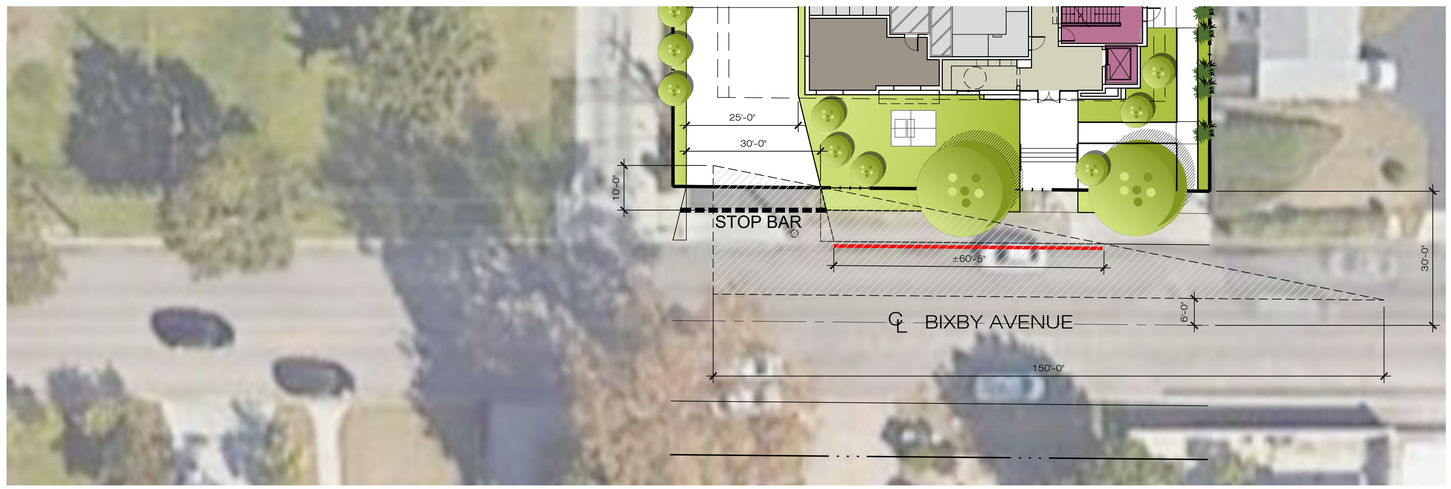
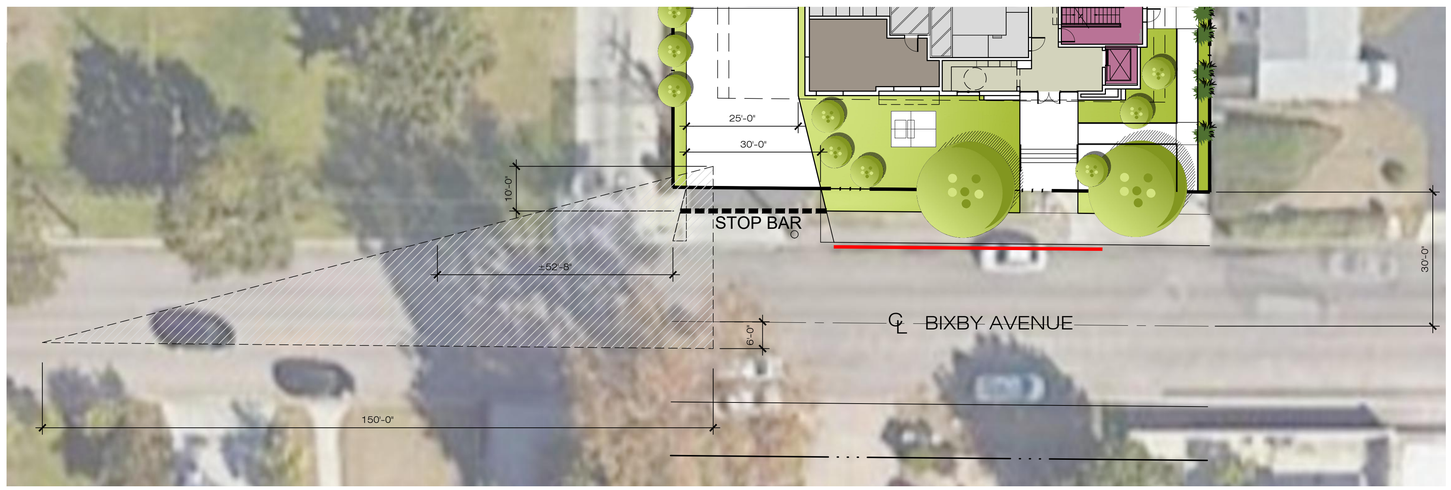


RIGHT TURN INTERSECTION MANEUVER



LEFT TURN INTERSECTION MANEUVER

LEGEND

PROPOSED TRANSFORMER

STOPPING SIGHT DISTANCE

THE MINIMUM STOPPING SIGHT DISTANCE IS THE DISTANCE REQUIRED BY THE DRIVER OF A VEHICLE, TRAVELING AT A GIVEN SPEED, TO BRING HIS VEHICLE TO A STOP AFTER AN OBJECT ON THE ROAD BECOMES VISIBLE. STOPPING SIGHT DISTANCE IS MEASURED FROM THE DRIVER'S EYES, WHICH ARE ASSUMED TO BE 3.5 FEET ABOVE THE PAVEMENT SURFACE, TO AN OBJECT 0.5-FOOT HIGH ON THE ROAD

TO LAY OUT A SIGHT DISTANCE TRIANGLE, PLACE THE ENTERING DRIVER'S EYE 10 FEET BACK OF FLOW LINE, MEASURE TO THE CENTER OF THE APPROACH LANE THE REQUIRED SIGHT DISTANCE. IF THE APPROACH LANE IS WIDER THAN 12 FEET, MEASURE TO A POINT 6 FEET FROM THE ADJACENT LANE LINE OR CENTER LINE OF ROADWAY

THE STOPPING SIGHT DISTANCES SHOWN IN THE TABLE SHOULD BE INCREASED BY 20% ON SUSTAINED DOWNGRADES STEEPER THAN 3% AND LONGER THAN ONE MILE

N:\DWGS\MR210685.00 - Garden Grove (Bixby)\MR210685.00.90 REFERENCE\MR210685.00.92-Code Research\te-13-sight-distance-standards Page 001.jpg

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

SIGHT DISTANCE DIAGRAM

APPLICANT:
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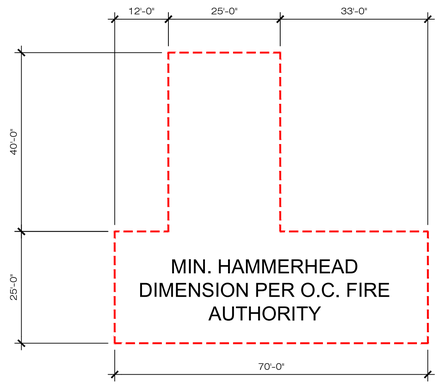

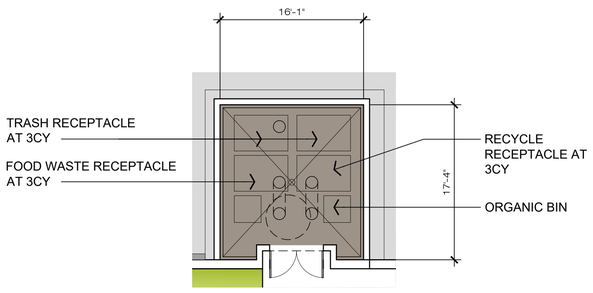

ENLARGED TRASH ROOM PLAN

PARKING LEGEND / SUMMARY

S (9'x19' STANDARD)	10 SPACES	20 %
T (9'x19' TANDEM)	17 SPACES	34 %
HC (ACCESSIBLE)	2 SPACES	4 %
EV (EV EQUIPPED / ACCESSIBLE)	3 SPACES	6 %
EV-R (EV READY / CAPABLE)	18 SPACES	36 %
TOTAL	50 SPACES	

MIN. REQUIRED PER CALGREEN 4.106.4.2

EV READY (CONDUIT ONLY WITH J BOX) 25%
EV CAPABLE (CONDUIT, J BOX, INSTALLED PANEL) 10%
EQUIPPED (EVERYTHING INSTALLED FOR LEVEL 2 CHARGING) 5%

LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- PARKING
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- ADA / PEDESTRIAN ROUTE

KEY NOTE

1. ROLL UP GARAGE GATE
2. LOBBY
3. MAIL ROOM - ACCESSIBLE PER CBC 1127A.1
4. 9'-0" x 19'-0" STANDARD PARKING STALL TYP.
5. FIRE DEPARTMENT / TRASH TRUCK TURN-AROUND POSTED WITH 'NO PARKING' SIGN THROUGH OUT
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. ELECTRICALLY OPERATED FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
9. 9'-0" X 19'-0" TANDEM PARKING STALL TYP.
10. TRASH ROOM
11. ELECTRICAL ROOM
12. ELEVATOR MACHINE ROOM
13. EXISTING ADJACENT SINGLE STORY HOUSE
14. EXISTING ADJACENT SINGLE STORY SCHOOL
15. EXISTING ADJACENT SINGLE STORY DUPLEX
16. PROPOSED TRANSFORMER LOCATION
17. PROPOSED UTILITY METER LOCATION
18. PROPOSED 6' HIGH CMU PERIMETER WALL
19. PROPOSED NEW FIRE HYDRANT LOCATION
20. BICYCLE STORAGE
20. COMMUNITY GARDEN / R.P.B. (56 SF MIN.)
21. ACTIVE OPEN SPACE (30' x 30' MIN.)
22. PRIVATE STORAGE AT 120 CF EACH
23. 9'-0" X 19'-0" VEHICLE TURN AROUND SPACE
24. EXISTING ELECTRIC POLE TO BE REMOVED

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

GROUND LEVEL BUILDING PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

N

scale: 1/16" = 1'-0"
0 8 16 32 64

BSB DESIGN
970 West 190th Street Suite 250
Torrance, CA 90502
t. 310. 217. 8885 f. 310. 217. 0425

JOB. MR210685.00
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LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- COMMUNITY ROOM
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- * ACCESSIBLE UNIT
- ( ) INDICATES AFFORDABLE UNITS

KEY NOTE

1. COMMUNITY ROOM
2. LOBBY
3. BUSINESS CENTER WITH WORKSTATIONS
4. PODIUM OPEN SPACE / BBQ AREA
5. FIRE DEPARTMENT / TRASH TRUCK TURN-AROUND
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
9. 2 STORY TYPE V APARTMENT OVER PARKING
10. TRASH ROOM
11. IDF ROOM
12. PRIVATE DECK, TYP.
13. EXISTING ADJACENT SINGLE STORY HOUSE
14. EXISTING ADJACENT SINGLE STORY SCHOOL
15. EXISTING ADJACENT SINGLE STORY DUPLEX
16. PROPOSED TRANSFORMER LOCATION BELOW

ACCESSIBLE PARKING NOTE

ASSIGNED ACCESSIBLE PARKING SPACES:
WHEN ASSIGNED PARKING SPACES ARE PROVIDED FOR A RESIDENT OR A GROUP OF RESIDENTS, AT LEAST 2% OF THE ASSIGNED PARKING SPACES SERVING COVERED MULTIFAMILY DWELLING UNITS SHALL BE ACCESSIBLE IN EACH TYPE OF PARKING FACILITY. AT LEAST ONE SPACE OF EACH TYPE OF PARKING FACILITY SHALL BE MADE ACCESSIBLE EVEN IF THE TOTAL NUMBER EXCEEDS 2%. WHEN ASSIGNED PARKING IS PROVIDED, SIGNAGE AS REQUIRED BY "PARKING SIGNAGE" SHALL NOT BE REQUIRED. (1109A.4)

UNASSIGNED AND VISITOR PARKING SPACES:
WHEN PARKING IS PROVIDED FOR COVERED MULTIFAMILY DWELLINGS AND IS NOT ASSIGNED TO A RESIDENT OR A GROUP OF RESIDENTS AT LEAST 5% OF THE PARKING SPACES SHALL BE ACCESSIBLE AND PROVIDE ACCESS TO GRADE-LEVEL ENTRANCES OF COVERED MULTIFAMILY DWELLINGS AND FACILITIES (E.G., SWIMMING POOLS, CLUB HOUSES, RECREATION AREAS, AND LAUNDRY ROOMS) THAT SERVE COVERED MULTIFAMILY DWELLINGS. ACCESSIBLE PARKING SPACES SHALL BE PROVIDED WITH SIGNAGE AS REQUIRED BY "PARKING SIGNAGE." SUCH SIGNAGE SHALL NOT BE BLOCKED FROM VIEW BY A VEHICLE PARKED IN THE SPACE.

ACCESSIBLE ROUTE NOTE

A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ACCESSIBLE ELEMENTS AND SPACES OF AN ACCESSIBLE SITE, BUILDING OR FACILITY THAT CAN BE NEGOTIATED BY A PERSON WITH A DISABILITY USING A WHEELCHAIR, AND THAT IS ALSO SAFE FOR AND USABLE BY PERSONS WITH OTHER DISABILITIES.

AN ACCESSIBLE ROUTE SHALL BE PROVIDED THROUGH ALL ROOMS AND SPACES OF THE DWELLING UNIT. THE ACCESSIBLE ROUTE SHALL PASS THROUGH THE PRIMARY ENTRY DOOR, AND SHALL CONNECT WITH ALL ADDITIONAL EXTERIOR DOORS, REQUIRED CLEAR FLOOR SPACES AT KITCHEN APPLIANCES AND BATHROOM FIXTURES. FOR THE PURPOSE OF THIS SECTION, "ACCESSIBLE ROUTES" MAY INCLUDE HALLWAYS, CORRIDORS AND RAMPS.

THE ACCESSIBLE ROUTE INTO AND THROUGHOUT COVERED MULTIFAMILY DWELLING UNITS SHALL BE AT LEAST 36" WIDE (1130A.2).

THE MINIMUM MANEUVERING CLEARANCE AT DOORS OR GATES, WITHIN AN ACCESSIBLE ROUTE, SHALL COMPLY WITH CBC SECTION 1126A.3.1.

THE WIDTH OF ACCESSIBLE ROUTES THROUGHOUT A COVERED DWELLING UNIT SHALL BE 36" MINIMUM CLEAR BETWEEN FINISH ELEMENTS ALONG HALLWAY OR CORRIDOR WALLS (E.G. BASE BOARDS, CHAIR RAILS, PANELING, OR WAINSCOTING). CONSTRUCTION PLANS ARE OFTEN DIMENSIONED TO THE FRAMING, NOT THE FINISH. IF THE WIDTH OF THE ACCESSIBLE ROUTE IS SHOWN AS 36" ON CONSTRUCTION PLANS, IT SHOULD BE CLARIFIED THAT THIS IS THE MINIMUM CLEAR DIMENSION.

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

PODIUM LEVEL BUILDING PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

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scale: 1/16" = 1'-0"
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LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION

KEY NOTE

1. 2 STORY TYPE V APARTMENT OVER PARKING
2. LOBBY
3. TRASH ROOM
4. PODIUM OPEN SPACE BELOW
5. IDF ROOM
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. PRIVATE DECK, TYP.

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

THIRD LEVEL BUILDING PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
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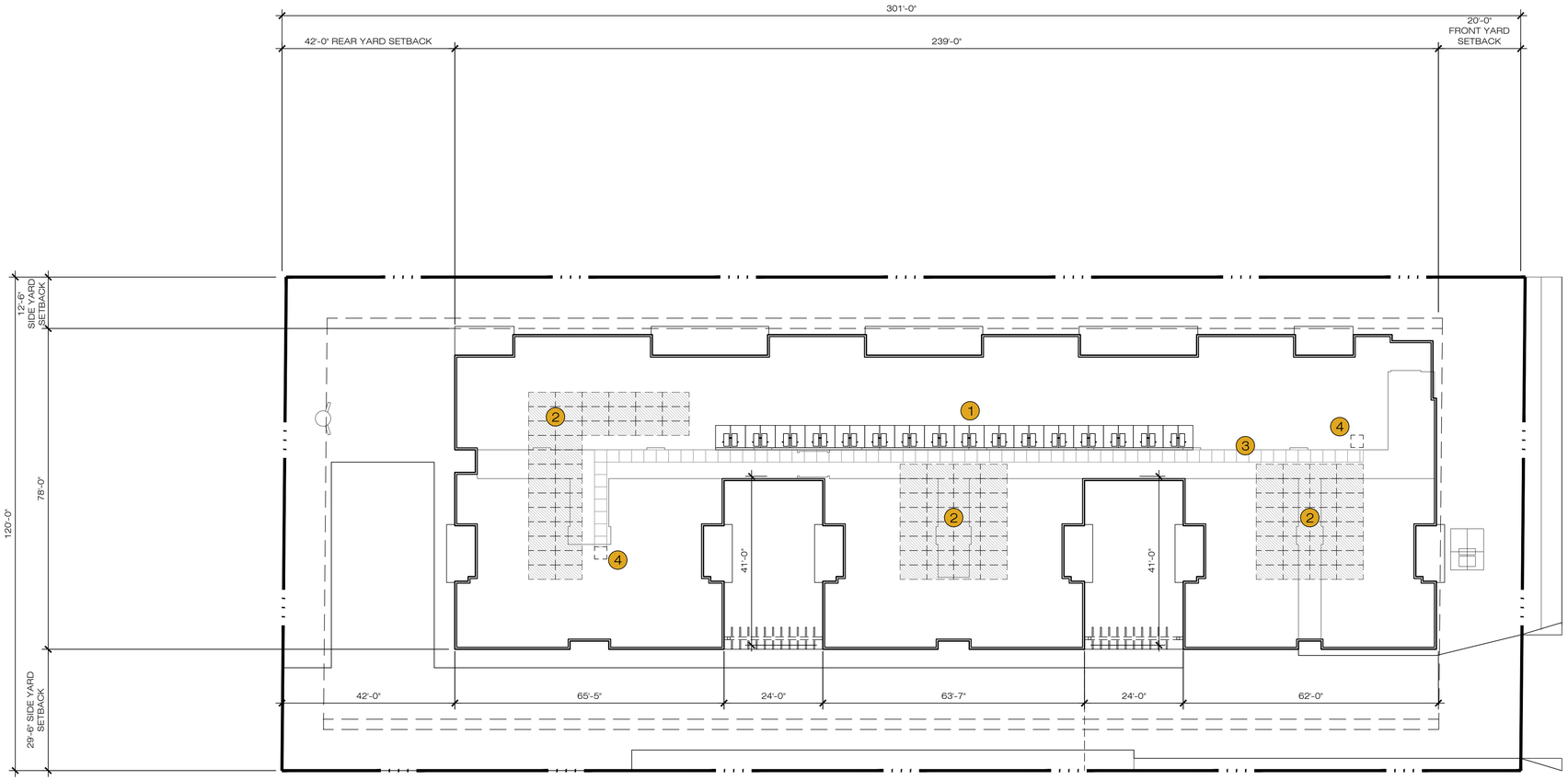

KEY NOTE

1. CONDENSING UNITS WITH ISOLATION PAD TYP.
2. FUTURE SOLAR PANEL AREA (15% OF ROOF AREA)
3. ROOF MEMBRANE TRAFFIC PAD
4. ROOF ACCESS HATCH WITH FIRE DEPARTMENTS APPROVED FOLDABLE STAIRS TYP.

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

ROOF PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

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BIXBY AVENUE APARTMENTS

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CONCEPTUAL PERSPECTIVE

APPLICANT:
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872 WENDT TER.,
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CONCEPTUAL PERSPECTIVE

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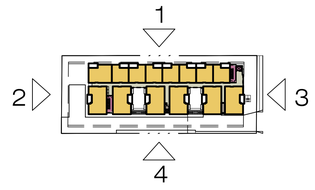
1. (EAST) SIDE ELEVATION

2. (NORTH) REAR ELEVATION

3. (SOUTH) FRONT ELEVATION

4. (WEST) SIDE ELEVATION



MATERIAL LEGEND

1. EXTERIOR STUCCO SW 7100 ARCADE WHITE
2. EXTERIOR STUCCO SW 7698 STRAW HARVEST
3. EXTERIOR STUCCO SW 7055 ENDURING BRONZE
4. EXTERIOR STUCCO SW 6881 CAYENNE
5. FIBER CEMENT SIDING
6. EXTERIOR VENEER
7. CMU WALL
8. DUAL GLAZED VINYL WINDOWS WHITE COLORED FRAME
9. WOOD FRAMED AWNING
10. METAL RAILING
11. STOREFRONT GLAZING / DOOR
12. SCREED LINE
13. METAL DOOR
14. PAINTED METAL COPING
15. DOWNSPOUTS - PAINT TO MATCH ADJACENT BUILDING COLOR
16. PAINTED METAL GRILLE
17. PEDESTRIAN GATE W/ KNOX BOX
18. FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
19. PROPOSED TRANSFORMER LOCATION AND SCREEN WALL
20. 6' HIGH CMU PERIMETER WALL

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

BUILDING ELEVATIONS

APPLICANT:
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872 WENDT TER.,
LAGUNA BEACH, CA. 92651

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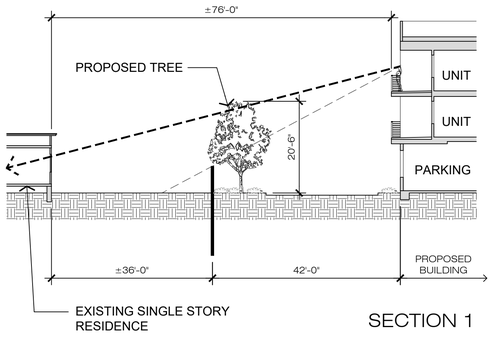
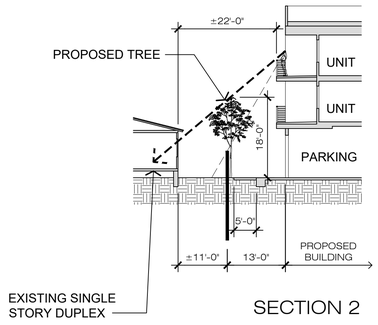


SECTION 1



SECTION 2

LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- COMMUNITY ROOM
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- * ACCESSIBLE UNIT

KEY NOTE

1. EXISTING ADJACENT SINGLE STORY HOUSE
2. EXISTING ADJACENT SINGLE STORY SCHOOL
3. EXISTING ADJACENT SINGLE STORY DUPLEX

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

LINE OF SIGHT EXHIBIT

APPLICANT:
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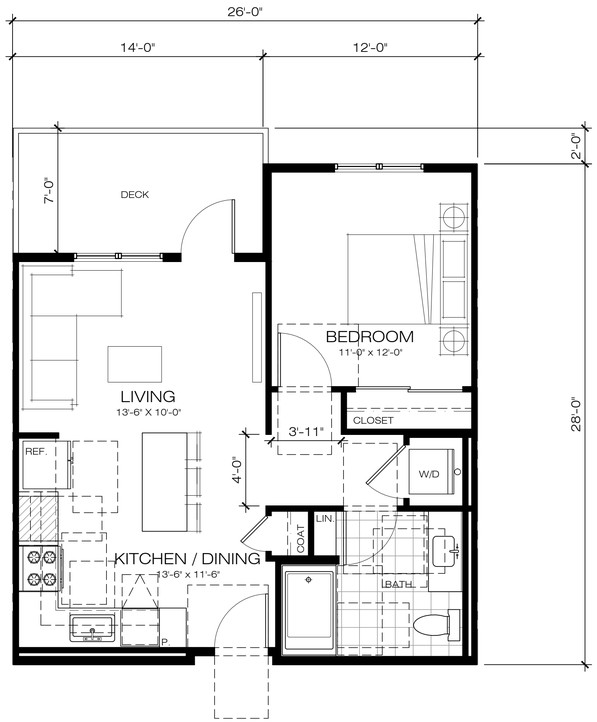
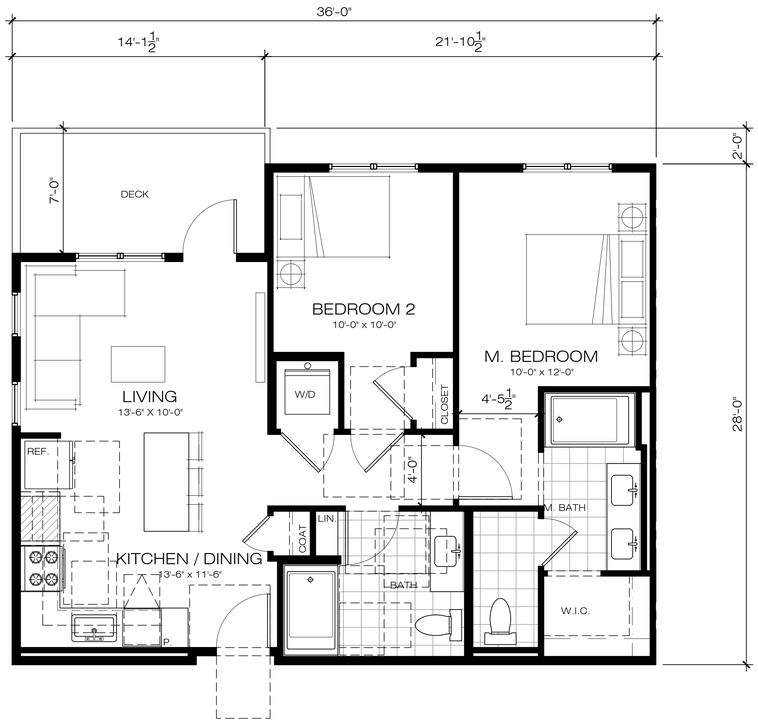


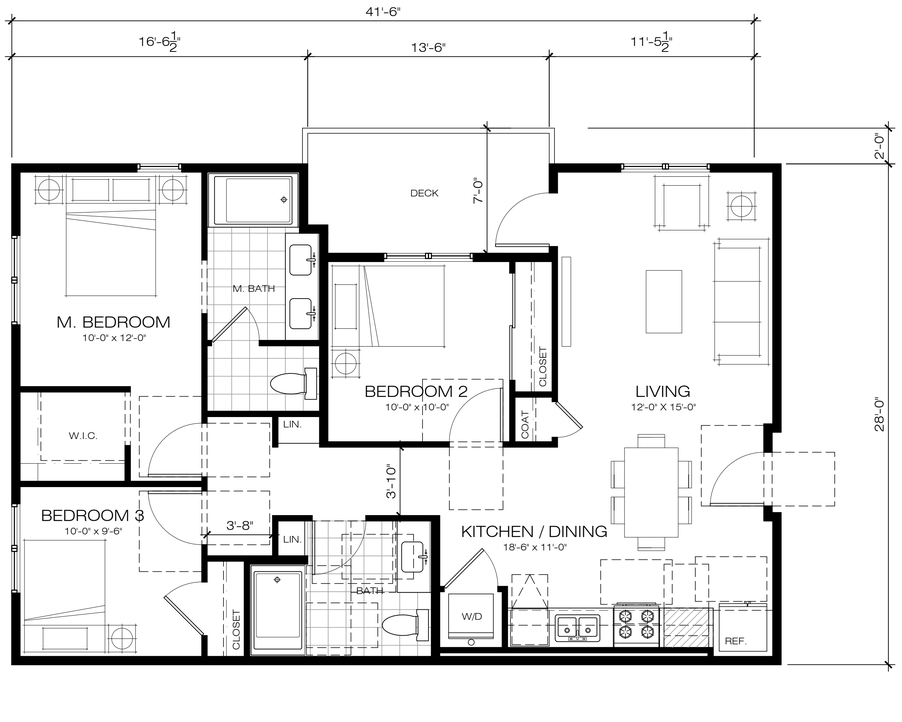
UNIT TYPE A

1 BEDROOM / 1 BATH
GROSS UNIT SF = 656 S.F.
NET UNIT SF = 602 S.F.
DECK AREA = 90 SF
14 UNITS



UNIT TYPE B

2 BEDROOM / 2 BATH
GROSS UNIT SF = 935 S.F.
NET UNIT SF = 867 S.F.
DECK AREA = 90 SF
2 UNITS



UNIT TYPE C

3 BEDROOM / 2 BATH
GROSS UNIT SF = 1,136 S.F.
NET UNIT SF = 1,059 S.F.
DECK AREA = 90 SF
11 UNITS

ACCESSIBLE NOTE:
ACCESSIBLE ROUTE - A CONTINUOUS UNOBSTRUCTED PATH CONNECTING ACCESSIBLE ELEMENTS AND SPACES OF AN ACCESSIBLE SITE, BUILDING OR FACILITY THAT CAN BE NEGOTIATED BY A PERSON WITH A DISABILITY USING A WHEELCHAIR, AND THAT IS ALSO SAFE FOR AND USABLE BY PERSONS WITH OTHER DISABILITIES.

AN ACCESSIBLE ROUTE SHALL BE PROVIDED THROUGH ALL ROOMS AND SPACES OF THE DWELLING UNIT. THE ACCESSIBLE ROUTE SHALL PASS THROUGH THE PRIMARY ENTRY DOOR, AND SHALL CONNECT WITH ALL ADDITIONAL EXTERIOR DOORS, REQUIRED CLEAR FLOOR SPACES AT KITCHEN APPLIANCES AND BATHROOM FIXTURES. FOR THE PURPOSE OF THIS SECTION, "ACCESSIBLE ROUTES" MAY INCLUDE HALLWAYS, CORRIDORS AND RAMPS.

THE ACCESSIBLE ROUTE INTO AND THROUGHOUT COVERED MULTIFAMILY DWELLING UNITS SHALL BE AT LEAST 36" WIDE (1130A.2).

ALL DWELLING UNITS IN BUILDING EQUIPPED WITH ELEVATOR IS CONSIDERED A GROUND FLOOR AND ALL ROOMS/SPACES SHALL BE SERVED BY AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH DIVISION IV THE MINIMUM MANEUVERING CLEARANCE AT DOORS OR GATES, WITHIN AN ACCESSIBLE ROUTE, SHALL COMPLY WITH CBC SECTION 1126A.3.1.

THE WIDTH OF ACCESSIBLE ROUTES THROUGHOUT A COVERED DWELLING UNIT SHALL BE 36" MINIMUM CLEAR BETWEEN FINISH ELEMENTS ALONG HALLWAY OR CORRIDOR WALLS (E.G. BASE BOARDS, CHAIR RAILS, PANELING, OR WAINSCOTING). CONSTRUCTION PLANS ARE OFTEN DIMENSIONED TO THE FRAMING, NOT THE FINISH. IF THE WIDTH OF THE ACCESSIBLE ROUTE IS SHOWN AS 36" ON CONSTRUCTION PLANS, IT SHOULD BE CLARIFIED THAT THIS IS THE MINIMUM CLEAR DIMENSION.

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

UNIT PLANS

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

BIXBY AVE. INVESTMENT
9535 GARDEN GROVE BLVD., STE 202
GARDEN GROVE, CA. 92844

scale: 1/4" = 1'-0"
0 1 4 8 16

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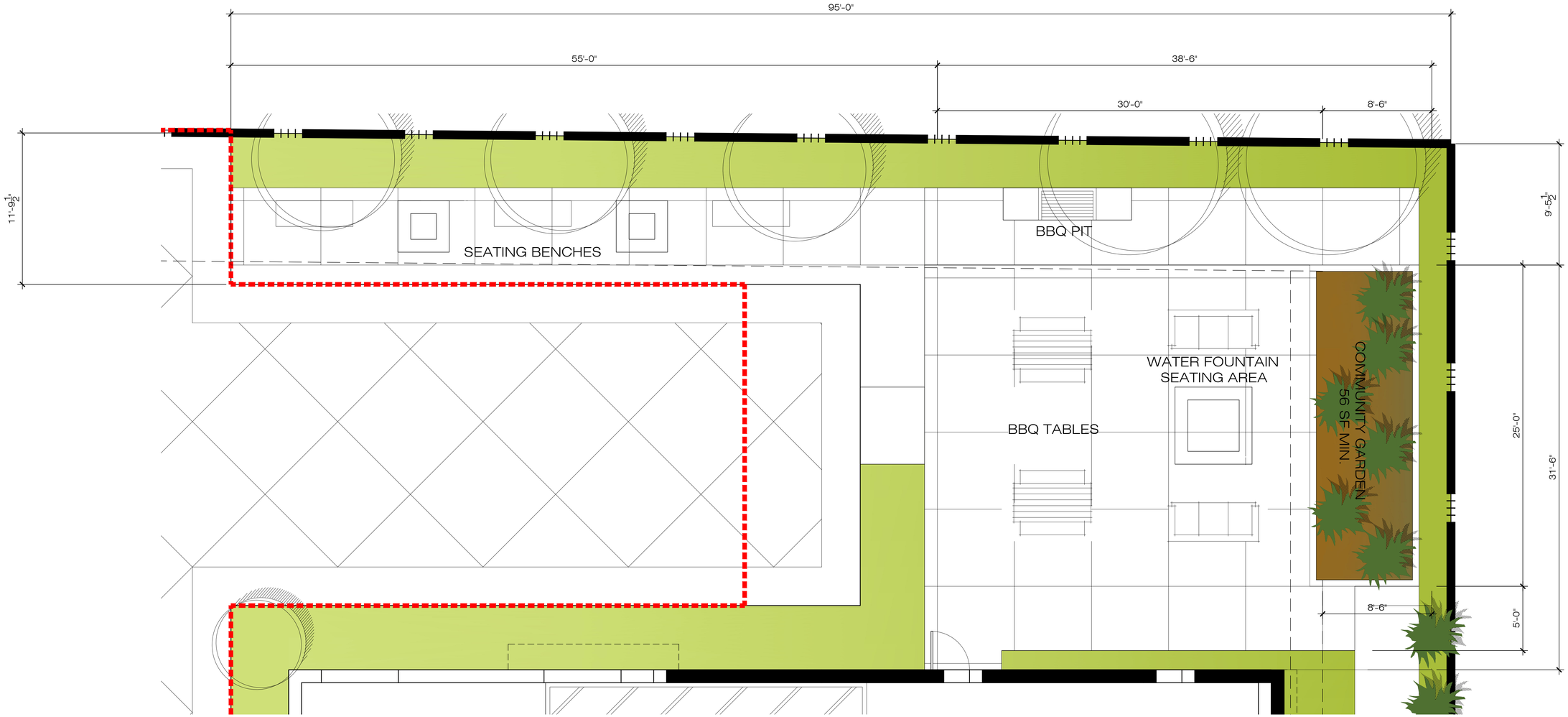

PRIVATE OPEN SPACE				
	TYPE	LOCATION	DIMENSION	AREA (SF)
UNIT A	PRIVATE	ADJACENT TO THE EACH LIVING AREA	7'-0" x 14'-0"	98sf (14 units)
UNIT B	PRIVATE		7'-0" x 14'-1.5"	99sf (2 units)
UNIT C	PRIVATE		7'-0" x 13'-6"	93sf (11 units)
	TOTAL PRIVATE OPEN SPACE AREA			**2,593 SF**

COMMON OPEN SPACE / ACTIVE RECREATIONAL AREA				
	TYPE	LOCATION	DIMENSION	AREA (SF)
A	ACTIVE	1ST LEVEL		2,469 SF
B	ACTIVE	2ND LEVEL		932 SF
C	ACTIVE	2ND LEVEL		968 SF
D	INDOOR	2ND LEVEL		1,163 SF
	TOTAL COMMON OPEN SPACE AREA			**5,553 SF**

	TOTAL PRIVATE AND COMMON OPEN SPACE AREA	**8,125 SF**

AREA 1

ACTIVE OPEN SPACE
AT GROUND LEVEL
2,469 S.F.
-
-
-

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841 CONCEPTUAL OPEN SPACE PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

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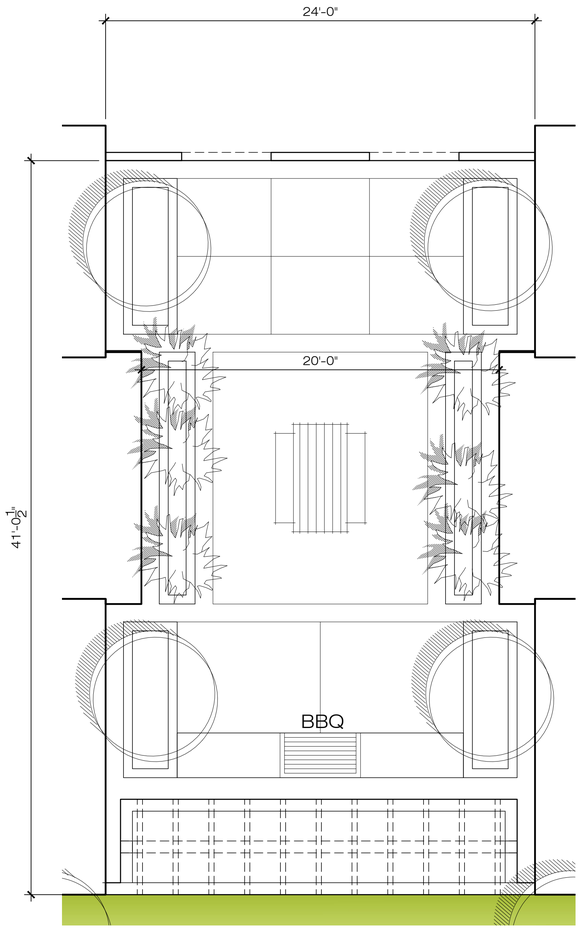

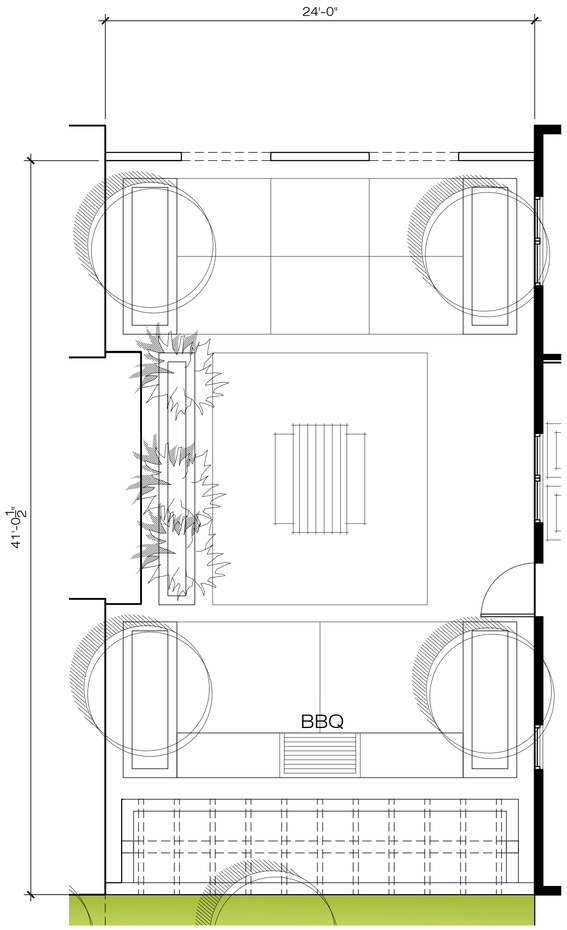

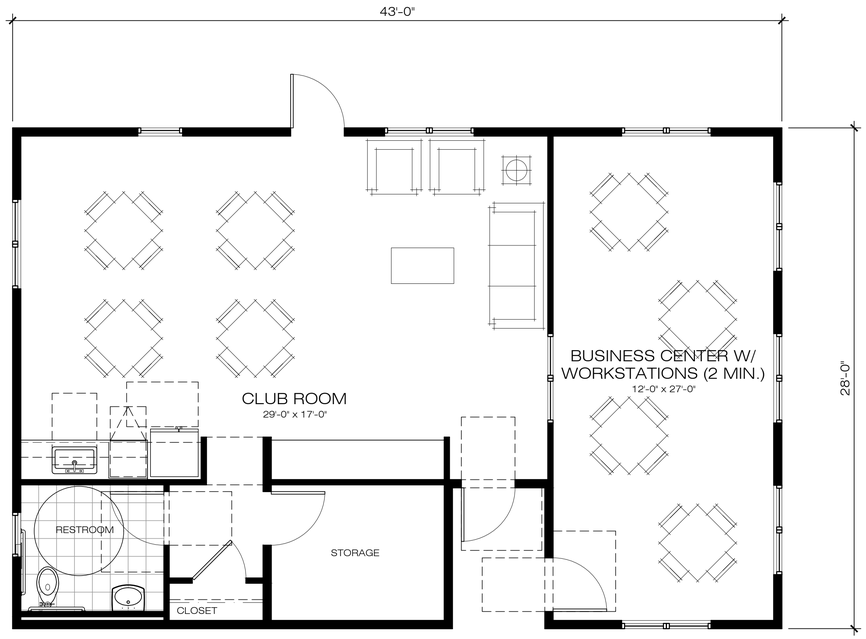

AREA 2

ACTIVE OPEN SPACE
AT PODIUM LEVEL
±932 S.F.
-
-
-

AREA 3

ACTIVE OPEN SPACE
AT PODIUM LEVEL
±968 S.F.
-
-
-

AREA 4

COMMUNITY ROOM
-
GROSS UNIT SF = 1,163 S.F.
NET UNIT SF = 1,113 S.F.
DECK AREA = N/A
-

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

COMMUNITY ROOM PLAN

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

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EXTERIOR PAINT COLOR

A COLOR
SW 7100 ARCADE WHITE

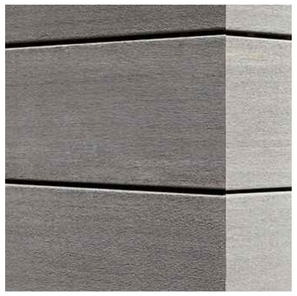
B COLOR
SW 6881 CAYENNE

C COLOR
SW 7698 STRAW HARVEST

D COLOR
SW 7055 ENDURING BRONZE

1 EXTERIOR CEMENT PLASTER

2 FIBER CEMENT SIDING



3 FIBER CEMENT SIDING

4 EXTERIOR STONE CLADDING

5 DUAL GLAZED VINYL WINDOW

6 STOREFRONT DOOR / WINDOW

7 PAINTED METAL GUARDRAIL

8 METAL AWNING

9 WOOD FRAMED AWNING

10 CONTROL JOINT

11 RETAIL SIGNAGE

12 METAL COPING

BIXBY AVENUE APARTMENTS

9691 BIXBY AVENUE, GARDEN GROVE, CA. 92841

MATERIAL BOARD

APPLICANT:
THE JAGER CO, LTD.,
872 WENDT TER.,
LAGUNA BEACH, CA. 92651

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CONCEPT GRADING PLAN/SITE PLAN

9691 BIXBY AVENUE, GARDEN GROVE, CA

PROJECT DATA

ZONING:
R-2

DENSITY
21 UNITS/ACRE
0.83ACREx21 = 18 UNITS
CALIFORNIA BONUS DENSITY APPLICTION
50%(18x0.50) = 9 UNITS
PROPOSED UNITS = 27

BUILDING HEIGHT
MAXIMUM BUILDING HEIGHT = 35'
3 STORY/ 35' TOP OF ROOF STRUCTURE
G.G.M.U. 9.12.040.020 GENERAL DEVELOPMENT STANDARDS

