

AGENDA



VALLEJO PLANNING COMMISSION REGULAR MEETING – 7:00 P.M. COUNCIL CHAMBERS

555 Santa Clara Street, Vallejo, California

Peggy Cohen-Thompson,
Chair
Jamar Stamps, Vice Chair
Donald Douglass
Eric Blind
Wanda Madeiros
Anthony Taylor
Tara Beasley-Stansberry

August 21, 2023

NOTICE: Members of the public will be able to participate in-person or remotely via Zoom. City Hall and the Council Chambers will be open to members of the public 30 minutes prior to the start of the meeting.

VIEW THE MEETING:

There are four different ways you can view this public meeting:

- In Person
- Watch Vallejo local channel 28
- Stream from the City website: www.cityofvallejo.net/Streaming
- Join the Zoom webinar: <https://ZoomRegular.Cityofvallejo.net>

IMPORTANT NOTICE

This AGENDA contains a brief general description of each item to be considered. The posting of the recommended actions does not indicate what action may be taken. If comments come to the Planning Commission without prior notice for an item not listed on the AGENDA, no specific answers or responses should be expected at this meeting per State law.

Pursuant to Government Code Section 54954.3 of the Brown Act, members of the public shall be afforded the opportunity to speak on any agenda item of interest to them after being recognized by the presiding officer. Members of the public wishing to be so recognized are requested to submit a completed speaker card to the Secretary of the Planning Commission prior to the consideration of the item or raise their hand via ZOOM: (<https://ZoomRegular.Cityofvallejo.net>) or by phone: Dial (669) 900-6833. Enter Meeting ID: 914 0075 0676#. Press * 9 to digitally raise your hand from the phone. For additional instructions on how to speak remotely during public comment, please visit www.cityofvallejo.net/publiccomment. In person speakers will be recognized first.

This AGENDA contains a brief general description of each item to be considered. The posting of the recommended actions does not indicate what action may be taken. If comments come to the Planning Commission without prior notice and are not listed on the AGENDA, no specific answers or response should be expected at this meeting per State law.

Notice of Availability of Public Records: All public records relating to an open session item, which are not exempt from disclosure pursuant to the Public Records Act, that are distributed to a majority of the Planning Commission will be available on the City of Vallejo website at www.cityofvallejo.net subject to staff's ability to post the documents prior to the meeting.

Disclosure Requirements: Government Code Section 84308 (d) sets forth disclosure requirements which apply to persons who actively support or oppose projects in which they have a "financial interest", as that term is defined by the Political Reform Act of 1974. If you fall within that category, and if you (or your agent) have made a contribution of \$250 or more to any commissioner within the last twelve months to be used in a federal, state or local election, you must disclose the fact of that contribution in a statement to the Commission.

Appeal Rights: The applicant or any party adversely affected by the decision of the Planning Commission may, within ten days after the rendition of the decision of the Planning Commission, by filing a written appeal with the Director of Planning and Development Services. Such written appeal shall state the reason or reasons for the appeal and why the applicant believes he or she is adversely affected by the decision of the Planning Commission. Such appeal shall not be timely filed unless it is actually received by Director of Planning and Development Services or designee no later than the close of business on the tenth calendar day after the rendition of the decision of the Planning Commission. If such date falls on a weekend or City holiday, then the deadline shall be extended until the next regular business day.



The Council Chambers in City Hall is ADA compliant. Devices for the hearing impaired are available from the City Clerk. Requests for disability related modifications or accommodations, aids or services may be made by a person with a disability to the City Clerk's office no less than 72 hours prior to the meeting as required by Section 202 of the Americans with Disabilities Act of 1990 and the federal rules and regulations adopted in implementation thereof.

If you have any questions regarding any of the following agenda items, please call the assigned planner or project manager at (707) 648-4326.

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL**
4. **OATH OF OFFICE OF NEWLY APPOINTED COMMISSIONER**

5. **CONSENT CALENDAR AND APPROVAL OF AGENDA**

Upon motion of any Commissioner, all items placed upon the consent calendar may be acted upon collectively, and each shall be deemed to have received the action recommended by the Secretary or City Attorney; except that if any Commissioner objects to the placement of an item on the consent calendar, or if any member of the public wishes to address the Commission on any such item, the item shall be removed from the consent calendar and shall be heard and acted upon in its proper place on the agenda as designated by the Presiding Officer.

After making changes in the agenda, if any, as permitted under these rules of order and procedure, the Commission shall approve the agenda which shall constitute the agenda of business to be considered at the meeting. The motion offered to approve the agenda shall include the adoption of the consent calendar.

A. APPROVAL OF AGENDA

B. OTHER CONSENT ITEMS -None

6. **REPORT OF THE CITY COUNCIL LIAISON**

The City Council Liaison may, from time to time, wish to make announcements and report on items of activity that may be of interest to the Commission and the general public.

7. **COMMUNITY FORUM**

The Presiding Officer shall announce that members of the public have the opportunity to directly address the Commission on items of interest to the public that are within the subject matter jurisdiction of the Commission and not on the current agenda. Up to fifteen (15) minutes shall be set aside for the community forum and each speaker shall be allocated up to three (3) minutes, unless time is extended by the Presiding Officer with the Commission's consent. Items of business listed on the agenda shall not be further discussed under the community forum. Anyone desiring to address the Commission may indicate such interest in one of the two ways listed below:

- 1. Any interested members of the public desiring to communicate with the Planning Commission for this item may approach the podium to speak when the Presiding Officer opens the Community Forum and indicate that they would like to do so.*
- 2. Any interested members of the public desiring to communicate with the Planning Commission for this item may do so via ZOOM:(<https://ZoomRegular.Cityofvallejo.net>), or by phone: Dial (669) 900-6833. Enter Meeting ID: 914 0075 0676#. Press * 9 to digitally raise your hand from the phone. For additional instructions on how to speak remotely during public comment, please visit, www.cityofvallejo.net/publiccomment. Please know that in-person speakers will be recognized first.*

8. PUBLIC HEARING

A. PROJECT NUMBER(S):	Development Review (DVR22-0046) Design Review (DR22-0013) Landscape Review (LR22-0010) Environmental Document (ED23-0001)
PREPARED BY:	Cesar Orozco, Principal Planner
PROJECT LOCATION:	961 Porter Street / APN: 0061-160-180
APPLICABLE ZONING CODE SECTION(S):	Development Review (VMC Chapter 16.605) Design Review (VMC Chapter 16.604) Landscape Review (VMC Chapter 16.504) Lot Line Adjustment (VMC Chapter 17.30)
PROJECT SUMMARY:	The project consists of 122 new units to an existing 182-unit multi-family apartment complex, comprising the following entitlements: Development Review, Design Review, Landscape review, Lot Line Adjustment, and environmental review. The project also includes site improvements, new landscaping, three new trash enclosures, new exterior lighting throughout the site, pedestrian paths between the new buildings, short-term bicycle parking, and a total of 155 new vehicle parking spaces.
CEQA:	Staff recommends that the Planning Commission determine that the project is categorically exempt from the requirements of CEQA under Class 32 (Section 15332 of the CEQA Guidelines) after making the required findings.
RECOMMENDATION:	Staff recommend that the Planning Commission adopt Resolution No. PC23-05 and APPROVE DR22-0013, LR22-0010, DVR22-0046, and ED23-0001.

10. WRITTEN COMMUNICATIONS

Written communications from the public will be received and filed. Written communications regarding items on the agenda will be noted at the time the item is considered.

11. REGULAR REPORTS

A. SECRETARY'S REPORT

The Secretary may, from time to time, report on items that may be of interest to the Commission and general public.

B. CITY ATTORNEY'S REPORT

The City Attorney may, from time to time, report on items that may be of interest to the Commission and general public.

C. REPORT OF THE PRESIDING OFFICER AND MEMBERS OF THE PLANNING COMMISSION

The Presiding Officer and any Commissioner may, from time to time, wish to make certain announcements, request information from staff, and to report on items of activity that may be of interest to the Commission and the general public.

D. REPORT OF THE SUBCOMMITTEES

12. OTHER AGENDA ITEMS

A. Discussion of Future Agenda Items

- a. Phase 2 Zoning Code Updates
- b. Housing, Safety and Environmental Justice Elements
- c. Overview of new State housing laws

13. ADJOURNMENT

I, Jasmine Thibeaux, Planning & Development Services Executive Secretary, do hereby certify that I have caused a true copy of the above notice and agenda to be delivered to each of the members of the Vallejo Planning Commission, at the time and in the manner prescribed by law and that this agenda was posted at City Hall, 555 Santa Clara Street, CA at 5:00 p.m. Wednesday, August 16, 2023.

Jasmine Thibeaux

Dated: August 16, 2023

Jasmine Thibeaux



**STAFF REPORT
CITY OF VALLEJO
PLANNING COMMISSION**

DATE OF MEETING: August 21, 2023

PREPARED BY: Margaret Kavanaugh-Lynch, Planning Manager
Secretary's Report

REPORT SUMMARY: Overview of State Housing Regulations

Background

Over the next several months, the Planning Commission will be reviewing a number of housing projects that will be subject to not only the Vallejo Municipal Code, but also several state housing regulations that will inform much of the Commission (and City's) purview. In preparation for these projects, staff researched available sources and found a recent document that contained an excellent overview, *New Pathways to Encourage Housing Production: A Review of California's Recent Housing Legislation*.

This staff report contains direct excerpts of this report that focus on Density Bonus Law (DBL), SB330 and the Housing Accountability Act (HAA) as they all directly impact the purview of this Board. The full April 2023 report produced by the Turner Center for Housing Innovation is included as an attachment to this report should Board members choose to read it in its entirety.

Density Bonus Law

The state's Density Bonus Law (DBL) initially enacted in 1979, has long allowed increases in a housing project's density for inclusion of a minimum amount of affordable housing facilitated by regulatory concessions. The DBL has been modified several times since 2016, in part as a response to increased development costs and barriers to production. Specifically, twelve bills have been passed that have expanded the applicability and incentives available to developers. Our interviewees noted that the combination of all of these changes has made DBL much more beneficial to use, resulting in more units and greater project feasibility.

Generally speaking, DBL allows more units to be built in a given project if some of the units are designated as affordable housing. It also grants various concessions and waivers, such as reductions of development standards.

Prior to 2017, the maximum density bonus available was an additional 35 percent of the maximum number of units allowed by the zoning for a project. A handful of bills have made changes to this maximum allowed increase. For example, AB 2345 (2020) allows a density increase of up to 50 percent for projects that dedicate 15 percent of their units to lower-income households.

In addition, AB 1763 (2019) allows 100 percent affordable housing projects to access an 80 percent density bonus, or unlimited density (up to three stories) for projects located within a quarter mile of a major transit stop. AB 2334 (2022) expanded upon allowable density for 100

percent affordable projects by extending the benefits of AB 1763 to low-vehicle miles traveled areas.

In addition to the changes noted above, there have been other notable reforms to DBL intended to facilitate greater DBL usage. AB 2372 (2018) allows cities to give a floor area ratio (FAR) bonus instead of a density bonus and limits new parking requirements.

Another important feature of DBL is the ability of developers to access “concessions” and other waivers to further facilitate development. Specifically, DBL requires cities to grant concessions to development or design standards that applicants identify as barriers to their project feasibility. For example, developers might request to reduce setback requirements or height restrictions, or requirements for specific finishes or materials. DBL also allows applicants to access lower parking requirements. Since 2016, some laws have expanded DBL concessions. In addition to the increased allowable density described above, AB 2345 also lowers the threshold requirement for mixed-income projects to access multiple concessions. AB 2334 (2022) increases available concessions for 100 percent affordable projects from three to four.

SB 330 and the Housing Accountability Act

The changes that have strengthened the Housing Accountability Act (HAA) have been particularly important for ensuring that projects are not denied despite being compliant with objective local land use regulations.

The HAA was first passed in 1982 and has been amended two dozen times since, but it was strengthened most significantly in 2017 by three bills: SB 167, AB 678, AB 1515. Among other things, these three bills apply a developer-friendly standard of review (using a “preponderance of evidence” rather than “substantial evidence” standard), increase fines on localities that unlawfully deny permits, and require that the code in place at the time the application was deemed complete must be used in reviewing the project.

In 2019, both the HAA and the Permit Streamlining Act were strengthened by the passage of SB 330, the Housing Crisis Act of 2019. SB 330 limited cities’ ability to deny permits in several ways. It created a non-discretionary “preliminary application” that vests rights upon submission, establishes a private right of action for challenging permit denials, and allows plaintiffs to win attorneys’ fees, SB 330 amended the Permit Streamlining Act as well by placing time limits on an agency’s ability to comment on a project and imposing a five-hearing rule; now a decision must be made after no more than five hearings after the project application is complete.

New Pathways to Encourage Housing Production: A Review of California's Recent Housing Legislation

AUTHORS

Bill Fulton, Turner Fellow | **David Garcia**, Policy Director | **Ben Metcalf**, Managing Director |
Carolina Reid, Faculty Research Advisor | **Truman Braslaw**, Graduate Student Researcher

Since 2017, the State of California has adopted over 100 new laws designed to increase housing production. Most of these laws have been focused on incentivizing local governments to approve more housing and expedite housing approval processes.

Some have focused on making long-standing legal authorities work better (e.g., significantly changing the ways in which cities must plan for new housing by adding new requirements to Housing Element law and creating stricter penalties for violating housing laws). Others have introduced new ways to facilitate housing production (e.g., offering pathways to streamline development and pre-empting local prohibitions on smaller-scale development in areas zoned only for single-family homes).

This new spate of laws has reshaped the housing entitlement process throughout California, and by certain metrics, permitting has increased in some areas. The Center for Continuing Study of the California Economy recently concluded that residential building permits increased 15.5 percent in the first six months of 2022, with most of that increase occurring

in multifamily permits, which typically benefit the most from housing production laws.¹ Recent state legislation has also resulted in an increase in production in other building types, such as accessory dwelling units (ADUs). At the same time, overall production remains well below levels observed before the Great Recession. In addition, given the economic uncertainty posed by inflation and instability in the banking sector, there are concerns that homebuilding starts may stagnate in the near future.

In this brief, we interview planners and land use lawyers to gain an early understanding about the extent to which the new laws are influencing housing production. Making a connection between new laws and housing production is difficult; data can be hard to gather, and a range of other issues affect production, such as cost and availability of land, labor, and construction supplies. This brief is therefore not meant to be an evaluation of the effectiveness of these state laws. Rather, it is an effort to characterize the breadth and goals of recent legislation, and to assess practitioner experiences with using these laws to further housing production. The report provides an over-

view of California's housing system, catalogs recent housing legislation, and summarizes themes from interviews with stakeholders across the state. This report is also being released with **an accompanying online tool** that allows users to search and sort legislation passed since 2016. We conclude by laying out next steps for exploring the effectiveness of these recent changes in California housing policy.

Methods

In its February 2018 Statewide Housing Assessment Report, the California Department of Housing and Community Development (HCD) included a matrix of the state's major housing laws.² This table divided California housing laws into four categories based on the part of the housing production process to which they pertain: planning, zoning, permitting, and building. The table further subdivided laws by function and act name, and described each category and some of the legislation that shaped it.

Using HCD's typology, we documented changes and additions to these laws since 2016 that were intended to spur housing production (see Appendix A). This analysis of legislative activity reveals that the state is addressing housing laws in two distinct ways. First, many of the laws work to amend or strengthen existing state authorities and mandates. The fact that housing laws are often iterative, refining implementation over time, is a critical aspect to housing policy. It also means that new laws cannot be interpreted without a broader understanding of their historical origins, and that their impact is often a function of the cumulative changes over time, rather than one specific change. Second, the report also highlights that the state is

initiating new approaches to bolster and/or target new housing production.

One important caveat is that no one law operates on its own, and many of the laws that shape California's housing landscape—including its Housing Element planning law, the Regional Housing Needs Allocation (RHNA) law, and the California Environmental Quality Act (CEQA)—are complex and inter-related. In this report, we provide an overview of the changes to these laws, and do not delve more deeply into all the dimensions that influence their implementation and effectiveness. As we discuss further in the conclusion, more research is needed to understand the impacts of recent legislative efforts and how those vary across California's diverse communities.

In addition to this legislative review, we interviewed 22 stakeholders across the state—including land use attorneys and city planners—to better understand how and to what extent developers and public agencies have been drawing on these legislative shifts and their experiences in using them to overcome barriers to housing production.

A Review of California's New Housing Laws

California's housing law framework can be divided into four categories: planning, zoning, permitting, and building. Many of these laws are part of the Planning and Zoning Law, or PZL³, and go back several decades in many instances. In this brief, we will deal only with the first three categories—planning, zoning, and permitting (referred to as Entitlement Review below)—all of which have seen significant new legislation since 2016. We do not include a category on building code as few laws passed since 2016 that are specific to changing the building code.

Planning

California has many laws governing land use planning, but those most relevant to housing are the General Plan law⁴, the Housing Element Law,⁵ and the Regional Housing Needs Allocation (RHNA) law⁶ (which is part of the Housing Element Law). The California Environmental Quality Act (CEQA)⁷ also plays an important role in land use planning, as does the Affirmatively Furthering Fair Housing law.⁸

The Housing Element and RHNA laws are especially important. Unlike most states, California requires local governments to create plans to meet housing production targets. Targets are set for regions and regional governmental bodies coordinate and allocate a share of the total number of new homes needed to each city, town, and county. The RHNA process establishes local production targets. All cities and counties must participate and adopt a Housing Element that lays out both a land use strategy to accommodate the needed housing by identifying sites that are properly zoned, available for construction as well as a strategy for using housing funds and programs to meet affordable housing goals.

The Housing Element Law was originally passed in 1969,⁹ but was widely considered ineffective for many years.¹⁰ Recent statutory changes, along with strengthened enforcement from California's Department of Housing & Community Development (HCD) and the California Office of the Attorney General, have made the RHNA process and Housing Elements much more powerful tools. Below we discuss the recent changes to planning law that have resulted in a stronger process. However, the state's cities and counties are currently working through the sixth cycle

of the RHNA process which reflects these changes, meaning that it is too soon to know their effects.

Higher Housing Targets and Other Considerations

Over the past five years, the Legislature significantly expanded the planning requirements within Housing Element Law in ways that have greatly increased the number of homes that cities must now plan for. This change, along with reforms to how cities must plan for these new homes, have influenced how cities are approaching the Housing Element process and have the potential to increase housing production in the future.

For example, the Housing Element has long required cities to identify and inventory enough sites to accommodate the number of units included in their RHNA. However, in previous planning cycles, cities frequently included sites where building was infeasible, resulting in a low development rate even though the Housing Element was compliant. To make site inventories more effective at facilitating development, Assembly Bill (AB) 1397 (2017) requires cities to assess the probability of development on specific parcels. The bill also prevents cities from including sites that had been identified in a previous inventory unless those sites would be subject to by-right zoning in the current planning cycle, thus increasing the likelihood the site would be built on.

Senate Bill (SB) 828 (2018) and AB 1771 (2018) amended the RHNA process to require the consideration of factors such as housing cost burdens, overcrowding, fair housing, and other issues in establishing new housing production targets for cities and counties. Prior to these changes, RHNA targets were more susceptible to

political negotiation and oftentimes were not reflective of actual housing needs. For example, in the 5th RHNA cycle, the city of Beverly Hills was given a housing production target of only three new units over the eight year planning period. The new laws will reduce the likelihood that cities will be given such low targets, and the net effect of these changes has been an increase in HCD's allocations of housing units needed throughout the state. For example, the RHNA target figure for the Southern California Association of Governments (SCAG) region increased from 412,000 units in the fifth cycle to 1.3 million in the sixth cycle. The target number for the Association of Bay Area Governments (ABAG) grew from 188,000 in the fifth cycle to 445,000 in the sixth cycle. This significant increase has caused local cities and counties to increase the densities permitted on residential projects and change their zoning ordinances in other ways to accommodate these higher numbers.

Interviewees expressed optimism that recent legislative changes would result in an increase in construction by requiring that cities plan and zone for more housing in ways that could be reasonably expected to facilitate actual housing growth. Interviewees pointed to the significant increases in planned housing that cities are now putting together, as well as the new enforcement mechanisms that have also been passed into law in recent years (discussed in further detail below). However, some interviewees also expressed concern that many cities will fail to obtain approval of their housing elements from HCD due to their inability or unwillingness to identify enough feasible sites. As of March 6th, 2023, HCD indicated that 195 cities and counties had formally adopted Housing Elements for the sixth cycle and

106 of those—35.1 percent—were out of compliance.¹¹ Some said that high targets could undermine the effectiveness of expanded planning requirements unless the state provides adequate technical assistance and/or enforces the law with sufficient penalties, as even many cities that want to comply do not have the staff or technical expertise to do so.

There are penalties for being out of compliance, but it is not clear how important those sticks will be. In Southern California, some cities that failed to obtain HCD compliance approval before the deadline in October of 2022 have become ineligible for certain state funding sources. Moreover, cities without certified Housing Elements also find themselves subject to the so-called “builder’s remedy”—a provision adopted as part of the 1990 amendments to the Housing Accountability Act that requires approval of projects with 20 percent affordable units in cities that are out of compliance. The provision is largely untested and it is unclear how much, if any, new projects will obtain approvals as a result of the builder’s remedy. Cities without certified Housing Elements have also become subject to additional legal pressures from private parties. Specifically, legal groups have begun to take legal action against cities and counties that have yet to secure Housing Element compliance.¹²

Enforcement

The legislature added new mechanisms for enforcement of planning and housing law that have made it very difficult for cities to skirt their housing target obligations under the Housing Element and RHNA. For example, AB 72 (2017) allows HCD to revoke a prior finding that the locality is in compliance with Housing Element law, and allows it to

report violations to the Attorney General. AB 72 was invoked at the beginning of the Newsom Administration in 2019, when the Attorney General sued Huntington Beach.¹³ (The lawsuit was later settled.¹⁴) Interviewees noted that this added enforcement capability—and the willingness of the Attorney General to use it—have made a difference in holding cities accountable to Housing Element law. Interviewees pointed to several letters issued by HCD and the Attorney General to cities observed to be acting unlawfully as important in getting those cities to comply with state law.

Fair Housing

With the passage of AB 686 in 2018, the legislature added new requirements to Affirmatively Further Fair Housing in California. The new law, which codified federal rules at the state level, requires cities to analyze patterns of residential segregation and rezone affluent, historically exclusive areas (which tend to be zoned solely for single-family homes) for multifamily use. These changes have an important impact on the Housing Element process because HCD has required cities to demonstrate that their Housing Element plans achieve the goals of AB 686. Some cities have had to address HCD comments on their proposed Housing Elements by going further in changing zoning in affluent areas to encourage more multifamily construction in those locations zoned for single-family homes. Interviewees told us that prior to the passage of AB 686, cities would regularly concentrate new planned housing in less affluent areas of the city in their Housing Elements. They indicated that this was changing, though it is not yet clear as to the extent to which this will lead to more multifamily housing production in higher-resourced areas.

Zoning

Under the statewide Planning and Zoning Law (PZL), local governments must adopt zoning ordinances that specify what may be built on each parcel of land within its jurisdiction. The zoning ordinance must be consistent with the General Plan and its land use designations. Zoning plays a significant role in determining the amount of housing allowed in each community.

A zoning law typically has three components: 1. standards dictating the use of the parcel, 2. standards dictating the form of the structures on the property (for example, setbacks and height limits), and 3. standards addressing the impact of the property on the community (most significantly parking requirements).

In addition to the PZL (or, in some cases, as part of the PZL), several other laws associated with zoning affect the amount of housing allowed by local governments. These include the Subdivision Map Act,¹⁵ laws relating to accessory dwelling units,¹⁶ specific plan law,¹⁷ the Fair Housing Law (state and federal), the Mitigation Fee Act,¹⁸ laws relating to impact fees, and those parts of SB 330 that provide early, developer-controlled vested rights and restrict local governments' ability to impose moratoria on housing.¹⁹ Below we discuss recent changes to laws related to zoning.

Density Bonus Law

The state's Density Bonus Law (DBL)²⁰ initially enacted in 1979, has long allowed increases in a housing project's density for inclusion of a minimum amount of affordable housing facilitated by regulatory concessions. The DBL has been modified several times since 2016, in part as a response to increased

development costs and barriers to production. Specifically, 12 bills have been passed that have expanded the applicability and incentives available to developers. Our interviewees noted that the combination of all of these changes has made DBL much more beneficial to use, resulting in more units and greater project feasibility.

Generally speaking, DBL allows more units to be built in a given project if some of the units are designated as affordable housing. It also grants various concessions and waivers, such as reductions of development standards. Prior to 2017, the maximum density bonus available was an additional 35 percent of the maximum number of units allowed by the zoning for a project. A handful of bills have made changes to this maximum allowed increase. For example, AB 2345 (2020) allows a density increase of up to 50 percent for projects that dedicate 15 percent of their units to lower-income households. In addition, AB 1763 (2019) allows 100 percent affordable housing projects to access an 80 percent density bonus, or unlimited density (up to three stories) for projects located within a quarter mile of a major transit stop. AB 2334 (2022) expanded upon allowable density for 100 percent affordable projects by extending the benefits of AB 1763 to low-vehicle miles traveled areas.

Interviewees told us that these changes have been helpful in making projects more financially feasible by increasing the number of units and by allowing housing developers to obtain incentives and waivers from development standards. These bonus units can allow mixed-income projects to more easily absorb the costs of the required afford-

able units. As a result, developers are more often pursuing projects that take advantage of density bonuses. However, the added density allowed does not necessarily work for mixed-income projects in lower-cost markets, such as inland areas, because the market rate rents in the area are not high enough to offset the costs of operating the affordable units as required.

In addition to the changes noted above, there have been other notable reforms to DBL intended to facilitate greater DBL usage. AB 2372 (2018) allows cities to give a floor area ratio (FAR) bonus instead of a density bonus and limits new parking requirements. AB 571 (2021) prevents affordable housing fees from being imposed on affordable units. SB 290 (2021) allows bonuses for projects with 20 percent of units reserved for lower-income students.

Another important feature of DBL is the ability of developers to access “concessions” and other waivers to further facilitate development. Specifically, DBL requires cities to grant concessions to development or design standards that applicants identify as barriers to their project feasibility. For example, developers might request to reduce setback requirements or height restrictions, or requirements for specific finishes or materials. DBL also allows applicants to access lower parking requirements. Since 2016, some laws have expanded DBL concessions. In addition to the increased allowable density described above, AB 2345 also lowers the threshold requirement for mixed-income projects to access multiple concessions. AB 2334 (2022) increases available concessions for 100 percent affordable projects from three to four.

Accessory Dwelling Units and Small Scale Projects

Since 2016, the legislature has passed 17 bills related to ADUs. The combination of all of these reforms appears to have been successful in increasing ADU production statewide. For example, in 2016, California permitted just over one thousand ADUs. In 2021, over 20,000 ADUs were permitted.

These reforms began in 2016 with the passage of SB 1069/AB 2299 (2016), which established that ADU approval must be ministerial.²¹ Subsequent laws have made ADUs a stronger development option. For example, AB 881 (2019) limits the grounds for disallowing ADUs, including through owner occupancy requirements, restrictive lot size, setback, and parking standards. AB 68 (2019) reduces the time in which cities have to approve ADUs and eliminates replacement parking requirements for garage conversions. SB 13 (2019) reduces impact fees and shortens application review periods. Interviewees credited the recent spate of ADU laws with the increase in ADU construction that has occurred since their passage. In particular, the ministerial approvals now afforded to ADUs have greatly sped up the process of approving these projects, and the prescriptive standards that cities must adhere to has limited the ways in which localities can block or change such development.

Building on the progress made on ADUs, legislators passed SB 9 in 2021. The law requires ministerial approval of duplexes and lot splits within areas zoned for single-family homes. An earlier Turner Center analysis concluded that SB 9 could make up to 700,000 homes market-feasible that would not have been permitted before.²² However, the passage

of SB 9 in 2021 has yet to translate into similar increases in duplexes, in part because some localities are finding ways to hinder implementation through local ordinances with requirements such as front setback or easement requirements for newly subdivided lots.²³ As of January 2023, the Turner Center found very limited uptake based on a survey of planners working at 13 California cities.²⁴ Interviewees confirmed that usage of SB 9 appeared to be light so far, though the legislation is still relatively new.

Deregulating Parking and Expanding Housing on Non-Residential Land

Finally, a few laws passed in 2022 prohibit local governments from requiring parking within a half-mile of certain transit stops (AB 2097) and allow developers to override local commercial zoning to build housing on lots zoned for retail and office use (AB 2011/SB 6). Interviewees were optimistic about these new laws, though it is too early to tell their impact so far (for example, AB 2011 goes into effect on July 1, 2023).

Entitlement Review

Traditionally, with a few exceptions, state law allowed local governments significant leeway over entitlement of projects, even allowing many projects to be denied even if they met general plan requirements and zoning standards. CEQA almost always comes into play at the entitlement level, because the law identifies environmental impacts that must be mitigated, adding to conditions of approval. In this section, we review laws that pertain to streamlining the entitlement process and reducing the number of projects that go through discretionary review.

Streamlining

The legislature has passed a handful of laws to streamline the entitlement process. One such law is SB 35 (2017), which requires ministerial approval of multifamily infill housing projects in cities that are not meeting their RHNA goals. Significantly, this means that no analysis under CEQA is required. The bill sets a minimum threshold for affordable units (depending on the project size and jurisdiction) and also requires certain labor standards to be met in specific instances, such as the use of prevailing wage in affordable housing construction and the usage of a “skilled and trained” workforce in mixed-income development. The legislature subsequently passed multiple bills to clarify and improve implementation of SB 35. For example, AB 831 (2020) allows developers to apply for modifications of projects approved under SB 35. AB 1174 (2021) extends the validity of a development approved under SB 35 for three years after a final judgment upholding the approval in any litigation against it.

Cities had difficulty managing SB 35 applications at first, and some cities pushed back on the law’s applicability. In Berkeley, for example, the city challenged an SB 35 project by claiming that it would interfere with a historic structure (which is not permitted under SB 35) but lost in court.²⁵ In Burbank, the City Council challenged eligibility of one SB 35 project, relying on an apparent inconsistency between the general plan and zoning, but eventually settled the case.²⁶

Interviewees said that SB 35 has been somewhat successful in facilitating streamlined approvals for 100 percent affordable housing projects, but developers have used SB 35 for market-rate projects less frequently than expected.

Interviewees highlighted that, in some cases, the 50 percent affordability requirement, which applies in cities and counties meeting their market-rate RHNA goals, and labor standards can reduce the financial feasibility of projects. Several interviewees suggested that meeting labor standards is a politically important goal to many developers, especially in the Bay Area, and therefore they are more likely to use SB 35 if they plan to meet labor standards anyway. One attorney noted that the tribal consultation process created by AB 168 (2020) can also add uncertainty and delay. This process requires local agencies to consult with tribes “culturally affiliated with the geographic area” of a development seeking approval under SB 35 and has caused some delays for certain projects. Preliminary findings from the Turner Center’s analysis of state data echo some of what we heard in interviews, as the majority of projects applied for or approved through SB 35 are for affordable units. The Turner Center will publish a more complete review of SB 35’s strengths and weaknesses in the summer of 2023.

Other legislative efforts have also provided streamlining benefits by creating by-right, or ministerial, approval processes for specific housing types, such as ADUs or duplexes under SB 9, or permanent supportive housing projects. By-right and ministerial processes remove discretionary reviews and in some instances require approvals within a certain timeframe. Interviewees noted that these processes have benefited eligible projects by providing certainty for builders and homeowners. Interviewees noted that creating by-right pathways should be considered for more types of housing given how successful this strategy has been for certain subsets of housing.

SB 330 and the Housing Accountability Act

The changes that have strengthened the Housing Accountability Act (HAA)²⁷ have been particularly important for ensuring that projects are not denied despite being compliant with objective local land use regulations. The HAA was first passed in 1982 and has been amended some two dozen times since, but it was strengthened most significantly in 2017 by three bills: SB 167, AB 678, AB 1515. Among other things, these three bills apply a developer-friendly standard of review (using a “preponderance of evidence” rather than “substantial evidence” standard), increase fines on localities that unlawfully deny permits, and require that the code in place at the time the application was deemed complete must be used in reviewing the project. Interviewees said that the early vesting contained in the HAA, along with the narrowing of conditions required to deny a project, have made the HAA a more effective tool. Interviewees identified several instances where localities have backpedaled on project denials given the penalties to which they would be subject.

In 2019, both the HAA and the Permit Streamlining Act²⁸ were strengthened by the passage of SB 330, the Housing Crisis Act of 2019. SB 330 limited cities’ ability to deny permits in several ways. It created a non-discretionary “preliminary application” that vests rights upon submission, establishes a private right of action for challenging permit denials, allows plaintiffs to win attorneys’ fees, and requires that changes to zoning ordinances do not result in a net loss of residential capacity within the jurisdiction. SB 330 amended the Permit Streamlining Act as well by placing time limits on an agency’s ability to comment on a project and imposing a five-hearing

rule; now a decision must be made after no more than five hearings after the project application is complete. Of these changes, interviewees noted that the five-hearing rule was the most consequential, as applicants now have certainty around the number of hearings that cities can require of an applicant.

One recent appellate court ruling in a high-profile case shows the power of the HAA. The Terraces of Lafayette housing development project has been the subject of litigation and ballot measures for more than a decade—and the ongoing conflict was featured in Conor Dougherty’s 2020 book *Golden Gates: Fighting for Housing in America*. In response to local resistance, including litigation largely based on CEQA, the developer at one point greatly reduced the size of the proposed project, among other things. In a ruling published in early 2023, the First District Court of Appeal said the HAA required that the original, larger application be locked in. The developer reverted to the original, much larger proposal, which the city eventually approved.

The California Environmental Quality Act (CEQA)

CEQA requires environmental review of all housing developments that require discretionary approval unless they qualify for a “statutory” exemption, which is an exemption adopted by a statute, or a “categorical” exemption, which is contained within a category of exemptions as determined by the Secretary of Natural Resources. By-right or ministerial projects are not subject to CEQA. Traditionally, the Legislature has not engaged in large-scale CEQA reform and this trend has continued even since 2017 as many housing bills have been passed. In the years before 2017, the Legislature did add more exemptions

from CEQA (for example, an exemption for infill development projects). In recent years, CEQA exemptions have also been narrowly passed for specific types of projects, such as permanent supportive housing and shelters for people experiencing homelessness. However, generally speaking, the bounds of CEQA have been determined far more by judicial review than by the state legislature.

On the legislative front, lawmakers have prioritized creating new exemptions for housing reserved for people experiencing homelessness. For example, AB 2162 (2018) allows permanent supportive housing to be approved by-right, thereby bypassing the CEQA process. Similarly, AB 101 (2019 budget trailer bill) exempts homeless “navigation” centers from CEQA. SB 744 (2019) streamlines CEQA approval for projects funded through California’s No Place Like Home program.

However, outside of projects for people experiencing homelessness, there have only been a few bills that provide CEQA exemptions serving other populations. One such bill was SB 10 (2021). This bill does not exempt specific projects from CEQA, but rather it authorizes cities to zone parcels in transit-rich or urban infill areas up to 10 units and exempts such rezonings from CEQA review. SB 866 (2022) creates a CEQA exemption for student and faculty housing built by public universities.

Interviewees cited CEQA litigation as a significant obstacle to permitting and construction. Holland & Knight, a law firm representing developers, estimated that in 2020 CEQA lawsuits challenged projects representing almost 50,000 housing units.²⁹ This does not mean that these housing units were not built, but it is likely that the litigation added cost

and delays to the projects, as well as a decrease in the number of units in some cases.

Interviewees told us that developers use existing exemptions when available, including the urban infill categorical exemption³⁰ and the specific plan statutory exemption.³¹ Indeed, recent data from the California Governor’s Office of Planning & Research has found that, between 2008 and 2019, exemptions grew from 38 percent to 55 percent of all CEQA actions (with a corresponding decline in mitigated negative declarations).³² However, interviewees also said that even when projects qualify for an exemption from CEQA review, there can still be costs and delays. Specifically, litigation can still be likely, and it is difficult and costly to provide the documentation necessary to prove that the project is eligible for an exemption. As such, interviewees told us that they do not always recommend utilizing eligible exemptions.

Several recent laws, including SB 35, require ministerial approval (hence bypassing CEQA altogether) for certain projects, but only when specific labor standards are met. As noted above, this tradeoff means that such laws are usually only used in high-cost areas where entitlement is difficult, making prevailing wage more financially feasible when compared with going through the CEQA process.

Conclusion

It is too early to know whether the full set of new state laws is having a meaningful impact on spurring increased homebuilding. Implementation takes time, and the length of time it takes for any new housing development to get off the ground means that it can take several years before a law’s impact takes

effect. In addition, the timing of Housing Element and RHNA cycles vary across regions: the staggered implementation of state laws, coupled with the time it takes to develop interpretive guidance and local ordinances, means that it will be several years before the statewide impacts of these laws can be measured. There also needs to be greater consideration of how laws interact, and in some cases, conflict, not only with other state laws but also with federal funding and planning requirements (for example, around AFFH). The past few years have also introduced significant instability in the housing market, resulting both from the effects of the COVID-19 pandemic and rising inflation and interest rates. All of this points to the need for continuing research into the different components of state law, including empirical studies that can measure not only the impacts of legislative changes on housing production, but also the ways in which local market conditions and implementation influence those outcomes.

However, there have been positive, measurable impacts on construction starts within some specific housing domains, and interviewees expressed optimism that process changes could unlock significant increases in homebuilding in the future. Our interviews broadly indicated three areas for cautious optimism.

First, we heard that new legislation has helped stimulate the production of new housing in the form of both ADUs and subsidized affordable housing. The state's permit data provides some evidence that these sectors are producing more housing, particularly for ADUs and affordable housing. Interviewees told us the ADU laws and affordable housing targeted reforms such as SB 35 and AB

2162 have created important pathways for faster development by requiring ministerial approval processes. For ADUs, creating clarity around setbacks, parking, and other design requirements have also been critical. For affordable housing, changes to density bonus law have been important in both allowing more units on a given site as well as obligating cities to accept mandatory waivers to specific zoning and design requirements to unlock that density. Changes to ADU and affordable housing law suggest possible pathways that could be applied to housing production more broadly.

We also heard that, in some cities at least, new laws have encouraged a shift to a culture of “yes” around project approvals. Part of this shift is that the full suite of state laws send a signal to city staff and elected officials that housing is a matter of statewide importance and cities need to do their part. But it also reflects the fact that specific laws—for example, the limited grounds for denial under the Housing Accountability Act—make it legally more difficult to deny otherwise compliant projects. This enforcement has been helpful in keeping projects moving forward, particularly in the face of local opposition. Other laws, such as SB 330, have made the process by which approvals are obtained much more predictable by doing such things as limiting public hearings to five in total and establishing early vesting rights. In implementing the laws, many cities have used them as the foundation for a more pro-housing approach. While these culture shifts are hard to quantify, it seems likely that they could have a durable impact.

Lastly, our interviewees gave credence to the idea that changes in RHNA and Housing Element law could be extremely powerful. In the most recent Housing Element cycle (6th Cycle), a great deal of land previously off limits to housing is now being made available, and many existing housing parcels have already been or will soon be rezoned for higher densities. Many cities are still a few years out from implementing the zoning changes and programs specified in their Housing Elements. Furthermore, the Housing Element's strengthened requirements for cities to comprehensively mitigate barriers to housing in their adopted housing programs was somewhat limited in the 6th Cycle due to tight timeframes. It may not be until the 7th Cycle that the State is effectively able to put into law—and cities then to implement—more rigorous standards. These standards could effectuate the legal obligation that, for example, all non-vacant housing inventory sites have a reasonable probability of development over the eight year period and, if not, measures are proposed to be taken to increase zoned capacity or boost feasibility. These standards, in turn, could result in cities not just laying the table for new zoned land but also requiring them to look much more comprehensively at all process and feasibility barriers to new supply that are controlled at the local level, in ways that could lead to significant local changes.

At the same time, we identified several concerns that the state policymakers and housing advocates should be aware of as they assess the effectiveness of new housing laws. First, we consistently heard that many localities lack the personnel capacity and technical skill to effectively implement the large changes in housing policy stemming from state law changes. Many are scrambling to

respond effectively, but additional staff resources, consultant support, and technical assistance are likely needed for local governments to fully implement new laws to be consistent with legislative intent.

Our interviewees also expressed concerns as to whether the state will be able to sustain its aggressive enforcement of the new laws over the long-term. HCD and the Office of the Attorney General are currently devoting considerable attention and resources to enforcement of housing law. But past experience suggests that, as political circumstances change and new gubernatorial or legislative priorities emerge, both HCD and the Office of the Attorney General can retreat from an aggressive posture. Given the long lead time for effective implementation of law changes, such as those to the Housing Element, any reduction in ongoing enforcement and accountability risks leading to local governments retreating from a pro-housing posture even as those housing laws remain on the books.

Finally, we heard repeatedly that high development costs—such as labor, materials, development impact fees, and stringent building code requirements—continue to impede housing development in even the most permissive cities and counties. Permissive land use laws are not enough to spur building if housing development is not financially feasible. Without the state's careful attention to unwinding the underlying cost drivers—and/or aggressively increasing financial incentives for market-rate housing and boosting funding for affordable housing—California will likely lag in its efforts to increase housing production.

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ABOUT THE TERNER CENTER

The Turner Center formulates bold strategies to house families from all walks of life in vibrant, sustainable, and affordable homes and communities. Our focus is on generating constructive, practical strategies for public policy makers and innovative tools for private sector partners to achieve better results for families and communities. For more information visit: www.ternercenter.berkeley.edu

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Appendix A: Summary of Amendments to Existing Legal Authorities

	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
DEVELOPMENT PHASE: PLANNING	General Plan	Gov't Code § 65300 et seq.	A General Plan is the local government's long-term blueprint for the community's vision of future growth and is typically updated every 20 years. Mandatory elements include: Land Use, Circulation (Traffic & Utilities), Housing (state mandated affordable housing program), Conservation (natural resources), Open Space, Noise, Safety. All subsequent planning documents (e.g., zoning ordinance) and land-use actions (and public works decisions) must be consistent with the General Plan.	AB 879 (2017), SB 35 (2017), SB 1333 (2018), AB 1486 (2019), AB 168 (2020), AB 2345 (2020), AB 787 (2021), SB 290 (2021), AB 2011 (2022), AB 2094 (2022), AB 2653 (2022)	AB 879 (2017) increases required analyses of housing constraints within housing elements. SB 35 (2017) makes some projects eligible for ministerial, streamlined approval. SB 1333 (2018) allows charter cities to adopt general plans by resolution. AB 1486 (2019) requires annual plans to include inventory of surplus lands. AB 168 (2020) requires localities to report on updates they make to housing elements to comply with new tribal consultation, density bonus, and student housing requirements. AB 2345 (2020) requires localities to report on the number of density bonus applications granted. SB 290 (2021) requires reporting on student housing. AB 787 (2021) allows cities to claim credit for converting market rate housing to moderate income housing, up to 25 percentpercent of RHNA requirements. AB 2011 (2022) requires reporting on applications received under new zoning rules. AB 2653 (2022) allows HCD to request corrections to annual progress reports.
	Housing Element	Gov't Code § 65580 et seq.	Local governments plan for current and future housing needs, including their share of the regional housing need, through the housing element update process. Unlike other parts of the General Plan, a housing element must be revised every five to eight years. Among other provisions, the housing element provides an inventory of land adequately zoned or planned for residential zoning, certainty in permit processing procedures, and a commitment to assist in housing development through regulatory concessions and incentives. It also requires the adoption of specific program actions to facilitate the development of housing within the jurisdiction. Housing element law requires local governments to rezone, if necessary, to provide sufficient capacity in higher density zones to accommodate the RHNA for lower-income households. They are required to allow multifamily housing on those sites for rental and ownership through ministerial approval. Ministerial approval means the local government may not require a conditional use permit, planned unit development permit, or other discretionary local government review or approval that would constitute a "project" for purposes of CEQA .	AB 2584 (2016), AB 1397 (2017), AB 1515 (2017), AB 72 (2017), AB 879 (2017), SB 167 (2017), SB 828 (2018), AB 1771 (2018), AB 3194 (2018), AB 2162 (2018), AB 686 (2018), AB 101 (2019), AB 1486 (2019), AB 671 (2019), SB 330 (2019), SB 6 (2019), AB 1743 (2019), AB 725 (2020), AB 1561 (2020), AB 1029 (2021), SB 478 (2021), AB 1304 (2021), AB 1398 (2021), AB 215 (2021), SB 8 (2021), AB 1584 (2021), AB 2011 (2022), AB 2097 (2022), AB 2234 (2022), AB 2339 (2022), AB 2653 (2022),	AB 2584 (2016) allows certain housing organizations to sue under the HAA. AB 1397 (2017) adds requirements on sites that can be included in inventories within housing elements. AB 1515 (2017) increases the range of projects subject to the HAA. AB 72 (2017) requires HCD to review local actions during the planning period. AB 879 (2017) increases required analyses of housing constraints within housing elements. SB 167 (2017) applies a developer-friendly standard of review and increases fines on localities that unlawfully deny permits under the HAA. SB 828 (2018) adds policy goals to the RHNA process, including environmental and fair housing goals. AB 1771 (2018) makes RHNA process include specific data, allows appeals. AB 3194 (2018) allows projects compliant with general plan objective criteria not to comply with zoning if the zoning is incompatible with the general plan. AB 2162 (2018) streamlines approval for supportive housing projects. AB 686 (2018) specifies how housing elements must address Affirmatively Furthering Fair Housing. AB 1742 (2019) clarifies that cities cannot reject emergency shelters because of their tax exemptions. AB 101 (2019) imposes fines for failing to meet Housing Element goals. AB 1486 (2019) creates penalties for violating surplus lands act. AB 671 (2019) requires local governments to plan for and incentivize ADUs in their Housing Elements. Asks HCD to develop a list of state grants and incentives. SB 330 (2019) limits when localities can deny permits for low-income housing developments. SB 6 (2019) requires local planning agencies to provide a list of sites suitable for residential development to HCD. AB 1561 (2020) allows Native American tribes more time to respond to notifications of housing proposals. AB 725 (2020) requires cities to zone a minimum of 25 percent of their land for 4-plexes or above. AB 1029 (2021) adds preservation of affordable housing to the pro-housing designation from HCD. SB 478 (2021) allows the Attorney General to bring enforcement actions. SB 8 (2021) extends some limitations to 2030. Allows projects to be subject to rules enacted after approval if construction has not begun in 2.5 years. AB 1584 (2021) clarifies that concessions, waivers, and changes in development standards gained through density bonuses are not valid bases for finding projects inconsistent. AB 1304 (2021) expands the ways in which local agencies must affirmatively further fair housing (AFFH) in their housing elements. AB 1398 (2021) shortens deadlines for cities with non-compliant housing elements to rezone to allow development from 3 years to 1 year. AB 215 (2021) requires public comment for housing elements, gives HCD more tools for enforcement of housing element laws. AB 2011 (2022) allows HCD to report localities not complying with AB 2011 to the Attorney General. AB 2097 (2022) does the same. AB 2234 (2022) enforces time limits for review of post entitlement permit applications. AB 2339 (2022) adds requirements to lan for emergency shelters. Ab 2653 (2022) allows HCD to report localities to the Attorney General for failing to make requested corrections to annual progress reports.

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: PLANNING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Regional Housing Needs Allocation	Gov't Code § 65300 et seq.	The RHNA, established by legislation in 1980, is a process whereby HCD, in consultation with the Department of Finance, projects housing demand by income group to accommodate population growth for all regions of the state. These regions, through their Council of Governments (COG), then determine each city and county's fair share of the housing need. Each jurisdiction's updated housing element must demonstrate enough residential capacity, through adequate zoning, to accommodate this projected growth. The RHNA process has the following objectives: 1. Increase the housing supply and the mix of housing types, tenure, and affordability in all cities and counties in an equitable manner. 2. Promote infill development and socioeconomic equity, the protection of environmental and agricultural resources, and the encouragement of efficient development patterns. 3. Promote intraregional relationship between jobs and housing	AB 1771 (2018), SB 828 (2018)	AB 1771 (2018) and SB 828 (2018) adjust the RHND process (HCD's determination of regional housing need) and the RHNA process (council of governments' allocation of housing units within a region) to include new data and analysis and allow appeals.
	The Cortese- Knox-Hertzberg Local Government Reorganization Act	Gov't Code § 56000, et seq	Local Agency Formation Commissions (LAFCo) approve annexation requests by local governments. Factors that the LAFCO considers in reviewing annexation proposals include, but are not limited to, the following (Section 56841): 1. Population, land area and use, per capita assessed valuation, topography, natural boundaries, drainage basins, proximity to populated areas, and the likelihood of significant growth, during the next 10 years. 2. Need for organized community services, present cost and adequacy of government services, effect of the on the cost and adequacy of services and controls in the area and vicinity. 3. Conformity of the proposal and its effects with LAFCO policies on providing planned, orderly, efficient patterns of urban development and with state policies and priorities. 4. Effect of the proposal on maintaining the physical and economic integrity of lands in an agricultural preserve in open-space use. 5. Consistency with appropriate city or county general and specific plans.		
	Sustainable Community Strategy of SB 375	Cal. Public Resource Code § 75125 Gov't Code § 65080	In an effort to reduce California's carbon emissions, legislation such as SB 375 required regions to develop a Sustainable Community Strategy plan (SCS) to integrate housing in their transportation plans in a way that encourages infill development and reduces vehicle miles traveled, achieving their greenhouse gas reduction goals. This planning is adopted at the regional level, and while many jurisdictions implement the objectives of the plan, they are not required to do so.	AB 101 (2019), AB 1095 (2021),	AB 101 (2019) awards additional points in the Affordable Housing and Sustainable Communities Program (AHSC) to jurisdictions deemed "prohousing" by HCD. AB 1095 (2021) specifies the AHSC and Strategic Growth Council aim to increase home ownership among low-income families.
	Williamson Act	Gov't Code § 51200	Enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural, or related, open space use. In return, landowners receive property tax assessments.		
	Housing Element	Gov't Code § 11011.8		SB 6 (2019)	SB 6 (2019) requires HCD to provide Dept of General Services a list of land identified in local housing elements as suitable for residential development. Requires DGS to post a database
	Affirmatively Furthering Fair Housing	Gov't Code § 8899.50		AB 686 (2018), AB 1304 (2021)	AB 686 (2018) requires localities to report on and "affirmatively further" fair housing (AFFH). AB 1304 (2021) clarifies that AFFH is mandatory.

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: ZONING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Specific Plan	Gov’t Code § 65450	Specific Plans are commonly used to tailor land-use requirements for a particular subdivision or planning area (such as an historic old town or a redevelopment area) and can include development or other specific standards. The plan must be consistent with the general plan.		
	Zoning Ordinances	Gov’t Code § 65850 et seq	Zoning ordinances divide city or county into use districts, such as single-family residential, multifamily residential, commercial, industrial, in conformity with the land-use element of the general plan. Among other things, zoning ordinances describe permitted uses, conditionally permitted uses, development standards, and special incentives such as density bonus. Variances allow exceptions to zoning laws to account for unique circumstances of a property, such as an odd shape.	AB 1521 (2017), AB 1505 (2017), SB 166 (2017), SB 1333 (2018), AB 881 (2019), AB 587 (2019), SB 13 (2019), SB 330 (2019), SB 9 (2021), SB 8 (2021), AB 1584 (2021), AB 916 (2022), AB 2221 (2022), SB 897 (2022), SB 6 (2022), AB 2339 (2022), AB 2097 (2022)	AB 1505 (2017) allows inclusionary zoning ordinances. SB 166 (2017) requires zoning for “no net loss” of units. AB 1521 (2017) limits sales of “assisted housing” projects. SB 1333 (2018) applies planning and zoning requirements to charter cities. AB 881 (2019) allows ministerial permitting for ADUs and JR ADUs, limited to 60 days, no minimum or maximum sizes or parking requirements. Allows HCD to report violations to the Attorney General. AB 587 (2019) allows ADUs to be sold separately from the main house. SB 13 (2019) limits restrictions on ADUs including space, ownership, and fees. SB 330 (2019) limits cities to 5 hearings on complete applications. SB 9 (2021) requires ministerial review for duplexes in single-family zoned areas. SB 8 (2021) clarifies limits on hearings and clarifies that density bonuses are not bases for finding inconsistency with a local plan. AB 1584 (2021) clarifies definition of “assisted housing developments” and required procedures for their sales. AB 916 (2021) prohibits local requirements for hearing for reconfigurations of space that add up to two new bedrooms. AB 2221 (2022) shortens permit review timelines for ADUs, changes some development standards. SB 897 (2022) limits local land use limitations and development standards on ADUs. AB 2097 (2022) prohibits parking requirements on new developments within ½ mile of public transit.
	Subdivision Map Act	Gov’t Code § 66410	The Subdivision Map Act provides procedures for the orderly subdivision of land by regulating the division of land into separate parcels for lease, sale or financing. Common approvals under this law are: subdivision maps (which create five or more parcels), parcel maps (which create four or fewer parcels), and lot line adjustments (which affect fewer than four parcels).	SB 9 (2021)	SB 9 (2021) requires ministerial review for dividing residential parcels in two and/or converting single family structures to duplexes.
	Federal and State Fair Housing Law	Fair Housing 42 U.S.C. § 3601, et seq; 42 U.S.C. § 5304(b)(2); 42 U.S.C. § 5306(s)(B); 42 U.S.C. § 12705	Fair Housing laws make it illegal to discriminate against any person because of race, color, religion, sex, disability, familial status, national origin, ancestry, marital status, sexual orientation, source of income and age in the rental or sale, financing, advertising, appraisal, provision of real estate brokerage services, etc., and land-use practices.	AB 686 (2018), AB 1304 (2021)	AB 686 (2018) requires cities to “Affirmatively Further Fair Housing.” AB 1304 (2021) clarifies that AFFH is mandatory.

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: ZONING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Limits on Moratoriums on Housing	Gov't Code §65858	A jurisdiction cannot extend any interim ordinance that puts a moratorium on the development of housing for the development of projects with a significant component of multifamily housing except upon specific written findings (noted in the statute) adopted by the legislative body, supported by substantial evidence on the record. Moratoriums on multifamily housing development cannot include the demolition, conversion, redevelopment, or rehabilitation of multifamily housing that is affordable to lower income households, as defined in Section 50079.5 of the Health and Safety Code, or that will result in an increase in the price or reduction of the number of affordable units in a multifamily housing project	SB 330 (2019)	SB 330 (2019) prohibits jurisdictions from imposing new laws that would have the effect of reducing the legal limit of housing allowed, including actions such as downsizing or otherwise removing housing capacity without commensurately increasing capacity elsewhere.
	Least Cost Zoning	Gov't Code § 65913.1.	Least Cost Zoning Law requires local governments to zone sufficient land for residential use with appropriate standards in relation to zoning for nonresidential uses, to meet the housing needs of all income groups. Appropriate standards are defined to mean densities and development standards must contribute to the economic feasibility of producing housing at the lowest possible cost.	SB 8 (2021)	SB 8 (2021) extends the freeze of historical site status during development.
	Mitigation Fee Act	Gov't Code § 66000	The Mitigation Fee Act authorizes local governments to impose fees on new development and requires that a nexus be shown between the fee charged and its purpose. Local governments can impose development fees to defray all, or a portion of, the cost of public facilities related to the development of the project. These fees commonly include planning-related fees to contribute to the cost of staff time when processing applications and preparing environmental documents, and impact fees related to the building of the development such as water and sewer connections. Local governments may also impose fees on new development for other public benefits such as roads, parks, libraries, and affordable housing.	AB 602 (2021), AB 2536 (2022), AB 2668 (2022)	AB 602 (2021) adds to requirements for impact fee nexus studies and allows anyone to submit evidence that the locality incorrectly calculated its fees. AB 2536 (2022) requires localities to evaluate whether new or amended fees exceed reasonable cost of providing service. AB 2668 (2022) clarifies that rules about nexus fee studies apply to cities, counties and special districts.
	Enhanced Infrastructure Financing Districts Infrastructure Financing Districts	Gov't Code § 53398.50	Differing from former Redevelopment Areas (RDAs) an Enhanced Infrastructure Financing District (EIFD) may not redirect property tax revenue from K-14 schools. EIFDs can be created by cities or counties without voter approval. All participating affected taxing entities must first agree to provide their tax increment revenue to the EIFD. However, approval from at least 55 percent of impacted residents is required before the EIFD may issue tax increment-financed debt. EIFDs may fund projects including housing for rental or purchase, transit priority projects, sustainable communities strategies, military base reuse, and brownfield restoration among other uses. EIFDs may overlap with RDA project areas, but cities and counties that formerly operated RDAs may participate in an EIFD once the Successor Agency has received a Finding of Completion from the Department of Finance, and cleared their audit findings from the State Controller's Office asset transfer reviews.		
	Community Revitalization and Investment Authorities	Gov't Code § 62000	Local Community Revitalization Investment Authorities (CRIA) are empowered to invest the property tax increment of consenting local agencies (other than schools) and use other available funding to improve conditions leading to increased employment opportunities, including reducing high crime rates, repairing deteriorated and inadequate infrastructure, and developing affordable housing. CRIAs are subject to more rigorous accountability criteria than former Redevelopment Agencies.		
	Impact Fees	Gov't Code § 66016.5		AB 602 (2021), AB 2536 (2022), AB 2668 (2022)	AB 602 (2021) adds to requirements for impact fee nexus studies. AB 2536 (2022) requires localities to evaluate whether new or amended fees exceed reasonable cost of providing service. AB 2668 (2022) clarifies that rules about nexus fee studies apply to cities, counties and special districts.

Appendix A: Summary of Amendments to Existing Legal Authorities

	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
DEVELOPMENT PHASE: ZONING	Second Unit Law	Civil Code § 4751		AB 670 (2019)	AB 670 (2019) prevents HOAs and other entities from restricting ADUs.
	Second Unit Law	Civil Code § 714.3		AB 1584 (2021)	AB 1584 (2021) makes covenants unenforceable if they restrict ADUs on single-family zoned areas
DEVELOPMENT PHASE: ZONING, PERMITTING	Emergency Shelter, Transitional and Supportive Housing Zoning Requirements (SB 2)	Gov’t Code § 65583.(a) (4)(5)	A local government must identify where emergency shelters are allowed as a permitted use without a conditional use or other discretionary permit. In addition, transitional housing and supportive housing are considered a residential use of property and subject only to those restrictions that apply to other residential dwellings of the same type in the same zone.	AB 2339 (2022)	AB 2339 (2022) requires localities to plan for emergency shelters.
	Second Unit Law	Gov’t Code § 65852.2 and 65583.1.	Second Unit Law requires local governments to establish a process to consider approval of the development of secondary dwelling units. Local governments are required to provide ministerial approval of second units and promote their development.	SB 1069 (2016), AB 2299 (2016), AB 881 (2019), AB 68 (2019), SB 13 (2019), AB 345 (2021)	SB 1069 (2016) adds requirements to ordinances authorizing ADUs. AB 2299 (2016) adds requirements to ordinances authorizing ADUs. AB 881 (2019) allows ministerial permitting for ADUs, limited to 60 days, no minimum or maximum sizes, parking requirements, allows JR ADU’s too. Allows HCD to report violations to the Attorney General. AB 68 (2019) changes mandatory building standards including setbacks and size. Reduces approval periods. SB 13 (2019) limits restrictions on ADUs including space, ownership, and fees. AB 345 (2021) allows nonprofits to sell ADUs separate from primary dwellings.
	Junior Accessory Dwelling Units	Government Code § 65852.22	Jurisdictions are allowed to create an ordinance allowing junior accessory dwelling units, in single-family residential zones. “Junior accessory dwelling unit” means a unit that is no more than 500 square feet in size and contained entirely within an existing single-family structure.	AB 2406 (2016), AB 68 (2019), SB 897 (2022)	AB 2406 (2016) authorizes ordinances allowing Junior ADUs. AB 68 (2019) requires ministerial approval of some Junior ADUs. SB 897 (2022) reduces and changes requirements for Junior ADUs.
	Manufactured and Factory Built Housing Law	Gov’t Code § 65852.3.	Local governments must allow the siting and permit process for manufactured housing in the same manner as a conventional or stick-built structure.		
	Group Home Law	Health and Safety Code § 1267.8, 1566.3, 1568.08	Local governments are required to treat licensed group homes and residential care facilities with six or fewer residents no differently than other by-right single-family housing uses. “Six or fewer persons” does not include the operator, the operator’s family or persons employed as staff. Local agencies must allow these licensed residential care facilities in any area zoned for residential use.		
	Employee Housing Act	Health and Safety Code § 17021.5, 17021.6, 17021.5.	Employee housing for six or fewer persons must be treated as a single-family structure and residential use in a residential zone. Section 17021.6 generally requires employee housing consisting or not more than 36 beds in group quarters or 12 units or less designed for use by a single family or household to be treated as an agricultural use.	AB 1783 (2019)	AB 1783 (2019) requires ministerial approval for qualifying farmworker housing projects.

Exhibit A: Summary of Amendments to Existing Legal Authorities

	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
DEVELOPMENT PHASE: ZONING, PERMITTING	Density Bonus Law	Gov't Code § 65915	State Density Bonus allows for a developer to get a density bonus of up to 35 percent, up to three incentives or concessions, and allows developments reduced parking standards for provision of housing affordable to lower-income households.	AB 1934 (2016), AB 2753 (2018), AB 2372 (2018), AB 2797 (2018), SB 1227 (2018), AB 1763 (2019), AB 2345 (2020), AB 571 (2021), SB 290 (2021), SB 728 (2021), AB 2334 (2022), AB 682 (2022), AB 1551 (2022)	AB 1934 (2016) provides density bonuses for commercial developers that partner with addordable developers on joint projects. AB 2753 (2018) makes process adjustments to density bonus process. AB 2372 (2018) allows cities to give floor area ratio bonus instead of a density bonus, limits new parking requirements. AB 2797 (2018) requires density bonuses to comply with coastal zone act. SB 1227 (2018) provides density bonus for student housing with affordability restrictions. AB 1763 (2019) provides density bonuses for projects with 100 percent affordable units. AB 2345 (2020) increases density bonuses and incentives. AB 571 (2021) prevents affordable housing fees from being imposed on affordable units. SB 290 (2021) expands density bonus law, allows bonuses for projects with 20 percent lower income students. SB 728 (2021) allows nonprofit housing orgs to purchase units under density bonus law. AB 2334 (2022) adjusts maximum rent levels for some units in developments receiving density bonuses, extends density bonuses to developments in low vehicle travel areas within designated counties, adjust standards used to determine maximum density allowed by localities, extends prohibition on parking requirements for some developments. AB 682 (2022) makes shared housing developments eligible for density bonuses. AB 1551 (2022) reenacts a recently expired law that extended density bonuses to some commercial developments that include affordable housing developments.
	Navigation Centers	Gov't Code § 65660 - 65668		AB 101 (2019)	AB 101 (2019) makes homeless "navigation" centers by-right developments, exempt from CEQA
DEVELOPMENT PHASE: PERMITTING	Permit Streamlining Act	Gov't Code § 65920, 65950	Sets deadlines for action on land-use permits and grants automatic approval ("deemed approved") if action is not taken in a timely manner.	SB 330 (2019), SB 8 (2021)	SB 330 (2019) sets time limits for processing applications. SB 8 (2021) extends until 2030 the provisions that limit application response time.
	Housing Accountability Act (HAA)	Gov't Code § 65589.5	Limits local governments' ability to reject or make affordable housing developments infeasible through conditions affordable housing developments, including emergency shelters and farmworker housing. Specifically, the local government can only deny a project affordable to moderate-, low- and very low-income households when the jurisdiction's housing element is in compliance with state law and the jurisdiction has met, or exceeded, the RHNA for the income group of the proposed project, makes specific health and safety findings, or finds the project located on certain agriculturally zoned land.	AB 1515 (2017), SB 167 (2017), AB 3194 (2018), SB 330 (2019), AB 1743 (2019), SB 8 (2021), AB 1584 (2021), AB 2234 (2022)	AB 1515 (2017) increases the range of projects subject to the HAA. SB 167 (2017) applies a developer-friendly standard of review and increases fines on localities that unlawfully deny permits under the HAA. AB 3194 (2018) allows projects compliant with general plan objective criteria not to comply with zoning if the zoning is incompatible with the general plan. SB 330 (2019) limits when localities can deny permits for low-income housing developments, related to RHNA targets. AB 1743 (2019) clarifies that localities cannot deny applications for emergency shelters due to their tax exempt status. SB 8 (2021) allows localities to subject projects to rules enacted after approval if construction has not begun within 2.5 years. AB 1584 (2021) clarifies that incentives, concessions, and waivers due to density bonuses are not bases for rejection as inconsistent with local plans. AB 2234 (2022) enforces time limits for review of post entitlement permits.
	No-Net-Loss	Gov't Code § 65863.	No-net-loss law ensures sites are available throughout the housing element planning period to accommodate the local government's RHNA. It also prohibits a local government from reducing the allowable density on a site identified in the housing element's site inventory unless certain findings are made or an alternative parcel's density is increased.	SB 166 (2017), SB 1333 (2018), AB 2339 (2022),	SB 166 (2017) requires zoning for "not net loss" of units. SB 1333 (2018) applies limits on reduction of residential density to charter cities. AB 2339 (2022) requires housing element site inventories to include unaccommodated housing need from the prior planning period.

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: PERMITTING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Multifamily Permit Streamlining	Gov’t Code § 65589.4	Under specific conditions, multifamily infill housing projects with housing affordable to at least 50 percent moderate-income units, 20 percent low-income units, or 10 percent very low-income units must be allowed as a permitted use and are not subject to a conditional use permitting process.		
	Prohibiting Discrimination Against Affordable Housing	Gov’t Code §65008	A jurisdiction action is null and void if it denies to any individual or group of individuals the enjoyment of residence, land ownership, tenancy, or any other land use in this state because the development or shelter is intended for occupancy by persons and families of very low, low, or moderate income, as defined in Section 50093 of the Health and Safety Code, or persons and families of middle income or the development consists of a multifamily residential project that is consistent with both the jurisdiction’s zoning ordinance and general plan as they existed on the date the application was deemed complete	AB 1743 (2019)	AB 1743 (2019) limits localities’ ability to reject projects because they qualify for Community Facilities District tax exemptions.
	CEQA Streamlining	California Public Resources Code § 21000	Certain types of development such as some affordable housing, infill projects, or transit-oriented development are exempt from the provisions of CEQA. Streamlining in the form of exemptions, or being able to use existing environmental documentation (tiering) when evaluating a project, are available for Transportation Priority Projects (TPPs) that are consistent with the Regional SCS.	AB 73 (2017), SB 765 (2018), AB 1560 (2019), AB 101 (2019), SB 744 (2019), SB 7 (2021), SB 10 (2021), AB 140 (2021), SB 886 (2022)	AB 73 (2017) exempts projects within Housing Sustainability Districts from some environmental impact report (EIR) requirements. 1560 (2019) broadens CEQA exemptions based on proximity to transit. SB 7 (2021) reestablishes expedited CEQA review for some projects. SB 886 (2022) creates a CEQA exemption for public university faculty and staff housing projects as well as some student housing projects.
	Attorney’s Fees	Gov section 65914	Attorney fees are awarded to the prevailing public entity or non-profit developer in cases where frivolous lawsuits are filed against low and moderate income housing to stop development.		
	CEQA Streamlining	Gov’t Code § 8698.4		SB 765 (2018)	SB 765 (2018) expands CEQA exemptions for some affordable housing projects and homeless shelters.
	Housing Crisis Act	Gov’t Code § 66300		SB 330 (2019), SB 8 (2021)	SB 330 (2019) limits cities’ ability to impose moratoria or stricter development standards. SB 8 (2021) limits downzoning and provides a right of return for displaced renters.
	CEQA Streamlining	Gov’t Code § 65913.5		SB 10 (2021)	SB 10 (2021) makes upzoning to 10 units on certain parcels exempt from CEQA.
	Housing Crisis Act	Gov’t Code § 65913.10		SB 330 (2019)	SB 330 (2019) requires cities determining whether a proposed development site is “historic” to do so at time application is complete.
	Housing Crisis Act	Gov’t Code § 65940		SB 330 (2019), SB 8 (2021)	SB 330 (2019) requires cities to compile a list of everything needed from a development applicant. SB 8 (2021) clarifies the definition of a development project for the sake of the requirement to provide proponents with a checklist.
	Housing Crisis Act	Gov’t Code § 65941.1		SB 330 (2019), AB 168 (2020), SB 8 (2021),	SB 330 (2019) provides a list of information applicants must provide. States that applications are deemed preliminary applications if they include this information. AB 168 (2020) clarifies that preliminary applications do not preclude listing of tribal sites on historic registers. SB 8 (2021) extends permit streamlining provisions until 2030.

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: PERMITTING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Housing Crisis Act	Gov't Code § 65943		SB 330 (2019), SB 8 (2021)	SB 330 (2019) specifies how cities must treat applications, including more accommodations for applicants. SB 8 (2021) clarifies the definition of development project for other permit streamlining provisions and extends those provisions until 2030.
	Building Standards	Civil Code § 4747		SB 478 (2021)	SB 478 (2021) makes covenants/deed restrictions unenforceable if they include certain Floor Area Ratio standards.
	Building Standards	Gov't Code § 65913.11		SB 478 (2021)	SB 478 (2021) prohibits local governments from imposing too strict Floor Area Ratio (FAR) standards.
	CEQA Streamlining	Health and Safety Code § 50675.1.4		AB 83 (2020), AB 140 (2021)	AB 83 (2020) creates a CEQA exemption for Projects RoomKey projects. AB 140 (2021) creates new CEQA exemption for projects targeted at people facing homelessness and COVID hardship
	Housing Crisis Act	Gov't Code § 65940.1		AB 1483 (2019), AB 602 (2021)	AB 1483 (2019) requires local agencies to report on fees, ordinances, zoning. AB 602 (2021) requires localities to post their fee schedules online and to post how much developers pay for actual projects.
	Multifamily Permit Streamlining	Gov't Code § 65913.4		SB 35 (2017), SB 765 (2018), AB 101 (2019), AB 1485 (2019), AB 168 (2020), AB 831 (2020), AB 1174 (2021), AB 2668 (2022), SB 6 (2022),	SB 35 (2017) creates ministerial approval processes for qualifying projects. SB 765 (2018) requires for ministerial approval: affordability restriction/covenant, HCD determines if jurisdiction eligible for streamlining based on low income housing permits, CEQA does not apply. AB 101 (2019) requires jurisdictions to include information about a project's density bonuses and floor space in the jurisdiction's calculation of square footage. AB 1485 (2019) makes moderate-income projects in the Bay Area eligible for SB 35 streamlining. AB 168 (2020) allows tribes to require consultation for SB 35 projects. AB 831 (2020) tightens/improves SB 35 streamlining law. AB 1174 (2021) clarifies SB streamlining and specifies that permit validity is paused during litigation or modification of applications. AB 2668 (2022) adds requirements to projects qualifying for SB 35. SB 6 (2022) allows parcels subject to approval under SB 6 (unused commercial properties) to be eligible for SB 35 streamlining.
	Religious-Use Parking	Gov't Code § 65913.6		AB 1851 (2020)	AB 1851 (2020) allows religious institutions to convert 50 % of their parking spaces to housing.
	Supportive Housing	Gov't Code § 65650 - 65656		AB 2162 (2018), SB 744 (2019), AB 1584 (2021)	AB 2162 (2018) streamlines approval for supportive housing projects. SB 744 (2019) limits review of supporting housing projects to objective standards and adds legislative findings about No Place Like Home that insulate it from legal challenge.
	Transit-Oriented Development	Public Utilities Code § 29010.1		AB 2923 (2018)	AB 2923 (2018) streamlines development on places close to BART stations.
	Impact Fees	Health and Safety Code § 50466.5		AB 602 (2021)	AB 602 (2021) requires HCD to create an impact fee nexus study template

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: BUILDING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Affordable Housing Beneficiary Districts	Health and Safety Code § 34191.30	Allows a jurisdiction to redirect its distribution of property tax revenue payable to the city or county from the Redevelopment Property Tax Trust Fund to an affordable housing beneficiary district. The jurisdiction is then authorized to issue bonds against the property tax revenue to provide financial assistance for the development of affordable housing in the form of loans, grants, and other incentives.		
	State Housing Law	Health and Safety Code § 17910	The California Health and Safety Code provisions known as the State Housing Law, often referred to as building code, were enacted to encourage uniformity in building standards and to protect the health, safety and general welfare of the public and occupants of residential buildings statewide. HCD’s State Housing Law Program (SHL) develops and proposes the adoption of residential building standards to the California Building Standards Commission for approval and adoption into the California Code of Regulations These building standards apply to new construction of hotels, motels, lodging houses, apartments, dwellings, and accessory buildings. Local governments may adopt local amendments to these codes provided they make express findings that they are reasonable and necessary based upon climatic, geological or topographical conditions. Prior to construction of a development, the local government must ensure that building plans conform to all codes and regulations. After completion of the project, the local officials inspect the property to ensure compliance with standards and conditions for development placed on the project.	SB 13 (2019), AB 491 (2021)	SB 13 (2019) gives ADU owners a right to request delay in enforcement of state building code. AB 491 (2021) requires affordable units within mixed-income projects to have the same access to amenities as market rate units.
	California Green Building Standards (CalGreen)		CalGreen requires new buildings and renovations in California to meet certain sustainability and ecological standards. Jurisdictions which aspire to be more green and sustainable may voluntarily adopt more stringent provisions from CALGreen, known as “Tier 1” or “Tier 2” from the CALGreen Appendix A4 Residential Voluntary Measures. These enhanced green building measures contain prerequisites and electives for jurisdictions to determine their own level of local green building code		
	Surplus Sites	Gov’t Code § 11011, GC § 54200	Current state law allows the disposal of surplus state government real property through the Department of General Services. Disposal of surplus sites at less than fair market value is allowed to promote the development of housing affordable to persons and families of low- and moderate-income. For locally controlled surplus property, local agencies, including school districts, must prioritize the use of surplus property to increase the supply of housing.	SB 6 (2019), AB 1486 (2019), AB 1180 (2019), AB 1255 (2019), SB 561 (2022), AB 2592 (2022)	SB 6 (2019) requires HCD to provide Dept of General Services a list of land identified in local housing elements as suitable for residential development. Requires DGS to post a database. AB 1486 (2019) clarifies and strengthens the Surplus Land Act by defining terms, changing noticing requirements, prohibiting terms that disallow housing, imposing penalties, specifying minimum affordability standards, and making other changes. AB 1180 (2019) exempts surplus land given to tribes from the Surplus Land Act. SB 561 (2019) requires the Department of General Services (DGS) to evaluate the suitability of state-owned parcels for affordable housing. AB 2592 (2022) requires DGS to plan to transition underutilized multistory state buildings into housing
	Costa- Hawkins Rental Housing Act	Civil Code § 1954.5	Established parameters for implementing local rent control laws which include: (1) housing constructed after 1995 must be exempt from local rent controls, (2) new housing that was already exempt from a local rent control law in place before February 1, 1995, must remain exempt, (3) single family homes and other units like condominiums that are separate from the title to any other dwelling units must be exempt from local rent controls, and (4) rental property owners must have the ability to establish their own rental rates when dwelling units change tenancy. It also includes some tenant protections to protect tenants from arbitrary terminations of leases.		

Appendix A: Summary of Amendments to Existing Legal Authorities

DEVELOPMENT PHASE: BUILDING	NAME	CODE SECTION	DESCRIPTION OF STATE AUTHORITY AND/OR MANDATE	UPDATES (2017 AND LATER)	DESCRIPTIONS OF RECENT LEGISLATIVE ACTIONS
	Ellis Act	Gov't Code §7060	The “Ellis Act” is a state law which says that landlords have the unconditional right to evict tenants if the landlord removes all of the units in the building from the rental market. The evicted tenants have certain rights including first right of return for a period of 10 years, re-rental must be the same as previous rents for 5-years, and relocation payments must be provided to the tenant.		
	Tenant Protections	Civil Code § 1940 – 1954.05	Provides certain rights to tenants who rent residential property. These rights include: (1) limits on the amount of the security deposit and right refund; (2) limits on the landlord’s right to enter the rental unit; (3) The right to sue the landlord for violations of the law or rental agreement; (4) The right to repair serious defects in the rental unit; (5) The right to withhold rent under certain circumstances and warranty of habitability; (6) Protection against retaliatory eviction.	AB 2219 (2018), AB 1482 (2019)	AB 2219 (2018) allows tenants to pay rent through third parties. AB 1482 (2019) statewide rent cap and just cause eviction protections.
	Historic Buildings	Health and Safety Code § 18962		AB 2263 (2018)	AB 2263 (2018) reduces parking requirements for historical building conversions.
	State Housing Law	Health and Safety Code § 18938.5		AB 2913 (2018)	AB 2913 (2018) extends the duration of building permits.
	Surplus Sites	Gov't Code § 54233.5		AB 1486 (2019)	AB 1486 (2019) requires localities to offer surplus land to affordable housing developers first, requires reporting to HCD on the process, and a fine for violation.



**STAFF REPORT
CITY OF VALLEJO
PLANNING COMMISSION**

I. PROJECT INFORMATION

Item No. 8A

DATE OF MEETING:

August 21, 2023

PROJECT NUMBER(S):

Development Review (DVR22-0046)
Design Review (DR22-0013)
Landscape Review (LR22-0010)
Lot Line Adjustment (LLA23-0008)
Environmental Document (ED23-0001)

PREPARED BY:

Cesar Orozco, Principal Planner

PROJECT LOCATION:

961 Porter Street / APN: 0061-160-180

**APPLICABLE ZONING
CODE SECTION(S):**

Development Review (VMC Chapter 16.605)
Design Review (VMC Chapter 16.604)
Landscape Review (VMC Chapter 16.504)
Lot Line Adjustment (VMC Chapter 17.30)

PROJECT SUMMARY:

The project consists of 122 new units to an existing 182-unit multi-family apartment complex, comprising the following entitlements: Development Review, Design Review, Landscape review, Lot Line Adjustment, and environmental review. The project also includes site improvements, new landscaping, three new trash enclosures, new exterior lighting throughout the site, pedestrian paths between the new buildings, short-term bicycle parking, and a total of 155 new vehicle parking spaces.

CEQA:

Staff recommends that the Planning Commission determine that the project is categorically exempt from the requirements of CEQA under Class 32 (Section 15332 of the CEQA Guidelines) after making the required findings.

RECOMMENDATION:

Staff recommend that the Planning Commission adopt Resolution No. PC23-05 to APPROVE DR22-0013, LR22-0010, DVR22-0046, and ED23-0001.

II. PROJECT DATA SUMMARY

APPLICANT:	Klein Financial Corporation c/o: Rob Klein 961 Porter Street Vallejo, CA 94590
PROPERTY OWNER:	Klein Financial Corporation 550 S. California Avenue, Suite 330 Palo Alto, CA 94306
GENERAL PLAN DESIGNATION:	Mix of Housing Types/Medium Density (R-MH)
ZONING DISTRICT:	Residential Medium Density (RMD)
EXISTING LAND USE:	Multi-Family Residential
SURROUNDING LAND USE:	North – Multi-Family/Single-Family Residential South – Multi-Family Residential East – Norman C. King S. Vallejo Community Center West – Industrial/ Marina Uses
PROJECT AREA:	181,209.6 square feet (4.16 Acres)

III. PROJECT DESCRIPTION

A. Background

On October 25, 2022, the project applicant, Klein Financial Corporation, submitted a proposal to construct four new buildings (three apartment buildings containing a total of 120 residential dwelling units, one maintenance building with two residential dwelling units (for a total of 122 units), and associated parking and landscaping) on approximately 4.16 acres of the existing 12.02-acre Harbor Park Residential Development site located at 961 Porter Street. The project plans were routed to various agencies and city departments for their review and the application was determined to be complete by the City on March 20, 2023.

On June 8, 2023, staff presented the project before the Design Review Board and provided an overview of the project. The Design Review Board unanimously recommended that the Planning Commission approve the project.

Location and Land Use Context

The project site is located on Porter Street near the intersection of Magazine Street. It is surrounded by existing residential uses, a community center, and an industrial use:

Table 1 – Surrounding Uses	
Direction	Land Uses
North	Porter Street Multi-Family Residential Single-family Residences
East	Porter Street Norman C. King South Vallejo Community Center Sonoma Boulevard
South	Multi-Family Residential
West	Industrial Use Carquinez Strait

Highway 29/Sonoma Boulevard is located approximately 500 feet to the east and Interstate 80 is located approximately ½ a mile to the east. The immediate vicinity of the project site is characterized by existing multi-family residential, single-family residential, industrial uses, medical offices, surface parking lots and residential land uses (see Figure 1). The site's General Plan 2040 Land Use Designation is Mix of Housing Types (M-HT) and is implemented by Zoning District of Residential Medium Density (RMD).

The project site is adjacent to a 182 multi-family residential apartment complex. According to the City's Planning Division records, the apartment complex was approved by the Planning Commission in March 1963. The existing 182 units are spread throughout 10 residential buildings and there are a total of 278 off-street parking spaces (see Figure 1). The existing site is made up by two parcels; Parcel one has an area of 11.83 acres and Parcel Two 0.19 acres, totaling 12.02 acres.

Figure 1 – Vicinity Map



B. Project Description

The proposed project consists of a Development Review, Design Review, Landscape Review and associated environmental review for the addition of 122 new units adjacent to the existing 182-unit multi-family apartment complex, for a total of 304 units. As mentioned above, the site is made up by two parcels; Parcel one has an area of 11.83 acres and Parcel Two 0.19 acres, totaling 12.02 acres. A lot line adjustment, reviewed and acted on ministerially by the Public Works Director, was submitted to decrease Parcel One from 11.83 acres to 7.86 acres and Parcel Two will increase from 0.19 acres to 4.16 acres. The new units will be constructed on a 4.16-acre parcel. 120 of the proposed units will be distributed across three buildings, each constructed with four stories above parking podium. As the site slopes upward to the west, some areas of the building will be constructed into slopes, and above grade building heights will range from 40 to 60 feet with an overall building height of 59 feet. The remaining two units will be located in a new maintenance building with a building height of 35 feet. The unit breakdown is as follows: 36 junior one-bedrooms, 31 one-bedrooms, 29 two-bedrooms and 26 three-bedrooms. The project will dedicate a total of 24 units of low-income housing.

Site improvements are also being proposed, including 30,000 square feet square feet of new landscaping, three new trash enclosures, exterior lighting, pedestrian paths along the new buildings, short-term bicycle parking and a total of 155 new off-street parking spaces (see Figure 2).

Figure 2 – Proposed Site Plan



IV. STAFF ANALYSIS

Required Permits

The project requires the following approvals under the Vallejo Municipal Code (VMC):

Table 2 – Required Permits			
Permit Type	Description	VMC Chapter	Review Authority
Design Review	Residential projects of 50 or more units.	16.604	Design Review Board Recommendation to Planning Commission
Landscape Review	Installation of new landscaping exceeding 500 square feet.	16.504	Design Review Board Recommendation to Planning Commission
Development Review	Construction of four new buildings.	16.605	Planning Commission Action.
Lot Line Adjustment	Adjust Property Lines	17.30	Public Works Director

The Planning Commission will act on the Development Review, Design Review and Landscape Review, with the recommendation of the Design Review Board. The Director of Public Works will act on the lot line adjustment. In addition to these entitlements, this project will also require a building permit(s) from the City of Vallejo.

General Plan Consistency

The General Plan 2040 Land Use Designation for the subject property is Mix of Housing Types/Medium Density (R-MH). The General Plan characterizes this designation as follows:

The R-MH designation applies to residential neighborhoods largely characterized either by 1) single-family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller scale apartment buildings, and small commercial spaces; or 2) primarily single use, multi-family developments with common outdoor spaces. The residential neighborhoods with single-family and other housing types are typically located in the central and more historic parts of Vallejo. Dwellings typically have front and rear yards, as well as side setbacks. Zero side lots (zero lot lines) may be appropriate where they can be visually integrated into the existing neighborhood context. Permitted land uses include single-family homes; in some instances, duplexes, triplexes, fourplexes, smaller scale apartment buildings, and small commercial spaces; and public facilities such as schools, religious institutions, parks, and other community facilities appropriate within a residential neighborhood. For primarily single-use, multi-family development, the R-MH designation applies to residential areas primarily characterized by parcels and buildings containing multiple residences, sometimes on several floors, and, in some instances, small commercial spaces. They are similar in character to those permitted in Primarily Multi-Family (R-MF), but with a lower residential density. The maximum permitted residential density in the R-MH designation is 25 dwelling units per acre.

The project is consistent with the R-MH land use designation in that it includes construction of 122 multi-family units in a residential area primarily characterized by parcels and buildings containing multiple family dwellings. The General Plan Density allows 25 dwelling units per acre, which would allow 104 units on the subject 4.16-acre site. By providing 24 units for low income (23.07 percent of proposed units), State Density Bonus Law allows density to be increased by 46.25 percent, resulting in 37 units per acre. Additionally, the project is also consistent with applicable General Plan 2040 policies

and actions. Key policies and actions relevant to the project are shown in **bold**, followed by staff's analysis in *italic*:

Table 3 - General Plan 2040 Policies and Actions	
Policies and Actions	Staff's Analysis
Policy NBE-2.8: Infill Development. Promote infill development targets vacant and underutilized sites for community-desired and enhancing uses that is compatible with surrounding uses.	<i>The proposed multifamily residential project would result in the development of additional units and will fulfill a housing need in the community and is compatible with the collection of surrounding uses.</i>
Policy NBE-1.8: Urban Forest. Encourage planting of street trees and landscaping to beautify the city, encourage walking and biking and create a stronger sense of identity.	<i>The project involves the planting of many trees, shrubs, and groundcovers contributing to the beautification of Vallejo and the cultivation of an urban forest. The construction of sidewalk improvements along the new residential buildings will contribute to the pedestrian realm within the subject site.</i>
Policy NBE-2.3: Inviting, Compatible Design. Promote attractive development that is compatible with surrounding uses.	<i>The project architecture is of a high quality that unifies the buildings of the proposed development with a variety of materials and architectural features that break up the expanse of wall planes. The building height and mass are not out of scale with existing buildings located at 961 Porter Street and close proximity.</i>
Policy NBE-2.8: Infill Development. Promote infill development targets vacant and underutilized sites for community-desired and enhancing uses that is compatible with surrounding uses.	<i>The proposed multifamily residential project would result in the development of additional units and will fulfill a housing need in the community and is compatible with the collection of surrounding uses.</i>

Vallejo Municipal Code Compliance

The project site is zoned Residential Medium Density (RMD). The Zoning Code provides the following description for the RC Zoning District:

The RMD Zoning District is intended to create and establish regulations for a district with a mix of housing types, including attached and detached, and small apartment buildings, subject to density limits (up to twenty-five dwelling units per acre) and design and development standards to ensure land use compatibility. Mixed-use development with residential and small commercial spaces may also be seen in this district. This district also allows a variety of neighborhood supportive services, public and educational facilities, open spaces, and community facilities. Front, corner side, and rear yards are required, and zero-side yard development is permitted subject to discretionary review. In

the established neighborhoods of the city, it is the intent of this district to maintain the existing pattern of single-family residences, including attached units and duplexes, while in the undeveloped areas of the city, it is the intent of this district to encourage the creation of multi-unit residential neighborhoods with a variety of housing types.

VMC Table 16.102-A: Zoning Districts states, the RMD Zoning District implements the R-MH General Plan Land Use Designation. VMC Table 16.301 – A: Land Use Regulations states, a “Multi-Unit Residential (Three or more units)” uses are permitted with a limitation of 2-10 units permitted subject to Director decision. 11-49 units permitted subject to Director decision with Design Review Board recommendation. 50 or more units require Design Review Board recommendation and Planning Commission decision. The project is consistent with the RMD zoning district in that it includes construction of 122 multi-family units in a residential area primarily characterized by parcels and buildings containing multiple family dwellings. The General Plan Density allows 25 dwelling units per acre, which would allow 104 units on the subject 4.16-acre site. By providing 24 units for low income (23.07 percent of proposed units), State Density Bonus Law allows for an increase in density by 46.25 percent, resulting in 37 units per acre.

The project is consistent with the applicable standards in the RMD zoning districts as demonstrated in the Table, below:

Table 4 - Residential Medium Density – Development Standards (VMC16.202-B)			
Development Standard		Proposal	Compliant
Density: Max.	25 units/acre = 104 units	DBL allows 37 units/acre = 154 units Proposed: 122 units	Yes, with the allowed density bonus.
Minimum lot Size (sq.ft)	5,000	181,209.6 sq.ft. (4.16 Acres)	Yes
Minimum Lot Width	50	52	Yes
Building Height:	50 feet	59 feet and one inch	Yes, with the waiver requested to increase height
Setbacks:	Front: 15 feet	15 - 25 feet	Yes
	Interior: 5 for the first 2 stories, 10 thereafter	10 to 15 feet	Yes
	Rear: 10 feet	16 feet	Yes
Parking from the street facing property line	40 feet	146 feet	Yes
Minimum Distance Between Buildings	5 feet	150 feet to 175 feet	Yes
Maximum Story Massing - 2 nd Story - 3 rd story and above	- 100% - 60%	- 100% - 100%	Yes, with the requested waiver for upper story massing.
On-site parking space per unit	1 covered	155 off-street parking spaces 126 covered	Yes
Minimum private open space	75 square feet	50.5 to 233 sq.ft.	Yes, with the requested waiver to reduce area of private open space.

Minimum Dimension of Private Open Space	- Ground Level – 10 feet - Above Floor – 6 feet	- Ground Floor – 7 feet - Above Ground floor 5 to 6 feet	Yes, with the requested waiver to reduce minimum dimension
Minimum total Common open space	150 square feet plus 100 (common or private, for three bedrooms or more)	10,230 sq.ft.	Yes, with the requested waiver to reduce the required open space.
Minimum Dimension of Common open space	15 feet	10 feet	Yes, with the requested waiver to reduce minimum dimension.
Minimum amount of Landscaping (% of site)	30	30 percent	Yes
Maximum paving in street facing yards (% of required yard)	50	Not applicable	Existing front paving will not be removed or extended.
Street Trees	1 per 50 ft. of frontage	One	Yes, one for 52 feet of frontage
VMC Section 16.508.12 - Bicycle Standards			
Short-Term Bicycle Parking	1 plus 1 for every 20 units – 7	8	Yes
Long-Term Bicycle Parking	1 per unit = 122	0	Yes, with the requested waiver of long-term bicycle parking

The proposed project is being processed in accordance with the State Density Bonus Law. Concessions and waivers have been requested to waive certain development standards. By waive/reducing the specific standards indicated in the table above, the project is consistent with the RMD zoning district development standards.

Discussion

The following comments provide a summary of the staff analysis of the project. They are separated by subject theme to facilitate the review by the Planning Commission. The information provided is referenced in IV, the Findings section at the end of the report.

State Density Bonus Law

To encourage the production of affordable housing, the State Density Bonus Law (Government Code Section 65915) allows developments to receive a density bonus over the maximum permitted density under the general plan, specific plan, and zoning ordinance, depending on the amount of affordable housing provided. Density Bonus law is a state mandate and any development that meets the requirements of the law is entitled to receive a density bonus and other benefits as a matter of right with no findings required.

The proposed project consists of 122 new units, 24 of these units will be offered at below market rate (low-income) rent for 55 years, subject to a restrictive covenant. Two of the units will be set aside for onsite managers. The maximum allowed density in the RMD Zoning District is 25 dwelling units per acre, which would allow 104 units on the subject 4.16-acre site. The final number of 122-units is 17.3 percent increase over the maximum allowable density. Under the State Density Bonus Law, the

applicant is entitled to receive a 46.25 percent density bonus (37 units per acre) as a matter of right; resulting in a maximum of 154 units.

Concessions and Waivers

The State Density Bonus Law also allows developments that incorporate affordable housing within a residential project to request relief from local development standards in the form of concessions or incentives, and waivers. Concessions and waivers typically involve a reduction in site development standards or a modification of zoning code or architectural design requirements, such a reduction in setback or maximum building height requirements. Incentives typically involve financial measures intended to achieve identifiable and actual cost reductions for a project.

The City is required to grant concessions or incentives proposed by the developer unless it finds that the proposed concession or waiver would not result in identifiable and actual cost reductions, would cause a public health or safety problem, would cause an environmental problem, would harm historical property, or would be contrary to law. The Density Bonus Law restricts the types of information and reports that a developer is required to provide to the local jurisdiction to obtain the requested incentive or concession. The local jurisdiction has the burden of proof in the event it declines to grant a requested concession or waiver.

The number of concessions allowed to be requested is based on the percentage of affordable units in the project. Since the project is 23.07 percent affordable, the applicant qualifies for two concessions.

In addition to concessions, the applicant may also request waivers or reductions of any local development standards that would physically prevent the project from being built at the permitted density and with the granted concessions. Based on 23.07 percent affordability, the project is eligible for an unlimited number of waivers from local development standards.

The following sections describe the requested concessions and waivers requested by the applicant for the proposed project:

a. Concessions

i. Water Line Pressure Zone

The applicant is requesting a concession to allow the project to extend and be served by a water line in Pressure Zone 292 (PZ-292) rather than in Pressure Zoned 212 (PZ-212). If the project connects to PZ-212 it would require the project to install additional booster pumps, backup generators and fire sprinkler pumps and would cost an additional two million dollars. Staff routed the project plans to the Water Department and Fire Prevention, and it was agreed to allow the project to connect to the water line with a higher pressure. By connecting to PZ-292, it would reduce the cost of construction and support a higher level of affordability.

ii. Defer Payment of Development Impact Fees

The applicant has requested to defer impact fees until all units have been occupied. By deferring the impact fees, it will reduce the cost of construction and support a higher level of affordability. As a condition, impact fees will be deferred until prior to receiving final inspection.

b. Waivers

i. Private Open Space

The RMD Zoning District requires a total of 75 square feet of private open space per unit with a minimum dimension of 10 feet on the ground floor and six feet for private open space located above the ground floor. The majority of the proposed units exceed the 75 square-foot dimensions but do not meet the minimum dimensions. Strict conformance to this development standard would preclude the total number of residential units on site. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

ii. Common Open Space

The RMD Zoning District requires a minimum of 150 square feet of common open space per unit plus an additional 100 square feet of open space for units with three or more bedrooms with a minimum dimension of 15 feet. With the proposed 122 units, a total of 20,900 square feet of common open space is required. The applicant is providing 10,230 squares of open space in the form of pathways, green belts and play areas and requesting a waiver of the remaining 10, 670 square feet. Strict conformance to this development standard would preclude the total number of residential units on site. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

iii. Covered Off-Street Parking

The RMD Zoning District requires a total of one covered off-street parking space per unit, resulting in 122 covered off-street parking spaces. The project will be providing a total of 155 off-street parking spaces, 126 of which are covered. However, in order to achieve the proposed affordability, the applicant is proposing to "unbundle" the parking, and charge users separately from the cost of the residential rent and provide ten of the covered spaces in a tandem (one in front of the other) form in building A. The tandem parking spaces will only be available to the same unit, resulting in the fact that only 116 units will have covered off-street parking spaces. Strict conformance to this development standard would preclude this arrangement of the covered parking spaces. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

iv. Upper Story Massing

The RMD Zoning District requires the massing at the third story and above to a maximum of 60 percent of the ground floor. In order to maintain the current number of units, the applicant has proposed to build the third and fourth story to the full extent of the footprint. Strict conformance to this development standard would result in the reduction of habitable space. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

v. Increase in Building Height

The RMD Zoning District maximum building height is 50 feet. The applicant is proposing a building height at 59 feet and one inch. The increase in height allows the project to fit on site at the density allowed under the Density Bonus Law. The project incorporates use of high-efficiency electric HVAC/mechanical systems, resulting in lower operating costs and reduced carbon emissions consistent with state objectives.

These systems require a thickened floor section to accommodate the equipment. Strict conformance to this development standard of fifty feet in height would not permit the use of the high-efficiency units while maintaining volume ceilings, thus impacting the overall marketability of the units, and precluding the construction of the residential development. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

vi. Long Term Bicycle Parking

The City of Vallejo Zoning Code requires one long-term bicycle parking for every residential unit for a total of 122 long-term bicycle parking spaces. The applicant is seeking to reduce the number of long-term bicycle parking by 71 spaces. While 51 long-term spaces will be provided, strict conformance to this development standard would have a negative impact on the constrained site. Based on the project's level of affordability it qualifies for the requested waiver, which is not discretionary.

Architecture

As mentioned above, the 122 new units will be distributed between four buildings. The proposed building is visually interesting and will be constructed with a variety of high-quality building materials and painted with simple, bold colors. Vertical and horizontal façade breaks, building massing, and modulation have all been incorporated into the design of the building. The building features modulation, building wall articulation, and building materials that are aesthetically pleasing and compatible with the existing development. Staff notes that under State Housing law (see further discussion, below under V. Findings), the project cannot be denied based on subjective design standards.

Building A will have a total of 36 units ranging in size from junior one-bedroom to three-bedroom floor plans. The proposed building will have a total of five stories, with a parking podium on the ground floor. The building will have an overall building height of 59' 1" and an overall building length of 155' 2". The building will be constructed with a stucco finish, fiber cement paneling system, vinyl windows, and metal railings. The building will be painted with Sherwin-Williams Revel Blue, Gauntlet Gray, Gray Clouds, Decisive Yellow, High Reflective White, and Spare White (see Figure 3). Similar to Building A, Buildings B and C will have the same height, length, and finish but will have a total of 42 units.

Figure 3 – Building A Elevations



The remaining two units will be built within the new maintenance building. The new maintenance building will have a total of three stories with a maintenance shop/garage on the ground floor and two stories above. The new building will have an overall building height of 35' and an overall building width of 50'. Like Buildings A, B and C, the maintenance building will be constructed with a stucco finish,

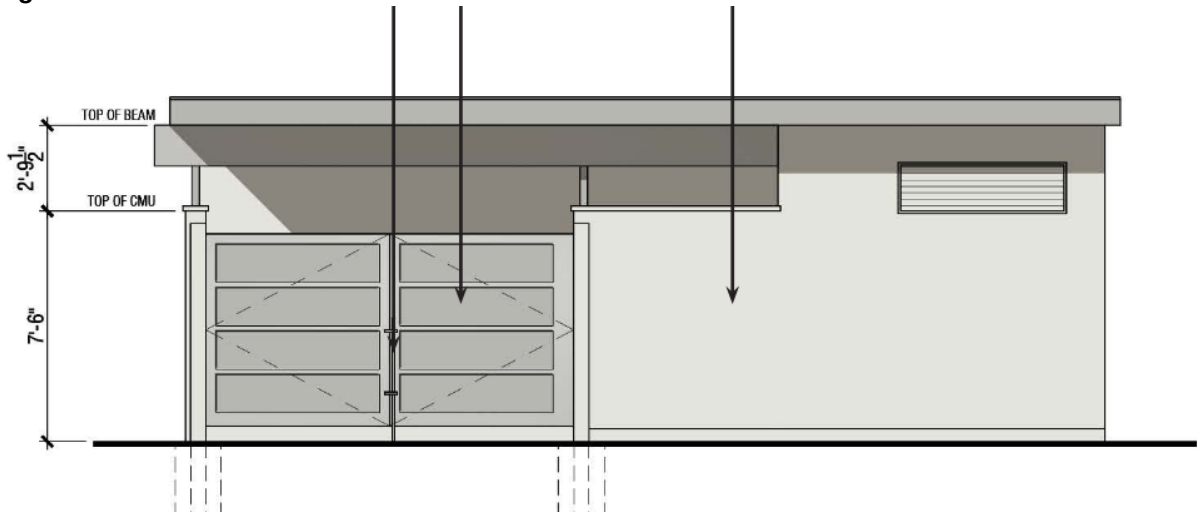
fiber cement paneling system, vinyl windows, and metal railings. The building will be painted with Sherwin-Williams Revel Blue, Gray Clouds, High Reflective White, and Spare White (see Figure 4).

Figure 4 – Maintenance Building Elevation



A total of three trash enclosures are being proposed for the new development. Each trash enclosure will have a total area of 442.5 square feet and have an overall building height of 11.5 feet. Each trash enclosure will be constructed with stucco over a Concrete Masonry Unit (CMU), a metal roof and door painted Sherwin Williams Gray Clouds and Spare White (see figure 5).

Figure 5 – Trash Enclosure Elevations



The proposed trash enclosure buildings will be similar in scale and massing as those serving the original development.

Landscaping

The proposed landscaping is designed to complement the new buildings while creating a transition into the existing apartment complex's landscaping and trees on the southern property boundary. A variety of new drought-tolerant shrubs and trees, totaling approximately 30,000 square feet will provide shade

to the parking lots, treat stormwater in bioretention areas and accent the social hubs serving each building. The social hubs are programmed with flowering accent trees, cluster mailboxes, bicycle racks, trash receptacles and bench seating and connected with lighted pathways for pedestrian circulation throughout the project area.

Trash Enclosure

As mentioned above, three new trash enclosures are being proposed on site. VMC Section 16.501.08, Consolidation and Distance from the Building Served states, *Solid waste, recycling, and organic waste storage areas must be consolidated to minimize the number of collection sites and located to reasonably equalize the distance from the building spaces they serve. For multi-unit residential projects, at least one trash enclosure per twenty units is required, and the enclosure must be located one hundred feet or less from the residential units.* Therefore, a total of six trash enclosures are required.

However, VMC Section 16.501.08 (L.1) modification states, *The public works director, in consultation with the chief building official or director, shall have the authority to modify the requirements, as listed below, subject to the design standards of this chapter when, upon a written application for a modification, the city engineer, chief building official or director determines that the applicant has demonstrated that imposition of the design standards is technically infeasible or creates an unreasonable hardship. Such authority shall be limited to the following:*

1. *Modify the dimensions of solid waste, recycling, and organic waste rooms, or outdoor enclosures, provided that the frequency of solid waste, recycling, and organic waste collection is modified to adequately serve the uses on the site and protect the public health, safety, and general welfare.*

The applicant provided staff a Trash Management Plan prepared by American Trash Management (ATM). The plan describes the projected amount of residential waste, recycling, and organic waste each unit would produce and the total number for each building. Based on that information, the plan provides recommendations for minimum dimension size for the trash enclosure and the size of waste bins. The Public Works Director and Chief Building Official supported the conclusions found in the report and accepted the applicant's request to allow three trash enclosures for the project.

Traffic

A Vehicles Miles Traveled (VMT) Assessment Memorandum has been prepared by Fehr & Peers. Based on information from the Solano-Napa Activity Based Travel Demand Model, a typical multi-family residential development at the project site is forecast to generate approximately 24.7 daily vehicle miles of travel per resident. This is similar to other multi-family residential developments in the area. However, the project includes two elements that are not typical of existing residences in the area:

- a. Cost of parking charged separately from residential rent (unbundled parking).
- b. Building management will provide all residents with information to encourage non-single occupant vehicle travel options (rideshare, transit, bike and pedestrian amenities and options).

As a result, calculations were performed to assess the anticipated reductions in VMT associated with these measures. The calculations identified an expected reduction in VMT of approximately 9.4 percent. With this modification, the proposed project is expected to generate approximately 22.4 vehicle miles of travel per resident, which is below the city's significance threshold of 24.2 percent. Therefore, the project will not result in a significant effect relating to traffic.

Additionally, a Transportation Impact Assessment (TIA) was also prepared by Fehr & Peers. The TIA was prepared to evaluate the potential transportation effects of the proposed project, such as intersection level of service, and site plan review regarding circulation and access for all modes (pedestrian, bicycle, transit) as well as parking. The proposed Project is expected to generate

approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips. Intersection Levels of Service (LOS) were calculated at five intersections providing access to the project site for six analysis scenarios. The results of this assessment found that the local roadway network has adequate capacity to serve forecast increases in traffic associated with the proposed project. Significant adverse impacts or violations of City policies were not identified in the assessment of transit, bicycle, pedestrian, automobile, or emergency vehicle access.

V. FINDINGS

Design Review Findings

VMC Section 16.604.03 (B), requires the Design Review Board to make a recommendation to the Planning Commission for final design review approval (the findings are in bold, and the Design review Board's recommendations follows in italics):

A. Is consistent with the purposes of this chapter, the design policies of the general plan and any applicable specific plan, any adopted applicable design guidelines.

Purposes of the Chapter

1. Establish regulations for an objective process that applies urban design principles to ensure that new construction supports the best of the city's architectural traditions.

As proposed, the project meets the objective design standards called out in VMC Chapter 16.202 – Residential Districts, as discussed in detail below.

2. Encourage new structures that show creativity and imagination, add distinction, interest, and variety to the community, and are environmentally sustainable.

The proposed buildings are visually interesting, and each will be constructed with a variety of high-quality building materials and painted with simple, bold colors. Vertical and horizontal façade breaks, building massing, and modulation have all been incorporated into the design of the buildings and will create distinction in the established neighborhood.

3. Promote architectural and design excellence in new construction and discourage poor quality development.

The proposed buildings will be comprised of a stucco finish, fiber cement paneling system, vinyl windows, and metal railings painted with the variety of Sherwin-Williams Revel Blue, Gauntlet Gray, Gray Clouds, Decisive Yellow, High Reflective White, and Spare White. The project details, colors, materials, and landscaping are integrated with one and another that create a visually consistent proposal. Overall, the project uses high-quality, long-lasting material resulting in quality development.

4. Ensure that future development should:

- a. Reflect the values of the community.**
- b. Enhance the surrounding environment.**
- c. Visually harmonize with its surroundings and not unnecessarily obstruct scenic views; and**
- d. Avoid nostalgic misrepresentations that may confuse the relationships among structures over time.**

The project reflects the promotion of infill development that targets underutilized sites, which is a policy identified in the General Plan. Due to its location, the project will not obstruct scenic

views and due to its interesting design, it will not confuse the relationships among structures over time.

- 5. Ensure that decisions on housing development projects are based on objective design standards as required by the State Housing Accountability Act (Government Code Section 65589.5).**

The Housing Accountability Act (HAA), California Government Code Section 65589.5(j), requires that when a proposed housing development complies with the applicable, objective general plan and zoning standards, but a local agency proposes to deny the project or approve it only if the density is reduced, the agency must base its decision on written findings supported by substantial evidence that:

- 1. The development would have a specific adverse impact on public health or safety unless disapproved, or approved at a lower density; and*
- 2. There is no feasible method to satisfactorily mitigate or avoid the specific adverse impact, other than the disapproval, or approval at a lower density.*

As described in Tables 3 and 4 above, the project complies with applicable, objective general plan and zoning standards. Therefore, the city may not deny the project or approve the project at a reduced density without basing its decision on the written findings under Section 65589.5(j), above.

- 6. Provide for new landscaping to create a visually pleasing setting for structures on the site.**

A total of about 30,000 square feet square feet of new landscaping will be installed along the base of the proposed buildings. A total of 25 new trees, shrubs and ground cover will be planted to enhance the subject site.

- 7. Promote the protection and retention of landmark, native, and specimen trees and if feasible mature canopy trees and other significant landscaping of aesthetic and environmental value.**

Not applicable; existing mature trees will be integrated with the proposed new landscaping.

- 8. Ensure that the design, quality, and location of signs are consistent with the character and scale of the structures to which they are attached and are visually harmonious with surrounding development.**

No signage is proposed with the addition of the new units. Existing signage will remain along Porter Street and existing site directories will be updated to reflect the location of new residential buildings.

- 9. Promote the conservation, enhancement, preservation, and protection of historic resources.**

The proposed project is located in the vicinity of the Sperry Flour Company Vallejo Mills Historic District, which has been recommended eligible for listing on the National Register of Historic Places (National Register) (Brunzell, 2017). The construction of multi-story buildings within the proposed project site, which is located on a ridge east of the historic resource, would not be expected to degrade the setting of the adjacent National Register-eligible property to the point that its significance would be materially impaired. The proposed project will not negatively impact the historic resource.

Design policies of the General Plan

The project site is designated as Mix of Housing Types/Medium Density (R-MH) on the General Plan Land Use Map. The General Plan 2040 R-MH designation provides for residential neighborhoods largely characterized either by primarily single use, multi-family developments with common outdoor spaces. As proposed, the project is consistent with the R-MH General Plan land use designation in that the proposed project is to add additional units to an existing multi-family development with common outdoor space. The project is also consistent with applicable General Plan 2040 policies.

Adopted applicable design guidelines.

The subject site is not within an adopted specific plan and design guidelines have not been adopted for this location.

B. Is consistent with any planning or zoning approvals by the director or the planning commission.

The project is consistent with the RMD zoning district in that it is a proposal of a new 122 units, and as conditioned and proposed meets all appropriate development standards of the Vallejo Municipal Code.

C. Complies with any other relevant city policies or regulations.

As noted in the staff report, the proposed project complies with policies found in the General Plan and VMC Chapter 16.202 – Residential Districts.

Development Review Findings

VMC Section 16.605.03, requires the review authority make the following findings prior to granting a Development Review (the findings are in bold, and staff's determination follows in italics):

A. Complies with all applicable specific standards and criteria of this Zoning Code.

The proposed project is located on a property zoned Residential Medium Density (RMD). As noted in Tables 3 and 4, the project as conditioned, is consistent with the applicable development standards outlined in Title 16 of the Vallejo Municipal Code.

B. Is consistent with the general plan and any applicable approved specific plan or planned development.

The project site is designated as Mix of housing types/Medium Density (R-MH) on the General Plan Land Use Map. The General Plan 2040 R-MH designation applies to residential neighborhoods largely characterized either by 1) single-family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller scale apartment buildings, and small commercial spaces; or 2) primarily single use, multi-family developments with common outdoor spaces. As proposed, the project is consistent with the R-MH General Plan land use designation in that it consists of the addition of 122-units to an existing apartment complex in an area primarily characterized with multi-family development and includes 10,230 square feet of common outdoor spaces. The project is also consistent with applicable General Plan 2040 policies as noted in the report.

C. Complies with any design conditions, standards, or requirements imposed by a discretionary approval including but not limited to a major or minor use permit, variance,

specific plan, planned development, or tentative map applicable to the project or the location where it is proposed.

The project shall comply with the approved design and conditions of approval imposed by the Planning commission in the attached Resolution. The original apartment complex was approved by the Planning Commission in March 1963 and does not include any design conditions, standards, or requirements that apply to the project.

D. Is in substantial compliance with any applicable adopted design guidelines.

Not applicable; City does not have any adopted design guidelines for multi-family development.

E. Will serve to achieve groupings of structures that are well related one to another and which, taken together, will result in a well-composed urban design, with consideration given to site, height, arrangement, texture, material, color and appurtenances, the relation of these factors to other structures in the immediate area, and the relation of the development to the total setting as seen from key points in the surrounding area; only elements of design which have some significant relationship to outside appearance shall be considered.

Not applicable; City does not have any adopted design guidelines for multi-family development.

F. Will be of a quality and demonstrates thoughtful site planning that will serve to protect the value of private and public investments in the area.

Not applicable; City does not have any adopted design guidelines for multi-family development.

G. That the project has been reviewed in compliance with the California Environmental Quality Act, if applicable, and the requirements of this chapter.

As noted below and the attached environmental analysis, the project is exempt pursuant to California Environmental Quality Act (CEQA) Guidelines, Section 15332 (Class 32: Infill Development). Therefore, no further environmental review is required.

State-Mandated Density Bonus Findings

VMC Section 16.214.12 provides required findings for approval of state-mandated density bonus, concession, and incentives (the findings are in **bold**, and staff's determination follows in *italics*):

A. The housing development is eligible for a density bonus and any concessions, incentives, waivers, or parking reductions requested.

The project consists of 122 multi-family residential units with 24 of the units (23.07 percent of the new units), to each be reserved for lower income. The maximum allowed density in the RMD Zoning District is 25 dwelling units per acre, which would allow 104 units on the subject 4.16-acre site. The final number of 122-units is 17.3 percent increase over the maximum allowable density. Under the State Density Bonus Law, the applicant is entitled to receive a 46.25 percent density bonus as a matter of right; resulting in a maximum of 153 units (37 units and acre). The project is therefore eligible for a density bonus with two concessions and unlimited waivers.

B. Any requested incentive or concession will result in identifiable, financially sufficient, and actual cost reductions based upon appropriate financial analysis and documentation if required.

The proposed concessions would result in actual and identifiable cost savings to the developer, and these savings are necessary to achieve the proposed number of dwelling units at the level of affordability proposed. None of the concessions or waivers would result in any specific, adverse impacts to public health, safety, the physical environment, or historical resources.

- C. The density bonus is based all or in part on donation of land, the findings included in California Government Code Section 65915(g).**

Not applicable; the proposed project does not propose to donate land.

- D. If the density bonus, incentive, or concession is based all or in part on the inclusion of a childcare facility, the findings included in California Government Code Section 65915(h).**

Not applicable; the proposed project does not include a childcare facility.

- E. If the incentive or concession includes mixed-use development, the findings included in California Government Code Section 65915(k)(2).**

Not applicable; the proposed project does not include a mixed-use development.

- F. If a waiver is requested, the development standards for which a waiver is requested would have the effect of physically precluding the construction of the residential development with the density bonus, concessions, or incentives permitted.**

If the waivers were not granted, the development standards for which the waivers were requested would have the effect of physically precluding the construction of the residential development in that the size and/or massing of the building would be decreased causing a reduction in the number of dwelling units; or the cost of adhering to the development standard would preclude construction of the development. The requested waivers are necessary to construct the project at this level of affordability.

VI. ENVIRONMENTAL REVIEW

Under the California Environmental Quality Act (CEQA), the State has identified a list of classes of projects, which have been determined to not have a significant on the environment and are therefore exempt from the requirements of CEQA, as a result. The proposed project is exempt under Class 32, which consists of projects characterized as “infill” development that meet the conditions described in Section 15332 (In-Fill Development Projects). Class 32 projects have the following characteristics:

- a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.*
- b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.*
- c) The project site has no value as habitat for endangered, rare, or threatened species.*

- d) *Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.*
- e) *The site can be adequately served by all required utilities and public services.*

The planning consulting firm Environmental Science Associates (ESA) was retained by the city and conducted a comprehensive environmental review of the project to determine whether or not it qualifies for an exemption under CEQA. The environmental analysis concluded that the project is categorically exempt from the requirements of CEQA under Class 32 (Section 15332 of the CEQA Guidelines). Furthermore, the analysis determined that none of the identified exceptions that preclude the use of a categorical exemption under Section 15300.2 of the CEQA Guidelines apply to the project.

VII. NOTICING AND PUBLIC COMMENTS

On August 7, 2023, pursuant to VMC Section 16.602.08 – Noticing, a notice of this hearing was published in the Times Herald, mailed to all active neighborhood groups, all property owners within 500 feet of the subject property, and any other local agency expected to provide water, wastewater treatment, or other essential facilities or services to the project, as well as to members of the Planning Commission, the applicant and property owner.

Staff has not received any comments or questions from the public on the application as of writing this staff report.

VIII. CONCLUSION / STAFF RECOMMENDATION

Based on the analysis contained in this staff report and attachments, staff recommends that the Planning Commission hold a public hearing, consider and approve the CEQA determination that the project is categorically exempt from the requirements of CEQA under Class 32 (Section 15332 of the CEQA Guidelines and then APPROVE Development Review (DVR22-0046), Design Review (DR22-0013), and Landscape Review (LR22-0010) based on the findings and provided in the attached Resolution and subject to the Conditions of Approval provided as Exhibit A to the Resolution.

IX. EXPIRATION

Pursuant to VMC Section 16.602.12 (A.2), the approval of the Development Review (DVR22-0046), Design Review (DR22-0013), Landscape Review (LR22-0010) shall automatically expire two years after approval, unless authorized construction has commenced prior to the expiration date (August 21, 2025; if approved at this meeting and not appealed).

X. APPEAL PROCEDURE

VMC Section 16.602.14, Appeals, the applicant, or any party adversely affected by the decision of the Planning Commission may, within ten days after the rendering of the decision of the Planning Commission appeal in writing to the City Council by filing a written appeal with a fee of \$1,409.21 dollars with the City Clerk. Such written appeal shall state the reason or reasons for the appeal and why the applicant believes he or she is adversely affected by the decision of the Planning Commission. Such appeal shall not be timely filed unless it is actually received by the City Clerk or designee no later than the close of business on the tenth calendar day after the rendition of the decision of the Planning Commission. If such date falls on a weekend or City holiday, then the deadline shall be extended until the next regular business day.

Notice of the appeal, including the date and time of the City Council's consideration of the appeal, shall be sent by the City Clerk to all property owners within five hundred feet of the project boundary. The Council may affirm, reverse, or modify any decision of the Planning Commission that is appealed.

XI. ATTACHMENTS

1. Resolution No. PC23-05
 - a. Exhibit A – Conditions of Approval
2. State Density Bonus Law Request
3. Lot Line Adjustment Exhibit
4. Legal Description of Lot Line Adjustment
5. American Trash Management Plan
6. Categorical Exemption Report
7. Traffic Impact Study
8. Vehicle Miles Travel Analysis
9. Resolution No. DRB 23-01
10. Project Plans

CITY OF VALLEJO PLANNING COMMISSION

RESOLUTION NO. PC23-05

A RESOLUTION APPROVING DEVELOPMENT REVIEW (DVR) 22-0046, DESIGN REVIEW (DR) 22-0013, LANDSCAPE REVIEW (LR) 22-0010, AND ENVIRONMENTAL DOCUMENT (ED) 23-0001 FOR ADDITION OF 122 DWELLING UNITS TO AN EXISTING 182 DWELLING UNIT MULT-FAMILY COMPLEX AT 961 PORTER STREET (APN: 0061-160-180)

I. GENERAL FINDINGS

WHEREAS, on August 29, 2017, the City Council adopted General Plan 2040; and

WHEREAS, the property has a General Plan 2040 land use designation of Mix of Housing Types; and

WHEREAS, on July 22, 2021, the City Council adopted Zoning Code and Zoning Map; and

WHEREAS, the property is located in the Residential Medium Density Zoning District; and

WHEREAS, on October 25, 2022, Rob Klein submitted an application seeking a Design Review Permit, Landscape Review, Development Review and Lot Line Adjustment for the construction of 122 units at an existing 182-unit multi-family complex ("Project") located at 961 Porter Street; and

WHEREAS, on March 20, 2023, the application for the Project was determined to be complete for processing; and

WHEREAS, on May 20, 2023, pursuant to Vallejo Municipal Code Section 16.602.08(A), notice of this hearing was published in the Times Herald and mailed to all active neighborhood groups and property owners within 500 feet of the subject property and electronically mailed to the members of the Design Review Board and to the applicant; and

WHEREAS, on June 8, 2023, the City of Vallejo Design Review Board, after giving all public notices required by State law and the City of Vallejo Municipal Code, conducted a duly noticed public hearing; and

WHEREAS, the Design Review Board considered testimony and evidence, both written and oral, provided at the public hearing, as well as other documents contained in the record of proceedings relating to the Project, which are maintained in the offices of the City of Vallejo Planning Division; and

WHEREAS, the Design Review Board made a recommendation to the Planning Commission to approve the project; and

WHEREAS, on May 20, 2023, pursuant to Vallejo Municipal Code Section 16.602.08(A), notice of this hearing was published in the Times Herald and mailed to all active neighborhood groups and property owners within 500 feet of the subject property and electronically mailed to the members of the Planning Commission and to the applicant; and

WHEREAS, the Planning Commission considered testimony and evidence, both written and oral, provided at the public hearing, as well as other documents contained in the record

of proceedings relating to the Project, which are maintained in the offices of the City of Vallejo Planning Division; and

WHEREAS, based on evidence received in the staff report and at the public hearing, the Planning Commission makes the following factual findings:

II. FINDINGS RELEVANT TO THE APPROVAL OF THE DESIGN REVIEW PERMIT (VMC Section 16.604.03.B)

A. Is consistent with the purposes of this chapter, the design policies of the general plan and any applicable specific plan, any adopted applicable design guidelines.

Purposes of the Chapter

- 1. Establish regulations for an objective process that applies urban design principles to ensure that new construction supports the best of the city's architectural traditions.**

As proposed, the project meets the objective design standards called out in VMC Chapter 16.202 – Residential Districts, as discussed in detail below.

- 2. Encourage new structures that show creativity and imagination, add distinction, interest, and variety to the community, and are environmentally sustainable.**

The proposed buildings are visually interesting, and each will be constructed with a variety of high-quality building materials and painted with simple, bold colors. Vertical and horizontal façade breaks, building massing, and modulation have all been incorporated into the design of the buildings and will create distinction in the established neighborhood.

- 3. Promote architectural and design excellence in new construction and discourage poor quality development.**

The proposed buildings will be comprised of a stucco finish, fiber cement paneling system, vinyl windows, and metal railings painted with the variety of Sherwin-Williams Revel Blue, Gauntlet Gray, Gray Clouds, Decisive Yellow, High Reflective White, and Spare White. The project details, colors, materials, and landscaping are integrated with one and another that create a visually consistent proposal. Overall, the project uses high-quality, long-lasting material resulting in quality development.

- 4. Ensure that future development should:**
 - a. Reflect the values of the community.**
 - b. Enhance the surrounding environment.**
 - c. Visually harmonize with its surroundings and not unnecessarily obstruct scenic views; and**
 - d. Avoid nostalgic misrepresentations that may confuse the relationships among structures over time.**

The project reflects the promotion of infill development that targets underutilized sites, which is a policy identified in the General Plan. Due to its location, the project will not obstruct scenic views and due to its interesting design, it will not confuse the relationships among structures over time.

5. **Ensure that decisions on housing development projects are based on objective design standards as required by the State Housing Accountability Act (Government Code Section 65589.5).**

The Housing Accountability Act (HAA), California Government Code Section 65589.5(j), requires that when a proposed housing development complies with the applicable, objective general plan and zoning standards, but a local agency proposes to deny the project or approve it only if the density is reduced, the agency must base its decision on written findings supported by substantial evidence that:

1. *The development would have a specific adverse impact on public health or safety unless disapproved, or approved at a lower density; and*
2. *There is no feasible method to satisfactorily mitigate or avoid the specific adverse impact, other than the disapproval, or approval at a lower density.*

As described in Tables 3 and 4 of the staff report, the project complies with the applicable, objective general plan and zoning standards. Therefore, the city may not deny the project or approve the project at a reduced density without basing its decision on the written findings under Section 65589.5(j), above.

6. **Provide new landscaping to create a visually pleasing setting for structures on the site.**

A total of about 30,000 square feet square feet of new landscaping will be installed along the base of the proposed buildings. A total of 25 new trees, shrubs and ground cover will be planted to enhance the subject site.

7. **Promote the protection and retention of landmark, native, and specimen trees and if feasible mature canopy trees and other significant landscaping of aesthetic and environmental value.**

Not applicable; existing mature trees will be integrated with the proposed new landscaping.

8. **Ensure that the design, quality, and location of signs are consistent with the character and scale of the structures to which they are attached and are visually harmonious with surrounding development.**

No signage is proposed with the addition of the new units. Existing signage will remain along Porter Street and existing site directories will be updated to reflect the location of new residential buildings.

9. **Promote the conservation, enhancement, preservation, and protection of historic resources.**

The proposed project is located in the vicinity of the Sperry Flour Company Vallejo Mills Historic District, which has been recommended eligible for listing on the National Register of Historic Places (National Register) (Brunzell, 2017). The construction of multi-story buildings within the proposed project site, which is located on a ridge east of the historic resource, would not be expected to degrade the setting of the adjacent National Register-eligible property to the point that its significance would be materially impaired. The proposed project will not negatively impact the historic resource.

Design policies of the General Plan

The project site is designated as Mix of Housing Types/Medium Density (R-MH) on the General Plan Land Use Map. The General Plan 2040 R-MH designation provides for residential neighborhoods largely characterized either by primarily single use, multi-family developments with common outdoor spaces. As proposed, the project is consistent with the R-MH General Plan land use designation in that the proposed project is to add additional units to an existing multi-family development with common outdoor space. The project is also consistent with applicable General Plan 2040 policies.

Adopted applicable design guidelines.

The subject site is not within an adopted specific plan and design guidelines have not been adopted for this location.

B. Is consistent with any planning or zoning approvals by the director or the planning commission.

The project is consistent with the RMD zoning district in that it is a proposal of a new 122 units, and as conditioned and proposed meets all appropriate development standards of the Vallejo Municipal Code.

C. Complies with any other relevant city policies or regulations.

As noted in the staff report, the proposed project complies with policies found in the General Plan and VMC Chapter 16.202 – Residential Districts.

III. FINDINGS RELEVANT TO THE APPROVAL OF THE DEVELOPMENT REVIEW (VMC Section 16.605.03)

A. Complies with all applicable specific standards and criteria of this Zoning Code.

The proposed project is located on a property zoned Residential Medium Density (RMD). As noted in Tables 3 and 4, the project as conditioned, is consistent with the applicable development standards outlined in Title 16 of the Vallejo Municipal Code.

B. Is consistent with the general plan and any applicable approved specific plan or planned development.

The project site is designated as Mix of housing types/Medium Density (R-MH) on the General Plan Land Use Map. The General Plan 2040 R-MH designation applies to residential neighborhoods largely characterized either by 1) single-family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller scale apartment buildings, and small commercial spaces; or 2) primarily single use, multi-family developments with common outdoor spaces. As proposed, the project is consistent with the R-MH General Plan land use designation in that it consists of the addition of 122-units to an existing apartment complex in an area primarily characterized with multi-family development and includes 10,230 square feet of common outdoor spaces. The project is also consistent with applicable General Plan 2040 policies as noted in the report.

- C. Complies with any design conditions, standards, or requirements imposed by a discretionary approval including but not limited to a major or minor use permit, variance, specific plan, planned development, or tentative map applicable to the project or the location where it is proposed.**

The project shall comply with the approved design and conditions of approval imposed by the Planning commission in the attached Resolution. The original apartment complex was approved by the Planning Commission in March 1963 and does not include any design conditions, standards, or requirements that apply to the project.

- D. Is in substantial compliance with any applicable adopted design guidelines.**

Not applicable; City does not have any adopted design guidelines for multi-family development.

- E. Will serve to achieve groupings of structures that are well related one to another and which, taken together, will result in a well-composed urban design, with consideration given to site, height, arrangement, texture, material, color and appurtenances, the relation of these factors to other structures in the immediate area, and the relation of the development to the total setting as seen from key points in the surrounding area; only elements of design which have some significant relationship to outside appearance shall be considered.**

Not applicable; City does not have any adopted design guidelines for multi-family development.

- F. Will be of a quality and demonstrates thoughtful site planning that will serve to protect the value of private and public investments in the area.**

Not applicable; City does not have any adopted design guidelines for multi-family development.

- G. That the project has been reviewed in compliance with the California Environmental Quality Act, if applicable, and the requirements of this chapter.**

As noted below and the attached environmental analysis, the project is exempt pursuant to California Environmental Quality Act (CEQA) Guidelines, Section 15332 (Class 32: Infill Development). Therefore, no further environmental review is required.

IV. FINDINGS RELEVANT TO THE APPROVAL OF STATE-MANDATED DENSITY BONUS (VMC Section 16.214.12)

- A. The housing development is eligible for a density bonus and any concessions, incentives, waivers, or parking reductions requested.**

The project consists of 122 multi-family residential units with 24 of the units (23.07 percent of the new units), to each be reserved for lower income. The maximum allowed density in the RMD Zoning District is 25 dwelling units per acre, which would allow 104 units on the subject 4.16-acre site. The final number of 122-units is 17.3 percent increase over the maximum allowable density. Under the State Density Bonus Law, the applicant is entitled to receive a 46.25 percent density bonus as a matter of right;

resulting in a maximum of 153 units (37 units and acre). The project is therefore eligible for a density bonus with two concessions and unlimited waivers.

- B. Any requested incentive or concession will result in identifiable, financially sufficient, and actual cost reductions based upon appropriate financial analysis and documentation if required.**

The proposed concessions would result in actual and identifiable cost savings to the developer, and these savings are necessary to achieve the proposed number of dwelling units at the level of affordability proposed. None of the concessions or waivers would result in any specific, adverse impacts to public health, safety, the physical environment, or historical resources.

- C. The density bonus is based all or in part on donation of land, the findings included in California Government Code Section 65915(g).**

Not applicable; the proposed project does not propose to donate land.

- D. If the density bonus, incentive, or concession is based all or in part on the inclusion of a childcare facility, the findings included in California Government Code Section 65915(h).**

Not applicable; the proposed project does not include a childcare facility.

- E. If the incentive or concession includes mixed-use development, the findings included in California Government Code Section 65915(k)(2).**

Not applicable; the proposed project does not include a mixed-use development.

- F. If a waiver is requested, the development standards for which a waiver is requested would have the effect of physically precluding the construction of the residential development with the density bonus, concessions, or incentives permitted.**

If the waivers were not granted, the development standards for which the waivers were requested would have the effect of physically precluding the construction of the residential development in that the size and/or massing of the building would be decreased causing a reduction in the number of dwelling units; or the cost of adhering to the development standard would preclude construction of the development. The requested waivers are necessary to construct the project at this level of affordability.

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDING

Based on the facts set forth in the 961 Porter Street Project: Class 32 Categorical Exemption Report dated July 2023 and prepared by ESA, the project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA, Public Resources Code §21000, et seq. and California Code of Regulations, Title 14, §15000, et seq.) pursuant to Section 15332 of the CEQA Guidelines (“In-Fill Development Projects”). None of the exceptions in CEQA

Guidelines Section 15300.2 apply, as follows: (a) the site is not located in an environmentally sensitive area, (b) there are no cumulative impacts, (c) there are no significant effects due to unusual circumstances, (d) the project is not located near a scenic highway, (e) the project site is not located on a hazardous waste site pursuant to Government Code Section 65962.5, and (f) the project would not affect any historical resource. Therefore, no further environmental review is required.

VI. RESOLUTION APPROVING THE PROJECT AT 961 PORTER STREET

NOW, THEREFORE, LET IT BE RESOLVED that the Planning Commission hereby APPROVES Development Review (DVR22-0046), Design Review (DR22-0013), Landscape Review (LR22-0010), And Environmental Document (ED23-0001) on the above findings and subject to the Conditions of Approval attached to this Resolution.

VII. VOTE

PASSED AND ADOPTED at a regular meeting of the Planning Commission of the City of Vallejo, State of California, on the 21th day of August 2023 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

PEGGY COHEN-THOMPSON, CHAIRPERSON
City of Vallejo Planning Commission

Attest:

MARGARET KAVANAUGH-LYNCH, SECRETARY
City of Vallejo Planning Commission

CONDITIONS OF APPROVAL

**DEVELOPMENT REVIEW (DVR22-0046)
DESIGN REVIEW (DR22-0013)
LANDSCAPE REVIEW (LR22-0010)
ENVIRONMENTAL DOCUMENT (ED23-00010)
961 PORTER STREET, VALLEJO CA, 94590
APN # 0061-160-180**

PERMIT DESCRIPTION: The project consists of 122 new units to an existing 182-unit multi-family apartment complex, comprising the following entitlements: Development Review, Design Review, Landscape review, Lot Line Adjustment, and environmental review. The project also includes site improvements, new landscaping, three new trash enclosures, new exterior lighting throughout the site, pedestrian paths between the new buildings, short-term bicycle parking, and a total of 155 new vehicle parking spaces.

A. PLANNING DIVISION

Cesar Orozco, Principal Planner | cesar.orozco@cityofvallejo.net | 707.648.5436

Pre-Building Permit

1. Prior to building permit issuance, Applicant shall submit a numbered list to the Planning Division with a written response on how each condition of approval (COA) contained in this report will be satisfied. The list should be submitted to the project planner who will coordinate development of the project. The revised list will be included in the permit set after the cover sheet with each condition listed and how the applicant will address each condition in writing.
2. Prior to building permit issuance, Applicant shall apply for and receive a Temporary Use Permit from the Planning Division for any temporary office or construction trailer.
3. Prior to building permit issuance, the Planning Division shall confirm that the building permit, grading permit and all other drawings and documents substantially conform with the documents and/or representations, whether oral or written that were presented to and approved by the Planning Commission on August 21, 2023. Pursuant to VMC 16.602.10.b the site plan, floor plans, building elevations and/or any additional information or representations, whether oral or written, indicating the proposed structure or manner of operation submitted with an application or submitted during the approval process shall be deemed conditions of approval. Any approval may be subject to requirements that the applicant guarantees, warranties, or ensures compliance with the plans and conditions in all respects.
4. Prior to building permit issuance, the Applicant shall provide proof of recordation of the lot line adjustment with Solano County Assessor's office.
5. Prior to building permit issuance, the Applicant shall finalize the Affordable Housing Agreement/Density Bonus Agreement to the satisfaction of the Planning and Development Services Director. The Agreement shall include at a minimum all of relevant sections of VMC 16.214.09. Once the Director has approved the Agreement, the Applicant shall ensure that the Agreement is executed and record it with Solano County Assessor's office. This resolution including all Attachments and Exhibits shall be included in the recordation packet.
6. Prior to the issuance of a building permit, the Planning and Development Services Director may require the applicant to submit such information as proposed machinery, processes, products, or environmental impacts as may be necessary to demonstrate the ability of the proposed uses to comply with applicable performance standards. Such required information may include reports by expert consultants. Whenever an environmental impact report has been submitted and determined

to be adequate under state and city guidelines, no further information shall be required. (VMC Section 16.505.02 (B))

During Construction

1. Construction activities shall be managed in compliance with the following requirements:
 - a. Site Watering. During the construction of a project, all portions of the site shall be watered as necessary to reduce emissions of dust and other particulate matter, and all stockpiles shall be covered.
 - b. Maintenance. Streets and sidewalks shall be made dirt free at the completion of construction.
 - c. Noise. All construction and transport equipment shall be muffled in accordance with state and federal laws.
 - d. Emissions. Construction and transport equipment shall be operated so as to minimize exhaust emissions. During construction, trucks and equipment should be running only when necessary.
 - e. Hours of Operation. Grading and pile driving operations within ¼ mile of residential units shall be limited to between 8:00 am and 5:00 p.m. on weekdays to ensure compliance with the requirements for construction activity in Subsection 16.502.12.D.1., Maximum Noise Level for Temporary Construction Activity, or as otherwise restricted as part of an approval.
 - f. Water Run-off. All water run-off from construction sites shall be controlled. During construction, trucks and equipment should be running only when necessary, and shall comply with Chapter 12.41 of the Vallejo Municipal Code.
2. No person shall make, or cause to suffer, or permit to be made upon any public property, public right-of-way or private property, any excessive noise, annoying noise, amplified sound or vibrations that are physically annoying to reasonable persons of normal sensitivity or that are so harsh or so prolonged or unnatural or unusual in their use, time or place as to cause or contribute to the unnecessary and unreasonable discomfort of any persons of normal sensitivity located at the lot line of the property from which these noises emanate or that interfere with the peace and comfort of residents or their guests, or the operators or customers in places of business in the vicinity, or that may detrimentally or adversely affect such residences or places of business. (VMC Section 16.502.09 (C))
3. Construction, demolition, and related loading/unloading activities that may generate noise shall be limited to the following: 7 a.m. and 6 p.m. in Monday- Friday, Saturday 9 am- 6 pm and Sundays and holidays not allowed. (VMC Section 16.502.09 (D))
4. The fencing for construction sites shall not be installed until a building permit or grading permit has been issued and shall be removed prior to final inspection. In the event that the building permits expire before the construction is completed, the Planning and Development Services Director may issue a temporary use permit pursuant to Chapter 16.339, Temporary Uses, to allow the fencing to remain for a longer period of time. (VMC Section 16.505.08 (B))

Pre-Operation

1. Prior to first final building inspection, the landscape architect shall provide a complete Certificate of Completion and Certificate of Installation According to the Landscape Documentation in accordance with VMC Chapter 16.71: Water Efficient Landscape Requirements. The documentation shall include the following:
 - a. Irrigation Scheduling (VMC Section 16.71.050)
 - b. Schedule of Landscape and Irrigation Maintenance (VMC Section 16.71.051)
 - c. Landscape Irrigation Audit Report (VMC Section 16.71.052)
 - d. Soil Management Report (VMC Section 16.71.045)

2. Prior to first final building inspection, the Applicant shall install landscaping and irrigation per approved plans. The landscape architect shall verify in writing that the landscaping and irrigation have been installed in accordance with the approved landscape plans with respect to size, health, number and species of plants, and the overall design concept.
3. Prior to first final building inspection, all new American Disabilities Act (ADA) improvements shall be to the satisfaction of the Building Official.

Landscaping

1. Maintenance Required. All landscaping shall be permanently maintained in a healthy and thriving condition at all times, in compliance with the approved landscape plan. Irrigation systems and their components shall be maintained in a fully functional manner consistent with the original approved design or upgraded to reflect current best practices for water efficiency. Regular maintenance shall include but is not limited to:
 - a. Adjusting, checking, and repairing irrigation equipment; resetting automatic controllers; aerating and de-thatching turf areas; adding/replenishing fertilizer, mulch, soil amendments; insect control; the replacement of dead or diseased plants; pruning; watering; and weeding all landscaped areas.
 - b. The trimming of vegetation is necessary to maintain the effective functioning of solar energy facilities and passive solar design features installed both on site and on adjacent properties.
 - c. The trimming of vegetation is necessary to keep pedestrian and bicycle paths clear. (VMC Section 16.504.08 (A))
 - d. Pruning, cultivating, weeding, fertilizing, replacement of plants, and watering on a regular basis.
 - e. Pruning or removal of overgrown vegetation, cultivated or uncultivated, that may harbor rats, vermin, or other nuisances, or otherwise be detrimental to neighboring properties.
 - f. The removal of dead, decayed, diseased, or hazardous trees, weeds and debris that create an unsightly appearance and may be dangerous to public safety and welfare or detrimental to neighboring properties or property values. Compliance shall be by removal, replacement, or maintenance.
 - g. Landscaping (trees, shrubs, ground cover, turf, etc.) which, due to accident, damage, disease, lack of maintenance, or other cause, fails to show a healthy appearance and growth, shall be replaced. Replacement plants shall conform to all standards that govern the original planting installation, approved landscaping plan, or as approved by the director. (VMC Section 16.504.08 (D))
2. Litter shall be removed from all landscaped areas in a timely fashion. (VMC Section 16.504.08 (B))
3. Turf areas shall be mowed on a regular basis and be kept green. Accumulation of leaves, twigs, bark, and other similar materials shall be removed on a regular basis. Planting areas shall be kept free of weeds at all times. (VMC Section 16.504.08 (C))

Fences, Walls, and Screening

1. Fencing and walls shall be continuously maintained with no sign of rust or disrepair. Graffiti shall be removed within forty-eight hours of discovery by property manager. (VMC Section 16.505.02 (B)).

2. All exterior mechanical equipment, whether on a roof, on the side of a structure, or located on the ground, shall be screened from public view. Exterior mechanical equipment to be screened includes, without limitation, heating, ventilation, air conditioning, refrigeration equipment, plumbing lines, ductwork, transformers, smoke exhaust fans, water meters, backflow preventers, service entry section, back-up and emergency generators, and similar utility devices.
 - a. Screening shall be architecturally integrated into the main structure with regard to materials, color, shape, and size to appear as an integral part of the building or structure.
 - b. Equipment shall be screened on all sides, and screening materials shall be opaque.
 - c. When screening with plants, evergreen types of vegetation shall be planted and maintained. Plant material sizes and types shall be selected and installed so that, at the time of building occupancy, such plants effectively screen their respective equipment.
 - d. The use of wood expanded metal lath, and chain link for the purpose of screening is prohibited. (VMC Section 16.505.10)

Lighting

1. Lighting shall be designed, located, and installed to be directed downward or toward structures, be shielded or fully shielded, and shall be well-maintained in order to prevent glare, light trespass (unwanted light on adjacent lots and public rights-of-way), and light pollution to the maximum extent feasible. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness, as determined by the Planning and Development Services Director . (VMC Section 16.506.04 (B))
2. All outdoor lighting in non-residential zoning districts shall be turned off during daylight hours and during any hours when the building is not in use and the lighting is not required for security. (VMC Section 16.506.04 (D))

Parking

1. In parking facilities containing twenty or more spaces serving multi-unit residential, mixed-use, commercial and hotels and motels, at least three percent of parking spaces shall be electric vehicle (EV) charging stations. Such spaces may be counted towards the parking requirements of this Zoning Code.
 - a. Size. Electric vehicle charging stations shall be the same size as other spaces, and electric vehicle charging equipment shall not reduce the size of the space.
 - b. Signage. Each electrical vehicle charging station shall be clearly marked with a sign reading "Electrical Vehicle Charging Station" and the associated California Vehicle Code restrictions, and only a vehicle that is connected for electric charging shall be allowed to park in the stalls or spaces so designated.
 - c. Equipment. Electrical vehicle charging stations shall be equipped with electrical outlets, and may also be equipped with card readers, controls, connector devices and other equipment, as necessary for public use. (VMC Section 16.508.09)

Signs

1. All signs shall be installed as shown on approved project plans. Any changes to the proposed signage shall receive approval by the Planning and Development Services Director .
2. No moving, rotating, flashing, or changing of color intensity or signs with electronic/digitally created content (i.e., electronic reader board signs), and no windblown signs, such as posters, pennants, streamers, or strings of light bulbs, balloons, or other inflated objects are permitted. The only exceptions to these requirements are time and temperature devices and signs installed by a

governmental agency in carrying out its responsibility to protect public health, safety, and general welfare. (VMC Section 16.509.07 (C))

3. Portable Signs. An "A" frame sign or other sign attached to a device used to allow the sign to be rolled or moved around is prohibited. Included in this category are signs larger than three square feet affixed to a vehicle intended for the purpose of business identification, directional to a business, or advertisement of a business. (VMC Section 16.509.07 (D))

General Requirements

1. A final decision on an application for any discretionary approval subject to appeal shall become effective after the expiration of ten calendar days following the date of action unless an appeal is filed. No building permit or business license shall be issued until the 11th day following the date of the action. If a different termination date is fixed at the time of granting, or if actual construction or alteration has begun under valid building permits, the ten-day period may be waived. (VMC Section 16.602.11)
2. The review authority, in the granting of any permit, may specify a time, consistent with the purposes of the use and necessary to safeguard the public safety, health and welfare, within which the proposed use must be undertaken and actively and continuously pursued. If no time period is specified, any permit granted under the Zoning Code shall automatically expire within two years of the effective date (August 21, 2025; if approved) (VMC Section 16.602.12 (A)). All Planning permits associated with this approval shall expire on August 21, 2025, unless exercised or extended.
3. If a permit is granted in conjunction with approval of new construction, issuance of a building permit shall constitute exercise of rights; provided, however, that, unless otherwise specified as a condition of project approval, the permit shall expire if:
 - i. The Building Permit expires.
 - ii. Final inspection is not completed, or certificate of occupancy issued within the time specified as a condition of project approval.
 - iii. The rights granted under the permit are not exercised within one year following the earliest to occur of the following: issuance of a certificate of occupancy; or if no certificate of occupancy is required, the last required final inspection for the new construction. (VMC Section 16.602.11 (B))
4. The Planning and Development Services Director may approve a one-year extension of any permit or approval granted for a residential or non-residential project under the Zoning Code upon receipt of a written application and fees received fifteen calendar days (January 22, 2025) before the expiration date with the required fee prior to expiration of the permit. (VMC Section 16.602.11 (C.1))
5. No change in the use or structure for which a permit or other approval has been issued is permitted unless the permit is modified as provided for in the Zoning Code. For the purpose of this chapter, the modification of a permit may include minor modification of a development review approval that is in substantial compliance as determined by the Planning and Development Services Director. (VMC Section 16.602.11 (D))
6. Applications for changes to an approved permit must be filed and processed in compliance with the requirements in VMC Section 16.602.02, Application Forms and Fees, and shall be subject to a fee established by the Master Fee Schedule.
 - a. Minor Modifications. The Planning and Development Services Director may approve minor changes to approved plans that are consistent with the original findings and conditions approved by the hearing body and would not intensify any potentially detrimental effects of the project.
 - b. Major Modifications. A request for changes in conditions of approval of a discretionary permit or a change in an approved site plan or building plan that would affect the findings adopted as a basis for project approval shall be treated as a new application, except that

the Planning and Development Services Director may approve changes that she determines to be minor. (VMC Section 16.602.11 (E))

7. A request for major changes to an approved site plan or building plan that will not affect the findings adopted as a basis for project approval, but are still considered substantial, shall be forwarded to the original review authority for the discretionary permit for review and approval. Any changes to the proposed colors shall require approval by the Planning and Development Services Director. (VMC Section 16.602.11 (F))
8. For new developments, utilities including, but not limited to, all electrical, telephone, cable television, fiber-optic cable, gas, water, sewer, irrigation/recycled water, and similar distribution lines providing direct service to a project shall be installed underground within the site. This requirement may be waived by the Planning and Development Services Director upon determining that underground installation is infeasible, or the electrical line is otherwise exempt from an undergrounding requirement. (VMC Section 16.501.10)
9. Within five business days after project approval, the Applicant shall pay the Notice of Exemption filing fee (the latest fees in effect at the time of payment) for County Clerk processing, made payable to Solano County and submitted to the City of Vallejo Planning Division. If an in-person filing is required, such filing shall be completed by the Applicant, unless directed otherwise by the Planning Division. NOTE: If the fees are not paid and the Notice of Exemption is not filed within five working days after approval of the project, it will extend time frames for California Environmental Quality Act (CEQA) legal challenges.
10. The Applicant shall obtain an inspection from the Planning Division prior to final building inspection. All inspections require a minimum of 24-hour notice. Occupancy permits shall not be granted until all construction and landscaping are completed and finalized in accordance with the approved plans and required conditions of approval or a bond has been posted to cover all costs of the unfinished work as agreed to by the Planning and Development Services Director.
11. Applicant shall indemnify, hold harmless, and defend City, its officers, officials, directors, employees, agents, volunteers and affiliates and each of them from any and all claims, demands, causes of action, damages, costs, expenses, actual attorney's fees, applicant's fees, expert fees, losses or liability, in law or in equity, of every kind and nature whatsoever arising out of or in connection with Applicant's operations, or any subcontractor's operations, to be performed under this agreement for Applicant's or subcontractor's tort negligence including active or passive, or strict negligence, including but not limited to personal injury including, but not limited to bodily injury, emotional injury, sickness or disease, or death to persons and/or damage to property of anyone, including loss of use thereof, caused or alleged to be caused by any act or omission of Applicant, or any subcontractor, or anyone directly or indirectly employed by any of them or anyone for the full period of time allowed by the law, regardless of any limitation by insurance, with the exception of the sole negligence or willful misconduct of the City. No modification of the project, any application, permit, certification, condition, environmental determination, other approval, change in applicable laws and regulations, or change in processing methods shall alter the Applicant's indemnity obligation.

B. BUILDING DIVISION

Steve Arnold, Chief Building Official | steve.arnold@cityofvallejo.net | 707.648.4387

1. Plans and permits required for building, mechanical, plumbing, and electrical work per California Code of Regulations, Title 24, and applicable City Ordinance in effect at the time of completed Building Permit application date and required fees paid at time of application.
2. Soils report will be required for foundation design plan reviews.
3. Separate permits for each structure required.

4. 2019 California Code of Regulations applies if permit application(s) received before end of 2022. After 12-31-2022 the 2022 California Code of Regulations will apply.
5. Housing Accessibility required per CBC_11A, CBC_11B, 2010 ADA, UFAS and Universal Design/AB2787.
6. Provide an accessible route from the public way to all accessible building entrances, accessible parking, trash enclosures, and common area amenities.
7. All ground floor units shall be adaptable, verify sliding door thresholds are recessed to provide maximum threshold compliance.
8. Verify carports/garages provide minimum 8'2" clearance for access per 1109A.8.1.
9. Provide accessible route from existing leasing office/club house to new accessible units and common area amenities.

C. PUBLIC WORKS

James Paluck, PE, Consulting Senior Engineer | james.paluck@cityofvallejo.net | 707.554.5902

Adherence to City of Vallejo Design Standards

1. All public improvements shall be designed and constructed to current City of Vallejo Design Standards.
2. Existing public facilities damaged during the course of construction shall be repaired by the developer, at his sole expense, to the satisfaction of the City Engineer.

Demolition Plan

3. The developer's Civil Engineer shall prepare a demolition plan for the project, which shall be submitted concurrent with the improvement plan package. The demolition plan shall address the following:
 - a. Demolition of onsite improvements, including buildings, parking lots, parking lot lights and planter islands.
 - b. Parking lot landscaping and irrigation.
 - c. Tree and overgrown shrub removals.
 - d. Fencing to be removed and fencing to remain.
 - e. Any items to be saved in place and or protected, such as trees water meters, sewer cleanouts, drainage inlets or backflow prevention devices.

Geotechnical Investigation

4. The developer shall retain a registered Geotechnical Engineer to conduct a Geotechnical Investigation of the project area. Two copies of the project Geotechnical Report shall be submitted to the Public Works Department prior to submittal of Construction Plans. The Geotechnical Report shall include details and recommendations regarding the following:
 - a. Geologic Hazards.
 - b. Grading Limitations and Requirements.
 - c. Foundation Design.
 - d. Retaining Wall Design as Required.
 - e. Parking Lot Pavement Sections.

Grading

5. A grading plan shall be prepared by the developer's Civil Engineer and approved by the City Engineer. The following information shall be shown on the Grading Plan:
 - a. Existing contours, landscaping, fences, buildings, or other improvements.
 - b. Existing trees to be saved in place or removed.

- c. Furnish all necessary details to clearly convey recommendations outlined in the project geotechnical investigation.
 - d. Cut/Fill interfaces and limits of grading.
 - e. Limits of existing geologic hazards as identified by Geotech. Engineer.
 - f. Lot boundaries and road rights-of-way.
 - g. Proposed pad elevations finished contours and lot grading details.
 - h. Top of curb elevations.
 - i. Perimeter cross-sections along all sides of the project to show the proposed project's interface with abutting properties and streets.
 - j. Plan view of proposed drainage facilities including storm drains, catch basins, manholes and underdrains.
 - k. Parking lot surface drainage, pavement grades, ridge lines, etc.
6. Grading and drainage shall be designed so that surplus drainage (above and beyond that of the 15-year storm) not collected in site catch basins, is directed overland so as not to jeopardize existing or proposed buildings with flooding.
 7. The Project Engineer shall coordinate grading design closely with the project Geotechnical Engineer. Specifically, the Geotechnical Engineer shall be consulted to evaluate and address issues related to:
 - a. Geologic Hazards.
 - b. Retaining Wall Design Parameters.
 - c. Parking Lot Pavement Sections.
 8. Slope grading shall comply with the Geotechnical Report. Slopes steeper than 3H:1V shall not be allowed in the public right-of-way. Slopes steeper than 2H:1V shall not be allowed on-site.
 9. Retaining walls over 18 inches tall shall be concrete or masonry. Retaining walls over 4 feet tall shall be designed by a Civil or Structural Engineer. It appears that there are retaining walls proposed along the exterior perimeter of proposed parking spaces within the existing 50-foot-wide PG&E easement located along the southwesterly portion of the project site. Please note that PG&E must approve all proposed improvements, in particular structural improvements, within their existing easement.

Stormwater Quality

10. The project shall comply with the requirements of the most current National Pollutant Discharge Elimination System (NPDES) permit issued to the City of Vallejo, which incorporates Low Impact Development (LID) Best Management Practices in the overall design to address the issue of ongoing post-construction stormwater quality for the project site. Examples of LID treatment measures include bio-retention, harvesting and reuse, infiltration, and evapo-transpiration.
11. The developer shall prepare a Storm Water Control Plan and Report for the project, consistent with the City of Vallejo requirements. Please refer to the Stormwater C.3 Guidebook prepared by the Contra Costa Clean Water Program.
12. All stormwater treatment measures shall be adequately operated and maintained. To ensure operation and maintenance of stormwater treatment measures, the property owner shall enter into a Stormwater Treatment Measures Maintenance Agreement with the City. This agreement shall be signed by the property owner and submitted to the Department of Public Works prior to the issuance of the building permit. It is included in the document entitled "Storm Water Requirements for Development Projects- Packet for Project Applicants."

Erosion Control

13. An erosion and sedimentation control plan shall be included and prepared by the developer's Civil Engineer. The erosion control plan shall include protection measures such as: sedimentation basins, check dams, straw wattles and hydroseeding details.

14. The applicant shall obtain all necessary permits for storm water discharges, including but not limited to the State Water Resources Control Board Construction General Permit. Applicants whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (State Water Resources Control Board Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.
15. The applicant shall be responsible for developing and implementing a Storm Water Pollution Prevention Plan which shall be reviewed and approved by the City of Vallejo.

Trash Enclosure and Recycling

16. The location of trash enclosures shall be shown on the improvement plans. Drive aisle pavement sections between driveways and trash enclosures shall be designed to accommodate garbage truck traffic. There shall be a concrete slab that extends 10 feet from the front of the enclosure and shall be a minimum of 6" of reinforced concrete over 6" of Class II aggregate base compacted to 95%.

Landscaping

17. The project architect and engineer shall coordinate design closely with the project landscape designer. Specifically, they shall consult the landscape designer to evaluate and address issues related to:
 - a. Fencing/wall layout and details.
 - b. Locations and sizes for irrigation services.
 - c. Sight distance constraints for fencing and landscaping.
 - d. Depth of cover and tree setbacks over water, sewer, and storm drain lines in landscape areas
18. Landscaping plans shall be prepared by a registered Landscape Architect and City maintained landscaping shall be designed per City standards. Landscaping and irrigation plans shall be designed to comply with the City's Water Efficient Landscaping Ordinance. Use of turf and other water intensive landscaping shall be minimized.

D. Water

Kent Carothers, P.E., Water Engineering Manager | kent.carothers@cityofvallejo.net | 707.648.4309

1. Confirm water pressure and finalize water plan.

E. Fire Prevention

Vincent Sproete | vincent.sproete@cityofvallejo.net | (707) 648 – 4566

Code Requirements

FIRE ACCESS

1. All buildings, facilities, and developments shall be accessible to Fire Department Apparatus by way of approved access roadways. Access roads shall be designed and maintained to support the imposed loads of fire apparatus weighing 70,000 lbs. with an all-weather driving surface.
2. Access roads shall have an unobstructed width of not less than 20' (12' for single residential) with a maximum grade of 15%. Access roads shall have a minimum of 13'-6" of vertical clearance, including trees, wires and overhead signs. Speed bumps or other vertical traffic calming devices

are prohibited on routes of fire access. Turning radius of all fire access roadways must be approved prior to Building Permit issuance.

3. All access roads shall be installed and maintained serviceable prior to and during combustible construction.
4. Access roads that are fire lanes shall either be posted with permanent all-weather signs constructed and installed in accordance with the Fire Department Fire Lane Marking Standard FP-2a OR shall have curbs painted red and a sign posted at each entrance in accordance with standard FP-2b. Contact the Fire Prevention Bureau for further information and design templates. Location of such area's shall be determined prior to final inspection.
5. All fire protection equipment and building utilities including gas shut-off valves, and electrical service disconnects shall be located in a single area to allow use by the Fire Department without having to transit through a structure. In new construction, equipment should be located within an interior room having an exterior access door or in an exterior enclosure attached to the building, specifically for the purpose of housing such equipment. Please indicate on the plans these locations.
6. The building electrical service disconnecting means shall be installed in a readily accessible location either outside the building or nearest the point of entrance of the service conductors. The disconnecting means shall be accessible to emergency personnel, either directly or by a remote actuating device without requiring transit of the building interior.
7. Rooms or areas containing controls for HVAC systems, electrical panels, automatic fire extinguishing systems, fire alarm equipment or other detection, suppression or control elements shall be identified with appropriate signs.
8. A flush-mounted (recessed) Knox Box (key box) mounted no higher than 5 feet above the finished floor containing appropriate keys for emergency Fire Department access shall be provided. The minimum size box is the 3200 series with a hinged door and recessed mounting kit. The tamper kit is not required, box color may be any of the Knox options. It takes approximately 2 weeks for delivery. For more information call the Fire Prevention Division at (707) 257-9590 or visit www.knoxbox.com
9. Keys for the Knox Box entry system required by the Fire Department shall be attached to durable tags with permanent marking identifying the door(s) or lock(s) that the key functions with. i.e. "MASTER" or "MECHANICAL ROOM".
10. Approved address numbers shall be placed on all new and existing buildings in such a position as to be plainly visible and legible from the street or road fronting the property. Said numbers shall clearly contrast with their background. The characters shall be a minimum of 4" high with a 1/2" stroke. The size of the building and distance or location of the address numbers from the roadway may necessitate larger numbers.

An address mapping sign shall be located at all entrances to accurately direct emergency services.

11. Provide "Roof Access" sign at roof ladder location.

MEANS OF EGRESS

12. All bedrooms shall have rescue escape sized windows.
13. Locking devices on exit doors shall conform to the 2019 California Fire Code. Only one lock or latch requiring one motion/operation to open/unlock is required. No double keyed dead-bolts are permitted on exit doors.

14. Means of egress illumination shall be provided and maintained at any time the building is occupied. The means of egress shall be illuminated of not less than 1 foot candle power.
15. Emergency exit lighting shall be provided at or near all exits and as designated by the Fire Marshal.
16. All emergency lighting and exit sign lights shall have two separate sources of power as required by the California Building Code.
17. Provide an approved exit sign over all required exit doors.
18. All floors shall have two means of egress exits.
19. Stairway shafts shall be 1 hour rated or non-combustible open to the outside.
20. A 1 hour fire separation is required between the Utility Parking Area/Boiler Room/Maintenance Building and the Residential Occupancies.

FIRE PROTECTION SYSTEMS

21. Prior to final inspection, the minimum fire-extinguisher requirement shall be one 2A-10BC rated portable unit in such locations so that maximum floor-travel distance does not exceed 75' to the nearest extinguisher from any portion of the building with a maximum of 3,000 square feet of floor area surveyed. Plan submittal shall include the proposed location of extinguishers. Final location shall be approved in the field by the Fire Department.
22. All fire extinguishers shall be mounted in a conspicuous and readily accessible location either on a bracket or within an approved storage cabinet. Fire extinguishers shall be mounted so the top of the unit is 3 feet to 5 feet off the finished floor. If the extinguisher is not readily visible, a sign shall be located directly above the extinguisher. The sign shall be legible and of a contrasting color with its background. Final installation measures and identification signage shall be approved in the field by the Fire Department prior to final inspection sign-off.
23. Provide smoke detectors in all sleeping rooms and common hallways. Detectors shall be hardwired with battery backup. Electrical circuits supplying detectors shall be separate dedicated lines with no other devices on the circuits.
24. If carbon monoxide producing appliances are present, provide carbon monoxide detectors outside each sleeping area in the immediate vicinity of the bedrooms.
25. Automatic fire sprinkler systems are required for all R-2 residential buildings please submit 2 sets of plans, for each building, and hydraulic calculations, to the Fire Marshal's Office and obtain permit prior to installation. Permit fee is \$645 plus \$6.71 per head for each building. All fire-sprinkler systems shall be designed and installed in accordance with NFPA13R, NFPA 13 – 4th floor, and the California Fire Code and Building Code as amended by the City of Vallejo.

CFC 901.4.4 The fire sprinkler system be installed on each floor as the wood frame construction progresses. Example: Once the first floor framing is completed the fire sprinkler system shall be installed and in service, once the second floor is completed floor one and two shall be in service. Once the third floor framing is completed floors one, two and three shall be in service. Once the fourth floor framing is complete all floors shall be in in service. This will help prevent the loss of the structure should a fire start in the building.

26. A Standpipe System shall be included in the fire sprinkler design in accordance with the California Fire Code section 905.

27. A fire alarm system is required for these buildings, please submit 2 sets of fire alarm plans and obtain permit from the Fire Marshal's Office prior to installation. Please include listed device selections cut sheets. Fire Alarm System's must be designed and installed by a C-10 Licensed Contractor or be certified as a Fire/Life Safety Technician on all systems that exceed 100VA. Permit fee is \$573 plus \$6.71 per device for each building.
28. Smoke detection/dampers for HVAC systems shall be required as set forth in the Mechanical Code. Areas served by a single or multiple units exceeding 2,000 CFM shall have detectors installed and supervised by the fire alarm system. Detectors shall not trip a general alarm. Detectors shall be self-restoring or a readily accessible manual reset shall be installed.

FIRE PROTECTION WATER SUPPLY

29. This project shall comply with the 2019 California Fire Code regarding Fire Flow requirements, including Appendix B. Please check with the City of Vallejo Water Division for fire flow calculations.
30. Fire hydrants must be installed and approved by the fire department prior to combustible construction. Fire hydrants shall be spaced a maximum of 450 feet apart. Please indicate on the plans the location of all existing and proposed fire hydrants.
31. Approved impact protection shall be installed as necessary to protect hydrants from vehicular damage.
32. An underground fire service main is required for these buildings. Underground fire service mains require a separate permit from the Fire Prevention Division. Please submit 2 sets of plans for the underground fire service main for review by the Fire Official prior to installation. Permit fee is \$781.
33. The contractor shall be responsible for painting of hydrants, verifying street valves are fully opened and the placement of blue reflective dots prior to requesting a final inspection. Maintenance, inspection and testing of private hydrants are the responsibility of the property owner. Private hydrants shall be painted yellow.

MISCELLANEOUS

34. Buildings undergoing construction shall maintain fire safety at all times and shall be in accordance with the California Fire Code. Smoking is prohibited in buildings under construction. 'No Smoking' signs shall be posted. Hot work shall be performed in accordance with the 2019 California Fire Code.
35. All fire-hydrants, fire-sprinkler systems, wet and dry standpipes, and other fire-protections systems shall meet the approval of the Fire Department as to installation and location and shall be subject to such periodic tests as required by the Chief. Failure to comply with this requirement may result in the issuance of a stop work order and fines in accordance with the California Fire and Building Codes.
36. If access gates are to be installed the owner shall obtain a gate permit from the fire department. All vehicles access gates shall be equipped with both a Knox Keyswitch. Contact the fire department at 707-648-4565 or visit www.knoxbox.com
37. All roof material shall be rated class "C" or better.

F. VALLEJO FLOOD AND WASTEWATER DISTRICT

Alan L. Mitchell, P.E, Principal Engineer | alan.mitchell@ponticellonic.com | 530.681.0553

1. West Yost will review sanitary sewer and stormwater capacity studies, to assess the impact of new flows into existing YFWD systems. The applicant shall contact West Yost to determine capacity

for sewer and/or drainage into the system from the development, and have WY provide a memo to that effect.

2. Identify if HOA maintains all private sewer and drainage infrastructure, including proposed trash capture devices.
3. Trash capture devices must comply with RWQCB standards.
4. Provide design details for the connection points to existing (private or VFWD) SSMH's.
5. Verify if there is an easement for existing 30" SD along western edge.
6. SD between Ex. CB7 and CB 8 will be under the new building, which should be avoided.
7. Prior to building permit issuance, a VFWD Connection Permit is required. Pay all applicable review and connection fees.
8. VFWD does not require trash enclosures to include drains that connect to the sewer. No sewer connections are allowed without VFWD approval. Drains shall not connect to the storm drain.
9. Verify adequate vertical separation between on-site sewer and storm drain.
10. Why so many angles on new SS, between SSMH 11 and SSMH 8? 11. Clearly label what is private.



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San Francisco, California 94111-4710
P: 415.262.5100 F: 415.262.5199

Linda C. Klein
415.262.5130
lklein@coxcastle.com

File No. 104297

August 15, 2023

VIA E-MAIL

Mr. Cesar Orozco
Principal Planner
City of Vallejo
555 Santa Clara Street
Second Floor
Vallejo, CA 94590

Re: 961 Porter Project: Updated State Density Bonus Law Requests

Dear Mr. Orozco:

This letter updates the October 2022 letter requesting State Density Bonus Law (“SDBL”) benefits for the proposed 122 residential units (“Project”) on a roughly 4.16-gross acre site located at 961 Porter Street (the “Property”) in the City of Vallejo (the “City”). The Project includes 24 low-income units, with rents set at rates affordable to households making no more than 50 percent of the area median income.¹ Since the October 2022 letter, the Project has been redesigned to occupy its own 4.16 site rather than be part of a larger parcel and the Project proponent now seeks additional waivers, discussed below.

The Property is zoned Residential Medium Density (“RMD”), which allows 25 units per acre. (Mun. Code, Table 16.202-B.) Accordingly, the Property’s base density is 104 units (25 dwelling units per acre x 4.16 acres) and the 24 affordable units comprise approximately 23 percent of the base density. With that level of affordability, SDBL provides the Project with the following benefits: a 46.25 percent density bonus, two incentives/concessions,² unlimited waivers or reductions of development standards, and use of SDBL’s parking standards. (See Gov. Code, §§ 65915(b)(1)(B), (d)(2)(C), (e)(1), (f)(2), (p).)

¹ The U.S. Housing Department of Housing and Urban Development (“HUD”) uses a slightly different formula than the California Department of Housing and Community Development (“HCD”) to determine rents. The rental units would meet HUD requirements for very low-income units. Out of an abundance of caution and to account for the potential differences between HUD and HCD’s formula, the Project proponent is relying on the “low-income” category for its SDBL benefits.

² SDBL uses the terms “incentives” and “concessions” interchangeably. For this letter, we use the term “concession” to refer to both incentives and concessions.

The Project requests a 17.3 percent density bonus, for an additional 18 units, two concessions, and eight waivers.

The requested concessions are (1) deferring the payment of development impact fees to certificate of occupancy rather than paying at the time the City issues the building permit; and (2) to be served by a water line in Pressure Zone 292 rather than in Pressure Zone 212. As explained in more detail in the October 2022 letter, each requested concession will result in identifiable and actual cost reductions that allow the Project to provide affordable housing.

The requested waivers are (1) reducing the required the 75-square-foot per unit private open space requirement; (2) reducing the minimum 10-foot dimension for private open space on the ground level; (3) reducing the minimum six-foot dimension for private open space above the ground floor; (4) reducing the minimum open space requirement of 150 square feet per unit, including a reduction of the 15-foot minimum dimension for common open space; (5) not stepping back the upper stories of the buildings; (6) providing fewer covered parking spaces than required; (7) exceeding the height limit; and (8) providing fewer long-term bicycle parking spaces than required.

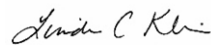
The application of the applicable development standards for private and common open space, upper story setbacks, covered parking, height, and long-term bicycle parking would physically preclude the construction of a development at the density and with the concessions permitted by SDBL. Each of the requested waivers provides more space to fit the units on the Property at the density proposed.

* * *

We look forward to working with the City on this exciting Project that will bring much needed housing to the City. Please do not hesitate to contact me if you have any questions regarding this matter.

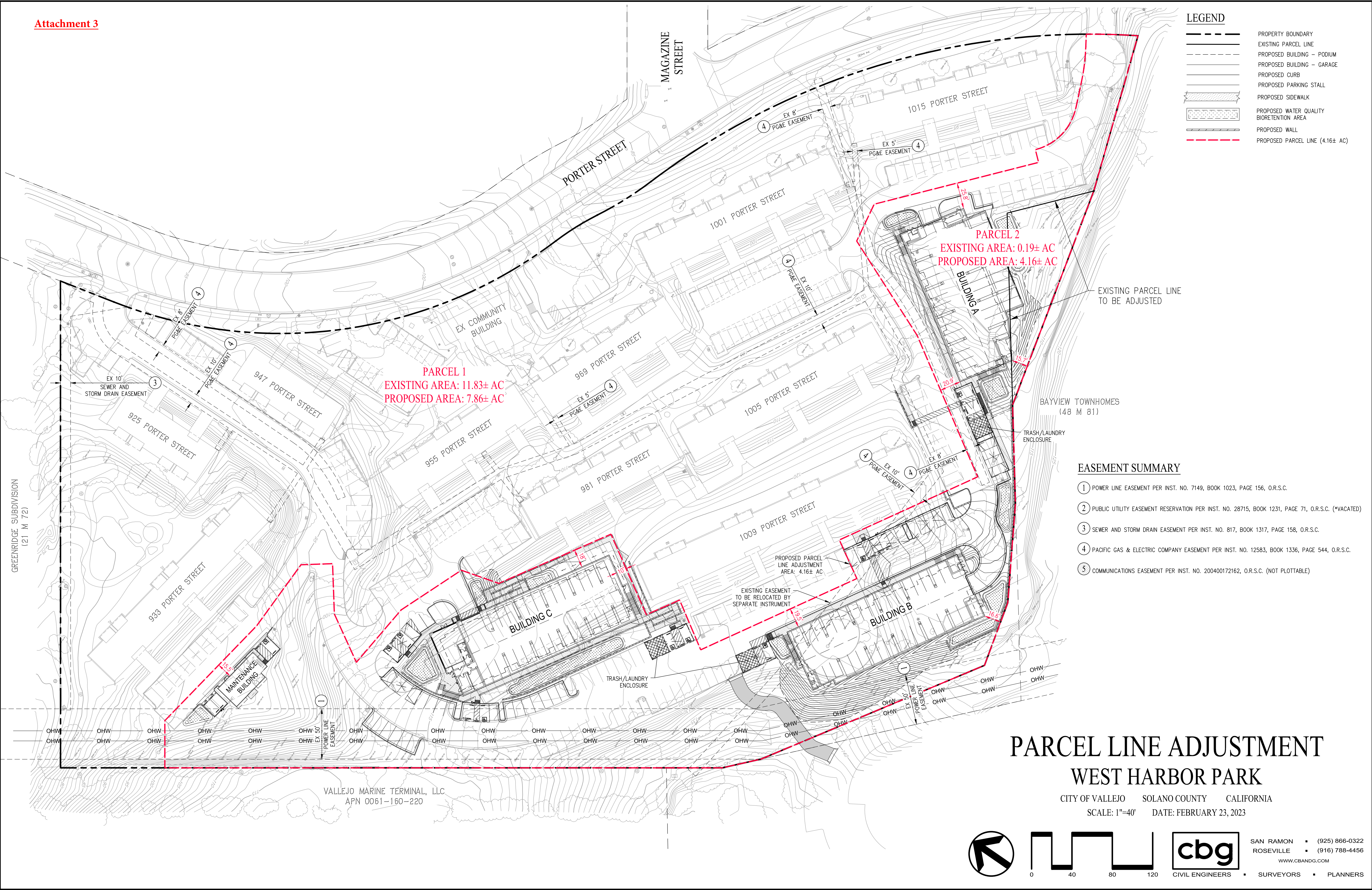
Sincerely,

Cox, Castle & Nicholson LLP



Linda C. Klein

cc: Bob Klein
Mitu Walia
Steve Norris



MARCH 14, 2023
JOB NO. 3586-000

**LEGAL DESCRIPTION
LOT LINE ADJUSTMENT
TRANSFER PARCEL**

REAL PROPERTY SITUATE IN THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEING A PORTION OF PARCEL ONE, AS SAID PARCEL IS DESCRIBED IN THAT GRANT DEED RECORDED APRIL 6, 2017 AS DOCUMENT NUMBER 201700029113 OF SOLANO COUNTY RECORDS, AND BEING FURTHER SHOWN ON THAT RECORD OF SURVEY RECORDED OCTOBER 6, 2011 AND FILED IN BOOK 30 OF SURVEYS, AT PAGE 36, IN THE OFFICE OF THE COUNTY RECORDER OF SOLANO COUNTY (SAID RECORD OF SURVEY BEING USED AS THE BASIS OF BEARINGS FOR THIS DESCRIPTION), MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE EASTERNMOST CORNER OF SAID PARCEL ONE, SAID POINT BEING ON THE SOUTHWESTERN RIGHT OF WAY LINE OF PORTER STREET (80' WIDE) AS SHOWN ON SAID RECORD OF SURVEY;

THENCE, FROM SAID POINT OF BEGINNING, ALONG THE SOUTHERN LINE OF SAID PARCEL ONE, SOUTH 70°05'07" WEST 159.95 FEET TO THE EASTERNMOST CORNER OF PARCEL TWO, AS SAID PARCEL IS DESCRIBED IN SAID GRANT DEED AND SHOWN ON SAID RECORD OF SURVEY;

THENCE, ALONG THE NORTHEAST LINE OF SAID PARCEL TWO, NORTH 50°02'14" WEST 88.59 FEET TO THE NORTHERNMOST CORNER THEREOF;

THENCE, ALONG THE NORTHWEST LINE OF SAID PARCEL TWO AND SAID SOUTHERN LINE OF PARCEL ONE, SOUTH 52°34'56" WEST 287.97 FEET;

THENCE, CONTINUING ALONG SAID SOUTHERN LINE AND THE SOUTHWESTERN LINE OF PARCEL ONE THE FOLLOWING FIVE (5) COURSES:

- 1) SOUTH 58°37'28" WEST 98.46 FEET,
- 2) SOUTH 74°38'43" WEST 66.16 FEET,
- 3) NORTH 58°32'09" WEST 240.27 FEET,
- 4) NORTH 48°25'48" WEST 39.28 FEET,
- 5) NORTH 35°47'07" WEST 552.29 FEET;

THENCE, LEAVING SAID SOUTHWESTERN LINE, NORTH 54°12'53" EAST 46.73 FEET;

THENCE, SOUTH 81°41'02" EAST 130.55 FEET;

THENCE, SOUTH 89°47'55" EAST 74.99 FEET;

THENCE, SOUTH 37°48'04" EAST 31.32 FEET;
THENCE, SOUTH 52°11'56" WEST 49.88 FEET;
THENCE, SOUTH 29°41'56" WEST 52.63 FEET;
THENCE, SOUTH 85°15'28" EAST 68.29 FEET;
THENCE, SOUTH 69°10'05" EAST 71.43 FEET;
THENCE, SOUTH 16°26'03" EAST 39.39 FEET;
THENCE, SOUTH 59°29'28" EAST 121.30 FEET;
THENCE, SOUTH 30°30'32" WEST 87.08 FEET;
THENCE, SOUTH 59°29'28" EAST 36.07 FEET;
THENCE, SOUTH 31°12'46" WEST 53.55 FEET;
THENCE, SOUTH 60°18'04" EAST 170.02 FEET;
THENCE, NORTH 29°49'29" EAST 42.00 FEET;
THENCE, SOUTH 60°18'04" EAST 150.62 FEET;
THENCE, NORTH 31°03'08" EAST 152.41 FEET;
THENCE, NORTH 21°33'30" EAST 111.04 FEET;
THENCE, NORTH 79°38'16" EAST 40.39 FEET;
THENCE, SOUTH 50°02'47" EAST 168.12 FEET;
THENCE, NORTH 39°57'13" EAST 13.00 FEET;

THENCE, SOUTHEASTERLY ALONG THE ARC OF A NON-TANGENT 55.00 FOOT RADIUS CURVE TO THE LEFT, FROM WHICH THE CENTER OF SAID CURVE BEARS NORTH 39°57'13" EAST, THROUGH A CENTRAL ANGLE OF 63°37'58", AN ARC DISTANCE OF 61.08 FEET;

THENCE, NORTH 66°19'15" EAST 25.78 FEET;

THENCE, ALONG THE ARC OF A TANGENT 200.00 FOOT RADIUS CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 10°00'02", AN ARC DISTANCE OF 34.91 FEET;

THENCE, NORTH 56°19'13" EAST 12.87 FEET TO A POINT ON SAID SOUTHWESTERN LINE OF PORTER STREET;

THENCE, ALONG SAID SOUTHWESTERN LINE, ON THE ARC OF A NON-TANGENT 720.00 FOOT RADIUS CURVE TO THE RIGHT, FROM WHICH THE CENTER OF SAID

CURVE BEARS SOUTH 53°56'47" WEST, THROUGH A CENTRAL ANGLE OF
04°04'40", AN ARC DISTANCE OF 51.24 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 3.97 ACRES OF LAND, MORE OR LESS.