SETBACKS
FRONT MIN. 20'
SIDE 12'-6"
REAR 40'-11"

OPEN SPACE AREA

COMMON AREA REQUIRED	5,670 SF
PRIVATE SPACE REQUIRED	2,430 SF
COMBINED OPEN SPACE	8,100 SF
COMMON AREA PROVIDED	
PODIUM OPEN	1,800 SF
COMMUNITY ROOM	1,185 SF
ON-GRADE OPEN	4,900 SF
PRIVATE DECKS	2,430 SF
TOTAL AREA PROVIDED	10,315 SF

PARKING

PARKING REQUIRED		PARKING PROVIDED	
1 BEDROOM:	14	OPEN SITE PARKING:	17
2 BEDROOM & 3 BEDROOM:	20	GARAGE PARKING:	33
TOTAL REQUIRED:	34	TOTAL PROVIDED:	50

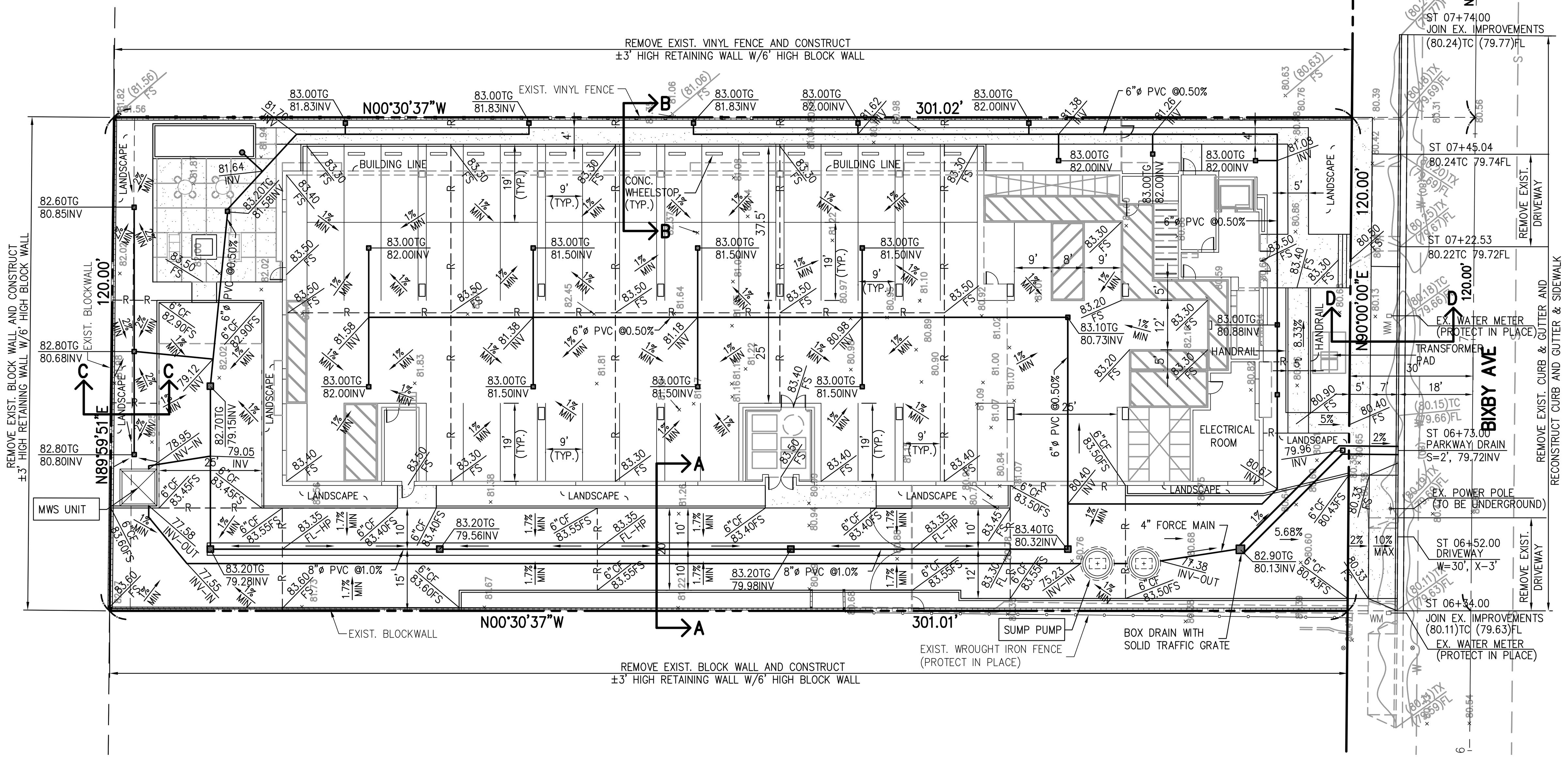
BUILDING COVERAGE
SITE AREA: 0.83 ACRES (36,120 SF)

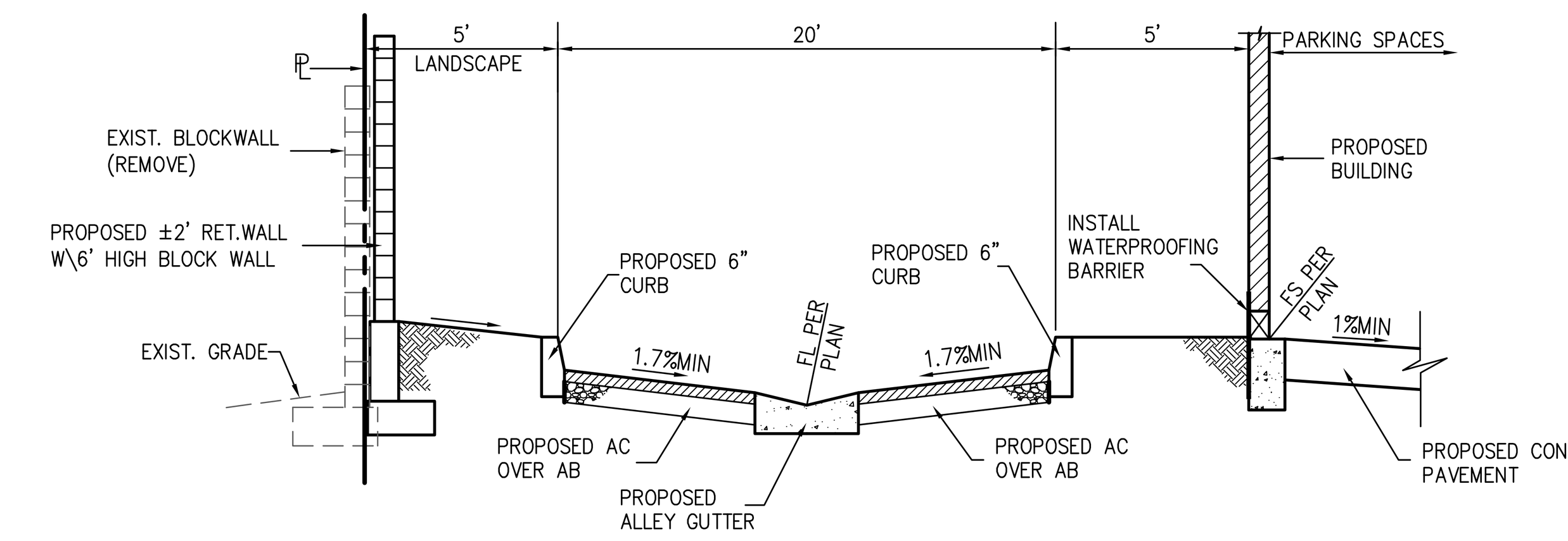
PROPOSED COVERAGE:
BUILDING FOOTPRINT: 16,639 SF (46%)
PARKING AND VEHICLE ACCESS COVERAGE: 19,280 SF (53%)
OPEN DRIVE AISLE: 8,062 SF (22%)
PAVED AREA: 2,630 SF (7%)
TOTAL LANDSCAPE (EXCL. COMMON AREA): 4,877 SF (14%)
COMMON LANDSCAPE AREA: 1,271 SF (4%)

UNIT TYPE:
1 BEDROOM: 14
2 BEDROOM: 2
3 BEDROOM: 11
TOTAL NO. UNITS: 27

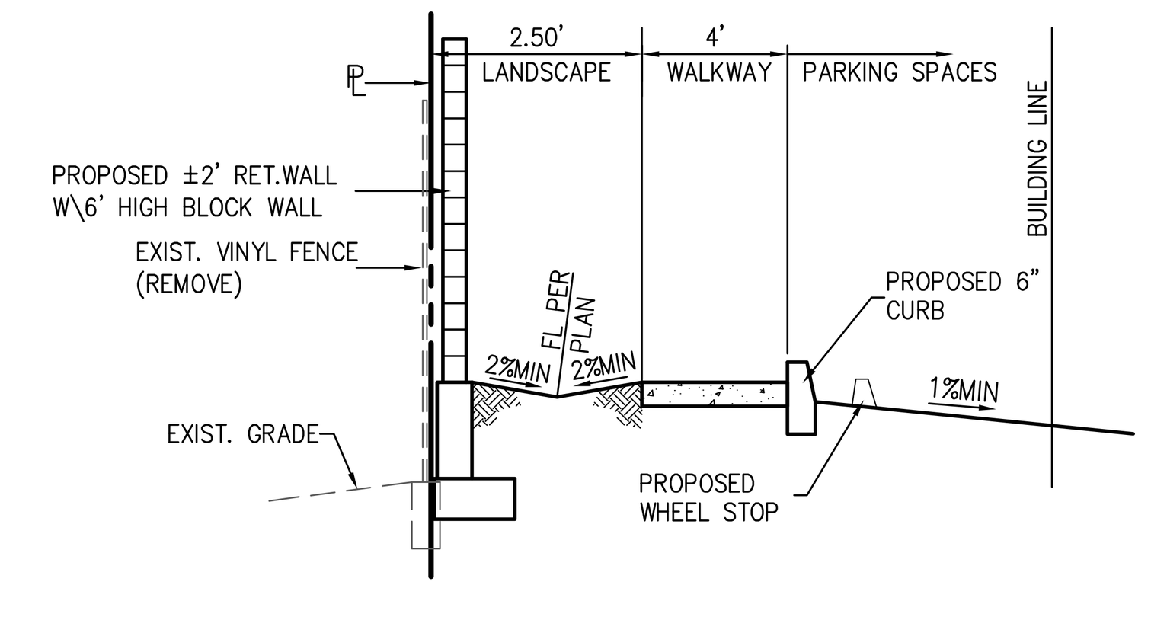
UNIT FLOOR TYPE/COUNT:
PLAN A 14
PLAN B 2
PLAN C 11

BUILDING CODE SUMMARY:
PROPOSED: 2 STORY TYPE V OVER STORY TYPE 1 (PARKING/RESIDENTIAL) – 3 STORY TOTAL





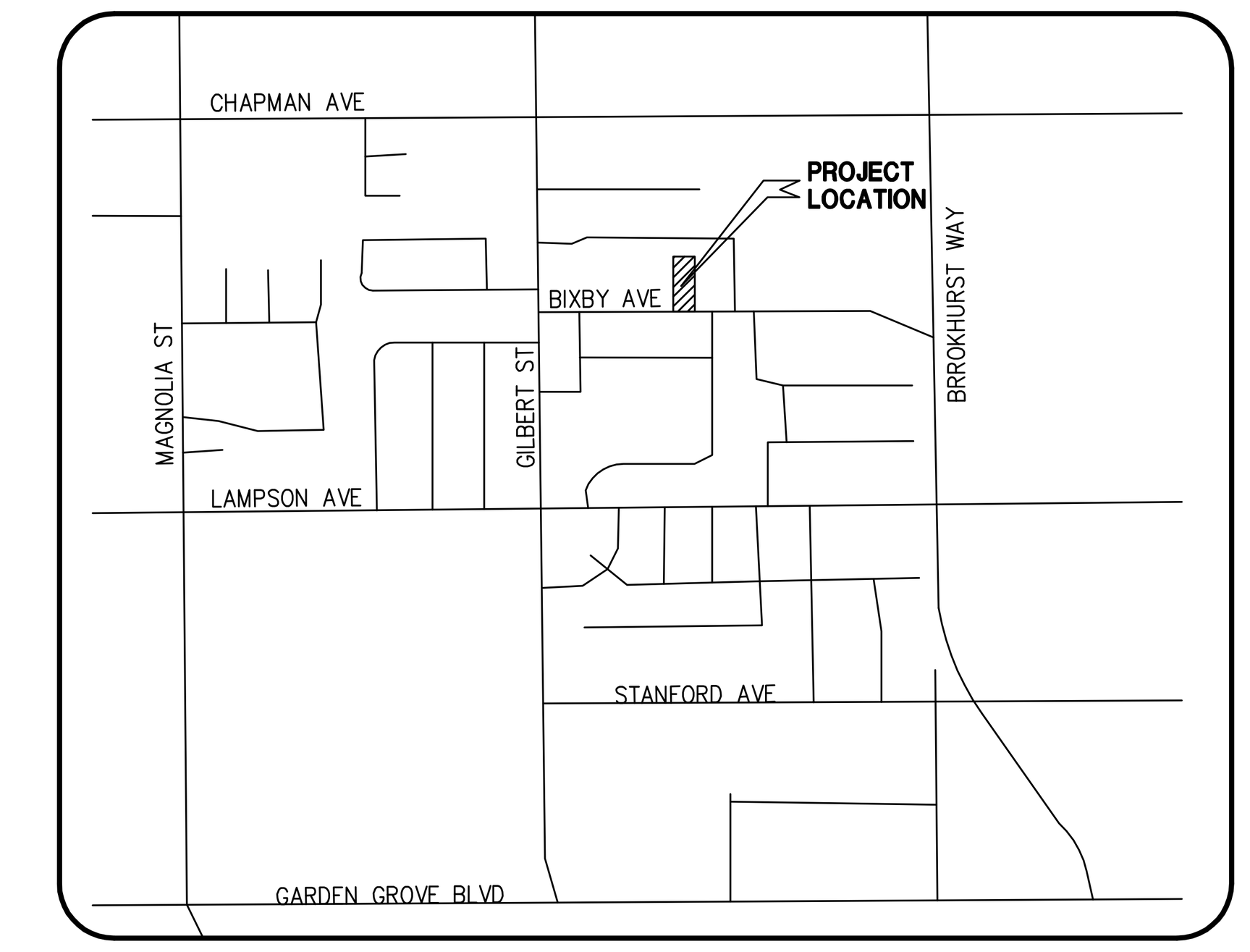
SECTION A-A
NTS



SECTION B-B
NTS

APPLICANT TO COORDINATE WITH PUBLIC WORKS ENGINEERING DIVISION TO OBTAIN DIRECTION ON REMOVAL AND REPLACEMENT OF THE ASPHALT PAVEMENT ALONG PROPERTY FRONTAGE PER CITY OF GARDEN GROVE STD PLAN B-103 AND B-104

PAINT CURB FRONTING PROPERTY RED PER LINE OF SIGHT ANALYSIS



VICINITY MAP
NTS

LEGAL DESCRIPTION

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APN: 133-102-24

BASIS OF BEARING

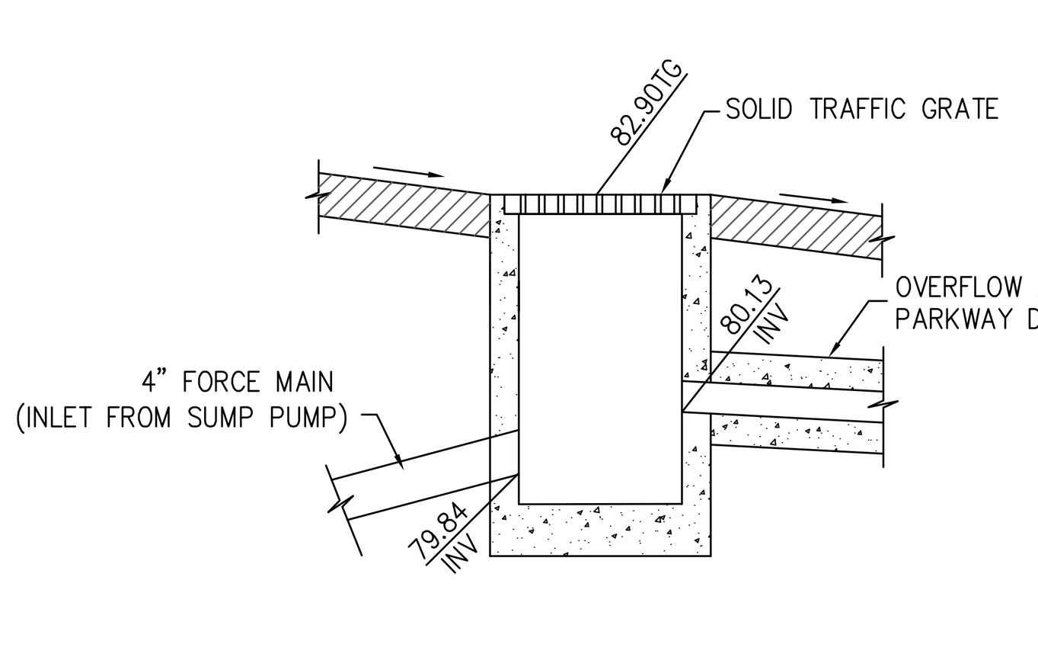
THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING OF BIXBY AVE BEING NORTH 90°00'00" EAST PER MAP RECORDED IN BOOK 4, PAGE 97, MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.

BENCH MARK

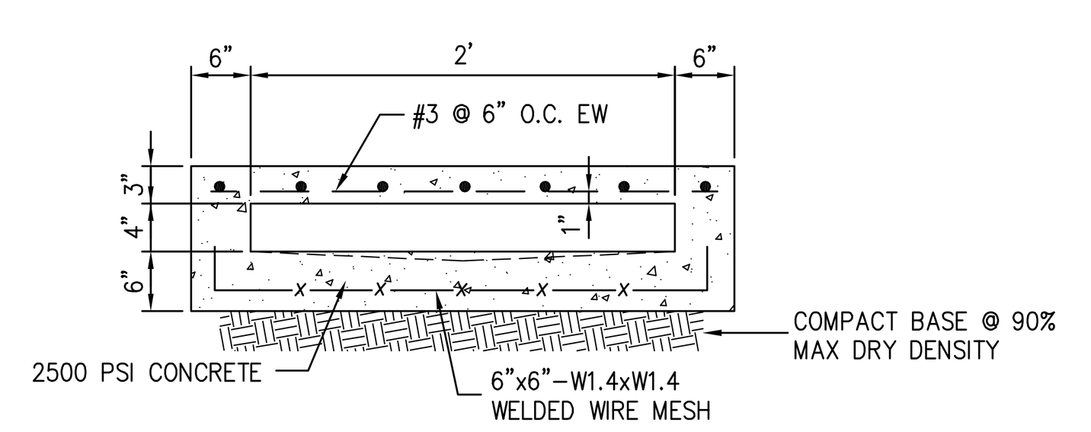
GG-131

2 3/4" BRONZE DISK, STAMPED "CITY OF G.G. BM" @ NORTHEAST CORNER OF LAMPSON AVE. & GILBERT ST., 42' EAST OF B.C.R. AND 1.5' NORTH OF CURB FACE.

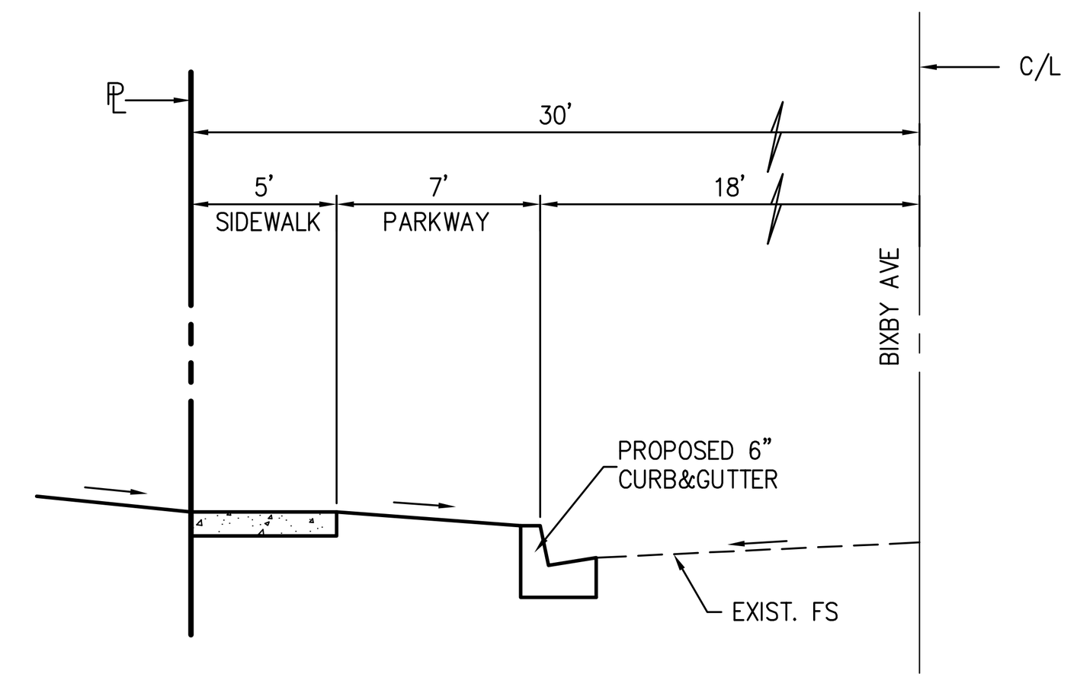
ELEV: 77.081 (NAVD-88, GG2012 ADJ)



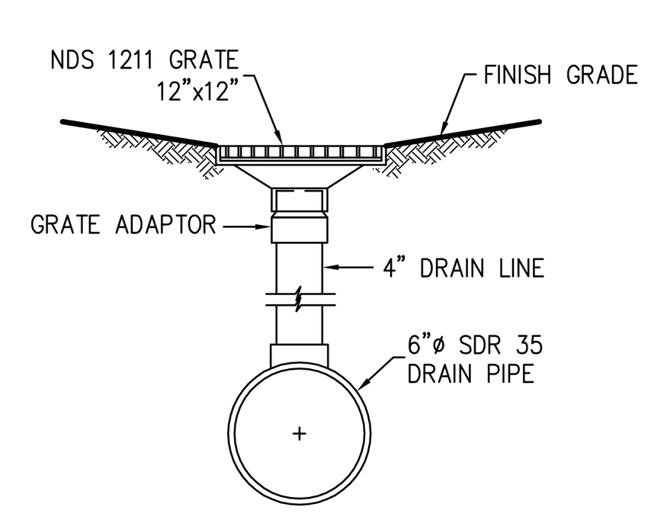
OVER FLOW DRAIN INLET DETAIL
NTS



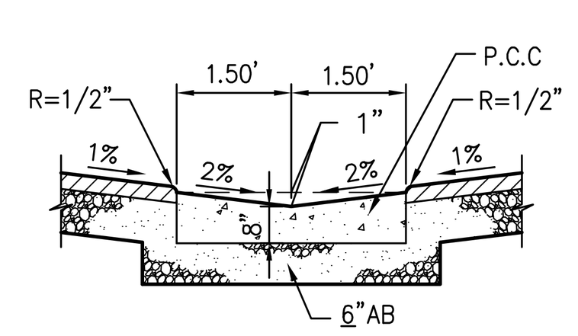
RECTANGULAR BOX DRAIN
NTS



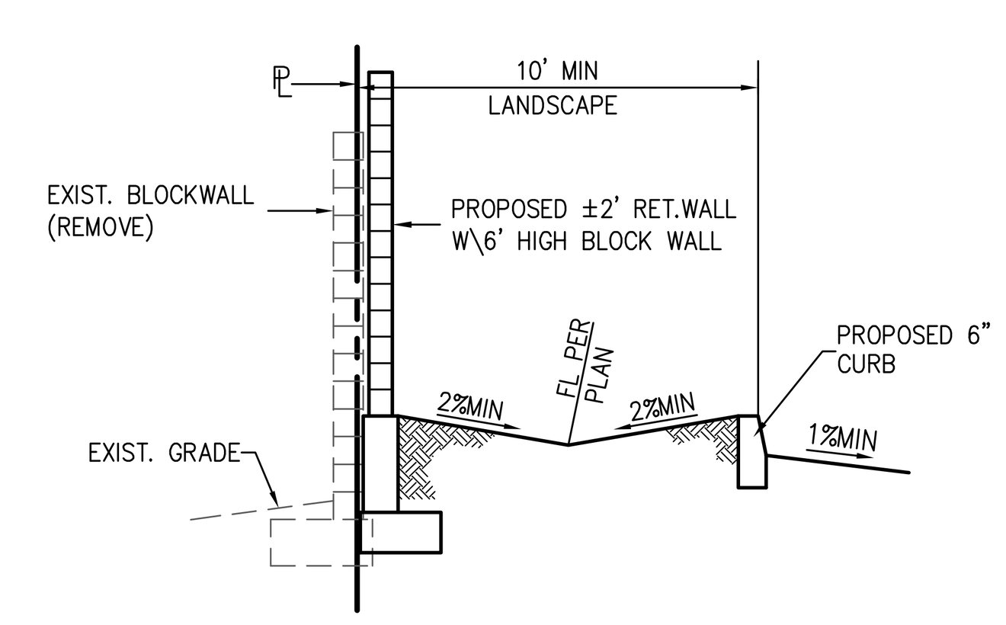
SECTION D-D
NTS



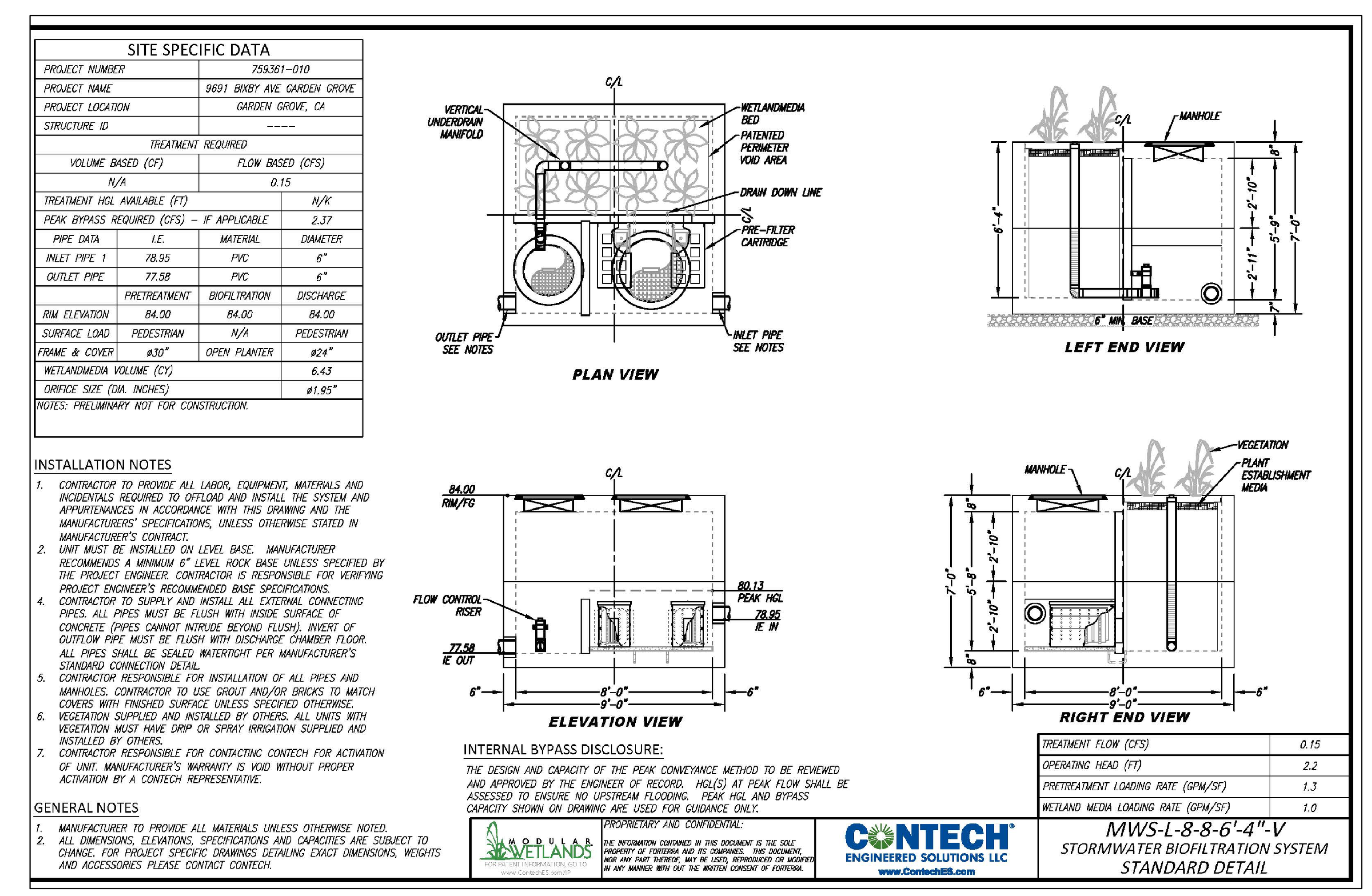
YARD DRAIN INLET
NTS



ALLEY GUTTER DETAIL
NTS



SECTION C-C
NTS



MWS UNIT
NTS

(IN FEET)
1 inch = 20 ft.

SHEET INDEX

C1 CONCEPT GRADING PLAN/SITE PLAN
C2 EXISTING TOPOGRAPHIC SURVEY PLAN

Underground Service Alert of Southern California
Call: TOLL FREE
1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

ATTENTION IS DIRECTED TO THE POSSIBLE EXISTENCE OF UNDERGROUND FACILITIES NOT KNOWN OR IN A LOCATION DIFFERENT FROM THAT WHICH IS SHOWN ON THE PLANS OR IN THE SPECIAL PROVISIONS. THE CONTRACTOR SHALL TAKE STEPS TO ASCERTAIN THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO DOING WORK THAT MAY DAMAGE SUCH FACILITIES OR INTERFERE WITH THEIR SERVICE.

BEFORE EXCAVATING, THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND UTILITIES BY CONTACTING UNDERGROUND SERVICE ALERT AT 1-(800)-227-2600

REGISTERED PROFESSIONAL ENGINEER SURENDER M. DEWAN NO. 34559 Exp. 9/30/23 CIVIL STATE OF CALIFORNIA

SOILS ENGINEER:
STRATA-TECH, INC.
1920 PACIFIC AVENUE, UNIT 16060,
LONG BEACH, CA 90806
PH: (310) 968-2999
W.O. 292321, DATED JUNE 9, 2021
CONTACT NAME: ROLAND ACURA

DESIGNED BY	DRAWN BY	CHECKED BY
S.D.	N.C.	S.D.

PLANS PREPARED UNDER THE SUPERVISION OF
SURENDER DEWAN
DATE 06/19/23 R.C.E. NO. 34559

REFERENCE PLANS FOR THESE IMPROVEMENTS

NO.	DATE	BY	DESCRIPTION	APP'D
			REVISIONS	

PREPARED BY: DMS CONSULTANTS, INC. CIVIL ENGINEERS
SURENDER M. DEWAN RCE 34559 EXP. 9/30/23 06/19/23

OWNER
BIXBY AVE INVESTMENT LLC.
13871 West Street
Garden Grove, CA 92843

ARCHITECT
WITHEE MALCOM ARCHITECTS, LLP
2251 W 190TH STREET,
TORRENCE, CA 90504
PHONE (310) 217-8885

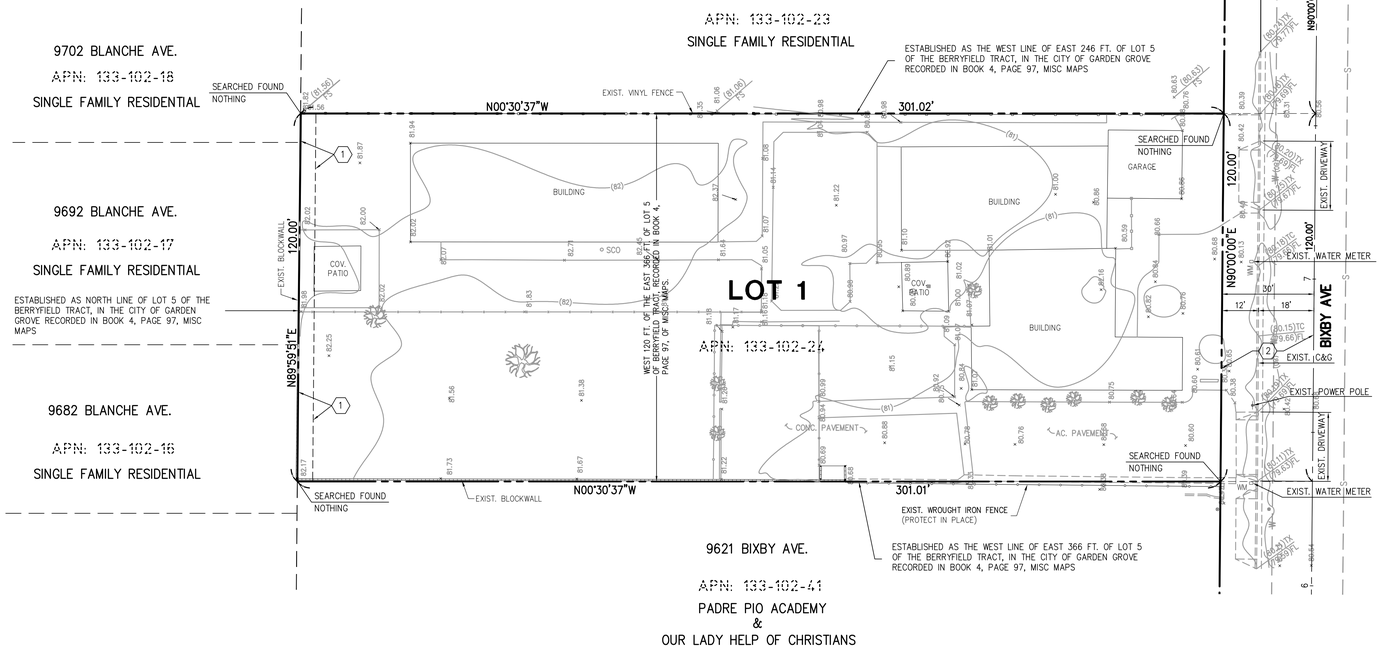
PLANS PREPARED FOR
BIXBY AVE INVESTMENT LLC.
13871 West Street
Garden Grove, CA 92843

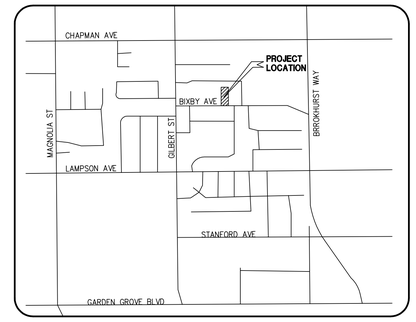
CITY OF GARDEN GROVE
CONCEPT GRADING PLAN/SITE PLAN
9691 BIXBY AVENUE, GARDEN GROVE, CA
DATE: 06/19/23

C1

EXISTING TOPOGRAPHIC SURVEY PLAN

9691 BIXBY AVENUE, GARDEN GROVE, CA





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GG-131

2 3/4" BRONZE DISK, STAMPED "CITY OF G.G. BM" @ NORTHEAST CORNER OF LAMPSON AVE. & GILBERT ST., 42' EAST OF B.C.R. AND 1.5' NORTH OF CURB FACE.

ELEV: 77.081 (NAVD-88, GG2012 ADJ)

EASEMENT NOTES

(1) AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY RECORDED IN BOOK 2492, PAGE 223 OF OFFICIAL RECORDS.

(2) AN EASEMENT FOR PUBLIC STREET, ROAD AND HIGHWAY PURPOSES, IN FAVOR OF CITY OF GARDEN GROVE, RECORDED IN BOOK 633, PAGE 292 OF OFFICIAL RECORDS.

REGISTERED PROFESSIONAL ENGINEER
SURENDER M. DEWAN
NO. 34559
Exp. 9/30/23
CIVIL
STATE OF CALIFORNIA

0 20 30 40 60 100
(IN FEET)
1 inch = 20 ft.

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1-800 227-2600
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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

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PH: (310) 968-2999
W.O. 292321, DATED JUNE 9, 2021
CONTACT NAME: ROLAND ACURA

DESIGNED BY	DRAWN BY	CHECKED BY
S.D.	N.C.	S.D.

PLANS PREPARED UNDER THE SUPERVISION OF
SURENDER DEWAN
DATE 06/19/23 R.C.E. NO. 34559

REFERENCE PLANS FOR THESE IMPROVEMENTS

NO.	DATE	BY	DESCRIPTION	APP'D

REVISIONS

PREPARED BY : DMS CONSULTANTS, INC.
CIVIL ENGINEERS
1237I Lewis St. #103 Garden Grove CA. 92840 P. 714-740-8840 F. 714-740-8842
06/19/23
SURENDER M. DEWAN RCE 34559 EXP. 9/30/23

OWNER
BIXBY AVE INVESTMENT LLC.
13871 West Street
Garden Grove, CA 92843

ARCHITECT
WITHEE MALCOM ARCHITECTS, LLP
2251 W 190TH STREET,
TORRENCE, CA 90504
PHONE (310) 217-6885

PLANS PREPARED FOR
BIXBY AVE INVESTMENT LLC.
13871 West Street
Garden Grove, CA 92843

CITY OF GARDEN GROVE

EXISTING FACILITIES PLAN
9691 BIXBY AVENUE, GARDEN GROVE, CA

DATE: 06/19/23

C2

CITY OF GARDEN GROVE
PLANNING SERVICES DIVISION
11222 ACACIA PARKWAY
GARDEN GROVE, CA 92840
TEL: (714) 741-5312 FAX: (714) 741-5578
ggcity.org

Density Bonus Application
(Government Code §65915 *et seq.*)

Housing development project applicants intending to request a density bonus, incentives or concessions, modifications or waivers, and/or reduced parking pursuant to the Section 65915 et seq. of the California Government (Density Bonuses and Other Incentives) must complete the following application. For additional information regarding density bonuses and affordability agreements, please refer to Section 9.12.030.070 of the Garden Grove Municipal Code, and to the Garden Grove Density Bonus Agreement Guidelines.

Date Filed: September 27, 2023 - updated 11/7/2023

DENSITY BONUS TYPE	
Please check one of the following (as proposed at the time of application submittal):	
☐	100% of all units in the development, including Total Units and density bonus units, but exclusive of a manager's unit or units, are for low income households, as defined by Section 50079.5 of the Health and Safety Code, except that up to 20 percent of the units in the development, including Total Units and density bonus units, may be for moderate income households, as defined in Section 50053 of the Health and Safety Code.
☒	At least 5% of the Total Units for very low income households, as defined in Section 50105 of the California Health and Safety Code.
☐	At least 10% of the Total Units for lower income households, as defined in Section 50079.5 of the California Health and Safety Code.
☐	At least 10% of the Total Units for moderate income households, as defined in Section 50093 of the California Health and Safety Code (common interest development offered to the public for purchase unless on-site option for Impact Fees, see 15.72.100.B.4).
☐	A senior citizen housing development, as defined in Sections 51.3 and 51.12 of the California Civil Code.
☐	At least 10% of the Total Units for transitional foster youth, as defined in California Education Code section 66025.9 (very low income households as defined in Section 50105 of the California Health and Safety Code).
☐	At least 10% of the Total Units for disabled veterans, as defined in California Government Code Section 18541 (very low income households as defined in Section 50105 of the California Health and Safety Code).
☐	At least 10% of the Total Units for homeless persons, as defined in the federal McKinney-Vento Homeless Assistance Act (42 U.S.C. Sec. 11301 et seq.) (very low income households, as defined in Section 50105 of the California Health and Safety Code).
☐	At least 20% of the Total Units for lower income students in a student housing development (that satisfies the requirements of California Government Code Section 65915(b)(1)(F)).
☐	Land donation (at least one acre in size, or of sufficient size to permit development of at least 40 units and otherwise satisfies the requirements of California Government Code Section 65915(g).)
☐	Child care facility (that satisfies the requirements of California Government Code Subsection 65915(h)).
☐	Condominium Conversion (that satisfies the requirements of California Government Code 65915.5)).

PRIMARY CONTACT INFORMATION
Name: Bill Jager - The Jager Co.,
Contact Type: ☐ Architect ☐ Engineer ☐ Property Owner ☒ Representative ☐ Other
Mailing Address: 872 Wendt Terrace, Laguna Beach CA 92651
City, State, Zip Code:
Phone No.:
E-mail: JAGERCO@GMAIL.COM

PROPERTY OWNER CONTACT INFORMATION (If different than Primary Contact)
Name: Bixby Avenue Investment LLC
Mailing Address: 9535 Garden Grove Boulevard #202
City, State, Zip Code: Garden Grove, CA 92844
Phone No.: 214-682-5559
E-mail: tran.tpi@gmail.com

PROJECT INFORMATION:		
Project Address: 9691 Bixby Avenue		
APN(s): 133-102-24		
Zoning & General Plan Land Use: R-2, Low Medium Density Residential		
Maximum Allowable Residential Density (before density bonus): 21du/acre		
Total Base Number of Housing Units (before density bonus): 18 units		
Market Rate Base Housing Units (before density bonus): 18 units		
Affordable Base Housing Units (before density bonus): 0		
Size of Market Rate Units (# of Studios, 1 bedroom, 2 bedroom, etc.): 12 - 1bedroom units, 2 - 2bedroom units, and 10- 3bedroom units.		
Size of Affordable Units (# of Studios, 1 bedroom, 2 bedroom, etc.): 2 - 1bedroom units, and one 3bedroom unit.		
Proposed number of Very Low Income units : 3		
Proposed number of Low Income units :		
Proposed number Moderate Income units :		
Percentage of Total Base Housing Units that are Affordable: 15%		
Maximum Density Bonus Percentage (See Density Bonus Chart): 50%		
Number of Required Parking Spaces: 34 spaces		
Number of Parking Spaces Provided: 50 spaces		
Residential Tenure: Does the project propose rental or ownership units? rental		
DENSITY BONUS REQUEST		
Density Bonus Percentage (calculate using "Density Bonus Chart"): 50%		
Total Number of Density Bonus Units: 3		
Total Units in Development After Density Bonus is Applied: 27		
If requesting a Density Bonus for the following project types, please check the appropriate box and provide the following information:		
☐	Land Donation	Address (or APN) of land to be dedicated:
		Attach proof of site control.
		Attach evidence of meeting conditions for a land transfer density bonus as specified in the State Housing Density Bonuses and Incentives Law
☐	Child-Care Facility	Address and APN of child-care facility:
		Square footage of facility:
		Attach evidence of meeting conditions for a child care facility density bonus or Incentive as specified in the State Housing Density Bonuses and Incentives Law.
☐	Condominium Conversion	Attach evidence of meeting conditions for a condominium conversion Density Bonus as specified in the State Housing Density Bonuses and Incentives Law.

INCENTIVES/CONCESSIONS REQUEST

An applicant for a density bonus may also propose specific incentives/concessions pursuant to Subsection (d) of Government Code Section 65915. The number of incentives/concessions an applicant may receive is based on the number of affordable units and level of affordability provided. Use the Incentives/Concessions Calculator below to determine the number of incentives or concessions you are eligible for.

INCENTIVES/CONCESSIONS CALCULATOR

Affordability Level	Restricted Affordable Units Provided in Project	% of Base Project	Threshold for one (1) Incentive/ Concession (# of units)		Threshold for two (2) Incentives/ Concessions (# of units)		Threshold for three (3) Incentives/ Concessions (# of units)		Threshold for four (4) Incentives/ Concessions* (# of units)	
Very Low Income			5%		10%		15%	X	100% affordable with ≥80% low income, ≤20% moderate	
Low Income			10%		17%		24%			
Moderate Income			10%		20%		30%			

** If a 100% affordable project is located within ½ mile of a major transit stop, the project is eligible for a height increase of up to three (3) additional stories, or thirty-three feet (33'-0"); however, if the project also seeks a waiver from any maximum controls on density, the project cannot receive a waiver of any other development standards (but can still receive four incentives). If this allowance is sought, please describe/identify the major transit stop that is within ½ mile of the qualifying 100% affordable project:*

DESCRIPTION OF INCENTIVES/CONCESSIONS REQUESTED

List all requested incentives/concessions. If a reduction in site development standards or a modification of zoning code requirements is sought, include references to specific Municipal Code Sections in question, and reference the requested incentives/concessions on the submitted plans.

1. A concession of (GGMC) Section 9.12.040.020 (A) & Section 9.12.040.050 (A)3 to reduce the side-yard stepback at the 3rd floor from 40' to 30'6" as described in this code section and pursuant to Government Code Section 65915(d).

2..A concession of (GGMC) Section 9.12.040.020 (A) to allow for an increase to the maximum lot coverage limit of 50% to allow for the development as proposed.

3..A concession to (GGMC) Section 9.12.040.020 (E) to allow for the one bedroom units to be below minimum required per the code pursuant to Government Code Section 65915(d).

Provide evidence substantiating the applicant's eligibility for each incentive/concession requested, including information that clearly demonstrates that the requested incentive/concession will result in identifiable and actual cost reductions to provide for affordable housing costs. The Applicant may attach additional documentation as required.

See attached justification letter

MODIFICATION/WAIVER REQUEST

Pursuant to Subsection (e) of Government Code Section 65915, an applicant may also propose the waiver or reduction of development standards that have the effect of physically precluding the construction of a housing development incorporating the density bonus and any incentives or concessions granted to the applicant.

DESCRIPTION OF MODIFICATIONS/WAIVERS REQUESTED

List all development standards for which you are seeking a waiver or reduction pursuant to Subsection (e) of Government Code Section 65915. Include references to specific Municipal Code Sections in question, and reference development standards to be modified or waived on the submitted plans.

1. A waiver of (GGMC) Section 9.12.040.020 (A) to reduce the front setback requirement of 25' at the 3rd floor pursuant to Government Code Section 65915(e).

2.A waiver of (GGMC) Section 9.12.040.020.D to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area.

Provide evidence substantiating the applicant's eligibility for each waiver or reduction of a development standard being requested, including documentation demonstrating that the waiver or reduction is physically necessary to construct the housing development with the additional density allowed pursuant to the density bonus and incorporating any incentives or concessions required to be granted. Where more than one modification or waiver is sought, the applicant should clearly demonstrate why the modifications/waivers are cumulatively necessary to prevent a development standard from physically precluding the construction of the development.

See attached justification letter

PARKING RATIOS			
Are you requesting application of the onsite vehicular parking ratios set forth in Subsection (p)(1) of Government Code Section 65915?			
☒	Yes	☐	No

SPECIAL PARKING REQUIREMENTS	
If you are requesting application of a reduced onsite parking ratio pursuant to Subsections (p)(2), (p)(3), or (p)(4) of Government Code Section 65915, select the onsite parking standard requested per the appropriate development type:	
☐	Rental/for sale projects with at least 11% very low income or 20% lower income units, within ½ mile of accessible major transit stop** – 0.5 spaces per unit
☐	Rental projects 100% affordable to lower income, within ½ mile of accessible major transit stop** – 0 spaces per unit
☐	Rental senior projects 100% affordable to lower income, either with paratransit service or within ½ half mile of accessible bus route** (operating ≥8 times per day) – 0 spaces per unit
☐	Rental special needs projects 100% affordable to lower income households, either with paratransit service or within ½ half mile of accessible bus route** (operating ≥8 times per day) – 0 spaces per unit
☐	Rental supportive housing developments 100% affordable to lower income households – 0 spaces
*** If applicable, please describe/identify the major transit stop or accessible bus route that is within ½ mile of the project.*	

ASSOCIATED HOUSING DEVELOPMENT FORMS & APPLICATIONS	
Dependent upon the nature of the request, and the design of the project, the following forms may also be required:	
☐ Replacement Unit Determination	☐ SB 330 Housing Development Pre-Application
☐ SB 35 Housing Streamlining Eligibility Checklist	☒ Preliminary Development Review Application

CERTIFICATION:

I certify and declare under penalty of perjury under the laws of the State of California that the answers furnished above, and in any attached exhibits, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. I further understand that additional information may be required by the City of Garden Grove to complete my review. Furthermore, developments requesting a density bonus shall enter into a density bonus housing agreement with the City. A density bonus housing agreement shall be made a condition of the discretionary planning permits for all housing developments, and shall be recorded as a restriction on any parcels on which the target units or density bonus units will be constructed. The density bonus housing agreement shall be recorded prior to final or parcel map approval, or, where the housing development does not include a map, prior to issuance of a building permit for any structure in the housing development. The density bonus housing agreement shall run with the land and bind on all future owners and successors in interest.

Applicant Signature

11/7/2023

Date

Property Owner Signature

Date

Justification and Description

A. Introduction

The Bixby Avenue Apartments is proposed as a multi-family project for the currently vacated 0.83-acre property comprised of APN# 133-102-31 (the "Property") and consisting of a new 27-unit apartment housing development to be entitled under the California Density Bonus Law §65915 et seq. (the "Project").

The Property is rectangular in shape with the narrower edge of the Property located along Bixby Ave. The site is located in the LMR Land Use Area and the corresponding R-2 zone which under the newly amended code allows for up to 21du/acre. A school abuts the Property along its westerly property line in the R-1-7 zone. Single family detached units are located in the R-1-7 zone along both its northerly and southerly property lines. An old single story multi-family project is located along the Property's easterly border in R-2 zone.

The Project is proposed with the following objectives:

- To provide an economically beneficial use of the Property.
- To provide a 27-unit multi-family housing development and that a portion of which targets "very-low income" residents.
- To assist the City of Garden Grove in meeting its Regional Housing Needs Allocation of providing 19,168 new residential units.
- To provide the City and Community with the benefits that derive from revitalizing aging, underused and deteriorated land into worthwhile long-term productive use.
- To take advantage of the State and City's density bonus objectives and law to meet local housing needs in numbers than would otherwise be allowed or be economically feasible.

B. The Project Will Assist the City of Garden Grove in Meeting its Regional Housing Needs Allocation (RHNA)

California is experiencing an unprecedented, severe and well-documented housing shortage, which is causing social and economic dislocation, homelessness, and significant adverse environmental impacts. The RHNA process is part of the State of California's general planning process aimed at ensuring that every jurisdiction in California plays its part in meeting the housing needs of the State's population. The RHNA process identifies the City's future housing needs resulting from projected growth in population, employment and households.

State law requires the update of General Plan Housing Elements every eight years. The City of Garden Grove's currently adopted Housing Element covers the 2021-2029 planning period (the "Housing Element").

Under the current 2021-2029 planning period, approximately 1,341,827 new residential units are forecast to be needed in the Southern California Association of Governments Region. From this total, the City of Garden Grove has been allocated the total number of 19,168 new units. The City has a State law obligation to plan to meet these needs.

The Project will assist the City in meeting this need by providing 27 new apartment units with several of the units serving very-low income tenants.

C. The Project Will Assist the City of Garden Grove in Meeting Affordable Housing Needs and is eligible for a density bonus under State Density Bonus law

The developer is proposing to lock in affordability on a portion of the Project as follows:

Lock in affordability to "very low-income" residents by providing 3 rent-restricted new housing units for the City's Low-Income RHNA. These 3 units reflect 15% of the base density allowed for the 0.83 acre site at 21 du/acre or 17.41 units (0.83 ac x 21 = 17.41 rounded up to 18 X 15% = 2.7 units rounded up to 3). The remaining 24 units are expected to target above moderate-income residents as further described in the Housing Element.

The Housing Element also recognizes that "Density Bonus projects will be one of the main sources of newly constructed units". State Density Bonus Law (Government Code Section 65915(f)(2) states that a housing development is eligible for up to a 50% density bonus if 15% of the base units allowed under the zoning are reserved for very low-income households and that housing developments eligible for a density bonus are also eligible for incentives and concessions, waivers and reductions and reduced parking standards. The Project is seeking relief from the Garden Grove Municipal Code consistent with the Density Bonus Law and as further described below.

D. Project Description

The Project consists of a 27 unit "stand-alone" apartment housing development which is permitted by right in the R-2 zone in conjunction with State Density Bonus Law. In order to qualify for up a density bonus and incentives/concessions and waivers from development standards under State Density Bonus Law, occupancy of 3 of the units at very low-income households will be restricted in accordance with California Health and Safety Code Section 50079.5.

Access to the Project will be provided by means of a driveway with a hammerhead turnaround designed accessed off Bixby Ave. This driveway will provide a singular means of ingress and egress into a fully covered wood podium garage a portion of which is gated. Trash pickup will occur via this driveway as well to a central trash location. The hammerhead will provide for easy maneuverability for the trash truck and emergency vehicles. Emergency fire access and the hammerhead are designed to OCFA standards.

The Project will consist of a singular rectangular shaped 3-story building with a maximum height of approximately 35' which is within the maximum 35' allowed (no overall

height waiver or extra stories are needed). The building will occupy approximately 46% of the Project site. Driveway areas occupy approximately 22% of the site. The remaining areas of the apartment community will be landscaping and pathways and open space occupying approximately 31% of the site.

Parking provided consists of a combination of regular, tandem, handicapped, EV spaces and includes a total of 50 spaces which exceeds by over 33% (16 spaces) the minimum parking requirement under the State Density Bonus law of 34 spaces. Note that tandem parking is allowed under Government Code Section 65915(p)(5).

The apartments in the Project will be offered in a variety of 1, 2 and 3 bedroom configurations to meet the varied needs of differing households and will range in size from approximately 656 sq.ft. for the 1 bdrm/1 bath units to approximately 925 sq.ft. for the 2 bdrm/2 bath units and 1,136 sq.ft. for the 3 bdrm/2 bath units.

A mail room will be located on the ground floor adjacent to the front lobby. 120 cu. ft. storage lockers shall be provided on the ground floor in the parking garage to meet the minimum storage requirements of the code.

Access to each unit can occur either via 2 stairwells or an elevator in the front lobby. Locked entry areas shall be controlled by either a key or a lock & buzzer system.

Trash and recyclables are dealt with via trash chutes at each floor level and which feed into dumpsters at the ground floor level in the garage. Organic waste bins are located and accessed directly in the trash bin area by each resident. Trash trucks will access the site via the drive isle, pick up the bins via an access door on the side of the garge and exit the site after turning around in the hammerhead turnaround at the rear of the property.

The Project will comply with all the development standards of Garden Grove Municipal codes for the R-2 mixed use zone with exception of a combination of several waivers/concessions to the code as further described in detail in the following Section E below and as further allowed under the State Density Bonus law.

E. Requested Entitlements

To enable the Project's development, the applicant is requesting a site plan approval along with waivers and/or concessions to development standards under the CA State Density Bonus law. The Project is not expected to cause any unmitigated environmental impacts.

As discussed earlier, the Project qualifies for a density bonus in accordance with Government Code Section 65915(b)(1) and is eligible for an unlimited number of waivers of development standards pursuant to Government Code Section 65915(e). Further, the project is eligible for up to 3 incentives or concessions of development standards in accordance with Section 65915(d) when of the base density units are very-low-income units.

Both the waivers and concessions under Section 65915(e)(1) provides, in relevant part that:

> "In no case may a city, county, or city and county apply any development standard that will have the effect of physically precluding the construction of a development meeting the criteria of subdivision (b) at the densities or with the concessions or incentives permitted by this section."

Four separate municipal code requirements are imposing a serious constraint on the development of the Project's site as proposed with multifamily housing. These four codes are summarized as follows:

1. (GGMC) Section 9.12.040.020 (A). R-2 Front setback requires a minimum front setback of 25' at the 3rd floor.

2. (GGMC) Section 9.12.040.020 (A) & Section 9.12.040.050 (A)3, R-2 a 3rd floor stepback is required to be a minimum of 40ft. from the property line when adjacent to R-1 zoning.

3. (GGMC) Section 9.12.040.020 (A) sets forth a 50% Maximum Lot Coverage.

4. (GGMC) Section 9.12.040.020(D) prohibits balcony and deck area to encroach into the setback area.

5. (GGMC) Section 9.12.040.020 (E) describes the minimum have a minimum floor area of each unit according to unit bedroom count.

In order to develop the site maximizing the number of units at the greatest economy designed with a 50% density bonus and to include affordable units, it is necessary for the development to request and have the City approve of the following Concessions and Waivers as required under California Density Bonus Law §65915 et seq.:

a. A waiver of (GGMC) Section 9.12.040.020 (A) to reduce the front setback requirement of 25' at the 3rd floor pursuant to Government Code Section 65915(e).

b. A concession of (GGMC) Section 9.12.040.020 (A) & Section 9.12.040.050 (A)3 to reduce the side-yard stepback at the 3rd floor from 40' to 30'6" as described in this code section and pursuant to Government Code Section 65915(d).

c. A concession of (GGMC) Section 9.12.040.020 (A) to allow for an increase to the maximum lot coverage limit of 50% to allow for the development as proposed.

d. A concession to (GGMC) Section 9.12.040.020 (E) to allow for the one bedroom units to be below minimum required per the code pursuant to Government Code Section 65915(d).

e. A waiver of (GGMC) Section 9.12.040.020.D to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area.

The above-described front and side setback requirements combined with minimum unit size for a portion of the units and the lot coverage restriction would have the effect of economically and physically precluding the construction of the Project at the density permitted in the GGMU-2 code with a 50% density bonus as applied for and even with the 3 concessions requested above. If the Project were to be required to adhere to all the development standards under the code and including parking it to code, it would require additional stories of the Project and/or underground parking. Additional stories would have a dramatic and negative effect on cost of the project as proposed and would require further waivers and or concessions to achieve.

The requested 3 concessions and 2 waivers will not have a specific, adverse impact, as defined in paragraph (2) of subdivision (d) of Section 65589.5, upon health, safety, or the physical environment, and for which there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact. Nor will the requested concession or waiver have an adverse impact on any real property that is listed in the California Register of Historical Resources or be contrary to state or federal law.

The Project and its applicant reserve the right to modify the application and Project to include further benefits allowed under the State Density Bonus Law subsequent to City review and approval.

To: City of Garden Grove, Planning Division

From: Alex Garber

Date: 5/30/2023

Re: Air Quality and Greenhouse Gas Impact Analysis for the 9691 Bixby Avenue Apartments Project

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This technical memorandum presents an analysis of the air quality and greenhouse gas (GHG) impacts for the proposed 9691 Bixby Avenue Apartments Project (project), located at 9691 Bixby Avenue in the City of Garden Grove. The applicant for the proposed Project is requesting approval from the City of Garden Grove to demolish the existing daycare structures on the Project site and to construct a new three-story multi-family apartment complex. The complex would include a parking structure on the first floor and 27 multi-family residential units on the second and third floors. The Project would provide three affordable units for very –low-income households, which entitles the Project to a 50 percent density bonus from the base density. The Project would provide a total of 50 parking spaces on the first floor. The second floor would include 13 units, a community room, business center, and open space/BBQ areas. The third floor would include 14 units. The proposed units would vary from one bedroom to three-bedroom apartments. The proposed Project would also include other onsite amenities such as a community garden, mail room, and storage areas for residents. The Project would be accessed via one driveway along Bixby Avenue. In addition, the Project would include the construction of a six-foot-high concrete perimeter wall. Construction is anticipated to take 6 months.

To support the CEQA document for the project, this report analyzes the proposed project's construction and operational impacts to air quality (emission of criteria pollutants) emissions using the California Emissions Estimator Model (CalEEMod v. 2022.1) land use emission model. Table 1 shows the estimated construction schedule, which is conservatively estimated to last approximately 6 months.

Table 1. Construction Schedule

Activity	Start Date	End Date	Total Days
Demolition	9/26/2023	10/16/2023	15
Site Preparation	10/17/2023	10/18/2023	1
Grading	10/19/2023	10/21/2023	2
Building Construction	10/22/2023	3/10/2024	100
Paving	3/11/2024	3/18/2024	5
Architectural Coating	3/19/2024	3/26/2024	5

The following non-default assumptions were used in the CalEEmod Emission Model for this analysis:

- The lot acreage and square feet for the multi-family housing was changed to match the architectural plans.
- The demolition phase was increased from 10 days to 15 days based on the amount of demolition required.
- Demolition of 1,625 tons of debris was used to account for demolition of the existing buildings.
- Construction equipment was estimated to be operated for eight hours for a conservative analysis.
- Trip rates were derived from the project trip generation (EPD Solutions, 2023).
- Fireplaces and wood stoves were removed as the project does not propose them. In addition, wood burning stoves and fireplaces are prohibited by Southern California Air Quality Management District (SCAQMD) Rule 445.

Summary of Air Quality, Energy and GHG Impacts

Air Quality:

The project's maximum daily emissions (regional and local) for construction and operation of the project would not exceed SCAQMD's thresholds of significance. In addition, all construction activities would comply with applicable SCAQMD rules and regulations, including Rule 403 to minimize fugitive PM dust emissions, Rule 445 preventing woodfire stoves, and Rule 1113 which allows only Low-Volatile Organic Compounds (VOC) paints. Projects that do not exceed the regional thresholds are assumed to not have a significant impact on a project level and cumulative level. Therefore, the proposed project would have less than significant air quality impacts.

GHG:

The proposed project's GHG emissions of 470 $MTCO_2e$ per year is below the SCAQMD significance threshold of 3,000 $MTCO_2e$ per year. Therefore, the project has a less then significant impact on GHG emissions.

Air Quality Impact Tables

Regional Emissions

The SCAQMD has adopted maximum daily emission thresholds[1] (pounds/day) for the criteria pollutants during construction and operation of a project. While incremental regional air quality impacts of an individual project are generally very small and difficult to measure, SCAQMD's regional maximum emission thresholds set standards to reduce the burden of SCAQMD to attain and maintain ambient air quality standards. The regional thresholds apply to the criteria pollutants mentioned in Table 2 and Table 3 along with the CalEEMod projects emissions. These emission thresholds include the project emissions generated both from onsite sources (such as off-road construction equipment and fugitive dust) and offsite sources (vehicle travel leaving and arriving to the site). As can be seen in Table 2 and Table 3, the project would have less than significant regional air quality impacts.

Table 2. Regional Construction Emission Estimates

Construction Activity	Maximum Daily Regional Emissions (pounds/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
2023						
Demolition	1.7	18.3	16.7	0.0	3.6	1.2
Site Prep	0.6	5.0	5.7	0.0	0.4	0.3
Grading	1.7	16.6	15.1	0.0	2.7	1.6
Building Construction	1.0	8.8	10.8	0.0	0.8	0.5
Maximum Daily Emissions	1.6	15.3	13.2	0.0	2.6	1.6
2024						
Building Construction	0.9	8.3	10.6	0.0	0.8	0.4
Paving	0.8	5.5	7.2	0.0	0.5	0.3
Architectural Coating	40.5	1.2	1.8	0.0	0.1	0.1
Maximum Daily Emissions	40.5	8.3	10.6	0.0	0.8	0.4
Maximum Daily Emission 2023-2024	**40.5**	**15.3**	**13.2**	**0.0**	**2.6**	**1.6**
SCAQMD Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Table 3. Regional Operational Emission Estimates

Operational Activity	Maximum Daily Regional Emissions (pounds/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	0.6	0.5	4.6	0.0	0.4	0.1
Energy	1.0	0.0	2.4	0.0	0.0	0.0
Mobile	0.0	0.1	0.1	0.0	0.0	0.0
Total Project Operational Emissions	1.6	0.6	7.0	0.0	0.4	0.1
Existing Operational Emissions	0.9	0.4	4.6	0.0	0.3	0.1
Total Net Project Operational Emissions	**0.7**	**0.1**	**2.4**	**0.0**	**0.1**	**0.0**
SCAQMD Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

[1] SCAQMD April 2019. Found at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf

Local Emissions

Localized significance thresholds (LSTs) were also adopted by the SCAQMD due to project-related construction or operational air emissions having the potential to exceed the state and national air quality standards in the project vicinity, while not exceeding the regional emission significance thresholds adopted by the SCAQMD. These thresholds set the maximum rates of daily construction or operational emissions from a project site that would not exceed a national or State ambient air quality standard[2]. The differences between regional thresholds and LSTs are as follows:

1. Regional thresholds include all sources of project construction and operational emissions generated from onsite and offsite emission sources whereas the LSTs only consider the emissions generated from onsite emission sources.
2. LSTs only apply to CO, NO_x, PM_{10}, and $PM_{2.5}$, while regional thresholds include both ROG and SO_2.
3. Regional thresholds apply to emission sources located anywhere within the SCAQMD whereas the LSTs are location dependent and also depend on the size of the project, and emission location relative to the nearest sensitive receptor.

A sensitive receptor is defined as an individual who is most susceptible to negative health effects when exposed to air pollutants including children, the elderly, and adults with chronic health issues. Such receptors include residences, schools, elderly care centers, and hospitals. SCAQMD provides screening look up tables (Appendix C of the SCAQMD 2008 Final Localized Significance Threshold Methodology)[3] for projects that disturb less than or equal to 5 acres in size in a day. These tables were created to easily determine if the daily emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$ from a project could result in a significant impact to the local air quality. The thresholds are determined by:

- Source receptor area (SRA), the geographic area within the SCAQMD that can act as both a source of emissions and a receptor of emission impacts (the project is located within SRA 17, Central Orange County),
- Size of the project,
- Distance to the nearest sensitive receptor.

The phase with the most ground disturbance would be the grading phase. The *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*, prepared by SCAQMD, 2015, provides guidance on how to determine the appropriate site acreage size to utilize for LST analyses. The Fact Sheet details that the maximum number of acres disturbed on the peak day of construction is calculated from the construction equipment list utilized in the CalEEMod model, which identifies that crawler tractors, graders, and rubber-tired dozers disturb 0.5-acre in an 8-hour day and scrapers disturb 1.0-acre in an 8-hour day. As shown in Table 4, the project would grade 1-acre per day during the grading phase. While the project is only 0.83-acre, the minimum thresholds available in Appendix C of the SCAQMD 2008 Final Localized Significance Threshold Methodology is 1-acre. Therefore, 1-acre was used for this analysis.

[2] SCAQMD 2008: Final Localized Significance Threshold Methodology. Referenced on 9/3/2020 at http://www.aqmd.gov/docs/defaultsource/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf

[3] SCAQMD 2008: Final Localized Significance Threshold Methodology Appendix C. Referenced at http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2

Table 4. Construction Equipment Modeled in CalEEMod and Acres Disturbed per Day

Activity	Equipment Type	Equipment Quantity	Operating Hours per Day	Acres Disturbed per piece of Equipment per Day	Acres Disturbed per Day
Grading	Graders	1	8	0.5	.5
	Rubber Tired Dozers	1	8	0.5	.5
Total Acres Disturbed Per Day					**1**

Distance to the nearest sensitive receptor also determines the emission thresholds. The sensitive receptors closest to the project include residential homes north of the project boundary, approximately 3.2 meters (10.4 feet) from the property line. The thresholds for 25 meters were used as those are the most stringent thresholds provided by SCAQMD, as provided in Appendix C. Table 5 shows the thresholds and estimated maximum daily construction emissions for the proposed project. As seen in Table 5, the proposed project has a less than significant localized construction air quality impact.

Table 5. Localized Construction Emission Estimates

Construction Activity	Maximum Daily Regional Emissions (pounds/day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
2023				
Demolition	15.7	15.0	3.0	1.0
Site Prep	5.0	5.6	0.4	0.3
Grading	16.6	14.8	2.6	1.6
Building Construction	8.5	9.1	0.4	0.4
Maximum Daily Emissions	16.6	15.0	3.0	1.6
2024				
Building Construction	8.0	9.1	0.4	0.3
Paving	5.4	6.3	0.3	0.2
Architectural Coating	1.2	1.5	0.0	0.0
Maximum Daily Emissions	8.0	9.1	0.4	0.3
Maximum Daily Emission 2023-2024	**16.6**	**15.0**	**3.0**	**1.6**
SCAQMD Significance Thresholds	81	485	4	2
Threshold Exceeded?	**No**	**No**	**No**	**No**

According to the SCAQMD LST methodology, LSTs apply to project stationary mobile sources. Projects that involve mobile sources that spend long periods queuing and idling at a site, such as transfer facilities or warehousing and distribution buildings, have the potential to exceed the operational localized significance thresholds. The proposed project would operate 27 multi-family residential units, which do not involve vehicles idling or queueing for long periods. Therefore, due to the lack of significant stationary source emissions, impacts related to operational localized significance thresholds would be less than significant.

Conclusion

The project's maximum daily emissions (regional and local) for construction and operation of the project would not exceed SCAQMD's regional thresholds of significance. In addition, all construction activities would comply with applicable SCAQMD rules and regulations, including Rule 403 to minimize fugitive PM dust emissions, Rule 445 preventing woodfire stoves, and Rule 1113 which allows only Low-Volatile Organic Compounds (VOC) paints. Projects that do not exceed the regional thresholds are assumed to not have a significant impact on a project level and cumulative level. Therefore, the proposed project would have less than significant air quality impacts.

Greenhouse Gas

SCAQMD convened a Greenhouse Gas Emissions (GHG) CEQA Significance Threshold Working Group to help lead agencies determine significance thresholds for GHG emissions when SCAQMD is not the lead agency. The last working group was held September 2010 (Meeting No. 15)[4] and proposed a tiered approach, equivalent to the existing consistency determination requirements in CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(a). The most recent proposal issued in Meeting No. 15 uses a tiered approach, Tier 1 to Tier 5, to evaluate potential GHG impacts from various uses. The assessment of the proposed project applies the Tier 3: Numerical Screening Thresholds approach. Tier three consists of screening values in metric tons of carbon dioxide equivalent ($MTCO_2e$) (converting other greenhouse gases to an equivalent impact of CO_2). A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project impact would be less than significant:

- Option 1: All land use types: 3,000 $MTCO_2e$ per year
- Option 2: Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year

Executive Order S-3-05's year 2050 goal is the basis of SCAQMD' draft Tier 3 screening level thresholds. The objective of the Executive Order is to contribute to capping worldwide CO_2 concentrations at 450 ppm, stabilizing global climate change. Option 1 was used for this analysis; therefore, the GHG threshold used is 3,000 $MTCO_2e$ per year.

The project's construction GHG emissions are shown in Table 6 and the overall construction and operational emissions are shown in Table 7. These emissions were calculated using the CalEEMod model. Pursuant to SCAQMD methodology, construction emissions are amortized over 30 years. As shown in Table 7, the net GHG emissions are 470 $MTCO_2e$ per year, which is below the 3,000 $MTCO_2e$ per year threshold. Therefore, the project would have a less than significant GHG impact.

Table 6. Project Construction GHG Emissions

Activity	Annual GHG Emissions ($MTCO_2e$)
2023	89
2024	59
Total Construction Emissions	148
Total Emissions Amortized Over 30 Years	5

[4] SCAQMD 2010. Minutes of the GHG CEQA Significance Threshold Stakeholder Working Group #15. Referenced on 9/21/2020 at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf

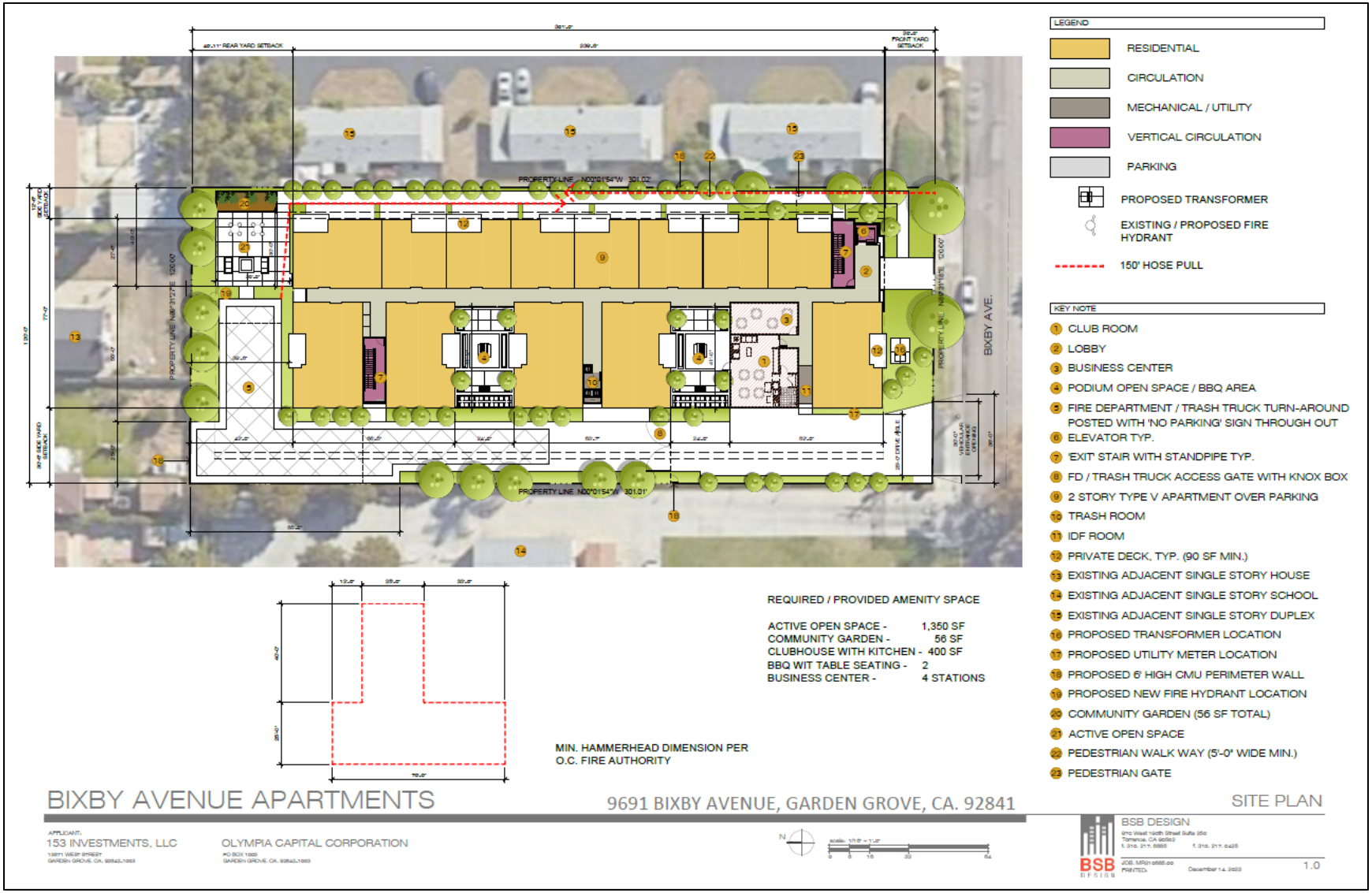
Table 7. Total GHG Emissions

Activity	Annual GHG Emissions ($MTCO_2e$)
Project Operational Emissions	
Mobile	1,105
Area	8
Energy	309
Water	15
Waste	37
Refrigeration	0
Total Project Operation Emissions	1,475
Amortized Project Construction Emissions	5
Total Project Emissions	1,480
Existing Emissions	1,010
Total Net Emissions	**470**
Tier 3: Significance Threshold	3,000
Threshold Exceeded?	**No**

Conclusion

The proposed project's net GHG emissions of 470 $MTCO_2e$ per year is below the SCAQMD significance threshold of 3,000 $MTCO_2e$ per year. Therefore, the project would have a less than significant impact on GHG emissions.

Figure 1: Project Site Plan



CalEEMod Output Sheets

9691 Bixby Avenue Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	9691 Bixby Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	18.2
Location	9691 Bixby Ave, Garden Grove, CA 92841, USA
County	Orange
City	Garden Grove
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5827
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	27.0	Dwelling Unit	0.58	31,685	4,877	1,271	80.0	—
Enclosed Parking with Elevator	50.0	Space	0.00	19,280	0.00	0.00	—	—

Other Asphalt Surfaces	10.7	1000sqft	0.25	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	1.69	18.3	16.7	0.03	3.64	1.18	4,404
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	40.5	18.4	16.6	0.03	3.64	1.63	4,393
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.69	2.08	2.29	< 0.005	0.28	0.12	538
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.13	0.38	0.42	< 0.005	0.05	0.02	89.0
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2023	1.69	18.3	16.7	0.03	3.64	1.18	4,404
Daily - Winter (Max)	—	—	—	—	—	—	—
2023	1.71	18.4	16.6	0.03	3.64	1.63	4,393
2024	40.5	8.33	10.6	0.02	0.77	0.43	2,446
Average Daily	—	—	—	—	—	—	—
2023	0.21	2.08	2.29	< 0.005	0.28	0.12	538
2024	0.69	1.23	1.59	< 0.005	0.11	0.06	356
Annual	—	—	—	—	—	—	—
2023	0.04	0.38	0.42	< 0.005	0.05	0.02	89.0
2024	0.13	0.23	0.29	< 0.005	0.02	0.01	58.9

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	1.62	0.55	6.96	0.01	0.39	0.08	1,475
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	1.33	0.56	4.33	0.01	0.39	0.08	1,422
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	1.45	0.53	5.57	0.01	0.35	0.08	1,325
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.27	0.10	1.02	< 0.005	0.06	0.01	219
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—

Unmit.	No	No	No	No	No	No	—
Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Annual)	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	0.60	0.42	4.55	0.01	0.38	0.07	1,105
Area	1.01	0.02	2.36	< 0.005	< 0.005	< 0.005	7.57
Energy	0.01	0.11	0.05	< 0.005	0.01	0.01	309
Water	—	—	—	—	—	—	15.4
Waste	—	—	—	—	—	—	37.4
Refrig.	—	—	—	—	—	—	0.23
Total	1.62	0.55	6.96	0.01	0.39	0.08	1,475
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.59	0.45	4.28	0.01	0.38	0.07	1,059
Area	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.11	0.05	< 0.005	0.01	0.01	309
Water	—	—	—	—	—	—	15.4
Waste	—	—	—	—	—	—	37.4
Refrig.	—	—	—	—	—	—	0.23

Total	1.33	0.56	4.33	0.01	0.39	0.08	1,422
Average Daily	—	—	—	—	—	—	—
Mobile	0.52	0.41	3.90	0.01	0.34	0.07	957
Area	0.92	0.02	1.62	< 0.005	< 0.005	< 0.005	5.19
Energy	0.01	0.11	0.05	< 0.005	0.01	0.01	309
Water	—	—	—	—	—	—	15.4
Waste	—	—	—	—	—	—	37.4
Refrig.	—	—	—	—	—	—	0.23
Total	1.45	0.53	5.57	0.01	0.35	0.08	1,325
Annual	—	—	—	—	—	—	—
Mobile	0.10	0.07	0.71	< 0.005	0.06	0.01	158
Area	0.17	< 0.005	0.30	< 0.005	< 0.005	< 0.005	0.86
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	51.2
Water	—	—	—	—	—	—	2.55
Waste	—	—	—	—	—	—	6.20
Refrig.	—	—	—	—	—	—	0.04
Total	0.27	0.10	1.02	< 0.005	0.06	0.01	219

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.61	15.7	15.0	0.02	0.70	0.64	2,211
Demolition	—	—	—	—	2.29	0.35	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.61	15.7	15.0	0.02	0.70	0.64	2,211
Demolition	—	—	—	—	2.29	0.35	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.65	0.62	< 0.005	0.03	0.03	90.9
Demolition	—	—	—	—	0.09	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.11	< 0.005	0.01	< 0.005	15.0
Demolition	—	—	—	—	0.02	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.04	0.65	0.00	0.13	0.03	141
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.49	1.08	0.01	0.52	0.16	2,053
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.04	0.05	0.56	0.00	0.13	0.03	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.57	1.09	0.01	0.52	0.16	2,049
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.01	< 0.005	5.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.11	0.04	< 0.005	0.02	0.01	84.3
Annual	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	14.0

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.54	5.02	5.57	0.01	0.27	0.25	861
Dust From Material Movement	—	—	—	—	0.14	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	2.36
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.39
Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.01	0.01	0.14	0.00	0.03	0.01	33.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.69	16.6	14.8	0.02	0.79	0.72	2,243
Dust From Material Movement	—	—	—	—	1.84	0.89	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	< 0.005	12.3
Dust From Material Movement	—	—	—	—	0.01	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	2.04

Dust From Material Movement	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.02	0.02	0.28	0.00	0.07	0.02	66.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.83	8.45	9.12	0.02	0.39	0.36	1,882
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—

Off-Road Equipment	0.12	1.17	1.27	< 0.005	0.05	0.05	262
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.23	< 0.005	0.01	0.01	43.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.11	0.13	1.55	0.00	0.36	0.08	367
Vendor	0.01	0.23	0.11	< 0.005	0.05	0.02	207
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.02	0.22	0.00	0.05	0.01	51.7
Vendor	< 0.005	0.03	0.02	< 0.005	0.01	< 0.005	28.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	8.57
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	4.76
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	7.99	9.08	0.02	0.36	0.33	1,883

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	1.24	< 0.005	0.05	0.05	258
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.23	< 0.005	0.01	0.01	42.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.10	0.12	1.43	0.00	0.36	0.08	359
Vendor	0.01	0.22	0.11	< 0.005	0.05	0.02	204
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.05	0.01	50.0
Vendor	< 0.005	0.03	0.01	< 0.005	0.01	< 0.005	28.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.01	< 0.005	8.27
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	4.64
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.63	5.41	6.27	0.01	0.25	0.23	976
Paving	0.13	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.09	< 0.005	< 0.005	< 0.005	13.4
Paving	< 0.005	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	2.21
Paving	< 0.005	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.06	0.08	0.91	0.00	0.23	0.05	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	3.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.53
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.21	1.53	< 0.005	0.04	0.04	179
Architectural Coatings	40.3	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	2.45
Architectural Coatings	0.55	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.41
Architectural Coatings	0.10	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.02	0.02	0.29	0.00	0.07	0.02	71.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	0.60	0.42	4.55	0.01	0.38	0.07	1,105
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.60	0.42	4.55	0.01	0.38	0.07	1,105
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	0.59	0.45	4.28	0.01	0.38	0.07	1,059
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.59	0.45	4.28	0.01	0.38	0.07	1,059
Annual	—	—	—	—	—	—	—
Apartments Low Rise	0.10	0.07	0.71	< 0.005	0.06	0.01	158
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.10	0.07	0.71	< 0.005	0.06	0.01	158

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	99.5
Enclosed Parking with Elevator	—	—	—	—	—	—	68.4
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	168
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	99.5
Enclosed Parking with Elevator	—	—	—	—	—	—	68.4
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	168
Annual	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	16.5
Enclosed Parking with Elevator	—	—	—	—	—	—	11.3
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	27.8

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	0.01	0.11	0.05	< 0.005	0.01	0.01	141
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.11	0.05	< 0.005	0.01	0.01	141
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	0.01	0.11	0.05	< 0.005	0.01	0.01	141
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.11	0.05	< 0.005	0.01	0.01	141
Annual	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	23.4
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	23.4

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.68	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—

Landscape Equipment	0.28	0.02	2.36	< 0.005	< 0.005	< 0.005	7.57
Total	1.01	0.02	2.36	< 0.005	< 0.005	< 0.005	7.57
Daily, Winter (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.68	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—
Total	0.73	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.12	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—
Landscape Equipment	0.03	< 0.005	0.30	< 0.005	< 0.005	< 0.005	0.86
Total	0.17	< 0.005	0.30	< 0.005	< 0.005	< 0.005	0.86

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	15.4
Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	15.4
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	15.4

Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	15.4
Annual	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	2.55
Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	2.55

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	37.4
Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	37.4
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	37.4
Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	37.4
Annual	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	6.20
Enclosed Parking with Elevator	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	6.20

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	0.23
Total	—	—	—	—	—	—	0.23
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	0.23
Total	—	—	—	—	—	—	0.23
Annual	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	0.04
Total	—	—	—	—	—	—	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	9/26/2023	10/16/2023	5.00	15.0	—
Site Preparation	Site Preparation	10/17/2023	10/18/2023	5.00	1.00	—
Grading	Grading	10/19/2023	10/21/2023	5.00	2.00	—
Building Construction	Building Construction	10/22/2023	3/10/2024	5.00	100	—
Paving	Paving	3/11/2024	3/18/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	3/19/2024	3/26/2024	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20

Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	27.1	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	2.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	5.00	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	27.5	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	6.05	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.51	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	64,162	21,387	0.00	0.00	653

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,625	—
Site Preparation	—	—	0.50	0.00	—
Grading	—	—	2.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.25

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%
Enclosed Parking with Elevator	0.00	100%
Other Asphalt Surfaces	0.25	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Low Rise	182	123	104	59,285	1,359	918	779	442,866
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	27
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
64162.125	21,387	0.00	0.00	653

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	103,546	349	0.0330	0.0040	440,253
Enclosed Parking with Elevator	71,171	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	1,013,193	93,727
Enclosed Parking with Elevator	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	6.70	0.00
Enclosed Parking with Elevator	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.94	annual days of extreme heat
Extreme Precipitation	3.65	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	74.7
AQ-DPM	43.7

Drinking Water	58.3
Lead Risk Housing	84.2
Pesticides	0.00
Toxic Releases	89.1
Traffic	39.8
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	24.7
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	32.9
Cardio-vascular	44.3
Low Birth Weights	59.2
Socioeconomic Factor Indicators	—
Education	68.2
Housing	71.9
Linguistic	75.8
Poverty	71.1
Unemployment	39.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.21763121

Employed	26.40831515
Median HI	29.7318106
Education	—
Bachelor's or higher	26.30565892
High school enrollment	100
Preschool enrollment	45.54087001
Transportation	—
Auto Access	19.63300398
Active commuting	17.2334146
Social	—
2-parent households	56.21711793
Voting	19.42769152
Neighborhood	—
Alcohol availability	31.24598999
Park access	14.17939176
Retail density	56.0246375
Supermarket access	76.32490697
Tree canopy	21.40382394
Housing	—
Homeownership	27.07558065
Housing habitability	7.160272039
Low-inc homeowner severe housing cost burden	71.07660721
Low-inc renter severe housing cost burden	37.72616451
Uncrowded housing	12.24175542
Health Outcomes	—
Insured adults	14.83382523
Arthritis	34.9

Asthma ER Admissions	66.8
High Blood Pressure	35.9
Cancer (excluding skin)	47.4
Asthma	49.0
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	23.6
Diagnosed Diabetes	26.4
Life Expectancy at Birth	28.9
Cognitively Disabled	62.4
Physically Disabled	60.6
Heart Attack ER Admissions	58.9
Mental Health Not Good	37.4
Chronic Kidney Disease	45.1
Obesity	66.6
Pedestrian Injuries	19.6
Physical Health Not Good	31.5
Stroke	26.0
Health Risk Behaviors	—
Binge Drinking	85.2
Current Smoker	32.9
No Leisure Time for Physical Activity	19.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	35.2
Elderly	57.3
English Speaking	23.7

Foreign-born	88.4
Outdoor Workers	38.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	28.1
Traffic Density	41.1
Traffic Access	23.0
Other Indices	—
Hardship	71.9
Other Decision Support	—
2016 Voting	45.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	52.0
Healthy Places Index Score for Project Location (b)	22.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage and building square feet based on project architectural plans.
Construction: Off-Road Equipment	Assumed all equipment used 8hrs a day for a conservative analysis.
Operations: Vehicle Data	Utilized ITE 11th Edition Rates for Multi-Family low rise not close to rail transit (Code 220).
Operations: Hearths	No Fireplaces proposed. SCAQMD Rule 445 does not allow for Wood Stoves.
Construction: Construction Phases	Extended demolition phase due to the amount of demolition required.