ATTACHED HERETO IS A PLAT TO ACCOMPANY LEGAL DESCRIPTION, AND BY THIS
REFERENCE MADE A PART HEREOF.

END OF DESCRIPTION

PRELIMINARY

MATHEW A. STEWARD, P.L.S.
L.S. NO. 9036

**LEGAL DESCRIPTION
LOT LINE ADJUSTMENT
RESULTANT PARCEL 1**

REAL PROPERTY SITUATE IN THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

ALL OF PARCEL ONE, AS SAID PARCEL IS DESCRIBED IN THAT GRANT DEED RECORDED APRIL 6, 2017 AS DOCUMENT NUMBER 201700029113 OF SOLANO COUNTY RECORDS, AND BEING FURTHER SHOWN ON THAT RECORD OF SURVEY RECORDED OCTOBER 6, 2011 AND FILED IN BOOK 30 OF SURVEYS, AT PAGE 36, IN THE OFFICE OF THE COUNTY RECORDER OF SOLANO COUNTY (SAID RECORD OF SURVEY BEING USED AS THE BASIS OF BEARINGS FOR THIS DESCRIPTION);

EXCEPTING THEREFROM THE FOLLOWING DESCRIBED LAND (TRANSFER PARCEL):

BEING A PORTION OF SAID PARCEL ONE, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE EASTERNMOST CORNER OF SAID PARCEL ONE, SAID POINT BEING ON THE SOUTHWESTERN RIGHT OF WAY LINE OF PORTER STREET (80' WIDE) AS SHOWN ON SAID RECORD OF SURVEY;

THENCE, FROM SAID POINT OF BEGINNING, ALONG THE SOUTHERN LINE OF SAID PARCEL ONE, SOUTH 70°05'07" WEST 159.95 FEET TO THE EASTERNMOST CORNER OF PARCEL TWO, AS SAID PARCEL IS DESCRIBED IN SAID GRANT DEED AND SHOWN ON SAID RECORD OF SURVEY;

THENCE, ALONG THE NORTHEAST LINE OF SAID PARCEL TWO, NORTH 50°02'14" WEST 88.59 FEET TO THE NORTHERNMOST CORNER THEREOF;

THENCE, ALONG THE NORTHWEST LINE OF SAID PARCEL TWO AND SAID SOUTHERN LINE OF PARCEL ONE, SOUTH 52°34'56" WEST 287.97 FEET;

THENCE, CONTINUING ALONG SAID SOUTHERN LINE AND THE SOUTHWESTERN LINE OF PARCEL ONE THE FOLLOWING FIVE (5) COURSES:

- 1) SOUTH 58°37'28" WEST 98.46 FEET,
- 2) SOUTH 74°38'43" WEST 66.16 FEET,
- 3) NORTH 58°32'09" WEST 240.27 FEET,
- 4) NORTH 48°25'48" WEST 39.28 FEET,
- 5) NORTH 35°47'07" WEST 552.29 FEET;

THENCE, LEAVING SAID SOUTHWESTERN LINE, NORTH 54°12'53" EAST 46.73 FEET;

THENCE, SOUTH 81°41'02" EAST 130.55 FEET;
 THENCE, SOUTH 89°47'55" EAST 74.99 FEET;
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 THENCE, NORTH 21°33'30" EAST 111.04 FEET;
 THENCE, NORTH 79°38'16" EAST 40.39 FEET;
 THENCE, SOUTH 50°02'47" EAST 168.12 FEET;
 THENCE, NORTH 39°57'13" EAST 13.00 FEET;
 THENCE, SOUTHEASTERLY ALONG THE ARC OF A NON-TANGENT 55.00 FOOT RADIUS
 CURVE TO THE LEFT, FROM WHICH THE CENTER OF SAID CURVE BEARS NORTH
 39°57'13" EAST, THROUGH A CENTRAL ANGLE OF 63°37'58", AN ARC DISTANCE
 OF 61.08 FEET;
 THENCE, NORTH 66°19'15" EAST 25.78 FEET;
 THENCE, ALONG THE ARC OF A TANGENT 200.00 FOOT RADIUS CURVE TO THE
 LEFT, THROUGH A CENTRAL ANGLE OF 10°00'02", AN ARC DISTANCE OF 34.91
 FEET;

THENCE, NORTH $56^{\circ}19'13''$ EAST 12.87 FEET TO A POINT ON SAID
SOUTHWESTERN LINE OF PORTER STREET;

THENCE, ALONG SAID SOUTHWESTERN LINE, ON THE ARC OF A NON-TANGENT
720.00 FOOT RADIUS CURVE TO THE RIGHT, FROM WHICH THE CENTER OF SAID
CURVE BEARS SOUTH $53^{\circ}56'47''$ WEST, THROUGH A CENTRAL ANGLE OF
 $04^{\circ}04'40''$, AN ARC DISTANCE OF 51.24 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 7.86 ACRES OF LAND, MORE OR LESS.

ATTACHED HERETO IS A PLAT TO ACCOMPANY LEGAL DESCRIPTION, AND BY THIS
REFERENCE MADE A PART HEREOF.

END OF DESCRIPTION

PRELIMINARY

MATHEW A. STEWARD, P.L.S.
L.S. NO. 9036

MARCH 14, 2023
JOB NO. 3586-000

**LEGAL DESCRIPTION
LOT LINE ADJUSTMENT
RESULTANT PARCEL 2**

REAL PROPERTY SITUATE IN THE CITY OF VALLEJO, COUNTY OF SOLANO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

ALL OF PARCEL TWO, AS SAID PARCEL IS DESCRIBED IN THAT GRANT DEED RECORDED APRIL 6, 2017 AS DOCUMENT NUMBER 201700029113 OF SOLANO COUNTY RECORDS, AND BEING FURTHER SHOWN ON THAT RECORD OF SURVEY RECORDED OCTOBER 6, 2011 AND FILED IN BOOK 30 OF SURVEYS, AT PAGE 36, IN THE OFFICE OF THE COUNTY RECORDER OF SOLANO COUNTY (SAID RECORD OF SURVEY BEING USED AS THE BASIS OF BEARINGS FOR THIS DESCRIPTION);

TOGETHER THEREWITH THE FOLLOWING DESCRIBED LAND (TRANSFER PARCEL):

BEING A PORTION OF PARCEL ONE, AS SAID PARCEL IS DESCRIBED IN SAID GRANT DEED AND SHOWN ON SAID RECORD OF SURVEY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE EASTERNMOST CORNER OF SAID PARCEL ONE, SAID POINT BEING ON THE SOUTHWESTERN RIGHT OF WAY LINE OF PORTER STREET (80' WIDE) AS SHOWN ON SAID RECORD OF SURVEY;

THENCE, FROM SAID POINT OF BEGINNING, ALONG THE SOUTHERN LINE OF SAID PARCEL ONE, SOUTH 70°05'07" WEST 159.95 FEET TO THE EASTERNMOST CORNER OF SAID PARCEL TWO;

THENCE, ALONG THE NORTHEAST LINE OF SAID PARCEL TWO, NORTH 50°02'14" WEST 88.59 FEET TO THE NORTHERNMOST CORNER THEREOF;

THENCE, ALONG THE NORTHWEST LINE OF SAID PARCEL TWO AND SAID SOUTHERN LINE OF PARCEL ONE, SOUTH 52°34'56" WEST 287.97 FEET;

THENCE, CONTINUING ALONG SAID SOUTHERN LINE AND THE SOUTHWESTERN LINE OF PARCEL ONE THE FOLLOWING FIVE (5) COURSES:

- 1) SOUTH 58°37'28" WEST 98.46 FEET,
- 2) SOUTH 74°38'43" WEST 66.16 FEET,
- 3) NORTH 58°32'09" WEST 240.27 FEET,
- 4) NORTH 48°25'48" WEST 39.28 FEET,
- 5) NORTH 35°47'07" WEST 552.29 FEET;

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 THENCE, SOUTH 89°47'55" EAST 74.99 FEET;
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THENCE, ALONG SAID SOUTHWESTERN LINE, ON THE ARC OF A NON-TANGENT
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CURVE BEARS SOUTH $53^{\circ}56'47''$ WEST, THROUGH A CENTRAL ANGLE OF
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CONTAINING 4.16 ACRES OF LAND, MORE OR LESS.

ATTACHED HERETO IS A PLAT TO ACCOMPANY LEGAL DESCRIPTION, AND BY THIS
REFERENCE MADE A PART HEREOF.

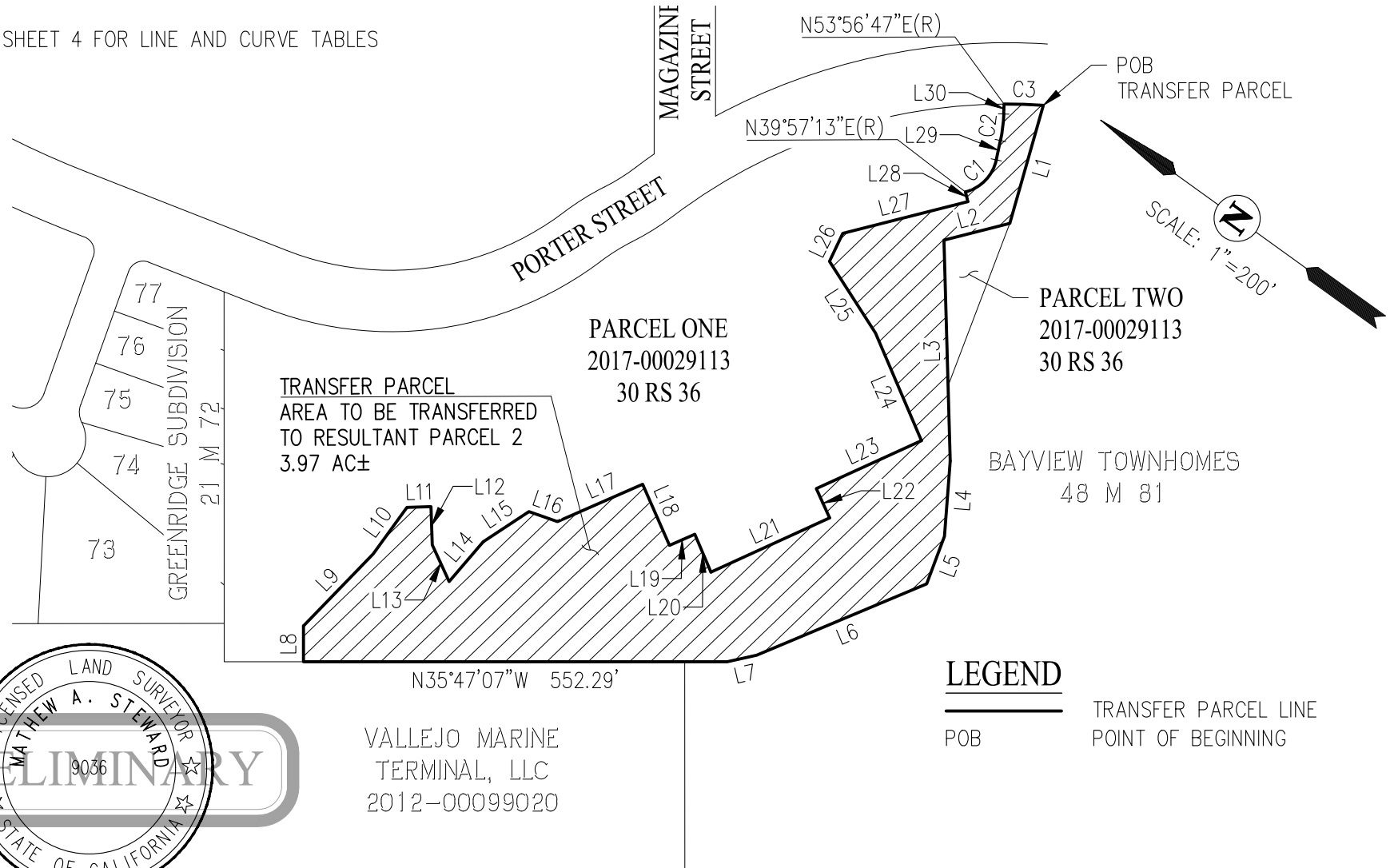
END OF DESCRIPTION

PRELIMINARY

MATHEW A. STEWARD, P.L.S.
L.S. NO. 9036

NOTES:

1. SEE SHEET 4 FOR LINE AND CURVE TABLES



SHEET 1 OF 4

PLAT TO ACCOMPANY LEGAL DESCRIPTION

LOT LINE ADJUSTMENT

PARCELS ONE & TWO (DOC. NO. 2017-00029113 AND 30 RS 36)

VALLEJO, SOLANO COUNTY, CALIFORNIA

MARCH 14, 2023



SAN RAMON (925) 866-0322

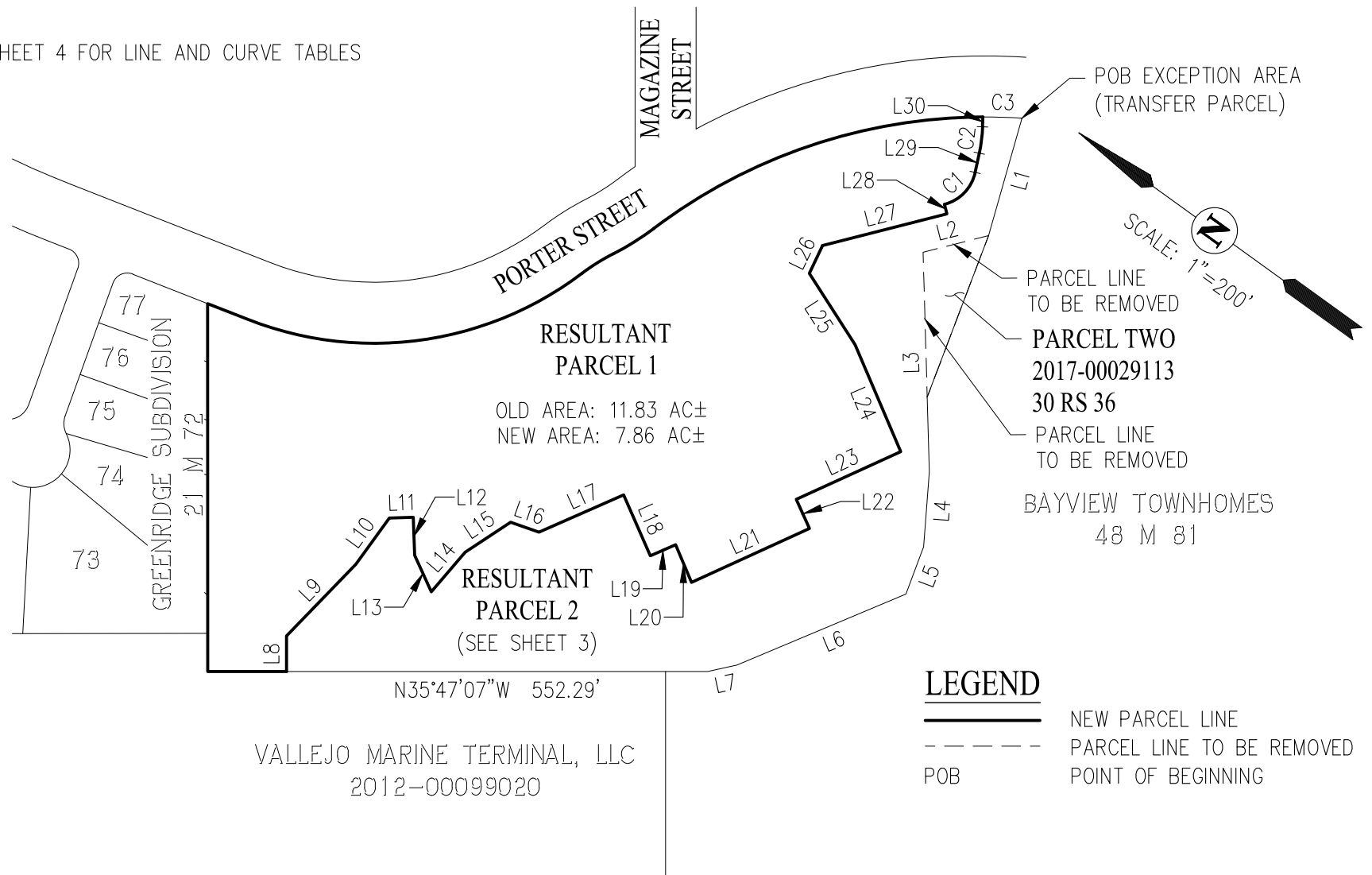
ROSEVILLE (916) 788-4456

WWW.CBANDG.COM

CIVIL ENGINEERS ■ SURVEYORS ■ PLANNERS

NOTES:

1. SEE SHEET 4 FOR LINE AND CURVE TABLES



SHEET 2 OF 4

PLAT TO ACCOMPANY LEGAL DESCRIPTION

LOT LINE ADJUSTMENT

PARCELS ONE & TWO (DOC. NO. 2017-00029113 AND 30 RS 36)

VALLEJO, SOLANO COUNTY, CALIFORNIA

MARCH 14, 2023



CIVIL ENGINEERS ■ SURVEYORS ■ PLANNERS

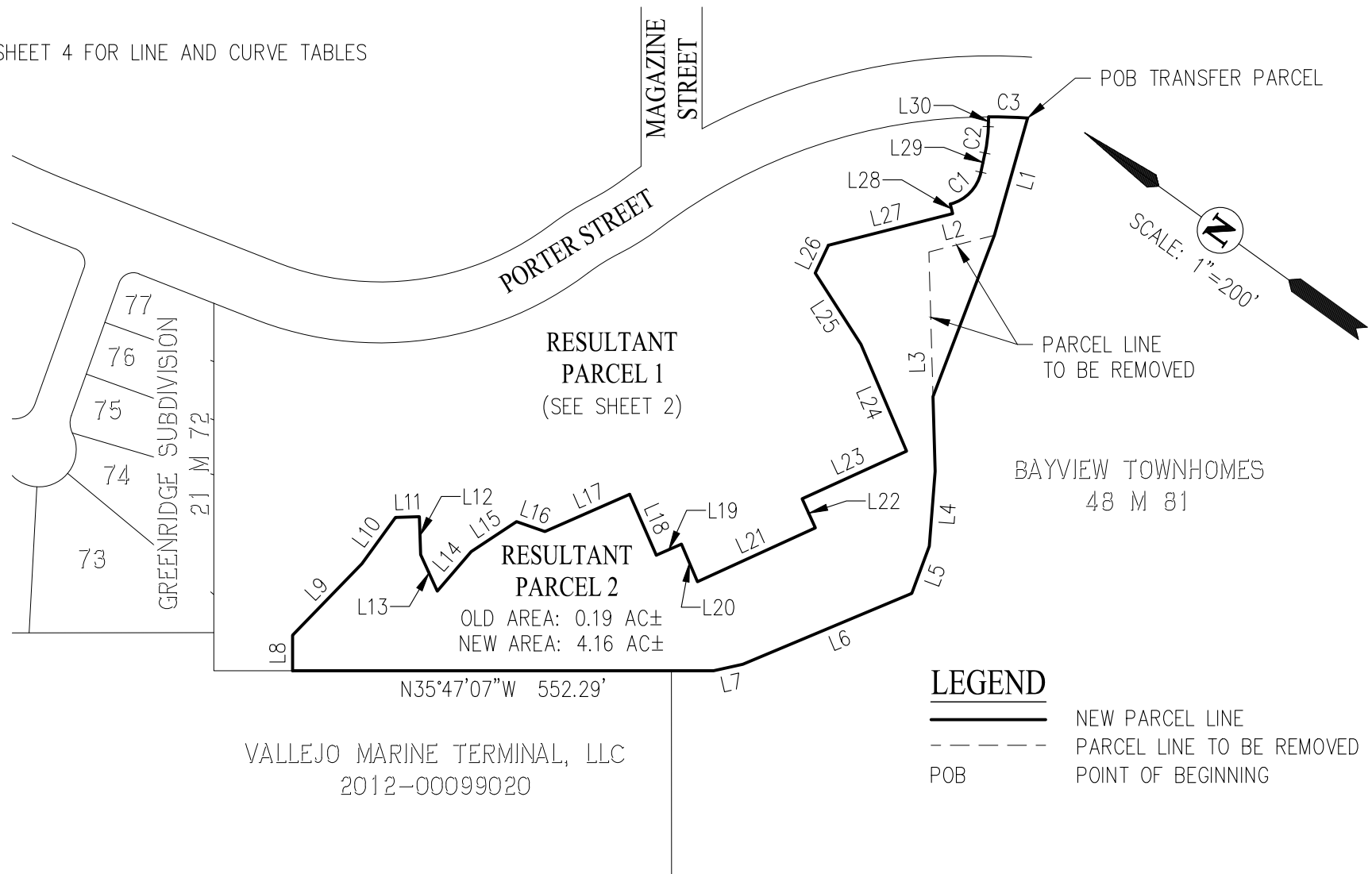
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NOTES:

1. SEE SHEET 4 FOR LINE AND CURVE TABLES



SHEET 3 OF 4

PLAT TO ACCOMPANY LEGAL DESCRIPTION

LOT LINE ADJUSTMENT

PARCELS ONE & TWO (DOC. NO. 2017-00029113 AND 30 RS 36)

VALLEJO, SOLANO COUNTY, CALIFORNIA

MARCH 14, 2023



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LINE TABLE		
NO	BEARING	LENGTH
L1	S70°05'07"W	159.95'
L2	N50°02'14"W	88.59'
L3	S52°34'56"W	287.97'
L4	S58°37'28"W	98.46'
L5	S74°38'43"W	66.16'
L6	N58°32'09"W	240.27'
L7	N48°25'48"W	39.28'
L8	N54°12'53"E	46.73'
L9	S81°41'02"E	130.55'
L10	S89°47'55"E	74.99'
L11	S37°48'04"E	31.32'
L12	S52°11'56"W	49.88'
L13	S29°41'56"W	52.63'
L14	S85°15'28"E	68.29'
L15	S69°10'05"E	71.43'

LINE TABLE		
NO	BEARING	LENGTH
L16	S16°26'03"E	39.39'
L17	S59°29'28"E	121.30'
L18	S30°30'32"W	87.08'
L19	S59°29'28"E	36.07'
L20	S31°12'46"W	53.55'
L21	S60°18'04"E	170.02'
L22	N29°49'29"E	42.00'
L23	S60°18'04"E	150.62'
L24	N31°03'08"E	152.41'
L25	N21°33'30"E	111.04'
L26	N79°38'16"E	40.39'
L27	S50°02'47"E	168.12'
L28	N39°57'13"E	13.00'
L29	N66°19'15"E	25.78'
L30	N56°19'13"E	12.87'

CURVE TABLE			
NO	RADIUS	DELTA	LENGTH
C1	55.00'	63°37'58"	61.08'
C2	200.00'	10°00'02"	34.91'
C3	720.00'	4°04'40"	51.24'

SHEET 4 OF 4

PLAT TO ACCOMPANY LEGAL DESCRIPTION

LOT LINE ADJUSTMENT

PARCELS ONE & TWO (DOC. NO. 2017-00029113 AND 30 RS 36)

VALLEJO, SOLANO COUNTY, CALIFORNIA

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1900 Powell Street, Suite 220
Emeryville, CA 94608
(800) 488-7274 Toll Free USA
(415) 292-5400
(415) 292-5410 Fax
www.trashmanage.com

DRAFT-Klein Financial-DRAFT West Harbor Apts Expansion Vallejo, CA Trash Management Plan

Task: Design a waste and recycling system for this residential project with 122 residential units in new buildings at an existing apartment complex with 182 residential units totaling 304 units for the entire project that minimizes costs, staffing requirements and environmental impacts, while providing convenient trash disposal for the building's tenants. Please note the word "trash" when used in this plan covers waste, recycling and organics diversion (compost).

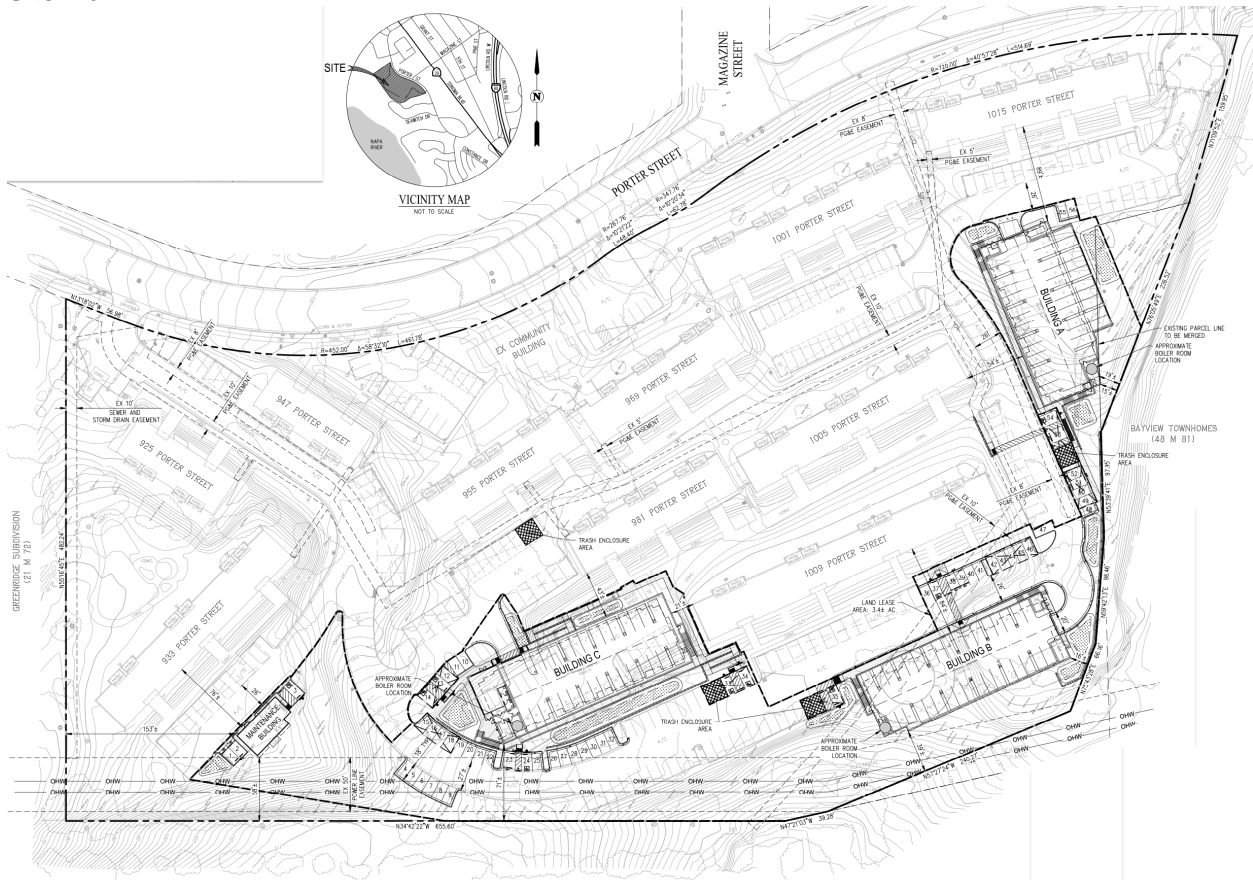
Waste and Recycling Removal: The City of Vallejo has granted Recology Vallejo an exclusive franchise to provide residential and commercial Waste, Recycling and Organics Collection services to the residents and businesses located within the city. The City is a member of the South Bayside Waste Management Authority (SBWMA), a 12-city joint powers agency whose goal is to provide cost effective waste reduction, recycling, and solid waste programs to member agencies through franchised services and other recyclers to meet and sustain a minimum of 50% diversion of waste from landfill as mandated by California State Law. SBWMA owns and manages the Shoreway Environmental Center that receives all of the recyclables, organics, and garbage collected in the area. Recology provides waste, commingled recycling and compost collection services for the City of Vallejo rates set by the City. Recycling is free for both residential and commercial properties. Compost is not.

State and Local Recycling Mandates: As of July 1, 2012, under Assembly Bill 341, State law requires commercial establishments (businesses, schools, and apartments) to recycle. This law was further extended by AB1826 to require organics diversion by all business with more than 4 cubic yards of waste per week and all residential properties with more than 5 units. Residential properties are not required to divert organic food waste under AB1826. The City of Vallejo, requires all persons source separate their refuse into recyclables and waste, and place each type of refuse in a separate container designated for disposal of that type of refuse.



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Site Plan:





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Specific Project Design Issues:

First, **the State of California requires waste and recycling collection for all residential projects over 5 units. To meet the State requirements of AB341 and AB1826, trash will be collected in three streams: waste, mixed recycling and compost.**

Second, there are various trash handling options for this project. The following trash handling options are: (1) **providing a trash enclosure for each building** for residents to utilize, or (2) **employ a private collection service ("concierge")** where residents will have all materials taken by the collection service and aggregated in central compactors.

Third, **the current residential trash areas will need to accommodate the recommended trash handling equipment.** Space requirements and standard layout options are provided in this plan.

Fourth, **a convenient and safe location for trash staging/servicing will need to be identified** so the bins can be emptied by Recology with minimal impact on the residents and the project's neighbors.

Fifth, **we recommend all trash collection areas have a floor drain, hose bib and odor control.**

Sixth, due to the number of units, **this building is projected to generate over 420 cardboard boxes per week.** A space should be designated for residents to place flattened cardboard, this cardboard will need to be moved by residents or concierge service to the central trash area.



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Projected Residential Waste and Recycling Levels: The following metrics were used to project residential waste and recycling levels:

Residential Waste: .16 Cubic Yard (32 gallon) per week/unit. **NOTE: This is the equivalent of over 2 large kitchen garbage cans per unit week (~2.4 - 13 gallon bags).**

Residential Recycling: .16 Cubic Yard (32 gallon) per week/unit. **NOTE: This is the equivalent of over 2 large kitchen garbage cans per unit week (~2.4 - 13 gallon bags).**

Residential Compost: 0.012 Cubic Yard (2.4 gallon) per week/unit. **NOTE: This is the equivalent of small compost pail per unit week.**

Projected Trash Volumes - LOOSE Volumes:

BLDG	# of units	Loose Waste CY/ WK	3CY Loose Waste Bins/WK	Loose Recycling CY/ WK	3CY Loose Recycling Bins/WK	Loose Compost CY/ WK	Loose Compost 64G Carts/ WK
A	36	5.8	2	5.8	2	0.4	2

BLDG	# of units	Loose Waste CY/ WK	3CY Loose Waste Bins/WK	Loose Recycling CY/ WK	3CY Loose Recycling Bins/WK	Loose Compost CY/ WK	Loose Compost 64G Carts/ WK
B	42	6.7	3	6.7	3	0.5	2

BLDG	# of units	Loose Waste CY/ WK	3CY Loose Waste Bins/WK	Loose Recycling CY/ WK	3CY Loose Recycling Bins/WK	Loose Compost CY/ WK	Loose Compost 64G Carts/ WK
C	42	6.7	3	6.7	3	0.5	2



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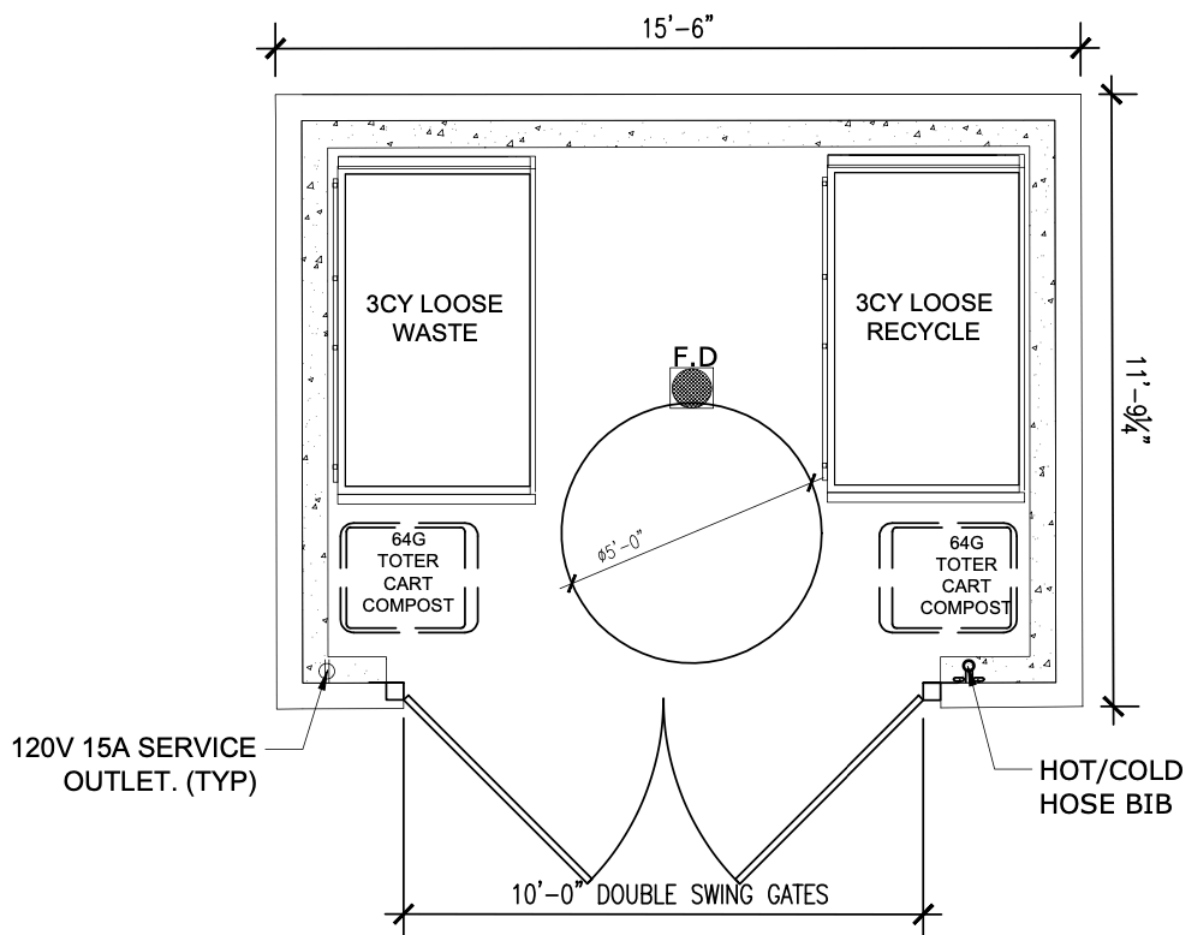
Recommended Residential Trash Handling System:

To meet City, County, & State requirements, trash will be separated into three streams, waste, mixed recycling and compost.

There are two trash handling options for this project:

Option 1-Trash Enclosures. Each building's trash can be handling in a dedicated trash enclosure, where residents will dispose of waste, recycling and compost. Due to the projected trash volumes we recommend the trash enclosure be large enough to accommodate (2) 3CY loose bins for waste and recycling and (2) 64G totter carts for compost.

Recommended Trash Enclosure Layout Option:



Option 2 - Concierge Trash Service. An alternative trash handling option is concierge service. Given issues with collecting trash containers and with the undesirability of trash enclosures, an alternative option is to employ a private collection service ("concierge") for all the homes and have all materials taken by the collection service and aggregated in the trash collection enclosure.



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Compactors. The residential waste and recycling picked up by the concierge staff will be hand-fed into compactors. **Compactors will reduce disposal costs and on-site staffing requirements while minimizing property truck traffic thereby lowering the project's overall environmental impact. Emptying bins can be up to 100db so minimizing trash pick ups is essential to lower the impact on the adjacent neighbors.**

Cardboard. Due to the number of units in this building, this property is projected to generate a total ~**420** boxes a week. We recommend designating a convenient space for residents to place their flattened boxes that will not fit in the chute.

Odor Control. To mitigate malodors in the trash room(s), a four-pronged approach is recommended including cleaning, proper ventilation, and installing a deodorizer system.

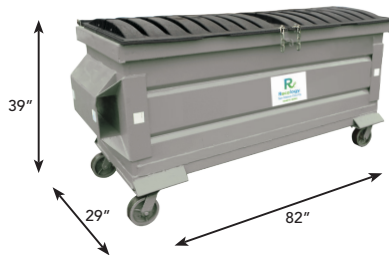
2. Cleaning the Trash Room. Trash rooms should be swept clean of debris on a weekly basis. Trash room wash-downs should be scheduled quarterly. These should include cleaning any trash equipment such as compactors, as well as floors and the walls. If possible, bins or compactor receiver containers should be cleaned at the same time, assuming the containers are empty. (Bins should be cleaned by onsite staff. If hauler-provided dumpsters become especially dirty, they should be replaced by the hauler.)

3. Odor Control Systems. Odor control systems can be helpful in controlling odors, but most have limited effectiveness or create other problems. Popular low-cost systems that spray a masking agent into the air, only serve to hide odors in the trash room and not eliminate them. Ozone generators are more effective, but the odor-destroying product they create — ozone — can have deleterious effect on human health and can also destroy compactor hoses and seals. One odor control system that avoids these problems is the Piiian Mini Vaporizer. It creates a very fine 50-micron mist that bonds with — and ultimately destroys — odor causing molecules. And unlike ozone, the entirely natural blend of plant extracts, essential oils and emulsifiers which is safe and does not damage equipment.

Residential Trash System Equipment:

Front Load Bins

1-yard



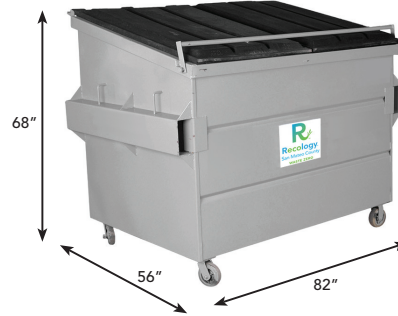
2-yard



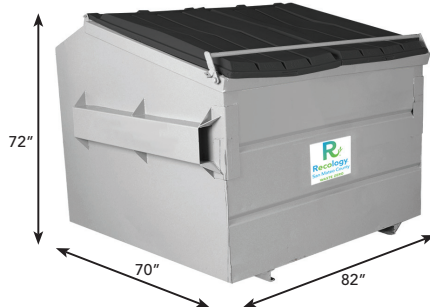
3-yard



4-yard



6-yard



8-yard



Dimensions may vary slightly. Measurements shown are exterior dimensions.
Not all bins are available with wheels.





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Compost Carts:



64 GALLON EVR® II UNIVERSAL / NESTABLE

Part Number:
79264

Description
64 GALLON EVR® II CART

Size (l x w x h)
31.75" X 24.25" X 41.75"

Load Rating
224 LBS/101.6 KG

Wheel Diameter
10"



32 GALLON EVR® UNIVERSAL

Part Number:
76532*

Description
32 GALLON EVR® CART

Size (l x w x h)
24.25" X 19.25" X 38.50"

Load Rating
112 LBS/50.8 KG

Wheel Diameter
10"

* 32 gallon is original EVR design and does not nest fully assembled.



48 GALLON EVR® II UNIVERSAL / NESTABLE

Part Number:
79248

Description
48 GALLON EVR® II CART

Size (l x w x h)
28.75" X 23.50" X 37.50"

Load Rating
168 LBS/76.3 KG

Wheel Diameter
10"



24 GALLON EVR® II UNIVERSAL

Part Number:
79224*

Description
24 GALLON EVR® II CART

Size (l x w x h)
24.00" X 19.75" X 34.50"

Load Rating
84.0 LBS/38.1 KG

Wheel Diameter
10"

* 24 gallon does not nest fully assembled.



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RECOMMENDED Building Service Schedule (actual schedule to be determined by hauler and building management)

BUILDING A Sample Service Schedule- Loose Bins:

Front Load	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
3CY Loose WASTE	1				1		
3CY Loose RECYCLE		1		1			
Total	1	1	0	1	1	0	0
64G Compost Toters					2		

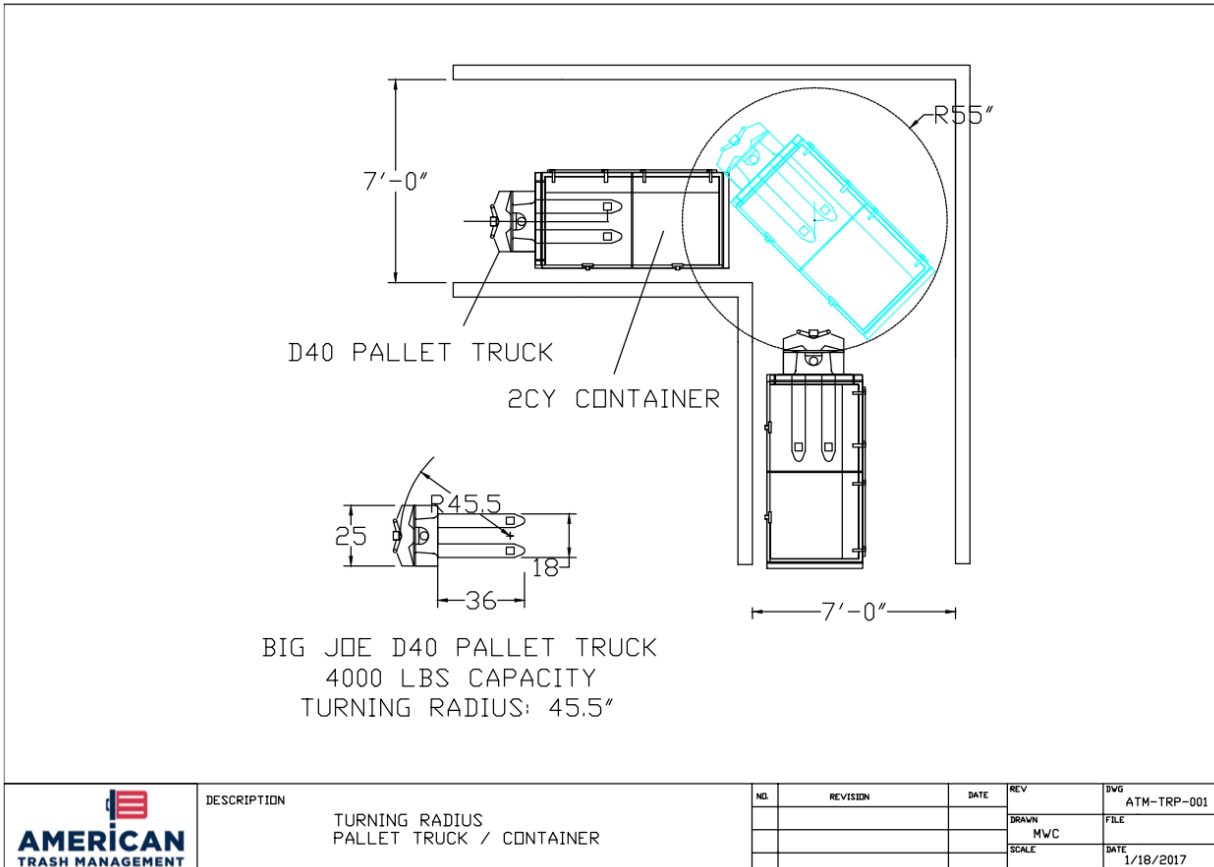
BUILDING B Sample Service Schedule- Loose Bins:

Front Load	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
3CY Loose WASTE	1		1		1		
3CY Loose RECYCLE		1		1		1	
Total	1	1	1	1	1	1	0
64G Compost Toters					2		

BUILDING C Sample Service Schedule- Loose Bins:

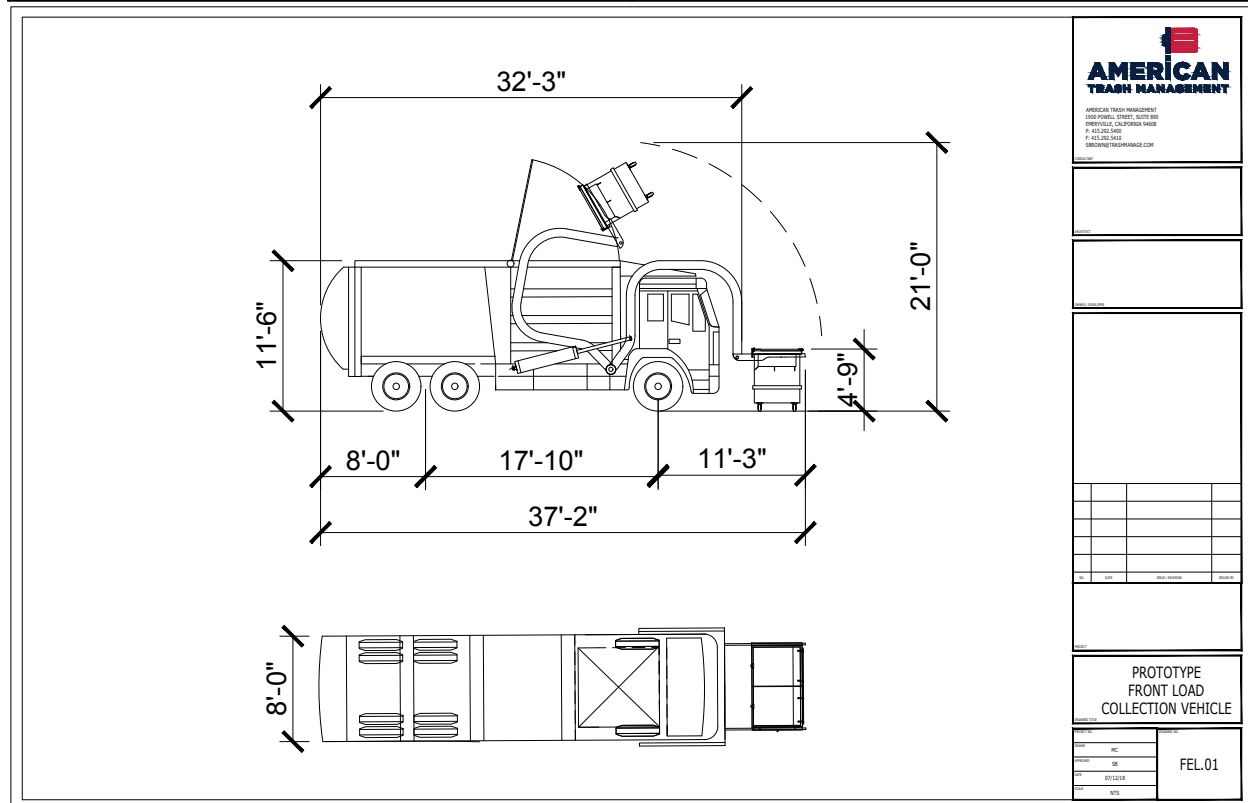
Front Load	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
3CY Loose WASTE	1		1		1		
3CY Loose RECYCLE		1		1		1	
Total	1	1	1	1	1	1	0
64G Compost Toters					2		

Bin Moving - Electric Pallet Jack:



Front Load Trash Truck Noise Levels

Location	Decibel Levels
Banging on Bins when Emptying	100
Behind Garbage Truck (while compacting)	89



Trash System Equipment Specifications: Provided separately, listed below:

1. Section 44 31 00 - Odor Control
2. Section 41 63 23 - Waste Caddy or Electric Pallet Jack



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Volume Projections and Analysis:

Below is comparative analysis of the disposal costs and labor costs of handling waste and recycling in a loose bins or compacted bins. We recommend installing loose bins under the waste and recycling chutes. Please note that the projections below are estimates derived from actual audits of comparable mixed-use properties in the San Francisco Bay area. They are not guaranteed. They are to be used for planning purposes only and may be higher or lower than projected.

PHASE 1 RESIDENTIAL - WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	182	Gallons
Volume Waste:	0.16	cubic yard/week/unit	32
Volume Recycling:	0.16	cubic yard/week/unit	32
Volume Compost:	0.012	cubic yard/week/unit	2
Compaction Ratio	4	to 1	
Staff Labor Rate	\$21.00	per hour - 1 person	
Time move bins	0.5	hr to move to unloading area & back	
Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
Compacted Service	3	cubic yard front load bins	
Loose Waste & Recycling Service	3	cubic yard front load bins	
Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	PROJECTED	PROJECTED
SERVICE-Waste	Loose	Compacted	Compacted
SERVICE-Recycling	Loose	Loose	Compacted
SERVICE-Compost	Loose	Loose	Loose
Loose Waste Volume - CY	29.1		
Compacted Waste Volume - CY		7.3	7.3
Loose Recycling Volume - CY	29.1	29.1	
Compacted Recycling Volume - CY			7.3
Loose Compost Volume - CY	2.2	2.2	2.2
Waste Bins/week	10	3	3
Recycling Bins/week	10	10	3
Compost carts/week	7	7	7
Total Containers/week	20	13	6
SYSTEM CAPITAL COST	\$0.00	\$43,796.90	\$87,593.80
WASTE COST/MONTH	\$14,847.35	\$6,363.15	\$6,363.15
RECYCLING COST/MONTH	\$0.00	\$0.00	\$0.00
COMPOST COST/MONTH	\$606.76	\$606.76	\$606.76
TRASH COST/MONTH	\$15,454.11	\$6,969.91	\$6,969.91
COMPACTION SAVINGS/MONT	N/A	\$8,484.20	\$8,484.20
STAFF LABOR COST/MONTH	\$1,182.09	\$768.36	\$354.63
STAFF SAVINGS/MONTH	N/A	\$413.73	\$827.46
NET MONTHLY TRASH COSTS	\$16,636.20	\$7,738.27	\$7,324.54
Monthly Trash Cost per Unit	\$91.41	\$42.52	\$40.24
PAYBACK-MONTHS		5	9



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PHASE 2 TOTAL RESIDENTIAL - WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	122		Gallons
	Volume Waste:	0.16	cubic yard/week/unit	32
	Volume Recycling:	0.16	cubic yard/week/unit	32
	Volume Compost:	0.012	cubic yard/week/unit	2
	Compaction Ratio	4	to 1	
	Staff Labor Rate	\$21.00	per hour - 1 person	
	Time move bins	0.5	hr to move to unloading area & back	
	Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
	Compacted Service	3	cubic yard front load bins	
	Loose Waste & Recycling Service	3	cubic yard front load bins	
	Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	PROJECTED	PROJECTED
SERVICE-Waste	Loose	Compacted	Compacted
SERVICE-Recycling	Loose	Loose	Compacted
SERVICE-Compost	Loose	Loose	Loose
Loose Waste Volume - CY	19.5		
Compacted Waste Volume - CY		4.9	4.9
Loose Recycling Volume - CY	19.5	19.5	
Compacted Recycling Volume - CY			4.9
Loose Compost Volume - CY	1.5	1.5	1.5
Waste Bins/week	7	2	2
Recycling Bins/week	7	7	2
Compost carts/week	5	5	5
Total Containers/week	14	9	4
SYSTEM CAPITAL COST	\$0.00	\$43,796.90	\$87,593.80
WASTE COST/MONTH	\$4,673.86	\$4,242.10	\$4,242.10
RECYCLING COST/MONTH	\$0.00	\$0.00	\$0.00
COMPOST COST/MONTH	\$431.15	\$431.15	\$431.15
TRASH COST/MONTH	\$5,105.01	\$4,673.25	\$4,673.25
COMPACTION SAVINGS/MONT	N/A	\$431.76	\$431.76
STAFF LABOR COST/MONTH	\$827.46	\$531.94	\$236.42
STAFF SAVINGS/MONTH	N/A	\$295.52	\$591.05
NET MONTHLY TRASH COSTS	\$5,932.47	\$5,205.19	\$4,909.67
Monthly Trash Cost per Unit	\$48.63	\$42.67	\$40.24
PAYBACK-MONTHS		60	86

RESIDENTIAL CARDBOARD: 427 Cardboard boxes per week



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PHASE 2 - BUILDING A- WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	36		Gallons
	Volume Waste:	0.16	cubic yard/week/unit	32
	Volume Recycling:	0.16	cubic yard/week/unit	32
	Volume Compost:	0.012	cubic yard/week/unit	
	Compaction Ratio	4	to 1	
	Staff Labor Rate	\$21.00	per hour - 1 person	
	Time move bins	0.5	hr to move to unloading area & back	
	Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
	Loose Waste & Recycling Service	3	cubic yard front load bins	
	Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	RESIDENTIAL
SERVICE-Waste	Loose	CARDBOARD:
SERVICE-Recycling	Loose	126 Cardboard boxes per week
SERVICE-Compost	Loose	
Loose Waste Volume - CY	5.8	
Compacted Waste Volume - CY		
Loose Recycling Volume - CY	5.8	
Compacted Recycling Volume - CY		
Loose Compost Volume - CY	0.4	
Waste Bins/week	2	
Recycling Bins/week	2	
Compost carts/week	2	
Total Containers/week	4	

PHASE 2 - BUILDING B- WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	42		Gallons
	Volume Waste:	0.16	cubic yard/week/unit	32
	Volume Recycling:	0.16	cubic yard/week/unit	32
	Volume Compost:	0.012	cubic yard/week/unit	
	Compaction Ratio	4	to 1	
	Staff Labor Rate	\$21.00	per hour - 1 person	
	Time move bins	0.5	hr to move to unloading area & back	
	Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
	Loose Waste & Recycling Service	3	cubic yard front load bins	
	Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	RESIDENTIAL
SERVICE-Waste	Loose	CARDBOARD:
SERVICE-Recycling	Loose	147 Cardboard boxes per week
SERVICE-Compost	Loose	
Loose Waste Volume - CY	6.7	
Compacted Waste Volume - CY		
Loose Recycling Volume - CY	6.7	
Compacted Recycling Volume - CY		
Loose Compost Volume - CY	0.5	
Waste Bins/week	3	
Recycling Bins/week	3	
Compost carts/week	2	
Total Containers/week	6	



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PHASE 2 - BUILDING C- WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	42		Gallons
	Volume Waste:	0.16	cubic yard/week/unit	32
	Volume Recycling:	0.16	cubic yard/week/unit	32
	Volume Compost:	0.012	cubic yard/week/unit	
	Compaction Ratio	4	to 1	
	Staff Labor Rate	\$21.00	per hour - 1 person	
	Time move bins	0.5	hr to move to unloading area & back	
	Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
	Loose Waste & Recycling Service	3	cubic yard front load bins	
	Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	RESIDENTIAL
SERVICE-Waste	Loose	CARDBOARD:
SERVICE-Recycling	Loose	147
SERVICE-Compost	Loose	Cardboard boxes per week
Loose Waste Volume - CY	6.7	
Compacted Waste Volume - CY		
Loose Recycling Volume - CY	6.7	
Compacted Recycling Volume - CY		
Loose Compost Volume - CY	0.5	
Waste Bins/week	3	
Recycling Bins/week	3	
Compost carts/week	2	
Total Containers/week	6	

PHASE 2 - MAINTENANCE BUILDING- WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:	UNITS:	2		Gallons
	Volume Waste:	0.16	cubic yard/week/unit	32
	Volume Recycling:	0.16	cubic yard/week/unit	32
	Volume Compost:	0.012	cubic yard/week/unit	
	Compaction Ratio	4	to 1	
	Staff Labor Rate	\$21.00	per hour - 1 person	
	Time move bins	0.5	hr to move to unloading area & back	
	Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
	Loose Waste & Recycling Service	3	cubic yard front load bins	
	Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	RESIDENTIAL
SERVICE-Waste	Loose	CARDBOARD:
SERVICE-Recycling	Loose	7
SERVICE-Compost	Loose	Cardboard boxes per week
Loose Waste Volume - CY	0.3	
Compacted Waste Volume - CY		
Loose Recycling Volume - CY	0.3	
Compacted Recycling Volume - CY		
Loose Compost Volume - CY	0.0	
Waste Bins/week	1	
Recycling Bins/week	1	
Compost carts/week	1	
Total Containers/week	2	



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WASTE AND RECYCLING RATES (PARTIAL) CURRENT RATES

January 1, 2022

City:

Franchise:

Recycling is included in the waste rates

Vallejo

Recology

Commercial Organics Rates:

Frequency/Size: x/wk-CY Size

1
2
3
4
5
6
7

Organics

64G Cart

\$88.73

\$175.61

\$263.14

\$350.86

\$431.15

N/A

N/A

Commercial Loose Front Load Rates:

Frequency/Size: x/wk-CY Size

1
2
3
4

2

3

\$571.92

\$729.43

\$1,023.24

\$1,314.81

\$1,474.56

\$1,900.19

Commercial Compacted Front Load Rates:

Commercial Compacted Cubic Yard Front Load Rates:

Frequency/Size: x/wk-CY Size

1
2
3
4
5
6
7

2

3

\$1,414.02

\$2,121.05

\$2,828.04

\$4,242.10

\$4,242.06

\$6,363.15

Chute Fed Compactor Cost

\$43,796.90

A500 with 2-3CY towable bins, tax, ship, install

961 PORTER STREET PROJECT

Class 32 Categorical Exemption

Prepared for
City of Vallejo

August 2023



961 PORTER STREET PROJECT

Class 32 Categorical Exemption

Prepared for
City of Vallejo

August 2023

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Suite 1050
Oakland, CA 94612
510.839.5066
esassoc.com



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Oakland	Rancho Cucamonga	Tampa
Orlando	Sacramento	Thousand Oaks

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961 PORTER STREET PROJECT

Class 32 Categorical Exemption

1. Purpose and Determination

1.1 Purpose

This report serves as the technical documentation of an environmental analysis conducted by ESA, under direction of the City of Vallejo (Lead Agency) for the proposed West Harbor Park Apartments Project (project) at 961 Porter Street Project in the City of Vallejo. The analysis herein is provided to assist the City to determine whether the project is eligible for a Class 32 (*Infill Development Projects*) Categorical Exemption under the California Environmental Quality Act (CEQA). This document includes an introduction, project description, and evaluation of the project's consistency with the characteristics specified for the Class 32 exemption.

The CEQA Guidelines Section 15332 states that a Class 32 Categorical Exemption is allowed when:

- a. The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.
- b. The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.
- c. The project site has no value as habitat for endangered, rare, or threatened species.
- d. Approval of the project would not result in any significant effects relating to traffic,¹ noise, air quality, or water quality.
- e. The site can be adequately served by all required utilities and public services.

The analysis for each of the above conditions is presented in Section 3.1 of this document, supported as needed by attached technical documents.

CEQA Guidelines Section 15300.2, *Exceptions*, states that a categorical exemption shall not be used for a project that meets any specific conditions cumulative impacts, scenic highways, hazardous waste sites, and historical resources. These conditions are discussed in Section 3.2 of this document, supported as needed by attached technical documents.

¹ Impacts related to parking are not discussed in this report, as such impacts are generally not considered as physical effects on the environment under CEQA. Per Senate Bill 743 traffic congestion is no longer considered a CEQA impact and this analysis focuses on vehicle miles traveled.

1.2 Determination

This evaluation supports a determination that the proposed project is eligible for a Class 32 Categorical Exemption because (1) the project is consistent with the conditions for an *Infill Development Project Exemption* under CEQA Guidelines Section 15332 and because (2) the project would not meet any of the *Exceptions* in CEQA Guidelines Section 15300.2 a determination that the project's eligibility for the Class 32 exemption.

2. Project Description

2.1 Overview

The project applicant, Klein Financial Corporation, proposes to construct four new buildings (three apartment buildings containing a total of 120 residential dwelling units, one maintenance building with two residential dwelling units, and associated parking and landscaping on approximately 4.16 acres of the existing 12.02-acre Harbor Park Residential Development site at 961 Porter Street (project site) in the City of Vallejo.

2.2 Project Site and Existing Uses

The project site is located west of Porter Street, west of the intersection of Porter and Magazine Streets. The project site is located 0.5 miles west of Interstate 80 and 0.2 miles west of Sonoma Boulevard (State Route 29). Surrounding land uses include residential uses to the north and south, undeveloped land planned for residential uses and a community center to the east, and the vacant Vallejo Mill site to the west (see **Figures 1 and 2** on the following pages).

The project site is immediately adjacent to an existing Harbor Park Residential Development apartment complex. The areas to be developed are west of the existing apartment buildings, and are currently roadways, surface parking lots, and/or landscaped areas, as well as three single-story parking garage buildings.

2.3 Project Characteristics

The proposed development is a westward uphill expansion of the existing Harbor Park residential apartment complex, which was constructed in 1965 (see **Figure 3** within the following pages). Three of the proposed buildings would be residential apartment buildings providing a total of 120 dwelling units. Each would include a parking podium (garage level) with four levels of residential uses above. Building A would include 36 dwelling units, Building B would include 42 dwelling units, and Building C would include 42 dwelling units. As the site slopes upward to the west, and some areas of buildings will be constructed into slopes, above grade building heights range from approximately 46 to 60 feet. **Figures 4 and 5** on the following pages are the elevations for Building A; the scale and architecture are representative of all three residential buildings. Additional elevations and project plans are included in **Attachment A, Additional Project Plans**, to this report.



Path: U:\GIS\GIS\Projects\2021\20210504_City_of_Vallejo\03_ProjectFig1_Proj Loc.mxd, RTel: 7/25/2023

SOURCE: ESRI; ESA, 2023.

City of Vallejo Class 32 961 Porter



Figure 1
Regional Location



SOURCE: ESA, 2023; Google Earth, 2023

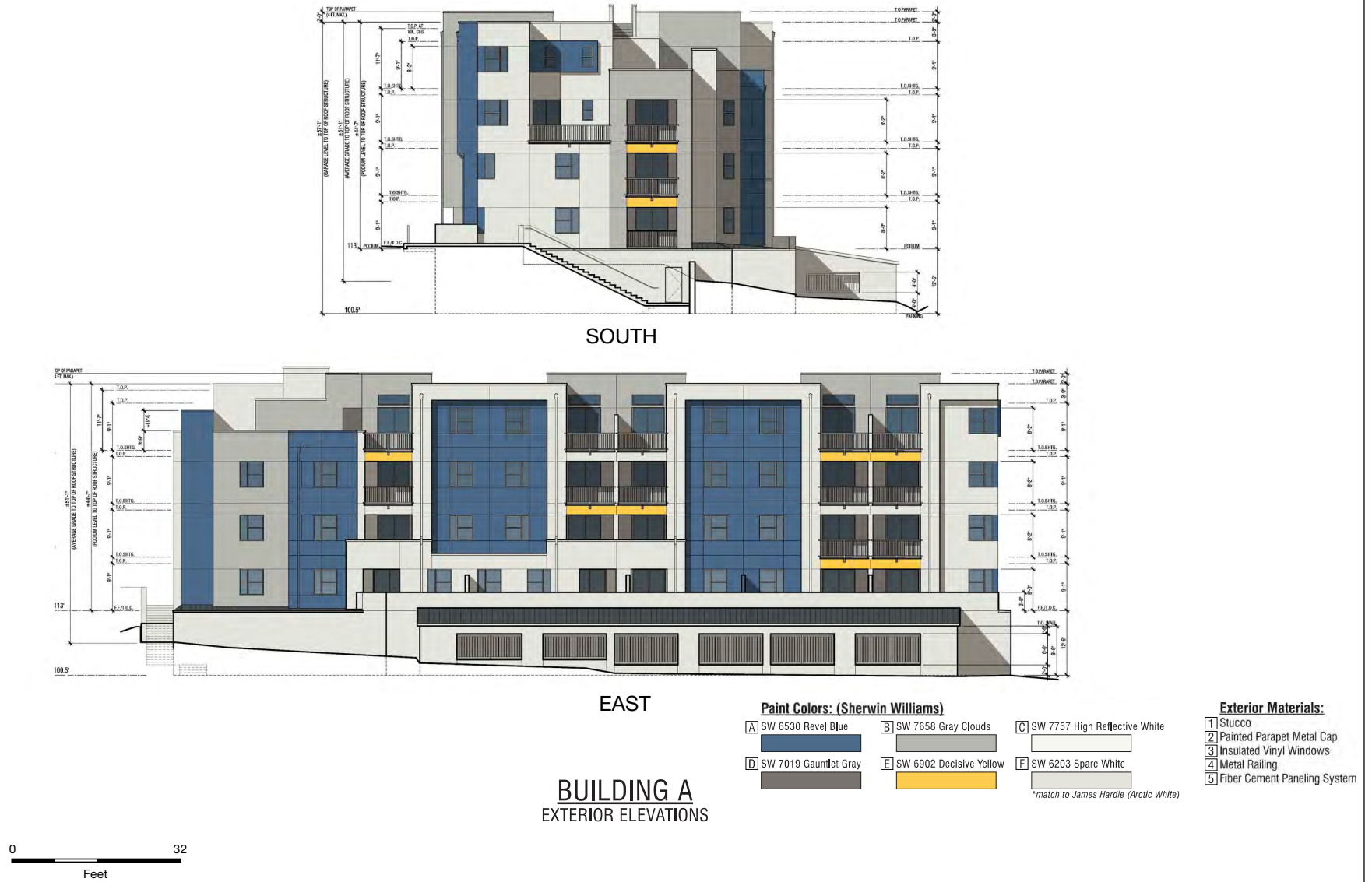
City of Vallejo Class 32 961 Porter

Figure 2
Project Location



SOURCE: WHA, 2023

City of Vallejo Class 32 961 Porter



SOURCE: WHA, 2023

City of Vallejo Class 32 961 Porter

The fourth building would include a maintenance facility and two additional dwelling units, totaling 122 units. The first floor would consist of the approximately 1,000 square foot maintenance shop and office. The second and third floors would each include a dwelling unit. The maximum building height would be approximately 38 feet.

The Harbor Park Residential Development apartment complex currently includes 278 parking spaces. Implementation of the proposed project would include removal of 96 parking spaces and construction of 155 vehicle parking spaces (98 garage spaces, 28 covered carport spaces, and 29 uncovered spaces).

Implementation of the proposed project would include removal of 29 trees and the planting of 44 of the 48 new trees, four of which would be addressed through the payment of in-lieu fees. Drought tolerant landscaping would be planted in proximity to the new buildings.

2.4 General Plan and Zoning

The project site has a General Plan designation of Mix of Housing Type (R-MH) and the site is zoned Residential Medium Density (RMD).

3. Environmental Conditions

3.1 Conditions for CEQA Guidelines Section 15332 – In-Fill Development Projects

- (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.**

Consistency with the General Plan

According to the City of Vallejo General Plan Land Use Map, the project site is designated Mix of Housing Type (R-MH). The R-MH designation applies to residential neighborhoods largely characterized either by 1) single- family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller scale apartment buildings and small commercial spaces; or 2) primarily single-use, multi-family developments with common outdoor spaces. Permitted land uses include single-family homes; in some instances, duplexes, triplexes, fourplexes, smaller scale apartment buildings, and small commercial spaces; and public facilities such as schools, religious institutions, parks, and other community facilities appropriate within a residential neighborhood. For primarily single-use, multi-family development, the R-MH designation applies to residential areas primarily characterized by parcels and buildings containing multiple residences, sometimes on several floors, and, in some instances, small commercial spaces. The proposed project is designed as a family-centric apartment home complex that will be added to an existing apartment complex in a gated community, which is consistent with the character and uses of the R-MF designation.

The proposed project would be consistent with applicable General Plan objectives and policies as described in **Table 1** below.

TABLE 1
CONSISTENCY WITH VALLEJO GENERAL PLAN POLICIES

Policy	Consistency
Policy NBE-1.1 Natural Resources. Protect and enhance hillsides, waterways, wetlands, occurrences of special-status species and sensitive natural communities, and aquatic and important wildlife habitat through land use decisions that avoid and mitigate potential environmental impacts on these resources to the extent feasible.	Consistent. No waters or wetlands are present on the project site. Refer to Section 3.1, <i>Criterion (c)</i> , for a discussion of habitat for endangered, rare, or threatened species.
Policy NBE-1.2. Sensitive Resources. Ensure that adverse impacts on sensitive biological resources, including special-status species, sensitive natural communities, and wetlands are avoided and mitigated to the greatest extent feasible as development takes place	Consistent. As mentioned above, refer to Section 3.1, <i>Criterion (c)</i> , for a discussion of special-status species and sensitive natural communities.
Policy NBE-1.5. Scenic Vistas. Protect and improve scenic vistas, including views from Interstate 80 and State Route 37 in Vallejo.	Consistent. The proposed project is not on or near an officially designated California Scenic Highway, which includes the eligible State Route 37. Refer to Section 4.5, <i>Criterion (d)</i> , for more information. Although the project site is located approximately 0.4 mile to the east of Interstate 80, the proposed project would be consistent with other land uses in the area and would not substantially affect views from Interstate 80.
Policy NBE-1.7 Green Infrastructure. Encourage the installation of green infrastructure, including tools such as permeable pavement, rain gardens, constructed wetlands, grassy swales, rain barrels and cisterns, and green roofs, to treat stormwater, attenuate floods, increase groundwater recharge, and reduce urban heat islands.	Consistent. The proposed project would include eleven bioretention areas (totaling 4,329 square feet) located around the proposed buildings to capture on-site stormwater runoff prior to discharge into the Vallejo Flood and Wastewater District's storm drain. In addition, the proposed project would include drought-tolerant landscaping.
Policy NBE-1.8 Urban Forest. Encourage planting of street trees and landscaping to beautify the city, encourage walking and biking, and create a stronger sense of identity.	Consistent. A variety of new drought-tolerant shrubs and trees, totaling approximately 30,000 square feet, will provide shade to the parking lots, treat stormwater in bioretention areas and accent the social hubs serving each building. The social hubs are programmed with flowering accent trees, cluster mailboxes, bicycle racks, trash receptacles and bench seating and stitched together with lighted pathways for pedestrian circulation throughout the entire complex. The proposed project has requested a concession to not add additional street trees along Porter Street.
Policy NBE-1.15. Energy Efficiency. Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.	Consistent. The project would be required to comply with standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. California's Green Building Standards Code (CBC Title 24, Part 11) requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, CBC Title 24, Part 6 requires newly constructed buildings to meet energy performance standards set by the Energy Commission. In accordance with Section 150.1(b)14 of the 2019 Building Energy Efficiency Standards, the project would be required to be solar ready, or to install photovoltaic systems on all low-rise residential buildings (up to three stories), equal to the expected electricity usage. The project includes sustainable and energy-efficient features, including solar panels, electric vehicle (EV) chargers, and an all-electric design, each provided at or exceeding City requirements.
Policy NBE-2.1 Strengthen Local Identity. Focus future growth to foster a vibrant Downtown/Waterfront District, strong job centers, comfortable neighborhoods, thriving neighborhood corridors and urban villages, and retail/entertainment clusters that draw visitors from the city and the region.	Consistent. The proposed project would contribute to the existing neighborhood surrounding the project site by introducing a compatible multi-family use adjacent to existing multi-family and single-family developments.

TABLE 1
CONSISTENCY WITH VALLEJO GENERAL PLAN POLICIES

Policy	Consistency
Policy NBE-2.3. Inviting, Compatible Design. Promote attractive development that is compatible with surrounding uses.	Consistent. The proposed landscaping is designed to complement the new buildings while gracefully transitioning into the existing apartment complex's landscaping and existing trees on the southern property boundary.
Policy NBE-2.8 Infill Development. Promote infill development targets vacant and underutilized sites for community-desired and enhancing uses that is compatible with surrounding uses.	Consistent. The project is an infill site, surrounded by developed parcels on all sides, except for a residential development that is currently under construction across Porter Street. The proposed multi-family development is consistent with the multi-family uses present to the northeast, east, and south.

Zoning Designations and Regulations

The project site is zoned Residential Medium Density (RMD). The project would provide a family-centric apartment home complex that will be added to an existing apartment complex in a gated community and is therefore directly consistent with the intent of the RMD zone.

The RMD zone allows densities up to 25 dwelling units per acres. The project provides 24 lower income units, entitling it to State Density Bonus Law ("SDBL") benefits. While not pertinent to the environmental review under CEQA, the project is entitled to a 46.25 percent density bonus, three incentives/concessions, unlimited waivers or reductions of development standards, and use of SDBL's parking standards. (See Gov. Code, §§ 65915(b)(1)(B), (d)(2)(C), (e)(1), (f)(2), (p).) Based on a 4.16-acre site, the project requests a 17.3 percent density bonus, three concessions, and nine waivers.

The requested concessions are to defer payment of development impact fees until the units are occupied, to extend and be served by a water line in Pressure Zone 292 rather than in Pressure Zone 212, and to not add additional street trees along Porter Street. The concessions result in actual and identifiable cost savings to provide for affordable housing.

The requested waivers are (1) a reduction in the 75-square-foot per unit private open space requirement, (2) a reduction in the minimum 10-foot dimension for private open space on the ground level, (3) a reduction of the minimum six-foot dimension for private open space above the ground floor, (4) a reduction of the minimum open space requirement of 150 square feet per unit, including a reduction of the 15-foot minimum common open space area requirement, (5) relief from the upper story massing requirement, (6) providing some uncovered parking where covered parking is normally required, (7) allowance to exceed the height limit, and (8) a reduction in the required long-term bicycle parking. Each waiver is required to allow the project to fit on its site at the density and with the amenities proposed. Additional justification for the requested concessions and waivers can be found in letters provided to the City of Vallejo.

The proposed project would be consistent with the applicable zoning designations and regulations.

(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

The proposed project is located on approximately 4.16 acres of land within the City limits of Vallejo. The project site is zoned for Residential Medium Density and is surrounded by urban uses on all sides, primarily consisting of community apartments and single-family housing. The Norman C King South Vallejo Community Center is located at 545 Magazine Street (across Porter Street to the east).

(c) The project site has no value as habitat for endangered, rare or threatened species.

A Biological Resources Technical Memorandum has been prepared for the project by ESA and is included as **Attachment B** to this report. The discussions below summarize the conclusions of the Technical Memorandum.

The existing conditions of the project site are highly disturbed and isolated as a result of surrounding residential and commercial development. An Arborist Report was prepared by HortScience-Bartlett (2022) to meet the City of Vallejo requirements per Ordinance No. 10.04.017; the project would adhere to the City of Vallejo tree protection and removal requirements.

The project site provides suitable nesting habitat for Cooper's hawk, white-tailed kite, and other common nesting birds protected by the Migratory Bird Treaty Act and California Fish and Game Code. The City of Vallejo's General Plan (Action NBE-1.2C) requires scheduling of construction and vegetation removal outside of nesting bird season or conducting a preconstruction nesting bird survey. Protecting active bird nests is a standard City policy and would be implemented as a condition of approval for the project, thus potentially significant impacts to nesting birds will be avoided. Large trees on the site provide marginally suitable overwintering habitat for monarch butterflies. Avoiding tree trimming and removal during the monarch overwintering season (November 1 to January 31) would be implemented as a condition of approval for the project to prevent potential impacts to overwintering monarch butterflies.

Overall, no impacts to special-status plant species, sensitive natural communities, or wetlands were identified as a result of the proposed project.

(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

Traffic

A Vehicles Miles Traveled (VMT) Assessment Memorandum has been prepared for the project by Fehr & Peers and previously peer reviewed and approved by the City of Vallejo, Public Works Department. The memo is included as **Attachment C** to this report. The analysis below summarizes the conclusions of the VMT Memorandum.

Based on information from the Solano-Napa Activity Based Travel Demand Model, a typical multi-family residential development at the project site is forecast to generate approximately 24.7 daily vehicle miles of travel per resident. This is similar to other multi-family residential development in the area. However, the project includes two elements that are not typical of existing residences in the area:

- Cost of parking charged separately from residential rent, and
- Building management would provide all residents with information relative to their non-single occupant vehicle travel options (rideshare, transit, bike and pedestrian amenities and options).

As a result, calculations were performed to assess the anticipated reductions in VMT associated with these measures. The calculations identified an expected reduction in VMT of approximately 9.4 percent. With this modification, the proposed project is expected to generate approximately 22.4 vehicle miles of travel per resident, which is below the city's significance threshold of 24.2 percent. The project would not result in a significant effect relating to traffic.

A Transportation Impact Assessment (TIA) was also prepared by Fehr & Peers for the proposed project and previously peer reviewed and approved by the City's Public Works Department. The TIA was prepared to evaluate the potential transportation effects of the proposed project, such as intersection level of service, and site plan review regarding circulation and access for all modes (pedestrian, bicycle, transit) as well as parking. Per CEQA Guidelines and the City of Vallejo only considers VMT in the assessment of CEQA impacts, the TIA memo is included in **Attachment D** for informational purposes only.

Noise

A Noise Technical Memorandum has been prepared for the project by ESA and is included as **Attachment E** to this report. The discussions below summarize the analysis in the Technical Memorandum.

Construction Noise

The proposed project would generate noise during periods of construction. Construction noise levels would range from 74.4 to 79.0 dBA Leq at the nearest residential receptor, which exceed applicable noise regulations of the City of Vallejo. However, construction noise is temporary, and the proposed project would incorporate the prior established General Plan Mitigation Measure NOI-4, which includes limits for construction hours, equipment maintenance and noise reduction measures to ensure this effect is less than significant.

The proposed project would generate construction and operational noise from vehicles traveling to and from the project site. Maximum daily vendor truck trips for the building construction phase are anticipated to be 19 one-way truck trips per day. Daytime hourly Leq monitored in the project vicinity is 56.8 dBA. Addition of the contribution of project vendor trucks would result in an increase of less than 0.3 dBA over existing noise levels and would not result in a perceptible increase in noise.

Operational Noise

The increase in peak hour traffic noise in the vicinity of the project site for the *Opening Year Plus Project* traffic scenario compared to the *Existing* traffic scenario, and *Cumulative with Project* scenario compared to the *Existing* traffic scenario would be less than 5 dBA on all roadway segments, and therefore less than significant.

Vibration

Groundborne vibrations levels from construction activities would not exceed the building damage thresholds (0.5 peak particle velocity [PPV]) for the closest structure (1009 Porter Street).

Therefore, the impact regarding vibration generated by project construction activities would be less than significant.

Air Quality

An Air Quality Technical Memorandum has been prepared by ESA for the proposed project and is included as **Attachment F** to this report. The discussions below summarize the analysis of the Air Quality Technical Memorandum.

Construction – Criteria Pollutants

As described in prior sections, the project site is a westward uphill expansion of the existing Harbor Park development and is primarily surrounded by multifamily dwelling units, sensitive receptors located as close as 20 feet of the project's construction area. The project would generate temporary pollutant emissions from the following construction activities: (1) demolition, (2) site preparation, (3) grading, (4) building construction, (5) paving, and (6) the application of architectural coatings. Fill material would be imported to the site for grading, and demolition debris from buildings and existing parking areas would be off hauled. Together, all phases of construction would occur for a period of approximately 13 months.

The detailed analysis presented in Attachment F supports that project construction emissions would be well below the applicable Bay Area Air Quality Management District (BAAQMD) thresholds resulting in a less-than-significant impact from exhaust emissions. Also, with the project's adherence to implementing the BAAQMD Basic Construction Mitigation Measures Recommended for All Projects (Best Management Practices [BMPs]), in addition to enhanced BMPs, given the proximity of sensitive receptors to the construction area, the proposed project would control fugitive dust emissions to a less-than-significant level.

Construction – Toxic Air Contaminants

Project construction activities would produce toxic air contaminants TACs primarily in the form of diesel particulate matter (DPM) emissions from the exhaust of diesel fueled construction equipment near sensitive receptors. PM_{2.5} emissions would be generated from both exhaust and fugitive dust. The detailed analysis in Attachment F finds that construction health risks during construction would/not exceed the BAAQMD's thresholds for incremental lifetime cancer risk, chronic Hazard Index or annual PM_{2.5} concentration at the maximum exposed individual receptor (MEIR). All off-road diesel equipment used for the project would meet the Tier 4 Final standards, the best available control technology for control of DPM.

Operations – Criteria Pollutants

The project would not include any new stationary sources. The project's operational emissions from area sources and vehicle trips would be well below both the annual and daily significance thresholds recommended by the BAAQMD. This would be a less than significant impact.

Operations – Toxic Air Contaminants

The project would not include any stationary source of TAC emissions and would not contribute to any potential health risks to sensitive receptors. Nor is the project a significant source of TACs. The project would result in a less-than-significant impact regarding operational TAC emissions, and thus an operational HRA was not required.

Project Consistency with Clean Air Plan

The proposed project would be consistent with 2017 Clean Air Plan, supporting the primary goals Plan, incorporating applicable control measures from the Plan, and disrupt or delay the implementation of the Plan's control measures. Several aspects of the proposed project and/or its compliance with certain regulations support implementation of numerous measures of the Plan. These are discussed in detail in Attachment F. The impact would be less than significant.

Odors

Construction equipment exhaust would generate localized short-term odors; however, these odors would dissipate rapidly and carry over beyond the project site boundaries. Once operational, the project would not include any sources of odor. There this impact would be less than significant.

Water Quality

The project site is adjacent to an approximately 12-acre residential apartment complex that includes existing utility systems, including storm drains. The approximately 4.16-acre area where the proposed project would be constructed is currently developed with roadways, surface parking lots, and/or landscaped areas. Implementation of the proposed project may increase pervious surfaces on the site, which could increase run-off and decrease water quality. The project proposes the development of multiple bioretention areas that would decrease peak flows in storm drains, which ultimately connect to the existing storm drain along Porter Street.

The proposed project would comply with Provision C.3 of the Contra Costa Clean Water Program, which includes preparing and submitting a Stormwater Control Plan and Operation and Maintenance Plan for City review and approval. Features required by Provision C.3 would ensure that adequate stormwater treatment is provided for runoff at the project site. The project would not have significant adverse impacts to hydrology and water quality. This is by adhering to the construction site controls, and the standard conditions related to erosion control and stormwater discharge for construction, pursuant to the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) (City of Vallejo, 2011).

(e) The site can be adequately served by all required utilities and public services.

Utilities and Service Systems

The proposed project is located in an existing urbanized area served by existing public utilities and services, including water, wastewater, and storm drainage facilities located in adjacent roadway rights-of-way. The City of Vallejo provides water and solid waste collection services (via Recology Vallejo) to residential buildings surrounding the project site and would provide these services to the proposed project. Sewer service would be provided by the Vallejo Flood and Wastewater District. Other services, including gas and electricity, would be provided to the project site by Pacific Gas and Electric Company (PG&E).

The City provides water services to two geographically distinct service areas: the City of Vallejo jurisdictional limits and adjacent unincorporated areas (termed “Vallejo City Service Area”), and an area in the unincorporated western part of Solano County and southern Napa County, known as “Vallejo Lakes Service Area”. Additionally, the City also serves water supplies to the Travis Air Force base, City of American Canyon, and other areas outside the City limits. According to the 2020 Urban Water Management Plan (UWMP), the normal year water demand conditions for the City’s service area was 26,824 acre-feet per year (AFY) and the normal year water supply was 35,695 AFY (City of Vallejo 2021). Therefore, the City has a remaining capacity of approximately 8,871 AFY. The average day demand for the proposed project would require approximately 11.78 gallons per minute or 6.2 million gallons (19.0 acre-feet) of water per year (Kennedy Jenks, 2023). This projected water demand represents approximately 0.2 percent of the remaining capacity of the City’s water supply.

The Vallejo Flood and Wastewater District has an average dry weather flow of 8.6 million gallons per day (mgd), and a maximum design flow of 15.5 mgd (San Francisco Bay Regional Water Quality Control Board [SFRWQCB], 2017). The proposed project would generate approximately 0.037 mgd of wastewater above existing conditions. The proposed project would connect to the existing sewer line in Porter Street (West Yost, 2023). This represents approximately 0.5 percent of the remaining capacity of the wastewater district.

The proposed project would provide bioretention areas on the project site, primarily concentrated around the proposed buildings. These bioretention areas would treat stormwater and would reduce the peak flows in the system during storm events. The proposed project would not cause capacity exceedances in the Vallejo Flood and Wastewater District’s storm drain system.

Recology Vallejo’s Transfer Facility has a maximum throughput of 600 tons per day, with a design capacity of 775 tons per day (CalRecycle, 2023a). Multi-family developments typically generate four pounds of waste per dwelling unit per day (CalRecycle, 2023b). The proposed project would generate approximately 488 pounds of waste per day, or approximately 0.25 tons per day, which represents less than 0.04 percent of the maximum throughput of the Recology Vallejo’s Transfer Facility.

The project's operational annual energy use is estimated to be 1,186,100 kWh (1.2 GWh) of electricity per year (see Attachment F). In 2021, PG&E provided 78,588 GWh of electricity and 4,467 million therms of natural gas (CEC 2021a, 2021b). The proposed project would represent a less than 0.002 percent increase in demand for electricity from PG&E.

In summary, the proposed project would be adequately served by existing utilities and would only require a small percentage of available utility capacity. The proposed project meets the criterion for exemption regarding utilities and service systems.

Public Services

As mentioned above, the proposed project is located in an urbanized area and therefore is currently serviced by all required public services. The Vallejo Police Department is located at 111 Amador Street (approximately 1.27 miles north of the project site) and the nearest Vallejo Fire Station (Station 22) is located at 700 5th Street (approximately 0.4 mile north of the project site). The proposed project would increase the residents in the area which would incrementally increase demand for public services, such as police, fire, and emergency services. The proposed project would complete an internal loop fire access road through the existing/new Harbor Park/West Harbor Park communities, improving existing fire department access through the community, to the backside of the neighboring Bay Village project, and to the PG&E transmission line easement located to the south of the project site. Additionally, the proposed project would include the cleaning/clearing of dead vegetation near the proposed new buildings. Therefore, the proposed project would have a positive impact on fire department access and facilities at the proposed project and immediately surrounding developments, making residents safer in emergencies.

The new population generated by the proposed project would not substantially increase the use of local or regional parks to the extent that substantial physical deterioration of the facilities would occur or be accelerated. Urban public parks and open space facilities are located near the project site, including Carquinez Park (approximately 0.25 mile southeast of the project site), Lake Dalwigk Park (approximately 0.52 mile north of the project site), and Beverly Hills Park (approximately 0.75 mile east of the project site).

Additionally, the proposed project would comply with Senate Bill (SB 50), which authorizes school districts to levy developer fees to finance the construction or reconstruction of school facilities. School impact fees are collected at the time of building permits and would mitigate the potential effects on public school facilities that may result from increases to the student population as generated by the proposed project.

Therefore, the proposed project would be adequately served by existing public services and not result in a substantial increase in existing demand to the extent that new facilities would be required. The proposed project meets the criterion for exemption regarding public services.

3.2 Conditions for CEQA Guidelines Section 15300.2 – Exceptions

- (a) Location.** Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located -- a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

The City of Vallejo does not propose to adopt a Class 3, 4, 5, 6, and 11 CE, and these classes of CEs are not applicable to the proposed project. The proposed project seeks qualification under Class 32.

- (b) Cumulative Impact.** All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

As summarized throughout this document and the supporting technical memos, the proposed project would not result in any significant effects or meet any other conditions that would preclude the project from qualifying for a Class 32 (*Infill Development Projects*) Categorical Exemption.

Development in the project area is primarily single and multifamily residential, and there does not appear to be areas nearby properties where successive development or redevelopment is planned or approved, with one exception. Site preparation for the approved Sonoma Park Multi-Family Residential Project (Sonoma Park Project) (also referred to as “Oakwood Apartments”) is underway across Porter Street, as close as approximately 300 feet from the construction area for the proposed project. On 4.95 acres, the Sonoma Park Project will develop up to 132-dwelling units in multiple buildings up to three stories tall, similar to the land use, density and scale of the proposed project. The Sonoma Park Project site is relatively flat with no existing trees.

In February 2021, the City determined that the Sonoma Park Project qualified for a Class 32 Categorical Exemption based on a Categorical Exemption report (Rincon, 2021). Site preparation activities on the Sonoma Park Project site was underway as of summer 2023. There are no other approved or reasonably foreseeable future major projects in the vicinity that might directly combine to create a significant cumulative impact.

Generally, noise effects from cumulative development could combine to create significant cumulative impacts, however, discussion in Attachment E supports that no cumulative noise effects would be significant. The noisiest phases of construction are generally excavation and grading. Site preparation of the Sonoma Park Project is expected to be completed before those

activities start for the proposed project. Additionally, there are existing four-story Harbor Park apartment structures that separate the proposed project site and that would be a barrier to noise transmission. Also, all cumulative development projects would implement construction equipment noise reduction measures specified in the Vallejo General Plan to minimize the temporary construction levels. Therefore, cumulative construction noise impacts would also be less than significant. Also, vibration from construction of other cumulative projects, even if those projects are located near the proposed project and another structure, would not combine to raise the maximum PPV because there would be a substantial unlikelihood of simultaneous vibration peaks from separate construction sites (see Attachment E.)

The SFBAAB is a nonattainment with respect to ozone and PM standards; therefore, an air quality impact already exists. Additional emissions of ozone precursors (NO_x or ROG) and PM above threshold amounts would further degrade air quality related to ozone. The BAAQMD's project-level criteria air pollutant thresholds are based on levels below which new sources would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment. Therefore, if a project results in a less than significant project-level impact, its contribution to the cumulative impact would also be less than significant and therefore a separate cumulative analysis is not required. As detailed in the Air Quality Technical Memo (Attachment F), the project would generate construction and operational criteria air pollutants less than the respective BAAQMD thresholds. Therefore, the project's contribution to the cumulative impact would also be less than significant.

In summary, no significant cumulative impact would result from successive projects of the same type in the same place over time. This Exception to a Categorical Exemption does not apply to the proposed project.

(c) *Significant Effect.* A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

The proposed project would not result in any significant effects in any of the environmental topics addressed elsewhere in this report. Moreover, neither the project nor the project site does not involve unusual circumstances that could trigger a significant effect. The project will adhere to all applicable regulatory requirements and codes; in particular, while not an especially usual circumstances for the area, the project will involve grading and construction of sloped areas and adhere to established best management practices and geotechnical measures to avoid potential impact effects to soil stability and stormwater quality and flows. Thus, the project would not have a reasonable possibility for a significant effect on the environment due to unusual circumstances.

- (d) *Scenic Highways.* A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.**

The project site is not on or near an officially designated California Scenic Highway. However, State Route 37 (Sears Point Road) and State Route 29 (Sonoma Boulevard) are considered to be eligible as a scenic highway and is located approximately 4 miles north of the project site (California Department of Transportation 2019). The proposed project would remove some on-site trees and would plant approximately 30,000 square feet of a variety of new drought-tolerant shrubs and trees designed to complement the new buildings while gracefully transitioning into the existing apartment complex's landscaping and the existing trees on the southern property boundary. These landscaping features would enhance the scenic quality of the proposed development. There are no rock-outcroppings or historic buildings located on site. Therefore, this Exception of a categorical exemption is not applicable to the proposed project.

- (e) *Hazardous Waste Sites.* A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.**

The project site is not on the Cortese List compiled pursuant to Government Code Section 65962.5. A Phase I Environmental Site Assessment Report (PES, Inc, 2020) was prepared for the site. The Report did not identify the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment.

- (f) *Historical Resources.* A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.**

The proposed project is immediately adjacent to the Harbor Park residential apartment complex, which was constructed in 1965. The apartment complex is comprised of 11 buildings ranging from one to three stories sited throughout the 12-acre property. The buildings are generally oriented east-west and respond to the sloped site with varied floor plans and access points; downslope (north) facades are two- to three-stories while upslope (south) facades are one- to two-stories. The apartment complex is shaded by mature eucalyptus trees, low shrubs and plants in planting beds along pathways and around the foundations of all buildings. Parking lots of varying size are scattered throughout the apartment complex.

The proposed project consists of westward uphill expansion of the Harbor Park residential apartment complex. The proposed project would construct 120 residential apartments in three new buildings, and a maintenance building with two units on portions an area that is currently covered by roadways, surface parking lots, and/or landscaped areas, as well as a single-story parking garage buildings. One proposed apartment building (Building A) is oriented north-south at the eastern property line, approximately half-way up the site slope. Two apartment buildings (Buildings B and C) would be constructed in the southwestern quadrant of the site, at or near the top of the slope. The new apartment buildings would be four full stories and include a partially below-grade basement level. The proposed three-story maintenance building would replace a one-story parking garage building at the western edge of the site.

Harbor Park Residential Apartment Complex

The new construction would have footprints similar in size to the existing adjacent apartment buildings but would be one to two stories taller than those existing buildings. Additionally, the siting of new construction near the top of the slope would make the new construction more visible from downslope areas, including from Porter Street. However, there are mature trees between Porter Street and the northern elevations of the existing adjacent apartment buildings. From within the adjacent apartment complex, views of the new construction would be limited and the overall feeling of the area would remain shaded and naturally landscaped. None of the site lines between the existing buildings would be blocked, nor would the open staircases, railings, or cantilevered walkways that characterize the existing buildings in the apartment complex be obstructed. None of the existing residential buildings or their exterior features would be altered, enclosed, or demolished.

While taller than the adjacent existing buildings, the new construction uses projecting volumes on the longitudinal elevations of the new apartment buildings to break the mass into smaller volumes. The front and rear elevations have projecting bays that roughly correspond to the balconies on the existing apartment buildings, and these bays are located on the second and third floors with a recessed fourth floor façade. Overall, the new construction is more uniform in height and volume, appearing rectangular in form. This contrasts with the existing buildings which use projecting volumes at the roof to break up the overall rectangular mass. This effect is approximated by slightly projecting bays at the fourth-floor level of the new buildings, but that projection is outward from the façade and not upward as on the existing buildings.

The proposed project would be visible from the street because of its additional height and its location near the top of the slope. It is more massive and uniform in form than the existing development and it is generally less responsive to its sloped setting than the existing buildings. However, the proposed project would not alter the existing adjacent buildings, is approximately equivalent in volume and form, and employs projecting bays and exterior elements to break up the buildings into smaller volumes that correspond with the existing apartment buildings. Additionally, the proposed project would retain many of the landscape elements that give the development its sense of shaded enclosure with mature tree. The proposed project would maintain site lines through the existing apartment complex, would not alter the 1965 buildings relationship to each other or the site, nor would the new project obscure the existing buildings when viewed

from the public right-of-way. Furthermore, it does not use elements from the existing buildings to create a false sense of historical development.

The existing apartment complex was constructed in 1965, is currently 58 years old, and may qualify for listing in the California Register of Historical Resources (California Register). Although none of the buildings on site have previously been evaluated for eligibility for listing in the California Register, the proposed project would result in less-than-significant impacts to any historical resources on the site because the project will not demolish or otherwise alter the existing residential buildings and the design of the proposed buildings would be consistent with the character of the adjacent residential complex.

Sperry Flour Company Vallejo Mills Historic District

The proposed project may have the potential to cause a substantial adverse change in the significance of an adjacent historical resource. Substantial adverse change would occur if new construction within the proposed project site altered the setting of an adjacent resource or if project-related construction were to create ground-borne vibrations that damaged the resource's physical characteristics that convey its historical significance. The proposed project is located adjacent to the Sperry Flour Company Vallejo Mills Historic District, which has been recommended eligible for listing on the National Register of Historic Places (National Register) (Brunzell, 2017). As such, it qualifies as a historic resource for the purposes of CEQA. The construction of multi-story buildings within the proposed project site, which is located on a ridge east of the historic resource, would not be expected to degrade the setting of the adjacent National Register-eligible property to the point that its significance would be materially impaired. Impacts from the introduction of new buildings adjacent to the historic resource would be less than significant.

The proposed project would result in less than significant impacts to known and potential historical resources on and adjacent to the project site. No mitigation is required. Regarding historical resources, the proposed project meets the terms for this exemption.

Archaeological Resources

To determine whether the project site has sensitivity for archaeological resources, including those that could be considered historical resources, ESA conducted a records search of the Northwest Information Center (NWIC) at Sonoma State University (July 18, 2023, File No.23-0040). The NWIC is the California Historical Resources Information System (CHRIS) repository housing cultural resources records for Solano County. The study area for the records search included the project site and areas within a 0.5-mile radius. Background research included a review of NWIC base maps for previously recorded site records as well as a review of historic maps and aerial imagery. The objectives of the background research were to: (1) determine whether known archaeological resources had been recorded within or adjacent to the project site; (2) assess the likelihood of unrecorded archaeological resources based on historical references and the distribution of environmental settings of nearby sites; and (3) develop a context for identification and preliminary evaluation of cultural resources. No tribal consultation was completed as part of this constraints analysis.

Based on the results of the records search, there are no previously recorded archaeological resources in the project site or within a 0.5-mile radius. The nearest Native American pre-contact archaeological resource is approximately 1 mile to the southeast and would not be impacted by the project. The project site is situated in an area underlain by bedrock of the Panoche formation (Kp), locally consisting of Upper Cretaceous age (66 to 100 million years old) micaceous shale and minor thin sandstone beds. Archaeological sites in this context would be identifiable at the surface and would be highly disturbed from the existing development.

No additional work regarding archaeological resources is recommended for the project. In the unlikely event that subsurface resources are identified during ground disturbing activities, the City would comply with PRC Section 21083.2(i), which requires provisions for archaeological resources accidentally discovered during construction. The City would be required to make an immediate evaluation by a qualified archaeologist, and if the find is determined to be a unique archaeological resource or a historical resource, then it must be avoided. If avoidance is not feasible, the resource must be recovered and treated accordingly. Construction would be allowed in other areas while the archaeological mitigation takes place.

In the unlikely event that ground disturbing activities identify undiscovered human remains, the City will comply with Government Code Section 27460 et seq., which requires ground disturbing activities to halt until the County Coroner can determine whether the remains are subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner, and cause of death; and the required recommendations concerning the treatment and disposition of the human remains have been made. Pursuant to California Health and Safety Code Section 7050.5, the coroner shall make a determination within 48 hours of notification of the discovery of the human remains. If the coroner determines that the remains are not subject to their authority and recognizes or has reason to believe that they are those of a Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.

4. Summary

Based on the analysis in throughout this document and its attachments, the proposed project meets all criteria for a Class 32 Categorical Exemption, pursuant to Section 15332 of the CEQA Guidelines and consideration the Exceptions in Section 15300.2 of the Guidelines. No further environmental review is warranted.

5. References

Brunzell Historical, *National Register of Historic Places Registration Form: Sperry Flour Company Vallejo Mills Historic District*, (Northwest Information Center P-48-001923), 2017.

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Attachment A

Additional Project Plans

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REVISIONS	BY


ENVIRONMENTAL
FORESIGHT, INC.
Landscape Architecture
1700 N. Broadway, Suite 401
Walnut Creek, CA 94596
T (925) 945-0300 F (925) 945-6688
www.environmentalforesight.com

NEW IMPROVMENTS COLORED DIAGRAM
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

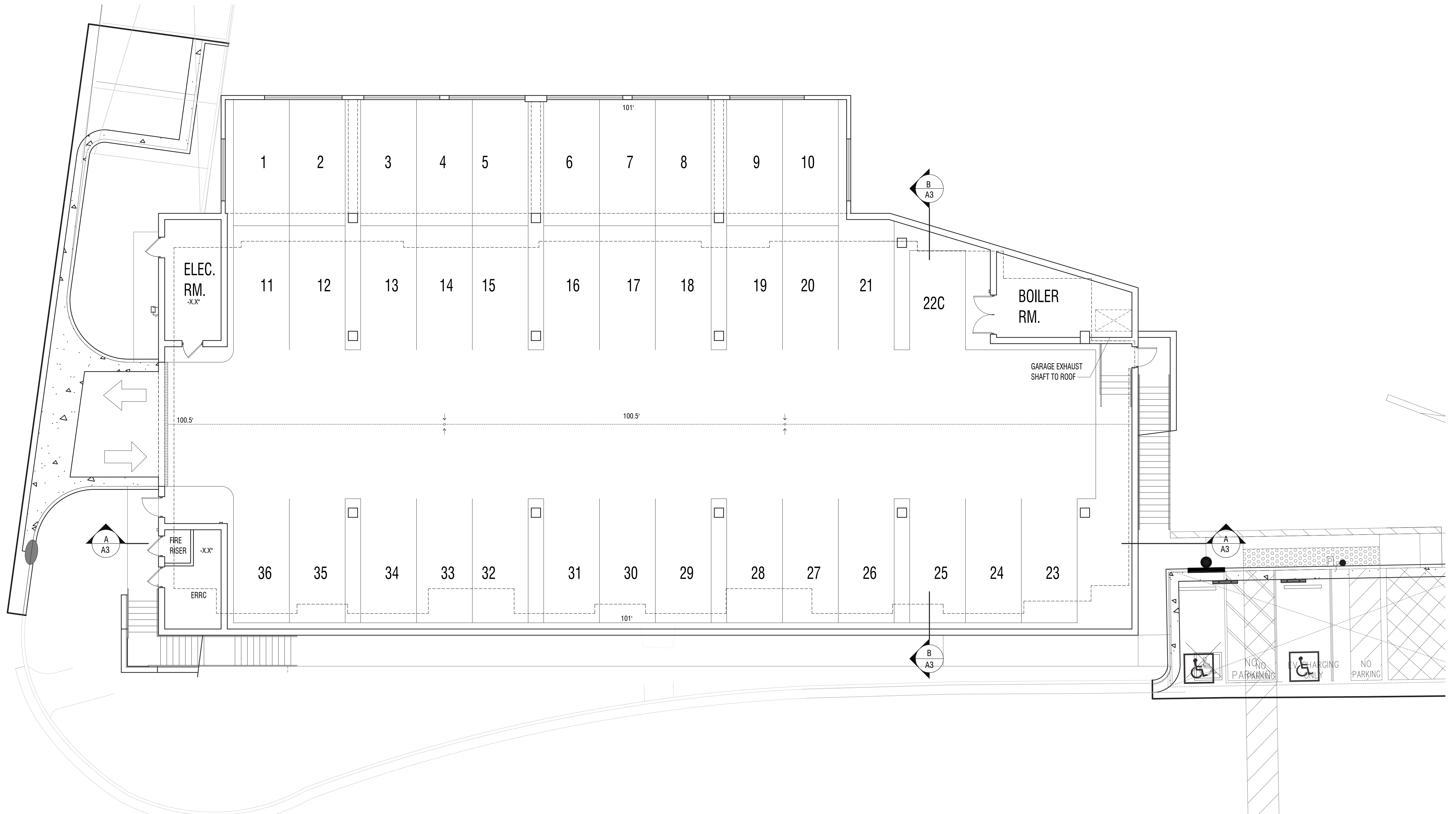
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Scale: 1" = 40'
Drawn by: JM, SF
Date: 03/06/23
Job: 19017.03

Sheet
L0.4
Of 35 Sheets



GARAGE LEVEL

BUILDING A
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



PLAN SUMMARY

- Plan 1A
- Plan 1B
- Plan 2A
- Plan 2B
- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

FIRST LEVEL

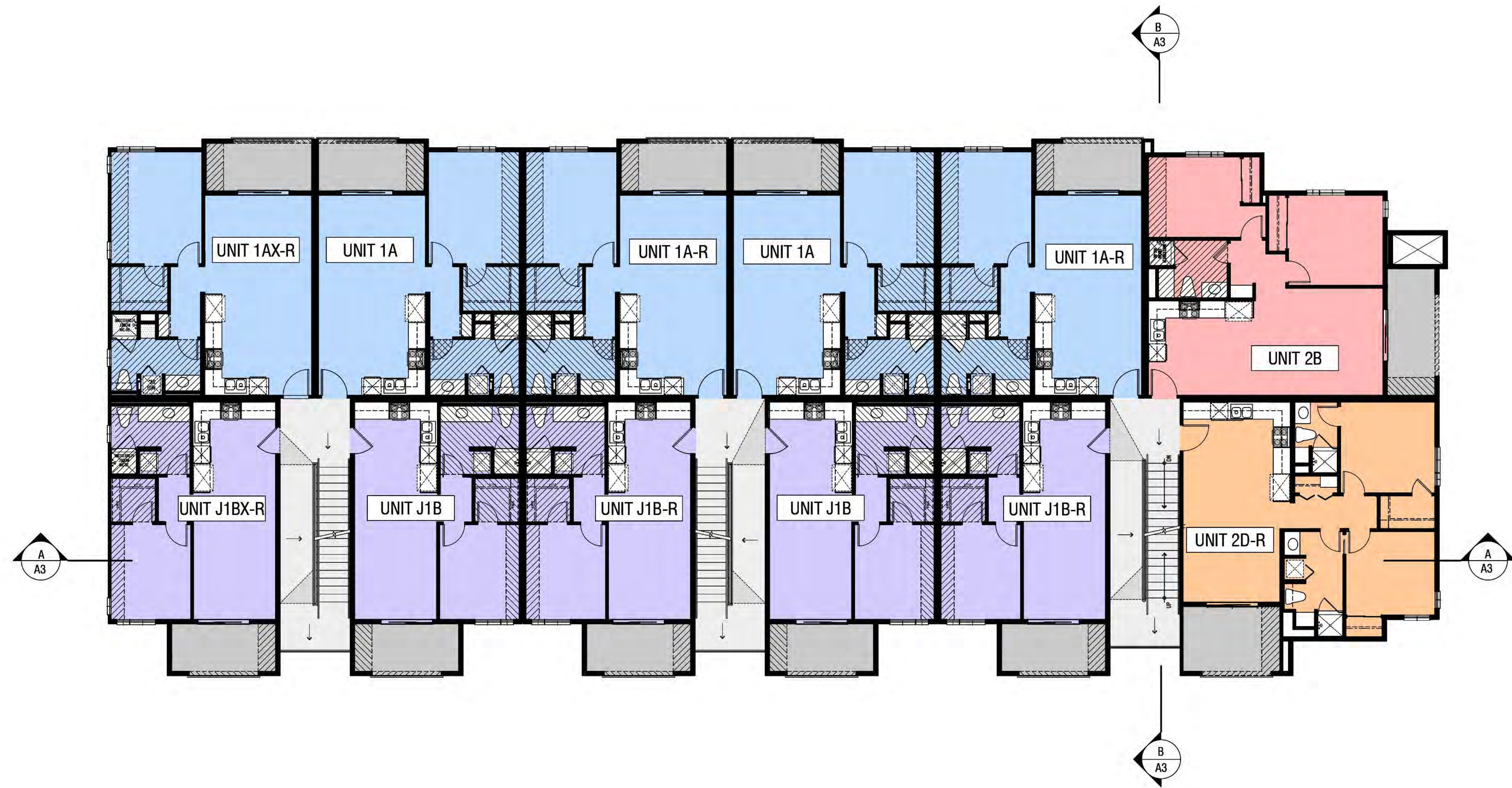
BUILDING A FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

PLAN SUMMARY

- Plan 1A
- Plan 1B
- Plan 2A
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- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

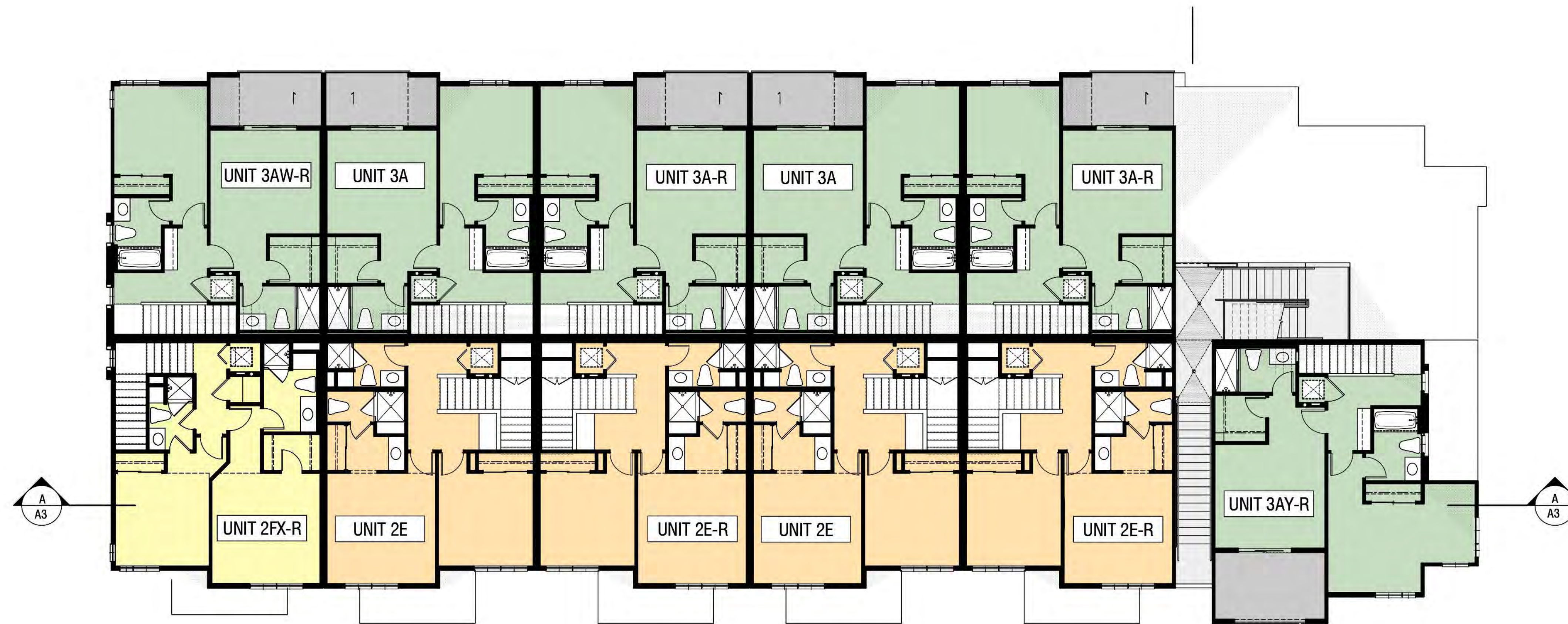


SECOND LEVEL

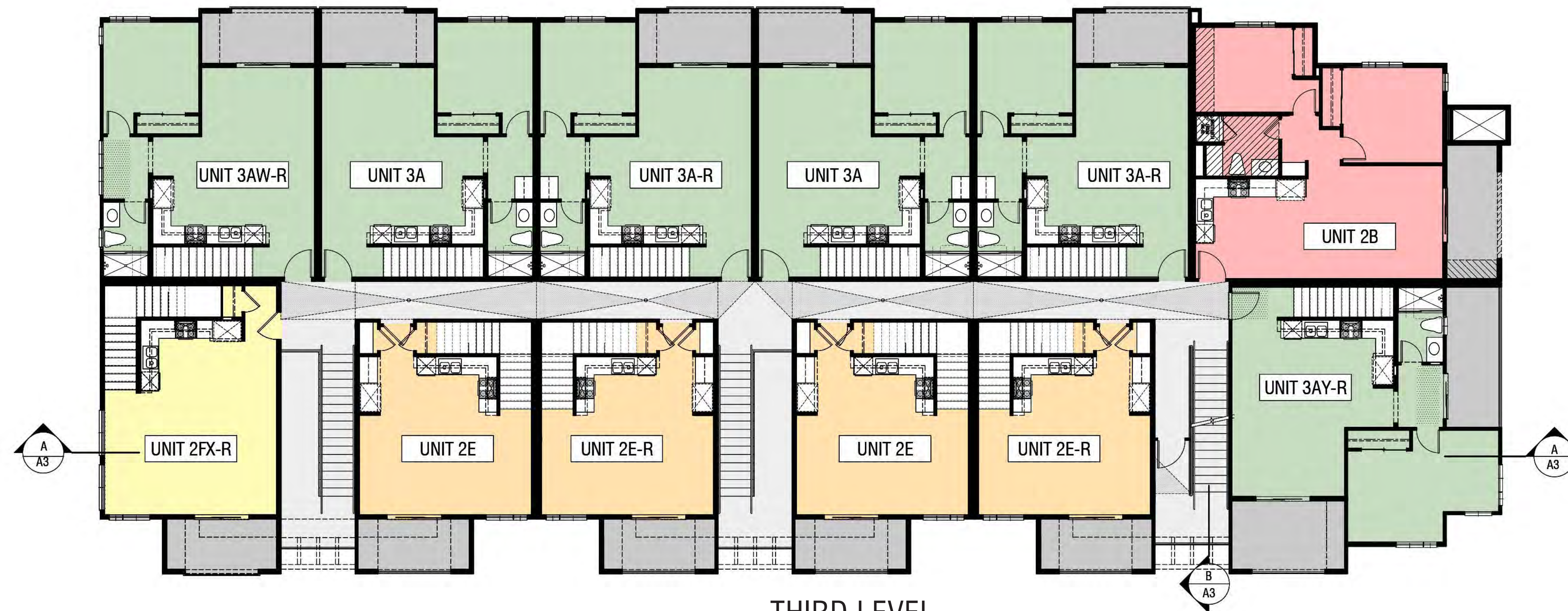
BUILDING A
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



FOURTH LEVEL



THIRD LEVEL

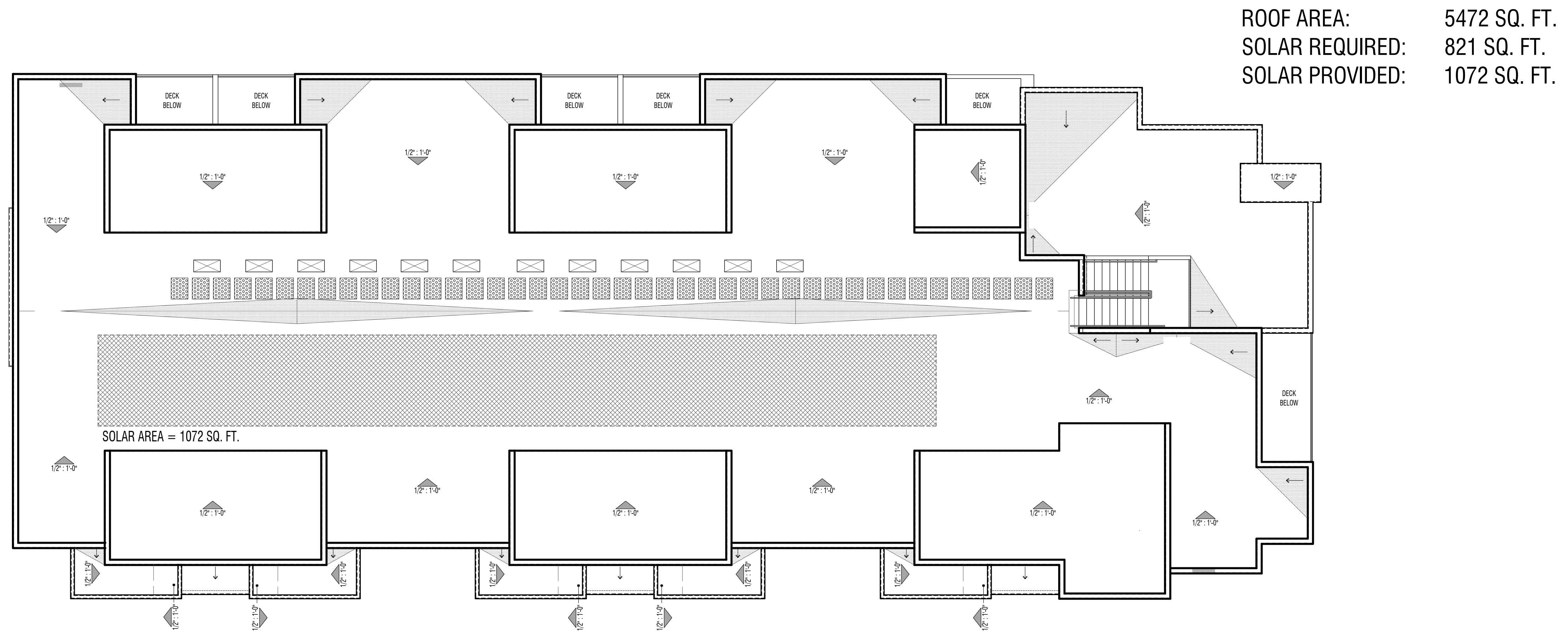
BUILDING A FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

PLAN SUMMARY

- Plan 1A
- Plan 1B
- Plan 2A
- Plan 2B
- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

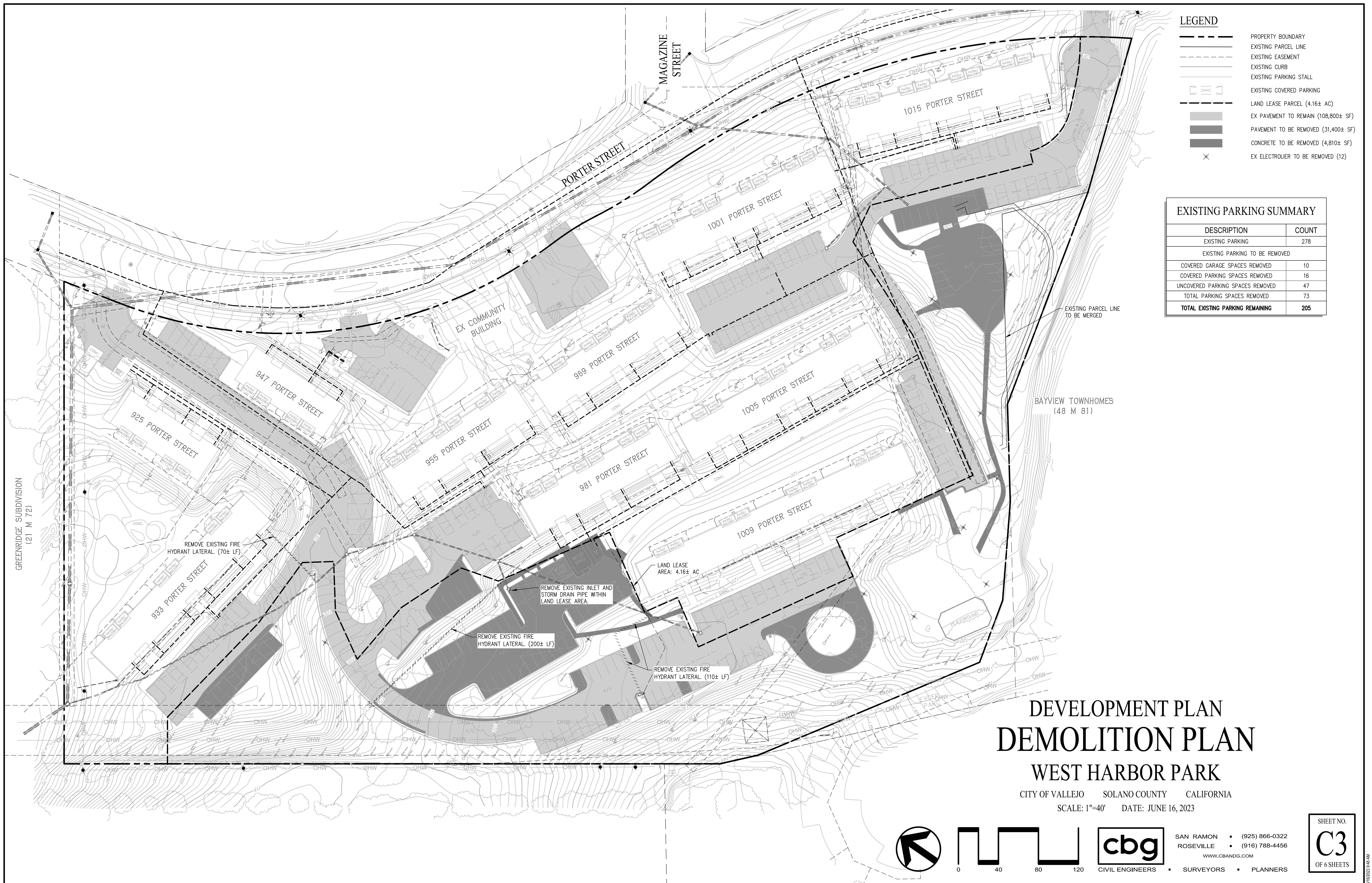


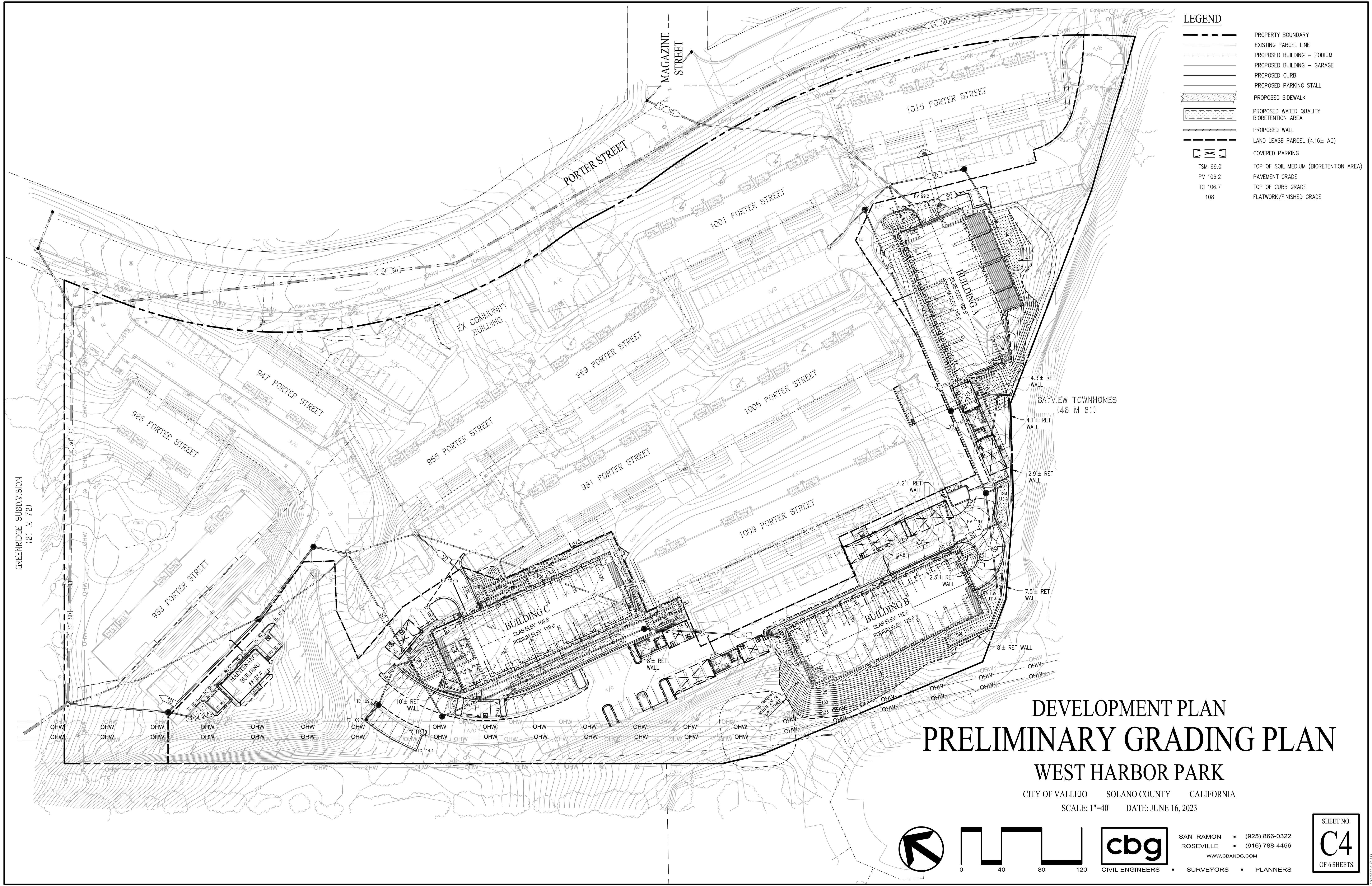
BUILDING A

ROOF PLAN

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

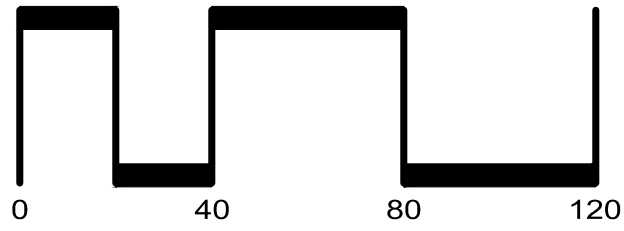
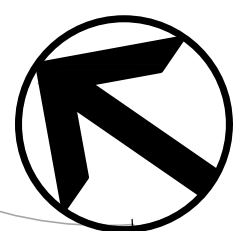




LEGEND	
	PROPERTY BOUNDARY
	EXISTING PARCEL LINE
	PROPOSED BUILDING - PODIUM
	PROPOSED BUILDING - GARAGE
	PROPOSED CURB
	PROPOSED PARKING STALL
	PROPOSED SIDEWALK
	PROPOSED WATER QUALITY BIORETENTION AREA
	PROPOSED WALL
	LAND LEASE PARCEL (4.16± AC)
	COVERED PARKING
	TSM 99.0
	PV 106.2
	TC 106.7
	108
	TOP OF SOIL MEDIUM (BIORETENTION AREA)
	PAVEMENT GRADE
	TOP OF CURB GRADE
	FLATWORK/FINISHED GRADE

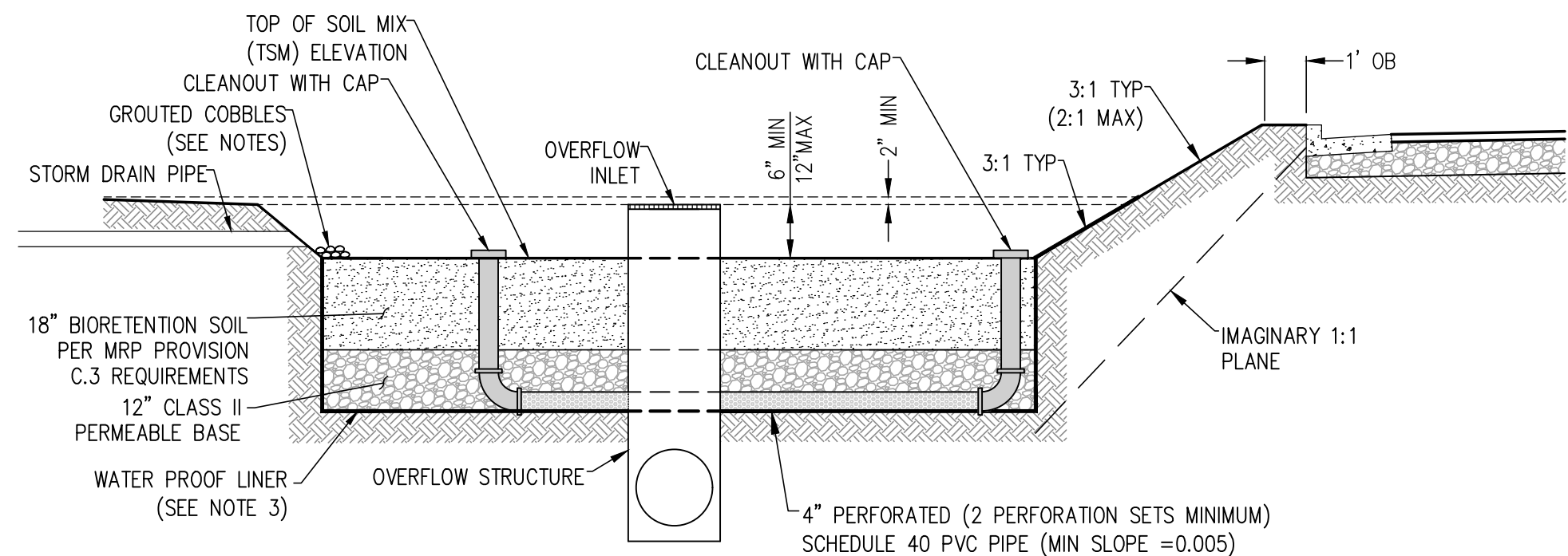
DEVELOPMENT PLAN
PRELIMINARY GRADING PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: JUNE 16, 2023



SAN RAMON (925) 866-0322
ROSEVILLE (916) 788-4456
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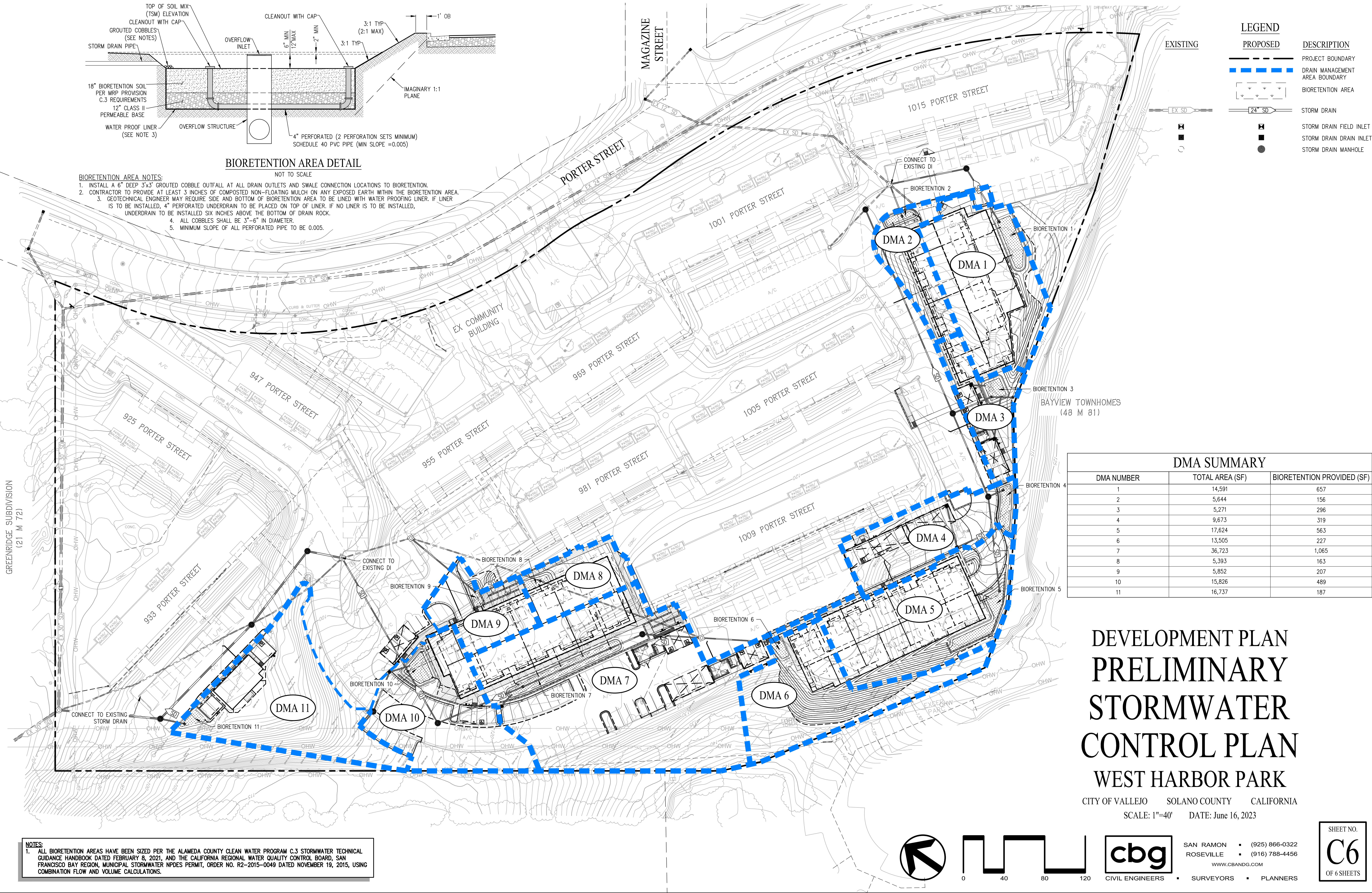
SHEET NO.
C4
OF 6 SHEETS



BIORETENTION AREA DETAIL

- BIORETENTION AREA NOTES:
1. INSTALL A 6" DEEP 3'x3' GROUTED COBBLE OUTFALL AT ALL DRAIN OUTLETS AND SWALE CONNECTION LOCATIONS TO BIORETENTION.
 2. CONTRACTOR TO PROVIDE AT LEAST 3 INCHES OF COMPOSTED NON-FLOATING MULCH ON ANY EXPOSED EARTH WITHIN THE BIORETENTION AREA.
 3. GEOTECHNICAL ENGINEER MAY REQUIRE SIDE AND BOTTOM OF BIORETENTION AREA TO BE LINED WITH WATER PROOFING LINER. IF LINER IS TO BE INSTALLED, 4" PERFORATED UNDERDRAIN TO BE PLACED ON TOP OF LINER. IF NO LINER IS TO BE INSTALLED, UNDERDRAIN TO BE INSTALLED SIX INCHES ABOVE THE BOTTOM OF DRAIN ROCK.
 4. ALL COBBLES SHALL BE 3"-6" IN DIAMETER.
 5. MINIMUM SLOPE OF ALL PERFORATED PIPE TO BE 0.005.

NOT TO SCALE



LEGEND

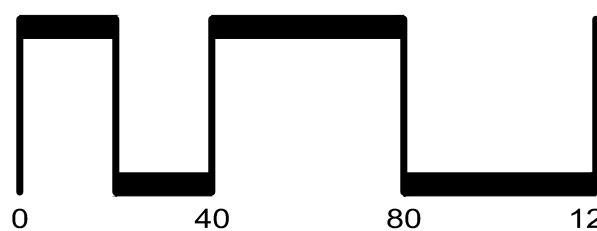
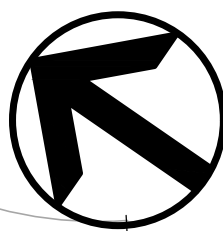
EXISTING	PROPOSED	DESCRIPTION
---	---	PROJECT BOUNDARY
---	---	DRAIN MANAGEMENT AREA BOUNDARY
---	---	BIORETENTION AREA
---	---	STORM DRAIN
---	---	STORM DRAIN FIELD INLET
---	---	STORM DRAIN INLET
---	---	STORM DRAIN MANHOLE

DMA SUMMARY		
DMA NUMBER	TOTAL AREA (SF)	BIORETENTION PROVIDED (SF)
1	14,591	657
2	5,644	156
3	5,271	296
4	9,673	319
5	17,624	563
6	13,505	227
7	36,723	1,065
8	5,393	163
9	5,852	207
10	15,826	489
11	16,737	187

DEVELOPMENT PLAN
PRELIMINARY
STORMWATER
CONTROL PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: June 16, 2023

NOTES:
1. ALL BIORETENTION AREAS HAVE BEEN SIZED PER THE ALAMEDA COUNTY CLEAN WATER PROGRAM C.3 STORMWATER TECHNICAL GUIDANCE HANDBOOK DATED FEBRUARY 8, 2021, AND THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION, MUNICIPAL STORMWATER NPDES PERMIT, ORDER NO. R2-2015-0049 DATED NOVEMBER 19, 2015, USING COMBINATION FLOW AND VOLUME CALCULATIONS.



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C6
OF 6 SHEETS

Attachment B

Biological Resources Technical Memorandum



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707.795.0902 **fax**

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memorandum

date July 25, 2023

to Cesar Orozco, Principal Planner, City of Vallejo Planning and Development Services

from Jacqueline Hewitt (ESA)

subject Biological Resource Technical Memorandum for the Proposed 961 Porter Street Project

Summary

This memorandum summarizes the findings of a biological resources assessment performed by ESA for the proposed 961 Porter Street Project site (Project), located in the City of Vallejo, California. The purpose of this memorandum is to characterize the Project's setting for biological resources in sufficient detail to determine the extent to which it may affect special-status plant and wildlife species, sensitive natural communities including wetlands, and other protected biological resources. **Figure 1** presents an overview of the Project site. The Project is located in an urban area of Solano County that provides little value for sensitive or regulated biological resources. The Project would not affect federal waters of the U.S. or waters of the state, or other protected sensitive communities. The existing biological conditions and potential occurrence of federal and state-protected species on and near the project site is discussed below.

Project Location

The project site is located on the property at 961 Porter Street near the intersection of Porter Street and Magazine Street in the City of Vallejo. The site is generally located 0.5-mile west of Interstate 80 and 0.2 miles west of Sonoma Boulevard (SR 29). The site is within the existing Harbor Park apartment complex, which occurs generally north of the project site. The site borders the Bay Village Apartments to the south, with undeveloped area lands generally to the west.

Methods

Desktop Review

The information about special-status plant and animal species, critical habitat, natural communities, and other sensitive biological resources used during preparation of this memorandum was obtained from the following sources:

- California Natural Diversity Database (CNDDDB) information for biological resources within the Benicia, Cuttings Wharf, Mare Island, and Cordelia U.S. Geological Survey 7.5-minute topographic quadrangles.¹

¹ California Department of Fish and Wildlife (CDFW), 2023. California Natural Diversity Database. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. Accessed July 18, 2023.

- California Native Plant Society (CNPS) rare or endangered plant species within the for biological resources within the Benicia, Cuttings Wharf, Mare Island, and Cordelia U.S. Geological Survey 7.5-minute topographic quadrangles.²
- The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation list of threatened and endangered species that may occur in the proposed Project location and/or may be affected by proposed Project activities.³
- Historic and current aerial imagery available on Google Earth.

Special-status species lists derived from the aforementioned databases are provided in **Attachment A**.

Field Survey

A biological reconnaissance survey of the study area was performed on July 19, 2023, between the hours of 1200 and 1400 by ESA biologist Jacqueline Hewitt to evaluate the existing site conditions and assess the presence of special-status species, including sensitive plants, wildlife species and habitat. During the assessment, Ms. Hewitt conducted a walking survey of the study area, which includes the project site and a 300-foot buffer, where accessible. Special attention was given to the undeveloped project areas and the areas bordering undeveloped neighboring property lines. Representative photographs of the study area are provided in **Attachment B**.

Existing Conditions

The project study area consists of mostly-developed and landscaped areas with the exception of the site perimeter, which supports annual grasses and woody shrubs and trees. Prevalent trees within the study area include coast live oak (*Quercus agrifolia*) and Canary Island pine (*Pinus canariensis*). Other tree species present include red river gum (*Eucalyptus camaldulensis*), sweetgum (*Liquidambar styraciflua*), blackwood acacia (*Acacia melanoxylon*), and Aleppo pine (*Pinus halepensis*). A complete tree list and expected tree is provided in the Updated Arborist Report⁴ in **Attachment C**.

Land use surrounding the property is mostly suburban/residential. An undeveloped site that borders the project area appears disturbed and is dominated by trees and non-native, ruderal vegetation. No evidence of waters or wetlands was observed within the study area. No sensitive natural communities were observed in the study area.

Bird species observed on or near the project site included Anna's hummingbird (*Calypte anna*), chestnut-backed chickadee (*Poecile rufescens*), and turkey vultures (*Cathartes aura*).

Special Status Species

Queries of resource agency databases returned lists of special-status species and plants that occur regionally (Attachment B). The site was evaluated for potential presence and suitable habitat the presence and ability to provide habitat of value for these species. Most of the rare plants that occur regionally are dependent upon wetlands or sensitive or uncommon habitat types that do not occur on the project site. The project site does not

² California Native Plant Society, 2023. Rare Plant Inventory, Available online at <https://www.cnps.org/rare-plants/cnps-inventory-of-rare-plants>, Accessed July 18, 2023.

³ U.S. Fish and Wildlife Service, 2023. Official species list letter entitled, "List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project." Consultation code: 2023-0109080, 961 Porter Street Project, July 26, 2023.

⁴ HortScience, 2022. Updated Arborist Report. Harbor Park Apartments, Vallejo, CA. Prepared for Harbor Park Apartments LP. Prepared by HortScience | Bartlett Consulting. December 12, 2022.

currently provide suitable habitat for rare plant species to occur due to high levels of disturbance, long-time development of areas surrounding the site, and the absence of native vegetation communities.

Based on ESA's knowledge of the project area and data sources described previously, **Table 1** evaluates the likelihood to encounter regionally-occurring special-status wildlife species within the project study area.

TABLE 1
SPECIAL-STATUS SPECIES CONSIDERED FOR THE PROPOSED PROJECT

Scientific Name Common Name	Listing Status USFWS/CDFW	General Habitat	Potential for Species Occurrence in the Project Area
Invertebrates			
Monarch - California overwintering population <i>Danaus plexippus plexippus</i> pop. 1	FC/--	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Moderate. Overwintering colony recorded in 1997 within a eucalyptus grove located on an undeveloped property west of the project site (Occurrence No. 327).
Birds			
Cooper's hawk <i>Accipiter cooperii</i>	--/WL	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	High. Trees within the study area provide potential nesting habitat.
Burrowing owl <i>Athene cunicularia hypugaea</i>	--/CSC	Nests and forages in low-growing grasslands with burrowing mammals	Low. A thorough review of the entire project area found no burrow habitat capable of supporting this species within 250 feet of the project area. No suitable habitat on site and adjacent property provides only marginally suitable habitat.
Swainson's hawk <i>Buteo swainsoni</i>	--/ST	Nests in large trees, often near water, open grasslands, or agricultural lands	Low. Nearest reported nests over 9 miles away to the north. This species was not observed during the reconnaissance survey. Limited, poor quality foraging habitat is available on site.
White-tailed kite <i>Elanus leucurus</i>	--/FP	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate. Suitable nesting habitat available on site. Potential foraging habitat located in vicinity of the study area.
Peregrine falcon <i>Falco peregrinus anatum</i>	--/FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Low. Preferred nesting habitat now available within study area. May forage within the vicinity of the study area.
Osprey <i>Pandion haliaetus</i>	--/WL	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Low. Marginally suitable nesting habitat available within study area. No aquatic foraging habitat within study area. Nearest nest is located along the Napa River within 1,000 feet of the study area.

STATUS CODES:

Federal (U.S. Fish and Wildlife Service):

FC = Federal candidate for listing

State (California Department of Fish and Wildlife):

ST = Listed as Threatened by the State of California

FP = Fully Protected

CSC = California species of special concern

WL = Watch List

Potential nesting habitat for several types of birds and raptors, including the California Watch List species Cooper's hawk (*Accipiter cooperii*) and California Fully Protected white-tailed kite (*Elanus leucurus*), is potentially available within trees located in the study area. Large trees, including several species of eucalyptus (*Eucalyptus* spp.), located within the study area provide at least marginally suitable overwintering habitat for federal candidate species monarch butterflies (*Danaus plexippus plexippus* pop. 1). An overwintering colony of monarch butterflies was observed in 1997 on the undeveloped property west of project site in association with a grove of eucalyptus trees. According to the CNDDDB record (Occurrence No. 327), additional trees were planted in this area to provide a buffer between the eucalyptus grove and the surrounding residential and commercial areas.⁵ Eucalyptus trees within the study area are mostly spread across the site and are not planted in large groves.

Jurisdictional Waters and Sensitive Natural Communities

No federal or state jurisdictional waters or sensitive natural communities occur on the project site.

Conclusions

Sensitive and regulated biological resources are mostly absent from the project site as a result of past development and current uses. The highly disturbed site has also been isolated as a result of existing on-site development and surrounding residential and commercial development.

Large trees on and near the project site provide suitable nesting habitat for several protected species such as Cooper's hawk, white-tailed kite, and other common nesting birds protected by the Migratory Bird Treaty Act and California Fish and Game Code. The City of Vallejo's General Plan (Action NBE-1.2C) requires scheduling of construction and vegetation removal outside of nesting bird season or conducting a preconstruction nesting bird survey. Protecting active bird nests is a standard city policy and would be implemented as a condition of approval for the project. Therefore, potentially significant impacts to nesting birds would be avoided through adherence to the COA.

Large trees on the site provide marginally suitable overwintering habitat for monarch butterflies, which are currently under review as a federal candidate species for listing. All of the identified high quality monarch overwintering habitat occurs on the undeveloped parcel west of the project site, although it is possible that monarchs could temporarily land on the eucalyptus and pine trees on the project site during winter. By avoiding tree trimming and removal during the monarch overwintering season (November 1 to January 31) as a condition of approval, no impacts would occur to overwintering monarch butterflies.

An Arborist Report was prepared to meet the City of Vallejo requirements per Ordinance No. 10.04.017, which describes potential impacts to tree resources (Attachment C). With adherence to the City of Vallejo tree protection and removal requirements, as detailed in Attachment C, the Project impact to on-site trees would be less than significant.

Finally, due to lack of habitat on the project site no impacts to special-status plant species, sensitive natural communities, or wetlands were identified as a result of the proposed project.

⁵ California Department of Fish and Wildlife. 2023. California Natural Diversity Database. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA.



SOURCE: ESA, 2023; Google Earth, 2023

City of Vallejo Class 32 961 Porter

Figure 1
Project Location

ATTACHMENT A

Representative Photographs of the Study Area

Attachment A. Representative Photographs of the Study Area



Figure A-1. Upper parking lot.



Figure A-2. Fenceline along northern boundary of the study area.



Figure A-3. Fenceline along bordering undeveloped property to the west.



Figure A-4. View from southwest corner of the study area.

ATTACHMENT B

Special Status Species Database Query Results



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Benicia (3812212) OR Cuttings Wharf (3812223) OR Mare Island (3812213) OR Cordelia (3812222))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Acipenser medirostris pop. 1</i> green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G4	S3	SSC
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S2	SSC
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
<i>Blepharizonia plumosa</i> big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
<i>Bombus pensylvanicus</i> American bumble bee	IIHYM24260	None	None	G3G4	S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
<i>Calochortus pulchellus</i> Mt. Diablo fairy-lantern	PMLIL0D160	None	None	G2	S2	1B.2
<i>Carex lyngbyei</i> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<i>Castilleja affinis var. neglecta</i> Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Centromadia parryi ssp. congonii</i> Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
<i>Centromadia parryi ssp. parryi</i> pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
<i>Charadrius nivosus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
<i>Chloropyron molle ssp. molle</i> soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
<i>Cicuta maculata var. bolanderi</i> Bolander's water-hemlock	PDAP10M051	None	None	G5T4T5	S2?	2B.1
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Coastal Brackish Marsh</i> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<i>Coturnicops noveboracensis</i> yellow rail	ABNME01010	None	None	G4	S2	SSC
<i>Danaus plexippus plexippus pop. 1</i> monarch - California overwintering population	IILEPP2012	Candidate	None	G4T1T2Q	S2	
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
<i>Dirca occidentalis</i> western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
<i>Downingia pusilla</i> dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Eryngium jepsonii</i> Jepson's coyote-thistle	PDAP10Z130	None	None	G2	S2	1B.2
<i>Extriplex joaquinana</i> San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
<i>Falco peregrinus anatum</i> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<i>Fritillaria liliacea</i> fragrant fritillary	PML1L0V0C0	None	None	G2	S2	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
<i>Helianthella castanea</i> Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
<i>Hydroprogne caspia</i> Caspian tern	ABNNM08020	None	None	G5	S4	



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Hypomesus transpacificus</i> Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
<i>Isocoma arguta</i> Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1
<i>Lasthenia conjugens</i> Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
<i>Lateralus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	PDPLM09140	None	None	G2G3	S2S3	1B.2
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAP119030	None	Rare	G2	S2	1B.1
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
<i>Melospiza melodia maxillaris</i> Suisun song sparrow	ABPBXA301K	None	None	G5T3	S2	SSC
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	ABPBXA301W	None	None	G5T2	S2	SSC
<i>Northern Coastal Salt Marsh</i> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<i>Northern Vernal Pool</i> Northern Vernal Pool	CTT44100CA	None	None	G2	S2.1	
<i>Nyctinomops macrotis</i> big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
<i>Oncorhynchus mykiss irideus</i> pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T3Q	S3	
<i>Pandion haliaetus</i> osprey	ABNKC01010	None	None	G5	S4	WL
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	AFCJB34020	None	None	G3	S3	SSC
<i>Polygonum marinense</i> Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S2	FP
<i>Rana boylei</i> pop. 1 foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	G3T4	S4	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S3	FP
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S3	
<i>Senecio aphanactis</i> chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
<i>Sorex ornatus sinuosus</i> Suisun shrew	AMABA01103	None	None	G5T1T2Q	S1S2	SSC
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
<i>Speyeria callippe callippe</i> callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Symphyotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
<i>Syncaris pacifica</i> California freshwater shrimp	ICMAL27010	Endangered	Endangered	G2	S2	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Trifolium amoenum</i> two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 75

Search Results

36 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812212:3812213:3812223:3812222]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<u><i>Astragalus tener</i></u> <u>var. <i>tener</i></u>	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
<u><i>Balsamorhiza macrolepis</i></u>	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 Photo of <i>Balsamorhiza macrolepis</i> ©1998 Dean Wm. Taylor
<u><i>Blepharizonia plumosa</i></u>	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
<u><i>Calochortus pulchellus</i></u>	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
<u><i>Carex lyngbyei</i></u>	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2		2001-01-01	 Photo of <i>Carex lyngbyei</i> ©2017 Steve Matson
<u><i>Castilleja affinis</i></u> <u>var. <i>neglecta</i></u>	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	FE	CT	G4G5T1T2	S1S2	1B.2	Yes	1974-01-01	No Photo Available
<u><i>Castilleja ambigua</i></u> var. <u><i>ambigua</i></u>	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	None	None	G4T4	S3S4	4.2		2009-02-04	 Photo of <i>Castilleja ambigua</i> var. <i>ambigua</i> ©2011 Dylan Neubauer
<u><i>Centromadia parryi</i></u> ssp. <u><i>congdonii</i></u>	Congdon's tarplant	Asteraceae	annual herb	May-Oct(Nov)	None	None	G3T2	S2	1B.1	Yes	1994-01-01	No Photo Available
<u><i>Centromadia parryi</i></u> ssp. <u><i>parryi</i></u>	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 Photo of <i>Centromadia parryi</i> ssp. <i>parryi</i> © 2016 John Doyen

<u><i>Chloropyron molle</i> ssp. <i>molle</i></u>	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	Yes	1974-01-01	No Photo Available
<u><i>Cicuta maculata</i> var. <i>bolanderi</i></u>	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		1974-01-01	No Photo Available
<u><i>Dirca occidentalis</i></u>	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2	Yes	1974-01-01	 Photo of Dirca occidentalis © 2017 Steve Matson
<u><i>Downingia pusilla</i></u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 Photo of Downingia pusilla © 2013 Aaron Arthur
<u><i>Eleocharis parvula</i></u>	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 Photo of Eleocharis parvula ©2018 Ron Vanderhoff
<u><i>Erigeron biolettii</i></u>	streamside daisy	Asteraceae	perennial herb	Jun-Oct	None	None	G3?	S3?	3	Yes	1994-01-01	 Photo of Erigeron biolettii ©2015 Doug Wirtz
<u><i>Eryngium jepsonii</i></u>	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
<u><i>Extriplex joaquinana</i></u>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Fritillaria liliacea</i></u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Yes	1974-01-01	 Photo of Fritillaria liliacea © 2004 Carol W. Witham
<u><i>Helianthella castanea</i></u>	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 Photo of Helianthella castanea © 2013 Christopher Bronny
<u><i>Iris longipetala</i></u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	Yes	2006-10-12	 Photo of Iris longipetala © 2014 Aaron Schusteff
<u><i>Isocoma arguta</i></u>	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available

<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	 Photo of Lasthenia conjugens © 2013 Neal Kramer
<u>Lathyrus jepsonii</u> var. <u>jepsonii</u>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 Photo of Lathyrus jepsonii var. jepsonii © 2003 Mark Fogiel
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 Photo of Legenere limosa ©2000 John Game
<u>Leptosiphon aureus</u>	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	Yes	1994-01-01	 Photo of Leptosiphon aureus © 2007 Len Blumin
<u>Leptosiphon jepsonii</u>	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	None	None	G2G3	S2S3	1B.2	Yes	2001-01-01	 Photo of Leptosiphon jepsonii © 2012 Aaron Arthur
<u>Lessingia hololeuca</u>	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 Photo of Lessingia hololeuca © 2015 Aaron Schusteff
<u>Lilaeopsis masonii</u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u>Monardella antonina</u> ssp. <u>antonina</u>	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	None	None	G4T1T3Q	S1S3	3	Yes	1980-01-01	No Photo Available
<u>Polygonum marinense</u>	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	None	None	G2Q	S2	3.1	Yes	1974-01-01	No Photo Available
<u>Ranunculus lobbii</u>	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
<u>Senecio aphanactis</u>	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2		1994-01-01	No Photo Available
<u>Spergularia macrotheca</u> var. <u>longistyla</u>	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available

<u><i>Symphyotrichum</i></u> <u><i>lentum</i></u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May- Nov	None	None	G2	S2	1B.2	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>amoenum</i></u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Yes	1974- 01-01	No Photo Available
<u><i>Trifolium</i></u> <u><i>hydrophilum</i></u>	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001- 01-01	 Photo of Trifolium hydrophilum © 2005 Dean Wm Taylor

Showing 1 to 36 of 36 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 18 July 2023].



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

July 26, 2023

Project Code: 2023-0109080

Project Name: 961 Porter Street Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)).

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

PROJECT SUMMARY

Project Code: 2023-0109080

Project Name: 961 Porter Street Project

Project Type: Residential Construction

Project Description: The project applicant, Klein Financial Corporation, proposes to construct four new buildings (three apartment buildings containing a total of 122 residential dwelling units, one maintenance building, and associated parking and landscaping) on approximately 3.4 acres of the existing 12.02-acre Harbor Park Residential Development site at 961 Porter Street (project site) in the City of Vallejo.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.08126585,-122.24105708390891,14z>



Counties: Solano County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

BIRDS

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

REPTILES

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

FLOWERING PLANTS

NAME	STATUS
Contra Costa Goldfields <i>Lasthenia conjugens</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
Soft Bird's-beak <i>Cordylanthus mollis ssp. mollis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8541	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
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City: San Jose
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ATTACHMENT C

Arborist Report



UPDATED ARBORIST REPORT

**Harbor Park Apartments
Vallejo, CA**

PREPARED FOR
Harbor Park Apartments LP
c/o Klein Financial Corporation
550 S. California Ave. Suite 330
Palo Alto, CA 94306

PREPARED BY
HortScience | Bartlett Consulting
325 Ray Street
Pleasanton, CA 94566

December 12, 2022

Updated Arborist Report

Harbor Park Apartments, Vallejo CA

Executive Summary

Klein Financial Corp., on behalf of Harbor Park Apartments LP., is proposing improvements to the Harbor Park Apartments, in Vallejo CA. The plan proposes to construct three new residential units across the site, as well as adding new community amenities and other improvements to the existing apartment complex. HortScience | Bartlett Consulting was asked to prepare an **Arborist Report** for project to meet the City of Vallejo requirements per Ordinance No. 10.04.017

The site slopes up to the southwest, with Porter St. on the downhill side and residential properties to the north, south and east. Vegetation at the site was primarily located along the perimeter, with two areas of dense tree cover along the eastern and western property boundaries.

A total of 190 trees were assessed, representing 21 species. Coast live oak (57 trees or 30% of the population) and Canary Island pine (43 trees/23%) were the most frequently occurring species and accounted for almost 60% of the tree resource combined. Coast live oaks were present along the Porter St. frontage and in the areas of dense tree cover. Canary Island pines had been planted in a row along the western boundary.

Red river gum, sweetgum, blackwood acacia and Aleppo pine were also present on the site but were used as accent trees in the landscape. The eucalyptus on the site were generally very large, including blue gum #1 (63" in trunk diameter), red river gums #69, 82 and 129, and manna gums #16 and 20.

City of Vallejo Ordinance No. 10.04.017 defines any tree within the public right-of-way and any private tree with a trunk diameter of 10" or greater as *Protected*. Based on this definition, 148 of the trees qualified as *Protected*. *Protected* trees are identified in the **Tree Assessment Form** (see Exhibits).

I reviewed the Harbor Park Demolition/Improvement Plan, prepared by cbg engineers (dated December 5, 2020) to assess impacts to trees.

Based on the current plans:

- 41 trees would require removal due to construction impacts, including 25 *Protected* trees.
- 14 trees of the 41 trees required for removal were in poor condition.
- 31 trees would require removal due to poor condition and would not survive construction impacts, including 6 *Protected* trees.
- 118 trees were far enough from the proposed improvements and in either fair or good condition and can be successfully preserved.

**Updated Arborist Report
Harbor Park Apartments, Vallejo CA**

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Exhibits

Tree Assessment Form

Tree Assessment Map

Arborist Report

Harbor Park Apartments

Vallejo, CA

Introduction and Overview

Klein Financial Corp., on behalf of Harbor Park Apartments LP., is proposing improvements to the Harbor Park Apartments, in Vallejo CA. The plan proposes to construct new residential units across the site, as well as adding new community amenities and other improvements to the existing apartment complex. HortScience | Bartlett Consulting (Divisions of the F. A. Bartlett Tree Expert Co.) was asked to prepare an **Arborist Report** to meet the City of Vallejo's requirements.

This report provides the following information:

1. An assessment of trees within and immediately adjacent to the Harbor Park Apartments.
2. An assessment of the impacts of constructing the proposed project on the trees.
3. Recommendations for tree preservation and removal.
4. Guidelines for tree preservation during the design, construction and maintenance phases.

Assessment Methods

Trees were assessed on February 20, 2020. All trees measuring 6" or greater in diameter, within the project area or with portions of their crowns extending into the project area, were included.

The assessment procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with an identifying number and recording its location on a map;
3. Measuring the trunk diameter at a point 54" above grade;
4. Evaluating the health and structural condition using a scale of 1–5:
 - 5 - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
 - 4 - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
 - 3 - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
 - 2 - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
 - 1 - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.

High: Trees with good health and structural stability that have the potential for longevity at the site.

Moderate: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring and may have shorter life span than those in 'good' category.

Low: Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

One hundred and ninety (190) trees were assessed, representing 21 species (Table 1, following page). Descriptions of each tree are found in the **Tree Assessment Form** and locations are plotted on the **Tree Assessment Map** (see Exhibits).

The site is an existing apartment building built into a sloping hillside, with Porter St. on the north, or downhill side, side and residential properties to the northwest, south and east. Vegetation at the site was primarily located along the perimeter, with two areas of dense tree cover along the eastern and western property boundaries.

Fifty-seven (57) Coast live oaks were assessed at the site. Almost half of the coast live oaks were concentrated in a group along the eastern property line, with about 10 mature specimens along the Porter St. frontage (**Photo 1**) and the remaining trees spread across the site. Thirty-eight (38) of the coast live oaks were in fair condition, 14 were in good and 5 were in poor. The fair condition of the trees was a reflection of the close spacing of the trees in the group along the eastern boundary, which resulted in trees with bowed or leaning trunks and one-sided crowns.



Photo 1:
Looking northwest at coast live oaks #9 (R) and 10 (L). These were typical of the coast live oaks along the Porter St. frontage. They were mature and in fair to good health.

Forty-three (43) Canary Island pines had been planted along the southern property boundary (Photo 2, page 4). Thirty-two (32) of the Canary Island pines had been topped or side-pruned for the overhead utility lines that also ran along the southern boundary. Although the species had performed well at the site and trees were vigorous, the utility line clearance pruning had compromised the structure for most of the trees. Thirty-seven (37) of the Canary Island pines were in fair condition, 5 were in good and #162 was in poor.

Nineteen (19) red river gums had been planted across the site, with half concentrated in the area of dense tree cover in the western corner of the site. These were primarily mature trees, with trunk diameters between 24" and 59". Overall, red river gums were in fair (8 trees) to good (6 trees) condition. Five (5) of the red river gums were in poor condition.

Ten (10) sweetgums had been planted primarily as accent trees adjacent to buildings. All but two of the sweetgums were young and 7 were in good condition. Three (3) were in fair condition and none were in poor.

**Table 1. Tree condition and frequency of occurrence.
Harbor Park Apartments, Vallejo CA**

Common Name	Scientific Name	Condition Rating			No. of trees
		Poor (1-2)	Fair (3)	Good (4-5)	
Blackwood acacia	<i>Acacia melanoxylon</i>	1	4	5	10
Strawberry tree	<i>Arbutus unedo</i>	1	2	1	4
Paper birch	<i>Betula papyrifera</i>	-	-	1	1
European birch	<i>Betula pendula</i>	5	1	-	6
Dracaena palm	<i>Cordyline stricta</i>	1	-	-	1
Red flowering gum	<i>Corymbia ficifolia</i>	-	-	1	1
Red river gum	<i>Eucalyptus camaldulensis</i>	5	8	6	19
Blue gum	<i>Eucalyptus globulus</i>	-	-	1	1
Compact blue gum	<i>Eucalyptus globulus</i> 'Compacta'	-	1	-	1
Red iron bark	<i>Eucalyptus sideroxylon</i>	-	4	-	4
Manna gum	<i>Eucalyptus viminalis</i>	1	1	2	4
Silk oak	<i>Grevillea robusta</i>	1	-	1	2
Privet	<i>Ligustrum japonicum</i>	-	3	-	3
Sweetgum	<i>Liquidambar styraciflua</i>	-	3	7	10
Canary island pine	<i>Pinus canariensis</i>	1	37	5	43
Aleppo pine	<i>Pinus halepensis</i>	6	3	-	9
Monterey pine	<i>Pinus radiata</i>	4	2	-	6
Plum	<i>Prunus domestica</i>	-	5	1	6
Coast live oak	<i>Quercus agrifolia</i>	5	38	14	57
Calif. pepper	<i>Schinus molle</i>	-	1	-	1
Chinese elm	<i>Ulmus parvifolia</i>	-	1	-	1
Total		31 16%	114 60%	45 24%	190 100%

Ten (10) blackwood acacias were assessed, all of which were concentrated in the area of dense tree cover in the western corner of the site. Half of the blackwood acacias were young, with trunk diameters between 6" and 12" and half were semi-mature, with trunk diameters between 13" and 20". Four (4) of the trees were in fair condition, 5 were in good and #63 was in poor. Five of the trees had also been topped for the overhead utilities in the area.

Nine (9) Aleppo pines had been planted across the site. Five (5) were mature with trunk diameters between 22" and 34" and the remaining 4 were young to semi-mature (10" to 17"). Six (6) were in poor condition and 3 were in fair, with no tree in good condition. The condition of the Aleppo pines was primarily the result of their poor structure.

Photo 2: Looking west at Canary Island pines #85, 86, 88 and 89 (R to L). The species had performed well at the site, but the majority of the Canary Island pines had been topped or pruned for the overhead utility lines. While the species will tolerate topping, it does permanently affect tree structure.



The remaining 42 trees included:

- Six plums, some of which were planted accent trees and some of which were volunteers. Plums were in fair condition.
- Six Monterey pine, most of which were mature and growing in the western corner of the site. Four were in poor condition and 2 were in fair.
- Six European birch trees had been planted as accent trees between buildings. They had not performed well, with five in poor condition and 1 in fair.
- Four manna gums were mixed-in with the red river gums across the landscape. These were mature trees with trunk diameters between 32" and 46". #18 was in poor condition, #17 was in fair and #'s 16 and 20 were in good (**Photo 3**, following page).
- Four red ironbark eucalyptus were growing just off-site in the south corner of the site. They were all in fair condition.
- Four strawberry trees were growing along the western boundary. All were multi-stemmed, with two in fair condition and one each in poor and good condition.
- Three privets, with two on-site along the northwestern boundary and #127 off-site in the southern corner of the site. All three were in fair condition.
- Two silk oaks had been planted as accent trees adjacent to parking lots. Tree #15 was in poor condition and #83 was in good condition.
- One (1) each of Chinese elm, Calif. pepper, compact blue gum, blue gum (**Photo 4**, following page), red flowering gum, Dracaena palm and paper birch.

Average tree condition for the site was fair, with 114 trees or 60% of the population. Forty-five (45) trees were in fair condition (24%) and 31 were in poor (16%). Table 1 (page 3) provides a summary of condition by species.

City of Vallejo Ordinance No. 10.04.017 defines any tree within the public right-of-way and any private tree with a trunk diameter of 10" or greater as *Protected*. Removal of any *Protected* tree requires a removal permit. Based on this definition, 148 of the trees qualified as *Protected*. *Protected* trees are identified in the **Tree Assessment Form** (see Exhibits).



Photo 3 (L): Looking northwest at manna gum #20. This was the largest-diameter manna gum assessed and was in excellent condition, with a spreading crown.

Photo 4 (R): Looking northwest at blue gum #1. It was the largest-diameter tree assessed on the site at 63". It was in good condition, with a large lateral limb and surface roots in the surrounding lawn.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment. Where development will not occur, the normal life cycles of decline, structural failure and death should be allowed to continue.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.
- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.

- **Species response**

There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, for example, sweetgum and red river gum are sensitive to construction impacts, while Canary Island pines and coast live oaks are more tolerant of site disturbance.

- **Tree age and longevity**

Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Invasiveness**

Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (<http://www.cal-ipc.org/paf/>) lists species identified as being invasive. Vallejo is part of the Central West Floristic Province. Blackwood acacia, red river gum and plum were the only species assessed at the Harbor Park Apartments site considered invasive. All three species are listed as having 'Limited' invasiveness.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment. Table 2 provides a summary of suitability ratings. Suitability ratings for individual trees are provided in the **Tree Assessment Forms** (see Exhibits).

Table 2: Tree Suitability for Preservation
Harbor Park Apartments, Vallejo CA

High	These are trees with good health and structural stability that have the potential for longevity at the site. Sixteen (16) of the trees were highly suitable for preservation, including 4 Canary Island date pine, 3 coast live oaks, 2 each of sweetgum, red river gum, manna gum and blackwood acacia, and blue gum #1.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring and may have shorter lifespans than those in the "high" category. One hundred and twelve (112) of the trees were of moderate suitability for preservation, including 41 coast live oaks, 26 Canary Island pines, 8 sweetgums, 8 red river gums, 6 plums, 5 blackwood acacias, 3 strawberry trees, 3 privets, 2 red ironbark eucalyptus, 2 Aleppo pines, and one (1) each of red flowering gum, paper birch, Monterey pine, silk oak, compact blue gum, Chinese elm, dracaena palm and manna gum.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. Sixty-two (62) of the trees were of low suitability for preservation, including 13 coast live oaks, 13 Canary Island pines, 9 red river gums, 7 Aleppo pines, 6 European birch, 5 Monterey pines, 3 blackwood acacias, 2 red ironbark eucalyptus and one (1) each of Calif. pepper, strawberry tree, silk oak and manna gum.

We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Evaluation of Impacts and Recommendations

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The **Tree Assessment** was the reference point for tree condition and quality. Potential impacts from construction were evaluated using the Harbor Park Site Plan, prepared by cbg engineers (dated October 14, 2020).

The current plan proposes to construct three new residential structures where surface parking currently exists. In addition, parking would be expanded across the site and new pedestrian ramps would be added where needed. Impacts to trees associated with removal and installation of new parking lot surfaces may need additional considerations.

Other amenities would include tot lots, a community lap pool and a basketball court. At this time, it appears that the existing trees can be preserved in those areas.

Based on my review of the site plans, 41 trees have been identified for removal, including 11 that would be directly impacted by the parking lot changes, 9 impacted by new buildings, 9 impacted by grading, 5 impacted by a new bioswale, 7 impacted by the proposed wall. Although 41 trees are recommended due to impacts, 14 of those trees were in poor condition. A total of thirty-one trees were in poor health or have structural issues that cannot be mitigated. Thirty-one (31) of the trees identified for removal were *Protected* trees. Table 3 provides the recommendation for each tree along with a description of the impacts and their *Protected* status.

One hundred eighteen (118) trees were far enough from the proposed improvements to be successfully preserved, 103 of which were *Protected* trees. Preservations of trees is predicated on adhering to the recommendations provided in the **Tree Preservation Guidelines** included at the end of this report.

The client would like to consider the option to transplant trees to other locations on the project site. We believe the best choice for relocation are young trees in good condition and tolerant of root severance. Appropriate root ball sizes vary with the species tolerance to transplanting, size and age. As a general guide, root balls size should be 10 inches for each inch of trunk diameter. Both sweetgum and oaks are considered to have tolerance for transplanting providing that they have adequate moisture levels.

The following trees are the best candidates for transplanting: sweetgums #4, #138, 139, 188 and 190; coast live oaks #12, 24, 26, 76, strawberry tree #87 and paper birch #189.