Existing Day Care Center Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Existing Day Care Center
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	18.2
Location	9691 Bixby Ave, Garden Grove, CA 92841, USA
County	Orange
City	Garden Grove
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5827
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Day-Care Center	5.20	1000sqft	0.83	5,200	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	0.92	0.44	4.57	0.01	0.32	0.06	1,010
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	0.87	0.47	4.23	0.01	0.32	0.06	972
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.71	0.37	3.44	0.01	0.25	0.05	780
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.13	0.07	0.63	< 0.005	0.05	0.01	129
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—
Unmit.	No	No	No	No	No	No	—
Exceeds (Annual)	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	0.76	0.41	4.32	0.01	0.32	0.06	926
Area	0.16	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.96
Energy	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	66.3
Water	—	—	—	—	—	—	3.29
Waste	—	—	—	—	—	—	12.7
Refrig.	—	—	—	—	—	—	0.02
Total	0.92	0.44	4.57	0.01	0.32	0.06	1,010
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.75	0.45	4.21	0.01	0.32	0.06	889
Area	0.12	—	—	—	—	—	—
Energy	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	66.3
Water	—	—	—	—	—	—	3.29
Waste	—	—	—	—	—	—	12.7
Refrig.	—	—	—	—	—	—	0.02
Total	0.87	0.47	4.23	0.01	0.32	0.06	972
Average Daily	—	—	—	—	—	—	—
Mobile	0.56	0.34	3.26	0.01	0.24	0.05	697
Area	0.15	< 0.005	0.15	< 0.005	< 0.005	< 0.005	0.66
Energy	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	66.3
Water	—	—	—	—	—	—	3.29
Waste	—	—	—	—	—	—	12.7
Refrig.	—	—	—	—	—	—	0.02
Total	0.71	0.37	3.44	0.01	0.25	0.05	780
Annual	—	—	—	—	—	—	—
Mobile	0.10	0.06	0.60	< 0.005	0.04	0.01	115

Area	0.03	< 0.005	0.03	< 0.005	< 0.005	< 0.005	0.11
Energy	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	11.0
Water	—	—	—	—	—	—	0.54
Waste	—	—	—	—	—	—	2.11
Refrig.	—	—	—	—	—	—	< 0.005
Total	0.13	0.07	0.63	< 0.005	0.05	0.01	129

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	0.76	0.41	4.32	0.01	0.32	0.06	926
Total	0.76	0.41	4.32	0.01	0.32	0.06	926
Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	0.75	0.45	4.21	0.01	0.32	0.06	889
Total	0.75	0.45	4.21	0.01	0.32	0.06	889
Annual	—	—	—	—	—	—	—
Day-Care Center	0.10	0.06	0.60	< 0.005	0.04	0.01	115
Total	0.10	0.06	0.60	< 0.005	0.04	0.01	115

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	31.2
Total	—	—	—	—	—	—	31.2
Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	31.2
Total	—	—	—	—	—	—	31.2
Annual	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	5.17
Total	—	—	—	—	—	—	5.17

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	35.1
Total	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	35.1
Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	35.1
Total	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	35.1
Annual	—	—	—	—	—	—	—
Day-Care Center	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.80
Total	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.80

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.96
Total	0.16	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.96
Daily, Winter (Max)	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—
Total	0.12	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Consumer Products	0.02	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.03	< 0.005	< 0.005	< 0.005	0.11
Total	0.03	< 0.005	0.03	< 0.005	< 0.005	< 0.005	0.11

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	3.29
Total	—	—	—	—	—	—	3.29
Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	3.29
Total	—	—	—	—	—	—	3.29

Annual	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	0.54
Total	—	—	—	—	—	—	0.54

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	12.7
Total	—	—	—	—	—	—	12.7
Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	12.7
Total	—	—	—	—	—	—	12.7
Annual	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	2.11
Total	—	—	—	—	—	—	2.11

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	0.02
Total	—	—	—	—	—	—	0.02

Daily, Winter (Max)	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	0.02
Total	—	—	—	—	—	—	0.02
Annual	—	—	—	—	—	—	—
Day-Care Center	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	< 0.005

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Day-Care Center	248	32.3	30.4	67,829	1,116	249	234	316,054

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	7,800	2,600	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Day-Care Center	32,523	349	0.0330	0.0040	109,095

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Day-Care Center	223,026	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Day-Care Center	6.76	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Day-Care Center	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Day-Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Day-Care Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Day-Care Center	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.94	annual days of extreme heat
Extreme Precipitation	3.65	annual days with precipitation above 20 mm

Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	74.7
AQ-DPM	43.7
Drinking Water	58.3
Lead Risk Housing	84.2
Pesticides	0.00
Toxic Releases	89.1

Traffic	39.8
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	24.7
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	32.9
Cardio-vascular	44.3
Low Birth Weights	59.2
Socioeconomic Factor Indicators	—
Education	68.2
Housing	71.9
Linguistic	75.8
Poverty	71.1
Unemployment	39.2

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.21763121
Employed	26.40831515
Median HI	29.7318106
Education	—
Bachelor's or higher	26.30565892

High school enrollment	100
Preschool enrollment	45.54087001
Transportation	—
Auto Access	19.63300398
Active commuting	17.2334146
Social	—
2-parent households	56.21711793
Voting	19.42769152
Neighborhood	—
Alcohol availability	31.24598999
Park access	14.17939176
Retail density	56.0246375
Supermarket access	76.32490697
Tree canopy	21.40382394
Housing	—
Homeownership	27.07558065
Housing habitability	7.160272039
Low-inc homeowner severe housing cost burden	71.07660721
Low-inc renter severe housing cost burden	37.72616451
Uncrowded housing	12.24175542
Health Outcomes	—
Insured adults	14.83382523
Arthritis	34.9
Asthma ER Admissions	66.8
High Blood Pressure	35.9
Cancer (excluding skin)	47.4
Asthma	49.0

Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	23.6
Diagnosed Diabetes	26.4
Life Expectancy at Birth	28.9
Cognitively Disabled	62.4
Physically Disabled	60.6
Heart Attack ER Admissions	58.9
Mental Health Not Good	37.4
Chronic Kidney Disease	45.1
Obesity	66.6
Pedestrian Injuries	19.6
Physical Health Not Good	31.5
Stroke	26.0
Health Risk Behaviors	—
Binge Drinking	85.2
Current Smoker	32.9
No Leisure Time for Physical Activity	19.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	35.2
Elderly	57.3
English Speaking	23.7
Foreign-born	88.4
Outdoor Workers	38.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	28.1

Traffic Density	41.1
Traffic Access	23.0
Other Indices	—
Hardship	71.9
Other Decision Support	—
2016 Voting	45.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	52.0
Healthy Places Index Score for Project Location (b)	22.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Based on project site plan.

HYDROLOGY STUDY

FOR

27-UNIT APARTMENT COMPLEX
9691 BIXBY AVENUE
GARDEN GROVE, CALIFORNIA

Prepared For:

Bixby Ave Investment, LLC
13871 West Street
Garden Grove, California 92843
214.682.5559

Prepared By:

Surender Dewan, P.E.

DMS Consultants, Inc.
12371 Lewis Street, Suite 203
Garden Grove, California 92840
714.740.8840

June 14, 2023

DMS
CONSULTANTS, INC.
CIVIL ENGINEERS

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Purpose 2
Methodology 2
Soil 3
Land Use 3
Conclusion 3

HYDROLOGY MAPS **4**

Existing Conditions
Proposed Conditions

RATIONAL METHOD HYDROLOGY

Existing 25-Year Storm Event 5
Existing 100-Year Storm Event 6
Proposed 25-Year Storm Event 7
Proposed 100-Year Storm Event 8

CONCRETE RECTANGULAR BOX AND PARKWAY CULVERT CAPACITY CALCULATIONS **9**

INTRODUCTION AND SUMMARY

Site Description

The proposed project is located at 9691 Bixby Avenue and encompasses 0.83 acres in the City of Garden Grove. The project consists of construction of a 27-unit apartment complex. The site is bounded to the north and east by residential structures, to the west by a church, and to the south by Bixby Avenue.

Existing Conditions

The proposed project is located along the northerly curb of Bixby Avenue, west of Peacock Street. The overall site is relatively flat. The approximate elevations of the site vary from 80.00 to 82.00 feet above mean sea level (msl). Currently the site is a preschool facility. Under existing conditions, the project drains southerly to Bixby Avenue.

Proposed Conditions

The proposed drainage concept consists of drain inlets in and around the building. These drain inlets drain to Modular Wetland System (MWS). This unit is located in a planter at the southerly end of the property. The treated flow is pumped via sump pump and force main to a concrete rectangular box and then to a parkway drain and then on to Bixby Avenue.

Purpose

The purpose of this study is to determine the runoff generated for a storm of 25-year and 100-year frequency for both existing and proposed conditions. For the purpose of this study, land use used for existing conditions is three to four dwelling units/acre and for proposed conditions the project site is an apartment complex.

Methodology

The hydrology calculations have been prepared using the A.E.S. Program based on the 1986 Orange County Hydrology Manual. The flow rate was calculated for a 25-year and 100-year frequency for both existing and proposed conditions.

EXISTING CONDITIONS			
DRAINAGE AREA DESIGNATION	AREA (acres)	DESIGN FLOW	
		Q25 cfs	Q100 cfs
A	0.83	2.64	3.38

PROPOSED CONDITIONS			
DRAINAGE AREA DESIGNATION	AREA (acres)	DESIGN FLOW	
		Q25 cfs	Q100 cfs
A	0.20	2.43	3.12
B	0.25		
C	0.15		
D	0.16		
E	0.07		

Soil Type

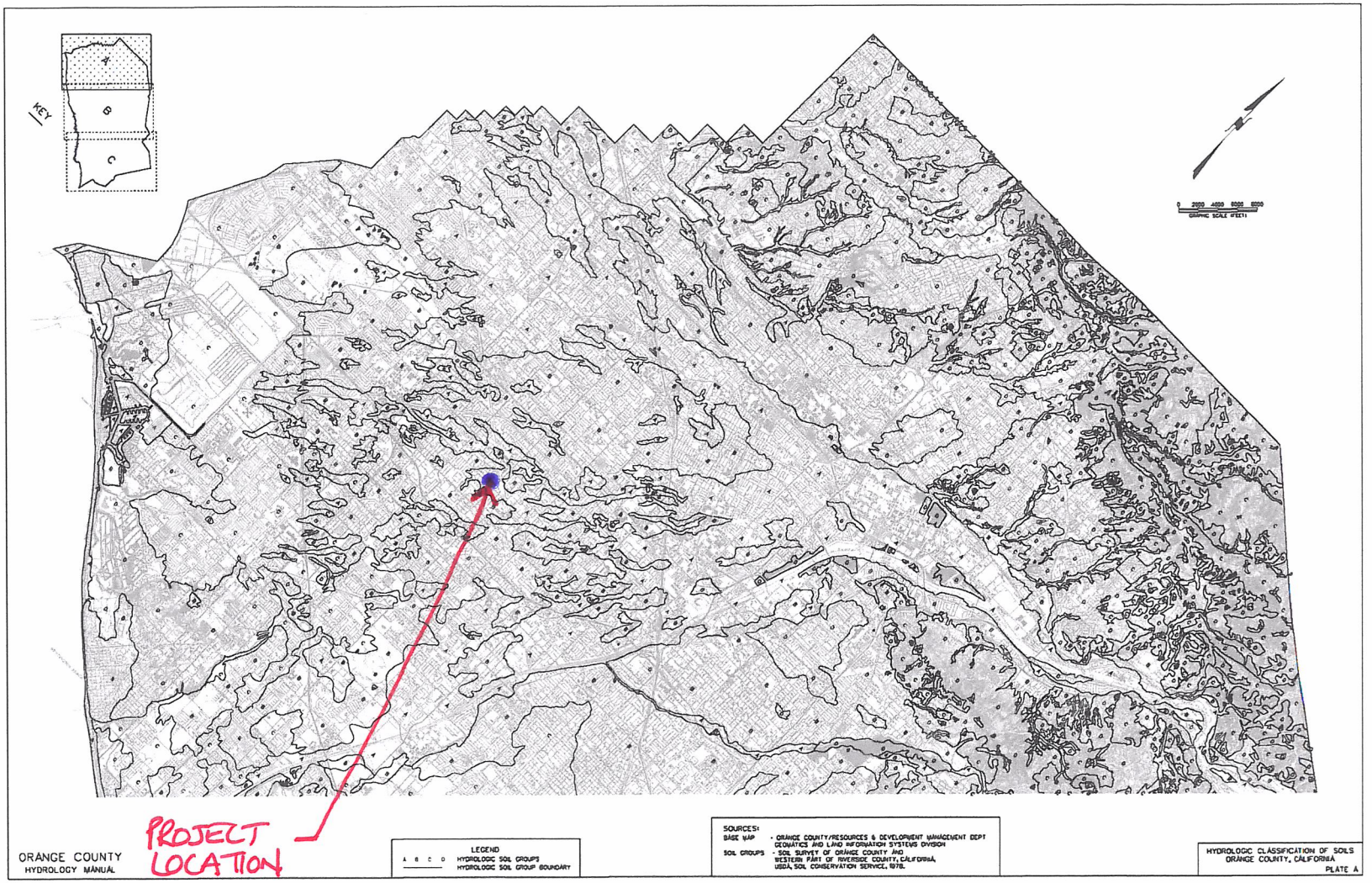
The soil type is Type "A" as determined from Plate A of the Hydrology Manual.

Land Use

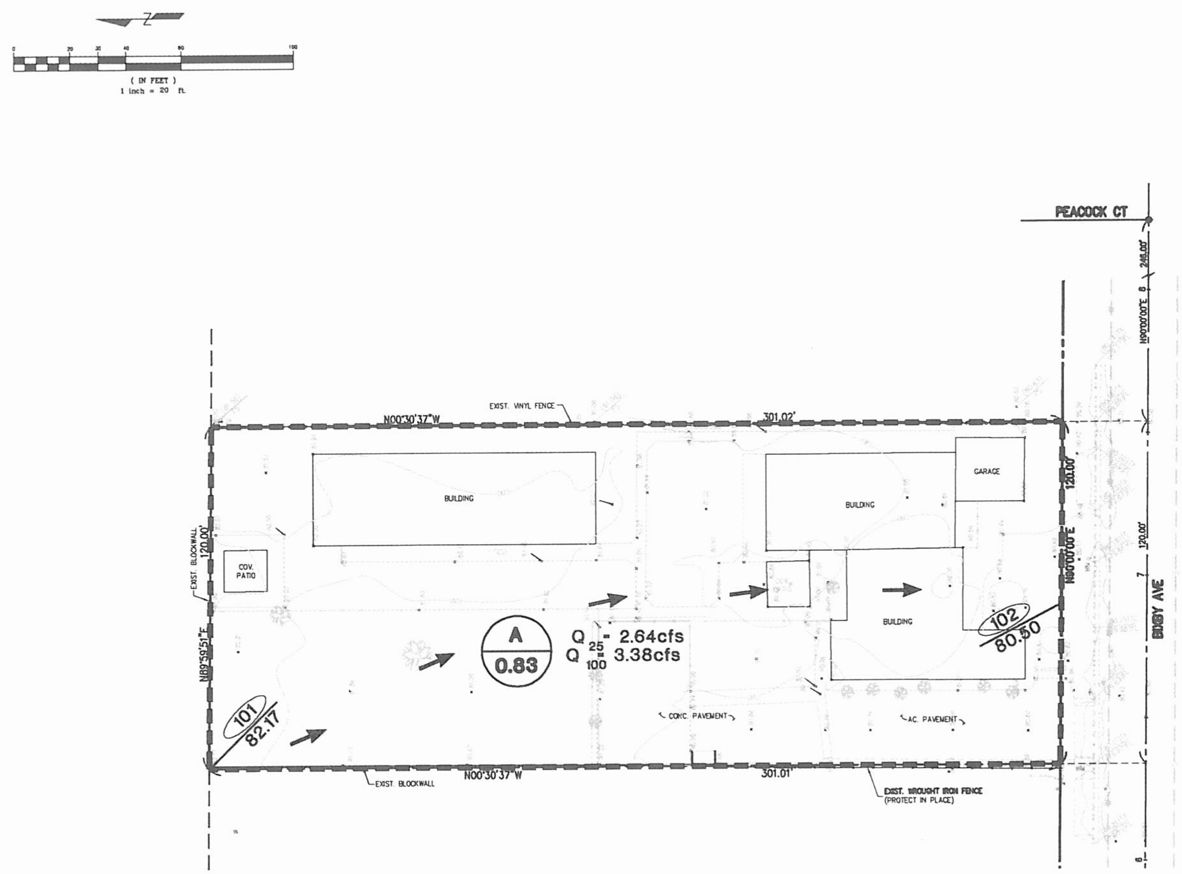
The entire watershed was taken as apartments for proposed conditions and commercial for existing conditions.

Conclusion

The attached study and map show the runoff from the site for a storm of 25-year and 100-year intensity for both existing and proposed conditions.


KEY
A
B
C
0 2000 4000 6000 8000
GRAPHIC SCALE (FEET)
PROJECT LOCATION
ORANGE COUNTY
HYDROLOGY MANUAL
LEGEND
A B C D HYDROLOGIC SOIL GROUPS
HYDROLOGIC SOIL GROUP BOUNDARY
SOURCES:
BASE MAP - ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPT GEOMATICS AND LAND INFORMATION SYSTEMS DIVISION
SOIL GROUPS - SOIL SURVEY OF ORANGE COUNTY AND WESTERN PART OF RIVERSIDE COUNTY, CALIFORNIA, USDA, SOIL CONSERVATION SERVICE, 1978.
HYDROLOGIC CLASSIFICATION OF SOILS
ORANGE COUNTY, CALIFORNIA
PLATE A

HYDROLOGY MAPS
EXISTING AND PROPOSED



VICINITY MAP
NTS

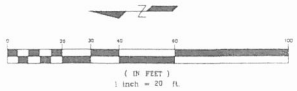
LEGEND

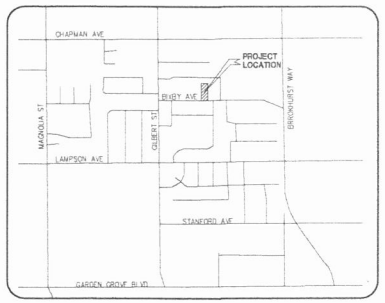
A	AREA DESIGNATION
0.00	AREA IN ACRES
XXX	NODE DESIGNATION
45.00	ELEVATION
←	DIRECTION OF FLOW

REGISTERED PROFESSIONAL ENGINEER SURINDER M. DEEAN NO. 34669 Exp. 9/30/23 CIVIL STATE OF CALIFORNIA

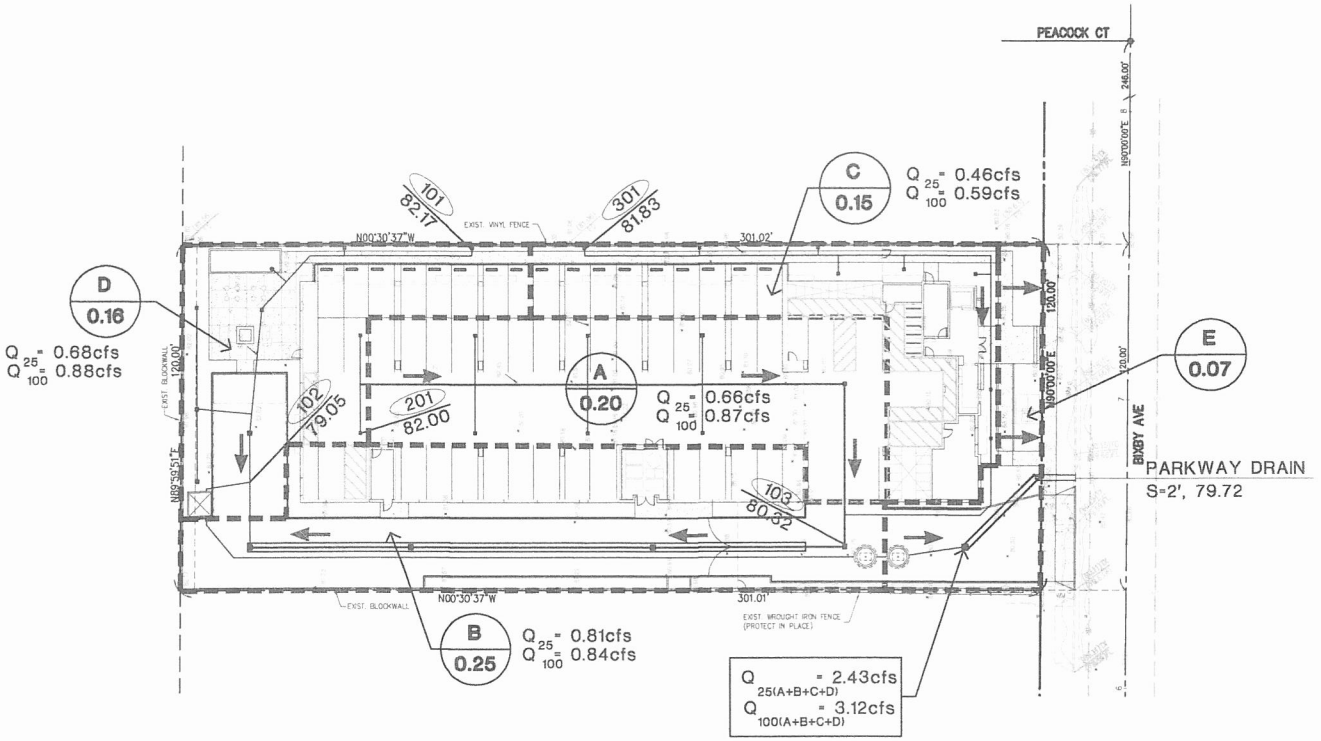
PREPARED BY:
DMS CONSULTANTS, INC.
CIVIL ENGINEERS

EXHIBIT 1
EXISTING CONDITIONS
HYDROLOGY PLAN
9691 BIXBY AVENUE
GARDEN GROVE, CA





VICINITY MAP
NTS



LEGEND

A / 0.00	AREA DESIGNATION / AREA IN ACRES
XXX	NODE DESIGNATION
45.00	ELEVATION
←	DIRECTION OF FLOW

REGISTERED PROFESSIONAL ENGINEER ALEXANDER W. DRAIN NO. 34559 Exp. 9/30/23 CIVIL STATE OF CALIFORNIA

PREPARED BY:
DMS CONSULTANTS, INC.
CIVIL ENGINEERS

EXHIBIT 1
PROPOSED CONDITIONS
HYDROLOGY PLAN
9691 BIXBY AVENUE
GARDEN GROVE, CA

HYDROLOGY - EXISTING CONDITIONS
25-YEAR FREQUENCY

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
       (c) Copyright 1983-2005 Advanced Engineering Software (aes)
           Ver. 11.0  Release Date: 06/01/2005  License ID 1570

                        Analysis prepared by:

                        DMS Consultants, Inc.


--------------------------------------------------------------------------
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  TIME/DATE OF STUDY: 11:33 02/20/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   305.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.17  DOWNSTREAM(FEET) =     80.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.490
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.575
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                  A        0.83      0.40      0.100    17    8.49
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      2.64
  TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      2.64
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =      0.83  TC(MIN.) =      8.49
  EFFECTIVE AREA(ACRES) =      0.83  AREA-AVERAGED Fm(INCH/HR)=  0.04
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)    =      2.64
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

HYDROLOGY - EXISTING CONDITIONS
100-YEAR FREQUENCY

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
        (c) Copyright 1983-2005 Advanced Engineering Software (aes)
            Ver. 11.0  Release Date: 06/01/2005  License ID 1570

                        Analysis prepared by:

                        DMS Consultants, Inc.



--------------------------------------------------------------------------
  FILE NAME: BXB25.DAT
  TIME/DATE OF STUDY: 11:31 02/20/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  ========  ==================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   305.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.17  DOWNSTREAM(FEET) =     80.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.490
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.568
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                  A        0.83      0.40      0.100    17    8.49
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      3.38
  TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      3.38
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =      0.83  TC(MIN.) =      8.49
  EFFECTIVE AREA(ACRES) =      0.83  AREA-AVERAGED Fm(INCH/HR)=  0.04
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)    =      3.38
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

HYDROLOGY - PROPOSED CONDITIONS
25-YEAR FREQUENCY

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2005 Advanced Engineering Software (aes)
             Ver. 11.0  Release Date: 06/01/2005  License ID 1570

                          Analysis prepared by:

                          DMS Consultants, Inc.



--------------------------------------------------------------------------
  FILE NAME: BIX25.DAT
  TIME/DATE OF STUDY: 08:46 06/14/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   140.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.17  DOWNSTREAM(FEET) =     79.05

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.005
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.821
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
```

```
  "11+ DWELLINGS/ACRE"       A        0.16      0.40      0.200    17    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.16   PEAK FLOW RATE(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    103.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   288.00
  ELEVATION DATA: UPSTREAM(FEET) =     81.83  DOWNSTREAM(FEET) =     80.32

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.920
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.506
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.15      0.40      0.200    17    8.92
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.46
  TOTAL AREA(ACRES) =      0.15   PEAK FLOW RATE(CFS) =      0.46

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    103.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   245.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.00  DOWNSTREAM(FEET) =     80.32

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.925
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.733
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.20      0.40      0.200    17    7.92
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
```

```
 SUBAREA RUNOFF(CFS) =      0.66
 TOTAL AREA(ACRES) =      0.20   PEAK FLOW RATE(CFS) =      0.66

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      0.66   7.92    3.733  0.40( 0.08) 0.20     0.2     201.00
 LONGEST FLOWPATH FROM NODE    201.00 TO NODE    102.00 =   245.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      0.46   8.92    3.506  0.40( 0.08) 0.20     0.2     301.00
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      1.10   7.92    3.733  0.40( 0.08) 0.20     0.3     201.00
     2      1.08   8.92    3.506  0.40( 0.08) 0.20     0.4     301.00
   TOTAL AREA(ACRES) =      0.35

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      1.10  Tc(MIN.) =    7.925
 EFFECTIVE AREA(ACRES) =    0.33  AREA-AVERAGED Fm(INCH/HR) =  0.08
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =     0.35
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    80.32  DOWNSTREAM(FEET) =    79.05
 FLOW LENGTH(FEET) =   230.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   7.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   2.92
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      1.10
 PIPE TRAVEL TIME(MIN.) =   1.31    Tc(MIN.) =   9.24
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   518.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   230.00
  ELEVATION DATA: UPSTREAM(FEET) =     80.32  DOWNSTREAM(FEET) =     79.05

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.069
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.700
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.25      0.40      0.200    17    8.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.81
  TOTAL AREA(ACRES) =      0.25   PEAK FLOW RATE(CFS) =      0.81

********************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  11
--------------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
================================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1      0.81   8.07    3.700  0.40( 0.08) 0.20     0.2      103.00
  LONGEST FLOWPATH FROM NODE    103.00 TO NODE    102.00 =   230.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1      1.10   7.92    3.733  0.40( 0.08) 0.20     0.3      201.00
      2      1.08   8.92    3.506  0.40( 0.08) 0.20     0.4      301.00
  LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1      1.90   7.92    3.733  0.40( 0.08) 0.20     0.6      201.00
      2      1.91   8.07    3.700  0.40( 0.08) 0.20     0.6      103.00
      3      1.85   8.92    3.506  0.40( 0.08) 0.20     0.6      301.00
    TOTAL AREA(ACRES) =      0.60

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      1.91  Tc(MIN.) =    8.069
  EFFECTIVE AREA(ACRES) =    0.59  AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =      0.60
  LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  11
--------------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
================================================================================
```

```
 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1       1.90   7.92     3.733  0.40( 0.08) 0.20      0.6      201.00
     2       1.91   8.07     3.700  0.40( 0.08) 0.20      0.6      103.00
     3       1.85   8.92     3.506  0.40( 0.08) 0.20      0.6      301.00
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1       0.68   5.00     4.818  0.40( 0.08) 0.20      0.2      101.00
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    102.00 =   140.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1       2.24   5.00     4.818  0.40( 0.08) 0.20      0.5      101.00
     2       2.43   7.92     3.733  0.40( 0.08) 0.20      0.7      201.00
     3       2.43   8.07     3.700  0.40( 0.08) 0.20      0.7      103.00
     4       2.34   8.92     3.506  0.40( 0.08) 0.20      0.8      301.00
   TOTAL AREA(ACRES) =      0.76

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =        2.43  Tc(MIN.) =    8.069
 EFFECTIVE AREA(ACRES) =      0.75  AREA-AVERAGED Fm(INCH/HR) =  0.08
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =      0.76
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =      0.76  TC(MIN.) =      8.07
 EFFECTIVE AREA(ACRES) =       0.75  AREA-AVERAGED Fm(INCH/HR)=  0.08
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
 PEAK FLOW RATE(CFS)   =      2.43

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1       2.24   5.00     4.818  0.40( 0.08) 0.20      0.5      101.00
     2       2.43   7.92     3.733  0.40( 0.08) 0.20      0.7      201.00
     3       2.43   8.07     3.700  0.40( 0.08) 0.20      0.7      103.00
     4       2.34   8.92     3.506  0.40( 0.08) 0.20      0.8      301.00
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

HYDROLOGY - PROPOSED CONDITIONS
100-YEAR FREQUENCY

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2005 Advanced Engineering Software (aes)
             Ver. 11.0  Release Date: 06/01/2005  License ID 1570

                          Analysis prepared by:

                          DMS Consultants, Inc.



--------------------------------------------------------------------------
  FILE NAME: BIX25.DAT
  TIME/DATE OF STUDY: 08:53 06/14/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   140.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.17  DOWNSTREAM(FEET) =     79.05

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.005
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.184
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
```

```
  "11+ DWELLINGS/ACRE"       A        0.16      0.40     0.200    17    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.16   PEAK FLOW RATE(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    103.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   288.00
  ELEVATION DATA: UPSTREAM(FEET) =     81.83  DOWNSTREAM(FEET) =     80.32

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.920
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.480
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.15      0.40     0.200    17    8.92
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.59
  TOTAL AREA(ACRES) =      0.15   PEAK FLOW RATE(CFS) =      0.59

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    103.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   245.00
  ELEVATION DATA: UPSTREAM(FEET) =     82.00  DOWNSTREAM(FEET) =     80.32

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.925
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.774
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.20      0.40     0.200    17    7.92
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
```

```
 SUBAREA RUNOFF(CFS) =      0.84
 TOTAL AREA(ACRES) =      0.20   PEAK FLOW RATE(CFS) =      0.84

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      0.84   7.92    4.774  0.40( 0.08) 0.20     0.2     201.00
 LONGEST FLOWPATH FROM NODE    201.00 TO NODE    102.00 =   245.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      0.59   8.92    4.480  0.40( 0.08) 0.20     0.2     301.00
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
     1      1.41   7.92    4.774  0.40( 0.08) 0.20     0.3     201.00
     2      1.39   8.92    4.480  0.40( 0.08) 0.20     0.4     301.00
   TOTAL AREA(ACRES) =      0.35

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      1.41  Tc(MIN.) =    7.925
 EFFECTIVE AREA(ACRES) =    0.33  AREA-AVERAGED Fm(INCH/HR) =  0.08
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =      0.35
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    80.32  DOWNSTREAM(FEET) =    79.05
 FLOW LENGTH(FEET) =   230.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.21
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      1.41
 PIPE TRAVEL TIME(MIN.) =   1.19    Tc(MIN.) =   9.12
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   518.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   230.00
 ELEVATION DATA: UPSTREAM(FEET) =     80.32  DOWNSTREAM(FEET) =     79.05

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.069
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.732
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"       A        0.25      0.40      0.200    17    8.07
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA RUNOFF(CFS) =      1.05
 TOTAL AREA(ACRES) =      0.25   PEAK FLOW RATE(CFS) =      1.05

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1      1.05   8.07    4.732  0.40( 0.08) 0.20     0.2      103.00
 LONGEST FLOWPATH FROM NODE    103.00 TO NODE    102.00 =   230.00 FEET.

 ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1      1.41   7.92    4.774  0.40( 0.08) 0.20     0.3      201.00
     2      1.39   8.92    4.480  0.40( 0.08) 0.20     0.4      301.00
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1      2.45   7.92    4.774  0.40( 0.08) 0.20     0.6      201.00
     2      2.45   8.07    4.732  0.40( 0.08) 0.20     0.6      103.00
     3      2.38   8.92    4.480  0.40( 0.08) 0.20     0.6      301.00
   TOTAL AREA(ACRES) =      0.60

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      2.45  Tc(MIN.) =    8.069
 EFFECTIVE AREA(ACRES) =    0.59  AREA-AVERAGED Fm(INCH/HR) =  0.08
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =      0.60
 LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================
```

```
** MAIN STREAM CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1       2.45    7.92     4.774   0.40( 0.08) 0.20      0.6      201.00
    2       2.45    8.07     4.732   0.40( 0.08) 0.20      0.6      103.00
    3       2.38    8.92     4.480   0.40( 0.08) 0.20      0.6      301.00
LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.

** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1       0.88    5.00     6.187   0.40( 0.08) 0.20      0.2      101.00
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    102.00 =   140.00 FEET.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1       2.89    5.00     6.187   0.40( 0.08) 0.20      0.5      101.00
    2       3.12    7.92     4.774   0.40( 0.08) 0.20      0.7      201.00
    3       3.12    8.07     4.732   0.40( 0.08) 0.20      0.7      103.00
    4       3.01    8.92     4.480   0.40( 0.08) 0.20      0.8      301.00
  TOTAL AREA(ACRES) =      0.76

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =        3.12  Tc(MIN.) =    7.925
EFFECTIVE AREA(ACRES) =      0.74  AREA-AVERAGED Fm(INCH/HR) =  0.08
AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.20
TOTAL AREA(ACRES) =      0.76
LONGEST FLOWPATH FROM NODE    301.00 TO NODE    102.00 =   288.00 FEET.
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)      =      0.76  TC(MIN.) =      7.92
EFFECTIVE AREA(ACRES) =       0.74  AREA-AVERAGED Fm(INCH/HR)=  0.08
AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
PEAK FLOW RATE(CFS)    =      3.12

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1       2.89    5.00     6.187   0.40( 0.08) 0.20      0.5      101.00
    2       3.12    7.92     4.774   0.40( 0.08) 0.20      0.7      201.00
    3       3.12    8.07     4.732   0.40( 0.08) 0.20      0.7      103.00
    4       3.01    8.92     4.480   0.40( 0.08) 0.20      0.8      301.00
============================================================================
============================================================================
END OF RATIONAL METHOD ANALYSIS
```

CONCRETE RECTANGULAR BOX AND PARKWAY CULVERT CAPACITY CALCULATIONS

```
*****************************************************************************
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                          Analysis prepared by:

                          DMS Consultants Inc.



---------------------------------------------------------------------------
  TIME/DATE OF STUDY: 09:13 06/14/2023
===========================================================================
 Problem Descriptions:
  Rectangular Channel Calculations


*****************************************************************************
>>>>CHANNEL INPUT INFORMATION<<<<
---------------------------------------------------------------------------
    NORMAL DEPTH(FEET) =   0.33
    CHANNEL Z1(HORIZONTAL/VERTICAL) =    0.00
            Z2(HORIZONTAL/VERTICAL) =    0.00
    CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.010000
    UNIFORM FLOW(CFS) =        2.43
    MANNINGS FRICTION FACTOR = 0.0130
===========================================================================
    NORMAL-DEPTH FLOW INFORMATION:
---------------------------------------------------------------------------
    >>>>> BASEWIDTH(FEET) =    1.68           Provided 2.0 feet Basewidth -OK
    FLOW TOP-WIDTH(FEET) =         1.68
    FLOW AREA(SQUARE FEET) =           0.56
    HYDRAULIC DEPTH(FEET) =     0.33
    FLOW AVERAGE VELOCITY(FEET/SEC.) =     4.38
    UNIFORM FROUDE NUMBER =    1.343
    PRESSURE + MOMENTUM(POUNDS) =           26.33
    AVERAGED VELOCITY HEAD(FEET) =      0.297
    SPECIFIC ENERGY(FEET) =      0.627
===========================================================================
    CRITICAL-DEPTH FLOW INFORMATION:
---------------------------------------------------------------------------
    CRITICAL FLOW TOP-WIDTH(FEET) =         1.68
    CRITICAL FLOW AREA(SQUARE FEET) =           0.68
    CRITICAL FLOW HYDRAULIC DEPTH(FEET) =     0.40
    CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) =     3.60
    CRITICAL DEPTH(FEET) =     0.40
    CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) =           25.40
    AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) =      0.201
    CRITICAL FLOW SPECIFIC ENERGY(FEET) =      0.602
===========================================================================
```

```
**************************************************************************
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                    Analysis prepared by:

                    DMS Consultants, Inc.


--------------------------------------------------------------------------
  TIME/DATE OF STUDY: 09:54 06/14/2023
==========================================================================
 Problem Descriptions:
  Parkway Drain Calculations


**************************************************************************
>>>>CHANNEL INPUT INFORMATION<<<<
--------------------------------------------------------------------------
    NORMAL DEPTH(FEET) =   0.33
    CHANNEL Z1(HORIZONTAL/VERTICAL) =    0.00
            Z2(HORIZONTAL/VERTICAL) =    0.00
    CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.020000
    UNIFORM FLOW(CFS) =        2.43
    MANNINGS FRICTION FACTOR = 0.0130
==========================================================================
    NORMAL-DEPTH FLOW INFORMATION:
--------------------------------------------------------------------------
    >>>>> BASEWIDTH(FEET) =    1.26          Provided 2.0 feet Basewidth -OK
    FLOW TOP-WIDTH(FEET) =         1.26
    FLOW AREA(SQUARE FEET) =           0.42
    HYDRAULIC DEPTH(FEET) =     0.33
    FLOW AVERAGE VELOCITY(FEET/SEC.) =     5.83
    UNIFORM FROUDE NUMBER =    1.789
    PRESSURE + MOMENTUM(POUNDS) =           31.75
    AVERAGED VELOCITY HEAD(FEET) =      0.528
    SPECIFIC ENERGY(FEET) =      0.858
==========================================================================
    CRITICAL-DEPTH FLOW INFORMATION:
--------------------------------------------------------------------------
    CRITICAL FLOW TOP-WIDTH(FEET) =         1.26
    CRITICAL FLOW AREA(SQUARE FEET) =           0.61
    CRITICAL FLOW HYDRAULIC DEPTH(FEET) =     0.49
    CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) =     3.97
    CRITICAL DEPTH(FEET) =     0.49
    CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) =           27.95
    AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) =      0.244
    CRITICAL FLOW SPECIFIC ENERGY(FEET) =      0.729
==========================================================================
```

NOISE IMPACT ANALYSIS

BIXBY AVENUE APARTMENTS PROJECT

CITY OF GARDEN GROVE

Lead Agency:

City of Garden Grove
11222 Acacia Parkway
Garden Grove, CA 92840

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, CA 92651
949 510 5355
Greg Tonkovich, INCE

Project No. 22055

July 27, 2023

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Garden Grove
cmu	concrete masonry unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the potential noise impacts associated with the proposed Bixby Avenue Apartments project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located at 9691 Bixby Avenue in the City of Garden Grove (City), which is located in the northern portion of the City. The approximately 0.83-acre project site is currently used as a preschool and is bounded by single-family homes to the north, multi-family homes to the east, Bixby Avenue and single-family homes to the south, and Padre Pio Academy, which is a private school for Pre-Kindergarten to 8th Grade to the west. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are multi-family homes located as near as 10 feet east of the project site, single-family homes located as near as 35 feet north of the project site, and the school structures, which include a storage shed and portable classroom located as near as 25 feet west of the project site.

1.3 Proposed Project Description

The applicant for the proposed Project is requesting approval from the City of Garden Grove to demolish the existing daycare structures on the Project site and to construct a new three-story multifamily apartment complex. The complex would include a parking structure on the first floor and 27 multi-family residential units on the second and third floors. The Project would provide three affordable units for very –low-income households, which entitles the Project to a 50 percent density bonus from the base density. The Project would provide a total of 50 parking spaces on the first floor. The second floor would include 13 units, a community room, business center, and open space/BBQ areas. The third floor would include 14 units. The proposed units would vary from one bedroom to three-bedroom apartments. The proposed Project would also include other onsite amenities such as a community garden, mail room, and storage areas for residents. The Project would be accessed via one driveway along Bixby Avenue. In addition, the Project would include the construction of a six-foot-high concrete perimeter wall. Construction is anticipated to take 6 months. The proposed site plan is shown in Figure 2.

There is currently a 6-foot high concrete masonry unit (cmu) wall that runs along the north property line and extends 175 feet down the west property line, which then turns into a wrought iron fence that runs the remaining 125 feet to Bixby Avenue. On the east side of the project site, there is a 6-foot high vinyl fence. According to the proposed plans, the cmu walls on the north side and northern portion of the west side would remain and the vinyl wall on the east side and wrought iron fence on the southern portion of the west side would be replaced with 6-foot high cmu walls.

1.4 Executive Summary

Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City and State of California (State).

City of Garden Grove Noise Regulations

The following lists the noise and vibration regulations from the *Garden Grove, California Municipal Code,* December, 2022.

- Section 8.47.040 – Operational Noise Levels; and
- Section 8.47.060(D) – Construction Noise Limits.

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 27200-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

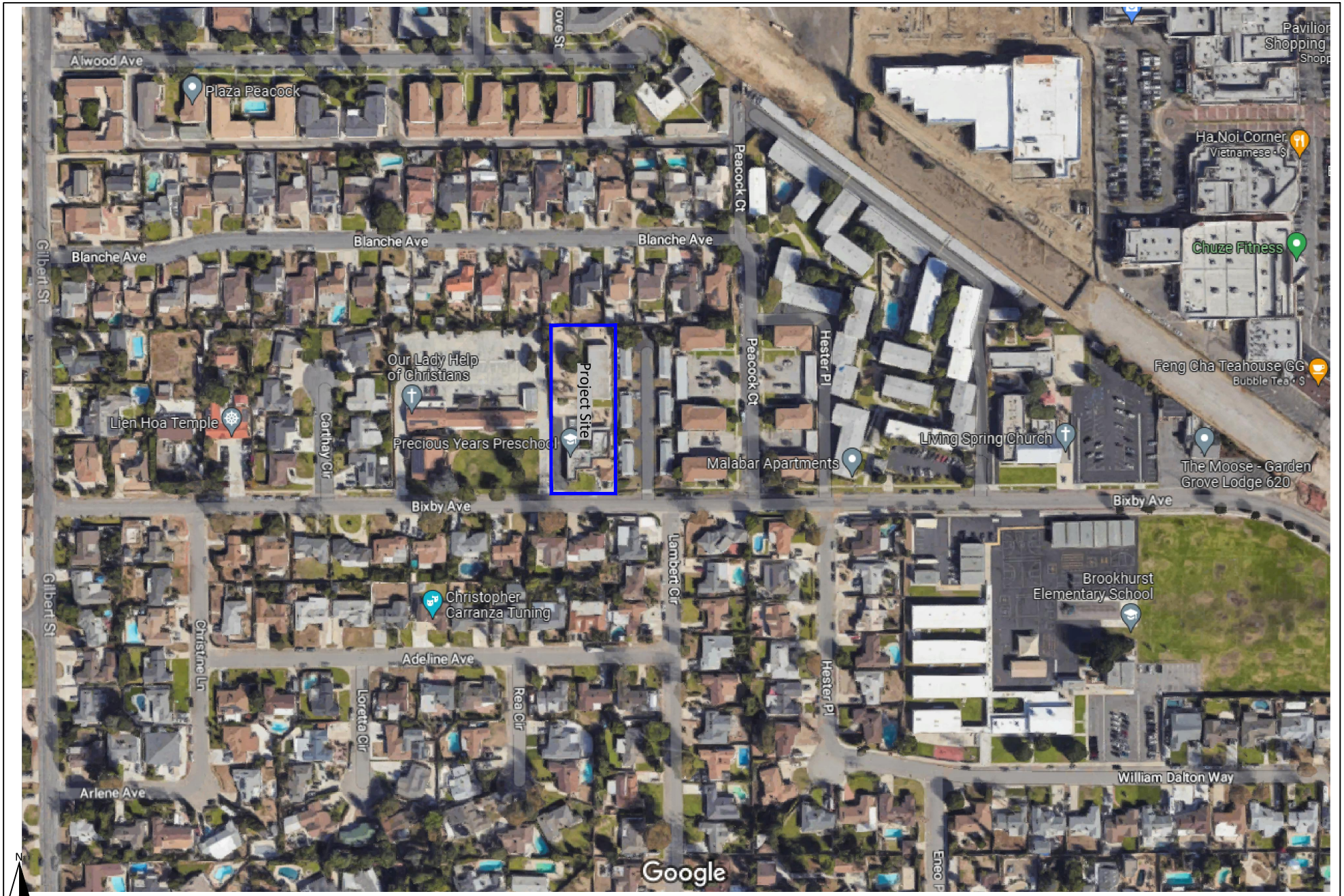
Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

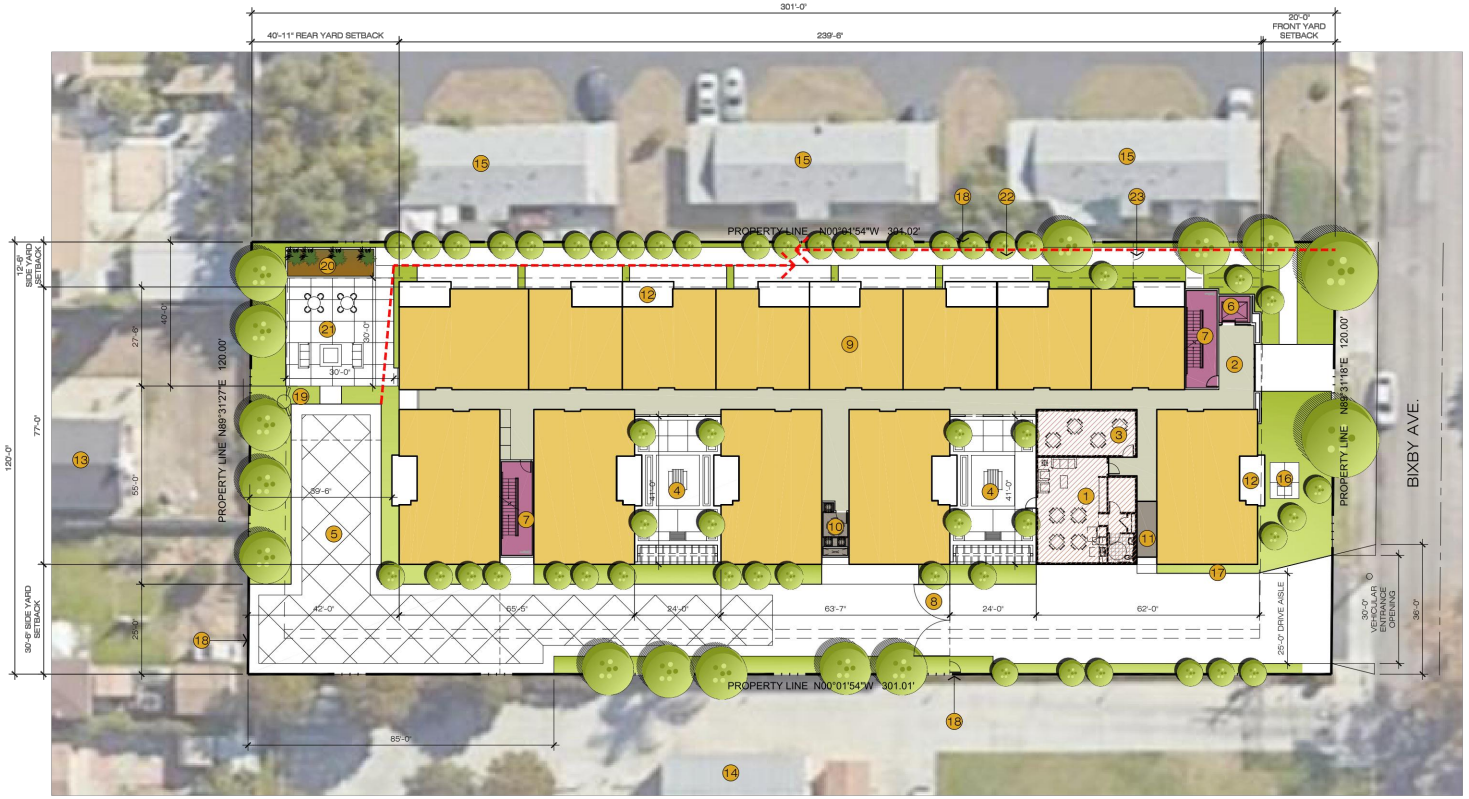
Less than significant impact.

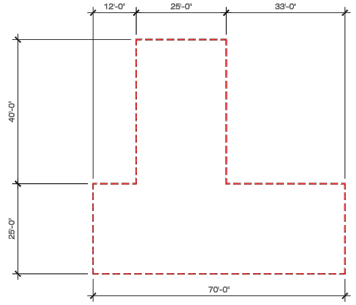


SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map





MIN. HAMMERHEAD DIMENSION PER O.C. FIRE AUTHORITY

REQUIRED / PROVIDED AMENITY SPACE

ACTIVE OPEN SPACE -	1,350 SF
COMMUNITY GARDEN -	56 SF
CLUBHOUSE WITH KITCHEN -	400 SF
BBQ WIT TABLE SEATING -	2
BUSINESS CENTER -	4 STATIONS

LEGEND

- RESIDENTIAL
- CIRCULATION
- MECHANICAL / UTILITY
- VERTICAL CIRCULATION
- PARKING
- PROPOSED TRANSFORMER
- EXISTING / PROPOSED FIRE HYDRANT
- 150' HOSE PULL

KEY NOTE

1. CLUB ROOM
2. LOBBY
3. BUSINESS CENTER
4. PODIUM OPEN SPACE / BBQ AREA
5. FIRE DEPARTMENT / TRASH TRUCK TURN-AROUND POSTED WITH 'NO PARKING' SIGN THROUGH OUT
6. ELEVATOR TYP.
7. 'EXIT' STAIR WITH STANDPIPE TYP.
8. FD / TRASH TRUCK ACCESS GATE WITH KNOX BOX
9. 2 STORY TYPE V APARTMENT OVER PARKING
10. TRASH ROOM
11. IDF ROOM
12. PRIVATE DECK, TYP. (90 SF MIN.)
13. EXISTING ADJACENT SINGLE STORY HOUSE
14. EXISTING ADJACENT SINGLE STORY SCHOOL
15. EXISTING ADJACENT SINGLE STORY DUPLEX
16. PROPOSED TRANSFORMER LOCATION
17. PROPOSED UTILITY METER LOCATION
18. PROPOSED 6' HIGH CMU PERIMETER WALL
19. PROPOSED NEW FIRE HYDRANT LOCATION
20. COMMUNITY GARDEN (56 SF TOTAL)
21. ACTIVE OPEN SPACE
22. PEDESTRIAN WALK WAY (5'-0" WIDE MIN.)
23. PEDESTRIAN GATE

SOURCE: BSB Design.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The worst-hour traffic Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Garden Grove relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in level of noise as the distance from the source increases. The manner in which the noise level reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features.

Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD) between source and receiver. Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB", which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform medium, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Garden Grove. Noise regulations are addressed by various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA), which regulates transit noise, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is a guidance document from a government agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

The FTA also provides guidance on construction noise and recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances, including the City of Garden Grove Municipal Code, only limit the time of day when construction activities may occur and for the times when construction activities are allowed, no construction noise level limits are provided. The FTA construction noise criteria has been utilized in this analysis to determine if the project would create a significant substantial temporary noise increase to the nearby sensitive receptors, which is a CEQA requirement. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a general construction noise assessment are provided below in Table B.

Table B – FTA General Assessment Construction Noise Criteria

Land Use	Day (dBA $Leq_{(1\text{-hour})}$)	Night (dBA $Leq_{(1\text{-hour})}$)
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: Federal Transit Administration, 2018.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

The *Transportation and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The City of Garden Grove General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Garden Grove General Plan

The City of Garden Grove has developed its own land use compatibility standards based on recommended parameters from the California Governor's Office of Planning and Research that rate compatibility. Using the State's land use compatibility guidelines, the City has established the City's Land Use Compatibility standards that are presented in Table C.

Table C – City of Garden Grove Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (Ldn or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motel, Hotels	50 -65	60 – 70	70 – 80	80 - 85

Table C – City of Garden Grove Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (Ldn or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	67.5 – 77.5	75 – 85	NA
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA

Notes:
NA: Not Applicable.
Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Normally Unacceptable – New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features
Source: City of Garden Grove General Plan Table 7-1.

The City's Noise Ordinance establishes the following daytime and nighttime noise standards that are defined in Table 7-2 of the General Plan and reprinted below in Table D.

Table D – City of Garden Grove Noise Ordinance Standards

Land Use Designation		Ambient Base Noise Level	Time of Day
Sensitive Uses	Residential Use	55 dBA	7:00 AM – 10:00 PM
		50 dBA	10:00 PM – 7:00 AM
Conditionally Sensitive Uses	Institutional Use	65 dBA	Any Time
	Office-Professional Use	65 dBA	Any Time
	Hotels and Motels	65 dBA	Any Time
Non-Sensitive Uses	Commercial Uses	70 dBA	Any Time
	Commercial/Industrial Uses within 150 feet of Residential Uses	65 dBA	7:00 AM – 10:00 PM
		50 dBA	10:00 PM – 7:00 AM
	Industrial Uses	70 dBA	Any Time

Source: City of Garden Grove General Plan Table 7-2.

Applicable goals and policies from the Noise Element of the General Plan are as follows:

Goal N-1: Noise considerations must be incorporated into land use planning decisions.

N-1 Policies

Policy N-1.1. Require all new residential construction in areas with an exterior noise level greater than 55 dBA to include sound attenuation measures.

Policy N-1.2. Incorporate a noise assessment study into the environmental review process, when needed for a specific project for the purposes of identifying potential noise impacts and noise abatement procedures.

Policy N-1.3. Require noise reduction techniques in site planning, architectural design, and construction, where noise reduction is necessary consistent with the standards in Tables 7-1 and 7-2, Title 24 of the California Code of Regulations, and Section 8.47 of the Municipal Code.

Policy N-1.4 Ensure acceptable noise levels are maintained near schools, hospitals, convalescent homes, churches and other noise sensitive areas.

Goal N-2: Maximized efficiency in noise abatement efforts through clear and effective policies and ordinances.

Policy N-2.2. Fully integrate noise considerations into land use planning decisions to prevent new noise/land use conflicts.

Policy N-2.3 Incorporate noise reduction features for items such as but not limited to parking and loading areas, ingress/egress point, and refuse collection areas, during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses.

City of Garden Grove Municipal Code

The City of Garden Grove Municipal Code establishes the following applicable standards related to noise.

8.47.040 Ambient Base Noise Levels

The ambient base noise levels contained in the following chart (see Table D above) shall be utilized as the basis for determining noise levels in excess of those allowed by this chapter unless the actual measured ambient noise level occurring at the same time as the noise under review is being investigated exceeds the ambient base noise level contained in the chart. When the actual measured ambient noise level exceeds the ambient base noise level, the actual measured ambient noise level shall be utilized as the basis for determining whether or not the subject noise exceeds the level allowed by this section. In situations where two adjoining properties exist within two different use designations, the most restrictive ambient base noise level will apply. This section permits any noise level that does not exceed either the ambient base noise level or the actual measured noise level by 5 dB(A), as measured at the property line of the noise generation property.

8.47.060 Special Noise Sources

D. Construction of Buildings and Projects. It shall be unlawful for any person within a residential area, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day in such a manner that

a person of normal sensitiveness, as determined utilizing the criteria established in Section 8.47.050(B), is caused discomfort or annoyance unless such operations are of an emergency nature.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Bixby Avenue that is adjacent to the south side of the project site and from children playing at Padre Pio Academy that is adjacent to the west side of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for approximately 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded. The sound level meters and microphones were mounted approximately four to six feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels in the vicinity of the project site. Descriptions of the noise monitoring sites are provided below in Table E and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:29 p.m. on Tuesday, January 17, 2023 and 12:34 p.m. on Wednesday, January 18, 2023. At the start of the noise measurements, the sky was partly cloudy, the temperature was 61 degrees Fahrenheit, the humidity was 46 percent, barometric pressure was 29.78 inches of mercury, and the wind was blowing around three miles per hour. Overnight, the temperature dropped to 43 degrees Fahrenheit and the humidity peaked at 90 percent. At the conclusion of the noise measurements, the sky was partly cloudy, the temperature was 62 degrees Fahrenheit, the humidity was 44 percent, barometric pressure was 30.04 inches of mercury, and there was no wind.

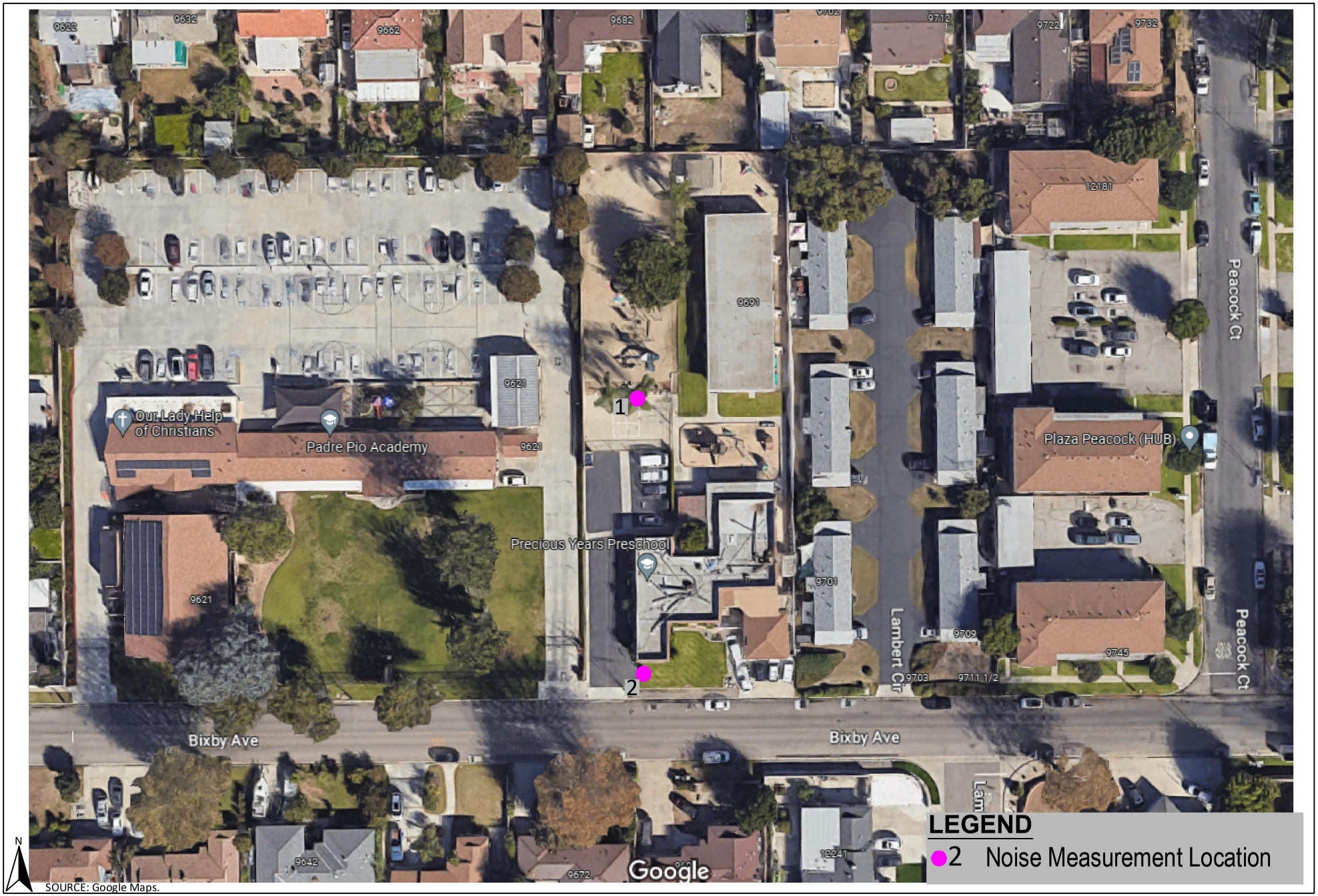
5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table E. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table E also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The CNEL was calculated through use of Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 4 shows a graph of the 24-hour noise measurements.

Table E – Existing (Ambient) Noise Measurement Results

Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	(dBA $L_{eq\ 1\text{-}hour}$/Time) Minimum	(dBA $L_{eq\ 1\text{-}hour}$/Time) Maximum	Average (dBA CNEL)
1	Located on a palm tree near the center of the project site, approximately 30 feet east of west property line and 195 feet north of Bixby Avenue centerline.	51.7	73.7	44.1 2:44 a.m.	56.2 7:11 a.m.	58.6
2	Located on a sign post on the southern portion of the project site, approximately 35 feet north of Bixby Avenue centerline.	57.3	81.7	43.4 2:38 a.m.	61.7 3:15 p.m.	60.8

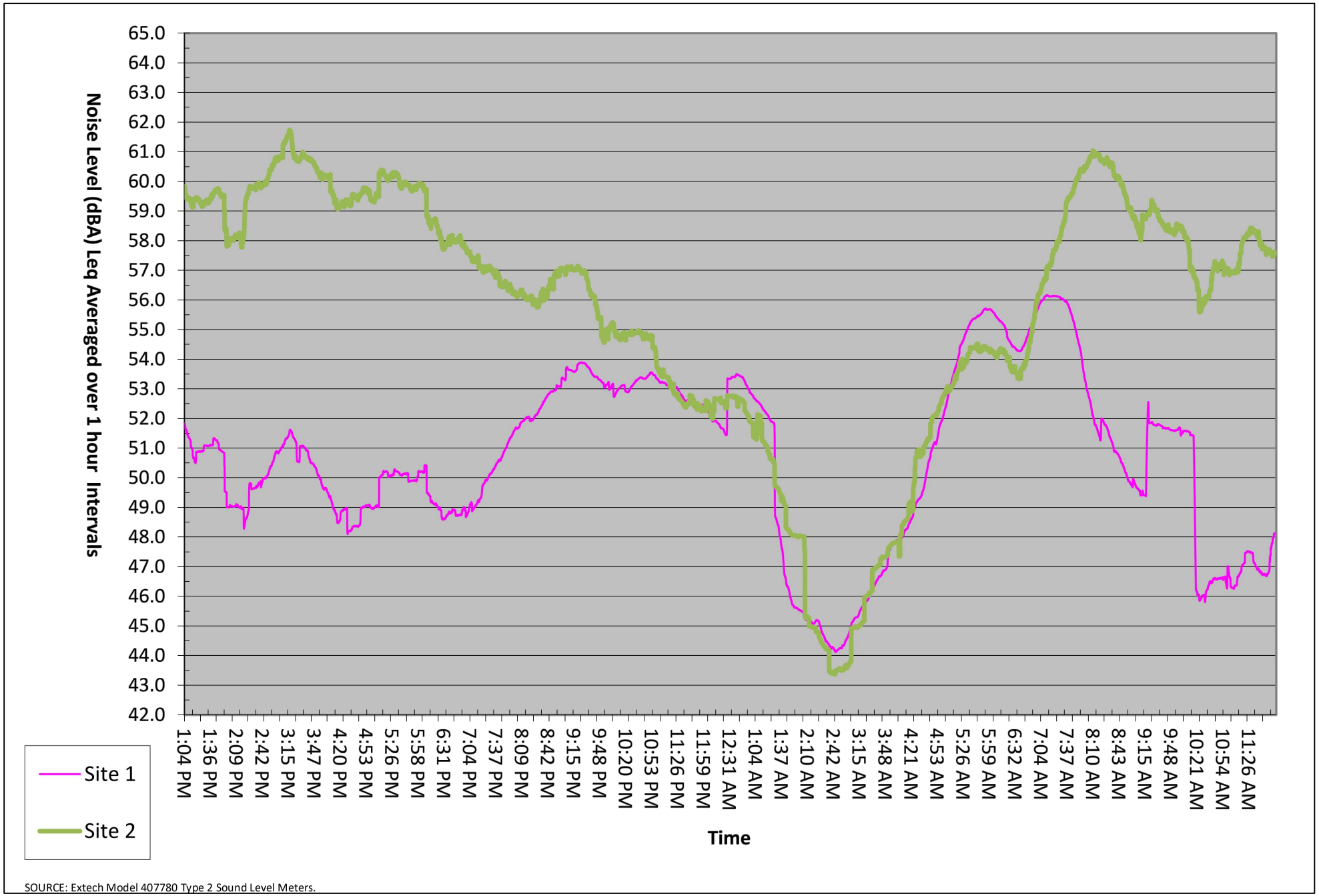
Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters from Tuesday, January 17, 2023 to Wednesday, January 18, 2023.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 3
Field Noise Monitoring Locations



SOURCE: Extech Model 407780 Type 2 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table F below provides a list of the construction equipment anticipated to be used for each phase of construction that was obtained from the *Air Quality, Energy, and Greenhouse Gas Impact Analysis for the Bixby Avenue Apartments Project* (Air Quality Analysis), prepared by EPD Solutions, Inc., February, 2023.

Table F – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Demolition				
Concrete/Industrial Saw	1	20	90	90
Rubber Tired Dozer	1	40	85	82
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Site Preparation				
Grader	1	40	85	83
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	2	40	85	83
Generator	1	50	82	81
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Paving				
Cement and Mortar Mixer	4	40	85	79
Paver	1	50	85	77
Rollers	1	20	85	80
Tractor	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006.

Table F shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table F and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, per the FTA Manual for a General Assessment, and is based on the rational that mobile equipment would likely move around the entire project site in a typical workday. As such, the middle of project site would provide the acoustical average noise level created over a typical workday. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual. In order to account for the existing 6-foot high cmu wall on the north side of the project site and the 6-foot high vinyl wall on the east side of the project site, 5 dB of attenuation was added to the receptors that represent the multi-family homes to the east and single-family homes to the north. The 5 dB of attenuation was selected, since according to Figure 2-15 in the TeNS (Caltrans, 2013), a noise barrier that is just high enough to graze the direct noise path, or line of sight between the source and receiver provides about 5 dBA of attenuation. The RCNM model printouts are provided in Appendix C.

6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to damage at the highest levels. Table G gives approximate vibration levels for particular construction activities. The data in Table G provides a reasonable estimate for a wide range of soil conditions.

Table G – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table G and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table F.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include demolition of the existing preschool structures, site preparation and grading of the 0.83-acre project site, building construction of the 27-unit apartment community, paving of the onsite driveways and parking areas, sidewalks and hardscapes, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are multi-family homes located as near as 10 feet east of the project site, single-family homes located as near as 35 feet north of the project site, and the school structures located as near as 25 feet west of the project site.

Section 8.47.060(D) of the City's Municipal Code allows construction noise to exceed the City noise standards provided that construction activities occur between 7:00 a.m. and 10:00 p.m. All construction activities associated with the proposed project would occur during the allowable hours for construction activities as detailed in Section 8.47.060(D) of the Municipal Code. Because the City's ordinance does not include construction noise standards, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized. For these purposes a significant construction noise impact would occur if construction noise exceeds 90 dBA Leq at any of the nearby sensitive receptors.

Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table F – Construction Equipment Noise Emissions and Usage Factors. Table H that shows the anticipated construction equipment per phase. The results are shown below in Table H and the RCNM printouts are provided in Appendix C.

Table H – Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Multi-Family Homes to East[1]	Single-Family Homes to North[2]	School to West[3]
Demolition	78	69	81
Site Preparation	73	65	77
Grading	75	66	79
Building Construction	78	70	81
Paving	76	68	80
Painting	66	57	70
FTA Construction Noise Threshold	**90**	**90**	**90**
Exceed Threshold?	**No**	**No**	**No**

[1] The multi-family homes to the east are located as near as 70 feet from the center of the project site. In order to account for the existing 6 foot high wall, 5 dB of attenuation was added to RCNM model.
[2] The single-family homes to the north are located as near as 185 feet from the center of the project site. In order to account for existing 6 foot high cmu wall, 5 dB of attenuation was added to RCNM model.
[3] The school to the west is located as near as 85 feet from the center of the project site.
Source: RCNM, Federal Highway Administration, 2006 (see Section 6.1 above for detailed description of modeling assumptions)

Table H shows that the greatest noise impacts would occur during the demolition and building construction phases, with noise levels as high as 78 dBA Leq at the multi-family homes to the east and 81 dBA Leq at the school to the west. Table H also shows that none of the construction phases would exceed the FTA construction noise standard of 90 dBA for residential uses. Therefore, allowable construction times provided in 8.47.060(D) of the Municipal Code, the construction activities for the proposed project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of development of a 27-unit apartment community. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways and from onsite noise sources to the nearby sensitive receptors. The noise impacts created from project generated vehicular traffic on the nearby roadways and from onsite noise sources to the nearby homes have been analyzed separately below.

Roadway Vehicular Noise Impact to Nearby Sensitive Receptors

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Neither the General Plan nor the Municipal Code defines what constitutes a "substantial permanent increase to ambient noise levels". As such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact that has been detailed above in Table A that shows that the

project contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing roadway noise levels.

According to the *Bixby Avenue Apartments Level of Service (LOS) and Vehicle Miles Traveled (VMT) Screening Analysis*, prepared by EPD Solutions, Inc., January 18, 2023, development of the proposed project would result in a net decrease of 66 daily trips compared to existing conditions. As such, development of the proposed project would result in a decrease in traffic volumes and associated roadway noise in the vicinity of the project site. Therefore, operational roadway noise impacts to the nearby sensitive receptors would be less than significant.

Onsite Noise Impacts

The operation of the proposed project may create an increase in onsite noise levels from noise created from the proposed air conditioner condenser units, parking lot areas, and the active open space and community garden areas. Section 8.47.040 of the City's Municipal Code limits noise created on the project site to the nearby sensitive receptors to 55 dBA between 7:00 a.m. ant 10:00 p.m. and 50 dBA between 10:00 p.m. and 7:00 a.m.

In order to determine the noise impacts from the proposed dog park, pool and spa areas, and tot lot, reference noise measurements were taken of each noise source and the noise measurement printouts are provided in Appendix D. For the air conditioning equipment, the project applicant has stated the each apartment unit would have an air conditioning system with a 3 ton or smaller condenser that is similar to the AC Pro M-Series that creates a noise level of 64 dBA at one meter. For the open space and community garden areas, a reference noise measurement was taken at Magnolia Street Park in South Pasadena that includes outdoor tables with amenities as well as a community garden. The parking lot noise level was taken at the edge of the parking area for a multi-family residential complex in the City of Rancho Cucamonga.

In order to account for the noise reduction provided by the 6-foot high sound walls on the north, east and west property lines, the wall attenuation equations from the *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013, were utilized and the noise calculation spreadsheet along with the reference noise measurements are provided in Appendix D. Table I shows the anticipated noise level from each source at the off-site receptors on the east, north and west sides of the project site and compares the calculated noise levels to the City noise standards.

Table I – Project Onsite Operational Noise Levels at Nearby Sensitive Receptors

	Operational Noise Levels (dBA Leq) at:		
Noise Source	Multi-Family Homes to East	Single-Family Homes to North	School to West
Air Condition Units[1]	24	15	17
Parking Lot[2]	32	26	27
Open Space & Garden[3]	47	32	36
Combined Noise Level	47	33	36
City Noise Standard[4] (Day/Night)	55/50	55/50	55/50
Exceed Standard (Day/Night)?	No/No	No/No	No/No

Notes:
[1] Rooftop equipment is based on a 3 ton condenser of 64.0 dBA at 1 meter.
[2] Parking lot is based on a reference noise measurement of 52.1 dBA at 5 feet.
[3] Open Space & Garden area is based on a reference noise measurement of 45.7 dBA at 10 feet.

[4] From Section 8.47.040 of the City's Municipal Code.

Table I shows that the proposed project's worst-case operational noise from the simultaneous operation of all noise sources on the project site would create a noise level of 47 dBA at the multi-family homes on the east side of the project site. The worst-case operational noise level of 47 dBA would be within the City's residential noise standards of 55 dBA between 7 a.m. and 10 p.m. and 50 dBA between 10 p.m. and 7 a.m. Therefore, the onsite operational noise impacts would be less than significant.

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the existing preschool structures, site preparation and grading of the 0.83-acre project site, building construction of the 27-unit apartment community, paving of the onsite driveways and parking areas, sidewalks and hardscapes, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site are the multi-family homes located as near as 10 feet east of the project site.

Since neither the Municipal Code nor the General Plan provides a quantifiable vibration threshold level, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold for building damage to older residential structures and other older buildings to 0.5 inch per second PPV and the threshold for distinctly perceptible human annoyance of 0.24 inch per second PPV from transient sources..

The primary source of vibration during construction would be from the operation of a bulldozer, utilized for the grading of the building pad, which is located as near as 13 feet from the east property line or 23 feet from the nearest offsite homes. It should be noted that the off-road equipment that would operate within the easternmost 13 feet of the project site would be limited to smaller equipment (i.e., skid steers and trenchers) that produce negligible levels of vibration that would not create a significant vibration impacts at the nearby homes.

From Table G above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite home (23 feet to the east) would be 0.098 inch per second PPV. The vibration level at the nearest offsite home would be below the 0.5 inch per second PPV threshold for damage to structures and would be below the distinctly perceptible human annoyance 0.24 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a 27-unit apartment community. The ongoing operation of the proposed project would not include the operation of any known vibration sources other than typical onsite vehicle operations for a residential development. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Joint Forces Training Base Los Alamitos, located approximately four miles west of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport. Impacts would be less than significant.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

City of Garden Grove, *Garden Grove General Plan 2030*, May 2008.

City of Garden Grove, *Garden Grove Municipal Code,* 2022.

EPD Solutions, Inc., *Bixby Avenue Apartments Level of Service (LOS) and Vehicle Miles Traveled (VMT) Screening Analysis*, January 18, 2023.

EPD Solutions, Inc., *Air Quality, Energy, and Greenhouse Gas Impact Analysis for the Bixby Avenue Apartments Project*, February, 2023.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

U.S. Department of Transportation, *Highway Traffic Noise: Analysis and Abatement Guidance,* December, 2011.

APPENDIX A

Field Noise Measurements Photo Index

Noise Measurement Site 1 - looking north

Noise Measurement Site 1 - looking northeast

Noise Measurement Site 1 - looking east

Noise Measurement Site 1 - looking southeast

Noise Measurement Site 1 - looking south

Noise Measurement Site 1 - looking southwest

Noise Measurement Site 1 - looking west

Noise Measurement Site 1 - looking northwest

Noise Measurement Site 2 - looking north

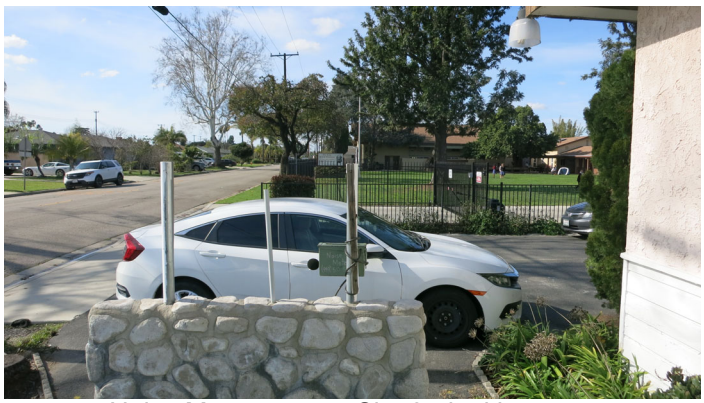
Noise Measurement Site 2 - looking northeast

Noise Measurement Site 2 - looking east

Noise Measurement Site 2 - looking southeast

Noise Measurement Site 2 - looking south

Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - On Palm Tree Near Center of Project Site

Date	Time=01/17/23	12:29:00 PM				
Sampling	Time=3		Weighting=A			
Record	Num=	28800	Weighting=Slow	CNEL(24hr)=	58.6	
Leq	51.7	SEL	Value=101.4	Ldn(24hr)=	58.3	
MAX	73.7		Min Leq1hr =	44.1	2:44 AM	
MIN	36.8		Max Leq1hr =	56.2	7:11 AM	

Site 2 - On Sign Post on South Side of Project Site

Date	Time=01/17/23	12:34:00 PM				
Sampling	Time=3		Freq Weighting=A			
Record	Num=	28800	Weighting=Slow	CNEL(24hr)=	60.8	
Leq	57.3	SEL	Value=106.7	Ldn(24hr)=	60.3	
MAX	81.7		Min Leq1hr =	43.4	2:38 AM	
MIN	39.7		Max Leq1hr =	61.7	3:15 PM	

Site 1 - On Palm Tree Near Center of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
48.6	12:29:00		48.6	48.6
64	12:29:03		64	64
59.5	12:29:06		59.5	59.5
62.2	12:29:09		62.2	62.2
66.5	12:29:12		66.5	66.5
70.5	12:29:15		70.5	70.5
61.8	12:29:18		61.8	61.8
62.9	12:29:21		62.9	62.9
61.2	12:29:24		61.2	61.2
65	12:29:27		65	65
67.2	12:29:30		67.2	67.2
62.4	12:29:33		62.4	62.4
63.2	12:29:36		63.2	63.2
56.5	12:29:39		56.5	56.5
62.4	12:29:42		62.4	62.4
61.7	12:29:45		61.7	61.7
69.8	12:29:48		69.8	69.8
62.8	12:29:51		62.8	62.8
67.5	12:29:54		67.5	67.5
69.4	12:29:57		69.4	69.4
67.6	12:30:00		67.6	67.6
64	12:30:03		64	64
62.4	12:30:06		62.4	62.4
60.3	12:30:09		60.3	60.3
67.5	12:30:12		67.5	67.5
67.8	12:30:15		67.8	67.8
56.5	12:30:18		56.5	56.5
51.7	12:30:21		51.7	51.7
61.7	12:30:24		61.7	61.7
68.6	12:30:27		68.6	68.6
66.7	12:30:30		66.7	66.7
68.8	12:30:33		68.8	68.8
69	12:30:36		69	69
64.7	12:30:39		64.7	64.7
49.4	12:30:42		49.4	49.4
47.2	12:30:45		47.2	47.2
44.3	12:30:48		44.3	44.3
47.1	12:30:51		47.1	47.1
47.6	12:30:54		47.6	47.6
52.5	12:30:57		52.5	52.5
51.3	12:31:00		51.3	51.3
49.9	12:31:03		49.9	49.9
55.1	12:31:06		55.1	55.1
61.5	12:31:09		61.5	61.5
62	12:31:12		62	62
53.2	12:31:15		53.2	53.2
51.3	12:31:18		51.3	51.3
50.7	12:31:21		50.7	50.7
49.6	12:31:24		49.6	49.6
47.2	12:31:27		47.2	47.2
47.3	12:31:30		47.3	47.3
50.7	12:31:33		50.7	50.7
48.1	12:31:36		48.1	48.1
47.4	12:31:39		47.4	47.4
50	12:31:42		50	50
51.7	12:31:45		51.7	51.7
46.6	12:31:48		46.6	46.6
51	12:31:51		51	51
51.3	12:31:54		51.3	51.3
48.9	12:31:57		48.9	48.9
47.6	12:32:00		47.6	47.6
52.9	12:32:03		52.9	52.9
56.8	12:32:06		56.8	56.8
53.7	12:32:09		53.7	53.7
56.4	12:32:12		56.4	56.4
63.4	12:32:15		63.4	63.4
57.6	12:32:18		57.6	57.6
49.6	12:32:21		49.6	49.6
50.5	12:32:24		50.5	50.5
48.4	12:32:27		48.4	48.4
49	12:32:30		49	49
51.8	12:32:33		51.8	51.8
46.1	12:32:36		46.1	46.1
45	12:32:39		45	45
54.2	12:32:42		54.2	54.2
53.9	12:32:45		53.9	53.9
48.5	12:32:48		48.5	48.5

Site 2 - On Sign Post on South Side of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
53	12:34:00		53	53
67.8	12:34:03		67.8	67.8
62.2	12:34:06		62.2	62.2
67.5	12:34:09		67.5	67.5
59.4	12:34:12		59.4	59.4
63.7	12:34:15		63.7	63.7
62.6	12:34:18		62.6	62.6
59.6	12:34:21		59.6	59.6
66.2	12:34:24		66.2	66.2
61.3	12:34:27		61.3	61.3
64.1	12:34:30		64.1	64.1
66.1	12:34:33		66.1	66.1
60.7	12:34:36		60.7	60.7
62.1	12:34:39		62.1	62.1
63.3	12:34:42		63.3	63.3
68.4	12:34:45		68.4	68.4
69.4	12:34:48		69.4	69.4
69.1	12:34:51		69.1	69.1
68.2	12:34:54		68.2	68.2
65.4	12:34:57		65.4	65.4
60.1	12:35:00		60.1	60.1
63.7	12:35:03		63.7	63.7
60.5	12:35:06		60.5	60.5
64.5	12:35:09		64.5	64.5
61	12:35:12		61	61
57.4	12:35:15		57.4	57.4
55.7	12:35:18		55.7	55.7
47.3	12:35:21		47.3	47.3
60.8	12:35:24		60.8	60.8
57.2	12:35:27		57.2	57.2
56.6	12:35:30		56.6	56.6
58.4	12:35:33		58.4	58.4
56.9	12:35:36		56.9	56.9
57.8	12:35:39		57.8	57.8
54.4	12:35:42		54.4	54.4
67.8	12:35:45		67.8	67.8
65.8	12:35:48		65.8	65.8
63.4	12:35:51		63.4	63.4
59.1	12:35:54		59.1	59.1
69.4	12:35:57		69.4	69.4
60.2	12:36:00		60.2	60.2
57.3	12:36:03		57.3	57.3
62.7	12:36:06		62.7	62.7
58.5	12:36:09		58.5	58.5
72.2	12:36:12		72.2	72.2
60.3	12:36:15		60.3	60.3
59.4	12:36:18		59.4	59.4
51.3	12:36:21		51.3	51.3
51.2	12:36:24		51.2	51.2
49.4	12:36:27		49.4	49.4
49.9	12:36:30		49.9	49.9
54	12:36:33		54	54
52.4	12:36:36		52.4	52.4
58.3	12:36:39		58.3	58.3
50.8	12:36:42		50.8	50.8
57.6	12:36:45		57.6	57.6
55	12:36:48		55	55
66.3	12:36:51		66.3	66.3
64.7	12:36:54		64.7	64.7
61.4	12:36:57		61.4	61.4
58	12:37:00		58	58
53.2	12:37:03		53.2	53.2
59.7	12:37:06		59.7	59.7
55.9	12:37:09		55.9	55.9
52.1	12:37:12		52.1	52.1
46	12:37:15		46	46
52	12:37:18		52	52
53.7	12:37:21		53.7	53.7
62.9	12:37:24		62.9	62.9
54	12:37:27		54	54
58.9	12:37:30		58.9	58.9
49.2	12:37:33		49.2	49.2
52.8	12:37:36		52.8	52.8
55	12:37:39		55	55
51	12:37:42		51	51
53.2	12:37:45		53.2	53.2
53.1	12:37:48		53.1	53.1

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.3	12:32:51		59.3	59.3	52.6	12:37:51		52.6	52.6
53.5	12:32:54		53.5	53.5	59.3	12:37:54		59.3	59.3
55.7	12:32:57		55.7	55.7	58.2	12:37:57		58.2	58.2
49.3	12:33:00		49.3	49.3	60	12:38:00		60	60
59.5	12:33:03		59.5	59.5	54.8	12:38:03		54.8	54.8
56.1	12:33:06		56.1	56.1	55.2	12:38:06		55.2	55.2
51.5	12:33:09		51.5	51.5	53.2	12:38:09		53.2	53.2
56.5	12:33:12		56.5	56.5	57.4	12:38:12		57.4	57.4
47.4	12:33:15		47.4	47.4	53.9	12:38:15		53.9	53.9
46.7	12:33:18		46.7	46.7	52.3	12:38:18		52.3	52.3
48.9	12:33:21		48.9	48.9	51.6	12:38:21		51.6	51.6
62.9	12:33:24		62.9	62.9	49.6	12:38:24		49.6	49.6
49.7	12:33:27		49.7	49.7	52.2	12:38:27		52.2	52.2
50.1	12:33:30		50.1	50.1	53.4	12:38:30		53.4	53.4
59.1	12:33:33		59.1	59.1	53.2	12:38:33		53.2	53.2
56.5	12:33:36		56.5	56.5	66.5	12:38:36		66.5	66.5
56.6	12:33:39		56.6	56.6	61.4	12:38:39		61.4	61.4
48.4	12:33:42		48.4	48.4	53.7	12:38:42		53.7	53.7
46.8	12:33:45		46.8	46.8	50.6	12:38:45		50.6	50.6
49.6	12:33:48		49.6	49.6	54.6	12:38:48		54.6	54.6
53.6	12:33:51		53.6	53.6	47	12:38:51		47	47
55.3	12:33:54		55.3	55.3	49.7	12:38:54		49.7	49.7
53.9	12:33:57		53.9	53.9	56.8	12:38:57		56.8	56.8
50.1	12:34:00		50.1	50.1	54.5	12:39:00		54.5	54.5
49.8	12:34:03		49.8	49.8	47.9	12:39:03		47.9	47.9
58.3	12:34:06		58.3	58.3	49.5	12:39:06		49.5	49.5
52.5	12:34:09		52.5	52.5	51.4	12:39:09		51.4	51.4
54.6	12:34:12		54.6	54.6	50	12:39:12		50	50
54.2	12:34:15		54.2	54.2	58.2	12:39:15		58.2	58.2
51	12:34:18		51	51	66.6	12:39:18		66.6	66.6
50.1	12:34:21		50.1	50.1	62.9	12:39:21		62.9	62.9
57.4	12:34:24		57.4	57.4	52.3	12:39:24		52.3	52.3
57.3	12:34:27		57.3	57.3	52.7	12:39:27		52.7	52.7
58.1	12:34:30		58.1	58.1	51.7	12:39:30		51.7	51.7
52.4	12:34:33		52.4	52.4	50.3	12:39:33		50.3	50.3
61.2	12:34:36		61.2	61.2	46.8	12:39:36		46.8	46.8
53	12:34:39		53	53	50.8	12:39:39		50.8	50.8
53	12:34:42		53	53	55.2	12:39:42		55.2	55.2
52.9	12:34:45		52.9	52.9	49.9	12:39:45		49.9	49.9
48.8	12:34:48		48.8	48.8	53.4	12:39:48		53.4	53.4
53.5	12:34:51		53.5	53.5	48.1	12:39:51		48.1	48.1
50	12:34:54		50	50	47.1	12:39:54		47.1	47.1
54.8	12:34:57		54.8	54.8	60	12:39:57		60	60
60.6	12:35:00		60.6	60.6	53.8	12:40:00		53.8	53.8
49.6	12:35:03		49.6	49.6	53.8	12:40:03		53.8	53.8
50	12:35:06		50	50	46.6	12:40:06		46.6	46.6
63.4	12:35:09		63.4	63.4	48.5	12:40:09		48.5	48.5
53.2	12:35:12		53.2	53.2	47.6	12:40:12		47.6	47.6
46.1	12:35:15		46.1	46.1	48	12:40:15		48	48
45.8	12:35:18		45.8	45.8	50.6	12:40:18		50.6	50.6
45.5	12:35:21		45.5	45.5	50.3	12:40:21		50.3	50.3
59	12:35:24		59	59	57.8	12:40:24		57.8	57.8
51.6	12:35:27		51.6	51.6	51.1	12:40:27		51.1	51.1
52.3	12:35:30		52.3	52.3	63.8	12:40:30		63.8	63.8
51	12:35:33		51	51	51.3	12:40:33		51.3	51.3
46.1	12:35:36		46.1	46.1	46.6	12:40:36		46.6	46.6
44.5	12:35:39		44.5	44.5	47.4	12:40:39		47.4	47.4
44.7	12:35:42		44.7	44.7	49.9	12:40:42		49.9	49.9
46.6	12:35:45		46.6	46.6	56	12:40:45		56	56
43.6	12:35:48		43.6	43.6	60.8	12:40:48		60.8	60.8
53.7	12:35:51		53.7	53.7	61.7	12:40:51		61.7	61.7
49.4	12:35:54		49.4	49.4	53.4	12:40:54		53.4	53.4
49.6	12:35:57		49.6	49.6	54.1	12:40:57		54.1	54.1
47.4	12:36:00		47.4	47.4	54.4	12:41:00		54.4	54.4
46.1	12:36:03		46.1	46.1	61.2	12:41:03		61.2	61.2