Table 3. Recommendations for preservation and removal.
Harbor Park Apartments, Vallejo CA

Tag #	Species	Diameter	Protected	Impacts	Poor Condition
1	Blue gum	63	Yes	Preserve, outside impacts	
2	Coast live oak	32	Yes	Preserve, outside impacts	
3	Coast live oak	38	Yes	Preserve, outside impacts	
4	Sweetgum	8	No	Preserve, outside impacts	
5	Chinese elm	22	Yes	Preserve, outside impacts	
6	Coast live oak	26	Yes	Preserve, outside impacts	
7	Red flowering gum	48	Yes	Preserve, outside impacts	
8	Coast live oak	27	Yes	Preserve, outside impacts	
9	Coast live oak	38	Yes	Preserve, outside impacts	
10	Coast live oak	28	Yes	Preserve, outside impacts	
11	Coast live oak	34	Yes	Preserve, outside impacts	
12	Coast live oak	6	No	Preserve, outside impacts	
13	Coast live oak	26	Yes	Preserve, outside impacts	
14	Coast live oak	33	Yes	Preserve, outside impacts	
15	Silk oak	18	Yes	Remove, within building C	Yes
16	Manna gum	43	Yes	Remove, within bioswale	
17	Manna gum	32	Yes	Preserve, outside impacts	
18	Manna gum	32	Yes	Remove, poor condition	Yes
19	Plum	13,10	Yes	Preserve, outside impacts	
20	Manna gum	46	Yes	Preserve, outside impacts	
21	Red river gum	25	Yes	Preserve, outside impacts	
22	Plum	16	Yes	Preserve, outside impacts	
23	Plum	21,15	Yes	Preserve, outside impacts	
24	Coast live oak	10,9,8,6	Yes	Preserve, outside impacts	
25	Coast live oak	8,5	No	Preserve, outside impacts	
26	Coast live oak	10	Yes	Preserve, outside impacts	
27	Coast live oak	16,12,10,9	Yes	Preserve, outside impacts	
28	Coast live oak	12,8	Yes	Preserve, outside impacts	
29	Dracaena palm	13,9,8,8,5	Yes	Remove, poor condition	Yes
30	Coast live oak	35	Yes	Preserve, outside impacts	
31	Monterey pine	29	Yes	Preserve, outside impacts	
32	Monterey pine	22	Yes	Preserve, outside impacts	Yes
33	Privet	7,5,5,4,4	No	Preserve, outside impacts	
34	Privet	9,8,7,7,7,6,6	No	Preserve, outside impacts	
35	Coast live oak	9	No	Preserve, outside impacts	
36	Plum	7,6,5	No	Preserve, outside impacts	
37	Canary island pine	16	Yes	Preserve, outside impacts	
38	Canary island pine	16	Yes	Preserve, outside impacts	
39	Coast live oak	25,12,8	Yes	Preserve, outside impacts	
40	Coast live oak	16	Yes	Preserve, outside impacts	
41	Canary island pine	17	Yes	Preserve, outside impacts	
42	Canary island pine	14	Yes	Preserve, outside impacts	

Tag #	Species	Diameter	Protected	Impacts	Poor Condition
43	Red river gum	34	Yes	Preserve, outside impacts	
44	Monterey pine	19,17	Yes	Preserve, outside impacts	Yes
45	Aleppo pine	10	Yes	Preserve, outside impacts	Yes
46	Red river gum	16	Yes	Preserve, outside impacts	Yes
47	Canary island pine	13	Yes	Preserve, outside impacts	
48	Canary island pine	15	Yes	Preserve, outside impacts	
49	Canary island pine	12	Yes	Preserve, outside impacts	
50	Monterey pine	12,12,9	Yes	Remove, poor condition	Yes
51	Blackwood acacia	6	No	Preserve, outside impacts	
52	Canary island pine	12	Yes	Preserve, outside impacts	
53	Red river gum	20,18	Yes	Remove, poor condition	Yes
54	Blackwood acacia	6	No	Preserve, outside impacts	
55	Canary island pine	12	Yes	Preserve, outside impacts	
56	Canary island pine	12	Yes	Preserve, outside impacts	
57	Canary island pine	15	Yes	Preserve, outside impacts	
58	Canary island pine	15	Yes	Preserve, outside impacts	
59	Canary island pine	14	Yes	Preserve, outside impacts	
60	Canary island pine	17	Yes	Preserve, outside impacts	
61	Blackwood acacia	13	Yes	Preserve, outside impacts	
62	Blackwood acacia	14	Yes	Preserve, outside impacts	
63	Blackwood acacia	16	Yes	Remove, poor condition	Yes
64	Coast live oak	19,9	Yes	Preserve, outside impacts	
65	Coast live oak	25,10	Yes	Remove, within parking	
66	Blackwood acacia	16	Yes	Preserve, outside impacts	
67	Blackwood acacia	20	Yes	Preserve, outside impacts	
68	Red river gum	28	Yes	Preserve, outside impacts	
69	Red river gum	59	Yes	Preserve, outside impacts	
70	Red river gum	27	Yes	Preserve, outside impacts	Yes
71	Blackwood acacia	8	No	Preserve, outside impacts	
72	Coast live oak	24	Yes	Preserve, outside impacts	
73	Blackwood acacia	12	Yes	Preserve, outside impacts	
74	Red river gum	12	Yes	Preserve, outside impacts	
75	Coast live oak	16,16	Yes	Preserve, outside impacts	
76	Coast live oak	6	No	Preserve, outside impacts	
77	Plum	6,3,3,2	No	Preserve, outside impacts	
78	Coast live oak	6	No	Preserve, outside impacts	
79	Red river gum	8	No	Preserve, outside impacts	
80	Coast live oak	6,5	No	Preserve, outside impacts	
81	Coast live oak	7	No	Preserve, outside impacts	
82	Red river gum	48	Yes	Remove, within parking	
83	Silk oak	16	Yes	Remove, within parking	

Tag #	Species	Diameter	Protected	Impacts	Poor Condition
84	Canary island pine	19	Yes	Preserve, outside impacts	
85	Canary island pine	16	Yes	Preserve, outside impacts	
86	Strawberry tree	8,8,5,4,3	No	Remove, within parking	Yes
87	Strawberry tree	13,12,6	Yes	Remove, within parking	
88	Canary island pine	20	Yes	Preserve, outside impacts	
89	Canary island pine	18	Yes	Preserve, outside impacts	
90	Canary island pine	26	Yes	Preserve, outside impacts	
91	Canary island pine	19	Yes	Preserve, outside impacts	
92	Canary island pine	20	Yes	Preserve, outside impacts	
93	Canary island pine	18	Yes	Preserve, outside impacts	
94	Canary island pine	18	Yes	Preserve, outside impacts	
95	Blackwood acacia	10	Yes	Preserve, outside impacts	
96	Aleppo pine	13	Yes	Remove, poor condition	Yes
97	Aleppo pine	22	Yes	Preserve, outside impacts	
98	Coast live oak	22	Yes	Preserve, outside impacts	
99	Red river gum	32	Yes	Preserve, outside impacts	
100	Red river gum	23	Yes	Preserve, outside impacts	
101	Compact blue gum	28	Yes	Preserve, outside impacts	
102	Red river gum	25	Yes	Remove, within bioswale	
103	Strawberry tree	8,5,5	No	Preserve, outside impacts	
104	Strawberry tree	10,8,6	Yes	Preserve, outside impacts	
105	Red river gum	33	Yes	Remove, grading impacts	
106	Red river gum	29,26,17	Yes	Remove, within building B	
107	Red river gum	24	Yes	Remove, within building B	
108	Red river gum	22	Yes	Remove, within building B	Yes
109	Coast live oak	17	Yes	Remove, proposed wall	
110	Canary island pine	17	Yes	Remove, grading impacts	
111	Canary island pine	17	Yes	Remove, grading impacts	
112	Coast live oak	15,6	Yes	Remove, grading impacts	
113	Canary island pine	16	Yes	Remove, grading impacts	
114	Coast live oak	6	No	Remove, grading impacts	
115	Canary island pine	17	Yes	Remove, proposed wall	
116	Red river gum	36	Yes	Remove, within building	Yes
117	Calif. pepper	16	Yes	Remove, within building B	
118	Canary island pine	16	Yes	Remove, grading impacts	
119	Canary island pine	18	Yes	Remove, grading impacts	

Tag #	Species	Diameter	Protected	Impacts	Poor Condition
120	Canary island pine	18	Yes	Remove, proposed wall	
121	Coast live oak	6	No	Preserve, outside impacts	
122	Canary island pine	15	Yes	Preserve, outside impacts	
123	Canary island pine	14	Yes	Remove, proposed wall	
124	Aleppo pine	17,13	Yes	Remove, proposed wall	Yes
125	Red iron bark	22	Yes	Preserve, off-site	
126	Red iron bark	6	No	Preserve, off-site	
127	Privet	6	No	Preserve, off-site	
128	Red iron bark	13,8	Yes	Preserve, outside impacts	
129	Red river gum	41	Yes	Remove, proposed wall	
130	Aleppo pine	26	Yes	Remove, proposed wall	Yes
131	Red iron bark	8,8	No	Preserve, off-site	
132	European birch	7,6,5	No	Remove, within parking	Yes
133	European birch	8,6	No	Remove, within parking	Yes
134	European birch	10,9,7	Yes	Remove, within parking	Yes
135	European birch	11,9	Yes	Remove, within parking	Yes
136	Aleppo pine	34	Yes	Preserve, outside impacts	
137	Plum	13,10,9	Yes	Preserve, outside impacts	
138	Sweetgum	8	No	Preserve, outside impacts	
139	Sweetgum	10	Yes	Preserve, outside impacts	
140	European birch	10	Yes	Remove, within parking	Yes
141	European birch	12	Yes	Remove, within building	
142	Aleppo pine	10	Yes	Remove, within parking	Yes
143	Canary island pine	26	Yes	Preserve, off-site	
144	Coast live oak	17,14	Yes	Remove, within building A	
145	Coast live oak	15	Yes	Remove, within building A	
146	Coast live oak	20	Yes	Remove, within building A	
147	Coast live oak	13	Yes	Remove, within building A	
148	Canary island pine	21	Yes	Remove, within building A	
149	Coast live oak	9	No	Remove, poor condition	Yes
150	Coast live oak	6	No	Remove, within building A	
151	Canary island pine	14,8	Yes	Preserve, outside impacts	
152	Canary island pine	18	Yes	Preserve, outside impacts	
153	Coast live oak	6	No	Preserve, outside impacts	
154	Coast live oak	6	No	Preserve, outside impacts	
155	Coast live oak	12	Yes	Remove, grading impacts	
156	Coast live oak	21	Yes	Remove, within bioswale	
157	Coast live oak	16	Yes	Preserve, outside impacts	
158	Coast live oak	16,5	Yes	Preserve, outside impacts	
159	Canary island pine	17	Yes	Preserve, outside impacts	
160	Coast live oak	8	No	Preserve, outside impacts	

Tag #	Species	Diameter	Protected	Impacts	Poor Condition
161	Canary island pine	23	Yes	Preserve, off-site	
162	Canary island pine	11	Yes	Preserve, off-site	Yes
163	Canary island pine	21	Yes	Preserve, outside impacts	
164	Coast live oak	11	Yes	Preserve, outside impacts	
165	Coast live oak	9	No	Remove, poor condition	Yes
166	Canary island pine	20	Yes	Preserve, outside impacts	
167	Coast live oak	7	No	Preserve, outside impacts	
168	Coast live oak	7	No	Preserve, outside impacts	
169	Coast live oak	13	Yes	Preserve, outside impacts	
170	Coast live oak	6	No	Remove, poor condition	Yes
171	Canary island pine	18	Yes	Preserve, outside impacts	
172	Coast live oak	9	No	Preserve, outside impacts	
173	Coast live oak	7	No	Preserve, outside impacts	
174	Coast live oak	6	No	Remove, poor condition	Yes
175	Coast live oak	21	Yes	Preserve, outside impacts	
176	Canary island pine	16,13	Yes	Preserve, outside impacts	
177	Coast live oak	6	No	Remove, within bioswale	Yes
178	Aleppo pine	31	Yes	Remove, within bioswale	Yes
179	Coast live oak	6,3	No	Preserve, outside impacts	
180	Sweetgum	25	Yes	Preserve, outside impacts	
181	Aleppo pine	24,20	Yes	Preserve, off-site	
182	Sweetgum	13	Yes	Preserve, outside impacts	
183	Sweetgum	12	Yes	Preserve, outside impacts	
184	Sweetgum	8	No	Preserve, outside impacts	
185	Sweetgum	28	Yes	Preserve, outside impacts	
186	Monterey pine	27	Yes	Preserve, outside impacts	Yes
187	Monterey pine	35	Yes	Preserve, outside impacts	
188	Sweetgum	10	Yes	Preserve, outside impacts	
189	Paper birch	7	No	Preserve, outside impacts	
190	Sweetgum	10	Yes	Preserve, outside impacts	

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. Any plan affecting trees should be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans and demolition plans.
2. A **TREE PROTECTION ZONE** must be established for trees to be preserved, in which no disturbance is permitted. No grading, excavation, construction or storage of materials shall occur within that zone. **TREE PROTECTION ZONES** for trees identified for preservation are provided in the following table. No grading, excavation, construction or storage of materials shall occur within that zone.
3. **Tree Preservation Guidelines** prepared by the Consulting Arborist should be included on all plans.
4. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**. To minimize impacts to trees, locate underground services to provide as much room as possible from trees identified for preservation.
5. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
6. Irrigation systems must be designed to avoid trenching within the **TREE PROTECTION ZONE**.
7. Do not apply lime to soil for stabilization within 25' of trees to be preserved. Lime is toxic to tree roots.
8. Maintain the existing irrigation system. If the existing irrigation system is not functional, have a temporary system installed (using soaker hoses or pvc laid on the ground and covered with mulch) as soon as possible to supply the trees with water and help them recover and prepare them for impacts associated with the demolition and construction process.

Pre-construction treatments and recommendations

1. The demolition contractor and construction superintendent shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Fence all trees to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6' chain link held in place with rebar 'staples' as recommended by the Consulting Arborist. Fences are to remain until all grading and construction is completed. Place weather-proof signs, 2' x 2', on the fencing that read "**Tree Protection Zone Keep Out**" (e.g., one sign for each of the four compass points).
3. Where possible, cap and abandon all existing underground utilities within the **TPZ** in place. Removal of utility boxes by hand is acceptable but no trenching should be performed within the **TPZ** in an effort to remove utilities, irrigation lines, etc.
4. Tree(s) to be removed that have branches extending into the canopy of tree(s) to remain must be removed by a qualified arborist and not by demolition or construction contractors. The qualified arborist shall remove the tree in a manner that causes no damage to the tree(s) and understory to remain. Stumps shall be ground below grade.
5. Any brush clearing required within the **TREE PROTECTION ZONE** shall be accomplished with hand-operated equipment.

6. Any work within the **TREE PROTECTION ZONE** shall be approved and monitored by the Consulting Arborist.
7. Prune trees to be preserved to provide adequate clearance and correct any existing defects in structure. All pruning shall be completed by a Certified Arborist or Tree Worker and adhere to the latest edition of the ANSI Z133 and A300 standards as well as the *Best Management Practices -- Tree Pruning* published by the International Society of Arboriculture.
8. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.
9. Apply and maintain 4-6" of wood chip mulch within the **TREE PROTECTION ZONE**.

Recommendations for tree protection during construction

1. Prior to beginning work, all contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. Fences have been erected to protect trees to be preserved. Fences define a specific **TREE PROTECTION ZONE** for each tree or group of trees. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the Consulting Arborist.
3. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
4. Prior to grading, pad preparation, excavation for foundations/footings/walls, trenching, trees may require root pruning outside the **TREE PROTECTION ZONE** by cutting all roots cleanly to the depth of the excavation. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, with a vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment. The Consulting Arborist will identify where root pruning is required and monitor all root pruning activities.
5. All underground utilities, drain lines or irrigation lines shall be routed outside the **TREE PROTECTION ZONE**. If lines must traverse through the protection area, they shall be tunneled or bored under the tree as directed by the Consulting Arborist.
6. No materials, equipment, spoil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).
7. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.
8. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

Maintenance of impacted trees

Trees preserved at the Harbor Park Apartments may experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored.

Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required.

HortScience | Bartlett Consulting



John Leffingwell
Board Certified Master Arborist WE-3966B
Registered Consulting Arborist #442
Revised by



Maryellen Bell
Registered Consulting Arborist #703
ISA Certified Arborist WE-5643A



Exhibits

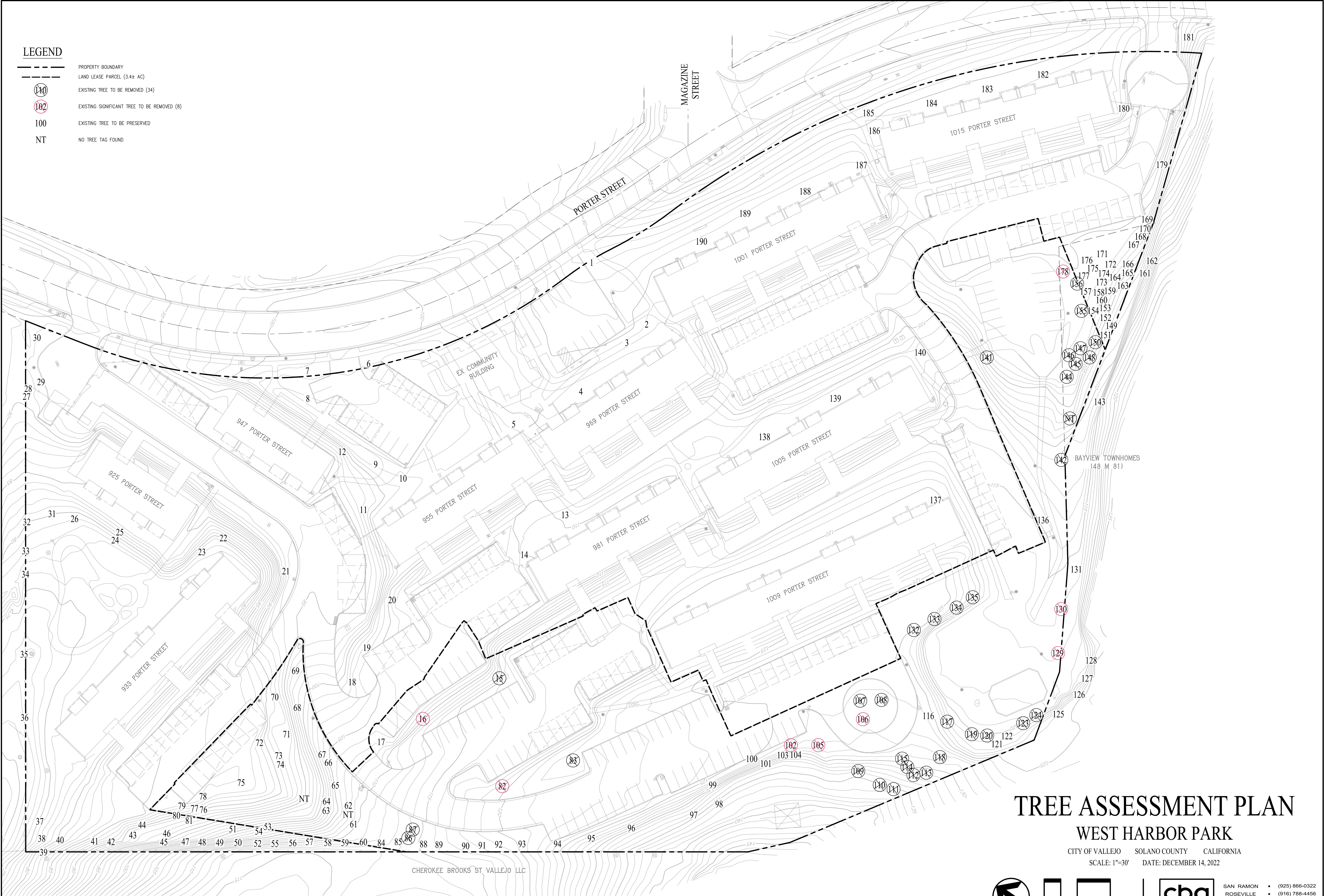
Tree Assessment Form

Tree Assessment Map



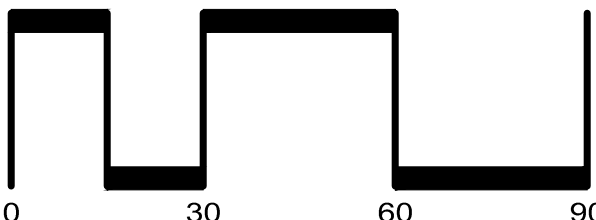
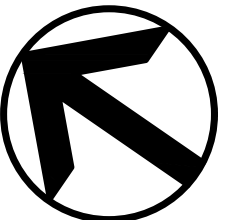
LEGEND

- PROPERTY BOUNDARY
- LAND LEASE PARCEL (3.4± AC)
- EXISTING TREE TO BE REMOVED (34)
- EXISTING SIGNIFICANT TREE TO BE REMOVED (8)
- 100 EXISTING TREE TO BE PRESERVED
- NT NO TREE TAG FOUND



TREE ASSESSMENT PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=30' DATE: DECEMBER 14, 2022



SAN RAMON • (925) 866-0322
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Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
1	Blue gum	63	Yes	4	High	Multiple attachments 12'; good form and structure; lateral E.; large surface roots.
2	Coast live oak	32	Yes	3	Moderate	Multiple attachments 20'; leans E.; vigorous but fair structure; laterals.
3	Coast live oak	38	Yes	4	Moderate	Multiple attachments 10'; one sided W.; vigorous; laterals.
4	Sweetgum	8	No	4	High	Upright form.
5	Chinese elm	22	Yes	3	Moderate	Codominant trunks at 12; lost upper branches; one sided
6	Coast live oak	26	Yes	3	Moderate	Multiple attachments 8; spreading form; vigorous; laterals.
7	Red flowering gum	48	Yes	4	Moderate	Multiple attachments 8'; large pruning wounds; basal wound & decay.
8	Coast live oak	27	Yes	3	Moderate	Multiple attachments 7'; leans E.; fair structure; laterals.
9	Coast live oak	38	Yes	4	High	Multiple attachments 8; spreading form; laterals.
10	Coast live oak	28	Yes	3	Moderate	Codominant trunks at 12'; very one sided SE.; low lateral
11	Coast live oak	34	Yes	4	Moderate	Multiple attachments at 7'; one sided N.; laterals W.
12	Coast live oak	6	No	4	High	Good young tree; dieback of lower branches.
13	Coast live oak	26	Yes	4	Moderate	Multiple attachments at 8'; fair structure; twig dieback; laterals.
14	Coast live oak	33	Yes	4	Moderate	Codominant trunks at 7'; one sided N.; laterals; possible
15	Silk oak	18	Yes	2	Low	Upright form; history of stem failures
16	Manna gum	43	Yes	4	High	Multiple attachments 12'; spreading form; a little sparse; small hanger S.
17	Manna gum	32	Yes	3	Moderate	Multiple attachments 15'; one sided NW.
18	Manna gum	32	Yes	2	Low	Upright form; half dead.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
19	Plum	13,10	Yes	3	Moderate	Codominant trunks at base; old topping points; fair
20	Manna gum	46	Yes	5	High	Multiple attachments 12'; spreading form; a little sparse;
21	Red river gum	25	Yes	3	Moderate	Upright form; history of branch failures.
22	Plum	16	Yes	3	Moderate	Multiple attachments at 6'; old topping points; fair structure.
23	Plum	21,15	Yes	3	Moderate	Codominant trunks at 1'; old topping points; fair
24	Coast live oak	10,9,8,6	Yes	4	Moderate	Multiple attachments at base, 10" stem upright; other stems lean N.
25	Coast live oak	8,5	No	3	Moderate	Codominant trunks at base, upright; narrow form.
26	Coast live oak	10	Yes	4	High	Slight lean SW.; good young tree.
27	Coast live oak	16,12,10,9	Yes	3	Moderate	Multiple attachments at 3', one sided SE.; topped for overhead utilities.
28	Coast live oak	12,8	Yes	3	Low	Codominant trunks at base; crowded and bowed N.; topped for overhead utilities.
29	Dracaena palm	13,9,8,8,5	Yes	2	Low	Multiple attachments at 1, basal wounds and decay.
30	Coast live oak	35	Yes	4	Moderate	Multiple attachments at 8'pruned for overhead unities.
31	Monterey pine	29	Yes	3	Low	Multiple attachments at 10'; topped for overhead unities.
32	Monterey pine	22	Yes	2	Low	Multiple attachments at 6'; topped for overhead unities; very sparse crown.
33	Privet	7,5,5,4.4	No	3	Moderate	Multiple attachments at 1'; growing through fence.
34	Privet	9,8,7,7,7,6,6	No	3	Moderate	Multiple attachments at 1'; growing through fence.
35	Coast live oak	9	No	3	Moderate	Growing through fence.
36	Plum	7,6,5	No	3	Moderate	Multiple attachments at 1'; growing through fence.
37	Canary island pine	16	Yes	3	Low	Topped for overhead utilities.
38	Canary island pine	16	Yes	3	Low	Topped for overhead utilities.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
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TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
39	Coast live oak	25,12,8	Yes	3	Moderate	Multiple attachments at 2'; growing through fence; topped for overhead utilities.
40	Coast live oak	16	Yes	3	Low	Topped for overhead utilities; poor structure.
41	Canary island pine	17	Yes	3	Low	Topped for overhead utilities; little remains.
42	Canary island pine	14	Yes	3	Low	Topped for overhead utilities; little remains.
43	Red river gum	34	Yes	3	Low	Codominant trunks at 10'; toppers for overhead utilities; poor form and structure.
44	Monterey pine	19,17	Yes	2	Low	Codominant trunks at 3'; topped for overhead utilities; poor form and structure.
45	Aleppo pine	10	Yes	2	Low	Topped for overhead utilities; little remains.
46	Red river gum	16	Yes	1	Low	Topped for overhead utilities; 10' stump.
47	Canary island pine	13	Yes	3	Low	Topped for overhead utilities; little remains.
48	Canary island pine	15	Yes	3	Low	Topped for overhead utilities; little remains.
49	Canary island pine	12	Yes	3	Low	Topped for overhead utilities; little remains.
50	Monterey pine	12,12,9	Yes	2	Low	Multiple attachments at 2'; topped for overhead utilities; poor form and structure.
51	Blackwood acacia	6	No	4	Moderate	Good young tree but beneath overhead utilities.
52	Canary island pine	12	Yes	3	Low	Topped for overhead utilities; little remains.
53	Red river gum	20,18	Yes	2	Low	Codominant trunks at 2'; topped for overhead utilities; little remains.
54	Blackwood acacia	6	No	4	Moderate	Good young tree but beneath overhead utilities.
55	Canary island pine	12	Yes	3	Low	Topped for overhead utilities; little remains.
56	Canary island pine	12	Yes	3	Low	Topped for overhead utilities; little remains.
57	Canary island pine	15	Yes	3	Low	Topped for overhead utilities; narrow form.
58	Canary island pine	15	Yes	3	Moderate	Pruned for overhead utilities; one sided N.
59	Canary island pine	14	Yes	3	Moderate	Side pruned for overhead utilities; one sided N.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
60	Canary island pine	17	Yes	3	Moderate	Side pruned for overhead utilities; one sided N.
61	Blackwood acacia	13	Yes	3	Moderate	Codominant trunks at 4'; included bark; topped for overhead utilities.
62	Blackwood acacia	14	Yes	3	Low	Codominant trunks at 5'; narrow attachment; topped for overhead utilities.
63	Blackwood acacia	16	Yes	1	Low	All but dead; topped for overhead utilities.
64	Coast live oak	19,9	Yes	3	Moderate	Low lateral E.; crowded and one sided W.
65	Coast live oak	25,10	Yes	3	Moderate	Low lateral at 2'; crowded and one sided W.; old branch wounds.
66	Blackwood acacia	16	Yes	3	Low	Crown bowed slightly E.; old trunk wounds E.
67	Blackwood acacia	20	Yes	3	Moderate	Upright form; sparse crown.
68	Red river gum	28	Yes	4	Moderate	Multiple attachments at 20'; one sided S.
69	Red river gum	59	Yes	4	High	Multiple attachments at 15'; spreading form; reduced throughout crown.
70	Red river gum	27	Yes	2	Low	Crowded; bowed W.; poor form and structure.
71	Blackwood acacia	8	No	5	High	Upright form.
72	Coast live oak	24	Yes	3	Moderate	Multiple attachments at 15'; one sided W. w/ laterals.
73	Blackwood acacia	12	Yes	5	High	Upright form.
74	Red river gum	12	Yes	5	High	Upright form; sapsucker damage.
75	Coast live oak	16,16	Yes	3	Moderate	Codominant trunks at 2'; flat topped form; sparse crown.
76	Coast live oak	6	No	4	Moderate	One sided E.; fair form and structure.
77	Plum	6,3,3,2	No	3	Moderate	Multiple attachments at base.
78	Coast live oak	6	No	3	Moderate	Crowded; one sided N.; fair form and structure.
79	Red river gum	8	No	4	Moderate	Leans NE.
80	Coast live oak	6,5	No	3	Moderate	Crowded; fair form and structure.

Tree Assessment

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TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
81	Coast live oak	7	No	3	Moderate	Crowded; fair form and structure; beneath overhead utilities.
82	Red river gum	48	Yes	3	Moderate	Multiple attachments at 15'; lateral S.; topped for overhead utilities.
83	Silk oak	16	Yes	4	Moderate	Upright form; old topping pints.
84	Canary island pine	19	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
85	Canary island pine	16	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
86	Strawberry tree	8,8,5,4,3	No	2	Low	Multiple attachments at 2'; crowded & one sided S.; moderate dieback.
87	Strawberry tree	13,12,6	Yes	4	Moderate	Multiple attachments at 1'; good form and structure.
88	Canary island pine	20	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
89	Canary island pine	18	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
90	Canary island pine	26	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
91	Canary island pine	19	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
92	Canary island pine	20	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
93	Canary island pine	18	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.
94	Canary island pine	18	Yes	3	Moderate	Topped & pruned on S. side for overhead utilities; narrow form.

Tree Assessment

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TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
95	Blackwood acacia	10	Yes	4	Moderate	Good form; beneath overhead utilities. .
96	Aleppo pine	13	Yes	2	Low	Beneath overhead utilities; moderate dieback.
97	Aleppo pine	22	Yes	3	Low	Slight lean S.; beneath overhead utilities; moderate dieback.
98	Coast live oak	22	Yes	4	Moderate	Multiple attachments at 3'; good form and structure; beneath overhead utilities.
99	Red river gum	32	Yes	4	Moderate	Slight lean S.; beneath overhead utilities; dieback.
100	Red river gum	23	Yes	3	Moderate	Codominant trunks at 8'; reduced N.; dieback.
101	Compact blue gum	28	Yes	3	Moderate	Multiple attachments at 3'; reduced N.; dieback; ivy.
102	Red river gum	25	Yes	3	Low	Codominant trunks at 15'; history of branch failures; dieback.
103	Strawberry tree	8,5,5	No	3	Moderate	Multiple attachments at 1'; suppressed.
104	Strawberry tree	10,8,6	Yes	3	Moderate	Multiple attachments at 1'; suppressed.; branches from #103 in crown.
105	Red river gum	33	Yes	3	Low	Multiple attachments at 12'; history of branch failures/lost central leader; dieback.
106	Red river gum	29,26,17	Yes	4	Moderate	Multiple attachments at base; two stems have very tight attachment/kissing; history of branch failures; dieback.
107	Red river gum	24	Yes	3	Low	High crown; one sided N.
108	Red river gum	22	Yes	2	Low	Codominant trunks at 10'; poor form and structure.
109	Coast live oak	17	Yes	4	Moderate	Multiple attachments at 8'; good form and structure; beneath overhead utilities.
110	Canary island pine	17	Yes	3	Moderate	Topped for overhead utilities; slight lean S.
111	Canary island pine	17	Yes	3	Moderate	Topped for overhead utilities; upright form.
112	Coast live oak	15,6	Yes	3	Moderate	Multiple attachments at 5'; crowded, narrow form; beneath overhead utilities.

Tree Assessment

Harbor Park Apartemnts
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February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
113	Canary island pine	16	Yes	3	Moderate	Topped for overhead utilities; upright form.
114	Coast live oak	6	No	3	Moderate	Suppressed; crown bowed N.
115	Canary island pine	17	Yes	3	Moderate	Codominant trunks at 30'; topped for overhead utilities; upright form.
116	Red river gum	36	Yes	2	Low	Codominant trunks at 8'; poor form and structure; .
117	Calif. pepper	16	Yes	3	Low	Codominant trunks at 6'; suppressed; one sided E.
118	Canary island pine	16	Yes	3	Moderate	Topped for overhead utilities; upright form.
119	Canary island pine	18	Yes	3	Moderate	Topped for overhead utilities; upright form.
120	Canary island pine	18	Yes	3	Moderate	Topped for overhead utilities; upright form; lateral E.
121	Coast live oak	6	No	3	Moderate	Suppressed; crown bowed S.
122	Canary island pine	15	Yes	3	Moderate	Topped for overhead utilities; upright form; lateral E.
123	Canary island pine	14	Yes	3	Moderate	Topped for overhead utilities; upright form; crowded by #124.
124	Aleppo pine	17,13	Yes	2	Low	Codominant trunks at base; stems leaning away from each other
125	Red iron bark	22	Yes	3	Low	Off-site, no tag; codominant trunks at 10'; stem topped at 15'; approx. 6' from ret. wall.
126	Red iron bark	6	No	3	Moderate	Off-site, no tag; high, narrow crown; approx. 4' from ret. wall.
127	Privet	6	No	3	Moderate	Off-site, no tag; high, narrow crown; approx. 4' from ret. wall.
128	Red iron bark	13,8	Yes	3	Low	Off-site, no tag; codominant trunks at base; crown bowed S. approx. 3' from ret. wall.
129	Red river gum	41	Yes	3	Moderate	Codominant trunks at 18'; spreading crown; a little sparse; history of branch failures.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
130	Aleppo pine	26	Yes	2	Low	History of branch failures; poor form and structure; large hanger.
131	Red iron bark	8,8	No	3	Moderate	Off-site, no tag; codominant trunks at base; one stem bowed W. & extends 20' over fence.
132	European birch	7,6,5	No	1	Low	Mostly dead.
133	European birch	8,6	No	1	Low	Mostly dead.
134	European birch	10,9,7	Yes	1	Low	Mostly dead.
135	European birch	11,9	Yes	1	Low	Mostly dead.
136	Aleppo pine	34	Yes	3	Moderate	Awkward structure; flat topped form; laterals E.
137	Plum	13,10,9	Yes	4	Moderate	Multiple attachments at 3'; one sided E. away from bldg.
138	Sweetgum	8	No	4	Moderate	Upright form; slight crook at 12'; one sided E. away from bldg.
139	Sweetgum	10	Yes	4	Moderate	Multiple attachments at 10'; included bark; one sided E. away from bldg.
140	European birch	10	Yes	1	Low	Mostly dead.
141	European birch	12	Yes	3	Low	Codominant trunks at 10'; moderate dieback in upper crown; trunk wound.
142	Aleppo pine	10	Yes	2	Low	Off-site; leans NW. to horizontal; possibly failed at base.
143	Canary island pine	26	Yes	4	High	No tag; upright form; hanger from failure of off-site tree; base engulfed in debris.
144	Coast live oak	17,14	Yes	4	Moderate	Codominant trunks at 2'; 14" stem upright; 17" stem leans SW.; lateral.
145	Coast live oak	15	Yes	3	Moderate	Crowded; narrow form; slight lean W.
146	Coast live oak	20	Yes	4	Moderate	Multiple attachments at 8'; narrow attachment; slight lean NW.
147	Coast live oak	13	Yes	3	Moderate	Crowded; slight lean & one sided NE.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



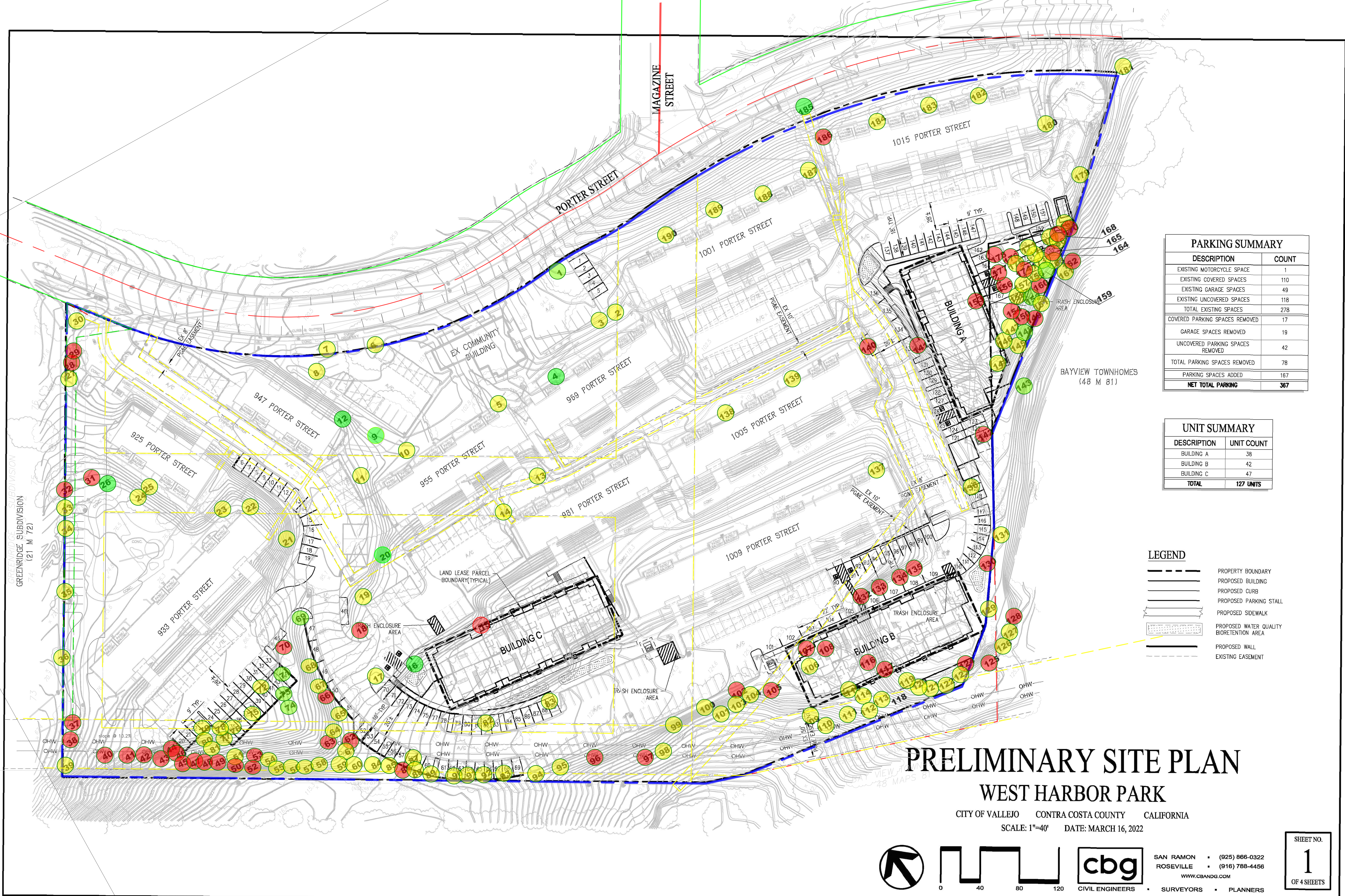
TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
148	Canary island pine	21	Yes	4	High	Upright form; ivy.
149	Coast live oak	9	No	2	Low	Suppressed; leans E. to horizontal.
150	Coast live oak	6	No	3	Low	Suppressed; small crown.
151	Canary island pine	14,8	Yes	3	Moderate	Crowded; crooks in trunk; ivy.
152	Canary island pine	18	Yes	4	High	Upright form; crowded; ivy.
153	Coast live oak	6	No	3	Low	Suppressed; small crown.
154	Coast live oak	6	No	3	Low	Suppressed; small crown bowed W.
155	Coast live oak	12	Yes	3	Moderate	Suppressed; one sided & bowed W.
156	Coast live oak	21	Yes	3	Low	Leans NW.; base outside drip line.
157	Coast live oak	16	Yes	3	Moderate	Codominant trunks at 4'; narrow form; sparse.
158	Coast live oak	16,5	Yes	3	Moderate	Codominant trunks at 4'; one sided SW.; sparse.
159	Canary island pine	17	Yes	4	High	Upright form; high crown; ivy.
160	Coast live oak	8	No	3	Low	Suppressed; small crown; one sided S.
161	Canary island pine	23	Yes	3	Moderate	Codominant trunks at 15'; poor attachment; upright form; high crown.
162	Canary island pine	11	Yes	1	Low	Failed at base and laying on neighbor's retaining wall.
163	Canary island pine	21	Yes	3	Moderate	Codominant trunks in upper crown; high crown; ivy.
164	Coast live oak	11	Yes	3	Moderate	Crowded; leaning & one sided N.
165	Coast live oak	9	No	2	Low	Suppressed; leaning S. to horizontal.
166	Canary island pine	20	Yes	4	Moderate	Upright form; ivy.
167	Coast live oak	7	No	3	Moderate	Slight lean W.; small crown.
168	Coast live oak	7	No	3	Low	Leans NW.; small crown; ivy.
169	Coast live oak	13	Yes	3	Moderate	Codominant trunks at 7'; leans N.; ivy.
170	Coast live oak	6	No	2	Low	Suppressed; small crown; ivy.
171	Canary island pine	18	Yes	3	Moderate	Upright form; branches to N. drooping; ivy.
172	Coast live oak	9	No	3	Moderate	Codominant trunks at 6'; crowded; narrow form; ivy.

Tree Assessment

Harbor Park Apartemnts
Vallejo, California
February 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	PROTECTED	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
173	Coast live oak	7	No	3	Moderate	Suppressed; small crown.
174	Coast live oak	6	No	2	Low	Suppressed; very small crown.
175	Coast live oak	21	Yes	3	Moderate	Codominant trunks at 10'; stems cross; crown bowed W.
176	Canary island pine	16,13	Yes	3	Low	Codominant trunks at 3'; weak attachment; high crown; ivy.
177	Coast live oak	6	No	2	Low	Suppressed; crown bowed N. to horizontal.
178	Aleppo pine	31	Yes	2	Low	Leans NE.; very sparse crown.
179	Coast live oak	6,3	No	3	Moderate	Sweep from base; leans N.
180	Sweetgum	25	Yes	4	Moderate	Lateral S. at 7'; branches reduced throughout crown.
181	Aleppo pine	24,20	Yes	3	Moderate	Codominant trunks at base; one stem upright, other leans N.
182	Sweetgum	13	Yes	3	Moderate	Upright form; branches reduced throughout crown.
183	Sweetgum	12	Yes	3	Moderate	Upright form; branches reduced throughout crown.
184	Sweetgum	8	No	3	Moderate	Upright form; branches reduced throughout crown.
185	Sweetgum	28	Yes	4	High	Big tree; upright form; branches reduced throughout crown; lifting sidewalk 3".
186	Monterey pine	27	Yes	2	Low	Declining; sparse, asymmetric crown
187	Monterey pine	35	Yes	3	Moderate	Multiple attachments at 25'; narrow attachments w/ sap flow; crossing branches.
188	Sweetgum	10	Yes	4	Moderate	Upright form; low branches reduced.
189	Paper birch	7	No	4	Moderate	Good young tree; exposed & girdling roots.
190	Sweetgum	10	Yes	4	Moderate	Upright form; branches reduced.



PARKING SUMMARY	
DESCRIPTION	COUNT
EXISTING MOTORCYCLE SPACE	1
EXISTING COVERED SPACES	110
EXISTING GARAGE SPACES	49
EXISTING UNCOVERED SPACES	118
TOTAL EXISTING SPACES	278
COVERED PARKING SPACES REMOVED	17
GARAGE SPACES REMOVED	19
UNCOVERED PARKING SPACES REMOVED	42
TOTAL PARKING SPACES REMOVED	78
PARKING SPACES ADDED	167
NET TOTAL PARKING	367

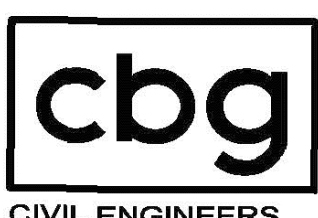
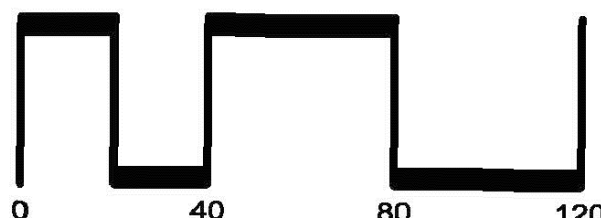
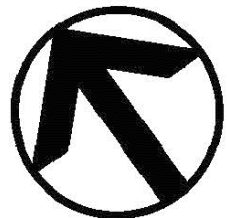
UNIT SUMMARY	
DESCRIPTION	UNIT COUNT
BUILDING A	38
BUILDING B	42
BUILDING C	47
TOTAL	127 UNITS

LEGEND	
	PROPERTY BOUNDARY
	PROPOSED BUILDING
	PROPOSED CURB
	PROPOSED PARKING STALL
	PROPOSED SIDEWALK
	PROPOSED WATER QUALITY BIORETENTION AREA
	PROPOSED WALL
	EXISTING EASEMENT

PRELIMINARY SITE PLAN
WEST HARBOR PARK

CITY OF VALLEJO CONTRA COSTA COUNTY CALIFORNIA

SCALE: 1"=40' DATE: MARCH 16, 2022



SAN RAMON (925) 866-0322
ROSEVILLE (916) 788-4456
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SHEET NO.
1
OF 4 SHEETS

Attachment C

VMT Assessment

May 31, 2023

Mitu Walia
Director of Architectural Design
Klein Financial Corporation
550 South California Avenue Suite 330
Palo Alto, CA 94306

Subject: Revised VMT Assessment – West Harbor Park Apartments, Vallejo

Dear Mitu:

Fehr & Peers is pleased to submit this revised letter report documenting the results of our Vehicle Miles Traveled (VMT) assessment for your proposed West Harbor Park residential project located off Porter Street in Vallejo, California. The analysis was prepared in accordance with the current City of Vallejo and State of California guidelines pertaining to VMT. Specifically, we have employed the *City of Vallejo's CEQA Transportation Impact Analysis Guidelines (Revised October 2020)* (City Guidelines) for the VMT analysis. This assessment reflects revisions to the proposed project that incorporate Travel Demand Management (TDM) measures, specifically the unbundling of parking. When parking is "unbundled" residents must pay a monthly fee for an on-site parking space separate from the cost of their unit.

Project Description

The project proposes the construction of 122 new multi-family residential units located on a site located at 961 Porter Street the City of Vallejo. The project would add these new units to the existing 182-unit facility on the site. All access to the site would be provided via Porter Street which provides connections to Sonoma Boulevard and the regional roadway network. The project would include 152 off street unbundled parking spaces for the new residential units. Parking pricing would be as follows:

- Garage spaces (98) - \$150/space/month (\$1,800/year)
- Covered carport spaces (26) - \$125/space/month (\$1,500/year)
- Uncovered spaces (28) - \$100/space/month (\$1,200/year)

Each of the garage spaces would be equipped with 220 EV charging connections and the outdoor covered and uncovered spaces would be equipped with Level 3 fast charging stations. The project would also include a dedicated space for a car-share provider.

Building management would provide all residents with information relative to their non-single occupant vehicle travel options (rideshare, transit, bike and pedestrian amenities and options). This



would be in the form of new-resident informational flyers and a lobby kiosk. The information would be updated, as necessary.

City of Vallejo VMT Screening Criteria

The *City of Vallejo's CEQA Transportation Impact Analysis Guidelines (Revised October 2020)* provide for a three step VMT screening process, as follows:

- Step 1 – Transit Priority Area (TPA) Screening - Projects located within a TPA may be presumed to have a less than significant impact absent substantial evidence to the contrary.
- Step 2 – Low VMT Area Screening - Residential and office projects located within a low-VMT generating area of the city (i.e., lower than citywide average levels, based on the significance thresholds in this document) may be presumed to have a less than significant impact absent substantial evidence to the contrary.
- Step 3 – Project Type Screening - Local-serving retail projects less than 50,000 square feet in size and other local serving community uses may be presumed to have a less than significant impact absent substantial evidence to the contrary

Steps 1 and 3 do not apply to the proposed project. The project is not located within a Transit Priority Area and as a residential use, the project is not retail or local serving in nature.

Per the City's guidelines, for VMT area screening to be applicable, the analyst must verify that the project land uses would not alter the existing built environment in such a way as to increase the rate or length of vehicle trips (e.g. the proposed project is consistent with existing land use in the area, the project would be expected to contribute VMT consistent with existing land use in the area, and the project would not significantly alter travel patterns in the area). The project is located within Traffic Analysis Zone (TAZ) 349 of the Solano-Napa Activity Based Travel Demand Model (SNABM). As this TAZ is relatively small and the SNABM model presents a high degree of variability in this part of the city due to the nearby county line (and model edge), the travel characteristics of several surrounding TAZs were aggregated with 349 to assess project VMT. Specifically, TAZ's 345, 346, 347, 348 and 349 were combined for this exercise. All five TAZs are similarly located geographically and display land use characteristics like those of the proposed project (medium density residential). It should be noted that adjacent TAZ 350 was not included in the calculations as it contains the California Maritime Academy. **Table 1** summarizes the baseline household and employment characteristics of the TAZ's used within the analysis.



Table 1: Baseline Project TAZ Demographic Characteristics

Geography	Base Year (2015)		Cumulative (2040)	
	Total Households	Total Employment	Total Households	Total Employment
TAZs 345, 346, 347, 348, 349	1,841	2,354	2,333	2,517
City of Vallejo	42,542	32,498	46,804	35,693

Source: Fehr & Peers, 2023, Solano-Napa Activity Based Travel Demand Model

Our review of the demographic characteristics of the existing land uses in TAZ's 345, 346, 347, 348 and 349 confirm that the project would not alter the existing built environment in such a way as to increase the rate or length of vehicle trips.

Table 2 presents the applicable baseline model VMT results for the City of Vallejo and TAZ's 345, 346, 347, 348 and 349. The baseline residential VMT per resident for TAZ's 345, 346, 347, 348 and 349 is slightly greater than that of the city as a whole whereas the cumulative residential VMT per resident is slightly lower than the city as a whole.

Table 2: Applicable Project VMT Characteristics

Geography	Baseline Residential VMT	
	Base Year (2015)	Cumulative (2040)
City of Vallejo	24.2 VMT/resident	24.0 VMT/resident
TAZ's 345, 346, 347, 348 and 349	24.7 VMT/resident	23.5 VMT/resident

Source: Fehr & Peers, 2023, Solano-Napa Activity Based Travel Demand Model

Travel Demand Model Results

Subsequent to the review of the city's VMT screening criteria, the project was coded into the model and the model was run to assess the travel outcomes of project generated vehicle trips. This analysis found that project related vehicle trips are expected to have similar lengths and occur with similar rates to existing residents of TAZ's 345, 346, 347, 348 and 349. Baseline project VMT is anticipated to be approximately 24.7 daily vehicle miles traveled per resident, which is marginally above the city's average VMT of 24.2 per resident. The project was not found to screen out based on the city's established criteria.

Project-Specific VMT Assessment

As the project proposes elements which are not reflected in the travel characteristics of the surrounding residential communities, namely the unbundling of parking, the effects of these measures on project generated VMT was estimated. The estimated effectiveness of the TDM



strategies included as part of the project's description are based on research compiled and published in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (California Air Pollution Control Officers Association (CAPCOA), December 2021). This CAPCOA report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies. **Table 3** presents the anticipated reductions to project generated VMT based on the CAPCOA research and evidence associated with the TDM elements included as part of the project description.

Table 3: Anticipated TDM Measure VMT Reductions

TDM Measure	Description	Expected VMT Change
Unbundle Parking	Garage – 98 spaces, \$1,800/year	(7.8%)
Unbundle Parking	Covered – 26 spaces, \$1,500/year	(6.5%)
Unbundle Parking	Uncovered – 28 spaces, \$1,200/year	(5.2%)
Carshare Provision	1 carshare space	(0.15%)
Community Travel Planning	Information for each resident	(2.3%)
Total Anticipated Change¹		(9.4%)

¹ Average across all units, including the effects of multiplicative dampening.

Source: Fehr & Peers, 2023, *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (California Air Pollution Control Officers Association (CAPCOA), December 2021).

As presented in Table 3, the TDM measures proposed as part of the project are expected to result in a decrease in project VMT of approximately 9.4 percent. According to the CAPCOA report, the maximum greenhouse gas reduction that can be expected from unbundled parking is 15.7 percent. The VMT reduction is a function of avoided vehicle ownership in residents disincentivized to park offsite or pay the separate cost of parking for a vehicle. For unbundled parking, there is a 1:1 relationship between reductions in VMT and greenhouse emissions because these measures reduce all emission processes at the same rate, not just running emissions. Thus, the maximum VMT reduction that a development could expect to obtain from unbundled parking is 15.7 percent.

It should be noted that the unbundling of parking at the project site will be somewhat less effective than the maximum permitted by the CAPCOA data as shown in the anticipated reduction of 9.4 percent rather than 15.7 percent for the project. Free on-street parking is available on Porter Street, which some project residents may choose to utilize rather than either forgo a vehicle or pay for secure and gated on-site parking in close proximity to their unit. The closest on-street parking is available down the hill from the residences, approximately 500 to 1,500 feet from the various garage locations. Free on-street parking can reduce the effectiveness of unbundled parking.



Priority Development Area

The project site is located within the designated Carquinez Heights Priority Development Area (PDA). This area has been identified and prioritized for housing development by the Metropolitan Transportation Commission (MTC) and City of Vallejo and has been included in MTC's *Plan Bay Area 2050*. Specifically, the area is designated as a Connected Community PDA, which MTC defines as follows:

The entire area is within 1/2 mile of a bus stop with peak service of 30 minutes or less and is beyond 1/2 mile of transit service that meets the "high quality transit" criteria as defined above for Transit-Rich PDAs; and meets at least one of the following:

- *At least 50% of the area is defined as a High Resource or Highest Resource on the most recent Opportunity Map adopted by the California Department of Housing and Community Development*
- *At least 2 policies have been adopted to reduce Vehicle Miles Traveled, such as prioritization of bicycle and pedestrian planning projects*

Among the adopted policies to reduce VMT within the PDA are the completion of Class II bike lanes on Sonoma Boulevard along with a host of pedestrian, transit and bicycle improvements planned for the roadway. These include transit stop improvements (benches, shelters, lighting, and real time arrival information), traffic calming features, sidewalk improvements and pedestrian crossing improvements (median island rest areas, Hawk pedestrian signals, modified signal timing and signing/stripping enhancements).

Findings

Based on information from the Solano-Napa Activity Based Travel Demand Model, a typical multi-family residential development at the project site is forecast to generate approximately 24.7 daily vehicle miles of travel per resident. As the project includes elements not included at existing residences in the area, such as unbundled parking, calculations were performed to assess the anticipated reductions related to TDM measures which the project proposes. Those calculations identified an expected reduction of approximately 9.4 percent. With this modification, the project is expected to generate approximately 22.4 vehicle miles of travel per resident, which is below the city's significance threshold of 24.2 percent.

Please do not hesitate to call if you have any questions or need additional information (925.357.3381).



Sincerely,

FEHR & PEERS

A handwritten signature in black ink, appearing to read 'Bill Burton'. The signature is fluid and cursive, with the first name 'Bill' and last name 'Burton' clearly distinguishable.

Bill Burton, PE
Principal

Attachment D

Transportation Impact Assessment (Non-CEQA)

West Harbor Park

Transportation Impact Assessment

Prepared for:
The City of Vallejo
Klein Financial Corporation

May 2023

WC22-3938

FEHR  PEERS

Certification Page

This Transportation Impact Assessment was prepared under the direction of Bill Burton, California Professional Traffic Engineer #1857. Expiration – 6/30/23



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1. Executive Summary

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) prepared for the West Harbor Park development (Project) proposed in the City of Vallejo. The report follows the methods, criteria, and requirements of the *City of Vallejo's Traffic Impact Analysis/Study Guidelines* (City of Vallejo Public Works Department). It should be noted that the Project's potential impacts related to Vehicle Miles Traveled (VMT) are addressed in a separate report (*VMT Assessment – Harbor Park Apartments*, May 31, 2023, Fehr & Peers).

The study was prepared to evaluate the potential transportation effects of the Project, located west of Porter Street in Vallejo, California. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower-income units, on the current Harbor Park Apartments site which currently has 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). Vehicular access to the Project site is provided via two existing driveways, both on Porter Street. Regional access is available via Sonoma Boulevard (State Route 29) at Magazine Street, and Interstate 80 at Lincoln Road and Sequoia Avenue.

Using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition) the Project is expected to generate approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips. Intersection Levels of Service (LOS) were calculated at five intersections providing access to the project site for six analysis scenarios. The results of this assessment found that the local roadway network has adequate capacity to serve forecast increases in traffic associated with the proposed project. Significant adverse impacts or violations of City policies were not identified in the assessment of transit, bicycle, pedestrian, automobile, or emergency vehicle access. The following four recommendations were noted through the analysis and findings:

- **Site Recommendation 1:** The final site plan for the Project should be analyzed by the Project's Civil Engineer to ensure that adequate sight distance is provided at all driveways. Particular focus should be given to the available sight distance to the south from the southern Project driveway. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary. If inadequate sight distance is identified, appropriate modifications should be made as part of the project. Modifications could include physical modifications to the driveway intersections (landscape removal, grading, etc), the installation of stop signs on Porter Street at the Project's driveway(s) or other modifications as necessary.



- **Site Recommendation 2:** The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.
- **Site Recommendation 3:** Provide even surface pavement, appropriate signage, delineation, and other features at all emergency access points and internal roadways to accommodate emergency vehicles. Emergency response within the City of Vallejo is provided by the Vallejo Fire Department. The final site plan would need to be reviewed and found adequate by the City's Fire Chief prior to the issuance of building permits.



2. Introduction

This report presents the analysis and findings of the Transportation Impact Assessment prepared for the West Harbor Park development (Project) proposed in the City of Vallejo. The report follows the methods, criteria, and requirements of the *City of Vallejo's Traffic Impact Analysis/Study Guidelines* (City of Vallejo Public Works Department). It should be noted that the Project's potential impacts related to Vehicle Miles Traveled (VMT) are addressed in a separate report (*VMT Assessment – Harbor Park Apartments*, December 2, 2022, Fehr & Peers). This chapter discusses the TIA purpose, study locations and analysis scenarios, analysis methods, criteria used to identify significant effects, and report organization.

Study Purpose and Project Description

The study's purpose is to evaluate the potential transportation effects of the Project, located west of Porter Street in Vallejo, California, as shown in **Figure 1**. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower-income units, on the current Harbor Park Apartments site which currently has 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). The Project site plan is shown on **Figure 2**.

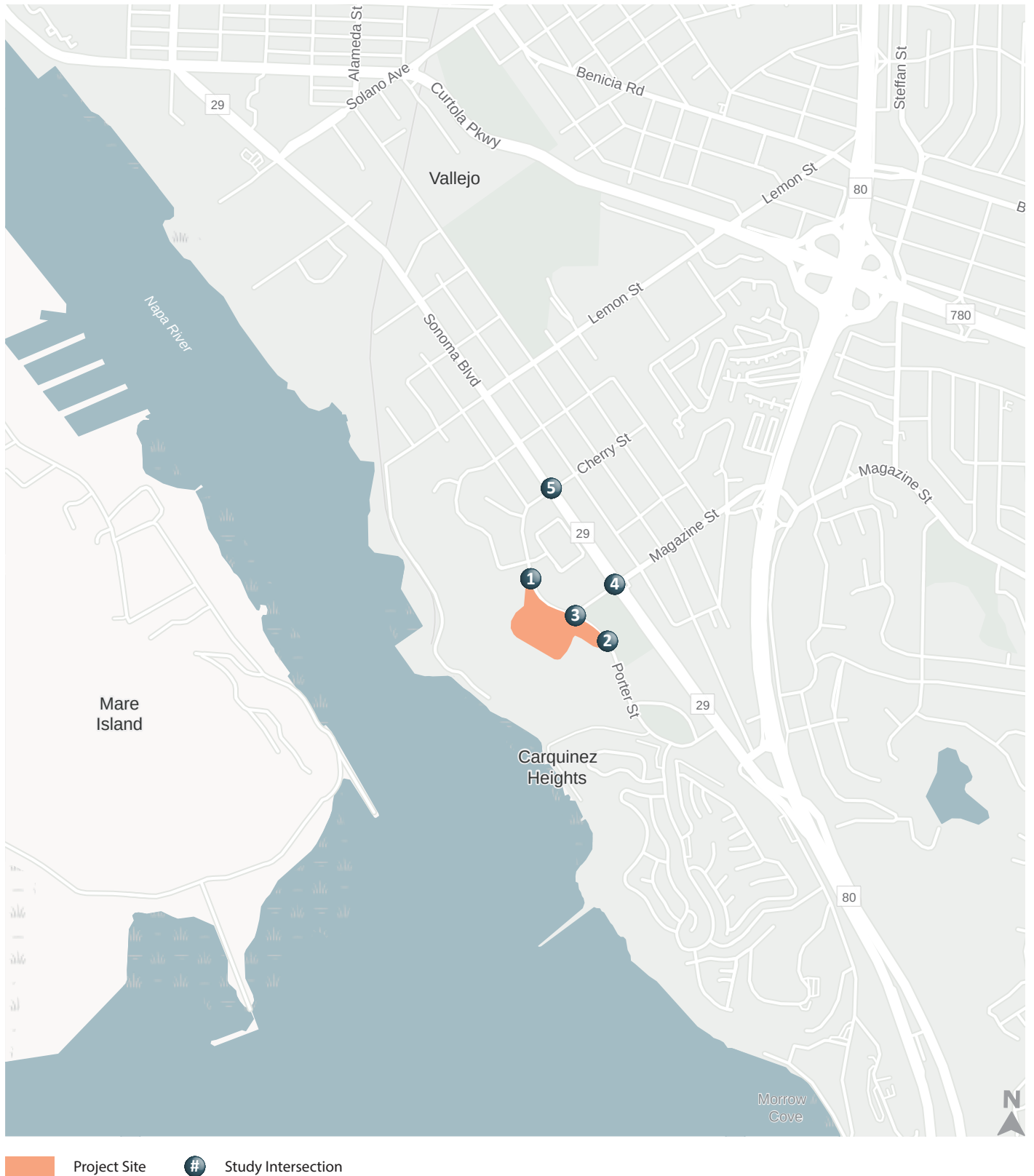
Vehicular access to the Project site is provided via two existing driveways, both on Porter Street, as illustrated on Figure 2. Regional access is available via Sonoma Boulevard (State Route 29) at Magazine Street, and Interstate 80 at Lincoln Road and Sequoia Avenue.

Study Locations and Analysis Scenarios

Potential project violations of the City's established level of service policies at study area roadway facilities were determined by measuring the effect Project traffic would have on intersections in the vicinity of the Project site during the weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak periods. The following intersections were selected based on a review of the Project site, estimates of the added traffic from the Project, and feedback from City staff:

1. Project Access North/Porter Street
2. Project Access South/Porter Street
3. Magazine Street/Porter Street
4. Sonoma Boulevard (SR 29)/Magazine Street
5. Cherry Street/Sonoma Boulevard (SR 29)



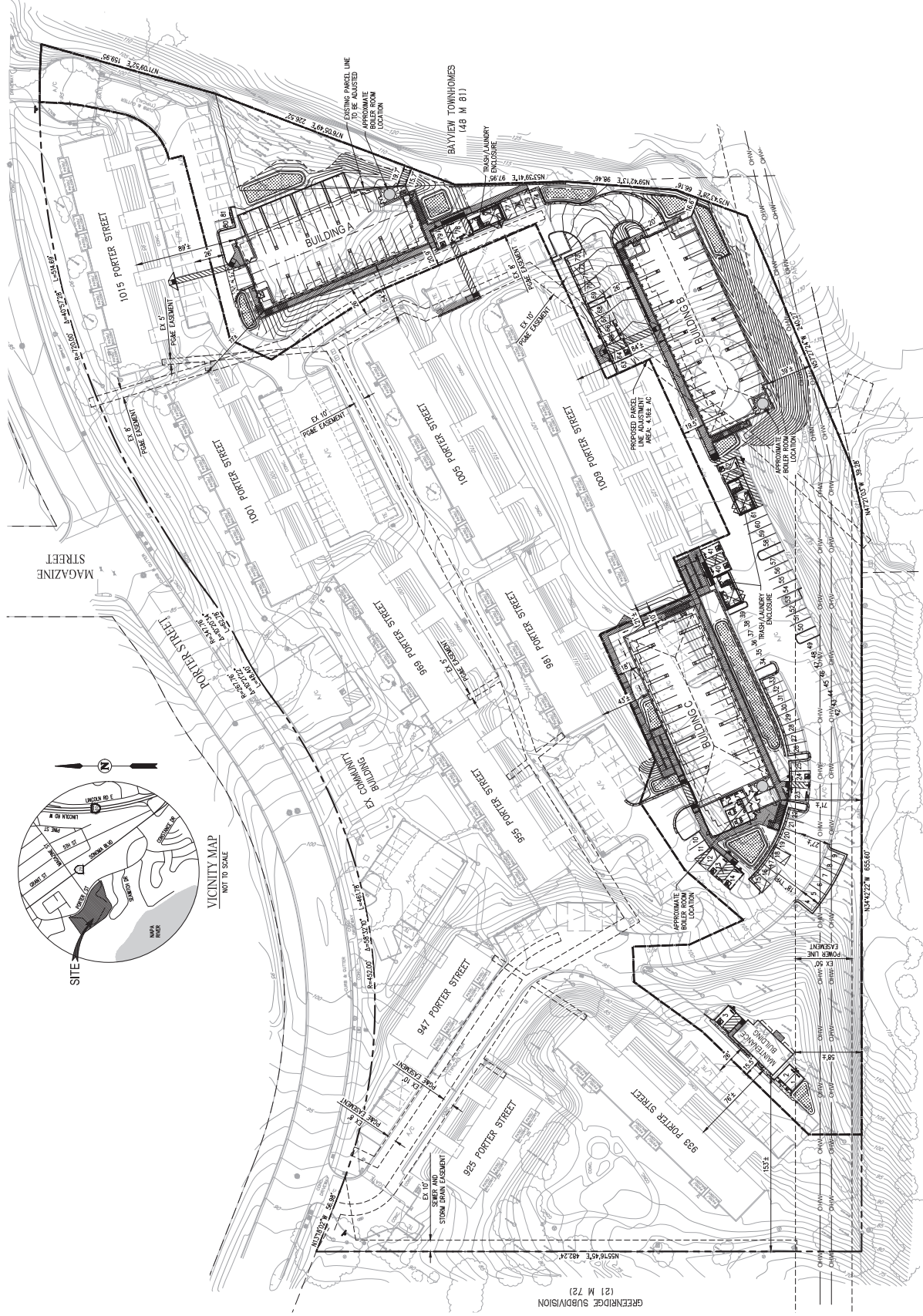


Project Site # Study Intersection



Figure 1

Project Site Vicinity Map & Study Intersections



Site Plan Source: Carlson, Barbee & Gibson, Inc. (CBG), April 28, 2023.

Figure 2

Conceptual Project Site Plan



The following scenarios were evaluated:

- **Existing** – Existing (2022) conditions based on recent traffic counts.
- **Project Opening Year** – Existing (2022) conditions with approved projects within the study area that could be constructed over the next five to ten years. Additional details are provided in Chapter 4. The Project is anticipated to open in 2025.
- **Project Opening Year with Project** – Opening year conditions with Project-related traffic.
- **Future Year Buildout (2040)/Cumulative without Project** – Forecasts for the cumulative (2040) scenario are based on traffic growth trends as described in the Vallejo General Plan and supplemented check of traffic forecasts for the study area from the Solano-Napa Activity Based Travel Demand Model (SNABM). Additional details are provided in Chapter 5.
- **Future Year Buildout (2040)/Cumulative with Project** – Future forecast conditions with Project-related traffic.

Analysis Methods

Level of Service

The operations of roadway facilities are described with the term “level of service” (LOS). LOS is a qualitative description of traffic flow from a vehicle driver’s perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

Signalized Intersections

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the *Highway Capacity Manual, 6th Edition* (HCM 6th Edition) for vehicles using the analysis software Synchro 11.0. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 1**.

Unsignalized Intersections

For unsignalized (all-way stop controlled and side-street stop controlled) intersections, the HCM 6th Edition method for unsignalized intersections was used. With this method, operations are defined by the



average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. **Table 2** summarizes the relationship between LOS and delay for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The highest movement/approach delay is reported for side-street stop-controlled intersections.

Table 1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.1 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.1 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.1 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual, 6th Edition*, Transportation Research Board, 2017.

Table 2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.1 to 15.0
C	Average traffic delays	> 15.1 to 25.0
D	Long traffic delays	> 25.1 to 35.0
E	Very long traffic delays	> 35.1 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual, 6th Edition*, Transportation Research Board, 2017.



Regulatory Setting and Significance Criteria

Non-CEQA Evaluation Criteria

Although not a CEQA metric, intersection levels of service were evaluated in this study for General Plan compliance and to identify potential transportation improvements that could be implemented as part of the project to improve the overall operations of the transportation system for all travel modes. The City of Vallejo generally strives to maintain level of service D operations for signalized intersections unless other standards are adopted.

The Project could have a noticeable effect on local and regional travel if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, or delay and congestion at intersections), or change the condition of an existing street (e.g., street closures, changing direction of travel) in a manner that would substantially change access or traffic load and capacity of the street system.

The City of Vallejo's General Plan and Traffic Impact Analysis/Study Guidelines were referenced to determine the criteria against which effects should be evaluated as part of this analysis, as described below.

Signalized Intersections - Project-related operational effects on the signalized study intersections in the City of Vallejo do not meet the City's LOS guidelines if:

1. Project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS D (55 seconds) or better to LOS E or F.
2. Project-related traffic increases the volume-to-capacity ratio by more than 0.0100 for intersections already operating at an unacceptable LOS without the project.

Unsignalized Intersections - Project-related operational effects on unsignalized intersections do not meet the City's LOS guidelines if:

3. Project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections) to deteriorate from LOS D or better to LOS E or F.
4. Project-related traffic increases the volume-to-capacity ratio by more than 0.0100 for intersections already operating at an unacceptable LOS without the project.

Report Organization

This report is divided into six chapters as described below:



- **Chapter 1 – Introduction** discusses the purpose and organization of the report.
- **Chapter 2 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- **Chapter 3 – Project Characteristics** presents relevant project information, such as the Project components and Project trip generation, distribution, and assignment.
- **Chapter 4 – Project Opening Year Traffic Conditions** addresses the near-term future conditions, both without and with the Project and discusses project vehicular effects.
- **Chapter 5 – Future Buildout Year (2040)/Cumulative Traffic Conditions** addresses the long-term future conditions, both without and with the Project and discusses project vehicular effects.
- **Chapter 6 – Site Plan Review** describes Project access and circulation for all travel modes.



3. Existing Conditions

This chapter describes the transportation facilities in the study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the Project site's vicinity. Existing intersection operations are also described.

Roadway System

The Project site is surrounded by existing residential land uses, a school, and open space. Vallejo is located in the south-western portion of Solano County, adjacent to the cities of Benicia and American Canyon located southeast and north, respectively.

Regional access to the site is provided by Sonoma Boulevard and Interstate 80; Magazine Street, Porter Street and Cherry Street provide local access. The following roadways provide access to the site and are most likely to experience direct traffic effects, if any, from the proposed Project:

Regional Access

Sonoma Boulevard (SR 29) is a state highway that extends from Interstate 80 in Vallejo north to State Route 20 in Upper Lake. It is a north-south expressway with two travel lanes in each direction in the vicinity of the Project site. Discontinuous sidewalks are provided along some sections of Sonoma Boulevard near the Project site, becoming more consistent as the roadway enters downtown. Bicycle facilities, in the form of Class II bike lanes, are present on Sonoma Boulevard starting east of the Project site and extending south to Sequoia Avenue. In the Project vicinity, the posted speed limit is 25 mph.

Interstate 80 (I-80) is an east-west transcontinental freeway that crosses the United States from downtown San Francisco, California, to Teaneck, New Jersey, in the New York metropolitan area. The facility is a six-lane freeway within the study area, with interchanges at Lincoln Road and Sequoia Avenue (accessible through Magazine Street or Sonoma Boulevard).

Local Access

Magazine Street is an east-west local road east of the Project site that provides one travel lane in each direction. Sidewalks are provided along at least one side of Magazine Street between Porter Street and Lincoln Road. The posted speed limit is 25 mph. There are no bicycle facilities present on this street near the Project site.

Porter Street is a north-south local road fronting the Project site that provides one travel lane in each direction. Sidewalks are provided on both sides of the street with landscape buffers present along the Project site; some sidewalk gaps are present on the east side of the street fronting Carquinez Park and the



undeveloped land on Magazine Street between Porter Street and Sonoma Boulevard. To the north and south, Porter Street transitions into Cherry Street and Sandy Beach Road, respectively. The posted speed limit is 25 mph. Bicycle facilities are not present. Porter Street primarily serves residential communities and provides access to the Project site via two existing driveways.

Cherry Street is an east-west local road with one travel lane in each direction north-east of the Project site. Sidewalks are provided on both sides of the street. The posted speed limit is 25 mph. Bicycle facilities are not present. Cherry Street serves residential communities north-east of the project site. Cherry Street transitions into Porter Street to the west of Sonoma Boulevard.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signals, and multi-use trails. Three- to ten-foot sidewalks are provided on most roadways in the study area, although several gaps exist. Crosswalks are provided at signalized and unsignalized intersections. Pedestrian push-button actuated signals are provided at signalized intersections in the study area.

Bicycle facilities in Vallejo include the following:

- **Bike paths (Class I)** – Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Within the Project's vicinity, Sonoma Boulevard provides Class II bicycle facilities; Magazine Street provides bike route signage east of the Project site.



Existing Transit Service

The Vallejo Transit Center (VTC) serves as Solano County Transit's (SolTans) main transit center for SolTrans Local Routes 1 through 8 and the SolanoExpress Red and Yellow Lines. Route 3 (South Vallejo) operates in the vicinity of the Project site. Route 3 provides service along Porter Street, Magazine Street, and Sonoma Boulevard, with connections to the Vallejo Transit Center and the Curtola Park and Ride Lot. Three bus stops are present along Porter Street, two of which are in close proximity to the Project's southern driveway.

Existing Traffic Counts

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at the study intersections in October 2022 with area schools in normal session. Peak hour intersection vehicle volumes are summarized on **Figure 3** along with existing lane configurations and traffic controls. The traffic counts for existing conditions are provided in **Appendix A**.

Existing Intersection Levels of Service

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the LOS for the study intersections during each peak hour. The Synchro 11.0 software program was used to analyze all intersections. The existing levels of service are presented in **Table 3** for each study intersection. Observed peak hour factors¹ were used at all intersections for the existing conditions analysis. Detailed intersection LOS calculation worksheets are presented in **Appendix B**.

¹ The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: $PHF = \text{Hourly volume} / (4 \times (\text{volume during the peak 15 minutes of flow}))$. The analysis level of service is based on peak rates of flow occurring within the peak hour because substantial short term fluctuations typically occurring during an hour.



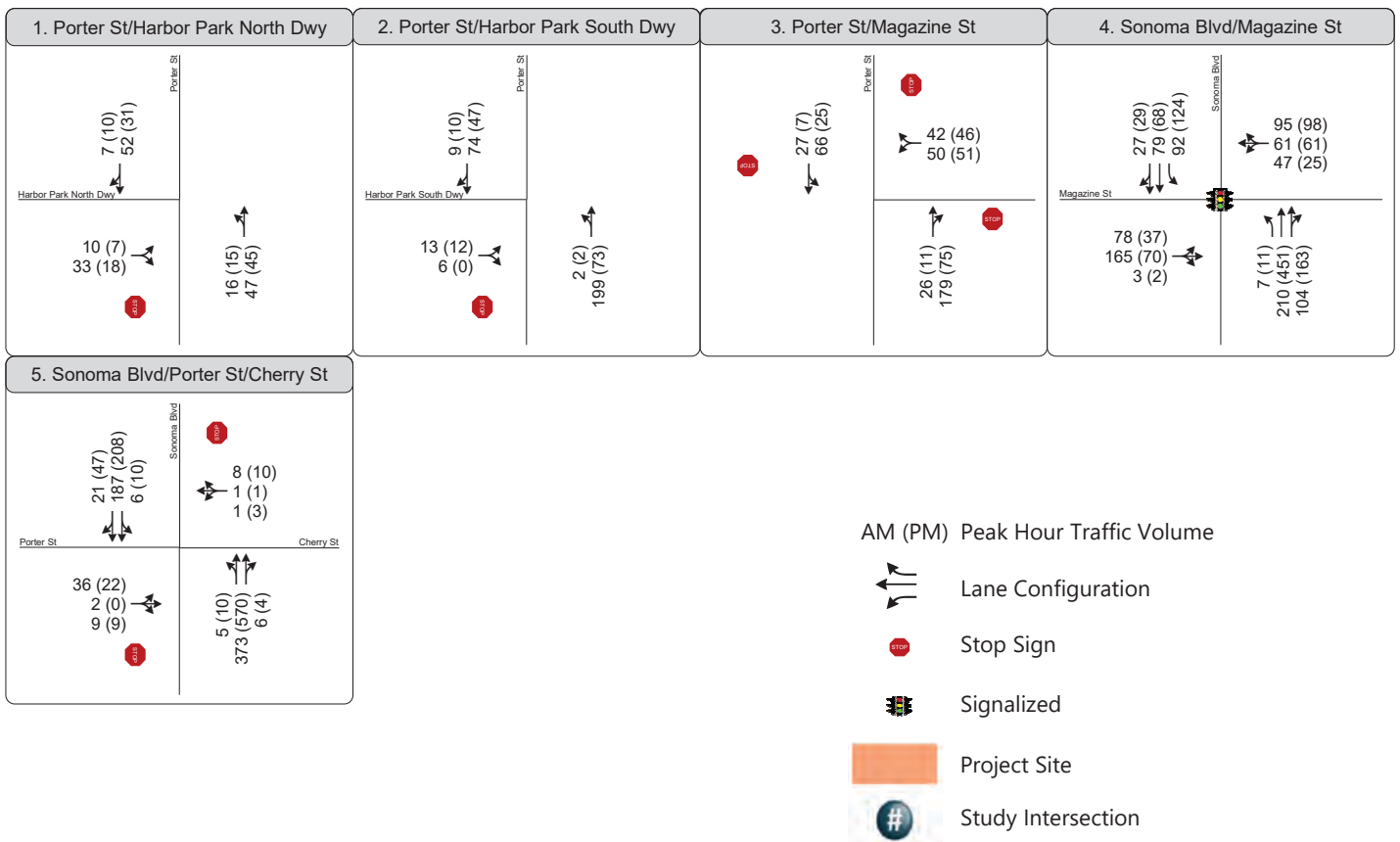
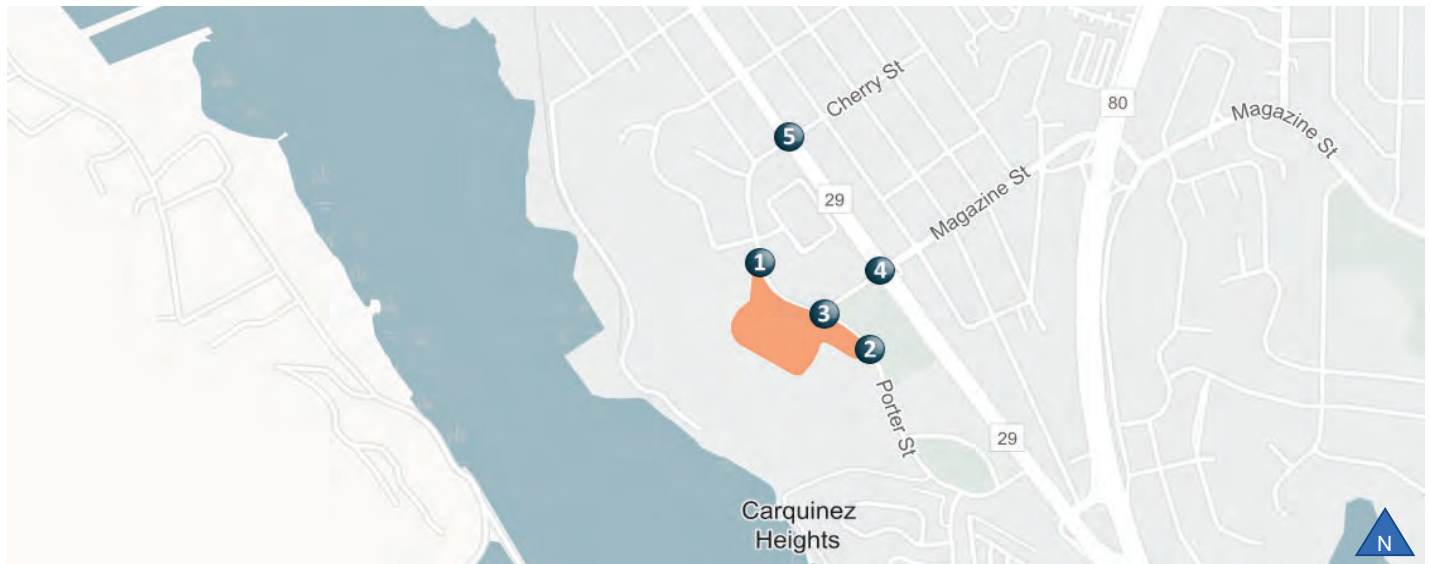


Figure 3

Existing Peak Hour Intersection Volumes,
Lane Configurations, and Traffic Control



Table 3: Existing Conditions Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour	LOS Standard	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.1 8.9	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	10.6 9.6	B A
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.4 7.5	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.2 18.3	B B
5. Cherry Street/Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	12.3 14.4	B B

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop-controlled intersections. Side-street stop-controlled delay presented for the intersection's worst movement. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Source: Fehr & Peers, 2023.

As illustrated in Table 3, all study intersections currently function at LOS A/B indicating low levels of vehicular delay.



4. Project Characteristics

This chapter provides an overview of the proposed Project components and addresses the proposed Project's trip generation, distribution, and assignment characteristics, allowing for an evaluation of project effects on the surrounding roadway network. The amount of traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

Project Description

The Project site is located west of Porter Street, as shown in **Figure 1**. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower income units, on the current Harbor Park Apartments site which currently houses 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). The Project site plan is shown on **Figure 2**.

Vehicle access to the residential development is provided by two existing driveways on Porter Street. Regional access is available via Sonoma Boulevard at Magazine Street and Interstate 80 at Lincoln Road and at Sequoia Avenue.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates, shown in **Table 4**, from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition).

Trip generation estimates were developed for the proposed Project and are presented in **Table 4**. The Project is expected to generate approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips.



Table 4: Trip Generation Summary

Land Use	Quantity ¹	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) ²	122 du	822	12	37	49	39	23	62

1. du = dwelling unit

2. ITE land use category 220 – Multifamily Housing (Low-Rise) (Adj Streets, 7-9A, 4-6P):

Daily: $T = 6.74(X)$

AM Peak Hour: $T = 0.40(X)$; Enter = 24%; Exit = 76%

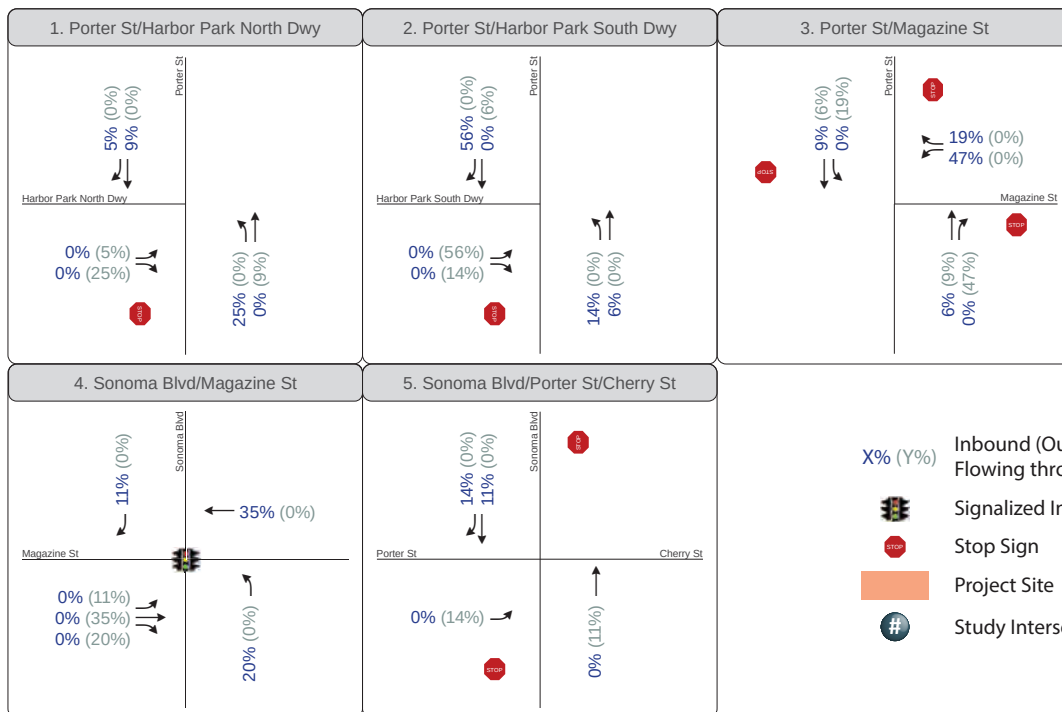
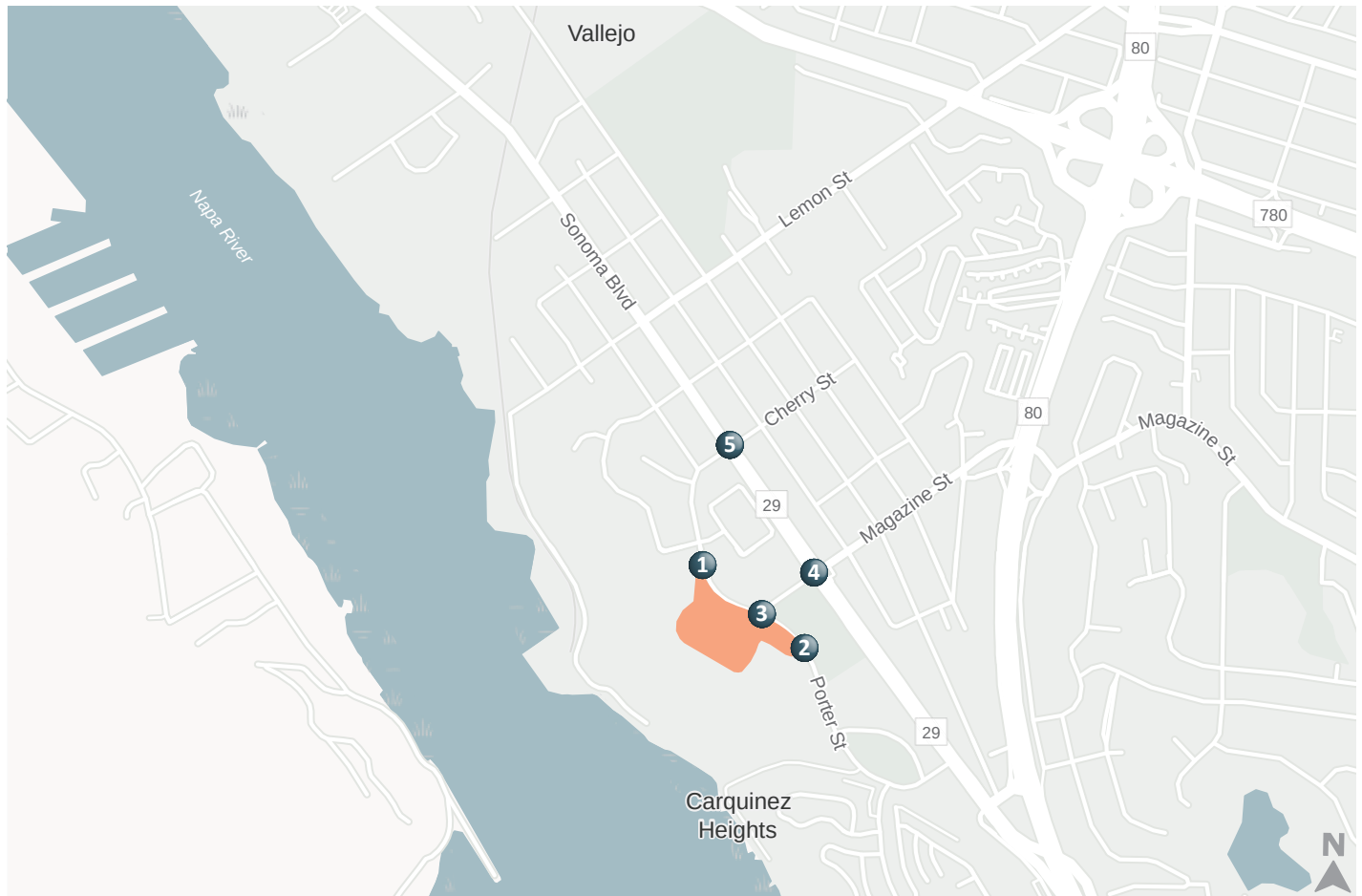
PM Peak Hour: $T = 0.51(X)$; Enter = 63%; Exit = 37%

Source: *Trip Generation Manual* (11th Edition), ITE, 2017; Fehr & Peers, 2023.

Project Trip Distribution and Assignment

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the Solano-Napa Activity Based Travel Demand Model (SNABM), and the location of complementary land uses. The resulting trip distribution percentages are shown on **Figure 4**. Project trips were then assigned to the roadway network, as shown on **Figure 5**.

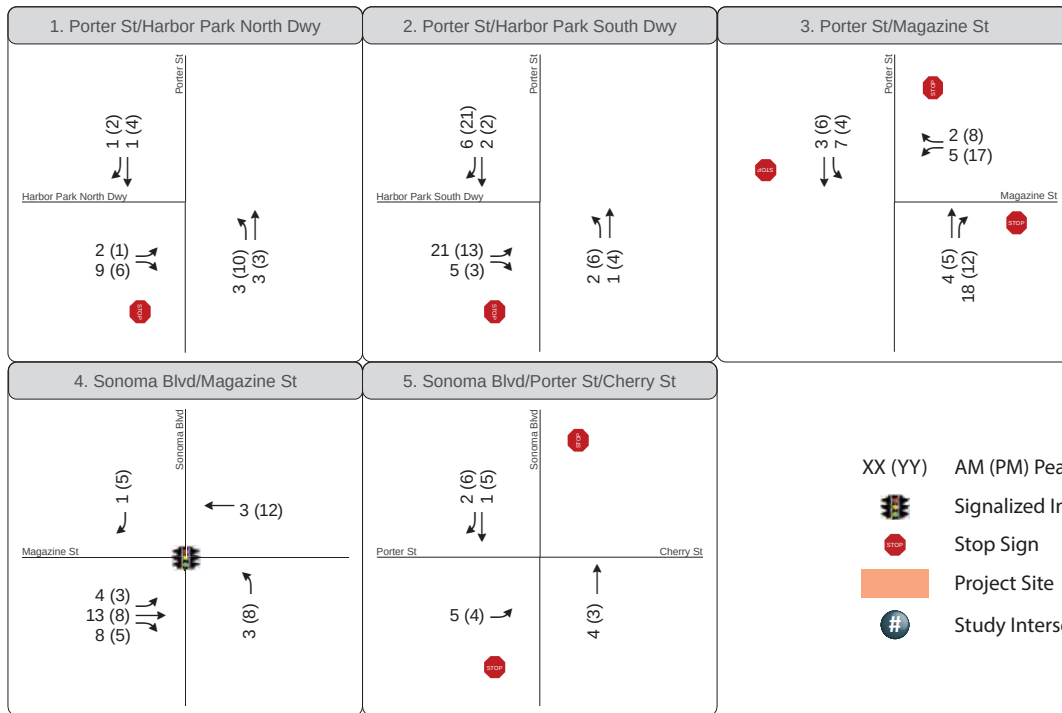




- X% (Y%) Inbound (Outbound) Percentages of Project Trips Flowing through each Intersection
- Signalized Intersection
 - Stop Sign
 - Project Site
 - Study Intersection

Figure 4

Intersection Project Trip Distribution



Project Trip Assignment

5. Project Opening Year Traffic Conditions (2025)

This chapter discusses near-term traffic conditions with and without the addition of traffic that would be generated by Project. The project opening year conditions analysis considers approved projects within the study area that are expected to be constructed and occupied in the next one to five years. No roadway improvements were assumed at the study intersections for the analysis of project opening year conditions as none are currently proposed or under consideration.

Project Opening Year Forecasts

The project opening year scenario reflects existing traffic counts plus traffic from approved and pending developments. The scenario is intended to represent the likely traffic levels at the time of Project completion and occupation. In coordination with the City of Vallejo a list of applicable approved and pending developments in the study area was assembled. This list included one project, the Oakwood Apartments development, located at the corner of Sonoma Boulevard and Magazine Street, as shown on **Figure 6**.

The Oakwood Apartments project's vehicle trip generation characteristics were obtained from the Traffic Impact Study prepared for the project (*Oakwood Apartments Traffic Impact Study*, W-Trans, February 2020) and is summarized in **Table 5**. This project has been approved, but construction has not yet begun. Data regarding the trip generation, distribution, and assignment for this project is included in **Appendix C**. Traffic generated by the approved development was added to the existing traffic volumes to provide the basis for the Project Opening Year analysis. These near-term baseline volumes are presented on **Figure 7**. Project generated traffic was added to the Project Opening Year volumes to estimate Project Opening Year with Project volumes, as presented on **Figure 8**.



Table 5: Project Opening Year Approved Projects

Project Name	Land Use	Quantity ¹	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Oakwood Apartments	Multi-Family Residential	132 DU	675	12	33	45	33	22	55

Note:

1. Du=dwelling unit

Source: City of Vallejo (November 2022) & W-Trans (February 2020).





Figure 6

Project Opening Year Approved Project Location

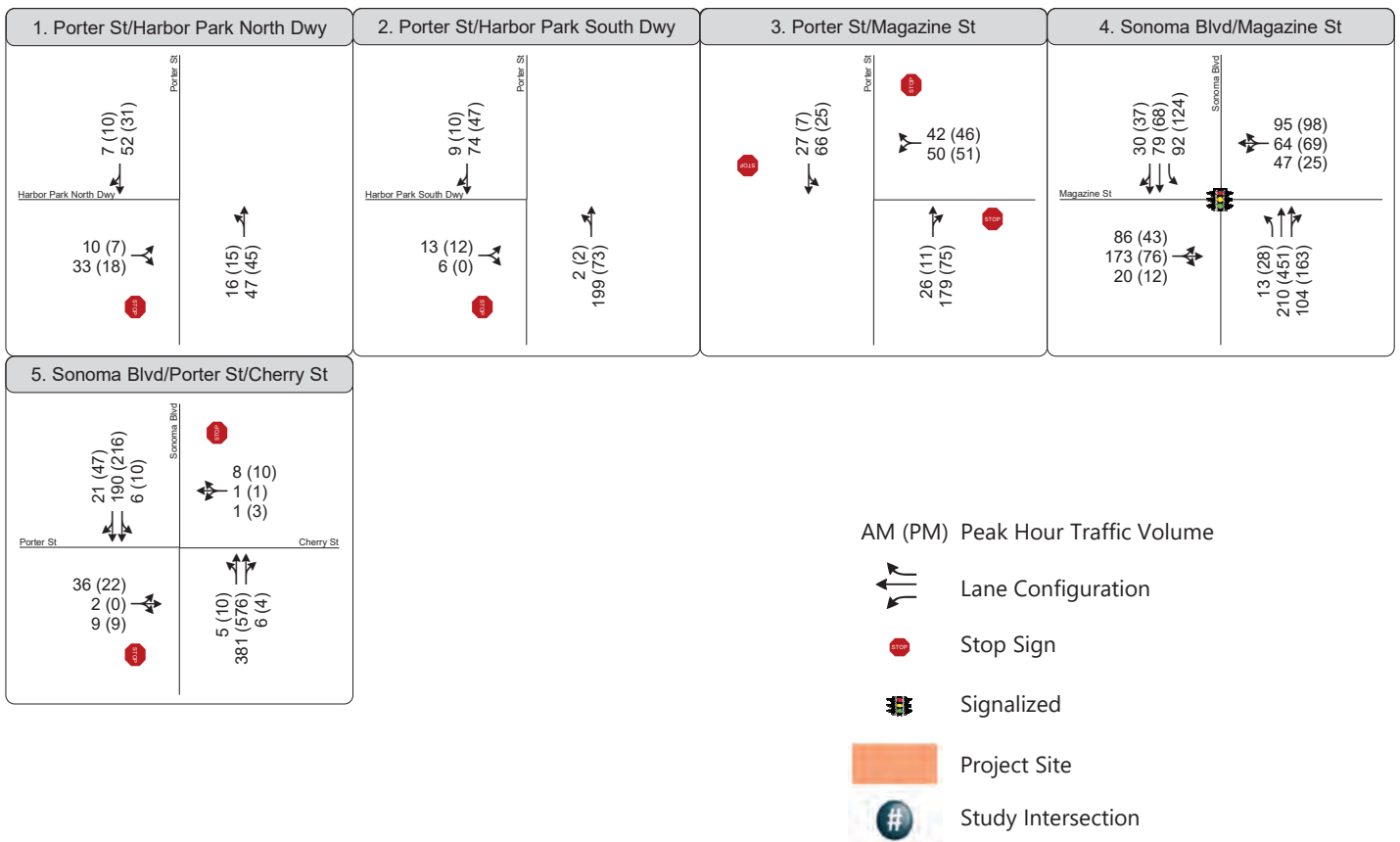
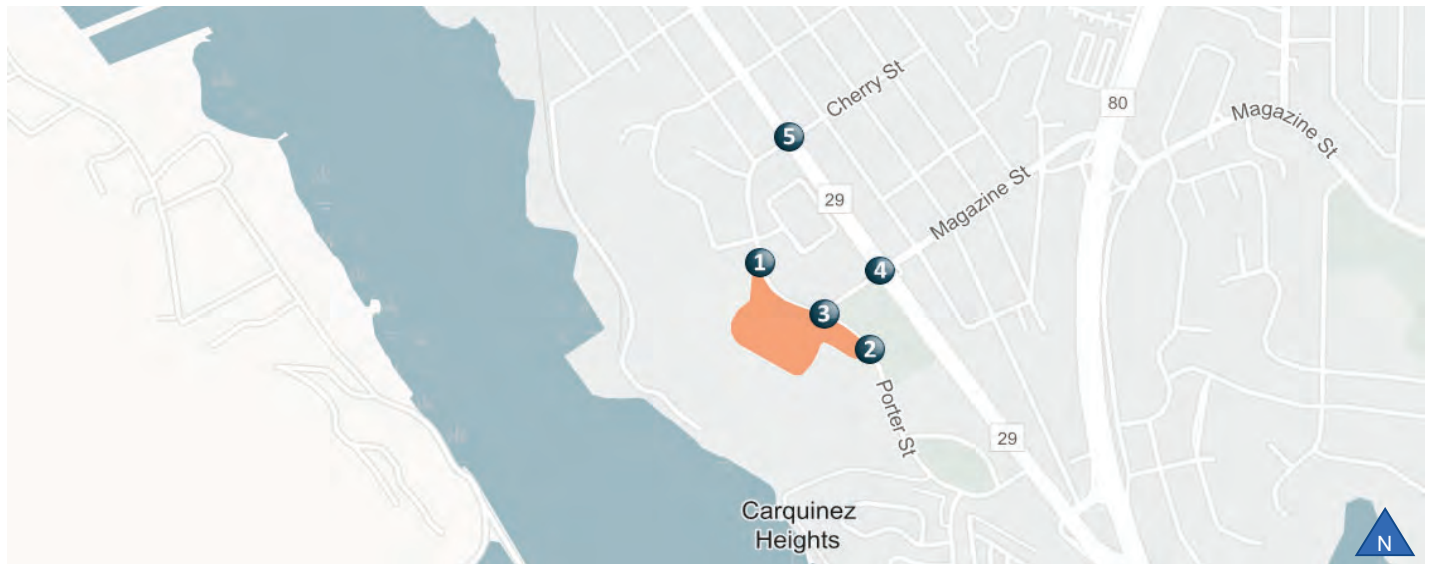


Figure 7

Project Opening Year Traffic Volumes, Lane Configurations, and Traffic Control



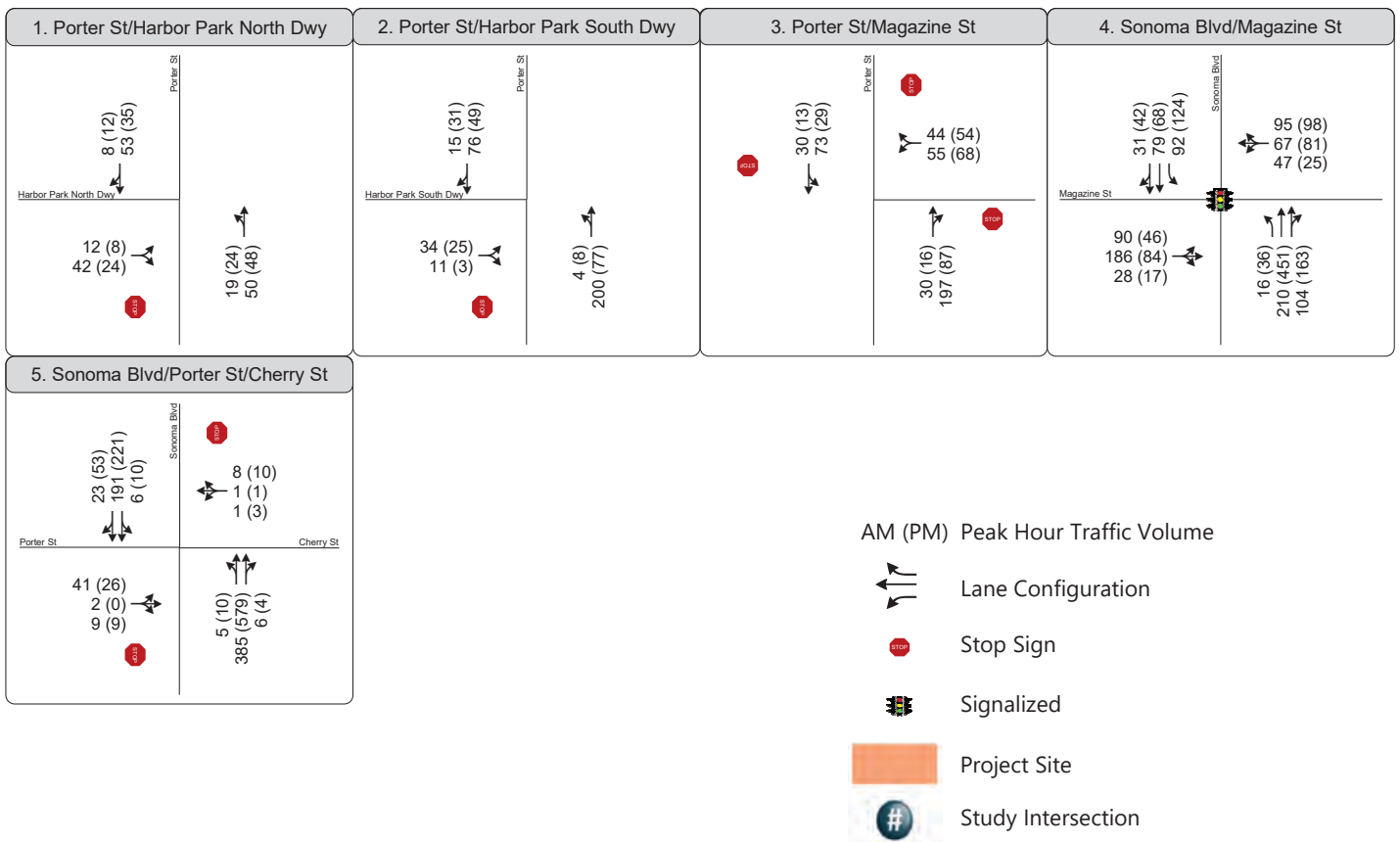
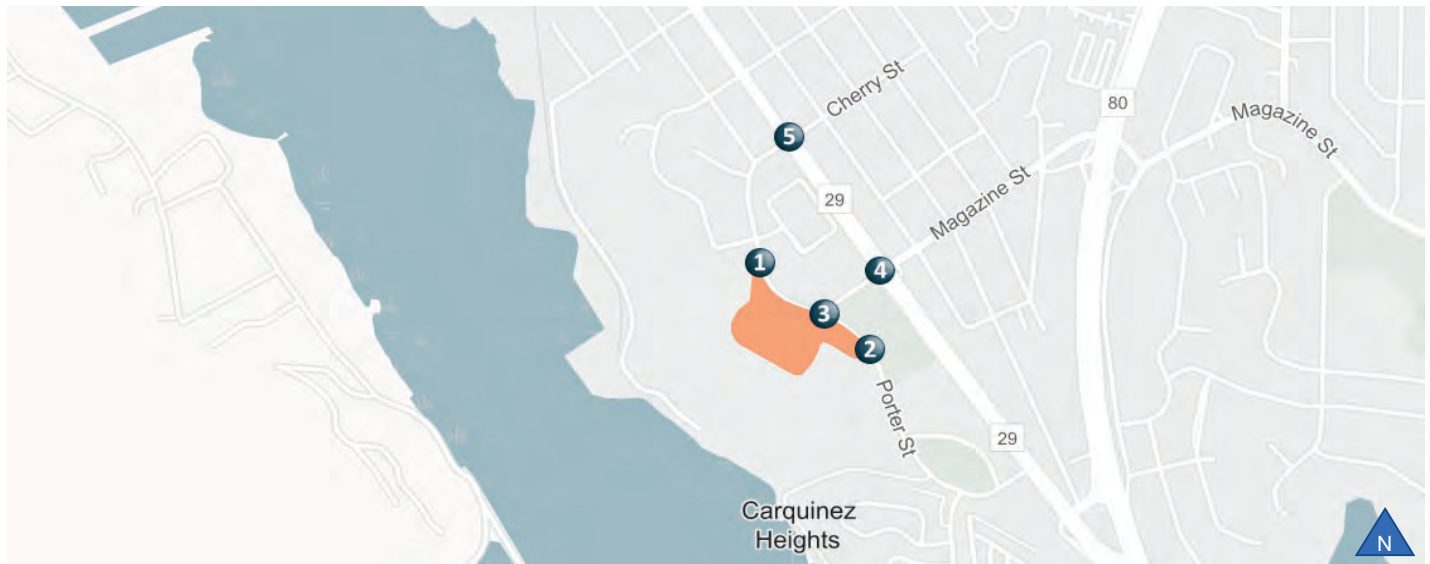


Figure 8

Project Opening Year With Project Traffic Volumes,
Lane Configurations, and Traffic Control



Analysis of Project Opening Year Conditions

Intersection Operations

Project Opening Year without and with Project conditions were evaluated using the methods described in Chapter 1. The analysis results are presented in **Table 6**, based on the traffic volumes and lane configurations presented on Figure 7 and Figure 8.

Table 6: Project Opening Year Conditions Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour ²	LOS Standard	Project Opening Year		Project Opening Year with Project	
				Delay ³	LOS	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.1 8.9	A A	9.2 9.0	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	10.6 9.6	B A	11.3 9.9	B A
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.4 7.5	A A	8.8 7.8	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.4 19.0	B B	14.6 19.6	B B
5. Cherry Street/ Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	12.4 14.6	B B	12.6 15.2	B C

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Worst Movement Delay. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Underline indicates a policy violation related to Project-generated traffic.

Source: Fehr & Peers, 2023.

Project Opening Year Findings

Based on the City of Vallejo's LOS guidelines, all intersections were found to operate acceptably under Project Opening Year baseline conditions and with the addition of Project traffic. Each of the study intersections were found to operate at LOS A, B or C under these analysis scenarios, indicating low levels of vehicular delay.



6. Future Year Buildout (2040)/ Cumulative Traffic Conditions

This chapter discusses Cumulative traffic conditions both without and with traffic forecast to be generated by the Project. The future conditions analysis considers development within the City of Vallejo as described in the General Plan.

Cumulative Traffic Forecasts

To assess future growth with planned development in the City of Vallejo, several sources of data were reviewed, including the Solano-Napa Activity Based Travel Demand Model (SNABM), and the traffic growth trends as described in the Vallejo's General Plan. Traffic forecasts within the immediate study area were reviewed to ensure that known developments were adequately reflected in the forecasts. Minor adjustments were made to the forecasts to balance traffic volumes between closely spaced intersections in the study area. The resulting Cumulative without Project forecasts are presented on **Figure 9**, which are representative of conditions over the next 20 years, with buildout of the City's General Plan. The Project volumes from Figure 5 were added to the Cumulative without Project traffic volumes to developed Cumulative with Project conditions, as presented on **Figure 10**.



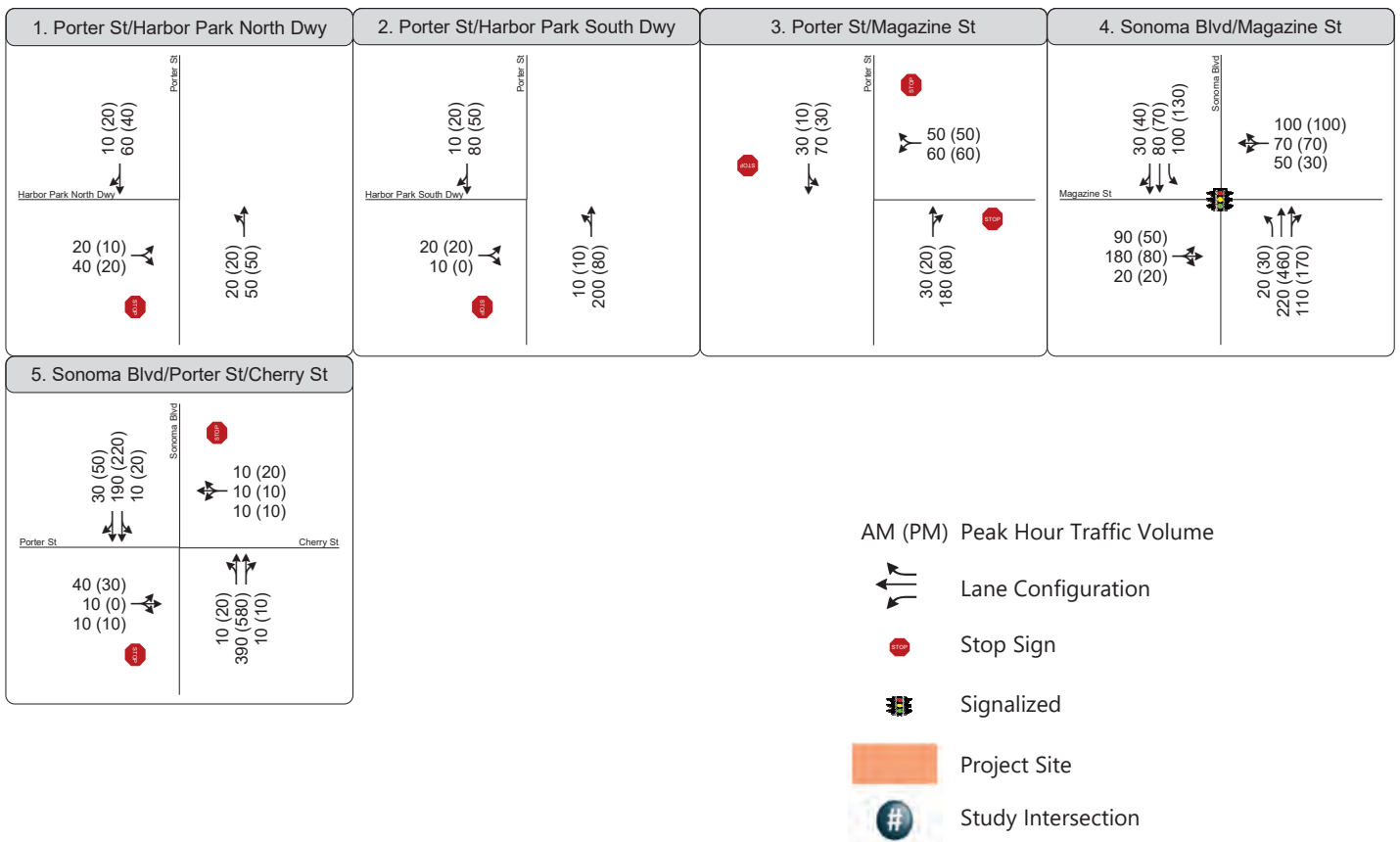
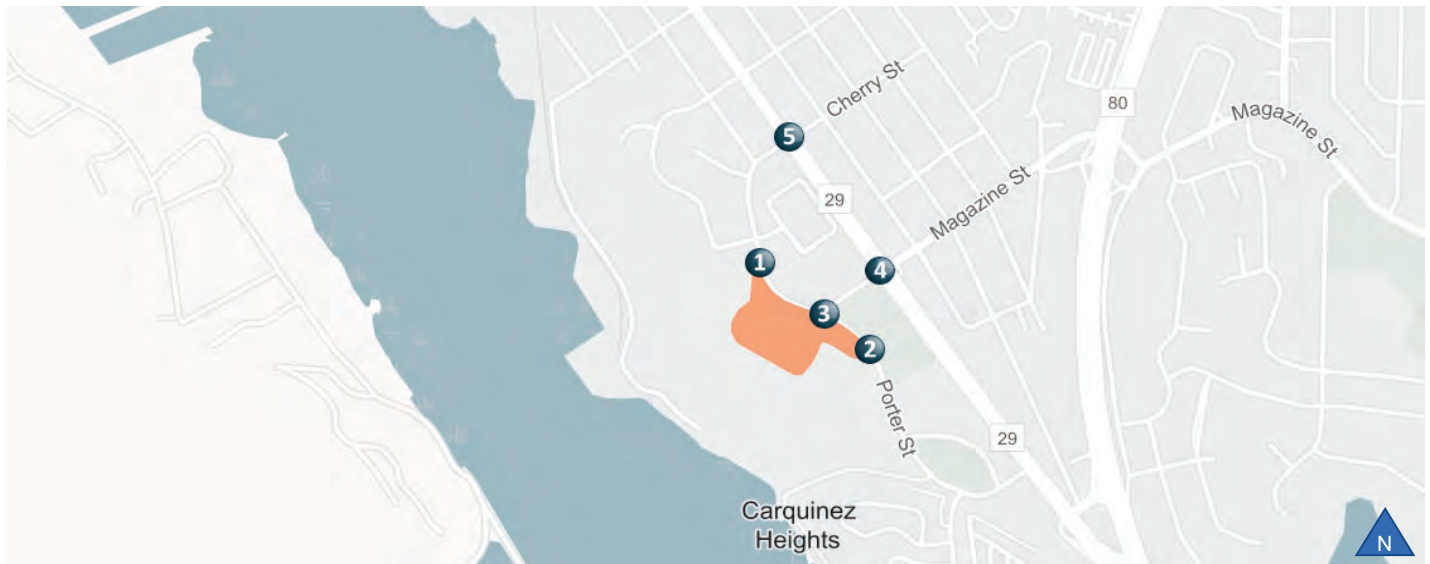


Figure 9

Cumulative Without Project Traffic Volumes,
Lane Configurations, and Traffic Control



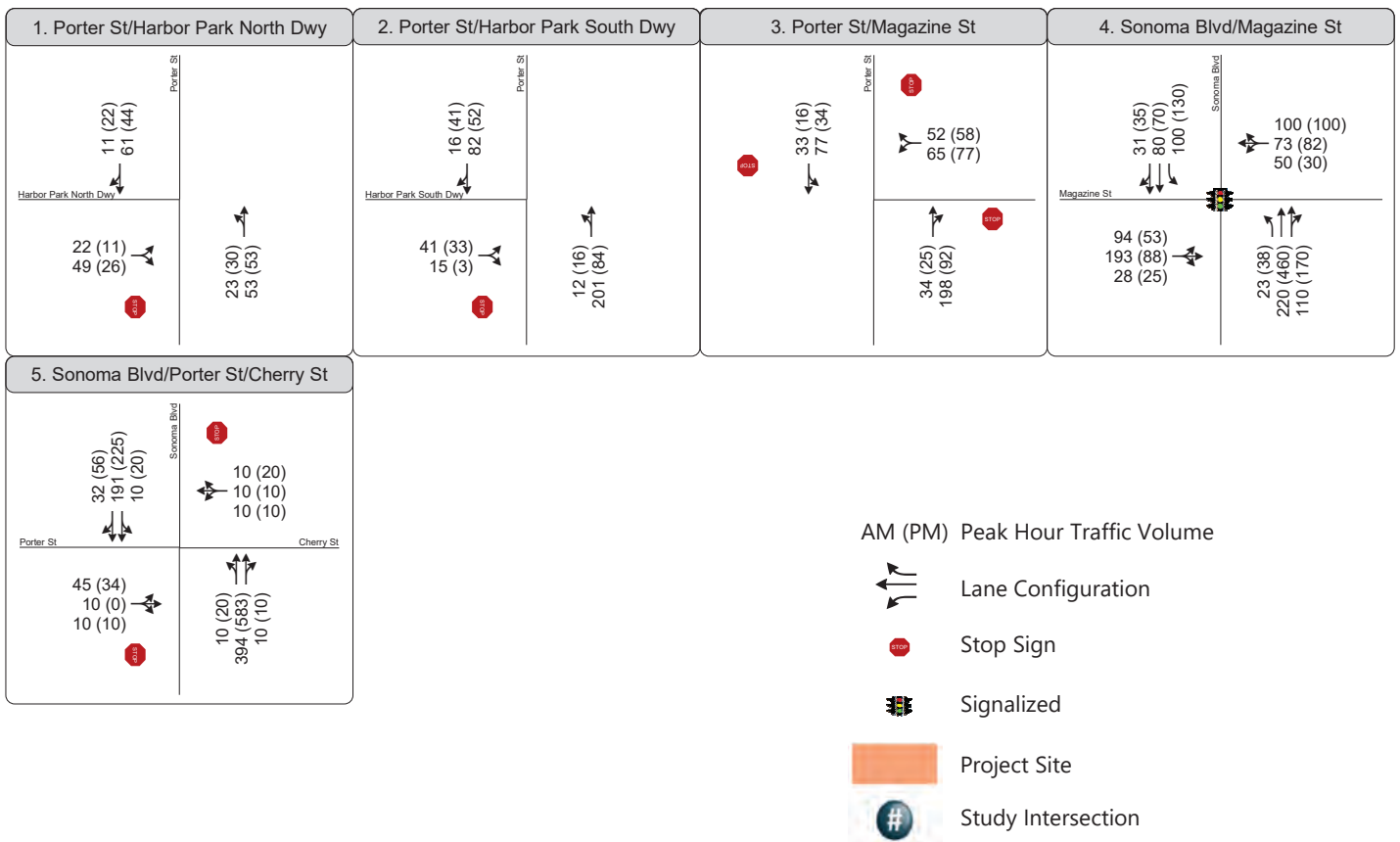
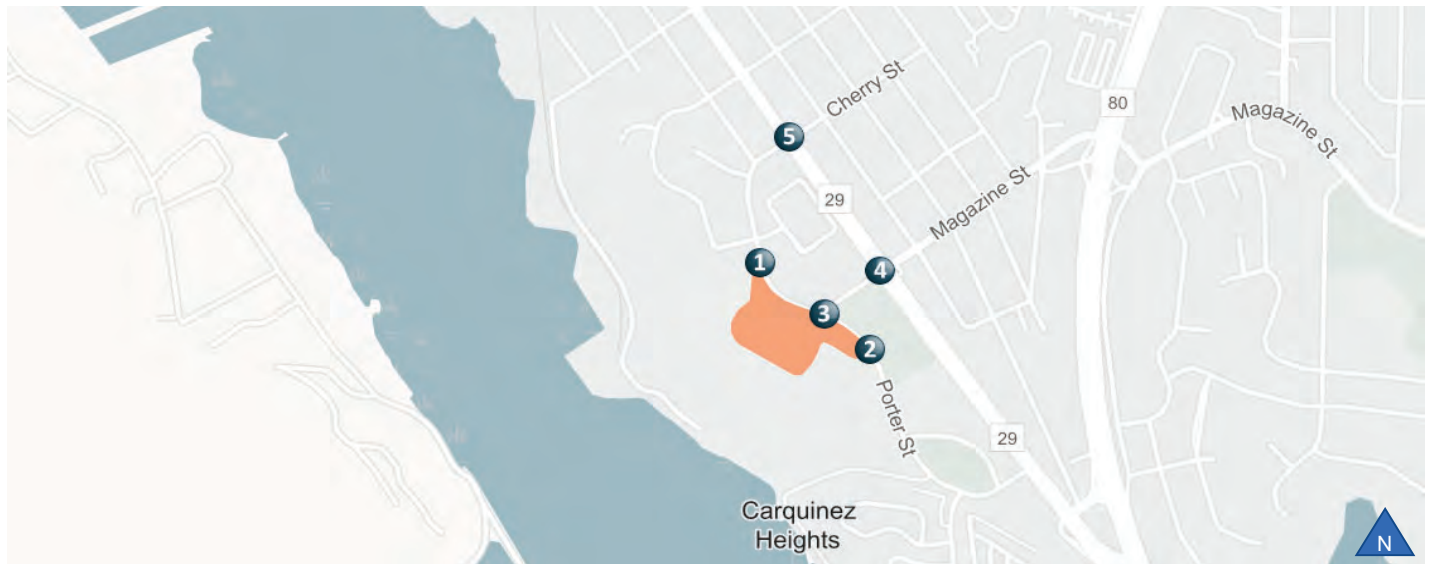


Figure 10

Cumulative With Project Traffic Volumes,
Lane Configurations, and Traffic Control



Analysis of Future Year Buildout (2040)/Cumulative Conditions

Intersection Operations

Cumulative without and with Project conditions were evaluated using the methods described in Chapter 1. The analysis results are presented in **Table 7**, based on traffic volumes presented on Figure 9 and Figure 10.

Table 7: Future Year Buildout (2040)/Cumulative Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour ²	LOS Standard	Cumulative		Cumulative with Project	
				Delay ³	LOS	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.4 9.1	A A	9.5 9.2	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	11.0 9.9	B A	11.7 10.3	B B
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.7 7.8	A A	9.0 8.1	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.4 19.1	B B	14.5 19.6	B B
5. Cherry Street/ Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	13.7 18.0	B C	13.9 18.2	B C

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop controlled intersections. Side-street stop-controlled delay presented as Worst Movement Delay. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Underline indicates a policy violation related to Project-generated traffic.

Source: Fehr & Peers, 2023.

Cumulative Conditions Findings

Based on the City of Vallejo's LOS guidelines, all intersections were found to operate acceptably under Cumulative and Cumulative plus Project conditions. Each of the study intersections was found to operate at LOS A, B or C under these analysis scenarios, indicating low levels of vehicular delay.



7. Site Plan Review

This chapter evaluates the proposed Project site relative to access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles based on the site plan presented previously on Figure 2.

Vehicular Site Access and Circulation

Vehicular access to the Project site is provided via two existing roadway connections (study intersections 1 and 2) to the external street network, both on Porter Street. Figure 2 illustrates the proposed Project site plan, including driveways, internal roadways, and parking spaces. Both project access points have stop sign control on the driveway approaches, with the main street (Porter Street) approaches being uncontrolled.

The posted speed limit along Porter Street is 25 mph. Table 201.1 of the Caltrans *Highway Design Manual* (HDM) states that the stopping sight distance standard for a design speed of 30 miles per hour (five miles per hour over the speed limit) is 200 feet. The observed sight distance along Porter Street at the northern project driveway is greater than 300 feet in both directions. At the southern project driveway, the observed sight distance is greater than 300 feet to the north (viewing southbound traffic), however, when looking to the south sight distance is affected by the adjacent landscaping and hill. As the Project's design is finalized, these sight distances should be checked by the registered site Civil Engineer, and the Project should make any modifications necessary to provide adequate driveway sight distance.

Site Recommendation 1: The final site plan for the Project should be analyzed by the Project's civil engineer to ensure that adequate sight distance of at least 200 feet is provided at all driveways. Particular focus should be given to the available sight distance to the south from the southern Project driveway. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary. If inadequate sight distance is identified, appropriate modifications should be made as part of the Project. Modifications could include physical modifications to the driveway intersections (landscape removal, grading, etc), the installation of stop signs on Porter Street at the Project's driveway(s) or other modifications as necessary.

The project access intersections with Porter Street would function at acceptable service levels as proposed (side-street stop-control).



As illustrated on Figure 2, the project's internal circulation system is provided via a system of interconnected internal two-way streets which are 24 to 28 feet in width. Trucks and emergency vehicles are expected to use the on-site roadways for moving, garbage, deliveries, and emergency access.

Site Recommendation 2: The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.

Emergency Vehicle Access

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

Emergency vehicle access to the site is provided by the two Project driveways on Porter Street. Emergency vehicle access within the site is provided via a network of 24 to 28-foot-wide internal roadways. A combination of existing and new internal roadways provide access to each of the site's internal structures. The Project would not conflict with any applicable emergency access plans.

Site Recommendation 3: Provide even surface pavement, appropriate signage, delineation, and other features at all emergency access points and internal roadways to accommodate emergency vehicles. Emergency response within the City of Vallejo is provided by the Vallejo Fire Department. The emergency vehicle access on the final site plan should be reviewed and found adequate by the City's Fire Chief prior to building permits.

Pedestrian Access and Circulation

The Project would create a significant impact related to the pedestrian system if any of the following criteria are met:

- Disrupt existing pedestrian facilities; or
- Interfere with planned pedestrian facilities; or
- Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Access to the surrounding network of pedestrian facilities, including existing sidewalks on Porter Street is available via both Project driveways. As illustrated on Figure 2, the Project proposes new sidewalks and pathways within the site linking the ADA accessible parking spaces with individual residential units.



The project proposes no features that would be hazardous to pedestrian travel and does not conflict with any pedestrian facilities plans or programs.

Bike Access and Circulation

The Project would create a significant impact related to the bicycle system if any of the following criteria are met:

- Disrupt existing bicycle facilities; or
- Interfere with planned bicycle facilities; or
- Create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards.

While the project does not propose any designated bicycle facilities (lanes, routes, or paths), bicycles would be permitted on all internal roadways. The project proposes no features that would be hazardous to bicycle travel and does not conflict with any bicycle facilities plans or programs.

Transit Access

The Project would create a significant impact related to transit service if the following criteria are met:

- The project interferes with existing transit facilities or precludes the construction of planned transit facilities.

The project proposes no features which conflict with existing or planned transit services. The project is not expected to result in appreciable increases in ridership on local or regional transit facilities that would exceed their capacity. Significant adverse project impacts related to transit were not identified.

Parking

As part of the construction of the 122 new multifamily units the Project would construct 155 new parking spaces and remove 96 existing parking spaces. With Project construction a total of 337 off-street parking spaces would be provided on site, serving a total of 304 residential units. Of the 337 spaces, 152 would be dedicated to the new units and 185 would be dedicated to the existing units. Parking for the new units would be unbundled. When parking is “unbundled” residents must pay a monthly fee for an on-site parking space separate from the cost of their unit. On-street parking space is also available along Project’s Porter Street frontage. Free on-street parking is available on Porter Street, which some project residents may choose to utilize rather than pay for secure and gated on-site parking close to their unit. The closest on-street parking is available down the hill from the residences, approximately 500 to 1,500 feet from the various garage locations.



The estimated peak parking demand for the Project was calculated using data and rates from the *Parking Generation Manual, 5th Edition* (2019), published by the Institute of Transportation Engineers (ITE). Based on the ITE methodology, the Project's 122 units are expected to generate a total peak demand of approximately 135 spaces. The existing 182 units generate a demand for 201 off-street parking spaces, representing a total demand of 336 spaces for the site as a whole.

Chapter 16.508.04 of the City of Vallejo's Municipal Code provides off-street parking requirements by land use type. Based on the City's code, one parking space per unit is required for residential uses. To satisfy the City's Code requirements, 122 off-street spaces are required. The existing 182 units to remain are required to provide 182 off-street parking spaces. The total site Code parking requirement is 304 spaces, which is satisfied by the 337 that would be provided on site at project completion.



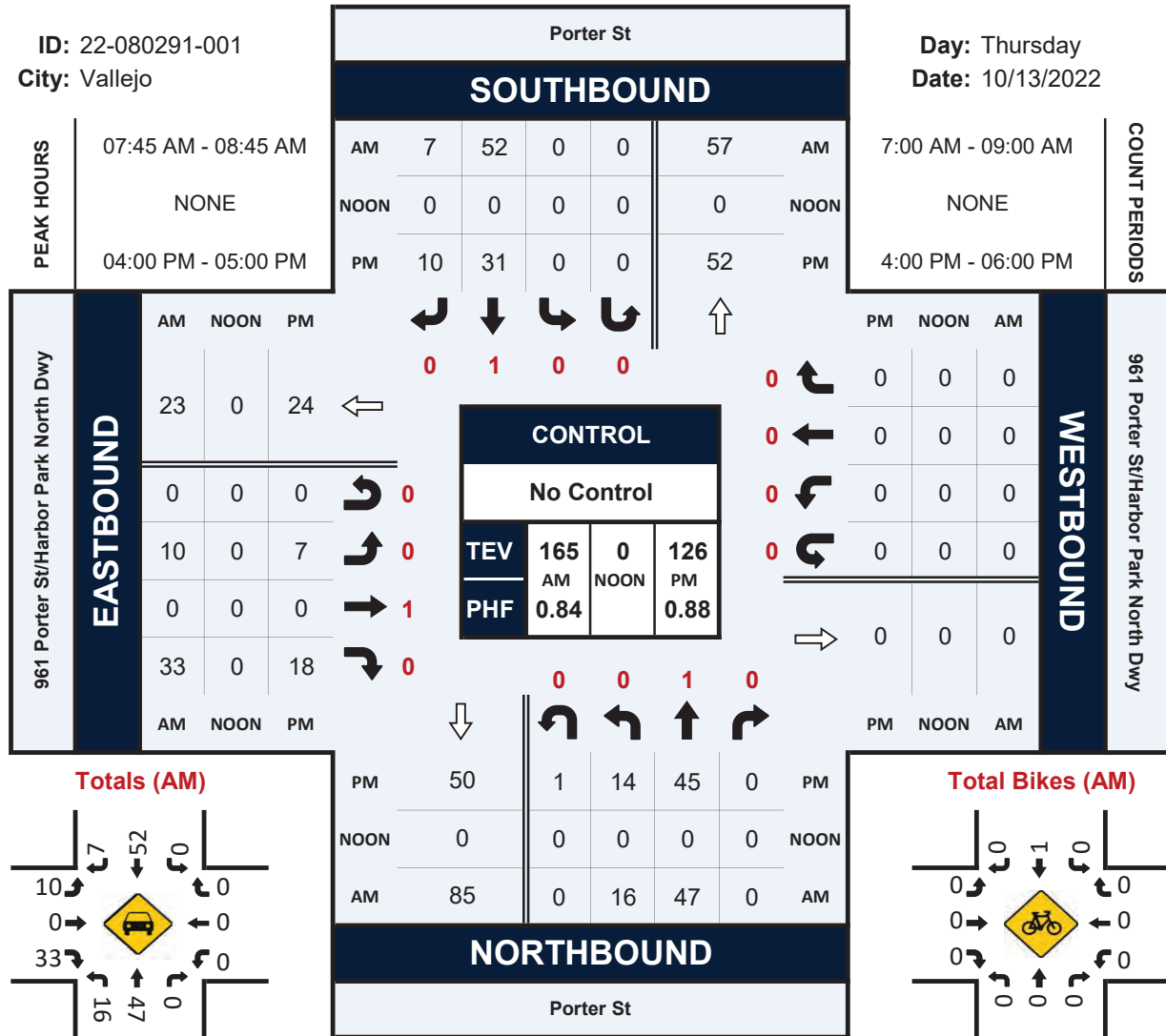
Appendix A: Traffic Counts

Porter St & 961 Porter St/Harbor Park North Dwy

Peak Hour Turning Movement Count

ID: 22-080291-001
City: Vallejo

Day: Thursday
Date: 10/13/2022

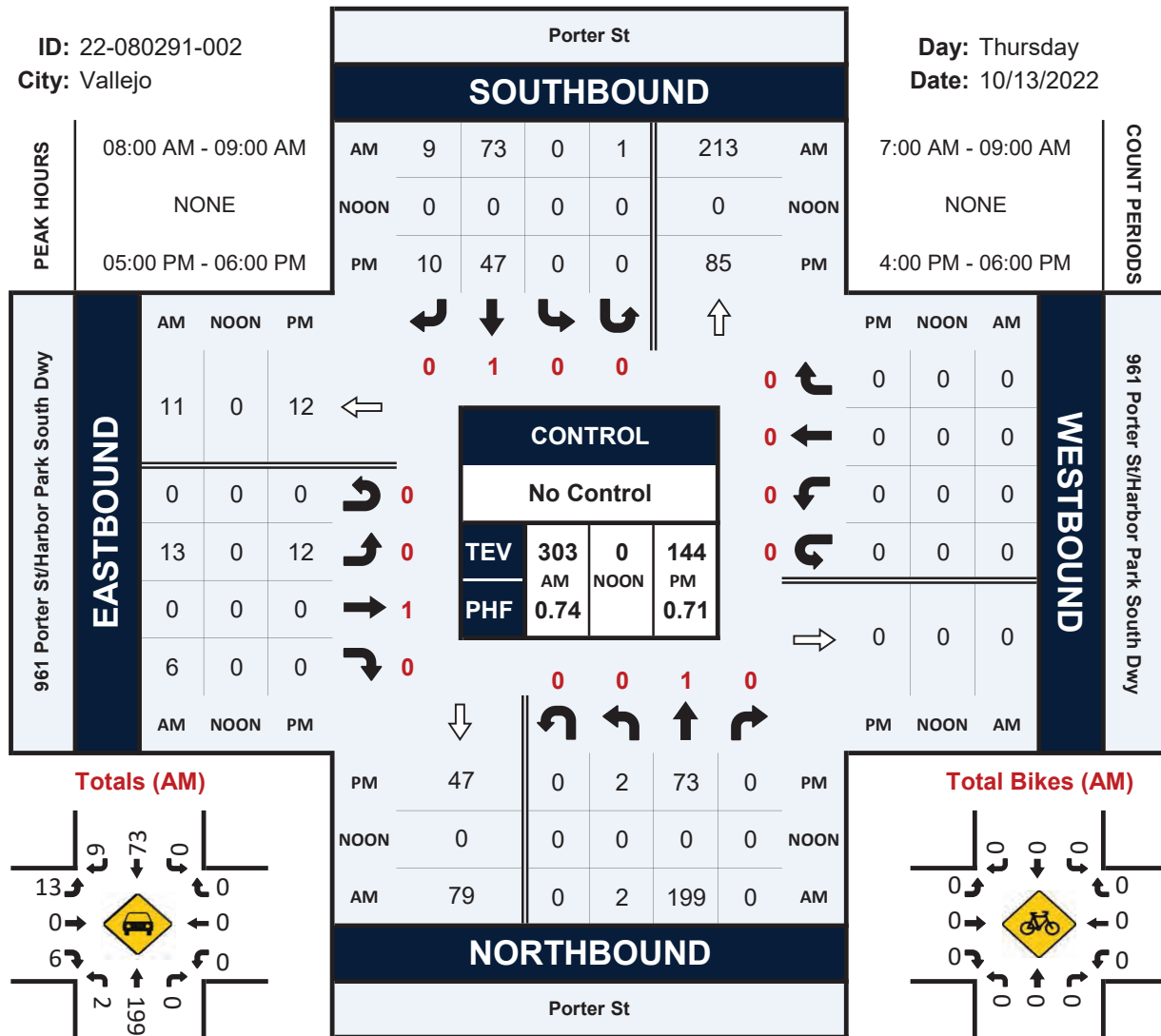


Porter St & 961 Porter St/Harbor Park South Dwy

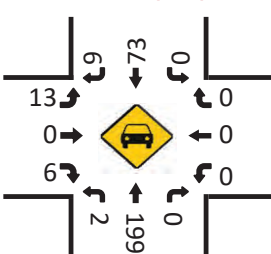
Peak Hour Turning Movement Count

ID: 22-080291-002
City: Vallejo

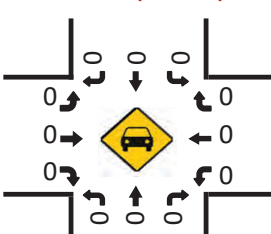
Day: Thursday
Date: 10/13/2022



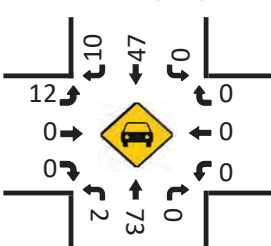
Totals (AM)



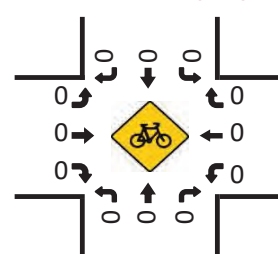
Totals (NOON)



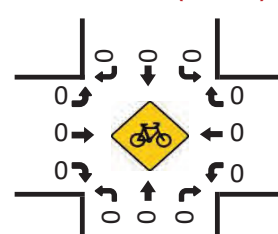
Totals (PM)



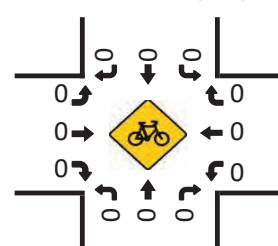
Total Bikes (AM)



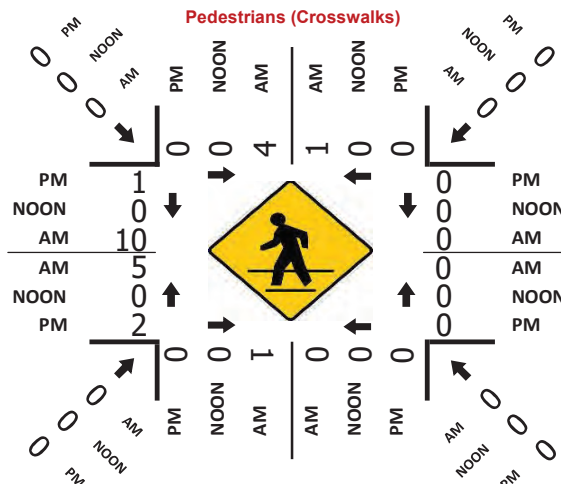
Total Bikes (NOON)



Total Bikes (PM)



Pedestrians (Crosswalks)

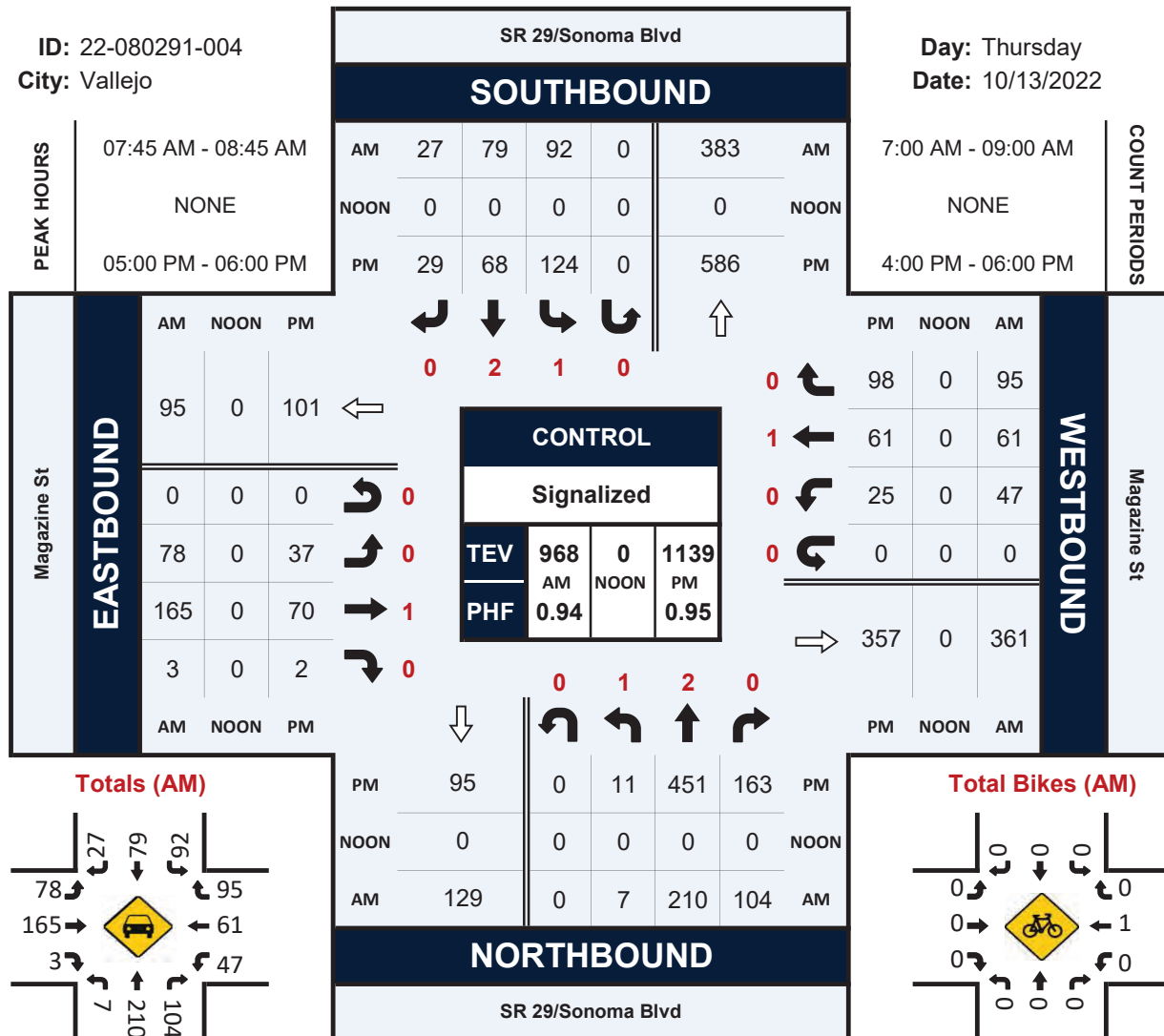


SR 29/Sonoma Blvd & Magazine St

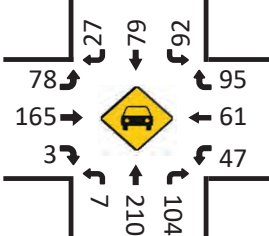
Peak Hour Turning Movement Count

ID: 22-080291-004
City: Vallejo

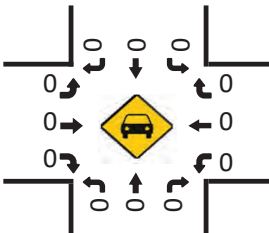
Day: Thursday
Date: 10/13/2022



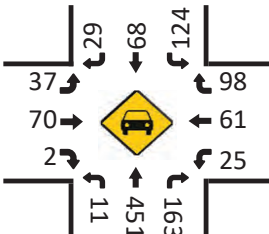
Totals (AM)



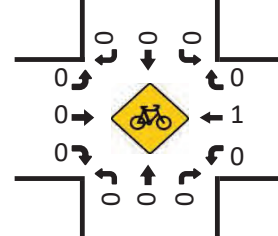
Totals (NOON)



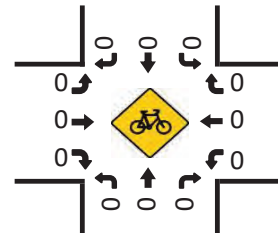
Totals (PM)



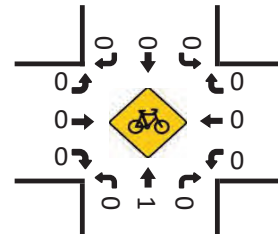
Total Bikes (AM)



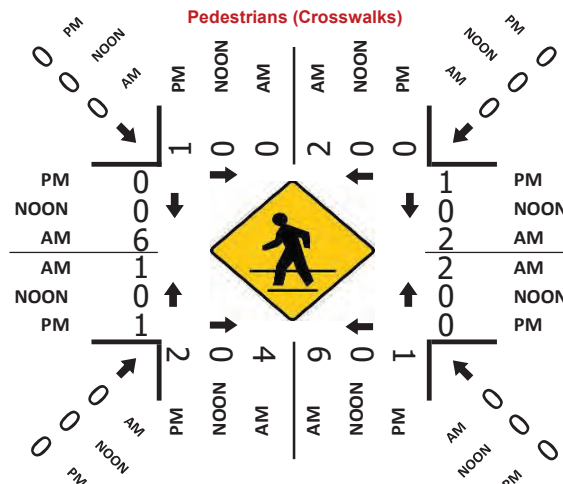
Total Bikes (NOON)



Total Bikes (PM)



Pedestrians (Crosswalks)

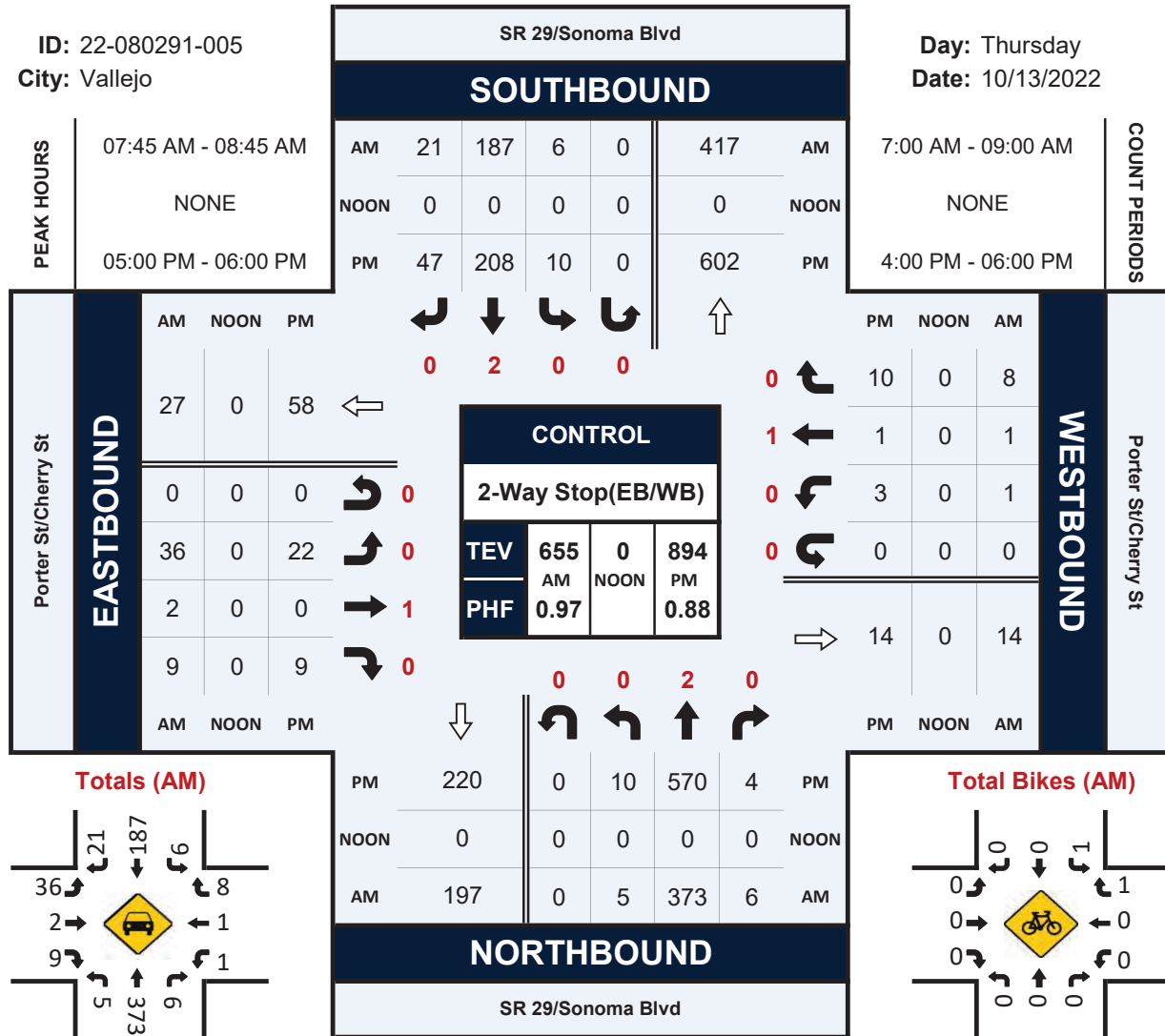


SR 29/Sonoma Blvd & Porter St/Cherry St

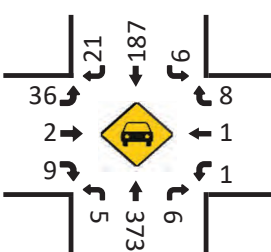
Peak Hour Turning Movement Count

ID: 22-080291-005
City: Vallejo

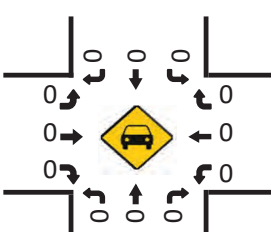
Day: Thursday
Date: 10/13/2022



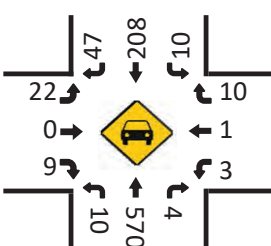
Totals (AM)



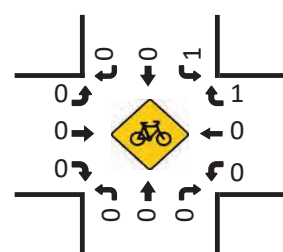
Totals (NOON)



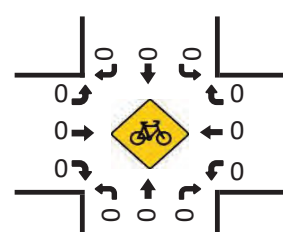
Totals (PM)



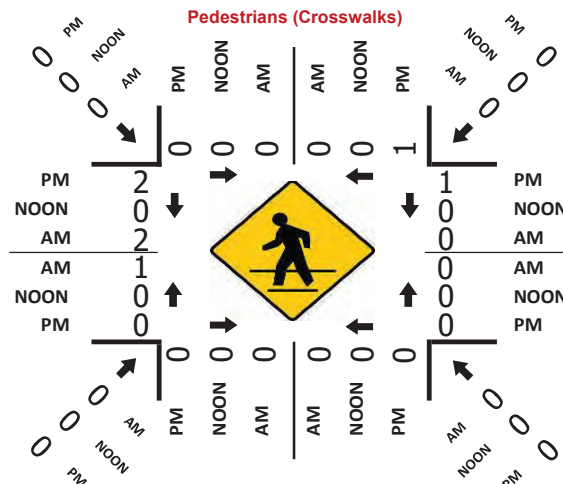
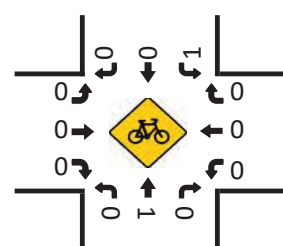
Total Bikes (AM)



Total Bikes (NOON)



Total Bikes (PM)



Appendix B: LOS Calculation Worksheets

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Existing AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	33	16	47	52	7
Future Vol, veh/h	10	33	16	47	52	7
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	39	19	56	62	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	170	77	80	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	818	981	1512	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	971	1498	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	1.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1498	-	922	-	-	
HCM Lane V/C Ratio	0.013	-	0.056	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Existing AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	2	199	74	9
Future Vol, veh/h	13	6	2	199	74	9
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	8	3	265	99	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	396	121	126	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	607	928	1454	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	914	1433	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1433	-	664	-	-	
HCM Lane V/C Ratio	0.002	-	0.038	-	-	
HCM Control Delay (s)	7.5	0	10.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile O(veh)	0	-	0.1	-	-	

HCM 6th AWSC
3: Porter St & Magazine St

Existing AM
West Harbor Park Vallejo

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	42	26	179	66	27
Future Vol, veh/h	50	42	26	179	66	27
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	55	34	236	87	36
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	8.4	8.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	46%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	205	92	93
LT Vol	0	50	66
Through Vol	26	0	27
RT Vol	179	42	0
Lane Flow Rate	270	121	122
Geometry Grp	1	1	1
Degree of Util (X)	0.289	0.155	0.158
Departure Headway (Hd)	3.859	4.603	4.641
Convergence, Y/N	Yes	Yes	Yes
Cap	933	780	775
Service Time	1.873	2.627	2.659
HCM Lane V/C Ratio	0.289	0.155	0.157
HCM Control Delay	8.4	8.5	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.5	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Existing AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	78	165	3	47	61	95	7	210	104	92	79	27
Future Volume (veh/h)	78	165	3	47	61	95	7	210	104	92	79	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	83	176	2	50	65	54	7	223	32	98	84	13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	370	4	189	227	150	33	693	98	369	1270	192
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.22	0.22	0.21	0.41	0.41
Sat Flow, veh/h	381	1278	13	317	783	516	1767	3097	438	1767	3066	464
Grp Volume(v), veh/h	261	0	0	169	0	0	7	126	129	98	47	50
Grp Sat Flow(s),veh/h/ln	1672	0	0	1616	0	0	1767	1763	1772	1767	1763	1767
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	0.2	2.9	2.9	2.2	0.8	0.8
Cycle Q Clear(g_c), s	5.9	0.0	0.0	3.7	0.0	0.0	0.2	2.9	2.9	2.2	0.8	0.8
Prop In Lane	0.32		0.01	0.30		0.32	1.00		0.25	1.00		0.26
Lane Grp Cap(c), veh/h	583	0	0	565	0	0	33	395	397	369	730	732
V/C Ratio(X)	0.45	0.00	0.00	0.30	0.00	0.00	0.21	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1024	0	0	978	0	0	369	920	925	369	920	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0	13.4	0.0	0.0	23.2	15.5	15.6	15.9	8.4	8.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	1.2	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.3	0.0	0.0	0.1	0.9	1.0	0.8	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	0.0	13.5	0.0	0.0	24.3	15.7	15.7	16.0	8.5	8.5
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	261			169			262			195		
Approach Delay, s/veh	14.3			13.5			15.9			12.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	24.7		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+12, s)	12.3	2.8		5.7	4.2	4.9		7.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.3				

Intersection Summary

HCM 6th Ctrl Delay 14.2

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Existing AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Vol, veh/h	36	2	9	1	1	8	5	373	6	6	187	21
Future Vol, veh/h	36	2	9	1	1	8	5	373	6	6	187	21
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	2	9	1	1	8	5	385	6	6	193	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	422	620	111	508	628	196	218	0	0	391	0	0
Stage 1	219	219	-	398	398	-	-	-	-	-	-	-
Stage 2	203	401	-	110	230	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	513	400	918	446	396	809	1341	-	-	1157	-	-
Stage 1	760	718	-	596	599	-	-	-	-	-	-	-
Stage 2	777	597	-	880	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	501	394	915	436	390	809	1337	-	-	1157	-	-
Mov Cap-2 Maneuver	501	394	-	436	390	-	-	-	-	-	-	-
Stage 1	754	712	-	593	596	-	-	-	-	-	-	-
Stage 2	764	594	-	863	704	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.3		10.4		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1337	-	-	542	678	1157	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.089	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.3	10.4	8.1	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Existing PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	18	15	45	31	10
Future Vol, veh/h	7	18	15	45	31	10
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	20	17	51	35	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	133	48	53	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	858	1018	1546	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1011	1536	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1536	-	955	-	-	
HCM Lane V/C Ratio	0.011	-	0.03	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Existing PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	2	73	47	10
Future Vol, veh/h	12	0	2	73	47	10
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	0	3	97	63	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	176	73	79	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	811	986	1513	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	805	983	1509	-	-	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1509	-	805	-	-	
HCM Lane V/C Ratio	0.002	-	0.02	-	-	
HCM Control Delay (s)	7.4	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th AWSC
3: Porter St & Magazine St

Existing PM
West Harbor Park Vallejo

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	46	11	75	25	7
Future Vol, veh/h	51	46	11	75	25	7
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	60	14	97	32	9
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.8	7.2	7.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	53%	78%
Vol Thru, %	13%	0%	22%
Vol Right, %	87%	47%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	86	97	32
LT Vol	0	51	25
Through Vol	11	0	7
RT Vol	75	46	0
Lane Flow Rate	112	126	42
Geometry Grp	1	1	1
Degree of Util (X)	0.114	0.141	0.051
Departure Headway (Hd)	3.68	4.034	4.416
Convergence, Y/N	Yes	Yes	Yes
Cap	962	882	803
Service Time	1.75	2.09	2.488
HCM Lane V/C Ratio	0.116	0.143	0.052
HCM Control Delay	7.2	7.8	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.5	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Existing PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	37	70	2	25	61	98	11	451	163	124	68	29
Future Volume (veh/h)	37	70	2	25	61	98	11	451	163	124	68	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	39	74	1	26	64	39	12	475	137	131	72	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	207	2	86	157	82	62	1404	402	265	1772	451
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.52	0.52	0.15	0.64	0.64
Sat Flow, veh/h	407	1281	15	200	970	507	1767	2690	770	1767	2782	708
Grp Volume(v), veh/h	114	0	0	129	0	0	12	310	302	131	45	46
Grp Sat Flow(s),veh/h/ln	1702	0	0	1677	0	0	1767	1763	1697	1767	1763	1727
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.5	8.2	8.3	5.4	0.8	0.8
Cycle Q Clear(g_c), s	4.4	0.0	0.0	5.3	0.0	0.0	0.5	8.2	8.3	5.4	0.8	0.8
Prop In Lane	0.34		0.01	0.20		0.30	1.00		0.45	1.00		0.41
Lane Grp Cap(c), veh/h	336	0	0	325	0	0	62	920	886	265	1123	1100
V/C Ratio(X)	0.34	0.00	0.00	0.40	0.00	0.00	0.19	0.34	0.34	0.49	0.04	0.04
Avail Cap(c_a), veh/h	638	0	0	632	0	0	265	920	886	265	1123	1100
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	0.0	30.3	0.0	0.0	37.5	11.1	11.1	31.2	5.4	5.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.6	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	2.2	0.0	0.0	0.2	2.9	2.9	2.2	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	30.6	0.0	0.0	38.1	12.1	12.2	31.7	5.5	5.5
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	114			129			624			222		
Approach Delay, s/veh	30.2			30.6			12.6			21.0		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	55.9		17.1	16.2	46.7		17.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+12, s)	12.5	2.8		7.3	7.4	10.3		6.4				
Green Ext Time (p_c), s	0.0	0.1		0.1	0.0	0.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay 18.3

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Existing PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	22	0	9	3	1	10	10	570	4	10	208	47
Future Vol, veh/h	22	0	9	3	1	10	10	570	4	10	208	47
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	0	10	3	1	11	11	648	5	11	236	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	635	963	147	814	987	329	291	0	0	654	0	0
Stage 1	287	287	-	674	674	-	-	-	-	-	-	-
Stage 2	348	676	-	140	313	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	361	252	870	268	244	664	1260	-	-	922	-	-
Stage 1	694	670	-	408	449	-	-	-	-	-	-	-
Stage 2	638	448	-	846	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	345	244	868	259	236	663	1258	-	-	921	-	-
Mov Cap-2 Maneuver	345	244	-	259	236	-	-	-	-	-	-	-
Stage 1	683	659	-	402	442	-	-	-	-	-	-	-
Stage 2	616	441	-	824	643	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.4		13.2		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1258	-	-	418	453	921	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.084	0.035	0.012	-	-				
HCM Control Delay (s)	7.9	0.1	-	14.4	13.2	9	0.1	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-				

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	33	16	47	52	7
Future Vol, veh/h	10	33	16	47	52	7
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	39	19	56	62	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	170	77	80	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	818	981	1512	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	971	1498	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	1.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1498	-	922	-	-	
HCM Lane V/C Ratio	0.013	-	0.056	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	2	199	74	9
Future Vol, veh/h	13	6	2	199	74	9
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	8	3	265	99	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	396	121	126	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	607	928	1454	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	914	1433	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1433	-	664	-	-	
HCM Lane V/C Ratio	0.002	-	0.038	-	-	
HCM Control Delay (s)	7.5	0	10.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	42	26	179	66	27
Future Vol, veh/h	50	42	26	179	66	27
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	55	34	236	87	36
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	8.4	8.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	46%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	205	92	93
LT Vol	0	50	66
Through Vol	26	0	27
RT Vol	179	42	0
Lane Flow Rate	270	121	122
Geometry Grp	1	1	1
Degree of Util (X)	0.289	0.155	0.158
Departure Headway (Hd)	3.859	4.603	4.641
Convergence, Y/N	Yes	Yes	Yes
Cap	933	780	775
Service Time	1.873	2.627	2.659
HCM Lane V/C Ratio	0.289	0.155	0.157
HCM Control Delay	8.4	8.5	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.5	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	86	173	20	47	64	95	13	210	104	92	79	30
Future Volume (veh/h)	86	173	20	47	64	95	13	210	104	92	79	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	184	17	50	68	55	14	223	32	98	84	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	342	28	187	233	151	63	693	98	369	1204	196
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.22	0.22	0.21	0.40	0.40
Sat Flow, veh/h	383	1181	97	311	804	520	1767	3097	438	1767	3031	493
Grp Volume(v), veh/h	292	0	0	173	0	0	14	126	129	98	48	50
Grp Sat Flow(s),veh/h/ln	1660	0	0	1635	0	0	1767	1763	1772	1767	1763	1762
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.8
Cycle Q Clear(g_c), s	6.9	0.0	0.0	3.8	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.8
Prop In Lane	0.31		0.06	0.29		0.32	1.00		0.25	1.00		0.28
Lane Grp Cap(c), veh/h	580	0	0	571	0	0	63	394	397	369	700	699
V/C Ratio(X)	0.50	0.00	0.00	0.30	0.00	0.00	0.22	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1017	0	0	981	0	0	369	920	925	369	920	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	13.4	0.0	0.0	22.5	15.5	15.6	15.9	9.0	9.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.7	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	1.3	0.0	0.0	0.1	0.9	1.0	0.8	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	0.0	13.5	0.0	0.0	23.1	15.7	15.7	16.0	9.0	9.0
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	292			173			269			196		
Approach Delay, s/veh	14.7			13.5			16.1			12.5		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	23.9		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+12, s)	12.4	2.8		5.8	4.2	4.9		8.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.4

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕			↕↕	
Traffic Vol, veh/h	36	2	9	1	1	8	5	381	6	6	190	21
Future Vol, veh/h	36	2	9	1	1	8	5	381	6	6	190	21
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	2	9	1	1	8	5	393	6	6	196	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	429	631	112	517	639	200	221	0	0	399	0	0
Stage 1	222	222	-	406	406	-	-	-	-	-	-	-
Stage 2	207	409	-	111	233	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	507	394	916	439	390	804	1338	-	-	1149	-	-
Stage 1	757	716	-	590	594	-	-	-	-	-	-	-
Stage 2	773	592	-	879	708	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	495	388	913	429	385	804	1334	-	-	1149	-	-
Mov Cap-2 Maneuver	495	388	-	429	385	-	-	-	-	-	-	-
Stage 1	751	710	-	587	591	-	-	-	-	-	-	-
Stage 2	760	589	-	862	702	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.4		10.4		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1334	-	-	536	672	1149	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.09	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.4	10.4	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	18	15	45	31	10
Future Vol, veh/h	7	18	15	45	31	10
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	20	17	51	35	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	133	48	53	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	858	1018	1546	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1011	1536	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1536	-	955	-	-	
HCM Lane V/C Ratio	0.011	-	0.03	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	2	73	47	10
Future Vol, veh/h	12	0	2	73	47	10
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	0	3	97	63	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	176	73	79	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	811	986	1513	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	805	983	1509	-	-	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1509	-	805	-	-	
HCM Lane V/C Ratio	0.002	-	0.02	-	-	
HCM Control Delay (s)	7.4	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	46	11	75	25	7
Future Vol, veh/h	51	46	11	75	25	7
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	60	14	97	32	9
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.8	7.2	7.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	53%	78%
Vol Thru, %	13%	0%	22%
Vol Right, %	87%	47%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	86	97	32
LT Vol	0	51	25
Through Vol	11	0	7
RT Vol	75	46	0
Lane Flow Rate	112	126	42
Geometry Grp	1	1	1
Degree of Util (X)	0.114	0.141	0.051
Departure Headway (Hd)	3.68	4.034	4.416
Convergence, Y/N	Yes	Yes	Yes
Cap	962	882	803
Service Time	1.75	2.09	2.488
HCM Lane V/C Ratio	0.116	0.143	0.052
HCM Control Delay	7.2	7.8	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.5	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	43	76	12	25	69	98	28	451	163	124	68	37
Future Volume (veh/h)	43	76	12	25	69	98	28	451	163	124	68	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	80	7	26	73	44	29	475	137	131	72	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	194	15	83	159	84	126	1403	402	265	1596	488
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.07	0.52	0.52	0.15	0.60	0.60
Sat Flow, veh/h	411	1198	90	182	983	518	1767	2690	770	1767	2658	813
Grp Volume(v), veh/h	132	0	0	143	0	0	29	310	302	131	47	48
Grp Sat Flow(s),veh/h/ln	1699	0	0	1683	0	0	1767	1763	1697	1767	1763	1708
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	1.2	8.2	8.3	5.4	0.9	0.9
Cycle Q Clear(g_c), s	5.2	0.0	0.0	6.0	0.0	0.0	1.2	8.2	8.3	5.4	0.9	0.9
Prop In Lane	0.34		0.05	0.18		0.31	1.00		0.45	1.00		0.48
Lane Grp Cap(c), veh/h	336	0	0	326	0	0	126	920	885	265	1059	1026
V/C Ratio(X)	0.39	0.00	0.00	0.44	0.00	0.00	0.23	0.34	0.34	0.49	0.04	0.05
Avail Cap(c_a), veh/h	633	0	0	633	0	0	265	920	885	265	1059	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	30.6	0.0	0.0	35.1	11.1	11.1	31.2	6.6	6.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.3	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	2.5	0.0	0.0	0.5	2.9	2.9	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	0.0	0.0	30.9	0.0	0.0	35.4	12.1	12.2	31.7	6.6	6.7
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	132			143			641			226		
Approach Delay, s/veh	30.5			30.9			13.2			21.2		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	52.9		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+1.3), s	13.2	2.9		8.0	7.4	10.3		7.2				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay 19.0

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	0	9	3	1	10	10	576	4	10	216	47
Future Vol, veh/h	22	0	9	3	1	10	10	576	4	10	216	47
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	0	10	3	1	11	11	655	5	11	245	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	647	979	151	826	1003	332	300	0	0	661	0	0
Stage 1	296	296	-	681	681	-	-	-	-	-	-	-
Stage 2	351	683	-	145	322	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	354	247	865	263	239	661	1251	-	-	917	-	-
Stage 1	685	664	-	404	446	-	-	-	-	-	-	-
Stage 2	636	445	-	840	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	338	239	863	254	231	660	1249	-	-	916	-	-
Mov Cap-2 Maneuver	338	239	-	254	231	-	-	-	-	-	-	-
Stage 1	674	653	-	398	439	-	-	-	-	-	-	-
Stage 2	614	438	-	818	636	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.6		13.4		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1249	-	-	411	447	916	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.086	0.036	0.012	-	-				
HCM Control Delay (s)	7.9	0.1	-	14.6	13.4	9	0.1	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0.1	0	-	-				

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	42	19	50	53	8
Future Vol, veh/h	12	42	19	50	53	8
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	50	23	60	63	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	184	79	83	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	803	979	1508	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	774	969	1494	-	-	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1494	-	918	-	-	
HCM Lane V/C Ratio	0.015	-	0.07	-	-	
HCM Control Delay (s)	7.4	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	11	4	200	76	15
Future Vol, veh/h	34	11	4	200	76	15
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	15	5	267	101	20
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	408	127	136	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	597	921	1442	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	578	907	1421	-	-	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.3	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1421	-	634	-	-	
HCM Lane V/C Ratio	0.004	-	0.095	-	-	
HCM Control Delay (s)	7.5	0	11.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	44	30	197	73	30
Future Vol, veh/h	55	44	30	197	73	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	72	58	39	259	96	39
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.8	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	227	99	103
LT Vol	0	55	73
Through Vol	30	0	30
RT Vol	197	44	0
Lane Flow Rate	299	130	136
Geometry Grp	1	1	1
Degree of Util (X)	0.324	0.17	0.177
Departure Headway (Hd)	3.907	4.703	4.699
Convergence, Y/N	Yes	Yes	Yes
Cap	923	762	764
Service Time	1.923	2.734	2.722
HCM Lane V/C Ratio	0.324	0.171	0.178
HCM Control Delay	8.8	8.7	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	0.6	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year with Project AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	90	186	28	47	67	95	16	210	104	92	79	31
Future Volume (veh/h)	90	186	28	47	67	95	16	210	104	92	79	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	198	24	50	71	56	17	223	32	98	84	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	207	335	36	185	239	152	75	693	98	369	1170	204
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.22	0.22	0.21	0.39	0.39
Sat Flow, veh/h	378	1157	125	305	825	523	1767	3097	438	1767	2997	522
Grp Volume(v), veh/h	318	0	0	177	0	0	17	126	129	98	49	50
Grp Sat Flow(s),veh/h/ln	1660	0	0	1652	0	0	1767	1763	1772	1767	1763	1756
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.9
Cycle Q Clear(g_c), s	7.8	0.0	0.0	3.8	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.9
Prop In Lane	0.30		0.08	0.28		0.32	1.00		0.25	1.00		0.30
Lane Grp Cap(c), veh/h	579	0	0	575	0	0	75	394	396	369	688	685
V/C Ratio(X)	0.55	0.00	0.00	0.31	0.00	0.00	0.23	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1016	0	0	984	0	0	369	920	925	369	920	916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	13.4	0.0	0.0	22.2	15.5	15.6	15.9	9.2	9.2
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.6	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	1.4	0.0	0.0	0.2	0.9	1.0	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	13.6	0.0	0.0	22.8	15.7	15.7	16.0	9.2	9.2
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	318			177			272			197		
Approach Delay, s/veh	15.0			13.6			16.2			12.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.6			18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.4	2.9		5.8	4.2	4.9		9.8				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.6

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year with Project AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Vol, veh/h	41	2	9	1	1	8	5	385	6	6	191	23
Future Vol, veh/h	41	2	9	1	1	8	5	385	6	6	191	23
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	2	9	1	1	8	5	397	6	6	197	24
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	433	637	114	522	646	202	224	0	0	403	0	0
Stage 1	224	224	-	410	410	-	-	-	-	-	-	-
Stage 2	209	413	-	112	236	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	504	391	914	435	387	802	1335	-	-	1145	-	-
Stage 1	755	715	-	587	591	-	-	-	-	-	-	-
Stage 2	771	590	-	878	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	492	386	911	425	382	802	1331	-	-	1145	-	-
Mov Cap-2 Maneuver	492	386	-	425	382	-	-	-	-	-	-	-
Stage 1	749	709	-	584	588	-	-	-	-	-	-	-
Stage 2	758	587	-	861	700	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.6		10.5		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1331	-	-	528	669	1145	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.102	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.6	10.5	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	24	25	48	35	12
Future Vol, veh/h	8	24	25	48	35	12
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	9	27	28	55	40	14
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	165	54	61	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	823	1010	1536	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	1003	1526	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9	2.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1526	-	942	-	-	
HCM Lane V/C Ratio	0.019	-	0.039	-	-	
HCM Control Delay (s)	7.4	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	3	8	77	49	31
Future Vol, veh/h	25	3	8	77	49	31
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	4	11	103	65	41
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	214	89	109	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	772	966	1475	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	761	963	1471	-	-	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	0.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1471	-	778	-	-	
HCM Lane V/C Ratio	0.007	-	0.048	-	-	
HCM Control Delay (s)	7.5	0	9.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	54	16	87	29	13
Future Vol, veh/h	68	54	16	87	29	13
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	88	70	21	113	38	17
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.1	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	69%
Vol Thru, %	16%	0%	31%
Vol Right, %	84%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	103	122	42
LT Vol	0	68	29
Through Vol	16	0	13
RT Vol	87	54	0
Lane Flow Rate	134	158	55
Geometry Grp	1	1	1
Degree of Util (X)	0.14	0.181	0.068
Departure Headway (Hd)	3.764	4.119	4.474
Convergence, Y/N	Yes	Yes	Yes
Cap	935	860	788
Service Time	1.861	2.196	2.574
HCM Lane V/C Ratio	0.143	0.184	0.07
HCM Control Delay	7.5	8.1	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.7	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year with Project PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	46	84	17	25	81	98	36	451	163	124	68	42
Future Volume (veh/h)	46	84	17	25	81	98	36	451	163	124	68	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	48	88	11	26	85	51	38	475	137	131	72	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	191	21	79	162	87	151	1403	402	265	1541	491
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.09	0.52	0.52	0.15	0.59	0.59
Sat Flow, veh/h	406	1175	128	163	1000	534	1767	2690	770	1767	2629	837
Grp Volume(v), veh/h	147	0	0	162	0	0	38	310	302	131	47	49
Grp Sat Flow(s),veh/h/ln	1709	0	0	1697	0	0	1767	1763	1697	1767	1763	1704
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	1.6	8.2	8.3	5.4	0.9	1.0
Cycle Q Clear(g_c), s	5.9	0.0	0.0	6.9	0.0	0.0	1.6	8.2	8.3	5.4	0.9	1.0
Prop In Lane	0.33		0.07	0.16		0.31	1.00		0.45	1.00		0.49
Lane Grp Cap(c), veh/h	337	0	0	327	0	0	151	919	885	265	1033	999
V/C Ratio(X)	0.44	0.00	0.00	0.49	0.00	0.00	0.25	0.34	0.34	0.49	0.05	0.05
Avail Cap(c_a), veh/h	633	0	0	636	0	0	265	919	885	265	1033	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	0.0	30.9	0.0	0.0	34.2	11.1	11.1	31.2	7.0	7.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.3	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	2.9	0.0	0.0	0.7	2.9	2.9	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	0.0	31.4	0.0	0.0	34.5	12.1	12.2	31.7	7.1	7.1
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	A	A
Approach Vol, veh/h	147			162			650			227		
Approach Delay, s/veh	30.9			31.4			13.5			21.3		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.0	51.8		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+1.3, s)	13.6	3.0		8.9	7.4	10.3		7.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay 19.6

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year with Project PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	0	9	3	1	10	10	579	4	10	221	53
Future Vol, veh/h	26	0	9	3	1	10	10	579	4	10	221	53
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	0	10	3	1	11	11	658	5	11	251	60
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	658	991	158	832	1019	334	313	0	0	664	0	0
Stage 1	305	305	-	684	684	-	-	-	-	-	-	-
Stage 2	353	686	-	148	335	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	348	243	856	260	234	659	1237	-	-	914	-	-
Stage 1	677	658	-	402	445	-	-	-	-	-	-	-
Stage 2	634	444	-	837	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	332	235	854	251	227	658	1235	-	-	913	-	-
Mov Cap-2 Maneuver	332	235	-	251	227	-	-	-	-	-	-	-
Stage 1	666	647	-	396	438	-	-	-	-	-	-	-
Stage 2	612	437	-	815	628	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.2		13.4		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1235	-	-	394	444	913	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.101	0.036	0.012	-	-				
HCM Control Delay (s)	7.9	0.1	-	15.2	13.4	9	0.1	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	20	50	60	10
Future Vol, veh/h	20	40	20	50	60	10
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	48	24	60	71	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	195	88	93	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	792	968	1495	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	958	1481	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1481	-	883	-	-	
HCM Lane V/C Ratio	0.016	-	0.081	-	-	
HCM Control Delay (s)	7.5	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	10	10	200	80	10
Future Vol, veh/h	20	10	10	200	80	10
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	13	13	267	107	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	427	130	135	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	583	917	1443	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	903	1422	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1422	-	642	-	-	
HCM Lane V/C Ratio	0.009	-	0.062	-	-	
HCM Control Delay (s)	7.6	0	11	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th AWSC
3: Porter St & Magazine St

Cumulative AM
West Harbor Park Vallejo

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	50	30	180	70	30
Future Vol, veh/h	60	50	30	180	70	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	79	66	39	237	92	39
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.7	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	70%
Vol Thru, %	14%	0%	30%
Vol Right, %	86%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	210	110	100
LT Vol	0	60	70
Through Vol	30	0	30
RT Vol	180	50	0
Lane Flow Rate	276	145	132
Geometry Grp	1	1	1
Degree of Util (X)	0.302	0.187	0.172
Departure Headway (Hd)	3.941	4.648	4.712
Convergence, Y/N	Yes	Yes	Yes
Cap	915	771	762
Service Time	1.96	2.677	2.737
HCM Lane V/C Ratio	0.302	0.188	0.173
HCM Control Delay	8.7	8.7	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.7	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	90	180	20	50	70	100	20	220	110	100	80	30
Future Volume (veh/h)	90	180	20	50	70	100	20	220	110	100	80	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	191	19	53	74	61	21	234	34	106	85	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	337	30	184	234	155	90	692	99	369	1146	197
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.22	0.22	0.21	0.38	0.38
Sat Flow, veh/h	392	1164	103	301	808	533	1767	3091	443	1767	3003	517
Grp Volume(v), veh/h	306	0	0	188	0	0	21	132	136	106	49	51
Grp Sat Flow(s),veh/h/ln	1659	0	0	1643	0	0	1767	1763	1771	1767	1763	1757
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.5	3.0	3.1	2.4	0.8	0.9
Cycle Q Clear(g_c), s	7.3	0.0	0.0	4.1	0.0	0.0	0.5	3.0	3.1	2.4	0.8	0.9
Prop In Lane	0.31		0.06	0.28		0.32	1.00		0.25	1.00		0.29
Lane Grp Cap(c), veh/h	580	0	0	573	0	0	90	394	396	369	673	670
V/C Ratio(X)	0.53	0.00	0.00	0.33	0.00	0.00	0.23	0.33	0.34	0.29	0.07	0.08
Avail Cap(c_a), veh/h	1014	0	0	983	0	0	369	920	924	369	920	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	0.0	13.5	0.0	0.0	21.8	15.6	15.6	16.0	9.4	9.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.5	0.2	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	1.5	0.0	0.0	0.2	1.0	1.0	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	0.0	13.7	0.0	0.0	22.3	15.8	15.8	16.1	9.4	9.5
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	306			188			289			206		
Approach Delay, s/veh	14.9			13.7			16.3			12.9		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	23.2		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+12, s)	12.5	2.9		6.1	4.4	5.1		9.3				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.6

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	10	10	10	10	10	10	390	10	10	190	30
Future Vol, veh/h	40	10	10	10	10	10	10	390	10	10	190	30
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	41	10	10	10	10	10	10	402	10	10	196	31
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	461	667	117	550	677	206	230	0	0	412	0	0
Stage 1	235	235	-	427	427	-	-	-	-	-	-	-
Stage 2	226	432	-	123	250	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	481	376	910	416	371	797	1328	-	-	1136	-	-
Stage 1	744	707	-	573	581	-	-	-	-	-	-	-
Stage 2	753	578	-	865	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	456	367	907	396	362	797	1324	-	-	1136	-	-
Mov Cap-2 Maneuver	456	367	-	396	362	-	-	-	-	-	-	-
Stage 1	734	698	-	567	575	-	-	-	-	-	-	-
Stage 2	723	572	-	834	687	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13.7		13.4			0.2			0.4			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1324	-	-	476	459	1136	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.13	0.067	0.009	-	-				
HCM Control Delay (s)	7.7	0	-	13.7	13.4	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.4	0.2	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	20	50	40	20
Future Vol, veh/h	10	20	20	50	40	20
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	23	23	57	45	23
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	167	64	75	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	821	998	1518	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	991	1508	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1508	-	916	-	-	
HCM Lane V/C Ratio	0.015	-	0.037	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	10	80	50	20
Future Vol, veh/h	20	0	10	80	50	20
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	0	13	107	67	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	217	84	97	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	769	972	1490	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	969	1486	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	0.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1486	-	757	-	-	
HCM Lane V/C Ratio	0.009	-	0.035	-	-	
HCM Control Delay (s)	7.4	0	9.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th AWSC
3: Porter St & Magazine St

Cumulative PM
West Harbor Park Vallejo

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	50	20	80	30	10
Future Vol, veh/h	60	50	20	80	30	10
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	65	26	104	39	13
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	75%
Vol Thru, %	20%	0%	25%
Vol Right, %	80%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	110	40
LT Vol	0	60	30
Through Vol	20	0	10
RT Vol	80	50	0
Lane Flow Rate	130	143	52
Geometry Grp	1	1	1
Degree of Util (X)	0.136	0.163	0.064
Departure Headway (Hd)	3.761	4.098	4.454
Convergence, Y/N	Yes	Yes	Yes
Cap	938	866	793
Service Time	1.849	2.172	2.546
HCM Lane V/C Ratio	0.139	0.165	0.066
HCM Control Delay	7.5	8	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.6	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	50	80	20	30	70	100	30	460	170	130	70	40
Future Volume (veh/h)	50	80	20	30	70	100	30	460	170	130	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	84	16	32	74	49	32	484	143	137	74	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	132	174	29	91	151	87	135	1394	409	265	1497	556
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.08	0.52	0.52	0.15	0.60	0.60
Sat Flow, veh/h	440	1075	177	224	931	534	1767	2673	784	1767	2514	935
Grp Volume(v), veh/h	153	0	0	155	0	0	32	318	309	137	51	52
Grp Sat Flow(s), veh/h/ln	1692	0	0	1689	0	0	1767	1763	1694	1767	1763	1686
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	1.4	8.4	8.5	5.7	1.0	1.0
Cycle Q Clear(g_c), s	6.1	0.0	0.0	6.4	0.0	0.0	1.4	8.4	8.5	5.7	1.0	1.0
Prop In Lane	0.35		0.10	0.21		0.32	1.00		0.46	1.00		0.55
Lane Grp Cap(c), veh/h	335	0	0	328	0	0	135	919	884	265	1049	1004
V/C Ratio(X)	0.46	0.00	0.00	0.47	0.00	0.00	0.24	0.35	0.35	0.52	0.05	0.05
Avail Cap(c_a), veh/h	629	0	0	631	0	0	265	919	884	265	1049	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	0.0	30.8	0.0	0.0	34.8	11.2	11.2	31.3	6.7	6.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	0.3	1.0	1.1	0.8	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.7	0.0	0.0	2.7	0.0	0.0	0.6	3.0	2.9	2.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.0	0.0	0.0	31.2	0.0	0.0	35.1	12.2	12.3	32.1	6.8	6.9
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	153			155			659			240		
Approach Delay, s/veh	31.0			31.2			13.4			21.3		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	52.5			17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	26.7			* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+13.4), s	3.0			8.4	7.7	10.5		8.1				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay 19.5

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕			↕↕	
Traffic Vol, veh/h	30	0	10	10	10	20	20	580	10	20	220	50
Future Vol, veh/h	30	0	10	10	10	20	20	580	10	20	220	50
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	34	0	11	11	11	23	23	659	11	23	250	57
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	709	1044	156	883	1067	337	309	0	0	671	0	0
Stage 1	327	327	-	712	712	-	-	-	-	-	-	-
Stage 2	382	717	-	171	355	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	319	226	859	239	219	656	1241	-	-	909	-	-
Stage 1	657	644	-	387	432	-	-	-	-	-	-	-
Stage 2	610	429	-	811	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	212	857	225	205	655	1239	-	-	908	-	-
Mov Cap-2 Maneuver	281	212	-	225	205	-	-	-	-	-	-	-
Stage 1	636	623	-	375	419	-	-	-	-	-	-	-
Stage 2	555	416	-	775	605	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17.3		18		0.4		0.7					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1239	-	-	338	323	908	-	-				
HCM Lane V/C Ratio	0.018	-	-	0.134	0.141	0.025	-	-				
HCM Control Delay (s)	8	0.1	-	17.3	18	9.1	0.1	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile O(veh)	0.1	-	-	0.5	0.5	0.1	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	49	23	53	61	11
Future Vol, veh/h	22	49	23	53	61	11
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	58	27	63	73	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	207	91	96	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	779	964	1491	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	749	954	1477	-	-	-
Mov Cap-2 Maneuver	749	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	2.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1477	-	879	-	-	
HCM Lane V/C Ratio	0.019	-	0.096	-	-	
HCM Control Delay (s)	7.5	0	9.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile O(veh)	0.1	-	0.3	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	15	12	201	82	16
Future Vol, veh/h	41	15	12	201	82	16
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	55	20	16	268	109	21
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	440	136	145	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	573	910	1431	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	550	896	1411	-	-	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.7	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1411	-	613	-	-	
HCM Lane V/C Ratio	0.011	-	0.122	-	-	
HCM Control Delay (s)	7.6	0	11.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile O(veh)	0	-	0.4	-	-	

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	52	34	198	77	33
Future Vol, veh/h	65	52	34	198	77	33
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	86	68	45	261	101	43
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9	9	8.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	70%
Vol Thru, %	15%	0%	30%
Vol Right, %	85%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	232	117	110
LT Vol	0	65	77
Through Vol	34	0	33
RT Vol	198	52	0
Lane Flow Rate	305	154	145
Geometry Grp	1	1	1
Degree of Util (X)	0.338	0.203	0.192
Departure Headway (Hd)	3.99	4.748	4.774
Convergence, Y/N	Yes	Yes	Yes
Cap	901	754	751
Service Time	2.013	2.785	2.803
HCM Lane V/C Ratio	0.339	0.204	0.193
HCM Control Delay	9	9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.8	0.7

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative with Project AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	94	193	28	50	73	100	23	220	110	100	80	31
Future Volume (veh/h)	94	193	28	50	73	100	23	220	110	100	80	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	100	205	26	53	78	63	24	234	33	106	85	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	332	38	180	240	156	101	694	97	369	1127	194
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.22	0.22	0.21	0.38	0.38
Sat Flow, veh/h	384	1146	130	291	829	539	1767	3104	432	1767	3003	517
Grp Volume(v), veh/h	331	0	0	194	0	0	24	132	135	106	49	51
Grp Sat Flow(s), veh/h/ln	1661	0	0	1660	0	0	1767	1763	1773	1767	1763	1757
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.6	3.0	3.1	2.4	0.9	0.9
Cycle Q Clear(g_c), s	8.1	0.0	0.0	4.3	0.0	0.0	0.6	3.0	3.1	2.4	0.9	0.9
Prop In Lane	0.30		0.08	0.27		0.32	1.00		0.24	1.00		0.29
Lane Grp Cap(c), veh/h	579	0	0	577	0	0	101	394	397	369	662	659
V/C Ratio(X)	0.57	0.00	0.00	0.34	0.00	0.00	0.24	0.33	0.34	0.29	0.07	0.08
Avail Cap(c_a), veh/h	1014	0	0	986	0	0	369	920	925	369	920	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	13.6	0.0	0.0	21.6	15.6	15.6	16.0	9.6	9.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.4	0.2	0.2	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.8	0.0	0.0	1.5	0.0	0.0	0.2	1.0	1.0	0.8	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.2	0.0	0.0	13.7	0.0	0.0	22.0	15.8	15.8	16.1	9.6	9.6
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	331			194			291			206		
Approach Delay, s/veh	15.2			13.7			16.3			13.0		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	22.9		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+12, s)	12.6	2.9		6.3	4.4	5.1		10.1				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.8

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative with Project AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕			↕↕	
Traffic Vol, veh/h	45	10	10	10	10	10	10	394	10	10	191	32
Future Vol, veh/h	45	10	10	10	10	10	10	394	10	10	191	32
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	46	10	10	10	10	10	10	406	10	10	197	33
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	465	673	118	555	684	208	233	0	0	416	0	0
Stage 1	237	237	-	431	431	-	-	-	-	-	-	-
Stage 2	228	436	-	124	253	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	478	373	908	412	368	795	1324	-	-	1132	-	-
Stage 1	742	705	-	570	579	-	-	-	-	-	-	-
Stage 2	751	576	-	864	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	453	364	905	393	360	795	1320	-	-	1132	-	-
Mov Cap-2 Maneuver	453	364	-	393	360	-	-	-	-	-	-	-
Stage 1	732	696	-	564	573	-	-	-	-	-	-	-
Stage 2	721	570	-	833	685	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.9		13.5		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1320	-	-	471	456	1132	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.142	0.068	0.009	-	-				
HCM Control Delay (s)	7.7	0	-	13.9	13.5	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.5	0.2	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	26	30	53	44	22
Future Vol, veh/h	11	26	30	53	44	22
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	30	34	60	50	25
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	198	70	82	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	788	990	1509	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	983	1499	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	2.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1499	-	904	-	-	
HCM Lane V/C Ratio	0.023	-	0.047	-	-	
HCM Control Delay (s)	7.5	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	3	16	84	52	41
Future Vol, veh/h	33	3	16	84	52	41
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	44	4	21	112	69	55
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	254	100	127	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	732	953	1453	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	950	1449	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.3	1.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1449	-	732	-	-	
HCM Lane V/C Ratio	0.015	-	0.066	-	-	
HCM Control Delay (s)	7.5	0	10.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile O(veh)	0	-	0.2	-	-	

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	58	25	92	34	16
Future Vol, veh/h	77	58	25	92	34	16
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	100	75	32	119	44	21
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	7.8	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	57%	68%
Vol Thru, %	21%	0%	32%
Vol Right, %	79%	43%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	135	50
LT Vol	0	77	34
Through Vol	25	0	16
RT Vol	92	58	0
Lane Flow Rate	152	175	65
Geometry Grp	1	1	1
Degree of Util (X)	0.167	0.209	0.084
Departure Headway (Hd)	3.954	4.288	4.639
Convergence, Y/N	Yes	Yes	Yes
Cap	910	842	775
Service Time	1.967	2.288	2.654
HCM Lane V/C Ratio	0.167	0.208	0.084
HCM Control Delay	7.8	8.4	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.8	0.3

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative with Project PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	53	88	25	30	82	100	38	460	170	130	70	35
Future Volume (veh/h)	53	88	25	30	82	100	38	460	170	130	70	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	93	20	32	86	54	40	484	143	137	74	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	129	171	32	87	157	87	156	1394	409	265	1578	450
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.09	0.52	0.52	0.15	0.58	0.58
Sat Flow, veh/h	425	1056	199	205	967	536	1767	2673	784	1767	2706	772
Grp Volume(v), veh/h	169	0	0	172	0	0	40	318	309	137	47	49
Grp Sat Flow(s), veh/h/ln	1680	0	0	1709	0	0	1767	1763	1694	1767	1763	1716
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	1.7	8.4	8.5	5.7	0.9	1.0
Cycle Q Clear(g_c), s	7.0	0.0	0.0	7.2	0.0	0.0	1.7	8.4	8.5	5.7	0.9	1.0
Prop In Lane	0.33		0.12	0.19		0.31	1.00		0.46	1.00		0.45
Lane Grp Cap(c), veh/h	332	0	0	331	0	0	156	919	883	265	1028	1001
V/C Ratio(X)	0.51	0.00	0.00	0.52	0.00	0.00	0.26	0.35	0.35	0.52	0.05	0.05
Avail Cap(c_a), veh/h	626	0	0	635	0	0	265	919	883	265	1028	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	0.0	31.1	0.0	0.0	34.0	11.2	11.2	31.3	7.1	7.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.3	1.0	1.1	0.8	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	8.0	0.0	0.0	3.1	0.0	0.0	0.7	3.0	2.9	2.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.4	0.0	0.0	31.6	0.0	0.0	34.3	12.2	12.3	32.1	7.2	7.2
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	A	A
Approach Vol, veh/h	169			172			667			233		
Approach Delay, s/veh	31.4			31.6			13.6			21.9		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.3	51.6		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+13.5), s	13.5	3.0		9.2	7.7	10.5		9.0				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative with Project PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	0	10	10	10	20	20	583	10	20	225	56
Future Vol, veh/h	34	0	10	10	10	20	20	583	10	20	225	56
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	39	0	11	11	11	23	23	663	11	23	256	64
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	720	1057	162	890	1084	339	322	0	0	675	0	0
Stage 1	336	336	-	716	716	-	-	-	-	-	-	-
Stage 2	384	721	-	174	368	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	313	222	851	236	214	654	1227	-	-	905	-	-
Stage 1	649	638	-	385	430	-	-	-	-	-	-	-
Stage 2	608	427	-	808	617	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	275	208	849	222	201	653	1225	-	-	904	-	-
Mov Cap-2 Maneuver	275	208	-	222	201	-	-	-	-	-	-	-
Stage 1	628	617	-	373	417	-	-	-	-	-	-	-
Stage 2	553	414	-	772	597	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	18.1		18.2		0.4		0.7					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1225	-	-	325	319	904	-	-				
HCM Lane V/C Ratio	0.019	-	-	0.154	0.142	0.025	-	-				
HCM Control Delay (s)	8	0.1	-	18.1	18.2	9.1	0.1	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.5	0.1	-	-				

Appendix C: Project Opening Year Project Data



Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project



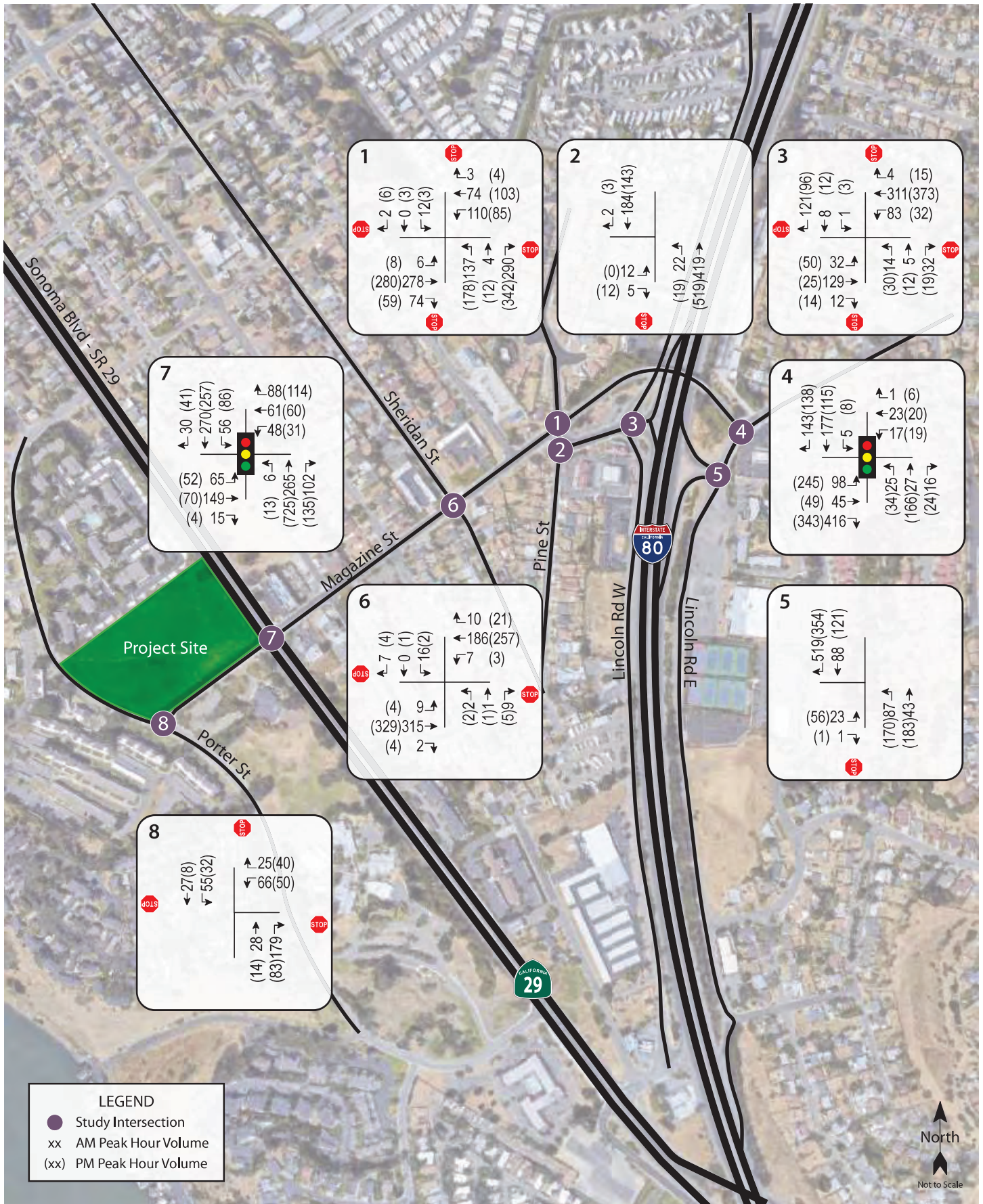
Prepared for the City of Vallejo

Submitted by
W-Trans

February 26, 2020



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Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project
Figure 2 – Existing Traffic Volumes

Table 6 – Future Peak Hour Intersection Levels of Service

Study Intersection <i>Approach</i>	AM Peak			PM Peak		
	Delay	LOS	V/C	Delay	LOS	V/C
1. Magazine St/Pine St	19.3	C	-	22.9	C	-
2. Pine St/-Lincoln Rd W	0.5	A	-	0.7	A	-
<i>Northbound (Pine St) Approach</i>	<i>11.0</i>	<i>B</i>	-	<i>12.1</i>	<i>B</i>	-
3. I-80 South Ramps/Lincoln Rd W	5.3	A	-	5.5	A	-
<i>Northbound (Lincoln Rd W) Approach</i>	20.6	C	-	26.1	D	-
<i>Southbound (Lincoln Rd W) Approach</i>	12.5	B	-	13.6	B	-
4. Magazine St/Lincoln Rd E	94.6	F	0.84	139.0	F	0.77
5. I-80 North Ramps/Lincoln Rd E	1.5	A	-	3.7	A	-
<i>Eastbound (I-80 N Off Ramp) Approach</i>	<i>16.1</i>	<i>C</i>	-	<i>29.0</i>	<i>D</i>	-
6. Magazine St/Sheridan St	1.2	A	-	0.5	A	-
<i>Northbound (Sheridan St) Approach</i>	12.4	B	-	13.6	B	-
<i>Southbound (Sheridan St) Approach</i>	14.8	B	-	13.7	B	-
7. Magazine St/Sonoma Blvd (SR 29)	22.7	C	0.71	18.3	C	0.48
8. Magazine St/Porter St	8.5	A	-	7.7	A	-

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; V/C = Volume to Capacity ratio; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; **Bold** text = deficient operation

Project Description

The proposed project consists of the construction of 124 multifamily residential units, including 74 two-bedroom units and 50 one-bedroom units. Additionally, the proposed project will include 248 parking spaces with a full access driveway located on Magazine Street. The proposed project site plan is shown in Figure 4.