46	12:36:06		46	46	65.8	12:41:06		65.8	65.8
43.1	12:36:09		43.1	43.1	54.5	12:41:09		54.5	54.5
44.5	12:36:12		44.5	44.5	56.1	12:41:12		56.1	56.1
53.3	12:36:15		53.3	53.3	62.2	12:41:15		62.2	62.2
49	12:36:18		49	49	68.6	12:41:18		68.6	68.6
51.6	12:36:21		51.6	51.6	57.1	12:41:21		57.1	57.1
52.7	12:36:24		52.7	52.7	54.4	12:41:24		54.4	54.4
53.4	12:36:27		53.4	53.4	53.3	12:41:27		53.3	53.3
53	12:36:30		53	53	69.7	12:41:30		69.7	69.7
45.7	12:36:33		45.7	45.7	62.6	12:41:33		62.6	62.6
49.4	12:36:36		49.4	49.4	57	12:41:36		57	57
49.9	12:36:39		49.9	49.9	58.5	12:41:39		58.5	58.5
54.6	12:36:42		54.6	54.6	55.6	12:41:42		55.6	55.6
54	12:36:45		54	54	56	12:41:45		56	56
56.5	12:36:48		56.5	56.5	58.8	12:41:48		58.8	58.8
52.6	12:36:51		52.6	52.6	56.8	12:41:51		56.8	56.8
56.4	12:36:54		56.4	56.4	54.9	12:41:54		54.9	54.9
51.9	12:36:57		51.9	51.9	54.1	12:41:57		54.1	54.1
53.9	12:37:00		53.9	53.9	49.1	12:42:00		49.1	49.1
51.8	12:37:03		51.8	51.8	54.4	12:42:03		54.4	54.4
51.7	12:37:06		51.7	51.7	52.9	12:42:06		52.9	52.9
58.4	12:37:09		58.4	58.4	61.9	12:42:09		61.9	61.9
51.3	12:37:12		51.3	51.3	66.3	12:42:12		66.3	66.3
57.3	12:37:15		57.3	57.3	60.4	12:42:15		60.4	60.4

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.4	12:37:18		57.4	57.4	59.7	12:42:18		59.7	59.7
49.2	12:37:21		49.2	49.2	57.3	12:42:21		57.3	57.3
45.3	12:37:24		45.3	45.3	65	12:42:24		65	65
56.6	12:37:27		56.6	56.6	59.2	12:42:27		59.2	59.2
50.6	12:37:30		50.6	50.6	54.5	12:42:30		54.5	54.5
57.3	12:37:33		57.3	57.3	54.8	12:42:33		54.8	54.8
56.2	12:37:36		56.2	56.2	52.4	12:42:36		52.4	52.4
55.1	12:37:39		55.1	55.1	55.6	12:42:39		55.6	55.6
50.4	12:37:42		50.4	50.4	53.6	12:42:42		53.6	53.6
51.3	12:37:45		51.3	51.3	62.6	12:42:45		62.6	62.6
49.9	12:37:48		49.9	49.9	71.5	12:42:48		71.5	71.5
50.4	12:37:51		50.4	50.4	60.8	12:42:51		60.8	60.8
47.4	12:37:54		47.4	47.4	70.9	12:42:54		70.9	70.9
46.6	12:37:57		46.6	46.6	68	12:42:57		68	68
53.4	12:38:00		53.4	53.4	59.9	12:43:00		59.9	59.9
55.3	12:38:03		55.3	55.3	54.5	12:43:03		54.5	54.5
48.5	12:38:06		48.5	48.5	53.5	12:43:06		53.5	53.5
56.3	12:38:09		56.3	56.3	52.4	12:43:09		52.4	52.4
51	12:38:12		51	51	56	12:43:12		56	56
59.4	12:38:15		59.4	59.4	57.9	12:43:15		57.9	57.9
51.1	12:38:18		51.1	51.1	55.4	12:43:18		55.4	55.4
56	12:38:21		56	56	51.5	12:43:21		51.5	51.5
49.4	12:38:24		49.4	49.4	65	12:43:24		65	65
46.5	12:38:27		46.5	46.5	53	12:43:27		53	53
49.9	12:38:30		49.9	49.9	60.4	12:43:30		60.4	60.4
47.2	12:38:33		47.2	47.2	55.2	12:43:33		55.2	55.2
45.6	12:38:36		45.6	45.6	58.9	12:43:36		58.9	58.9
50.7	12:38:39		50.7	50.7	50.5	12:43:39		50.5	50.5
45.9	12:38:42		45.9	45.9	56.1	12:43:42		56.1	56.1
53	12:38:45		53	53	48.6	12:43:45		48.6	48.6
51	12:38:48		51	51	52.8	12:43:48		52.8	52.8
52.1	12:38:51		52.1	52.1	52.7	12:43:51		52.7	52.7
52.8	12:38:54		52.8	52.8	57.6	12:43:54		57.6	57.6
47.6	12:38:57		47.6	47.6	52.3	12:43:57		52.3	52.3
47.4	12:39:00		47.4	47.4	58.5	12:44:00		58.5	58.5
56.3	12:39:03		56.3	56.3	70.9	12:44:03		70.9	70.9
47.6	12:39:06		47.6	47.6	61.9	12:44:06		61.9	61.9
49.3	12:39:09		49.3	49.3	55.1	12:44:09		55.1	55.1
45.8	12:39:12		45.8	45.8	64	12:44:12		64	64
46.5	12:39:15		46.5	46.5	64.6	12:44:15		64.6	64.6
45.1	12:39:18		45.1	45.1	58.1	12:44:18		58.1	58.1
49.4	12:39:21		49.4	49.4	54.8	12:44:21		54.8	54.8
48.8	12:39:24		48.8	48.8	62.5	12:44:24		62.5	62.5
54.4	12:39:27		54.4	54.4	71.2	12:44:27		71.2	71.2
54.8	12:39:30		54.8	54.8	58.4	12:44:30		58.4	58.4
52.1	12:39:33		52.1	52.1	57.9	12:44:33		57.9	57.9
48.4	12:39:36		48.4	48.4	56.2	12:44:36		56.2	56.2
46.2	12:39:39		46.2	46.2	57.6	12:44:39		57.6	57.6
49.3	12:39:42		49.3	49.3	54.9	12:44:42		54.9	54.9
46.7	12:39:45		46.7	46.7	54.1	12:44:45		54.1	54.1
53.5	12:39:48		53.5	53.5	57.5	12:44:48		57.5	57.5
54.8	12:39:51		54.8	54.8	58.3	12:44:51		58.3	58.3
50.9	12:39:54		50.9	50.9	56	12:44:54		56	56
47.4	12:39:57		47.4	47.4	53.3	12:44:57		53.3	53.3
49.4	12:40:00		49.4	49.4	53.2	12:45:00		53.2	53.2
47.2	12:40:03		47.2	47.2	50.5	12:45:03		50.5	50.5
46.2	12:40:06		46.2	46.2	54.1	12:45:06		54.1	54.1
56.2	12:40:09		56.2	56.2	51	12:45:09		51	51
52.4	12:40:12		52.4	52.4	52.4	12:45:12		52.4	52.4
49.7	12:40:15		49.7	49.7	52.6	12:45:15		52.6	52.6
49.6	12:40:18		49.6	49.6	53.9	12:45:18		53.9	53.9
47.7	12:40:21		47.7	47.7	56.7	12:45:21		56.7	56.7
43.5	12:40:24		43.5	43.5	55.4	12:45:24		55.4	55.4
47.3	12:40:27		47.3	47.3	59.7	12:45:27		59.7	59.7
51.1	12:40:30		51.1	51.1	53.2	12:45:30		53.2	53.2
54.8	12:40:33		54.8	54.8	57.5	12:45:33		57.5	57.5
50.4	12:40:36		50.4	50.4	65.6	12:45:36		65.6	65.6
60.3	12:40:39		60.3	60.3	61.1	12:45:39		61.1	61.1
54.5	12:40:42		54.5	54.5	56.7	12:45:42		56.7	56.7
47	12:40:45		47	47	51.3	12:45:45		51.3	51.3
47.2	12:40:48		47.2	47.2	49.4	12:45:48		49.4	49.4
48	12:40:51		48	48	50.4	12:45:51		50.4	50.4
55.7	12:40:54		55.7	55.7	60	12:45:54		60	60
54.3	12:40:57		54.3	54.3	48.7	12:45:57		48.7	48.7
54.3	12:41:00		54.3	54.3	55.1	12:46:00		55.1	55.1
50.4	12:41:03		50.4	50.4	54.7	12:46:03		54.7	54.7
51.1	12:41:06		51.1	51.1	54.4	12:46:06		54.4	54.4
47.5	12:41:09		47.5	47.5	50.4	12:46:09		50.4	50.4
51.1	12:41:12		51.1	51.1	48.6	12:46:12		48.6	48.6
51.2	12:41:15		51.2	51.2	53.1	12:46:15		53.1	53.1
54.3	12:41:18		54.3	54.3	56.1	12:46:18		56.1	56.1
46.7	12:41:21		46.7	46.7	59.7	12:46:21		59.7	59.7
51	12:41:24		51	51	66.9	12:46:24		66.9	66.9
51.7	12:41:27		51.7	51.7	61.2	12:46:27		61.2	61.2
52.4	12:41:30		52.4	52.4	55	12:46:30		55	55
52.5	12:41:33		52.5	52.5	50.9	12:46:33		50.9	50.9
58	12:41:36		58	58	56.9	12:46:36		56.9	56.9
59.6	12:41:39		59.6	59.6	53.9	12:46:39		53.9	53.9
58.3	12:41:42		58.3	58.3	57	12:46:42		57	57

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
60	12:41:45		60	60	51.8	12:46:45		51.8	51.8
51.2	12:41:48		51.2	51.2	54.7	12:46:48		54.7	54.7
51.5	12:41:51		51.5	51.5	51.9	12:46:51		51.9	51.9
49.8	12:41:54		49.8	49.8	53.6	12:46:54		53.6	53.6
65.8	12:41:57		65.8	65.8	60.2	12:46:57		60.2	60.2
58.7	12:42:00		58.7	58.7	57.5	12:47:00		57.5	57.5
52.6	12:42:03		52.6	52.6	55.4	12:47:03		55.4	55.4
51.9	12:42:06		51.9	51.9	64.5	12:47:06		64.5	64.5
50.5	12:42:09		50.5	50.5	63.7	12:47:09		63.7	63.7
53.8	12:42:12		53.8	53.8	52.5	12:47:12		52.5	52.5
50.5	12:42:15		50.5	50.5	48.9	12:47:15		48.9	48.9
53.1	12:42:18		53.1	53.1	52.3	12:47:18		52.3	52.3
52.4	12:42:21		52.4	52.4	52.9	12:47:21		52.9	52.9
52.8	12:42:24		52.8	52.8	53.4	12:47:24		53.4	53.4
50.8	12:42:27		50.8	50.8	52.6	12:47:27		52.6	52.6
55	12:42:30		55	55	52.2	12:47:30		52.2	52.2
49.5	12:42:33		49.5	49.5	52.2	12:47:33		52.2	52.2
55.6	12:42:36		55.6	55.6	47.6	12:47:36		47.6	47.6
50.5	12:42:39		50.5	50.5	52.6	12:47:39		52.6	52.6
53.6	12:42:42		53.6	53.6	52.6	12:47:42		52.6	52.6
46.4	12:42:45		46.4	46.4	47.4	12:47:45		47.4	47.4
49.8	12:42:48		49.8	49.8	46.3	12:47:48		46.3	46.3
47	12:42:51		47	47	47.9	12:47:51		47.9	47.9
48.4	12:42:54		48.4	48.4	51.8	12:47:54		51.8	51.8
54.2	12:42:57		54.2	54.2	46.4	12:47:57		46.4	46.4
53.6	12:43:00		53.6	53.6	48.9	12:48:00		48.9	48.9
54.4	12:43:03		54.4	54.4	46.9	12:48:03		46.9	46.9
56.6	12:43:06		56.6	56.6	53.8	12:48:06		53.8	53.8
51.2	12:43:09		51.2	51.2	48.6	12:48:09		48.6	48.6
56.5	12:43:12		56.5	56.5	52.4	12:48:12		52.4	52.4
47.6	12:43:15		47.6	47.6	52	12:48:15		52	52
52.7	12:43:18		52.7	52.7	58.3	12:48:18		58.3	58.3
45.7	12:43:21		45.7	45.7	54.8	12:48:21		54.8	54.8
50.2	12:43:24		50.2	50.2	65.1	12:48:24		65.1	65.1
48.4	12:43:27		48.4	48.4	60.2	12:48:27		60.2	60.2
48.2	12:43:30		48.2	48.2	54.7	12:48:30		54.7	54.7
51.2	12:43:33		51.2	51.2	58.7	12:48:33		58.7	58.7
53.8	12:43:36		53.8	53.8	55	12:48:36		55	55
49.3	12:43:39		49.3	49.3	53.4	12:48:39		53.4	53.4
58.6	12:43:42		58.6	58.6	55.5	12:48:42		55.5	55.5
55.2	12:43:45		55.2	55.2	65.3	12:48:45		65.3	65.3
50.2	12:43:48		50.2	50.2	64.7	12:48:48		64.7	64.7
50.8	12:43:51		50.8	50.8	54.8	12:48:51		54.8	54.8
50	12:43:54		50	50	46.2	12:48:54		46.2	46.2
48.7	12:43:57		48.7	48.7	47.4	12:48:57		47.4	47.4
50.6	12:44:00		50.6	50.6	49.1	12:49:00		49.1	49.1
56.6	12:44:03		56.6	56.6	47	12:49:03		47	47
50.7	12:44:06		50.7	50.7	48.1	12:49:06		48.1	48.1
54.4	12:44:09		54.4	54.4	45.4	12:49:09		45.4	45.4
53.1	12:44:12		53.1	53.1	48	12:49:12		48	48
55.2	12:44:15		55.2	55.2	44.3	12:49:15		44.3	44.3
52	12:44:18		52	52	43.5	12:49:18		43.5	43.5
52.9	12:44:21		52.9	52.9	44.1	12:49:21		44.1	44.1
67.1	12:44:24		67.1	67.1	44.9	12:49:24		44.9	44.9
55.5	12:44:27		55.5	55.5	43.8	12:49:27		43.8	43.8
54.8	12:44:30		54.8	54.8	44	12:49:30		44	44
50.7	12:44:33		50.7	50.7	44.2	12:49:33		44.2	44.2
53.5	12:44:36		53.5	53.5	43.8	12:49:36		43.8	43.8
55.5	12:44:39		55.5	55.5	50.3	12:49:39		50.3	50.3
53.8	12:44:42		53.8	53.8	45.9	12:49:42		45.9	45.9
54.1	12:44:45		54.1	54.1	44.1	12:49:45		44.1	44.1
55.2	12:44:48		55.2	55.2	46	12:49:48		46	46
56.1	12:44:51		56.1	56.1	51.4	12:49:51		51.4	51.4
56.1	12:44:54		56.1	56.1	63.2	12:49:54		63.2	63.2
51.2	12:44:57		51.2	51.2	60.3	12:49:57		60.3	60.3
52.9	12:45:00		52.9	52.9	68.5	12:50:00		68.5	68.5
51	12:45:03		51	51	60.4	12:50:03		60.4	60.4
48.4	12:45:06		48.4	48.4	62.6	12:50:06		62.6	62.6
51.3	12:45:09		51.3	51.3	54	12:50:09		54	54
50.1	12:45:12		50.1	50.1	49.6	12:50:12		49.6	49.6
46.7	12:45:15		46.7	46.7	63.8	12:50:15		63.8	63.8
48.4	12:45:18		48.4	48.4	61	12:50:18		61	61
49.6	12:45:21		49.6	49.6	50.6	12:50:21		50.6	50.6
51.7	12:45:24		51.7	51.7	46	12:50:24		46	46
49.9	12:45:27		49.9	49.9	45.2	12:50:27		45.2	45.2
53	12:45:30		53	53	44.1	12:50:30		44.1	44.1
52	12:45:33		52	52	43.7	12:50:33		43.7	43.7
51.1	12:45:36		51.1	51.1	44.1	12:50:36		44.1	44.1
49.9	12:45:39		49.9	49.9	44.5	12:50:39		44.5	44.5
48.3	12:45:42		48.3	48.3	43.2	12:50:42		43.2	43.2
57	12:45:45		57	57	43.6	12:50:45		43.6	43.6
54.8	12:45:48		54.8	54.8	44.8	12:50:48		44.8	44.8
53.1	12:45:51		53.1	53.1	47	12:50:51		47	47
52.2	12:45:54		52.2	52.2	49.3	12:50:54		49.3	49.3
47.9	12:45:57		47.9	47.9	59.5	12:50:57		59.5	59.5
46	12:46:00		46	46	67.2	12:51:00		67.2	67.2
52	12:46:03		52	52	58.1	12:51:03		58.1	58.1
51.6	12:46:06		51.6	51.6	49.5	12:51:06		49.5	49.5
56.3	12:46:09		56.3	56.3	44.7	12:51:09		44.7	44.7

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
52.2	12:46:12		52.2	52.2	43.2	12:51:12		43.2	43.2
50.4	12:46:15		50.4	50.4	43.5	12:51:15		43.5	43.5
49.7	12:46:18		49.7	49.7	43.2	12:51:18		43.2	43.2
47.9	12:46:21		47.9	47.9	44.3	12:51:21		44.3	44.3
48.5	12:46:24		48.5	48.5	44.6	12:51:24		44.6	44.6
54.5	12:46:27		54.5	54.5	43.3	12:51:27		43.3	43.3
57.5	12:46:30		57.5	57.5	44.1	12:51:30		44.1	44.1
61	12:46:33		61	61	43.6	12:51:33		43.6	43.6
51.5	12:46:36		51.5	51.5	43.4	12:51:36		43.4	43.4
54	12:46:39		54	54	45.8	12:51:39		45.8	45.8
46.1	12:46:42		46.1	46.1	50.9	12:51:42		50.9	50.9
46.3	12:46:45		46.3	46.3	65.1	12:51:45		65.1	65.1
46.9	12:46:48		46.9	46.9	68.1	12:51:48		68.1	68.1
55.1	12:46:51		55.1	55.1	55.1	12:51:51		55.1	55.1
51.1	12:46:54		51.1	51.1	51.2	12:51:54		51.2	51.2
45.6	12:46:57		45.6	45.6	54.7	12:51:57		54.7	54.7
49.9	12:47:00		49.9	49.9	64.2	12:52:00		64.2	64.2
47.9	12:47:03		47.9	47.9	70	12:52:03		70	70
55.7	12:47:06		55.7	55.7	59	12:52:06		59	59
53.1	12:47:09		53.1	53.1	52.2	12:52:09		52.2	52.2
55.5	12:47:12		55.5	55.5	47.8	12:52:12		47.8	47.8
45.1	12:47:15		45.1	45.1	44.9	12:52:15		44.9	44.9
48.4	12:47:18		48.4	48.4	44	12:52:18		44	44
51.8	12:47:21		51.8	51.8	44.3	12:52:21		44.3	44.3
50.5	12:47:24		50.5	50.5	45.4	12:52:24		45.4	45.4
46.3	12:47:27		46.3	46.3	45.3	12:52:27		45.3	45.3
55.8	12:47:30		55.8	55.8	47.1	12:52:30		47.1	47.1
54.5	12:47:33		54.5	54.5	54.1	12:52:33		54.1	54.1
49.9	12:47:36		49.9	49.9	70.2	12:52:36		70.2	70.2
48.2	12:47:39		48.2	48.2	62.5	12:52:39		62.5	62.5
48.6	12:47:42		48.6	48.6	49.6	12:52:42		49.6	49.6
43.5	12:47:45		43.5	43.5	46.3	12:52:45		46.3	46.3
52.6	12:47:48		52.6	52.6	44.1	12:52:48		44.1	44.1
54	12:47:51		54	54	43.8	12:52:51		43.8	43.8
51	12:47:54		51	51	43.7	12:52:54		43.7	43.7
48.2	12:47:57		48.2	48.2	44	12:52:57		44	44
43.3	12:48:00		43.3	43.3	43.9	12:53:00		43.9	43.9
44.9	12:48:03		44.9	44.9	44.6	12:53:03		44.6	44.6
46.4	12:48:06		46.4	46.4	45.9	12:53:06		45.9	45.9
46.5	12:48:09		46.5	46.5	52.5	12:53:09		52.5	52.5
45.9	12:48:12		45.9	45.9	60.4	12:53:12		60.4	60.4
43.4	12:48:15		43.4	43.4	62.4	12:53:15		62.4	62.4
46.8	12:48:18		46.8	46.8	70.5	12:53:18		70.5	70.5
51.6	12:48:21		51.6	51.6	57.7	12:53:21		57.7	57.7
53.9	12:48:24		53.9	53.9	48.6	12:53:24		48.6	48.6
50.4	12:48:27		50.4	50.4	46.4	12:53:27		46.4	46.4
55	12:48:30		55	55	45.1	12:53:30		45.1	45.1
51.1	12:48:33		51.1	51.1	44.6	12:53:33		44.6	44.6
60.8	12:48:36		60.8	60.8	43.8	12:53:36		43.8	43.8
55.6	12:48:39		55.6	55.6	43.6	12:53:39		43.6	43.6
55.2	12:48:42		55.2	55.2	43.6	12:53:42		43.6	43.6
55.7	12:48:45		55.7	55.7	43.4	12:53:45		43.4	43.4
51.9	12:48:48		51.9	51.9	43.8	12:53:48		43.8	43.8
52.6	12:48:51		52.6	52.6	43.6	12:53:51		43.6	43.6
51.3	12:48:54		51.3	51.3	44.3	12:53:54		44.3	44.3
51.8	12:48:57		51.8	51.8	45.6	12:53:57		45.6	45.6
46.7	12:49:00		46.7	46.7	44.2	12:54:00		44.2	44.2
47.6	12:49:03		47.6	47.6	43.5	12:54:03		43.5	43.5
48.5	12:49:06		48.5	48.5	43.3	12:54:06		43.3	43.3
47.7	12:49:09		47.7	47.7	43.7	12:54:09		43.7	43.7
47.4	12:49:12		47.4	47.4	43.1	12:54:12		43.1	43.1
46.2	12:49:15		46.2	46.2	43.1	12:54:15		43.1	43.1
46.9	12:49:18		46.9	46.9	44.2	12:54:18		44.2	44.2
56.2	12:49:21		56.2	56.2	45.3	12:54:21		45.3	45.3
47.8	12:49:24		47.8	47.8	46.4	12:54:24		46.4	46.4
46.4	12:49:27		46.4	46.4	45.2	12:54:27		45.2	45.2
50.4	12:49:30		50.4	50.4	44.7	12:54:30		44.7	44.7
46.5	12:49:33		46.5	46.5	43.7	12:54:33		43.7	43.7
45.3	12:49:36		45.3	45.3	48	12:54:36		48	48
44.5	12:49:39		44.5	44.5	47.5	12:54:39		47.5	47.5
45.1	12:49:42		45.1	45.1	55.1	12:54:42		55.1	55.1
46.7	12:49:45		46.7	46.7	62.1	12:54:45		62.1	62.1
46.1	12:49:48		46.1	46.1	56.5	12:54:48		56.5	56.5
44.5	12:49:51		44.5	44.5	50.7	12:54:51		50.7	50.7
44.9	12:49:54		44.9	44.9	46.1	12:54:54		46.1	46.1
44.7	12:49:57		44.7	44.7	44.5	12:54:57		44.5	44.5
42.9	12:50:00		42.9	42.9	43.7	12:55:00		43.7	43.7
42.9	12:50:03		42.9	42.9	45.2	12:55:03		45.2	45.2
50.9	12:50:06		50.9	50.9	43.9	12:55:06		43.9	43.9
46.2	12:50:09		46.2	46.2	44	12:55:09		44	44
52.7	12:50:12		52.7	52.7	45.3	12:55:12		45.3	45.3
46	12:50:15		46	46	49.8	12:55:15		49.8	49.8
44.8	12:50:18		44.8	44.8	63.5	12:55:18		63.5	63.5
43.4	12:50:21		43.4	43.4	70.6	12:55:21		70.6	70.6
44.9	12:50:24		44.9	44.9	65.6	12:55:24		65.6	65.6
47.5	12:50:27		47.5	47.5	52.7	12:55:27		52.7	52.7
48.2	12:50:30		48.2	48.2	50.3	12:55:30		50.3	50.3
46.7	12:50:33		46.7	46.7	54.6	12:55:33		54.6	54.6
45.1	12:50:36		45.1	45.1	66.9	12:55:36		66.9	66.9

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
42.8	12:50:39		42.8	42.8	65.6	12:55:39		65.6	65.6
43.9	12:50:42		43.9	43.9	55.7	12:55:42		55.7	55.7
42.4	12:50:45		42.4	42.4	49.8	12:55:45		49.8	49.8
42.6	12:50:48		42.6	42.6	51.4	12:55:48		51.4	51.4
42.1	12:50:51		42.1	42.1	58.1	12:55:51		58.1	58.1
40.9	12:50:54		40.9	40.9	69.3	12:55:54		69.3	69.3
41.8	12:50:57		41.8	41.8	60.1	12:55:57		60.1	60.1
44	12:51:00		44	44	53.1	12:56:00		53.1	53.1
43.8	12:51:03		43.8	43.8	48	12:56:03		48	48
46.4	12:51:06		46.4	46.4	46.5	12:56:06		46.5	46.5
50	12:51:09		50	50	45.5	12:56:09		45.5	45.5
42.6	12:51:12		42.6	42.6	45.1	12:56:12		45.1	45.1
41.9	12:51:15		41.9	41.9	47	12:56:15		47	47
41.7	12:51:18		41.7	41.7	46	12:56:18		46	46
41.1	12:51:21		41.1	41.1	45.2	12:56:21		45.2	45.2
41.8	12:51:24		41.8	41.8	45.5	12:56:24		45.5	45.5
41.9	12:51:27		41.9	41.9	45.4	12:56:27		45.4	45.4
43.2	12:51:30		43.2	43.2	44.5	12:56:30		44.5	44.5
45.5	12:51:33		45.5	45.5	44.8	12:56:33		44.8	44.8
45.5	12:51:36		45.5	45.5	45	12:56:36		45	45
44.5	12:51:39		44.5	44.5	44.7	12:56:39		44.7	44.7
45.7	12:51:42		45.7	45.7	46	12:56:42		46	46
43.8	12:51:45		43.8	43.8	44.4	12:56:45		44.4	44.4
44.5	12:51:48		44.5	44.5	45.1	12:56:48		45.1	45.1
45.4	12:51:51		45.4	45.4	44.5	12:56:51		44.5	44.5
52.1	12:51:54		52.1	52.1	46.1	12:56:54		46.1	46.1
48.8	12:51:57		48.8	48.8	45.7	12:56:57		45.7	45.7
51.7	12:52:00		51.7	51.7	46.2	12:57:00		46.2	46.2
48.5	12:52:03		48.5	48.5	45.1	12:57:03		45.1	45.1
47.3	12:52:06		47.3	47.3	44.3	12:57:06		44.3	44.3
50.3	12:52:09		50.3	50.3	45.3	12:57:09		45.3	45.3
57.1	12:52:12		57.1	57.1	45	12:57:12		45	45
48.3	12:52:15		48.3	48.3	44.7	12:57:15		44.7	44.7
45.6	12:52:18		45.6	45.6	46.5	12:57:18		46.5	46.5
43.8	12:52:21		43.8	43.8	44.6	12:57:21		44.6	44.6
50.5	12:52:24		50.5	50.5	45.9	12:57:24		45.9	45.9
47.5	12:52:27		47.5	47.5	46	12:57:27		46	46
46.1	12:52:30		46.1	46.1	48.1	12:57:30		48.1	48.1
44.1	12:52:33		44.1	44.1	59.4	12:57:33		59.4	59.4
45.9	12:52:36		45.9	45.9	68.6	12:57:36		68.6	68.6
47.3	12:52:39		47.3	47.3	60.3	12:57:39		60.3	60.3
48.6	12:52:42		48.6	48.6	55.6	12:57:42		55.6	55.6
45.6	12:52:45		45.6	45.6	64.2	12:57:45		64.2	64.2
53	12:52:48		53	53	57	12:57:48		57	57
54.3	12:52:51		54.3	54.3	50.7	12:57:51		50.7	50.7
48	12:52:54		48	48	48.5	12:57:54		48.5	48.5
44.2	12:52:57		44.2	44.2	45.6	12:57:57		45.6	45.6
43.5	12:53:00		43.5	43.5	45.5	12:58:00		45.5	45.5
49.4	12:53:03		49.4	49.4	44.1	12:58:03		44.1	44.1
43.6	12:53:06		43.6	43.6	54.5	12:58:06		54.5	54.5
41.9	12:53:09		41.9	41.9	48.8	12:58:09		48.8	48.8
42.6	12:53:12		42.6	42.6	44.3	12:58:12		44.3	44.3
44.4	12:53:15		44.4	44.4	44.9	12:58:15		44.9	44.9
44.9	12:53:18		44.9	44.9	44	12:58:18		44	44
48	12:53:21		48	48	43.8	12:58:21		43.8	43.8
44.3	12:53:24		44.3	44.3	44	12:58:24		44	44
44.8	12:53:27		44.8	44.8	44.3	12:58:27		44.3	44.3
53.4	12:53:30		53.4	53.4	44.5	12:58:30		44.5	44.5
46.1	12:53:33		46.1	46.1	45.2	12:58:33		45.2	45.2
44.3	12:53:36		44.3	44.3	44.6	12:58:36		44.6	44.6
49.1	12:53:39		49.1	49.1	47.1	12:58:39		47.1	47.1
44.5	12:53:42		44.5	44.5	44.5	12:58:42		44.5	44.5
42.3	12:53:45		42.3	42.3	45.2	12:58:45		45.2	45.2
47	12:53:48		47	47	44.6	12:58:48		44.6	44.6
43.3	12:53:51		43.3	43.3	47.9	12:58:51		47.9	47.9
43.7	12:53:54		43.7	43.7	44.7	12:58:54		44.7	44.7
46.3	12:53:57		46.3	46.3	44.6	12:58:57		44.6	44.6
42.2	12:54:00		42.2	42.2	45.4	12:59:00		45.4	45.4
50.1	12:54:03		50.1	50.1	46.4	12:59:03		46.4	46.4
42.2	12:54:06		42.2	42.2	45.9	12:59:06		45.9	45.9
41.7	12:54:09		41.7	41.7	46.8	12:59:09		46.8	46.8
41.5	12:54:12		41.5	41.5	46.4	12:59:12		46.4	46.4
42.8	12:54:15		42.8	42.8	46.4	12:59:15		46.4	46.4
43.5	12:54:18		43.5	43.5	47.7	12:59:18		47.7	47.7
44.3	12:54:21		44.3	44.3	45.4	12:59:21		45.4	45.4
45.9	12:54:24		45.9	45.9	45.5	12:59:24		45.5	45.5
43.2	12:54:27		43.2	43.2	45.3	12:59:27		45.3	45.3
42.2	12:54:30		42.2	42.2	44.9	12:59:30		44.9	44.9
43	12:54:33		43	43	44.8	12:59:33		44.8	44.8
42.7	12:54:36		42.7	42.7	45	12:59:36		45	45
44.2	12:54:39		44.2	44.2	44.6	12:59:39		44.6	44.6
43.1	12:54:42		43.1	43.1	44.9	12:59:42		44.9	44.9
43.2	12:54:45		43.2	43.2	45.3	12:59:45		45.3	45.3
42.7	12:54:48		42.7	42.7	44.7	12:59:48		44.7	44.7
44.5	12:54:51		44.5	44.5	44.7	12:59:51		44.7	44.7
44.8	12:54:54		44.8	44.8	44.4	12:59:54		44.4	44.4
47.8	12:54:57		47.8	47.8	44.5	12:59:57		44.5	44.5
41.9	12:55:00		41.9	41.9	45.2	13:00:00		45.2	45.2
41.7	12:55:03		41.7	41.7	45	13:00:03		45	45
42.5	12:55:06		42.5	42.5	46	13:00:06		46	46
42.6	12:55:09		42.6	42.6	45.6	13:00:09		45.6	45.6
43.1	12:55:12		43.1	43.1	44.9	13:00:12		44.9	44.9
45.9	12:55:15		45.9	45.9	45.5	13:00:15		45.5	45.5
43.6	12:55:18		43.6	43.6	45.7	13:00:18		45.7	45.7
50.1	12:55:21		50.1	50.1	49.2	13:00:21		49.2	49.2

Site 1 - On Palm Tree Near Center of Project Site					Site 2 - On Sign Post on South Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
45.6	12:55:24		45.6	45.6	46.1	13:00:24		46.1	46.1
45	12:55:27		45	45	46.6	13:00:27		46.6	46.6
46.5	12:55:30		46.5	46.5	45.9	13:00:30		45.9	45.9
52.6	12:55:33		52.6	52.6	46.3	13:00:33		46.3	46.3
50.4	12:55:36		50.4	50.4	46.7	13:00:36		46.7	46.7
51.3	12:55:39		51.3	51.3	47.4	13:00:39		47.4	47.4
51.2	12:55:42		51.2	51.2	47.9	13:00:42		47.9	47.9
51	12:55:45		51	51	48.6	13:00:45		48.6	48.6
48.9	12:55:48		48.9	48.9	45.8	13:00:48		45.8	45.8
47	12:55:51		47	47	46.7	13:00:51		46.7	46.7
46.1	12:55:54		46.1	46.1	47.8	13:00:54		47.8	47.8
46.8	12:55:57		46.8	46.8	47.3	13:00:57		47.3	47.3
47.4	12:56:00		47.4	47.4	46.8	13:01:00		46.8	46.8
54.8	12:56:03		54.8	54.8	45.5	13:01:03		45.5	45.5
46.1	12:56:06		46.1	46.1	46.1	13:01:06		46.1	46.1
44.3	12:56:09		44.3	44.3	48.3	13:01:09		48.3	48.3
44.5	12:56:12		44.5	44.5	51.3	13:01:12		51.3	51.3
47.2	12:56:15		47.2	47.2	58.6	13:01:15		58.6	58.6
46	12:56:18		46	46	57	13:01:18		57	57
43	12:56:21		43	43	50.8	13:01:21		50.8	50.8
42.7	12:56:24		42.7	42.7	46.7	13:01:24		46.7	46.7
44.8	12:56:27		44.8	44.8	46.5	13:01:27		46.5	46.5
42.5	12:56:30		42.5	42.5	46.6	13:01:30		46.6	46.6
42.1	12:56:33		42.1	42.1	46.8	13:01:33		46.8	46.8
41.9	12:56:36		41.9	41.9	46.9	13:01:36		46.9	46.9
42.4	12:56:39		42.4	42.4	47.1	13:01:39		47.1	47.1
42.5	12:56:42		42.5	42.5	51	13:01:42		51	51
42.5	12:56:45		42.5	42.5	68.8	13:01:45		68.8	68.8
41.8	12:56:48		41.8	41.8	72.1	13:01:48		72.1	72.1
42.3	12:56:51		42.3	42.3	60.8	13:01:51		60.8	60.8
43.4	12:56:54		43.4	43.4	51.5	13:01:54		51.5	51.5
44.1	12:56:57		44.1	44.1	47.7	13:01:57		47.7	47.7
41.8	12:57:00		41.8	41.8	46.4	13:02:00		46.4	46.4
42.2	12:57:03		42.2	42.2	46	13:02:03		46	46
44.8	12:57:06		44.8	44.8	45.9	13:02:06		45.9	45.9
43.9	12:57:09		43.9	43.9	47.2	13:02:09		47.2	47.2
44.9	12:57:12		44.9	44.9	46.4	13:02:12		46.4	46.4
43.1	12:57:15		43.1	43.1	46.6	13:02:15		46.6	46.6
44.8	12:57:18		44.8	44.8	45.9	13:02:18		45.9	45.9
44.8	12:57:21		44.8	44.8	46.3	13:02:21		46.3	46.3
45.7	12:57:24		45.7	45.7	45.8	13:02:24		45.8	45.8
50.6	12:57:27		50.6	50.6	46.1	13:02:27		46.1	46.1
46	12:57:30		46	46	49.1	13:02:30		49.1	49.1
49.1	12:57:33		49.1	49.1	56.8	13:02:33		56.8	56.8
47.3	12:57:36		47.3	47.3	66.5	13:02:36		66.5	66.5
45.5	12:57:39		45.5	45.5	55.2	13:02:39		55.2	55.2
46.7	12:57:42		46.7	46.7	48.4	13:02:42		48.4	48.4
51.7	12:57:45		51.7	51.7	47	13:02:45		47	47
45.1	12:57:48		45.1	45.1	46.7	13:02:48		46.7	46.7
44.3	12:57:51		44.3	44.3	46.5	13:02:51		46.5	46.5
51.8	12:57:54		51.8	51.8	47.8	13:02:54		47.8	47.8
46.3	12:57:57		46.3	46.3	47.7	13:02:57		47.7	47.7
44.1	12:58:00		44.1	44.1	47.8	13:03:00		47.8	47.8
43.9	12:58:03		43.9	43.9	46	13:03:03		46	46
43.9	12:58:06		43.9	43.9	46.2	13:03:06		46.2	46.2
44.1	12:58:09		44.1	44.1	53.7	13:03:09		53.7	53.7
43.5	12:58:12		43.5	43.5	46.9	13:03:12		46.9	46.9
42.7	12:58:15		42.7	42.7	46.4	13:03:15		46.4	46.4
50.6	12:58:18		50.6	50.6	46.4	13:03:18		46.4	46.4
43.9	12:58:21		43.9	43.9	46.7	13:03:21		46.7	46.7
43.1	12:58:24		43.1	43.1	47.4	13:03:24		47.4	47.4
43.1	12:58:27		43.1	43.1	46.9	13:03:27		46.9	46.9
43.5	12:58:30		43.5	43.5	48	13:03:30		48	48
43.2	12:58:33		43.2	43.2	48.1	13:03:33		48.1	48.1
43	12:58:36		43	43	49.1	13:03:36		49.1	49.1
43.8	12:58:39		43.8	43.8	50.9	13:03:39		50.9	50.9
46	12:58:42		46	46	67.2	13:03:42		67.2	67.2
45.7	12:58:45		45.7	45.7	67.5	13:03:45		67.5	67.5
44.8	12:58:48		44.8	44.8	68.9	13:03:48		68.9	68.9
44.6	12:58:51		44.6	44.6	61.9	13:03:51		61.9	61.9
43.8	12:58:54		43.8	43.8	53.8	13:03:54		53.8	53.8
43.6	12:58:57		43.6	43.6	48.3	13:03:57		48.3	48.3
44.4	12:59:00	54.3	44.4	44.4	47.3	13:04:00	59.8	47.3	47.3
44.3	12:59:03	54.3	44.3	44.3	46.8	13:04:03	59.8	46.8	46.8
45.5	12:59:06	54.2	45.5	45.5	47.5	13:04:06	59.8	47.5	47.5
46.5	12:59:09	54.2	46.5	46.5	49.3	13:04:09	59.8	49.3	49.3
46.4	12:59:12	54.2	46.4	46.4	50.6	13:04:12	59.8	50.6	50.6
45.9	12:59:15	54.1	45.9	45.9	60.7	13:04:15	59.8	60.7	60.7
46.3	12:59:18	54.0	46.3	46.3	63.8	13:04:18	59.8	63.8	63.8
46.9	12:59:21	53.9	46.9	46.9	55.5	13:04:21	59.8	55.5	55.5
47.5	12:59:24	53.9	47.5	47.5	49.9	13:04:24	59.8	49.9	49.9
47.3	12:59:27	53.9	47.3	47.3	47.4	13:04:27	59.7	47.4	47.4
45.8	12:59:30	53.9	45.8	45.8	46.7	13:04:30	59.7	46.7	46.7
46.8	12:59:33	53.8	46.8	46.8	46.1	13:04:33	59.7	46.1	46.1
45.6	12:59:36	53.8	45.6	45.6	45.8	13:04:36	59.7	45.8	45.8
45.1	12:59:39	53.7	45.1	45.1	46.2	13:04:39	59.7	46.2	46.2
43.9	12:59:42	53.7	43.9	43.9	45.4	13:04:42	59.7	45.4	45.4
45.2	12:59:45	53.7	45.2	45.2	46.2	13:04:45	59.7	46.2	46.2
43.5	12:59:48	53.7	43.5	43.5	46.6	13:04:48	59.7	46.6	46.6
43.2	12:59:51	53.5	43.2	43.2	45.5	13:04:51	59.7	45.5	45.5
43.5	12:59:54	53.5	43.5	43.5	47.4	13:04:54	59.6	47.4	47.4
43.6	12:59:57	53.4	43.6	43.6	45.8	13:04:57	59.6	45.8	45.8
44	13:00:00	53.3	44	44	45.8	13:05:00	59.6	45.8	45.8
44.1	13:00:03	53.2	44.1	44.1	49.1	13:05:03	59.6	49.1	49.1
52.1	13:00:06	53.1	52.1	52.1	46.1	13:05:06	59.6	46.1	46.1
52.1	13:00:09	53.1	52.1	52.1	46.4	13:05:09	59.6	46.4	46.4
45.4	13:00:12	53.1	45.4	45.4	45.8	13:05:12	59.6	45.8	45.8
44.7	13:00:15	53.0	44.7	44.7	45.7	13:05:15	59.6	45.7	45.7
45.5	13:00:18	52.8	45.5	45.5	47	13:05:18	59.6	47	47
47.8	13:00:21	52.8	47.8	47.8	46.1	13:05:21	59.6	46.1	46.1
45.2	13:00:24	52.8	45.2	45.2	46.1	13:05:24	59.6	46.1	46.1
44.9	13:00:27	52.8	44.9	44.9	45.7	13:05:27	59.6	45.7	45.7
45.5	13:00:30	52.7	45.5	45.5	45.9	13:05:30	59.6	45.9	45.9

APPENDIX C

RCNM Model Construction Noise Calculation Printouts

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	70	5
Dozer	No	40		81.7	70	5
Tractor	No	40	84		70	5
Front End Loader	No	40		79.1	70	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Concrete Saw		81.7	74.7	N/A	N/A	N/A	N/A
Dozer		73.7	69.8	N/A	N/A	N/A	N/A
Tractor		76.1	72.1	N/A	N/A	N/A	N/A
Front End Loader		71.2	67.2	N/A	N/A	N/A	N/A
	Total	**82**	**78**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Demolition

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20.0		89.6	185	5
Dozer	No	40		81.7	185	5
Tractor	No	40	84.0		185	5
Front End Loader	No	40		79.1	185	5

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		73.2	66.2	N/A	N/A	N/A	N/A
Dozer		65.3	61.3	N/A	N/A	N/A	N/A
Tractor		67.6	63.7	N/A	N/A	N/A	N/A
Front End Loader		62.7	58.8	N/A	N/A	N/A	N/A
	Total	**73**	**69**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Demolition

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	85	0
Dozer	No	40		81.7	85	0
Tractor	No	40	84		85	0
Front End Loader	No	40		79.1	85	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		85.0	78.0	N/A	N/A	N/A	N/A
Dozer		77.1	73.1	N/A	N/A	N/A	N/A
Tractor		79.4	75.4	N/A	N/A	N/A	N/A
Front End Loader		74.5	70.5	N/A	N/A	N/A	N/A
	Total	**85**	**81**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		70	5

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		77.1	73.1	N/A	N/A	N/A	N/A
	Total	**77**	**73**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40.0	85.0		185	5

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		68.6	64.7	N/A	N/A	N/A	N/A
	Total	**69**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Site Preparation

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		80	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		80.9	76.9	N/A	N/A	N/A	N/A
	Total	**81**	**77**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		70	5
Dozer	No	40		81.7	70	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		77.1	73.1	N/A	N/A	N/A	N/A
Dozer		73.7	69.8	N/A	N/A	N/A	N/A
	Total	**77**	**75**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		185	5
Dozer	No	40		81.7	185	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		68.6	64.7	N/A	N/A	N/A	N/A
Dozer		65.3	61.3	N/A	N/A	N/A	N/A
	Total	**69**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Grading

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		80	0
Dozer	No	40		81.7	80	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		80.9	76.9	N/A	N/A	N/A	N/A
Dozer		77.6	73.6	N/A	N/A	N/A	N/A
	Total	**81**	**79**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	70	5
Gradall	No	40		83.4	70	5
Gradall	No	40		83.4	70	5
Generator	No	50		80.6	70	5
Tractor	No	40	84		70	5
Front End Loader	No	40		79.1	70	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane	72.6	64.7	N/A	N/A	N/A	N/A
Gradall	75.5	71.5	N/A	N/A	N/A	N/A
Gradall	75.5	71.5	N/A	N/A	N/A	N/A
Generator	72.7	69.7	N/A	N/A	N/A	N/A
Tractor	76.1	72.1	N/A	N/A	N/A	N/A
Front End Loader	71.2	67.2	N/A	N/A	N/A	N/A
Total	**76**	**78**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Building Construction

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	185	5
Gradall	No	40		83.4	185	5
Gradall	No	40		83.4	185	5
Generator	No	50		80.6	185	5
Tractor	No	40	84		185	5
Front End Loader	No	40		79.1	185	5

			Results				
	Calculated (dBA)		Noise Limits (dBA)				
			Day		Evening		
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	
Crane	64.2	56.2	N/A	N/A	N/A	N/A	
Gradall	67.0	63.1	N/A	N/A	N/A	N/A	
Gradall	67.0	63.1	N/A	N/A	N/A	N/A	
Generator	64.3	61.3	N/A	N/A	N/A	N/A	
Tractor	67.6	63.7	N/A	N/A	N/A	N/A	
Front End Loader	62.7	58.8	N/A	N/A	N/A	N/A	
Total	**68**	**70**	N/A	N/A	N/A	N/A	

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Building Construction

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	85	0
Gradall	No	40		83.4	85	0
Gradall	No	40		83.4	85	0
Generator	No	50		80.6	85	0
Tractor	No	40	84		85	0
Front End Loader	No	40		79.1	85	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		75.9	68.0	N/A	N/A	N/A	N/A
Gradall		78.8	74.8	N/A	N/A	N/A	N/A
Gradall		78.8	74.8	N/A	N/A	N/A	N/A
Generator		76.0	73.0	N/A	N/A	N/A	N/A
Tractor		79.4	75.4	N/A	N/A	N/A	N/A
Front End Loader		74.5	70.5	N/A	N/A	N/A	N/A
	Total	**79**	**81**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	70	5
Concrete Mixer Truck	No	40		78.8	70	5
Concrete Mixer Truck	No	40		78.8	70	5
Concrete Mixer Truck	No	40		78.8	70	5
Paver	No	50		77.2	70	5
Roller	No	20		80	70	5
Tractor	No	40	84		70	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Concrete Mixer Truck	70.9	66.9	N/A	N/A	N/A	N/A
Concrete Mixer Truck	70.9	66.9	N/A	N/A	N/A	N/A
Concrete Mixer Truck	70.9	66.9	N/A	N/A	N/A	N/A
Concrete Mixer Truck	70.9	66.9	N/A	N/A	N/A	N/A
Paver	69.3	66.3	N/A	N/A	N/A	N/A
Roller	72.1	65.1	N/A	N/A	N/A	N/A
Tractor	76.1	72.1	N/A	N/A	N/A	N/A
Total	**76**	**76**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Paving

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	185	5
Concrete Mixer Truck	No	40		78.8	185	5
Concrete Mixer Truck	No	40		78.8	185	5
Concrete Mixer Truck	No	40		78.8	185	5
Paver	No	50		77.2	185	5
Roller	No	20		80	185	5
Tractor	No	40	84		185	5

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		62.4	58.5	N/A	N/A	N/A	N/A
Concrete Mixer Truck		62.4	58.5	N/A	N/A	N/A	N/A
Concrete Mixer Truck		62.4	58.5	N/A	N/A	N/A	N/A
Concrete Mixer Truck		62.4	58.5	N/A	N/A	N/A	N/A
Paver		60.9	57.8	N/A	N/A	N/A	N/A
Roller		63.6	56.6	N/A	N/A	N/A	N/A
Tractor		67.6	63.7	N/A	N/A	N/A	N/A
	Total	**68**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Paving

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	85	0
Concrete Mixer Truck	No	40		78.8	85	0
Concrete Mixer Truck	No	40		78.8	85	0
Concrete Mixer Truck	No	40		78.8	85	0
Paver	No	50		77.2	85	0
Roller	No	20		80	85	0
Tractor	No	40	84		85	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		74.2	70.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck		74.2	70.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck		74.2	70.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck		74.2	70.2	N/A	N/A	N/A	N/A
Paver		72.6	69.6	N/A	N/A	N/A	N/A
Roller		75.4	68.4	N/A	N/A	N/A	N/A
Tractor		79.4	75.4	N/A	N/A	N/A	N/A
	Total	**79**	**80**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Painting

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to East	Residential	51.7	51.7	51.7

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	70	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		69.7	65.8	N/A	N/A	N/A	N/A
	Total	**70**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to North	Residential	51.7	51.7	51.7

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	185	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		61.3	57.3	N/A	N/A	N/A	N/A
	Total	**61**	**57**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/16/2023
Case Description: Bixby Ave Apartments - Painting

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
School to West	Commercial	57.3	57.3	57.3

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	80	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		73.6	69.6	N/A	N/A	N/A	N/A
	Total	**74**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Operational Reference Noise Measurements and Noise Calculation Printouts

PRODUCT SPECIFICATION
M-Series AIr Conditioner

			AOVE-18CN1-M14L	AOVE-24CN1-M14L	AOVE-30CN1-M14L	AOVE-36CN1-M14L	AOVE-42CN1-M14L	AOVE-48CN1-M14L	AOVE-60CN1-M14L
Electrical	Power supply	V-Ph-Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V-Ph-60Hz	208/230V-1Ph-60Hz	208/230V-1Ph-60Hz
	Minimum Circuit Amp	A	10.4	13.4	14.7	19.4	21.6	24.6	28.0
	Max. Overcurrent Protection	A	15.0	20.0	25.0	30.0	35.0	40.0	45.0
Compressor	Model		APG016KAA	APG020KAA	APG024KAA	APG031KAA	ABG036KAA	ABG042KAA	ABG051KAA
	Type/Brand		Scroll/LG	Scroll/LG	Scroll/LG	Scroll/LG	Scroll/LG	Scroll/LG	Scroll/LG
	Power Supply	V-Ph-Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz	208/230V 1Ph-60Hz
		uF	35	35	40	45	45	70	70
	RLA-LRA	A	7.7-48	10.1-52	10.9-63	14.7-75	15.9-112.3	18.3-108	21-127.9
Motor	Type		PSC	PSC	PSC	PSC	PSC	PSC	PSC
	Capacitor	uF	6.0	6.0	6.0	6.0	15.0	15.0	15.0
	Rated RPM	r/min	1075	1075	825	825	1075	1075	1075
			1/8	1/8	1/6	1/6	1/3	1/3	1/3
	FLA	A	0.7	0.7	1.0	1.0	1.7	1.7	1.7
Outdoor fan	Material		Metal	Metal	Metal	Metal	Metal	Metal	Metal
	Type		Axial flow fan	Axial flow fan	Axial flow fan	Axial flow fan	Axial flow fan	Axial flow fan	Axial flow fan
	Diameter	inch	17-3/4	18-7/8	23	23-5/8	23-Jan-00	23-Jan-00	23-5/8
	Height	inch	4-5/16	4-5/16	4-5/16	4-1/2	4-5/16	4-5/16	4-1/2
Outdoor coil	Type		Plate fin						
	Tube and fin		3/16" Inner groove Copper tube & non-hydrophilic Aluminium						
	Rows-F.P.I		2-21	2-21	2-21	1-21	2-21	2-21	3-21
Outdoor air flow		m3/h	2720	3060	4505	4590	6290	6290	6460
		CFM	1600	1800	2650	2700	3700	3700	3800
Outdoor sound level(sound pressure level)		dB(A)	62	62	64	64	67	67	67
Refrigerant system	Factory charge(R410A)	lbs-oz	5-2	5-5	5-12	5-14	7-16	7-16	7-12
	Liquid side/ Suction side	inch	3/8 3/4	3/8 3/4	3/8 3/4	3/8 3/4	3/8 3/4	3/8 7/8	3/8 7/8
	Refrigerant control		/	/	/	/	/	/	/
Outdoor unit	Dimension (W*H*D)	mm	554×633×554	600×633×600	710×633×710	740×633×740	710×843×710	710×843×710	740×843×740
		inch	21-7/8×24-15/16 ×21-7/8	23-5/8×24-15/16 ×23-5/8	28×24-15/16 ×28	29-1/8×24-15/16 ×29-1/8	28×33-3/16×28	28×33-3/16×28	29-1/8×33-3/16 ×29-1/8
	Packing (W*H*D)	mm	582×667×582	628×667×628	738×667×738	768X667X768	738×877×738	738×877×738	768×877×768
		inch	22-9/10×26-1/4×22-9/10	24-7/10×26-1/4×24-7/10	29×26-1/4×29	30-1/5×26-1/4×30-1/5	29×34-1/2×29	29×34-1/2×29	30-1/5×34-1/2×30-1/5
	Net/Gross weight	Kg	55/58	60/63	67/71	70/74	86/91	86/91	92/97
		lbs	121/128	132/139	148/157	154/163	190/201	190/201	203/214
Shipping per STD40HQ			320	228	192	180	144	144	135

Summary					
File Name	831_Data.002				
Serial Number	0002509				
Model	Model 831				
Firmware Version	2.301				
User	GT				
Location	At 7080 Mayten Ave - Edge of MFR Parking Lot				
Job Description	Mayten & Foothill				
Note					
Measurement Description					
Start	2015-09-10 15:54:09				
Stop	2015-09-10 16:10:10				
Duration	0:16:00.5				
Run Time	0:16:00.5				
Pause	0:00:00.0				
Pre Calibration	2015-09-10 15:32:49				
Post Calibration	None				
Calibration Deviation	---				
Overall Settings					
RMS Weight	A Weighting				
Peak Weight	A Weighting				
Detector	Slow				
Preamp	PRM831				
Microphone Correction	Off				
Integration Method	Linear				
OBA Range	High				
OBA Bandwidth	1/1 and 1/3				
OBA Freq. Weighting	Z Weighting				
OBA Max Spectrum	Bin Max				
Gain	0.0 dB				
Overload	143.1 dB				
		A	**C**	**Z**	
Under Range Peak		**75.6**	72.6	77.6 dB	
Under Range Limit		**26.1**	26.4	31.8 dB	
Noise Floor		17.0	17.3	22.5 dB	
Results					
LAeq	52.1 dB				
LAE	81.9 dB				
EA	17.242 µPa²h				
LApeak (max)	2015-09-10 16:03:36	98.6 dB			
LASmax	2015-09-10 16:03:36	74.6 dB			
LASmin	2015-09-10 15:54:57	41.3 dB			
SEA	-99.9 dB				
LAS > 65.0 dB (Exceedance Counts / Duration)	6	11.6 s			

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	**Ldn**	**:00-23:00**	**3:00-07:00**	**Lden**
	52.1	52.1	-99.9	52.1
LCeq	65.0 dB			
LAeq	52.1 dB			
LCeq - LAeq	12.9 dB			
LAleq	61.6 dB			
LAeq	52.1 dB			
LAleq - LAeq	9.5 dB			
# Overloads	0			
Overload Duration	0.0 s			
# OBA Overloads	0			
OBA Overload Duration	0.0 s			

Statistics	
LAS5.00	55.0 dB
LAS10.00	53.4 dB
LAS33.30	49.1 dB
LAS50.00	47.1 dB
LAS66.60	45.8 dB
LAS90.00	43.9 dB

Calibration History

Preamp	**Date**	**re. 1V/Pa**	**6.3**
PRM831	2015-09-10 15:32:49	-25.6	73.9
PRM831	2015-08-14 17:54:36	-26.3	36.4
PRM831	2015-08-05 20:29:18	-24.7	64.2
PRM831	2015-07-24 14:47:10	-25.6	60.9
PRM831	2015-05-05 14:56:20	-25.8	61.2
PRM831	2015-04-22 8:42:55	-26.3	58.2
PRM831	2015-04-17 11:29:03	-26.3	21.3
PRM831	2015-04-17 9:59:48	-26.0	30.6
PRM831	2015-04-17 8:00:28	-26.0	9.4
PRM831	2061-08-11 15:40:00	-26.0	44.2
PRM831	2014-10-15 14:30:38	-26.0	72.4

Measurement Report

Report Summary

Meter's File Name	831_Data.001	Computer's File Name	SLM_0002509_831_Data_001.15.ldbin
Meter	831		
Firmware	2.314		
User	GT		Location
Description	Magnolia St Park		
Note	2 people working in Garden, a dog walker, birds and vehicles on Magnolia St		
Start Time	2022-04-06 08:42:32	Duration	0:15:00.0
End Time	2022-04-06 08:57:32	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	45.7 dB		
LAE	75.2 dB	SEA	--- dB
EA	3.7 µPa²h		
LZ_{peak}	99.0 dB	2022-04-06 08:42:33	
LAS_{max}	58.6 dB	2022-04-06 08:42:32	
LAS_{min}	39.4 dB	2022-04-06 08:50:06	
LA_{eq}	45.7 dB		
LC_{eq}	60.0 dB	LC_{eq} - LA_{eq}	14.3 dB
LAI_{eq}	49.8 dB	LAI_{eq} - LA_{eq}	4.2 dB

Exceedances	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	45.7 dB	45.7 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	45.7 dB	45.7 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	45.7 dB		60.0 dB		65.6 dB	
$LS_{(max)}$	58.6 dB	2022-04-06 08:42:32	70.1 dB	2022-04-06 08:42:33	90.6 dB	2022-04-06 08:42:33
$LF_{(max)}$	58.1 dB	2022-04-06 08:45:16	75.0 dB	2022-04-06 08:42:33	95.1 dB	2022-04-06 08:42:33
$LI_{(max)}$	74.0 dB	2022-04-06 08:42:32	78.9 dB	2022-04-06 08:42:33	96.8 dB	2022-04-06 08:42:32
$LS_{(min)}$	39.4 dB	2022-04-06 08:50:06	56.5 dB	2022-04-06 08:48:37	59.9 dB	2022-04-06 08:49:57
$LF_{(min)}$	37.9 dB	2022-04-06 08:50:05	54.6 dB	2022-04-06 08:48:57	58.0 dB	2022-04-06 08:49:53