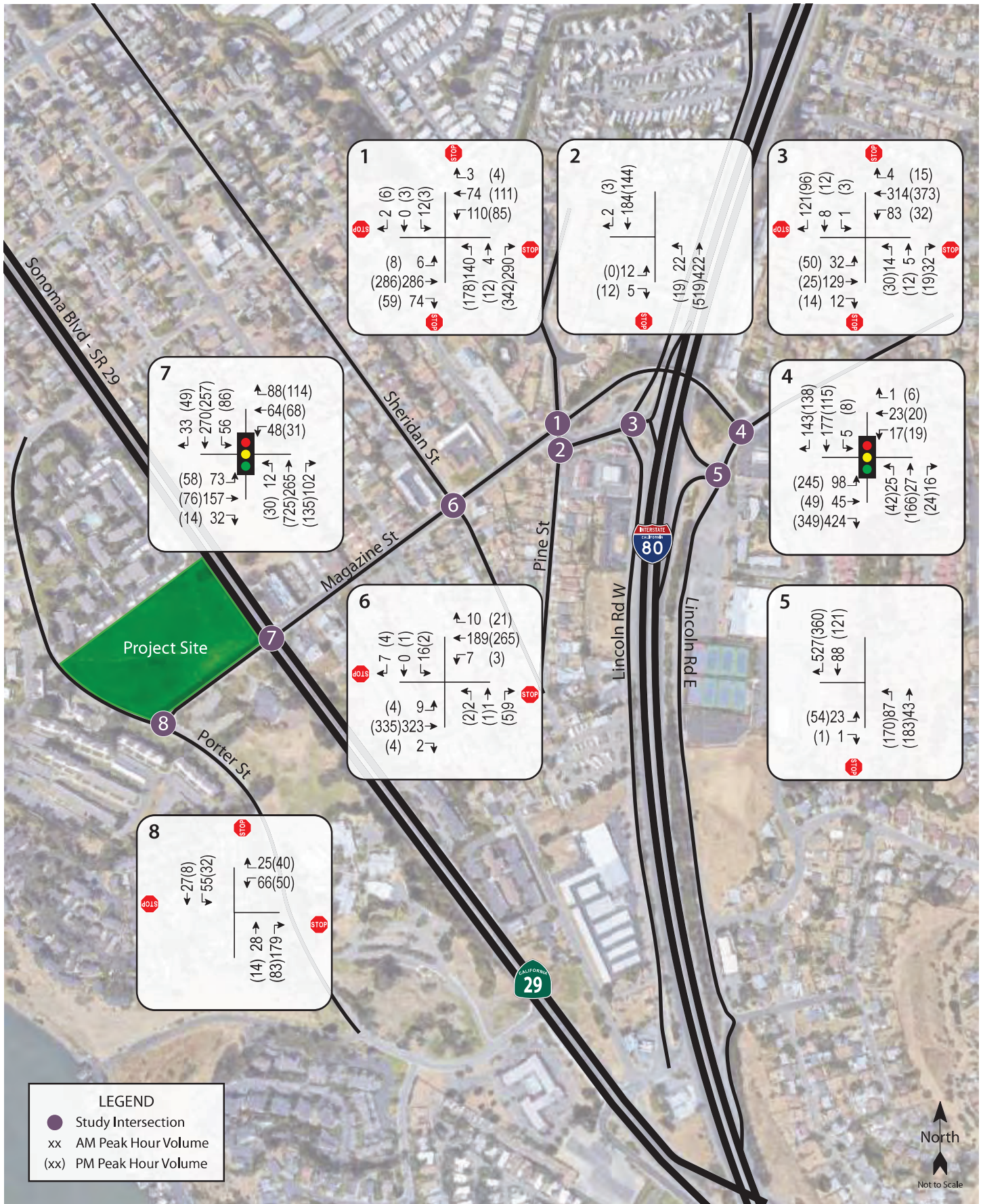
Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for Multifamily Housing (Land Use #221), as this description most closely matches the proposed project. Based on application of these assumptions, the proposed project is expected to generate an average of 675 trips per day, including 45 a.m. peak hour trips, and 55 trips during the p.m. peak hour. These results are summarized in Table 7.

Table 7 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Multifamily Housing	124 du	5.44	675	0.36	45	12	33	0.44	55	33	22

Note: du = dwelling unit



Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project
Figure 5 – Existing plus Project Traffic Volumes

Attachment E

Noise Technical Memorandum



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Noise Technical Memorandum

date July 25, 2023

to Cesar Orozco, Principal Planner, City of Vallejo

from Nick Reynoso, ESA
Chris Sanchez, ESA

subject Noise Technical Memorandum – 961 Porter Street, West Harbor Park Apartments Project

1. Project Description

The project consists of 122 residential dwelling units and associated parking and landscaping on a land lease area of approximately 3.4 acres (see **Figure 1, Project Location**). The project site is located in the existing 12.02-acre Harbor Park Residential Development site at 961 Porter Street in Vallejo.

The project site proposes development with westward uphill expansion of the existing Harbor Park development. The proposed West Harbor Park Apartments Project (proposed project) would involve demolition of surface parking areas and 29 existing trees and construction of three 4 stories buildings over a parking podium and a 2 story building over a 1-story maintenance facility. The three 4 stories buildings would provide 36 to 42 dwelling units. The fourth three story building would provide 2 additional dwelling units. Each of the buildings are proposed to have rooftop solar elements.

1.1 Project Construction

Construction for both the proposed project is estimated to last 18 months with overlapping phases; however, neither building would be occupied during construction. Demolition would take approximately a month and a half. Site preparation and grading would last approximately one month. Building construction and paving phases would partially overlap and last approximately 12 months.

Construction workers driving to the project site could park at the project site parking area, which is accessible via Porter street. Construction equipment and materials would be staged on the project site.

Project construction would occur during daytime hours.

2. Characteristics of Noise and Vibration

2.1 Noise Principles and Descriptors

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Because sound pressure can vary greatly within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. When assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA).¹ Frequency A-weighting is typically applied to community noise measurements. All noise levels presented in this report are A-weighted unless otherwise stated.

2.2 Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration,

¹ All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

single-event noise sources (e.g., aircraft flyovers, nearby motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise effects. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq} : The L_{eq} , or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.
- L_{max} : The maximum, instantaneous noise level experienced during a given period of time.
- L_{min} : The minimum, instantaneous noise level experienced during a given period of time.
- L_{dn} : Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10 p.m. to 7 a.m. to account for greater nighttime noise sensitivity.
- CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dB to measured noise levels between the hours of 7 p.m. to 10 p.m. and after an addition of 10 dB to noise levels between the hours of 10 p.m. to 7 a.m. to account for greater noise sensitivity in the evening and nighttime, respectively.

2.3 Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people include subjective effects (e.g., dissatisfaction, annoyance), interference effects (e.g., communication, sleep, and learning interference), physiological effects (e.g., startle response), and physical effects (e.g., hearing loss). With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in controlled laboratory experiments, a change of 1 dB cannot be perceived;
- Outside of the laboratory, a 3 dB change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dB is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dB is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Since the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dB, the combined sound level would be 53 dB, not 100 dB.

2.4 Fundamentals of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe physical vibration effects on buildings. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick people), and vibration-sensitive equipment.

Another useful vibration descriptor is known as vibration decibels or VdBs. VdBs are generally used when evaluating human response to vibration, as opposed to structural effects (for which PPV is the more commonly used descriptor). Vibration decibels are established relative to a reference quantity, typically 1×10^{-6} inches per second and utilize the root mean square (RMS) of the velocity of the vibration signal to convey the average magnitude felt by the human body.²

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the exception of blasting, vibratory equipment, and pile-driving during construction. The Federal Transit Administration (FTA) measure of the threshold of architectural damage for modern reinforced structures is 0.5 in/sec PPV.³

A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.⁴

3. Environmental Setting

3.1 Existing Ambient Noise Levels

The project site is located on the on the current Harbor Park Apartments site on the west side of Porter Street in Vallejo (see **Figure 2, Noise Monitoring Locations and Existing Noise-Sensitive Receptors within 900 Feet of the Project Site**). The project site is currently developed as a westward uphill expansion of the existing Harbor Park development. The project site is primarily surrounded by multifamily dwelling units. Noise sources in the project vicinity consist of vehicle traffic on Porter Street and Magazine Street.

To characterize the background noise environment in the project vicinity, this analysis relies on three short-term (15 minutes) measurement taken in July 2023. The short-term noise measurement was taken on a Tuesday in July 2023 to establish existing daytime noise levels at nearby noise sensitive (residential) receptors on the Harbor Park Residential Development site. One short-term measurement was collected at Patterson Elementary School located east of the project site on Porter Street at the north gate entrance. The 2023 sound level survey was conducted using a Larson Davis LxT sound level meter, which was calibrated prior to use and operated according to the

² U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018.

³ Ibid.

⁴ Ibid.

manufacturer’s specifications. Measurement locations are indicated on Figure 2 as “Noise Monitoring Location.” A summary of noise measurement results is presented in **Table 1, Summary of Short-Term Noise Monitoring in the Project Vicinity**. As indicated in Table 1, daytime noise levels at receptors locations in the project area range from 55 to 62 dBA [Leq]. Noise sources in the project area primarily consist of vehicle traffic on Porter Street and Magazine Street.

TABLE 1
SUMMARY OF SHORT-TERM NOISE MONITORING IN THE PROJECT VICINITY

Measurement Location	Date and Time Period	Daytime Leq dBA	Noise Sources
Short-Term Measurement (15 minutes)			
ST-1 Cross Porter Street of the Sonoma Apartments anchor Storage, behind Seabreeze Apartments	July 3, 2023	55.0	Vehicle traffic
ST-2 East gate entrance to Sonoma Apartments	July 3, 2023	56.8	Vehicle traffic
ST-3 North gate entrance to Patterson Elementary School on Porter Street	July 3, 2023	61.9	Vehicle traffic
NOTES: ST = Short Term.			
SOURCES: ESA, 2023.			



SOURCE: ESA, 2023; Google Earth, 2023

City of Vallejo Class 32 961 Porter



Figure 2
Noise Monitoring Locations and Sensitive Receptors
within 900 Feet of the Project Site

3.2 Existing Groundborne Vibration Levels

There are no known sources of existing groundborne noise or vibration near the project site. There are no rail lines, machinery or activity that generate vibration in the project site vicinity.

3.3 Existing Sensitive Receptors

Some land uses are more sensitive to noise levels than others due to the types of activities typically associated with the uses. Residences, hotels, schools, senior care facilities, and hospitals are generally considered more sensitive to noise than commercial and industrial land uses. Existing noise-sensitive receptors in the project vicinity within 900 feet⁵ of the primary project site are composed of residences and a school, as listed below in **Table 2, Existing Noise-Sensitive Receptors within 900 Feet of the Project Site**. There are no existing hospitals or skilled nursing facilities within 900 feet of the project site.

TABLE 2
EXISTING NOISE-SENSITIVE RECEPTORS WITHIN 900 FEET OF THE PROJECT SITE

Type of Sensitive Receptor	Location	Distance from Project Site Boundaries	Representative Monitoring Location
North of Project Site			
Residential	Harbor Park Apartments	Onsite (20 feet from Building C)	ST-1
South of Project Site			
Residential	Bay Village Apartments on Bounty Lane	100 feet	ST-2
East of Project Site			
School	Patterson Elementary School	900 feet	ST-3
NOTES: NP = None proposed. Noise monitoring is not proposed for these locations due to distance and intervening structures.			
SOURCES: ESA, 2023; Google Earth (Imagery Date 5/12/2022) for parcel data (address and distance to the site).			

4. Noise and Vibration Effects and Recommended Reduction Measures

This section describes the noise and vibration analysis for the proposed project. It describes the methods used to assess the effects of the proposed project and lists the criteria used by the City of Vallejo to evaluate and determine whether the project would result in effects on the environment.

⁵ This distance was selected because typical construction noise levels can affect a sensitive receptor at a distance of 900 feet if there is a direct line-of-sight between a noise source and a noise receptor (i.e., a piece of equipment generating 85 dBA would attenuate to 60 dBA over a distance of 900 feet). An exterior noise level of 60 dBA will typically attenuate to an interior noise level of 35 dBA with the windows closed and 45 dBA with the windows open.

4.1 Methodology

The CEQA Guidelines do not establish quantitative standards for the purposes of assessing potential noise and vibration related impacts. Appendix G of the CEQA Guidelines suggest that a project's noise impacts be considered with respect to standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The thresholds in this memorandum for assessing the potential effects from the proposed project are based on the regulatory guidance for noise within the City of Vallejo and criteria developed by state and federal agencies for noise and vibration impacts.

Construction Noise Levels and Criteria

Construction noise levels were estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). A general estimate of the project's construction equipment roster and schedule were provided by the applicant and presented in **Table 3, Proposed Construction Equipment by Construction Phase**.⁶ Table 3 also shows typical noise levels produced by various types of construction equipment. An approximate estimate of construction noise levels is conducted for the purpose of this analysis based on the general assessment approach recommended by the FTA.⁷

TABLE 3
PROPOSED CONSTRUCTION EQUIPMENT BY CONSTRUCTION PHASE

Equipment	Noise Level at 50 Feet (dB, L _{max})	Noise Level at 100 Feet (dB, L _{max})	Demolition (1.5 months)		Site Preparation (1 month)		Grading (1 month)		Building Construction/Paving (12 months)	
			Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day	Max. Daily Amt.	Hrs/ Day
Air Compressors	78	72							1	2
Bore/Drill Rigs	84	78							1	7
Cranes	81	75							1	2
Dumpers/Tenders	77	71					3	8	1	4
Excavator	81	75	1	5	1	5	1	6		
Pavers	77	71							1	7
Plate Compactor	83	77			1	5	2	8		
Rollers	80	74							2	5
Rubber Tired Loaders	79	73					1	5		
Tractors/Loaders/Backhoes	84	78	1	7	1	7				
Other Material Handling Equipment	85	79							1	4

SOURCE: Klein Financial Corporation, 2023.

The FTA methodology for general assessment of construction noise entails a process for calculating the hourly dBA, Leq for each stage of construction. This calculation considers (1) the reference noise emission level at 50 feet for equipment to be used for each stage of construction, (2) the usage factor for each piece of equipment,

⁶ Response to the Air Quality Data Request received by ESA via email on June 16, 2023.

⁷ FTA does not publish a software noise model. Consequently, FHWA's model was used and impacts assessed using FTA's methodology for assessing impact.

(3) the distance between construction centerline and receptors, and (4) adjusting for any ground effects, as applicable. This methodology calls for determining the resultant noise levels only for the two noisiest pieces of equipment expected to be used in each stage of construction, then summing the levels for each stage of construction using decibel addition.⁸

The estimated construction noise levels resulting from the proposed project at the nearby off-site sensitive receptors were then analyzed against two criteria to assess the magnitude of noise. First, predicted noise levels from each piece of construction equipment proposed are compared to the construction noise standards established in both the City’s municipal code to determine whether operation of this equipment would be within the allowable noise level standards. City of Vallejo Municipal Code section 16.502.09 Table 16.502-E [Table 4] limits maximum noise levels for temporary construction levels. The project would not require construction activities that would extend beyond normal hours (i.e., between 7 p.m. and 7 a.m.).

TABLE 4
MAXIMUM NOISE LEVEL FOR TEMPORARY CONSTRUCTION ACTIVITY

Time	RR, RLD	RMD, RHD, NMX, NC	Commercial (Including medical and office) and Industrial
Mobile construction equipment—non-scheduled, intermittent, and short-term for less than 15 days			
Weekdays 7 a.m. to 6 p.m.	75 dBA	80 dBA	85 dBA
Saturdays 9 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Sundays and legal holidays	None	None	None
Stationary construction equipment			
Weekdays 7 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Saturdays 9 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Sundays and legal holidays	None	None	None

SOURCE: City of Vallejo Municipal Code (Table 16.502-E), 2023.

Second, this analysis applies the general assessment criteria of the Federal Transit Administration, which establish criteria for residential land uses of 90 dBA during daytime hours and 80 dBA during nighttime hours. For all other land uses the criterion is 100 dBA, during the daytime or nighttime.

Groundborne Vibration Levels and Criteria

Groundborne vibration levels resulting from construction activities at the project site were estimated using data published by the FTA in its *Transit Noise and Vibration Impact Assessment* (2018) document. Potential vibration levels resulting from construction of the proposed project or residential variant are identified for off-site locations that are sensitive to vibration (i.e., existing residences) based on their distance from construction activities. While the City has not adopted any thresholds for construction or operational groundborne vibration impacts, this study uses the vibration criteria established in Caltrans’ *Transportation and Construction Vibration Guidance Manual* document. The potential vibration levels at off-site sensitive locations resulting from construction of the proposed project are analyzed against the vibration criteria established by Caltrans which are shown in **Table 5, Caltrans**

⁸ U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018, pp. 174–179.

Vibration Damage Potential Threshold Criteria, to determine whether an exceedance of allowable vibration levels would occur.

Given the nature of the proposed project, “excessive” groundborne vibration or noises would only be generated during project construction activities. Once construction is complete, the proposed project would not involve the use of heavy machinery that is often associated with large commercial or industrial uses. As such, no sources of “excessive” groundborne vibration or noise levels are anticipated as part of project operations.

TABLE 5
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual (Table 19, p.38), September 2013.

Operational Noise Criteria for Fixed Sources

For the purpose of determining whether the proposed project would generate noise levels that would exceed established noise standards, the project’s forecasted fixed-mechanical operational noise levels are evaluated to determine if the applicable noise regulations of the City of Vallejo are violated. Noise from fixed mechanical sources associated with the proposed project is assessed relative to the standards of Section 16.502.09(c) of the City of Vallejo Municipal Code which establishes a maximum (L_{50}) noise standard of 65 dBA measured at any boundary of a multiple-unit residential zone.⁹

Operational Roadway Noise Levels

Increases in roadway noise levels are assessed based on trip generation data prepared for the proposed project,¹⁰ and the potential for a doubling of traffic on local roadways. The CEQA Guidelines do not define the levels at which permanent and temporary increases in ambient noise are considered “substantial.” Therefore, with regard to traffic noise, the proposed project’s noise effects were evaluated by comparing traffic volumes as estimated in the travel demand memorandum to existing conditions. Caltrans identifies an increase of traffic noise of 3 dBA as barely perceptible and an increase of 5 dBA as clearly perceptible.¹¹ A doubling in sound energy (traffic volumes) would result in a 3 dBA change in the noise level, which is barely noticeable to the human ear. Therefore, any

⁹ City of Vallejo. City of Vallejo Municipal Code, Chapter 16.502 (2023).

¹⁰ Fehr & Peers, *West Harbor Park Transportation Impact Assessment*, 2023

¹¹ Ibid.

increase in traffic that would be less than a doubling in volumes would not be noticeable to existing sensitive receptors in the project vicinity.

City of Vallejo General Plan Action NBE-5.15E limits no more than 10 dB in non-residential areas; or more than 5 dB in residential areas where the with project noise level is less than the maximum "normally acceptable" level in the Noise and Land Use Compatibility figure; and no more than 3 dB where the with-project noise level exceeds the "normally acceptable" level in Noise and Land Use Compatibility figure.¹²

4.2 Project Noise Analysis

Construction Noise

Construction of the proposed project would require the use of heavy equipment during all five phases of project construction. Construction activities would also involve the use of smaller power tools, and other lesser sources of noise. During each phase of construction, there would be a different mix of equipment. Thus, construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Compliance with Section 16.502.09 of the City of Vallejo Municipal Code

Table 5, Maximum Noise Levels from Construction Equipment, shows the hourly noise levels (L_{max}) produced by various types of equipment proposed by the project sponsor at a reference distance of 50 feet between the equipment and noise receptor as well as the 100-foot distance dictated by the city's noise ordinance. It should be noted that L_{max} noise levels associated with the construction equipment would only be generated when equipment is operated at full power. Typically, the operating cycle for a piece of construction equipment would involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. The L_{max} noise levels shown in Table 5 would, therefore, be expected to only occur occasionally throughout the construction day.

Section 16.502.09 of the city's noise ordinance limits to hours between 7:00 a.m. and 7:00 p.m. in residential zoning districts and in any mixed-use district for construction, demolition, and related loading/unloading activities that may generate noise exceeding levels in Table 16.502.E [Table 4] of the City of Vallejo Municipal Code.¹³

General Assessment Construction Noise Criteria of the FTA

The FTA has developed guidelines that can be considered reasonable criteria for quantitative assessment of noise. For residential land uses a daytime criterion of 90 dBA is identified while for all other land uses the criterion is 100 dBA during the daytime hours. If these criteria are exceeded, there may be adverse community reaction.¹⁴

A conservative estimate of construction noise levels was conducted using the general assessment approach described above and applied for each stage of construction to determine the resultant noise levels for the two

¹² City of Vallejo, *General Plan 2040*, August 2017. p. 4-37.

¹³ City of Vallejo. City of Vallejo Municipal Code, Chapter 16.502 (2023).

¹⁴ U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018. Table 7-2, p. 179.

noisiest pieces of equipment expected to be used. The two noisiest pieces of construction equipment associated with each construction phase are assumed to operate simultaneously at the closest location to a sensitive receptor.

During project construction, the noise levels experienced at the nearest off-site receptor would vary depending on the distance from the construction equipment within the site to the receptor. Input values and calculated noise levels using FTA methodology and the RCNM noise model for each of these construction stages are presented in **Table 6, Exterior Noise at Off-Site Sensitive Uses from Project Construction**. In the table, input values are presented for FTA methodology considerations for the nearest off-site sensitive receptor location to the project site, during construction of each phase of the project, as well as the resultant noise level (the contribution from construction activity added to the existing noise environment).

As shown in Table 6, the estimated daytime construction noise levels generated by the proposed project would range from 74.4 to 79.0 dBA L_{eq} at the nearest residential receptor. Daytime construction noise levels would not exceed the City of Vallejo's construction noise standard of 80 dBA at medium density residential uses. Additionally, noise levels would not exceed the FTA's 90 dBA daytime criterion for residential receptors.

Construction noise would be temporary, and would occur between 7:00 a.m. and 7:00 p.m. on weekdays, per General Plan Mitigation Measure NOI-4. Hours for loading, unloading, and power tool usage are also limited by the VMC Section 7.84.020(F). Additional equipment noise reduction measures, such as ensuring equipment is properly maintained, equipment is installed with operating mufflers, engine idling is limited, and low-noise emission equipment is used, would also be required per General Plan Mitigation Measure NOI-4. No unusually loud construction equipment, such as pile driving, would be required to implement the project. Construction noise would be similar to typical medium-scale urban construction that occurs throughout Vallejo on a regular basis. The City considers construction noise that occurs within the daytime hours specified above (per General Plan Mitigation Measure NOI-4 and VMC Section 7.84.020) to be less than significant. In addition, General Plan Mitigation Measure NOI-4 would require the project to maintain construction equipment to minimize noise; install mufflers, silencers, and engine shrouds on equipment; place stationary equipment as far as possible from residences; and use low-noise emission equipment. These strategies would further reduce construction noise levels resulting from project construction.

TABLE 6
EXTERIOR NOISE AT OFF-SITE SENSITIVE USES FROM DAYTIME PROJECT CONSTRUCTION

Construction Phase	Nearest Off-Site Sensitive Receptor	Distance to Receptor (feet) ^a	Existing Monitored Noise Level (dBA L _{eq})	Loudest Two Noise Sources	Estimated Construction Noise Level (dBA L _{eq})	Exceed 90 dBA Exterior Daytime Standard?	Resultant Noise Level (Existing + Construction) (dBA L _{eq})
Phase 1: Demolition	Residential: 1009 Porter St	90	56.8	Excavator Tractor/Loaders/Backhoe	76.6	No	76.6
Phase 2: Site Preparation	Residential: 1009 Porter St	90	56.8	Excavator/Backhoe Tractor/Loaders/Backhoe	76.6	No	76.6
Phase 3: Grading	Residential: 1009 Porter St	90	56.8	Plate Compactor Excavator	74.4	No	74.5
Phase 4: Building Construction/ Paving	Residential: 1009 Porter St	90	56.8	Other Material Handling Equipment Tractors/Loaders/Backhoes	79.0	No	79.0

NOTES:

Bolded values exceed the 10 dBA over ambient criterion during daytime hours.

^a The approximate distances are measured from the nearest edge of the construction activity (excluding restriping of roadways and bike lanes) to the nearest sensitive-receptor property line.

Construction Truck Hauling Impacts

Construction trucks would likely access the project site from Porter Street. Off haul trucks would exit the project site and use Magazine and Porter Street to Sonoma Boulevard. Maximum daily vendor truck trips for the Building Construction phase are anticipated to be 19 one-way truck trips per day. Spread across the proposed 8-hour work day, maximum hourly truck trips would be two per hour. Using the algorithms of the Traffic Noise Model of the Federal Highway Administration, these two hourly truck trips would contribute 52.4 dBA to the hourly Leq level at 50 feet from the roadway center. As shown in Table 1, daytime hourly Leq monitored in the project vicinity is 56.8 dBA. Addition of the contribution of project vendor trucks would result in an increase of less than 0.3 dBA over existing noise levels and would not result in a perceptible increase in noise.

Cumulative Construction Noise

There is one cumulative project currently under construction within 0.25 mile of the project site, the Oakwood Apartments (or also referred to as “Sonoma Park Project”) at the northwest corner of Sonoma Boulevard and Magazine Street. The noisiest phases of construction are generally excavation and grading which will be complete before the proposed project begins construction in late 2023. Additionally, there are existing four-story Harbor Park apartment structures that separate the proposed project site and the the Oakwood Apartment site that would act as a barrier to noise transmission. Further, like the proposed project, Oakwood Apartment would also implement additional equipment noise reduction measures, such as ensuring equipment is properly maintained, equipment is installed with operating mufflers, engine idling is limited, and low-noise emission equipment is used, that are required per General Plan Mitigation Measure NOI-4. In addition, General Plan Mitigation Measure NOI-4 would require the project to maintain construction equipment to minimize noise; install mufflers, silencers,

and engine shrouds on equipment; place stationary equipment as far as possible from residences; and use low-noise emission equipment. Therefore cumulative construction noise impacts would also be less than significant.

Exposure to Groundborne Vibration – Construction

Construction activities that would occur within the project site would include grading and paving, which would have the potential to generate low levels of groundborne vibration. As such, any existing structures uses located within 100 feet of the project site could be exposed to the generation of excessive groundborne vibration or groundborne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities rarely reach the levels that can damage structures, but they may be perceived in buildings within 100 feet, depending the on equipment or activity. No pile-driving activities would be required for construction of the proposed project.

The various PPV levels for the types of construction equipment that would operate during the construction of the proposed project are identified in **Table 7, Vibration Levels from Construction Equipment**. This table presents the reference vibration level at a distance of 25 feet as published by FTA as well as the calculated distances at the closest structures. Drilling and compaction operations could occur as close as 20 feet from the adjacent Building C at 1009 Porter Street.

The building at 1009 Porter St was constructed in 1965 and would be considered “new residential structures” with regard to the criteria presented in Table 5. Based on the information presented in Table 7, vibration velocities could reach as high as approximately 0.29 inch-per-second PPV if vibratory compaction occurs within 20 feet of the adjacent Building C. These vibration levels would not exceed the building damage thresholds (0.5 PPV) for the closest historic structure (1009 Porter Street). Therefore, the impact with regard to vibration generated by construction activities would be less than significant.

TABLE 7
VIBRATION LEVELS FROM CONSTRUCTION EQUIPMENT

Equipment	Approximate PPV (in/sec)		
	20 feet (1901 Porter Street)	25 feet (FTA reference level)	100 feet (Bay Village Apartments on Bounty Lane)
Vibratory Roller	0.293	0.21	0.027
Caisson Drill	0.124	0.089	0.011
Loaded Trucks	0.106	0.076	0.01

NOTE: Dark-gray-shaded vibration levels exceed the criteria for non-historic structures. Light-gray-shaded vibration levels exceed the criteria for historic structures in addition to the dark gray shaded levels.

SOURCE: FTA, 2018; ESA, 2020

Vibration impact analysis is based on instantaneous PPV levels and worst-case groundborne vibration levels from construction are generally determined by whichever individual piece of equipment generates the highest vibration levels. Unlike the analysis for average noise levels, in which noise levels of multiple pieces of equipment can be

combined to generate a maximum combined noise level, instantaneous PPV levels do not combine in this way. As described under the project-level construction vibration impact, the vibration levels from construction of the proposed Project would be well below the building damage thresholds. Vibration from construction of other cumulative projects, even if those projects are located in close proximity to the proposed Project and another structure, would not combine to raise the maximum PPV because there would be a substantial unlikelihood of simultaneous vibration peaks from separate construction sites. For these reasons, the impact of construction vibration from construction of cumulative projects located near the proposed Project would be highly localized and would not be anticipated to combine to further increase vibration levels. Therefore, cumulative groundborne vibration impacts would be *less than significant*.

Operational Noise Generation

Mechanical Equipment Noise

The proposed project would not require backup generators and no air conditioning equipment is proposed. There would be a single boiler room in each of the three residential buildings. All equipment in the boiler room would be shielded by the shell of the boiler room, which would attenuate noise and avoid disturbances for the nearest sensitive receptor at the closest receptor at 1009 Porter Street.

Operation of all other stationary equipment of the proposed project would be subject to section 16.502.09(c) of the noise ordinance, which limits noise produced at multiple-unit residential to no more than 65 dBA during daytime hours at any boundary of a multiple unit residential zone. Therefore the impact with respect to mechanical equipment operations would be less than significant.

Traffic Noise

The significance of traffic noise levels is determined by comparing the increase in noise levels (from the traffic contribution only) to increments recognized by General Plan Action NBE-5.15E as significant. Action NBE-5.15E identifies significant noise increase would occur if a project would increase the noise levels by 5 dBA in residential areas where the with-project noise level is less than the maximum "normally acceptable" level. The "normally acceptable" outdoor noise level for residential land uses is 60 dBA per the City's General Plan. Existing traffic noise levels along all segments are below this level.¹⁵

Traffic noise levels were modeled using the algorithms of the Federal Highway Administration's Traffic Noise Model for the Existing and Opening Year Plus Project and Cumulative with Project scenarios. As shown in **Table 8**, the increase in peak hour traffic noise in the vicinity of the Project site for the Opening Year Plus Project traffic scenario compared to the Existing traffic scenario, and Cumulative with Project scenario compared to the Existing traffic scenario would be less than 5 dBA on all roadway segments. Accordingly, the Project impact to increases in traffic noise on study area roadways would be less than significant.

¹⁵ City of Vallejo, *General Plan 2040*, August 2017, p. 4-38.

TABLE 8
TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing	Applicable Increase Threshold (dB)	Opening Year Plus Project	dBA Difference Opening Year Plus Project from Existing	Significant Cumulative Increase?	Cumulative With Project Traffic Volumes	dBA Difference Cumulative with Project Traffic Volumes from Existing	Cumulative Considerable Project Increase?
Weekday Peak-Hour Noise Levels								
Porter Street from Sonoma Boulevard to Harbor Park North Driveway	52.0	5	54.0	2.0	No	55.0	3.0	No
Porter Street from Harbor Park North Driveway to Magazine Street	55.4	5	55.5	0.1	No	56.3	0.9	No
Porter Street from Magazine Street to Harbor Park South Driveway	58.0	5	58.3	0.2	No	58.5	0.5	No
Porter Street from Harbor Park South Driveway to Bounty Lane	57.8	5	57.9	0.0	No	58.3	0.4	No
Magazine Street from Sonoma Boulevard to Porter Street	58.7	5	59.6	0.9	No	59.8	1.1	No

NOTES:

dB = decibels; dBA = A-weighted decibels; N/A = The cumulative contribution test for the project is not applicable because there is no cumulative impact along this roadway.

^a Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using algorithms of the FHWA Traffic Noise Prediction Model.

SOURCE: Data compiled by Fehr & Peers in 2023 and Environmental Science Associates in 2023.

Attachment F

Air Quality Technical Memorandum



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Technical Memorandum

date July 25, 2023
to Crescentia Brown, ESA
from Jyothi Iyer, ESA
subject Air Quality Technical Memorandum – West Harbor Park Apartments Project

Project Description

The proposed West Harbor Park Apartments Project (project) consists of 122 residential dwelling units, associated parking, and landscaping on a land lease area of approximately 3.4 acres. The project site is located within the existing 12.02-acre Harbor Park Residential Development site at 961 Porter Street in the City of Vallejo. The project would involve demolition of 2,000 square feet of building area and approximately 10,000 square feet of surface parking areas and construction of three four-story buildings over a parking podium and a 2-story building over a single-story maintenance facility.

1. Regulatory Setting

The project site is located within the San Francisco Bay Area Air Basin (SFBAAB) under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). To protect public health and the environment, the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), respectively. These standards are set for six common air pollutants, known as criteria air pollutants: ground-level ozone, carbon monoxide (CO), particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead. PM₁₀ and PM_{2.5} represent fractions of PM below 10 microns and 2.5 microns in size, respectively. Air basins or portions thereof are designated as attainment or nonattainment with respect to a particular pollutant based on whether the area has achieved the standard. An area is in attainment if it meets the standards and is not contributing to a nearby area's failure to meet the standards, whereas an area is in non-attainment if it does not meet the standards or contributes to a nearby area's failure to meet the standards. An area is considered unclassified if it cannot be designated, based on available information, as meeting or not meeting the standards. The SFBAAB is currently designated as nonattainment with respect to the state 1-hour and 8-hour and the national 8-hour standards for ozone, the state annual and national 24-hour standards for PM_{2.5}, and the state 24-hour and annual standards for PM₁₀. The SFBAAB is designated either as attainment or unclassified with respect to all other state and national standards (BAAQMD, 2017a).

2. Environmental Setting

2.1 Existing Air Quality

The project site is located within the current Harbor Park Apartments site on the west side of Porter Street in Vallejo, CA. The project site is currently developed as a westward uphill expansion of the existing Harbor Park development and is primarily surrounded by multifamily dwelling units.

Ambient air quality measurements from air monitoring stations maintained by the BAAQMD help to determine the level of air quality in the local area. The closest air monitoring station to the project site is the Vallejo – 304 Tuolumne Street air monitoring station, approximately 2 miles north of the project site. **Table 1** shows a three-year (2019 through 2021) summary of monitored data for ozone, NO₂, and PM_{2.5}. The table also compares monitored data to the CAAQS and NAAQS.

TABLE 1
SUMMARY OF AMBIENT AIR QUALITY MONITORING DATA – VALLEJO 304 TUOLUMNE STREET

Pollutant Standards	2019	2020	2021
Ozone			
Maximum 1-hour concentration (ppm)	0.092	0.096	0.099
Maximum 8-hour concentration (ppm)	0.076	0.077	0.072
Number of days standard exceeded ^a			
CAAQS 1-hour (>0.08 ppm)	0	1	1
NAAQS 8-hour (>0.07 ppm)	1	1	1
Nitrogen Dioxide (NO₂)			
Maximum 1-hour concentration (ppm)	0.052	0.048	0.040
Number of days standard exceeded ^a			
NAAQS 1-hour (>0.100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter (PM_{2.5})^b			
Maximum 24-hour concentration (µg/m ³)	30.5	152.7	32.0
Annual average concentration (µg/m ³) ^c	8.8	12.1	8.8
Number of days standard exceeded ^a			
NAAQS 24-hour (>150 µg/m ³) ^c	0	12	0
CAAQS 24-hour (>50 µg/m ³) ^c	*	*	*

NOTES:

CAAQS = California ambient air quality standards. NAAQS = national ambient air quality standards. Values in **bold** font indicate an exceedance.

* Insufficient data to determine a value

^a An exceedance is not necessarily a violation. It should be noted that the federal ozone 1-hour standard has been revoked by EPA.

^b Measurements usually are collected every 6 days.

^c State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

^d Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

SOURCES: CARB. 2023.

2.2 Sensitive Receptors in the Project Vicinity

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. More sensitive population groups include the elderly and the young; those with respiratory disease, such as asthma and chronic obstructive pulmonary disease; and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, childcare centers, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because they have other legal protections; specifically, employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of employees. However, in its most recent update to its CEQA Guidelines, the BAAQMD recommends consideration of air quality impacts to off-site workers.

Existing sensitive receptors in the project vicinity within 1,000 feet of the primary project site are composed of residences and a school, as listed below in **Table 2**. There are no existing hospitals or nursing facilities within 1,000 feet of the project site.

TABLE 2
EXISTING SENSITIVE RECEPTORS WITHIN 1,000 FEET OF THE PROJECT SITE

Type of Sensitive Receptor	Location	Distance from Project Site Boundaries (feet)
North of Project Site		
Residential	Harbor Park Apartments	20
Residential	Seabreeze Apartments	500
Residential	Winchester St & Browning Way	500
South of Project Site		
Residential	Bay Village Apartments on Bounty Lane	100
East of Project Site		
School	Patterson Elementary School	900
SOURCES: Table compiled by ESA in 2023 using Google Earth (Imagery Date 6/2016) for parcel data (address and distance to the site).		

3. Project Construction Data

3.1 Construction Schedule

Construction of the proposed project is anticipated to occur over a period of 13 months. Each project building would be available for occupation upon completion even as construction of the other buildings continue; however, the buildings are anticipated to be available for occupation in quick succession. Therefore, the project's air quality impacts are analyzed as a single phase.

Demolition would take place over a period of a month and a half. Site preparation and grading would last approximately one month. Building construction and paving phases would partially overlap and last

approximately 12 months. Project construction would be limited to the during daytime hours of 8:00 a.m. to 4:00 p.m. during weekdays. No construction would take place on weekends and holidays.

3.2 Construction Equipment

Table 3 identifies the construction equipment used by phase along with the anticipated activity level. This data was provided by the project applicant. The project proposes to use all construction equipment rated Tier 4 Final to reduce air quality and health risk impacts.

TABLE 3
PROPOSED CONSTRUCTION EQUIPMENT BY CONSTRUCTION PHASE

Construction Phase/Equipment	Number	Horsepower	Number of Days Used	No. of Hours/Day Used
Demolition				
Excavators	1	135	6	5
Tractors/Loaders/Backhoes	1	70	6	7
Site Preparation				
Excavators	1	135	15	5
Tractors/Loaders/Backhoes	1	70	15	7
Plate Compactors	1	20	5	5
Grading				
Excavators	1	135	35	6
Dumpers/Tenders	3	430	20	8
Rubber Tired Loaders	1	75	20	5
Plate Compactors	2	20	20	8
Building Construction				
Bore/Drill Rigs	1	250	5	7
Air Compressors	1	25	25	2
Cranes	1	450	2	4
Other Material Handling Equipment	1	135	40	4
Tractors/Loaders/Backhoes	1	70	40	4
Paving				
Pavers	1	225	6	7
Rollers	2	200	6	5
Dumpers/Tenders	1	430	6	4
Architectural Coating				
Other Construction Equipment	1	85	6	8

SOURCE: Table compiled by ESA in 2023 based on response to Request for Information for the project.

3.3 Construction Vehicles

Construction vehicle trips include vehicles trips generated by the transportation of workers, equipment, and materials to and from the project site. As project-specific data was not available, CalEEMod defaults were used

for the number of construction vehicle trips and trip lengths. Workers are anticipated to use gasoline-powered light duty automobiles to commute to the project site. In addition, the building construction phase would include vendor truck trips associated with the delivery of construction materials. Approximately 2,000 square feet of building area and 10,000 square feet of parking area would be demolished during the demolition phase. Approximately 100 cubic yards of fill is anticipated to be imported to the project site during the grading phase. Transport of demolition waste and infill would also generate heavy-duty truck trips.

4. Project Operational Data

The Project would be all-electric and will include heating, ventilation and air conditioning, water heaters and clothes dryers operated by electric heat pumps as well as electric stoves for cooking. No natural gas infrastructure would be provided; therefore, the project would not generate any emissions from building energy use. In addition, photovoltaic solar panels will be installed on the new buildings and carports to generate power and lower tenant electricity bills. The three residential buildings will include Electric Vehicle (EV) ready spaces within the podium garage for electric and hybrid vehicles. The project includes 98 EV-ready spaces and 6 parking spaces with EV chargers installed. Onsite bicycle parking would also be provided.

Mobile source emissions generated were based on CalEEMod defaults for trip generation and length. The estimates conservatively do not account for the reduction in vehicle miles traveled (VMT) due to the TDM measures identified in the traffic report.

5. Air Quality Impacts and Recommended Reduction Measures

This section describes the analysis of air quality effects for the proposed project. It describes the methods used to assess the effects of the proposed project and lists the criteria used by the BAAQMD to evaluate and determine whether the project would result in effects on the environment.

5.1 Significance Thresholds

Appendix G of the CEQA Guidelines considers a project to have a significant air quality impact on the environment if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The BAAQMD provides project-level thresholds of significance for criteria air pollutants for which the SFBAAB is in nonattainment. These are the levels at which the BAAQMD has determined that an individual project's contribution to the cumulative impact (non-attainment) is cumulatively considerable. The BAAQMD's 2022 CEQA Guidelines (2022 Guidelines; BAAQMD, 2023) include the most recent significance thresholds that the lead agencies can use for the evaluation of impacts. These thresholds are presented in **Table 4**.

TABLE 4
BAAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (ppd)	Average Daily Emissions (ppd)	Maximum Annual Emissions (tpy)
Project-Level			
ROG	54	54	10
NOx	54	54	10
PM ₁₀	82 (exhaust)	82	15
PM _{2.5}	54 (exhaust)	54	10
PM ₁₀ /PM _{2.5} (fugitive dust)	Best Management Practices	None	
Risks and Hazards for new sources and receptors (Individual Project)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan	
		OR	
		Increased cancer risk of >10.0 in a million	
		Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)	
		Ambient PM _{2.5} increase: > 0.3 µg/m ³ annual average	
Risks and Hazards for new sources and receptors (Cumulative Threshold)	Same as Operational Thresholds	Zone of Influence: 1,000-foot radius from property line of source or receptor	
		Compliance with Qualified Community Risk Reduction Plan	
		OR	
		Cancer risk of >100 in a million (from all local sources within Zone of Influence)	
		Chronic Non-cancer risk of > 10.0 Hazard Index (from all sources within Zone of Influence)	
		Ambient PM _{2.5} of > 0.8 µg/m ³ annual average (from all local sources within Zone of Influence)	
		<u>Zone of Influence</u> : 1,000-foot radius from property line of source or receptor	

NOTES:

ppd = pounds per day; tpy = tons per year

SOURCE: BAAQMD, 2023.

5.2 Methodology

Construction and operational emissions of criteria air pollutants were estimated using CalEEMod (version 2022.1.1.14) using construction and operational data detailed above. Estimated annual emissions from construction activities were divided by the number of workdays to derive average daily estimates for comparison with the BAAQMD's significance thresholds for construction shown in Table 4. Fugitive dust emissions from construction are addressed qualitatively consistent with BAAQMD guidance. Operational emissions, also estimated using CalEEMod, are compared to both the average daily and annual operational significance thresholds recommended by the BAAQMD.

Project construction activities would also generate toxic air contaminants (TACs) which are air pollutants which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Diesel particulate matter (DPM) from the exhaust of diesel-fueled construction

equipment and vehicles is the primary TAC of concern for the project. Regarding construction TAC emissions, BAAQMD recommends that a quantitative health risk assessment (HRA) be conducted when sensitive receptors are located within 1,000 feet of project construction activities. The closest sensitive receptors to the project site are the residential receptors at existing buildings of the Harbor Park Apartments as close as 20 feet from the project boundary. Consequently, an HRA was conducted to determine the level of risk generated by construction related TACs to nearby residential and school receptors. The HRA was conducted using the U.S. EPA's AERMOD dispersion model and HRA guidelines from BAAQMD and the Office of Environmental Health and Hazard Assessment (OEHHA) using project-specific construction data provided by the applicant. A 20-meter by 20-meter receptor grid was placed on all sensitive receptors within 1,000 feet of the project boundaries. The project construction area was modeled as an area source with an emission rate of one gram per second to obtain a dispersion factor (unit concentration) at each receptor location. Emissions of exhaust PM₁₀ were assumed to be DPM. The DPM and PM_{2.5} concentrations were calculated using the dispersion factors and the DPM and PM_{2.5} emissions estimated for the evaluation of construction impacts (see Table 5). Lifetime excess cancer risk was calculated using the resulting DPM concentrations along with equations and factors from the OEHHA's 2015 *Risk Assessment Guidelines* (OEHHA, 2015) and the *BAAQMD HRA Modeling Protocol* (BAAQMD, 2020). Chronic Hazard Index for DPM was estimated using a Reference Exposure Level of 5 micrograms per cubic meter. Similarly, annual PM_{2.5} concentrations at all receptors were calculated. The risks to the maximum exposed individual receptor (MEIR) for incremental lifetime cancer risk, chronic Hazard Index and annual PM_{2.5} concentration are compared to the BAAQMD's project level health risk thresholds shown in Table 4. Modeling assumptions, equations, and the health risk and hazard calculations are included in **Appendix A**.

The project has been qualitatively analyzed for consistency with the BAAQMD's 2017 Clean Air Plan for the SFBAAB using methodology from the 2022 Guidelines. Odor impacts have also been addressed qualitatively.

5.3 Air Quality Analysis

Construction Emissions – Criteria Air Pollutants

The project would generate pollutant emissions from the following construction activities: (1) demolition, (2) site preparation, (3) grading, (4) building construction, (5) paving, and (6) the application of architectural coatings. These construction activities would temporarily create emissions of dust and equipment exhaust. Daily emissions would vary, depending on the intensity and types of construction activities occurring simultaneously at the time. The proposed project would be constructed over a 13-month period from 2024 through 2026.

Estimated average daily emissions from project construction are shown in **Table 5**, which also compares project emissions to BAAQMD's significance thresholds for construction. As shown in Table 5, project construction emissions would be well below the BAAQMD thresholds resulting in a less than significant impact from exhaust emissions.

TABLE 5
AVERAGE DAILY CRITERIA AIR POLLUTANT EMISSIONS DURING CONSTRUCTION

Construction Year	ROG	NOx	Exhaust PM ₁₀ ^a	Exhaust PM _{2.5} ^a
2024	0.11	2.79	0.03	0.03
2025	13.36	1.61	0.03	0.03
Project Average ^b	12.63	1.67	0.03	0.03
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	No	No	No

NOTES:

^a BAAQMD's construction-related significance thresholds for PM₁₀ and PM_{2.5} apply to exhaust emissions only and not to fugitive dust.

^b The overall project average is not the sum of the yearly averages.

SOURCE: Appendix A

In addition to exhaust emissions from construction equipment and vehicles, activities such as demolition, grading and excavation, and equipment movement on unpaved construction areas would generate fugitive dust. Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Fugitive dust from construction activities can also wind-blown and that adds to the particulate matter concentrations in the local atmosphere.

The BAAQMD has taken a qualitative approach to addressing fugitive dust emissions from construction activities and considers any project that implements the BAAQMD Basic Construction Mitigation Measures Recommended for All Projects (Best Management Practices) to not result in a significant impact with respect to fugitive dust. These measures listed below would be implemented as part of the project to reduce impacts from fugitive dust to a less than significant level.

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

In addition to the measures listed above, projects are strongly encouraged to implement enhanced best management practices to control fugitive dust emissions especially when there are schools, residential areas, or other sensitive land uses located near the construction site. Due to the proximity of sensitive receptors, the project would also implement the following measures:

1. Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
2. Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
3. Plant vegetative ground cover (e.g., fast-germinating native grass seed) in disturbed areas as soon as possible and watered appropriately until vegetation is established.
4. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
5. Minimize the amount of excavated material or waste materials stored at the site.
6. Hydroseed or apply non-toxic soil stabilizers to construction areas, including previously graded areas, that are inactive for at least 10 calendar days.

Operational Emissions – Criteria Air Pollutants

Operational emissions associated with the project are presented in **Table 6**. As discussed earlier, the project would not generate any emissions from building energy use. The project would not include any new stationary sources. Area sources such as landscaping activities, use of consumer products and the application of maintenance-related architectural coatings would generate emissions. In addition, emissions would be generated from vehicle trips to and from the project site.

TABLE 6
PROJECT EMISSIONS FROM OPERATION

	ROG	NO_x	PM₁₀	PM_{2.5}
Area Source Emissions (lbs/day)	2.8	0.04	<0.01	<0.01
Energy Emissions (lbs/day)	0.0	0.0	0.0	0.0
Project Mobile Source Emissions (lbs/day)	3.71	3.61	5.83	1.51
Average Daily Project Emissions (lbs/day)	6.50	3.65	5.84	1.52
BAAQMD Thresholds	54	54	82	54
Significant (Yes or No)?	No	No	No	No
Annual Emissions (tons/year)	1.19	0.67	1.07	0.28
BAAQMD Thresholds	10	10	15	10
Significant (Yes or No)?	No	No	No	No

NOTE: Totals may not add up due to rounding.

SOURCE: Appendix A

As shown in Table 6, the project's operational emissions would be well below both the annual and daily significance thresholds recommended by the BAAQMD. This would be a less than significant impact.

Construction Emissions – Toxic Air Contaminants

TACs are air pollutants that can cause health risks. TACs do not have ambient air quality standards but are regulated using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. Such an assessment evaluates chronic, long-term effects, calculating the increased lifetime chronic risks and hazards resulting from exposure to one or more TACs.

Project construction activities would produce TACs primarily in the form of DPM emissions from the exhaust of diesel fueled construction equipment such as loaders, cranes, etc., as well as heavy duty truck trips. PM_{2.5} emissions would be generated from both exhaust and fugitive dust. These emissions could result in elevated concentrations of DPM and PM_{2.5} at existing receptors in the project vicinity, which could result in an elevated health risks to these receptors. Under the California Environmental Protection Agency guidelines, DPM is used as a surrogate for the mix of chemicals that make up diesel exhaust as a whole.

Table 7 shows the cancer risk, chronic Hazard Index, and PM_{2.5} concentrations at the residential and school MEIR from project-related construction activities. As shown in Table 7, construction health risks would/not exceed the BAAQMD's thresholds for incremental lifetime cancer risk, chronic Hazard Index or annual PM_{2.5} concentration at the MEIR. The project proposes to use all off-road diesel equipment meeting the Tier 4 Final standards which is reflected in the analysis and results. Currently, Tier 4 Final engines represent best available control technology for control of DPM from construction equipment and are expected to reduce PM emissions by up to 95 percent and NO_x reductions of up to 90 percent (U.S. EPA, 2004).

TABLE 7
MAXIMUM HEALTH RISKS FROM PROJECT CONSTRUCTION

Health Risk at MEIR	Maximum Cancer Risk (in a million)	Chronic Risk (Hazard Index)	Maximum PM _{2.5} concentration
Residential Receptor	0.38	<0.01	0.07
School Receptor	<0.01	<0.01	<0.01
Project-level Threshold	10	1.0	0.3
Significant?	No	No	No

SOURCE: Appendix A

Operation – Toxic Air Contaminants

The project would not include any stationary source of TAC emissions and would not contribute to any potential health risks to sensitive receptors. The project is a residential development project and vehicle trips generated by the project would be primarily gasoline fueled and not a significant source of TACs. The project would result in a less-than-significant impact with respect to operational TAC emissions, and an operational HRA would not be required.

Project Consistency with Clean Air Plan

The BAAQMD's most current air quality plan for the SFBAAB is *the Final 2017 Clean Air Plan: Spare the Air, Cool the Climate* (BAAQMD, 2017b). The 2017 Clean Air Plan is a road map that demonstrates how the SFBAAB will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. Consistency with the 2017 Clean Air Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan.

In determining consistency with the 2017 Clean Air Plan, BAAQMD recommends that the analysis consider whether a project would (1) support the primary goals of the 2017 Clean Air Plan, (2) include applicable control measures from the 2017 Clean Air Plan, and (3) avoid disrupting or hindering implementation of control measures identified in the 2017 Clean Air Plan.

The primary goals of the 2017 Clean Air Plan are to protect air quality and public health at the regional and local scale and protect the climate by reducing regional criteria air pollutant emissions and reducing local air quality-related health risks (by meeting state and national ambient air quality standards). To meet these goals, the 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollutants in the SFBAAB (BAAQMD, 2017b). These control measures are grouped into the following sectors: stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, and waste management.

The vast majority of the control measures included in the 2017 Clean Air Plan do not apply directly to the project because they target facilities or land uses that do not currently exist and are not proposed as part of the project (e.g., energy generation, waste management, agricultural, forest or pasture lands); vehicles or equipment that would not be employed by the project (e.g., airplanes, farming equipment); and/or involve rulemaking or other actions under the jurisdiction of agencies not directly involved with design and approval of the project and its related actions. In

addition, 40 of these measures address stationary sources (such as oil refineries and cement kilns, and large boilers used in commercial and industrial facilities) and will be implemented by the BAAQMD using its permit authority and are therefore not suited to implementation through local planning efforts.

Most of the control measures identified in the Clean Air Plan fall under the implementation responsibility of the BAAQMD or other regional agencies and would not be directly implementable at the project level. However, the project would include features, either by design, required as part of compliance with regulations or their location close to transit facilities, that support implementation of transportation-, energy-, building-, waste-, and water conservation-related measures included in the 2017 Clean Air Plan. The project would be consistent with measures to reduce PM from trackout and fugitive dust at construction sites as it would implement all BAAQMD recommended basic and enhanced dust control measures.

Further, the project would not cause disruption or delay in the implementation of any of the Clean Air Plan's control measures. The project would therefore be consistent with the BAAQMD's 2017 Clean Air Plan, and this impact would be less than significant.

Odors

Although offensive odors from stationary sources rarely cause any physical harm, they remain unpleasant and can lead to public distress, generating complaints by residents to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed and direction, and the sensitivity of receptors. Sources that typically generate odors include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. Generally, increasing the distance between the receptor and the odor source would mitigate odor impacts.

Construction equipment exhaust would generate localized short-term odors; however, these odors would dissipate rapidly and carry over beyond the project site boundaries. Once operational, the project would not include any sources of odor. There this impact would be less than significant.

6. References

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Appendix A

Supporting Air Quality Technical Information

Appendix A

CalEEMod Output, Emission Calculations, and Health Risk Assessment Calculations

CalEEMod Output

961 Porter Street | City of Vallejo Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	961 Porter Street City of Vallejo
Construction Start Date	11/1/2023
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	34.8
Location	961 Porter St, Vallejo, CA 94590, USA
County	Solano-San Francisco
City	Vallejo
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	868
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

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	122	Dwelling Unit	2.70	93,012	30,000	—	344	—
Unenclosed Parking Structure	4.00	1000sqft	0.70	38,199	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.94	0.87	3.50	25.2	0.01	0.08	3.49	3.57	0.08	1.48	1.55	—	2,764	2,764	0.09	0.13	6.28	2,813
Mit.	0.94	0.87	3.50	25.2	0.01	0.08	3.49	3.57	0.08	1.48	1.55	—	2,764	2,764	0.09	0.13	6.28	2,813
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.92	221	3.67	24.6	0.02	0.08	3.49	3.57	0.08	1.48	1.55	—	2,681	2,681	0.09	0.19	0.16	2,723
Mit.	0.92	221	3.67	24.6	0.02	0.08	3.49	3.57	0.08	1.48	1.55	—	2,681	2,681	0.09	0.19	0.16	2,723
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	3.73	0.45	2.86	< 0.005	0.01	0.35	0.36	0.01	0.15	0.15	—	346	346	0.01	0.02	0.31	352
Mit.	0.10	3.73	0.45	2.86	< 0.005	0.01	0.35	0.36	0.01	0.15	0.15	—	346	346	0.01	0.02	0.31	352
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.68	0.08	0.52	< 0.005	< 0.005	0.06	0.07	< 0.005	0.03	0.03	—	57.4	57.4	< 0.005	< 0.005	0.05	58.2
Mit.	0.02	0.68	0.08	0.52	< 0.005	< 0.005	0.06	0.07	< 0.005	0.03	0.03	—	57.4	57.4	< 0.005	< 0.005	0.05	58.2
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.94	0.87	3.50	25.2	0.01	0.08	3.49	3.57	0.08	1.48	1.55	—	2,764	2,764	0.09	0.13	6.28	2,813
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.16	0.11	2.82	4.29	0.01	0.03	1.74	1.78	0.03	0.30	0.33	—	1,706	1,706	0.07	0.19	0.07	1,765
2024	0.92	221	3.67	24.6	0.02	0.08	3.49	3.57	0.08	1.48	1.55	—	2,681	2,681	0.09	0.13	0.16	2,723
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	< 0.005	< 0.005	0.05	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	—	28.0	28.0	< 0.005	< 0.005	0.02	29.0
2024	0.10	3.73	0.45	2.86	< 0.005	0.01	0.35	0.36	0.01	0.15	0.15	—	346	346	0.01	0.02	0.31	352
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	4.64	4.64	< 0.005	< 0.005	< 0.005	4.81
2024	0.02	0.68	0.08	0.52	< 0.005	< 0.005	0.06	0.07	< 0.005	0.03	0.03	—	57.4	57.4	< 0.005	< 0.005	0.05	58.2

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.94	0.87	3.50	25.2	0.01	0.08	3.49	3.57	0.08	1.48	1.55	—	2,764	2,764	0.09	0.13	6.28	2,813
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.16	0.11	2.82	4.29	0.01	0.03	1.74	1.78	0.03	0.30	0.33	—	1,706	1,706	0.07	0.19	0.07	1,765
2024	0.92	221	3.67	24.6	0.02	0.08	3.49	3.57	0.08	1.48	1.55	—	2,681	2,681	0.09	0.13	0.16	2,723
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	< 0.005	< 0.005	0.05	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	—	28.0	28.0	< 0.005	< 0.005	0.02	29.0
2024	0.10	3.73	0.45	2.86	< 0.005	0.01	0.35	0.36	0.01	0.15	0.15	—	346	346	0.01	0.02	0.31	352
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	4.64	4.64	< 0.005	< 0.005	< 0.005	4.81
2024	0.02	0.68	0.08	0.52	< 0.005	< 0.005	0.06	0.07	< 0.005	0.03	0.03	—	57.4	57.4	< 0.005	< 0.005	0.05	58.2

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	5.73	7.68	3.76	41.2	0.08	0.06	6.46	6.52	0.06	1.64	1.69	56.9	8,183	8,240	6.11	0.37	31.6	8,535
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.54	6.53	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	56.9	7,703	7,760	6.17	0.41	1.47	8,037
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.49	6.50	3.65	31.2	0.07	0.05	5.78	5.84	0.05	1.46	1.52	56.9	7,008	7,065	6.10	0.35	12.6	7,336
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.82	1.19	0.67	5.69	0.01	0.01	1.06	1.07	0.01	0.27	0.28	9.42	1,160	1,170	1.01	0.06	2.09	1,214

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Area	0.95	3.25	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	25.3	25.3	< 0.005	< 0.005	—	25.4
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	5.73	7.68	3.76	41.2	0.08	0.06	6.46	6.52	0.06	1.64	1.69	56.9	8,183	8,240	6.11	0.37	31.6	8,535
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451

Area	0.00	2.36	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	4.54	6.53	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	56.9	7,703	7,760	6.17	0.41	1.47	8,037
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.02	3.71	3.61	26.9	0.06	0.05	5.78	5.83	0.05	1.46	1.51	—	6,620	6,620	0.33	0.32	11.9	6,737
Area	0.47	2.80	0.04	4.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	12.5	12.5	< 0.005	< 0.005	—	12.5
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	4.49	6.50	3.65	31.2	0.07	0.05	5.78	5.84	0.05	1.46	1.52	56.9	7,008	7,065	6.10	0.35	12.6	7,336
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115
Area	0.09	0.51	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.07	2.07	< 0.005	< 0.005	—	2.08
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	59.5	59.5	0.01	< 0.005	—	60.1
Water	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72
Waste	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	0.82	1.19	0.67	5.69	0.01	0.01	1.06	1.07	0.01	0.27	0.28	9.42	1,160	1,170	1.01	0.06	2.09	1,214

2.6. Operations Emissions by Sector, Mitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
--------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Area	0.95	3.25	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	25.3	25.3	< 0.005	< 0.005	—	25.4
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	5.73	7.68	3.76	41.2	0.08	0.06	6.46	6.52	0.06	1.64	1.69	56.9	8,183	8,240	6.11	0.37	31.6	8,535
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451
Area	0.00	2.36	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	4.54	6.53	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	56.9	7,703	7,760	6.17	0.41	1.47	8,037
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.02	3.71	3.61	26.9	0.06	0.05	5.78	5.83	0.05	1.46	1.51	—	6,620	6,620	0.33	0.32	11.9	6,737
Area	0.47	2.80	0.04	4.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	12.5	12.5	< 0.005	< 0.005	—	12.5
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	359	359	0.06	0.01	—	363
Water	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	4.49	6.50	3.65	31.2	0.07	0.05	5.78	5.84	0.05	1.46	1.52	56.9	7,008	7,065	6.10	0.35	12.6	7,336

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115
Area	0.09	0.51	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.07	2.07	< 0.005	< 0.005	—	2.08
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	59.5	59.5	0.01	< 0.005	—	60.1
Water	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72
Waste	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	0.82	1.19	0.67	5.69	0.01	0.01	1.06	1.07	0.01	0.27	0.28	9.42	1,160	1,170	1.01	0.06	2.09	1,214

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.24	3.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	510	510	0.02	< 0.005	—	512
Demolition	—	—	—	—	—	—	1.41	1.41	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.38	8.38	< 0.005	< 0.005	—	8.41
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.39	1.39	< 0.005	< 0.005	—	1.39
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.0	43.0	< 0.005	< 0.005	0.01	43.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.51	0.01	0.02	0.29	0.31	0.02	0.08	0.10	—	1,153	1,153	0.05	0.19	0.06	1,209
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.72	0.72	< 0.005	< 0.005	< 0.005	0.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29

3.2. Demolition (2023) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.24	3.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	510	510	0.02	< 0.005	—	512
Demolition	—	—	—	—	—	—	1.41	1.41	—	0.21	0.21	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.38	8.38	< 0.005	< 0.005	—	8.41
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.39	1.39	< 0.005	< 0.005	—	1.39
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.0	43.0	< 0.005	< 0.005	0.01	43.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.51	0.01	0.02	0.29	0.31	0.02	0.08	0.10	—	1,153	1,153	0.05	0.19	0.06	1,209
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.72	0.72	< 0.005	< 0.005	< 0.005	0.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29

3.3. Site Preparation (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.24	3.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	528	528	0.02	< 0.005	—	530

Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.05	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.7	21.7	< 0.005	< 0.005	—	21.8
Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.59	3.59	< 0.005	< 0.005	—	3.60
Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	63.3	63.3	< 0.005	< 0.005	0.01	64.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.44	0.44	< 0.005	< 0.005	< 0.005	0.44
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.24	3.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	528	528	0.02	< 0.005	—	530
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.05	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.7	21.7	< 0.005	< 0.005	—	21.8

Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.59	3.59	< 0.005	< 0.005	—	3.60
Dust From Material Movement:	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	63.3	63.3	< 0.005	< 0.005	0.01	64.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.44	0.44	< 0.005	< 0.005	< 0.005	0.44
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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3.5. Grading (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.29	1.51	16.1	0.01	0.06	—	0.06	0.06	—	0.06	—	557	557	0.02	< 0.005	—	559
Dust From Material Movement	—	—	—	—	—	—	2.34	2.34	—	1.20	1.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.29	1.51	16.1	0.01	0.06	—	0.06	0.06	—	0.06	—	557	557	0.02	< 0.005	—	559
Dust From Material Movement	—	—	—	—	—	—	2.34	2.34	—	1.20	1.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.14	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.4	53.4	< 0.005	< 0.005	—	53.6

Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.03	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.85	8.85	< 0.005	< 0.005	—	8.88
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.77	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	160	160	< 0.005	0.01	0.70	162
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	0.06	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.68	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	148	148	< 0.005	0.01	0.02	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.03	14.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.55	2.55	< 0.005	< 0.005	< 0.005	2.68

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.37	2.37	< 0.005	< 0.005	< 0.005	2.41
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44

3.6. Grading (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.29	1.51	16.1	0.01	0.06	—	0.06	0.06	—	0.06	—	557	557	0.02	< 0.005	—	559
Dust From Material Movement	—	—	—	—	—	—	2.34	2.34	—	1.20	1.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.29	1.51	16.1	0.01	0.06	—	0.06	0.06	—	0.06	—	557	557	0.02	< 0.005	—	559
Dust From Material Movement	—	—	—	—	—	—	2.34	2.34	—	1.20	1.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.14	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.4	53.4	< 0.005	< 0.005	—	53.6
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.03	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.85	8.85	< 0.005	< 0.005	—	8.88
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	0.77	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	160	160	< 0.005	0.01	0.70	162
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	0.06	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.68	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	148	148	< 0.005	0.01	0.02	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.03	14.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.55	2.55	< 0.005	< 0.005	< 0.005	2.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.37	2.37	< 0.005	< 0.005	< 0.005	2.41
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44

3.7. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.92	3.52	0.01	0.01	—	0.01	0.01	—	0.01	—	548	548	0.02	< 0.005	—	550
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.92	3.52	0.01	0.01	—	0.01	0.01	—	0.01	—	548	548	0.02	< 0.005	—	550
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	60.1	60.1	< 0.005	< 0.005	—	60.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.95	9.95	< 0.005	< 0.005	—	9.98
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.29	4.55	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	948	948	0.02	0.04	4.14	964
Vendor	0.04	0.02	0.70	0.27	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	524	524	0.02	0.08	1.39	549
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.41	0.39	4.05	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	877	877	0.03	0.04	0.11	888
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	524	524	0.02	0.08	0.04	548
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.2	97.2	< 0.005	< 0.005	0.20	98.7
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	57.4	57.4	< 0.005	0.01	0.07	60.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	16.3
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.51	9.51	< 0.005	< 0.005	0.01	9.95
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.92	3.52	0.01	0.01	—	0.01	0.01	—	0.01	—	548	548	0.02	< 0.005	—	550
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.92	3.52	0.01	0.01	—	0.01	0.01	—	0.01	—	548	548	0.02	< 0.005	—	550
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	60.1	60.1	< 0.005	< 0.005	—	60.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.95	9.95	< 0.005	< 0.005	—	9.98
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.43	0.29	4.55	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	948	948	0.02	0.04	4.14	964
Vendor	0.04	0.02	0.70	0.27	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	524	524	0.02	0.08	1.39	549

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.41	0.39	4.05	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	877	877	0.03	0.04	0.11	888
Vendor	0.04	0.02	0.74	0.28	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	524	524	0.02	0.08	0.04	548
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.2	97.2	< 0.005	< 0.005	0.20	98.7
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	57.4	57.4	< 0.005	0.01	0.07	60.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	16.3
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.51	9.51	< 0.005	< 0.005	0.01	9.95
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.23	1.19	11.9	0.02	0.05	—	0.05	0.05	—	0.05	—	1,656	1,656	0.07	0.01	—	1,661
Paving	—	0.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.51	4.51	< 0.005	< 0.005	—	4.52
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	84.4	84.4	< 0.005	< 0.005	0.01	85.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.23	1.19	11.9	0.02	0.05	—	0.05	0.05	—	0.05	—	1,656	1,656	0.07	0.01	—	1,661
Paving	—	0.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.51	4.51	< 0.005	< 0.005	—	4.52
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.39	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	84.4	84.4	< 0.005	< 0.005	0.01	85.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.24
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.16	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	333	333	0.01	< 0.005	—	334
Architectural Coatings	—	221	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.47	5.47	< 0.005	< 0.005	—	5.49
Architectural Coatings	—	3.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.91
Architectural Coatings	—	0.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.81	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	0.01	0.01	0.02	178
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.92	2.92	< 0.005	< 0.005	0.01	2.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.16	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	333	333	0.01	< 0.005	—	334
Architect ural Coatings	—	221	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.47	5.47	< 0.005	< 0.005	—	5.49

Architect Coatings	—	3.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.91
Architect ural Coatings	—	0.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.81	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	0.01	0.01	0.02	178
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.92	2.92	< 0.005	< 0.005	0.01	2.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115

Unenclos Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115

4.1.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Unenclos ed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.78	4.43	3.68	32.6	0.08	0.06	6.46	6.52	0.05	1.64	1.69	—	7,782	7,782	0.34	0.34	30.9	7,924
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451
Unenclos ed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.54	4.18	4.32	31.8	0.07	0.06	6.46	6.52	0.05	1.64	1.69	—	7,327	7,327	0.40	0.38	0.80	7,451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.73	0.68	0.66	4.92	0.01	0.01	1.06	1.06	0.01	0.27	0.28	—	1,096	1,096	0.05	0.05	1.98	1,115

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	303	303	0.05	0.01	—	306
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	56.1	56.1	0.01	< 0.005	—	56.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	359	359	0.06	0.01	—	363
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	303	303	0.05	0.01	—	306

Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	56.1	56.1	0.01	< 0.005	—	56.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	359	359	0.06	0.01	—	363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	50.2	50.2	0.01	< 0.005	—	50.7
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	9.29	9.29	< 0.005	< 0.005	—	9.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	59.5	59.5	0.01	< 0.005	—	60.1

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	303	303	0.05	0.01	—	306
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	56.1	56.1	0.01	< 0.005	—	56.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	359	359	0.06	0.01	—	363
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	—	303	303	0.05	0.01	—	306
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	56.1	56.1	0.01	< 0.005	—	56.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	359	359	0.06	0.01	—	363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	50.2	50.2	0.01	< 0.005	—	50.7
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	—	9.29	9.29	< 0.005	< 0.005	—	9.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	59.5	59.5	0.01	< 0.005	—	60.1

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclos ed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unenclos ed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	—	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.95	0.89	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	25.3	25.3	< 0.005	< 0.005	—	25.4
Total	0.95	3.25	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	25.3	25.3	< 0.005	< 0.005	—	25.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	2.36	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.08	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.07	2.07	< 0.005	< 0.005	—	2.08
Total	0.09	0.51	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.07	2.07	< 0.005	< 0.005	—	2.08

4.3.1. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.95	0.89	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	25.3	25.3	< 0.005	< 0.005	—	25.4
Total	0.95	3.25	0.08	8.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	25.3	25.3	< 0.005	< 0.005	—	25.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	2.36	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer Products	—	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.08	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.07	2.07	< 0.005	< 0.005	—	2.08
Total	0.09	0.51	0.01	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.07	2.07	< 0.005	< 0.005	—	2.08

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7

Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72

4.4.1. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.30	16.9	25.2	0.85	0.02	—	52.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.37	2.80	4.17	0.14	< 0.005	—	8.72

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2

4.5.1. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170

Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2
Unenclosed Parking Structure	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11

4.6.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.67	0.67
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11

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)

Equipme nt Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

4.9.2. Mitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	11/1/2023	11/8/2023	5.00	6.00	—
Site Preparation	Site Preparation	1/15/2024	2/4/2024	5.00	15.0	—
Grading	Grading	2/15/2024	4/3/2024	5.00	35.0	—
Building Construction	Building Construction	2/27/2024	4/22/2024	5.00	40.0	—
Paving	Paving	12/4/2024	12/11/2024	5.00	6.00	—
Architectural Coating	Architectural Coating	12/12/2024	12/19/2024	5.00	6.00	—

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	Excavators	Diesel	Tier 4 Final	1.00	5.00	135	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	70.0	0.37
Site Preparation	Excavators	Diesel	Tier 4 Final	1.00	5.00	135	0.38
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	70.0	0.37
Site Preparation	Plate Compactors	Diesel	Tier 4 Final	1.00	1.67	20.0	0.43
Grading	Dumpers/Tenders	Diesel	Tier 4 Final	3.00	4.57	430	0.38

Grading	Excavators	Diesel	Tier 4 Final	1.00	6.00	135	0.38
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	2.86	75.0	0.40
Grading	Plate Compactors	Diesel	Tier 4 Final	2.00	4.57	20.0	0.43
Building Construction	Bore/Drill Rigs	Diesel	Tier 4 Final	1.00	0.88	250	0.50
Building Construction	Air Compressors	Diesel	Tier 4 Final	1.00	1.25	25.0	0.48
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	0.20	450	0.29
Building Construction	Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	4.00	135	0.40
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	70.0	0.37
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	225	0.42
Paving	Rollers	Diesel	Tier 4 Final	2.00	5.00	200	0.38
Paving	Dumpers/Tenders	Diesel	Tier 4 Final	1.00	4.00	430	0.38
Architectural Coating	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	85.0	0.42

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Excavators	Diesel	Tier 4 Final	1.00	5.00	135	0.38
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	70.0	0.37
Site Preparation	Excavators	Diesel	Tier 4 Final	1.00	5.00	135	0.38
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	70.0	0.37
Site Preparation	Plate Compactors	Diesel	Tier 4 Final	1.00	1.67	20.0	0.43
Grading	Dumpers/Tenders	Diesel	Tier 4 Final	3.00	4.57	430	0.38
Grading	Excavators	Diesel	Tier 4 Final	1.00	6.00	135	0.38
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	2.86	75.0	0.40
Grading	Plate Compactors	Diesel	Tier 4 Final	2.00	4.57	20.0	0.43

Building Construction	Bore/Drill Rigs	Diesel	Tier 4 Final	1.00	0.88	250	0.50
Building Construction	Air Compressors	Diesel	Tier 4 Final	1.00	1.25	25.0	0.48
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	0.20	450	0.29
Building Construction	Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	4.00	135	0.40
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	4.00	70.0	0.37
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	225	0.42
Paving	Rollers	Diesel	Tier 4 Final	2.00	5.00	200	0.38
Paving	Dumpers/Tenders	Diesel	Tier 4 Final	1.00	4.00	430	0.38
Architectural Coating	Other Construction Equipment	Diesel	Tier 4 Final	1.00	8.00	85.0	0.42

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	5.00	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	15.8	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—

Grading	Worker	17.5	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.37	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	104	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	19.3	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	10.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.8	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	5.00	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	15.8	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	17.5	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.37	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	104	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	19.3	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	10.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.8	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	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	188,349	62,783	1,372	152	1,830

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	378	—
Site Preparation	0.00	0.00	0.50	0.00	—
Grading	100	0.00	2.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.70

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%
Unenclosed Parking Structure	0.70	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	204	0.03	< 0.005
2024	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VM/Weekday	VM/Saturday	VM/Sunday	VM/Year
Apartments Low Rise	893	993	766	324,560	8,250	9,174	7,078	2,998,306
Unenclosed Parking Structure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VM/Weekday	VM/Saturday	VM/Sunday	VM/Year
Apartments Low Rise	893	993	766	324,560	8,250	9,174	7,078	2,998,306
Unenclosed Parking Structure	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	60
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	60
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)
188349.3	62,783	1,372	152	1,830

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

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	542,274	204	0.0330	0.0040	0.00
Unenclosed Parking Structure	100,387	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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	542,274	204	0.0330	0.0040	0.00
Unenclosed Parking Structure	100,387	204	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)
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Apartments Low Rise	4,332,324	448,367
Unenclosed Parking Structure	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	4,332,324	448,367
Unenclosed Parking Structure	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	90.2	—
Unenclosed Parking Structure	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	90.2	—
Unenclosed Parking Structure	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
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5.14.2. Mitigated

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
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5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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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
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5.16.2. Process Boilers

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

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

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

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	17.4	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	7.66	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 $\frac{3}{4}$ 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	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	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	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
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	14.9
AQ-PM	36.5
AQ-DPM	48.5
Drinking Water	32.8
Lead Risk Housing	28.5
Pesticides	14.8
Toxic Releases	58.8
Traffic	77.6
Effect Indicators	—
CleanUp Sites	91.7
Groundwater	97.7
Haz Waste Facilities/Generators	95.0
Impaired Water Bodies	93.4
Solid Waste	64.7
Sensitive Population	—
Asthma	99.4
Cardio-vascular	85.6
Low Birth Weights	91.6
Socioeconomic Factor Indicators	—
Education	41.9
Housing	51.8
Linguistic	28.8
Poverty	52.5

Unemployment	53.9
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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	47.11920955
Employed	21.14718337
Median HI	27.43487745
Education	—
Bachelor's or higher	62.64596433
High school enrollment	100
Preschool enrollment	17.9006801
Transportation	—
Auto Access	48.80020531
Active commuting	77.13332478
Social	—
2-parent households	28.29462338
Voting	41.17798024
Neighborhood	—
Alcohol availability	60.92647248
Park access	32.28538432
Retail density	39.62530476
Supermarket access	6.416014372
Tree canopy	90.77377133
Housing	—
Homeownership	42.3200308

Housing habitability	37.77749262
Low-inc homeowner severe housing cost burden	21.27550366
Low-inc renter severe housing cost burden	44.50147568
Uncrowded housing	63.4800462
Health Outcomes	—
Insured adults	57.24368023
Arthritis	47.0
Asthma ER Admissions	0.5
High Blood Pressure	30.0
Cancer (excluding skin)	52.2
Asthma	30.0
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	44.7
Cognitively Disabled	21.0
Physically Disabled	23.7
Heart Attack ER Admissions	3.6
Mental Health Not Good	52.8
Chronic Kidney Disease	64.9
Obesity	44.4
Pedestrian Injuries	64.8
Physical Health Not Good	62.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	29.5
Current Smoker	51.2

No Leisure Time for Physical Activity	61.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	57.9
Children	19.9
Elderly	54.5
English Speaking	70.4
Foreign-born	37.9
Outdoor Workers	48.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	52.8
Traffic Density	59.5
Traffic Access	23.0
Other Indices	—
Hardship	49.6
Other Decision Support	—
2016 Voting	44.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	86.0
Healthy Places Index Score for Project Location (b)	44.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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	Project Specific Info
Construction: Construction Phases	Project Consolidated Schedule Used
Construction: Off-Road Equipment	Project Specific Const. Equipment
Construction: Off-Road Equipment EF	Off-highway Trucks EF used for Dumpers/Tenders
Operations: Hearths	No Natural Gas
Operations: Energy Use	No Natural Gas Usage
Construction: Dust From Material Movement	Project Specific Info

Emission Calculations

961 Porter Street - CALEEMOD EMISSIONS SUMMARY

Construction Emissions - Criteria Air Pollutants - Tier 4F

Year	Number of Workdays	Tons per year				Average Pounds per day			
		ROG	NOx	Ex PM-10	Ex PM-2.5	ROG	NOx	Ex PM-10	Ex PM-2.5
2023	6	3.27E-04	8.36E-03	9.18E-05	9.18E-05	0.11	2.79	0.03	0.03
2024	102	6.82E-01	8.20E-02	1.60E-03	1.60E-03	13.36	1.61	0.03	0.03
Project Total	108	6.82E-01	9.03E-02	1.70E-03	1.70E-03	12.63	1.67	0.03	0.03
BAAQMD THRESHOLDS	--	--	--	--	--	54	54	82	54

Unmitigated Operational Emissions - Criteria Air Pollutants

Source	Tons per year				Pounds per day			
	ROG	NOx	Total PM-10	Total PM-2.5	ROG	NOx	Total PM-10	Total PM-2.5
Proposed Uses								
Area	0.51	0.01	0.00	0.00	2.80	0.04	0.00	0.00
Mobile	0.68	0.66	1.06	0.28	3.71	3.61	5.83	1.51
TOTAL	1.19	0.67	1.07	0.28	6.50	3.65	5.84	1.52
BAAQMD Thresholds	10	10	15	10	54	54	82	54

Health Risk Assessment Calculations

961 Porter

Cancer Risk, Hazard Index and PM_{2.5} Concentration Calculations - Offsite Residential

Source	Year	Start Date	End Date	Calendar Days	Exposure Duration (Days)			Exposure Duration	DPM		PM _{2.5}	
					11/1/2023	1/31/2024	1/31/2026		Emisions (tons)	Emission Rate (g/s)	Emisions (tons)	Emission Rate (g/s)
					1/30/2024	1/30/2026			Tier 4F	Tier 4F	Tier 4F	Tier 4F
Area Source 1	2023	11/1/2023	12/31/2023	60	60	0	0	60	9.18E-05	5.40E-05	9.18E-05	5.40E-05
Area Source 1	2024	1/1/2024	12/31/2024	365	29	335	1	365	1.60E-03	1.55E-04	1.60E-03	1.55E-04
Area Source 2	2023	11/1/2023	12/31/2023	60	60	0	0	60	0.00E+00	0.00E+00	9.06E-04	5.33E-04
Area Source 2	2024	1/1/2024	12/31/2024	365	29	335	1	365	0.00E+00	0.00E+00	2.66E-02	2.57E-03
											0.002	0.03

Fugitive dust
PM2.5

Cancer Risk Factors

	Abbreviation	UOM	3rd Trimester	0<2	2<9
Daily Breathing Rate	DBR	L/kg-day	361	1090	631
Fraction Of Time At Home	FAH	unitless	0.85	0.85	0.72
Exposure Frequency	EF	days/year	0.96	0.96	0.96
Age Sensitivity Factor	ASF	unitless	10	10	3
Inhalation Absorption Factor	A	unitless	1	1	1
Conversion Factor	CF ₁	m ³ /L	0.001	0.001	0.001
Conversion Factor	CF ₂	µg/m ³	0.001	0.001	0.001
Cancer Potency Factor (diesel exhaust)	CPF	mg/kg-day ⁻¹	1.1	1.1	1.1
Averaging Time (for residential exposure)	AT	years	70.00	70.00	70.00

Risk at nearby schools less than 1

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February 2015

Daily breathing rate for residential receptor is based on the OEHHA 95th percentile moderate intensity breathing rates (OEHHA Table 5.7).

Fraction of time at home is set to values per OEHHA Table 8.4 for residential since the nearest school has an unmitigated cancer risk of <1 per million.

Inhalation cancer potency factor from OEHHA Table 7.1

Hazard Index

Chronic Inhalation	REL	µg/m ³	5
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Intake Factor for Inhalation, IF (m³/kg-day) = DBR*FAH*EF*ED*ASF*A*CF/AT

Source	3rd Trimester	0<2	2<9
AS1	0.007	0.000	0.000
AS1	0.003	0.116	0.000
AS2	0.007	0.000	0.000
AS2	0.003	0.116	0.000

Risk Calculation Part 1, R1 = IF*CPF*CF

3rd Trimester	0<2	2<9
7.60E-06	0.00E+00	0.00E+00
3.67E-06	1.28E-04	5.63E-08
7.60E-06	0.00E+00	0.00E+00
3.67E-06	1.28E-04	5.63E-08

	Cancer Risk	UTM X	UTM Y
MEIR	0.38	566496.7	4215107.94

HI	UTM X	UTM Y
0.0006	566496.7	4215107.94

PM _{2.5} Conc.	UTM X	UTM Y
0.066	566496.69	4215107.94

PM_{2.5} concentration, C_{PM2.5} (µg/m³) - at max. HI receptor

X (UTM)	Y (UTM)	Project Construction			
		AS1	AS1	AS2	AS2
		2023	2024	2023	2024
Index Lookup HIDE		1	2	3	4
566496.69	4215107.940	0.001	0.003	0.013	0.063

PM _{2.5} Conc.
µg/m ³
Max. Annual

0.066

Diesel Particulate Matter concentration, C_{DPM} (µg/m³)

X (UTM)	Y (UTM)	Project Construction			
		AS1	AS1	AS2	AS2
		2023	2024	2023	2024
Index Lookup HIDE		1	2	3	4
566756.69	4214707.94	0.000	0.000	0.000	0.000
566776.69	4214707.94	0.000	0.000	0.000	0.000
566796.69	4214707.94	0.000	0.000	0.000	0.000
566816.69	4214707.94	0.000	0.000	0.000	0.000
566836.69	4214707.94	0.000	0.000	0.000	0.000
566856.69	4214707.94	0.000	0.000	0.000	0.000
566876.69	4214707.94	0.000	0.000	0.000	0.000
566896.69	4214707.94	0.000	0.000	0.000	0.000
566916.69	4214707.94	0.000	0.000	0.000	0.000
566756.69	4214727.94	0.000	0.000	0.000	0.000
566776.69	4214727.94	0.000	0.000	0.000	0.000
566796.69	4214727.94	0.000	0.000	0.000	0.000
566816.69	4214727.94	0.000	0.000	0.000	0.000
566836.69	4214727.94	0.000	0.000	0.000	0.000
566856.69	4214727.94	0.000	0.000	0.000	0.000
566876.69	4214727.94	0.000	0.000	0.000	0.000
566756.69	4214747.94	0.000	0.000	0.000	0.000
566776.69	4214747.94	0.000	0.000	0.000	0.000
566796.69	4214747.94	0.000	0.000	0.000	0.000
566816.69	4214747.94	0.000	0.000	0.000	0.000
566836.69	4214747.94	0.000	0.000	0.000	0.000
566856.69	4214747.94	0.000	0.000	0.000	0.000
566756.69	4214767.94	0.000	0.000	0.000	0.000
566776.69	4214767.94	0.000	0.000	0.000	0.000
566796.69	4214767.94	0.000	0.000	0.000	0.000
566616.69	4214787.94	0.000	0.000	0.000	0.000
566576.69	4214807.94	0.000	0.000	0.000	0.000
566596.69	4214807.94	0.000	0.000	0.000	0.000
566616.69	4214807.94	0.000	0.000	0.000	0.000
566636.69	4214807.94	0.000	0.000	0.000	0.000
566656.69	4214807.94	0.000	0.000	0.000	0.000
566676.69	4214807.94	0.000	0.000	0.000	0.000
566776.69	4214807.94	0.000	0.000	0.000	0.000
566796.69	4214807.94	0.000	0.000	0.000	0.000
566816.69	4214807.94	0.000	0.000	0.000	0.000
566836.69	4214807.94	0.000	0.000	0.000	0.000
566856.69	4214807.94	0.000	0.000	0.000	0.000
566536.69	4214827.94	0.000	0.000	0.000	0.000
566556.69	4214827.94	0.000	0.000	0.000	0.000
566576.69	4214827.94	0.000	0.000	0.000	0.000
566596.69	4214827.94	0.000	0.000	0.000	0.000
566616.69	4214827.94	0.000	0.000	0.000	0.000
566636.69	4214827.94	0.000	0.000	0.000	0.000
566656.69	4214827.94	0.000	0.000	0.000	0.000
566676.69	4214827.94	0.000	0.000	0.000	0.000
566696.69	4214827.94	0.000	0.000	0.000	0.000
566736.69	4214827.94	0.000	0.000	0.000	0.000
566756.69	4214827.94	0.000	0.000	0.000	0.000

Risk Calculation Part 2					HI
Cancer Risk = $\sum R1 * C_{DPM}$				C_{DPM}/REL	
3rd Trimester	0<2	2<9	Total		
unitless					
Source: All					
1.07E-10	2.17E-09	9.51E-13	0.002273419	0.000	
1.09E-10	2.20E-09	9.66E-13	0.002309283	0.000	
1.10E-10	2.24E-09	9.83E-13	0.002349109	0.000	
1.11E-10	2.26E-09	9.92E-13	0.002371212	0.000	
1.11E-10	2.25E-09	9.88E-13	0.002360786	0.000	
1.10E-10	2.24E-09	9.83E-13	0.002349943	0.000	
1.11E-10	2.26E-09	9.93E-13	0.00237288	0.000	
1.10E-10	2.23E-09	9.81E-13	0.002345982	0.000	
1.10E-10	2.23E-09	9.81E-13	0.00234473	0.000	
1.30E-10	2.64E-09	1.16E-12	0.00277114	0.000	
1.35E-10	2.73E-09	1.20E-12	0.002863094	0.000	
1.38E-10	2.79E-09	1.23E-12	0.002932946	0.000	
1.36E-10	2.76E-09	1.21E-12	0.00289312	0.000	
1.31E-10	2.65E-09	1.16E-12	0.002781148	0.000	
1.29E-10	2.62E-09	1.15E-12	0.00275008	0.000	
1.28E-10	2.59E-09	1.14E-12	0.002714424	0.000	
1.68E-10	3.40E-09	1.49E-12	0.003572873	0.000	
1.67E-10	3.39E-09	1.49E-12	0.003559945	0.000	
1.65E-10	3.34E-09	1.47E-12	0.003510527	0.000	
1.61E-10	3.26E-09	1.43E-12	0.003422326	0.000	
1.52E-10	3.09E-09	1.36E-12	0.003239877	0.000	
1.49E-10	3.02E-09	1.33E-12	0.003174196	0.000	
2.05E-10	4.15E-09	1.82E-12	0.004355631	0.000	
2.00E-10	4.05E-09	1.78E-12	0.00424783	0.000	
1.91E-10	3.87E-09	1.70E-12	0.004060168	0.000	
2.53E-10	5.14E-09	2.26E-12	0.005395069	0.000	
2.18E-10	4.42E-09	1.94E-12	0.004641711	0.000	
2.29E-10	4.63E-09	2.03E-12	0.004863569	0.000	
2.33E-10	4.72E-09	2.07E-12	0.004955941	0.000	
2.45E-10	4.96E-09	2.18E-12	0.005204697	0.000	
2.56E-10	5.20E-09	2.28E-12	0.00545533	0.000	
2.69E-10	5.45E-09	2.39E-12	0.005719516	0.000	
2.22E-10	4.50E-09	1.98E-12	0.004727827	0.000	
2.13E-10	4.31E-09	1.89E-12	0.004528072	0.000	
2.04E-10	4.15E-09	1.82E-12	0.004352295	0.000	
2.00E-10	4.05E-09	1.78E-12	0.004253251	0.000	
1.96E-10	3.97E-09	1.74E-12	0.00417068	0.000	
2.30E-10	4.67E-09	2.05E-12	0.004905272	0.000	
2.38E-10	4.83E-09	2.12E-12	0.005074376	0.000	
2.49E-10	5.06E-09	2.22E-12	0.005310205	0.000	
2.56E-10	5.18E-09	2.28E-12	0.005440734	0.000	
2.63E-10	5.34E-09	2.34E-12	0.005601497	0.000	
2.69E-10	5.45E-09	2.39E-12	0.005724312	0.000	
2.73E-10	5.54E-09	2.43E-12	0.005820019	0.000	
2.79E-10	5.66E-09	2.48E-12	0.005939497	0.000	
3.01E-10	6.10E-09	2.68E-12	0.006398435	0.000	
2.63E-10	5.33E-09	2.34E-12	0.005593365	0.000	
2.51E-10	5.08E-09	2.23E-12	0.005337937	0.000	

566776.69	4214827.94	0.000	0.000	0.000	0.000	2.45E-10	4.98E-09	2.19E-12	0.005224297	0.000
566796.69	4214827.94	0.000	0.000	0.000	0.000	2.39E-10	4.85E-09	2.13E-12	0.005088972	0.000
566816.69	4214827.94	0.000	0.000	0.000	0.000	2.29E-10	4.64E-09	2.04E-12	0.004874204	0.000
566836.69	4214827.94	0.000	0.000	0.000	0.000	2.24E-10	4.55E-09	2.00E-12	0.00477737	0.000
566516.69	4214847.94	0.000	0.000	0.000	0.000	2.54E-10	5.15E-09	2.26E-12	0.005401116	0.000
566536.69	4214847.94	0.000	0.000	0.000	0.000	2.67E-10	5.40E-09	2.37E-12	0.005673226	0.000
566556.69	4214847.94	0.000	0.000	0.000	0.000	2.83E-10	5.74E-09	2.52E-12	0.006022277	0.000
566576.69	4214847.94	0.000	0.000	0.000	0.000	2.97E-10	6.03E-09	2.65E-12	0.006327123	0.000
566596.69	4214847.94	0.000	0.000	0.000	0.000	3.10E-10	6.28E-09	2.76E-12	0.006595271	0.000
566616.69	4214847.94	0.000	0.000	0.000	0.000	3.20E-10	6.49E-09	2.85E-12	0.006814001	0.000
566636.69	4214847.94	0.000	0.000	0.000	0.000	3.26E-10	6.61E-09	2.90E-12	0.006942445	0.000
566656.69	4214847.94	0.000	0.000	0.000	0.000	3.30E-10	6.68E-09	2.93E-12	0.007013965	0.000
566676.69	4214847.94	0.000	0.000	0.000	0.000	3.28E-10	6.66E-09	2.92E-12	0.006989152	0.000
566696.69	4214847.94	0.000	0.000	0.000	0.000	3.24E-10	6.57E-09	2.89E-12	0.006897407	0.000
566716.69	4214847.94	0.000	0.000	0.000	0.000	3.11E-10	6.30E-09	2.77E-12	0.00661091	0.000
566736.69	4214847.94	0.000	0.000	0.000	0.000	3.00E-10	6.09E-09	2.67E-12	0.006394264	0.000
566756.69	4214847.94	0.000	0.000	0.000	0.000	2.93E-10	5.95E-09	2.61E-12	0.006241007	0.000
566776.69	4214847.94	0.000	0.000	0.000	0.000	2.85E-10	5.78E-09	2.54E-12	0.00606252	0.000
566796.69	4214847.94	0.000	0.000	0.000	0.000	2.76E-10	5.59E-09	2.45E-12	0.005864224	0.000
566816.69	4214847.94	0.000	0.000	0.000	0.000	2.63E-10	5.33E-09	2.34E-12	0.00559274	0.000
566496.69	4214867.94	0.000	0.000	0.000	0.000	2.90E-10	5.88E-09	2.58E-12	0.006176994	0.000
566516.69	4214867.94	0.000	0.000	0.000	0.000	3.01E-10	6.10E-09	2.68E-12	0.006399686	0.000
566536.69	4214867.94	0.000	0.000	0.000	0.000	3.24E-10	6.58E-09	2.89E-12	0.006903662	0.000
566556.69	4214867.94	0.000	0.000	0.000	0.000	3.48E-10	7.05E-09	3.10E-12	0.007402843	0.000
566576.69	4214867.94	0.000	0.000	0.000	0.000	3.70E-10	7.49E-09	3.29E-12	0.007865533	0.000
566596.69	4214867.94	0.000	0.000	0.000	0.000	3.87E-10	7.85E-09	3.45E-12	0.008242942	0.000
566616.69	4214867.94	0.000	0.000	0.000	0.000	4.03E-10	8.17E-09	3.59E-12	0.008572184	0.000
566636.69	4214867.94	0.000	0.000	0.000	0.000	4.13E-10	8.38E-09	3.68E-12	0.008799464	0.000
566656.69	4214867.94	0.000	0.000	0.000	0.000	4.07E-10	8.25E-09	3.62E-12	0.008661219	0.000
566676.69	4214867.94	0.000	0.000	0.000	0.000	3.96E-10	8.02E-09	3.52E-12	0.008418927	0.000
566696.69	4214867.94	0.000	0.000	0.000	0.000	3.84E-10	7.78E-09	3.42E-12	0.008172256	0.000
566716.69	4214867.94	0.000	0.000	0.000	0.000	3.69E-10	7.49E-09	3.29E-12	0.00786178	0.000
566736.69	4214867.94	0.000	0.000	0.000	0.000	3.56E-10	7.22E-09	3.17E-12	0.007579662	0.000
566756.69	4214867.94	0.000	0.000	0.000	0.000	3.45E-10	7.00E-09	3.07E-12	0.007344042	0.000
566776.69	4214867.94	0.000	0.000	0.000	0.000	3.33E-10	6.75E-09	2.96E-12	0.0070834	0.000
566796.69	4214867.94	0.000	0.000	0.000	0.000	3.21E-10	6.51E-09	2.86E-12	0.006836521	0.000
566496.69	4214887.94	0.000	0.000	0.000	0.000	3.44E-10	6.97E-09	3.06E-12	0.007319437	0.000
566516.69	4214887.94	0.000	0.000	0.000	0.000	3.73E-10	7.55E-09	3.32E-12	0.007929964	0.000
566536.69	4214887.94	0.000	0.000	0.000	0.000	4.05E-10	8.22E-09	3.61E-12	0.008629734	0.000
566556.69	4214887.94	0.000	0.000	0.000	0.000	4.40E-10	8.93E-09	3.92E-12	0.009374751	0.000
566576.69	4214887.94	0.000	0.000	0.000	0.000	4.73E-10	9.60E-09	4.22E-12	0.010077024	0.000
566596.69	4214887.94	0.000	0.000	0.000	0.000	5.02E-10	1.02E-08	4.47E-12	0.010677333	0.000
566616.69	4214887.94	0.000	0.000	0.000	0.000	5.27E-10	1.07E-08	4.69E-12	0.01120925	0.000
566636.69	4214887.94	0.000	0.000	0.000	0.000	5.31E-10	1.08E-08	4.73E-12	0.011306209	0.000
566656.69	4214887.94	0.000	0.000	0.000	0.000	5.09E-10	1.03E-08	4.53E-12	0.010833301	0.000
566676.69	4214887.94	0.000	0.000	0.000	0.000	4.95E-10	1.00E-08	4.41E-12	0.010540757	0.000
566696.69	4214887.94	0.000	0.000	0.000	0.000	4.72E-10	9.57E-09	4.20E-12	0.010049083	0.000
566716.69	4214887.94	0.000	0.000	0.000	0.000	4.49E-10	9.11E-09	4.00E-12	0.009558243	0.000
566736.69	4214887.94	0.000	0.000	0.000	0.000	4.29E-10	8.70E-09	3.82E-12	0.009129331	0.000
566756.69	4214887.94	0.000	0.000	0.000	0.000	4.09E-10	8.30E-09	3.64E-12	0.008712931	0.000
566776.69	4214887.94	0.000	0.000	0.000	0.000	3.90E-10	7.90E-09	3.47E-12	0.00829799	0.000
566796.69	4214887.94	0.000	0.000	0.000	0.000	3.69E-10	7.48E-09	3.29E-12	0.007854065	0.000
566856.69	4214887.94	0.000	0.000	0.000	0.000	3.15E-10	6.39E-09	2.81E-12	0.006708494	0.000
566476.69	4214907.94	0.000	0.000	0.000	0.000	4.03E-10	8.18E-09	3.59E-12	0.008586155	0.000
566496.69	4214907.94	0.000	0.000	0.000	0.000	4.32E-10	8.76E-09	3.84E-12	0.00919126	0.000
566516.69	4214907.94	0.000	0.000	0.000	0.000	4.76E-10	9.65E-09	4.24E-12	0.010135199	0.000
566536.69	4214907.94	0.000	0.000	0.000	0.000	5.27E-10	1.07E-08	4.69E-12	0.01120925	0.000
566556.69	4214907.94	0.000	0.000	0.000	0.000	5.88E-10	1.19E-08	5.23E-12	0.012509538	0.000
566576.69	4214907.94	0.000	0.000	0.000	0.000	6.53E-10	1.32E-08	5.81E-12	0.013888019	0.000
566596.69	4214907.94	0.000	0.000	0.000	0.000	6.97E-10	1.41E-08	6.21E-12	0.014840715	0.000
566616.69	4214907.94	0.000	0.000	0.000	0.000	7.23E-10	1.47E-08	6.43E-12	0.015381807	0.000
566636.69	4214907.94	0.000	0.000	0.000	0.000	6.99E-10	1.42E-08	6.23E-12	0.014884503	0.000
566656.69	4214907.94	0.000	0.000	0.000	0.000	6.64E-10	1.35E-08	5.91E-12	0.014128017	0.000
566676.69	4214907.94	0.000	0.000	0.000	0.000	6.36E-10	1.29E-08	5.66E-12	0.01353438	0.000
566696.69	4214907.94	0.000	0.000	0.000	0.000	5.93E-10	1.20E-08	5.28E-12	0.012617131	0.000
566716.69	4214907.94	0.000	0.000	0.000	0.000	5.51E-10	1.12E-08	4.91E-12	0.011729908	0.000
566736.69	4214907.94	0.000	0.000	0.000	0.000	5.22E-10	1.06E-08	4.65E-12	0.01111104	0.000
566756.69	4214907.94	0.000	0.000	0.000	0.000	4.88E-10	9.90E-09	4.35E-12	0.010393964	0.000
566776.69	4214907.94	0.000	0.000	0.000	0.000	4.52E-10	9.17E-09	4.03E-12	0.009627678	0.000
566836.69	4214907.94	0.000	0.000	0.000	0.000	3.93E-10	7.97E-09	3.50E-12	0.008367841	0.000
566856.69	4214907.94	0.000	0.000	0.000	0.000	3.61E-10	7.33E-09	3.22E-12	0.007689757	0.000
566876.69	4214907.94	0.000	0.000	0.000	0.000	3.32E-10	6.73E-09	2.95E-12	0.007062132	0.000
566456.69	4214927.94	0.000	0.000	0.000	0.000	5.09E-10	1.03E-08	4.53E-12	0.010837054	0.000
566476.69	4214927.94	0.000	0.000	0.000	0.000	5.44E-10	1.10E-08	4.85E-12	0.011584574	0.000
566496.69	4214927.94	0.000	0.000	0.000	0.000	5.83E-10	1.18E-08	5.19E-12	0.012406533	0.000
566516.69	4214927.94	0.000	0.000	0.000	0.000	6.44E-10	1.31E-08	5.73E-12	0.013705778	0.000
566536.69	4214927.94	0.000	0.000	0.000	0.000	7.20E-10	1.46E-08	6.41E-12	0.015320296	0.000
566556.69	4214927.94	0.000	0.000	0.000	0.000	8.43E-10	1.71E-08	7.51E-12	0.01795194	0.000
566576.69	4214927.94	0.000	0.000	0.000	0.000	9.85E-10	2.00E-08	8.77E-12	0.0209587	0.000
566596.69	4214927.94	0.000	0.000	0.000	0.000	1.07E-09	2.18E-08	9.55E-12	0.02283928	0.000
566616.69	4214927.94	0.000	0.000	0.000	0.000	1.05E-09	2.13E-08	9.36E-12	0.022365121	0.000
566636.69	4214927.94	0.000	0.000	0.000	0.000	9.85E-10	2.00E-08	8.77E-12	0.020956615	0.000
566656.69	4214927.94	0.000	0.000	0.000	0.000	9.05E-10	1.83E-08	8.06E-12	0.019257858	0.000
566676.69	4214927.94	0.000	0.000	0.000	0.000	8.45E-10	1.71E-08	7.52E-12	0.017980089	0.000
566696.69	4214927.94	0.000	0.000	0.000	0.000	7.68E-10	1.56E-08	6.84E-12	0.016343887	0.000
566716.69	4214927.94	0.000	0.000	0.000	0.000	6.99E-10	1.42E-08	6.22E-12	0.014869907	0.000
566736.69	4214927.94	0.000	0.000	0.000	0.000	6.45E-10	1.31E-08	5.74E-12	0.013731634	0.000
566756.69	4214927.94	0.000	0.000	0.000	0.000	5.93E-10	1.20E-08	5.28E-12	0.012625054	0.000
566776.69	4214927.94	0.000	0.000	0.000	0.000	5.44E-10	1.10E-08	4.84E-12	0.011574565	0.000
566836.69	4214927.94	0.000	0.000	0.000	0.000	4.55E-10	9.23E-			

566676.69	4214947.94	0.000	0.000	0.000	0.000	1.16E-09	2.34E-08	1.03E-11	0.024585161	0.000
566696.69	4214947.94	0.000	0.000	0.000	0.000	1.04E-09	2.11E-08	9.27E-12	0.022167242	0.000
566716.69	4214947.94	0.000	0.000	0.000	0.000	9.35E-10	1.90E-08	8.32E-12	0.019895908	0.000
566736.69	4214947.94	0.000	0.000	0.000	0.000	8.33E-10	1.69E-08	7.42E-12	0.017727788	0.000
566756.69	4214947.94	0.000	0.000	0.000	0.000	7.61E-10	1.54E-08	6.77E-12	0.016189378	0.000
566776.69	4214947.94	0.000	0.000	0.000	0.000	6.97E-10	1.41E-08	6.20E-12	0.014824868	0.000
566836.69	4214947.94	0.000	0.000	0.000	0.000	5.30E-10	1.07E-08	4.72E-12	0.01127806	0.000
566856.69	4214947.94	0.000	0.000	0.000	0.000	4.66E-10	9.45E-09	4.15E-12	0.009919179	0.000
566876.69	4214947.94	0.000	0.000	0.000	0.000	4.14E-10	8.39E-09	3.68E-12	0.00880843	0.000
566896.69	4214947.94	0.000	0.000	0.000	0.000	3.75E-10	7.60E-09	3.34E-12	0.00797813	0.000
566916.69	4214947.94	0.000	0.000	0.000	0.000	3.38E-10	6.86E-09	3.01E-12	0.007198083	0.000
566936.69	4214947.94	0.000	0.000	0.000	0.000	3.07E-10	6.22E-09	2.73E-12	0.006533343	0.000
566436.69	4214967.94	0.000	0.000	0.000	0.000	9.32E-10	1.89E-08	8.30E-12	0.019832729	0.000
566456.69	4214967.94	0.000	0.000	0.000	0.000	1.10E-09	2.23E-08	9.78E-12	0.023371197	0.000
566476.69	4214967.94	0.000	0.000	0.000	0.000	1.30E-09	2.63E-08	1.16E-11	0.02762841	0.000
566496.69	4214967.94	0.000	0.000	0.000	0.000	1.56E-09	3.17E-08	1.39E-11	0.033293712	0.000
566516.69	4214967.94	0.000	0.000	0.000	0.000	1.95E-09	3.96E-08	1.74E-11	0.041571893	0.000
566596.69	4214967.94	0.000	0.001	0.000	0.000	3.70E-09	7.50E-08	3.29E-11	0.07873415	0.000
566616.69	4214967.94	0.000	0.000	0.000	0.000	3.05E-09	6.17E-08	2.71E-11	0.064817774	0.000
566636.69	4214967.94	0.000	0.000	0.000	0.000	2.38E-09	4.82E-08	2.12E-11	0.050627202	0.000
566656.69	4214967.94	0.000	0.000	0.000	0.000	1.93E-09	3.90E-08	1.71E-11	0.040982635	0.000
566676.69	4214967.94	0.000	0.000	0.000	0.000	1.65E-09	3.35E-08	1.47E-11	0.035205778	0.000
566696.69	4214967.94	0.000	0.000	0.000	0.000	1.45E-09	2.94E-08	1.29E-11	0.030865785	0.000
566716.69	4214967.94	0.000	0.000	0.000	0.000	1.26E-09	2.56E-08	1.13E-11	0.026901742	0.000
566736.69	4214967.94	0.000	0.000	0.000	0.000	1.10E-09	2.24E-08	9.82E-12	0.023482334	0.000
566756.69	4214967.94	0.000	0.000	0.000	0.000	9.62E-10	1.95E-08	8.57E-12	0.020481622	0.000
566816.69	4214967.94	0.000	0.000	0.000	0.000	7.00E-10	1.42E-08	6.23E-12	0.014894303	0.000
566836.69	4214967.94	0.000	0.000	0.000	0.000	6.17E-10	1.25E-08	5.50E-12	0.013138414	0.000
566856.69	4214967.94	0.000	0.000	0.000	0.000	5.39E-10	1.09E-08	4.80E-12	0.011464887	0.000
566876.69	4214967.94	0.000	0.000	0.000	0.000	4.72E-10	9.56E-09	4.20E-12	0.010040117	0.000
566896.69	4214967.94	0.000	0.000	0.000	0.000	4.22E-10	8.56E-09	3.76E-12	0.008987125	0.000
566916.69	4214967.94	0.000	0.000	0.000	0.000	3.79E-10	7.69E-09	3.38E-12	0.008068834	0.000
566936.69	4214967.94	0.000	0.000	0.000	0.000	3.45E-10	6.99E-09	3.07E-12	0.007338203	0.000
566476.69	4214987.94	0.000	0.000	0.000	0.000	2.26E-09	4.58E-08	2.01E-11	0.048028086	0.000
566496.69	4214987.94	0.000	0.000	0.000	0.000	3.05E-09	6.17E-08	2.71E-11	0.064810684	0.000
566656.69	4214987.94	0.000	0.001	0.000	0.000	3.33E-09	6.75E-08	2.96E-11	0.070863613	0.000
566676.69	4214987.94	0.000	0.000	0.000	0.000	2.63E-09	5.34E-08	2.34E-11	0.056015808	0.000
566696.69	4214987.94	0.000	0.000	0.000	0.000	2.16E-09	4.38E-08	1.92E-11	0.045983406	0.000
566716.69	4214987.94	0.000	0.000	0.000	0.000	1.79E-09	3.63E-08	1.59E-11	0.038095562	0.000
566736.69	4214987.94	0.000	0.000	0.000	0.000	1.47E-09	2.97E-08	1.31E-11	0.031219841	0.000
566756.69	4214987.94	0.000	0.000	0.000	0.000	1.23E-09	2.50E-08	1.10E-11	0.026207601	0.000
566816.69	4214987.94	0.000	0.000	0.000	0.000	8.44E-10	1.71E-08	7.51E-12	0.017954442	0.000
566836.69	4214987.94	0.000	0.000	0.000	0.000	7.22E-10	1.46E-08	6.43E-12	0.015365543	0.000
566856.69	4214987.94	0.000	0.000	0.000	0.000	6.24E-10	1.26E-08	5.55E-12	0.013275616	0.000
566876.69	4214987.94	0.000	0.000	0.000	0.000	5.43E-10	1.10E-08	4.84E-12	0.011560595	0.000
566896.69	4214987.94	0.000	0.000	0.000	0.000	4.81E-10	9.75E-09	4.28E-12	0.010231323	0.000
566916.69	4214987.94	0.000	0.000	0.000	0.000	4.27E-10	8.66E-09	3.80E-12	0.009095552	0.000
567016.69	4214987.94	0.000	0.000	0.000	0.000	2.81E-10	5.70E-09	2.50E-12	0.005983493	0.000
566476.69	4215007.94	0.000	0.001	0.000	0.000	3.98E-09	8.07E-08	3.54E-11	0.084719729	0.000
566596.69	4215007.94	0.001	0.002	0.000	0.000	1.49E-08	3.01E-07	1.32E-10	0.316439355	0.000
566696.69	4215007.94	0.000	0.001	0.000	0.000	3.80E-09	7.71E-08	3.38E-11	0.080902479	0.000
566716.69	4215007.94	0.000	0.000	0.000	0.000	2.73E-09	5.54E-08	2.43E-11	0.05815557	0.000
566736.69	4215007.94	0.000	0.000	0.000	0.000	2.07E-09	4.20E-08	1.85E-11	0.044123469	0.000
566816.69	4215007.94	0.000	0.000	0.000	0.000	1.02E-09	2.06E-08	9.06E-12	0.021649087	0.000
566836.69	4215007.94	0.000	0.000	0.000	0.000	8.53E-10	1.73E-08	7.60E-12	0.0181567	0.000
566856.69	4215007.94	0.000	0.000	0.000	0.000	7.27E-10	1.47E-08	6.47E-12	0.015467923	0.000
566876.69	4215007.94	0.000	0.000	0.000	0.000	6.29E-10	1.28E-08	5.60E-12	0.01339134	0.000
566896.69	4215007.94	0.000	0.000	0.000	0.000	5.51E-10	1.12E-08	4.91E-12	0.011729073	0.000
566916.69	4215007.94	0.000	0.000	0.000	0.000	4.89E-10	9.92E-09	4.36E-12	0.010417317	0.000
566996.69	4215007.94	0.000	0.000	0.000	0.000	3.41E-10	6.91E-09	3.04E-12	0.007255632	0.000
567016.69	4215007.94	0.000	0.000	0.000	0.000	3.09E-10	6.26E-09	2.75E-12	0.006566496	0.000
566536.69	4215027.94	0.001	0.002	0.000	0.000	1.20E-08	2.43E-07	1.07E-10	0.255520569	0.000
566556.69	4215027.94	0.001	0.002	0.000	0.000	1.17E-08	2.37E-07	1.04E-10	0.249024967	0.000
566576.69	4215027.94	0.001	0.002	0.000	0.000	1.25E-08	2.54E-07	1.12E-10	0.267008601	0.000
566596.69	4215027.94	0.001	0.002	0.000	0.000	1.34E-08	2.72E-07	1.19E-10	0.285339827	0.000
566616.69	4215027.94	0.001	0.002	0.000	0.000	1.35E-08	2.74E-07	1.20E-10	0.287767128	0.000
566976.69	4215027.94	0.000	0.000	0.000	0.000	4.20E-10	8.51E-09	3.74E-12	0.008936665	0.000
566996.69	4215027.94	0.000	0.000	0.000	0.000	3.77E-10	7.64E-09	3.35E-12	0.008015454	0.000
567016.69	4215027.94	0.000	0.000	0.000	0.000	3.38E-10	6.86E-09	3.01E-12	0.007198708	0.000
566536.69	4215047.94	0.001	0.002	0.000	0.000	1.19E-08	2.41E-07	1.06E-10	0.252847847	0.000
566556.69	4215047.94	0.001	0.002	0.000	0.000	1.07E-08	2.16E-07	9.50E-11	0.227108983	0.000
566576.69	4215047.94	0.001	0.002	0.000	0.000	1.03E-08	2.10E-07	9.20E-11	0.220038094	0.000
566596.69	4215047.94	0.001	0.002	0.000	0.000	1.12E-08	2.27E-07	9.97E-11	0.238419154	0.000
566616.69	4215047.94	0.001	0.002	0.000	0.000	1.20E-08	2.43E-07	1.07E-10	0.255373776	0.000
566696.69	4215047.94	0.001	0.002	0.000	0.000	1.30E-08	2.64E-07	1.16E-10	0.276895669	0.000
566716.69	4215047.94	0.000	0.001	0.000	0.000	7.73E-09	1.57E-07	6.88E-11	0.164507079	0.000
566956.69	4215047.94	0.000	0.000	0.000	0.000	5.27E-10	1.07E-08	4.69E-12	0.011214046	0.000
566976.69	4215047.94	0.000	0.000	0.000	0.000	4.67E-10	9.47E-09	4.16E-12	0.009940239	0.000
566996.69	4215047.94	0.000	0.000	0.000	0.000	4.16E-10	8.44E-09	3.71E-12	0.008863477	0.000
567016.69	4215047.94	0.000	0.000	0.000	0.000	3.72E-10	7.54E-09	3.31E-12	0.007912032	0.000
566496.69	4215067.94	0.001	0.002	0.000	0.000	1.39E-08	2.82E-07	1.24E-10	0.295929584	0.000
566536.69	4215067.94	0.001	0.002	0.000	0.000	1.32E-08	2.69E-07	1.18E-10	0.282007369	0.000
566556.69	4215067.94	0.001	0.002	0.000	0.000	1.10E-08	2.23E-07	9.79E-11	0.233973862	0.000
566576.69	4215067.94	0.001	0.002	0.000	0.000	9.79E-09	1.98E-07	8.71E-11	0.208317569	0.000
566596.69	4215067.94	0.001	0.001	0.000	0.000	9.30E-09	1.88E-07	8.28E-11	0.197845205	0.000
566616.69	4215067.94	0.001	0.001	0.000	0.000	9.45E-09	1.92E-07	8.41E-11	0.201064022	0.000
566676.69	4215067.94	0.001	0.002	0.000	0.000	1.57E-08	3.19E-07	1.40E-10	0.334695724	0.000
566696.69	4215067.94	0.001	0.002	0.000	0.000	1.30E-08	2.64E-07	1.16E-10	0.277536013	0.000
566956.69	4215067.94	0.000	0.000	0.000	0.000	5.88E-10	1.19E-08	5.24E-12	0.012520172	0.000
566976.69	4215067.94	0.000	0.000	0.000	0.000	5.19E-10				

566496.69	4215107.94	0.001	0.003	0.000	0.000	1.79E-08	3.63E-07	1.59E-10	0.381186651	0.001
566516.69	4215107.94	0.001	0.002	0.000	0.000	1.56E-08	3.15E-07	1.38E-10	0.331034025	0.000
566536.69	4215107.94	0.001	0.002	0.000	0.000	1.36E-08	2.76E-07	1.21E-10	0.290160025	0.000
566556.69	4215107.94	0.001	0.002	0.000	0.000	1.14E-08	2.31E-07	1.02E-10	0.242890927	0.000
566576.69	4215107.94	0.000	0.001	0.000	0.000	8.94E-09	1.81E-07	7.96E-11	0.19030245	0.000
566596.69	4215107.94	0.000	0.001	0.000	0.000	7.30E-09	1.48E-07	6.50E-11	0.155275368	0.000
566616.69	4215107.94	0.000	0.001	0.000	0.000	6.22E-09	1.26E-07	5.54E-11	0.132465071	0.000
566916.69	4215107.94	0.000	0.000	0.000	0.000	9.52E-10	1.93E-08	8.47E-12	0.020256844	0.000
566936.69	4215107.94	0.000	0.000	0.000	0.000	8.23E-10	1.67E-08	7.33E-12	0.017514479	0.000
566956.69	4215107.94	0.000	0.000	0.000	0.000	7.17E-10	1.45E-08	6.38E-12	0.015254405	0.000
566976.69	4215107.94	0.000	0.000	0.000	0.000	6.29E-10	1.28E-08	5.60E-12	0.013387379	0.000
566996.69	4215107.94	0.000	0.000	0.000	0.000	5.56E-10	1.13E-08	4.95E-12	0.01182916	0.000
567016.69	4215107.94	0.000	0.000	0.000	0.000	4.94E-10	1.00E-08	4.40E-12	0.010511565	0.000
566496.69	4215127.94	0.001	0.002	0.000	0.000	1.37E-08	2.78E-07	1.22E-10	0.291861701	0.000
566516.69	4215127.94	0.001	0.002	0.000	0.000	1.24E-08	2.51E-07	1.10E-10	0.263753919	0.000
566536.69	4215127.94	0.001	0.002	0.000	0.000	1.09E-08	2.21E-07	9.71E-11	0.232240701	0.000
566556.69	4215127.94	0.001	0.002	0.000	0.000	9.51E-09	1.93E-07	8.47E-11	0.202383077	0.000
566576.69	4215127.94	0.000	0.001	0.000	0.000	7.99E-09	1.62E-07	7.12E-11	0.170116708	0.000
566596.69	4215127.94	0.000	0.001	0.000	0.000	6.62E-09	1.34E-07	5.89E-11	0.140797257	0.000
566896.69	4215127.94	0.000	0.000	0.000	0.000	1.20E-09	2.43E-08	1.07E-11	0.025502827	0.000
566916.69	4215127.94	0.000	0.000	0.000	0.000	1.03E-09	2.09E-08	9.19E-12	0.021963525	0.000
566936.69	4215127.94	0.000	0.000	0.000	0.000	8.95E-10	1.81E-08	7.97E-12	0.019046634	0.000
566956.69	4215127.94	0.000	0.000	0.000	0.000	7.81E-10	1.58E-08	6.95E-12	0.016617664	0.000
566976.69	4215127.94	0.000	0.000	0.000	0.000	6.85E-10	1.39E-08	6.10E-12	0.014585704	0.000
566996.69	4215127.94	0.000	0.000	0.000	0.000	6.05E-10	1.23E-08	5.39E-12	0.012873394	0.000
567016.69	4215127.94	0.000	0.000	0.000	0.000	5.37E-10	1.09E-08	4.78E-12	0.011437364	0.000
566516.69	4215147.94	0.000	0.001	0.000	0.000	8.83E-09	1.79E-07	7.86E-11	0.187970647	0.000
566536.69	4215147.94	0.000	0.001	0.000	0.000	8.13E-09	1.65E-07	7.24E-11	0.172990854	0.000
566556.69	4215147.94	0.000	0.001	0.000	0.000	7.45E-09	1.51E-07	6.63E-11	0.158519207	0.000
566736.69	4215147.94	0.000	0.001	0.000	0.000	3.52E-09	7.14E-08	3.13E-11	0.074933581	0.000
566756.69	4215147.94	0.000	0.001	0.000	0.000	3.27E-09	6.63E-08	2.91E-11	0.069582716	0.000
566776.69	4215147.94	0.000	0.000	0.000	0.000	2.95E-09	5.98E-08	2.63E-11	0.062763085	0.000
566876.69	4215147.94	0.000	0.000	0.000	0.000	1.46E-09	2.96E-08	1.30E-11	0.031050528	0.000
566896.69	4215147.94	0.000	0.000	0.000	0.000	1.26E-09	2.56E-08	1.12E-11	0.026844401	0.000
566916.69	4215147.94	0.000	0.000	0.000	0.000	1.10E-09	2.22E-08	9.76E-12	0.023338669	0.000
566936.69	4215147.94	0.000	0.000	0.000	0.000	9.56E-10	1.94E-08	8.51E-12	0.020351926	0.000
566956.69	4215147.94	0.000	0.000	0.000	0.000	8.39E-10	1.70E-08	7.47E-12	0.017848935	0.000
566976.69	4215147.94	0.000	0.000	0.000	0.000	7.38E-10	1.50E-08	6.57E-12	0.015705628	0.000
566996.69	4215147.94	0.000	0.000	0.000	0.000	6.52E-10	1.32E-08	5.81E-12	0.013880304	0.000
567016.69	4215147.94	0.000	0.000	0.000	0.000	5.80E-10	1.18E-08	5.16E-12	0.012341477	0.000
566416.69	4215167.94	0.000	0.001	0.000	0.000	6.29E-09	1.28E-07	5.60E-11	0.133968242	0.000
566436.69	4215167.94	0.000	0.001	0.000	0.000	8.75E-09	1.77E-07	7.79E-11	0.186282733	0.000
566456.69	4215167.94	0.001	0.002	0.000	0.000	1.01E-08	2.05E-07	9.02E-11	0.215586755	0.000
566476.69	4215167.94	0.000	0.001	0.000	0.000	9.07E-09	1.84E-07	8.08E-11	0.193063373	0.000
566496.69	4215167.94	0.000	0.001	0.000	0.000	7.33E-09	1.49E-07	6.53E-11	0.156061671	0.000
566516.69	4215167.94	0.000	0.001	0.000	0.000	6.39E-09	1.30E-07	5.69E-11	0.135975807	0.000
566536.69	4215167.94	0.000	0.001	0.000	0.000	6.02E-09	1.22E-07	5.36E-11	0.128217658	0.000
566756.69	4215167.94	0.000	0.000	0.000	0.000	2.83E-09	5.74E-08	2.52E-11	0.060244246	0.000
566776.69	4215167.94	0.000	0.000	0.000	0.000	2.63E-09	5.34E-08	2.34E-11	0.056057511	0.000
566856.69	4215167.94	0.000	0.000	0.000	0.000	1.69E-09	3.42E-08	1.50E-11	0.035870518	0.000
566876.69	4215167.94	0.000	0.000	0.000	0.000	1.48E-09	2.99E-08	1.32E-11	0.031440031	0.000
566896.69	4215167.94	0.000	0.000	0.000	0.000	1.30E-09	2.63E-08	1.16E-11	0.027620278	0.000
566916.69	4215167.94	0.000	0.000	0.000	0.000	1.14E-09	2.31E-08	1.01E-11	0.024257795	0.000
566936.69	4215167.94	0.000	0.000	0.000	0.000	1.00E-09	2.03E-08	8.94E-12	0.021361964	0.000
566956.69	4215167.94	0.000	0.000	0.000	0.000	8.86E-10	1.80E-08	7.89E-12	0.018863351	0.000
566976.69	4215167.94	0.000	0.000	0.000	0.000	7.82E-10	1.59E-08	6.96E-12	0.016642477	0.000
566996.69	4215167.94	0.000	0.000	0.000	0.000	6.94E-10	1.41E-08	6.18E-12	0.014781081	0.000
567016.69	4215167.94	0.000	0.000	0.000	0.000	6.19E-10	1.25E-08	5.51E-12	0.013173653	0.000
566416.69	4215187.94	0.000	0.000	0.000	0.000	2.62E-09	5.32E-08	2.34E-11	0.055828563	0.000
566436.69	4215187.94	0.000	0.001	0.000	0.000	3.70E-09	7.50E-08	3.29E-11	0.078754793	0.000
566456.69	4215187.94	0.000	0.001	0.000	0.000	4.94E-09	1.00E-07	4.40E-11	0.105122324	0.000
566476.69	4215187.94	0.000	0.001	0.000	0.000	5.31E-09	1.08E-07	4.73E-11	0.113088361	0.000
566496.69	4215187.94	0.000	0.001	0.000	0.000	5.06E-09	1.03E-07	4.50E-11	0.107601962	0.000
566516.69	4215187.94	0.000	0.001	0.000	0.000	4.65E-09	9.44E-08	4.14E-11	0.099061472	0.000
566836.69	4215187.94	0.000	0.000	0.000	0.000	1.82E-09	3.70E-08	1.62E-11	0.038823481	0.000
566856.69	4215187.94	0.000	0.000	0.000	0.000	1.64E-09	3.32E-08	1.46E-11	0.034813773	0.000
566876.69	4215187.94	0.000	0.000	0.000	0.000	1.46E-09	2.97E-08	1.30E-11	0.031159372	0.000
566896.69	4215187.94	0.000	0.000	0.000	0.000	1.31E-09	2.65E-08	1.16E-11	0.027784169	0.000
566916.69	4215187.94	0.000	0.000	0.000	0.000	1.16E-09	2.35E-08	1.03E-11	0.024713605	0.000
566936.69	4215187.94	0.000	0.000	0.000	0.000	1.03E-09	2.10E-08	9.21E-12	0.022007104	0.000
566956.69	4215187.94	0.000	0.000	0.000	0.000	9.19E-10	1.86E-08	8.18E-12	0.019553113	0.000
566976.69	4215187.94	0.000	0.000	0.000	0.000	8.17E-10	1.66E-08	7.28E-12	0.017394167	0.000
566996.69	4215187.94	0.000	0.000	0.000	0.000	7.30E-10	1.48E-08	6.50E-12	0.01553277	0.000
567016.69	4215187.94	0.000	0.000	0.000	0.000	6.53E-10	1.32E-08	5.81E-12	0.013896359	0.000
566416.69	4215207.94	0.000	0.000	0.000	0.000	1.56E-09	3.16E-08	1.39E-11	0.033136494	0.000
566436.69	4215207.94	0.000	0.000	0.000	0.000	1.95E-09	3.96E-08	1.74E-11	0.041590868	0.000
566456.69	4215207.94	0.000	0.000	0.000	0.000	2.62E-09	5.32E-08	2.33E-11	0.055799371	0.000
566476.69	4215207.94	0.000	0.000	0.000	0.000	3.02E-09	6.13E-08	2.69E-11	0.064307959	0.000
566496.69	4215207.94	0.000	0.001	0.000	0.000	3.26E-09	6.61E-08	2.90E-11	0.069405272	0.000
566816.69	4215207.94	0.000	0.000	0.000	0.000	1.85E-09	3.75E-08	1.65E-11	0.039337466	0.000
566836.69	4215207.94	0.000	0.000	0.000	0.000	1.71E-09	3.47E-08	1.52E-11	0.036442678	0.000
566856.69	4215207.94	0.000	0.000	0.000	0.000	1.57E-09	3.17E-08	1.39E-11	0.0333179	0.000
566876.69	4215207.94	0.000	0.000	0.000	0.000	1.42E-09	2.89E-08	1.27E-11	0.030295919	0.000
566896.69	4215207.94	0.000	0.000	0.000	0.000	1.29E-09	2.61E-08	1.15E-11	0.027391539	0.000
566916.69	4215207.94	0.000	0.000	0.000	0.000	1.16E-09	2.36E-08	1.03E-11	0.024731745	0.000
566936.69	4215207.94	0.000	0.000	0.000	0.000	1.05E-09	2.12E-08	9.31E-12	0.0222544	0.000
566956.69	4215207.94	0.000	0.000	0.000	0.000	9.37E-10	1.90E-08	8.34E-12	0.019939696	0.000
566976.69	4215207.94	0.000	0.000	0.000	0.000	8.42E-10	1.71E-08	7.49E-12	0.017912948	0.000
566996.69	4215207.94	0.000	0.000	0.000	0.000	7.57E-10	1.53E-08	6.74E-12	0.016104096	0.000
567016.69	4215207.94	0.000	0.000	0.000	0.000	6.81E-10</				

566896.69	4215227.94	0.000	0.000	0.000	0.000	1.25E-09	2.53E-08	1.11E-11	0.02661024	0.000
566916.69	4215227.94	0.000	0.000	0.000	0.000	1.14E-09	2.32E-08	1.02E-11	0.024335362	0.000
566936.69	4215227.94	0.000	0.000	0.000	0.000	1.04E-09	2.11E-08	9.24E-12	0.022099892	0.000
566956.69	4215227.94	0.000	0.000	0.000	0.000	9.42E-10	1.91E-08	8.39E-12	0.020049374	0.000
566976.69	4215227.94	0.000	0.000	0.000	0.000	8.54E-10	1.73E-08	7.60E-12	0.018178385	0.000
566996.69	4215227.94	0.000	0.000	0.000	0.000	7.74E-10	1.57E-08	6.89E-12	0.016469203	0.000
567016.69	4215227.94	0.000	0.000	0.000	0.000	7.01E-10	1.42E-08	6.24E-12	0.014917448	0.000
566356.69	4215247.94	0.000	0.000	0.000	0.000	6.50E-10	1.32E-08	5.79E-12	0.013835056	0.000
566376.69	4215247.94	0.000	0.000	0.000	0.000	6.10E-10	1.24E-08	5.43E-12	0.01297494	0.000
566396.69	4215247.94	0.000	0.000	0.000	0.000	6.12E-10	1.24E-08	5.45E-12	0.013017685	0.000
566416.69	4215247.94	0.000	0.000	0.000	0.000	6.44E-10	1.31E-08	5.73E-12	0.013707238	0.000
566436.69	4215247.94	0.000	0.000	0.000	0.000	7.66E-10	1.55E-08	6.82E-12	0.016294052	0.000
566456.69	4215247.94	0.000	0.000	0.000	0.000	9.08E-10	1.84E-08	8.08E-12	0.019316033	0.000
566476.69	4215247.94	0.000	0.000	0.000	0.000	1.12E-09	2.27E-08	9.96E-12	0.023804696	0.000
566496.69	4215247.94	0.000	0.000	0.000	0.000	1.37E-09	2.78E-08	1.22E-11	0.029235629	0.000
566516.69	4215247.94	0.000	0.000	0.000	0.000	1.57E-09	3.18E-08	1.40E-11	0.033401097	0.000
566536.69	4215247.94	0.000	0.000	0.000	0.000	1.74E-09	3.53E-08	1.55E-11	0.037057375	0.000
566556.69	4215247.94	0.000	0.000	0.000	0.000	1.89E-09	3.83E-08	1.68E-11	0.040257843	0.000
566576.69	4215247.94	0.000	0.000	0.000	0.000	1.99E-09	4.03E-08	1.77E-11	0.042304817	0.000
566796.69	4215247.94	0.000	0.000	0.000	0.000	1.60E-09	3.25E-08	1.43E-11	0.034108582	0.000
566816.69	4215247.94	0.000	0.000	0.000	0.000	1.54E-09	3.12E-08	1.37E-11	0.032704871	0.000
566836.69	4215247.94	0.000	0.000	0.000	0.000	1.46E-09	2.96E-08	1.30E-11	0.031107452	0.000
566856.69	4215247.94	0.000	0.000	0.000	0.000	1.38E-09	2.79E-08	1.23E-11	0.029327375	0.000
566876.69	4215247.94	0.000	0.000	0.000	0.000	1.29E-09	2.61E-08	1.15E-11	0.027429697	0.000
566896.69	4215247.94	0.000	0.000	0.000	0.000	1.20E-09	2.43E-08	1.07E-11	0.025515129	0.000
566916.69	4215247.94	0.000	0.000	0.000	0.000	1.11E-09	2.25E-08	9.87E-12	0.023601395	0.000
566936.69	4215247.94	0.000	0.000	0.000	0.000	1.02E-09	2.06E-08	9.06E-12	0.021668479	0.000
566956.69	4215247.94	0.000	0.000	0.000	0.000	9.34E-10	1.89E-08	8.32E-12	0.019882355	0.000
566976.69	4215247.94	0.000	0.000	0.000	0.000	8.55E-10	1.73E-08	7.61E-12	0.018197777	0.000
566996.69	4215247.94	0.000	0.000	0.000	0.000	7.81E-10	1.58E-08	6.95E-12	0.016625588	0.000
567016.69	4215247.94	0.000	0.000	0.000	0.000	7.13E-10	1.45E-08	6.35E-12	0.015170792	0.000
566356.69	4215267.94	0.000	0.000	0.000	0.000	4.75E-10	9.64E-09	4.23E-12	0.010116016	0.000
566376.69	4215267.94	0.000	0.000	0.000	0.000	4.76E-10	9.66E-09	4.24E-12	0.010141037	0.000
566396.69	4215267.94	0.000	0.000	0.000	0.000	4.81E-10	9.75E-09	4.28E-12	0.010232158	0.000
566416.69	4215267.94	0.000	0.000	0.000	0.000	5.09E-10	1.03E-08	4.53E-12	0.010833718	0.000
566436.69	4215267.94	0.000	0.000	0.000	0.000	5.43E-10	1.10E-08	4.84E-12	0.011565808	0.000
566456.69	4215267.94	0.000	0.000	0.000	0.000	6.44E-10	1.31E-08	5.73E-12	0.01370557	0.000
566476.69	4215267.94	0.000	0.000	0.000	0.000	7.67E-10	1.56E-08	6.83E-12	0.016324286	0.000
566496.69	4215267.94	0.000	0.000	0.000	0.000	9.53E-10	1.93E-08	8.49E-12	0.020286245	0.000
566516.69	4215267.94	0.000	0.000	0.000	0.000	1.08E-09	2.19E-08	9.62E-12	0.02298649	0.000
566536.69	4215267.94	0.000	0.000	0.000	0.000	1.24E-09	2.51E-08	1.10E-11	0.026341467	0.000
566556.69	4215267.94	0.000	0.000	0.000	0.000	1.38E-09	2.80E-08	1.23E-11	0.029423708	0.000
566576.69	4215267.94	0.000	0.000	0.000	0.000	1.51E-09	3.06E-08	1.34E-11	0.032117698	0.000
566596.69	4215267.94	0.000	0.000	0.000	0.000	1.60E-09	3.24E-08	1.42E-11	0.034002866	0.000
566616.69	4215267.94	0.000	0.000	0.000	0.000	1.65E-09	3.35E-08	1.47E-11	0.035201816	0.000
566776.69	4215267.94	0.000	0.000	0.000	0.000	1.48E-09	3.01E-08	1.32E-11	0.031580777	0.000
566796.69	4215267.94	0.000	0.000	0.000	0.000	1.44E-09	2.93E-08	1.28E-11	0.030713779	0.000
566816.69	4215267.94	0.000	0.000	0.000	0.000	1.40E-09	2.83E-08	1.24E-11	0.029695818	0.000
566836.69	4215267.94	0.000	0.000	0.000	0.000	1.34E-09	2.72E-08	1.19E-11	0.028507919	0.000
566856.69	4215267.94	0.000	0.000	0.000	0.000	1.28E-09	2.59E-08	1.14E-11	0.027167596	0.000
566876.69	4215267.94	0.000	0.000	0.000	0.000	1.21E-09	2.45E-08	1.08E-11	0.025708212	0.000
566896.69	4215267.94	0.000	0.000	0.000	0.000	1.14E-09	2.30E-08	1.01E-11	0.024164798	0.000
566916.69	4215267.94	0.000	0.000	0.000	0.000	1.06E-09	2.15E-08	9.45E-12	0.022589898	0.000
566936.69	4215267.94	0.000	0.000	0.000	0.000	9.87E-10	2.00E-08	8.79E-12	0.0210077	0.000
566956.69	4215267.94	0.000	0.000	0.000	0.000	9.15E-10	1.85E-08	8.14E-12	0.019468456	0.000
566976.69	4215267.94	0.000	0.000	0.000	0.000	8.45E-10	1.71E-08	7.52E-12	0.017981549	0.000
566996.69	4215267.94	0.000	0.000	0.000	0.000	7.78E-10	1.58E-08	6.93E-12	0.016568038	0.000
567016.69	4215267.94	0.000	0.000	0.000	0.000	7.16E-10	1.45E-08	6.37E-12	0.015234805	0.000
566356.69	4215287.94	0.000	0.000	0.000	0.000	3.58E-10	7.26E-09	3.19E-12	0.007624284	0.000
566376.69	4215287.94	0.000	0.000	0.000	0.000	3.67E-10	7.43E-09	3.26E-12	0.007803605	0.000
566396.69	4215287.94	0.000	0.000	0.000	0.000	3.83E-10	7.76E-09	3.41E-12	0.008142647	0.000
566416.69	4215287.94	0.000	0.000	0.000	0.000	4.07E-10	8.25E-09	3.62E-12	0.008661428	0.000
566436.69	4215287.94	0.000	0.000	0.000	0.000	4.35E-10	8.83E-09	3.88E-12	0.009265491	0.000
566456.69	4215287.94	0.000	0.000	0.000	0.000	5.01E-10	1.02E-08	4.46E-12	0.010660444	0.000
566476.69	4215287.94	0.000	0.000	0.000	0.000	5.70E-10	1.16E-08	5.07E-12	0.012124831	0.000
566496.69	4215287.94	0.000	0.000	0.000	0.000	6.81E-10	1.38E-08	6.06E-12	0.014485409	0.000
566516.69	4215287.94	0.000	0.000	0.000	0.000	7.69E-10	1.56E-08	6.85E-12	0.016372453	0.000
566536.69	4215287.94	0.000	0.000	0.000	0.000	8.96E-10	1.82E-08	7.98E-12	0.019074783	0.000
566556.69	4215287.94	0.000	0.000	0.000	0.000	1.02E-09	2.07E-08	9.09E-12	0.021727071	0.000
566576.69	4215287.94	0.000	0.000	0.000	0.000	1.15E-09	2.32E-08	1.02E-11	0.024378524	0.000
566596.69	4215287.94	0.000	0.000	0.000	0.000	1.24E-09	2.52E-08	1.11E-11	0.026435506	0.000
566616.69	4215287.94	0.000	0.000	0.000	0.000	1.32E-09	2.67E-08	1.17E-11	0.028017079	0.000
566636.69	4215287.94	0.000	0.000	0.000	0.000	1.37E-09	2.77E-08	1.22E-11	0.029060061	0.000
566756.69	4215287.94	0.000	0.000	0.000	0.000	1.35E-09	2.73E-08	1.20E-11	0.028673895	0.000
566776.69	4215287.94	0.000	0.000	0.000	0.000	1.32E-09	2.68E-08	1.18E-11	0.02816554	0.000
566796.69	4215287.94	0.000	0.000	0.000	0.000	1.30E-09	2.63E-08	1.15E-11	0.027594631	0.000
566816.69	4215287.94	0.000	0.000	0.000	0.000	1.26E-09	2.56E-08	1.12E-11	0.026880056	0.000
566836.69	4215287.94	0.000	0.000	0.000	0.000	1.22E-09	2.48E-08	1.09E-11	0.026016186	0.000
566856.69	4215287.94	0.000	0.000	0.000	0.000	1.18E-09	2.38E-08	1.05E-11	0.02502846	0.000
566876.69	4215287.94	0.000	0.000	0.000	0.000	1.12E-09	2.28E-08	1.00E-11	0.023925633	0.000
566896.69	4215287.94	0.000	0.000	0.000	0.000	1.07E-09	2.16E-08	9.50E-12	0.022699159	0.000
566916.69	4215287.94	0.000	0.000	0.000	0.000	1.01E-09	2.04E-08	8.97E-12	0.021434735	0.000
566936.69	4215287.94	0.000	0.000	0.000	0.000	9.47E-10	1.92E-08	8.43E-12	0.020150086	0.000
566956.69	4215287.94	0.000	0.000	0.000	0.000	8.86E-10	1.80E-08	7.89E-12	0.018860432	0.000
566976.69	4215287.94	0.000	0.000	0.000	0.000	8.26E-10	1.67E-08	7.35E-12	0.01757474	0.000
566996.69	4215287.94	0.000	0.000	0.000	0.000	7.67E-10	1.56E-08	6.83E-12	0.016333669	0.000
567016.69	4215287.94	0.000	0.000	0.000	0.000	7.11E-10	1.44E-08	6.33E-12	0.015132842	0.000
566356.69	4215307.94	0.000	0.000	0.000	0.000	2.73E-10	5.54E-09	2.43E-12	0.005817517	0.000
566376.69	4215307.94	0.000	0.000	0.000	0.000	2.86E-10	5.79E-09	2.54E-12	0.006076699	0.000
566396.69	4215307.94	0.000	0.000	0.000	0.000	3.04E-10				

566816.69	4215307.94	0.000	0.000	0.000	0.000	1.14E-09	2.31E-08	1.01E-11	0.024245493	0.000
566836.69	4215307.94	0.000	0.000	0.000	0.000	1.11E-09	2.25E-08	9.89E-12	0.0236456	0.000
566856.69	4215307.94	0.000	0.000	0.000	0.000	1.08E-09	2.19E-08	9.60E-12	0.022942494	0.000
566876.69	4215307.94	0.000	0.000	0.000	0.000	1.04E-09	2.11E-08	9.25E-12	0.022113029	0.000
566896.69	4215307.94	0.000	0.000	0.000	0.000	9.94E-10	2.02E-08	8.85E-12	0.021164711	0.000
566916.69	4215307.94	0.000	0.000	0.000	0.000	9.48E-10	1.92E-08	8.44E-12	0.020185533	0.000
566936.69	4215307.94	0.000	0.000	0.000	0.000	9.00E-10	1.82E-08	8.01E-12	0.019157563	0.000
566956.69	4215307.94	0.000	0.000	0.000	0.000	8.50E-10	1.72E-08	7.57E-12	0.01808935	0.000
566976.69	4215307.94	0.000	0.000	0.000	0.000	7.99E-10	1.62E-08	7.12E-12	0.017011754	0.000
566996.69	4215307.94	0.000	0.000	0.000	0.000	7.49E-10	1.52E-08	6.67E-12	0.01593958	0.000
567016.69	4215307.94	0.000	0.000	0.000	0.000	7.00E-10	1.42E-08	6.23E-12	0.014889299	0.000
566356.69	4215327.94	0.000	0.000	0.000	0.000	2.29E-10	4.65E-09	2.04E-12	0.004882961	0.000
566376.69	4215327.94	0.000	0.000	0.000	0.000	2.39E-10	4.84E-09	2.12E-12	0.005077295	0.000
566396.69	4215327.94	0.000	0.000	0.000	0.000	2.46E-10	4.99E-09	2.19E-12	0.005238476	0.000
566416.69	4215327.94	0.000	0.000	0.000	0.000	2.49E-10	5.06E-09	2.22E-12	0.005307702	0.000
566436.69	4215327.94	0.000	0.000	0.000	0.000	2.97E-10	6.01E-09	2.64E-12	0.006311693	0.000
566456.69	4215327.94	0.000	0.000	0.000	0.000	3.21E-10	6.50E-09	2.86E-12	0.006826512	0.000
566476.69	4215327.94	0.000	0.000	0.000	0.000	3.62E-10	7.33E-09	3.22E-12	0.007694344	0.000
566496.69	4215327.94	0.000	0.000	0.000	0.000	3.93E-10	7.97E-09	3.50E-12	0.008367633	0.000
566516.69	4215327.94	0.000	0.000	0.000	0.000	4.39E-10	8.91E-09	3.91E-12	0.009350772	0.000
566536.69	4215327.94	0.000	0.000	0.000	0.000	5.06E-10	1.03E-08	4.51E-12	0.010775126	0.000
566556.69	4215327.94	0.000	0.000	0.000	0.000	5.87E-10	1.19E-08	5.23E-12	0.012498904	0.000
566576.69	4215327.94	0.000	0.000	0.000	0.000	6.64E-10	1.35E-08	5.91E-12	0.014121762	0.000
566596.69	4215327.94	0.000	0.000	0.000	0.000	7.46E-10	1.51E-08	6.64E-12	0.015879736	0.000
566616.69	4215327.94	0.000	0.000	0.000	0.000	8.18E-10	1.66E-08	7.28E-12	0.017406261	0.000
566636.69	4215327.94	0.000	0.000	0.000	0.000	8.81E-10	1.79E-08	7.84E-12	0.018743456	0.000
566656.69	4215327.94	0.000	0.000	0.000	0.000	9.38E-10	1.90E-08	8.35E-12	0.019954292	0.000
566676.69	4215327.94	0.000	0.000	0.000	0.000	9.80E-10	1.99E-08	8.72E-12	0.020848605	0.000
566796.69	4215327.94	0.000	0.000	0.000	0.000	1.04E-09	2.10E-08	9.23E-12	0.022069866	0.000
566816.69	4215327.94	0.000	0.000	0.000	0.000	1.02E-09	2.08E-08	9.11E-12	0.021788374	0.000
566836.69	4215327.94	0.000	0.000	0.000	0.000	1.01E-09	2.04E-08	8.96E-12	0.021416178	0.000
566856.69	4215327.94	0.000	0.000	0.000	0.000	9.84E-10	2.00E-08	8.76E-12	0.020944104	0.000
566876.69	4215327.94	0.000	0.000	0.000	0.000	9.55E-10	1.94E-08	8.50E-12	0.020326488	0.000
566896.69	4215327.94	0.000	0.000	0.000	0.000	9.23E-10	1.87E-08	8.22E-12	0.019641314	0.000
566916.69	4215327.94	0.000	0.000	0.000	0.000	8.88E-10	1.80E-08	7.90E-12	0.018891292	0.000
566936.69	4215327.94	0.000	0.000	0.000	0.000	8.49E-10	1.72E-08	7.56E-12	0.018077673	0.000
566956.69	4215327.94	0.000	0.000	0.000	0.000	8.09E-10	1.64E-08	7.20E-12	0.017212135	0.000
566976.69	4215327.94	0.000	0.000	0.000	0.000	7.67E-10	1.55E-08	6.83E-12	0.01632095	0.000
566996.69	4215327.94	0.000	0.000	0.000	0.000	7.24E-10	1.47E-08	6.45E-12	0.015414961	0.000
567016.69	4215327.94	0.000	0.000	0.000	0.000	6.82E-10	1.38E-08	6.07E-12	0.014512307	0.000
566336.69	4215347.94	0.000	0.000	0.000	0.000	1.78E-10	3.60E-09	1.58E-12	0.003781595	0.000
566356.69	4215347.94	0.000	0.000	0.000	0.000	1.96E-10	3.97E-09	1.75E-12	0.004172348	0.000
566376.69	4215347.94	0.000	0.000	0.000	0.000	2.04E-10	4.13E-09	1.81E-12	0.004336031	0.000
566396.69	4215347.94	0.000	0.000	0.000	0.000	2.07E-10	4.20E-09	1.84E-12	0.004406091	0.000
566416.69	4215347.94	0.000	0.000	0.000	0.000	2.14E-10	4.34E-09	1.90E-12	0.004552676	0.000
566436.69	4215347.94	0.000	0.000	0.000	0.000	2.66E-10	5.39E-09	2.37E-12	0.005663009	0.000
566456.69	4215347.94	0.000	0.000	0.000	0.000	2.93E-10	5.95E-09	2.61E-12	0.006243509	0.000
566476.69	4215347.94	0.000	0.000	0.000	0.000	3.05E-10	6.17E-09	2.71E-12	0.006482257	0.000
566496.69	4215347.94	0.000	0.000	0.000	0.000	3.20E-10	6.48E-09	2.84E-12	0.006800448	0.000
566516.69	4215347.94	0.000	0.000	0.000	0.000	3.50E-10	7.10E-09	3.12E-12	0.007455596	0.000
566536.69	4215347.94	0.000	0.000	0.000	0.000	4.00E-10	8.10E-09	3.56E-12	0.008503583	0.000
566556.69	4215347.94	0.000	0.000	0.000	0.000	4.53E-10	9.19E-09	4.03E-12	0.009642691	0.000
566576.69	4215347.94	0.000	0.000	0.000	0.000	5.15E-10	1.04E-08	4.59E-12	0.010961328	0.000
566596.69	4215347.94	0.000	0.000	0.000	0.000	5.85E-10	1.19E-08	5.21E-12	0.01245178	0.000
566616.69	4215347.94	0.000	0.000	0.000	0.000	6.52E-10	1.32E-08	5.81E-12	0.013886768	0.000
566636.69	4215347.94	0.000	0.000	0.000	0.000	7.11E-10	1.44E-08	6.33E-12	0.015122208	0.000
566656.69	4215347.94	0.000	0.000	0.000	0.000	7.67E-10	1.56E-08	6.83E-12	0.016327623	0.000
566816.69	4215347.94	0.000	0.000	0.000	0.000	9.16E-10	1.86E-08	8.16E-12	0.019498065	0.000
566836.69	4215347.94	0.000	0.000	0.000	0.000	9.07E-10	1.84E-08	8.08E-12	0.01931082	0.000
566856.69	4215347.94	0.000	0.000	0.000	0.000	8.93E-10	1.81E-08	7.95E-12	0.019006183	0.000
566876.69	4215347.94	0.000	0.000	0.000	0.000	8.73E-10	1.77E-08	7.78E-12	0.018589365	0.000
566896.69	4215347.94	0.000	0.000	0.000	0.000	8.52E-10	1.73E-08	7.58E-12	0.018126466	0.000
566916.69	4215347.94	0.000	0.000	0.000	0.000	8.25E-10	1.67E-08	7.35E-12	0.017565565	0.000
566936.69	4215347.94	0.000	0.000	0.000	0.000	7.96E-10	1.61E-08	7.09E-12	0.016950243	0.000
566956.69	4215347.94	0.000	0.000	0.000	0.000	7.64E-10	1.55E-08	6.80E-12	0.016266111	0.000
566976.69	4215347.94	0.000	0.000	0.000	0.000	7.30E-10	1.48E-08	6.50E-12	0.015540277	0.000
566996.69	4215347.94	0.000	0.000	0.000	0.000	6.95E-10	1.41E-08	6.19E-12	0.014788587	0.000
567016.69	4215347.94	0.000	0.000	0.000	0.000	6.59E-10	1.34E-08	5.87E-12	0.014030016	0.000
566336.69	4215367.94	0.000	0.000	0.000	0.000	1.69E-10	3.43E-09	1.51E-12	0.003605818	0.000
566356.69	4215367.94	0.000	0.000	0.000	0.000	1.73E-10	3.51E-09	1.54E-12	0.003689223	0.000
566376.69	4215367.94	0.000	0.000	0.000	0.000	1.78E-10	3.61E-09	1.58E-12	0.003787641	0.000
566396.69	4215367.94	0.000	0.000	0.000	0.000	1.79E-10	3.62E-09	1.59E-12	0.003802446	0.000
566416.69	4215367.94	0.000	0.000	0.000	0.000	1.88E-10	3.82E-09	1.68E-12	0.004008248	0.000
566436.69	4215367.94	0.000	0.000	0.000	0.000	2.53E-10	5.13E-09	2.25E-12	0.00538381	0.000
566456.69	4215367.94	0.000	0.000	0.000	0.000	2.55E-10	5.17E-09	2.27E-12	0.005428848	0.000
566476.69	4215367.94	0.000	0.000	0.000	0.000	2.61E-10	5.30E-09	2.33E-12	0.005564174	0.000
566496.69	4215367.94	0.000	0.000	0.000	0.000	2.68E-10	5.44E-09	2.39E-12	0.005707631	0.000
566516.69	4215367.94	0.000	0.000	0.000	0.000	2.90E-10	5.89E-09	2.59E-12	0.006179704	0.000
566536.69	4215367.94	0.000	0.000	0.000	0.000	3.22E-10	6.52E-09	2.87E-12	0.006849032	0.000
566556.69	4215367.94	0.000	0.000	0.000	0.000	3.59E-10	7.28E-09	3.20E-12	0.007641173	0.000
566576.69	4215367.94	0.000	0.000	0.000	0.000	4.06E-10	8.24E-09	3.62E-12	0.008648292	0.000
566596.69	4215367.94	0.000	0.000	0.000	0.000	4.62E-10	9.37E-09	4.12E-12	0.009840153	0.000
566616.69	4215367.94	0.000	0.000	0.000	0.000	5.17E-10	1.05E-08	4.60E-12	0.011001154	0.000
566636.69	4215367.94	0.000	0.000	0.000	0.000	5.75E-10	1.17E-08	5.12E-12	0.012243058	0.000
566656.69	4215367.94	0.000	0.000	0.000	0.000	6.30E-10	1.28E-08	5.61E-12	0.013415319	0.000
566796.69	4215367.94	0.000	0.000	0.000	0.000	8.13E-10	1.65E-08	7.24E-12	0.017306592	0.000
566816.69	4215367.94	0.000	0.000	0.000	0.000	8.16E-10	1.65E-08	7.27E-12	0.017369563	0.000
566836.69	4215367.94	0.000	0.000	0.000	0.000	8.14E-10	1.65E-08	7.25E-12	0.017329737	0.000
566856.69	4215367.94	0.000	0.000	0.000	0.000	8.06E-10	1.63E-08	7.18E-12	0.017156254	0.000
566876.69	4215367.94	0.000	0.000	0.000	0.000	7.96E-10				

566436.69	4215387.94	0.000	0.000	0.000	0.000	2.25E-10	4.56E-09	2.00E-12	0.004791424	0.000
566456.69	4215387.94	0.000	0.000	0.000	0.000	2.25E-10	4.57E-09	2.01E-12	0.004793717	0.000
566476.69	4215387.94	0.000	0.000	0.000	0.000	2.29E-10	4.64E-09	2.04E-12	0.004873786	0.000
566496.69	4215387.94	0.000	0.000	0.000	0.000	2.31E-10	4.68E-09	2.05E-12	0.004910902	0.000
566516.69	4215387.94	0.000	0.000	0.000	0.000	2.45E-10	4.97E-09	2.18E-12	0.005215331	0.000
566536.69	4215387.94	0.000	0.000	0.000	0.000	2.65E-10	5.37E-09	2.36E-12	0.005639447	0.000
566556.69	4215387.94	0.000	0.000	0.000	0.000	2.92E-10	5.92E-09	2.60E-12	0.006213692	0.000
566576.69	4215387.94	0.000	0.000	0.000	0.000	3.28E-10	6.64E-09	2.92E-12	0.006972054	0.000
566596.69	4215387.94	0.000	0.000	0.000	0.000	3.74E-10	7.57E-09	3.33E-12	0.007951649	0.000
566616.69	4215387.94	0.000	0.000	0.000	0.000	4.21E-10	8.53E-09	3.74E-12	0.008950219	0.000
566636.69	4215387.94	0.000	0.000	0.000	0.000	4.70E-10	9.53E-09	4.18E-12	0.010004253	0.000
566796.69	4215387.94	0.000	0.000	0.000	0.000	7.15E-10	1.45E-08	6.37E-12	0.015222086	0.000
566816.69	4215387.94	0.000	0.000	0.000	0.000	7.24E-10	1.47E-08	6.44E-12	0.01540245	0.000
566836.69	4215387.94	0.000	0.000	0.000	0.000	7.26E-10	1.47E-08	6.47E-12	0.015460416	0.000
566856.69	4215387.94	0.000	0.000	0.000	0.000	7.26E-10	1.47E-08	6.46E-12	0.01544728	0.000
566876.69	4215387.94	0.000	0.000	0.000	0.000	7.22E-10	1.46E-08	6.43E-12	0.015359913	0.000
566896.69	4215387.94	0.000	0.000	0.000	0.000	7.14E-10	1.45E-08	6.35E-12	0.015190392	0.000
566916.69	4215387.94	0.000	0.000	0.000	0.000	7.03E-10	1.43E-08	6.26E-12	0.01496207	0.000
566936.69	4215387.94	0.000	0.000	0.000	0.000	6.89E-10	1.40E-08	6.13E-12	0.014659934	0.000
566956.69	4215387.94	0.000	0.000	0.000	0.000	6.70E-10	1.36E-08	5.97E-12	0.014266053	0.000
566976.69	4215387.94	0.000	0.000	0.000	0.000	6.50E-10	1.32E-08	5.78E-12	0.013828592	0.000
566996.69	4215387.94	0.000	0.000	0.000	0.000	6.27E-10	1.27E-08	5.58E-12	0.013344425	0.000
567016.69	4215387.94	0.000	0.000	0.000	0.000	6.03E-10	1.22E-08	5.37E-12	0.012837946	0.000
566256.69	4215407.94	0.000	0.000	0.000	0.000	1.29E-10	2.61E-09	1.14E-12	0.002735901	0.000
566276.69	4215407.94	0.000	0.000	0.000	0.000	1.30E-10	2.65E-09	1.16E-12	0.00277677	0.000
566296.69	4215407.94	0.000	0.000	0.000	0.000	1.32E-10	2.68E-09	1.18E-12	0.002811591	0.000
566316.69	4215407.94	0.000	0.000	0.000	0.000	1.35E-10	2.74E-09	1.20E-12	0.002875605	0.000
566336.69	4215407.94	0.000	0.000	0.000	0.000	1.37E-10	2.78E-09	1.22E-12	0.002921686	0.000
566356.69	4215407.94	0.000	0.000	0.000	0.000	1.38E-10	2.81E-09	1.23E-12	0.002945874	0.000
566376.69	4215407.94	0.000	0.000	0.000	0.000	1.43E-10	2.90E-09	1.27E-12	0.003047628	0.000
566396.69	4215407.94	0.000	0.000	0.000	0.000	1.51E-10	3.07E-09	1.35E-12	0.003222571	0.000
566416.69	4215407.94	0.000	0.000	0.000	0.000	1.78E-10	3.60E-09	1.58E-12	0.003778258	0.000
566436.69	4215407.94	0.000	0.000	0.000	0.000	2.02E-10	4.10E-09	1.80E-12	0.004300584	0.000
566456.69	4215407.94	0.000	0.000	0.000	0.000	2.02E-10	4.10E-09	1.80E-12	0.004301001	0.000
566476.69	4215407.94	0.000	0.000	0.000	0.000	2.04E-10	4.14E-09	1.82E-12	0.004343955	0.000
566496.69	4215407.94	0.000	0.000	0.000	0.000	2.03E-10	4.11E-09	1.80E-12	0.004310384	0.000
566516.69	4215407.94	0.000	0.000	0.000	0.000	2.11E-10	4.27E-09	1.88E-12	0.004484701	0.000
566536.69	4215407.94	0.000	0.000	0.000	0.000	2.25E-10	4.57E-09	2.01E-12	0.00479476	0.000
566556.69	4215407.94	0.000	0.000	0.000	0.000	2.44E-10	4.96E-09	2.18E-12	0.005203029	0.000
566576.69	4215407.94	0.000	0.000	0.000	0.000	2.72E-10	5.51E-09	2.42E-12	0.005784155	0.000
566596.69	4215407.94	0.000	0.000	0.000	0.000	3.06E-10	6.20E-09	2.72E-12	0.006505193	0.000
566616.69	4215407.94	0.000	0.000	0.000	0.000	3.46E-10	7.02E-09	3.08E-12	0.00736677	0.000
566776.69	4215407.94	0.000	0.000	0.000	0.000	6.10E-10	1.24E-08	5.43E-12	0.01297765	0.000
566796.69	4215407.94	0.000	0.000	0.000	0.000	6.26E-10	1.27E-08	5.58E-12	0.013333374	0.000
566816.69	4215407.94	0.000	0.000	0.000	0.000	6.38E-10	1.29E-08	5.68E-12	0.013589011	0.000
566836.69	4215407.94	0.000	0.000	0.000	0.000	6.46E-10	1.31E-08	5.75E-12	0.013750191	0.000
566856.69	4215407.94	0.000	0.000	0.000	0.000	6.51E-10	1.32E-08	5.79E-12	0.013850695	0.000
566876.69	4215407.94	0.000	0.000	0.000	0.000	6.52E-10	1.32E-08	5.80E-12	0.01386675	0.000
566896.69	4215407.94	0.000	0.000	0.000	0.000	6.50E-10	1.32E-08	5.78E-12	0.013824839	0.000
566916.69	4215407.94	0.000	0.000	0.000	0.000	6.44E-10	1.31E-08	5.73E-12	0.013708072	0.000
566936.69	4215407.94	0.000	0.000	0.000	0.000	6.35E-10	1.29E-08	5.65E-12	0.013509776	0.000
566956.69	4215407.94	0.000	0.000	0.000	0.000	6.22E-10	1.26E-08	5.54E-12	0.013248717	0.000
566976.69	4215407.94	0.000	0.000	0.000	0.000	6.07E-10	1.23E-08	5.41E-12	0.012929692	0.000
566996.69	4215407.94	0.000	0.000	0.000	0.000	5.90E-10	1.20E-08	5.25E-12	0.012561458	0.000
567016.69	4215407.94	0.000	0.000	0.000	0.000	5.72E-10	1.16E-08	5.09E-12	0.012169245	0.000
566236.69	4215427.94	0.000	0.000	0.000	0.000	1.13E-10	2.28E-09	1.00E-12	0.00239811	0.000
566256.69	4215427.94	0.000	0.000	0.000	0.000	1.18E-10	2.40E-09	1.05E-12	0.002516128	0.000
566276.69	4215427.94	0.000	0.000	0.000	0.000	1.19E-10	2.42E-09	1.06E-12	0.002542818	0.000
566296.69	4215427.94	0.000	0.000	0.000	0.000	1.20E-10	2.44E-09	1.07E-12	0.002564086	0.000
566316.69	4215427.94	0.000	0.000	0.000	0.000	1.22E-10	2.47E-09	1.08E-12	0.002589316	0.000
566336.69	4215427.94	0.000	0.000	0.000	0.000	1.23E-10	2.49E-09	1.09E-12	0.002617466	0.000
566356.69	4215427.94	0.000	0.000	0.000	0.000	1.29E-10	2.61E-09	1.15E-12	0.002742156	0.000
566376.69	4215427.94	0.000	0.000	0.000	0.000	1.39E-10	2.83E-09	1.24E-12	0.0029661	0.000
566396.69	4215427.94	0.000	0.000	0.000	0.000	1.69E-10	3.43E-09	1.51E-12	0.003597894	0.000
566416.69	4215427.94	0.000	0.000	0.000	0.000	1.86E-10	3.77E-09	1.66E-12	0.003959039	0.000
566436.69	4215427.94	0.000	0.000	0.000	0.000	1.85E-10	3.75E-09	1.65E-12	0.003933184	0.000
566456.69	4215427.94	0.000	0.000	0.000	0.000	1.83E-10	3.70E-09	1.63E-12	0.003886268	0.000
566476.69	4215427.94	0.000	0.000	0.000	0.000	1.83E-10	3.71E-09	1.63E-12	0.003891481	0.000
566496.69	4215427.94	0.000	0.000	0.000	0.000	1.80E-10	3.64E-09	1.60E-12	0.003825382	0.000
566516.69	4215427.94	0.000	0.000	0.000	0.000	1.85E-10	3.75E-09	1.65E-12	0.003938813	0.000
566536.69	4215427.94	0.000	0.000	0.000	0.000	1.93E-10	3.92E-09	1.72E-12	0.004117509	0.000
566556.69	4215427.94	0.000	0.000	0.000	0.000	2.09E-10	4.23E-09	1.86E-12	0.004443415	0.000
566576.69	4215427.94	0.000	0.000	0.000	0.000	2.29E-10	4.65E-09	2.04E-12	0.004880876	0.000
566596.69	4215427.94	0.000	0.000	0.000	0.000	2.56E-10	5.19E-09	2.28E-12	0.005443653	0.000
566616.69	4215427.94	0.000	0.000	0.000	0.000	2.94E-10	5.95E-09	2.61E-12	0.006248722	0.000
566676.69	4215427.94	0.000	0.000	0.000	0.000	3.88E-10	7.87E-09	3.46E-12	0.008265253	0.000
566756.69	4215427.94	0.000	0.000	0.000	0.000	5.05E-10	1.02E-08	4.50E-12	0.010757611	0.000
566776.69	4215427.94	0.000	0.000	0.000	0.000	5.28E-10	1.07E-08	4.70E-12	0.011235523	0.000
566796.69	4215427.94	0.000	0.000	0.000	0.000	5.47E-10	1.11E-08	4.87E-12	0.011633574	0.000
566816.69	4215427.94	0.000	0.000	0.000	0.000	5.61E-10	1.14E-08	4.99E-12	0.011938629	0.000
566836.69	4215427.94	0.000	0.000	0.000	0.000	5.73E-10	1.16E-08	5.10E-12	0.012192181	0.000
566856.69	4215427.94	0.000	0.000	0.000	0.000	5.81E-10	1.18E-08	5.17E-12	0.012364205	0.000
566876.69	4215427.94	0.000	0.000	0.000	0.000	5.86E-10	1.19E-08	5.22E-12	0.012480555	0.000
566896.69	4215427.94	0.000	0.000	0.000	0.000	5.89E-10	1.19E-08	5.24E-12	0.01252747	0.000
566916.69	4215427.94	0.000	0.000	0.000	0.000	5.87E-10	1.19E-08	5.23E-12	0.012499113	0.000
566936.69	4215427.94	0.000	0.000	0.000	0.000	5.83E-10	1.18E-08	5.19E-12	0.012398401	0.000
566956.69	4215427.94	0.000	0.000	0.000	0.000	5.75E-10	1.17E-08	5.12E-12	0.012243684	0.000
566976.69	4215427.94	0.000	0.000	0.000	0.000	5.65E-10	1.14E-08	5.03E-12	0.012015779	0.000
566996.69	4215427.94	0.000	0.000	0.000	0.000	5.52E-10	1.12E-08	4.92E-12	0.011758682	0.000
567016.69	4215427.94	0.000	0.000	0.000	0.000	5.39E-10	1			

566536.69	4215447.94	0.000	0.000	0.000	0.000	1.68E-10	3.41E-09	1.50E-12	0.003576209	0.000
566556.69	4215447.94	0.000	0.000	0.000	0.000	1.78E-10	3.62E-09	1.59E-12	0.003795982	0.000
566576.69	4215447.94	0.000	0.000	0.000	0.000	1.95E-10	3.96E-09	1.74E-12	0.004157961	0.000
566596.69	4215447.94	0.000	0.000	0.000	0.000	2.20E-10	4.46E-09	1.96E-12	0.004682371	0.000
566656.69	4215447.94	0.000	0.000	0.000	0.000	2.95E-10	5.98E-09	2.63E-12	0.006279791	0.000
566676.69	4215447.94	0.000	0.000	0.000	0.000	3.24E-10	6.57E-09	2.88E-12	0.006891985	0.000
566696.69	4215447.94	0.000	0.000	0.000	0.000	3.53E-10	7.16E-09	3.14E-12	0.007512103	0.000
566716.69	4215447.94	0.000	0.000	0.000	0.000	3.81E-10	7.73E-09	3.39E-12	0.008115749	0.000
566756.69	4215447.94	0.000	0.000	0.000	0.000	4.33E-10	8.78E-09	3.86E-12	0.009220869	0.000
566776.69	4215447.94	0.000	0.000	0.000	0.000	4.56E-10	9.24E-09	4.06E-12	0.009703368	0.000
566796.69	4215447.94	0.000	0.000	0.000	0.000	4.75E-10	9.63E-09	4.23E-12	0.010112679	0.000
566816.69	4215447.94	0.000	0.000	0.000	0.000	4.92E-10	9.98E-09	4.38E-12	0.01047299	0.000
566836.69	4215447.94	0.000	0.000	0.000	0.000	5.06E-10	1.03E-08	4.51E-12	0.010769704	0.000
566856.69	4215447.94	0.000	0.000	0.000	0.000	5.17E-10	1.05E-08	4.60E-12	0.011008452	0.000
566876.69	4215447.94	0.000	0.000	0.000	0.000	5.26E-10	1.07E-08	4.68E-12	0.011191944	0.000
566896.69	4215447.94	0.000	0.000	0.000	0.000	5.31E-10	1.08E-08	4.73E-12	0.011306	0.000
566916.69	4215447.94	0.000	0.000	0.000	0.000	5.33E-10	1.08E-08	4.74E-12	0.011337903	0.000
566936.69	4215447.94	0.000	0.000	0.000	0.000	5.32E-10	1.08E-08	4.74E-12	0.011332898	0.000
566956.69	4215447.94	0.000	0.000	0.000	0.000	5.29E-10	1.07E-08	4.71E-12	0.011253246	0.000
566976.69	4215447.94	0.000	0.000	0.000	0.000	5.23E-10	1.06E-08	4.65E-12	0.011124177	0.000
566996.69	4215447.94	0.000	0.000	0.000	0.000	5.15E-10	1.04E-08	4.58E-12	0.010952362	0.000
567016.69	4215447.94	0.000	0.000	0.000	0.000	5.05E-10	1.02E-08	4.50E-12	0.010747602	0.000
566236.69	4215467.94	0.000	0.000	0.000	0.000	1.00E-10	2.04E-09	8.94E-13	0.002138302	0.000
566256.69	4215467.94	0.000	0.000	0.000	0.000	1.01E-10	2.05E-09	9.00E-13	0.002151856	0.000
566276.69	4215467.94	0.000	0.000	0.000	0.000	1.02E-10	2.06E-09	9.07E-13	0.002167286	0.000
566296.69	4215467.94	0.000	0.000	0.000	0.000	1.04E-10	2.10E-09	9.23E-13	0.002207112	0.000
566316.69	4215467.94	0.000	0.000	0.000	0.000	1.27E-10	2.57E-09	1.13E-12	0.002700454	0.000
566336.69	4215467.94	0.000	0.000	0.000	0.000	1.42E-10	2.89E-09	1.27E-12	0.003029071	0.000
566356.69	4215467.94	0.000	0.000	0.000	0.000	1.46E-10	2.96E-09	1.30E-12	0.003111642	0.000
566376.69	4215467.94	0.000	0.000	0.000	0.000	1.54E-10	3.13E-09	1.37E-12	0.003284499	0.000
566396.69	4215467.94	0.000	0.000	0.000	0.000	1.54E-10	3.13E-09	1.37E-12	0.003283248	0.000
566416.69	4215467.94	0.000	0.000	0.000	0.000	1.53E-10	3.11E-09	1.37E-12	0.003265107	0.000
566436.69	4215467.94	0.000	0.000	0.000	0.000	1.51E-10	3.06E-09	1.34E-12	0.003212354	0.000
566456.69	4215467.94	0.000	0.000	0.000	0.000	1.47E-10	2.98E-09	1.31E-12	0.003131451	0.000
566476.69	4215467.94	0.000	0.000	0.000	0.000	1.43E-10	2.90E-09	1.27E-12	0.003047628	0.000
566496.69	4215467.94	0.000	0.000	0.000	0.000	1.46E-10	2.96E-09	1.30E-12	0.00310622	0.000
566516.69	4215467.94	0.000	0.000	0.000	0.000	1.48E-10	2.99E-09	1.31E-12	0.003141668	0.000
566536.69	4215467.94	0.000	0.000	0.000	0.000	1.54E-10	3.13E-09	1.37E-12	0.003282623	0.000
566556.69	4215467.94	0.000	0.000	0.000	0.000	1.62E-10	3.29E-09	1.44E-12	0.003451935	0.000
566576.69	4215467.94	0.000	0.000	0.000	0.000	1.73E-10	3.52E-09	1.54E-12	0.003690266	0.000
566596.69	4215467.94	0.000	0.000	0.000	0.000	1.87E-10	3.80E-09	1.67E-12	0.00398552	0.000
566616.69	4215467.94	0.000	0.000	0.000	0.000	2.05E-10	4.16E-09	1.83E-12	0.004368976	0.000
566636.69	4215467.94	0.000	0.000	0.000	0.000	2.25E-10	4.56E-09	2.00E-12	0.004786211	0.000
566656.69	4215467.94	0.000	0.000	0.000	0.000	2.47E-10	5.01E-09	2.20E-12	0.005258285	0.000
566676.69	4215467.94	0.000	0.000	0.000	0.000	2.72E-10	5.51E-09	2.42E-12	0.005782278	0.000
566696.69	4215467.94	0.000	0.000	0.000	0.000	2.97E-10	6.02E-09	2.65E-12	0.006323161	0.000
566716.69	4215467.94	0.000	0.000	0.000	0.000	3.22E-10	6.54E-09	2.87E-12	0.006861751	0.000
566736.69	4215467.94	0.000	0.000	0.000	0.000	3.47E-10	7.04E-09	3.09E-12	0.007394711	0.000
566756.69	4215467.94	0.000	0.000	0.000	0.000	3.71E-10	7.53E-09	3.31E-12	0.007901397	0.000
566776.69	4215467.94	0.000	0.000	0.000	0.000	3.93E-10	7.96E-09	3.50E-12	0.008360543	0.000
566796.69	4215467.94	0.000	0.000	0.000	0.000	4.13E-10	8.37E-09	3.68E-12	0.008786536	0.000
566816.69	4215467.94	0.000	0.000	0.000	0.000	4.31E-10	8.73E-09	3.83E-12	0.009164153	0.000
566836.69	4215467.94	0.000	0.000	0.000	0.000	4.46E-10	9.04E-09	3.97E-12	0.009490893	0.000
566856.69	4215467.94	0.000	0.000	0.000	0.000	4.59E-10	9.31E-09	4.09E-12	0.009774471	0.000
566876.69	4215467.94	0.000	0.000	0.000	0.000	4.70E-10	9.53E-09	4.18E-12	0.010000082	0.000
566896.69	4215467.94	0.000	0.000	0.000	0.000	4.77E-10	9.68E-09	4.25E-12	0.010158761	0.000
566916.69	4215467.94	0.000	0.000	0.000	0.000	4.82E-10	9.77E-09	4.29E-12	0.010257179	0.000
566936.69	4215467.94	0.000	0.000	0.000	0.000	4.84E-10	9.82E-09	4.31E-12	0.010310767	0.000
566956.69	4215467.94	0.000	0.000	0.000	0.000	4.85E-10	9.82E-09	4.31E-12	0.010312435	0.000
566976.69	4215467.94	0.000	0.000	0.000	0.000	4.82E-10	9.77E-09	4.29E-12	0.010252383	0.000
566996.69	4215467.94	0.000	0.000	0.000	0.000	4.77E-10	9.68E-09	4.25E-12	0.010159386	0.000
567016.69	4215467.94	0.000	0.000	0.000	0.000	4.71E-10	9.55E-09	4.20E-12	0.01002844	0.000
566236.69	4215487.94	0.000	0.000	0.000	0.000	9.64E-11	1.95E-09	8.58E-13	0.002051769	0.000
566256.69	4215487.94	0.000	0.000	0.000	0.000	9.73E-11	1.97E-09	8.66E-13	0.002070119	0.000
566276.69	4215487.94	0.000	0.000	0.000	0.000	9.96E-11	2.02E-09	8.87E-13	0.002119745	0.000
566296.69	4215487.94	0.000	0.000	0.000	0.000	1.05E-10	2.13E-09	9.37E-13	0.002240265	0.000
566316.69	4215487.94	0.000	0.000	0.000	0.000	1.24E-10	2.51E-09	1.10E-12	0.002634564	0.000
566336.69	4215487.94	0.000	0.000	0.000	0.000	1.29E-10	2.62E-09	1.15E-12	0.002749246	0.000
566356.69	4215487.94	0.000	0.000	0.000	0.000	1.33E-10	2.70E-09	1.19E-12	0.002834528	0.000
566376.69	4215487.94	0.000	0.000	0.000	0.000	1.41E-10	2.86E-09	1.25E-12	0.002997794	0.000
566396.69	4215487.94	0.000	0.000	0.000	0.000	1.41E-10	2.85E-09	1.25E-12	0.002991121	0.000
566416.69	4215487.94	0.000	0.000	0.000	0.000	1.40E-10	2.84E-09	1.25E-12	0.002980487	0.000
566436.69	4215487.94	0.000	0.000	0.000	0.000	1.38E-10	2.79E-09	1.23E-12	0.002933155	0.000
566456.69	4215487.94	0.000	0.000	0.000	0.000	1.33E-10	2.70E-09	1.19E-12	0.002839324	0.000
566476.69	4215487.94	0.000	0.000	0.000	0.000	1.29E-10	2.62E-09	1.15E-12	0.002747578	0.000
566496.69	4215487.94	0.000	0.000	0.000	0.000	1.28E-10	2.60E-09	1.14E-12	0.002733607	0.000
566516.69	4215487.94	0.000	0.000	0.000	0.000	1.31E-10	2.66E-09	1.17E-12	0.00279637	0.000
566536.69	4215487.94	0.000	0.000	0.000	0.000	1.35E-10	2.73E-09	1.20E-12	0.002864971	0.000
566556.69	4215487.94	0.000	0.000	0.000	0.000	1.41E-10	2.85E-09	1.25E-12	0.002993623	0.000
566576.69	4215487.94	0.000	0.000	0.000	0.000	1.49E-10	3.02E-09	1.33E-12	0.00317086	0.000
566596.69	4215487.94	0.000	0.000	0.000	0.000	1.60E-10	3.25E-09	1.43E-12	0.003413569	0.000
566616.69	4215487.94	0.000	0.000	0.000	0.000	1.75E-10	3.54E-09	1.55E-12	0.003714245	0.000
566636.69	4215487.94	0.000	0.000	0.000	0.000	1.91E-10	3.87E-09	1.70E-12	0.004059543	0.000
566656.69	4215487.94	0.000	0.000	0.000	0.000	2.09E-10	4.24E-09	1.86E-12	0.004448628	0.000
566676.69	4215487.94	0.000	0.000	0.000	0.000	2.30E-10	4.65E-09	2.04E-12	0.004884629	0.000
566696.69	4215487.94	0.000	0.000	0.000	0.000	2.51E-10	5.09E-09	2.24E-12	0.005346903	0.000
566716.69	4215487.94	0.000	0.000	0.000	0.000	2.74E-10	5.55E-09	2.44E-12	0.005826692	0.000
566736.69	4215487.94	0.000	0.000	0.000	0.000	2.96E-10	6.01E-09	2.64E-12	0.006308565	0.000
566756.69	4215487.94	0.000	0.000	0.000	0.000	3.18E-10	6.45E-09	2.83E-12	0.00676938	0.000
566776.69	4215487.94	0.000	0.000	0.000	0.000	3.39E-10				

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Cancer Risk, Hazard Index and PM_{2.5} Concentration Calculations - Offsite School

					Exposure Duration (Days)							
					Start Date	11/1/2023	1/31/2024					1/31/2026
					Stop Date	1/30/2024	1/30/2026					
Source	Year	Start Date	End Date	Calendar Days	3rd Trimester	0<2	2<9	Exposure Duration	DPM		PM _{2.5}	
									Emissions (tons)	Assion Rate	Emissions (tons)	Assion Rate (g/s)
									Tier 4F	Tier 4F	Tier 4F	Tier 4F
Area Source 1	2023	11/1/2023	12/31/2023	60	60	0	0	60	9.18E-05	5.40E-05	9.18E-05	5.40E-05
Area Source 1	2024	1/1/2024	12/31/2024	365	29	335	1	365	1.60E-03	1.55E-04	1.60E-03	1.55E-04
Area Source 2	2023	11/1/2023	12/31/2023	60	60	0	0	60	0.00E+00	0.00E+00	9.06E-04	5.33E-04
Area Source 2	2024	1/1/2024	12/31/2024	365	29	335	1	365	0.00E+00	0.00E+00	2.66E-02	2.57E-03
									0.002		0.03	

Cancer Risk Factors

	Abbreviation	UOM	0<2	2<9	2<16
Daily Breathing Rate (8-hour)	DBR	L/kg-8 hour	1200	640	520
Fraction Of Time At Home	FAH	unitless	1	1	1
Exposure Frequency	EF	days/year	0.68	0.68	0.49
Age Sensitivity Factor	ASF	unitless	10	3	3
Inhalation Absorption Factor	A	unitless	1	1	1
Conversion Factor	CF ₁	m ³ /L	0.001	0.001	0.001
Conversion Factor	CF ₂	µg/m ³	0.001	0.001	0.001
Cancer Potency Factor (diesel exhaust)	CPF	mg/kg-day ⁻¹	1.1	1.1	1.1
Averaging Time (for residential exposu	AT	years	70.00	70.00	70.00

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February 2015

Daily breathing rate for residential receptor is based on the OEHHA 95th percentile moderate intensity breathing rates (OEHHA Table 5.7).

Fraction of time at home is set to values per OEHHA Table 8.4 for residential since the nearest school has an unmitigated cancer risk of <1 per million.

Inhalation cancer potency factor from OEHHA Table 7.1

Hazard Index

Chronic Inhalation	REL	µg/m ³	5
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Intake Factor for Inhalation, IF (m³/kg-day) = DBR*FAH*EF*ED*ASF*A*CF/AT

Source	0<2	2<9	2<16
AS1	0.019	0.000	0.000
AS1	0.009	0.017	0.000
AS2	0.019	0.000	0.000
AS2	0.009	0.017	0.000

Risk Calculation Part 1, R1 = IF*CPF*CF

0<2	2<9	2<16
2.11E-05	0.00E+00	0.00E+00
1.02E-05	1.88E-05	3.29E-08
2.11E-05	0.00E+00	0.00E+00
1.02E-05	1.88E-05	3.29E-08

	Cancer Risk	UTM X	UTM Y
MEIR	0.006	566816.7	4215007.94

HI	UTM X	UTM Y
0.00003	566816.7	4215007.94

PM _{2.5} Conc.	UTM X	UTM Y
0.003	566816.69	4215007.9

PM_{2.5} concentration, C_{PM2.5} (µg/m³) - at max. HI receptor

X (UTM)	Y (UTM)	Project Construction			
		AS1	AS1	AS2	AS2
		2023	2024	2023	2024
Index Lookup HID		1	2	3	4
566816.69	4215007.940	0.000	0.000	0.001	0.002

PM _{2.5} Conc.
µg/m ³
Max. Annual

0.003

Diesel Particulate Matter concentration, C_{DPM} (µg/m³)

X (UTM)	Y (UTM)	Project Construction			
		AS1	AS1	AS2	AS2
		2023	2024	2023	2024
Index Lookup HID		1	2	3	4
566856.69	4214887.94	0.0000174	0.0000499	0.0000000	0.0000000
566836.69	4214907.94	0.0000217	0.0000622	0.0000000	0.0000000
566856.69	4214907.94	0.0000199	0.0000572	0.0000000	0.0000000
566876.69	4214907.94	0.0000183	0.0000525	0.0000000	0.0000000
566836.69	4214927.94	0.0000251	0.0000720	0.0000000	0.0000000
566856.69	4214927.94	0.0000226	0.0000650	0.0000000	0.0000000
566876.69	4214927.94	0.0000204	0.0000586	0.0000000	0.0000000
566916.69	4214927.94	0.0000167	0.0000480	0.0000000	0.0000000
566836.69	4214947.94	0.0000292	0.0000838	0.0000000	0.0000000
566856.69	4214947.94	0.0000257	0.0000737	0.0000000	0.0000000
566876.69	4214947.94	0.0000228	0.0000655	0.0000000	0.0000000
566896.69	4214947.94	0.0000206	0.0000593	0.0000000	0.0000000
566916.69	4214947.94	0.0000186	0.0000535	0.0000000	0.0000000
566936.69	4214947.94	0.0000169	0.0000486	0.0000000	0.0000000
566816.69	4214967.94	0.0000386	0.0001107	0.0000000	0.0000000
566836.69	4214967.94	0.0000340	0.0000977	0.0000000	0.0000000
566856.69	4214967.94	0.0000297	0.0000852	0.0000000	0.0000000
566876.69	4214967.94	0.0000260	0.0000746	0.0000000	0.0000000
566896.69	4214967.94	0.0000233	0.0000668	0.0000000	0.0000000
566916.69	4214967.94	0.0000209	0.0000600	0.0000000	0.0000000
566936.69	4214967.94	0.0000190	0.0000546	0.0000000	0.0000000
566816.69	4214987.94	0.0000465	0.0001335	0.0000000	0.0000000
566836.69	4214987.94	0.0000398	0.0001142	0.0000000	0.0000000
566856.69	4214987.94	0.0000344	0.0000987	0.0000000	0.0000000
566876.69	4214987.94	0.0000299	0.0000859	0.0000000	0.0000000
566896.69	4214987.94	0.0000265	0.0000761	0.0000000	0.0000000
566916.69	4214987.94	0.0000235	0.0000676	0.0000000	0.0000000
566816.69	4215007.94	0.0000560	0.0001609	0.0000000	0.0000000
566836.69	4215007.94	0.0000470	0.0001350	0.0000000	0.0000000
566856.69	4215007.94	0.0000400	0.0001150	0.0000000	0.0000000
566876.69	4215007.94	0.0000347	0.0000996	0.0000000	0.0000000
566896.69	4215007.94	0.0000304	0.0000872	0.0000000	0.0000000
566916.69	4215007.94	0.0000270	0.0000774	0.0000000	0.0000000

Risk Calculation Part 2

Cancer Risk = ∑R1*C _{DPM}				HI
0<2	2<9	2<16	Total	C _{DPM} /REL
Source: All				
8.74E-10	9.39E-10	1.64E-12	0.0018149	0.000
1.09E-09	1.17E-09	2.05E-12	0.0022638	0.000
1.00E-09	1.08E-09	1.88E-12	0.0020803	0.000
9.20E-10	9.89E-10	1.73E-12	0.0019106	0.000
1.26E-09	1.36E-09	2.37E-12	0.0026199	0.000
1.14E-09	1.22E-09	2.14E-12	0.0023645	0.000
1.03E-09	1.10E-09	1.93E-12	0.0021332	0.000
8.42E-10	9.05E-10	1.58E-12	0.0017484	0.000
1.47E-09	1.58E-09	2.76E-12	0.0030511	0.000
1.29E-09	1.39E-09	2.43E-12	0.0026835	0.000
1.15E-09	1.23E-09	2.16E-12	0.002383	0.000
1.04E-09	1.12E-09	1.95E-12	0.0021584	0.000
9.38E-10	1.01E-09	1.76E-12	0.0019473	0.000
8.51E-10	9.15E-10	1.60E-12	0.0017675	0.000
1.94E-09	2.09E-09	3.64E-12	0.0040294	0.000
1.71E-09	1.84E-09	3.21E-12	0.0035544	0.000
1.49E-09	1.60E-09	2.81E-12	0.0031016	0.000
1.31E-09	1.41E-09	2.46E-12	0.0027162	0.000
1.17E-09	1.26E-09	2.20E-12	0.0024313	0.000
1.05E-09	1.13E-09	1.97E-12	0.0021829	0.000
9.56E-10	1.03E-09	1.80E-12	0.0019852	0.000
2.34E-09	2.51E-09	4.39E-12	0.0048573	0.000
2.00E-09	2.15E-09	3.76E-12	0.0041569	0.000
1.73E-09	1.86E-09	3.25E-12	0.0035915	0.000
1.51E-09	1.62E-09	2.83E-12	0.0031275	0.000
1.33E-09	1.43E-09	2.50E-12	0.0027679	0.000
1.19E-09	1.27E-09	2.23E-12	0.0024607	0.000
2.82E-09	3.03E-09	5.30E-12	0.0058568	0.000
2.37E-09	2.54E-09	4.44E-12	0.004912	0.000
2.02E-09	2.17E-09	3.78E-12	0.0041846	0.000
1.74E-09	1.87E-09	3.28E-12	0.0036228	0.000
1.53E-09	1.64E-09	2.87E-12	0.0031731	0.000
1.36E-09	1.46E-09	2.55E-12	0.0028182	0.000

AERMOD Summary

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Summary of AERMOD Area Source Outputs for All Offsite Receptors

X	Y	Lookup	AS1	AS2
566756.69	4214707.94	566756.69_4214707.94	0.10903	0.10062
566776.69	4214707.94	566776.69_4214707.94	0.11075	0.10471
566796.69	4214707.94	566796.69_4214707.94	0.11266	0.11001
566816.69	4214707.94	566816.69_4214707.94	0.11372	0.11409
566836.69	4214707.94	566836.69_4214707.94	0.11322	0.11558
566856.69	4214707.94	566856.69_4214707.94	0.1127	0.11582
566876.69	4214707.94	566876.69_4214707.94	0.1138	0.11675
566896.69	4214707.94	566896.69_4214707.94	0.11251	0.11543
566916.69	4214707.94	566916.69_4214707.94	0.11245	0.11559
566756.69	4214727.94	566756.69_4214727.94	0.1329	0.12514
566776.69	4214727.94	566776.69_4214727.94	0.13731	0.13241
566796.69	4214727.94	566796.69_4214727.94	0.14066	0.13812
566816.69	4214727.94	566816.69_4214727.94	0.13875	0.13893
566836.69	4214727.94	566836.69_4214727.94	0.13338	0.13581
566856.69	4214727.94	566856.69_4214727.94	0.13189	0.13482
566876.69	4214727.94	566876.69_4214727.94	0.13018	0.13342
566756.69	4214747.94	566756.69_4214747.94	0.17135	0.16105
566776.69	4214747.94	566776.69_4214747.94	0.17073	0.16252
566796.69	4214747.94	566796.69_4214747.94	0.16836	0.16346
566816.69	4214747.94	566816.69_4214747.94	0.16413	0.16324
566836.69	4214747.94	566836.69_4214747.94	0.15538	0.15849
566856.69	4214747.94	566856.69_4214747.94	0.15223	0.15621
566756.69	4214767.94	566756.69_4214767.94	0.20889	0.19218
566776.69	4214767.94	566776.69_4214767.94	0.20372	0.19121
566796.69	4214767.94	566796.69_4214767.94	0.19472	0.19073
566616.69	4214787.94	566616.69_4214787.94	0.25874	0.2359
566576.69	4214807.94	566576.69_4214807.94	0.22261	0.22366
566596.69	4214807.94	566596.69_4214807.94	0.23325	0.2314
566616.69	4214807.94	566616.69_4214807.94	0.23768	0.23398
566636.69	4214807.94	566636.69_4214807.94	0.24961	0.24319
566656.69	4214807.94	566656.69_4214807.94	0.26163	0.2528
566676.69	4214807.94	566676.69_4214807.94	0.2743	0.26294
566776.69	4214807.94	566776.69_4214807.94	0.22674	0.23234
566796.69	4214807.94	566796.69_4214807.94	0.21716	0.22146
566816.69	4214807.94	566816.69_4214807.94	0.20873	0.21124
566836.69	4214807.94	566836.69_4214807.94	0.20398	0.20824
566856.69	4214807.94	566856.69_4214807.94	0.20002	0.20625
566536.69	4214827.94	566536.69_4214827.94	0.23525	0.24365
566556.69	4214827.94	566556.69_4214827.94	0.24336	0.2462
566576.69	4214827.94	566576.69_4214827.94	0.25467	0.2551
566596.69	4214827.94	566596.69_4214827.94	0.26093	0.25735
566616.69	4214827.94	566616.69_4214827.94	0.26864	0.26198
566636.69	4214827.94	566636.69_4214827.94	0.27453	0.26575
566656.69	4214827.94	566656.69_4214827.94	0.27912	0.26921
566676.69	4214827.94	566676.69_4214827.94	0.28485	0.27698
566696.69	4214827.94	566696.69_4214827.94	0.30686	0.29993
566736.69	4214827.94	566736.69_4214827.94	0.26825	0.27235
566756.69	4214827.94	566756.69_4214827.94	0.256	0.25842
566776.69	4214827.94	566776.69_4214827.94	0.25055	0.25269
566796.69	4214827.94	566796.69_4214827.94	0.24406	0.24606
566816.69	4214827.94	566816.69_4214827.94	0.23376	0.23571
566836.69	4214827.94	566836.69_4214827.94	0.22894	0.23567
566516.69	4214847.94	566516.69_4214847.94	0.25903	0.26553
566536.69	4214847.94	566536.69_4214847.94	0.27208	0.27718
566556.69	4214847.94	566556.69_4214847.94	0.28882	0.29241
566576.69	4214847.94	566576.69_4214847.94	0.30344	0.30294
566596.69	4214847.94	566596.69_4214847.94	0.3163	0.3105
566616.69	4214847.94	566616.69_4214847.94	0.32679	0.3173
566636.69	4214847.94	566636.69_4214847.94	0.33295	0.3229
566656.69	4214847.94	566656.69_4214847.94	0.33638	0.32841
566676.69	4214847.94	566676.69_4214847.94	0.33519	0.33285
566696.69	4214847.94	566696.69_4214847.94	0.33079	0.33227
566716.69	4214847.94	566716.69_4214847.94	0.31705	0.31981
566736.69	4214847.94	566736.69_4214847.94	0.30666	0.30887
566756.69	4214847.94	566756.69_4214847.94	0.29931	0.30125
566776.69	4214847.94	566776.69_4214847.94	0.29075	0.2924
566796.69	4214847.94	566796.69_4214847.94	0.28124	0.28384
566816.69	4214847.94	566816.69_4214847.94	0.26822	0.27249
566496.69	4214867.94	566496.69_4214867.94	0.29624	0.30522
566516.69	4214867.94	566516.69_4214867.94	0.30692	0.31078
566536.69	4214867.94	566536.69_4214867.94	0.33109	0.33607
566556.69	4214867.94	566556.69_4214867.94	0.35503	0.35986

Summary of AERMOD Area Source Outputs for Patterson Elementary School Receptors

X	Y	Lookup	AS1	AS2
566856.69	4214887.94	566856.69_4214887.94	0.32173	0.32766
566836.69	4214907.94	566836.69_4214907.94	0.40131	0.40237
566856.69	4214907.94	566856.69_4214907.94	0.36879	0.36668
566876.69	4214907.94	566876.69_4214907.94	0.33869	0.33358
566836.69	4214927.94	566836.69_4214927.94	0.46444	0.45277
566856.69	4214927.94	566856.69_4214927.94	0.41916	0.40413
566876.69	4214927.94	566876.69_4214927.94	0.37816	0.36093
566916.69	4214927.94	566916.69_4214927.94	0.30994	0.29094
566836.69	4214947.94	566836.69_4214947.94	0.54088	0.50939
566856.69	4214947.94	566856.69_4214947.94	0.47571	0.44469
566876.69	4214947.94	566876.69_4214947.94	0.42244	0.39209
566896.69	4214947.94	566896.69_4214947.94	0.38262	0.35105
566916.69	4214947.94	566916.69_4214947.94	0.34521	0.31459
566936.69	4214947.94	566936.69_4214947.94	0.31333	0.28375
566816.69	4214967.94	566816.69_4214967.94	0.71431	0.66356
566836.69	4214967.94	566836.69_4214967.94	0.6301	0.57762
566856.69	4214967.94	566856.69_4214967.94	0.54984	0.50039
566876.69	4214967.94	566876.69_4214967.94	0.48151	0.43631
566896.69	4214967.94	566896.69_4214967.94	0.43101	0.38755
566916.69	4214967.94	566916.69_4214967.94	0.38697	0.34608
566936.69	4214967.94	566936.69_4214967.94	0.35193	0.31269
566816.69	4214987.94	566816.69_4214987.94	0.86107	0.7847
566836.69	4214987.94	566836.69_4214987.94	0.73691	0.66622
566856.69	4214987.94	566856.69_4214987.94	0.63668	0.57235
566876.69	4214987.94	566876.69_4214987.94	0.55443	0.4965
566896.69	4214987.94	566896.69_4214987.94	0.49068	0.43727
566916.69	4214987.94	566916.69_4214987.94	0.43621	0.3875
566816.69	4215007.94	566816.69_4215007.94	1.03826	0.94432
566836.69	4215007.94	566836.69_4215007.94	0.87077	0.78724
566856.69	4215007.94	566856.69_4215007.94	0.74182	0.66763
566876.69	4215007.94	566876.69_4215007.94	0.64223	0.57555
566896.69	4215007.94	566896.69_4215007.94	0.56251	0.50238
566916.69	4215007.94	566916.69_4215007.94	0.4996	0.44441

566576.69	4214867.94	566576.69_4214867.94	0.37722	0.37682
566596.69	4214867.94	566596.69_4214867.94	0.39532	0.38751
566616.69	4214867.94	566616.69_4214867.94	0.41111	0.40089
566636.69	4214867.94	566636.69_4214867.94	0.42201	0.41768
566656.69	4214867.94	566656.69_4214867.94	0.41538	0.41481
566676.69	4214867.94	566676.69_4214867.94	0.40376	0.40482
566696.69	4214867.94	566696.69_4214867.94	0.39193	0.39451
566716.69	4214867.94	566716.69_4214867.94	0.37704	0.37957
566736.69	4214867.94	566736.69_4214867.94	0.36351	0.36522
566756.69	4214867.94	566756.69_4214867.94	0.35221	0.3536
566776.69	4214867.94	566776.69_4214867.94	0.33971	0.34199
566796.69	4214867.94	566796.69_4214867.94	0.32787	0.33268
566496.69	4214887.94	566496.69_4214887.94	0.35103	0.35266
566516.69	4214887.94	566516.69_4214887.94	0.38031	0.38325
566536.69	4214887.94	566536.69_4214887.94	0.41387	0.41807
566556.69	4214887.94	566556.69_4214887.94	0.4496	0.45483
566576.69	4214887.94	566576.69_4214887.94	0.48328	0.48358
566596.69	4214887.94	566596.69_4214887.94	0.51207	0.50576
566616.69	4214887.94	566616.69_4214887.94	0.53758	0.53343
566636.69	4214887.94	566636.69_4214887.94	0.54223	0.54831
566656.69	4214887.94	566656.69_4214887.94	0.51955	0.52685
566676.69	4214887.94	566676.69_4214887.94	0.50552	0.51349
566696.69	4214887.94	566696.69_4214887.94	0.48194	0.4877
566716.69	4214887.94	566716.69_4214887.94	0.4584	0.46191
566736.69	4214887.94	566736.69_4214887.94	0.43783	0.44022
566756.69	4214887.94	566756.69_4214887.94	0.41786	0.42036
566776.69	4214887.94	566776.69_4214887.94	0.39796	0.40193
566796.69	4214887.94	566796.69_4214887.94	0.37667	0.3851
566856.69	4214887.94	566856.69_4214887.94	0.32173	0.32766
566476.69	4214907.94	566476.69_4214907.94	0.41178	0.40658
566496.69	4214907.94	566496.69_4214907.94	0.4408	0.437
566516.69	4214907.94	566516.69_4214907.94	0.48607	0.48719
566536.69	4214907.94	566536.69_4214907.94	0.53758	0.54206
566556.69	4214907.94	566556.69_4214907.94	0.59994	0.60826
566576.69	4214907.94	566576.69_4214907.94	0.66605	0.67539
566596.69	4214907.94	566596.69_4214907.94	0.71174	0.72083
566616.69	4214907.94	566616.69_4214907.94	0.73769	0.75676
566636.69	4214907.94	566636.69_4214907.94	0.71384	0.73629
566656.69	4214907.94	566656.69_4214907.94	0.67756	0.69821
566676.69	4214907.94	566676.69_4214907.94	0.64909	0.66543
566696.69	4214907.94	566696.69_4214907.94	0.6051	0.61497
566716.69	4214907.94	566716.69_4214907.94	0.56255	0.56845
566736.69	4214907.94	566736.69_4214907.94	0.53287	0.53755
566756.69	4214907.94	566756.69_4214907.94	0.49848	0.50282
566776.69	4214907.94	566776.69_4214907.94	0.46173	0.46619
566836.69	4214907.94	566836.69_4214907.94	0.40131	0.40237
566856.69	4214907.94	566856.69_4214907.94	0.36879	0.36668
566876.69	4214907.94	566876.69_4214907.94	0.33869	0.33358
566456.69	4214927.94	566456.69_4214927.94	0.51973	0.5252
566476.69	4214927.94	566476.69_4214927.94	0.55558	0.55724
566496.69	4214927.94	566496.69_4214927.94	0.595	0.59307
566516.69	4214927.94	566516.69_4214927.94	0.65731	0.65968
566536.69	4214927.94	566536.69_4214927.94	0.73474	0.74816
566556.69	4214927.94	566556.69_4214927.94	0.86095	0.89339
566576.69	4214927.94	566576.69_4214927.94	1.00515	1.05826
566596.69	4214927.94	566596.69_4214927.94	1.09534	1.16119
566616.69	4214927.94	566616.69_4214927.94	1.0726	1.1393
566636.69	4214927.94	566636.69_4214927.94	1.00505	1.06093
566656.69	4214927.94	566656.69_4214927.94	0.92358	0.96351
566676.69	4214927.94	566676.69_4214927.94	0.8623	0.88866
566696.69	4214927.94	566696.69_4214927.94	0.78383	0.79931
566716.69	4214927.94	566716.69_4214927.94	0.71314	0.72129
566736.69	4214927.94	566736.69_4214927.94	0.65855	0.66363
566756.69	4214927.94	566756.69_4214927.94	0.60548	0.60853
566776.69	4214927.94	566776.69_4214927.94	0.5551	0.55614
566836.69	4214927.94	566836.69_4214927.94	0.46444	0.45277
566856.69	4214927.94	566856.69_4214927.94	0.41916	0.40413
566876.69	4214927.94	566876.69_4214927.94	0.37816	0.36093
566916.69	4214927.94	566916.69_4214927.94	0.30994	0.29094
566436.69	4214947.94	566436.69_4214947.94	0.67106	0.68805
566456.69	4214947.94	566456.69_4214947.94	0.72926	0.74652
566476.69	4214947.94	566476.69_4214947.94	0.81874	0.84328
566496.69	4214947.94	566496.69_4214947.94	0.90895	0.94196
566516.69	4214947.94	566516.69_4214947.94	1.02763	1.08381
566536.69	4214947.94	566536.69_4214947.94	1.19217	1.30952
566556.69	4214947.94	566556.69_4214947.94	1.46276	1.68447
566576.69	4214947.94	566576.69_4214947.94	1.76267	2.02249
566596.69	4214947.94	566596.69_4214947.94	1.79348	2.00047

566616.69	4214947.94	566616.69_4214947.94	1.68974	1.85275
566636.69	4214947.94	566636.69_4214947.94	1.48906	1.58869
566656.69	4214947.94	566656.69_4214947.94	1.30834	1.36615
566676.69	4214947.94	566676.69_4214947.94	1.17907	1.20823
566696.69	4214947.94	566696.69_4214947.94	1.06311	1.07847
566716.69	4214947.94	566716.69_4214947.94	0.95418	0.96045
566736.69	4214947.94	566736.69_4214947.94	0.8502	0.8507
566756.69	4214947.94	566756.69_4214947.94	0.77642	0.77316
566776.69	4214947.94	566776.69_4214947.94	0.71098	0.70124
566836.69	4214947.94	566836.69_4214947.94	0.54088	0.50939
566856.69	4214947.94	566856.69_4214947.94	0.47571	0.44469
566876.69	4214947.94	566876.69_4214947.94	0.42244	0.39209
566896.69	4214947.94	566896.69_4214947.94	0.38262	0.35105
566916.69	4214947.94	566916.69_4214947.94	0.34521	0.31459
566936.69	4214947.94	566936.69_4214947.94	0.31333	0.28375
566436.69	4214967.94	566436.69_4214967.94	0.95115	0.96834
566456.69	4214967.94	566456.69_4214967.94	1.12085	1.16329
566476.69	4214967.94	566476.69_4214967.94	1.32502	1.40577
566496.69	4214967.94	566496.69_4214967.94	1.59672	1.7661
566516.69	4214967.94	566516.69_4214967.94	1.99373	2.43039
566596.69	4214967.94	566596.69_4214967.94	3.77598	4.83479
566616.69	4214967.94	566616.69_4214967.94	3.10857	3.54149
566636.69	4214967.94	566636.69_4214967.94	2.42801	2.61779
566656.69	4214967.94	566656.69_4214967.94	1.96547	2.03929
566676.69	4214967.94	566676.69_4214967.94	1.68842	1.71227
566696.69	4214967.94	566696.69_4214967.94	1.48028	1.48344
566716.69	4214967.94	566716.69_4214967.94	1.29017	1.28288
566736.69	4214967.94	566736.69_4214967.94	1.12618	1.11392
566756.69	4214967.94	566756.69_4214967.94	0.98227	0.96156
566816.69	4214967.94	566816.69_4214967.94	0.71431	0.66356
566836.69	4214967.94	566836.69_4214967.94	0.6301	0.57762
566856.69	4214967.94	566856.69_4214967.94	0.54984	0.50039
566876.69	4214967.94	566876.69_4214967.94	0.48151	0.43631
566896.69	4214967.94	566896.69_4214967.94	0.43101	0.38755
566916.69	4214967.94	566916.69_4214967.94	0.38697	0.34608
566936.69	4214967.94	566936.69_4214967.94	0.35193	0.31269
566476.69	4214987.94	566476.69_4214987.94	2.30336	2.66619
566496.69	4214987.94	566496.69_4214987.94	3.10823	4.18583
566656.69	4214987.94	566656.69_4214987.94	3.39852	3.68026
566676.69	4214987.94	566676.69_4214987.94	2.68644	2.78261
566696.69	4214987.94	566696.69_4214987.94	2.2053	2.22975
566716.69	4214987.94	566716.69_4214987.94	1.82701	1.82036
566736.69	4214987.94	566736.69_4214987.94	1.49726	1.46857
566756.69	4214987.94	566756.69_4214987.94	1.25688	1.21272
566816.69	4214987.94	566816.69_4214987.94	0.86107	0.7847
566836.69	4214987.94	566836.69_4214987.94	0.73691	0.66622
566856.69	4214987.94	566856.69_4214987.94	0.63668	0.57235
566876.69	4214987.94	566876.69_4214987.94	0.55443	0.4965
566896.69	4214987.94	566896.69_4214987.94	0.49068	0.43727
566916.69	4214987.94	566916.69_4214987.94	0.43621	0.3875
567016.69	4214987.94	567016.69_4214987.94	0.28696	0.24736
566476.69	4215007.94	566476.69_4215007.94	4.06304	6.14127
566596.69	4215007.94	566596.69_4215007.94	15.17599	24.09733
566696.69	4215007.94	566696.69_4215007.94	3.87997	4.0859
566716.69	4215007.94	566716.69_4215007.94	2.78906	2.82607
566736.69	4215007.94	566736.69_4215007.94	2.1161	2.08362
566816.69	4215007.94	566816.69_4215007.94	1.03826	0.94432
566836.69	4215007.94	566836.69_4215007.94	0.87077	0.78724
566856.69	4215007.94	566856.69_4215007.94	0.74182	0.66763
566876.69	4215007.94	566876.69_4215007.94	0.64223	0.57555
566896.69	4215007.94	566896.69_4215007.94	0.56251	0.50238
566916.69	4215007.94	566916.69_4215007.94	0.4996	0.44441
566996.69	4215007.94	566996.69_4215007.94	0.34797	0.30245
567016.69	4215007.94	567016.69_4215007.94	0.31492	0.27412
566536.69	4215027.94	566536.69_4215027.94	12.25441	18.15059
566556.69	4215027.94	566556.69_4215027.94	11.94289	14.99876
566576.69	4215027.94	566576.69_4215027.94	12.80536	16.40133
566596.69	4215027.94	566596.69_4215027.94	13.6845	16.38168
566616.69	4215027.94	566616.69_4215027.94	13.80091	18.16169
566976.69	4215027.94	566976.69_4215027.94	0.42859	0.3777
566996.69	4215027.94	566996.69_4215027.94	0.38441	0.33884
567016.69	4215027.94	567016.69_4215027.94	0.34524	0.30447
566536.69	4215047.94	566536.69_4215047.94	12.12623	14.31239
566556.69	4215047.94	566556.69_4215047.94	10.89183	12.45036
566576.69	4215047.94	566576.69_4215047.94	10.55272	11.96719
566596.69	4215047.94	566596.69_4215047.94	11.43425	13.06974
566616.69	4215047.94	566616.69_4215047.94	12.24737	14.54332
566696.69	4215047.94	566696.69_4215047.94	13.27953	16.41707

566716.69	4215047.94	566716.69_4215047.94	7.88953	8.83458
566956.69	4215047.94	566956.69_4215047.94	0.53781	0.48197
566976.69	4215047.94	566976.69_4215047.94	0.47672	0.4267
566996.69	4215047.94	566996.69_4215047.94	0.42508	0.38022
567016.69	4215047.94	567016.69_4215047.94	0.37945	0.33872
566496.69	4215067.94	566496.69_4215067.94	14.19237	32.91065
566536.69	4215067.94	566536.69_4215067.94	13.52468	15.97754
566556.69	4215067.94	566556.69_4215067.94	11.22106	12.67774
566576.69	4215067.94	566576.69_4215067.94	9.99062	10.96347
566596.69	4215067.94	566596.69_4215067.94	9.48838	10.37986
566616.69	4215067.94	566616.69_4215067.94	9.64275	10.8449
566676.69	4215067.94	566676.69_4215067.94	16.05154	21.09657
566696.69	4215067.94	566696.69_4215067.94	13.31024	15.1161
566956.69	4215067.94	566956.69_4215067.94	0.60045	0.54828
566976.69	4215067.94	566976.69_4215067.94	0.52968	0.48193
566996.69	4215067.94	566996.69_4215067.94	0.46863	0.42518
567016.69	4215067.94	567016.69_4215067.94	0.41816	0.37832
566516.69	4215087.94	566516.69_4215087.94	18.2728	27.93238
566536.69	4215087.94	566536.69_4215087.94	16.03924	19.08486
566556.69	4215087.94	566556.69_4215087.94	11.82726	13.31338
566576.69	4215087.94	566576.69_4215087.94	9.43001	10.19975
566596.69	4215087.94	566596.69_4215087.94	8.15698	8.6406
566616.69	4215087.94	566616.69_4215087.94	7.27133	7.67093
566636.69	4215087.94	566636.69_4215087.94	6.68557	7.11449
566656.69	4215087.94	566656.69_4215087.94	7.05208	8.30321
566936.69	4215087.94	566936.69_4215087.94	0.76186	0.71823
566956.69	4215087.94	566956.69_4215087.94	0.66449	0.62089
566976.69	4215087.94	566976.69_4215087.94	0.58416	0.54197
566996.69	4215087.94	566996.69_4215087.94	0.5167	0.47671
567016.69	4215087.94	567016.69_4215087.94	0.46021	0.42269
566496.69	4215107.94	566496.69_4215107.94	18.28118	24.53116
566516.69	4215107.94	566516.69_4215107.94	15.87593	18.99951
566536.69	4215107.94	566536.69_4215107.94	13.91567	16.00218
566556.69	4215107.94	566556.69_4215107.94	11.64871	12.88205
566576.69	4215107.94	566576.69_4215107.94	9.12664	9.82955
566596.69	4215107.94	566596.69_4215107.94	7.44679	7.93152
566616.69	4215107.94	566616.69_4215107.94	6.35284	6.68575
566916.69	4215107.94	566916.69_4215107.94	0.97149	0.95954
566936.69	4215107.94	566936.69_4215107.94	0.83997	0.81697
566956.69	4215107.94	566956.69_4215107.94	0.73158	0.70253
566976.69	4215107.94	566976.69_4215107.94	0.64204	0.61001
566996.69	4215107.94	566996.69_4215107.94	0.56731	0.5343
567016.69	4215107.94	567016.69_4215107.94	0.50412	0.47144
566496.69	4215127.94	566496.69_4215127.94	13.99728	16.86715
566516.69	4215127.94	566516.69_4215127.94	12.64927	14.4623
566536.69	4215127.94	566536.69_4215127.94	11.13794	12.26688
566556.69	4215127.94	566556.69_4215127.94	9.70601	10.49014
566576.69	4215127.94	566576.69_4215127.94	8.15856	8.69171
566596.69	4215127.94	566596.69_4215127.94	6.75244	7.1783
566896.69	4215127.94	566896.69_4215127.94	1.22308	1.28048
566916.69	4215127.94	566916.69_4215127.94	1.05334	1.08093
566936.69	4215127.94	566936.69_4215127.94	0.91345	0.92026
566956.69	4215127.94	566956.69_4215127.94	0.79696	0.79
566976.69	4215127.94	566976.69_4215127.94	0.69951	0.68375
566996.69	4215127.94	566996.69_4215127.94	0.61739	0.59635
567016.69	4215127.94	567016.69_4215127.94	0.54852	0.52442
566516.69	4215147.94	566516.69_4215147.94	9.01481	9.79499
566536.69	4215147.94	566536.69_4215147.94	8.2964	8.89617
566556.69	4215147.94	566556.69_4215147.94	7.60236	8.08738
566736.69	4215147.94	566736.69_4215147.94	3.59371	3.74218
566756.69	4215147.94	566756.69_4215147.94	3.33709	3.57251
566776.69	4215147.94	566776.69_4215147.94	3.01003	3.30598
566876.69	4215147.94	566876.69_4215147.94	1.48914	1.64469
566896.69	4215147.94	566896.69_4215147.94	1.28742	1.39751
566916.69	4215147.94	566916.69_4215147.94	1.11929	1.19148
566936.69	4215147.94	566936.69_4215147.94	0.97605	1.01949
566956.69	4215147.94	566956.69_4215147.94	0.85601	0.87778
566976.69	4215147.94	566976.69_4215147.94	0.75322	0.75984
566996.69	4215147.94	566996.69_4215147.94	0.66568	0.66182
567016.69	4215147.94	567016.69_4215147.94	0.59188	0.58075
566416.69	4215167.94	566416.69_4215167.94	6.42493	8.59641
566436.69	4215167.94	566436.69_4215167.94	8.93386	10.9699
566456.69	4215167.94	566456.69_4215167.94	10.33924	11.92958
566476.69	4215167.94	566476.69_4215167.94	9.25905	10.04782
566496.69	4215167.94	566496.69_4215167.94	7.4845	8.09943
566516.69	4215167.94	566516.69_4215167.94	6.52121	6.89769
566536.69	4215167.94	566536.69_4215167.94	6.14914	6.44834
566756.69	4215167.94	566756.69_4215167.94	2.88923	3.02905

566776.69	4215167.94	566776.69_4215167.94	2.68844	2.88889
566856.69	4215167.94	566856.69_4215167.94	1.7203	1.95051
566876.69	4215167.94	566876.69_4215167.94	1.50782	1.7009
566896.69	4215167.94	566896.69_4215167.94	1.32463	1.47634
566916.69	4215167.94	566916.69_4215167.94	1.16337	1.27721
566936.69	4215167.94	566936.69_4215167.94	1.02449	1.10538
566956.69	4215167.94	566956.69_4215167.94	0.90466	0.95859
566976.69	4215167.94	566976.69_4215167.94	0.79815	0.8321
566996.69	4215167.94	566996.69_4215167.94	0.70888	0.72687
567016.69	4215167.94	567016.69_4215167.94	0.63179	0.63803
566416.69	4215187.94	566416.69_4215187.94	2.67746	2.86295
566436.69	4215187.94	566436.69_4215187.94	3.77697	3.99872
566456.69	4215187.94	566456.69_4215187.94	5.04152	5.20823
566476.69	4215187.94	566476.69_4215187.94	5.42356	5.65358
566496.69	4215187.94	566496.69_4215187.94	5.16044	5.40128
566516.69	4215187.94	566516.69_4215187.94	4.75085	4.97424
566836.69	4215187.94	566836.69_4215187.94	1.86192	2.08875
566856.69	4215187.94	566856.69_4215187.94	1.66962	1.89434
566876.69	4215187.94	566876.69_4215187.94	1.49436	1.69827
566896.69	4215187.94	566896.69_4215187.94	1.33249	1.50776
566916.69	4215187.94	566916.69_4215187.94	1.18523	1.32923
566936.69	4215187.94	566936.69_4215187.94	1.05543	1.16817
566956.69	4215187.94	566956.69_4215187.94	0.93774	1.02324
566976.69	4215187.94	566976.69_4215187.94	0.8342	0.89628
566996.69	4215187.94	566996.69_4215187.94	0.74493	0.78731
567016.69	4215187.94	567016.69_4215187.94	0.66645	0.69325
566416.69	4215207.94	566416.69_4215207.94	1.58918	1.5903
566436.69	4215207.94	566436.69_4215207.94	1.99464	1.95984
566456.69	4215207.94	566456.69_4215207.94	2.67606	2.57495
566476.69	4215207.94	566476.69_4215207.94	3.08412	3.053
566496.69	4215207.94	566496.69_4215207.94	3.32858	3.33222
566816.69	4215207.94	566816.69_4215207.94	1.88657	2.04522
566836.69	4215207.94	566836.69_4215207.94	1.74774	1.93069
566856.69	4215207.94	566856.69_4215207.94	1.59788	1.795
566876.69	4215207.94	566876.69_4215207.94	1.45295	1.64666
566896.69	4215207.94	566896.69_4215207.94	1.31366	1.49371
566916.69	4215207.94	566916.69_4215207.94	1.1861	1.34464
566936.69	4215207.94	566936.69_4215207.94	1.06729	1.20162
566956.69	4215207.94	566956.69_4215207.94	0.95628	1.06685
566976.69	4215207.94	566976.69_4215207.94	0.85908	0.94623
566996.69	4215207.94	566996.69_4215207.94	0.77233	0.83851
567016.69	4215207.94	567016.69_4215207.94	0.69477	0.74308
566376.69	4215227.94	566376.69_4215227.94	0.87462	0.87114
566396.69	4215227.94	566396.69_4215227.94	0.88305	0.90722
566416.69	4215227.94	566416.69_4215227.94	1.04016	1.03155
566436.69	4215227.94	566436.69_4215227.94	1.26073	1.18481
566456.69	4215227.94	566456.69_4215227.94	1.53167	1.4223
566476.69	4215227.94	566476.69_4215227.94	1.78324	1.67675
566496.69	4215227.94	566496.69_4215227.94	2.1172	1.9982
566516.69	4215227.94	566516.69_4215227.94	2.34788	2.26253
566536.69	4215227.94	566536.69_4215227.94	2.50006	2.45857
566556.69	4215227.94	566556.69_4215227.94	2.60633	2.5965
566796.69	4215227.94	566796.69_4215227.94	1.81514	1.91893
566816.69	4215227.94	566816.69_4215227.94	1.72338	1.84757
566836.69	4215227.94	566836.69_4215227.94	1.62104	1.76623
566856.69	4215227.94	566856.69_4215227.94	1.50646	1.67199
566876.69	4215227.94	566876.69_4215227.94	1.39123	1.56322
566896.69	4215227.94	566896.69_4215227.94	1.27619	1.44596
566916.69	4215227.94	566916.69_4215227.94	1.16709	1.32615
566936.69	4215227.94	566936.69_4215227.94	1.05988	1.20429
566956.69	4215227.94	566956.69_4215227.94	0.96154	1.08739
566976.69	4215227.94	566976.69_4215227.94	0.87181	0.97769
566996.69	4215227.94	566996.69_4215227.94	0.78984	0.87616
567016.69	4215227.94	567016.69_4215227.94	0.71542	0.78363
566356.69	4215247.94	566356.69_4215247.94	0.66351	0.6462
566376.69	4215247.94	566376.69_4215247.94	0.62226	0.62004
566396.69	4215247.94	566396.69_4215247.94	0.62431	0.63739
566416.69	4215247.94	566416.69_4215247.94	0.65738	0.67269
566436.69	4215247.94	566436.69_4215247.94	0.78144	0.75694
566456.69	4215247.94	566456.69_4215247.94	0.92637	0.85906
566476.69	4215247.94	566476.69_4215247.94	1.14164	1.02143
566496.69	4215247.94	566496.69_4215247.94	1.4021	1.24592
566516.69	4215247.94	566516.69_4215247.94	1.60187	1.45653
566536.69	4215247.94	566536.69_4215247.94	1.77722	1.66638
566556.69	4215247.94	566556.69_4215247.94	1.93071	1.85687
566576.69	4215247.94	566576.69_4215247.94	2.02888	1.99252
566796.69	4215247.94	566796.69_4215247.94	1.6358	1.72753
566816.69	4215247.94	566816.69_4215247.94	1.56848	1.67204

566836.69	4215247.94	566836.69_4215247.94	1.49187	1.6141
566856.69	4215247.94	566856.69_4215247.94	1.4065	1.54376
566876.69	4215247.94	566876.69_4215247.94	1.31549	1.46358
566896.69	4215247.94	566896.69_4215247.94	1.22367	1.37573
566916.69	4215247.94	566916.69_4215247.94	1.13189	1.28183
566936.69	4215247.94	566936.69_4215247.94	1.03919	1.18257
566956.69	4215247.94	566956.69_4215247.94	0.95353	1.08492
566976.69	4215247.94	566976.69_4215247.94	0.87274	0.98938
566996.69	4215247.94	566996.69_4215247.94	0.79734	0.89787
567016.69	4215247.94	567016.69_4215247.94	0.72757	0.81183
566356.69	4215267.94	566356.69_4215267.94	0.48515	0.47536
566376.69	4215267.94	566376.69_4215267.94	0.48635	0.48944
566396.69	4215267.94	566396.69_4215267.94	0.49072	0.50296
566416.69	4215267.94	566416.69_4215267.94	0.51957	0.53372
566436.69	4215267.94	566436.69_4215267.94	0.55468	0.55072
566456.69	4215267.94	566456.69_4215267.94	0.6573	0.60229
566476.69	4215267.94	566476.69_4215267.94	0.78289	0.68128
566496.69	4215267.94	566496.69_4215267.94	0.9729	0.82577
566516.69	4215267.94	566516.69_4215267.94	1.1024	0.95087
566536.69	4215267.94	566536.69_4215267.94	1.2633	1.12387
566556.69	4215267.94	566556.69_4215267.94	1.41112	1.29829
566576.69	4215267.94	566576.69_4215267.94	1.54032	1.45849
566596.69	4215267.94	566596.69_4215267.94	1.63073	1.58187
566616.69	4215267.94	566616.69_4215267.94	1.68823	1.67071
566776.69	4215267.94	566776.69_4215267.94	1.51457	1.59664
566796.69	4215267.94	566796.69_4215267.94	1.47299	1.55773
566816.69	4215267.94	566816.69_4215267.94	1.42417	1.51643
566836.69	4215267.94	566836.69_4215267.94	1.3672	1.47132
566856.69	4215267.94	566856.69_4215267.94	1.30292	1.41889
566876.69	4215267.94	566876.69_4215267.94	1.23293	1.35937
566896.69	4215267.94	566896.69_4215267.94	1.15891	1.29269
566916.69	4215267.94	566916.69_4215267.94	1.08338	1.22003
566936.69	4215267.94	566936.69_4215267.94	1.0075	1.14258
566956.69	4215267.94	566956.69_4215267.94	0.93368	1.06284
566976.69	4215267.94	566976.69_4215267.94	0.86237	0.98226
566996.69	4215267.94	566996.69_4215267.94	0.79458	0.90278
567016.69	4215267.94	567016.69_4215267.94	0.73064	0.82577
566356.69	4215287.94	566356.69_4215287.94	0.36565	0.36071
566376.69	4215287.94	566376.69_4215287.94	0.37425	0.37679
566396.69	4215287.94	566396.69_4215287.94	0.39051	0.4008
566416.69	4215287.94	566416.69_4215287.94	0.41539	0.42811
566436.69	4215287.94	566436.69_4215287.94	0.44436	0.44524
566456.69	4215287.94	566456.69_4215287.94	0.51126	0.46531
566476.69	4215287.94	566476.69_4215287.94	0.58149	0.50012
566496.69	4215287.94	566496.69_4215287.94	0.6947	0.57532
566516.69	4215287.94	566516.69_4215287.94	0.7852	0.65166
566536.69	4215287.94	566536.69_4215287.94	0.9148	0.77646
566556.69	4215287.94	566556.69_4215287.94	1.042	0.91452
566576.69	4215287.94	566576.69_4215287.94	1.16916	1.06029
566596.69	4215287.94	566596.69_4215287.94	1.26781	1.18461
566616.69	4215287.94	566616.69_4215287.94	1.34366	1.28755
566636.69	4215287.94	566636.69_4215287.94	1.39368	1.36451
566756.69	4215287.94	566756.69_4215287.94	1.37516	1.44615
566776.69	4215287.94	566776.69_4215287.94	1.35078	1.4244
566796.69	4215287.94	566796.69_4215287.94	1.3234	1.40042
566816.69	4215287.94	566816.69_4215287.94	1.28913	1.3734
566836.69	4215287.94	566836.69_4215287.94	1.2477	1.33899
566856.69	4215287.94	566856.69_4215287.94	1.20033	1.30018
566876.69	4215287.94	566876.69_4215287.94	1.14744	1.25606
566896.69	4215287.94	566896.69_4215287.94	1.08862	1.20544
566916.69	4215287.94	566916.69_4215287.94	1.02798	1.14979
566936.69	4215287.94	566936.69_4215287.94	0.96637	1.08984
566956.69	4215287.94	566956.69_4215287.94	0.90452	1.02633
566976.69	4215287.94	566976.69_4215287.94	0.84286	0.96005
566996.69	4215287.94	566996.69_4215287.94	0.78334	0.89313
567016.69	4215287.94	567016.69_4215287.94	0.72575	0.82622
566356.69	4215307.94	566356.69_4215307.94	0.279	0.27598
566376.69	4215307.94	566376.69_4215307.94	0.29143	0.29352
566396.69	4215307.94	566396.69_4215307.94	0.31053	0.31909
566416.69	4215307.94	566416.69_4215307.94	0.32614	0.33691
566436.69	4215307.94	566436.69_4215307.94	0.36191	0.36703
566456.69	4215307.94	566456.69_4215307.94	0.38996	0.37345
566476.69	4215307.94	566476.69_4215307.94	0.45341	0.39049
566496.69	4215307.94	566496.69_4215307.94	0.51833	0.42634
566516.69	4215307.94	566516.69_4215307.94	0.58949	0.47782
566536.69	4215307.94	566536.69_4215307.94	0.67778	0.55553
566556.69	4215307.94	566556.69_4215307.94	0.78486	0.66
566576.69	4215307.94	566576.69_4215307.94	0.89107	0.77361

566596.69	4215307.94	566596.69_4215307.94	0.97617	0.87592
566616.69	4215307.94	566616.69_4215307.94	1.0559	0.97515
566636.69	4215307.94	566636.69_4215307.94	1.12555	1.06573
566656.69	4215307.94	566656.69_4215307.94	1.17042	1.1342
566776.69	4215307.94	566776.69_4215307.94	1.20401	1.26513
566796.69	4215307.94	566796.69_4215307.94	1.18664	1.2542
566816.69	4215307.94	566816.69_4215307.94	1.16278	1.23715
566836.69	4215307.94	566836.69_4215307.94	1.13401	1.21426
566856.69	4215307.94	566856.69_4215307.94	1.10029	1.18712
566876.69	4215307.94	566876.69_4215307.94	1.06051	1.15515
566896.69	4215307.94	566896.69_4215307.94	1.01503	1.11731
566916.69	4215307.94	566916.69_4215307.94	0.96807	1.07569
566936.69	4215307.94	566936.69_4215307.94	0.91877	1.02973
566956.69	4215307.94	566956.69_4215307.94	0.86754	0.97963
566976.69	4215307.94	566976.69_4215307.94	0.81586	0.92654
566996.69	4215307.94	566996.69_4215307.94	0.76444	0.87131
567016.69	4215307.94	567016.69_4215307.94	0.71407	0.81501
566356.69	4215327.94	566356.69_4215327.94	0.23418	0.232
566376.69	4215327.94	566376.69_4215327.94	0.2435	0.24663
566396.69	4215327.94	566396.69_4215327.94	0.25123	0.25987
566416.69	4215327.94	566416.69_4215327.94	0.25455	0.26466
566436.69	4215327.94	566436.69_4215327.94	0.3027	0.31075
566456.69	4215327.94	566456.69_4215327.94	0.32739	0.3159
566476.69	4215327.94	566476.69_4215327.94	0.36901	0.31979
566496.69	4215327.94	566496.69_4215327.94	0.4013	0.332
566516.69	4215327.94	566516.69_4215327.94	0.44845	0.36136
566536.69	4215327.94	566536.69_4215327.94	0.51676	0.41451
566556.69	4215327.94	566556.69_4215327.94	0.59943	0.48778
566576.69	4215327.94	566576.69_4215327.94	0.67726	0.56642
566596.69	4215327.94	566596.69_4215327.94	0.76157	0.65597
566616.69	4215327.94	566616.69_4215327.94	0.83478	0.74088
566636.69	4215327.94	566636.69_4215327.94	0.89891	0.82062
566656.69	4215327.94	566656.69_4215327.94	0.95698	0.89668
566676.69	4215327.94	566676.69_4215327.94	0.99987	0.9604
566796.69	4215327.94	566796.69_4215327.94	1.05844	1.11311
566816.69	4215327.94	566816.69_4215327.94	1.04494	1.10666
566836.69	4215327.94	566836.69_4215327.94	1.02709	1.09488
566856.69	4215327.94	566856.69_4215327.94	1.00445	1.07849
566876.69	4215327.94	566876.69_4215327.94	0.97483	1.05708
566896.69	4215327.94	566896.69_4215327.94	0.94197	1.03086
566916.69	4215327.94	566916.69_4215327.94	0.906	1.00044
566936.69	4215327.94	566936.69_4215327.94	0.86698	0.96572
566956.69	4215327.94	566956.69_4215327.94	0.82547	0.92694
566976.69	4215327.94	566976.69_4215327.94	0.78273	0.88497
566996.69	4215327.94	566996.69_4215327.94	0.73928	0.84032
567016.69	4215327.94	567016.69_4215327.94	0.69599	0.7939
566336.69	4215347.94	566336.69_4215347.94	0.18136	0.17581
566356.69	4215347.94	566356.69_4215347.94	0.2001	0.19895
566376.69	4215347.94	566376.69_4215347.94	0.20795	0.21267
566396.69	4215347.94	566396.69_4215347.94	0.21131	0.22112
566416.69	4215347.94	566416.69_4215347.94	0.21834	0.22692
566436.69	4215347.94	566436.69_4215347.94	0.27159	0.27826
566456.69	4215347.94	566456.69_4215347.94	0.29943	0.27515
566476.69	4215347.94	566476.69_4215347.94	0.31088	0.27098
566496.69	4215347.94	566496.69_4215347.94	0.32614	0.27211
566516.69	4215347.94	566516.69_4215347.94	0.35756	0.28847
566536.69	4215347.94	566536.69_4215347.94	0.40782	0.32344
566556.69	4215347.94	566556.69_4215347.94	0.46245	0.36864
566576.69	4215347.94	566576.69_4215347.94	0.52569	0.42655
566596.69	4215347.94	566596.69_4215347.94	0.59717	0.49604
566616.69	4215347.94	566616.69_4215347.94	0.66599	0.56828
566636.69	4215347.94	566636.69_4215347.94	0.72524	0.6369
566656.69	4215347.94	566656.69_4215347.94	0.78305	0.70719
566816.69	4215347.94	566816.69_4215347.94	0.9351	0.98195
566836.69	4215347.94	566836.69_4215347.94	0.92612	0.98034
566856.69	4215347.94	566856.69_4215347.94	0.91151	0.97387
566876.69	4215347.94	566876.69_4215347.94	0.89152	0.96165
566896.69	4215347.94	566896.69_4215347.94	0.86932	0.94565
566916.69	4215347.94	566916.69_4215347.94	0.84242	0.92469
566936.69	4215347.94	566936.69_4215347.94	0.81291	0.89991
566956.69	4215347.94	566956.69_4215347.94	0.7801	0.87081
566976.69	4215347.94	566976.69_4215347.94	0.74529	0.83825
566996.69	4215347.94	566996.69_4215347.94	0.70924	0.80283
567016.69	4215347.94	567016.69_4215347.94	0.67286	0.76539
566336.69	4215367.94	566336.69_4215367.94	0.17293	0.16967
566356.69	4215367.94	566356.69_4215367.94	0.17693	0.17759
566376.69	4215367.94	566376.69_4215367.94	0.18165	0.18829
566396.69	4215367.94	566396.69_4215367.94	0.18236	0.19343

566416.69	4215367.94	566416.69_4215367.94	0.19223	0.20539
566436.69	4215367.94	566436.69_4215367.94	0.2582	0.24892
566456.69	4215367.94	566456.69_4215367.94	0.26036	0.24034
566476.69	4215367.94	566476.69_4215367.94	0.26685	0.23402
566496.69	4215367.94	566496.69_4215367.94	0.27373	0.23038
566516.69	4215367.94	566516.69_4215367.94	0.29637	0.23999
566536.69	4215367.94	566536.69_4215367.94	0.32847	0.25998
566556.69	4215367.94	566556.69_4215367.94	0.36646	0.28882
566576.69	4215367.94	566576.69_4215367.94	0.41476	0.32942
566596.69	4215367.94	566596.69_4215367.94	0.47192	0.38073
566616.69	4215367.94	566616.69_4215367.94	0.5276	0.43537
566636.69	4215367.94	566636.69_4215367.94	0.58716	0.4967
566656.69	4215367.94	566656.69_4215367.94	0.64338	0.55946
566796.69	4215367.94	566796.69_4215367.94	0.83	0.85095
566816.69	4215367.94	566816.69_4215367.94	0.83302	0.8639
566836.69	4215367.94	566836.69_4215367.94	0.83111	0.87123
566856.69	4215367.94	566856.69_4215367.94	0.82279	0.87252
566876.69	4215367.94	566876.69_4215367.94	0.81239	0.86954
566896.69	4215367.94	566896.69_4215367.94	0.79742	0.8616
566916.69	4215367.94	566916.69_4215367.94	0.77935	0.8496
566936.69	4215367.94	566936.69_4215367.94	0.75799	0.83347
566956.69	4215367.94	566956.69_4215367.94	0.73276	0.81276
566976.69	4215367.94	566976.69_4215367.94	0.7051	0.78841
566996.69	4215367.94	566996.69_4215367.94	0.6757	0.76098
567016.69	4215367.94	567016.69_4215367.94	0.64574	0.7315
566276.69	4215387.94	566276.69_4215387.94	0.14247	0.1405
566296.69	4215387.94	566296.69_4215387.94	0.14908	0.14574
566316.69	4215387.94	566316.69_4215387.94	0.15136	0.14746
566336.69	4215387.94	566336.69_4215387.94	0.15556	0.15369
566356.69	4215387.94	566356.69_4215387.94	0.15934	0.16222
566376.69	4215387.94	566376.69_4215387.94	0.15978	0.16813
566396.69	4215387.94	566396.69_4215387.94	0.16367	0.17265
566416.69	4215387.94	566416.69_4215387.94	0.18337	0.1987
566436.69	4215387.94	566436.69_4215387.94	0.22979	0.22202
566456.69	4215387.94	566456.69_4215387.94	0.2299	0.21282
566476.69	4215387.94	566476.69_4215387.94	0.23374	0.20576
566496.69	4215387.94	566496.69_4215387.94	0.23552	0.19965
566516.69	4215387.94	566516.69_4215387.94	0.25012	0.20391
566536.69	4215387.94	566536.69_4215387.94	0.27046	0.21486
566556.69	4215387.94	566556.69_4215387.94	0.298	0.23379
566576.69	4215387.94	566576.69_4215387.94	0.33437	0.26192
566596.69	4215387.94	566596.69_4215387.94	0.38135	0.30051
566616.69	4215387.94	566616.69_4215387.94	0.42924	0.34349
566636.69	4215387.94	566636.69_4215387.94	0.47979	0.39209
566796.69	4215387.94	566796.69_4215387.94	0.73003	0.7343
566816.69	4215387.94	566816.69_4215387.94	0.73868	0.7539
566836.69	4215387.94	566836.69_4215387.94	0.74146	0.76778
566856.69	4215387.94	566856.69_4215387.94	0.74083	0.77646
566876.69	4215387.94	566876.69_4215387.94	0.73664	0.78058
566896.69	4215387.94	566896.69_4215387.94	0.72851	0.78007
566916.69	4215387.94	566916.69_4215387.94	0.71756	0.77568
566936.69	4215387.94	566936.69_4215387.94	0.70307	0.767
566956.69	4215387.94	566956.69_4215387.94	0.68418	0.75352
566976.69	4215387.94	566976.69_4215387.94	0.6632	0.73666
566996.69	4215387.94	566996.69_4215387.94	0.63998	0.71644
567016.69	4215387.94	567016.69_4215387.94	0.61569	0.69385
566256.69	4215407.94	566256.69_4215407.94	0.13121	0.1313
566276.69	4215407.94	566276.69_4215407.94	0.13317	0.13139
566296.69	4215407.94	566296.69_4215407.94	0.13484	0.13128
566316.69	4215407.94	566316.69_4215407.94	0.13791	0.13488
566336.69	4215407.94	566336.69_4215407.94	0.14012	0.14001
566356.69	4215407.94	566356.69_4215407.94	0.14128	0.14605
566376.69	4215407.94	566376.69_4215407.94	0.14616	0.153
566396.69	4215407.94	566396.69_4215407.94	0.15455	0.16897
566416.69	4215407.94	566416.69_4215407.94	0.1812	0.1961
566436.69	4215407.94	566436.69_4215407.94	0.20625	0.19948
566456.69	4215407.94	566456.69_4215407.94	0.20627	0.1909
566476.69	4215407.94	566476.69_4215407.94	0.20833	0.18355
566496.69	4215407.94	566496.69_4215407.94	0.20672	0.17612
566516.69	4215407.94	566516.69_4215407.94	0.21508	0.1766
566536.69	4215407.94	566536.69_4215407.94	0.22995	0.1833
566556.69	4215407.94	566556.69_4215407.94	0.24953	0.19544
566576.69	4215407.94	566576.69_4215407.94	0.2774	0.21521
566596.69	4215407.94	566596.69_4215407.94	0.31198	0.24187
566616.69	4215407.94	566616.69_4215407.94	0.3533	0.27573
566776.69	4215407.94	566776.69_4215407.94	0.62239	0.6001
566796.69	4215407.94	566796.69_4215407.94	0.63945	0.62906
566816.69	4215407.94	566816.69_4215407.94	0.65171	0.65298

566836.69	4215407.94	566836.69_4215407.94	0.65944	0.67159
566856.69	4215407.94	566856.69_4215407.94	0.66426	0.68597
566876.69	4215407.94	566876.69_4215407.94	0.66503	0.69572
566896.69	4215407.94	566896.69_4215407.94	0.66302	0.70166
566916.69	4215407.94	566916.69_4215407.94	0.65742	0.70335
566936.69	4215407.94	566936.69_4215407.94	0.64791	0.70061
566956.69	4215407.94	566956.69_4215407.94	0.63539	0.69397
566976.69	4215407.94	566976.69_4215407.94	0.62009	0.68359
566996.69	4215407.94	566996.69_4215407.94	0.60243	0.66981
567016.69	4215407.94	567016.69_4215407.94	0.58362	0.65365
566236.69	4215427.94	566236.69_4215427.94	0.11501	0.11568
566256.69	4215427.94	566256.69_4215427.94	0.12067	0.12078
566276.69	4215427.94	566276.69_4215427.94	0.12195	0.11947
566296.69	4215427.94	566296.69_4215427.94	0.12297	0.11965
566316.69	4215427.94	566316.69_4215427.94	0.12418	0.12234
566336.69	4215427.94	566336.69_4215427.94	0.12553	0.12719
566356.69	4215427.94	566356.69_4215427.94	0.13151	0.13532
566376.69	4215427.94	566376.69_4215427.94	0.14225	0.15507
566396.69	4215427.94	566396.69_4215427.94	0.17255	0.1861
566416.69	4215427.94	566416.69_4215427.94	0.18987	0.18893
566436.69	4215427.94	566436.69_4215427.94	0.18863	0.18182
566456.69	4215427.94	566456.69_4215427.94	0.18638	0.17266
566476.69	4215427.94	566476.69_4215427.94	0.18663	0.16487
566496.69	4215427.94	566496.69_4215427.94	0.18346	0.15702
566516.69	4215427.94	566516.69_4215427.94	0.1889	0.15583
566536.69	4215427.94	566536.69_4215427.94	0.19747	0.15845
566556.69	4215427.94	566556.69_4215427.94	0.2131	0.16701
566576.69	4215427.94	566576.69_4215427.94	0.23408	0.18067
566596.69	4215427.94	566596.69_4215427.94	0.26107	0.19992
566616.69	4215427.94	566616.69_4215427.94	0.29968	0.22839
566676.69	4215427.94	566676.69_4215427.94	0.39639	0.32228
566756.69	4215427.94	566756.69_4215427.94	0.51592	0.47208
566776.69	4215427.94	566776.69_4215427.94	0.53884	0.5057
566796.69	4215427.94	566796.69_4215427.94	0.55793	0.53581
566816.69	4215427.94	566816.69_4215427.94	0.57256	0.5616
566836.69	4215427.94	566836.69_4215427.94	0.58472	0.58383
566856.69	4215427.94	566856.69_4215427.94	0.59297	0.60179
566876.69	4215427.94	566876.69_4215427.94	0.59855	0.61626
566896.69	4215427.94	566896.69_4215427.94	0.6008	0.62685
566916.69	4215427.94	566916.69_4215427.94	0.59944	0.6334
566936.69	4215427.94	566936.69_4215427.94	0.59461	0.63592
566956.69	4215427.94	566956.69_4215427.94	0.58719	0.63493
566976.69	4215427.94	566976.69_4215427.94	0.57626	0.62978
566996.69	4215427.94	566996.69_4215427.94	0.56393	0.622
567016.69	4215427.94	567016.69_4215427.94	0.54999	0.61154
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CONCUNIT ug	/m^3	CONCUNIT ug_/m^3		
DEPUNIT g/m	^2	DEPUNIT g/m_^2		

Attachment G

Archaeological Resources Memorandum



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memorandum

date July 18, 2023

to Crescentia Brown, ESA Community Development

from Heidi Koenig, ESA Cultural Resources

subject 961 Porter Street, Vallejo – Class 32 Infill Exemption – Archaeological Resources

In order to determine whether the 961 Porter Street, Vallejo – Class 32 Infill Exemption project site has sensitivity for archaeological resources, including those that could be considered historical resources, ESA conducted a records search of the Northwest Information Center (NWIC) at Sonoma State University (July 18, 2023, File No.23-0040). The NWIC is the California Historical Resources Information System (CHRIS) repository housing cultural resources records for Solano County. The study area for the records search included the project site and areas within a 0.5-mile radius. Background research included a review of NWIC base maps for previously recorded site records as well as a review of historic maps and aerial imagery. The objectives of the background research were to: (1) determine whether known archaeological resources had been recorded within or adjacent to the project site; (2) assess the likelihood of unrecorded archaeological resources based on historical references and the distribution of environmental settings of nearby sites; and (3) develop a context for identification and preliminary evaluation of cultural resources. No tribal consultation was completed as part of this constraints analysis.

Based on the results of the records search, there are no previously recorded archaeological resources in the project site or within a 0.5-mile radius. The nearest Native American pre-contact archaeological resource is approximately 1 mile to the southeast and would not be impacted by the project. The project site is situated in an area underlain by bedrock of the Panoche formation (Kp), locally consisting of Upper Cretaceous age (66 to 100 million years old) micaceous shale and minor thin sandstone beds. Archaeological sites in this context would be identifiable at the surface and would be highly disturbed from the existing development.

No additional work regarding archaeological resources is recommended for the project. In the unlikely event that subsurface resources are identified during ground disturbing activities, the City would comply with PRC Section 21083.2(i), which requires provisions for archaeological resources accidentally discovered during construction. The City would be required to make an immediate evaluation by a qualified archaeologist, and if the find is determined to be a unique archaeological resource or a historical resource, then it must be avoided. If avoidance is not feasible, the resource must be recovered and treated accordingly. Construction would be allowed in other areas while the archaeological mitigation takes place.

In the unlikely event that ground disturbing activities identify undiscovered human remains, the City will comply with Government Code Section 27460 et seq., which requires ground disturbing activities to halt until the County

Coroner can determine whether the remains are subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner, and cause of death; and the required recommendations concerning the treatment and disposition of the human remains have been made. Pursuant to California Health and Safety Code Section 7050.5, the coroner shall make a determination within 48 hours of notification of the discovery of the human remains. If the coroner determines that the remains are not subject to their authority and recognizes or has reason to believe that they are those of a Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.

West Harbor Park

Transportation Impact Assessment

Prepared for:
The City of Vallejo
Klein Financial Corporation

August 2023

WC22-3938

FEHR  PEERS

Certification Page

This Transportation Impact Assessment was prepared under the direction of Bill Burton, California Professional Traffic Engineer #1857. Expiration – 6/30/25



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1. Executive Summary

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) prepared for the West Harbor Park development (Project) proposed in the City of Vallejo. The report follows the methods, criteria, and requirements of the *City of Vallejo's Traffic Impact Analysis/Study Guidelines* (City of Vallejo Public Works Department). It should be noted that the Project's potential impacts related to Vehicle Miles Traveled (VMT) are addressed in a separate report (*VMT Assessment – Harbor Park Apartments*, August 9, 2023, Fehr & Peers).

The study was prepared to evaluate the potential transportation effects of the Project, located west of Porter Street in Vallejo, California. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower-income units, on the current Harbor Park Apartments site which currently has 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). Vehicular access to the Project site is provided via two existing driveways, both on Porter Street. Regional access is available via Sonoma Boulevard (State Route 29) at Magazine Street, and Interstate 80 at Lincoln Road and Sequoia Avenue.

Using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition) the Project is expected to generate approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips. Intersection Levels of Service (LOS) were calculated at five intersections providing access to the project site for six analysis scenarios. The results of this assessment found that the local roadway network has adequate capacity to serve forecast increases in traffic associated with the proposed project. Significant adverse impacts or violations of City policies were not identified in the assessment of transit, bicycle, pedestrian, automobile, or emergency vehicle access. The following three recommendations were noted through the analysis and findings:

- **Site Recommendation 1:** The final site plan for the Project should be analyzed by the Project's Civil Engineer to ensure that adequate sight distance is provided at all driveways. Particular focus should be given to the available sight distance to the south from the southern Project driveway. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary. If inadequate sight distance is identified, appropriate modifications should be made as part of the project. Modifications could include physical modifications to the driveway intersections (landscape removal, grading, etc), the installation of stop signs on Porter Street at the Project's driveway(s) or other modifications as necessary.



- **Site Recommendation 2:** The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.
- **Site Recommendation 3:** Provide even surface pavement, appropriate signage, delineation, and other features at all emergency access points and internal roadways to accommodate emergency vehicles. Emergency response within the City of Vallejo is provided by the Vallejo Fire Department. The final site plan would need to be reviewed and found adequate by the City's Fire Chief prior to the issuance of building permits.



2. Introduction

This report presents the analysis and findings of the Transportation Impact Assessment prepared for the West Harbor Park development (Project) proposed in the City of Vallejo. The report follows the methods, criteria, and requirements of the *City of Vallejo's Traffic Impact Analysis/Study Guidelines* (City of Vallejo Public Works Department). It should be noted that the Project's potential impacts related to Vehicle Miles Traveled (VMT) are addressed in a separate report (*VMT Assessment – Harbor Park Apartments*, August 9, 2023, Fehr & Peers). This chapter discusses the TIA purpose, study locations and analysis scenarios, analysis methods, criteria used to identify significant effects, and report organization.

Study Purpose and Project Description

The study's purpose is to evaluate the potential transportation effects of the Project, located west of Porter Street in Vallejo, California, as shown in **Figure 1**. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower-income units, on the current Harbor Park Apartments site which currently has 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). The Project site plan is shown on **Figure 2**.

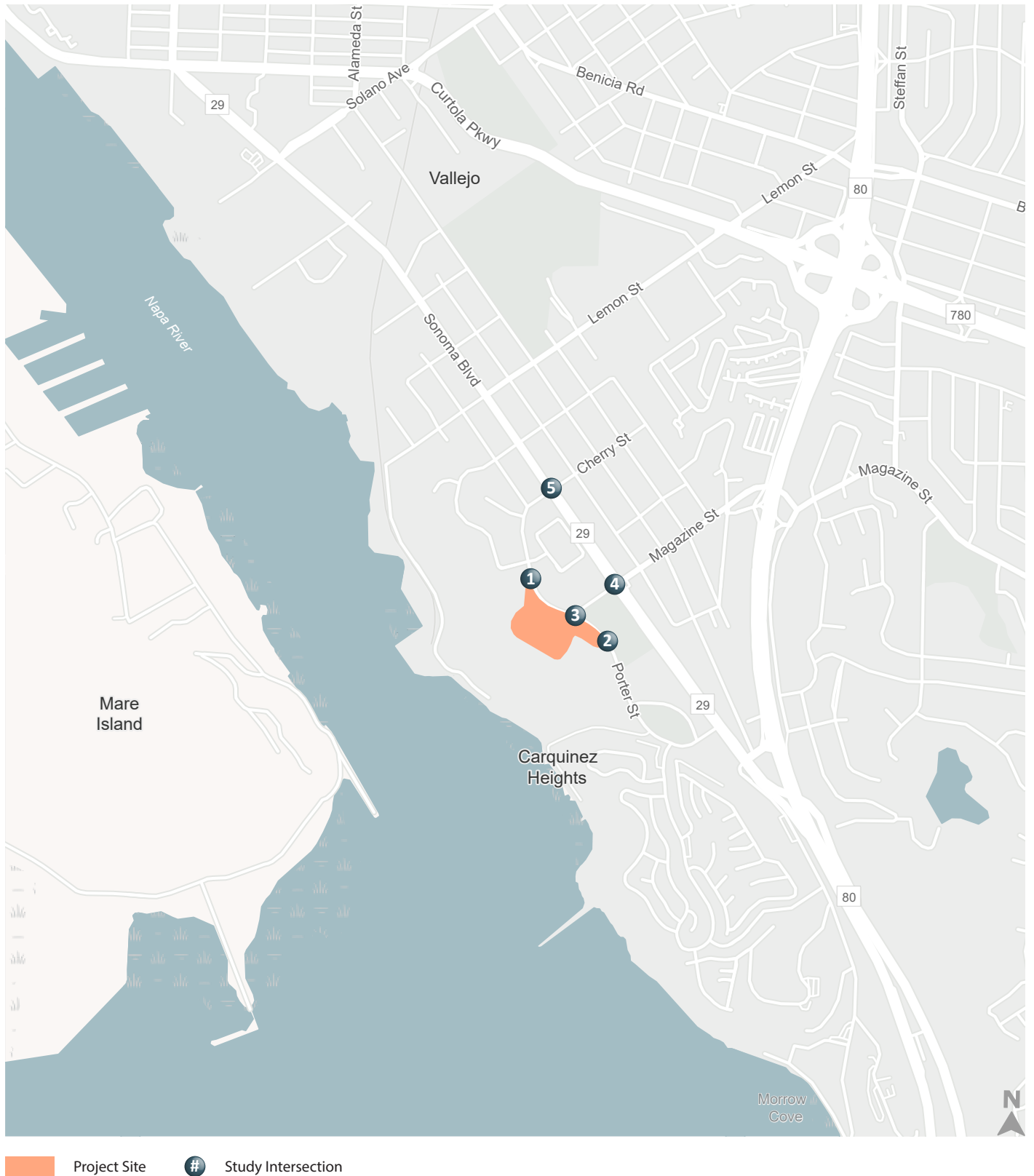
Vehicular access to the Project site is provided via two existing driveways, both on Porter Street, as illustrated on Figure 2. Regional access is available via Sonoma Boulevard (State Route 29) at Magazine Street, and Interstate 80 at Lincoln Road and Sequoia Avenue.

Study Locations and Analysis Scenarios

Potential project violations of the City's established level of service policies at study area roadway facilities were determined by measuring the effect Project traffic would have on intersections in the vicinity of the Project site during the weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak periods. The following intersections were selected based on a review of the Project site, estimates of the added traffic from the Project, and feedback from City staff:

1. Project Access North/Porter Street
2. Project Access South/Porter Street
3. Magazine Street/Porter Street
4. Sonoma Boulevard (SR 29)/Magazine Street
5. Cherry Street/Sonoma Boulevard (SR 29)





Project Site # Study Intersection



Figure 1

Project Site Vicinity Map & Study Intersections

The following scenarios were evaluated:

- **Existing** – Existing (2022) conditions based on recent traffic counts.
- **Project Opening Year** – Existing (2022) conditions with approved projects within the study area that could be constructed over the next five to ten years. Additional details are provided in Chapter 4. The Project is anticipated to open in 2025.
- **Project Opening Year with Project** – Opening year conditions with Project-related traffic.
- **Future Buildout Year (2040)/Cumulative without Project** – Forecasts for the cumulative (2040) scenario are based on traffic growth trends as described in the Vallejo General Plan and supplemented check of traffic forecasts for the study area from the Solano-Napa Activity Based Travel Demand Model (SNABM). Additional details are provided in Chapter 5.
- **Future Buildout Year (2040)/Cumulative with Project** – Future forecast conditions with Project-related traffic.

Analysis Methods

Level of Service

The operations of roadway facilities are described with the term “level of service” (LOS). LOS is a qualitative description of traffic flow from a vehicle driver’s perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

Signalized Intersections

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the *Highway Capacity Manual, 6th Edition* (HCM 6th Edition) for vehicles using the analysis software Synchro 11.0. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 1**.

Unsignalized Intersections

For unsignalized (all-way stop controlled and side-street stop controlled) intersections, the HCM 6th Edition method for unsignalized intersections was used. With this method, operations are defined by the



average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. **Table 2** summarizes the relationship between LOS and delay for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The highest movement/approach delay is reported for side-street stop-controlled intersections.

Table 1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.1 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.1 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.1 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual, 6th Edition*, Transportation Research Board, 2017.

Table 2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.1 to 15.0
C	Average traffic delays	> 15.1 to 25.0
D	Long traffic delays	> 25.1 to 35.0
E	Very long traffic delays	> 35.1 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual, 6th Edition*, Transportation Research Board, 2017.



Regulatory Setting and Significance Criteria

Non-CEQA Evaluation Criteria

Although not a CEQA metric, intersection levels of service were evaluated in this study for General Plan compliance and to identify potential transportation improvements that could be implemented as part of the project to improve the overall operations of the transportation system for all travel modes. The City of Vallejo generally strives to maintain level of service D operations for signalized intersections unless other standards are adopted.

The Project could have a noticeable effect on local and regional travel if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, or delay and congestion at intersections), or change the condition of an existing street (e.g., street closures, changing direction of travel) in a manner that would substantially change access or traffic load and capacity of the street system.

The City of Vallejo's General Plan and Traffic Impact Analysis/Study Guidelines were referenced to determine the criteria against which effects should be evaluated as part of this analysis, as described below.

Signalized Intersections - Project-related operational effects on the signalized study intersections in the City of Vallejo do not meet the City's LOS guidelines if:

1. Project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS D (55 seconds) or better to LOS E or F.
2. Project-related traffic increases the volume-to-capacity ratio by more than 0.0100 for intersections already operating at an unacceptable LOS without the project.

Unsignalized Intersections - Project-related operational effects on unsignalized intersections do not meet the City's LOS guidelines if:

3. Project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections) to deteriorate from LOS D or better to LOS E or F.
4. Project-related traffic increases the volume-to-capacity ratio by more than 0.0100 for intersections already operating at an unacceptable LOS without the project.

Report Organization

This report is divided into six chapters as described below:



- **Chapter 1 – Executive Summary**
- **Chapter 2 – Introduction** discusses the purpose and organization of the report.
- **Chapter 3 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- **Chapter 4 – Project Characteristics** presents relevant project information, such as the Project components and Project trip generation, distribution, and assignment.
- **Chapter 5 – Project Opening Year Traffic Conditions (2025)** addresses the near-term future conditions, both without and with the Project and discusses project vehicular effects.
- **Chapter 6 – Future Buildout Year (2040)/Cumulative Traffic Conditions** addresses the long-term future conditions, both without and with the Project and discusses project vehicular effects.
- **Chapter 7 – Site Plan Review** describes Project access and circulation for all travel modes.
- **Chapter 8 – Roadway Adequacy** discusses the adequacy of the surrounding roadway network to accommodate Project generated traffic.
- **Chapter 9 – Conclusions** describes the overall findings and recommendations of the study.



3. Existing Conditions

This chapter describes the transportation facilities in the study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the Project site's vicinity. Existing intersection operations are also described.

Roadway System

The Project site is surrounded by existing residential land uses, a school, and open space. Vallejo is located in the south-western portion of Solano County, adjacent to the cities of Benicia and American Canyon located southeast and north, respectively.

Regional access to the site is provided by Sonoma Boulevard and Interstate 80; Magazine Street, Porter Street and Cherry Street provide local access. The following roadways provide access to the site and are most likely to experience direct traffic effects, if any, from the proposed Project:

Regional Access

Sonoma Boulevard (SR 29) is a state highway that extends from Interstate 80 in Vallejo north to State Route 20 in Upper Lake. It is a north-south expressway with two travel lanes in each direction in the vicinity of the Project site. Discontinuous sidewalks are provided along some sections of Sonoma Boulevard near the Project site, becoming more consistent as the roadway enters downtown. Bicycle facilities, in the form of Class II bike lanes, are present on Sonoma Boulevard starting east of the Project site and extending south to Sequoia Avenue. In the Project vicinity, the posted speed limit is 25 mph.

Interstate 80 (I-80) is an east-west transcontinental freeway that crosses the United States from downtown San Francisco, California, to Teaneck, New Jersey, in the New York metropolitan area. The facility is a six-lane freeway within the study area, with interchanges at Lincoln Road and Sequoia Avenue (accessible through Magazine Street or Sonoma Boulevard).

Local Access

Magazine Street is an east-west local road east of the Project site that provides one travel lane in each direction. Sidewalks are provided along at least one side of Magazine Street between Porter Street and Lincoln Road. The posted speed limit is 25 mph. There are no bicycle facilities present on this street near the Project site.

Porter Street is a north-south local road fronting the Project site that provides one travel lane in each direction. Sidewalks are provided on both sides of the street with landscape buffers present along the Project site; some sidewalk gaps are present on the east side of the street fronting Carquinez Park and the



undeveloped land on Magazine Street between Porter Street and Sonoma Boulevard. To the north and south, Porter Street transitions into Cherry Street and Sandy Beach Road, respectively. The posted speed limit is 25 mph. Bicycle facilities are not present. Porter Street primarily serves residential communities and provides access to the Project site via two existing driveways.

Cherry Street is an east-west local road with one travel lane in each direction north-east of the Project site. Sidewalks are provided on both sides of the street. The posted speed limit is 25 mph. Bicycle facilities are not present. Cherry Street serves residential communities north-east of the project site. Cherry Street transitions into Porter Street to the west of Sonoma Boulevard.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signals, and multi-use trails. Three- to ten-foot sidewalks are provided on most roadways in the study area, although several gaps exist. Crosswalks are provided at signalized and unsignalized intersections. Pedestrian push-button actuated signals are provided at signalized intersections in the study area.

Bicycle facilities in Vallejo include the following:

- **Bike paths (Class I)** – Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Within the Project's vicinity, Sonoma Boulevard provides Class II bicycle facilities; Magazine Street provides bike route signage east of the Project site.



Existing Transit Service

The Vallejo Transit Center (VTC) serves as Solano County Transit's (SolTans) main transit center for SolTrans Local Routes 1 through 8 and the SolanoExpress Red and Yellow Lines. Route 3 (South Vallejo) operates in the vicinity of the Project site. Route 3 provides service along Porter Street, Magazine Street, and Sonoma Boulevard, with connections to the Vallejo Transit Center and the Curtola Park and Ride Lot. Three bus stops are present along Porter Street, two of which are in close proximity to the Project's southern driveway.

Existing Traffic Counts

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at the study intersections in October 2022 with area schools in normal session. Peak hour intersection vehicle volumes are summarized on **Figure 3** along with existing lane configurations and traffic controls. The traffic counts for existing conditions are provided in **Appendix A**.

Existing Intersection Levels of Service

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the LOS for the study intersections during each peak hour. The Synchro 11.0 software program was used to analyze all intersections. The existing levels of service are presented in **Table 3** for each study intersection. Observed peak hour factors¹ were used at all intersections for the existing conditions analysis. Detailed intersection LOS calculation worksheets are presented in **Appendix B**.

¹ The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: $PHF = \text{Hourly volume} / (4 \times (\text{volume during the peak 15 minutes of flow}))$. The analysis level of service is based on peak rates of flow occurring within the peak hour because substantial short term fluctuations typically occurring during an hour.



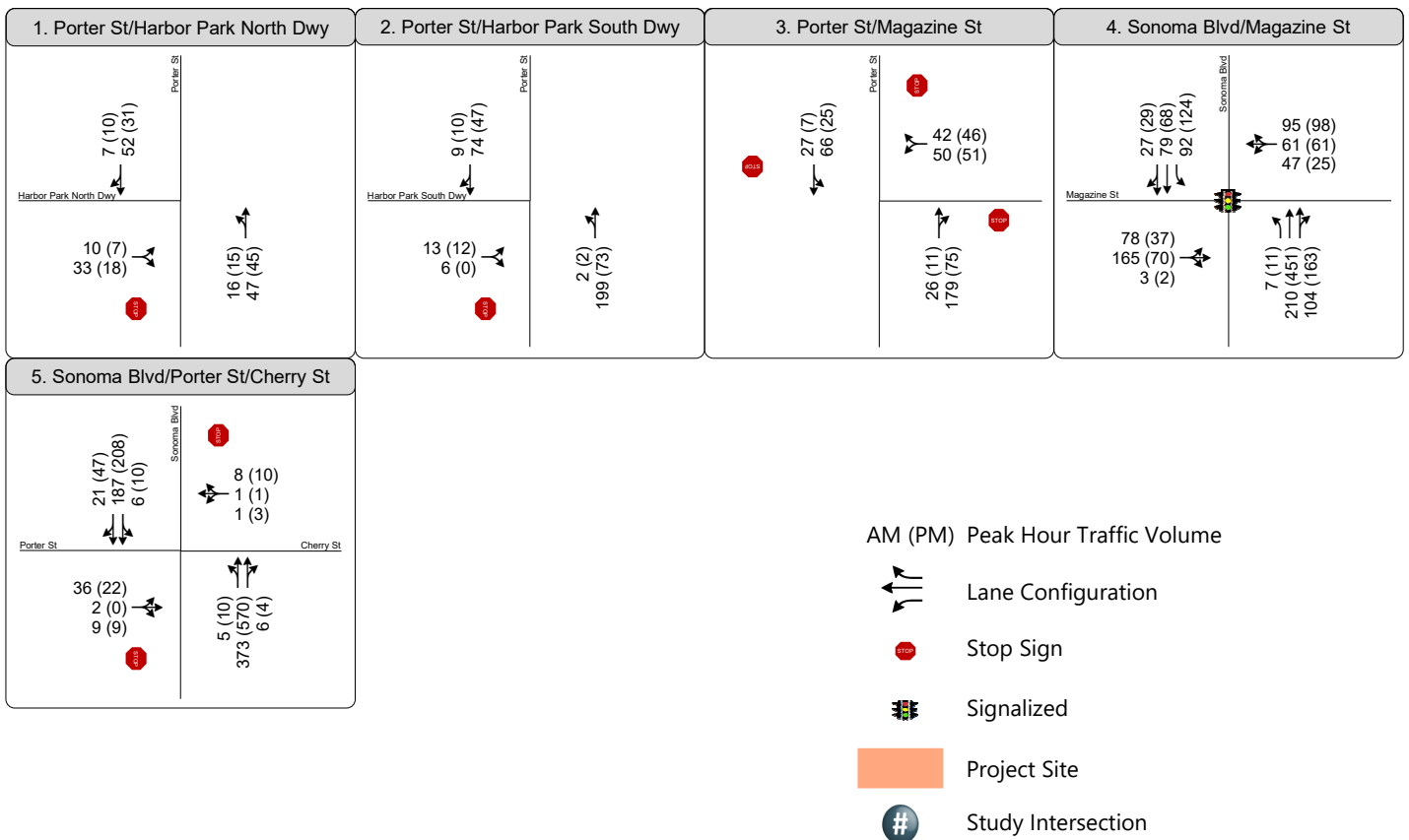
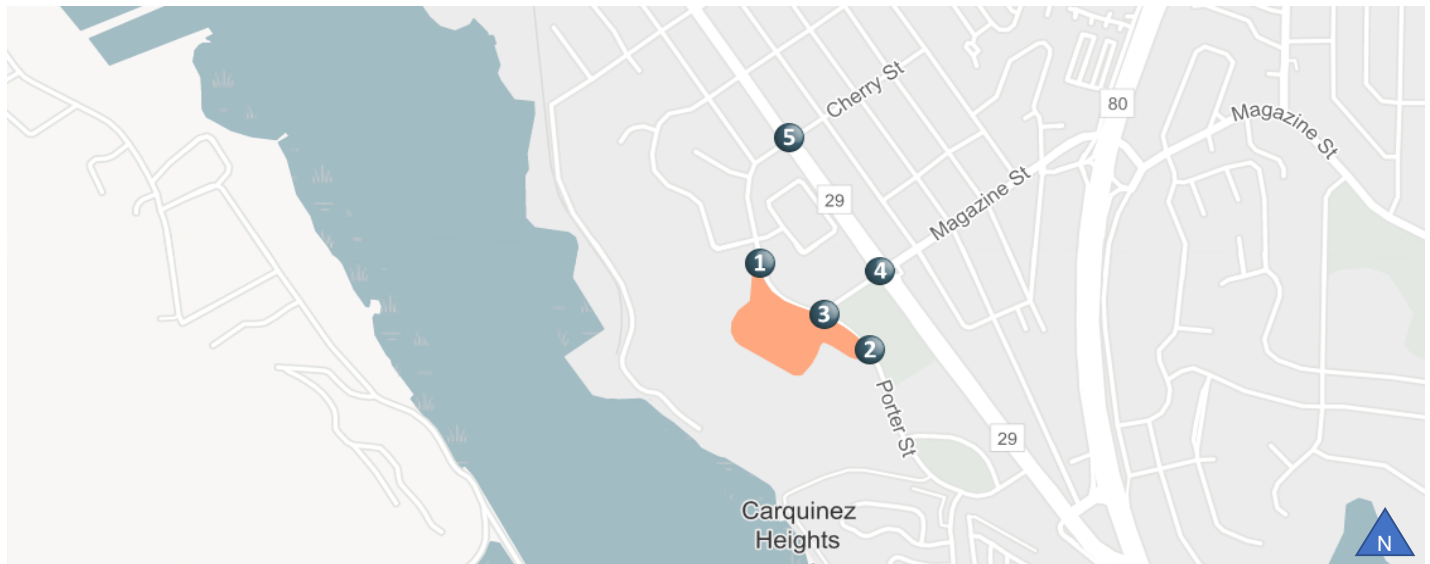


Figure 3

Existing Peak Hour Intersection Volumes,
Lane Configurations, and Traffic Control



Table 3: Existing Conditions Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour	LOS Standard	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.1 8.9	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	10.6 9.6	B A
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.4 7.5	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.2 18.3	B B
5. Cherry Street/Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	12.3 14.4	B B

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop-controlled intersections. Side-street stop-controlled delay presented for the intersection's worst movement. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Source: Fehr & Peers, 2023.

As illustrated in Table 3, all study intersections currently function at LOS A/B indicating low levels of vehicular delay.



4. Project Characteristics

This chapter provides an overview of the proposed Project components and addresses the proposed Project's trip generation, distribution, and assignment characteristics, allowing for an evaluation of project effects on the surrounding roadway network. The amount of traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

Project Description

The Project site is located west of Porter Street, as shown in **Figure 1**. The proposed Project would construct 122 new multifamily dwelling units, of which 24 would be lower income units, on the current Harbor Park Apartments site which currently houses 182 existing multifamily dwelling units (to remain with implementation of the proposed Project). The Project site plan is shown on **Figure 2**.

Vehicle access to the residential development is provided by two existing driveways on Porter Street. Regional access is available via Sonoma Boulevard at Magazine Street and Interstate 80 at Lincoln Road and at Sequoia Avenue.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates, shown in **Table 4**, from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition).

Trip generation estimates were developed for the proposed Project and are presented in **Table 4**. The Project is expected to generate approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips.



Table 4: Trip Generation Summary

Land Use	Quantity ¹	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) ²	122 du	822	12	37	49	39	23	62

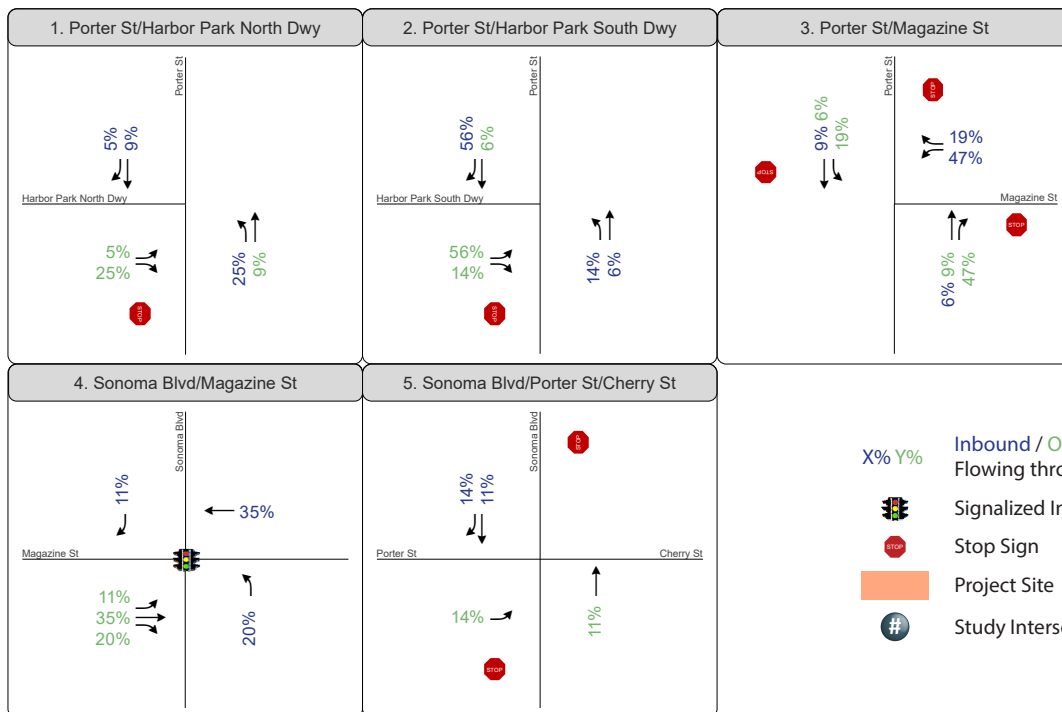
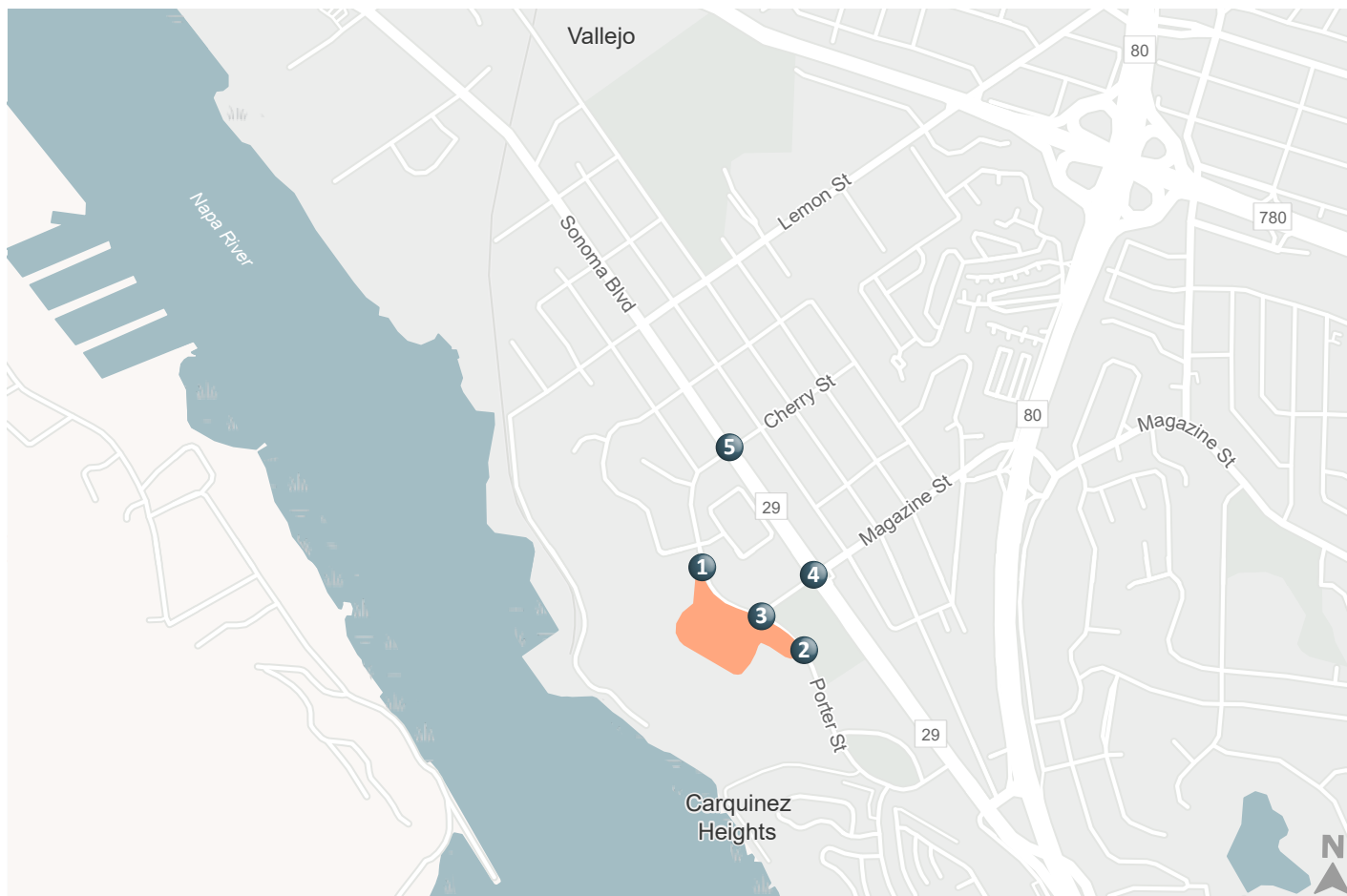
1. du = dwelling unit
2. ITE land use category 220 – Multifamily Housing (Low-Rise) (Adj Streets, 7-9A, 4-6P):
Daily: T = 6.74(X)
AM Peak Hour: T = 0.40(X); Enter = 24%; Exit = 76%
PM Peak Hour: T = 0.51(X); Enter = 63%; Exit = 37%

Source: *Trip Generation Manual* (11th Edition), ITE, 2017; Fehr & Peers, 2023.

Project Trip Distribution and Assignment

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the Solano-Napa Activity Based Travel Demand Model (SNABM), and the location of complementary land uses. The resulting trip distribution percentages are shown on **Figure 4**. Project trips were then assigned to the roadway network, as shown on **Figure 5**.





X% Y% Inbound / Outbound Percentages of Project Trips Flowing through each Intersection

Signalized Intersection

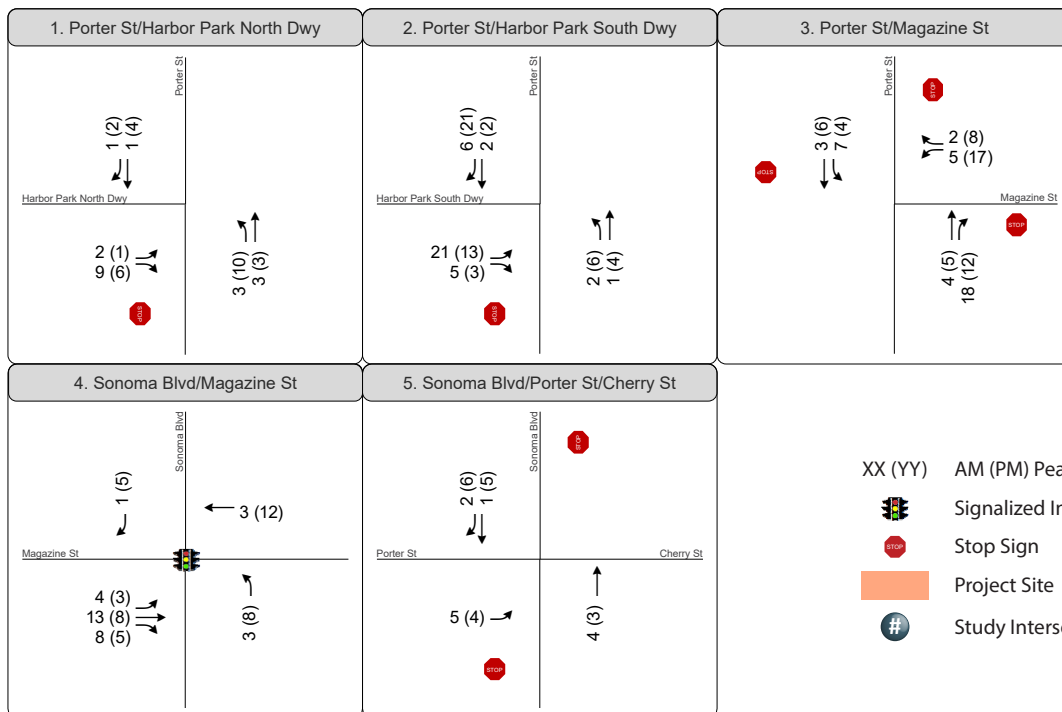
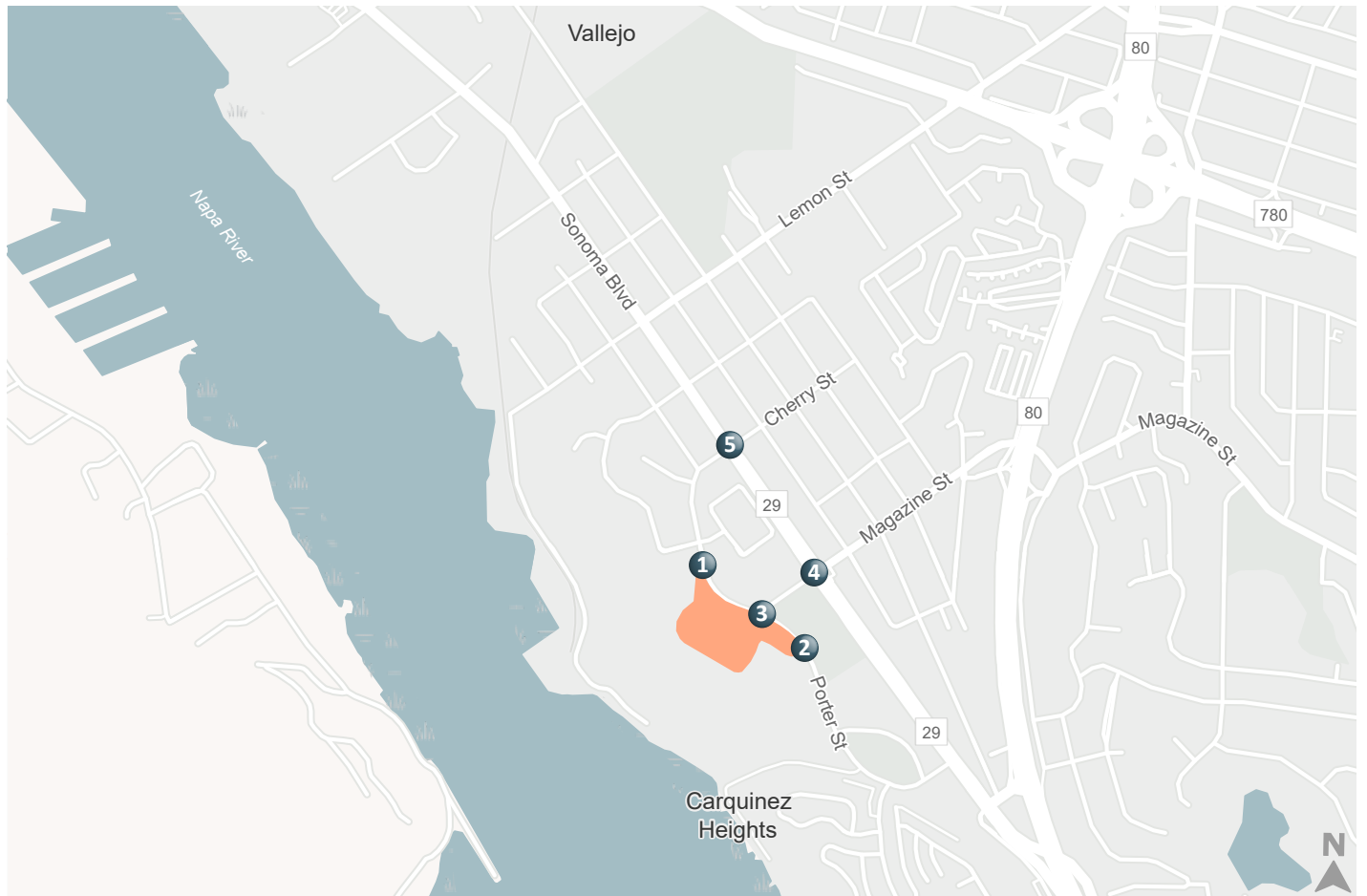
Stop Sign

Project Site

Study Intersection

Figure 4

Intersection Project Trip Distribution



- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Stop Sign
- Project Site
- Study Intersection

Figure 5

Project Trip Assignment

5. Project Opening Year Traffic Conditions (2025)

This chapter discusses near-term traffic conditions with and without the addition of traffic that would be generated by Project. The project opening year conditions analysis considers approved projects within the study area that are expected to be constructed and occupied in the next one to five years. No roadway improvements were assumed at the study intersections for the analysis of project opening year conditions as none are currently proposed or under consideration.

Project Opening Year Forecasts

The project opening year scenario reflects existing traffic counts plus traffic from approved and pending developments. The scenario is intended to represent the likely traffic levels at the time of Project completion and occupation. In coordination with the City of Vallejo a list of applicable approved and pending developments in the study area was assembled. This list included one project, the Oakwood Apartments development, located at the corner of Sonoma Boulevard and Magazine Street, as shown on **Figure 6**.

The Oakwood Apartments project's vehicle trip generation characteristics were obtained from the Traffic Impact Study prepared for the project (*Oakwood Apartments Traffic Impact Study*, W-Trans, February 2020) and is summarized in **Table 5**. This project has been approved, but construction has not yet begun. Data regarding the trip generation, distribution, and assignment for this project is included in **Appendix C**. Traffic generated by the approved development was added to the existing traffic volumes to provide the basis for the Project Opening Year analysis. These near-term baseline volumes are presented on **Figure 7**. Project generated traffic was added to the Project Opening Year volumes to estimate Project Opening Year with Project volumes, as presented on **Figure 8**.



Table 5: Project Opening Year Approved Projects

Project Name	Land Use	Quantity ¹	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Oakwood Apartments	Multi-Family Residential	132 DU	675	12	33	45	33	22	55

Note:

1. Du=dwelling unit

Source: City of Vallejo (November 2022) & W-Trans (February 2020).





Figure 6

Project Opening Year Approved Project Location

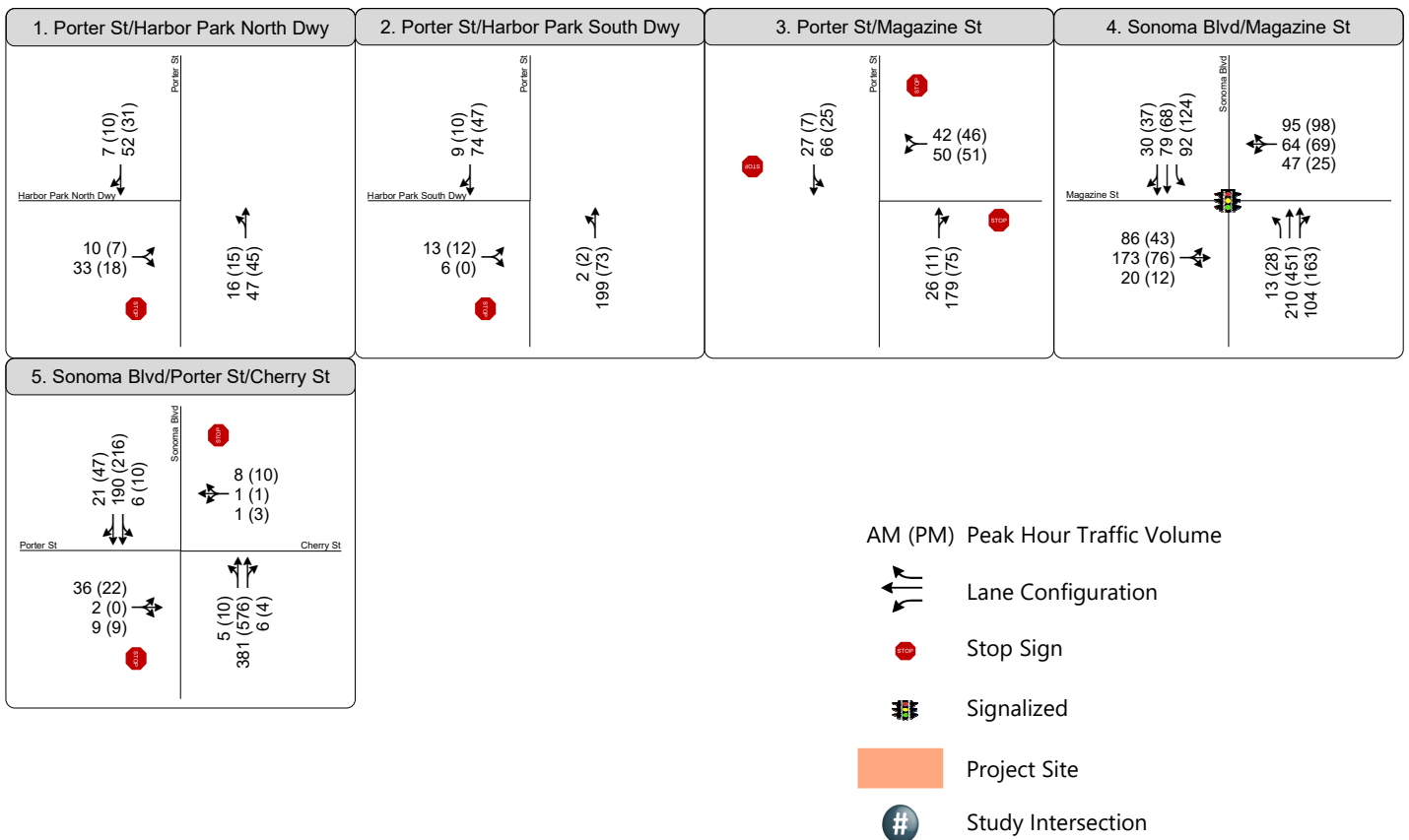
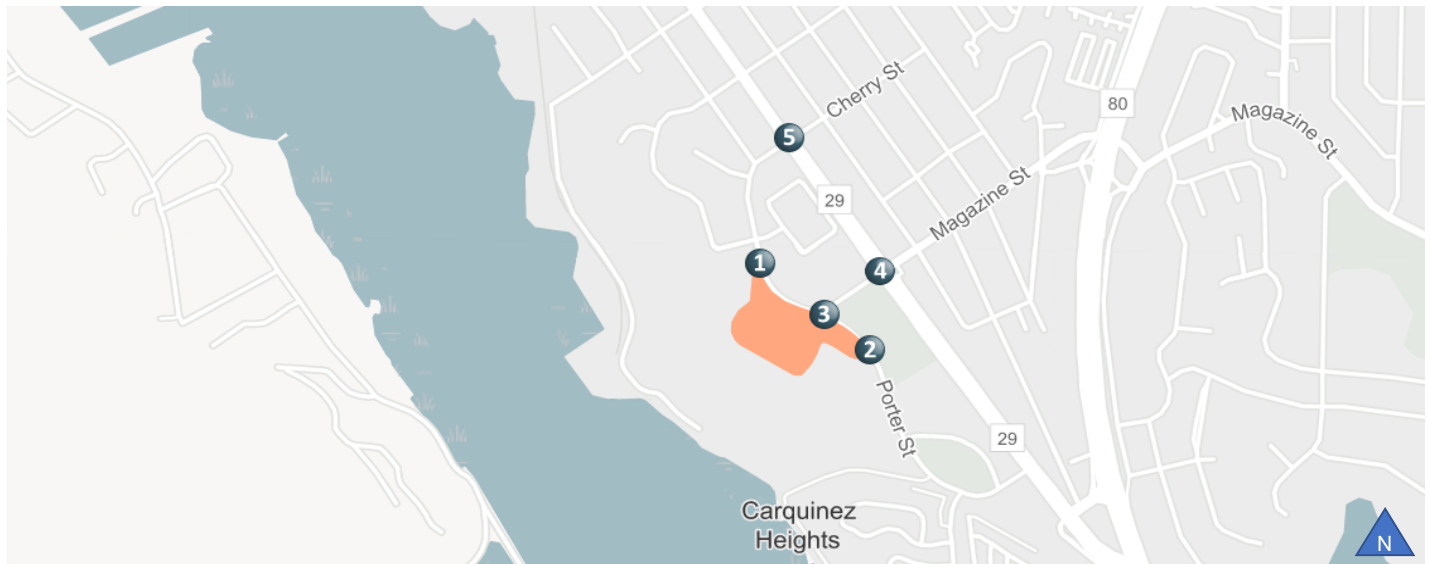


Figure 7

Project Opening Year Traffic Volumes, Lane Configurations, and Traffic Control



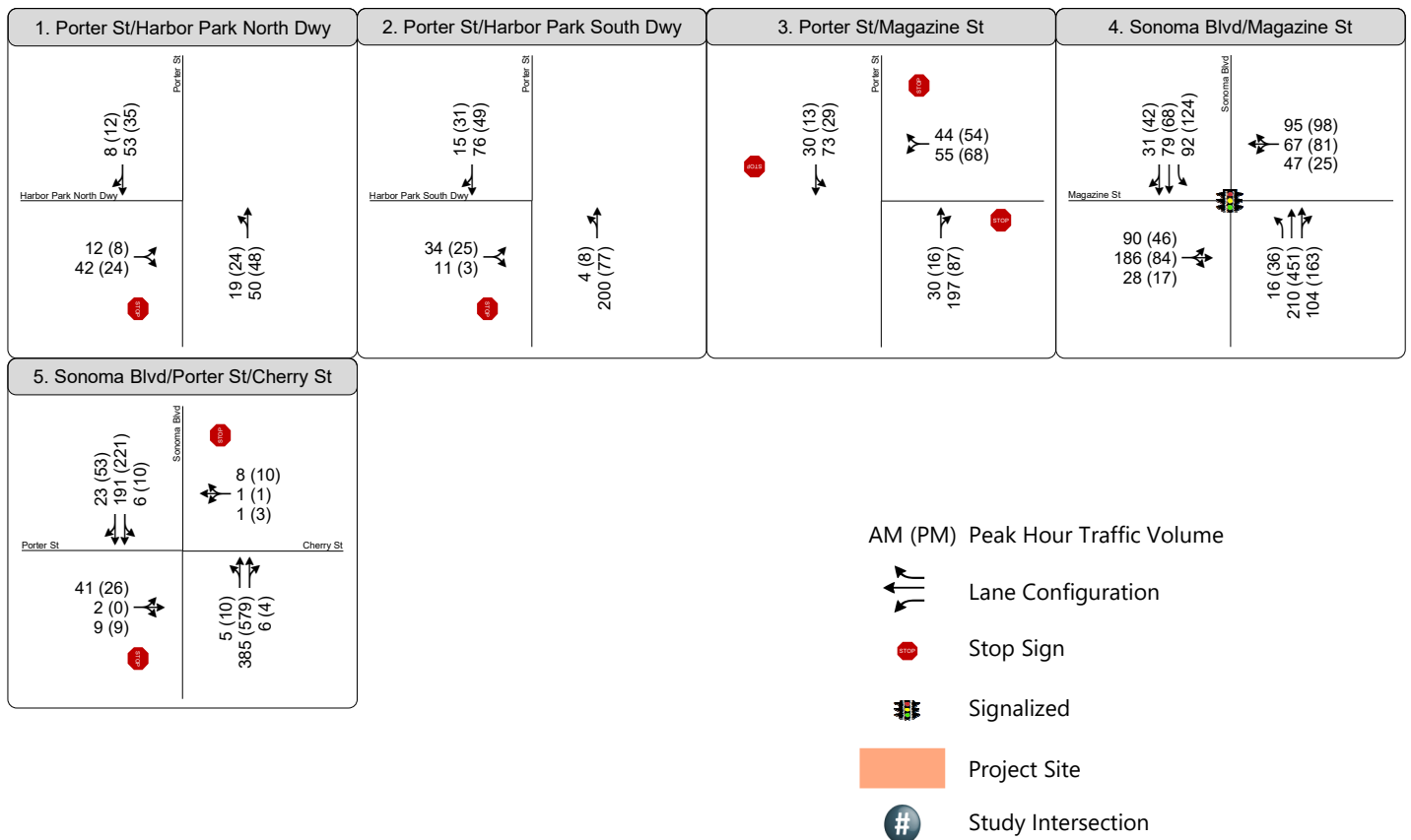
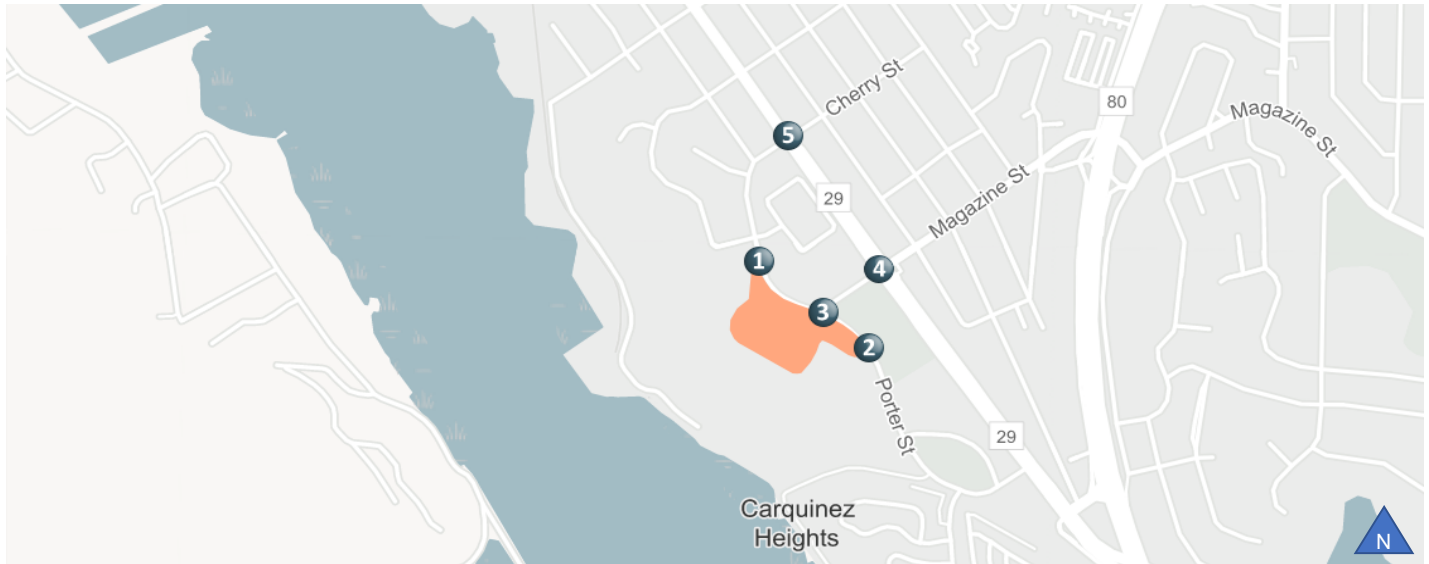


Figure 8

Project Opening Year With Project Traffic Volumes,
Lane Configurations, and Traffic Control



Analysis of Project Opening Year Conditions

Intersection Operations

Project Opening Year without and with Project conditions were evaluated using the methods described in Chapter 1. The analysis results are presented in **Table 6**, based on the traffic volumes and lane configurations presented on Figure 7 and Figure 8.

Table 6: Project Opening Year Conditions Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour ²	LOS Standard	Project Opening Year		Project Opening Year with Project	
				Delay ³	LOS	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.1 8.9	A A	9.2 9.0	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	10.6 9.6	B A	11.3 9.9	B A
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.4 7.5	A A	8.8 7.8	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.4 19.0	B B	14.6 19.6	B B
5. Cherry Street/ Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	12.4 14.6	B B	12.6 15.2	B C

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop-controlled intersections. Side-street stop-controlled delay presented as Worst Movement Delay. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Underline indicates a policy violation related to Project-generated traffic.

Source: Fehr & Peers, 2023.

Project Opening Year Findings

Based on the City of Vallejo's LOS guidelines, all intersections were found to operate acceptably under Project Opening Year baseline conditions and with the addition of Project traffic. Each of the study intersections were found to operate at LOS A, B or C under these analysis scenarios, indicating low levels of vehicular delay.



6. Future Buildout Year (2040)/ Cumulative Traffic Conditions

This chapter discusses Cumulative traffic conditions both without and with traffic forecast to be generated by the Project. The future conditions analysis considers development within the City of Vallejo as described in the General Plan.

Cumulative Traffic Forecasts

To assess future growth with planned development in the City of Vallejo, several sources of data were reviewed, including the Solano-Napa Activity Based Travel Demand Model (SNABM), and the traffic growth trends as described in the Vallejo's General Plan. Traffic forecasts within the immediate study area were reviewed to ensure that known developments were adequately reflected in the forecasts. Minor adjustments were made to the forecasts to balance traffic volumes between closely spaced intersections in the study area. The resulting Cumulative without Project forecasts are presented on **Figure 9**, which are representative of conditions over the next 20 years, with buildout of the City's General Plan. The Project volumes from Figure 5 were added to the Cumulative without Project traffic volumes to developed Cumulative with Project conditions, as presented on **Figure 10**.



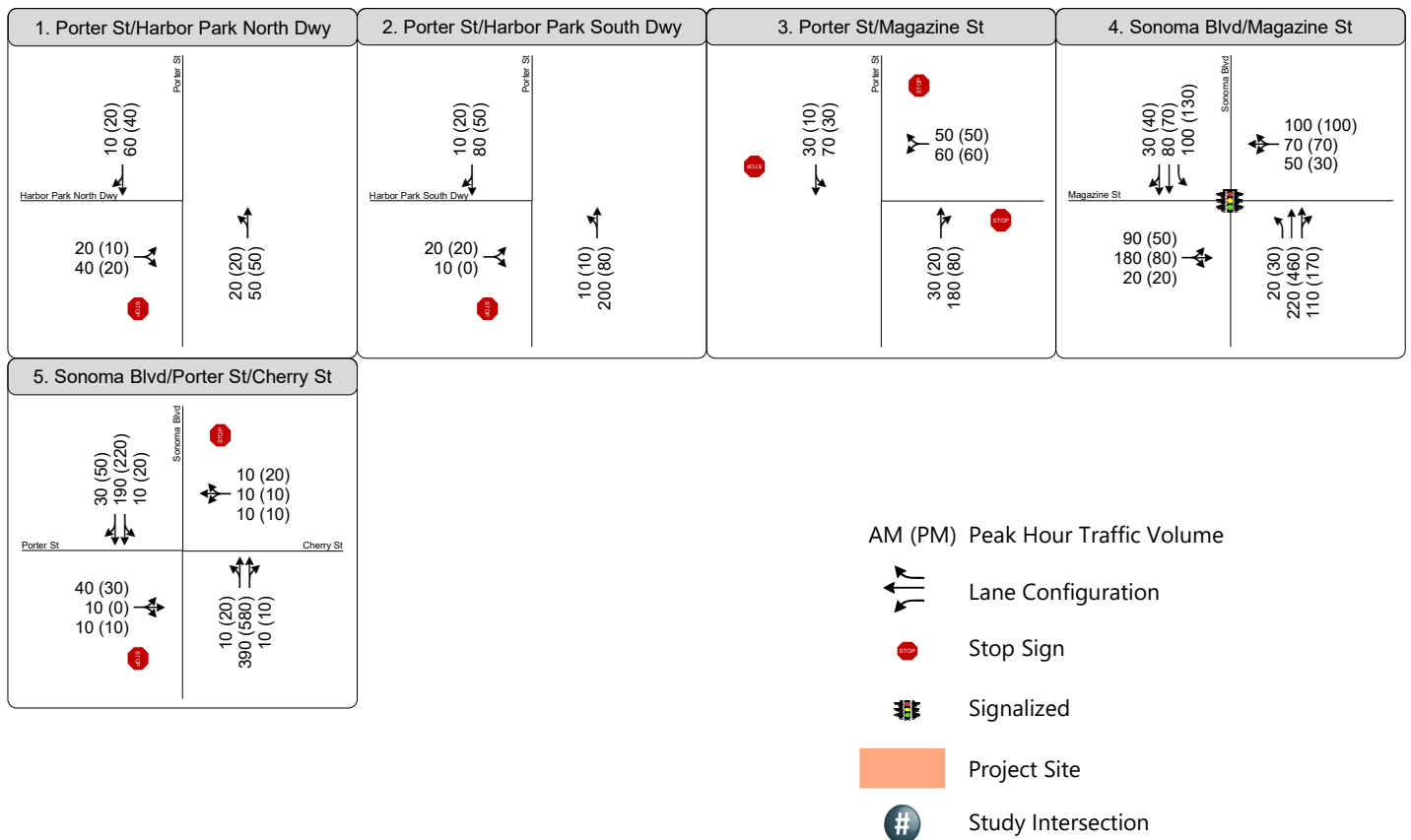
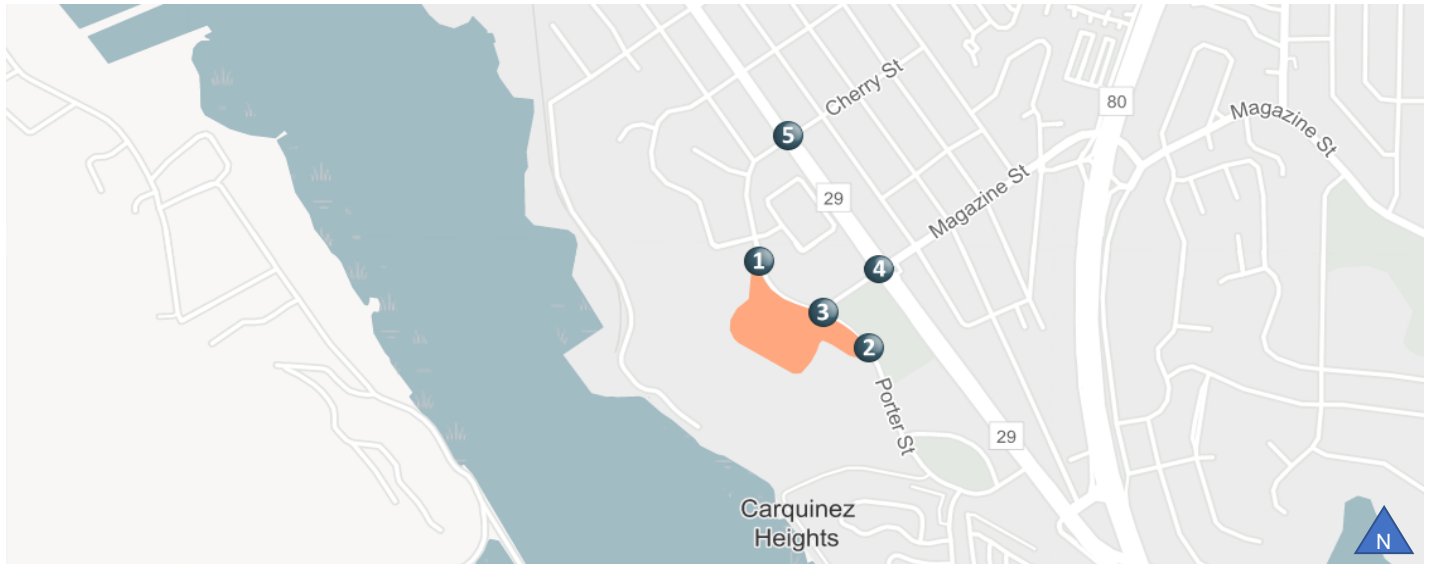


Figure 9

Cumulative Without Project Traffic Volumes,
Lane Configurations, and Traffic Control



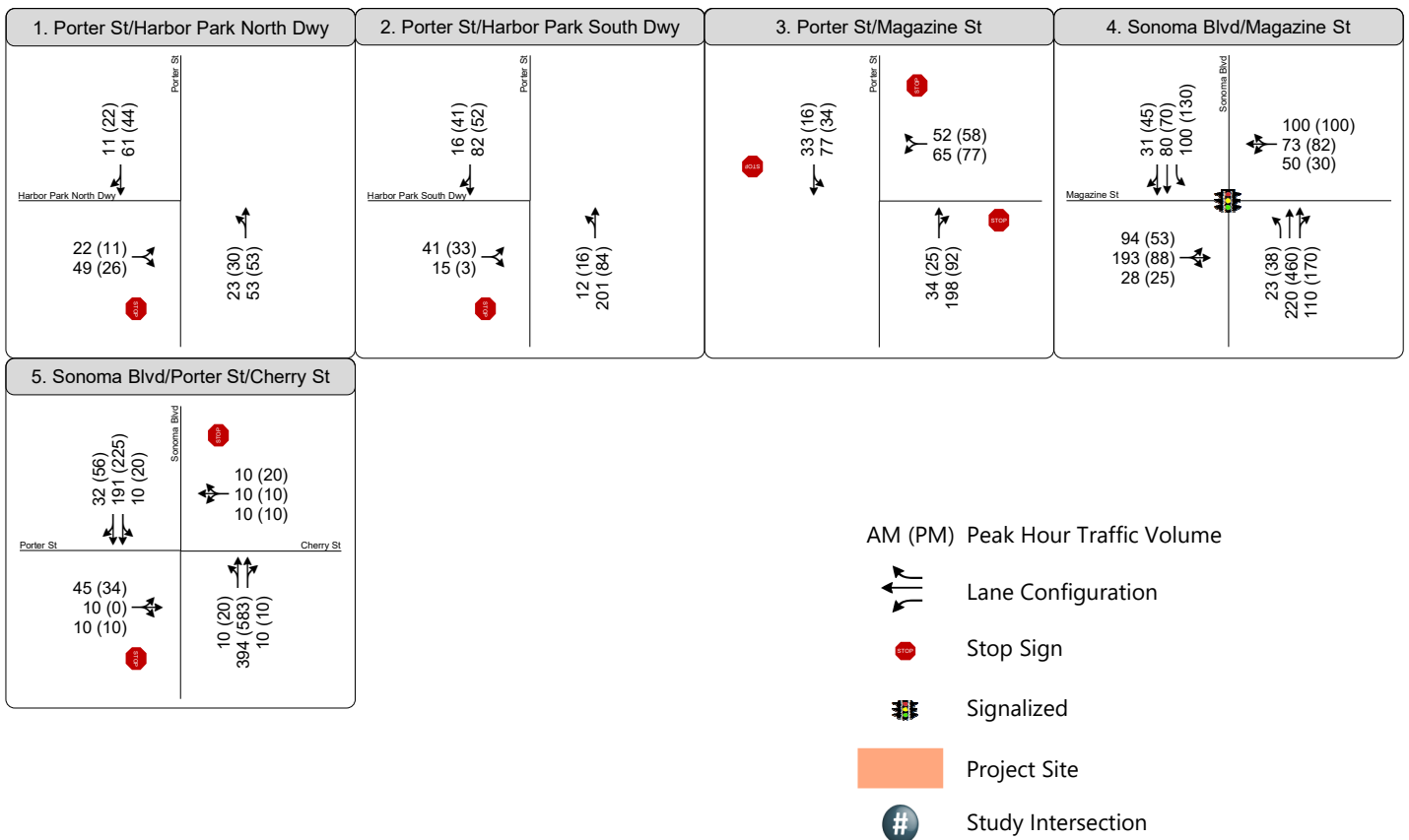
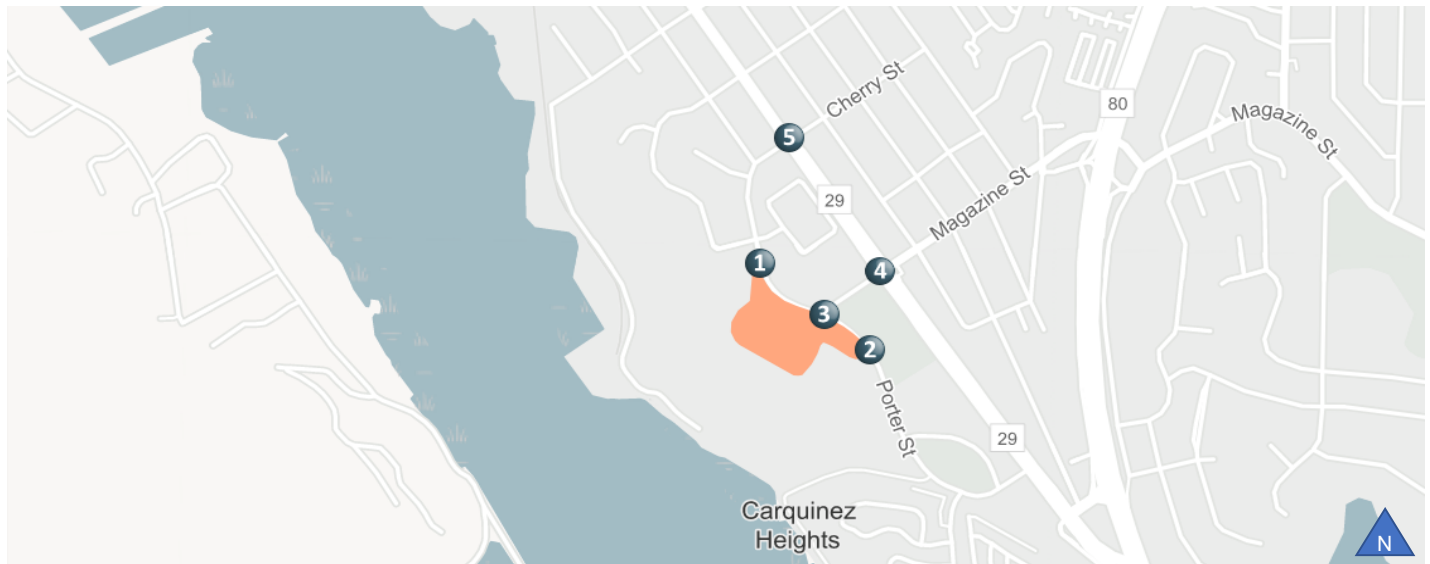


Figure 10

Cumulative With Project Traffic Volumes,
Lane Configurations, and Traffic Control



Analysis of Future Buildout Year (2040)/Cumulative Conditions

Intersection Operations

Cumulative without and with Project conditions were evaluated using the methods described in Chapter 1. The analysis results are presented in **Table 7**, based on traffic volumes presented on Figure 9 and Figure 10.

Table 7: Future Buildout Year (2040)/Cumulative Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour ²	LOS Standard	Cumulative		Cumulative with Project	
				Delay ³	LOS	Delay ³	LOS
1. Project Access North/Porter Street	SSSC	AM PM	LOS D	9.4 9.1	A A	9.5 9.2	A A
2. Project Access South/Porter Street	SSSC	AM PM	LOS D	11.0 9.9	B A	11.7 10.3	B B
3. Magazine Street/Porter Street	AWSC	AM PM	LOS D	8.7 7.8	A A	9.0 8.1	A A
4. Sonoma Boulevard (SR 29)/ Magazine Street	Signal	AM PM	LOS D	14.6 19.5	B B	14.8 20.0	B B
5. Cherry Street/ Sonoma Boulevard (SR 29)	SSSC	AM PM	LOS D	13.7 18.0	B C	13.9 18.2	B C

Notes:

1. Traffic control type (Signal = Signalized; SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled)

2. AM = Weekday morning peak hour, PM = Weekday evening peak hour

3. Whole intersection average delay reported for signalized and all-way stop controlled intersections. Side-street stop-controlled delay presented as Worst Movement Delay. Delay calculated per HCM 6th methodologies.

Bold indicates unacceptable operations.

Underline indicates a policy violation related to Project-generated traffic.

Source: Fehr & Peers, 2023.

Cumulative Conditions Findings

Based on the City of Vallejo's LOS guidelines, all intersections were found to operate acceptably under Cumulative and Cumulative plus Project conditions. Each of the study intersections was found to operate at LOS A, B or C under these analysis scenarios, indicating low levels of vehicular delay.



7. Site Plan Review

This chapter evaluates the proposed Project site relative to access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles based on the site plan presented previously on Figure 2.

Vehicular Site Access and Circulation

Vehicular access to the Project site is provided via two existing roadway connections (study intersections 1 and 2) to the external street network, both on Porter Street. Figure 2 illustrates the proposed Project site plan, including driveways, internal roadways, and parking spaces. Both project access points have stop sign control on the driveway approaches, with the main street (Porter Street) approaches being uncontrolled.

The posted speed limit along Porter Street is 25 mph. Table 201.1 of the Caltrans *Highway Design Manual* (HDM) states that the stopping sight distance standard for a design speed of 30 miles per hour (five miles per hour over the speed limit) is 200 feet. The observed sight distance along Porter Street at the northern project driveway is greater than 300 feet in both directions. At the southern project driveway, the observed sight distance is greater than 300 feet to the north (viewing southbound traffic), however, when looking to the south sight distance is affected by the adjacent landscaping and hill. As the Project's design is finalized, these sight distances should be checked by the registered site Civil Engineer, and the Project should make any modifications necessary to provide adequate driveway sight distance.

Site Recommendation 1: The final site plan for the Project should be analyzed by the Project's civil engineer to ensure that adequate sight distance of at least 200 feet is provided at all driveways. Particular focus should be given to the available sight distance to the south from the southern Project driveway. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary. If inadequate sight distance is identified, appropriate modifications should be made as part of the Project. Modifications could include physical modifications to the driveway intersections (landscape removal, grading, etc), the installation of stop signs on Porter Street at the Project's driveway(s) or other modifications as necessary.

The project access intersections with Porter Street would function at acceptable service levels as proposed (side-street stop-control).



As illustrated on Figure 2, the project's internal circulation system is provided via a system of interconnected internal two-way streets which are 24 to 28 feet in width. Trucks and emergency vehicles are expected to use the on-site roadways for moving, garbage, deliveries, and emergency access.

Site Recommendation 2: The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.

Emergency Vehicle Access

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

Emergency vehicle access to the site is provided by the two Project driveways on Porter Street. Emergency vehicle access within the site is provided via a network of 24 to 28-foot-wide internal roadways. A combination of existing and new internal roadways provide access to each of the site's internal structures. The Project would not conflict with any applicable emergency access plans.

Site Recommendation 3: Provide even surface pavement, appropriate signage, delineation, and other features at all emergency access points and internal roadways to accommodate emergency vehicles. Emergency response within the City of Vallejo is provided by the Vallejo Fire Department. The emergency vehicle access on the final site plan should be reviewed and found adequate by the City's Fire Chief prior to building permits.

Pedestrian Access and Circulation

The Project would create a significant impact related to the pedestrian system if any of the following criteria are met:

- Disrupt existing pedestrian facilities; or
- Interfere with planned pedestrian facilities; or
- Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.

Access to the surrounding network of pedestrian facilities, including existing sidewalks on Porter Street is available via both Project driveways. As illustrated on Figure 2, the Project proposes new sidewalks and pathways within the site linking the ADA accessible parking spaces with individual residential units.



The project proposes no features that would be hazardous to pedestrian travel and does not conflict with any pedestrian facilities plans or programs.

Bike Access and Circulation

The Project would create a significant impact related to the bicycle system if any of the following criteria are met:

- Disrupt existing bicycle facilities; or
- Interfere with planned bicycle facilities; or
- Create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards.

While the project does not propose any designated bicycle facilities (lanes, routes, or paths), bicycles would be permitted on all internal roadways. The project proposes no features that would be hazardous to bicycle travel and does not conflict with any bicycle facilities plans or programs.

Transit Access

The Project would create a significant impact related to transit service if the following criteria are met:

- The project interferes with existing transit facilities or precludes the construction of planned transit facilities.

The project proposes no features which conflict with existing or planned transit services. The project is not expected to result in appreciable increases in ridership on local or regional transit facilities that would exceed their capacity. Significant adverse project impacts related to transit were not identified.

Parking

As part of the construction of the 122 new multifamily units the Project would construct 159 new parking spaces and remove 100 existing parking spaces. With Project construction a total of 337 off-street parking spaces would be provided on site, serving a total of 304 residential units. Of the 337 spaces, 159 would be dedicated to the new units and 178 would be dedicated to the existing units. Parking for the new units would be unbundled. When parking is “unbundled” residents must pay a monthly fee for an on-site parking space separate from the cost of their unit. On-street parking space is also available along Project’s Porter Street frontage. Free on-street parking is available on Porter Street, which some project residents may choose to utilize rather than pay for secure and gated on-site parking close to their unit. The closest on-street parking is available down the hill from the residences, approximately 500 to 1,500 feet from the various garage locations.



The estimated peak parking demand for the Project was calculated using data and rates from the *Parking Generation Manual, 5th Edition* (2019), published by the Institute of Transportation Engineers (ITE). Based on the ITE methodology, the Project's 122 units are expected to generate a total peak demand of approximately 135 spaces. The existing 182 units generate a demand for 201 off-street parking spaces, representing a total demand of 336 spaces for the site as a whole.

Chapter 16.508.04 of the City of Vallejo's Municipal Code provides off-street parking requirements by land use type. Based on the City's code, one parking space per unit is required for residential uses. To satisfy the City's Code requirements, 122 off-street spaces are required. The existing 182 units to remain are required to provide 182 off-street parking spaces. The total site Code parking requirement is 304 spaces, which is satisfied by the 337 that would be provided on site at project completion.



8. Roadway Adequacy

As illustrated in Tables 6 and 7, the addition of project traffic to the surrounding network would not result in any violations of the City of Vallejo's Level of Service policies. Under both the Project Opening Year plus Project and Future Buildout Year plus Project scenarios the critical intersections providing access to the site would function at LOS C or better. These operating conditions are indicative of low to moderate levels of vehicular delay. Internal project roadways and driveways have sufficient capacity to serve forecast project traffic levels. The roadway network providing access to the site is adequate to serve the needs of the project and anticipated growth in the city.



9. Conclusions

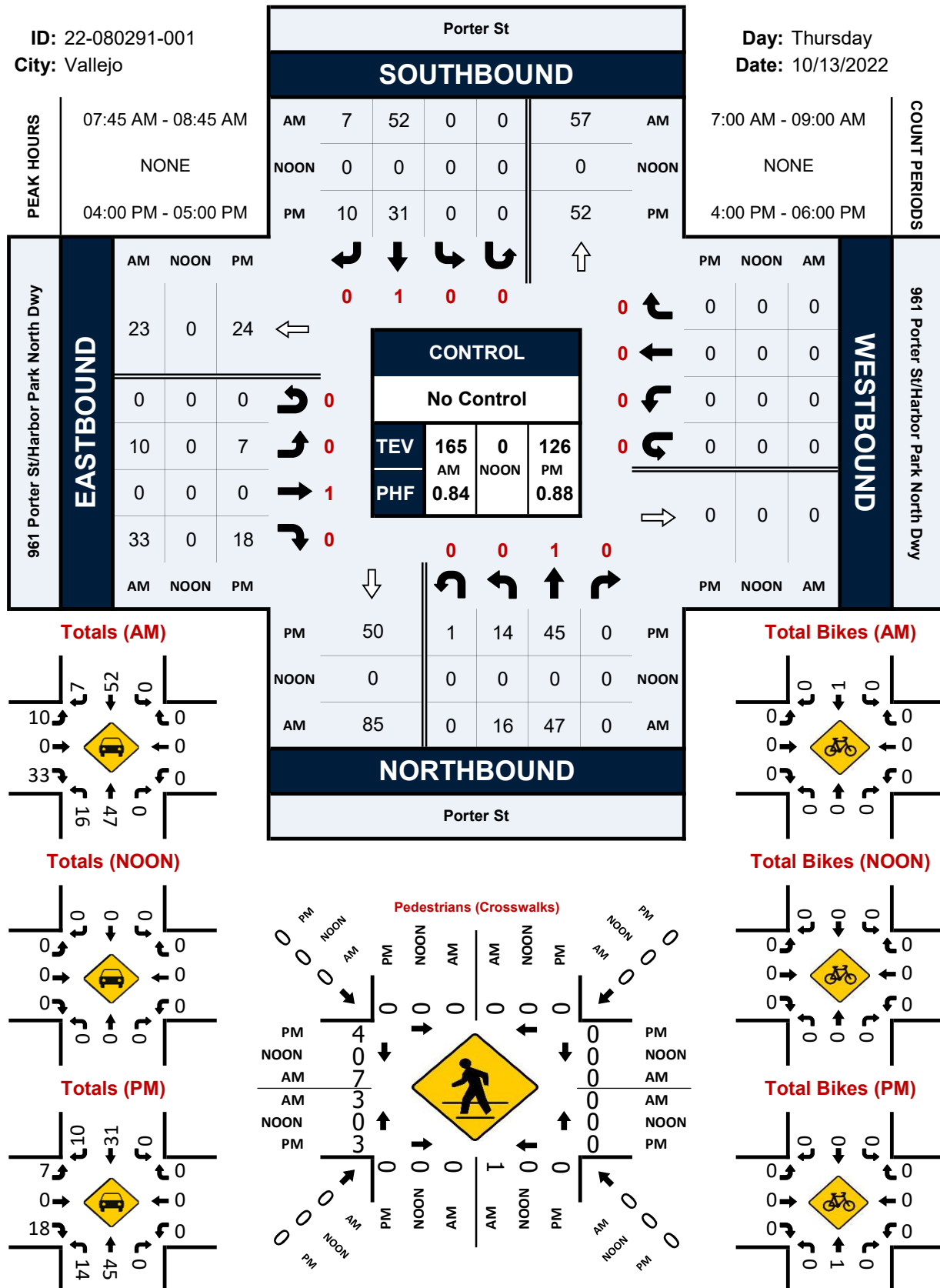
The proposed Project is expected to generate approximately 857 daily vehicle trips, including roughly 49 morning peak hour trips and approximately 62 evening peak hour trips. Intersection Levels of Service (LOS) were calculated at five intersections providing access to the project site for six analysis scenarios. The results of this assessment found that the local roadway network has adequate capacity to serve forecast increases in traffic associated with the proposed project. Significant adverse impacts or violations of City policies were not identified in the assessment of transit, bicycle, pedestrian, automobile, or emergency vehicle access. The project was found to provide adequate parking. The following three recommendations were noted through the analysis and findings:

- **Site Recommendation 1:** The final site plan for the Project should be analyzed by the Project's Civil Engineer to ensure that adequate sight distance is provided at all driveways. Particular focus should be given to the available sight distance to the south from the southern Project driveway. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary. If inadequate sight distance is identified, appropriate modifications should be made as part of the project. Modifications could include physical modifications to the driveway intersections (landscape removal, grading, etc), the installation of stop signs on Porter Street at the Project's driveway(s) or other modifications as necessary.
- **Site Recommendation 2:** The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.
- **Site Recommendation 3:** Provide even surface pavement, appropriate signage, delineation, and other features at all emergency access points and internal roadways to accommodate emergency vehicles. Emergency response within the City of Vallejo is provided by the Vallejo Fire Department. The final site plan would need to be reviewed and found adequate by the City's Fire Chief prior to the issuance of building permits.