$LI_{(min)}$	39.2 dB	2022-04-06 08:50:05	57.2 dB	2022-04-06 08:47:06	60.9 dB	2022-04-06 08:49:57
$L_{Peak(max)}$	74.9 dB	2022-04-06 08:50:36	84.9 dB	2022-04-06 08:42:33	99.0 dB	2022-04-06 08:42:33

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	48.8 dB
LAS 10.0	47.7 dB
LAS 33.3	45.8 dB
LAS 50.0	45.0 dB
LAS 66.6	44.3 dB
LAS 90.0	43.0 dB

Stationary Noise Calculations - Multi-Family Homes East of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	At Homes Distance	At Homes Leq
Air Conditioner	3.28	64.0	35	43.4
Auto Parking Lot	5	52.1	14	43.2
Open Space & Garden	10	45.7	3	56.2

1 (Line Source: hard=0, soft=.5; Point Source: hard=1, soft=1.5)
(eq. N-2141.2 of TeNS)

Stationary Noise Sources	Distance from Receptor to Wall	Distance from source to Wall	Height of Wall* (feet)	Without Wall Noise Level at Residence	With Wall Noise Level at Residence	Source Height (feet)	Exterior Observer Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	source to barrier - a	source to receiver - c	path difference y =a+b-c (auto)	line of sight (slope)	fresnel	Barrier Atten
Air Conditioner	5	30	37	43	**24**	38	5	800	32.388	30.017	48.104	14.301	1	40.678	-19.013
Auto Parking Lot	5	9	6	43	**32**	3	5	800	5.099	9.487	14.142	0.444	1	1.262	-10.82
Open Space & Gar	5	3	6	56	**47**	5	5	800	5.099	3.162	8.000	0.261	1	0.743	-9.46

* Height of wall for Rooftop HVAC based on height of parapet wall

Combined Noise Levels **47**

Stationary Noise Calculations - Single-Family Homes North of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	At Homes Distance	At Homes Leq
Air Conditioner	3.28	64.0	105	33.9
Auto Parking Lot	5	52.1	40	34.0
Open Space & Garden	10	45.7	10	45.7

1 (Line Source: hard=0, soft=.5; Point Source: hard=1, soft=1.5)
(eq. N-2141.2 of TeNS)

Stationary Noise Sources	Distance from Receptor to Wall	Distance from source to Wall	Height of Wall* (feet)	Without Wall Noise Level at Residence	With Wall Noise Level at Residence	Source Height (feet)	Exterior Observer Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	source to barrier - a	source to receiver - c	path difference y =a+b-c (auto)	line of sight (slope)	fresnel	Barrier Atten
Air Conditioner	10	95	37	34	**15**	38	5	800	33.526	95.005	110.064	18.468	1	52.531	-19.2
Auto Parking Lot	10	30	6	34	**26**	3	5	800	10.050	30.150	40.050	0.150	1	0.425	-8.1
Open Space & Gar	10	0	6	46	**32**	5	5	800	10.050	1.000	10.000	1.050	1	2.986	-13.574

* Height of wall for Rooftop HVAC based on height of parapet wall

Combined Noise Levels **33**

Stationary Noise Calculations - School West of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	At School Distance	At School Leq
Air Conditioner	3.28	64.0	80	36.3
Auto Parking Lot	5	52.1	32	36.0
Open Space & Garden	10	45.7	32	35.6

1 (Line Source: hard=0, soft=.5; Point Source: hard=1, soft=1.5)
(eq. N-2141.2 of TeNS)

Stationary Noise Sources	Distance from Receptor to Wall	Distance from source to Wall	Height of Wall* (feet)	Without Wall Noise Level at School	With Wall Noise Level at Residence	Source Height (feet)	Exterior Observer Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	source to barrier - a	source to receiver - c	path difference y =a+b-c (auto)	line of sight (slope)	fresnel	Barrier Atten
Air Conditioner	10	70	37	36	**17**	38	5	800	33.526	70.007	86.539	16.994	1	48.339	-19.167
Auto Parking Lot	10	22	6	36	**27**	3	5	800	10.050	22.204	32.062	0.191	1	0.543	-8.7
Open Space & Gar	10	22	0	36	**36**	13.5	5	800	11.180	25.812	33.110	3.882	-1	-11.044	0

* Height of wall for Rooftop HVAC based on height of parapet wall
** Nearest Open Space to School located on second floor

Combined Noise Levels **36**

Environment | Planning | Development Solutions, Inc.

To:	City of Garden Grove
From:	Daji Yuan, Ph.D.;Meghan Macias, T.E., EPD Solutions Inc
Date:	5/30/2023
Site:	9691 Bixby Avenue Apartments
Subject:	Level of Service (LOS) and Vehicle Miles Traveled (VMT) Screening Analysis

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This technical memorandum provides an evaluation of the proposed residential project located at 9691 Bixby Avenue, in the City of Garden Grove. The purpose of this analysis is to determine whether a level of service (LOS) or a vehicle miles traveled (VMT) analysis would be required for the project. The existing 0.83-acre site is currently used as a preschool. The applicant for the proposed Project is requesting approval from the City of Garden Grove to demolish the existing daycare structures on the Project site and to construct a new three-story multifamily apartment complex. The complex would include a parking structure on the first floor and 27 multi-family residential units on the second and third floors. The Project would provide three affordable units for very –low-income households, which entitles the Project to a 50 percent density bonus from the base density. The Project would provide a total of 50 parking spaces on the first floor. The second floor would include 13 units, a community room, business center, and open space/BBQ areas. The third floor would include 14 units. The proposed units would vary from one bedroom to three-bedroom apartments. The proposed Project would also include other onsite amenities such as a community garden, mail room, and storage areas for residents. The Project would be accessed via one driveway along Bixby Avenue. In addition, the Project would include the construction of a six-foot-high concrete perimeter wall. Construction is anticipated to take 6 months. The project site plan is shown in Figure 1. This memo will evaluate the project using the City of Garden Grove Traffic Impact Analysis (TIA) Guidelines for Vehicles Miles Traveled and Level of Service Assessment (May 2020).

Project Trip Generation

The project trip generation was prepared using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021). The existing preschool was analyzed using Day Care Center (ITE Land Use Code 565) and the proposed use was analyzed using Multifamily Housing (Low-Rise) (ITE Land Use Code 220). Table 1 presents the trip generation estimate for the proposed project. As shown in Table 1, the project is forecast to generate 182 daily vehicle trips, 11 AM and 14 PM peak hour vehicle trips, which results in a 66 net decreases in daily trips, including a 46 net decrease trips in AM peak hour and a 44 net decrease trips in PM peak hour.

Level of Service Screening (For Non-CEQA Purposes)

As per the City's TIA Guidelines 'Introduction' Section, a complete LOS TIA is not required if the project generates less than 50 vehicle trips during either the AM or PM peak hour. As shown in Table 1, the project is forecast to generate a 46 net decrease in AM peak hour trips and a 44 net decrease in PM peak hour trips. Therefore, the proposed project would not require a complete LOS analysis as per the City's TIA Guidelines.

Vehicle Miles Traveled Screening

Senate Bill (SB) 743 was signed by Governor Brown in 2013 and required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating

Transportation impacts, aiming to promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses. In response, Section 15064.3 - Determining the Significance of Transportation Impacts, was added to the CEQA Guidelines which states that VMT is the most appropriate measure of transportation impacts and shall apply statewide beginning on July 1, 2020.

The City's TIA Guidelines 'CEQA Assessment - VMT Analysis' Section provides VMT screening thresholds to identify projects that would be considered to have a less-than significant impact on VMT and therefore could be screened from further analysis. If a project meets one of the following criteria, then the VMT impact of the project would be considered less-than significant and no further analysis of VMT would be required:

1. Transit Priority Area (TPA) Screening.
2. Low VMT Area Screening.
3. Project Type Screening.

The applicability of each criterion to the project is discussed below.

Screening Criteria 1 - Transit Priority Area Screening: According to the City's Guidelines, projects located in a TPA may be presumed to have a less than significant impact. However, as indicated in Table 2, this presumption might not be applicable for this project since it does not meet all the outlined requirements. As per the Exhibit 4.14-6 Transit Priority Areas from Focused General Plan Update and Zoning Amendments, Garden Grove, the project is located in a TPA. However, the project would not satisfy the requirements of Screening Criteria 1 because the project does not meet all the requirements in Table 2.

Screening Criteria 2 - Low VMT Area Screening: The City's Guidelines use OCTAM to determine if the project is located in a low VMT generating area. As per the Exhibit 4.14-5 Housing Allocation by TAZ from Focused General Plan Update and Zoning Amendments, Garden Grove, the proposed project is located in Zone 2, where the project area may or may not have a VMT impact and would need further analysis to verify.

Screening Criteria 3 – Project Type Screening: According to the City's Guidelines, projects which propose local serving retail (retail projects less than 50,000 square feet) or other local serving uses would have a less than significant impact on VMT. The types of projects considered local serving include K-12 schools, day care centers, local parks, student housing projects and community institutions such as libraries, fire stations, etc. In addition, projects which would generate fewer than 110 average daily vehicle trips would not cause a substantial increase in the total citywide or regional VMT. As shown in Table 1, the project would generate a 66 net decrease in daily trips, including a 46 net decrease in AM peak hour trips and a 44 net decrease in PM peak hour trips. Although the project does not propose a local serving land use, it would generate less than 110 daily vehicle trips, Screening Criteria 3 is satisfied. The project can be presumed to have a less than significant impact on VMT and further analysis would not be required.

Summary

The project was evaluated using the City's TIA Guidelines thresholds to determine if the project would require a LOS (for non-CEQA purpose) or a VMT analysis. The project generates 182 daily vehicle trips, 11 AM and 14 PM peak hour vehicle trips. Comparing to the existing use, the project would generate a 66 net decrease in daily trips, including a 46 net decrease trips in AM peak hour and a 44 net decrease trips in PM peak hour, which generates less than 50 peak hour trips and less than 110 daily vehicle trips, and the project is located in a TPA. For non-CEQA purposes, no further LOS analysis is required. In addition, the project VMT impacts would be considered less than significant, and no further analysis would be required.

Figure 1: Project Site Plan

Table 1: Project Trip Generation

				AM Peak Hour			PM Peak Hour		
Land Use		**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
Day Care Center[1]		TSF	47.62	5.83	5.17	11.00	5.23	5.89	11.12
Multifamily Housing (Low-Rise)[2]		DU	6.74	0.10	0.30	0.40	0.32	0.19	0.51
Project Trip Generation									
Existing Preshool[1]	5.200	TSF	248	30	27	57	27	31	58
Proposed Apartment Community[2]	27	DU	182	3	8	11	9	5	14
Net Trip Generation			-66	-27	-19	-46	-18	-26	-44

TSF= Thousand Square Feet

DU = Dwelling Unit

[1] Trip rates from the Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition,* 2021, Land Use Code 565-Day Care Center.

[2] Trip rates from the Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition,* 2021, Land Use Code 220-Multifamily Housing (Low-Rise).

Table 2: Transit Priority Area (TPA) Screening

Transit Priority Area (TPA) Screening		
1	Has a Floor Area Ratio (FAR) of less than 0.75;	No, the FAR is 0.88 as per the site plan.
2	Includes more parking for use by residents, customers, or employees of the project than required by the City;	Yes, the minimum required is 34 spaces, but the proposed project would provide 50 spaces.
3	Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Southern California Association of Governments [SCAG]); or	No.
4	Replaces affordable residential units with a smaller number of moderate- or high-income residential units.	No.

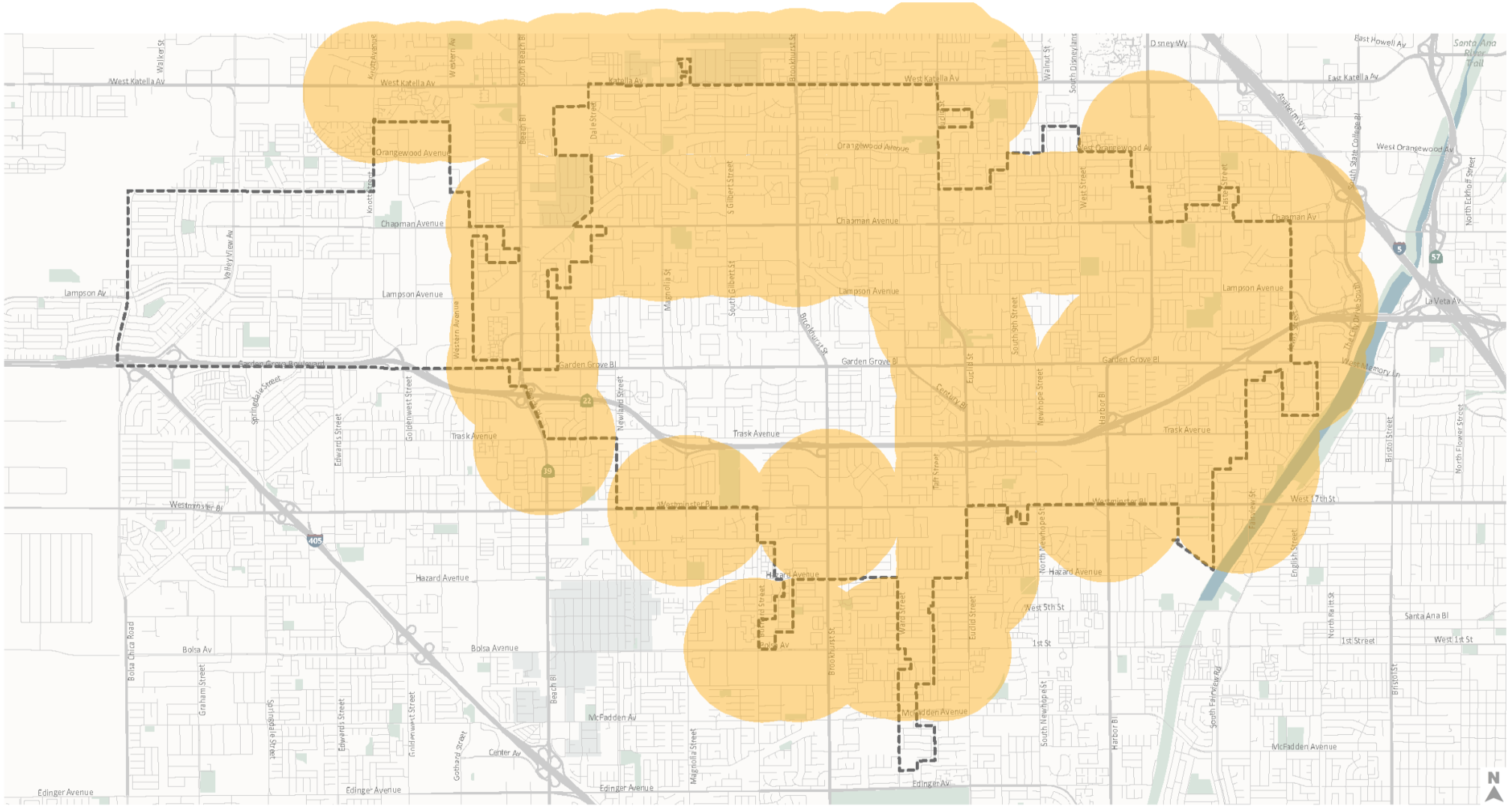
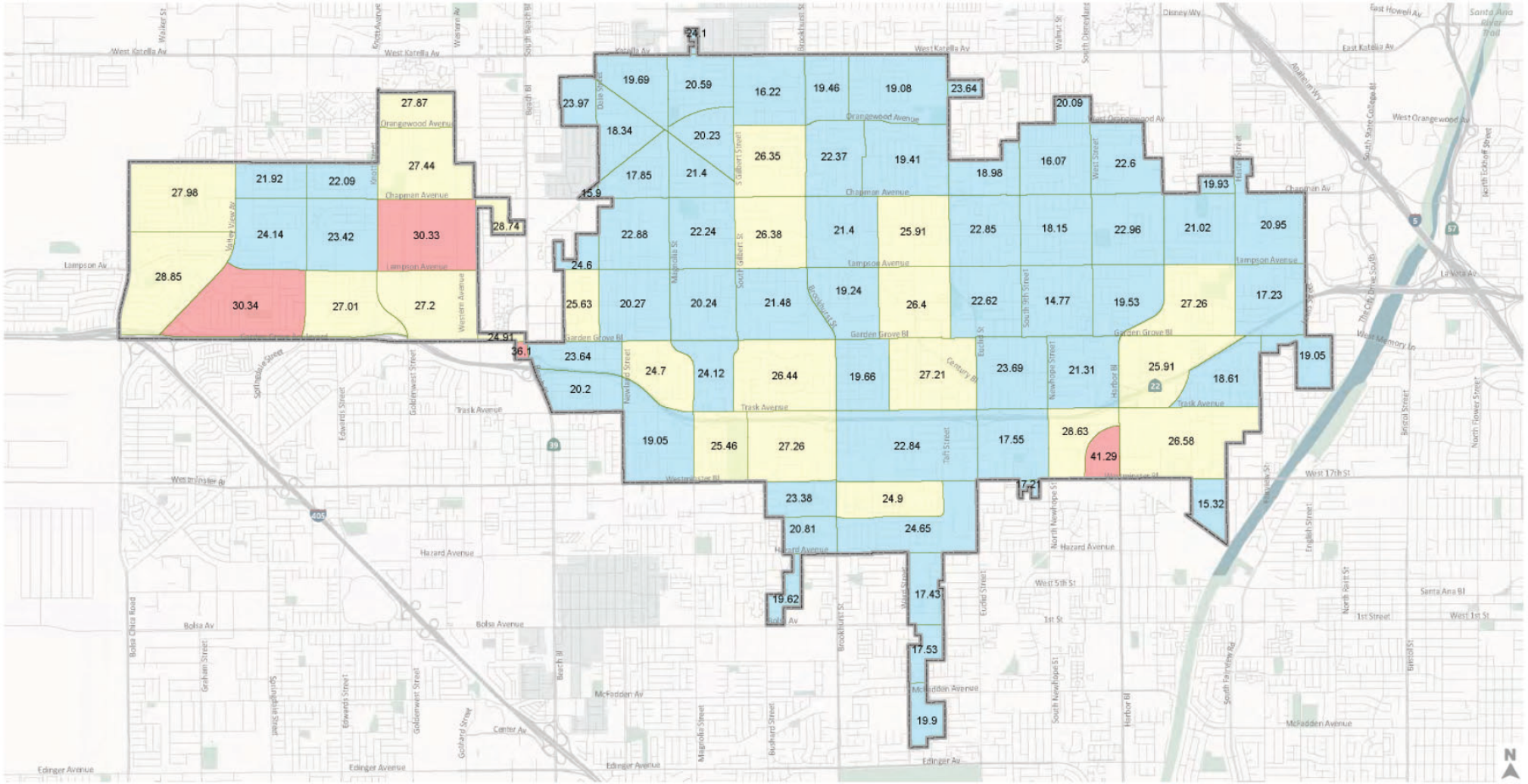


Exhibit 4.14-6 Transit Priority Areas

Focused General Plan Update and Zoning Amendments

Garden Grove, California



Orange County Average VMT/SP: 29.01

Exhibit 4.14-5 Housing Allocation by TAZ

Focused General Plan Update and Zoning Amendments
Garden Grove, California

RESOLUTION NO. 6073-23

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF GARDEN GROVE APPROVING SITE PLAN NO. SP-129-2023 FOR PROPERTY LOCATED ON THE NORTH SIDE OF BIXBY AVENUE, BETWEEN PEACOCK COURT AND CARTHAY CIRCLE, AT 9691 BIXBY AVENUE, ASSESSOR'S PARCEL NO. 133-102-24.

BE IT RESOLVED that the Planning Commission of the City of Garden Grove, in a regular session assembled on November 16, 2023, hereby approves Site Plan No. SP-129-2023 for a property located on the north side of Bixby Avenue, between Peacock Court and Carthay Circle, at 9691 Bixby Avenue, Assessor's Parcel No. 133-102-24, subject to the conditions of approval attached hereto as Exhibit "A".

BE IT FURTHER RESOLVED in the matter of Site Plan No. SP-129-2023, the Planning Commission of the City of Garden Grove does hereby report as follows:

1. The subject case was initiated by The Jager Co., Ltd., with authorization from the property owner, Bixby Avenue Investment, LLC.

2. The applicant is requesting Site Plan approval to construct a three-story, 27-unit residential apartment complex and associated improvements on a 0.83-acre lot. The proposal includes three (3) affordable housing units for "very-low income" households. Inclusion of the three (3) very low-income units qualifies the project for a density bonus, concessions, waivers, and reduced parking pursuant to the State Density Bonus Law, and the project has been designed to incorporate certain concessions and waivers of development standards pursuant to the State Density Bonus Law. All existing on-site improvements will be demolished to accommodate the proposed development.

3. The City of Garden Grove Planning Commission hereby determines that the proposed project is categorically exempt from review under the California Environmental Quality Act ("CEQA") pursuant to Section 15332 (In-Fill Development Projects) of the State CEQA Guidelines (14 Cal. Code Regs., Section 15303). As set forth in the Class 32 exemption, the proposed project is: (1) consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations; (2) the proposed development occurs within City limits on a project site of no more than five acres substantially surrounded by urban uses; (3) the project site has no value as habitat for endangered, rare or threatened species; (4) approval of the project would not result in any significant effects relating to traffic, noise, air quality or water quality; and (5) the site can be adequately served by all required utilities and public services. The project is therefore exempt from CEQA review.

4. The property has a General Plan Land Use designation of Low Medium Density Residential (LMR) and is zoned R-2 (Limited Multiple Residential). The site is currently developed with a Preschool and Children Day Care, Precious Years Children Center.

5. Existing land use, zoning, and General Plan designation of property in the vicinity of the subject property have been reviewed.

6. Report submitted by the City staff was reviewed.

7. Pursuant to a legal notice, a public hearing was held on November 16, 2023, and all interested persons were given an opportunity to be heard.

8. The Planning Commission gave due and careful consideration to the matter during its meeting on November 16, 2023.

BE IT FURTHER RESOLVED, FOUND AND DETERMINED that the facts and reasons supporting the conclusion of the Planning Commission, as required under Municipal Code Section 9.04.030 are as follows:

FACTS:

The project site is approximately 36,120 square feet (0.83 acres) and is located on the north side of Bixby Avenue, between Carthay Circle and Peacock Court. The subject site has a General Plan Land Use designation of Low Medium Density Residential (LMR) and is zoned R-2 (Limited Multiple Residential). The property abuts an R-2 zoned property to the east, R-1 (Single-Family Residential) zoned properties to the north, to the west, and across Bixby Avenue to the south. Surrounding uses to the subject property include single-family residential dwellings to the north and across Bixby Avenue to the south, a multiple-family residential development to the east, and a religious facility, Our Lady Help of Christian, to the west.

The site is improved with multiple single-story buildings that have been used as a Preschool and Children daycare, Precious Years Children Center, since 1999. Per City's Business License records, the daycare business ceased its operation in February 2022, and the buildings have been left vacant. After purchasing the building in 2022, the applicant has submitted a request for Site Plan approval to construct a new three-story multi-family residential building that consists of a parking garage on the ground floor and twenty-seven (27) dwelling units on the second and third floor, which include three (3) affordable units for "very-low income" households. All existing site improvements will be demolished to accommodate the proposed project.

With the inclusion of three (3) affordable housing units for "very-low income" households, pursuant to the State Density Bonus Law, the project qualifies for a density bonus of 50% of the base density, reduced parking ratio, and the following three (3) concessions and two (2) waivers/modification of development standards set forth in the Garden Grove Municipal Code:

1. A concession to deviate from the forty-foot (40'-0") side-yard stepback requirement at the third floor to be at twenty-nine feet and six inches (29'-6") (Sections 9.12.040.020.A and 9.12.040.050.A.3),

2. A concession to deviate from the maximum 50% lot coverage requirement to be at 53.4% (Section 9.12.040.020.A),

3. A concession to deviate from the minimum one-bedroom unit size requirement of 700 square feet to be reduced to 656 square feet (Section 9.12.040.020.E),

4. A waiver to deviate from the twenty-five foot (25'-0") front setback requirement at the third floor to be at twenty feet (20'-0") (Section 9.12.040.020.A.), and

5. A waiver to deviate from the front, side and rear setback requirements to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area (Section 9.12.040.020.D).

An Affordable Housing Regulatory Agreement consistent with the State Density Bonus Law (SDBL) and Section 9.60.050 of the Garden Grove Municipal Code will be recorded to ensure continued affordability of the very-low income units for 55 years.

FINDINGS AND REASONS:

SITE PLAN (HOUSING DEVELOPMENTS)

1. The proposed development project is consistent, in compliance, and in conformity with the applicable, objective standards, provisions, conditions or requirements of the General Plan, Title 9, or other applicable ordinances or policies of the City.

   The proposed project includes construction of a three-story, 27-unit residential apartment complex that includes three (3) affordable housing units for "very--low income" households, along with associated site improvements. The subject site has a General Plan Land Use designation of Low Medium Density Residential (LMR) and is zoned R-2 (Limited Multiple Residential). The LMR Land Use Designation is intended to allow smaller scale multi-family housing, and is a transition between the detached single-family area and the higher density multiple-family area. The LMR is implemented, in part, by the R-2 zone, which allows residential developments with densities of up to 21 units per acre. Pursuant to the State Density Bonus Law, the project is entitled to a density bonus of 50%, reduced parking ratios, three incentives or concessions, and two (2) waivers or modifications of development standards. With the exception of the increased density, reduced parking ratios, and development standards required to be waived or modified pursuant to the State Density Bonsu Law, the proposed project complies with all applicable objective development standards and provisions of the General Plan and Municipal Code. The proposed Project is also consistent with the goals and policies of the General Plan, including the following:

a. *Policy LU-3.2: Support development of multi-family housing that provides a diversity of densities, types, and prices that meet the needs of all household income levels.*

The proposed project is a multi-family, twenty-seven (27) rental unit development that includes twenty-four (24) "above-moderate income" residential units and three (3) "very-low income" residential units. The inclusion of the three affordable units for "very-low income" households qualifies the project for a density bonus of 50% of the base density, which is equivalent to nine (9) additional units above the maximum base density of 18 units allowed under the State Density Bonus Law (SDBL), for a total of 27 units. Thus, the project proposes the maximum residential density allowed under the SDBL.

b. *Policy LU-3.3: Encourage developers to build housing projects at or maximum allowable densities.*

The subject project is allowed a maximum density of 21 units per acre, which yields eighteen (18) units for a 0.83 acre lot. With the inclusion of three (3) affordable units for "very-low income" households, the project is providing 17% of its density for affordable housing. Thus, it is entitled to a density bonus of 50% resulting in nine (9) additional units above the maximum base density permitted in the R-2 zone, for a total of twenty-seven (27) units. With the granting of three (3) concessions and two (2) waivers, the project proposes the maximum residential density allowed under the SDBL. Furthermore, the Project will contribute to meeting the City's Regional Housing Needs Allocation (RHNA), as well as the Housing Element policies.

c. *Goal LU-4: The City seeks to develop uses that are compatible with one another.*

The project is located in a mixed residential neighborhood that consists of both single-family and multi-family residential developments. The properties in the direct vicinity of the project site are zoned R-1 (Single Family Residential), R-2 (Limited Multiple Residential), and R-3 (Multiple Family Residential), and have a Low Density Residential, Low Medium Density Residential, and Medium Density Residential General Plan land use designations. Surrounding uses to the subject property include single-family residential dwellings to the north and across Bixby Avenue to the south, a multiple family residential development to the east, and a church facility to the west. Thus, the proposed housing project is consistent with the development pattern of the surrounding residential uses.

d. *LU-IMP-3D: Front multi-family housing on local streets with appropriate setbacks to be consistent with neighborhood development patterns.*

The project was reviewed by City staff and was determined to meet the required front, side, and rear setbacks, as set forth by the R-2 zone development standards, with the exception of certain setback and stepback requirements applicable to the third floor granted through concessions and waivers under the SDBL. The proposed building will maintain a twenty feet (20'-0") setback from the front property line along Bixby Avenue, and forty feet and eleven inches (40'-11") from the rear property line. The proposed buildings located on the east side of the site are setback twelve feet and six inches (12'-6") from the easterly property line, and the buildings located to the west of the site are setback twenty nine feet and six inches (29'-6") from the westerly property line, which exceeds the setback standards of the R-2 zone. The R-1 zoned property abutting the subject site to the west is improved with a religious facility. The religious facility consists of multiple one-story buildings centrally located on the site, a large landscaped area in the front, a large parking lot at the rear, and a drive aisle located along the shared property line with the subject site. No single-family residential dwellings are located along the westerly property line. Although concessions and waivers will be granted to deviate from the setback and stepback requirements to the third floor, the proposed building will maintain an adequate distance from neighboring properties. Thus, the setbacks are consistent to the neighborhood development patterns.

e. *Policy LU-2.4: Assure that the type and intensity of land use shall be consistent with that of the immediate neighborhood.*

The immediate area consists of single-family residential dwellings, multi-family residential developments, and a religious facility. The proposed a twenty-seven (27) unit project was reviewed and determined to be within the allowed density under the SDBL and in compliance with the R-2 zone development standards as set forth by the Municipal Code, with the exception of the concessions and waivers. Thus, the development is consistent with the type and intensity of land use of the immediate neighborhood.

f. *Policy 2.3 of the Housing Element: Provide density bonuses and other financial and regulatory incentives to facilitate the development of affordable housing.*

The proposed project includes three (3) rental affordable units for "very-low-income" households. To facilitate the development, the applicant is requesting State Density Bonus allowances for 50% density bonus, three (3) concessions, and two (2) waivers to deviate from the R-2 zone development standards: 1) a concession to deviate from the forty foot (40'-0") side-yard stepback requirement at the third floor to be at twenty-nine feet and six inches (29'-6"), (2) a concession to deviate

from the maximum 50% lot coverage requirement to be at 53.4%, (3) a concession to deviate from the minimum one-bedroom unit size requirement of 700 square feet to be reduced to 656 square feet, (4) a waiver to deviate from the twenty-five foot (25'-0") front setback requirement at the third floor to be at twenty feet (20'-0"), and (5) a waiver to deviate from the front, side and rear setback requirements to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area. In addition to the density bonus, concessions and waivers, the project is allowed to use the SDBL reduced parking ratios, and tandem parking design. The granting of all of the aforementioned incentives is needed to facilitate the construction of the proposed development and to support the creation of more affordable housing units in the City. Furthermore, the Project will contribute to meeting the City's Regional Housing Needs Allocation (RHNA).

2. The provisions of the California Environmental Quality Act have been complied with.

   The proposed development is exempt from the California Environmental Quality Act ("CEQA"), pursuant to Section 15332 (In-Fill Development Projects) of the CEQA Guidelines (14 Cal. Code Regs., Section 15303). As set forth in the Class 32 exemption, the proposed project is: (1) consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations; (2) the proposed development occurs within City limits on a project site of no more than five acres substantially surrounded by urban uses; (3) the project site has no value as habitat for endangered, rare or threatened species; (4) approval of the project would not result in any significant effects relating to traffic, noise, air quality or water quality; and (5) the site can be adequately served by all required utilities and public services. Therefore, the provisions of the California Environmental Quality Act have been complied with.

3. The proposed development project does not have specific, adverse impacts, as defined in subdivision (j)(1)(A) of Government Code Section 65589.5, on public health and safety without any feasible method to satisfactorily mitigate or avoid the specific adverse impact, other than the disapproval of the proposed project.

   The proposed twenty-seven (27) unit residential development will not have specific, adverse impacts on the public health and safety. The proposed project is at the maximum allowable density pursuant to the SDBL, is compatible with surrounding uses, is similar in scale to the adjoining neighborhood, and is consistent with the land use type and intensity in the immediate neighborhood.

INCORPORATION OF FACTS AND FINDINGS SET FORTH IN STAFF REPORT

In addition to the foregoing, the Planning Commission incorporates herein by this reference, the facts and findings set forth in the staff report.

BE IT FURTHER RESOLVED that the Planning Commission does conclude:

1. The Site Plan possess characteristics that would justify the request in accordance with Municipal Code Section No. 9.60.020 (Review of Housing Development Projects).

2. In order to fulfill the purpose and intent of the Municipal Code and thereby promote the health, safety, and general welfare, the attached Conditions of Approval (Exhibit "A") shall apply to Site Plan No. SP-129-2023.

EXHIBIT "A"

Site Plan No. SP-129-2023

9691 Bixby Avenue

CONDITIONS OF APPROVAL

General Conditions

1. The applicant and each owner of the property shall execute, and the applicant shall record a "Notice of Agreement with Conditions of Approval and Discretionary Permit of Approval," as prepared by the City Attorney's Office, on the property. Proof of such recordation is required prior to issuance of building permits.

2. All Conditions of Approval set forth herein shall be binding on and enforceable against each of the following, and whenever used herein, the term "applicant" shall mean and refer to each of the following: the project applicant, The Jager Co., Ltd., owner and developer of the project, Bixby Avenue Investment, LLC, and the future owner(s) and tenants(s) of the property, and each of their respective successors and assigns. All conditions of approval are required to be adhered to for the life of the project, regardless of property ownership. Except for minor modifications authorized to be approved by the Community Development Director pursuant to Condition No. 4, any changes of the Conditions of Approval require approval by the appropriate City hearing body.

3. Site Plan No. SP-129-2023 only authorizes construction of a three-story, residential apartment complex, consisting of twenty-seven (27) rental units, which includes three (3) affordable housing units for "very low-income" households, on a 36,120 square feet (0.83 acres) lot located on the north side of Bixby Avenue, between Peacock Court and Carthay Circle, at 9691 Bixby Avenue (APN: 133-102-24), as depicted on the plans submitted by the applicant and made part of the record of the November 16, 2023, Planning Commission proceedings. Approval of this Site Plan shall not be construed to mean any waiver of applicable and appropriate zoning and other regulations; and wherein not otherwise specified, all requirements of the City of Garden Grove Municipal Code shall apply.

4. The approved site plan and floor plan are an integral part of the decision approving this Site Plan. There shall be no additional changes in the design of the site plan and floor plan without the approval of the City. Minor modifications to the Site Plan and/or these Conditions of Approval, which do not materially change the scope or intensity of the project and which will not result in impacts that have not previously been addressed, may be approved by the Community Development Director, in his or her discretion. Proposed modifications to the project and/or these Conditions of Approval determined by the Community Development Director not to be minor in nature shall be subject to approval of new and/or amended land use entitlements by the applicable City hearing body.

5. All conditions of approval shall be implemented at the applicant's expense, except where specified in the individual condition.

Public Works Engineering Division

Project Design

6. A geotechnical study prepared by a registered geotechnical engineer is required. The report shall analyze the liquefaction potential of the site and make recommendations. The report shall analyze sub-surface issues related to the past uses of the site, including sub-surface tanks and basement and septic facilities. Any soil or groundwater contamination shall be remediated prior to the issuance of a building permit per the requirements of the Orange County Health Department and the mitigation requirements of governing regulatory requirements. The report shall make recommendations for foundations and pavement structural section design of interior streets and parking spaces. The report shall also test and analyze soil conditions for LID (Low Impact Development) principles and the implementation of water quality for storm water runoff, including potential infiltration alternatives, soil compaction, saturation, permeability and groundwater levels.

7. Prior to the issuance of any grading or building permits, the applicant shall submit to the City for review and approval a final design Water Quality Management Plan that:

    a. Addresses required mitigation Site Design Best Management Practices (BMPs) based upon the latest Santa Ana Regional Water Quality Control Board (SARWQCB) Drainage Area Management Plan (DAMP) as identified in the geotechnical report recommendations and findings, including, but not limited to, infiltration minimizing impervious areas, maximizing permeability, minimizing directly connected impervious areas, creating reduced or "zero discharge" areas, and conserving natural areas as required by the latest adopted County of Orange Technical Guidance Document (TGD).

    b. BMP's shall be sized per the requirements of the latest Technical Guidance Documents.

    c. Incorporates the applicable Routine Source Control BMPs as defined in the DAMP.

    d. Incorporates structural and Treatment Control BMPs as defined in the DAMP.

    e. Generally describes the long-term operation and maintenance requirements for the Treatment Control BMPs.

f. Identifies the entity that will be responsible for long-term operation and maintenance of the Treatment Control BMPs.

g. Describes the mechanism for funding the long-term operation and maintenance of the Treatment Control BMPs.

h. Provides a hydrological analysis with scaled map as well as hydrologic and hydraulic calculations to size storm drains per the Orange County RDMD standards.

8. Parkway culverts shall be designed per City of Garden Grove Standard Plan B-209. Storm drain lateral pipe connections to city maintained storm drains within City right of way shall be RCP with a minimum diameter of 18-inches.

9. Grading plans prepared by a registered Civil Engineer are required. As required under Section 107 of the California Building Code (CBC), the grading plan shall be based on a current survey of the site, including a boundary survey, topography on adjacent properties up to 30' outside the boundary, and designed to preclude cross lot drainage. Minimum grades shall be 0.50% for concrete flow lines and 1.25% for asphalt. The grading plan shall also include water and sewer improvements. The grading plan shall include a coordinated utility plan showing all existing utility facilities, easements and proposed utility facilities. All on-site improvements shall be tied by horizontal dimensional control to the property boundary as established by survey. A minimum uninterrupted 20-foot wide throat access to the site is required from the street for the multi residential projects and shall meet the requirements of the California Fire Code throughout the site. Vehicle maneuvering, as demonstrated by Auto Turn along private streets and access ways, shall be demonstrated on the grading plan. Street improvement plans shall conform to all format and design requirements of the City Standard Drawings & Specifications. Approved site plan from planning division shall be included as part of the grading improvements plan package.

10. All vehicular access drives to the site shall be provided in locations approved by the City Traffic Engineer. (See Traffic Engineering Policy TE-17)

11. The applicant shall coordinate with the Planning Services Division and Orange County Fire Authority to identify proper emergency vehicle access to the site and shall provide the Engineering Division a copy of the approval letters upon first submittal of the grading and street improvement plans.

12. Any new drive approaches to the site shall be constructed in accordance with Garden Grove Standard B-121 as they conform to land use and roadway designation.

13. The grading plan shall depict an accessibility route for the ADA pathway in conformance with the requirements of the Department of Justice standards, latest edition and section 1110A of the California Building Code.

14. All trash container areas shall meet the following requirements per City of Garden Grove Standard B-502 and State mandated commercial organic recycling law, including AB 1826, SB 1383 and its implementing regulations, and any other applicable State recycling laws related to refuse, recyclables, and/or organics. Trash container areas shall be subject to the following, as applicable:

    a. Paved with an impervious surface, designed not to allow run-on mixing of drainage from adjoining areas, designed to divert drainage from adjoining roofs and pavements to be directed around the area for trash roll out, and screened or walled to prevent off-site transport of trash by water or wind.

    b. Provide solid roof or awning to prevent direct precipitation into the enclosure.

    c. Connection of trash area drains to the municipal storm drain system is prohibited. Drainage from the enclosure may be directed to a conforming grease or contaminant interceptor.

    d. Potential conflicts with fire code access requirements and garbage pickup routing for access activities shall be considered in implementation of design and source control. See CASQA Storm Water Handbook Section 3.2.9 and BMP Fact Sheet SD 32 for additional information.

    e. The trash enclosure and containers shall be located to allow pick-up and maneuvering, including turnarounds, in the area of enclosures, and concrete aprons for roll-out areas.

    f. Pursuant to state mandated commercial organic recycling law, including AB 1826 and SB 1383 and its implementing regulations, the applicant is required to coordinate storage and removal of the organics waste with local recycling/trash company.

    g. Pursuant to applicable state mandated laws, the applicant is required to contact and coordinate with the operations manager of the local recycling/trash company (Republic Services, 800-700-8610) to ensure the trash enclosure includes the appropriate size and number of containers for the disposal of items such as, but not necessarily limited to, municipal solid waste (MSW), recyclables, and organic green waste.

    h. Based on the amount of waste disposed, per week, the applicant shall coordinate with the local recycling/trash company to ensure the adequate frequency of trash pick-up is serviced to the site for municipal solid waste (MSW), recyclables, and organic green waste, and any other type of waste.

i. The applicant shall ensure large bulk items, intended for coordinated and scheduled pick-up by the local recycling/trash company, are not placed in areas that encroach into drive aisles, parking spaces, pedestrian pathways, or areas in the front of the property including areas public right-of-way (e.g., street, sidewalk), during and after construction. Any large bulk items shall be out of public vantage points.

j. The requirements for the trash enclosure and design criteria are bound and coordinated with the Water Quality Management Plan (WQMP), when required, as depicted on the project grading plan, which shall be incorporated into the WQMP by narrative description, exhibits and an Operation and Maintenance Plan (O&M).

15. Any new or required block walls and/or retaining walls shall be shown on the grading plans, both in plan-view and cross sections. Cross sections shall show vertical and horizontal relations of improvements (existing and proposed) on both sides of property lines. Required wall heights shall be measured vertically from the highest adjacent finished grade. Block walls shall be designed in accordance to City of Garden Grove Standard B-504, B-505, B-506 & B-508 or designed by a professional registered engineer. In addition, the following shall apply:

a. The color and material of all proposed block walls, columns, and wrought iron fencing shall be approved by the Planning Services Division prior to installation.

b. Openings for drainage through walls shall be shown in section details and approved by the City Engineer. Cross lot drainage is not allowed.

16. The applicant shall remove any existing substandard driveway approaches, curbs, sidewalks, ADA ramps, pavement sections, tree well and landscaping, and construct Bixby Avenue frontage improvements as identified below. All landscape, irrigation, sidewalk, and lighting improvements installed within the public rights-of-way shall be maintained by the applicant and shall require the approval of the City Engineer, Street Division, and Planning Services Division.

a. Existing substandard driveways on Bixby Avenue shall be removed and replaced with new curb, gutter, landscape, and sidewalk per City standards and specifications.

b. The new driveway approaches to the site on Bixby Avenue shall be constructed in accordance with Garden Grove Standard B-121.

c. The applicant shall install red curb near driveway approaches on Bixby Avenue per approved site plan, SP-129-2023.

d. The applicant shall remove the existing improvements fronting the project on Bixby Avenue and construct new 10'-0" wide sidewalk panels

in accordance with City of Garden Grove Standard B-105. The owner/contractor shall verify the placement limits of sidewalk concrete panels with public works inspector prior to start of construction.

e. The applicant shall remove and replace the street pavement fronting the project on Bixby Avenue from the edge of northerly gutter to the edge of the southerly gutter per City of Garden Grove standard plan B-103.

f. The applicant shall construct curb and gutter when replacing any existing driveway approach along the property frontage on Bixby Avenue in accordance with City Standard Plan B-114.

g. The applicant shall locate all existing public utilities across the property frontage and within the property boundary of the project prior to commencement of grading operation and mobilization.

h. The applicant shall coordinate with the Planning Services Division and Public Works Street Division before placing any type of tree within public right of way and proposed landscape area.

i. Street signs shall be installed as required and approved by the City Traffic Engineer.

17. Any proposed new landscaping in public right-of-way shall be approved by Planning Services Division and maintained by the owner for the life of the project.

18. Driveway widths shall be in accordance with City's Traffic Engineering Policy TE-8 (Driveway Opening Policy).

19. Sight Distance Standards shall be in accordance with City's Traffic Engineering Policy TE-13. All structures and walls shall be designed to ensure proper vision clearance for cars entering or leaving the driveway and parking areas. No structure, wall or fence shall cause an exceedance of the applicable site distance standards set forth in City Traffic Engineering Policy TE-13.

20. The Site Plan shall comply with the completed Development Review and Comment Sheet prepared pursuant to City's Traffic Engineering Policy TE-17 and provided to the applicant.

21. Private Property Tow Away Sign Design shall be in accordance with City's Traffic Engineering Policy TE-19.

22. No Parking Fire Lane Sign Design shall be in accordance with City's Traffic Engineering Policy TE-20.

23. Layout of the parking structure layout shall be in accordance with City Standard B-311 & B-312.

24. Except as authorized pursuant to the approved Site Plan pursuant to the State Density Bonus Law, off-street parking requirements for residential uses shall be in accordance with the parking provisions in Chapter 9.12 of the Garden Grove Municipal Code and the City of Garden Grove's Traffic Policies and Procedures TE-17 Development Review and Comments Sheet.

25. A minimum five-foot-by-five-foot-wide maneuvering area shall be provided at the end of a dead-end parking aisle and shall consist of a ten-foot-by-nineteen-foot-wide turnaround space.

Permit Issuance

26. The applicant shall be subject to Traffic Mitigation Fees (Garden Grove City Council Resolution 9401-16), In-Lieu Park Fees, Drainage Facilities Fees, Water Assessment Fees, and other applicable mitigation fees identified in Chapter 9.44 of the Garden Grove Municipal Code, along with all other applicable fees duly adopted by the City.

27. A separate street permit is required for work performed within the public right-of-way.

28. Grading fees shall be calculated based on the current fee schedule at the time of permit issuance.

29. The applicant shall identify a temporary parking site(s) for construction crew and construction trailers office staff prior to issuance of a grading permit. No construction parking is allowed on local streets. Construction vehicles should be parked off traveled roadways in a designated parking area. Parking areas, whether on-site or off-site, shall be included and covered by the erosion control plans.

30. Prior to issuance of a grading permit, the applicant shall submit and obtain approval of a worksite traffic control plan for all the proposed improvements within public right of way, which shall be subject to the review and approval of the City Traffic Engineer.

31. In accordance to City of Garden Grove Municipal Code (Chapter 9.48.030), the applicant is required to underground all existing and proposed on-site and off-site utility facilities fronting the project which the developer is developing or redeveloping. All existing improvements and utilities shall be shown as part of the grading submittal package in the topography section.

Project Construction/Operation

32. The applicant shall coordinate with City's Public Works Department (Engineering, Water Services and Streets Division) and set up appointments

for preconstruction inspections for all the on-site and off-site improvements prior to commencement of grading operation and mobilization.

33. In accordance with the Orange County Storm Water Program manual, the applicant and/or its contractors shall provide dumpsters on-site during construction unless an Encroachment Permit is obtained for placement in street.

34. The applicant and its contractor shall be responsible for protecting all existing horizontal and vertical survey controls, monuments, ties (centerline and corner) and benchmarks located within the limits of the project. If any of the above require removal; relocation or resetting, the Contractor shall, prior to any construction work, and under the supervision of a California licensed Land Surveyor, establish sufficient temporary ties and benchmarks to enable the points to be reset after completion of construction. Any ties, monuments and bench marks disturbed during construction shall be reset per Orange County Surveyor Standards after construction. Applicant and its contractor shall also re-set the tie monuments where curb or curb ramps are removed and replaced or new ramps are installed. The Applicant and its contractor shall be liable for, at his expense, any resurvey required due to his negligence in protecting existing ties, monuments, benchmarks or any such horizontal and vertical controls. Temporary Benchmarks shall not be used for Vertical control. Benchmarks shall be to the National Geodetic Vertical Datum (NGVD).

35. Heavy construction truck traffic and hauling trips, and any required lane closures shall occur outside peak travel periods. Peak travel periods are considered to be from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.

36. Prior to grading or building permit closeout and/or the issuance of a certificate of use or a certificate of occupancy, the applicant shall:

    a. Demonstrate that all structural best management practices (BMPs) described in the Project WQMP have been constructed and installed in conformance with approved plans and specifications.

    b. Demonstrate that the applicant is prepared to implement and maintain all non-structural BMPs described in the Project WQMP.

    c. Demonstrate that an adequate number of copies of the approved Project WQMP are available on-site.

    d. Submit for review and approval by the City an Operations and Maintenance (O&M) Plan for all structural BMPs.

Public Works Water and Sewer Division

37. New water service installations 2" and smaller may be installed by the City of Garden Grove at owner's/developer's expense. Installation shall be scheduled

upon payment of applicable fees, unless otherwise noted. Fire services and larger water services 3" and larger shall be installed by applicant's contractor per City Standards.

38. Water meters shall be located within the City right-of-way. Fire services and large water services 3" and larger, shall be installed by contractor with class A or C-34 license, per City water standards, and inspected by approved Public Works inspection.

39. A Reduced Pressure Principle Device (RPPD) backflow prevention device shall be installed for meter protection. The landscape system shall also have RPPD device. Any carbonation dispensing equipment shall have a RPPD device. Installation shall be per City Standards and shall be tested by a certified backflow device tester immediately after installation. Cross connection inspector shall be notified for inspection after the installation is completed. Owner shall have RPPD device tested once a year thereafter by a certified backflow device tester and the test results to be submitted to Public Works, Water Services Division. Property owner must open a water account upon installation of RPPD device.

40. It shall be the responsibility of owner/developer to abandon any existing private water well(s) per Orange County Health Department requirements. Abandonment(s) shall be inspected by Orange County Health Department inspector after permits have been obtained.

41. A composite utility site plan shall be part of the water plan approval.

42. There shall be a minimum 15 foot clearance of building footings from water main. Clearances less than 15 feet shall be reviewed and approved by Water Engineering.

43. New utilities shall have a minimum 5 foot horizontal and a minimum 1 foot vertical clearance from water main and appurtenances.

44. Any new or existing water valve located within new concrete driveway or sidewalk construction shall be reconstructed per City Standard B-753.

45. Any fire service and private fire hydrant lateral shall have above ground backflow device with a double check valve assembly. Device shall be tested immediately after installation and once a year thereafter by a certified backflow device tester and the results to be submitted to Public Works, Water Services Division. Device shall be on private property and is the responsibility of the property owner. The above ground assembly shall be screened from public view pursuant Section 9.12.040.010.G.

46. Location and number of fire hydrants shall be as required by Water Services Division and the Orange County Fire Authority (OCFA).

47. Applicant shall install new sewer lateral with clean out at right-of-way line. Lateral in public right-of-way shall be 6" minimum diameter extra strength VCP with wedgelock joints.

48. Applicant shall abandon any existing unused sewer lateral(s) at street right-of-way on the property owner's side. The sewer pipe shall be capped with an expansion sewer plug and encased in concrete. Only one sewer connection per lot is allowed.

49. All perpendicular crossings of the sewer, including laterals, shall maintain a vertical separation of minimum 12" below the water main, outer diameter to outer diameter. All exceptions to the above require a variance from the State Water Resources Control Board.

50. If water main is exposed during installation of sewer lateral, a 20 foot section of the water main shall be replaced with 20 foot PVC C-900 DR-14 class 305 water pipe, size in kind and centered at the crossing.

Orange County Fire Authority

51. The applicant shall comply with all applicable Orange County Fire Authority (OCFA) requirements, including but not limited to the Fire Master Plan.

Building and Safety Division.

52. All work shall comply with the latest edition of the California (CA) Building Standards Code (CBC) at time of permit application.

53. A soils report per the latest edition of CBC Chapter 18 is required and shall be submitted at time of building permit application.

54. A fire sprinkler system shall be provided per the latest edition of CBC Chapter 9.

55. Fire and sound rated constructions shall be provided between the units and shall comply with the latest edition of CBC Chapter 7.

56. Common use areas shall comply with the latest edition of CBC Chapter 11A.

57. Complete mechanical, plumbing and electrical plans shall be required.

58. All rooms and spaces on the primary level shall be on an accessible route.

Planning Services Division.

59. The applicant shall submit detailed plans showing the proposed location of utilities and mechanical equipment to the Community Development Department, Planning Services Division for review and approval prior to

submitting plans into the Building and Safety Division Plan Check process. The project shall also be subject to the following:

a. All above-ground utility equipment (e.g. electrical, gas, telephone, cable TV) shall not be located in the street setback, within the common areas, or any parking areas, and shall be screened by densely planted and maintained landscaped hedges or a fence or wall. Ground-mounted equipment shall not exceed the maximum allowable height for a wall, fence, or hedge.

b. Clinging vines shall be installed within the landscape planters along the perimeter block walls to deter graffiti.

c. Roof-mounted mechanical equipment shall be screened by parapet walls, rooftop architectural features such as a tower equal to the height of the equipment, or low walls surrounding the equipment and shall be painted to match the color of the building materials.

d. No exterior piping, plumbing, or mechanical ductwork shall be permitted on any exterior façade and/or be visible from any public right-of-way or adjoining property. Roof rain gutters are permitted. The rain gutters shall follow the natural architecture lines of the building.

60. All landscaping shall be consistent with the landscape requirements of Title 9 of the Municipal Code. The developer shall submit a complete landscape plan governing the entire development. The landscape irrigation plans shall include type, size, location and quantity of all plant material. The landscape plan shall include irrigation plans and staking and planting specifications. All landscape irrigation shall comply with the City's Landscape Ordinance and associated Water Efficiency Guidelines. The landscape plan is also subject to the following:

a. A complete, permanent, automatic remote control irrigation system shall be provided for all landscaping areas shown on the plan. The sprinklers shall be of drip or micro-spray system sprinkler heads for water conservation.

b. Forty percent of the trees on a site shall consist of minimum size 24-inch box, and the remaining 60 percent shall be of minimum size 15 gallons. These trees shall be incorporated into the landscaped frontages of all streets. Where clinging vines are considered for covering walls, Boston Ivy shall be used.

c. The applicant or the property owner shall be responsible for installing and maintaining the landscaping.

d. No trees shall be planted closer than five feet (5'-0") from any public right-of-way. Trees planted within ten feet (10'-0") of any public right-

of-way shall be planted in a root barrier shield. All landscaping along street frontages adjacent to driveways shall be of the low-height variety to ensure safe sight clearance. All trees planted on the subject property, whether for screening the project from the neighboring lots or for aesthetic or selling/marketing purposes, shall have an irrigation system installed in order maintain the trees.

e. All trees shall be double-staked in accordance with City standards.

f. All landscape areas, including the areas located within the public rights-of-ways along Bixby Avenue that abuts the subject property, are the responsibility of the applicant/property owner(s).

g. Fifty percent (50%) of all required shrubs shall be a minimum size of five (5) gallons at time of planting.

h. Live groundcover shall be planted and maintained where shrubbery is not sufficient to cover exposed soil. Mulch may be used in place of groundcover where groundcover will not grow or where groundcover will cause harm to other plants, but not more than 30% of the groundcover area shall have the mulch substitute.

i. Groundcover plants shall be planted at a density and spacing necessary for them to become well established and provide surface coverage within 18 months of planting.

j. The landscape plan shall incorporate and maintain for the life of the project those means and methods to address water run-off also identified as Low Impact Development provisions, which address water run-off. This is to also to be inclusive of any application of Water Quality Management Plans (WQMP), Drainage Area Management Plans (DAMP) and any other water conservation measures applicable to this type of development.

k. At the time of irrigation installation, the irrigation system shall comply with all applicable provisions of the City's Water Conservation Ordinance, the City's Municipal Code landscape provisions, and all applicable state regulations.

l. All above-ground utilities (e.g. water backflow devices, electrical transformers, irrigation equipment) shall be shown on the landscaping plan in order to ensure landscape screening will be provided.

61. All of the common recreational area, as identified on the approved site plan, shall be equipped with the list of amenities, as shown on the approved plan, subject to review by the Planning Services Division and Building and Safety Division prior to issuance of building permits for compliance with applicable standards.

a. The improvements to the outdoor recreational area shall include at a minimum, porcelain tile pavers on pedestal system, raised planters, water fountain, tables, chairs, patio and lounge furniture, barbeque grills, benches, and landscaping.

b. All interior recreation areas shall incorporate the appropriate indoor furniture and amenities for the proposed use of the room. The indoor clubhouse shall provide a kitchen or kitchenette. The business center shall be equipped with internet, and be furnished with a minimum of four (4) tables, and sixteen (16) chairs, as shown on the approved plans.

c. Lighting in the common recreational areas shall be provided at a maximum one-foot light candle during the hours of darkness, and shall be restricted to low decorative type wall-mounted lights or ground lighting systems.

62. Hours and days of construction and grading shall be as set forth in the City of Garden Grove Municipal Code Chapter 8.47 as adopted, except that:

a. Monday through Friday – not before 7:00 a.m. and not after 5:00 p.m.

b. Saturday – not before 8:00 a.m. and not after 5:00 p.m. All construction activity on Saturday shall be limited to interior construction only.

c. Sunday and Federal Holidays – no construction shall occur.

63. Construction activities shall adhere to SCAQMD Rule 403 (Fugitive Dust) that includes dust minimization measures, the use of electricity from power poles rather than diesel or gasoline powered generators, and the use methanol, natural gas, propane or butane vehicles instead of gasoline or diesel powered equipment, where feasible. Also, use of solar, low emission water heaters, and low sodium parking lot lights, shall be required to ensure compliance with Title 24.

64. All lighting structures shall be placed so as to confine direct rays to the subject property. All exterior lights shall be reviewed and approved by the Planning Services Division. Lighting adjacent to residential properties shall be restricted to low decorative type wall-mounted lights, or a ground lighting system. Lighting shall be provided throughout all private drive aisles and entrances to the development per City standards for street lighting. Lighting in the common areas shall be directed, positioned, or shielded in such manner so as not to unreasonably illuminate the window area of nearby residences.

65. The main drive aisle serves the entire project for vehicular circulation. The applicant shall utilize effective signage, and/or other acceptable means (i.e., a painted/marked red fire lane), to communicate to residents and guests that there shall be no parking in front of the parking structure or anywhere within

the drive aisle. Additionally, applicant shall ensure and enforce lease or other restrictions providing that there will be no long term parking of vehicles in the guest parking spaces and that guest parking spaces shall not be reserved for any particular units.

66. The applicant/property owner shall abate all graffiti vandalism within the premises. The property owner shall implement best management practices to prevent and abate graffiti vandalism within the premises throughout the life of the project, including, but not limited to, timely removal of all graffiti, the use of graffiti resistant coatings and surfaces, the installation of vegetation screening of frequent graffiti sites, and the installation of signage, lighting, and/or security cameras, as necessary. Graffiti shall be removed/eliminated by the property owner as soon as reasonably possible after it is discovered, but not later than 72 hours after discovery.

67. There shall be no deliveries from or to the premises before 7:00 a.m. and after 10:00p.m., seven (7) days a week.

68. Storage of boats, recreational vehicles, or commercial vehicles on the property shall be prohibited. The applicant/property owner shall ensure that this condition is complied with at all times by tenants of the units and shall include notice of this requirement in all lease agreements.

69. All new block walls, and/or retaining wall(s), including existing block walls to remain, if any, shall be shown on the grading plans. Block walls shall be developed to City Standards or designed by a Registered Engineer and shall be measured from on-site finished grade. The applicant shall provide the following:

    a. All block walls shall comply with the requirements of Section 9.12.040.010.U of the Municipal Code. Where allowed, no walls greater than 36-inches (3'-0") in height shall be constructed within the driveway vision clearance area of the project's entrance.

    b. Decorative masonry walls are required along the north, east, and west property lines and shall be constructed to a minimum height of 6'-0", as measured from highest point of finished grade. The block walls shall be decorative and utilize stucco finish, slump stone or split-face block, and shall include trailing vines, hedges planted along the base of the exterior face, or other landscaping treatments that deter graffiti.

    c. The applicant shall work with the existing property owners along the project perimeter in designing, constructing, and maintaining the required perimeter block walls. This requirement is to avoid having double walls and to minimize any impact that it might cause to the existing landscaping on the neighbor's side as much as possible. The perimeter block wall shall be constructed and situated entirely within

the subject property. In the event that the applicant cannot obtain approval from the property owners, the applicant shall construct the new wall with a decorative cap to be placed between the new and existing walls. In the event the location of a new wall adjacent to an existing wall or fence has the potential to affect the landscape planter, then the applicant shall work with City Staff to address this situation. The Community Development Director shall be authorized to approve minor alterations the size and/or location of the landscape planter to accommodate the placement of such wall.

70. All recreation areas, landscaping along the interior project street and entryway, landscaped areas in all common areas, and any landscaping within the public right-of-way shall be maintained by the applicant for the life of the project.

71. During construction, if paleontological or archaeological resources are found, all attempts will be made to preserve in place or leave in an undisturbed state in compliance with applicable law. In the event that fossil specimens or cultural resources are encountered on the site during construction and cannot be preserved in place, the applicant shall contact and retain, at applicant's expense, a qualified paleontologist or archaeologist, as applicable, acceptable to the City to evaluate and determine appropriate treatment for the specimen or resource, and work in the vicinity of the discovery shall halt until appropriate assessment and treatment of the specimen or resource is determined by the paleontologist or archeologist (work can continue elsewhere on the project site). Any mitigation, monitoring, collection, and specimen/resource treatment measures recommended by the paleontologist/archaeologist shall be implemented by the applicant at its own cost.

72. The applicant shall comply with the Migratory Bird Treaty Act (MBTA), and Sections 3503, 3503.5 and 3515 of the California Fish and Game regulations, which require the protection of active nests of all bird species, prior to the removal of any on-site landscaping, including the removal of existing trees.

73. Short- and long-term bicycle parking shall be provided pursuant to the applicable requirements of the building code.

74. The project shall provide a trash room with a trash shoot that serves each of the residential floors. The trash bins shall be kept inside the trash room at all times, except during disposal and pick-up. The property owner shall provide sufficient trash bins and pick-up to accommodate the site pursuant to Conditions No. 14.

75. A Knox box shall be provided at the access gate and the pedestrian gate for fire and trash truck access.

76. Prior to issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the name and address of the development, and the developer's name, address, and a 24-hour emergency telephone number.

77. Litter shall be removed daily from the project site, including adjacent public sidewalk and all perking areas under the control of the applicant. The areas shall be swept or cleaned, either mechanically or manually, on a weekly basis, to control debris.

78. Each parking space shall be assigned to a unit, as shown on the approved plan.

79. There shall be no parking allowed along any drive-aisle, except within the designated parking areas. The applicant shall post "No Parking" signs along the drive aisle.

80. Each residence shall be utilized as one (1) dwelling unit. No portion of any residence shall be utilized or rented as a separate dwelling unit.

81. All balconies, as labeled as "deck area" on the approved plan, shall remain open and shall not be enclosed at any time. There shall be no storage allowed in the balconies at any time. The applicant shall ensure that this condition is complied with at all times by tenants of the units and shall include notice of this requirement in all lease agreements.

82. The maintenance of the drive aisles, storm drains, sewer system, and open space areas is the responsibility of the applicant, including the common recreation areas and the common landscape areas.

83. Each unit shall be provided with an air conditioning condensing unit and/or system so that there are no wall-mounted, or window mounted units. Roof-mounted mechanical equipment shall be screened by parapet walls, rooftop architectural features such as a tower equal to the height of the equipment, or low walls surrounding the equipment and shall be painted to match the color of the building materials.

84. Each unit shall have phone jacks and cable-TV outlets in all rooms, except in the hallways and bathrooms.

85. Mailboxes shall be provided and installed by the applicant. The local postmaster shall approve the design and location.

86. Each unit shall be provided with washer and dryer hook-ups.

87. At applicant's request, applicant has been granted State Density Bonus allowances for an increase in density, reduced parking, and the following three (3) concessions and two (2) waivers from applicable development standards:

(1) a concession to deviate from the forty-foot (40'-0") side-yard stepback requirement at the third floor set forth in Sections 9.12.040.020.A and 9.12.040.050.A.3 of the Municipal Code to allow the third floor stepback to be at twenty-nine feet and six inches (29'-6") at the westerly property line; (2) a concession to deviate from the maximum 50% lot coverage requirement set forth in Section 9.12.040.020.A of the Municipal Code to allow the lot coverage to be at 53.4%; (3) a concession to deviate from the minimum one-bedroom unit size requirement of 700 square feet set forth in Section 9.12.040.020.E of the Municipal Code to allow all one-bedroom units in the Project to be 656 square feet; (4) a waiver to deviate from the twenty-five foot (25'-0") front setback requirement at the third floor set forth in Section 9.12.040.020.A to allow the third floor front setback to be at twenty feet (20'-0"), and (5) a waiver to deviate from the front, side and rear setback requirements set forth in Section 9.12.040.020.D to allow the balcony to encroach up to two feet and six inches (2'-6") into the front, side and rear setback area. To comply with the provisions of Government Code Section 65915, the applicant has offered to, and shall, reserve at least three (3) dwelling units in the project, consisting of two (1) one-bedroom units, and one (1) three-bedroom unit, for occupancy by very low-income households for a period of 55 years commencing with the issuance of the certificate of occupancy for the project. The applicant shall at all times during the term of the affordability period comply with the requirement to rent the target units to very low-income households at an affordable rent as required by the Garden Grove Municipal Code and State Law. Pursuant to State law, the Garden Grove Municipal Code, and the City's Density Bonus Agreement Guidelines, the record owner or owners of the subject property shall enter into an affordable housing regulatory agreement with the City, which satisfies the criteria set forth in subdivision (c) of Government Code Section 65915 and Garden Grove Municipal Code Section 9.60.050. The regulatory agreement shall be prepared by the City at the applicant/owner's expense, and the applicant and/or owner shall pay applicable fees pursuant to GGMC Section 9.60.050.G and reimburse the City for the actual fees and costs charged for the services of attorneys and/or other professional third-party consultants engaged by the City to provide consultation, advice, analysis, and/or review and/or preparation of documents in connection with preparation of the regulatory agreement, review of the initial marketing plan and management plan required as part of the regulatory agreement, review of annual compliance reports submitted by the owner pursuant to the regulatory agreement, and inspections and audits provided for in the regulatory agreement. Prior to preparation of the regulatory agreement, applicant and/or property owner shall execute a reimbursement agreement with the City, in a form approved by the City Attorney, and provide a deposit to the City in an amount sufficient to cover the estimated professional fees and costs to be incurred by the City, as determined by the Department Director, in his or her reasonable discretion. The regulatory agreement shall be approved by the City and recorded prior to issuance of a building permit for any structure in the project. The regulatory agreement shall remain a senior, non-subordinate

covenant and as an encumbrance running with the land for the full term thereof. In no event shall the regulatory agreement be made junior or subordinate to any deed of trust or other documents providing financing for the construction or operation of the project, or any other lien or encumbrance whatsoever for the entire term of the required covenants.

88. The applicant shall submit a signed letter acknowledging receipt of the decision approving Site Plan No. SP-129-2023 and his/her agreement with all conditions of the approval.

89. A copy of the resolution approving Site Plan No. SP-129-2023, including these Conditions of Approval, shall be kept on the premises at all times.

90. The applicant shall, as a condition of Project approval, at its sole expense, defend, indemnify and hold harmless the City, its officers, employees, agents and consultants from any claim, action, or proceeding against the City, its officers, agents, employees and/or consultants, which action seeks to set aside, void, annul or otherwise challenge any approval by the City Council, Planning Commission, or other City decision-making body, or City staff action concerning Site Plan No. SP-129-2023. The applicant shall pay the City's defense costs, including attorney fees and all other litigation related expenses, and shall reimburse the City for court costs, which the City may be required to pay as a result of such defense. The applicant shall further pay any adverse financial award, which may issue against the City including but not limited to any award of attorney fees to a party challenging such project approval. The City shall retain the right to select its counsel of choice in any action referred to herein.

91. Unless a time extension is granted pursuant to Section 9.32.030.D.9 of Title 9 of the Municipal Code, the use authorized by this approval of Site Plan No. SP-129-2023 shall become null and void if the subject use or construction necessary and incidental thereto is not commenced within one (1) year of the expiration of the appeal period and thereafter diligently advanced until the completion of the project. In the event construction of the project is commenced, but not diligently advanced until completion, the rights granted pursuant to SP-129-2023 shall expire if the building permits for the project expire.