Appendix A: Traffic Counts

Day: Thursday
Date: 10/13/2022

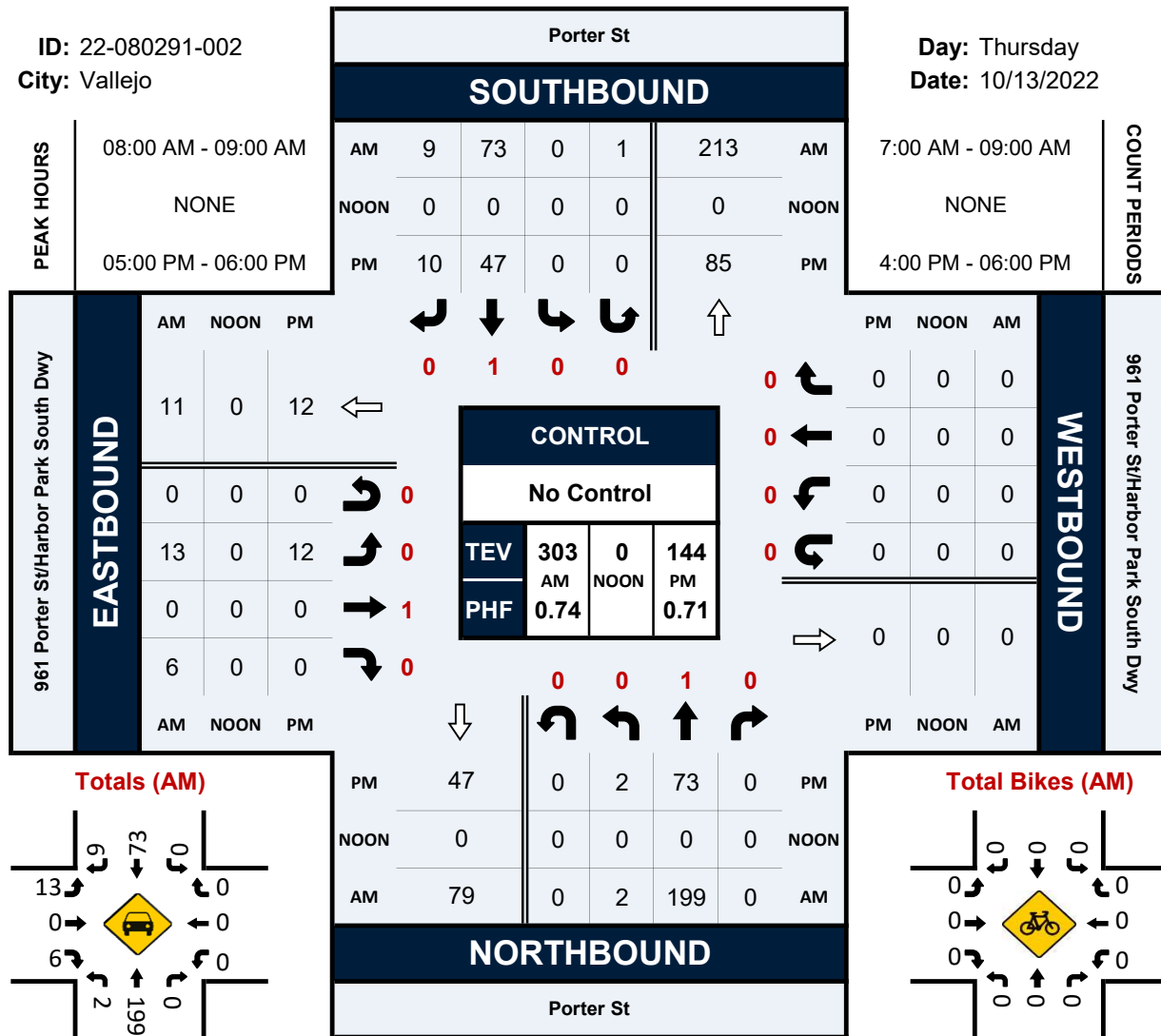


Porter St & 961 Porter St/Harbor Park South Dwy

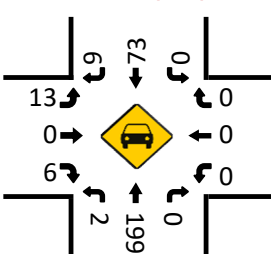
Peak Hour Turning Movement Count

ID: 22-080291-002
City: Vallejo

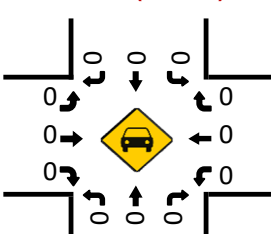
Day: Thursday
Date: 10/13/2022



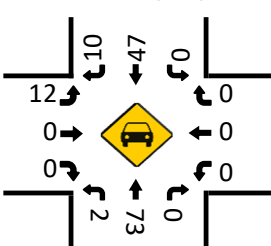
Totals (AM)



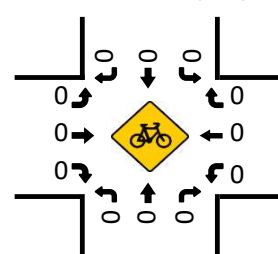
Totals (NOON)



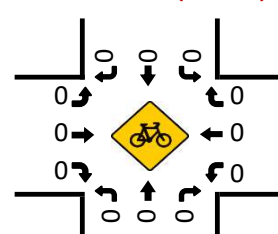
Totals (PM)



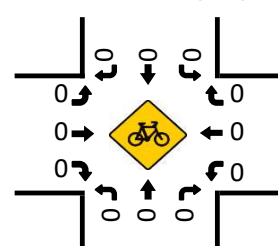
Total Bikes (AM)



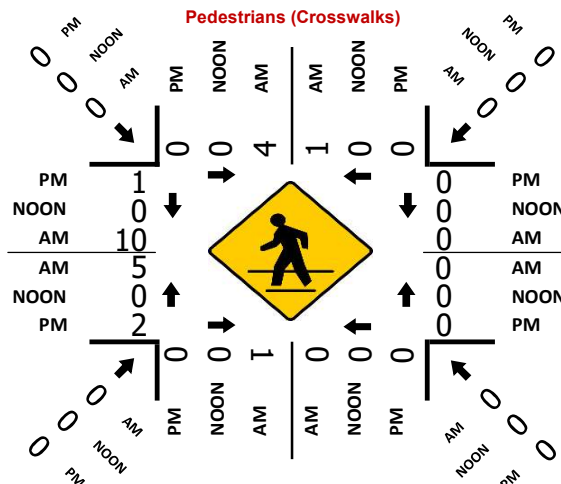
Total Bikes (NOON)



Total Bikes (PM)



Pedestrians (Crosswalks)

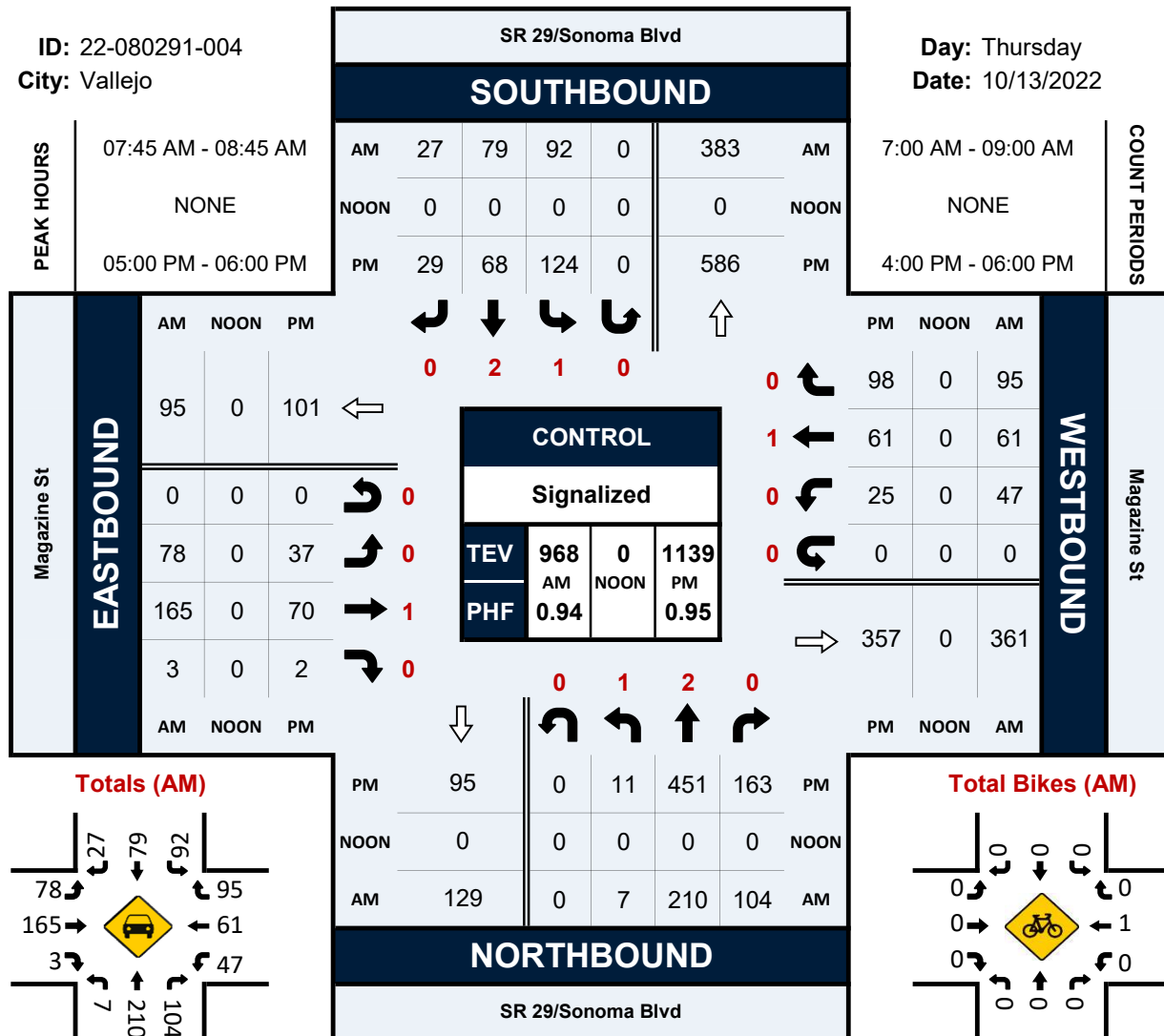


SR 29/Sonoma Blvd & Magazine St

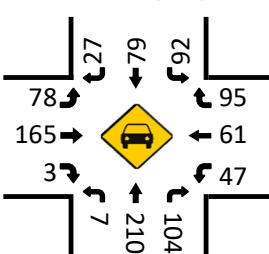
Peak Hour Turning Movement Count

ID: 22-080291-004
City: Vallejo

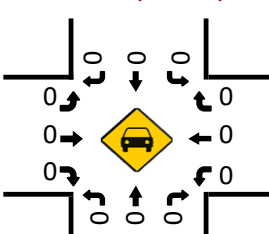
Day: Thursday
Date: 10/13/2022



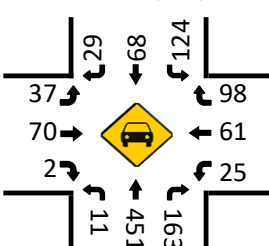
Totals (AM)



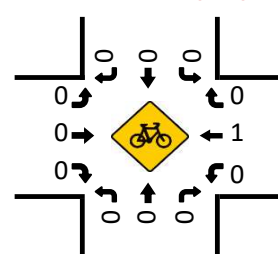
Totals (NOON)



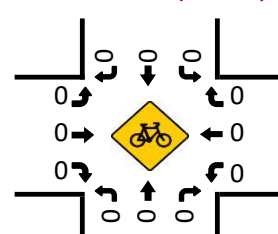
Totals (PM)



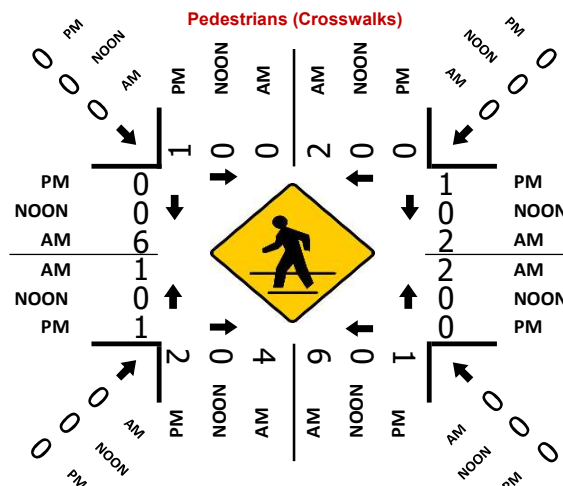
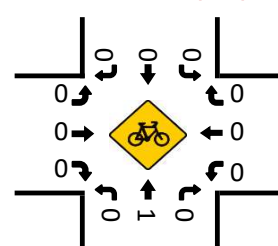
Total Bikes (AM)



Total Bikes (NOON)



Total Bikes (PM)



Appendix B: LOS Calculation Worksheets

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Existing AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	33	16	47	52	7
Future Vol, veh/h	10	33	16	47	52	7
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	39	19	56	62	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	170	77	80	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	818	981	1512	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	971	1498	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	1.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1498	-	922	-	-	
HCM Lane V/C Ratio	0.013	-	0.056	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Existing AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	2	199	74	9
Future Vol, veh/h	13	6	2	199	74	9
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	8	3	265	99	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	396	121	126	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	607	928	1454	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	914	1433	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1433	-	664	-	-	
HCM Lane V/C Ratio	0.002	-	0.038	-	-	
HCM Control Delay (s)	7.5	0	10.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th AWSC
3: Porter St & Magazine St

Existing AM
West Harbor Park Vallejo

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	42	26	179	66	27
Future Vol, veh/h	50	42	26	179	66	27
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	55	34	236	87	36
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	8.4	8.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	46%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	205	92	93
LT Vol	0	50	66
Through Vol	26	0	27
RT Vol	179	42	0
Lane Flow Rate	270	121	122
Geometry Grp	1	1	1
Degree of Util (X)	0.289	0.155	0.158
Departure Headway (Hd)	3.859	4.603	4.641
Convergence, Y/N	Yes	Yes	Yes
Cap	933	780	775
Service Time	1.873	2.627	2.659
HCM Lane V/C Ratio	0.289	0.155	0.157
HCM Control Delay	8.4	8.5	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.5	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Existing AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	78	165	3	47	61	95	7	210	104	92	79	27
Future Volume (veh/h)	78	165	3	47	61	95	7	210	104	92	79	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	83	176	2	50	65	54	7	223	32	98	84	13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	370	4	189	227	150	33	693	98	369	1270	192
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.22	0.22	0.21	0.41	0.41
Sat Flow, veh/h	381	1278	13	317	783	516	1767	3097	438	1767	3066	464
Grp Volume(v), veh/h	261	0	0	169	0	0	7	126	129	98	47	50
Grp Sat Flow(s),veh/h/ln	1672	0	0	1616	0	0	1767	1763	1772	1767	1763	1767
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	0.2	2.9	2.9	2.2	0.8	0.8
Cycle Q Clear(g_c), s	5.9	0.0	0.0	3.7	0.0	0.0	0.2	2.9	2.9	2.2	0.8	0.8
Prop In Lane	0.32		0.01	0.30		0.32	1.00		0.25	1.00		0.26
Lane Grp Cap(c), veh/h	583	0	0	565	0	0	33	395	397	369	730	732
V/C Ratio(X)	0.45	0.00	0.00	0.30	0.00	0.00	0.21	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1024	0	0	978	0	0	369	920	925	369	920	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	0.0	13.4	0.0	0.0	23.2	15.5	15.6	15.9	8.4	8.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	1.2	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.3	0.0	0.0	0.1	0.9	1.0	0.8	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	0.0	13.5	0.0	0.0	24.3	15.7	15.7	16.0	8.5	8.5
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h		261			169			262			195	
Approach Delay, s/veh		14.3			13.5			15.9			12.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	24.7		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.2	2.8		5.7	4.2	4.9		7.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.3				

Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Existing AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Vol, veh/h	36	2	9	1	1	8	5	373	6	6	187	21
Future Vol, veh/h	36	2	9	1	1	8	5	373	6	6	187	21
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	2	9	1	1	8	5	385	6	6	193	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	422	620	111	508	628	196	218	0	0	391	0	0
Stage 1	219	219	-	398	398	-	-	-	-	-	-	-
Stage 2	203	401	-	110	230	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	513	400	918	446	396	809	1341	-	-	1157	-	-
Stage 1	760	718	-	596	599	-	-	-	-	-	-	-
Stage 2	777	597	-	880	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	501	394	915	436	390	809	1337	-	-	1157	-	-
Mov Cap-2 Maneuver	501	394	-	436	390	-	-	-	-	-	-	-
Stage 1	754	712	-	593	596	-	-	-	-	-	-	-
Stage 2	764	594	-	863	704	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.3		10.4		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1337	-	-	542	678	1157	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.089	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.3	10.4	8.1	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Existing PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	18	15	45	31	10
Future Vol, veh/h	7	18	15	45	31	10
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	20	17	51	35	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	133	48	53	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	858	1018	1546	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1011	1536	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1536	-	955	-	-	
HCM Lane V/C Ratio	0.011	-	0.03	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Existing PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	2	73	47	10
Future Vol, veh/h	12	0	2	73	47	10
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	0	3	97	63	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	176	73	79	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	811	986	1513	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	805	983	1509	-	-	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1509	-	805	-	-	
HCM Lane V/C Ratio	0.002	-	0.02	-	-	
HCM Control Delay (s)	7.4	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	46	11	75	25	7
Future Vol, veh/h	51	46	11	75	25	7
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	60	14	97	32	9
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.8	7.2	7.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	53%	78%
Vol Thru, %	13%	0%	22%
Vol Right, %	87%	47%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	86	97	32
LT Vol	0	51	25
Through Vol	11	0	7
RT Vol	75	46	0
Lane Flow Rate	112	126	42
Geometry Grp	1	1	1
Degree of Util (X)	0.114	0.141	0.051
Departure Headway (Hd)	3.68	4.034	4.416
Convergence, Y/N	Yes	Yes	Yes
Cap	962	882	803
Service Time	1.75	2.09	2.488
HCM Lane V/C Ratio	0.116	0.143	0.052
HCM Control Delay	7.2	7.8	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.5	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Existing PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	37	70	2	25	61	98	11	451	163	124	68	29
Future Volume (veh/h)	37	70	2	25	61	98	11	451	163	124	68	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	39	74	1	26	64	39	12	475	137	131	72	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	207	2	86	157	82	62	1404	402	265	1772	451
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.52	0.52	0.15	0.64	0.64
Sat Flow, veh/h	407	1281	15	200	970	507	1767	2690	770	1767	2782	708
Grp Volume(v), veh/h	114	0	0	129	0	0	12	310	302	131	45	46
Grp Sat Flow(s),veh/h/ln	1702	0	0	1677	0	0	1767	1763	1697	1767	1763	1727
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.5	8.2	8.3	5.4	0.8	0.8
Cycle Q Clear(g_c), s	4.4	0.0	0.0	5.3	0.0	0.0	0.5	8.2	8.3	5.4	0.8	0.8
Prop In Lane	0.34		0.01	0.20		0.30	1.00		0.45	1.00		0.41
Lane Grp Cap(c), veh/h	336	0	0	325	0	0	62	920	886	265	1123	1100
V/C Ratio(X)	0.34	0.00	0.00	0.40	0.00	0.00	0.19	0.34	0.34	0.49	0.04	0.04
Avail Cap(c_a), veh/h	638	0	0	632	0	0	265	920	886	265	1123	1100
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	0.0	30.3	0.0	0.0	37.5	11.1	11.1	31.2	5.4	5.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.6	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	2.2	0.0	0.0	0.2	2.9	2.9	2.2	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	30.6	0.0	0.0	38.1	12.1	12.2	31.7	5.5	5.5
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	114			129			624			222		
Approach Delay, s/veh	30.2			30.6			12.6			21.0		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	55.9		17.1	16.2	46.7		17.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+1/2, s)	12.5	2.8		7.3	7.4	10.3		6.4				
Green Ext Time (p_c), s	0.0	0.1		0.1	0.0	0.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay 18.3

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Existing PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	0	9	3	1	10	10	570	4	10	208	47
Future Vol, veh/h	22	0	9	3	1	10	10	570	4	10	208	47
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	0	10	3	1	11	11	648	5	11	236	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	635	963	147	814	987	329	291	0	0	654	0	0
Stage 1	287	287	-	674	674	-	-	-	-	-	-	-
Stage 2	348	676	-	140	313	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	361	252	870	268	244	664	1260	-	-	922	-	-
Stage 1	694	670	-	408	449	-	-	-	-	-	-	-
Stage 2	638	448	-	846	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	345	244	868	259	236	663	1258	-	-	921	-	-
Mov Cap-2 Maneuver	345	244	-	259	236	-	-	-	-	-	-	-
Stage 1	683	659	-	402	442	-	-	-	-	-	-	-
Stage 2	616	441	-	824	643	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.4		13.2		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1258	-	-	418	453	921	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.084	0.035	0.012	-	-				
HCM Control Delay (s)	7.9	0.1	-	14.4	13.2	9	0.1	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Project Opening Year AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	33	16	47	52	7
Future Vol, veh/h	10	33	16	47	52	7
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	39	19	56	62	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	170	77	80	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	94	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	818	981	1512	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	971	1498	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	1.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1498	-	922	-	-	
HCM Lane V/C Ratio	0.013	-	0.056	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	2	199	74	9
Future Vol, veh/h	13	6	2	199	74	9
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	8	3	265	99	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	396	121	126	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	607	928	1454	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	914	1433	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1433	-	664	-	-	
HCM Lane V/C Ratio	0.002	-	0.038	-	-	
HCM Control Delay (s)	7.5	0	10.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	42	26	179	66	27
Future Vol, veh/h	50	42	26	179	66	27
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	55	34	236	87	36
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	8.4	8.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	46%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	205	92	93
LT Vol	0	50	66
Through Vol	26	0	27
RT Vol	179	42	0
Lane Flow Rate	270	121	122
Geometry Grp	1	1	1
Degree of Util (X)	0.289	0.155	0.158
Departure Headway (Hd)	3.859	4.603	4.641
Convergence, Y/N	Yes	Yes	Yes
Cap	933	780	775
Service Time	1.873	2.627	2.659
HCM Lane V/C Ratio	0.289	0.155	0.157
HCM Control Delay	8.4	8.5	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.5	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	86	173	20	47	64	95	13	210	104	92	79	30
Future Volume (veh/h)	86	173	20	47	64	95	13	210	104	92	79	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	184	17	50	68	55	14	223	32	98	84	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	210	342	28	187	233	151	63	693	98	369	1204	196
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.22	0.22	0.21	0.40	0.40
Sat Flow, veh/h	383	1181	97	311	804	520	1767	3097	438	1767	3031	493
Grp Volume(v), veh/h	292	0	0	173	0	0	14	126	129	98	48	50
Grp Sat Flow(s),veh/h/ln	1660	0	0	1635	0	0	1767	1763	1772	1767	1763	1762
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.8
Cycle Q Clear(g_c), s	6.9	0.0	0.0	3.8	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.8
Prop In Lane	0.31		0.06	0.29		0.32	1.00		0.25	1.00		0.28
Lane Grp Cap(c), veh/h	580	0	0	571	0	0	63	394	397	369	700	699
V/C Ratio(X)	0.50	0.00	0.00	0.30	0.00	0.00	0.22	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1017	0	0	981	0	0	369	920	925	369	920	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	13.4	0.0	0.0	22.5	15.5	15.6	15.9	9.0	9.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.7	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	1.3	0.0	0.0	0.1	0.9	1.0	0.8	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	0.0	13.5	0.0	0.0	23.1	15.7	15.7	16.0	9.0	9.0
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	292			173			269			196		
Approach Delay, s/veh	14.7			13.5			16.1			12.5		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.9			18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.4	2.8		5.8	4.2	4.9		8.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕			↕↕	
Traffic Vol, veh/h	36	2	9	1	1	8	5	381	6	6	190	21
Future Vol, veh/h	36	2	9	1	1	8	5	381	6	6	190	21
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	37	2	9	1	1	8	5	393	6	6	196	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	429	631	112	517	639	200	221	0	0	399	0	0
Stage 1	222	222	-	406	406	-	-	-	-	-	-	-
Stage 2	207	409	-	111	233	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	507	394	916	439	390	804	1338	-	-	1149	-	-
Stage 1	757	716	-	590	594	-	-	-	-	-	-	-
Stage 2	773	592	-	879	708	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	495	388	913	429	385	804	1334	-	-	1149	-	-
Mov Cap-2 Maneuver	495	388	-	429	385	-	-	-	-	-	-	-
Stage 1	751	710	-	587	591	-	-	-	-	-	-	-
Stage 2	760	589	-	862	702	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.4		10.4		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1334	-	-	536	672	1149	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.09	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.4	10.4	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0	-	-				

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	18	15	45	31	10
Future Vol, veh/h	7	18	15	45	31	10
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	20	17	51	35	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	133	48	53	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	858	1018	1546	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1011	1536	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1536	-	955	-	-	
HCM Lane V/C Ratio	0.011	-	0.03	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	0	2	73	47	10
Future Vol, veh/h	12	0	2	73	47	10
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	16	0	3	97	63	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	176	73	79	0	-	0
Stage 1	73	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	811	986	1513	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	805	983	1509	-	-	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	0.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1509	-	805	-	-	
HCM Lane V/C Ratio	0.002	-	0.02	-	-	
HCM Control Delay (s)	7.4	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	46	11	75	25	7
Future Vol, veh/h	51	46	11	75	25	7
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	60	14	97	32	9
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.8	7.2	7.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	53%	78%
Vol Thru, %	13%	0%	22%
Vol Right, %	87%	47%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	86	97	32
LT Vol	0	51	25
Through Vol	11	0	7
RT Vol	75	46	0
Lane Flow Rate	112	126	42
Geometry Grp	1	1	1
Degree of Util (X)	0.114	0.141	0.051
Departure Headway (Hd)	3.68	4.034	4.416
Convergence, Y/N	Yes	Yes	Yes
Cap	962	882	803
Service Time	1.75	2.09	2.488
HCM Lane V/C Ratio	0.116	0.143	0.052
HCM Control Delay	7.2	7.8	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.5	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	43	76	12	25	69	98	28	451	163	124	68	37
Future Volume (veh/h)	43	76	12	25	69	98	28	451	163	124	68	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	80	7	26	73	44	29	475	137	131	72	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	194	15	83	159	84	126	1403	402	265	1596	488
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.07	0.52	0.52	0.15	0.60	0.60
Sat Flow, veh/h	411	1198	90	182	983	518	1767	2690	770	1767	2658	813
Grp Volume(v), veh/h	132	0	0	143	0	0	29	310	302	131	47	48
Grp Sat Flow(s),veh/h/ln	1699	0	0	1683	0	0	1767	1763	1697	1767	1763	1708
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	1.2	8.2	8.3	5.4	0.9	0.9
Cycle Q Clear(g_c), s	5.2	0.0	0.0	6.0	0.0	0.0	1.2	8.2	8.3	5.4	0.9	0.9
Prop In Lane	0.34		0.05	0.18		0.31	1.00		0.45	1.00		0.48
Lane Grp Cap(c), veh/h	336	0	0	326	0	0	126	920	885	265	1059	1026
V/C Ratio(X)	0.39	0.00	0.00	0.44	0.00	0.00	0.23	0.34	0.34	0.49	0.04	0.05
Avail Cap(c_a), veh/h	633	0	0	633	0	0	265	920	885	265	1059	1026
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	30.6	0.0	0.0	35.1	11.1	11.1	31.2	6.6	6.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.3	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	2.5	0.0	0.0	0.5	2.9	2.9	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	0.0	0.0	30.9	0.0	0.0	35.4	12.1	12.2	31.7	6.6	6.7
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	132			143			641			226		
Approach Delay, s/veh	30.5			30.9			13.2			21.2		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	52.9		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+13, s)	13.2	2.9		8.0	7.4	10.3		7.2				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	0	9	3	1	10	10	576	4	10	216	47
Future Vol, veh/h	22	0	9	3	1	10	10	576	4	10	216	47
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	0	10	3	1	11	11	655	5	11	245	53
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	647	979	151	826	1003	332	300	0	0	661	0	0
Stage 1	296	296	-	681	681	-	-	-	-	-	-	-
Stage 2	351	683	-	145	322	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	354	247	865	263	239	661	1251	-	-	917	-	-
Stage 1	685	664	-	404	446	-	-	-	-	-	-	-
Stage 2	636	445	-	840	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	338	239	863	254	231	660	1249	-	-	916	-	-
Mov Cap-2 Maneuver	338	239	-	254	231	-	-	-	-	-	-	-
Stage 1	674	653	-	398	439	-	-	-	-	-	-	-
Stage 2	614	438	-	818	636	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.6		13.4		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1249	-	-	411	447	916	-					
HCM Lane V/C Ratio	0.009	-	-	0.086	0.036	0.012	-					
HCM Control Delay (s)	7.9	0.1	-	14.6	13.4	9	0.1					
HCM Lane LOS	A	A	-	B	B	A	A					
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-					

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	42	19	50	53	8
Future Vol, veh/h	12	42	19	50	53	8
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	50	23	60	63	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	184	79	83	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	803	979	1508	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	774	969	1494	-	-	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1494	-	918	-	-	
HCM Lane V/C Ratio	0.015	-	0.07	-	-	
HCM Control Delay (s)	7.4	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	11	4	200	76	15
Future Vol, veh/h	34	11	4	200	76	15
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	15	5	267	101	20
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	408	127	136	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	597	921	1442	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	578	907	1421	-	-	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	11.3		0.1		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1421		-	634	-	-
HCM Lane V/C Ratio	0.004		-	0.095	-	-
HCM Control Delay (s)	7.5		0	11.3	-	-
HCM Lane LOS	A		A	B	-	-
HCM 95th %tile Q(veh)	0		-	0.3	-	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	44	30	197	73	30
Future Vol, veh/h	55	44	30	197	73	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	72	58	39	259	96	39
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.8	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	71%
Vol Thru, %	13%	0%	29%
Vol Right, %	87%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	227	99	103
LT Vol	0	55	73
Through Vol	30	0	30
RT Vol	197	44	0
Lane Flow Rate	299	130	136
Geometry Grp	1	1	1
Degree of Util (X)	0.324	0.17	0.177
Departure Headway (Hd)	3.907	4.703	4.699
Convergence, Y/N	Yes	Yes	Yes
Cap	923	762	764
Service Time	1.923	2.734	2.722
HCM Lane V/C Ratio	0.324	0.171	0.178
HCM Control Delay	8.8	8.7	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	0.6	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year with Project AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	90	186	28	47	67	95	16	210	104	92	79	31
Future Volume (veh/h)	90	186	28	47	67	95	16	210	104	92	79	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	198	24	50	71	56	17	223	32	98	84	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	207	335	36	185	239	152	75	693	98	369	1170	204
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.22	0.22	0.21	0.39	0.39
Sat Flow, veh/h	378	1157	125	305	825	523	1767	3097	438	1767	2997	522
Grp Volume(v), veh/h	318	0	0	177	0	0	17	126	129	98	49	50
Grp Sat Flow(s), veh/h/ln	1660	0	0	1652	0	0	1767	1763	1772	1767	1763	1756
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.9
Cycle Q Clear(g_c), s	7.8	0.0	0.0	3.8	0.0	0.0	0.4	2.9	2.9	2.2	0.8	0.9
Prop In Lane	0.30		0.08	0.28		0.32	1.00		0.25	1.00		0.30
Lane Grp Cap(c), veh/h	579	0	0	575	0	0	75	394	396	369	688	685
V/C Ratio(X)	0.55	0.00	0.00	0.31	0.00	0.00	0.23	0.32	0.33	0.27	0.07	0.07
Avail Cap(c_a), veh/h	1016	0	0	984	0	0	369	920	925	369	920	916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	13.4	0.0	0.0	22.2	15.5	15.6	15.9	9.2	9.2
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.6	0.2	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	1.4	0.0	0.0	0.2	0.9	1.0	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	13.6	0.0	0.0	22.8	15.7	15.7	16.0	9.2	9.2
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	318			177			272			197		
Approach Delay, s/veh	15.0			13.6			16.2			12.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	23.6		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.4	2.9		5.8	4.2	4.9		9.8				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.6

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year with Project AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	41	2	9	1	1	8	5	385	6	6	191	23
Future Vol, veh/h	41	2	9	1	1	8	5	385	6	6	191	23
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	42	2	9	1	1	8	5	397	6	6	197	24
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	433	637	114	522	646	202	224	0	0	403	0	0
Stage 1	224	224	-	410	410	-	-	-	-	-	-	-
Stage 2	209	413	-	112	236	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	504	391	914	435	387	802	1335	-	-	1145	-	-
Stage 1	755	715	-	587	591	-	-	-	-	-	-	-
Stage 2	771	590	-	878	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	492	386	911	425	382	802	1331	-	-	1145	-	-
Mov Cap-2 Maneuver	492	386	-	425	382	-	-	-	-	-	-	-
Stage 1	749	709	-	584	588	-	-	-	-	-	-	-
Stage 2	758	587	-	861	700	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.6		10.5		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1331	-	-	528	669	1145	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.102	0.015	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	12.6	10.5	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0	-	-				

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	24	25	48	35	12
Future Vol, veh/h	8	24	25	48	35	12
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	9	27	28	55	40	14
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	165	54	61	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	823	1010	1536	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	1003	1526	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9	2.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1526	-	942	-	-	
HCM Lane V/C Ratio	0.019	-	0.039	-	-	
HCM Control Delay (s)	7.4	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Project Opening Year with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	3	8	77	49	31
Future Vol, veh/h	25	3	8	77	49	31
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	4	11	103	65	41
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	214	89	109	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	772	966	1475	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	761	963	1471	-	-	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	0.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1471	-	778	-	-	
HCM Lane V/C Ratio	0.007	-	0.048	-	-	
HCM Control Delay (s)	7.5	0	9.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	54	16	87	29	13
Future Vol, veh/h	68	54	16	87	29	13
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	88	70	21	113	38	17
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.1	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	69%
Vol Thru, %	16%	0%	31%
Vol Right, %	84%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	103	122	42
LT Vol	0	68	29
Through Vol	16	0	13
RT Vol	87	54	0
Lane Flow Rate	134	158	55
Geometry Grp	1	1	1
Degree of Util (X)	0.14	0.181	0.068
Departure Headway (Hd)	3.764	4.119	4.474
Convergence, Y/N	Yes	Yes	Yes
Cap	935	860	788
Service Time	1.861	2.196	2.574
HCM Lane V/C Ratio	0.143	0.184	0.07
HCM Control Delay	7.5	8.1	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.7	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Project Opening Year with Project PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	46	84	17	25	81	98	36	451	163	124	68	42
Future Volume (veh/h)	46	84	17	25	81	98	36	451	163	124	68	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	48	88	11	26	85	51	38	475	137	131	72	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	191	21	79	162	87	151	1403	402	265	1541	491
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.09	0.52	0.52	0.15	0.59	0.59
Sat Flow, veh/h	406	1175	128	163	1000	534	1767	2690	770	1767	2629	837
Grp Volume(v), veh/h	147	0	0	162	0	0	38	310	302	131	47	49
Grp Sat Flow(s), veh/h/ln	1709	0	0	1697	0	0	1767	1763	1697	1767	1763	1704
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	1.6	8.2	8.3	5.4	0.9	1.0
Cycle Q Clear(g_c), s	5.9	0.0	0.0	6.9	0.0	0.0	1.6	8.2	8.3	5.4	0.9	1.0
Prop In Lane	0.33		0.07	0.16		0.31	1.00		0.45	1.00		0.49
Lane Grp Cap(c), veh/h	337	0	0	327	0	0	151	919	885	265	1033	999
V/C Ratio(X)	0.44	0.00	0.00	0.49	0.00	0.00	0.25	0.34	0.34	0.49	0.05	0.05
Avail Cap(c_a), veh/h	633	0	0	636	0	0	265	919	885	265	1033	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	0.0	30.9	0.0	0.0	34.2	11.1	11.1	31.2	7.0	7.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.3	1.0	1.0	0.5	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.6	0.0	0.0	2.9	0.0	0.0	0.7	2.9	2.9	2.2	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.9	0.0	0.0	31.4	0.0	0.0	34.5	12.1	12.2	31.7	7.1	7.1
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	A	A
Approach Vol, veh/h	147			162			650			227		
Approach Delay, s/veh	30.9			31.4			13.5			21.3		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.0	51.8		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	18	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+1/3), s	13.6	3.0		8.9	7.4	10.3		7.9				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Project Opening Year with Project PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕↔	
Traffic Vol, veh/h	26	0	9	3	1	10	10	579	4	10	221	53
Future Vol, veh/h	26	0	9	3	1	10	10	579	4	10	221	53
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	30	0	10	3	1	11	11	658	5	11	251	60
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	658	991	158	832	1019	334	313	0	0	664	0	0
Stage 1	305	305	-	684	684	-	-	-	-	-	-	-
Stage 2	353	686	-	148	335	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	348	243	856	260	234	659	1237	-	-	914	-	-
Stage 1	677	658	-	402	445	-	-	-	-	-	-	-
Stage 2	634	444	-	837	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	332	235	854	251	227	658	1235	-	-	913	-	-
Mov Cap-2 Maneuver	332	235	-	251	227	-	-	-	-	-	-	-
Stage 1	666	647	-	396	438	-	-	-	-	-	-	-
Stage 2	612	437	-	815	628	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.2		13.4		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1235	-	-	394	444	913	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.101	0.036	0.012	-	-				
HCM Control Delay (s)	7.9	0.1	-	15.2	13.4	9	0.1	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	20	50	60	10
Future Vol, veh/h	20	40	20	50	60	10
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	48	24	60	71	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	195	88	93	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	792	968	1495	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	958	1481	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1481	-	883	-	-	
HCM Lane V/C Ratio	0.016	-	0.081	-	-	
HCM Control Delay (s)	7.5	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.3	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	10	10	200	80	10
Future Vol, veh/h	20	10	10	200	80	10
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	13	13	267	107	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	427	130	135	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	583	917	1443	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	903	1422	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1422	-	642	-	-	
HCM Lane V/C Ratio	0.009	-	0.062	-	-	
HCM Control Delay (s)	7.6	0	11	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	50	30	180	70	30
Future Vol, veh/h	60	50	30	180	70	30
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	79	66	39	237	92	39
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.7	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	70%
Vol Thru, %	14%	0%	30%
Vol Right, %	86%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	210	110	100
LT Vol	0	60	70
Through Vol	30	0	30
RT Vol	180	50	0
Lane Flow Rate	276	145	132
Geometry Grp	1	1	1
Degree of Util (X)	0.302	0.187	0.172
Departure Headway (Hd)	3.941	4.648	4.712
Convergence, Y/N	Yes	Yes	Yes
Cap	915	771	762
Service Time	1.96	2.677	2.737
HCM Lane V/C Ratio	0.302	0.188	0.173
HCM Control Delay	8.7	8.7	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.7	0.6

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	90	180	20	50	70	100	20	220	110	100	80	30
Future Volume (veh/h)	90	180	20	50	70	100	20	220	110	100	80	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	96	191	19	53	74	61	21	234	34	106	85	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	337	30	184	234	155	90	692	99	369	1146	197
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.22	0.22	0.21	0.38	0.38
Sat Flow, veh/h	392	1164	103	301	808	533	1767	3091	443	1767	3003	517
Grp Volume(v), veh/h	306	0	0	188	0	0	21	132	136	106	49	51
Grp Sat Flow(s), veh/h/ln	1659	0	0	1643	0	0	1767	1763	1771	1767	1763	1757
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.5	3.0	3.1	2.4	0.8	0.9
Cycle Q Clear(g_c), s	7.3	0.0	0.0	4.1	0.0	0.0	0.5	3.0	3.1	2.4	0.8	0.9
Prop In Lane	0.31		0.06	0.28		0.32	1.00		0.25	1.00		0.29
Lane Grp Cap(c), veh/h	580	0	0	573	0	0	90	394	396	369	673	670
V/C Ratio(X)	0.53	0.00	0.00	0.33	0.00	0.00	0.23	0.33	0.34	0.29	0.07	0.08
Avail Cap(c_a), veh/h	1014	0	0	983	0	0	369	920	924	369	920	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	0.0	13.5	0.0	0.0	21.8	15.6	15.6	16.0	9.4	9.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.5	0.2	0.2	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.6	0.0	0.0	1.5	0.0	0.0	0.2	1.0	1.0	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.9	0.0	0.0	13.7	0.0	0.0	22.3	15.8	15.8	16.1	9.4	9.5
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	306			188			289			206		
Approach Delay, s/veh	14.9			13.7			16.3			12.9		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	23.2		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.5	2.9		6.1	4.4	5.1		9.3				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.6

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	10	10	10	10	10	10	390	10	10	190	30
Future Vol, veh/h	40	10	10	10	10	10	10	390	10	10	190	30
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	41	10	10	10	10	10	10	402	10	10	196	31
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	461	667	117	550	677	206	230	0	0	412	0	0
Stage 1	235	235	-	427	427	-	-	-	-	-	-	-
Stage 2	226	432	-	123	250	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	481	376	910	416	371	797	1328	-	-	1136	-	-
Stage 1	744	707	-	573	581	-	-	-	-	-	-	-
Stage 2	753	578	-	865	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	456	367	907	396	362	797	1324	-	-	1136	-	-
Mov Cap-2 Maneuver	456	367	-	396	362	-	-	-	-	-	-	-
Stage 1	734	698	-	567	575	-	-	-	-	-	-	-
Stage 2	723	572	-	834	687	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.7		13.4		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1324	-	-	476	459	1136	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.13	0.067	0.009	-	-				
HCM Control Delay (s)	7.7	0	-	13.7	13.4	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	20	50	40	20
Future Vol, veh/h	10	20	20	50	40	20
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	11	23	23	57	45	23
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	167	64	75	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	821	998	1518	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	991	1508	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	2.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1508	-	916	-	-	
HCM Lane V/C Ratio	0.015	-	0.037	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	10	80	50	20
Future Vol, veh/h	20	0	10	80	50	20
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	0	13	107	67	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	217	84	97	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	769	972	1490	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	969	1486	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	0.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1486	-	757	-	-	
HCM Lane V/C Ratio	0.009	-	0.035	-	-	
HCM Control Delay (s)	7.4	0	9.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	50	20	80	30	10
Future Vol, veh/h	60	50	20	80	30	10
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	65	26	104	39	13
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8	7.5	7.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	75%
Vol Thru, %	20%	0%	25%
Vol Right, %	80%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	110	40
LT Vol	0	60	30
Through Vol	20	0	10
RT Vol	80	50	0
Lane Flow Rate	130	143	52
Geometry Grp	1	1	1
Degree of Util (X)	0.136	0.163	0.064
Departure Headway (Hd)	3.761	4.098	4.454
Convergence, Y/N	Yes	Yes	Yes
Cap	938	866	793
Service Time	1.849	2.172	2.546
HCM Lane V/C Ratio	0.139	0.165	0.066
HCM Control Delay	7.5	8	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.6	0.2

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	50	80	20	30	70	100	30	460	170	130	70	40
Future Volume (veh/h)	50	80	20	30	70	100	30	460	170	130	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	53	84	16	32	74	49	32	484	143	137	74	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	132	174	29	91	151	87	135	1394	409	265	1497	556
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.08	0.52	0.52	0.15	0.60	0.60
Sat Flow, veh/h	440	1075	177	224	931	534	1767	2673	784	1767	2514	935
Grp Volume(v), veh/h	153	0	0	155	0	0	32	318	309	137	51	52
Grp Sat Flow(s), veh/h/ln	1692	0	0	1689	0	0	1767	1763	1694	1767	1763	1686
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	1.4	8.4	8.5	5.7	1.0	1.0
Cycle Q Clear(g_c), s	6.1	0.0	0.0	6.4	0.0	0.0	1.4	8.4	8.5	5.7	1.0	1.0
Prop In Lane	0.35		0.10	0.21		0.32	1.00		0.46	1.00		0.55
Lane Grp Cap(c), veh/h	335	0	0	328	0	0	135	919	884	265	1049	1004
V/C Ratio(X)	0.46	0.00	0.00	0.47	0.00	0.00	0.24	0.35	0.35	0.52	0.05	0.05
Avail Cap(c_a), veh/h	629	0	0	631	0	0	265	919	884	265	1049	1004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	0.0	30.8	0.0	0.0	34.8	11.2	11.2	31.3	6.7	6.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	0.3	1.0	1.1	0.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	2.7	0.0	0.0	0.6	3.0	2.9	2.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	0.0	31.2	0.0	0.0	35.1	12.2	12.3	32.1	6.8	6.9
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	A	A
Approach Vol, veh/h	153			155			659			240		
Approach Delay, s/veh	31.0			31.2			13.4			21.3		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	52.5			17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	26.7			* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+I), s	3.0			8.4	7.7	10.5		8.1				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay 19.5

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	0	10	10	10	20	20	580	10	20	220	50
Future Vol, veh/h	30	0	10	10	10	20	20	580	10	20	220	50
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	34	0	11	11	11	23	23	659	11	23	250	57
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	709	1044	156	883	1067	337	309	0	0	671	0	0
Stage 1	327	327	-	712	712	-	-	-	-	-	-	-
Stage 2	382	717	-	171	355	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	319	226	859	239	219	656	1241	-	-	909	-	-
Stage 1	657	644	-	387	432	-	-	-	-	-	-	-
Stage 2	610	429	-	811	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	212	857	225	205	655	1239	-	-	908	-	-
Mov Cap-2 Maneuver	281	212	-	225	205	-	-	-	-	-	-	-
Stage 1	636	623	-	375	419	-	-	-	-	-	-	-
Stage 2	555	416	-	775	605	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	17.3		18		0.4		0.7					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1239	-	-	338	323	908	-	-				
HCM Lane V/C Ratio	0.018	-	-	0.134	0.141	0.025	-	-				
HCM Control Delay (s)	8	0.1	-	17.3	18	9.1	0.1	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.5	0.1	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	49	23	53	61	11
Future Vol, veh/h	22	49	23	53	61	11
Conflicting Peds, #/hr	0	1	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	58	27	63	73	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	207	91	96	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	779	964	1491	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	749	954	1477	-	-	-
Mov Cap-2 Maneuver	749	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	2.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1477	-	879	-	-	
HCM Lane V/C Ratio	0.019	-	0.096	-	-	
HCM Control Delay (s)	7.5	0	9.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative with Project AM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	15	12	201	82	16
Future Vol, veh/h	41	15	12	201	82	16
Conflicting Peds, #/hr	5	1	15	0	0	15
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	55	20	16	268	109	21
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	440	136	145	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	573	910	1431	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	550	896	1411	-	-	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.7	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1411	-	613	-	-	
HCM Lane V/C Ratio	0.011	-	0.122	-	-	
HCM Control Delay (s)	7.6	0	11.7	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	52	34	198	77	33
Future Vol, veh/h	65	52	34	198	77	33
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	86	68	45	261	101	43
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9	9	8.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	56%	70%
Vol Thru, %	15%	0%	30%
Vol Right, %	85%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	232	117	110
LT Vol	0	65	77
Through Vol	34	0	33
RT Vol	198	52	0
Lane Flow Rate	305	154	145
Geometry Grp	1	1	1
Degree of Util (X)	0.338	0.203	0.192
Departure Headway (Hd)	3.99	4.748	4.774
Convergence, Y/N	Yes	Yes	Yes
Cap	901	754	751
Service Time	2.013	2.785	2.803
HCM Lane V/C Ratio	0.339	0.204	0.193
HCM Control Delay	9	9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.8	0.7

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative with Project AM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	94	193	28	50	73	100	23	220	110	100	80	31
Future Volume (veh/h)	94	193	28	50	73	100	23	220	110	100	80	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	100	205	26	53	78	63	24	234	33	106	85	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	332	38	180	240	156	101	694	97	369	1127	194
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.22	0.22	0.21	0.38	0.38
Sat Flow, veh/h	384	1146	130	291	829	539	1767	3104	432	1767	3003	517
Grp Volume(v), veh/h	331	0	0	194	0	0	24	132	135	106	49	51
Grp Sat Flow(s), veh/h/ln	1661	0	0	1660	0	0	1767	1763	1773	1767	1763	1757
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.6	3.0	3.1	2.4	0.9	0.9
Cycle Q Clear(g_c), s	8.1	0.0	0.0	4.3	0.0	0.0	0.6	3.0	3.1	2.4	0.9	0.9
Prop In Lane	0.30		0.08	0.27		0.32	1.00		0.24	1.00		0.29
Lane Grp Cap(c), veh/h	579	0	0	577	0	0	101	394	397	369	662	659
V/C Ratio(X)	0.57	0.00	0.00	0.34	0.00	0.00	0.24	0.33	0.34	0.29	0.07	0.08
Avail Cap(c_a), veh/h	1014	0	0	986	0	0	369	920	925	369	920	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	0.0	13.6	0.0	0.0	21.6	15.6	15.6	16.0	9.6	9.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	0.4	0.2	0.2	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.8	0.0	0.0	1.5	0.0	0.0	0.2	1.0	1.0	0.8	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.2	0.0	0.0	13.7	0.0	0.0	22.0	15.8	15.8	16.1	9.6	9.6
LnGrp LOS	B	A	A	B	A	A	C	B	B	B	A	A
Approach Vol, veh/h	331			194			291			206		
Approach Delay, s/veh	15.2			13.7			16.3			13.0		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	22.9		18.1	14.2	15.6		18.1				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	10	25.0		* 27	* 10	25.0		* 27				
Max Q Clear Time (g_c+1/2, s)	12.6	2.9		6.3	4.4	5.1		10.1				
Green Ext Time (p_c), s	0.0	0.1		0.3	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 14.8

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative with Project AM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	10	10	10	10	10	10	394	10	10	191	32
Future Vol, veh/h	45	10	10	10	10	10	10	394	10	10	191	32
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	46	10	10	10	10	10	10	406	10	10	197	33
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	465	673	118	555	684	208	233	0	0	416	0	0
Stage 1	237	237	-	431	431	-	-	-	-	-	-	-
Stage 2	228	436	-	124	253	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	478	373	908	412	368	795	1324	-	-	1132	-	-
Stage 1	742	705	-	570	579	-	-	-	-	-	-	-
Stage 2	751	576	-	864	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	453	364	905	393	360	795	1320	-	-	1132	-	-
Mov Cap-2 Maneuver	453	364	-	393	360	-	-	-	-	-	-	-
Stage 1	732	696	-	564	573	-	-	-	-	-	-	-
Stage 2	721	570	-	833	685	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.9		13.5		0.2		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1320	-	-	471	456	1132	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.142	0.068	0.009	-	-				
HCM Control Delay (s)	7.7	0	-	13.9	13.5	8.2	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0	-	-				

HCM 6th TWSC
1: Porter St & Harbor Park North Dwy

Cumulative with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	26	30	53	44	22
Future Vol, veh/h	11	26	30	53	44	22
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	30	34	60	50	25
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	198	70	82	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	788	990	1509	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	983	1499	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	2.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1499	-	904	-	-	
HCM Lane V/C Ratio	0.023	-	0.047	-	-	
HCM Control Delay (s)	7.5	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

HCM 6th TWSC
2: Porter St & Harbor Park South Dwy

Cumulative with Project PM
West Harbor Park Vallejo

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	3	16	84	52	41
Future Vol, veh/h	33	3	16	84	52	41
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	44	4	21	112	69	55
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	254	100	127	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	732	953	1453	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	950	1449	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.3	1.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1449	-	732	-	-	
HCM Lane V/C Ratio	0.015	-	0.066	-	-	
HCM Control Delay (s)	7.5	0	10.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	58	25	92	34	16
Future Vol, veh/h	77	58	25	92	34	16
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	100	75	32	119	44	21
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	7.8	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	57%	68%
Vol Thru, %	21%	0%	32%
Vol Right, %	79%	43%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	135	50
LT Vol	0	77	34
Through Vol	25	0	16
RT Vol	92	58	0
Lane Flow Rate	152	175	65
Geometry Grp	1	1	1
Degree of Util (X)	0.167	0.209	0.084
Departure Headway (Hd)	3.954	4.288	4.639
Convergence, Y/N	Yes	Yes	Yes
Cap	910	842	775
Service Time	1.967	2.288	2.654
HCM Lane V/C Ratio	0.167	0.208	0.084
HCM Control Delay	7.8	8.4	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.8	0.3

HCM 6th Signalized Intersection Summary

4: Sonoma Blvd & Magazine St

Cumulative with Project PM
West Harbor Park Vallejo



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	53	88	25	30	82	100	38	460	170	130	70	45
Future Volume (veh/h)	53	88	25	30	82	100	38	460	170	130	70	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	93	15	32	86	54	40	484	143	137	74	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	131	177	25	87	157	87	156	1394	409	265	1512	507
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.09	0.52	0.52	0.15	0.58	0.58
Sat Flow, veh/h	437	1089	154	205	966	536	1767	2673	784	1767	2592	869
Grp Volume(v), veh/h	164	0	0	172	0	0	40	318	309	137	49	51
Grp Sat Flow(s), veh/h/ln	1680	0	0	1706	0	0	1767	1763	1694	1767	1763	1698
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	1.7	8.4	8.5	5.7	1.0	1.0
Cycle Q Clear(g_c), s	6.8	0.0	0.0	7.2	0.0	0.0	1.7	8.4	8.5	5.7	1.0	1.0
Prop In Lane	0.34		0.09	0.19		0.31	1.00		0.46	1.00		0.51
Lane Grp Cap(c), veh/h	333	0	0	330	0	0	156	919	883	265	1028	990
V/C Ratio(X)	0.49	0.00	0.00	0.52	0.00	0.00	0.26	0.35	0.35	0.52	0.05	0.05
Avail Cap(c_a), veh/h	626	0	0	635	0	0	265	919	883	265	1028	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	0.0	31.1	0.0	0.0	34.0	11.2	11.2	31.3	7.1	7.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.3	1.0	1.1	0.8	0.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.9	0.0	0.0	3.1	0.0	0.0	0.7	3.0	2.9	2.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	0.0	0.0	31.6	0.0	0.0	34.3	12.2	12.3	32.1	7.2	7.3
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	A	A
Approach Vol, veh/h		164			172			667			237	
Approach Delay, s/veh		31.3			31.6			13.6			21.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.3	51.6		17.2	16.2	46.6		17.2				
Change Period (Y+Rc), s	4.2	4.9		* 4.2	* 4.2	4.9		* 4.2				
Max Green Setting (Gmax), s	12	26.7		* 28	* 12	26.7		* 28				
Max Q Clear Time (g_c+I), s	13.5	3.0		9.2	7.7	10.5		8.8				
Green Ext Time (p_c), s	0.0	0.1		0.2	0.0	0.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
5: Sonoma Blvd & Porter St/Cherry St

Cumulative with Project PM
West Harbor Park Vallejo

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	0	10	10	10	20	20	583	10	20	225	56
Future Vol, veh/h	34	0	10	10	10	20	20	583	10	20	225	56
Conflicting Peds, #/hr	1	0	0	0	0	1	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	39	0	11	11	11	23	23	663	11	23	256	64
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	720	1057	162	890	1084	339	322	0	0	675	0	0
Stage 1	336	336	-	716	716	-	-	-	-	-	-	-
Stage 2	384	721	-	174	368	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	313	222	851	236	214	654	1227	-	-	905	-	-
Stage 1	649	638	-	385	430	-	-	-	-	-	-	-
Stage 2	608	427	-	808	617	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	275	208	849	222	201	653	1225	-	-	904	-	-
Mov Cap-2 Maneuver	275	208	-	222	201	-	-	-	-	-	-	-
Stage 1	628	617	-	373	417	-	-	-	-	-	-	-
Stage 2	553	414	-	772	597	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	18.1		18.2		0.4		0.7					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1225	-	-	325	319	904	-					
HCM Lane V/C Ratio	0.019	-	-	0.154	0.142	0.025	-					
HCM Control Delay (s)	8	0.1	-	18.1	18.2	9.1	0.1					
HCM Lane LOS	A	A	-	C	C	A	A					
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.5	0.1	-					

Appendix C: Project Opening Year Project Data



Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project



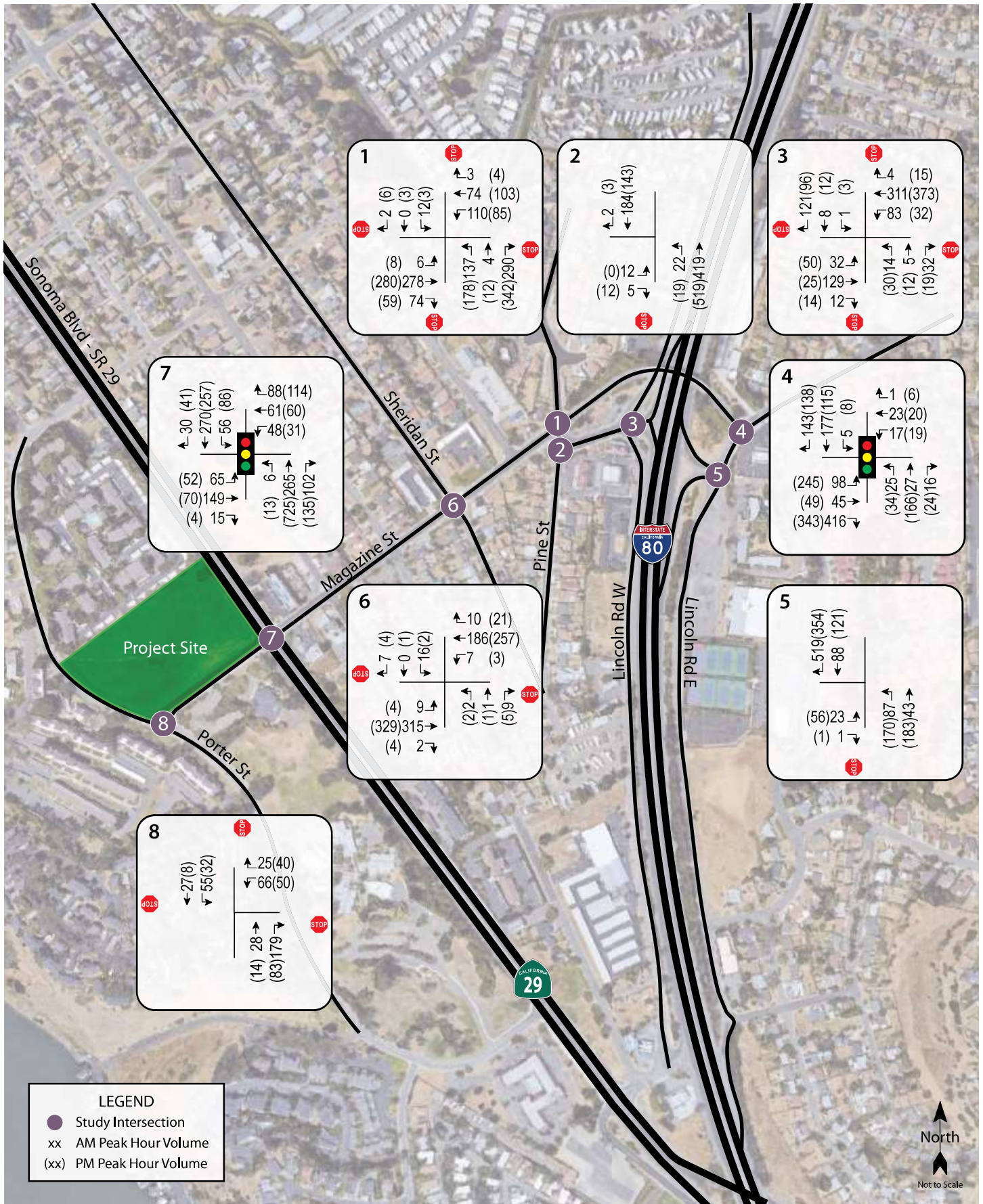
Prepared for the City of Vallejo

Submitted by
W-Trans

February 26, 2020



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Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project
Figure 2 – Existing Traffic Volumes

Table 6 – Future Peak Hour Intersection Levels of Service

Study Intersection <i>Approach</i>	AM Peak			PM Peak		
	Delay	LOS	V/C	Delay	LOS	V/C
1. Magazine St/Pine St	19.3	C	-	22.9	C	-
2. Pine St/-Lincoln Rd W	0.5	A	-	0.7	A	-
<i>Northbound (Pine St) Approach</i>	<i>11.0</i>	<i>B</i>	-	<i>12.1</i>	<i>B</i>	-
3. I-80 South Ramps/Lincoln Rd W	5.3	A	-	5.5	A	-
<i>Northbound (Lincoln Rd W) Approach</i>	20.6	C	-	26.1	D	-
<i>Southbound (Lincoln Rd W) Approach</i>	12.5	B	-	13.6	B	-
4. Magazine St/Lincoln Rd E	94.6	F	0.84	139.0	F	0.77
5. I-80 North Ramps/Lincoln Rd E	1.5	A	-	3.7	A	-
<i>Eastbound (I-80 N Off Ramp) Approach</i>	<i>16.1</i>	<i>C</i>	-	<i>29.0</i>	<i>D</i>	-
6. Magazine St/Sheridan St	1.2	A	-	0.5	A	-
<i>Northbound (Sheridan St) Approach</i>	12.4	B	-	13.6	B	-
<i>Southbound (Sheridan St) Approach</i>	14.8	B	-	13.7	B	-
7. Magazine St/Sonoma Blvd (SR 29)	22.7	C	0.71	18.3	C	0.48
8. Magazine St/Porter St	8.5	A	-	7.7	A	-

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; V/C = Volume to Capacity ratio; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; **Bold** text = deficient operation

Project Description

The proposed project consists of the construction of 124 multifamily residential units, including 74 two-bedroom units and 50 one-bedroom units. Additionally, the proposed project will include 248 parking spaces with a full access driveway located on Magazine Street. The proposed project site plan is shown in Figure 4.

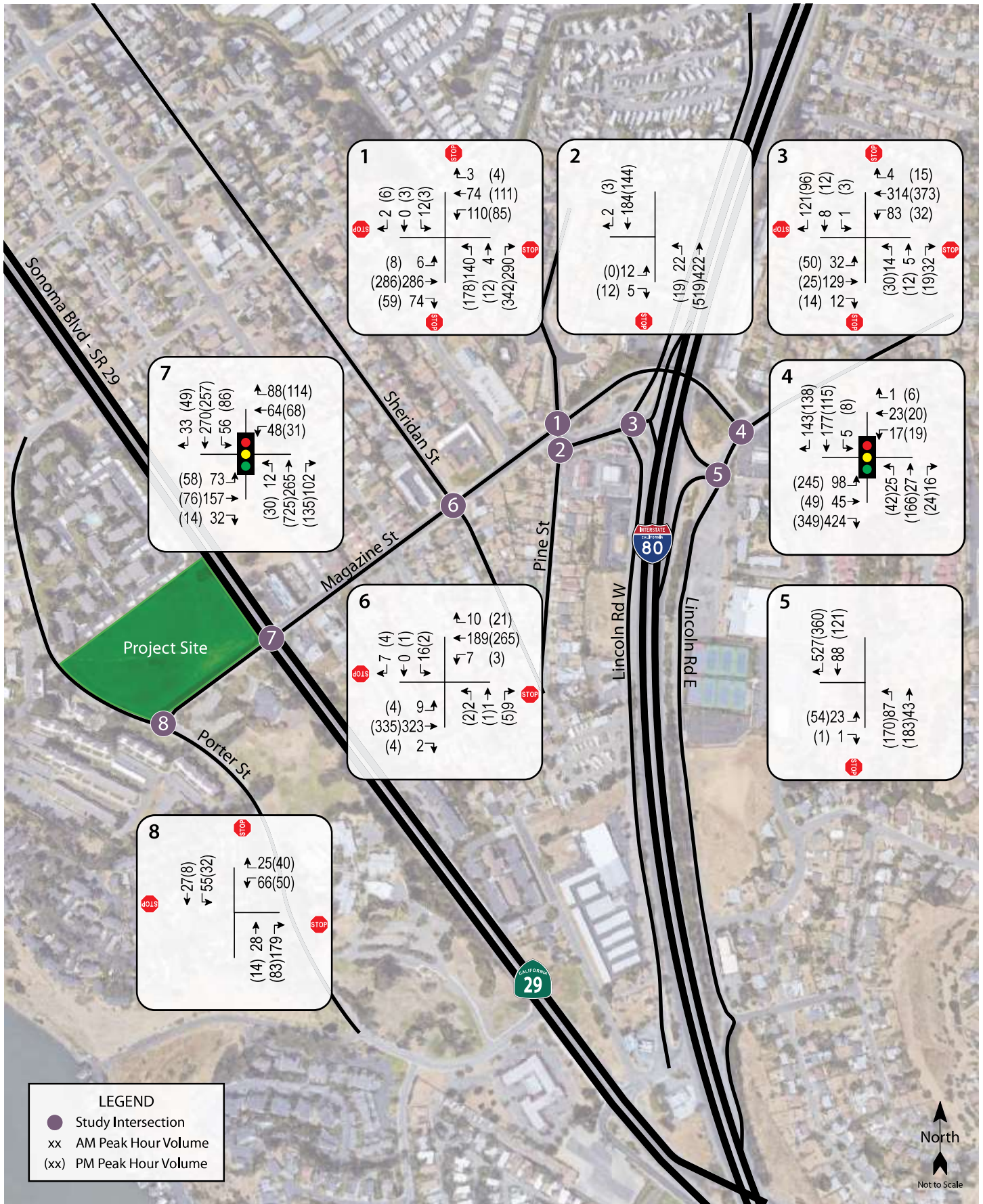
Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for Multifamily Housing (Land Use #221), as this description most closely matches the proposed project. Based on application of these assumptions, the proposed project is expected to generate an average of 675 trips per day, including 45 a.m. peak hour trips, and 55 trips during the p.m. peak hour. These results are summarized in Table 7.

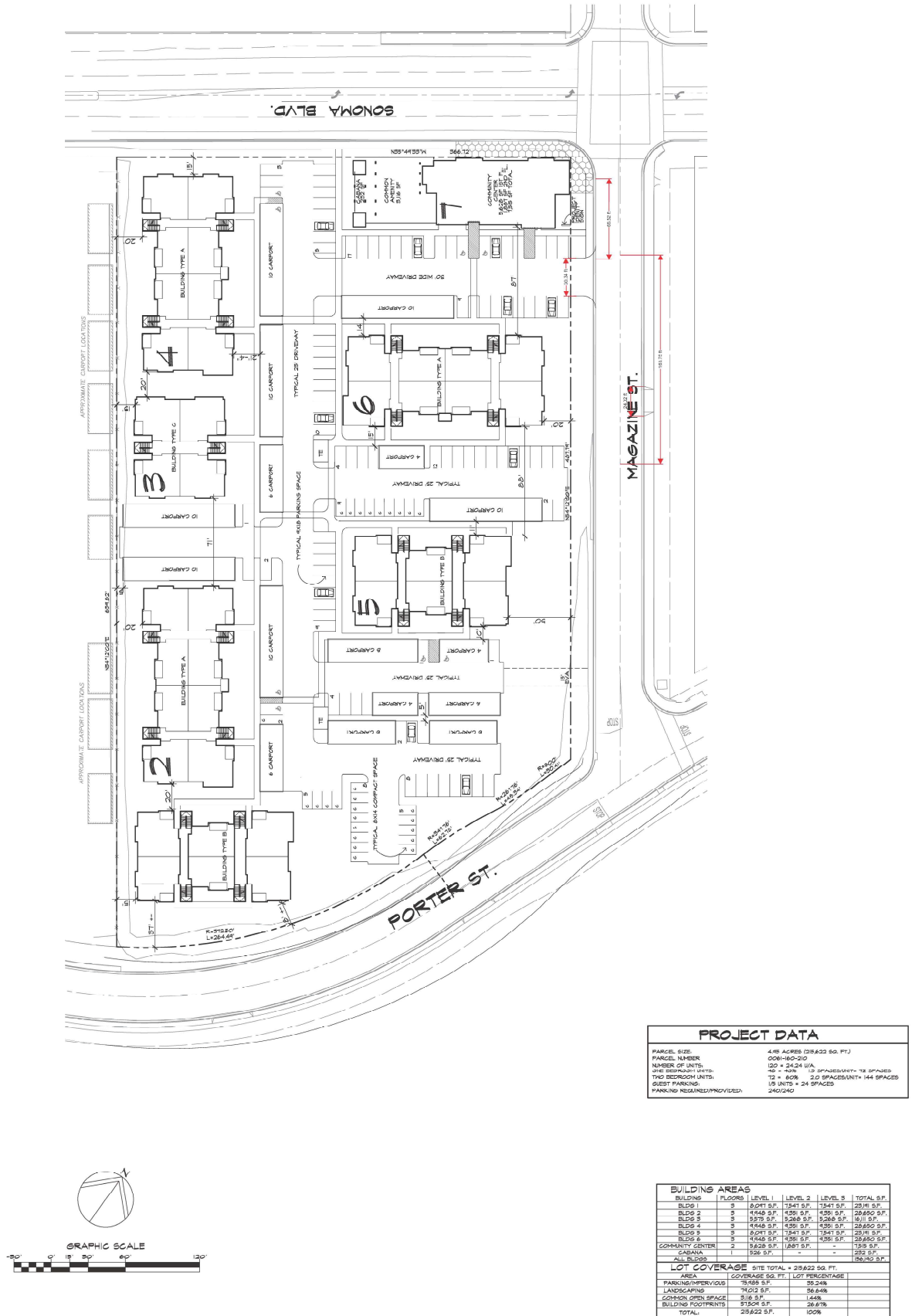
Table 7 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Multifamily Housing	124 du	5.44	675	0.36	45	12	33	0.44	55	33	22

Note: du = dwelling unit



Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project
Figure 5 – Existing plus Project Traffic Volumes



Source: HDO Architects-Planners 6/19

val026-10.ai 12/19

Traffic Impact Study for the Aventis-Vallejo Multifamily Community Project
Figure 4 – Site Plan



Trip Distribution

The pattern used to allocate new project trips to the street network was determined by reviewing existing employment patterns for residents of the City of Vallejo as indicated by the 2010 Census together with engineering judgment. The assumptions and resulting project trips are shown in Table 8.

Table 8 – Trip Distribution Assumptions

Route	Percent	Daily Trips	AM Trips	PM Trips
Sonoma Boulevard north of Magazine St	25%	169	11	14
Sonoma Boulevard south of Magazine St	15%	101	7	8
Interstate 80 north of Magazine St	25%	169	11	14
Interstate 80 south of Magazine St	35%	236	16	19
TOTAL	100%	675	45	55

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes the study intersections are expected to continue operating acceptably during both the a.m. and p.m. peak hour. The Existing plus Project traffic volumes are shown in Figure 5 and the results are summarized in Table 9.

August 9, 2023

Mitu Walia
Director of Architectural Design
Klein Financial Corporation
550 South California Avenue Suite 330
Palo Alto, CA 94306

Subject: Revised VMT Assessment – West Harbor Park Apartments, Vallejo

Dear Mitu:

Fehr & Peers is pleased to submit this revised letter report documenting the results of our Vehicle Miles Traveled (VMT) assessment for your proposed West Harbor Park residential project located off Porter Street in Vallejo, California. The analysis was prepared in accordance with the current City of Vallejo and State of California guidelines pertaining to VMT. Specifically, we have employed the *City of Vallejo's CEQA Transportation Impact Analysis Guidelines (Revised October 2020)* (City Guidelines) for the VMT analysis. This assessment reflects revisions to the proposed project that incorporate Travel Demand Management (TDM) measures, specifically the unbundling of parking. When parking is "unbundled" residents must pay a monthly fee for an on-site parking space separate from the cost of their unit.

Project Description

The project proposes the construction of 122 new multi-family residential units located on a site located at 961 Porter Street the City of Vallejo. The project would add these new units to the existing 182-unit facility on the site. All access to the site would be provided via Porter Street which provides connections to Sonoma Boulevard and the regional roadway network. The project would include 159 off-street unbundled parking spaces for the new residential units. Parking pricing would be as follows:

- Garage spaces (98) - \$150/space/month (\$1,800/year)
- Covered carport spaces (28) - \$125/space/month (\$1,500/year)
- Uncovered spaces (33) - \$100/space/month (\$1,200/year)

Each of the garage spaces would be equipped with 220 EV charging connections and the outdoor covered and uncovered spaces would be equipped with Level 2 charging stations. The project would also include a dedicated space for a car-share provider.

Building management would provide all residents with information relative to their non-single occupant vehicle travel options (rideshare, transit, bike and pedestrian amenities and options). This



would be in the form of new-resident informational flyers and a lobby kiosk. The information would be updated, as necessary.

City of Vallejo VMT Screening Criteria

The *City of Vallejo's CEQA Transportation Impact Analysis Guidelines (Revised October 2020)* provide for a three step VMT screening process, as follows:

- Step 1 – Transit Priority Area (TPA) Screening - Projects located within a TPA may be presumed to have a less than significant impact absent substantial evidence to the contrary.
- Step 2 – Low VMT Area Screening - Residential and office projects located within a low-VMT generating area of the city (i.e., lower than citywide average levels, based on the significance thresholds in this document) may be presumed to have a less than significant impact absent substantial evidence to the contrary.
- Step 3 – Project Type Screening - Local-serving retail projects less than 50,000 square feet in size and other local serving community uses may be presumed to have a less than significant impact absent substantial evidence to the contrary. Small projects, including residential developments that would generate less than 110 daily vehicle trips, may also be presumed to have a less than significant impact.

Steps 1 does not apply to the proposed project. The project is not located within a Transit Priority Area and as a residential use, the project is not retail or local serving in nature. The project also does not screen out per Step 3 due to its size (the project will generate more than 110 daily vehicle trips).

Per the City's guidelines, for VMT area screening to be applicable, the analyst must verify that the project land uses would not alter the existing built environment in such a way as to increase the rate or length of vehicle trips (e.g. the proposed project is consistent with existing land use in the area, the project would be expected to contribute VMT consistent with existing land use in the area, and the project would not significantly alter travel patterns in the area). The project is located within Traffic Analysis Zone (TAZ) 349 of the Solano-Napa Activity Based Travel Demand Model (SNABM). As this TAZ is relatively small and the SNABM model presents a high degree of variability in this part of the city due to the nearby county line (and model edge), the travel characteristics of several surrounding TAZs were aggregated with 349 to assess project VMT. Specifically, TAZ's 345, 346, 347, 348 and 349 were combined for this exercise. All five TAZs are similarly located geographically and display land use characteristics like those of the proposed project (medium density residential). **Figure 1** illustrates the project TAZ and those surrounding the site. It should be noted that adjacent TAZ 350 was not included in the calculations as it contains the California Maritime Academy. **Table 1** summarizes the baseline household and employment characteristics of the TAZ's used within the analysis.



Table 1: Baseline Project TAZ Demographic Characteristics

Geography	Base Year (2015)		Cumulative (2040)	
	Total Households	Total Employment	Total Households	Total Employment
TAZ 345	31	567	44	606
TAZ 346	130	1,319	181	1,411
TAZ 347	775	271	1,080	290
TAZ 348	184	166	257	178
TAZ 349	721	31	771	32
City of Vallejo	42,542	32,498	46,804	35,693

Note: Proposed project is in TAZ 349

Source: Fehr & Peers, 2023, Solano-Napa Activity Based Travel Demand Model

Our review of the demographic characteristics of the existing land uses in TAZ's 345, 346, 347, 348 and 349 confirm that the project would not alter the existing built environment in such a way as to increase the rate or length of vehicle trips. The project proposes land uses of similar type and density to what currently exists in the area.

Table 2 presents the applicable baseline model VMT results for the City of Vallejo and TAZ's 345, 346, 347, 348 and 349. The weighted average baseline residential VMT per resident in the Base Year (2015) for TAZ's 345, 346, 347, 348 and 349 is slightly greater than that of the city as a whole whereas the cumulative weighted average residential VMT per resident is slightly lower than the city as a whole.

Table 2: Applicable Project VMT Characteristics

Geography	Base Year (2015)			Cumulative (2040)		
	Total Residential VMT	Population (Residents)	VMT/Resident	Total Residential VMT	Population (Residents)	VMT/Resident
TAZ 345	1,771	92	19.3	2,970	132	22.5
TAZ 346	7,445	383	19.4	11,360	548	20.7
TAZ 347	52,630	2,287	23.0	70,798	3,274	21.6
TAZ 348	12,099	544	22.2	18,201	780	23.3
TAZ 349	55,389	1,929	28.7	59,407	2,184	27.2
TAZ's 345, 346, 347, 348 and 349	129,335	5,235	24.7	162,736	6,918	23.5
City of Vallejo	2,975,979	122,773	24.2	3,325,701	138,517	24.0

Note: Proposed project is in TAZ 349

Source: Fehr & Peers, 2023, Solano-Napa Activity Based Travel Demand Model



Travel Demand Model Results

Subsequent to the review of the city's VMT screening criteria, the project was coded into the model and the model was run to assess the travel outcomes of project generated vehicle trips. This analysis found that project related vehicle trips are expected to have similar lengths and occur with similar rates to existing residents of TAZ's 345, 346, 347, 348 and 349. Baseline project VMT is anticipated to be approximately 24.7 daily vehicle miles traveled per resident, which is marginally above the city's average VMT of 24.2 per resident. The project was not found to screen out based on the city's established criteria. **Table 3** presents a summary of the trip lengths for each of the applicable TAZs.

Table 3: Trip Length Summary

Geography	Base Year (2015)	Cumulative (2040)
TAZ 345	7.1	7.1
TAZ 346	7.2	7.3
TAZ 347	8.2	7.5
TAZ 348	7.9	7.6
TAZ 349	9.3	8.8

Note: Proposed project is in TAZ 349

Source: Fehr & Peers, 2023, Solano-Napa Activity Based Travel Demand Model

Project-Specific VMT Assessment

As the project proposes elements which are not reflected in the travel characteristics of the surrounding residential communities, namely the unbundling of parking, the effects of these measures on project generated VMT was estimated. The estimated effectiveness of the TDM strategies included as part of the project's description are based on research compiled and published in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (California Air Pollution Control Officers Association (CAPCOA), December 2021). This CAPCOA report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies. **Table 4** presents the anticipated reductions to project generated VMT based on the CAPCOA research and evidence associated with the TDM elements included as part of the project description.



Table 4: Anticipated TDM Measure VMT Reductions

TDM Measure	Description	Expected VMT Change
Unbundle Parking	Garage – 98 spaces, \$1,800/year	(7.8%)
Unbundle Parking	Covered – 26 spaces, \$1,500/year	(6.5%)
Unbundle Parking	Uncovered – 28 spaces, \$1,200/year	(5.2%)
Carshare Provision	1 carshare space	(0.15%)
Community Travel Planning	Information for each resident	(2.3%)
Total Anticipated Change¹		(9.4%)

¹ Average across all units, including the effects of multiplicative dampening.

Source: Fehr & Peers, 2023, *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (California Air Pollution Control Officers Association (CAPCOA), December 2021).

As presented in Table 4, the TDM measures proposed as part of the project are expected to result in a decrease in project VMT of approximately 9.4 percent. According to the CAPCOA report, the maximum greenhouse gas reduction that can be expected from unbundled parking is 15.7 percent. The VMT reduction is a function of avoided vehicle ownership in residents disincentivized to park offsite or pay the separate cost of parking for a vehicle. For unbundled parking, there is a 1:1 relationship between reductions in VMT and greenhouse emissions because these measures reduce all emission processes at the same rate, not just running emissions. Thus, the maximum VMT reduction that a development could expect to obtain from unbundled parking is 15.7 percent.

It should be noted that the unbundling of parking at the project site will be somewhat less effective than the maximum permitted by the CAPCOA data as shown in the anticipated reduction of 9.4 percent rather than 15.7 percent for the project. Free on-street parking is available on Porter Street, which some project residents may choose to utilize rather than either forgo a vehicle or pay for secure and gated on-site parking in close proximity to their unit. The closest on-street parking is available down the hill from the residences, approximately 500 to 1,500 feet from the various garage locations. Free on-street parking can reduce the effectiveness of unbundled parking.

Priority Development Area

The project site is located within the designated Carquinez Heights Priority Development Area (PDA). This area has been identified and prioritized for housing development by the Metropolitan Transportation Commission (MTC) and City of Vallejo and has been included in MTC's *Plan Bay Area 2050*. Specifically, the area is designated as a Connected Community PDA, which MTC defines as follows:

The entire area is within 1/2 mile of a bus stop with peak service of 30 minutes or less and is beyond 1/2 mile of transit service that meets the "high quality transit" criteria as defined above for Transit-Rich PDAs; and meets at least one of the following:



- *At least 50% of the area is defined as a High Resource or Highest Resource on the most recent Opportunity Map adopted by the California Department of Housing and Community Development*
- *At least 2 policies have been adopted to reduce Vehicle Miles Traveled, such as prioritization of bicycle and pedestrian planning projects*

Among the adopted policies to reduce VMT within the PDA are the completion of Class II bike lanes on Sonoma Boulevard along with a host of pedestrian, transit and bicycle improvements planned for the roadway. These include transit stop improvements (benches, shelters, lighting, and real time arrival information), traffic calming features, sidewalk improvements and pedestrian crossing improvements (median island rest areas, Hawk pedestrian signals, modified signal timing and signing/stripping enhancements).

Findings

Based on information from the Solano-Napa Activity Based Travel Demand Model, a typical multi-family residential development at the project site is forecast to generate approximately 24.7 daily vehicle miles of travel per resident. As the project includes elements not included at existing residences in the area, such as unbundled parking, calculations were performed to assess the anticipated reductions related to TDM measures which the project proposes. Those calculations identified an expected reduction of approximately 9.4 percent. With this modification, the project is expected to generate approximately 22.4 vehicle miles of travel per resident, which is below the city's significance threshold of 24.2 percent.

Please do not hesitate to call if you have any questions or need additional information (925.357.3381).

Sincerely,

FEHR & PEERS

Bill Burton, PE
Principal

Attachment: Figure 1 – Project Traffic Analysis Zone

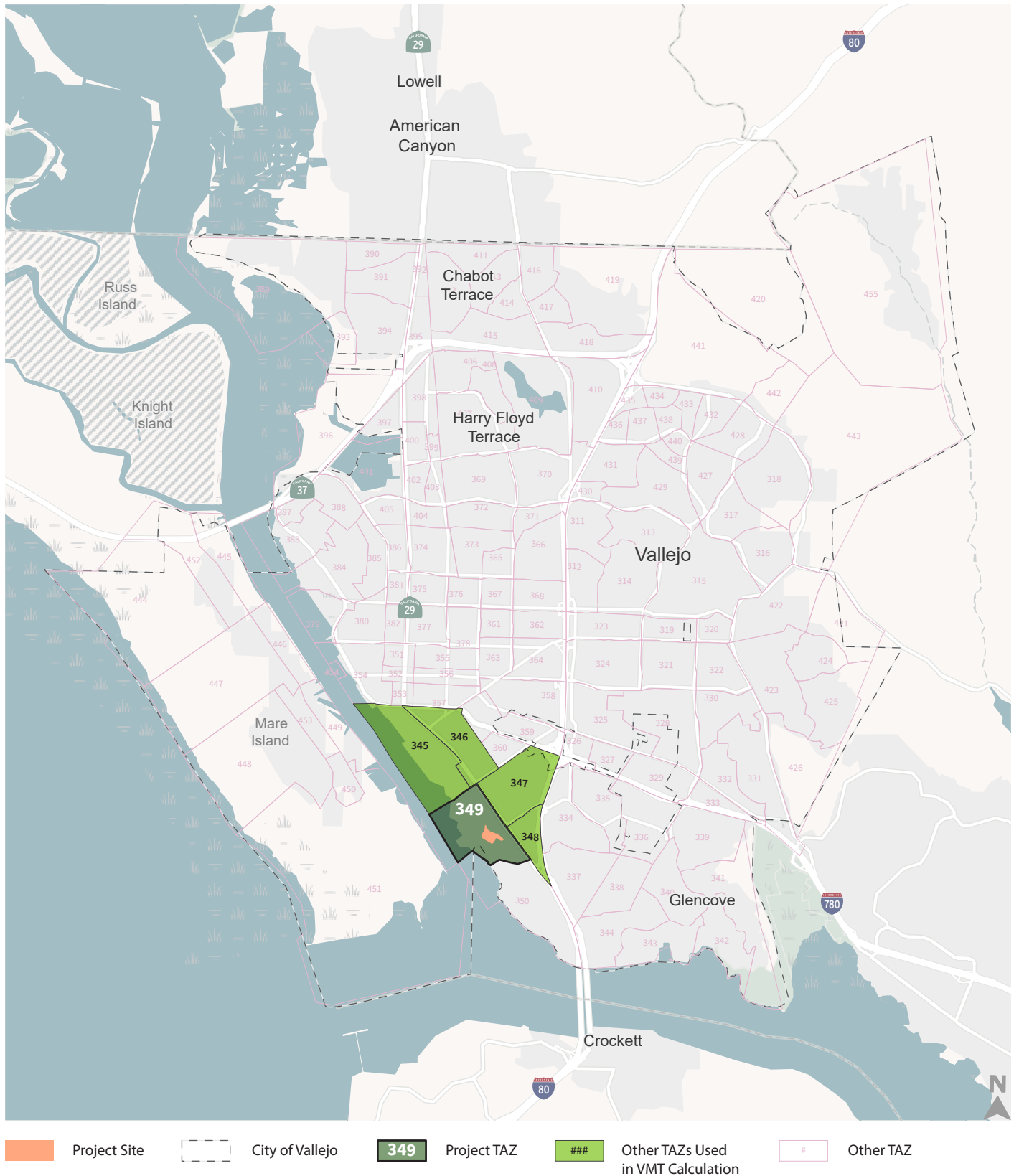


Figure 1

Project Traffic Analysis Zone

Attachment 9**CITY OF VALLEJO DESIGN REVIEW BOARD****RESOLUTION NO. DRB 23-01**

A RESOLUTION RECOMMENDING APPROVAL TO THE PLANNING COMMISSION DESIGN REVIEW (DR) 22-0013, LANDSCAPE REVIEW (LR) 22-0010, DEVELOPMENT REVIEW (DVR) 22-0046 AND LOT LINE ADJUSTMENT (LLA) 23-0008 FOR ADDITION OF 122 DWELLING UNITS TO AN EXISTING 182 DWELLING UNIT MULT-FAMILY COMPLEX AT 961 PORTER STREET (APN: 0061-160-180)

I. GENERAL FINDINGS

WHEREAS, on August 29, 2017, the City Council adopted General Plan 2040; and

WHEREAS, the property has a General Plan 2040 land use designation of Mix of Housing Types; and

WHEREAS, on July 22, 2021, the City Council adopted Zoning Code and Zoning Map; and

WHEREAS, the property is located in the Residential Medium Density Zoning District; and

WHEREAS, on October 25, 2022, Rob Klein submitted an application seeking a Design Review Permit, Landscape Review, Development Review and Lot Line Adjustment for the construction of 122 units at an existing 182-unit multi-family complex ("Project") located at 961 Porter Street; and

WHEREAS, on March 20, 2023, the application for the Project was determined to be complete for processing; and

WHEREAS, on May 20, 2023, pursuant to Vallejo Municipal Code Section 16.602.08(A), notice of this hearing was published in the Times Herald and mailed to all active neighborhood groups and property owners within 500 feet of the subject property and electronically mailed to the members of the Design Review Board and to the applicant; and

WHEREAS, on June 8, 2023, the City of Vallejo Design Review Board, after giving all public notices required by State law and the City of Vallejo Municipal Code, conducted a duly noticed public hearing; and

WHEREAS, the Design Review Board considered testimony and evidence, both written and oral, provided at the public hearing, as well as other documents contained in the record of proceedings relating to the Project, which are maintained in the offices of the City of Vallejo Planning Division; and

WHEREAS, based on evidence received in the staff report and at the public hearing, the Design Review Board makes the following factual findings:

III. FINDINGS RELEVANT TO THE APPROVAL OF THE DESIGN REVIEW PERMIT (VMC Section 16.604.03.B)**A. Is consistent with the purposes of this chapter, the design policies of the general plan and any applicable specific plan, any adopted applicable design guidelines.**

Purposes of the Chapter

1. **Establish regulations for an objective process that applies urban design principles to ensure that new construction supports the best of the city's architectural traditions.**

As proposed, the project meets the objective design standards called out in VMC Chapter 16.202 – Residential Districts, as discussed in detail below.

2. **Encourage new structures that show creativity and imagination, add distinction, interest, and variety to the community, and are environmentally sustainable.**

The proposed building is visually interesting and will be constructed with a variety of high-quality building materials and painted with simple, bold colors. Vertical and horizontal façade breaks, building massing, and modulation have all been incorporated into the design of the building and will create distinction in the established neighborhood.

3. **Promote architectural and design excellence in new construction and discourage poor quality development.**

The proposed building will be comprised of a stucco finish, fiber cement paneling system, vinyl windows, and metal railings painted with the variety of Sherwin-Williams Pure White, Sherwin-Williams Naval and Sherwin-Williams Anew Gray. The project details, colors, materials, and landscaping are integrated with one and another that create a visually consistent proposal. Overall, the project uses high-quality, long-lasting material resulting in quality development.

4. **Ensure that future development should:**
 - a. **Reflect the values of the community.**
 - b. **Enhance the surrounding environment.**
 - c. **Visually harmonize with its surroundings and not unnecessarily obstruct scenic views; and**
 - d. **Avoid nostalgic misrepresentations that may confuse the relationships among structures over time.**

The project reflects the promotion of infill development that targets underutilized sites, which is a policy identified in the General Plan. The new project will enhance the surrounding environment by adding additional units to an existing multi-family development. Due to its location, the project will not obstruct scenic views and due to its nature and design, nor will it confuse the relationships among structures over time.

5. **Ensure that decisions on housing development projects are based on objective design standards as required by the State Housing Accountability Act (Government Code Section 65589.5).**

The Housing Accountability Act (HAA), California Government Code Section 65589.5(j), requires that when a proposed housing development complies with the applicable, objective general plan and zoning standards, but a local agency proposes to deny the project or approve it only if the density is reduced, the agency must base its decision on written findings supported by substantial evidence that:

1. *The development would have a specific adverse impact on public health or safety unless disapproved, or approved at a lower density; and*

2. There is no feasible method to satisfactorily mitigate or avoid the specific adverse impact, other than the disapproval, or approval at a lower density.

As described in Tables 3 and 4 above, the project complies with applicable, objective general plan and zoning standards. Therefore, the city may not deny the project or approve the project at a reduced density without basing its decision on the written findings under Section 65589.5(j), above.

6. Provide for new landscaping to create a visually pleasing setting for structures on the site.

A total of 28,623 square feet of new landscaping will be installed along the base of the proposed buildings. A total of 25 new trees, shrubs and ground cover will be planted to enhance the public realm within the subject site. The new landscaping will create a visually pleasing setting for structures on the site.

7. Promote the protection and retention of landmark, native, and specimen trees and if feasible mature canopy trees and other significant landscaping of aesthetic and environmental value.

Not applicable; existing mature trees will be integrated with the proposed new landscaping.

8. Ensure that the design, quality, and location of signs are consistent with the character and scale of the structures to which they are attached and are visually harmonious with surrounding development.

No signage is proposed with the addition of the new units. Existing signage will remain along Porter Street and existing site directories will be updated to reflect the location of new residential buildings.

9. Promote the conservation, enhancement, preservation, and protection of historic resources.

Not applicable; there are no historic resources near this project's location.

Design policies of the General Plan

The project site is designated as Mix of Housing Types/Medium Density (R-MH) on the General Plan Land Use Map. The General Plan 2040 R-MH designation provides for residential neighborhoods largely characterized either by primarily single use, multi-family developments with common outdoor spaces. As proposed, the project is consistent with the R-MH General Plan land use designation in that the proposed project is to add additional units to an existing multi-family development with common outdoor space. The project is also consistent with applicable General Plan 2040 policies.

Adopted applicable design guidelines.

The subject site is not within an adopted specific plan and design guidelines have not been adopted for this location.

B. Is consistent with any planning are zoning approvals by the director or the planning commission.

Staff finds that the project is consistent with the RMD zoning district in that it is a proposal of a new 122 units to an existing 182-unit multi-family apartment complex as conditioned and proposed meets all appropriate development standards of the Vallejo Municipal Code and State Density Bonus Law. The final authority of this action is the Planning Commission.

C. Complies with any other relevant city policies or regulations.

The project as proposed complies with State Density Bonus Law and VMC Chapter 16.202 – Residential Districts, as the project has been designed to meet the requirements. The Planning Commission will act on the Development Review for the project.

NOW, THEREFORE, LET IT BE RESOLVED that the Design Review Board hereby recommends that the Planning Commission **APPROVE** Design Review (DR) 22-0013 and Landscape Review (LR) 22-0010 for addition of 122 dwelling units to an existing 182 dwelling unit multi-family complex at 961 porter street based on the above findings.

PASSED AND ADOPTED at a regular meeting of the Design Review Board of the City of Vallejo, State of California, on the 8th day of Jun 2023 by the following vote:

AYES: Chair Kennedy, Commissioner Alford and Lugtu
NOES: None
ABSENT: Commissioner Chavez
ABSTAIN: None

DocuSigned by:

A2FFD5679ACC487...

Matthew Kennedy, CHAIRPERSON
City of Vallejo Design Review Board

Attest:
DocuSigned by:

1B98D67D20BB494...

MARGARET KAVANAUGH-LYNCH, SECRETARY
City of Vallejo Design Review Board



JUNE 16, 2023

961 PORTER STREET, VALLEJO, CALIFORNIA

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KLEIN FINANCIAL CORPORATION

cbg CARLSON,
BARBEE &
GIBSON, Inc.

Civil Engineering: CBG
2633 Camino Ramon, Suite 350
San Ramon, CA 94583
Contact: Justin Deknoblough
925.866.0322

Building Type: I/VA
Occupancy: A3/R2/S2/U
APN: 0061160180
Fire Protection: NFPA13 System
Zoning: Residential Medium Density (RMD)

WHA



ENVIRONMENTAL
FORESIGHT, INC.
Landscape Architecture

Landscape Architecture: Environmental Foresight, Inc.
1700 N. Broadway, Suite 401
Walnut Creek, CA 94596
Contact: Scott Feuer
925.945.0300



Applicable Codes:

Project shall comply with any applicable codes in addition to the following codes:
2019 California Building Code
2019 California Plumbing Code
2019 California Energy Efficiency Code
2019 California Mechanical Code
2019 California Electrical Code
Calgreen Green Building Standards Code

Project summary

Project Address: 961 Porter Street, Vallejo, CA
APN#: 006-116-0180
Site area: ±12.0166 Acres (523,442 SF)
(For reference only)
Land lease area: ±3.4 Acres (148,104 SF)
General Plan Land Use: Mix of housing types
General Plan Permitted Density: 25 Dwelling units per acre
Zone: Residential Medium Density (RMD)
Zoning permitted density: Minimum lot area per dwelling unit: 1,740 SF (25 DU/AC)
Zoning permitted units: 85 Dwelling units = 148,104 / 1,740
Proposed units: 122 Dwelling Units
Unit mix: (36) Jr. 1BD (31) 1 BD (29) 2 BD (26) 3 BD
Density: 35.9 Du/Ac

BUILDING SUMMARY - RESIDENTIAL BUILDINGS																	
		Podium Parking			First Floor					Second Floor				Third Floor		Fourth Floor	
		Paving	Basement	Basement	Total Floor Area (SF)	Living area (SF)	Open and covered Patios (SF)	Covered Circulation (SF)	Total Floor Area including covered porches and circulation (S.F.)	Living area (SF)	Covered Circulation (SF)	Total Floor Area including decks and circulation (S.F.)	Living area (SF)	Decks (SF)	Covered Circulation (SF)	Total Floor Area including decks and circulation (S.F.)	
Bldg. A	11689	739			12428	7211	1724	773	9708	7202	951	790	8943	6788	1062	765	8616
Bldg. B	11729	555			12284	8370	1995	1055	10384	8352	1094	1092	10538	8033	1122	694	9849
Bldg. C	11554	714	1203		13471	8518	2734	1055	10537	8500	1088	1102	10690	8161	1134	756	10051

BUILDING SUMMARY - MAINTENANCE BUILDING													
		First Floor				Second Floor				Third Floor			
		Storage/Maint. Shop (S.F.)	Maint. Office/Restroom/Storage (S.F.)	Covered Entry (S.F.)	Officer Storage (S.F.)	Covered Entry (S.F.)	Circulation (S.F.)	Apartment (S.F.)	Total Floor Area (S.F.)	Covered Entry (S.F.)	Circulation (S.F.)	Apartment (S.F.)	Total Floor Area (S.F.)
	728	338	91	89	1246	95	198	1101	1304	95	62	1101	1258

ILLUSTRATIVE SITE PLAN

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



LEFT



FRONT

BUILDING A EXTERIOR ELEVATIONS

Paint Colors: (Sherwin Williams)

[A] SW 6530 Revel Blue	[B] SW 7658 Gray Clouds	[C] SW 7757 High Reflective White
[D] SW 7019 Gauntlet Gray	[E] SW 6902 Decisive Yellow	[F] SW 6203 Spare White
*match to James Hardie (Arctic White)		

Exterior Materials:

- 1 Stucco
- 2 Painted Parapet Metal Cap
- 3 Insulated Vinyl Windows
- 4 Metal Railing
- 5 Fiber Cement Paneling System



RIGHT

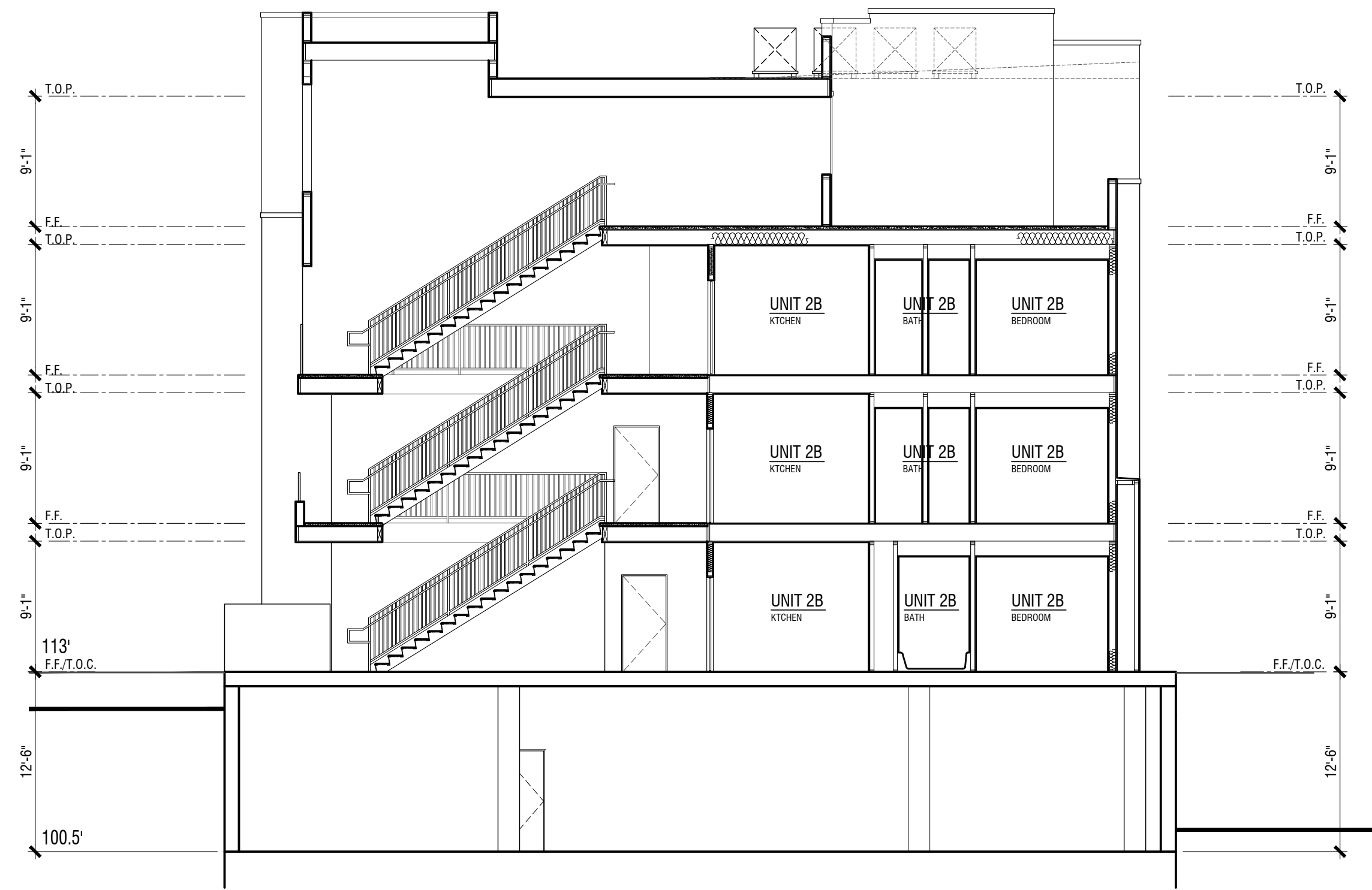


REAR

BUILDING A EXTERIOR ELEVATIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



SECTION B

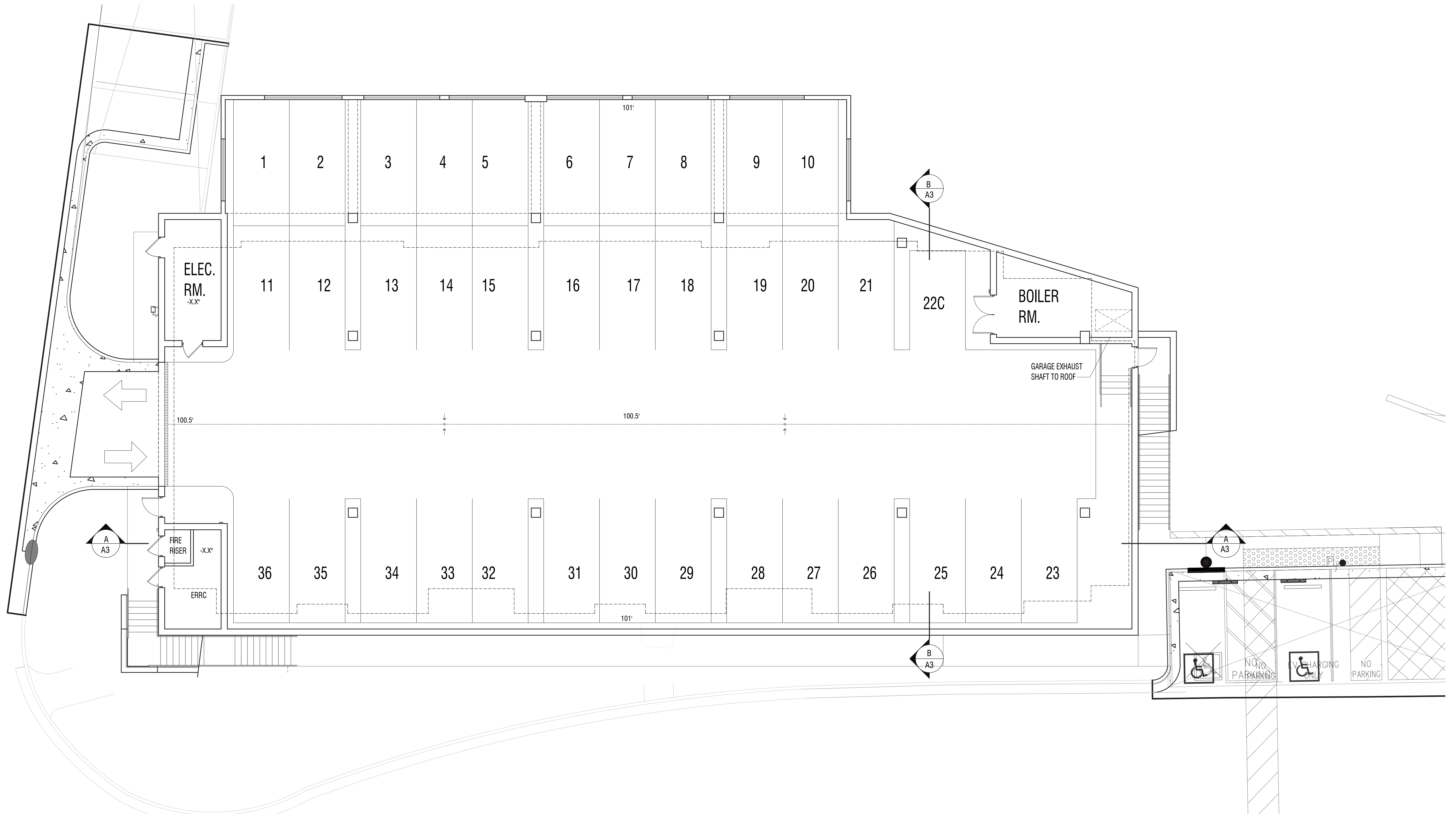


SECTION A

BUILDING A SECTIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



GARAGE LEVEL

BUILDING A
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



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- Plan 2C
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- Plan 2E
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- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

FIRST LEVEL

BUILDING A
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

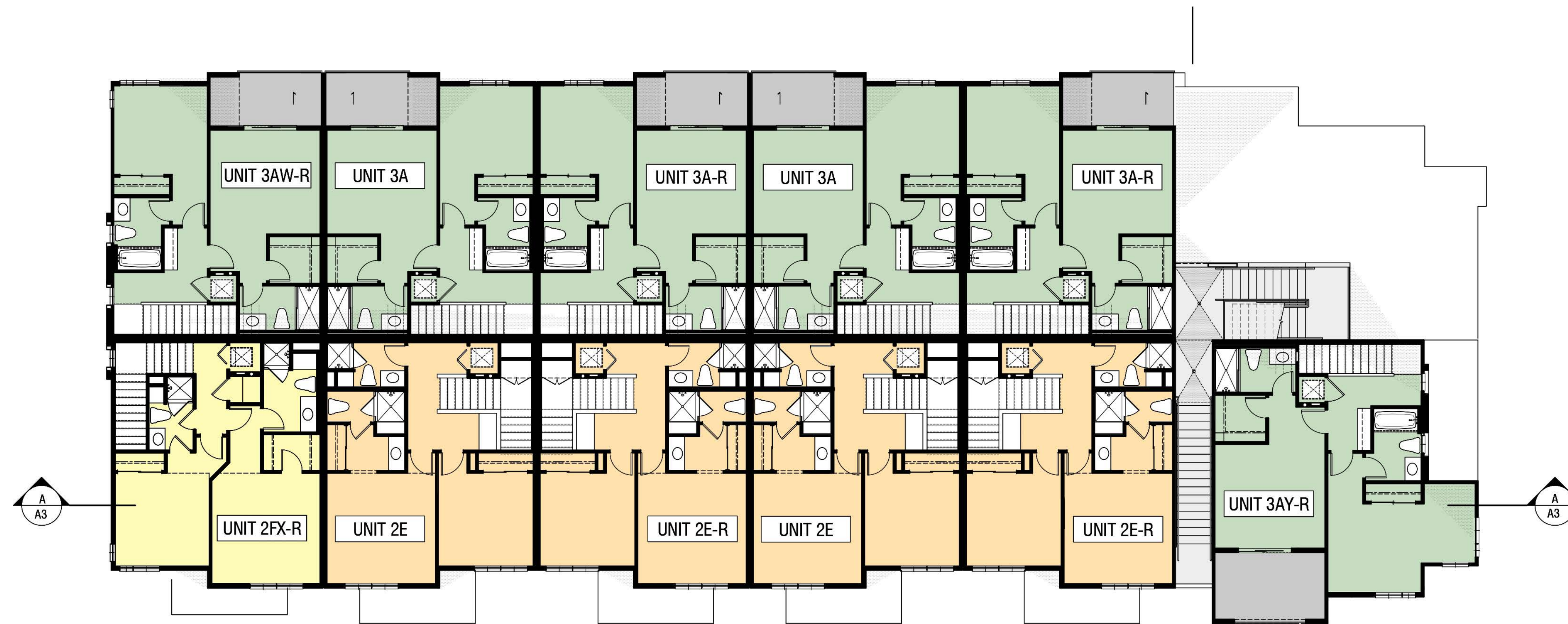
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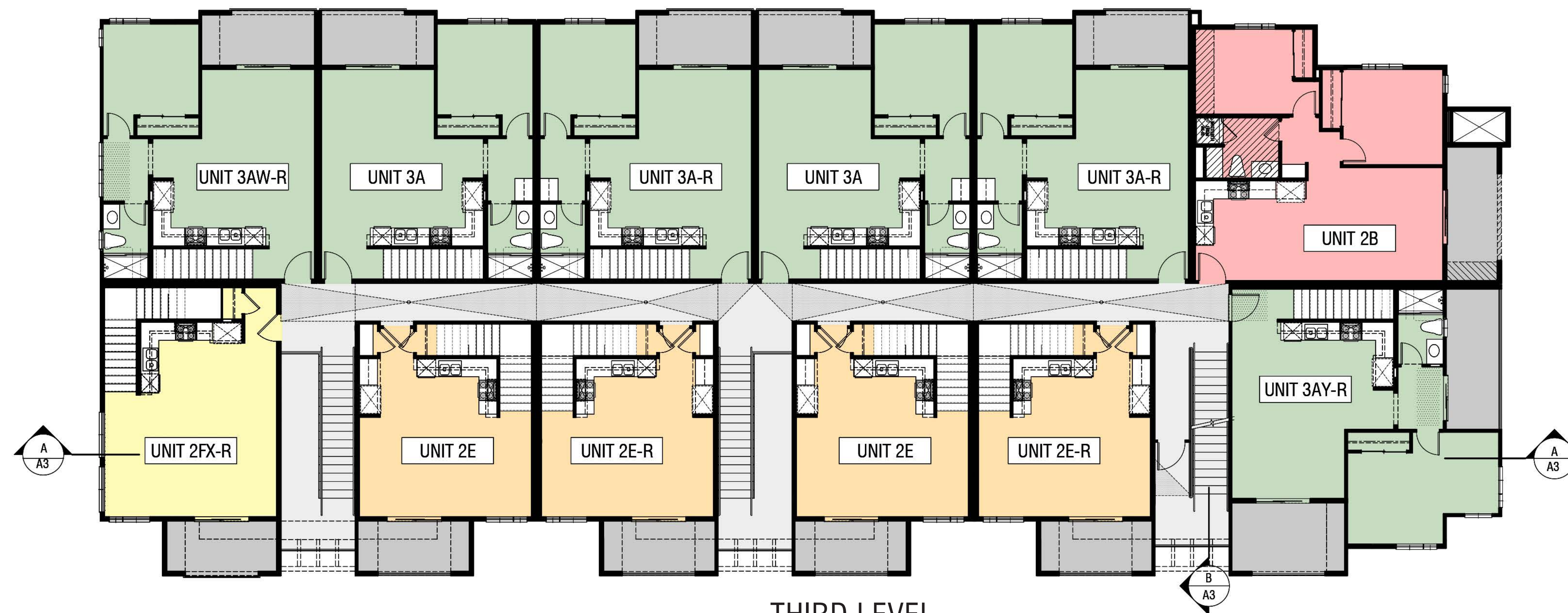
WEST HARBOR PARK APARTMENTS

A6





FOURTH LEVEL



THIRD LEVEL

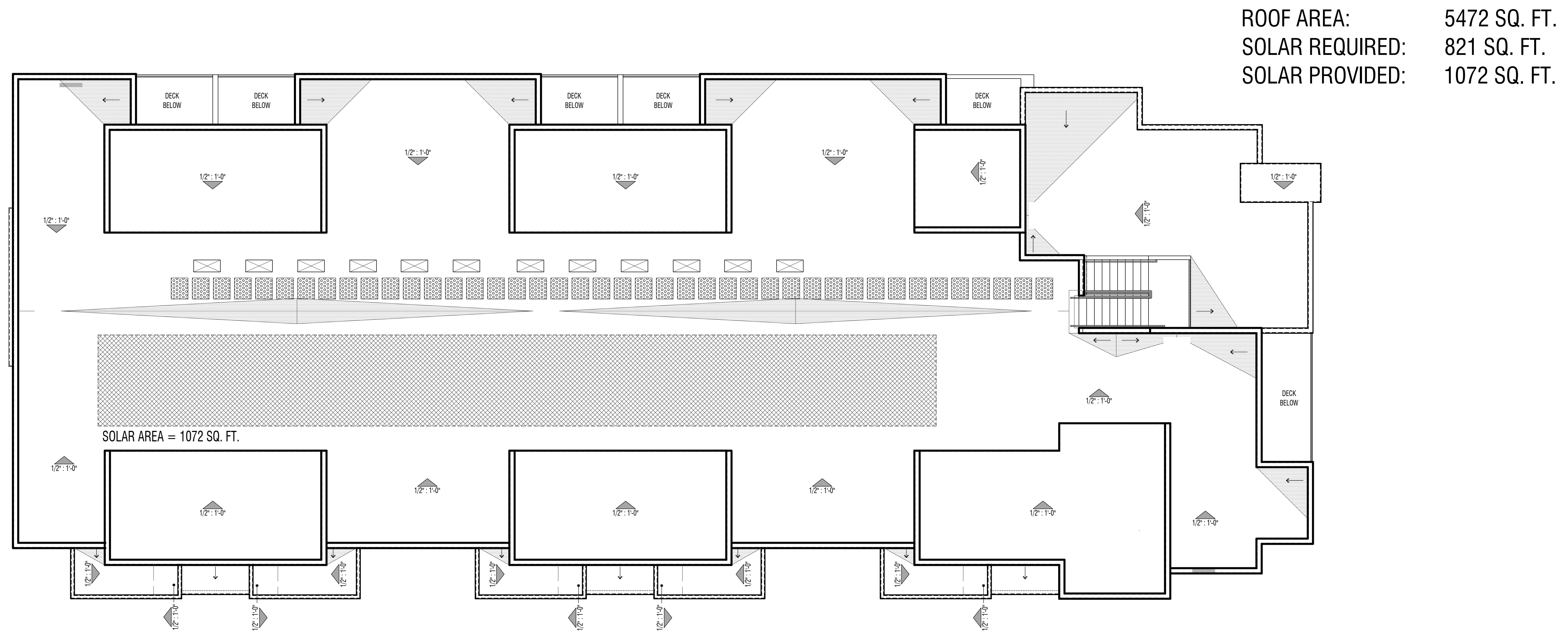
BUILDING A FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

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- Plan 2B
- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C



BUILDING A ROOF PLAN

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



BUILDING B
EXTERIOR ELEVATIONS

Paint Colors: (Sherwin Williams)

A SW 6530 Revel Blue	B SW 7658 Gray Clouds	C SW 7757 High Reflective White
D SW 7019 Gauntlet Gray	E SW 6902 Decisive Yellow	F SW 6203 Spare White
		<i>*match to James Hardie (Arctic White)</i>

Exterior Materials:

- 1** Stucco
- 2** Painted Parapet Metal Cap
- 3** Insulated Vinyl Windows
- 4** Metal Railing
- 5** Fiber Cement Paneling System



RIGHT

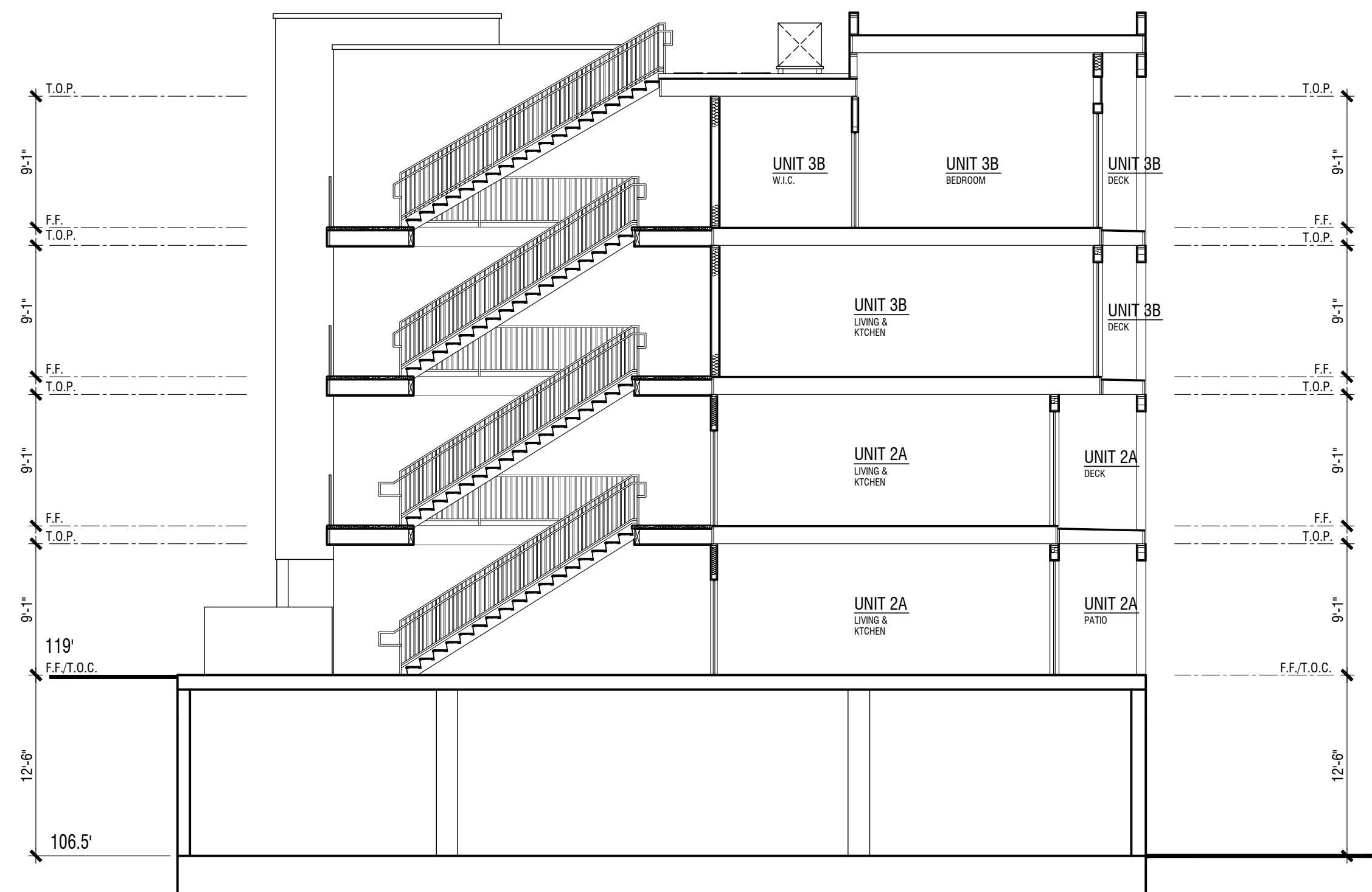


REAR

BUILDING B EXTERIOR ELEVATIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



SECTION B

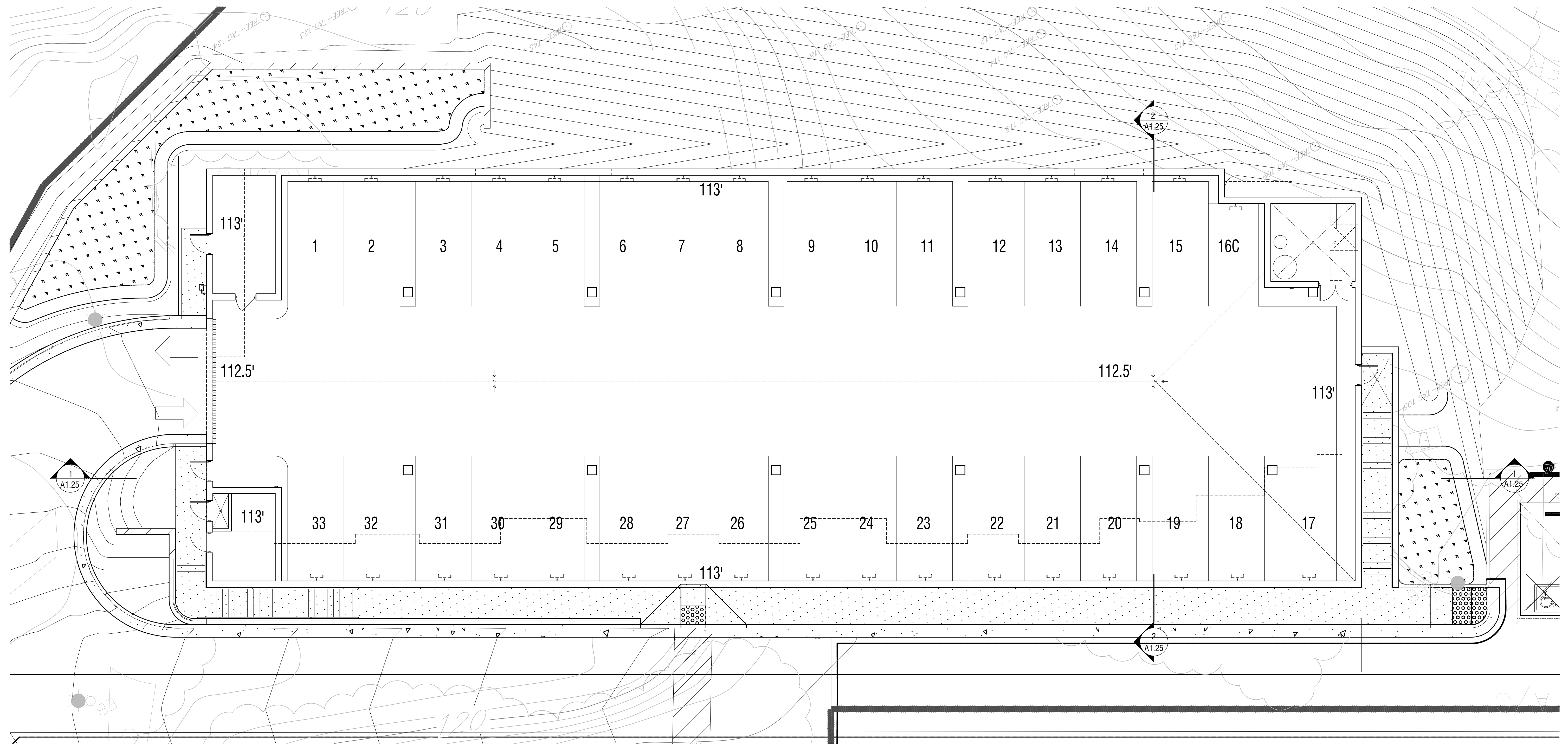


SECTION A

BUILDING B SECTIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

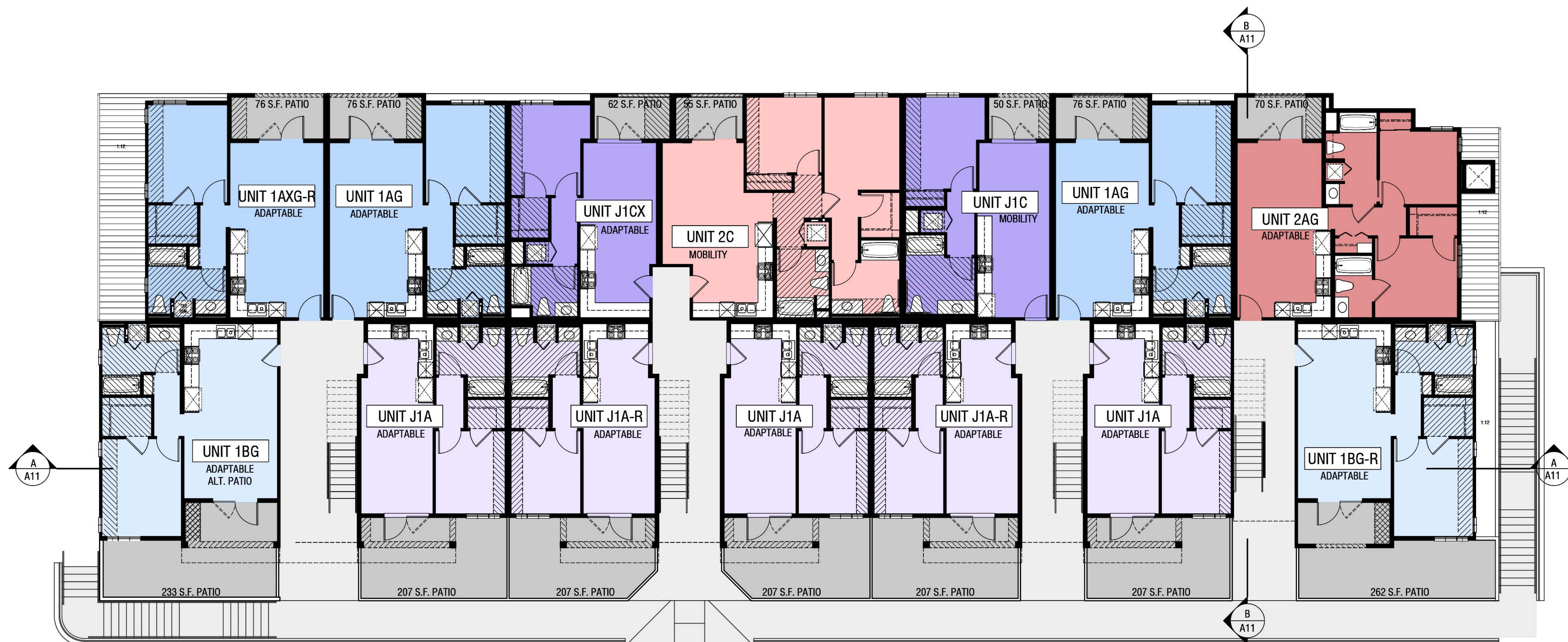


GARAGE LEVEL

BUILDING B FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



PLAN SUMMARY

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- Plan 1B
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- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

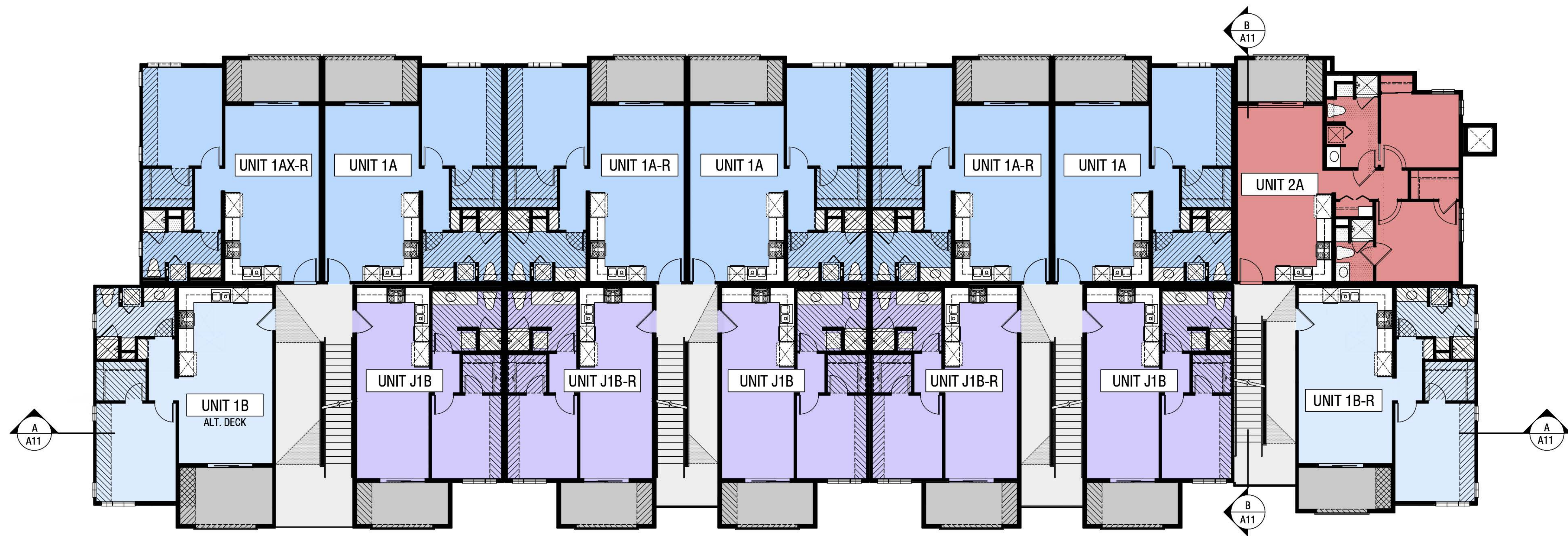
FIRST LEVEL

BUILDING B FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

	Plan 1A
	Plan 1B
	Plan 2A
	Plan 2B
	Plan 2C
	Plan 2D
	Plan 2E
	Plan 2F
	Plan 3A
	Plan 3B
	Plan 3C
	Plan J1A
	Plan J1B
	Plan J1C



BUILDING B

FLOOR PLANS

961 PORTER STREET, VALLEJO, CA 94590



FOURTH LEVEL



THIRD LEVEL

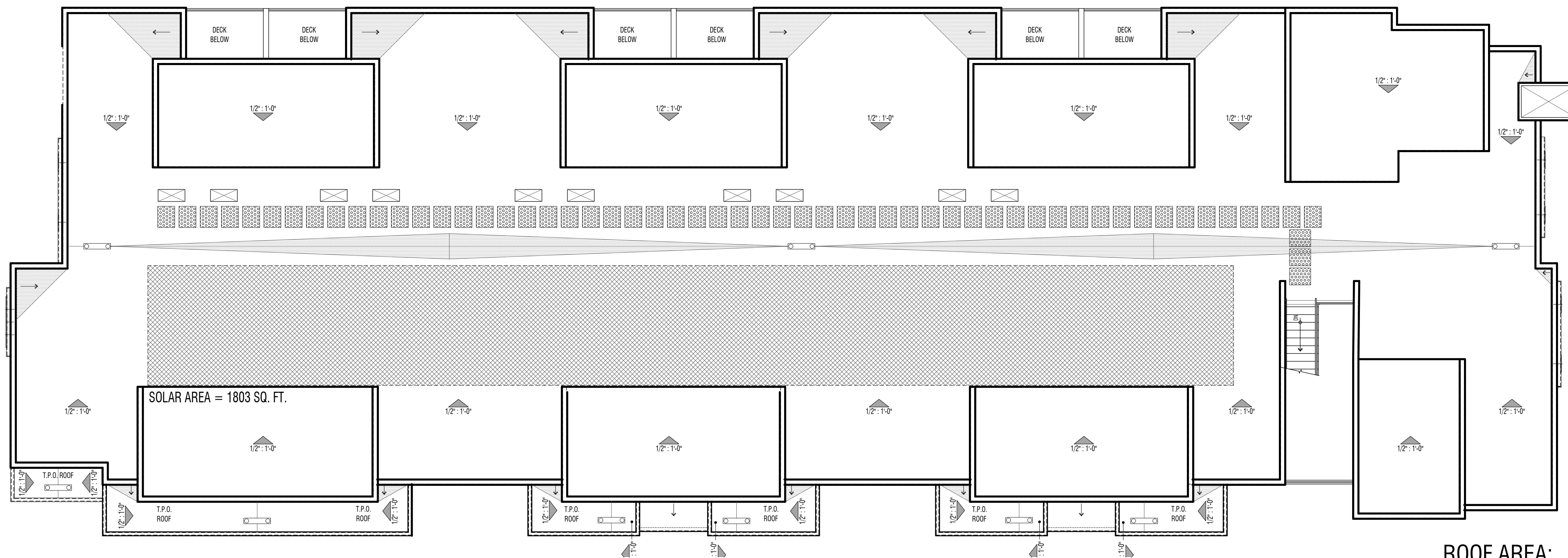
BUILDING B
FLOOR PLANS

PLAN SUMMARY

- Plan 1A
- Plan 1B
- Plan 2A
- Plan 2B
- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



ROOF AREA: 6913 SQ. FT.
 SOLAR REQUIRED: 1037 SQ. FT.
 SOLAR PROVIDED: 1803 SQ. FT.

BUILDING B ROOF PLAN

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



LEFT



FRONT

BUILDING C EXTERIOR ELEVATIONS

Paint Colors: (Sherwin Williams)

A SW 6530 Revel Blue	B SW 7658 Gray Clouds	C SW 7757 High Reflective White
D SW 7019 Gauntlet Gray	E SW 6902 Decisive Yellow	F SW 6203 Spare White
		<i>*match to James Hardie (Arctic White)</i>

Exterior Materials:

- 1 Stucco
- 2 Painted Parapet Metal Cap
- 3 Insulated Vinyl Windows
- 4 Metal Railing
- 5 Fiber Cement Paneling System



BUILDING C

EXTERIOR ELEVATIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



Note: Artist's Conception; Colors, Materials and Application May Vary.

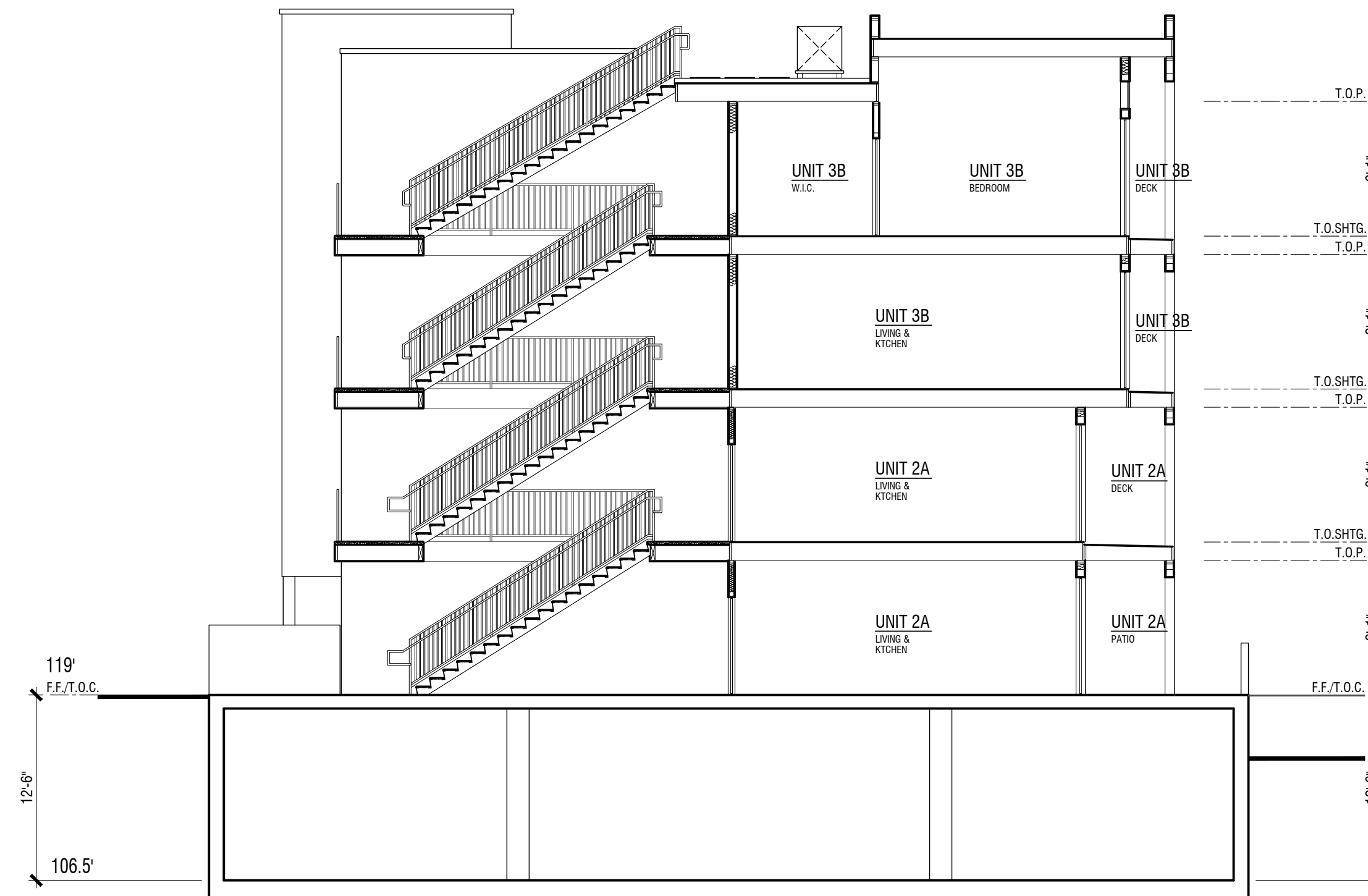
A18

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ARCHITECTS . PLANNERS . DESIGNERS

WHA.

ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO



SECTION B

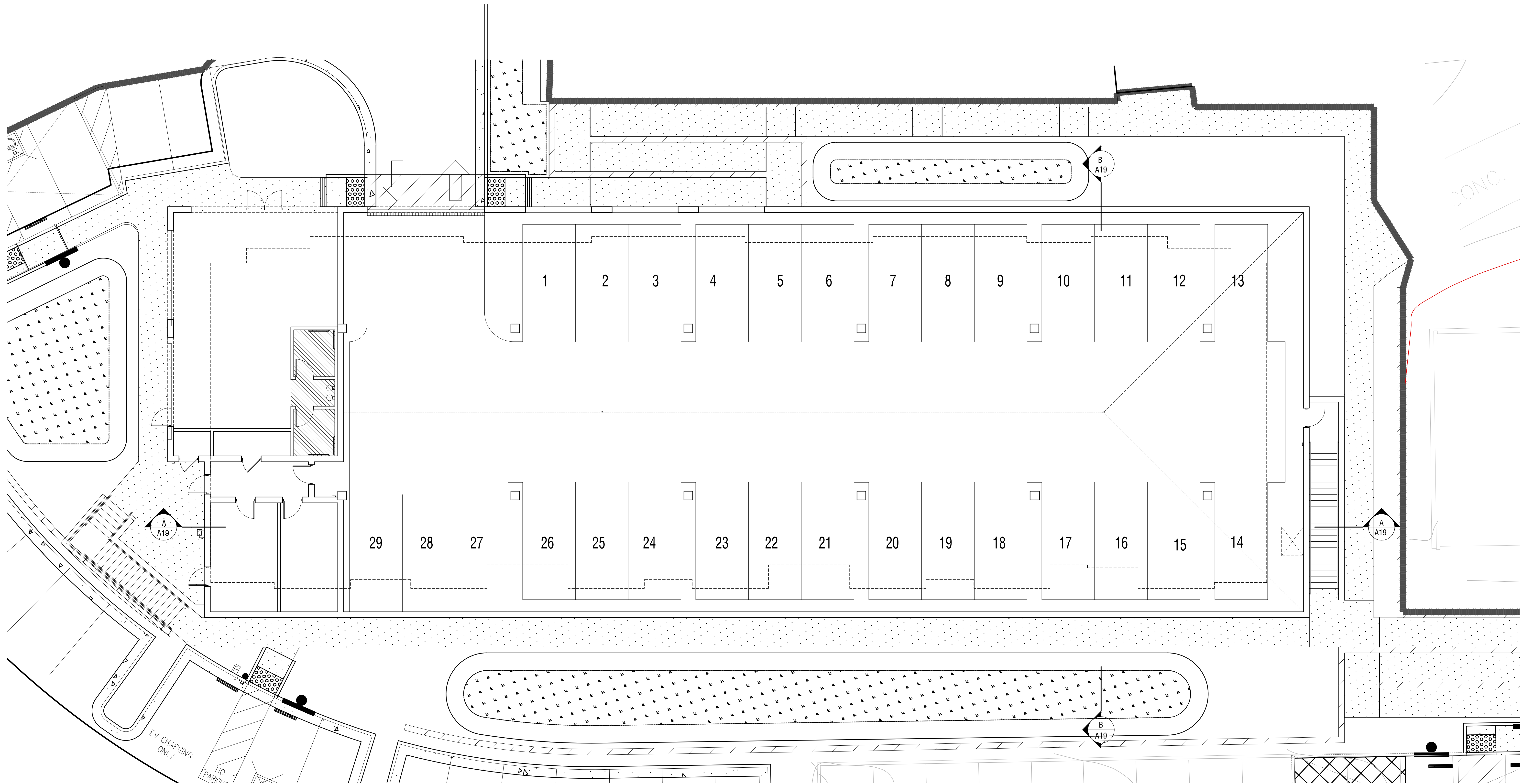


SECTION A

BUILDING C SECTIONS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

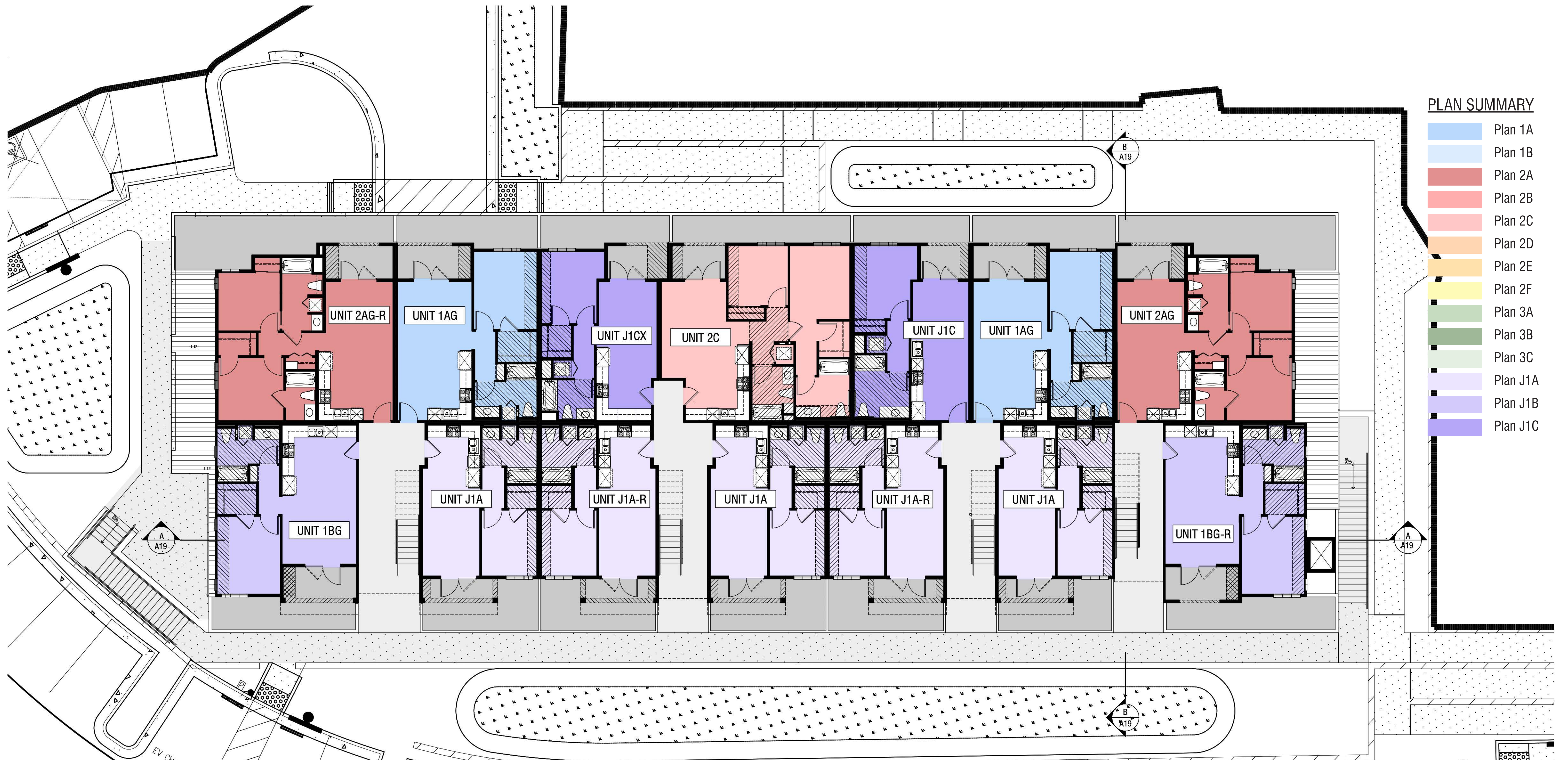


GARAGE LEVEL

BUILDING C
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

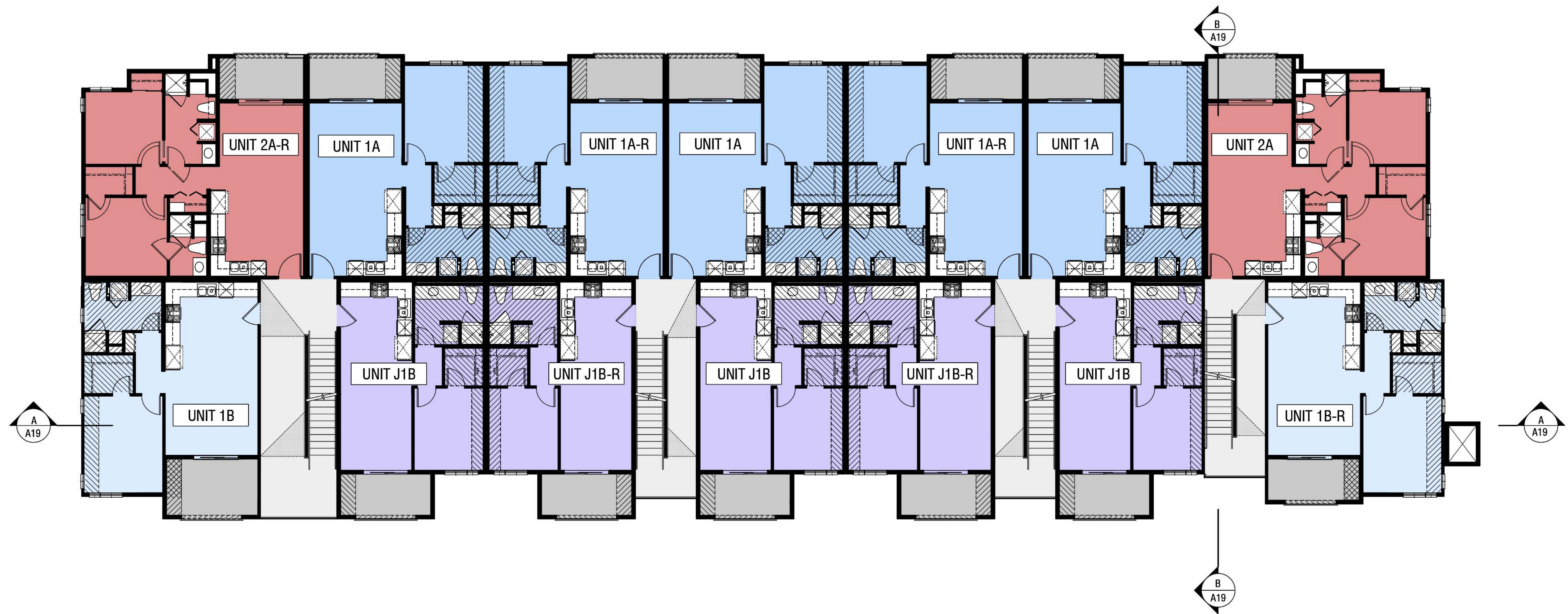


FIRST LEVEL

BUILDING C FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



PLAN SUMMARY

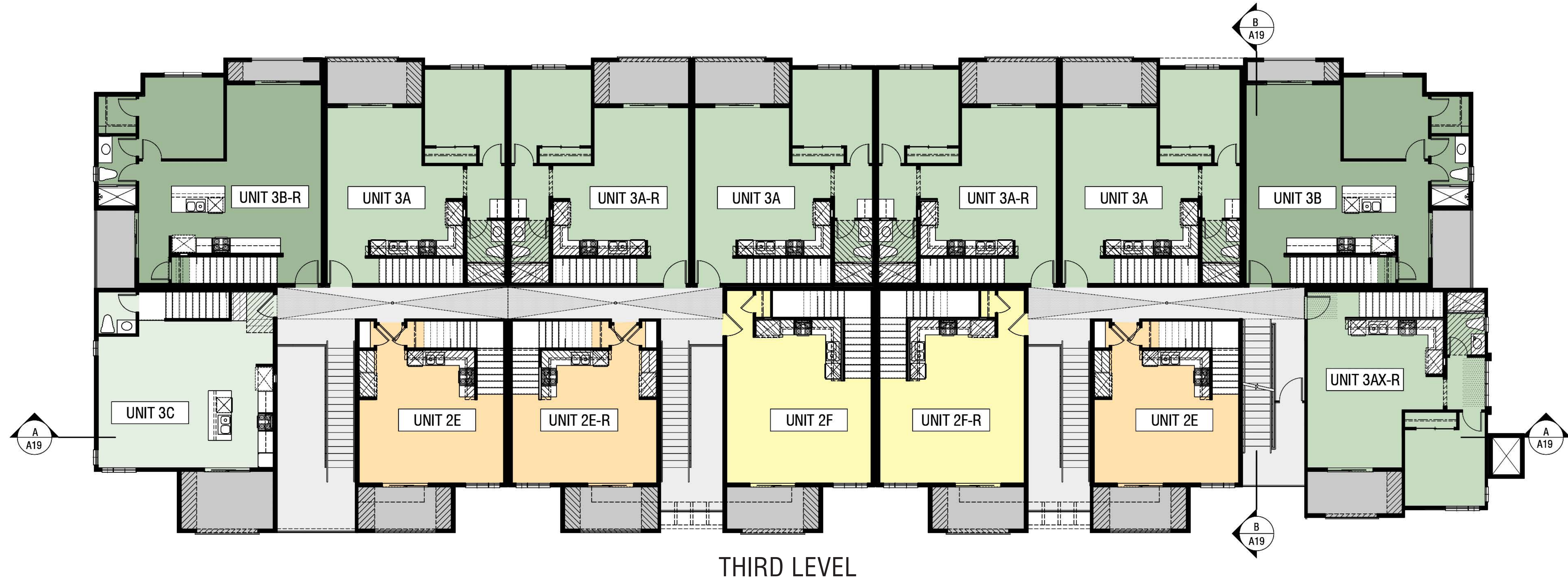
- Plan 1A
- Plan 1B
- Plan 2A
- Plan 2B
- Plan 2C
- Plan 2D
- Plan 2E
- Plan 2F
- Plan 3A
- Plan 3B
- Plan 3C
- Plan J1A
- Plan J1B
- Plan J1C

SECOND LEVEL

BUILDING C
FLOOR PLANS

WEST HARBOR PARK APARTMENTS

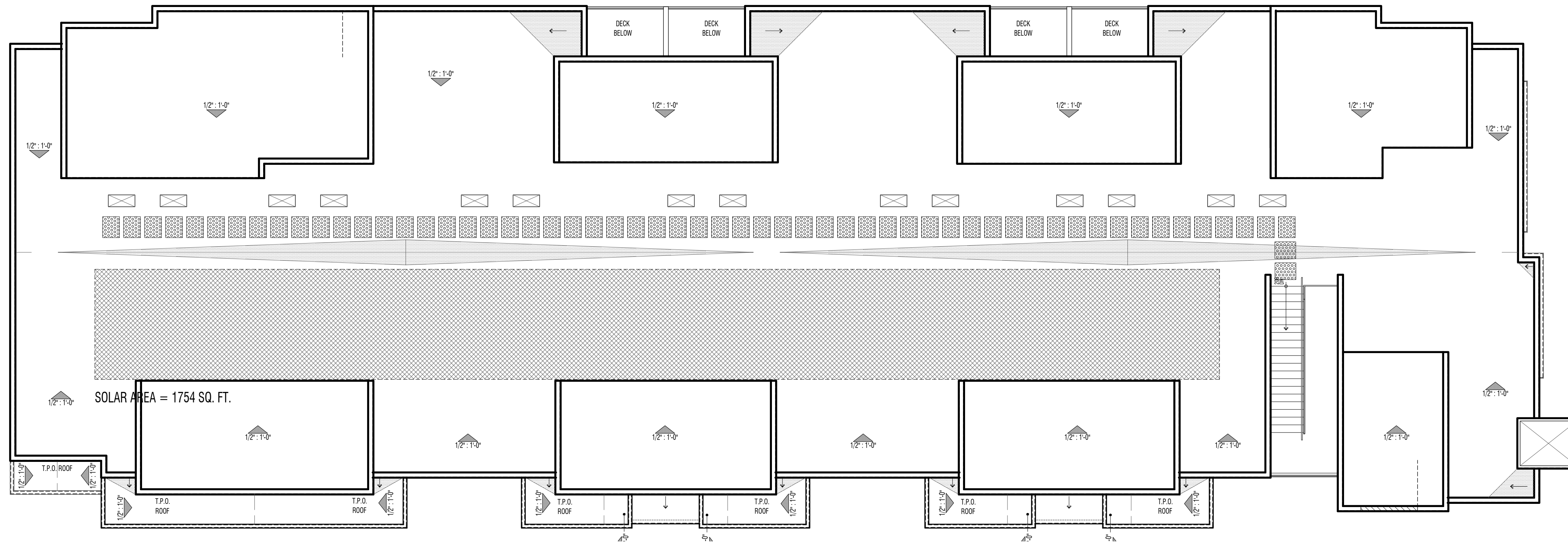
961 PORTER STREET, VALLEJO, CA 94590



BUILDING C FLOOR PLANS

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



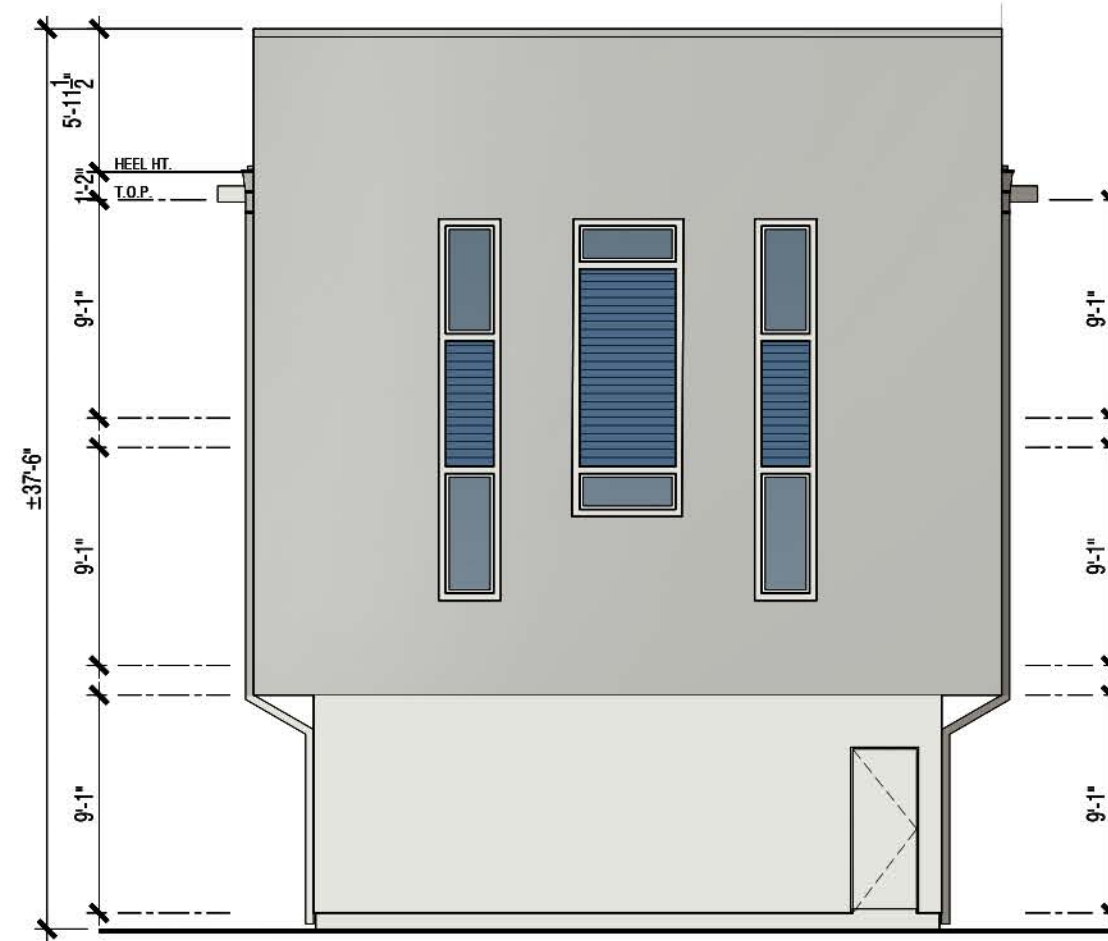
ROOF AREA: 6767 SQ. FT.
 SOLAR REQUIRED: 1015 SQ. FT.
 SOLAR PROVIDED: 1754 SQ. FT.

BUILDING C

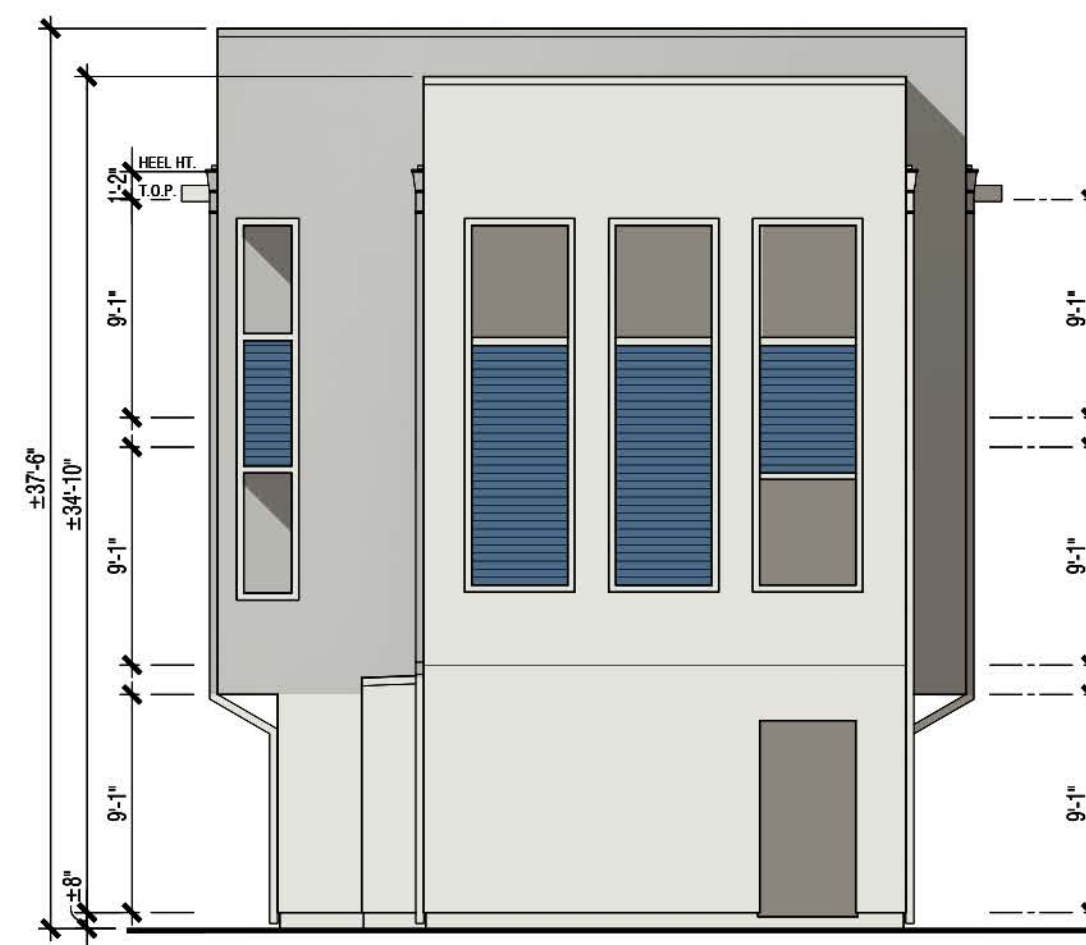
ROOF PLAN

WEST HARBOR PARK APARTMENTS

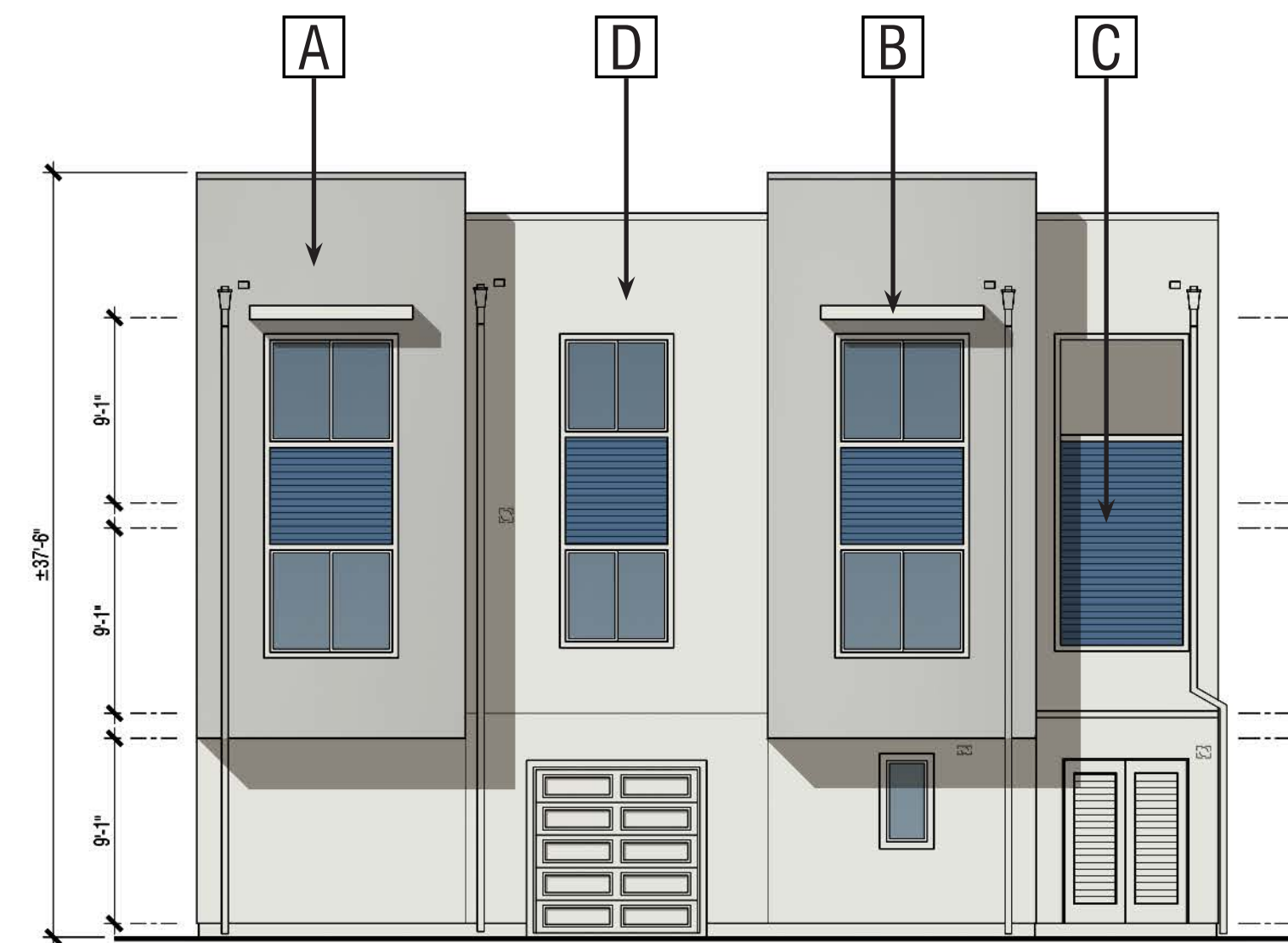
961 PORTER STREET, VALLEJO, CA 94590



RIGHT ELEVATION



LEFT ELEVATION



REAR ELEVATION



FRONT ELEVATION

MAINTENANCE BUILDING

EXTERIOR ELEVATIONS

Paint Colors: (Sherwin Williams)

A SW 7658 Gray Clouds	B SW 7757 High Reflective White
C SW 6530 Revel Blue	D SW 6203 Spare White
	<i>*match to James Hardie (Arctic White)</i>

Exterior Materials:

- 1 Stucco
- 2 Painted Parapet Metal Cap
- 3 Insulated Vinyl Windows
- 4 Metal Awning
- 5 Fiber Cement Siding

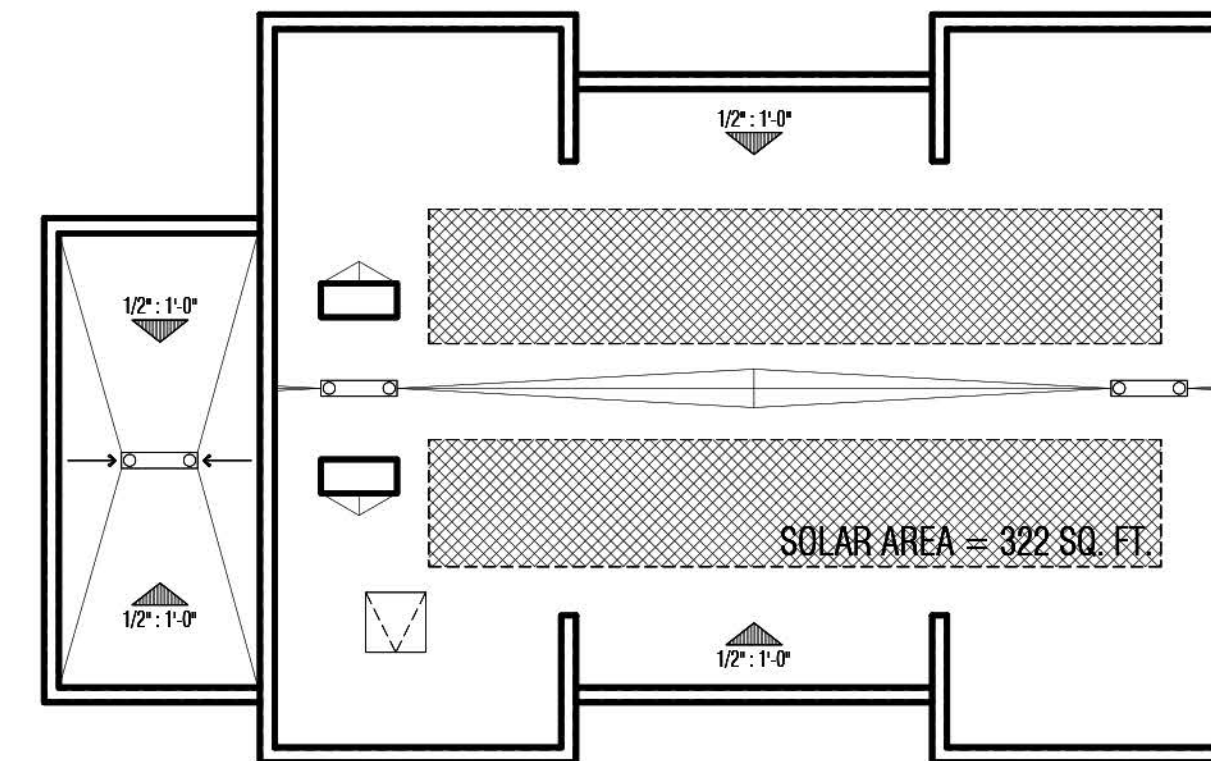
WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

Note: Artist's Conception; Colors, Materials and Application May Vary.

A25

0 4 8 16

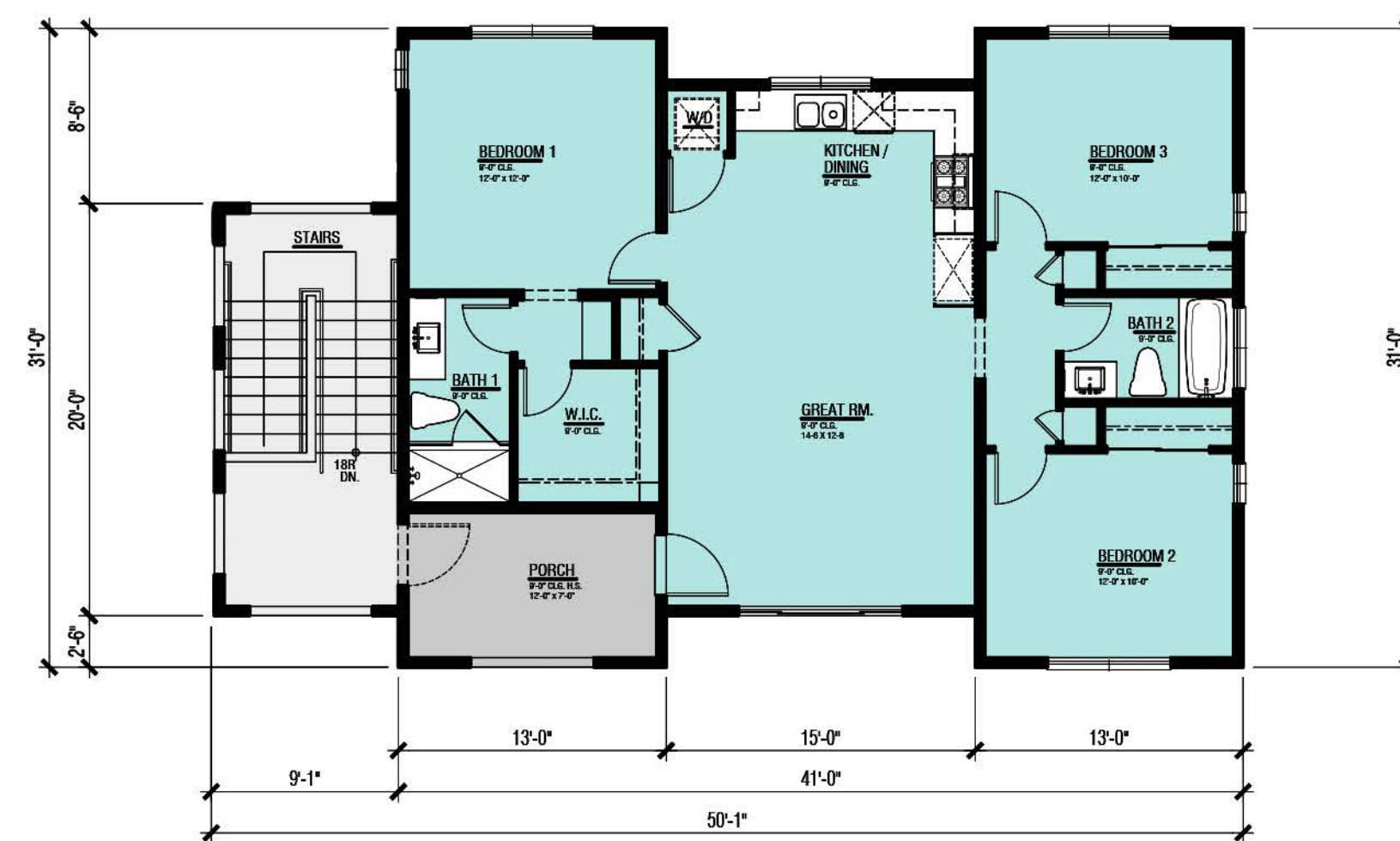


ROOF PLAN

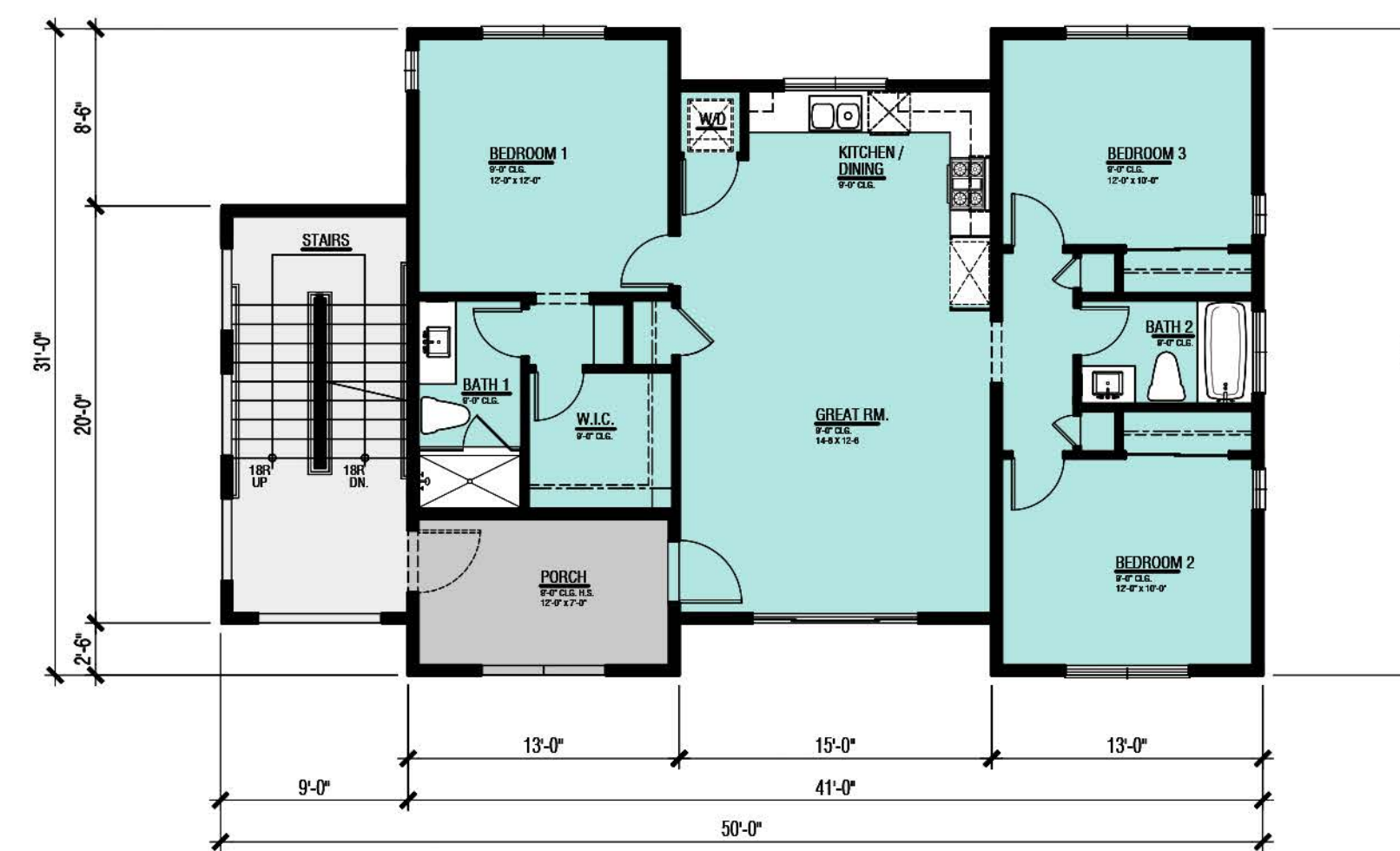
ROOF AREA: 1196 SQ. FT.
 SOLAR REQUIRED: 179 SQ. FT.
 SOLAR PROVIDED: 322 SQ. FT.

PLAN SUMMARY

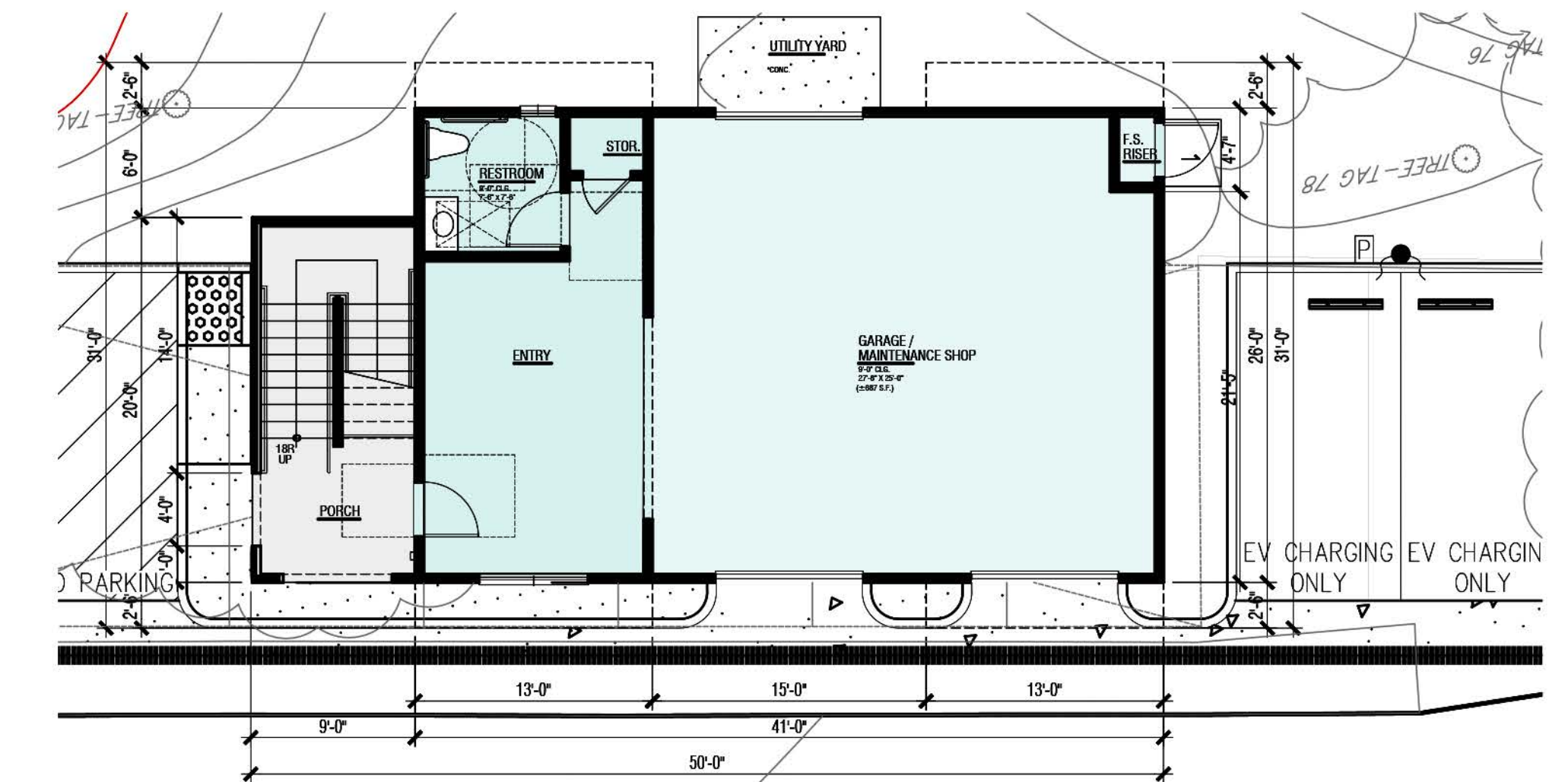
- Apartment
- Maintenance Shop and Office



THIRD FLOOR
 APARTMENT (1026 S.F.)
 (3 BDRM / 2 BATH)



SECOND FLOOR
 APARTMENT (1026 S.F.)
 (3 BDRM / 2 BATH)

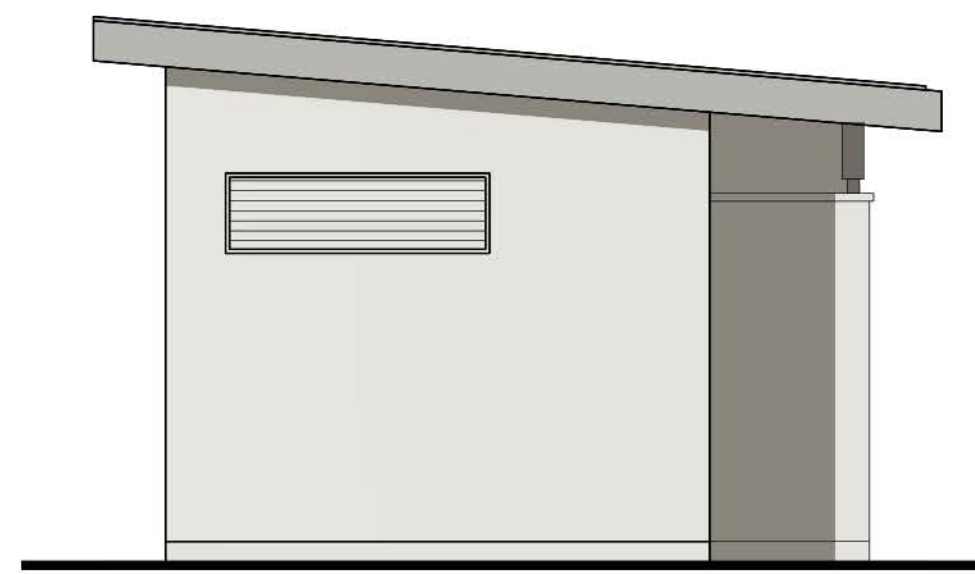


FIRST FLOOR
 MAINTENANCE SHOP AND OFFICE
 (GARAGE / OFFICE / RESTROOM)

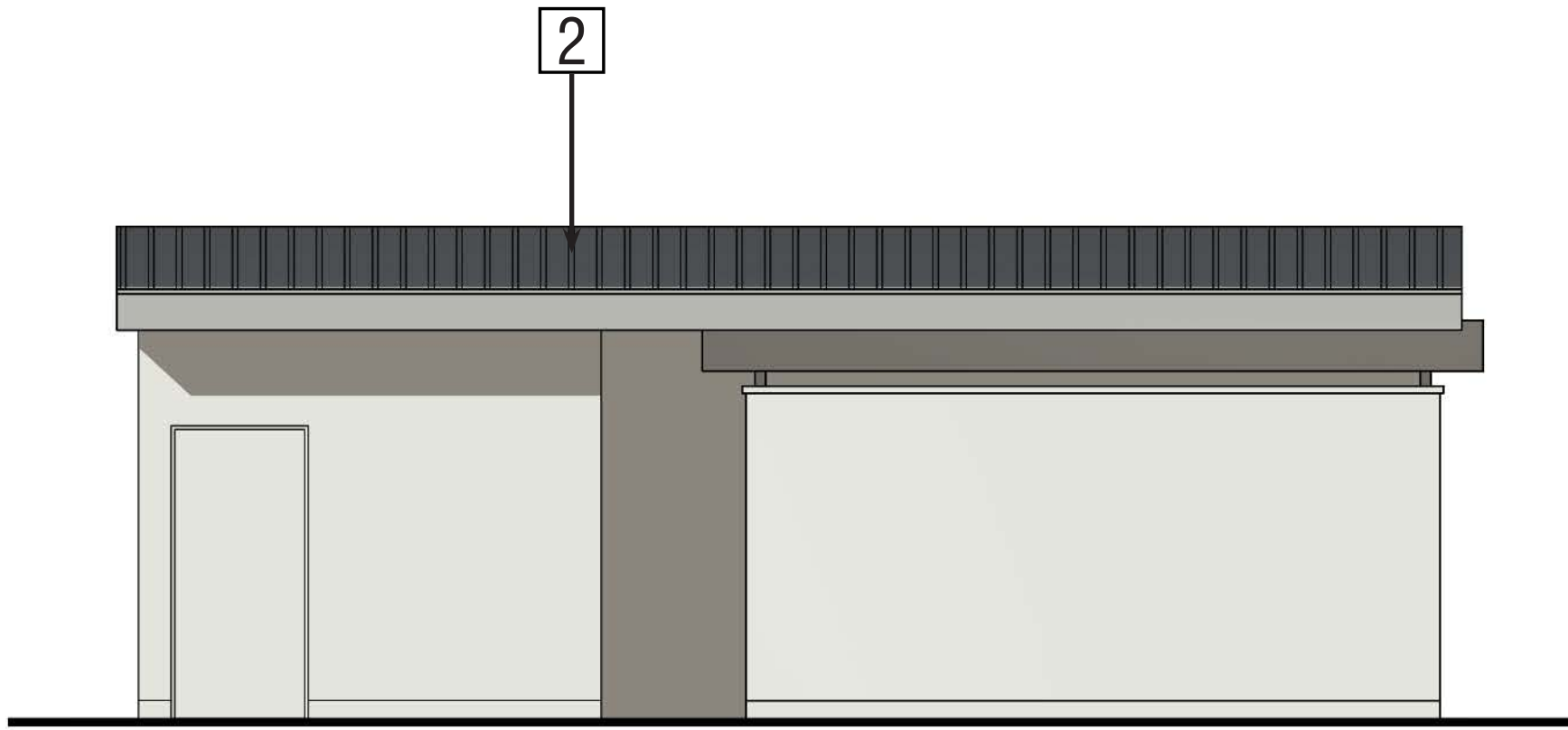
MAINTENANCE BUILDING
 FLOOR PLANS & ROOF PLAN

WEST HARBOR PARK APARTMENTS

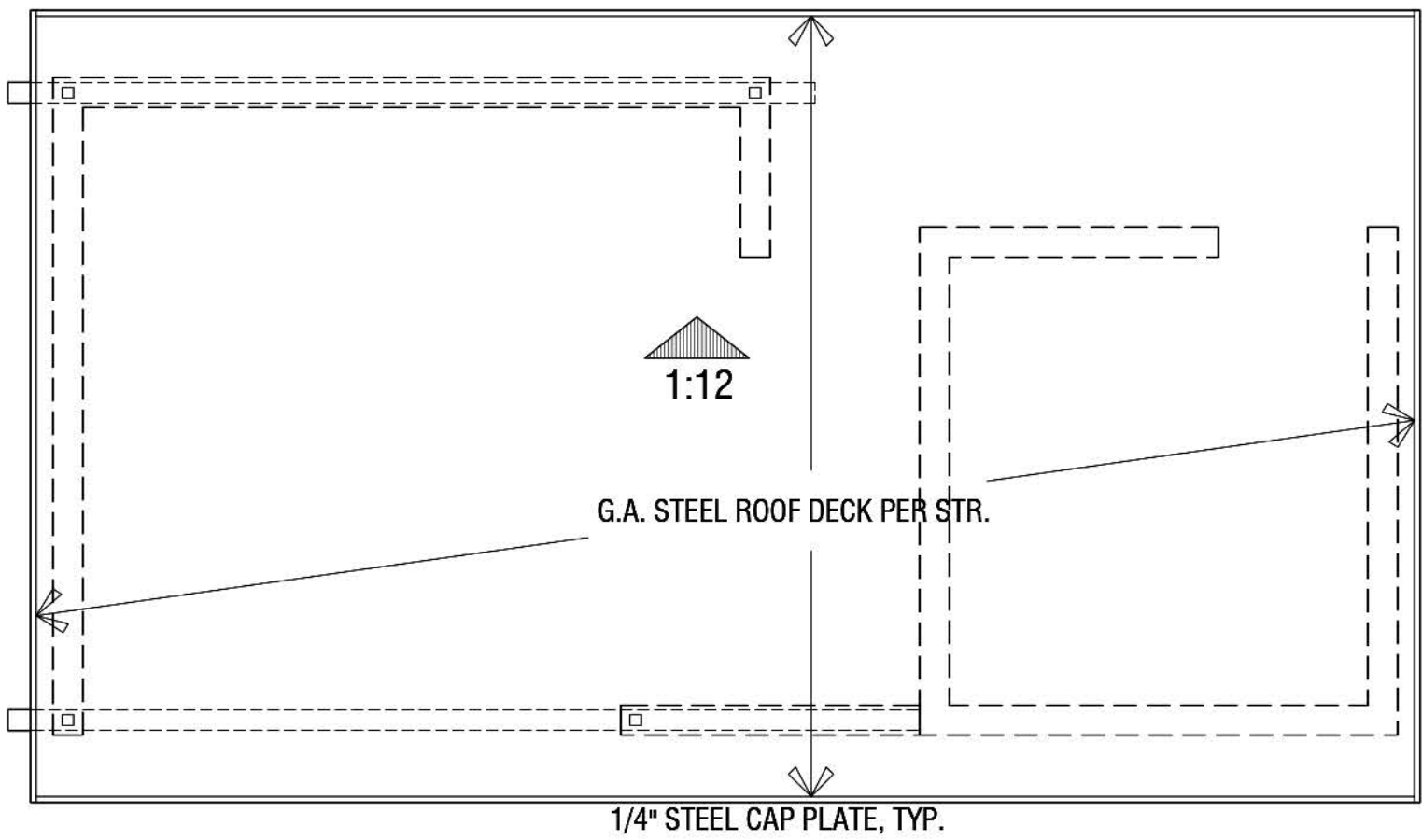
961 PORTER STREET, VALLEJO, CA 94590



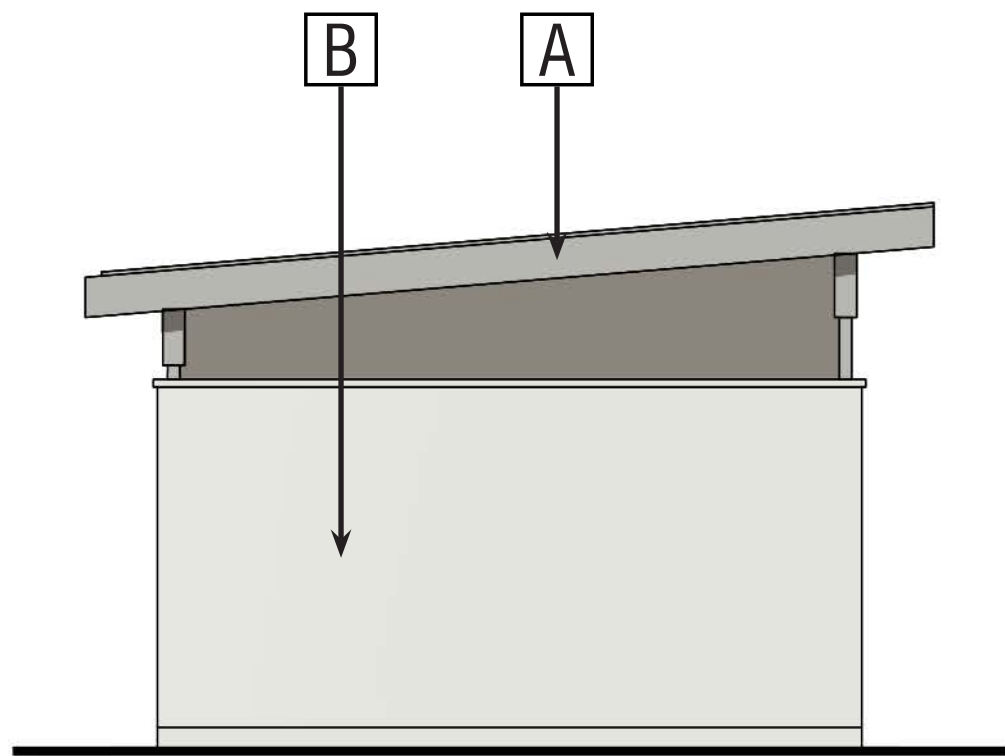
RIGHT ELEVATION



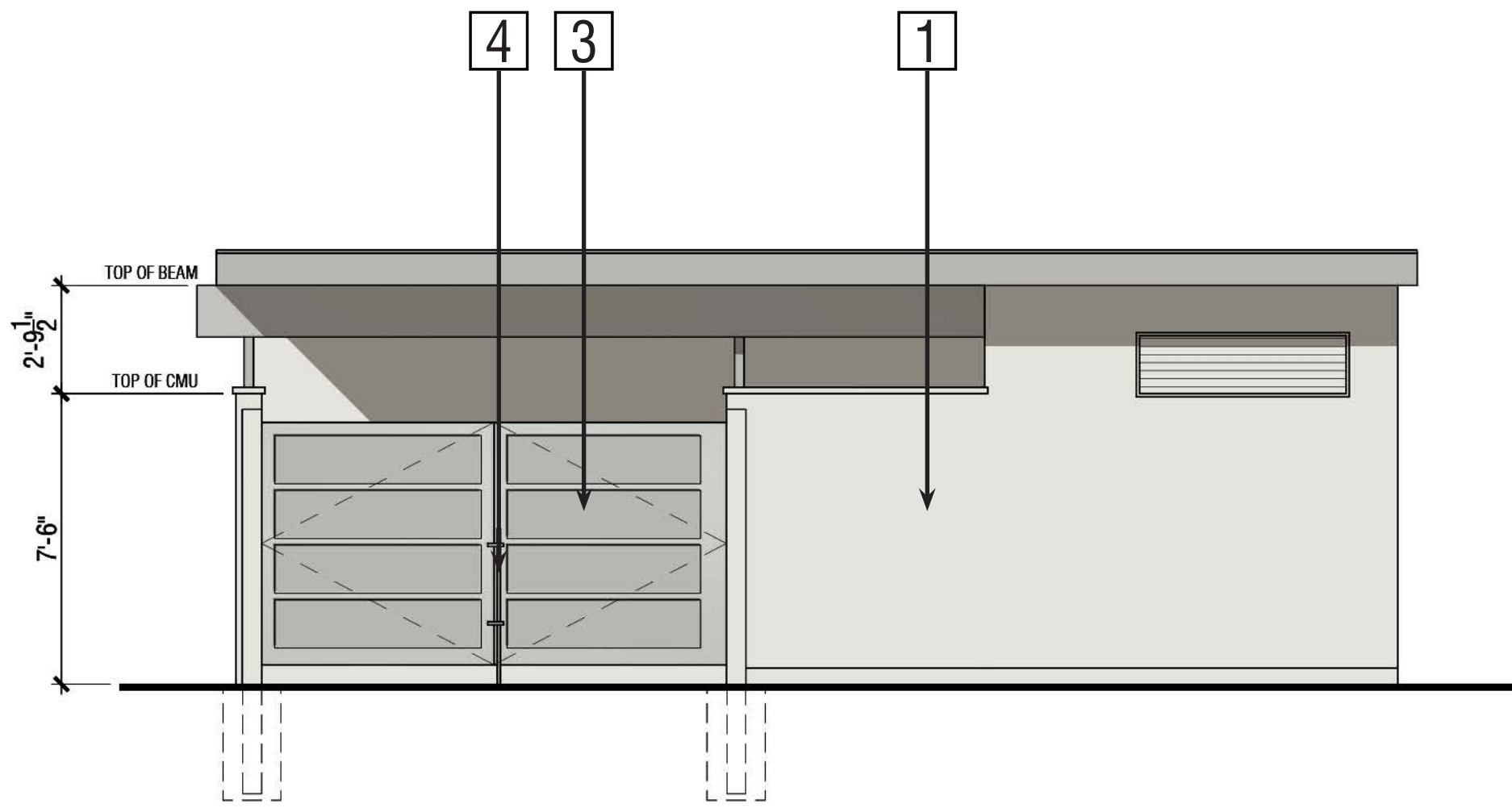
REAR ELEVATION



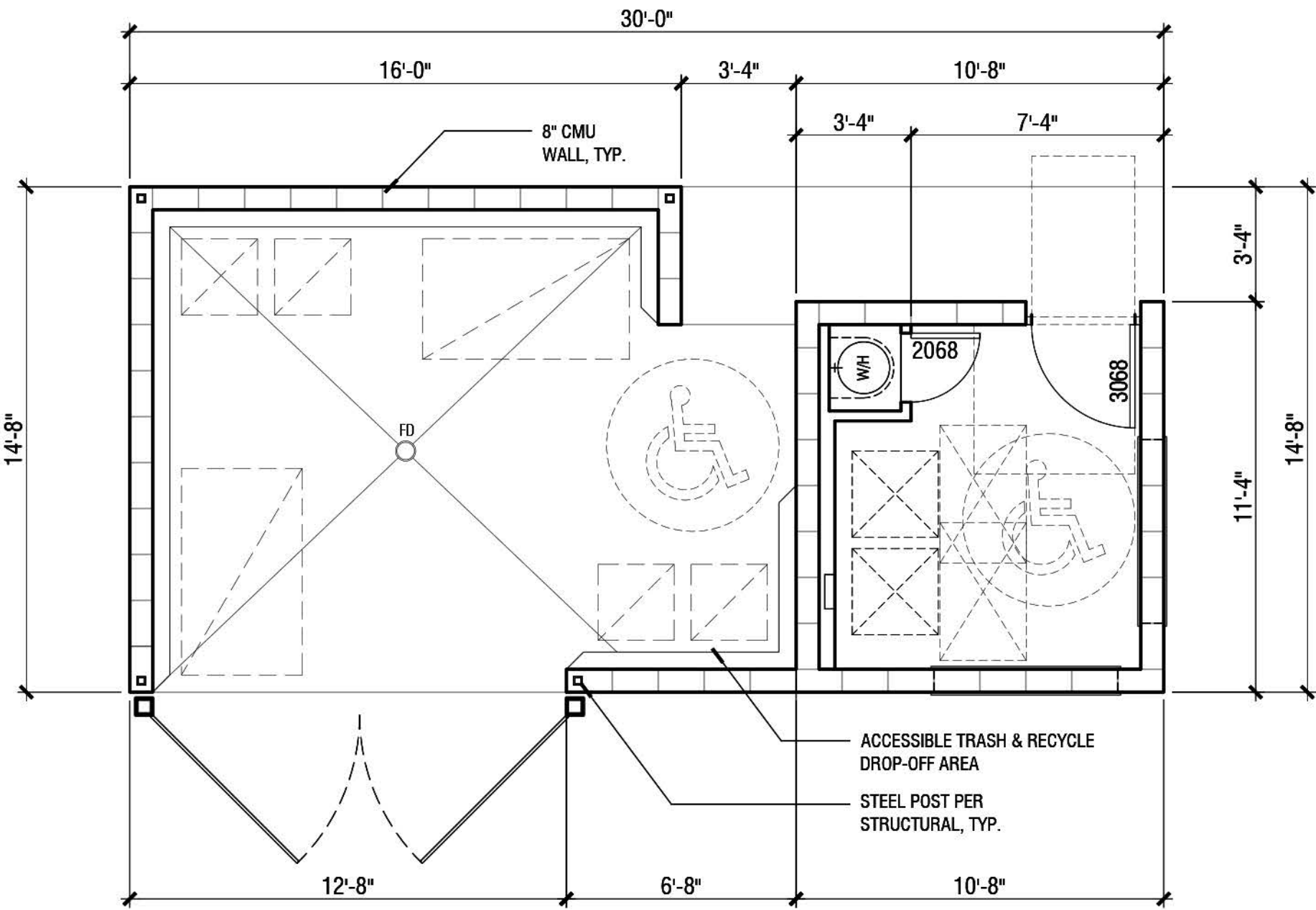
ROOF PLAN



LEFT ELEVATION



FRONT ELEVATION



FLOOR PLAN

Paint Colors: (Sherwin Williams)

- [A] SW 7658 Gray Clouds
- [B] SW 6203 Spare White
- *match to James Hardie (Arctic White)

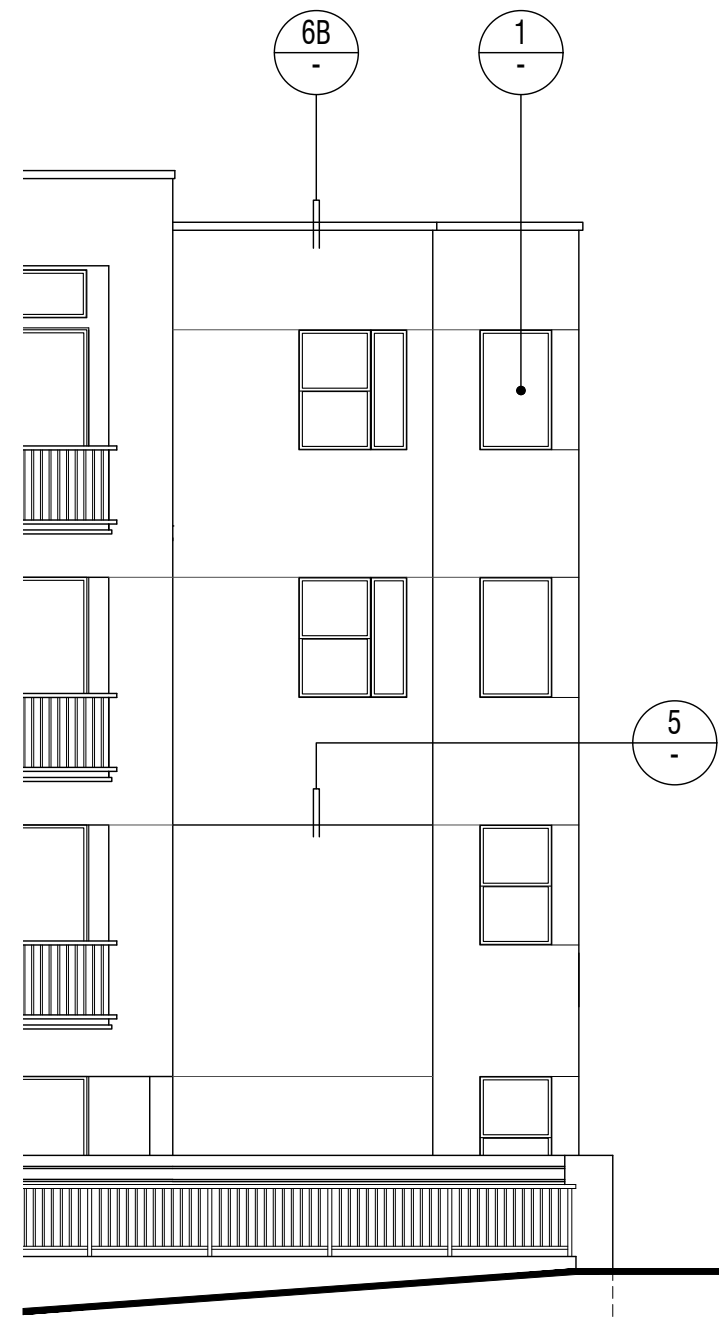
Exterior Materials:

- [1] Stucco over CMU
- [2] Metal Roof
- [3] Metal Door
- [4] Cane Bolt

TRASH ENCLOSURE
EXTERIOR ELEVATIONS, FLOOR PLAN & ROOF PLAN

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



BLDG. A - PARTIAL FRONT



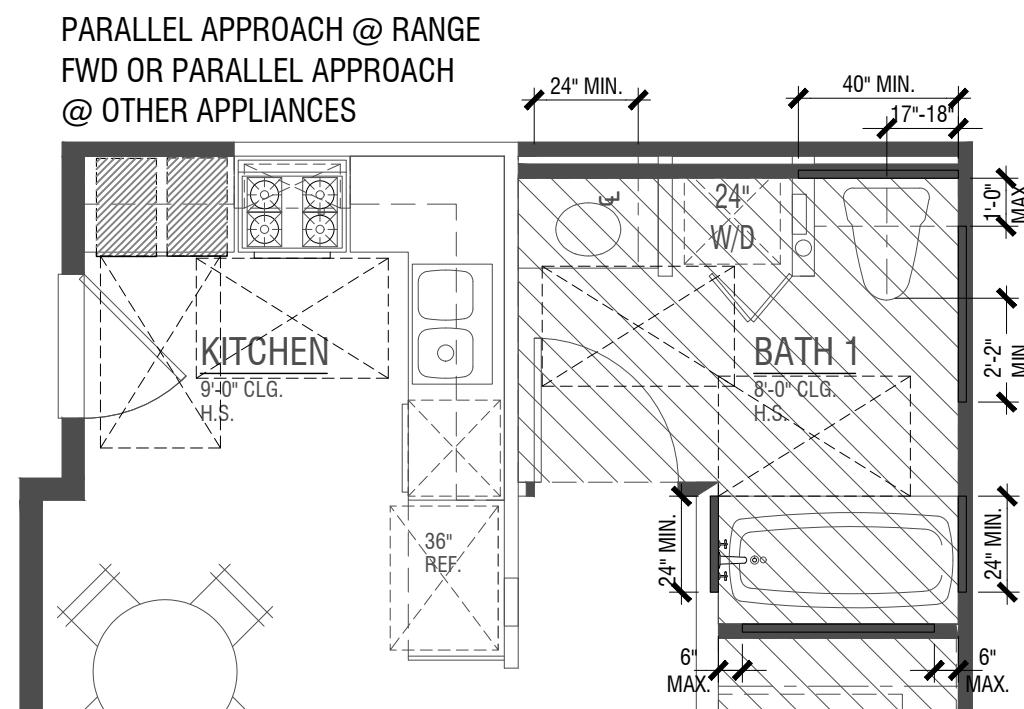
BLDG. A - PARTIAL FRONT

SCREW MOUNTING FLANGE INTO THE WALL AND METAL POST. PRE-DRILLED HOLES SHALL BE FILLED WITH BUTYL RUBBER SEALANT PRIOR TO BOLT INSTALLATION. HANDRAIL @ 42" HIGH A.F.F. METAL GUARDRAIL - PER ELEVATION W/ FASCIA MOUNTED METAL POST NOTE: HANDRAILS AND GUARDS STRENGTH AND ATTACHMENT SHALL COMPLY WITH CRC TABLE R301.5 OPENINGS SHALL NOT ALLOW PASSAGE OF A 4" DIAMETER SPHERE METAL FLASHING WITH DRIP 2x PTDF SPACER BEAM - S.S.D. FILL PRE-DRILLED HOLE WITH BUTYL RUBBER SEALANT PRIOR TO INSTALLING LAG BOLT WATERPROOFING MEMBRANE - STUCCO WALL (BEYOND) DECK FRAMING - S.S.D. WATERPROOF DECKING SYSTEM SCREED AT WALL	1 1/2"=1'-0" DK-STO-DECK-03	7
2X4 WOOD NAILER - SIZE PER ELEVATION CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS STUCCO SYSTEM - INSTALL PER MFR. INSTRUCTIONS BUILDER APPROVED WEATHER BARRIER G.I. FLASHING CAP W/ CLIPS 4'-0" O.C. BOTH SIDES INSTALL ROOF MEMBRANE DOWN OUTSIDE FACE OF WALL 1/2" BELOW NAILER FASTEN 12" O.C. MAX. WITH APPROVED FASTENERS PROVIDE BITUTHENE CONTINUOUS UNDER FLASHING CAP. EXTEND BITUTHENE 6" DOWN EITHER SIDE OF PARAPET & POSITIVE LAP W/ BUILDING PAPER. CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS EXT. GRADE PLYWOOD TPO MEMBRANE FULLY ADHERED - INSTALL PER MANUFACTURERS INSTRUCTIONS 2X4 WOOD NAILER - U.N.O. CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS SEALANT 'ALLURA' FIBER CEMENT PANEL SYSTEM OR APPROVED EQ. - INSTALL PER MFR'S INSTRUCT. BUILDER APPROVED WEATHER BARRIER G.I. FLASHING CAP W/ CLIPS 4'-0" O.C. BOTH SIDES INSTALL ROOF MEMBRANE DOWN OUTSIDE FACE OF WALL 1/2" BELOW NAILER FASTEN 12" O.C. MAX. WITH APPROVED FASTENERS CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS PROVIDE BITUTHENE CONTINUOUS UNDER FLASHING CAP. EXTEND BITUTHENE 6" DOWN EITHER SIDE OF PARAPET & POSITIVE LAP W/ BUILDING PAPER. EXT. GRADE PLYWOOD TPO MEMBRANE FULLY ADHERED - INSTALL PER MANUFACTURERS INSTRUCTIONS	1-1/2"=1'-0" RF-TPO-ROOF-01M	6
CANTILEVERED FLOOR JOIST - PER STRUCT. INSULATION WHERE OCCURS BLOCKING - PER STRUCT. GYP. BD. WHERE OCCURS INSULATION WHERE OCCURS STUCCO	1-1/2"=1'-0" AR-STON-CORBEL-01	5
	1-1/2"=1'-0" WALL OFFSET WD-STUCCO	4
2x FRAMING SLIDING GLASS DOOR FRAME CONTINUOUS BEAD OF SEALANT PLYWOOD SHEATHING WHERE OCCURS - REFER TO STRUCT. DWGS. FULLY SELF-ADHERED ELASTOMERIC MEMBRANE, 6" MIN. OVERLAP STUCCO SYSTEM 2x BLOCKING GYP. BD. INSULATION WHERE OCCURS	3'=1'-0" DR-SLIDER-STO3-01	3
	3'=1'-0" WI-WIND-STO3-00	2
WINDOW FRAME DOUBLE 2x SILL 2x BLOCKING GYP. BD. INSULATION WHERE OCCURS VAPOR BARRIER BUILDING PAPER STUCCO	3'=1'-0" WI-WIND-STO3-00	1
2X4 WOOD NAILER - U.N.O. CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS SEALANT 'ALLURA' FIBER CEMENT PANEL SYSTEM OR APPROVED EQ. - INSTALL PER MFR'S INSTRUCT. BUILDER APPROVED WEATHER BARRIER G.I. FLASHING CAP W/ CLIPS 4'-0" O.C. BOTH SIDES INSTALL ROOF MEMBRANE DOWN OUTSIDE FACE OF WALL 1/2" BELOW NAILER FASTEN 12" O.C. MAX. WITH APPROVED FASTENERS CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS PROVIDE BITUTHENE CONTINUOUS UNDER FLASHING CAP. EXTEND BITUTHENE 6" DOWN EITHER SIDE OF PARAPET & POSITIVE LAP W/ BUILDING PAPER. EXT. GRADE PLYWOOD TPO MEMBRANE FULLY ADHERED - INSTALL PER MANUFACTURERS INSTRUCTIONS		B
2X4 WOOD NAILER - U.N.O. CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS SEALANT 'ALLURA' FIBER CEMENT PANEL SYSTEM OR APPROVED EQ. - INSTALL PER MFR'S INSTRUCT. BUILDER APPROVED WEATHER BARRIER G.I. FLASHING CAP W/ CLIPS 4'-0" O.C. BOTH SIDES INSTALL ROOF MEMBRANE DOWN OUTSIDE FACE OF WALL 1/2" BELOW NAILER FASTEN 12" O.C. MAX. WITH APPROVED FASTENERS CONTINUOUS CLEAT - FASTEN PER MFR.'S SPECIFICATIONS PROVIDE BITUTHENE CONTINUOUS UNDER FLASHING CAP. EXTEND BITUTHENE 6" DOWN EITHER SIDE OF PARAPET & POSITIVE LAP W/ BUILDING PAPER. EXT. GRADE PLYWOOD TPO MEMBRANE FULLY ADHERED - INSTALL PER MANUFACTURERS INSTRUCTIONS		A
INSULATION WHERE OCCURS GYP. BD. HEADER PER STRUCT. CONTINUOUS BEAD OF SEALANT WINDOW FRAME		
2x FRAMING WINDOW FRAME 2x BACKING GYP. BD. INSULATION WHERE OCCURS CONTINUOUS BEAD OF SEALANT STUCCO BUILDING PAPER VAPOR BARRIER		
WINDOW FRAME DOUBLE 2x SILL 2x BLOCKING GYP. BD. INSULATION WHERE OCCURS VAPOR BARRIER BUILDING PAPER STUCCO		

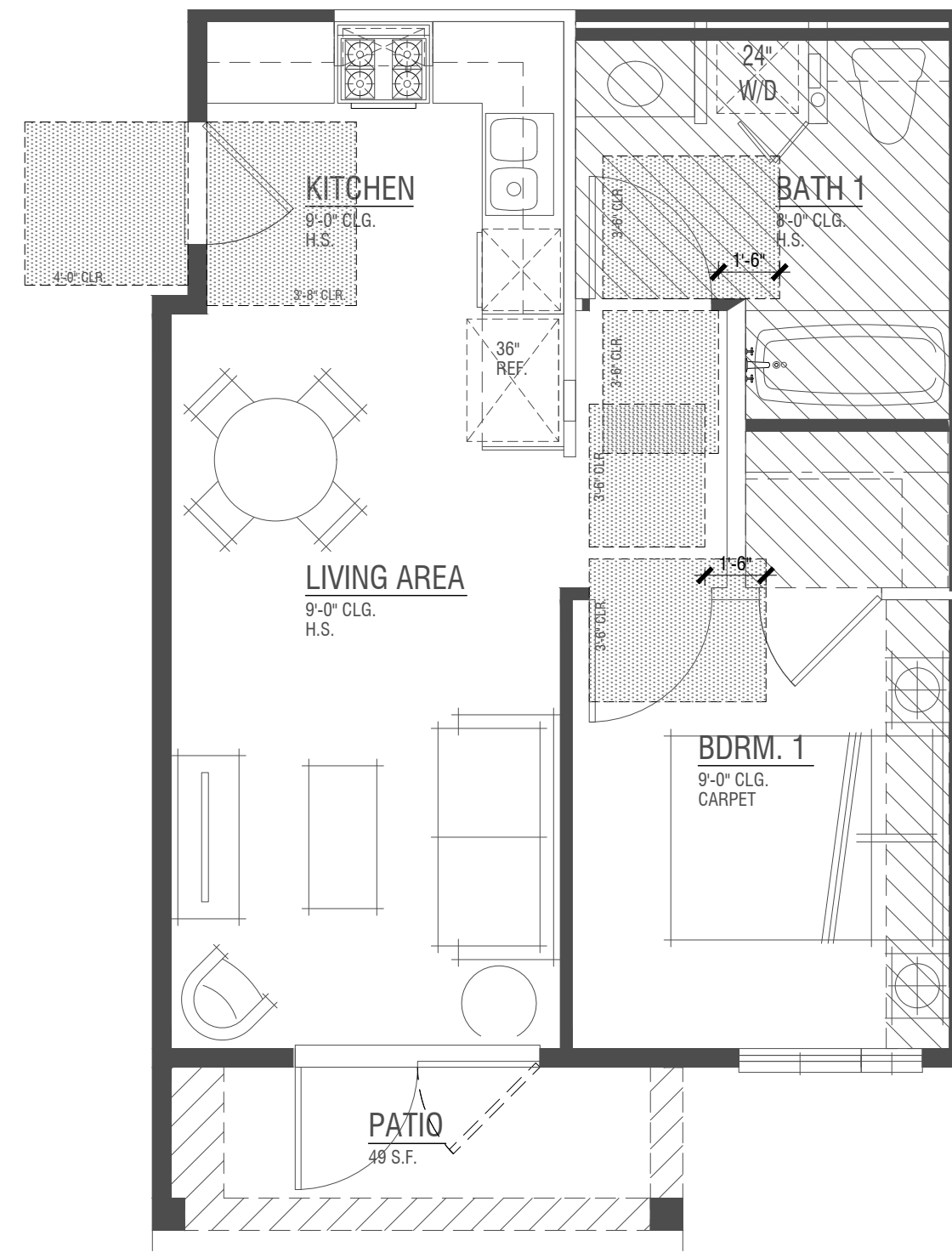
ARCHITECTURAL DETAILS

WEST HARBOR PARK APARTMENTS

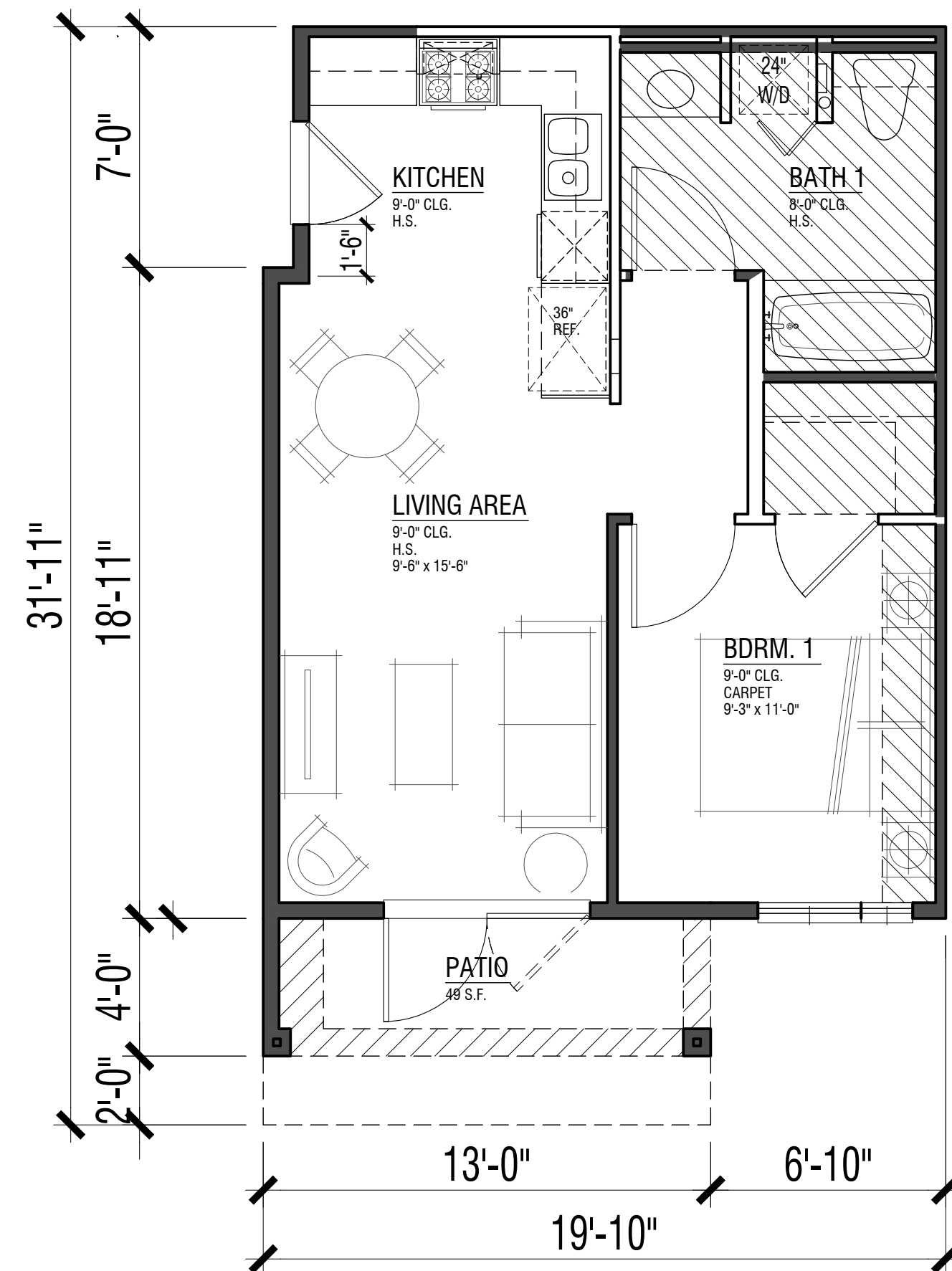
961 PORTER STREET, VALLEJO, CA 94590



ACCESSIBILITY
CLEARANCES & GRAB BAR
BACKING PER CH. 11A



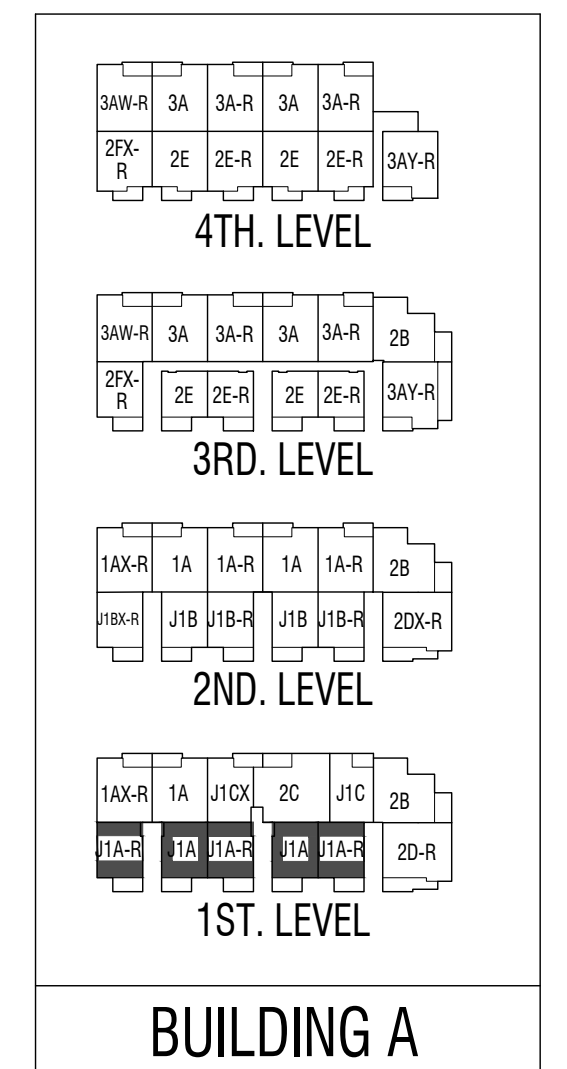
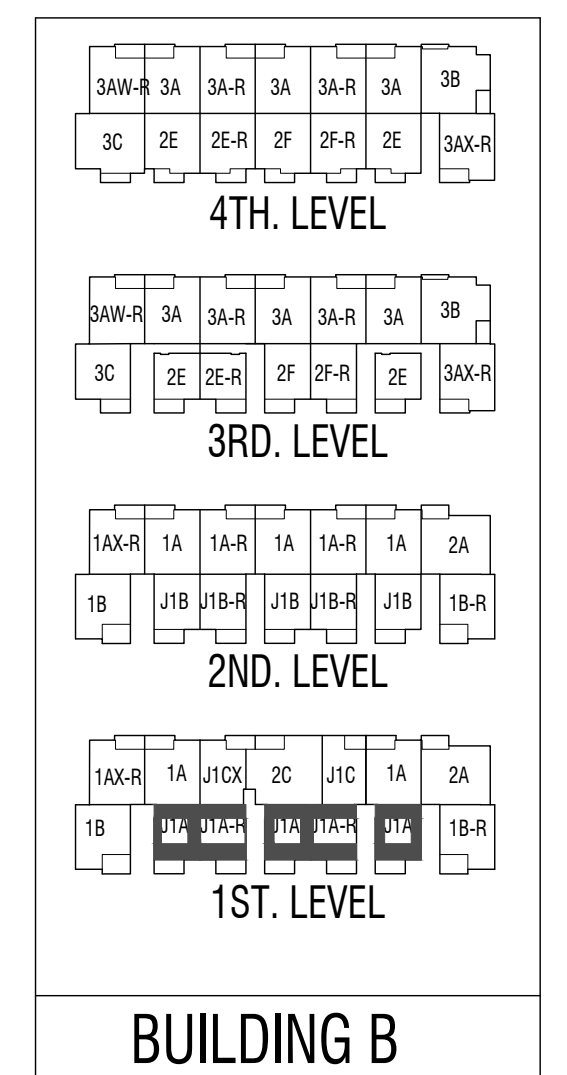
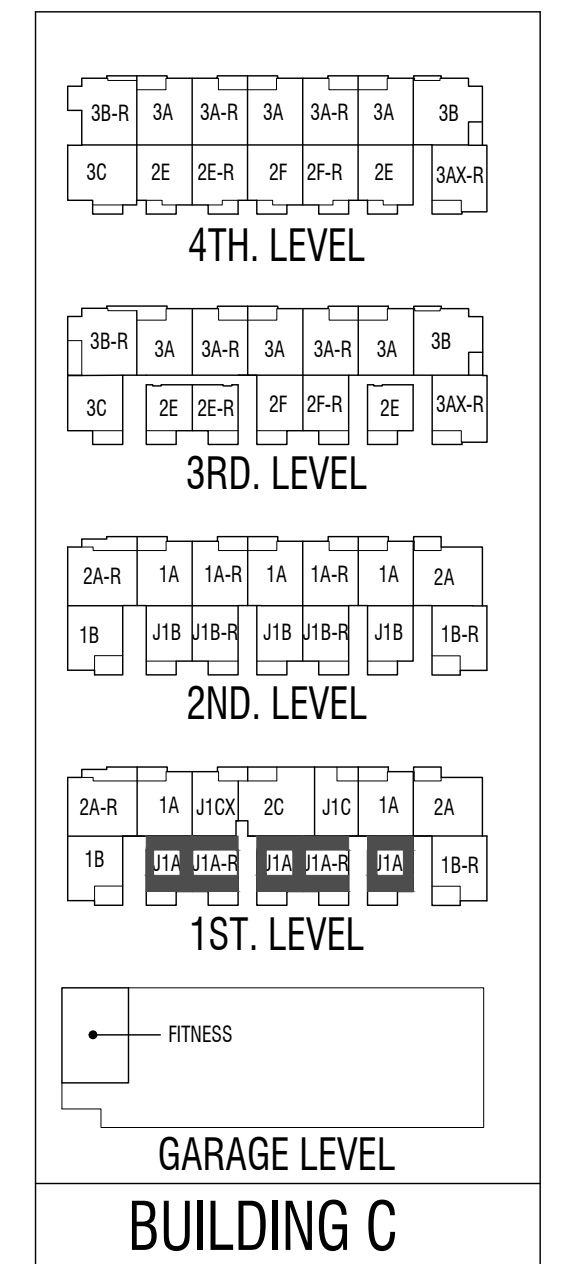
DOOR CLEARANCES
PER CH. 11A

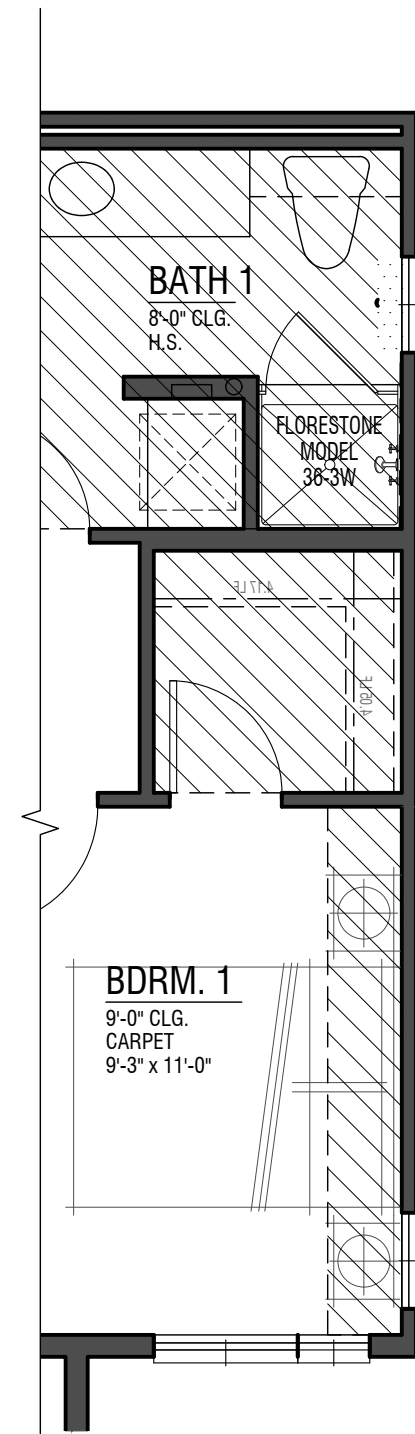


UNIT PLAN J1A

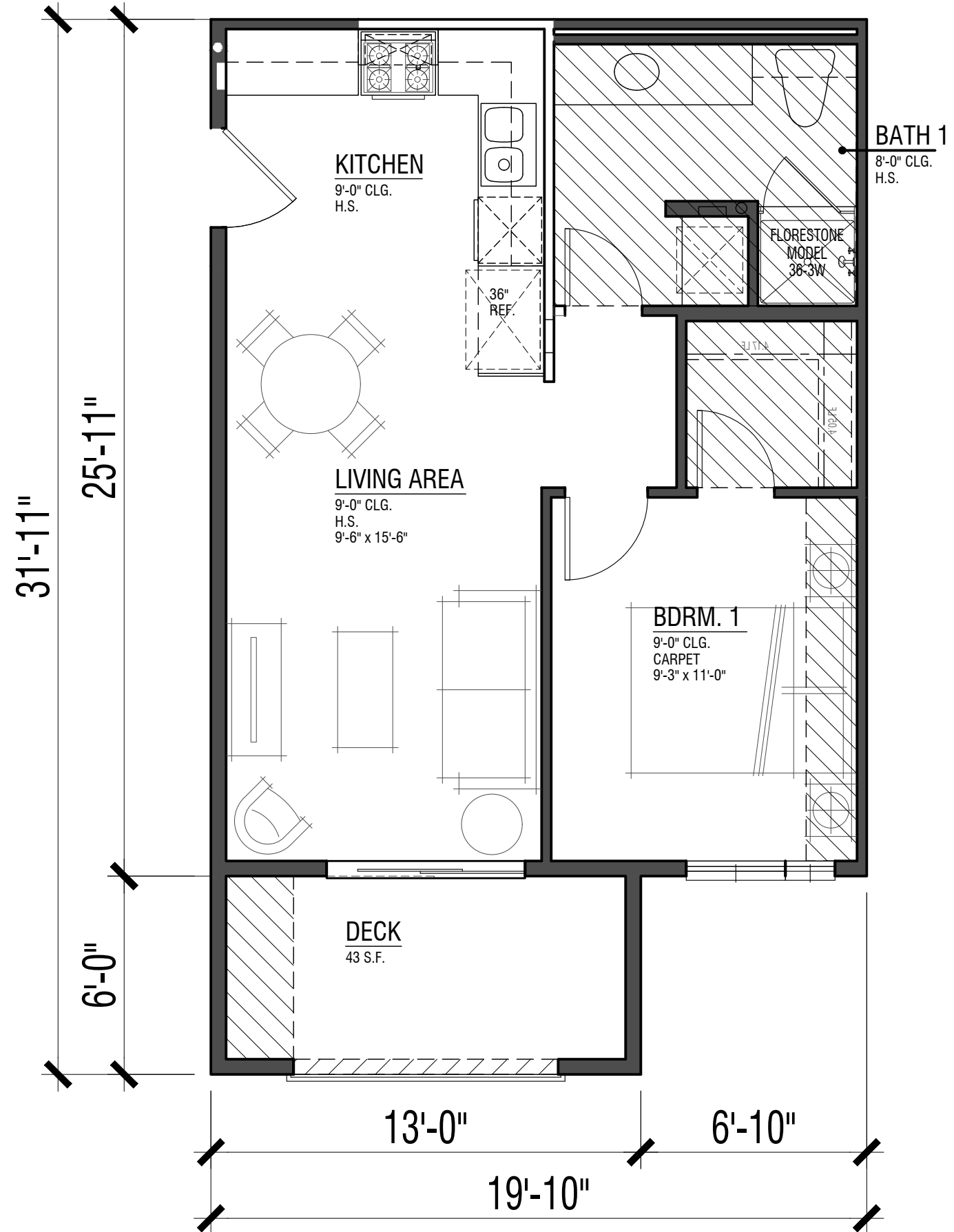
1 Bdrm. / 1 Bath
ADAPTABLE
469 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)



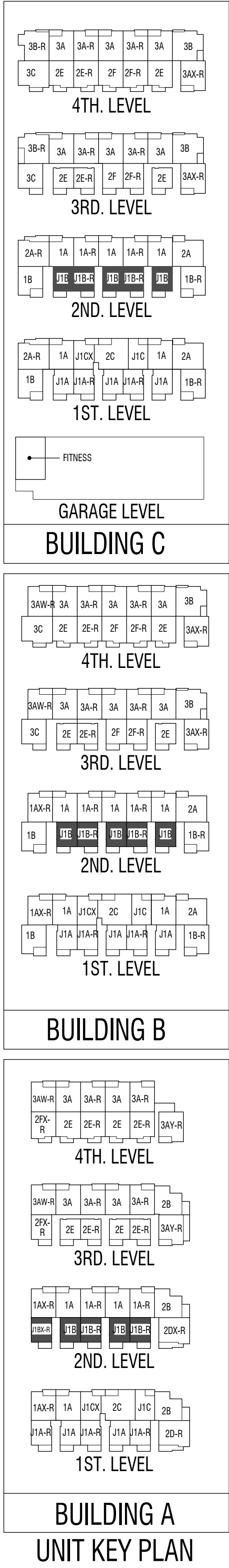


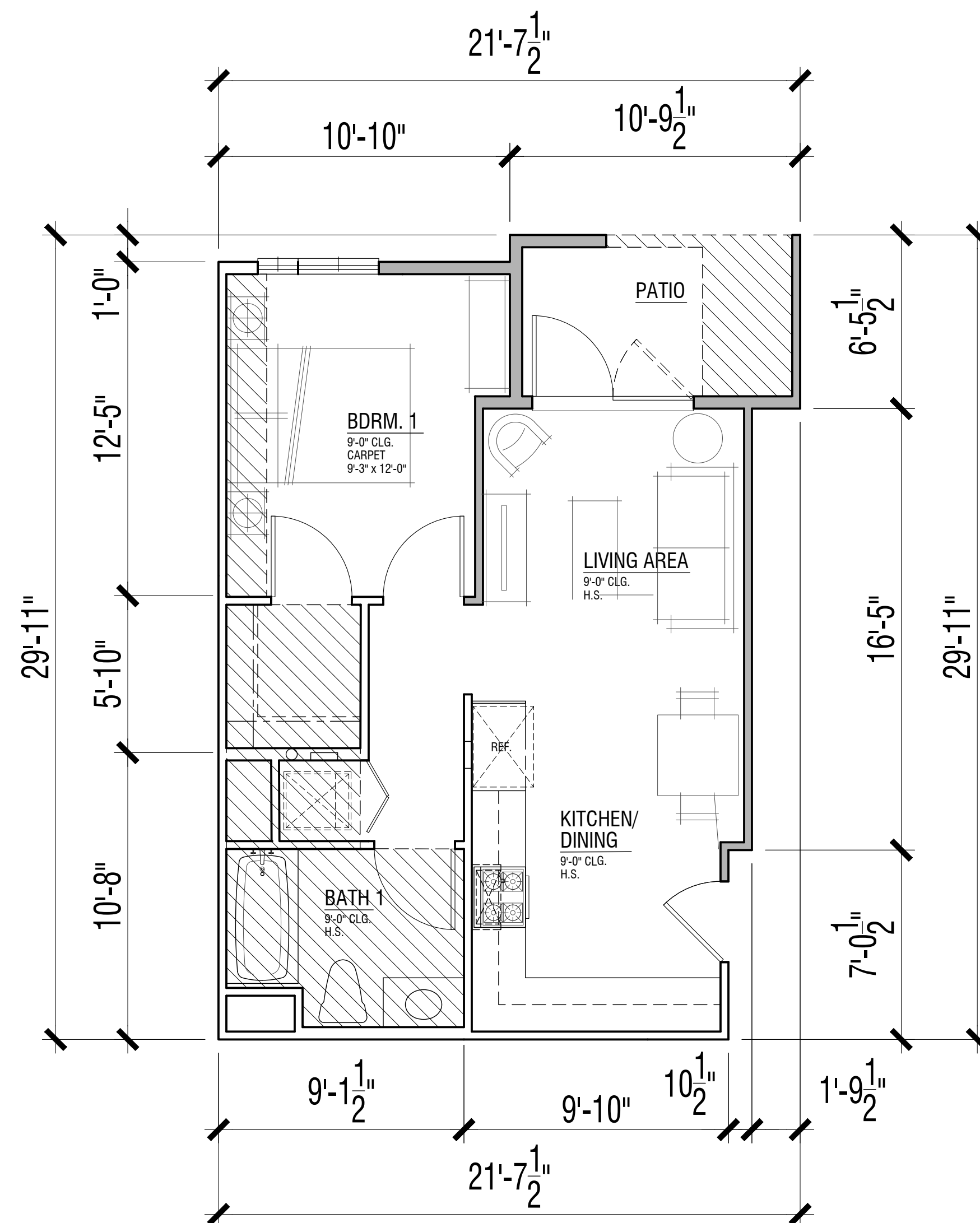
PARTIAL PLAN J1BX
(w/ Side Windows)



UNIT PLAN J1B
BMR Unit
1 Bdrm. / 1 Bath
476 sf

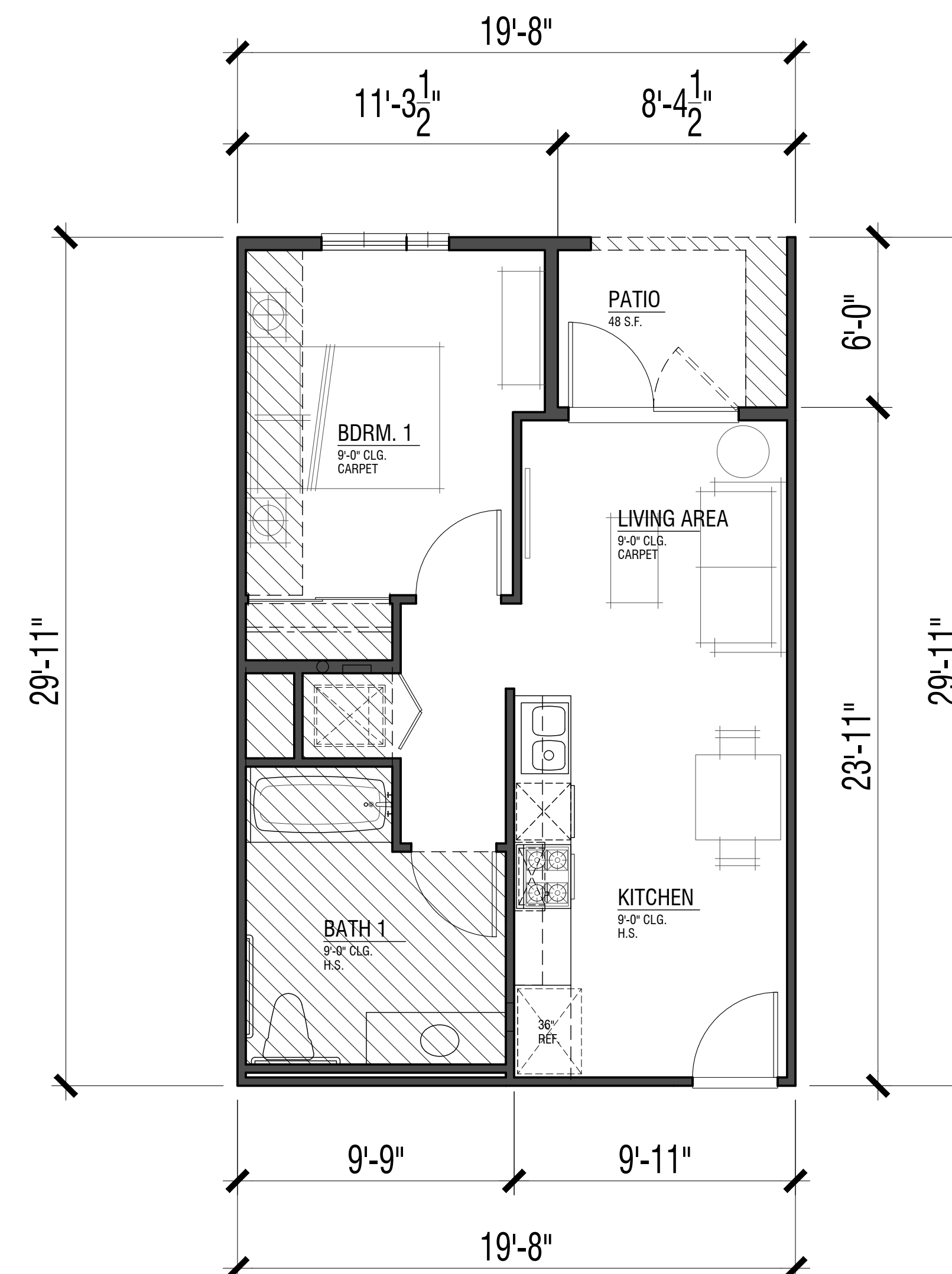
FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)





UNIT PLAN J1CX

Adaptable
1 Bdrm. / 1 Bath
488 sf



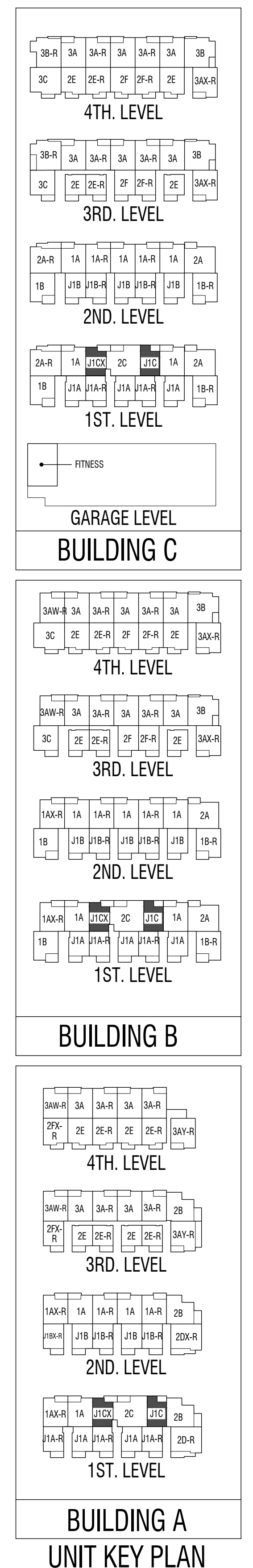
UNIT PLAN J1C

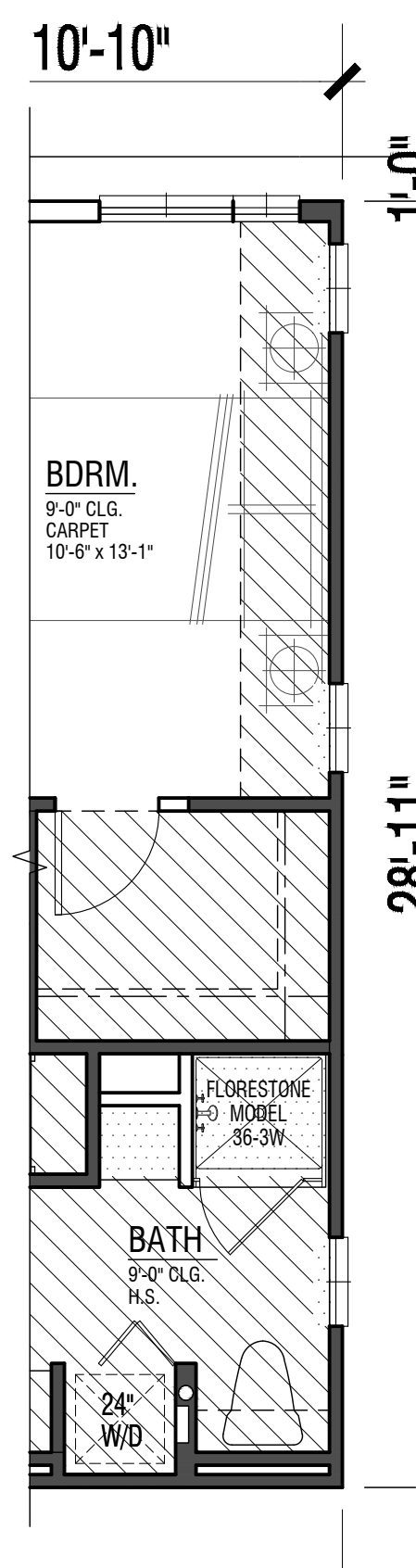
Mobility Unit
1 Bdrm. / 1 Bath
500 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

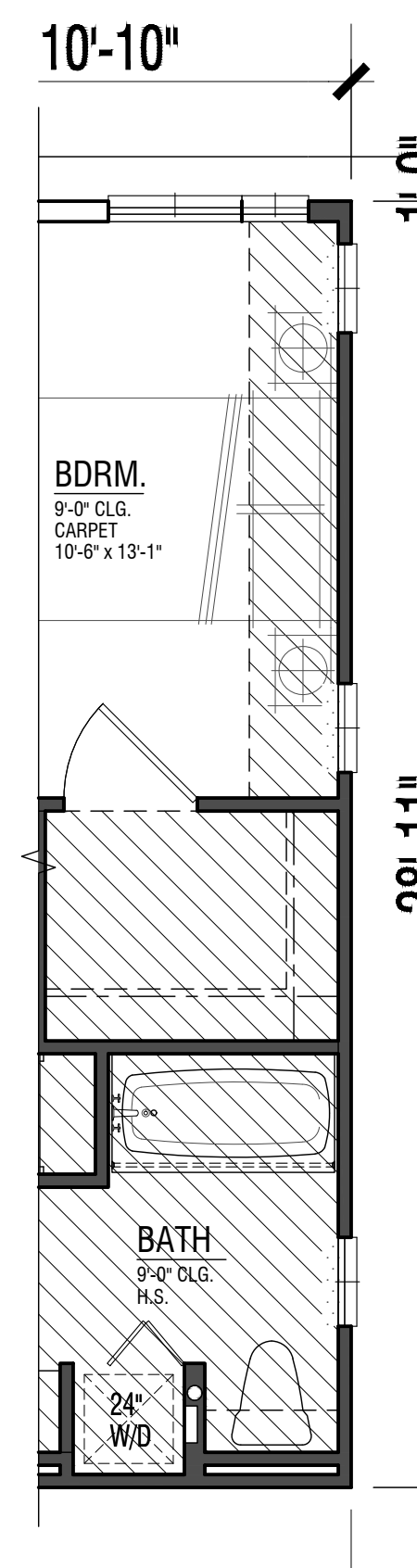
WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

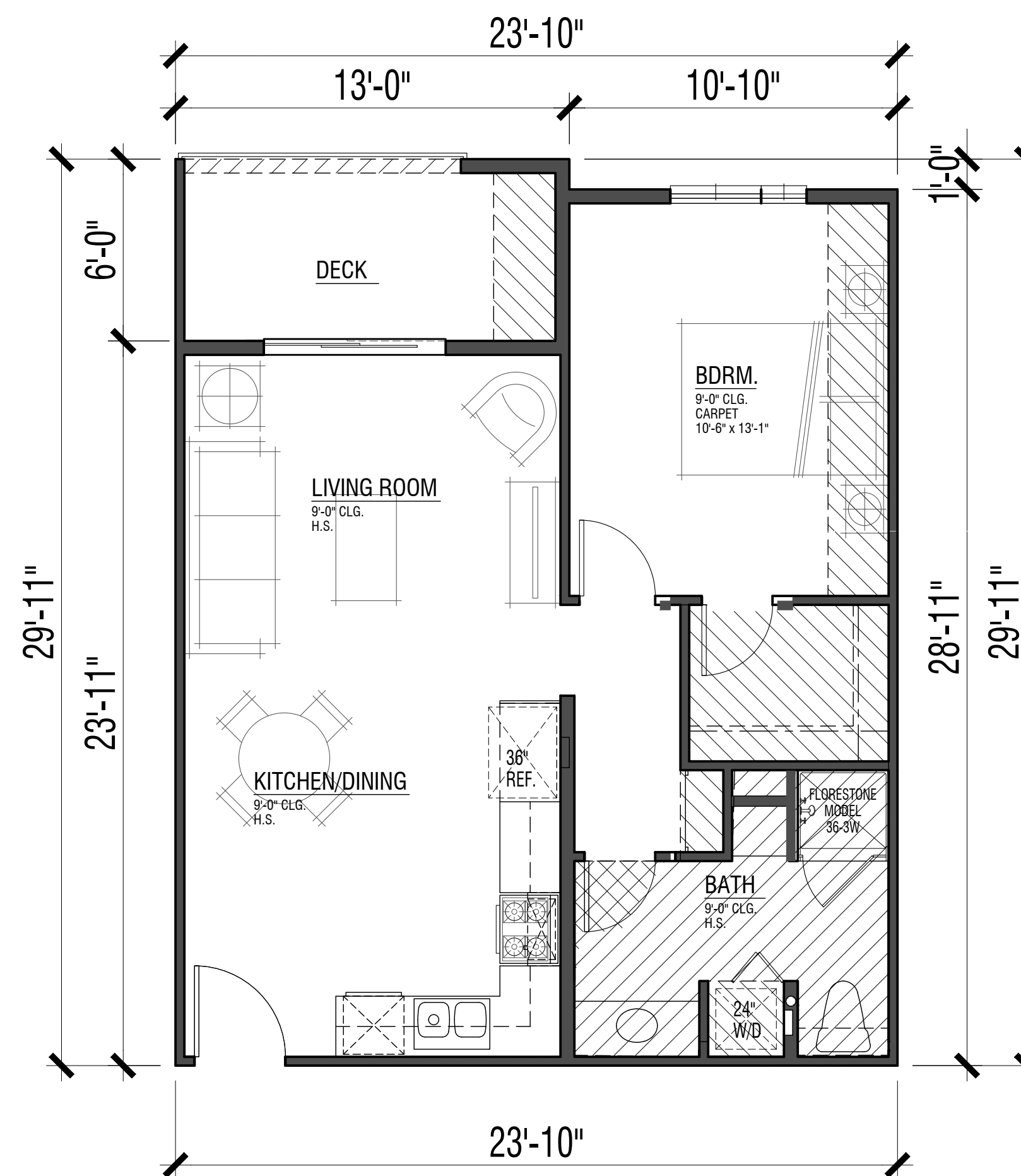




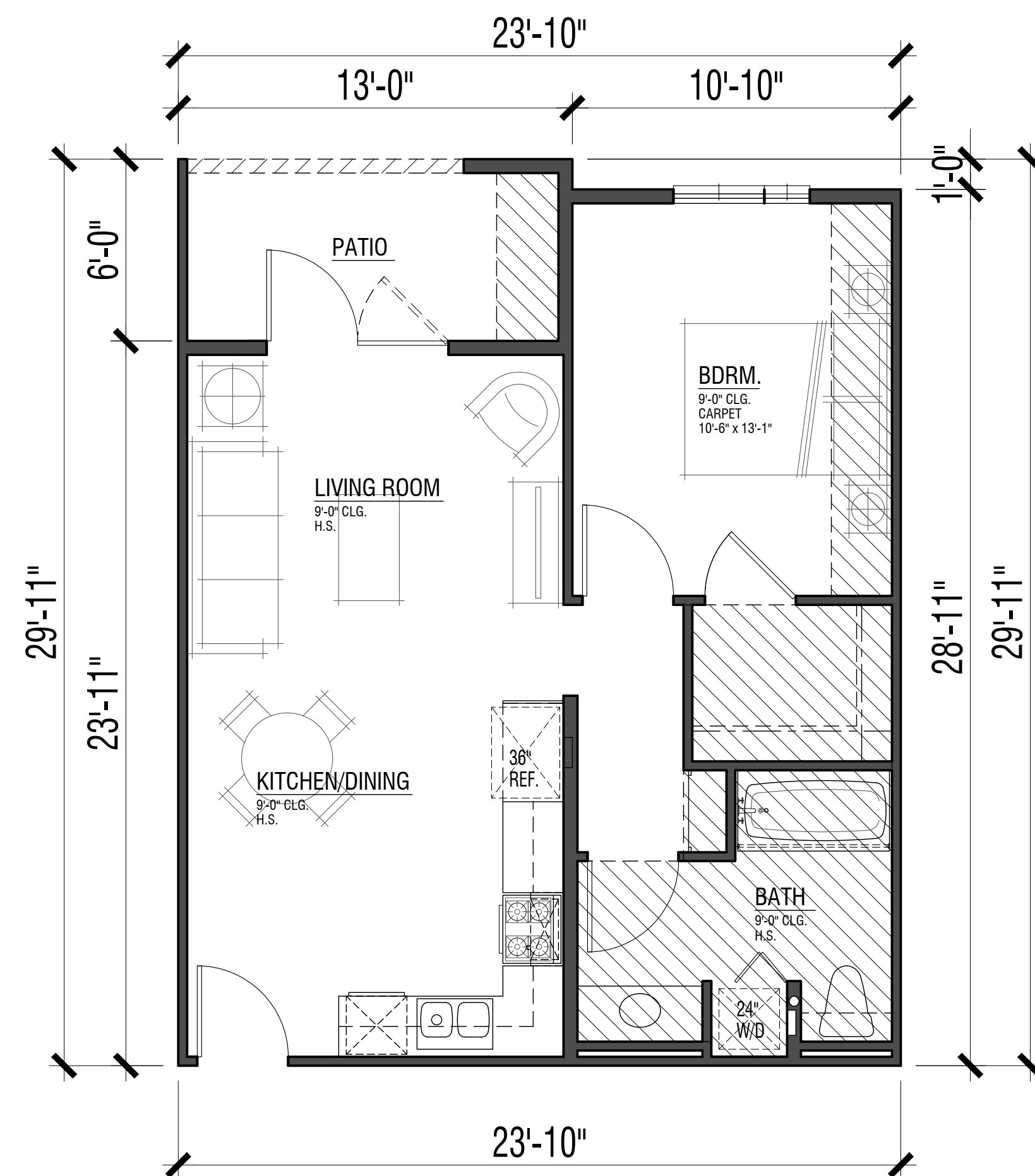
PARTIAL PLAN 1AX
(w/ Side Windows)
Standard



PARTIAL PLAN 1AX
(w/ Side Windows)
Adaptable



Standard

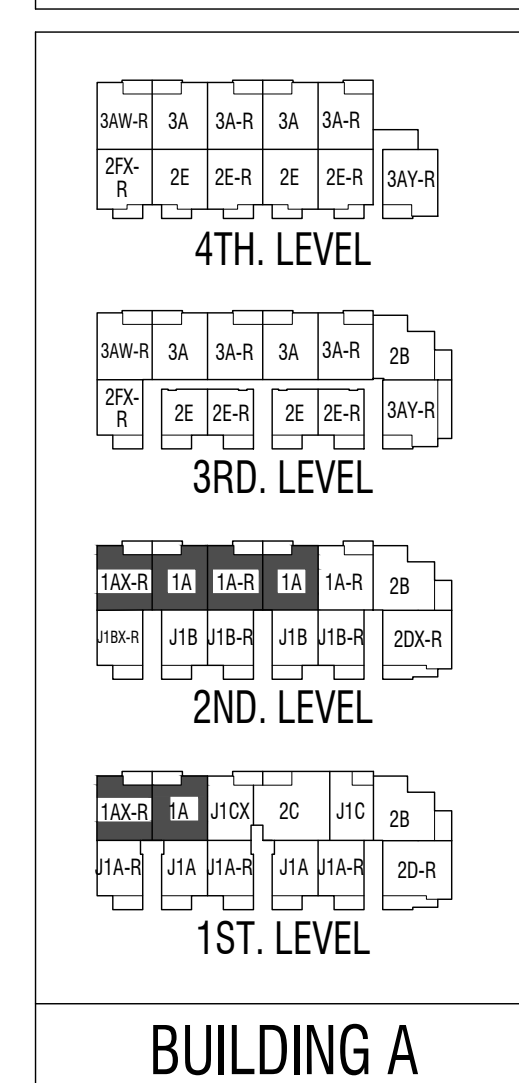
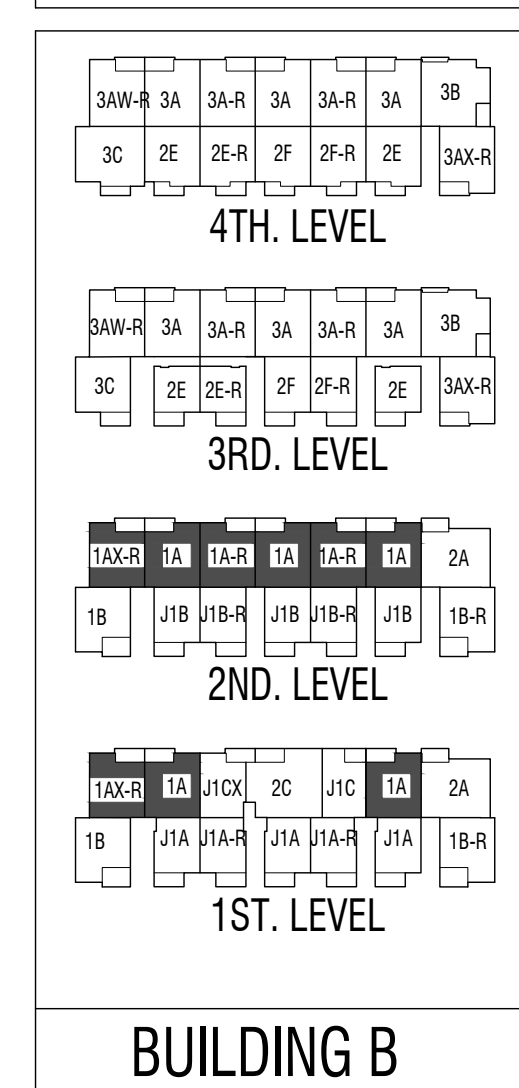
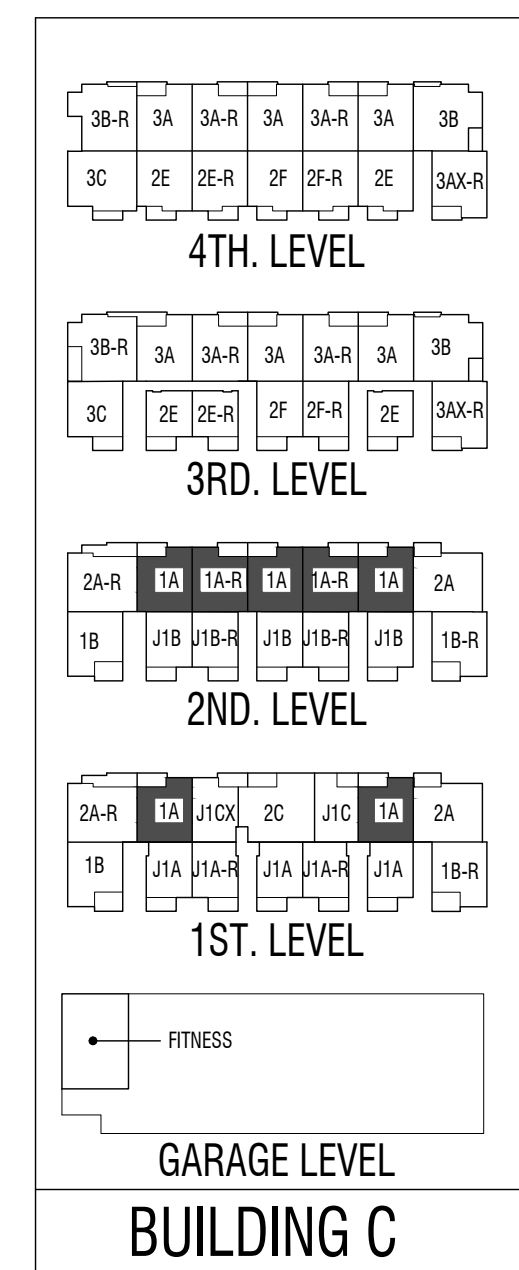


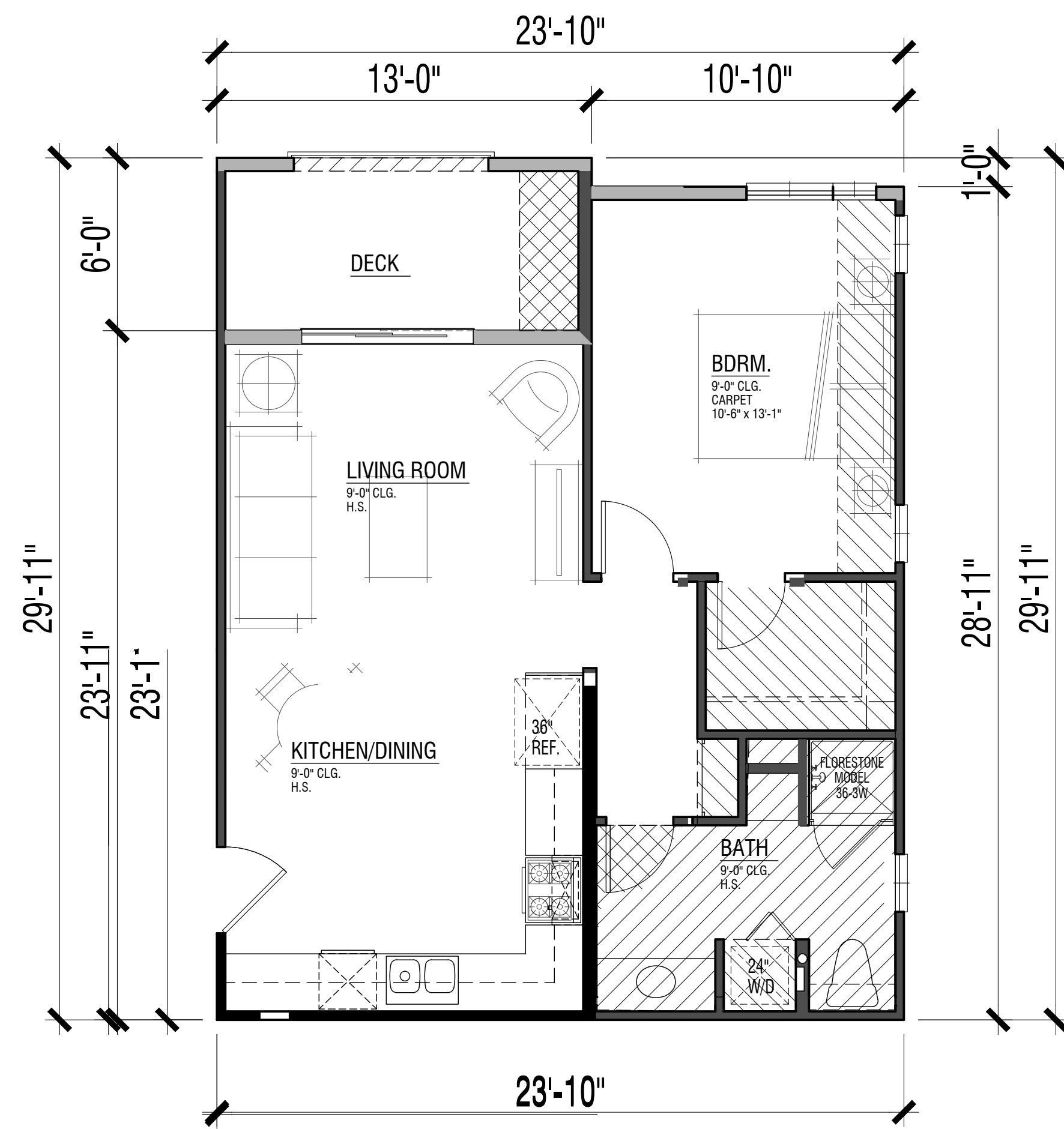
Adaptable (Ground Level)

UNIT PLAN 1A

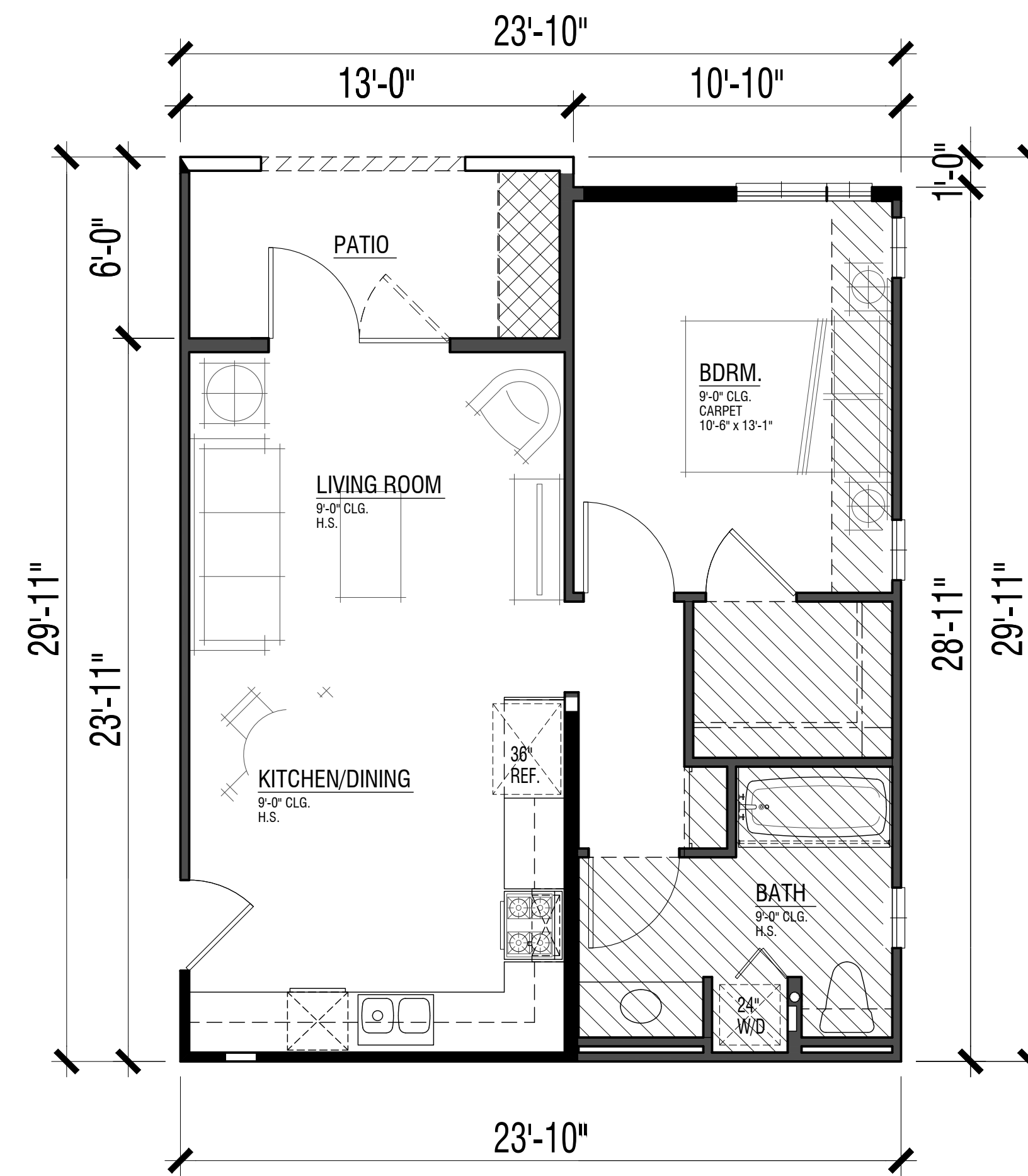
1 Bdrm. / 1 Bath
586 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)





UNIT PLAN 1B
 Standard (Second Level)
 1 Bdrm. / 1 Bath
 586 sf



UNIT PLAN 1B
 Adaptable (Ground Level)
 1 Bdrm. / 1 Bath
 586 sf

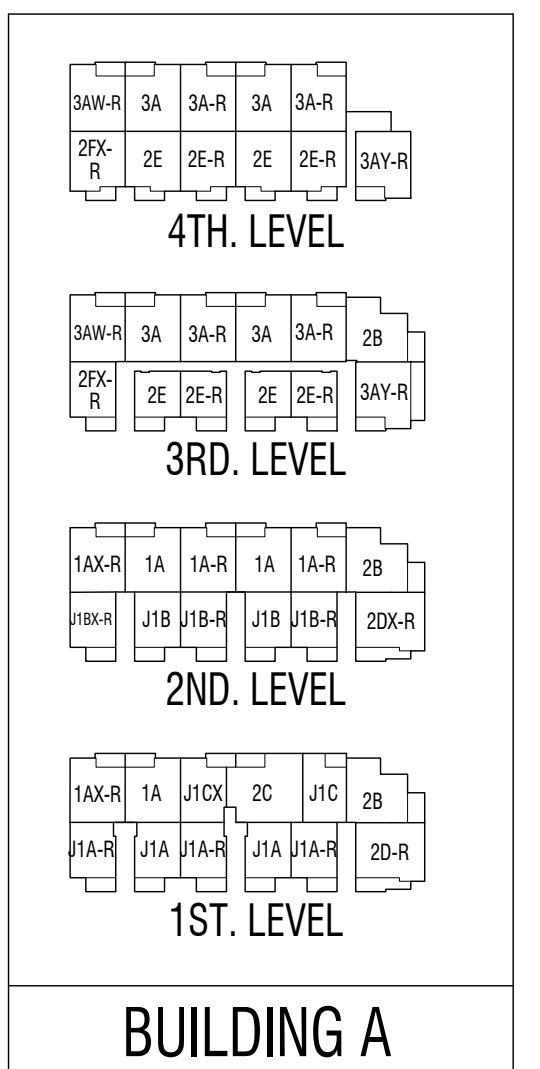
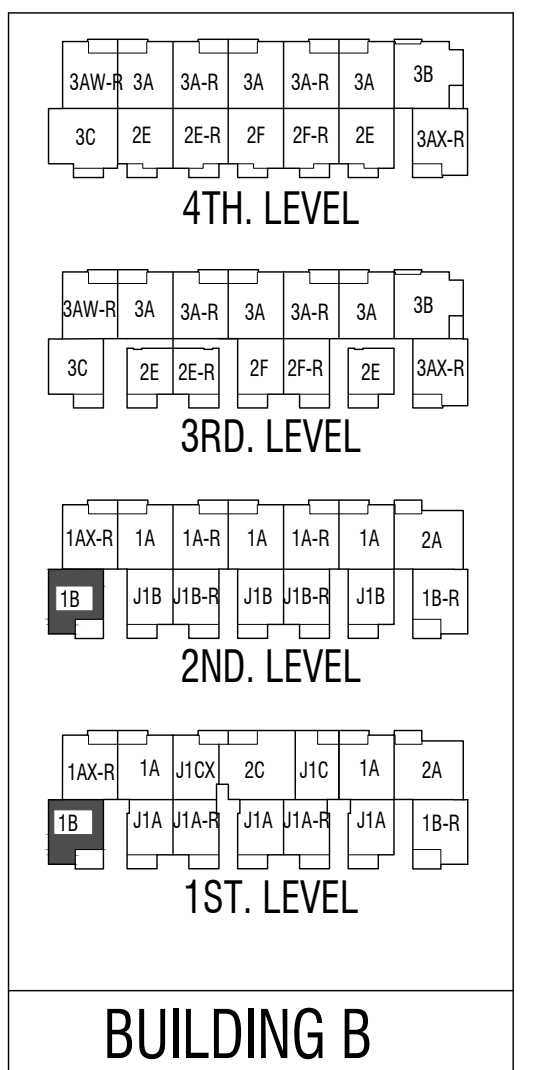
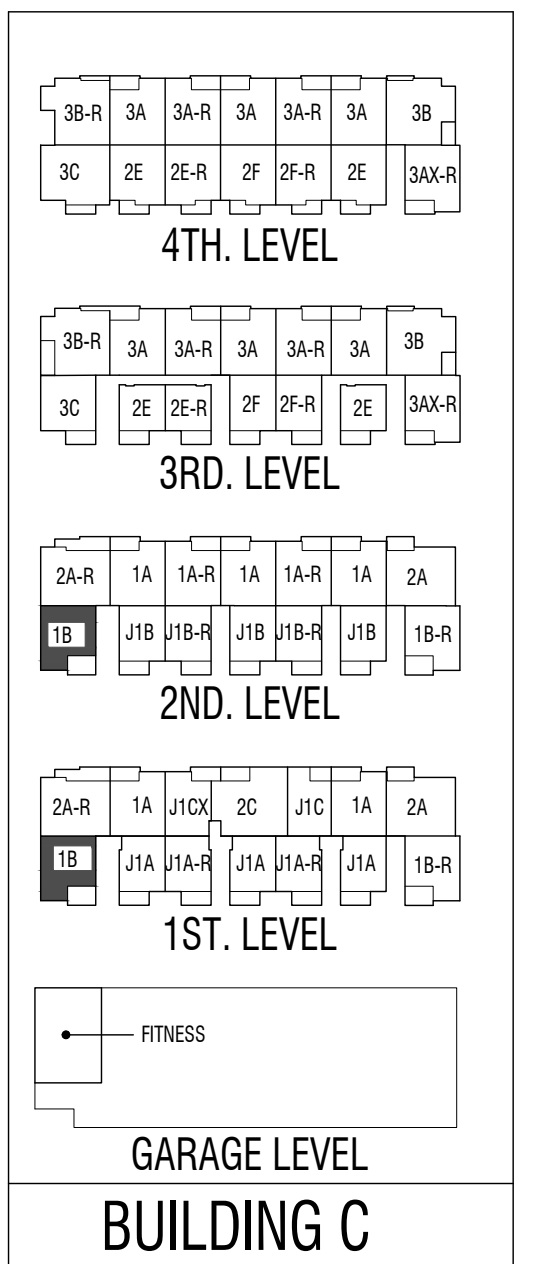
FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

WEST HARBOR PARK APARTMENTS

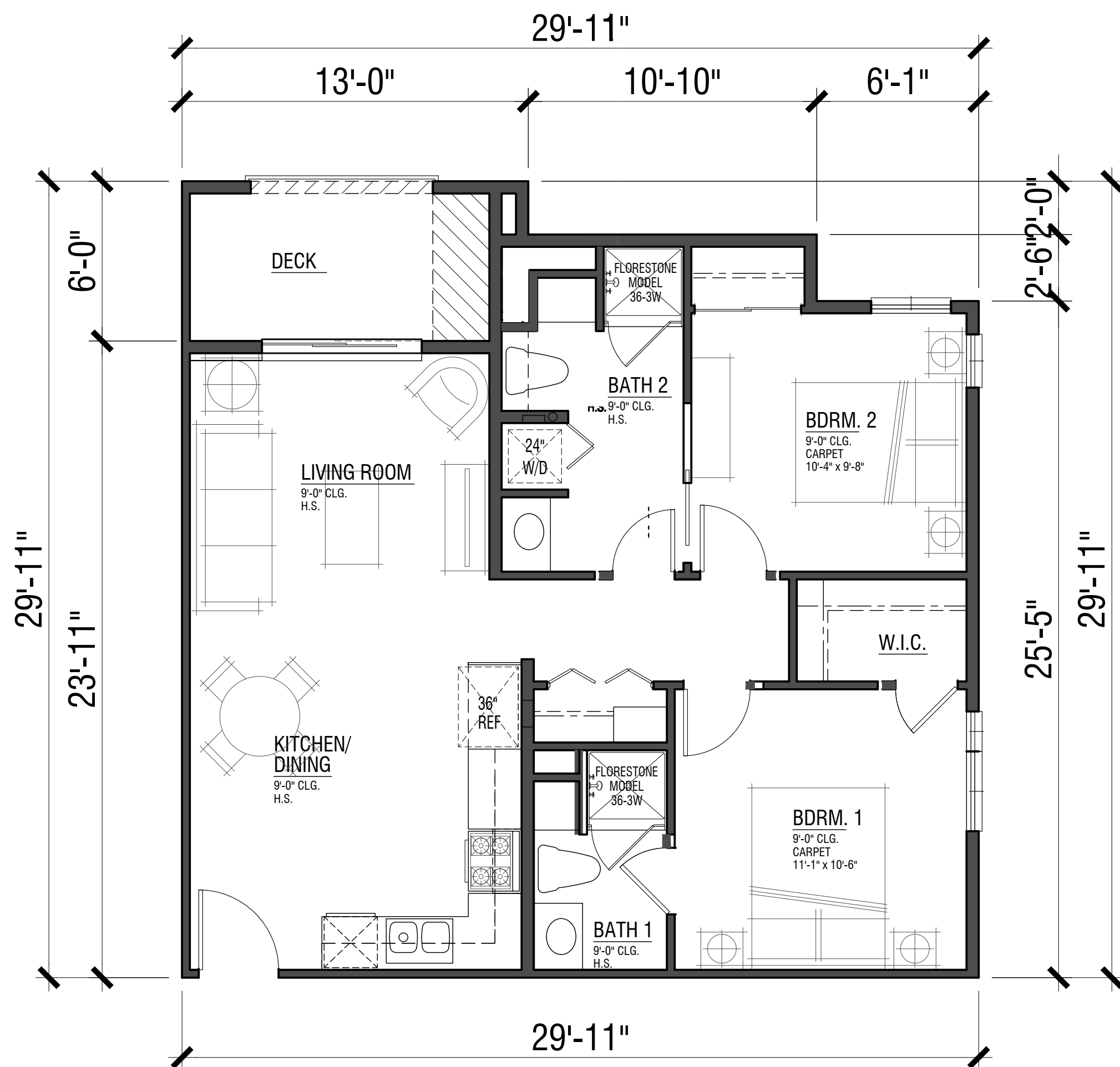
961 PORTER STREET, VALLEJO, CA 94590

A33

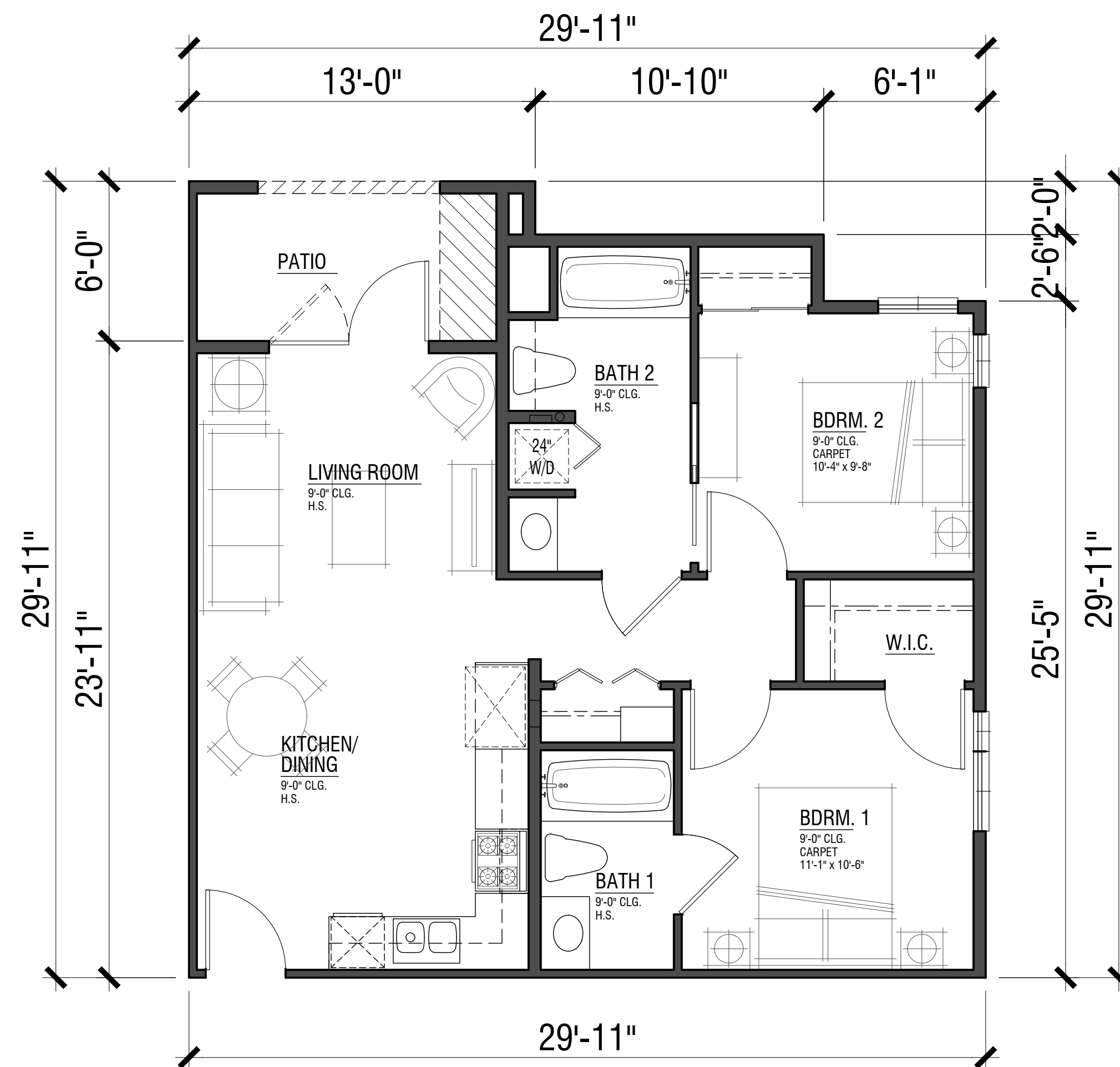
0 2 4 8



UNIT KEY PLAN



Standard (Second Level)



Adaptable (Ground Level)

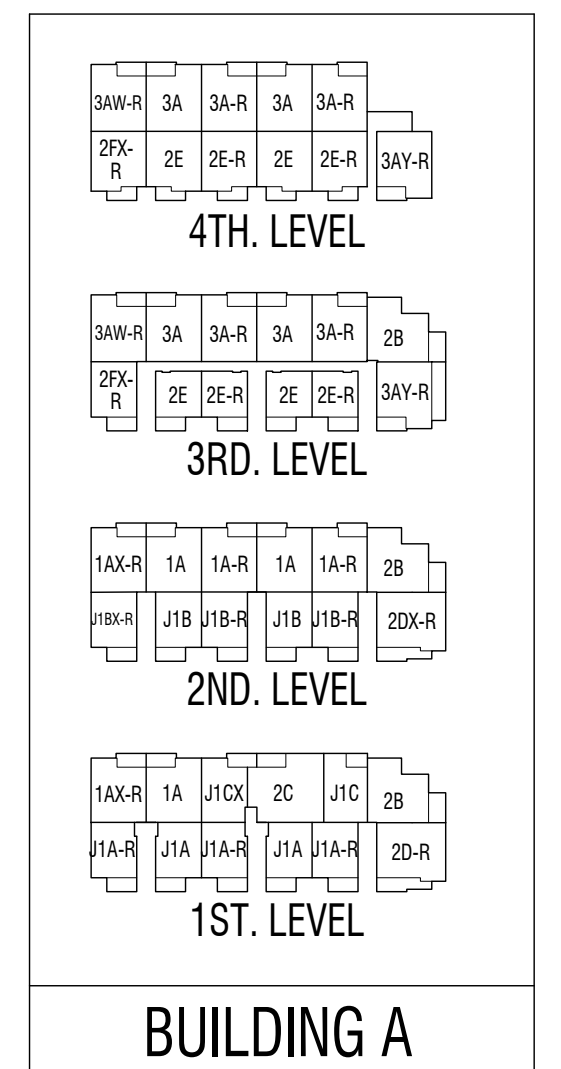
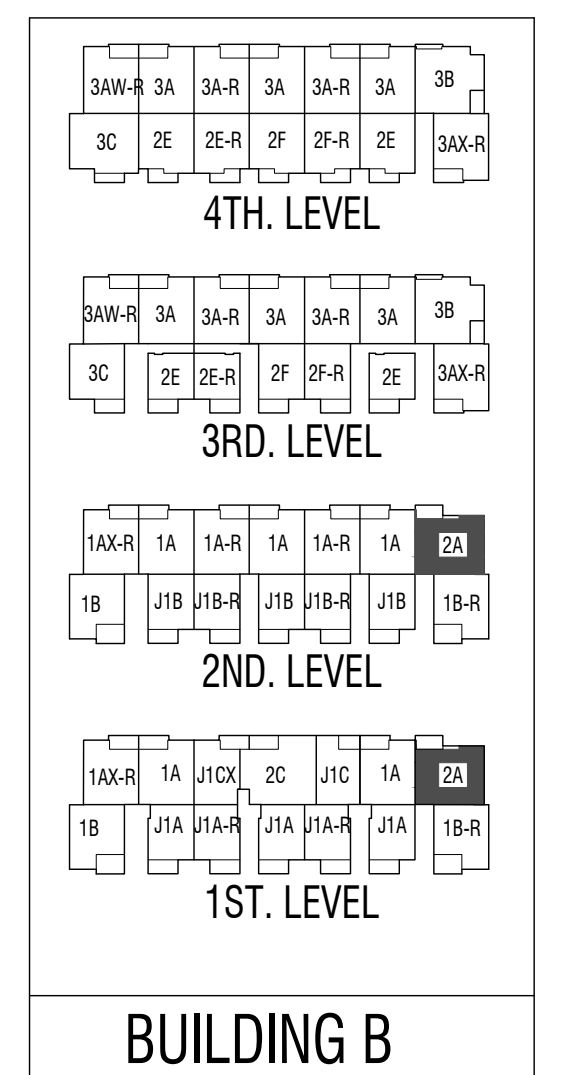
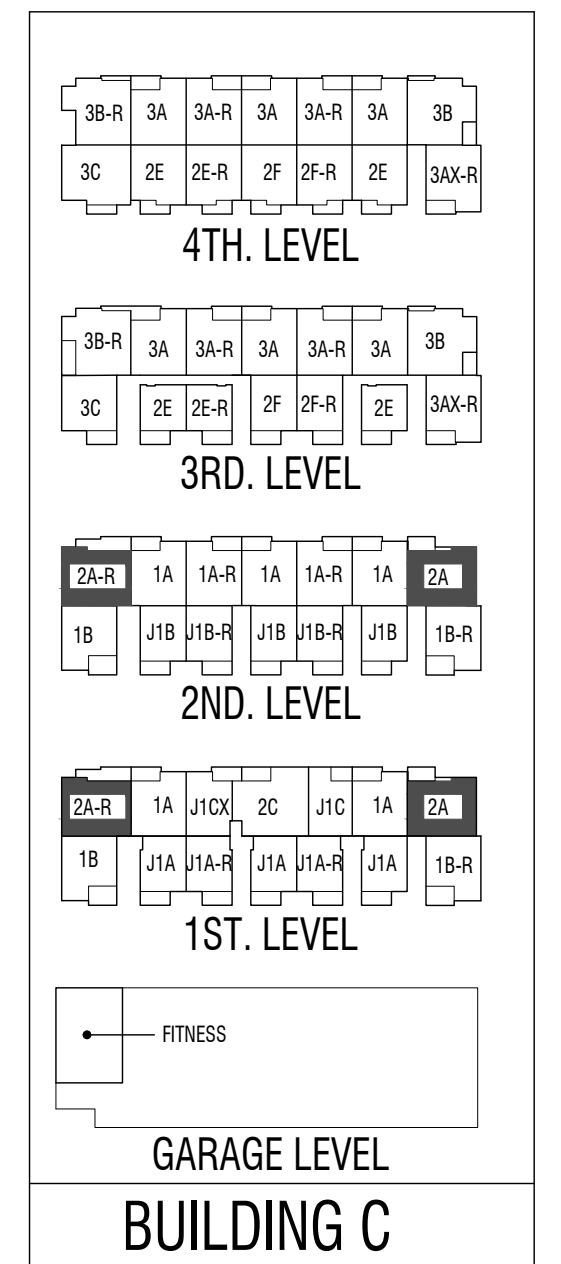
UNIT PLAN 2A

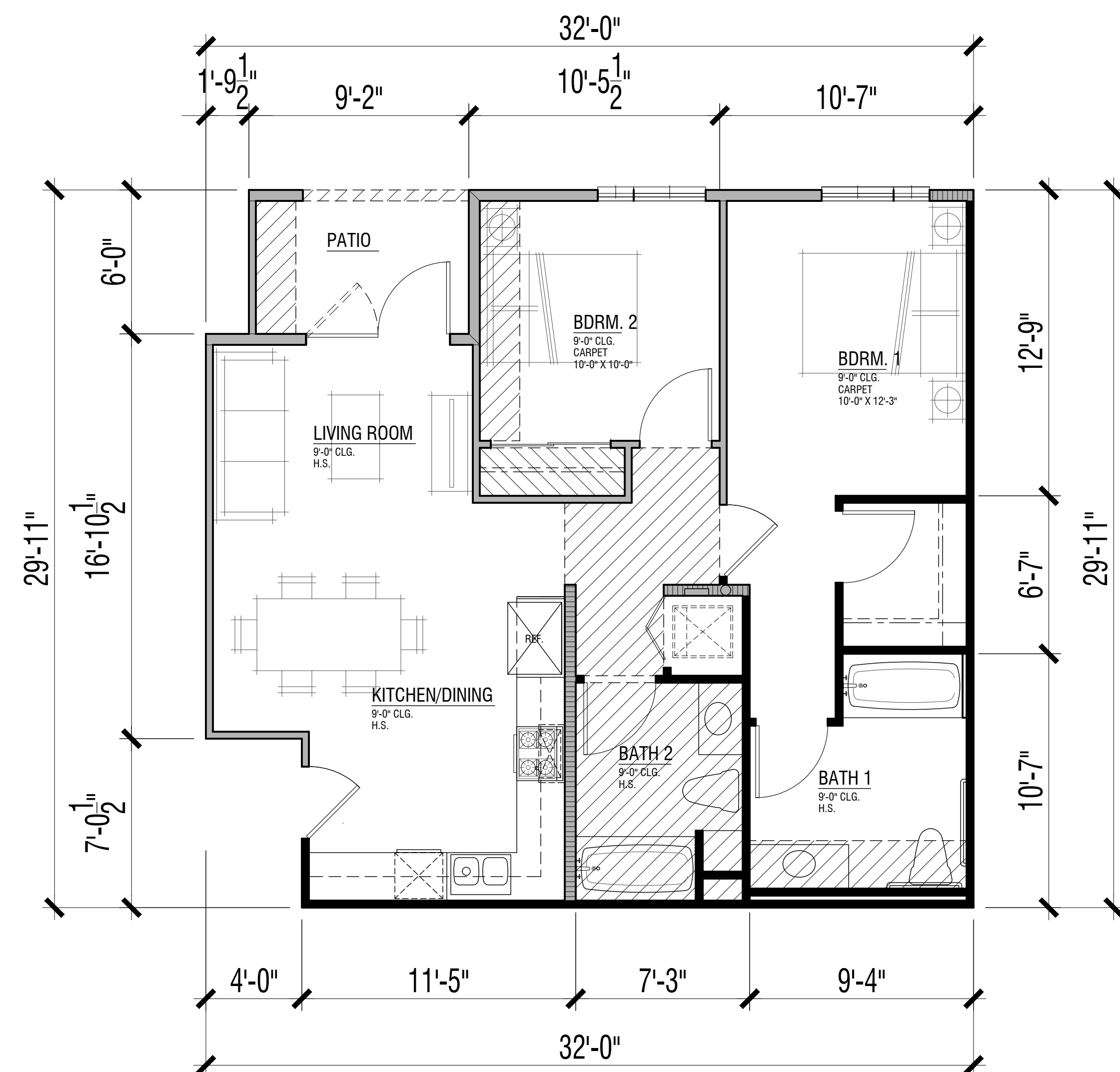
BMR Units
2 Bdrm. / 2 Bath
724 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

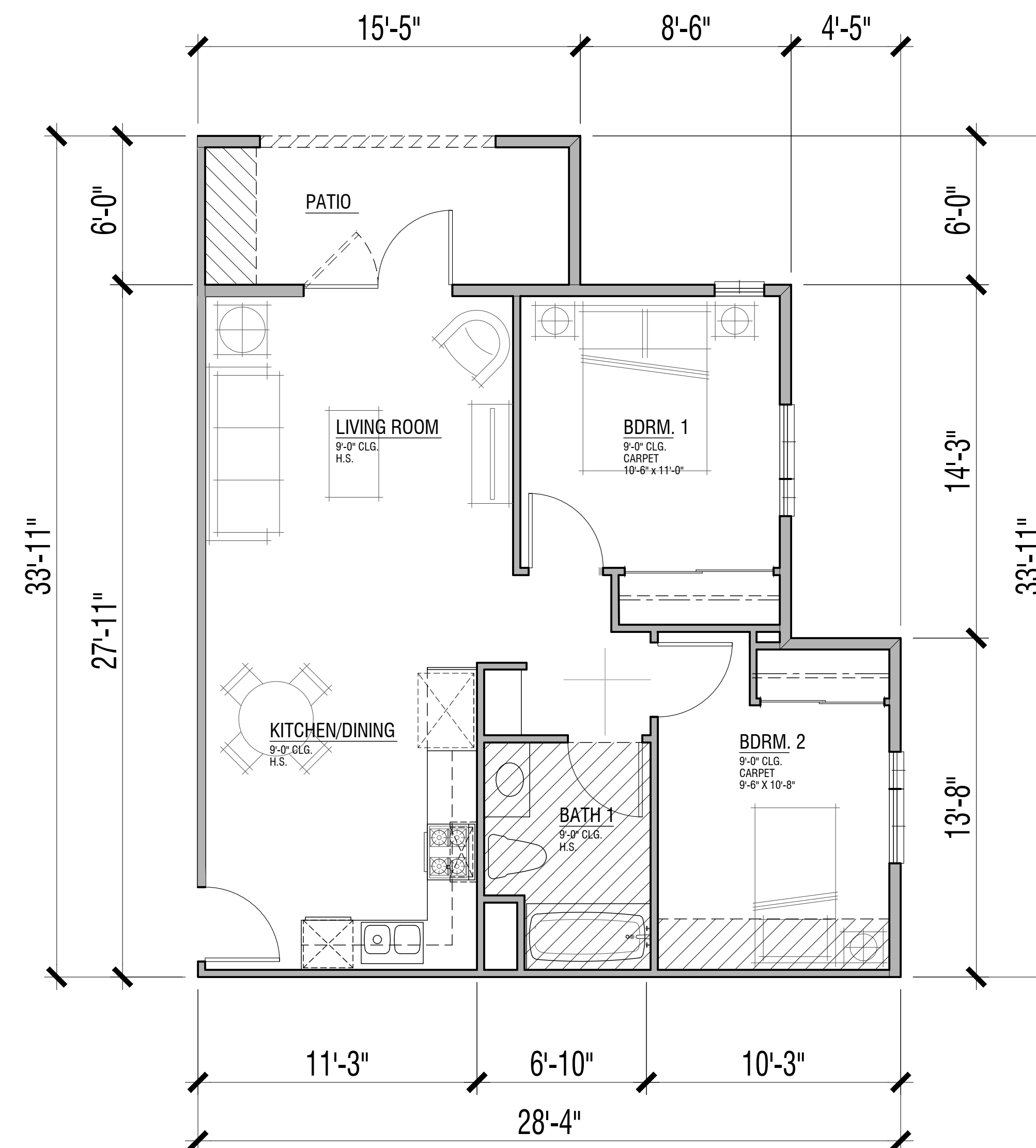




UNIT PLAN 2C (Mobility Unit)

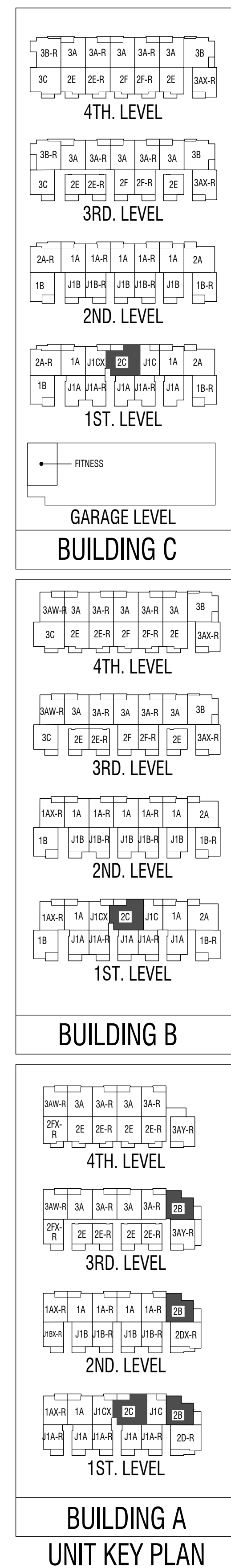
2 Bdrm. / 2 Bath
815 sf

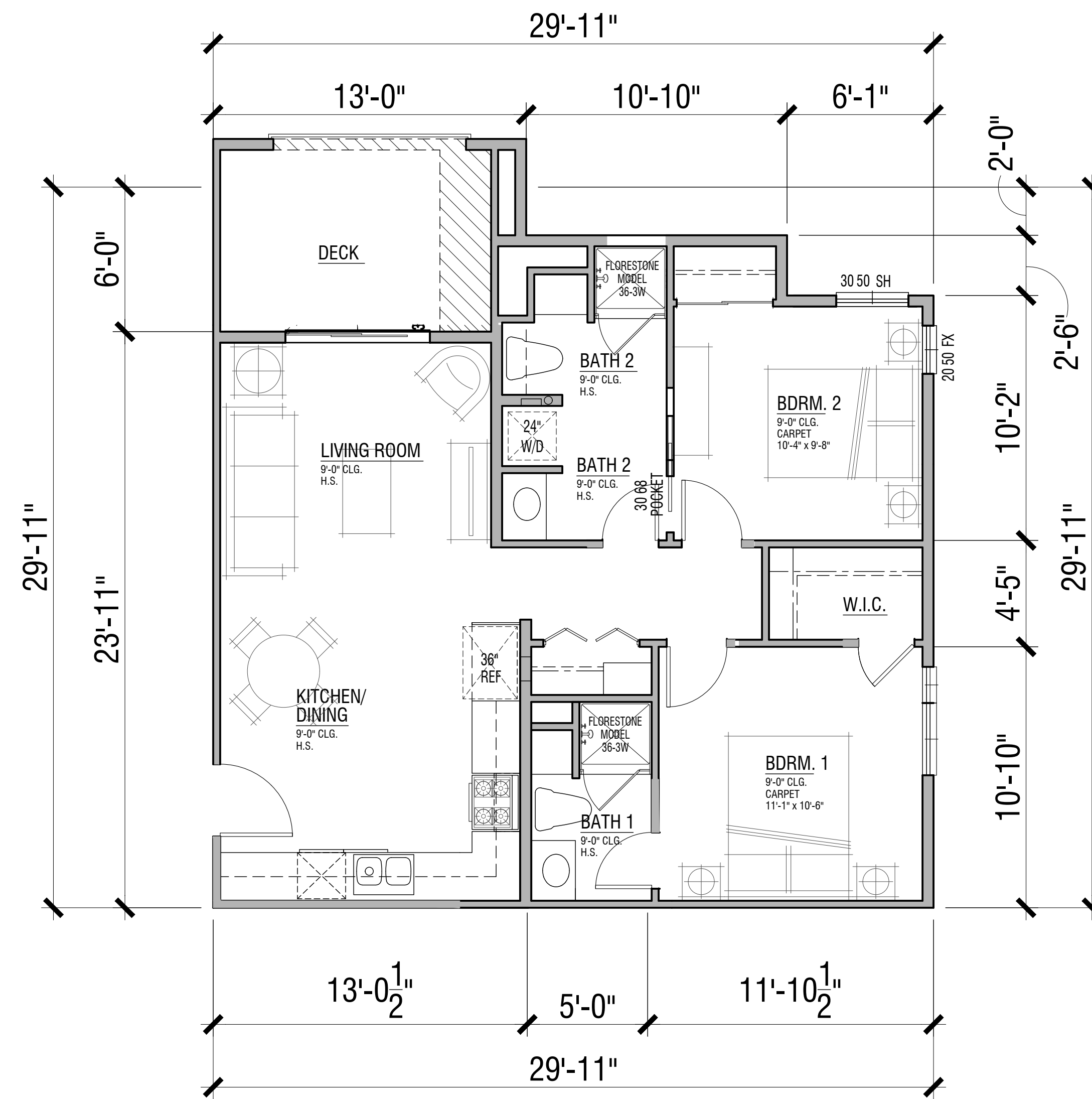
FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)



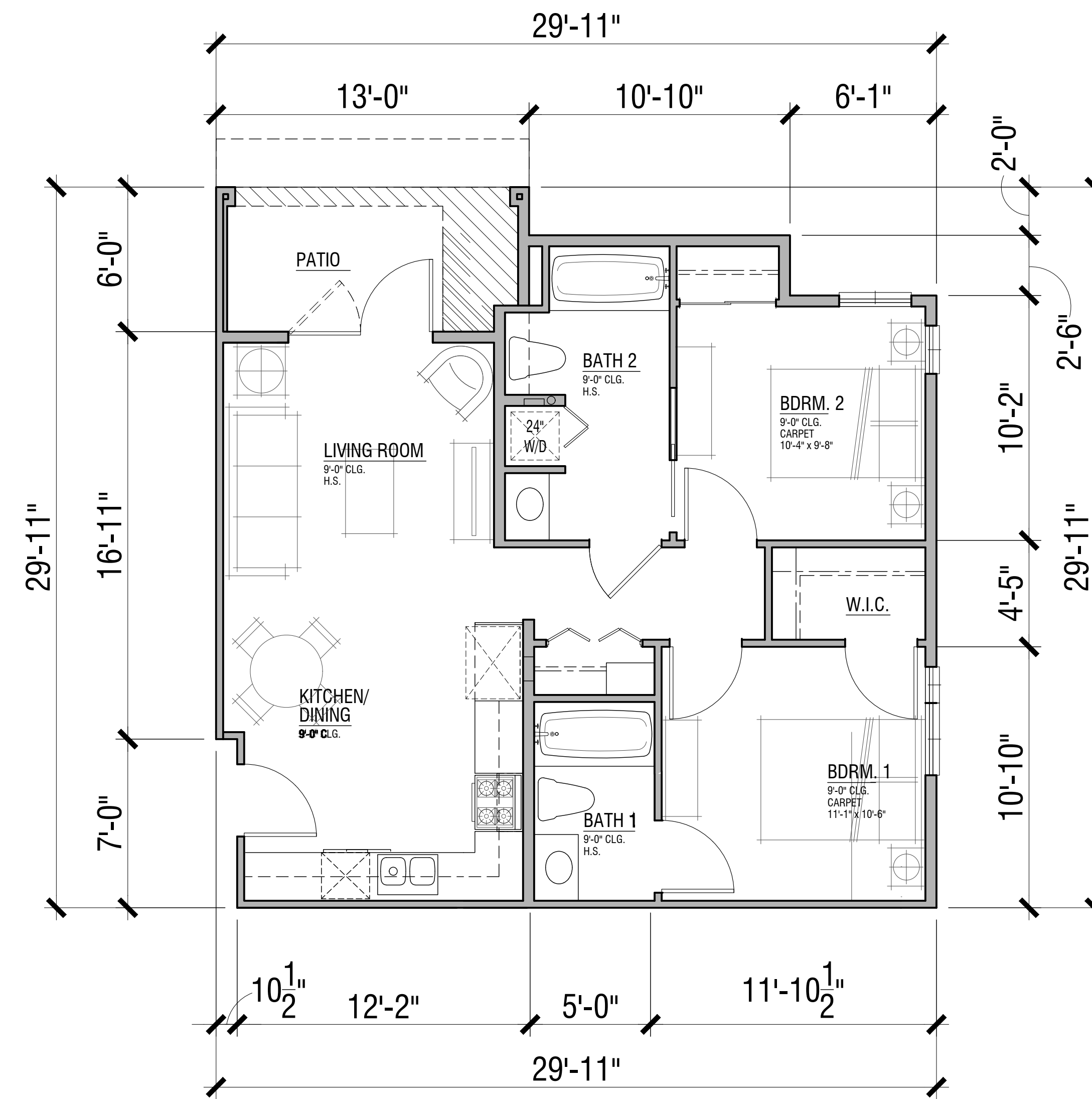
UNIT PLAN 2B

2 Bdrm. / 1 Bath
680 sf





PLAN 2DX
Standard (Second Level)
725 sf

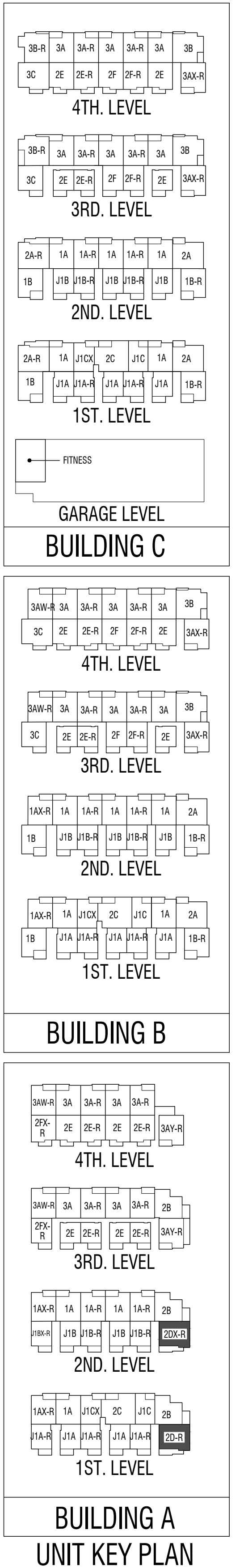


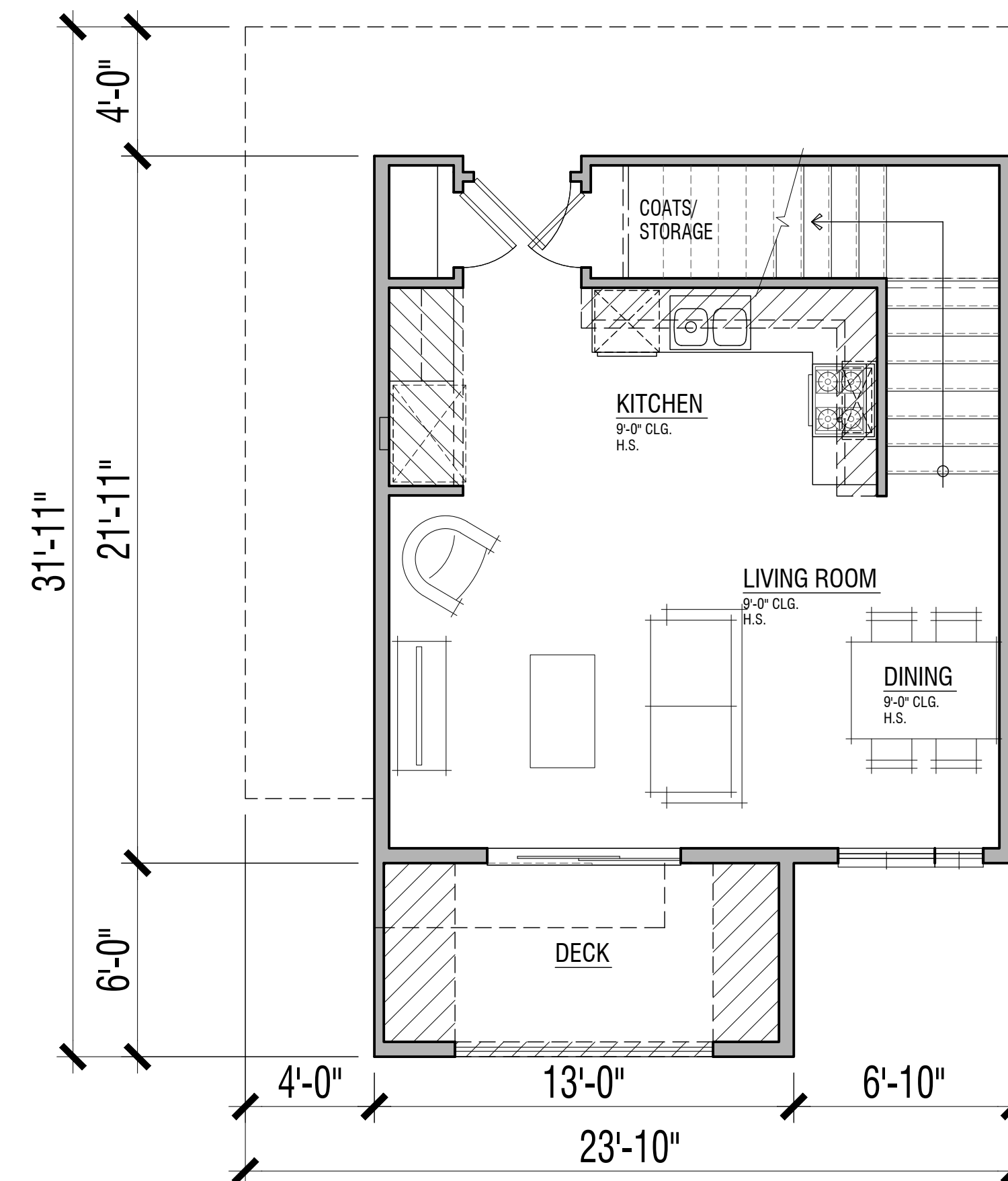
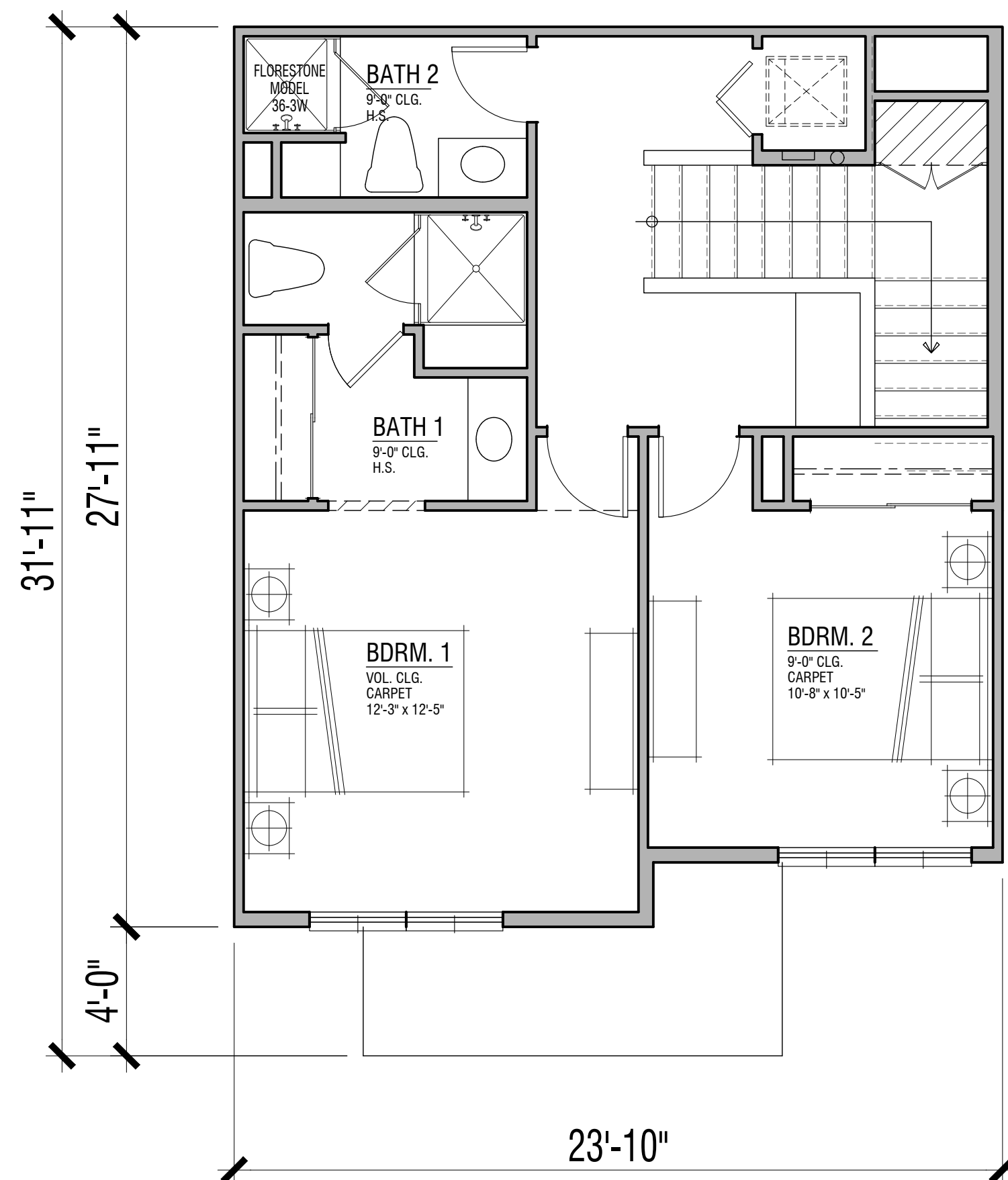
PLAN 2D
Adaptable (Ground Level)
715 sf

UNIT PLAN 2D/2DX

2 Bdrm. / 2 Bath

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

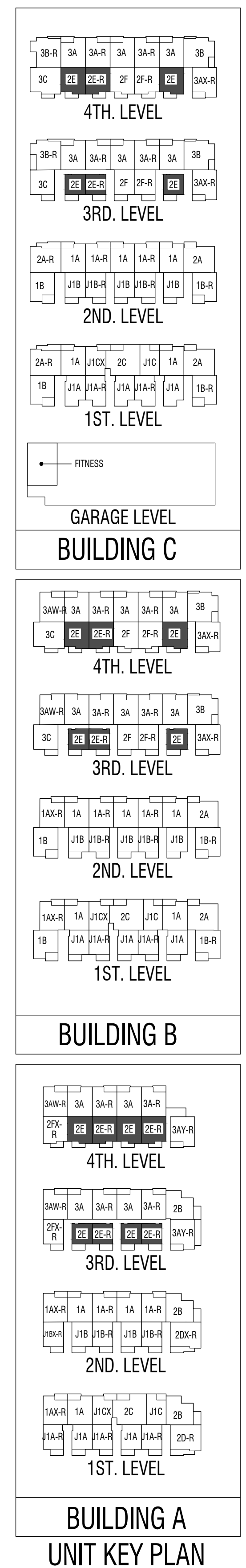


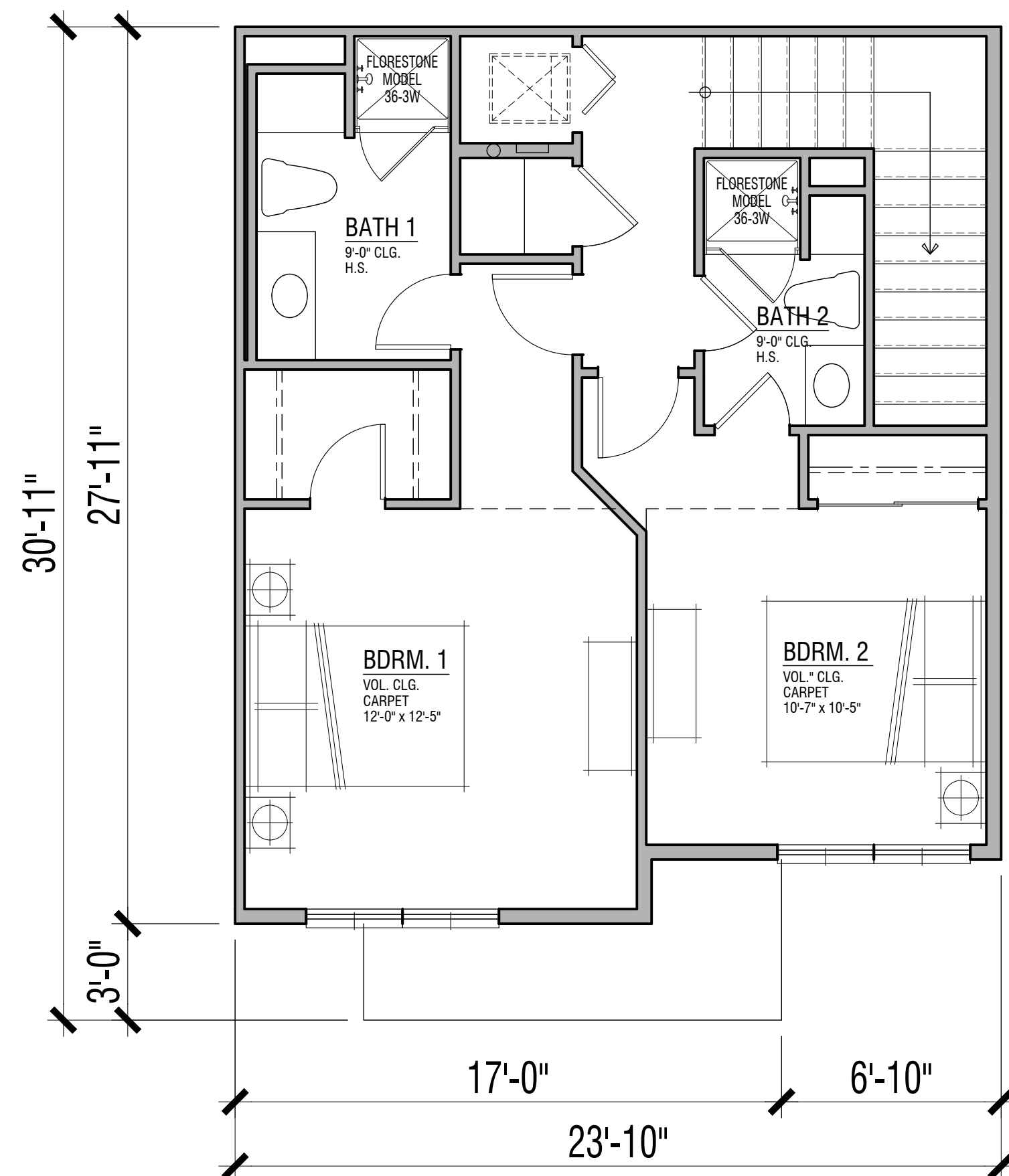


UNIT PLAN 2E

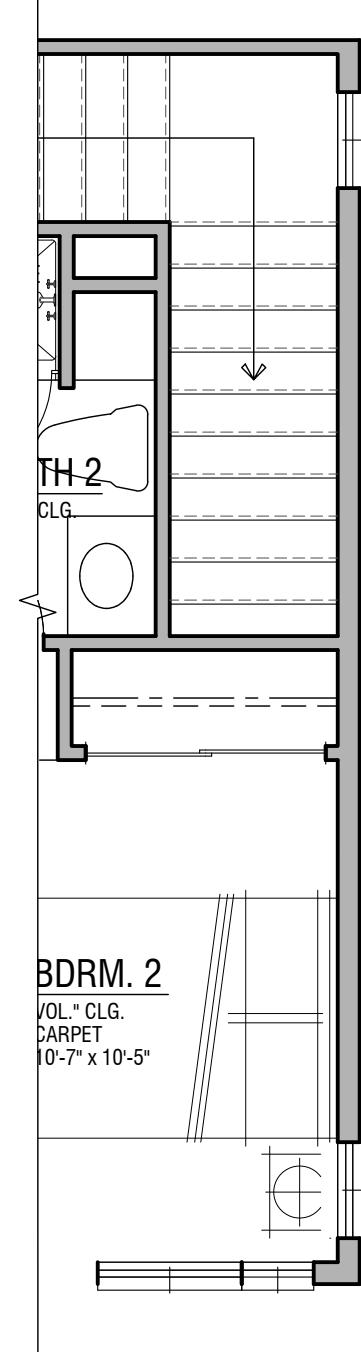
2 Bdrm. / 2 Bath
928 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

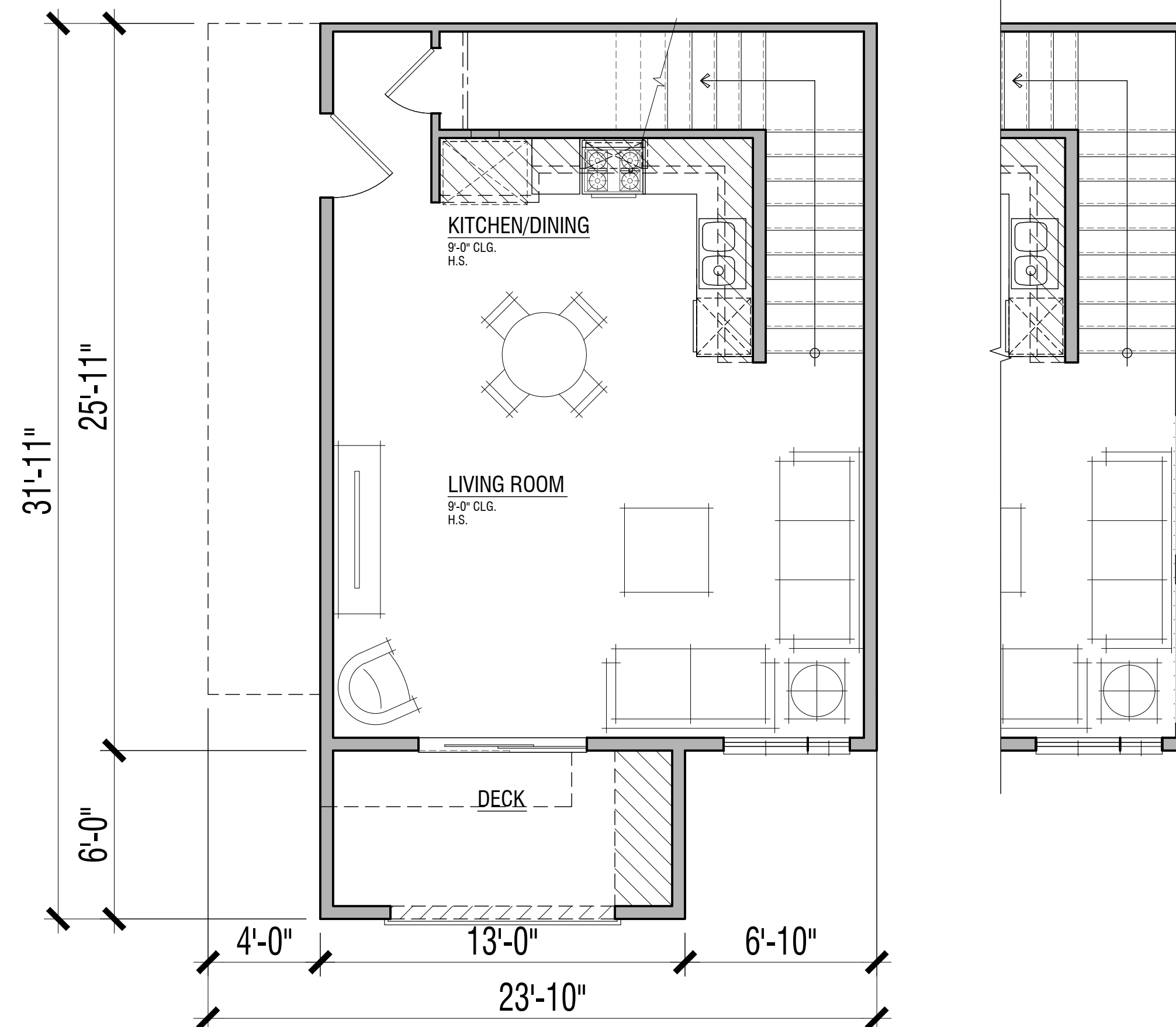




2F Upper Level
536 sf



PARTIAL 2FX Upper Level
(w/ Exterior Windows)



2F Lower Level
471 sf

PARTIAL 2FX Lower Level
(w/ Exterior Windows)

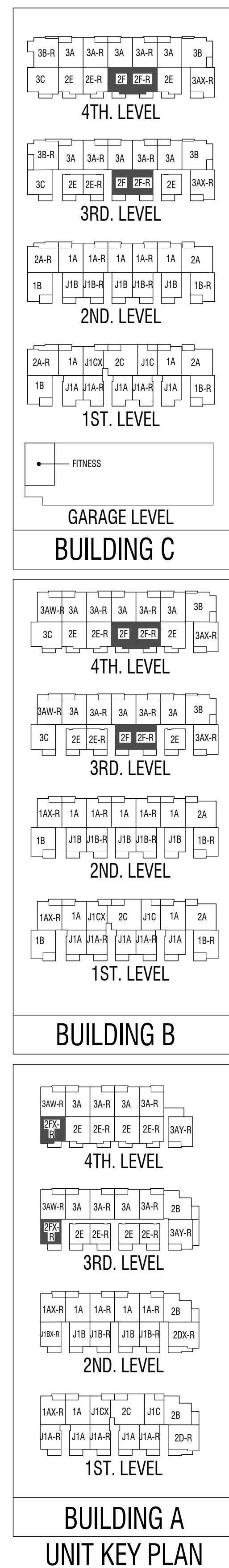
UNIT PLAN 2F

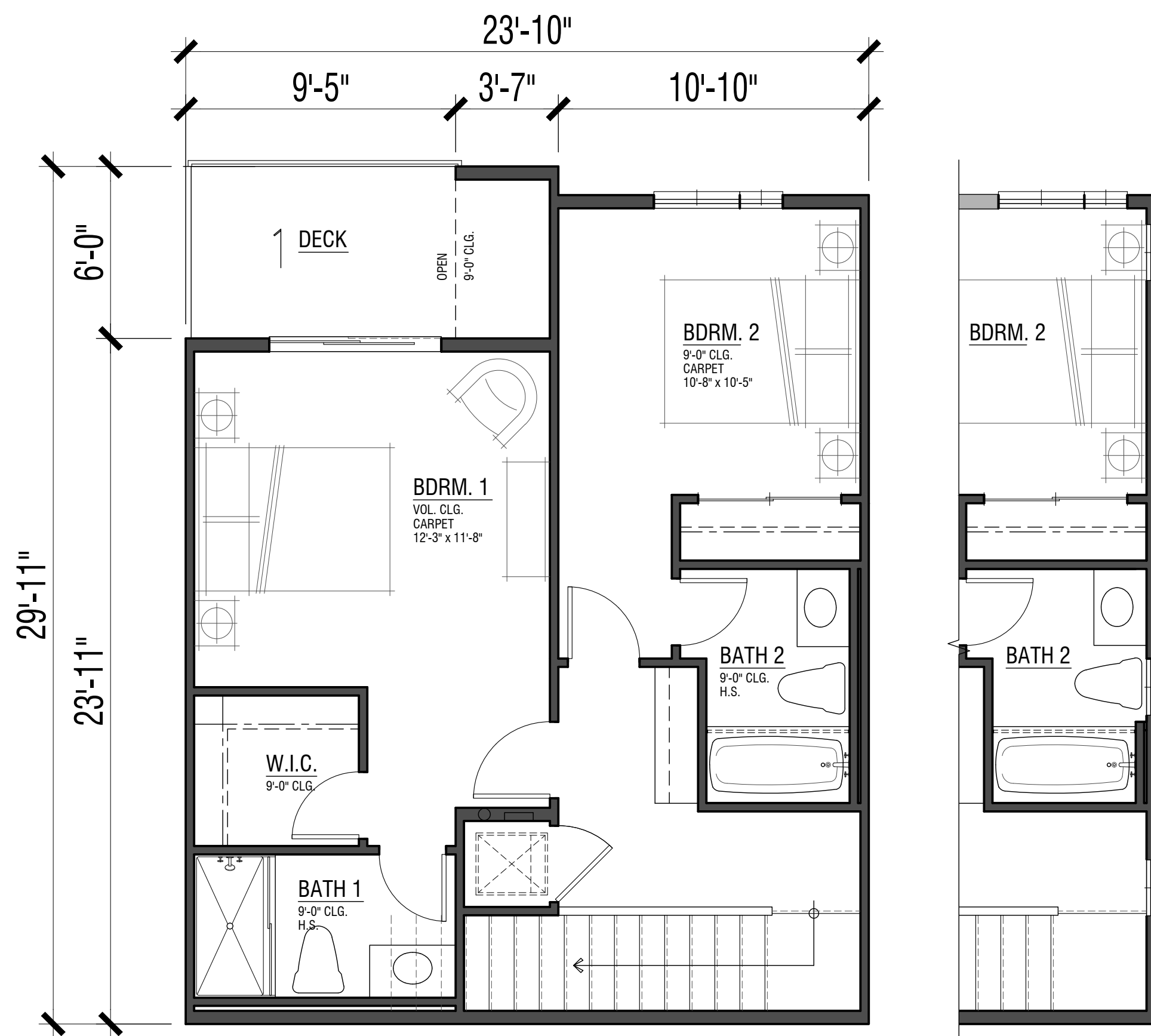
2 Bdrm. / 2 Bath
1015 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

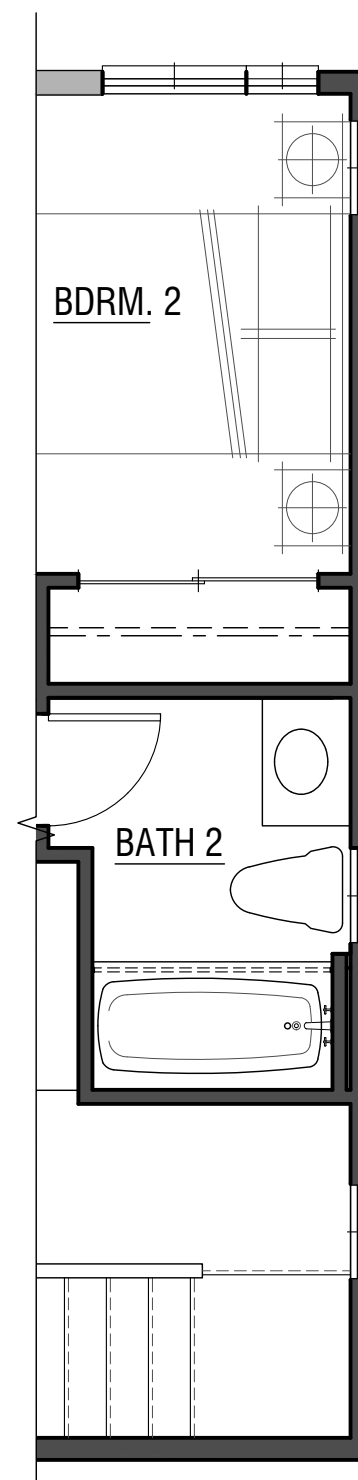
WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

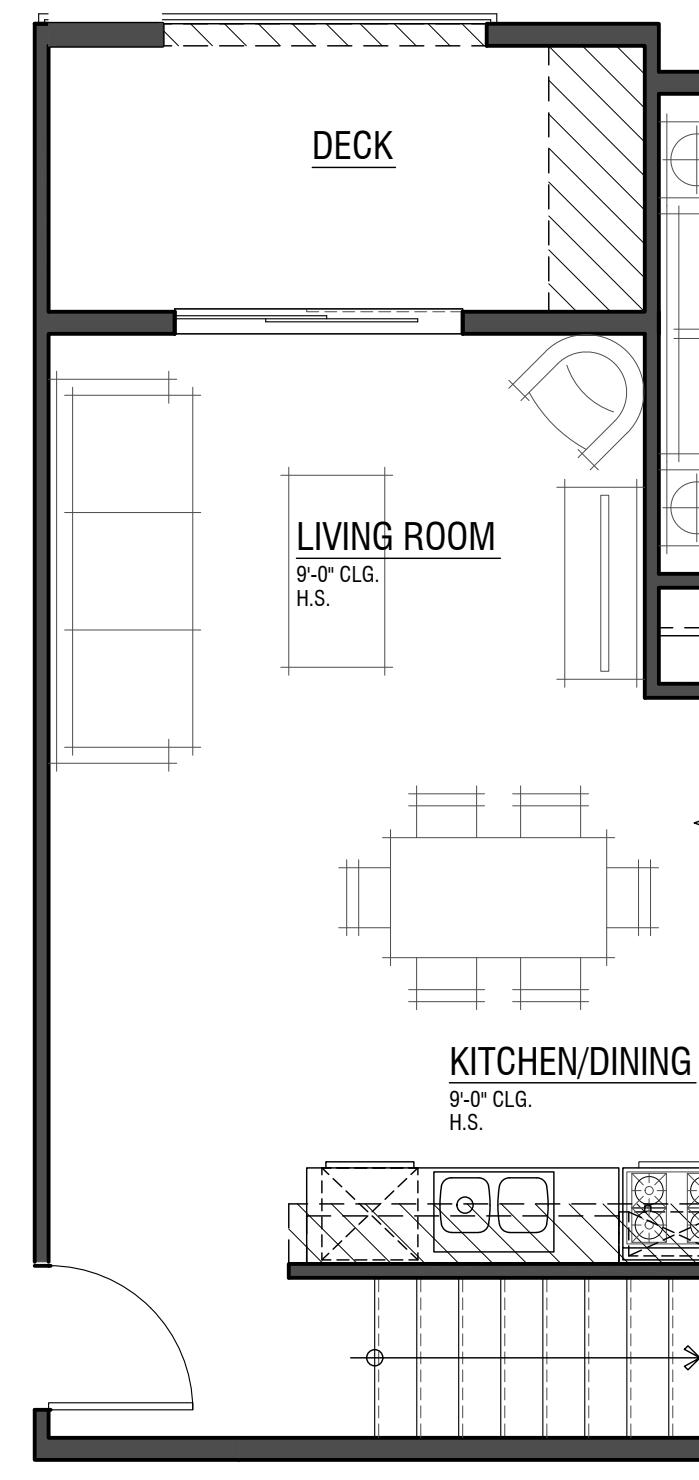




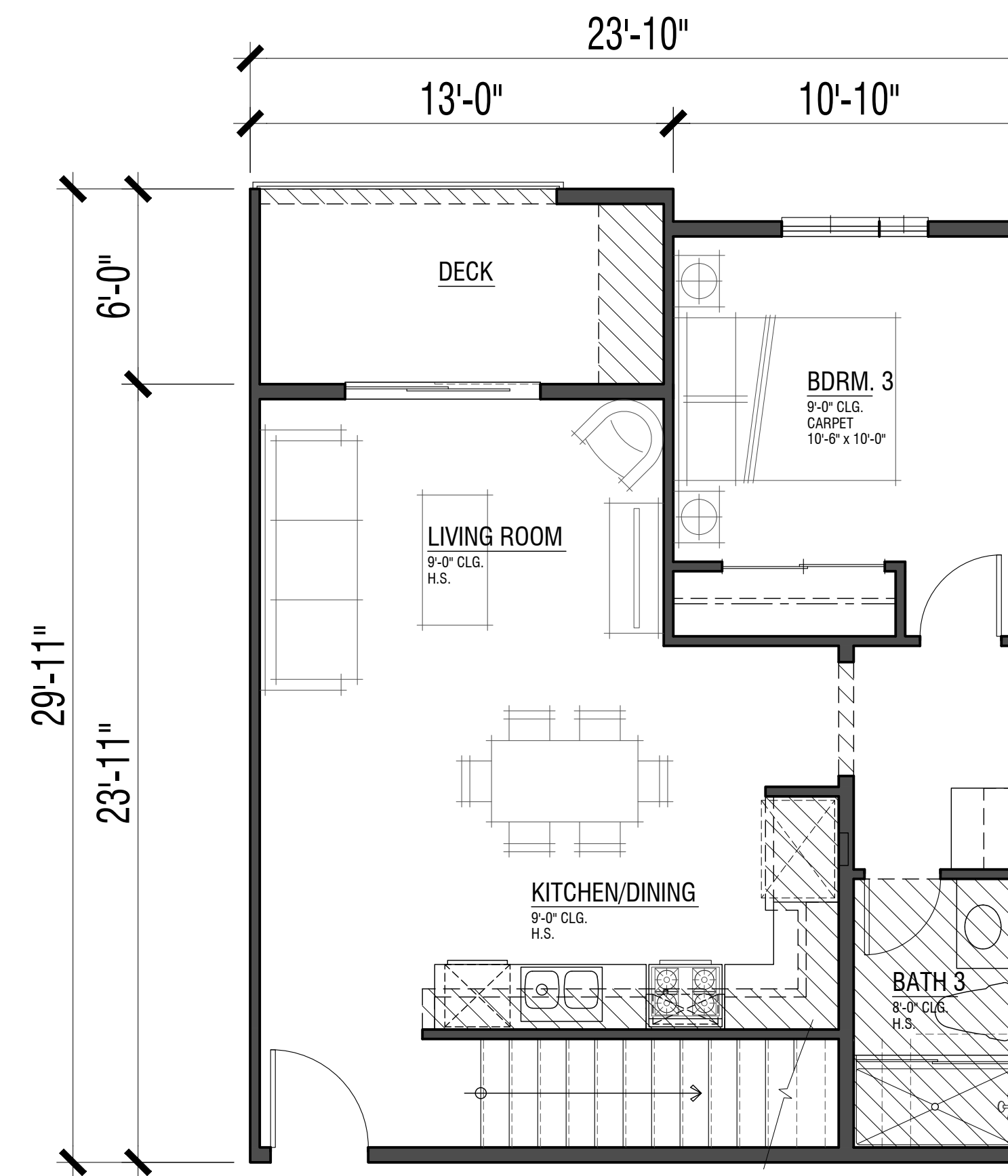
3A/3AX Upper Level
535 sf



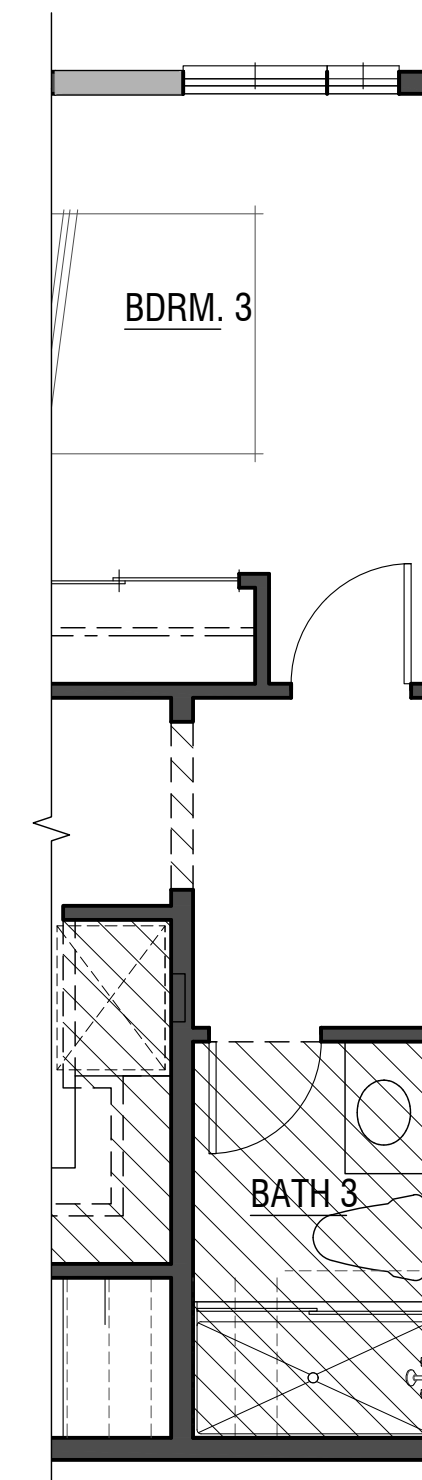
PARTIAL 3AW Upper Level
(w/ Side Windows)



PARTIAL 3AX Lower Level
(w/ Side Entry)



3A Lower Level
582 sf

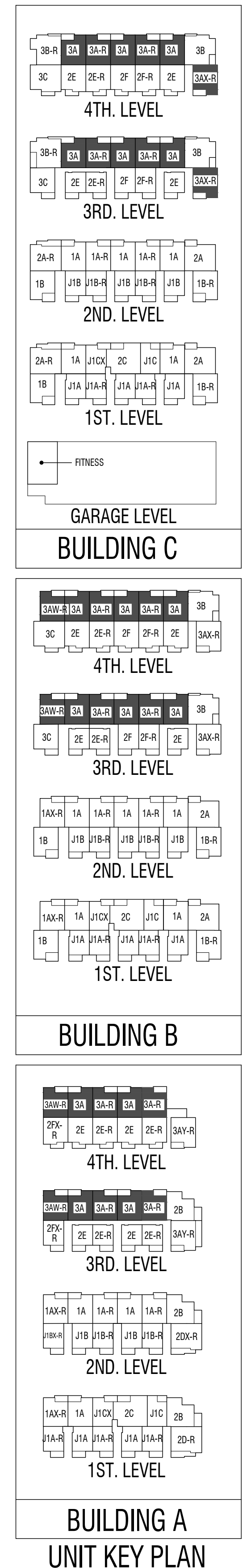


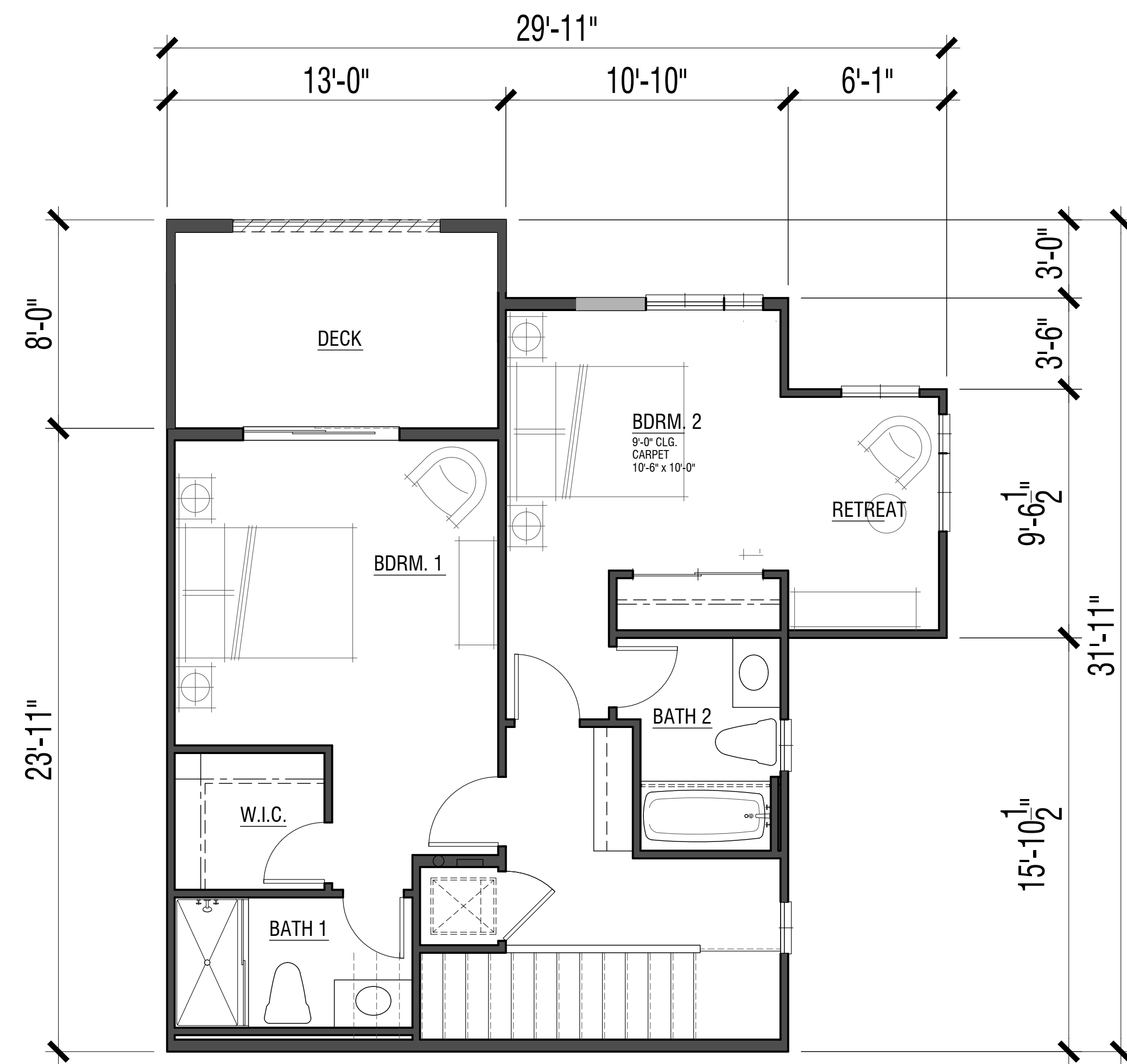
PARTIAL 3AW Lower Level
(w/ Side Windows)

UNIT PLAN 3A

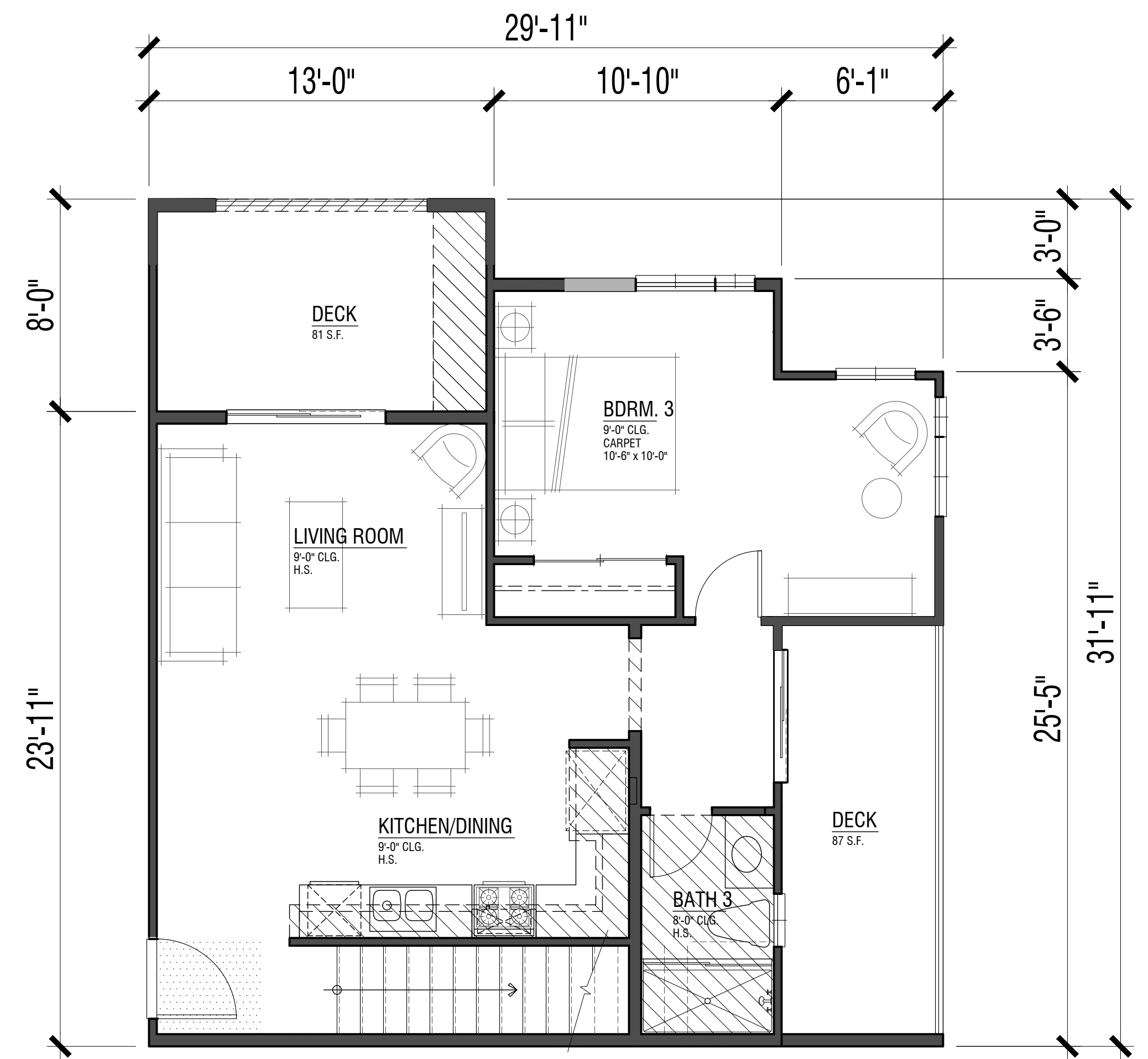
3 Bdrm. / 3 Bath
1117 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)





3AY Upper Level
(w/ Side Deck)
589 SQ. FT.

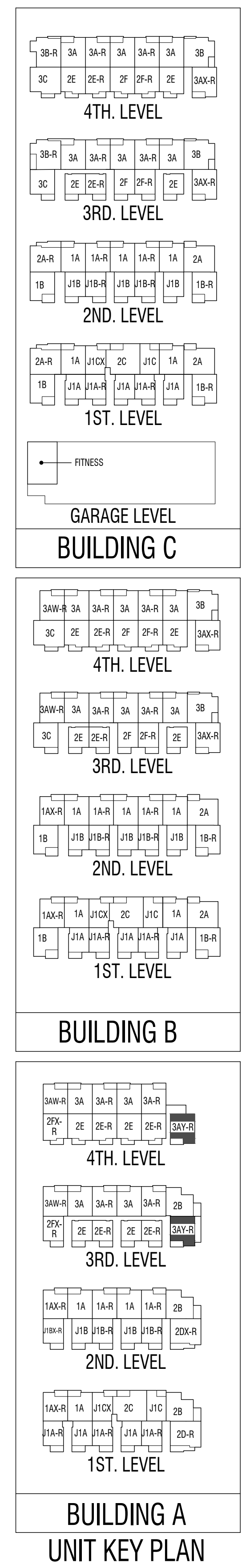


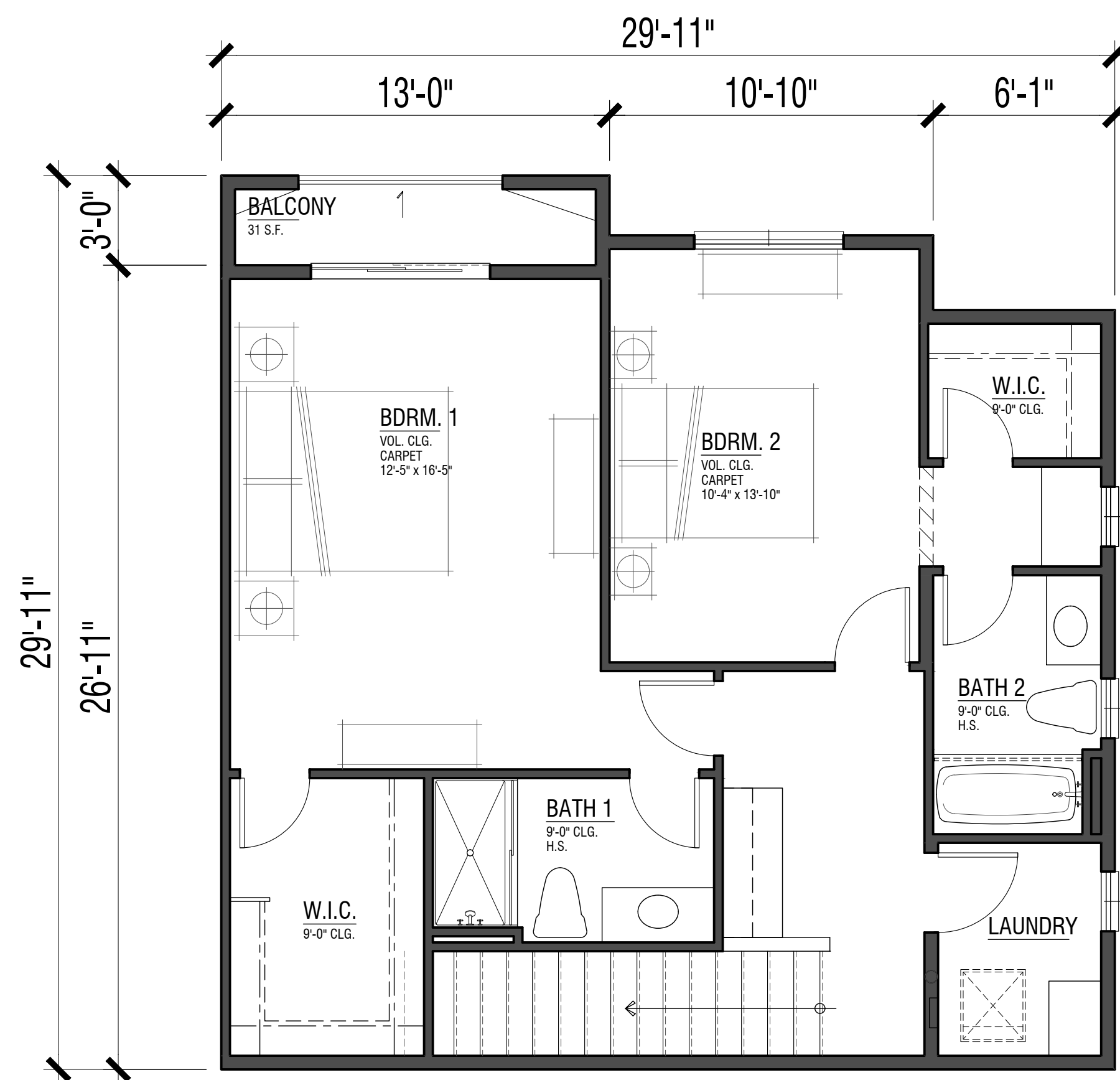
3AY Lower Level
(w/ Side Deck)
636 SQ. FT.

UNIT PLAN 3A Continued

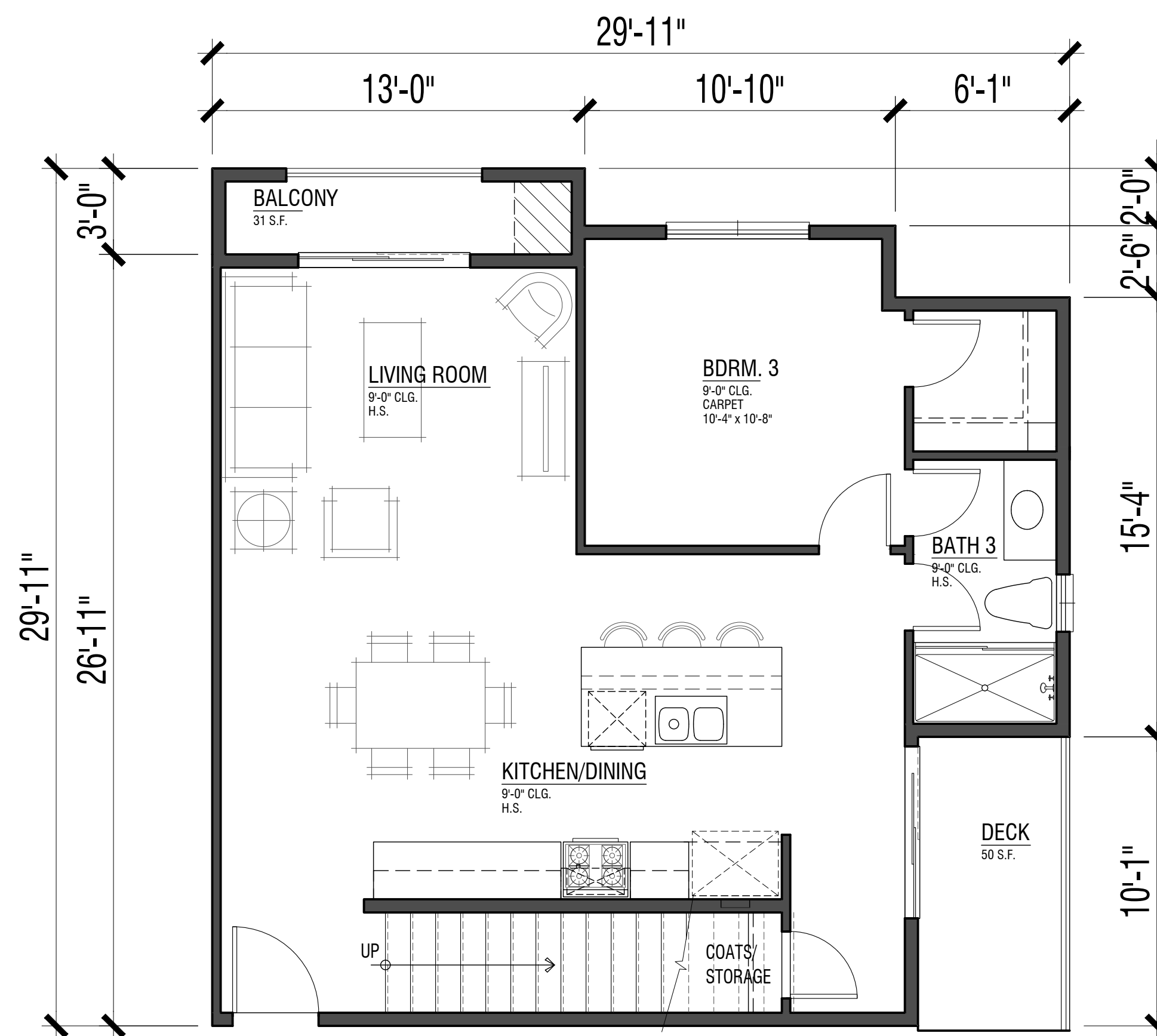
3 Bdrm. / 3 Bath
1225 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)





Upper Level
708 sf



Lower Level
700 sf

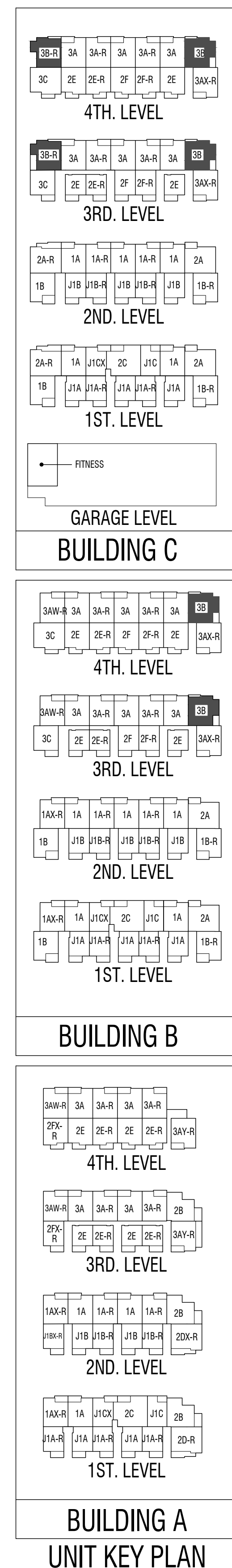
UNIT PLAN 3B

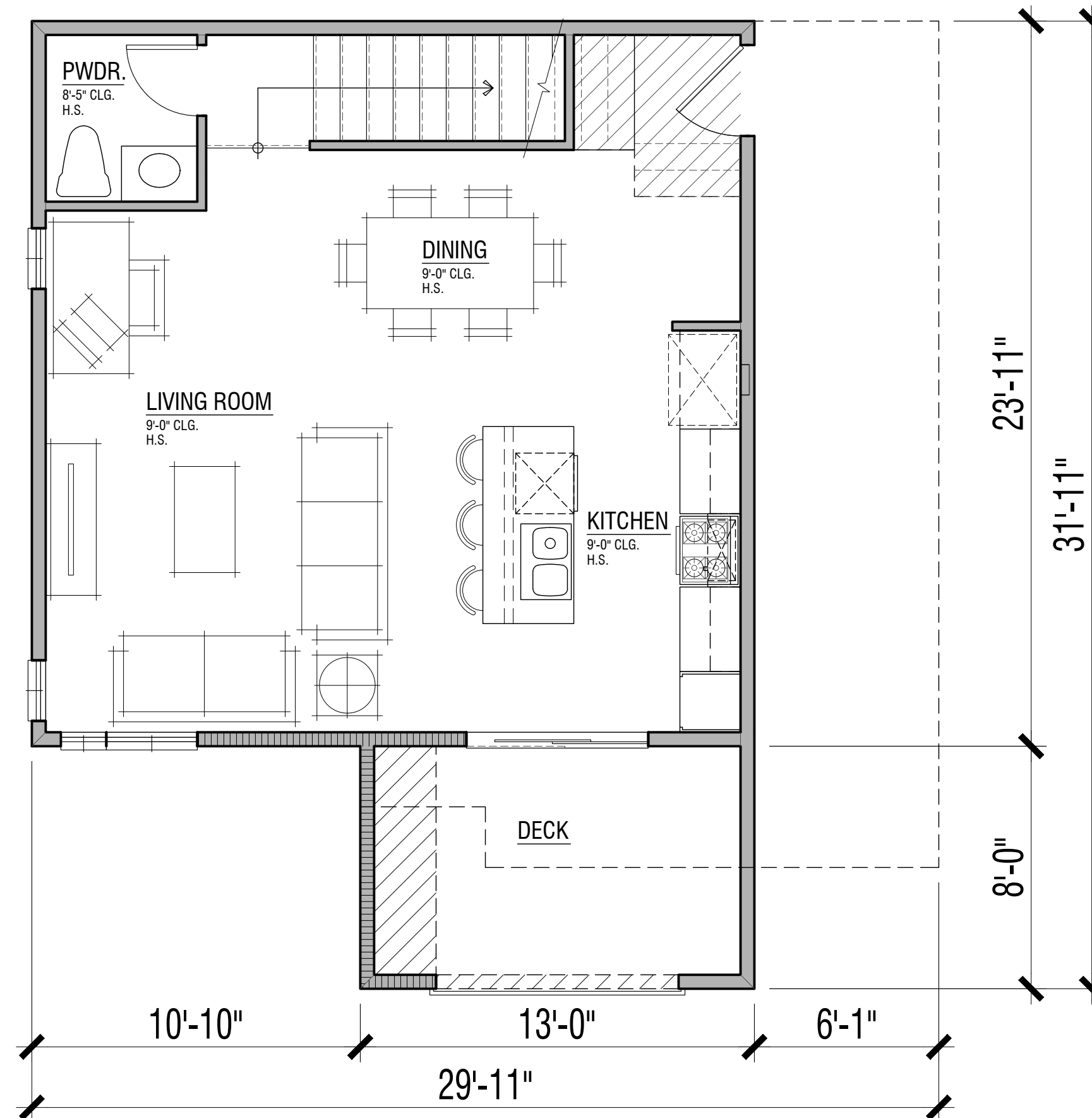
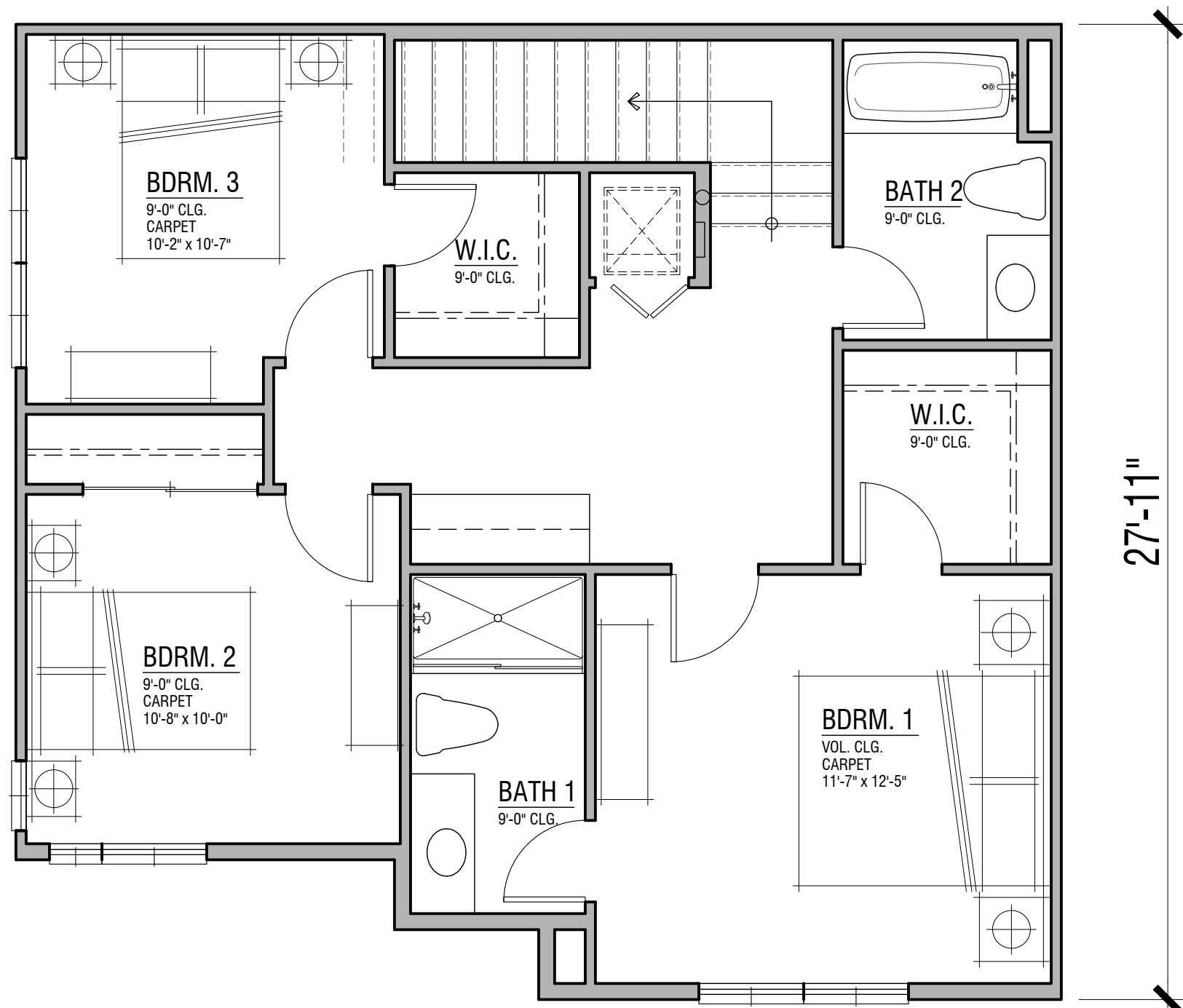
3 Bdrm. / 3 Bath
1408 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590





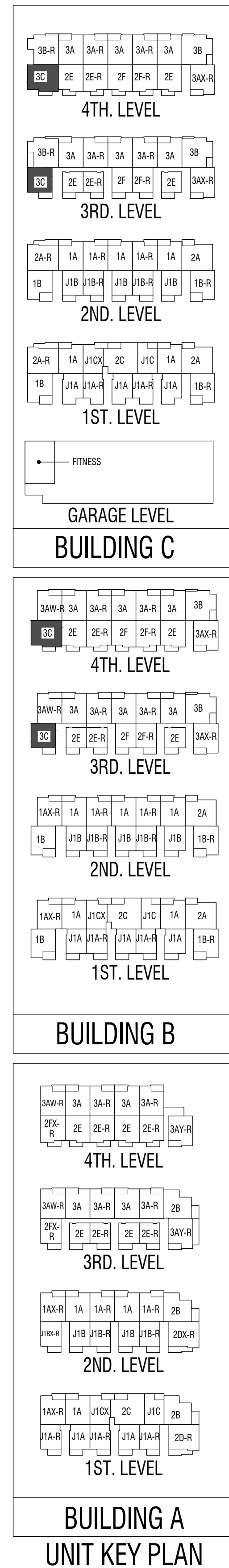
UNIT PLAN 3C

3 Bdrm. / 2.5 Bath
1201 sf

FLOOR AREAS ARE MEASURED TO THE INSIDE FINISH OF THE EXTERIOR WALLS; ASSUMING A 5/8" GYP. BOARD FINISH ON EXTERIOR WALLS, EXCLUDING PORCHES, DECKS, AND SECOND FLOOR STAIR (WHERE OCCURS)

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590



Digital Color Board

BODY #1

SW 6530

Revel Blue

BODY #2

SW 7658

Gray Clouds

BODY #3

SW 7757

High Reflective White

BODY #4

SW 7019

Gauntlet Gray

BODY #5

SW 6902

Decisive Yellow

BODY #6

SW 6203

Spare White
(Match to James Hardie Arctic White)

HARBOR PARK APARTMENTS

Vallejo, California

KLEIN FINANCIAL CORPORATION

June 13, 2023 | 2019353

For exact color refer to manufacturer actual samples.
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SCHEME 1

All Buildings

ARCHITECTS • PLANNERS • DESIGNERS

WHA.

ORANGE COUNTY • LOS ANGELES • BAY AREA • SACRAMENTO

NOTE Colors Designed By: Color Design Development Group

Written Color Scheme

HARBOR PARK APARTMENTS

Vallejo, California

KLEIN FINANCIAL CORPORATION

June 13, 2023 | 2019353

PAGE 1 OF 1

Exterior Color & Materials

SCHEME 1 OF 1

ALL BUILDINGS

Material	Color	Manufacturer
Vinyl Windows (factory finish)	White	TBD
Metal Awnings & Roof (factory finish)	Black	TBD
Gutters & Downspouts (factory finish)	Match Adjacent Color	² Sherwin Williams
¹ Stucco Reveal Channels	Match Adjacent Color	² Sherwin Williams
¹ Metal Parapet Caps	Match Adjacent Color	² Sherwin Williams
Body Color #1	^{2,3} SW 6530 Revel Blue	² Sherwin Williams
Body Color #2	^{2,3} SW 7658 Gray Clouds	² Sherwin Williams
Body Color #3	^{2,3} SW 7757 High Reflective White	² Sherwin Williams
³ Body Color #4	SW 7019 Gauntlet Gray	Sherwin Williams
³ Body Color #5	SW 6902 Decisive Yellow	Sherwin Williams
³ Body Color #6	Match James Hardie (Arctic White) SW 6203 Spare White	Sherwin Williams
Utility Doors	Match Adjacent Color	² Sherwin Williams

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact Corie Rath (925) 463-1700.

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REVISIONS:

Number	Date	Description
1	8/2/22	Revisions per design updates.
2	10/7/22	Revisions per client request.
3	6/13/23	Revisions per documents from Color Design Development Group.

EXTERIOR COLOR & MATERIALS

KLEIN FINANCIAL CORPORATION

WEST HARBOR PARK APARTMENTS

961 PORTER STREET, VALLEJO, CA 94590

CM1

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ARCHITECTS • PLANNERS • DESIGNERS

WHA.

ORANGE COUNTY • LOS ANGELES • BAY AREA • SACRAMENTO

GENERAL NOTES

1. APPLICANT:

HARBOR PARK APARTMENTS, LP
550 S. CALIFORNIA AVE., SUITE 330
PALO ALTO, CA 94306
2. ENGINEER:

CARLSON, BARBEE & GIBSON, INC.
2633 CAMINO RAMON, SUITE 350
SAN RAMON, CA 94583
JUSTIN DEKNOBLOUGH, R.C.E. NO. 79604
PHONE: (925) 866-0322
3. TOTAL SITE AREA:

12.02 ACRES
4. PROPOSED WEST HARBOR PARK AREA:

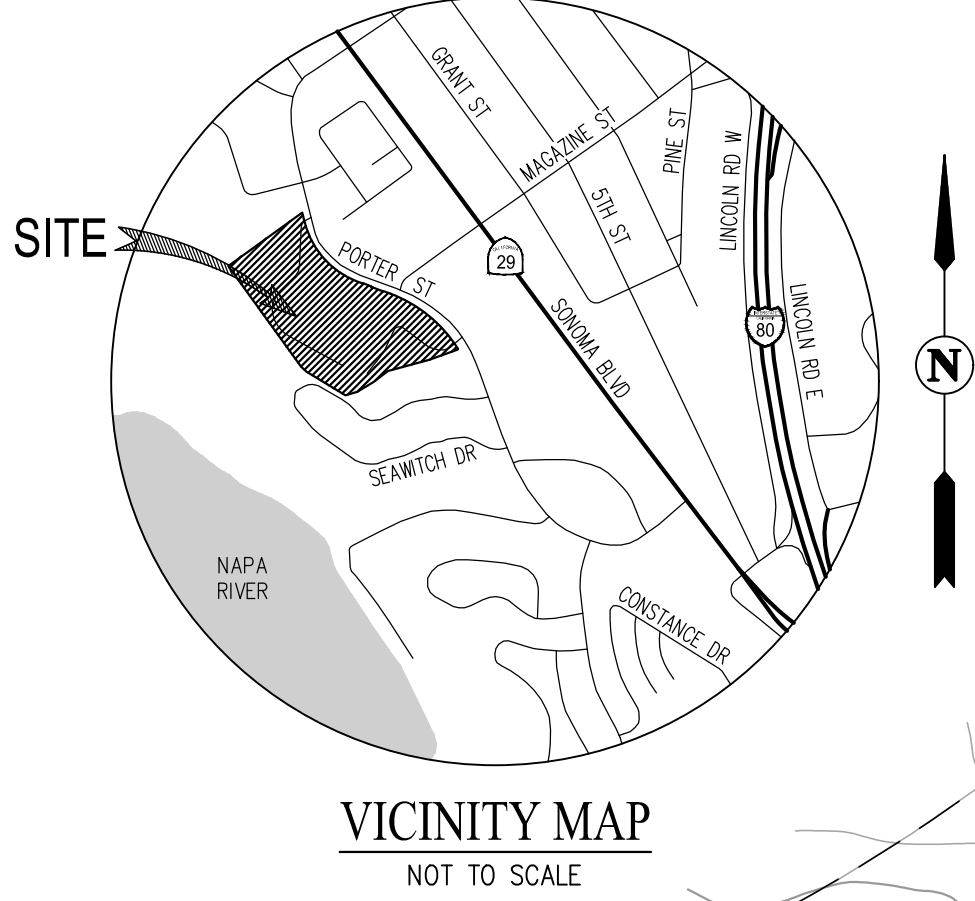
4.16 ACRES
5. RESIDENTIAL UNITS:

122 UNITS
6. APN:

0061-160-180
7. FEMA FLOOD ZONE:

ZONE X: AREAS OF MINIMAL FLOOD HAZARD.

FLOOD INSURANCE RATE MAP NO. 06095C0628G
DATED AUGUST 3, 2016



VICINITY MAP
NOT TO SCALE

LEGEND

- PROPERTY BOUNDARY
- EXISTING PARCEL LINE
- PROPOSED BUILDING - PODIUM
- PROPOSED BUILDING - GARAGE
- PROPOSED CURB
- PROPOSED PARKING STALL
- PROPOSED SIDEWALK
- PROPOSED WATER QUALITY BIORETENTION AREA
- PROPOSED WALL
- EXISTING EASEMENT
- PROPOSED PARCEL LINE ADJUSTMENT (4.16± AC)
- COVERED PARKING
- APPROXIMATE BOILER ROOM LOCATION

PARKING SUMMARY

DESCRIPTION	COUNT
EXISTING MOTORCYCLE SPACE	1
EXISTING GARAGE SPACES	49
EXISTING COVERED SPACES	110
EXISTING UNCOVERED SPACES	118
TOTAL EXISTING SPACES	278
COVERED GARAGE SPACES REMOVED	10
COVERED PARKING SPACES REMOVED	19
UNCOVERED PARKING SPACES REMOVED	67
TOTAL PARKING SPACES REMOVED	96
GARAGE PARKING SPACES ADDED	98
COVERED PARKING SPACES ADDED	28
UNCOVERED PARKING SPACES ADDED	29
TOTAL PARKING SPACES ADDED	155
NET TOTAL PARKING	337
PORTER STREET PARKING	97
TOTAL PARKING	434

UNIT SUMMARY

DESCRIPTION	UNIT COUNT
BUILDING A	36
BUILDING B	42
BUILDING C	42
MAINTENANCE BUILDING	2
TOTAL	122 UNITS

EXISTING PARKING BREAKDOWN

	COVERED			UNCOVERED	TOTAL
	GARAGE	CARPORT	SUB-TOTAL		
EXISTING	49	110	159	119	278
REMOVE	10	19	29	67	96
TOTAL	39	91	130	52	182

NEW PARKING BREAKDOWN

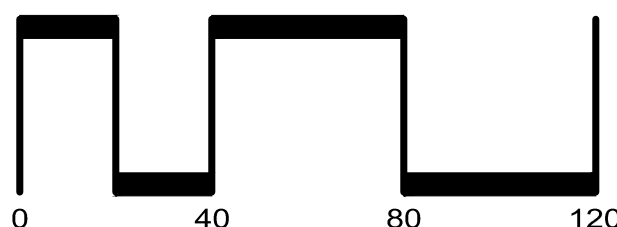
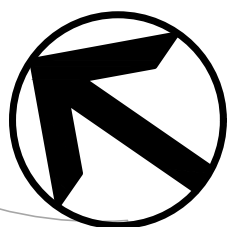
	COVERED			UNCOVERED	TOTAL
	GARAGE	CARPORT	SUB-TOTAL		
REQUIRED	122		122	-	122
PROVIDED	98	28	126	29	155

NOTE: PROVIDED COUNTS INCLUDE 9 ADA COVERED AND 2 ADA UNCOVERED PARKING SPACES.

DEVELOPMENT PLAN
PRELIMINARY SITE PLAN
WEST HARBOR PARK

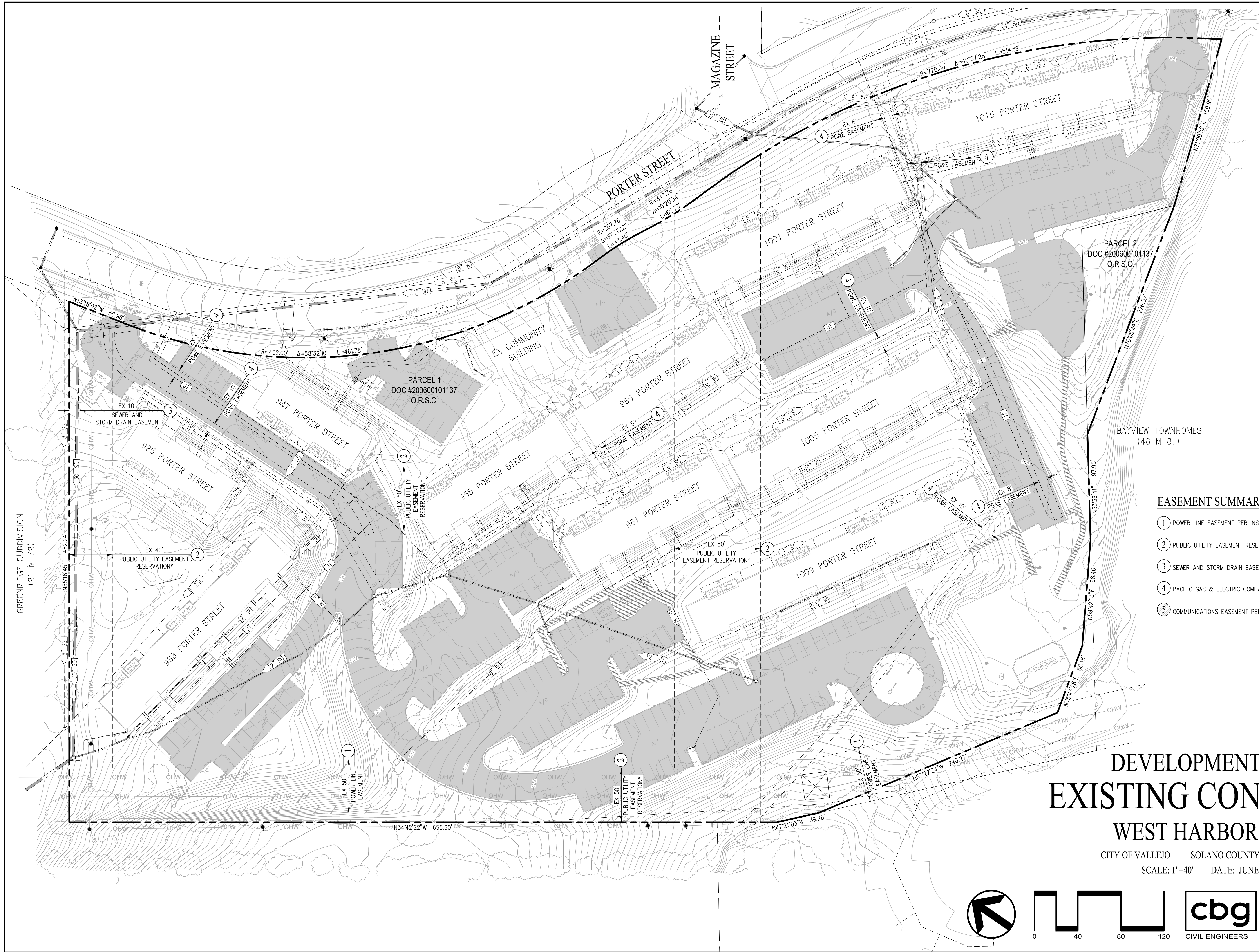
CITY OF VALLEJO SOLANO COUNTY CALIFORNIA

SCALE: 1"=40' DATE: JUNE 16, 2023



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ROSEVILLE • (916) 788-4456
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SHEET NO.
C1
OF 6 SHEETS



LEGEND

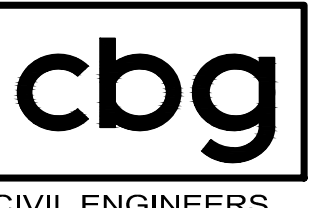
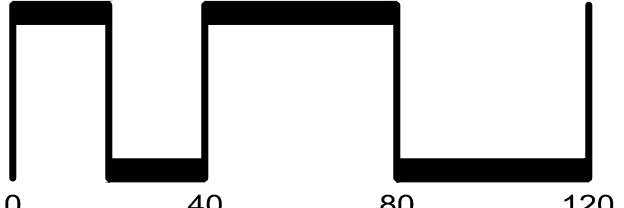
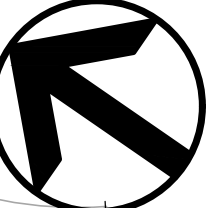
- PROPERTY BOUNDARY
- EXISTING PARCEL LINE
- EXISTING EASEMENT
- EXISTING MANHOLE
- EXISTING UTILITY POLE
- EXISTING OVERHEAD WIRE
- EXISTING FIRE HYDRANT
- EXISTING DOMESTIC WATER
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- EXISTING JOINT TRENCH
- EXISTING AC PAVEMENT

EASEMENT SUMMARY

- POWER LINE EASEMENT PER INST. NO. 7149, BOOK 1023, PAGE 156, O.R.S.C.
- PUBLIC UTILITY EASEMENT RESERVATION PER INST. NO. 28715, BOOK 1231, PAGE 71, O.R.S.C. (*VACATED)
- SEWER AND STORM DRAIN EASEMENT PER INST. NO. 817, BOOK 1317, PAGE 158, O.R.S.C.
- PACIFIC GAS & ELECTRIC COMPANY EASEMENT PER INST. NO. 12583, BOOK 1336, PAGE 544, O.R.S.C.
- COMMUNICATIONS EASEMENT PER INST. NO. 200400172162, O.R.S.C. (NOT PLOTTABLE)

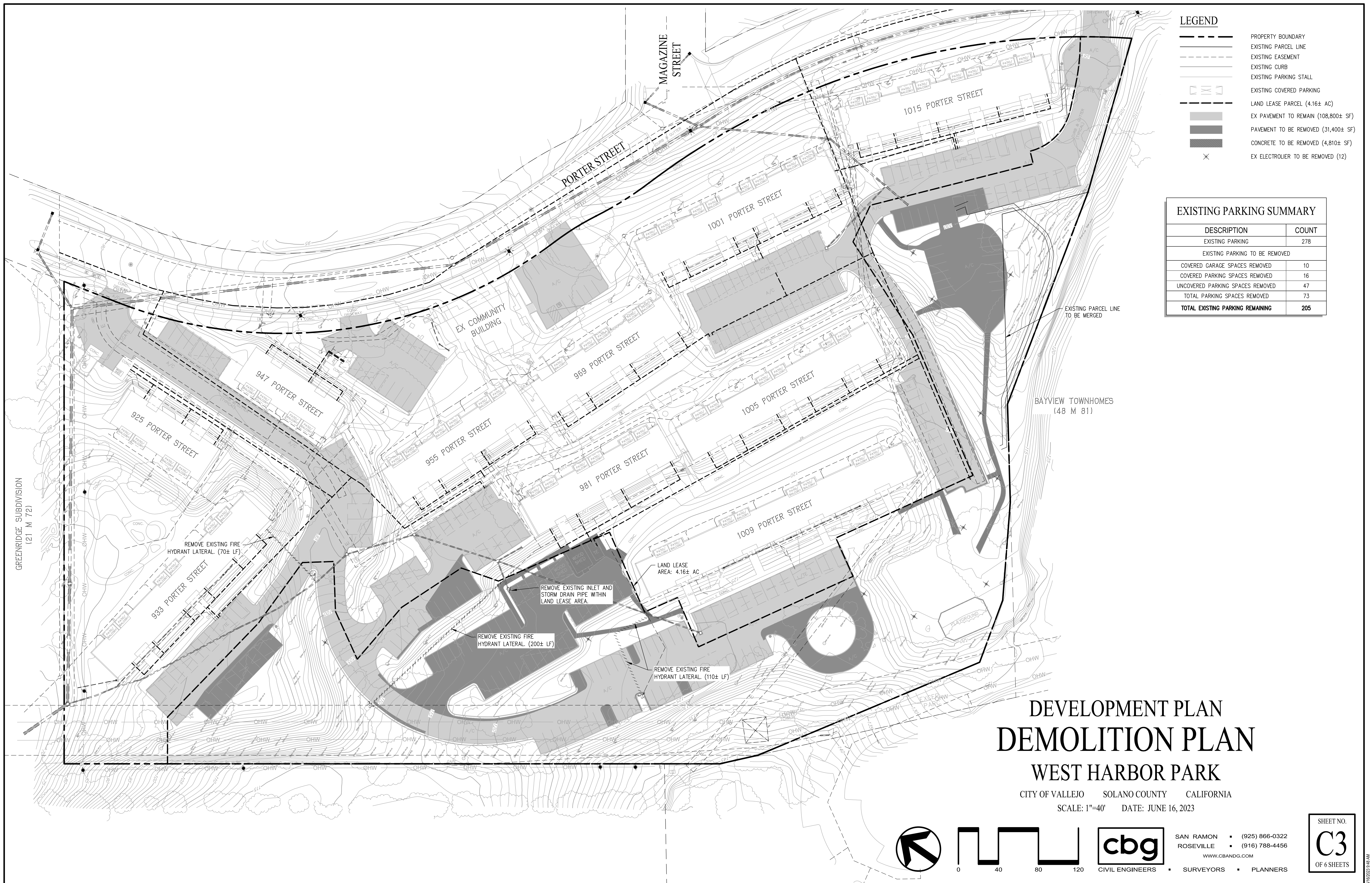
DEVELOPMENT PLAN
EXISTING CONDITIONS
WEST HARBOR PARK

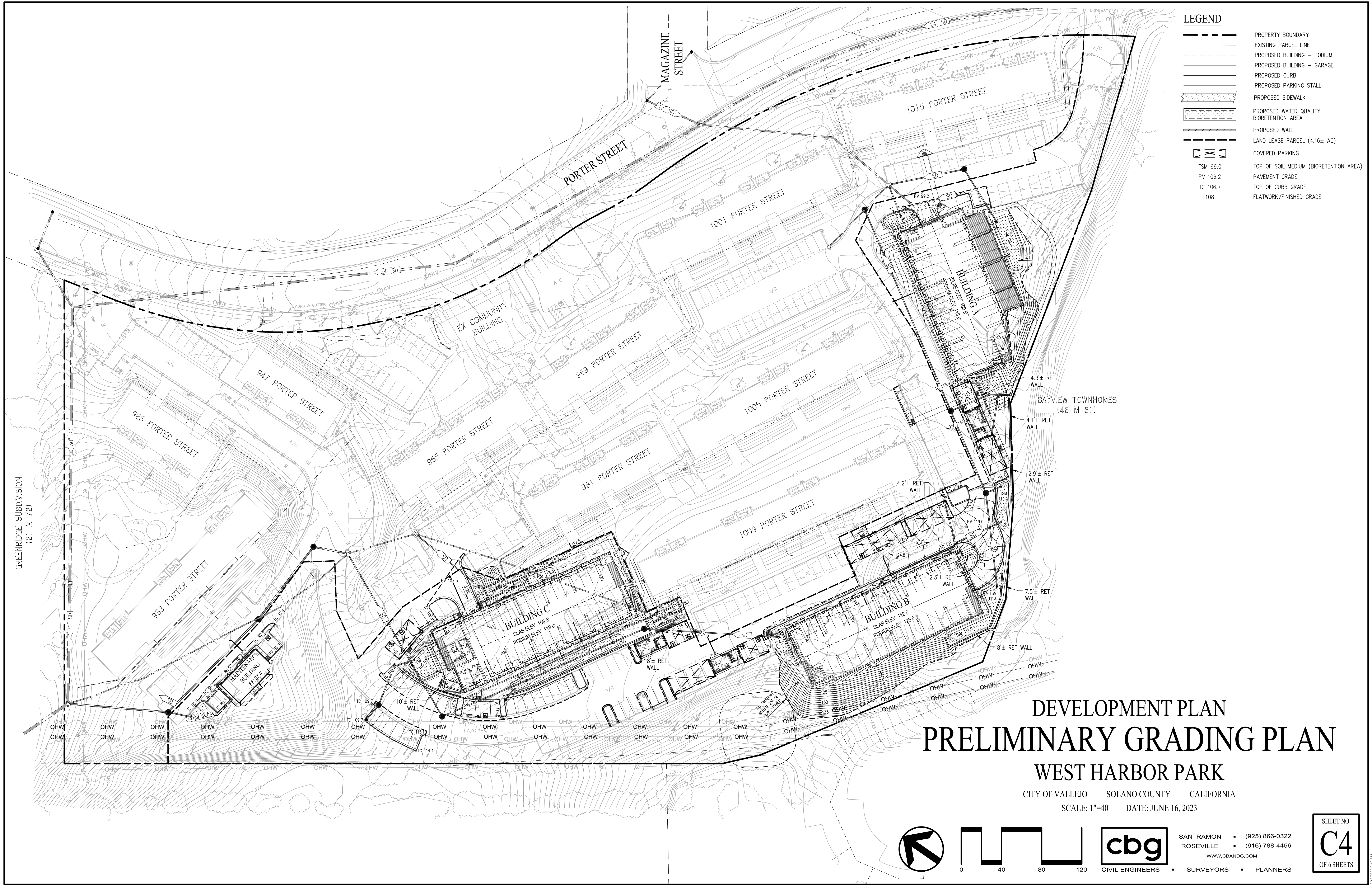
CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: JUNE 16, 2023



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SHEET NO.
C2
OF 6 SHEETS





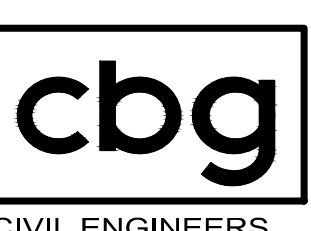
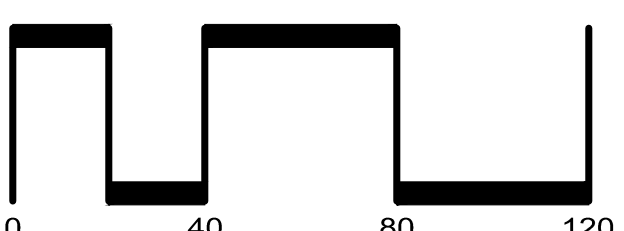
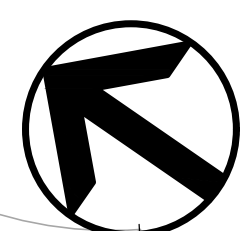
LEGEND

- PROPERTY BOUNDARY
- EXISTING PARCEL LINE
- PROPOSED BUILDING - PODIUM
- PROPOSED BUILDING - GARAGE
- PROPOSED CURB
- PROPOSED PARKING STALL
- PROPOSED SIDEWALK
- PROPOSED WATER QUALITY BIORETENTION AREA
- PROPOSED WALL
- LAND LEASE PARCEL (4.16± AC)
- COVERED PARKING
- TOP OF SOIL MEDIUM (BIORETENTION AREA)
- PAVEMENT GRADE
- TOP OF CURB GRADE
- FLATWORK/FINISHED GRADE

TSM 99.0
PV 106.2
TC 106.7
108

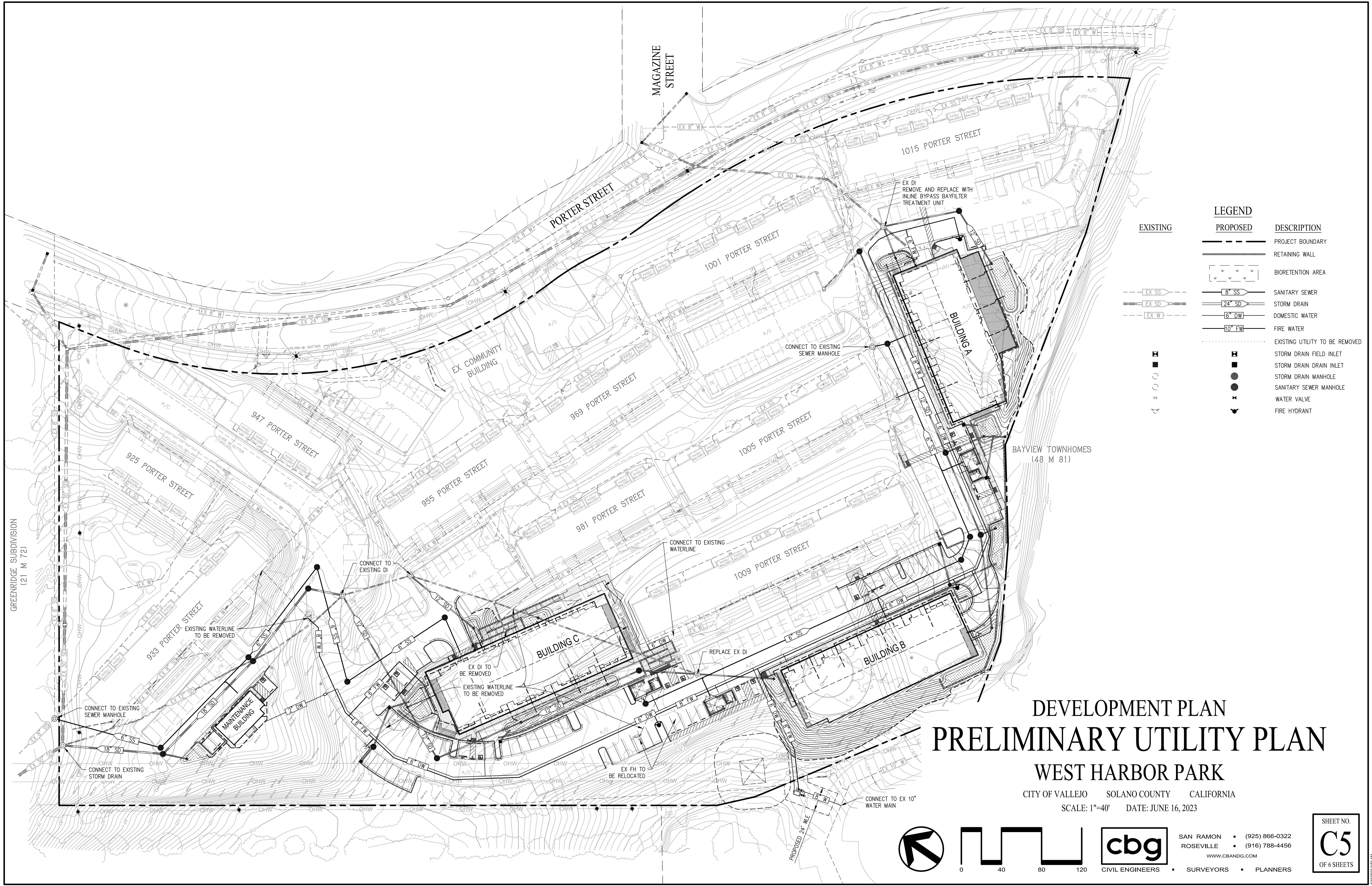
DEVELOPMENT PLAN
PRELIMINARY GRADING PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: JUNE 16, 2023



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SHEET NO.
C4
OF 6 SHEETS



LEGEND		DESCRIPTION
EXISTING	PROPOSED	
---	---	PROJECT BOUNDARY
---	---	RETAINING WALL
---	---	BIORETENTION AREA
---	---	SANITARY SEWER
---	---	STORM DRAIN
---	---	DOMESTIC WATER
---	---	FIRE WATER
---	---	EXISTING UTILITY TO BE REMOVED
---	---	STORM DRAIN FIELD INLET
---	---	STORM DRAIN DRAIN INLET
---	---	STORM DRAIN MANHOLE
---	---	SANITARY SEWER MANHOLE
---	---	WATER VALVE
---	---	FIRE HYDRANT

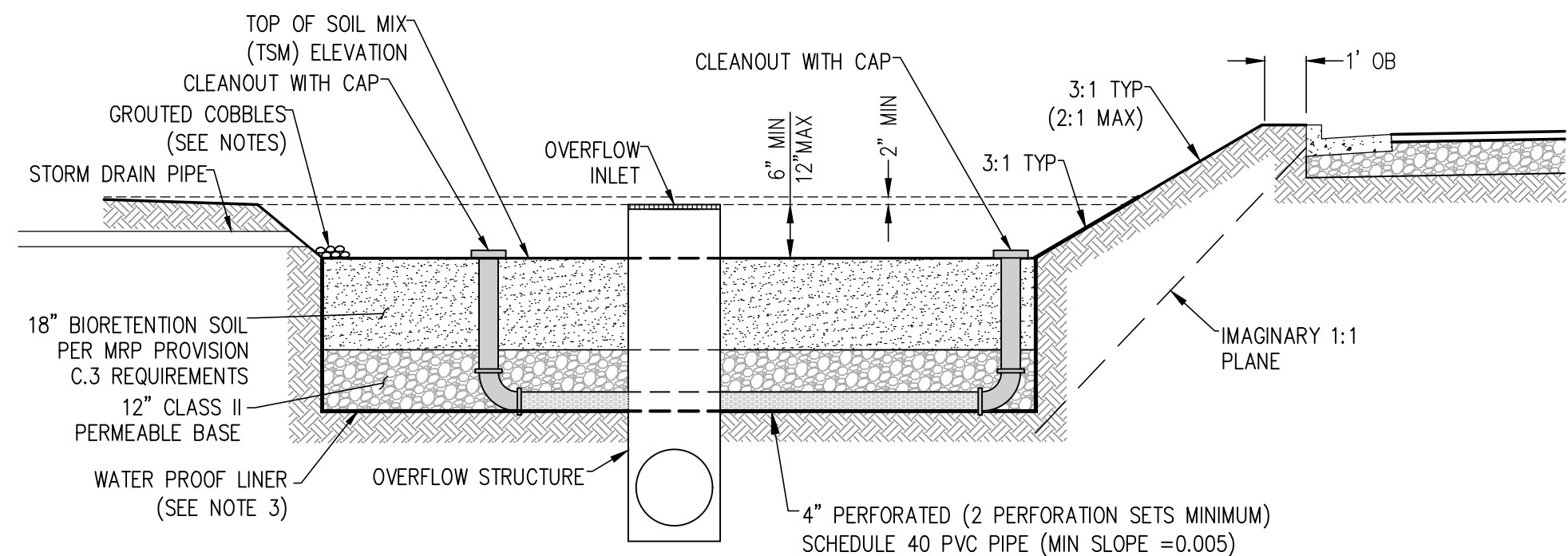
DEVELOPMENT PLAN
PRELIMINARY UTILITY PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: JUNE 16, 2023

CIVIL ENGINEERS SURVEYORS PLANNERS

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SHEET NO.
C5
OF 6 SHEETS



BIORETENTION AREA DETAIL

- BIORETENTION AREA NOTES:
1. INSTALL A 6\"/>
 2. CONTRACTOR TO PROVIDE AT LEAST 3 INCHES OF COMPOSTED NON-FLOATING MULCH ON ANY EXPOSED EARTH WITHIN THE BIORETENTION AREA.
 3. GEOTECHNICAL ENGINEER MAY REQUIRE SIDE AND BOTTOM OF BIORETENTION AREA TO BE LINED WITH WATER PROOFING LINER. IF LINER IS TO BE INSTALLED, 4\"/>
 4. ALL COBBLES SHALL BE 3\"/>
 5. MINIMUM SLOPE OF ALL PERFORATED PIPE TO BE 0.005.

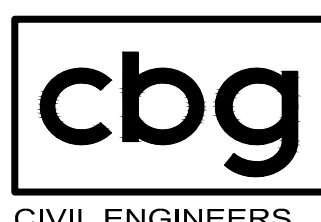
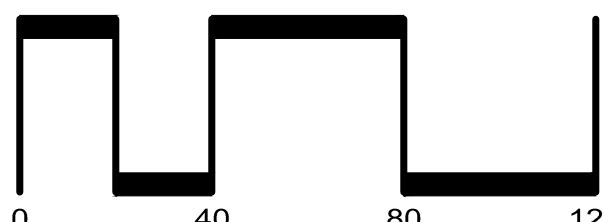
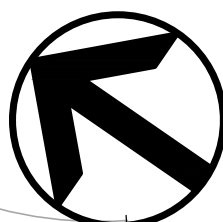
LEGEND		DESCRIPTION
---	EXISTING	PROJECT BOUNDARY
---	PROPOSED	DRAIN MANAGEMENT AREA BOUNDARY
---	---	BIORETENTION AREA
---	---	STORM DRAIN
---	---	STORM DRAIN FIELD INLET
---	---	STORM DRAIN INLET
---	---	STORM DRAIN MANHOLE

DMA SUMMARY		
DMA NUMBER	TOTAL AREA (SF)	BIORETENTION PROVIDED (SF)
1	14,591	657
2	5,644	156
3	5,271	296
4	9,673	319
5	17,624	563
6	13,505	227
7	36,723	1,065
8	5,393	163
9	5,852	207
10	15,826	489
11	16,737	187

DEVELOPMENT PLAN
PRELIMINARY
STORMWATER
CONTROL PLAN
WEST HARBOR PARK

CITY OF VALLEJO SOLANO COUNTY CALIFORNIA
SCALE: 1"=40' DATE: June 16, 2023

- NOTES:
1. ALL BIORETENTION AREAS HAVE BEEN SIZED PER THE ALAMEDA COUNTY CLEAN WATER PROGRAM C.3 STORMWATER TECHNICAL GUIDANCE HANDBOOK DATED FEBRUARY 8, 2021, AND THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION, MUNICIPAL STORMWATER NPDES PERMIT, ORDER NO. R2-2015-0049 DATED NOVEMBER 19, 2015, USING COMBINATION FLOW AND VOLUME CALCULATIONS.



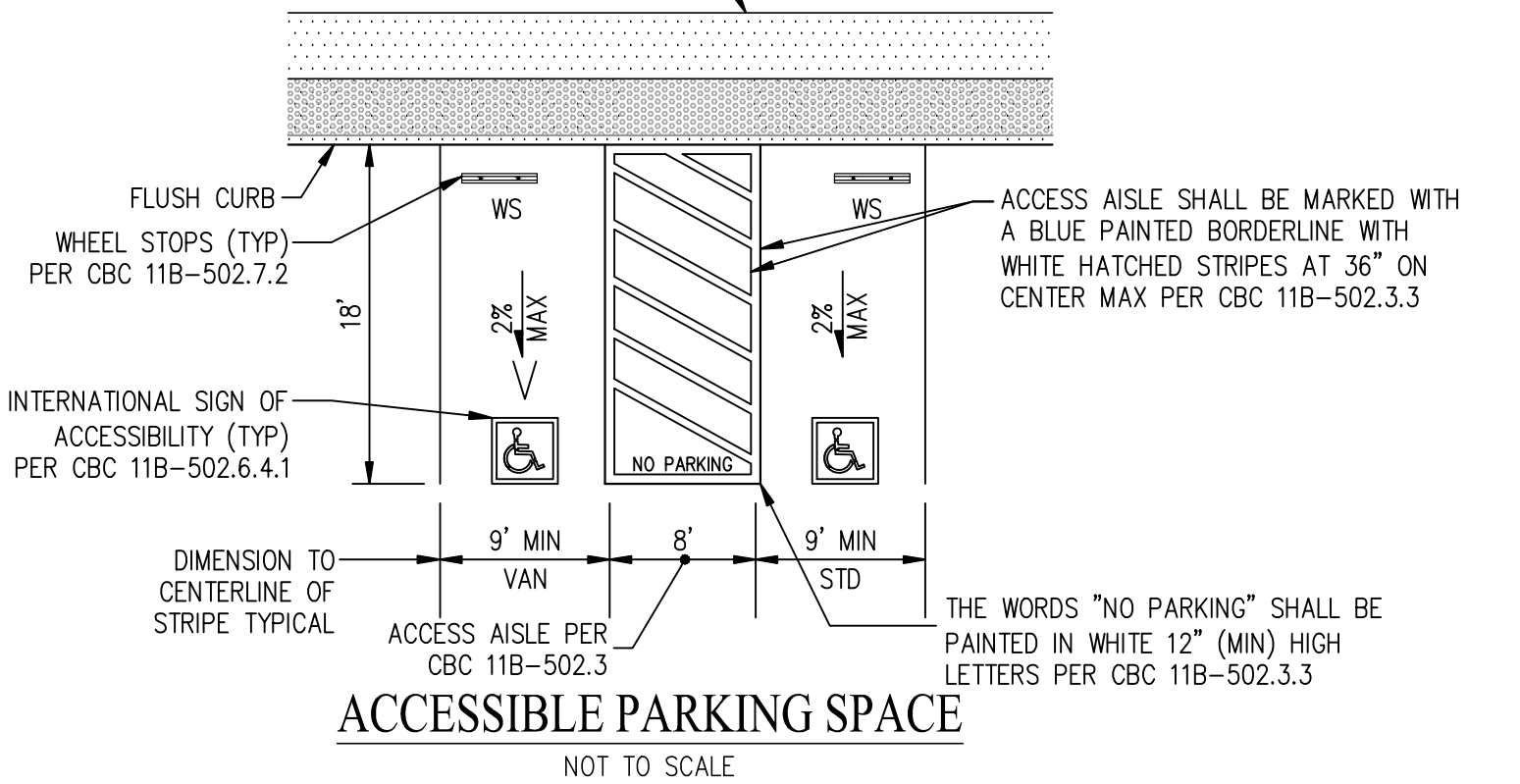
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SHEET NO.
C6
OF 6 SHEETS



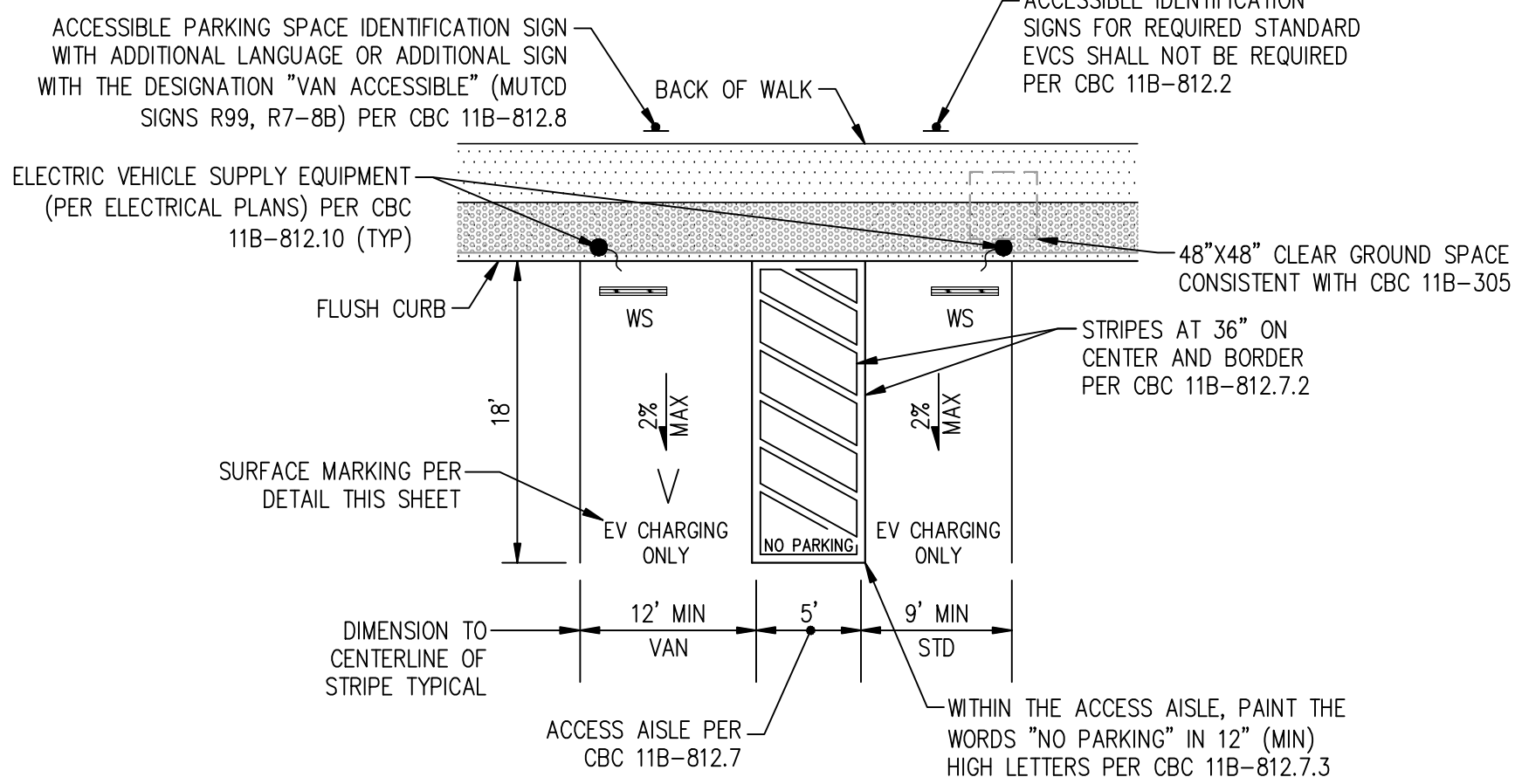
ACCESSIBLE PARKING SPACE IDENTIFICATION SIGN WITH ADDITIONAL LANGUAGE OR ADDITIONAL SIGN WITH THE DESIGNATION "VAN ACCESSIBLE" AND *MINIMUM FINE \$250* (MUTCD SIGNS R99, R99B OR R99C AND R7-8B) PER CBC 11B-502.6

ACCESSIBLE PARKING SPACE IDENTIFICATION SIGN WITH ADDITIONAL LANGUAGE OR ADDITIONAL SIGN WITH THE DESIGNATION "MINIMUM FINE \$250" (MUTCD SIGNS R99, R99B OR R99C) PER CBC 11B-502.6



SIGNING & STRIPING NOTES:

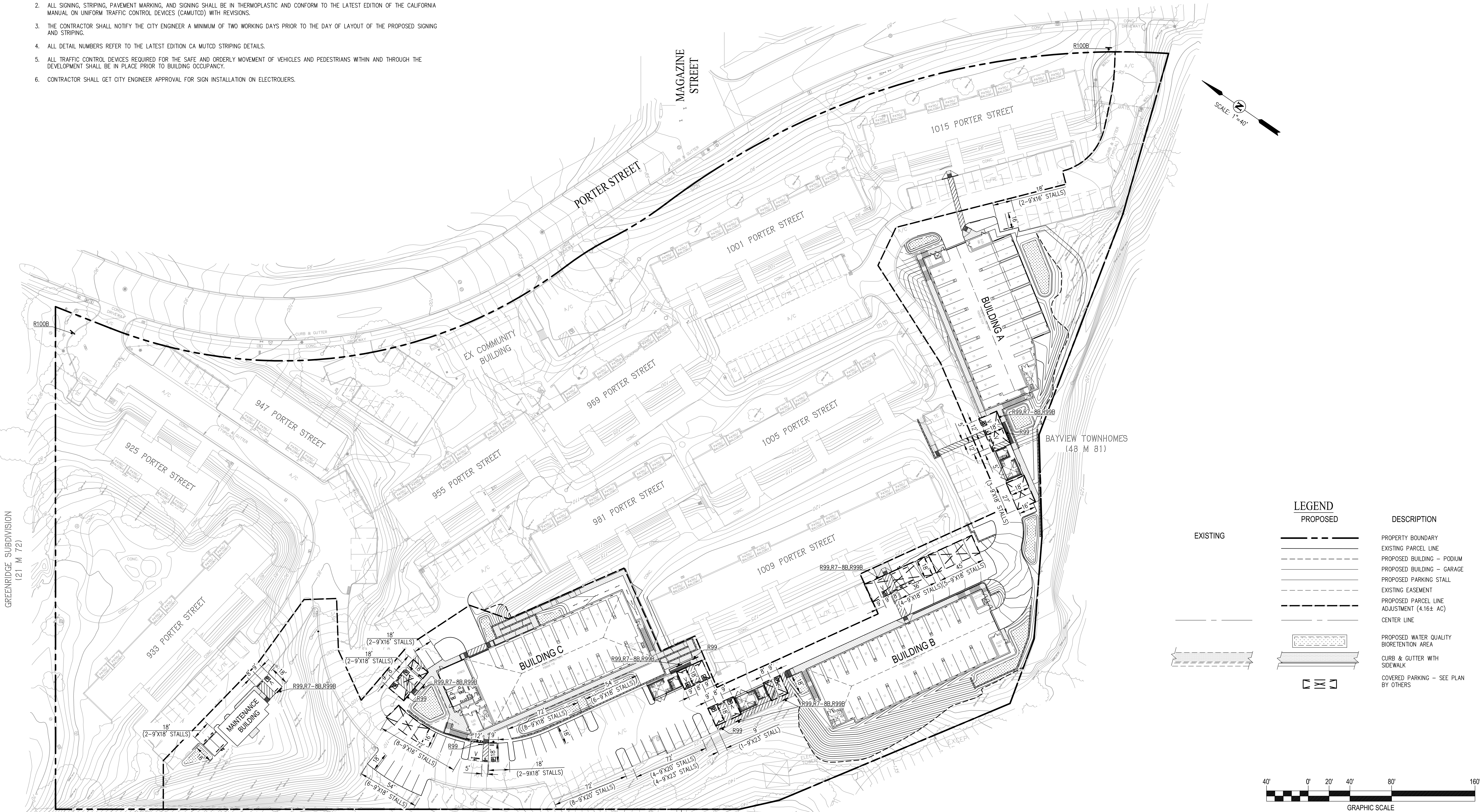
1. THE CONTRACTOR SHALL NOT PROCEED WITH ANY IMPROVEMENTS CALLED FOR ON THESE PLANS UNTIL THE CITY ENGINEER'S SIGNATURE OF APPROVAL IS AFFIXED AND ALL APPLICABLE PERMITS HAVE BEEN OBTAINED. AN APPROVED SET OF PLANS AND SPECIFICATIONS SHALL BE ON THE JOB SITE DURING ANY CONSTRUCTION. THE CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE CITY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
2. ALL SIGNING, STRIPING, PAVEMENT MARKING, AND SIGNING SHALL BE IN THERMOPLASTIC AND CONFORM TO THE LATEST EDITION OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CAMUTCD) WITH REVISIONS.
3. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER A MINIMUM OF TWO WORKING DAYS PRIOR TO THE DAY OF LAYOUT OF THE PROPOSED SIGNING AND STRIPING.
4. ALL DETAIL NUMBERS REFER TO THE LATEST EDITION CA MUTCD STRIPING DETAILS.
5. ALL TRAFFIC CONTROL DEVICES REQUIRED FOR THE SAFE AND ORDERLY MOVEMENT OF VEHICLES AND PEDESTRIANS WITHIN AND THROUGH THE DEVELOPMENT SHALL BE IN PLACE PRIOR TO BUILDING OCCUPANCY.
6. CONTRACTOR SHALL GET CITY ENGINEER APPROVAL FOR SIGN INSTALLATION ON ELECTROLIERS.



PARKING SUMMARY		
PARKING TYPE	PARKING REQUIRED	PARKING PROVIDED
COVERED PARKING SPACES	151 (SEE NOTE 1)	126 (SEE NOTE 2)
UNCOVERED PARKING SPACES	0	31
EV CAPABLE PARKING SPACES	6 (SEE NOTE 3)	6
ADA PARKING SPACES	11 (SEE NOTE 4)	11

- NOTES:
1. COVERED PARKING REQUIRED IS 1 COVERED SPACE/UNIT PLUS 29 SPACES FOR THE EXISTING COVERED PARKING SPACES REMOVED. [122+29=151]
 2. INCLUDES 9 COVERED ADA PARKING SPACES AND 10 TANDEM COVERED SPACES. UNIQUE RESIDENT ASSIGNED COVERED SPACES=107.
 3. EV CAPABLE REQUIRED IS 10% OF THE COVERED AND UNCOVERED SPACES OUTSIDE THE GARAGE. [COVERED: 28*0.10=3; UNCOVERED: 29*0.10=3]. AT LEAST 10% OF THE PARKING SPACES IN THE GARAGE WILL BE EV CAPABLE [GARAGE: 88*0.10=9].
 4. ADA PARKING REQUIRED IS PER CBC 11B-208.2.3. [PARKING FOR RESIDENTS: 120*0.05(MOBILITY UNITS)=6; ADDITIONAL PARKING SPACES FOR RESIDENTS: (155-6)*0.02=3; PARKING FOR GUESTS: FROM TABLE 11B-208.2 (29 UNCOVERED)=2]

SIGN TABLE	
DESIGNATION	SIGN OR PLAQUE
R7-8B	VAN ACCESSIBLE
R99	ACCESSIBLE PARKING ONLY
R99B	MINIMUM FINE \$250
R100B	DISABLED TOW AWAY



M.F.

WEST HARBOR PARK APARTMENTS VALLEJO, CALIFORNIA

PRIVATE IMPROVEMENT PLANS

KLEIN FINANCIAL CORPORATION
PALO ALTO, CALIFORNIA

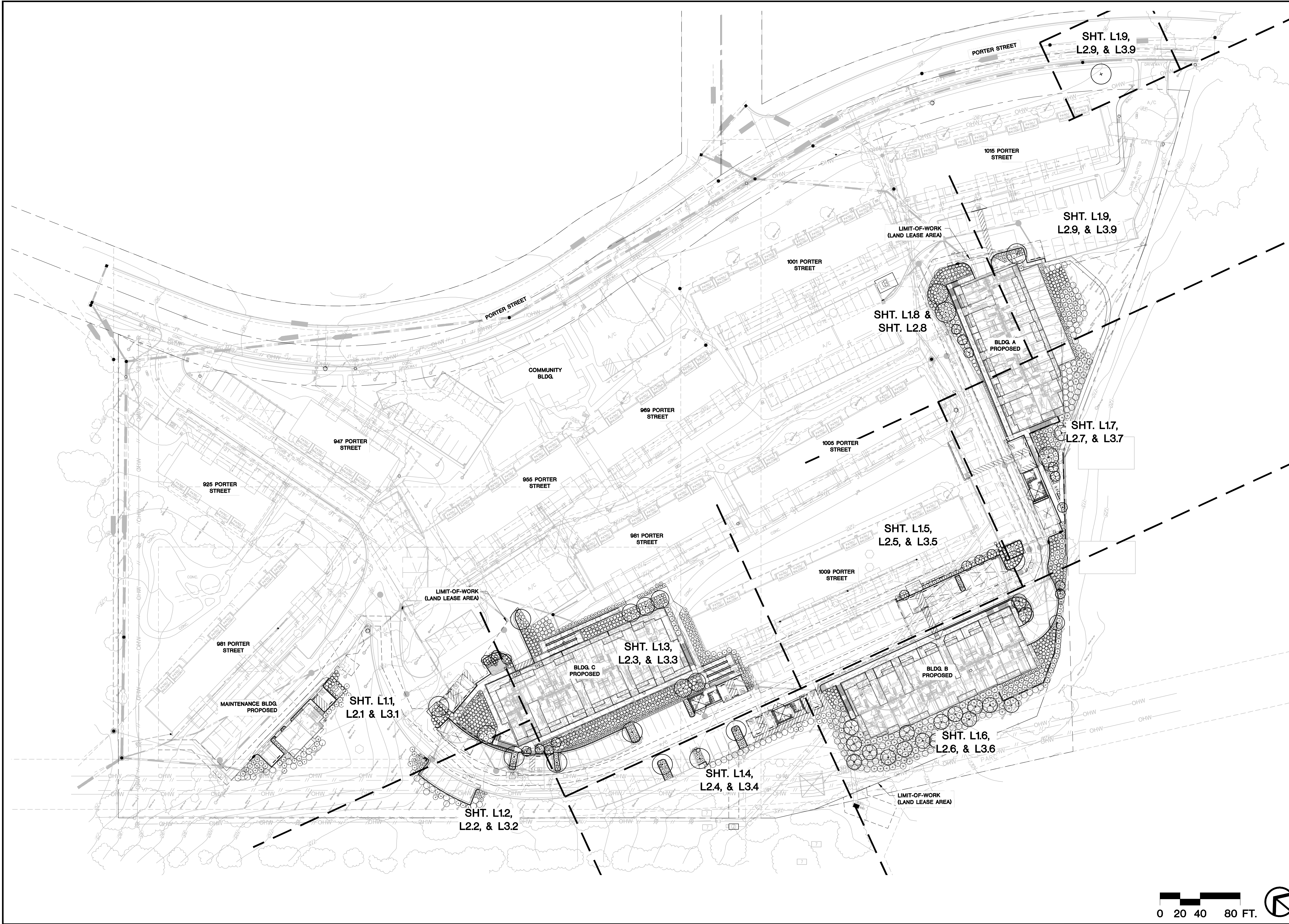


REVISIONS		
NO.	DATE	DESCRIPTION

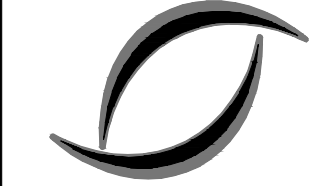
SIGNING & STRIPING PLAN

SHEET SCALE:	
PROJECT MANAGER:	JRD
DESIGNER:	JK
DRAWN BY:	JK
REVIEWED BY:	JRD
1ST BLDG. DEPT. SUBMITTAL:	12/15/2022
ISSUED FOR CONSTRUCTION:	TBD
JOB NUMBER:	3588-000
CAD FILE NAME:	F:\3588-000\ACAD\PRIP13.DWG
DATE:	5/4/23
SHEET:	C-13

PROGRESS SET



REVISIONS	BY
05/04/23 2nd PLAN CHECK	SEF
07/14/23 3rd PLAN CHECK	SEF



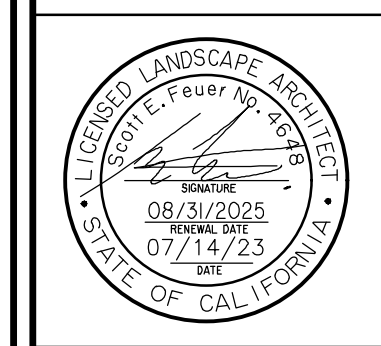
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OVERALL SITE PLAN/SHEET KEY
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California



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Scale:	1" = 40'
Drawn by:	JM, SF
Date:	07/14/23
Job:	19017.03
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Of	35 Sheets

MATERIALS SCHEDULE

SYMBOL	DESCRIPTION	DETAIL/SHEET
1	CONCRETE PAVING (PEDESTRIAN & VEHICULAR) COLOR: NO COLOR FINISH: MEDIUM BROOM SEE PLANS FOR SCORE PATTERN	1 L4.1
2	PRECAST DECORATIVE PAVERS (PEDESTRIAN) TYPE: TBD COLOR: TBD FINISH: TBD AVAIL.: TBD	X XX
3	CUBE SEATING FEATURE MODEL: PIXEL CUBES COLOR: TBD FINISH: TBD AVAIL.: www.maglin.com	2 L4.1
4	CLUSTER MAILBOXES & PARCEL BOXES BLDG. A TOTAL UNITS 36: M16 - 16 UNIT TENANT DOORS/2 PARCEL (QTY. 2) M8 - 8 UNIT TENANT DOORS/4 PARCEL (QTY. 1) P - 4 UNIT PARCEL BOXES (QTY. 1) TOTAL TENANT DOORS PROVIDED: 40 TOTAL PARCEL BOXES PROVIDED: 12 BLDG. B TOTAL UNITS 42: M16 - 16 UNIT TENANT DOORS/2 PARCEL (QTY. 3) P - 4 UNIT PARCEL BOXES (QTY. 1) TOTAL TENANT DOORS PROVIDED: 48 TOTAL PARCEL BOXES PROVIDED: 10 BLDG. C (42 UNITS) MAINTENANCE BLDG. (2 UNITS) TOTAL UNITS 44: M16 - 16 UNIT TENANT DOORS/2 PARCEL (QTY. 3) P - 4 UNIT PARCEL BOXES (QTY. 2) TOTAL TENANT DOORS PROVIDED: 48 TOTAL PARCEL BOXES PROVIDED: 14	3 L4.1
5	42" HT. PEDESTRIAN BOLLARD LIGHT	4 L4.1
6	TRASH RECEPTACLE	5 L4.1
7	BICYCLE RACKS (BIKE PARKING SPACES - 3 MIN. FOR EACH BUILDING)	6 L4.1
8	METAL HANDRAILS W/ LIGHTS (AT RAMPS); SHALL BE DESIGN/BUILD BY OTHERS PER CODE.	
9	DECORATIVE METAL GUARDRAIL (AT RETAINING WALLS); SHALL BE DESIGN/BUILD BY OTHERS PER CODE.	
10	METAL PIPE GUARDRAILS (AT RETAINING WALLS); SHALL BE DESIGN/BUILD BY OTHERS PER CODE.	
11	BENCH	7 L4.1
12	HANDRAIL LIGHTS	X L4.1

NOTES:
1. CONCRETE COLOR HARDENERS, ANTIQUE RELEASE AGENTS, STAINS, STAMP PATTERN TOOLS, AND SEALERS AVAILABLE AT DAVIS COLORS (323)264-7311.
2. ALL CONCRETE COLORS, STAMP PATTERNS, FINISHES, AND SEALERS SHALL BE INSTALLED PER ALL MANUFACTURERS SPECIFICATIONS AND APPLICATION RATES- PER DAVIS COLORS.

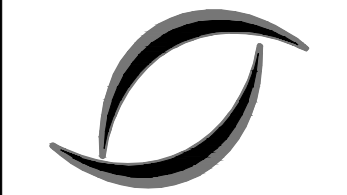
TREE PROTECTION NOTES

1. THE "TREE PROTECTION ZONE" (TPZ) IS DEFINED BY THE DRIPLINE.
2. TREE PROTECTION FENCING DEFINING SHALL BE PER THE ARBORIST RECOMMENDATIONS.
3. ANY GRADING OR EXCAVATION THAT OCCURS WITHIN THE TPZ ZONE SHALL BE DONE WITH EXTREME CAUTION TO AVOID DAMAGE TO (E) ROOTS. EXCAVATION WITHIN THE TPZ SHALL BE DONE BY HAND.
4. MINIMIZE VEHICULAR & LABOR TRAFFIC WITHIN THE TPZ AS MUCH AS POSSIBLE TO AVOID COMPACTION OF SOIL.
5. NO EXCESS SOIL, CHEMICALS, DEBRIS, EQUIPMENT OR OTHER MATERIALS SHALL BE DUMPED OR STORED WITHIN THE TPZ.
6. ANY SIGNIFICANT TREE PRUNING NEEDED FOR CLEARANCE DURING CONSTRUCTION MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
7. PRUNING SIGNIFICANT TREE ROOTS SHOULD BE AVOIDED IF POSSIBLE. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED PRIOR TO ANY NECESSARY PRUNING.
8. IF INJURY SHOULD OCCUR TO ANY TREE DURING CONSTRUCTION THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY.
9. SUPPLEMENTAL IRRIGATION SHALL BE DISCUSSED W/ THE LANDSCAPE ARCHITECT PRIOR TO APPLICATION.
10. ANY HERBICIDES PLACED UNDER PAVING MATERIALS MUST BE SAFE FOR USE AROUND TREES AND LABELED FOR THAT USE.
11. REFER TO THE ARBORIST REPORT FOR ADDITIONAL INFORMATION AS PREPARED BY BARTLETT CONSULTING DATED JUNE 20, 2022.

GENERAL NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE PROJECT IS BUILT PER THE MOST CURRENT LANDSCAPE DRAWINGS THROUGH THE ENTIRE DURATION OF CONSTRUCTION. THE CONTRACTOR MUST COORDINATE W/ THE OWNER & GENERAL CONTRACTOR (IF APPLICABLE) TO CONFIRM THE MOST CURRENT LANDSCAPE DRAWINGS.
2. CONTRACTOR SHALL VERIFY ALL GRADES, EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. ALL DISCREPANCIES OR QUESTIONS REGARDING THE PLANS & SPECS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR RESOLUTION PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL EXISTING AND PROPOSED UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COSTS INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
4. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
5. ALL GRADING & DRAINAGE INFORMATION SHOWN ON LANDSCAPE PLANS IS BASED ON PLANS SUPPLIED BY THE OWNER. CONTRACTOR SHALL VERIFY EXISTING GRADES PRIOR TO START OF CONSTRUCTION.
6. ALL PAVING AND PLANTING AREAS SHALL HAVE POSITIVE DRAINAGE. CONTRACTOR SHALL REFER TO GRADING AND DRAINAGE PLANS BY OTHERS AND INCORPORATE LANDSCAPE GRADING AND DRAINAGE SCOPE INTO THE LANDSCAPE BID.
7. PROVIDE 2% MIN. SLOPE AT ALL PLANTER AND PAVED AREAS AROUND EXISTING/PROPOSED STRUCTURES TO ENSURE POSITIVE DRAINAGE AWAY FROM STRUCTURES.
8. ALL CROSS SLOPES FOR WALKWAYS AND ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2%.
9. FINISH GRADE OF SOD LAWN AREAS SHALL BE 3/4" INCH BELOW TOP OF ADJACENT CURB AND/OR PAVEMENT. FINISH GRADE OF SEED LAWN AREAS SHALL BE 1/4" INCH BELOW TOP OF ADJACENT CURB AND/OR PAVEMENT. FINISH GRADE FOR SHRUB & GROUNDCOVER AREAS SHALL BE THE DEPTH OF SPECIFIED MULCH BELOW THE TOP OF ADJACENT CURB AND/OR PAVEMENT.
10. SET STRAIGHT LINE GRADES BETWEEN GIVEN ELEVATIONS UNLESS OTHERWISE INDICATED.
11. TRANSITIONS BETWEEN SLOPES AND RELATIVELY FLAT AREAS SHALL BE ROUNDED AND GRADUAL.
12. SWALES SHALL SLOPE AT 2% MINIMUM UNLESS OTHERWISE NOTED.
13. ALL HORIZONTAL CURVES AND ALL TRANSITIONS BETWEEN CURVES AND STRAIGHT EDGES SHALL BE SMOOTH.
14. TRANSITIONS BETWEEN CHANGES IN VERTICAL CURVATURE OF PAVING SHALL BE SMOOTH AND GRADUAL WITH NO SHARP OR ABRUPT CHANGES.
15. DIMENSIONS ARE TO FACE OF WALL, CURB, WALK, OR PAVEMENT UNLESS OTHERWISE NOTED.
16. EXPANSION JOINTS SHALL BE PLACED AT 15 FOOT INTERVALS IN CONCRETE PAVING UNLESS OTHERWISE NOTED.
17. ALL TOPS OF WALLS SHALL BE LEVEL UNLESS OTHERWISE NOTED.
18. ALL CONSTRUCTION MATERIALS TO CONFORM TO GOVERNING CODES AND ORDINANCES. ALL REQUIRED PERMITS TO BE OBTAINED BY THE CONTRACTOR.
19. ALL CONSTRUCTION TO BE PLUMB AND TRUE.
20. CONTRACTOR TO PROVIDE 48" SQ. MOCKUPS OF ALL FLATWORK, PAVING AND STUCCO COLOR/FINISH TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOT INCORPORATE MOCKUPS IN FINAL PRODUCT AND IS RESPONSIBLE FOR REMOVAL/DISPOSAL OF ALL MOCKUP MATERIAL. ALL PAVING MOCKUPS ARE TO INCLUDE EXAMPLES OF ALL SPECIFIED EXPANSION JOINT & SCORE JOINT CONSTRUCTION.
21. CONSTRUCTION MANAGER OR CONTRACTOR SHALL NOTIFY AND ARRANGE FOR SITE OBSERVATIONS WITH THE LANDSCAPE ARCHITECT A MINIMUM OF 12 HOURS BEFORE REQUIRED VISIT. THE FOLLOWING SITE OBSERVATION CHECK POINTS ARE MINIMUM REQUIREMENTS AND MUST OCCUR PRIOR TO THE NOTED INSTALLATION PHASE OR APPROVAL:
1). COMPLETION OF ALL FLAT WORK/HARDSCAPE FORMING AND HEADER LAYOUT PRIOR TO FINAL POUR OR MASONRY UNIT INSTALL.
2). COMPLETION OF ALL PLANT MATERIAL LAYOUT AND SPOTTING PRIOR TO PLANT INSTALLATION.
3). PRIOR TO BEGINNING THE LANDSCAPE MAINTENANCE PERIOD.
4). AT THE END OF THE MAINTENANCE PERIOD TO APPROVE SUBSTANTIAL COMPLETION.
22. IF IT IS THE CONTRACTORS INTENT TO INSTALL OR CONSTRUCT ANY ELEMENT THAT DIFFERS FROM WHAT IS SPECIFIED, THE CONTRACTOR MUST SUBMIT THE PROPOSED SUBSTITUTION FOR APPROVAL PRIOR TO CONSTRUCTION.
23. REFLECTIVE SUN DAMAGE FROM ENERGY EFFICIENT WINDOWS: THE CONTRACTOR SHALL MONITOR LANDSCAPE INSTALLATIONS DURING CONSTRUCTION (INCLUDING BUT NOT LIMITED TO PLANTING, SYNTHETIC TURF, SITE AMENITIES & HARDSCAPE) FOR POSSIBLE WINDOW REFLECTIVE SUNLIGHT DAMAGE AND NOTIFY THE OWNER & LANDSCAPE ARCHITECT IMMEDIATELY.
24. UPON BEING REWARDED THE PROJECT CONTRACT THE CONTRACTOR SHALL IMMEDIATELY CONFIRM THE PROCUREMENT LEAD TIME FOR ALL SPECIFIED LANDSCAPE MATERIALS & ELEMENTS. IF IT IS DETERMINED THAT ANY OF THE LEAD TIMES MAY AFFECT THE PROJECT SCHEDULE THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE & THE LANDSCAPE ARCHITECT IMMEDIATELY.

REVISIONS	BY
05/04/23 2nd PLAN CHECK	SEF
07/14/23 3rd PLAN CHECK	SEF



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GENERAL NOTES, LEGENDS & SCHEDULES
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

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Scale: **AS SHOWN**

Drawn by: **JM, SF**

Date: **07/14/23**

Job: **190703**

Sheet

L0.1

Of **35** Sheets

TREE REMOVAL MITIGATION TABLE

KEY	TREE SPECIES REMOVED	CIRCUMFERENCE (PER ARBORIST)	SIGNIFICANT TREE	MITIGATION RATIO
#15	SILK OAK	18"	NO	0:1
#16	MANNA GUM	43"	YES	3:1
#17	MANNA GUM	32"	YES	3:1
#18	MANNA GUM	32"	YES	3:1
#29	DRACAENA PALM	13" 4" 8" 5"	YES	3:1
#50	MONTEREY PINE*	12" 12" 9"	YES*	0:1*
#53	RED RIVER GUM	20" 18"	YES	3:1
#63	BLACKWOOD ACACIA	16"	NO	0:1
#82	RED RIVER GUM	48"	YES	3:1
#83	SILK OAK	16"	NO	0:1
#86	STRAWBERRY TREE	8" 8" 5" 4" 3"	YES	3:1
#87	STRAWBERRY TREE	13" 12" 6"	YES	3:1
#96	ALEPPO PINE	13"	NO	0:1
#105	RED RIVER GUM	33"	YES	3:1
#106	RED RIVER GUM	29" 26" 17"	YES	3:1
#107	RED RIVER GUM	24"	YES	3:1
#108	RED RIVER GUM	22"	NO	0:1
#109	COAST LIVE OAK	17"	NO	0:1
#110	CANARY ISLAND PINE	17"	NO	0:1
#111	CANARY ISLAND PINE	17"	NO	0:1
#112	COAST LIVE OAK	15" 6"	NO	0:1
#113	CANARY ISLAND PINE	16"	NO	0:1
#114	COAST LIVE OAK	6"	NO	0:1
#115	CANARY ISLAND PINE	17"	NO	0:1
#116	RED RIVER GUM	36"	YES	3:1
#117	CALIFORNIA PEPPER	16"	NO	0:1
#118	CANARY ISLAND PINE	16"	NO	0:1
#119	CANARY ISLAND PINE	18"	NO	0:1
#120	CANARY ISLAND PINE	18"	NO	0:1
#123	CANARY ISLAND PINE	TREE FELL IN MARCH 2023 STORM		
#124	ALEPPO PINE	TREE FELL IN MARCH 2023 STORM		
#129	RED RIVER GUM	41"	YES	3:1
#130	ALEPPO PINE	26"	YES	3:1
#132	EUROPEAN BIRCH	7" 6" 5"	NO	0:1
#133	EUROPEAN BIRCH	8" 6"	NO	0:1
#134	EUROPEAN BIRCH	10" 9" 7"	YES	3:1
#135	EUROPEAN BIRCH	11" 9"	NO	0:1
#136	ALEPPO PINE	TREE FELL IN MARCH 2023 STORM		
#141	EUROPEAN BIRCH	12"	NO	0:1
#142	ALEPPO PINE	10"	NO	0:1
#144	COAST LIVE OAK	17" 14"	YES	3:1
#145	COAST LIVE OAK	15"	NO	0:1
#146	COAST LIVE OAK	20"	NO	0:1
#147	COAST LIVE OAK	13"	NO	0:1
#148	CANARY ISLAND PINE	21"	NO	0:1
#151	CANARY ISLAND PINE	14" 8"	NO	0:1
#155	COAST LIVE OAK	12"	NO	0:1
#156	COAST LIVE OAK	21"	NO	0:1
#157	COAST LIVE OAK	16"	NO	0:1
#170	COAST LIVE OAK	6"	NO	0:1
#174	COAST LIVE OAK	6"	NO	0:1
#178	ALEPPO PINE	31"	YES	3:1
#180	SWEETGUM	25"	YES	3:1

TOTAL QUANTITY OF "SIGNIFICANT TREES" SHOWN ABOVE (HIGHLIGHTED):	18
TOTAL NUMBER OF MITIGATION OF SIGNIFICANT TREES REQUIRED AT 3:1 REPLACEMENT:	54
TOTAL NUMBER OF MITIGATION TREES PROPOSED:	51
TOTAL MITIGATION TREE BALANCE:	±3
BALANCE OF MITIGATION TREES NEEDED: (TO BE PAID IN-LIEU FEE)	2

NOTES:
1. TREE NUMBERS CORRESPOND TO THE ARBORIST REPORT DATED MAY 5, 2023 AS PREPARED BY HORTSCIENCE BARTLETT CONSULTING REFER TO THE ARBORIST REPORT FOR MEASURES TO MITIGATE CONSTRUCTION IMPACTS TO EXISTING TREES THAT MAY BE AFFECTED BY CONSTRUCTION.

2. REFER TO THE PLANT MATERIAL KEY AND PLANTING PLAN FOR MITIGATION TREE SPECIES AND LOCATIONS.

3. HIGHLIGHTED TREES ABOVE ARE "SIGNIFICANT TREES" AS DEFINED BY VALLEJO'S SITE DEVELOPMENT STANDARDS SECTION "16.504.07 TREE PROTECTION" AS TREES THAT HAS A TRUNK CIRCUMFERENCE OF 24" OR MORE. REPLACEMENT SHALL BE AT 3:1.

* - INDICATES A "SIGNIFICANT TREE" THAT IS A FIRE-PRONE SPECIES THAT IS LOCATED WITHIN A 100 FEET OF STRUCTURES AND REQUIRES NO REPLACEMENT RATIO PER VALLEJO'S SITE DEVELOPMENT STANDARDS SECTION "16.504.07 TREE PROTECTION".

PLANT MATERIAL KEY

KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WUCOLS(Y)
TREES					
CER OCC	Cercis occidentalis	Western Redbud	24" BOX-MULTI	SEE PLANS	VL
HET ARB	Heteromeles arbutifolia	Toyon	24" BOX-MULTI	SEE PLANS	L
LAU SAR	Laurus nobilis 'Saratoga'	Saratoga Laurel	24" BOX-STD.	SEE PLANS	L
PLS KEI	Pistachia c. 'Keith Davey'	Fruitless Chinese Pistache	24" BOX	SEE PLANS	L
PLA COL	Platanus x. acerifolia 'Columbia'	London Plane Tree	24" BOX-STD.	SEE PLANS	M
QUE AGR	Quercus agrifolia	Coast Live Oak	24" BOX-STD.	SEE PLANS	VL
SHRUBS/GRASSES/GROUNDCOVERS					
ANI BUS	Anigozanthos x. 'Bush Gold'	Yellow Kangaroo Paw	1 GAL	30" O.C.	L
ASP ELA	Aspidistra elatior	Cast Iron Plant	1 GAL	24" O.C.	L
CHO TEC**	Chondropetalum tectorum	Small Cape Rush	5 GAL	42" O.C.	L
DIE VEG	Dietes vegeta	Fortnight Lily	1 GAL	42" O.C.	L
FES ELI	Festuca glauca 'Elijah Blue'	Common Blue Fescue	6" POTS	18" O.C.	L
FRA MOU	Frangula californica 'Mound San Bruno'	Coffeeberry	5 GAL	60" O.C.	L
HEL SEM	Helictotrichon sempervirens	Blue Oat Grass	1 GAL	30" O.C.	L
LAN MON	Lantana montevidensis	Trailing Lantana	5 GAL	48" O.C.	L
MAH REP	Mahonia repens	Creeping Mahonia	1 GAL	36" O.C.	L
MUH DUB	Muhlenbergia dubia	Pine Muhly	1 GAL	42" O.C.	L
NAN FIR	Nandina domestica 'Fire Power'	Dwarf Heavenly Bamboo	1 GAL	24" O.C.	L
PHO PLA	Phormium x. 'Platt's Black'	Black Dwarf Phormium	5 GAL	36" O.C.	L
PIT VAR	Pittosporum tobira 'Variegata'	Variegated Tobira	5/15 GAL	60" O.C.	L
PRU COL	Prunus c. 'Compacta' Column	Compact Column Cherry Laurel	15 GAL	48" O.C.	L
RIB VIB	Ribes viburnifolium	Evergreen Currant	5 GAL	72" O.C.	L
ROS HUN**	Rosmarinus o. 'Huntington Carpet'	Trailing Rosemary	1 GAL	42" O.C.	L
SAL GLA	Salvia greggii 'Heatwave Glare'	White Autumn Sage	5 GAL	36" O.C.	L
SAR HOO	Sarcococca hookeriana	Sweet Box	5 GAL	72" O.C.	L
SYM ALB**	Symphoricarpos albus	Common Snowberry	5 GAL	60" O.C.	L

NOTES:
1. * - WUCOLS IV RATING IS AN INDUSTRY STANDARD FOR IRRIGATION WATER NEEDS OF LANDSCAPE PLANTINSS IN SPECIFIC CALIFORNIA REGIONS. THE MAJORITY OF PLANTS FOR THIS REGION ARE VERY LOW (VL) TO Medium (M) WATER REQUIREMENTS AND PLANTED IN SPECIFIC HYDROZONES. ABBREVIATIONS FOR WUCOLS WATER NEEDS ARE: VL - VERY LOW, L - LOW, M - MEDIUM, H - HIGH.
2. ** - PLANT MATERIAL FOR STORMWATER TREATMENT FACILITIES PER "CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.S GUIDEBOOK" APPENDIX B-1.

IRRIGATION DESIGN (WELO) COMPLIANCE STATEMENT

1. DETAILED IRRIGATION DESIGN PLANS SHALL BE PREPARED DURING THE BUILDING PERMITTING PROCESS. IRRIGATION DESIGN SHALL FOLLOW THE WATER EFFICIENT LANDSCAPE ORDINANCE (WELO) STANDARDS PER CHAPTER 16.71.020 OF THE VALLEJO MUNICIPAL CODE.

DEER MANAGEMENT NOTES

1. CONTRACTOR TO APPLY 'DEER OFF' DEER REPELLANT TO ALL SHRUBS & GROUNDCOVER PLANTS IMMEDIATELY AFTER INSTALLATION IN DEER ACCESSIBLE AREAS. 'DEER OFF' TO BE APPLIED AS DIRECTED BY MANUFACTURER. AVAILABLE AT www.deeroff.com.
2. CONTRACTOR TO MONITOR ALL INSTALLED PLANT MATERIAL, INCLUDING TREES, FOR DAMAGE CAUSED BY DEER. CONTRACTOR TO IMMEDIATELY REPORT ANY DAMAGE, SUCH AS BARK RUBBING OR BROWSING, TO OWNER SO THAT PROTECTIVE MEASURES CAN BE IMPLEMENTED.
3. CONTRACTOR TO PROVIDE PROTECTION FOR DELIVERED ON-SITE PLANT STOCK FROM DEER PRIOR TO INSTALLATION.

PLANTING NOTES

1. ALL PLANT MATERIAL/CONTAINER SIZES SHALL COMPLY WITH THE APPLICABLE PROVISIONS SET FORTH BY THE "AMERICAN STANDARD FOR NURSERY STOCK-ANSI Z60.1-2014", 2014 EDITION, AMERICAN ASSOCIATION OF NURSERYMEN (AVAILABLE AT www.americanhort.org).

2. SITE AND DRAWING REVIEW:
THE LANDSCAPE CONTRACTOR SHALL INSPECT THE SITE AND BE FAMILIAR WITH ALL EXISTING SITE CONDITIONS PRIOR TO SUBMITTING A BID. THE LANDSCAPE CONTRACTOR SHALL REVIEW RELATED DRAWINGS AND SHALL ENSURE COORDINATION WITH ALL APPLICABLE TRADES PRIOR TO SUBMITTING A BID.

3. CONTRACTOR SHALL VERIFY ALL PLANT MATERIAL QUANTITIES PRIOR TO INSTALLATION. PLANT MATERIAL QUANTITIES ARE LISTED FOR THE CONVENIENCE OF THE CONTRACTOR. ACTUAL NUMBER OF SYMBOLS SHALL HAVE PRIORITY OVER QUANTITY DESIGNATED IN CALLOUTS.

4. SOIL PREPARATION/AMENDMENTS:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL GRADING TO A TOLERANCE OF +/- .01 FT. AND SURFACE DRAINAGE OF ALL PLANTING AREAS. LOW SPOTS WHICH HOLD STANDING WATER WILL NOT BE ACCEPTED.

B. AFTER INSTALLATION OF THE IRRIGATION SYSTEM AND HEADERS, ALL PLANTING AREAS SHALL BE RAKED SMOOTHLY AND ALL ROCKS AND PEBBLES OVER 1" IN DIAMETER REMOVED FROM THE SITE.

C. FOR BID PURPOSES ONLY: THE CONTRACTOR SHALL ASSUME SURFACE AMENDMENTS FOR TURF, GROUNDCOVER AND SHRUB AREAS AS PER THE PRELIMINARY SOILS REPORT INCLUDED IN THESE PLANS FOR BIDDING. ACTUAL SOIL AMENDMENTS SHALL BE DETERMINED BY THE ON-SITE SOIL TEST RECOMMENDATIONS.

D. SOIL TESTS: PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONDUCT HORTICULTURAL SOIL TESTS AFTER ROUGH GRADING HAS BEEN COMPLETED. TAKE AT LEAST 5 TO 10 SUB-SAMPLES OF EQUAL SIZE AT RANDOM LOCATIONS FROM THE SITE AT 6" TO 18" DEPTHS. THOROUGHLY MIX THESE SUB-SAMPLES AND SUBMIT TO A REPUTABLE SOILS LABORATORY FOR HORTICULTURAL TESTING. IN ADDITION, A GUARANTEED ANALYSIS OF A NUTRIENT RICH COMPOST AMENDMENT (SPECIFIED BELOW) MUST BE SUBMITTED WITH THE SOIL SAMPLE TO PROVIDE A COMPLETE ANALYSIS FOR THE RECOMMENDED SOIL AMENDMENT MIX.

E. A NUTRIENT RICH COMPOST AMENDMENT SHALL BE USED AS THE NITROGEN STABILIZED ORGANIC AMENDMENT. INCORPORATE 21" OF COMPOST INTO THE TOP 6" TO 12" OF SOIL. THIS PRODUCT SHALL BE CERTIFIED THROUGH THE US COMPOSTING COUNCIL'S SEAL OF TESTING ASSURANCE PROGRAM (www.compostingcouncil.org). A GUARANTEED ANALYSIS ORGANIC COMPOST SUCH AS 'WONDERGROW PREMIUM COMPOST' AVAILABLE AT GROVER LANDSCAPING (209) 545-4401 OR 'FOUR COURSE COMPOST' AVAILABLE AT JEPSON PRAIRIE ORGANICS (800) 208-2370 OR APPROVED EQUAL SHALL BE USED.

F. THE APPROVED FINAL SOIL AMENDMENT RECOMMENDATION SHALL BE EVENLY SPREAD AND THOROUGHLY CULTIVATED BY MEANS OF ROTOTILLAGE TO A UNIFORM DEPTH OF 6"-12". IN AREAS WITH A SLOPE OF 3:1 OR GREATER OR WHERE PLANT MATERIAL IS SPACED 60" O.C. OR GREATER THE RECOMMENDED HORTICULTURAL BACKFILL MIX SHALL BE PER PLANT PIT ONLY-SEE PLANTING DETAILS. DO NOT AMEND SOIL WITHIN BIORETENTION AREAS. REFER TO CIVIL DRAWINGS FOR SOIL PREPARATION IN THESE AREAS. SOIL SHALL NOT BE WORKED WITH WHEN WET.

G. BACKFILL FOR GROUNDCOVER 48" O.C. SPACING OR GREATER AND ALL SHRUBS AND TREES - BACKFILL MIX AS PER THE HORTICULTURAL SOILS REPORT.

H. INSTALL TRI-C MYCO PAKS (MYCORRHIZAL FUNGI) TO ALL PLANTING PITS AS FOLLOWS:
1 GALLON 1 PAK
3/5 GALLON 2 PAKS
15 GALLON 6 PAKS
24" BOX 10 PAKS
36" BOX 16 PAKS
48" BOX 20 PAKS
AVAILABLE: TRI-C ENTERPRISES, LLC. (800) 927-3311. CONTRACTOR SHALL INSTALL AND HANDLE PRODUCT PER MANUFACTURER'S SPECIFICATIONS. REFER TO PLANTING DETAILS FOR ADDITIONAL INFORMATION.

5. MULCH:
A. ALL PLANTING AREAS, U.N.O., SHALL RECEIVE A 3" LAYER OF MULCH AS FOLLOWS:
1. PROJECTS W/ NO SLOPES GREATER THAN 3:1: RECOLOGY RECYCLED 'DECORATIVE' MULCH IN 'LIGHT BROWN' COLOR.
2. PROJECTS W/ SLOPES GREATER THAN 3:1: MULCH SLOPES GREATER THAN 3:1 W/ RECOLOGY RECYCLED 'SHRUBS' CEDAR; MULCH SLOPES LESS THAN 3:1 WITH RECOLOGY RECYCLED 'DECORATIVE' MULCH IN 'LIGHT BROWN' COLOR.

B. MULCH AFTER ALL TREES, SHRUBS AND GROUNDCOVERS HAVE BEEN PLANTED AND AFTER PRE EMERGENT HAS BEEN APPLIED.* EXCLUDE MULCH IN TURF & HYDROSEED AREAS.* NO MULCH SHALL BE PLACED WITHIN A 3' CLEAR BAND AROUND TRUNK OF ALL TREES.* MULCHES AVAILABLE AT RECOLOGY ORGANICS (866) 764-5768 OR APPROVED EQUAL.* THE CONTRACTOR SHALL SUBMIT MULCH SAMPLES FOR APPROVAL PRIOR TO CONSTRUCTION.

C. LAVA ROCK MULCH @ BIO-RETENTION AREAS; MULCH BASIN FLOORS & SIDE SLOPES WITH 3' LAYER OF 1/2" SIZE LAVA ROCK IN BLACK COLOR.

6. GROUNDCOVER:
A. PLANT AT THE SPACINGS NOTED IN THE LEGEND. GROUNDCOVER SHALL EXTEND UNDER ALL SHRUB AREAS AS NECESSARY TO PROVIDE COMPLETE GROUNDCOVER COVERAGE.

7. PRE-EMERGENT HERBICIDE:
A. GRANULAR PRE-EMERGENT SHALL BE APPLIED TO ALL PLANTING AREAS AS PER MANUFACTURER'S RECOMMENDATIONS. MATERIAL: 'SNAPSHOT 25 T6' OR APPROVED EQUAL. AVAILABLE AT HORIZON, CONCORD, CA (925) 825-9344. THE LANDSCAPE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE USE OF CHEMICAL PRODUCTS AND IS TO SUPPLY THE OWNER WITH A WRITTEN RECORD OF THE TYPE OF CHEMICAL USED, DATE APPLIED AND RATE OF APPLICATION.

8. JUTE MESH SHALL BE INSTALLED ON ALL SHRUB AND GROUNDCOVER SLOPES 2:1 OR STEEPER. CONTRACTOR SHALL ANCHOR JUTE IN CONTINUOUS TRENCHES AT TOP & BOTTOM OF SLOPES.

9. TREE PLANTING NOTES:
A. PLANT TREES A MINIMUM OF 3'-0" FROM THE EDGE OF CURBS AND WALKS, AND A MINIMUM OF 12'-0" FROM STREET LIGHTS. ALL TREES PLANTED WITHIN 5'-0" OF HARDSCAPE OR BUILT ELEMENT TO BE PLANTED WITH ROOT BARRIERS-REFER TO PLANTING DETAILS. NURSERY STAKING TO BE REMOVED AT THE TIME OF PLANTING. CONTRACTOR TO FILL HOLES LEFT BY NURSERY STAKING.

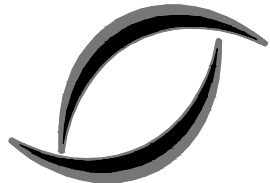
B. CONTRACTOR TO COORDINATE TREE PLANTING WITH DRAINLINES AND UNDERGROUND UTILITY LOCATIONS PER LOCAL MUNICIPALITY REQUIREMENTS TO AVOID CONFLICT.

10. MAINTENANCE:
THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE PROJECT FOR 90 DAYS FOLLOWING APPROVAL TO BEGIN THE MAINTENANCE PERIOD. REGULAR WATERING, CULTIVATING, WEEDING, REPAIR OF STAKES AND TIES, SPRAYING FOR INSECTS, SHALL BE PERFORMED. LAWNS SHALL BE MOWED REGULARLY AND FERTILIZED AS NECESSARY TO MAINTAIN VIGOROUS GROWTH AND GOOD COLOR.

11. SITE OBSERVATIONS:
THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT 72 HOURS PRIOR TO A REQUIRED SITE OBSERVATION. THERE SHALL BE A SITE OBSERVATION OF PLANT LOCATIONS PRIOR TO INSTALLATION. FINAL SITE OBSERVATION SHALL BE MADE AT THE CONCLUSION OF THE MAINTENANCE PERIOD. PRIOR TO FINAL SITE OBSERVATION, ALL LANDSCAPE AREAS ARE TO BE WEED FREE AND ALL PLANTS IN A HEALTHY THRIVING CONDITION. NOTIFY THE LANDSCAPE ARCHITECT 7 DAYS PRIOR TO ANTICIPATED DATE OF THE FINAL SITE OBSERVATION.

12. GUARANTEE:
ALL PLANTS AND PLANTINGS SHALL BE GUARANTEED TO BE HEALTHY, THRIVING CONDITION UNTIL THE END OF THE MAINTENANCE PERIOD. ALL PLANTS SHALL BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE.

REVISIONS	BY
05/04/23 2nd PLAN CHECK	SEF
07/14/23 3rd PLAN CHECK	SEF



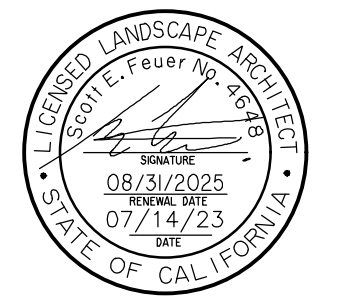
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PLANTING NOTES & PLANT MATERIAL KEY
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

KLEIN FINANCIAL CORPORATION



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Scale:	AS SHOWN
Drawn by:	JM, SF
Date:	07/14/23
Job:	1907.03
Sheet	L0.2
Of	35 Sheets

SINGLE OUTLET DRIP EMITTER IRRIGATION FOR LOW WATER—USE SHRUBS														
SPRINKLER MANUFACTURER:	RAIN BIRD		LOCATION:		VALLEJO, CALIFORNIA									
PRECIPITATION RATE (INCHES/HOUR):	1.51		EMITTER SPACING:		12" O.C.									
IRRIGATION SYSTEM EFFICIENCY	0.81		EMITTER FLOW:		0.9 GPH									
PLANT FACTOR:	0.30													
YEAR 2 REDUCTION AMOUNT:			-10% OF YEAR 1 (ESTABLISHMENT) RUN TIME MINUTES											
	MONTH:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
	ETO PER MONTH (INCHES):	1.30	1.40	2.70	3.80	4.90	5.00	6.40	5.50	4.40	2.90	1.20	0.70	40.30
	ETO PER WEEK (INCHES):	0.300	0.323	0.624	0.878	1.132	1.155	1.478	1.270	1.016	0.670	0.277	0.162	
	APPLIED ETO PER WEEK (INCHES):	0.111	0.120	0.231	0.325	0.419	0.428	0.547	0.470	0.376	0.248	0.103	0.060	
MINUTES OF WATER PER WEEK:	YEAR 1	4	5	9	13	17	17	22	19	15	10	4	2	
	YEAR 2	4	4	8	12	15	15	20	17	13	9	4	2	
DAYS PER WEEK:	YEAR 1	1	1	2	3	3	3	3	3	2	1	1		
	YEAR 2	1	1	2	3	3	3	3	3	2	1	1		
MINUTES OF WATER PER DAY:	YEAR 1	4	5	5	4	6	5	7	6	5	4	4	2	
	YEAR 2	4	4	4	4	5	7	6	4	4	4	2		
CYCLES PER DAY:	YEAR 1	1	1	1	1	1	1	1	1	1	1	1		
	YEAR 2	1	1	1	1	1	1	1	1	1	1	1		
MINUTES PER CYCLE:	YEAR 1	4	5	5	4	6	6	7	6	5	4	4	2	
	YEAR 2	4	4	4	4	5	5	7	6	4	4	4	2	

BUBBLER IRRIGATION FOR LOW WATER—USE TREES														
SPRINKLER MANUFACTURER		RAIN BIRD		LOCATION:		VALLEJO, CALIFORNIA								
PRECIPITATION RATE (INCHES/HOUR):		1.50		HEAD SPACING:		VARIES								
IRRIGATION SYSTEM EFFICIENCY		0.81		HEAD FLOW:		0.25 GPM x 2								
PLANT FACTOR:		0.30												
YEAR 2 REDUCTION AMOUNT:		-10% OF YEAR 1 (ESTABLISHMENT) RUN TIME MINUTES												
	MONTH:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ETO PER MONTH (INCHES):		1.30	1.40	2.70	3.80	4.80	5.00	6.40	5.50	4.40	2.90	1.20	0.70	40.30
ETO PER WEEK (INCHES):		0.300	0.323	0.624	0.878	1.132	1.155	1.478	1.270	1.016	0.670	0.277	0.162	
APPLIED ETO PER WEEK (INCHES):		0.111	0.120	0.231	0.325	0.419	0.428	0.547	0.470	0.376	0.248	0.103	0.060	
MINUTES OF WATER PER WEEK:	YEAR 1	4	5	9	13	17	17	22	19	15	10	4	2	
	YEAR 2	4	4	8	12	15	15	20	17	14	9	4	2	
DAYS PER WEEK:	YEAR 1	1	1	1	1	1	1	1	1	1	1	1	1	
	YEAR 2	1	1	1	1	1	1	1	1	1	1	1	1	
MINUTES OF WATER PER DAY:	YEAR 1	4	5	9	13	17	17	22	19	15	10	4	2	
	YEAR 2	4	4	8	12	15	15	20	17	14	9	4	2	
CYCLES PER DAY:	YEAR 1	1	1	1	1	1	1	1	1	1	1	1	1	
	YEAR 2	1	1	1	1	1	1	1	1	1	1	1	1	
MINUTES PER CYCLE:	YEAR 1	4	5	9	13	17	17	22	19	15	10	4	2	
	YEAR 2	4	4	8	12	15	15	20	17	14	9	4	2	

NOTES:
THE CHARTS ARE INTENDED TO BE USED AS A GUIDELINE ONLY AND INDICATE APPROXIMATE RUN TIMES (IN MINUTES) FOR EACH ZONE BASED ON ESTIMATED WEEKLY WATER REQUIREMENTS FOR ESTABLISHED PLANT MATERIAL. THE FIGURES SHOWN IN THIS SCHEDULE ARE APPROXIMATE AND HAVE BEEN DEVELOPED FROM LOCAL CURRENT AVERAGES FOR EVAPOTRANSPIRATION, AND REFLECT MAXIMUM IRRIGATION REQUIREMENTS OF THE PLANT MATERIAL BASED ON PLANT TYPE AND SPACING. ACTUAL RUN TIMES MAY BE DIFFERENT DEPENDING ON A VARIETY OF FACTORS INCLUDING TOPOGRAPHY, SOIL STRUCTURE, SOIL AND WIND EXPOSURE, WEATHER, ACTUAL PLANT WATER REQUIREMENTS, ETC.

WATER EFFICIENT LANDSCAPE WORKSHEET							
This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.							
Reference Evapotranspiration (Eto)		40.3					
Hydrozone # /Planting Description ^a	Plant Factor (PF)	Irrigation Method ^b	Irrigation Efficiency (IE) ^c	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU) ^d
Regular Landscape Areas							
Low Water-Use Plants	0.3	Drip	0.81	0.37	22,489	8,321	207,907
					(A)	(B)	
				Totals	22,489	8,321	207,907
Special Landscape Areas							
					(C)	(D)	
				Totals	0	0	
						ETWU Total	207,907
						309,051	
^aHydrozone #/Planting Description ^bIrrigation Method ^cIrrigation Efficiency E.g overhead spray 0.75 for spray head 1.) front lawn or drip 0.81 for drip 2.) low water use plantings 3.) medium water use planting 							
^dETWU (Annual Gallons Required) = Eto x 0.62 x ETAF x Area where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.							
^aMAWA (Annual Gallons Allowed) = (Eto) / (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)] where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year. LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.							
<u>ETAF Calculations</u>							
Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.							
Regular Landscape Areas							
Total ETAF x Area (B)	8,321						
Total Area (A)	22,489						
Average ETAF	0.37						
All Landscape Areas							
Total ETAF x Area (B+D)	8,321						
Total Area (A+C)	22,489						
Sitewide ETAF (B+D) ÷ (A+C)	0.37						

THESE IRRIGATION DRAWINGS ARE DIAGNOSTIC AND INDICATIVE OF THE WORK TO BE INSTALLED. ALL PIPING, VALVES, ETC. SHOWN WITHIN PAVED AREAS IS FOR CLARITY ONLY AND ARE TO BE INSTALLED WITHIN PLANTING AREAS WHERE POSSIBLE. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC., WHICH MAY BE REQUIRED. THE CONTRACTOR IS REQUIRED TO INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF THE CONTRACT WORK INCLUDING OBSTRUCTIONS, GRADE DIFFERENCES OR AREA DIMENSIONAL DIFFERENCES WHICH MAY NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. IN THE EVENT OF FIELD DIFFERENCES, THE CONTRACTOR IS REQUIRED TO PLAN THE INSTALLATION WORK ACCORDINGLY BY NOTIFICATION AND APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE AND ACCORDING TO THE CONTRACT SPECIFICATION. THE CONTRACTOR IS ALSO REQUIRED TO NOTIFY AND COORDINATE IRRIGATION CONTRACT WORK WITH ALL APPLICABLE CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE, CONDUIT OR SLEEVES THROUGH OR UNDER WALLS, ROADWAYS, PAVING, STRUCTURE, ETC., BEFORE CONSTRUCTION. IN THE EVENT THESE NOTIFICATIONS ARE NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REQUIRED REVISIONS.

2. THE CONTRACTOR SHALL EXERCISE CARE IN LOCATING PIPING AS TO NOT CONFLICT WITH OTHER UTILITIES. DO NOT INSTALL IRRIGATION PIPING PARALLEL TO AND DIRECTLY OVER OTHER UTILITIES.

3. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

4. IT IS THE RESPONSIBILITY OF THE LANDSCAPE MAINTENANCE CONTRACTOR AND/OR OWNER TO PROGRAM THE IRRIGATION CONTROLLER TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH. THIS INCLUDES MAKING ADJUSTMENTS TO THE PROGRAM FOR SEASONAL WEATHER CHANGES, PLANT MATERIAL WATER REQUIREMENTS, MOUNDS AND SLOPES, SUN, SHADE, AND WIND EXPOSURES.

5. AT THE END OF THE REQUIRED MAINTENANCE PERIOD OF THE CONTRACTOR, THE OWNER SHALL PROVIDE REGULAR MAINTENANCE OF THE IRRIGATION SYSTEM TO ENSURE THE EFFICIENT USE OF WATER. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO CHECKING, ADJUSTING, AND REPAIRING IRRIGATION EQUIPMENT AND CONTROL SYSTEM.

6. 120 VOLT A.C. (2.5 AMP DEMAND) ELECTRICAL SERVICE TO IRRIGATION CONTROLLER LOCATION TO BE PROVIDED UNDER ELECTRICAL CONTRACT WORK. IRRIGATION CONTRACTOR TO MAKE FAN CONNECTION FROM ELECTRICAL STUB-OUT TO CONTROLLER AND PROVIDE PROPER GROUNDING PER CONTROLLER MANUFACTURER'S INSTRUCTIONS.

7. CONTROLLER SHALL HAVE ITS OWN GROUND ROD. THE GROUND ROD SHALL BE AN EIGHT FOOT LONG BY 5/8" DIAMETER U.L. APPROVED COPPER CLAD ROD. NO MORE THAN 6" OF THE GROUND ROD TO BE ABOVE GRADE. CONNECT #6 GAUGE WIRE WITH A U.L. APPROVED GROUND ROD CLAMP TO ROD AND BACK TO GROUND SCREW AT BASE OF CONTROLLER WITH APPROPRIATE CONNECTOR. THIS WIRE SHOULD BE AS SHORT AS POSSIBLE, AVOIDING ANY KINKS OR BENDING. GROUND ROD SHALL BE A MINIMUM OF EIGHT FEET (8') FROM IRRIGATION CONTROL WIRE BUNDLE.

8. IRRIGATION CONTROLLER TO HAVE ITS OWN INDEPENDENT 24 VOLT COMMON GROUND WIRE.

9. PRIOR TO INSTALLATION OF IRRIGATION CONTROLLER AND ASSOCIATED COMPONENTS CONTRACTOR SHALL CONTACT HUNTER REPRESENTATIVE (CHRIS McNAIRY 707.695.3890) FOR ON-SITE TUTORIAL ON INSTALLATION PROCEDURES FOR CONTROLLER, DECODERS, TWO-WIRE CABLE, WIRE SPLICES, GROUNDING, INTERFACE WITH FLOW SENSOR AND MASTER VALVE, AS WELL AS PROGRAMMING OF CONTROLLER.

10. CONTROLLER PROGRAMMING:
A. CONTRACTOR SHALL PROGRAM THE IRRIGATION CONTROLLER TO PROVIDE IRRIGATION TO ALL PLANTING WITHIN THE ALLOWED WATERING WINDOW OF TIME AS REQUIRED. THE CONTRACTOR SHALL CREATE CONTROLLER PROGRAMMING THAT WILL NOT EXCEED THE MAXIMUM GALLONS PER MINUTE FLOW RATE STATED ON THE DRAWINGS, AND NOT EXCEED THE CAPACITY OF ANY MAINLINE PIPING.
B. CONTRACTOR SHALL PROGRAM CONTROLLER TO MONITOR FLOW CONDITIONS AND RESPOND WITH CONTROL OF MASTER VALVE AND/OR RECORDING ALARM CONDITIONS FOR USE BY MAINTENANCE PERSONNEL.

11. IRRIGATION CONTROL WIRES SHALL BE HUNTER JACKETED DECODER CABLES (PAIGE ELECTRIC P7354D) WITH U.L. APPROVAL FOR DIRECT BURIAL IN GROUND, SIZE #14-1. SPLICE SHALL BE MADE WITH 3M-DBR/Y-6 SEAL PACKS.

12. CONNECT FLOW SENSOR TO CONTROLLER VIA FLOW SENSOR DECODER AND TWO-WIRE PATH PER HUNTER SPECIFICATIONS.

13. SPLICING OF DECODER CABLES IS NOT PERMITTED EXCEPT IN VALVE BOXES. SEAL WIRE SPLICES WITH 3M-DBR/Y-6 SPLICE SEALING DEVICES OF SIZE COMPATIBLE WITH WIRE SIZE. LEAVE A 36" LONG COIL OF EXCESS CABLE AT EACH SPLICE AND A 36" LONG EXPANSION LOOP EVERY 100 FEET ALONG WIRE RUN. TAPE DECODER CABLES TOGETHER EVERY TEN FEET. TAPING IS NOT REQUIRED INSIDE SLEEVES.

14. PLASTIC VALVE BOXES ARE TO BE BLACK IN COLOR WITH BOLT DOWN, NON-HINGED COVER MARKED "IRRIGATION". BOX BODY SHALL HAVE KNOCK OUTS. MANUFACTURER SHALL BE RAIN BIRD.

15. INSTALL REMOTE CONTROL VALVE BOXES 12" FROM WALK, CURB, HEADER BOARD, BUILDING, OR LANDSCAPE FEATURE. AT MULTIPLE VALVE BOX GROUPS, EACH BOX SHALL BE AN EQUAL DISTANCE FROM THE WALK, CURB, ETC. AND EACH BOX SHALL BE 12" APART. SHORT SIDE OF RECTANGULAR VALVE BOXES SHALL BE PARALLEL TO WALK, CURB, ETC.

16. VALVE LOCATIONS SHOWN ARE DIAGNOSTIC. INSTALL IN GROUND COVER/SHRUB AREAS WHERE POSSIBLE.

17. THE IRRIGATION CONTRACTOR SHALL FLUSH ALL SYSTEMS FOR OPTIMUM PERFORMANCE AND COVERAGE OF THE LANDSCAPE AREA. THIS SHALL INCLUDE ADJUSTING THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM.

18. ALL IRRIGATION PIPING THAT IS NOT A DIRECT LINE TO TREES SHALL BE A MINIMUM FIVE (5) FEET FROM CENTER OF TREE.

19. LOCATE BUBBLERS ON UP-HILL SIDE OF TREE.

20. INSTALL A NDS FLOW MANAGEMENT INLINE SPRING LOADED CHECK VALVE (CV-0500-FM) BELOW THOSE BUBBLERS WHERE LOW HEAD DRAINAGE WILL CAUSE EROSION AND/OR EXCESS WATER.

21. WHERE IT IS NECESSARY TO EXCAVATE ADJACENT TO EXISTING TREES, THE CONTRACTOR SHALL USE ALL POSSIBLE CARE TO AVOID INJURY TO TREES AND TREE ROOTS. EXCAVATION IN AREAS WHERE TWO (2) INCH AND LARGER ROOTS OCCUR SHALL BE DONE BY HAND. TRENCHES ADJACENT TO TREE SHOULD BE CLOSED WITHIN TWENTY-FOUR (24) HOURS; AND WHERE THIS IS NOT POSSIBLE, THE SIDE OF THE TRENCH ADJACENT TO THE TREE SHALL BE KEPT SHADED WITH BURLAP OR CANVAS.

22. IRRIGATION CONTRACTOR TO NOTIFY ALL LOCAL JURISDICTIONS FOR INSPECTION AND TESTING OF INSTALLED BACKFLOW PREVENTION DEVICE.

23. PRESSURE TEST PROCEDURE. THE CONTRACTOR SHALL:
A. NOTIFY ARCHITECT AT LEAST THREE (3) DAY IN ADVANCE OF TESTING.
B. PERFORM TESTING AT HIS OWN EXPENSE.
C. CENTER LOAD PIPING WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING OR SLIPPING UNDER PRESSURE. NO FITTING SHALL BE COVERED.
D. APPLY THE FOLLOWING TESTS AFTER WELD PLASTIC PIPE JOINTS HAVE CURED AT LEAST 24 HOURS.
1. TEST LIVE (CONSTANT PRESSURE) AND QUICK COUPLER LINES HYDROSTATICALLY AT 125 PSI MINIMUM. LINES WILL BE APPROVED IF TEST PRESSURE IS MAINTAINED FOR SIX (6) HOURS. THE LINES WILL BE APPROVED OR NOT APPROVED AS SUCH RESULTS MAY INDICATE. THE CONTRACTOR SHALL MAKE TESTS AND REPAIRS AS NECESSARY UNTIL TEST CONDITIONS ARE MET.
2. TEST RCV CONTROLLED LATERAL LINES WITH WATER AT LINE PRESSURE AND VISUALLY INSPECT FOR LEAKS. RETEST AFTER CORRECTING DEFECTS.

24. THE SPRINKLER SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE SHOWN ON THE IRRIGATION DRAWINGS. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE.

25. IRRIGATION DEMAND: 24 GPM AT 57 PSI STATIC PRESSURE AT THE IRRIGATION POINT OF CONNECTION. FIELD VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. IF ACTUAL WATER PRESSURE DIFFERS FROM THE STATED PRESSURE CONTACT ARCHITECT FOR DIRECTION AND POSSIBLE REVISION.

26. IRRIGATION BOOSTER PUMP ASSEMBLY SHALL INCREASE WATER PRESSURE BY 35 PSI TO 74 PSI AT PUMP DISCHARGE. SERVICE BOOSTER PUMP WITH 208 VOLT 3 PHASE ELECTRICAL. ELECTRICAL SERVICE TO THIS LOCATION SHALL BE PROVIDED UNDER ELECTRICAL CONTRACT.

27. PIPE THREAD SEALANT COMPOUND SHALL BE RECTOR SEAL T+2, CHRISTY'S ULTRA SEAL, OR APPROVED EQUAL.

28. SUB-SURFACE DRIP IRRIGATION AREAS MUST BE HAND WATERED TO INCREASE SOIL MOISTURE PRIOR TO PLANTING. AFTER PLANTING, THE SUB-SURFACE DRIP SYSTEMS MUST BE OPERATED ON A FREQUENT BASIS TO MAINTAIN SOIL MOISTURE CONTENT. DO NOT ALLOW SOIL TO DRY OUT. MAINTENANCE ROUTINE SHALL INCLUDE PROBING SOIL TO MONITOR MOISTURE CONTENT. USE CAUTION WHEN PROBING SOIL. DO NOT DAMAGE SUB-SURFACE DRIP TUBING.

29. STORMWATER PLANTERS: WHERE IRRIGATION PIPES AND/OR WIRES PASS THROUGH STORMWATER PLANTER WALLS, PENETRATIONS SHALL BE SLEEVED WITH SCHEDULE 40 PVC PIPE. SEAL PENETRATIONS AS DIRECTED IN CIVIL DESIGN SPECIFICATIONS AND CONSTRUCTION DETAILS. SIZE SLEEVES TO ACCOMMODATE PIPE SIZES AND WIRES AS SHOWN ON THE IRRIGATION DESIGN DRAWINGS.

30. RECORD DRAWINGS:
A. THE CONTRACTOR SHALL MAINTAIN IN GOOD ORDER IN THE FIELD OFFICE ONE COMPLETE SET OF BLACK LINE PRINTS OF ALL IRRIGATION DRAWINGS WHICH FORM A PART OF THE CONTRACT, SHOWING ALL WATER LINES, HEADS, VALVES, CONTROLLERS AND STUB-OUTS. IN THE EVENT ANY WORK IS NOT INSTALLED AS INDICATED ON THE DRAWINGS, SUCH WORK SHALL BE CORRECTED AND DIMENSIONED ACCURATELY FROM THE BUILDING WALLS.
B. CONTRACTOR SHALL RECORD EACH DECODER NUMBER AND ASSOCIATED CONTROLLER STATION NUMBER. PROVIDE LIST WITH RECORD AS-BUILT DRAWINGS.
C. ALL UNDERGROUND STUB-OUTS FOR FUTURE CONNECTIONS AND VALVES SHALL BE LOCATED AND DIMENSIONED ACCURATELY FROM BUILDING WALLS ON ALL RECORD DRAWINGS.
D. UPON COMPLETION OF THE WORK, OBTAIN REPRODUCIBLE PRINTS FROM ARCHITECT AND NEATLY CORRECT THE PRINTS TO SHOW THE AS-BUILT CONDITIONS.

31. FINE TUNE IRRIGATION SYSTEM TO PROVIDE COMPLETE AND UNIFORM COVERAGE OF THE LANDSCAPE WHILE AVOIDING RUNOFF OF WATER ONTO NON-IRRIGATED AREAS, PAVED AND OTHERWISE. THIS INCLUDES PROGRAMMING THE CONTROLLER RUN TIMES FOR OPTIMIZING SOIL INFILTRATION WITH OUT PUDDLING OR RUNOFF.

32. WARRANTY:
A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FILL AND REPAIR ALL NECESSARY PLANTING DUE TO THE SETTLEMENT OF IRRIGATION TRENCHES FOR ONE YEAR FOLLOWING COMPLETION AND ACCEPTANCE OF THE JOB.
B. THE CONTRACTOR SHALL ALSO WARRANTY ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FURNISHED BY HIM TO BE FREE OF ALL DEFECTS OF WORKMANSHIP AND MATERIALS, AND SHALL AGREE TO REPLACE AT HIS EXPENSE, AT ANY TIME WITHIN ONE YEAR AFTER INSTALLATION IS ACCEPTED, ANY AND ALL DEFECTIVE PARTS THAT MAY BE FOUND.

33. AN IRRIGATION AUDIT REPORT BY A DISINTERESTED 3RD PARTY SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING THE INDEPENDENT AUDITOR.

SYMBOL	MODEL NUMBER	DESCRIPTION
	1401 / CV-0500-FM	RAIN BIRD BUBBLER / NDS FLOW MANAGEMENT INLINE SPRING CHECK VALVE (TREE)
	LT-S	FLUSH VALVE (SEE DETAIL) - KBI SCHEDULE 80 PVC FULL PORT BALL VALVE (SLIP X SLIP) (LINE SIZE)
	ARV050	RAIN BIRD AIR RELEASE & VACUUM RELIEF VALVE
	OPERIND - (SEE SUB-SURFACE DRIP LAYOUT DETAILS)	RAIN BIRD DRIP SYSTEM OPERATION INDICATOR
	3200100 - 1½"	SUPERIOR NORMALLY CLOSED MASTER CONTROL VALVE
	FSI-T10-001-1" / ICD-SEN (PART OF CONTROLLER EQUIPMENT PKG)	CREATIVE SENSOR TECHNOLOGY FLOW SENSOR WITH HUNTER SENSOR DECODER
	PESB-SERIES / LT-T	RAIN BIRD REMOTE CONTROL VALVE/KBI SCHEDULE 80 PVC FULL PORT BALL VALVE
	XCZ-100-PRB-COM (1 GPM TO 15 GPM)	RAIN BIRD CONTROL ZONE KIT - PVC BALL VALVE, 1" PESB VALVE, AND 1" PRESSURE REGULATING (40 PSI) QUICK CHECK BASKET FILTER (200 MESH)
	XCZ-150-LCS / LT-T (16 GPM TO 40 GPM)	RAIN BIRD CONTROL ZONE KIT - 1½" PESB VALVE AND 1½" PRESSURE REGULATING (40 PSI) SCREEN FILTER (120 MESH) / KBI SCHEDULE 80 PVC FULL PORT BALL VALVE
	33DRC	RAIN BIRD QUICK COUPLING VALVE
	T-113-LF	NIBCO GATE VALVE - LEAD FREE (LINE SIZE)
	975XL2 - 1½"	WILKINS REDUCED PRESSURE BACKFLOW ASSEMBLY (LEAD FREE)
	PAP-21586	SITE ONE GREEN TECH IRRIGATION BOOSTER PUMP ASSEMBLY. SERVICE WITH 208 VOLT 3 PHASE ELECTRICAL. ELECTRICAL STUB-OUT TO BOOSTER PUMP SHALL BE PROVIDED UNDER ELECTRICAL CONTRACT. CONTACT NICK MANFRE, SITE ONE GREEN TECH, FOR ORDER, PURCHASE AND WARRANTY. (925-558-5965)
	182199IC	GROUNDING PLATE FOR GROUNDING IRRIGATION CONTROL TWO-WIRE PATH. SEE DETAILS AND MANUFACTURER'S (PAIGE ELECTRIC COMPANY) INSTRUCTIONS
	270DCDF	PAIGE ELECTRIC DECODER CABLE FUSE DEVICE
	CA6-HU4-75 / HSSE / LPP / EMP-16 / FAN-16 / OTS-100P / ICD-SEN / ICD-100 / P7354D	SITEONE GREEN TECH CONTROLLER ASSEMBLY WITH HUNTER ACC2 TWO-WIRE CONTROLLER IN A TOP-OPENING STAINLESS STEEL STRONG BOX ENCLOSURE WITH LINE PRIMARY PROTECTION, CST FLOW SENSOR, HUNTER SENSOR DECODER (CD-SEN), HUNTER SINGLE STATION TWO-WIRE DECODERS (ICD-100), HUNTER JACKETED DECODER CABLE (P7354D), ALL EARTH GROUNDING EQUIPMENT, ENCLOSURE MOUNTING PAD, ENCLOSURE FAN, AND SOLAR SYNC SENSOR ASSEMBLY. CONTACT NICK MANFRE, SiteOne GREEN TECH REPRESENTATIVE, FOR ORDER, PURCHASE, WARRANTY, AND PRE-CONSTRUCTION MEETING. (925.558.5965) PRIOR TO INSTALLATION OF IRRIGATION CONTROLLER AND ASSOCIATED COMPONENTS CONTACT CHRIS MCNARY, HUNTER INDUSTRIES, (707.695.3890) WITH QUESTIONS REGARDING TWO-WIRE CONTROLLER COMPONENTS, INSTALLATION, WIRING, WIRE SPLICING, GROUNDING AND DECODER PROGRAMMING AS WELL AS PROGRAMMING OF CONTROLLER.
	ICD-HP	HUNTER HAND-HELD DECODER PROGRAMMER. CONTRACTOR SHALL PROVIDE ONE (1) PROGRAMMER TO OWNER AFTER USING TO PROGRAM SYSTEM DECODERS.
	SOLAR SYNC-SEN (PART OF CONTROLLER ASSEMBLY)	HUNTER SOLAR SYNC SENSOR (MOUNT IN A STRONG BOX VANDAL RESISTANT ENCLOSURE)
		PRECIPITATION RATE
		CONTROLLER & STATION NUMBER
		APPROXIMATE FLOW (GPM)
		REMOTE CONTROL VALVE SIZE AND FILTER SIZE
		HYDROZONE - PLANT TYPE/WATER REQUIREMENT SL - SHRUB & GROUNDCOVER/LOW WATER-USE TL - TREE/LOW WATER-USE
		MAINLINE: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC SOLVENT-WELD FITTINGS. 18" COVER. 24" COVER UNDER VEHICULAR PAVING.
		LATERAL LINE: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC SOLVENT-WELD FITTINGS. 12" COVER. 24" COVER UNDER VEHICULAR PAVING.
		SUB-SURFACE DRIP BOUNDARY: RAIN BIRD XFS-CV SUB-SURFACE DIAPHRAGM (XFS-CV-09-12) WITH COPPER SHIELD TECHNOLOGY AND HEAVY DUTY CHECK VALVE. INSTALLED AS DETAILED 12" O.C. SEE DRIP IRRIGATION DETAILS FOR TUBING LAYOUT, AND INSTALLATION METHODS. BOUNDARIES DEFINE AREAS FOR DIAPHRAGM TO BE CONNECTED TO ASSOCIATED REMOTE CONTROL VALVES AS DEPICTED IN THE DRAWING. 4" COVER.
		CONTINUATION SYMBOL INDICATES LATERAL LINE SERVICE TO DIAPHRAGM LAYOUT WITHIN THE PLANTER AREA DEFINED BY THE DRIP ZONE BOUNDARY.
		SLEEVING: 1120-SCHEDULE 40 PVC PLASTIC PIPE. COVER TO BE AS INDICATED IN SPECIFICATIONS OR AS INDICATED ABOVE FOR PIPE DEPTH OF COVER.

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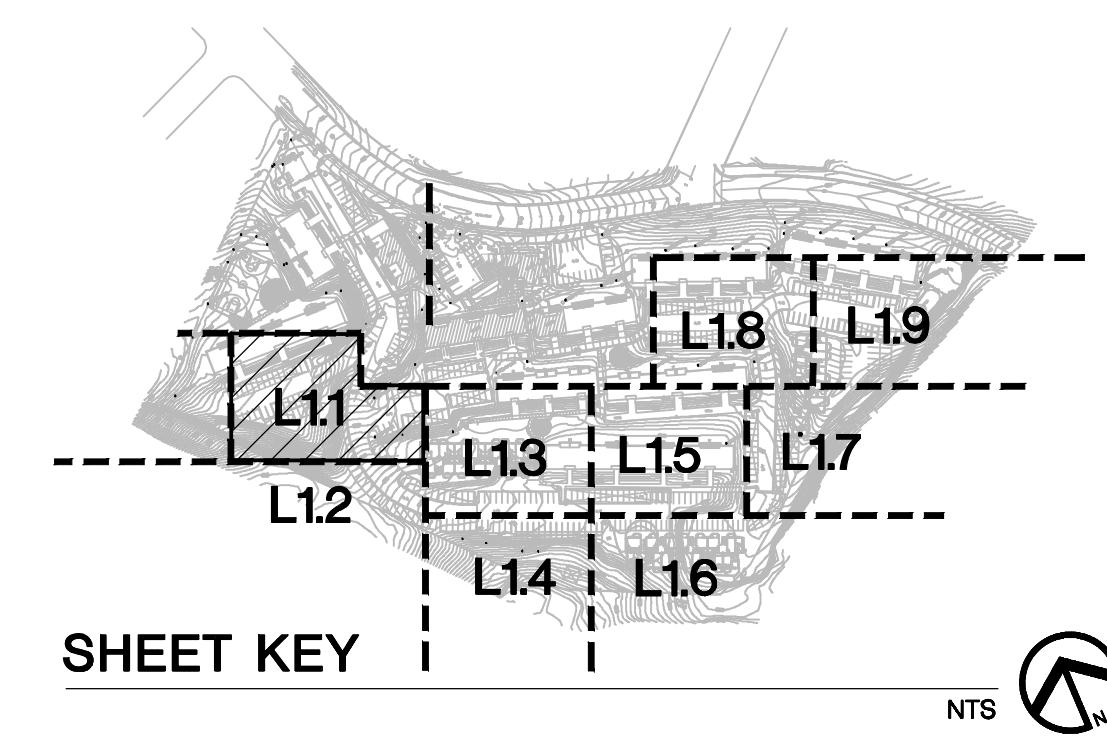
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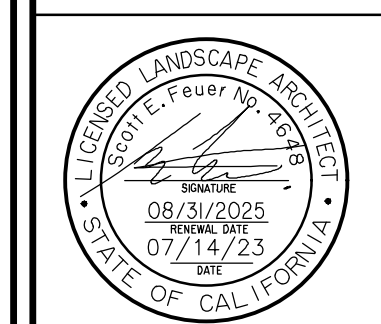
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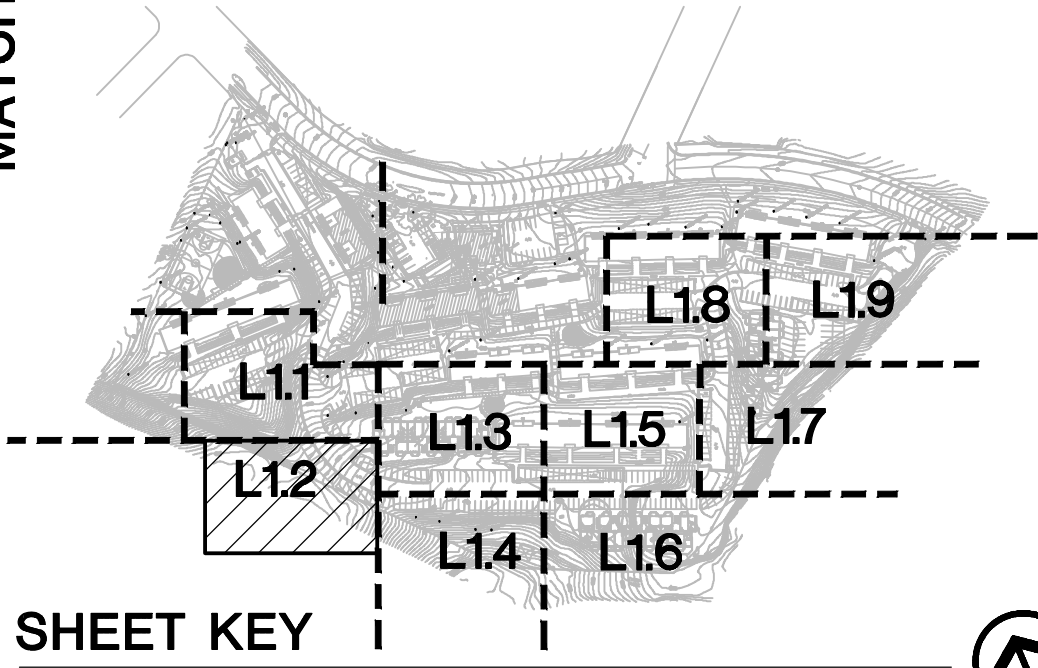
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- 2. REFER TO SHEET L0.2 FOR PLANT MATERIAL KEY AND PLANTING NOTES.**

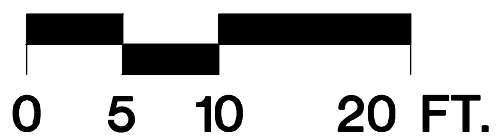


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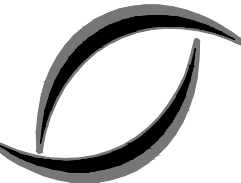
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- PLANT QUANTITY
- PLANT MATERIAL KEY (SEE SHEET L0.2)
- (24) AGA RAN 5 GAL PLANT CONTAINER SIZE
- ALIGN
- A POTTERY TYPE (SEE POTTERY LEGEND SHEET L0.1)
- P.A. PLANTING AREA



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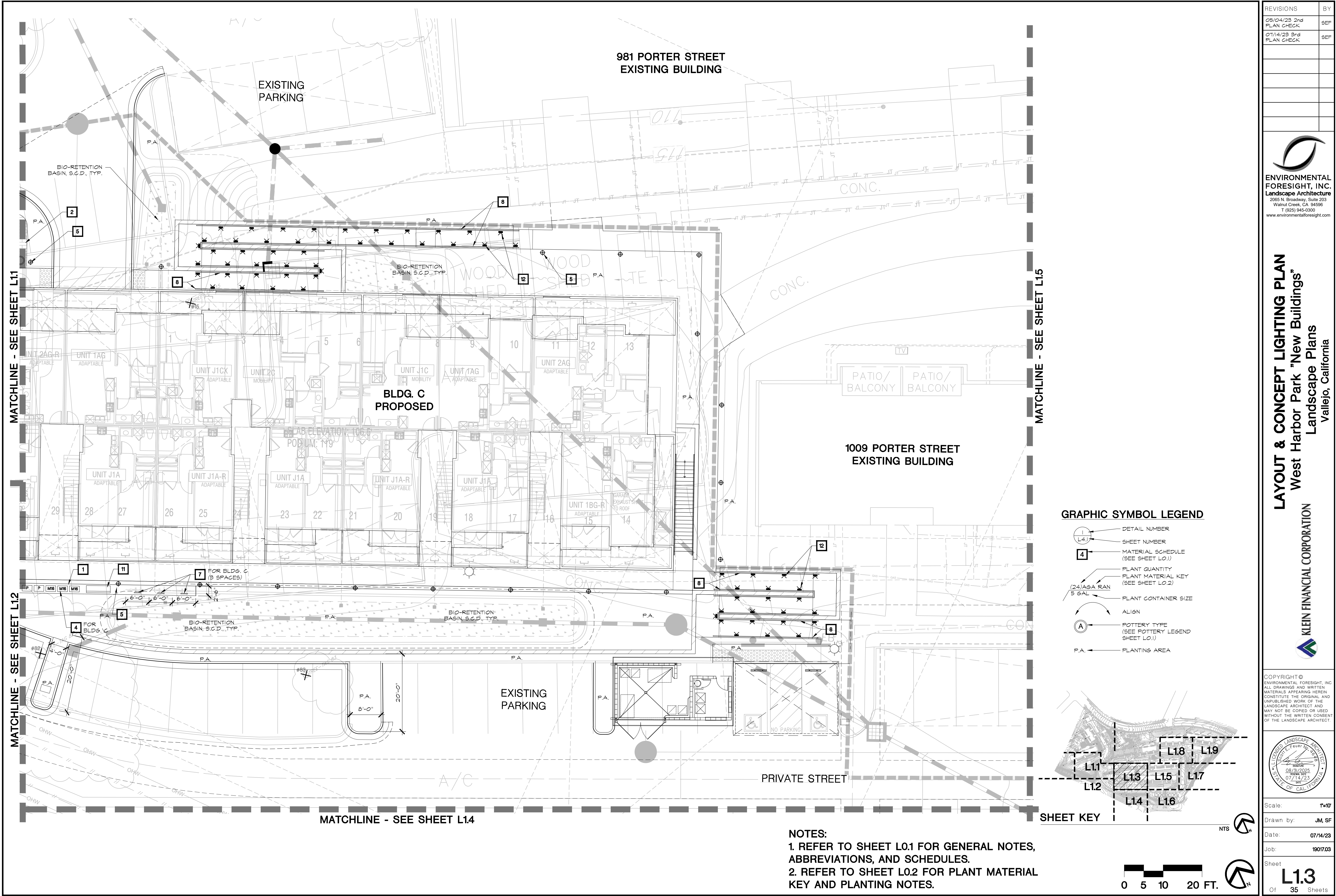


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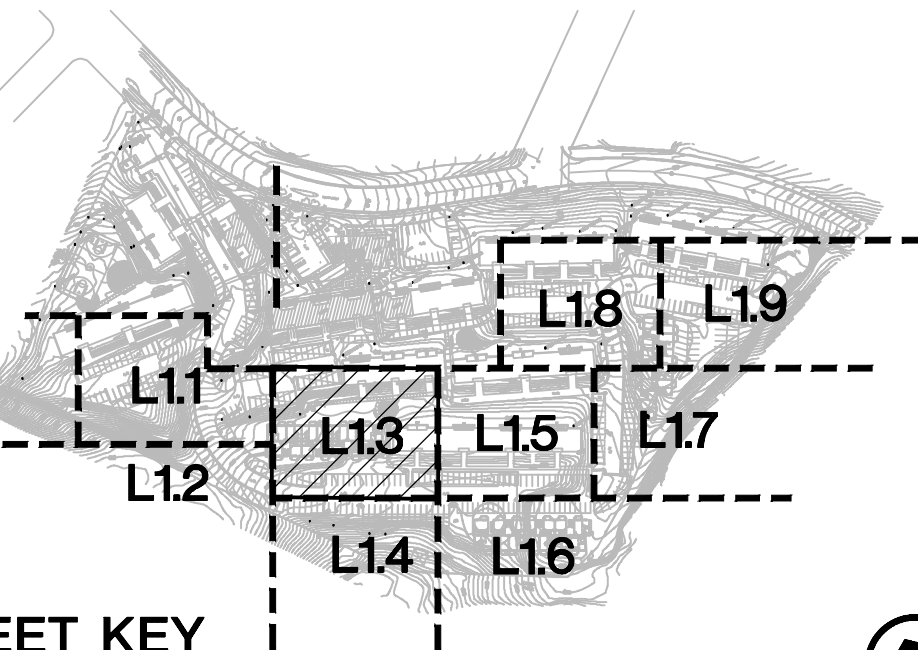


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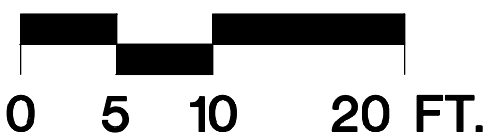


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- 1 DETAIL NUMBER
- L1.1 SHEET NUMBER
- 4 MATERIAL SCHEDULE (SEE SHEET L0.1)
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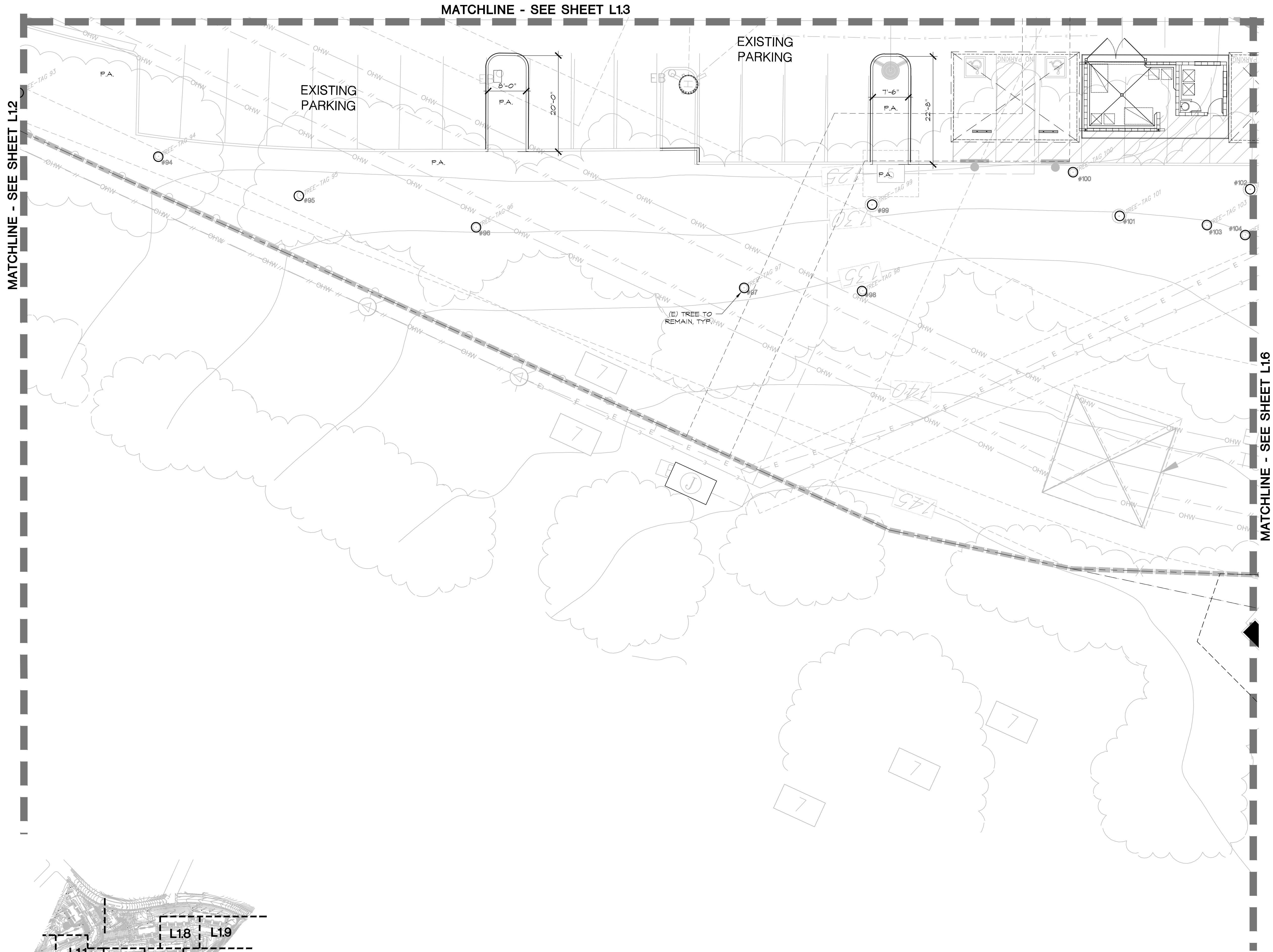
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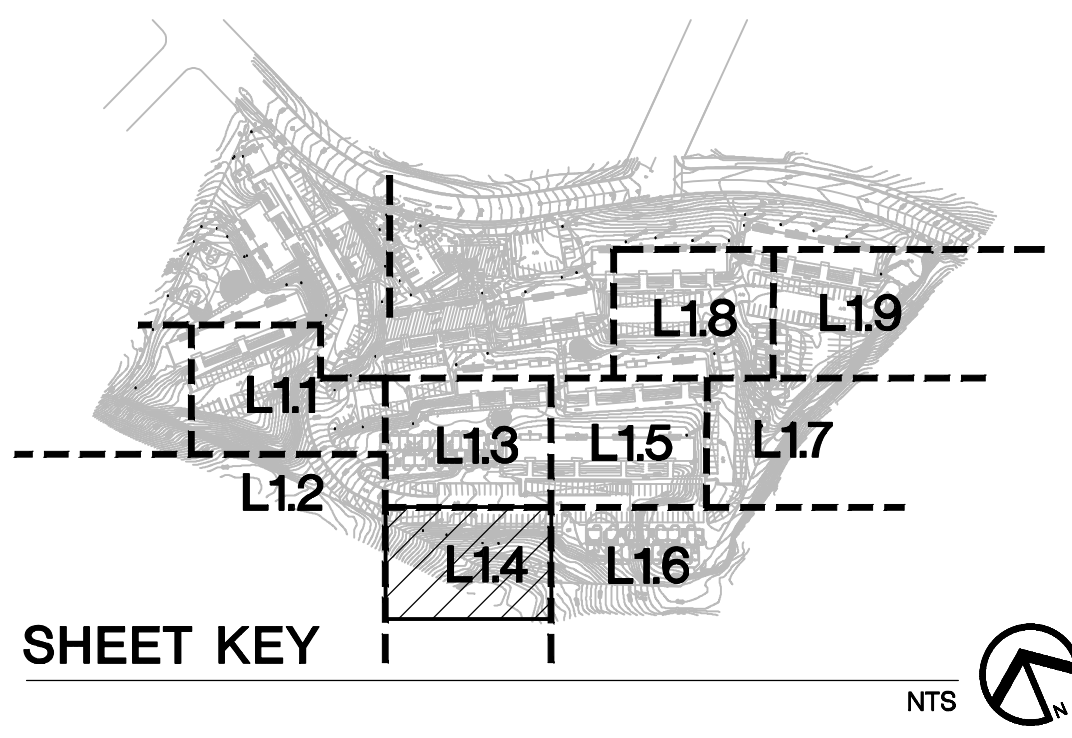
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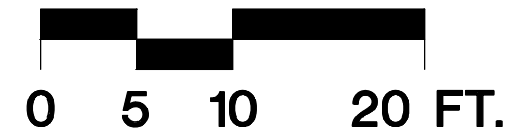


GRAPHIC SYMBOL LEGEND

- 1 - DETAIL NUMBER
- L1.1 - SHEET NUMBER
- 4 - MATERIAL SCHEDULE (SEE SHEET L0.1)
- (24) AGA RAN 5 GAL - PLANT QUANTITY, PLANT MATERIAL KEY (SEE SHEET L0.2)
- PLANT CONTAINER SIZE
- ALIGN
- POTTERY TYPE (SEE POTTERY LEGEND SHEET L0.1)
- P.A. - PLANTING AREA



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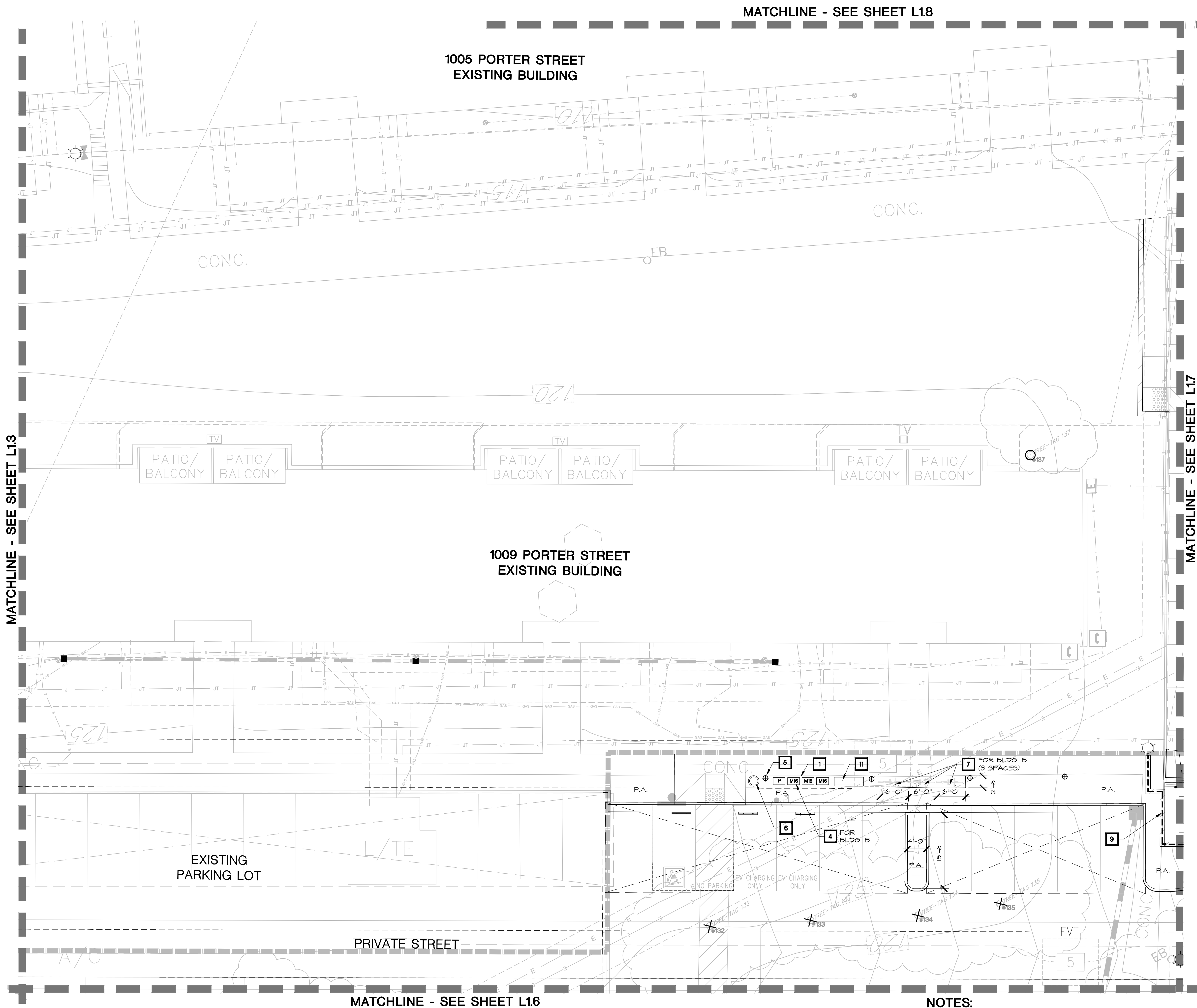
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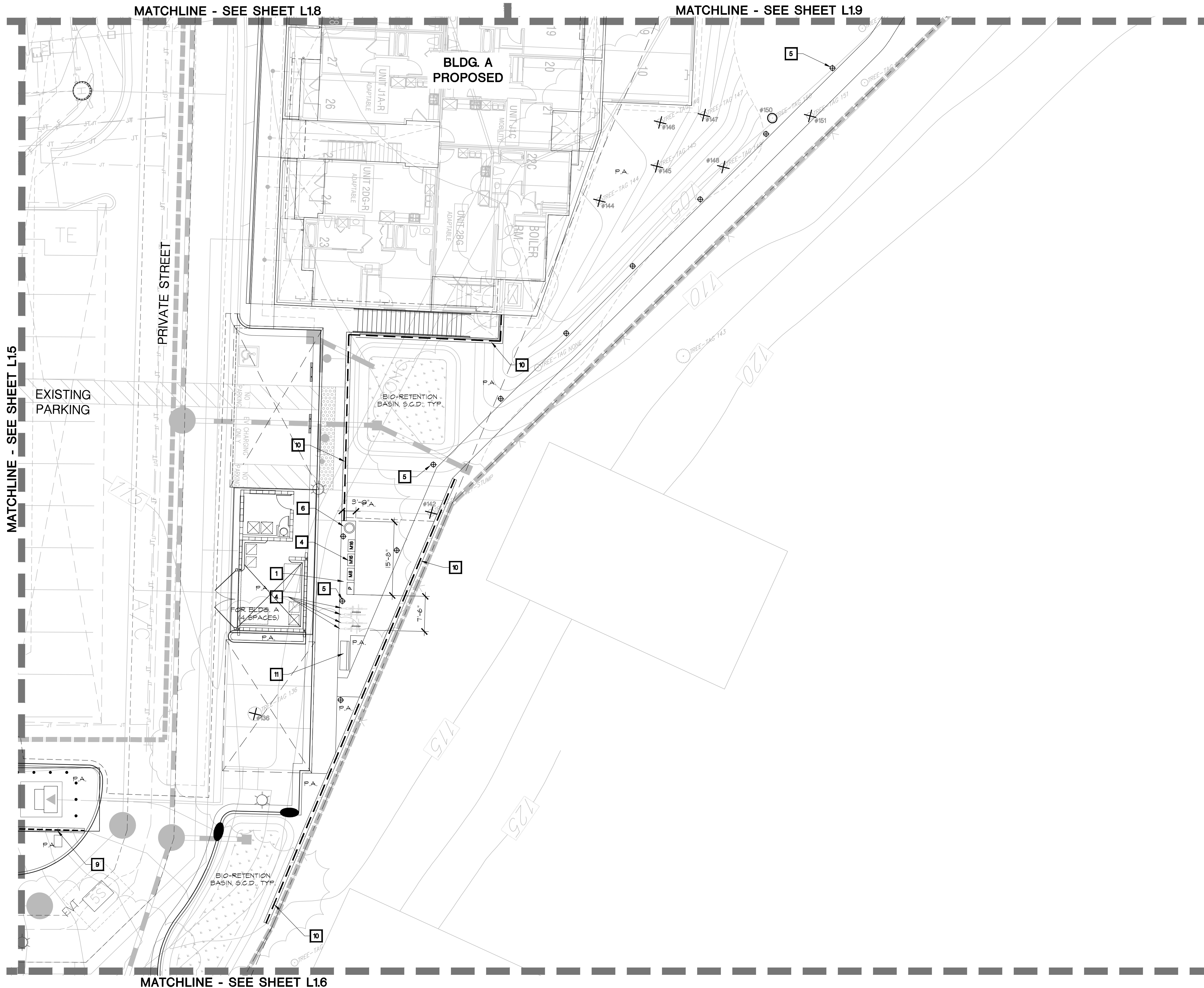


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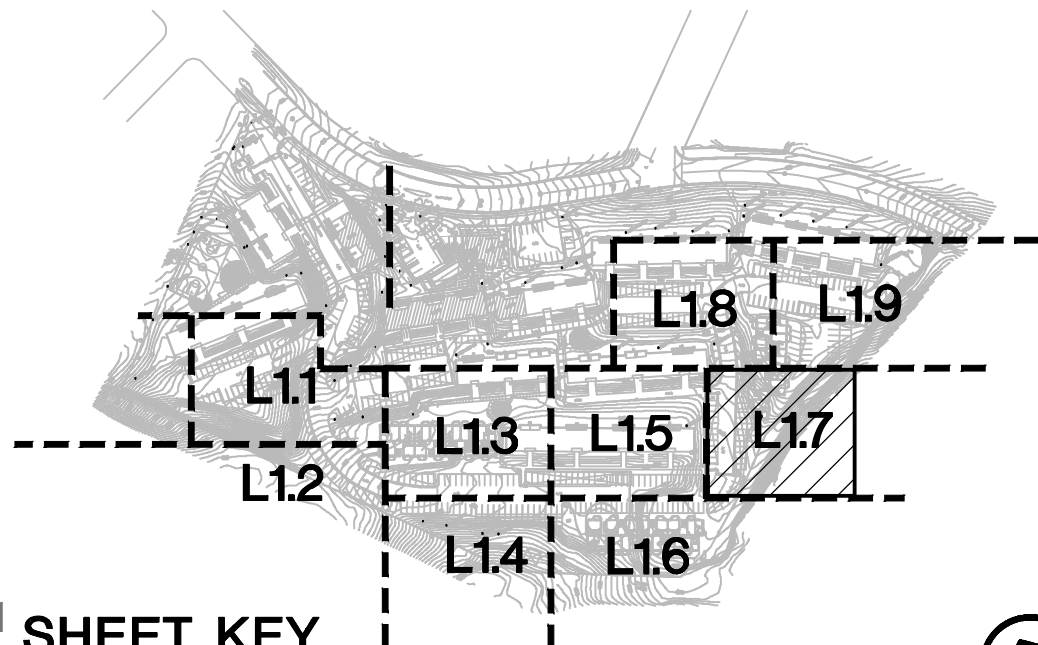
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- (24) AGA RAN
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- DETAIL NUMBER
- SHEET NUMBER
(SEE SHEET L0.1)
- MATERIAL SCHEDULE
(SEE SHEET L0.1)
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PLANT MATERIAL KEY
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SHEET L0.1)
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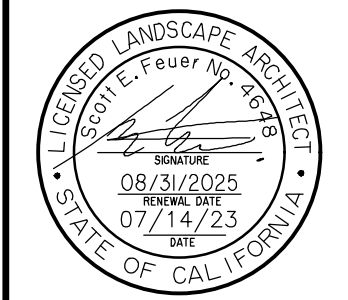
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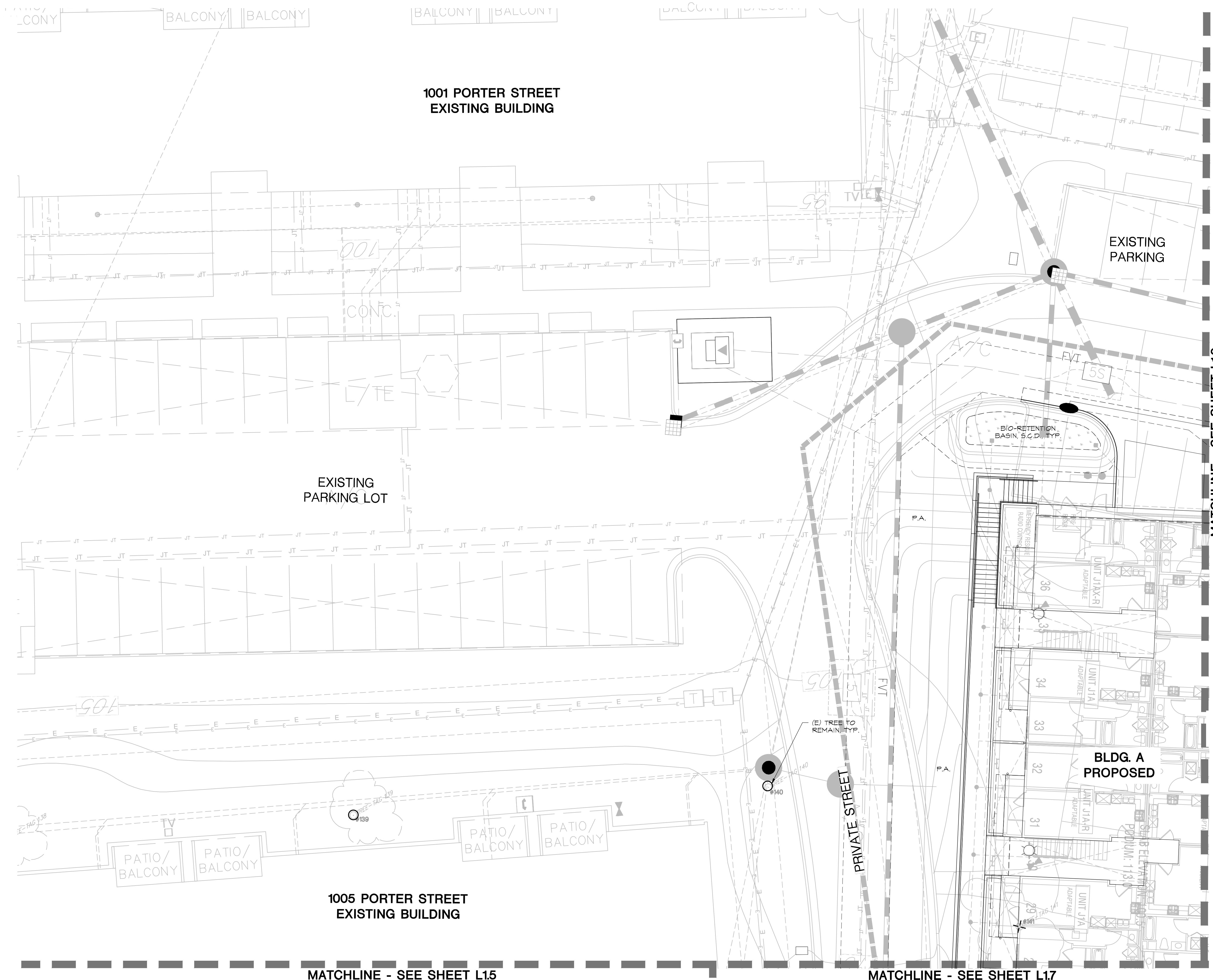
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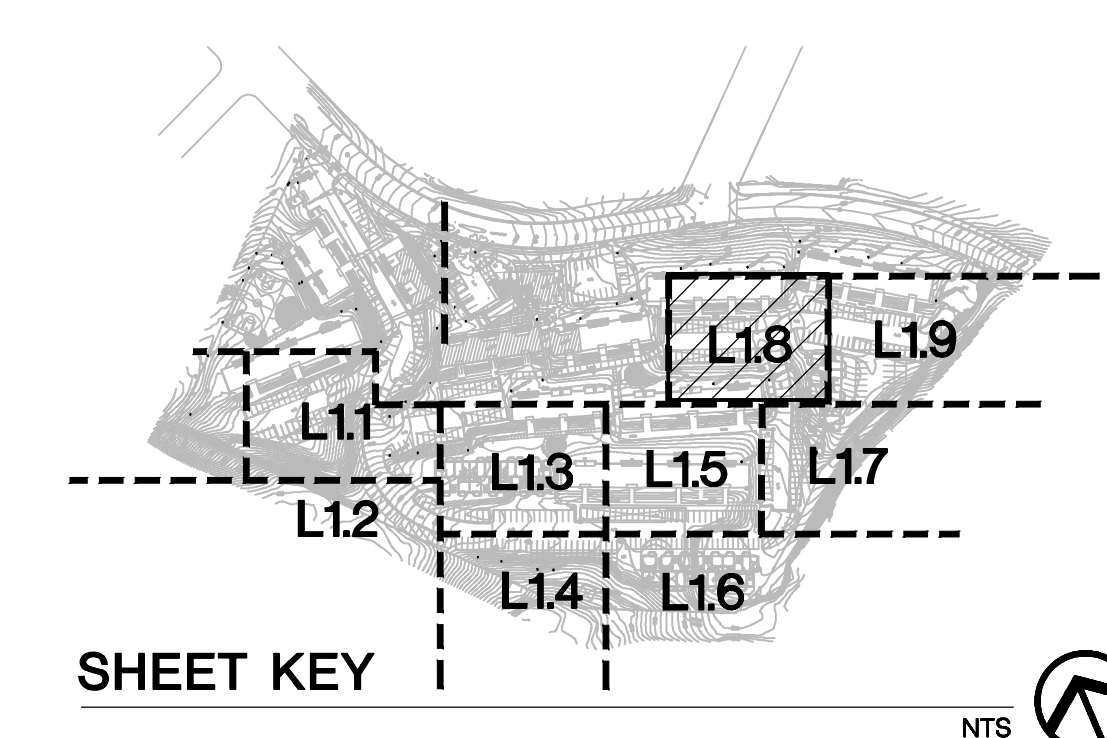
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- GRAPHIC SYMBOL LEGEND**
- 1 L4.1 DETAIL NUMBER
 - 4 MATERIAL SCHEDULE (SEE SHEET L0.1)
 - PLANT QUANTITY
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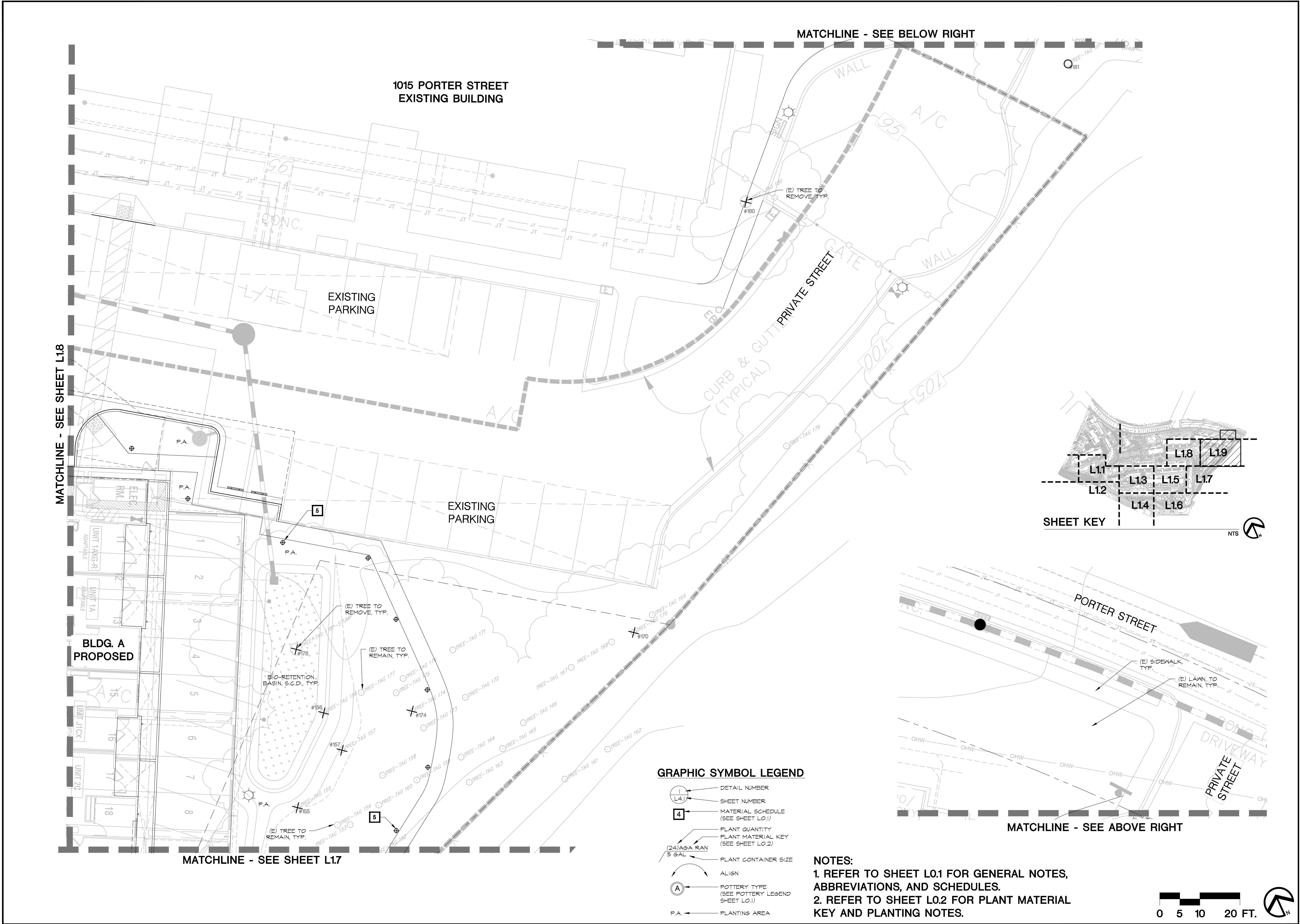
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Date: 07/14/23

Job: 19017.03

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COMMISSIONING AND MANAGEMENT OF SUB-SURFACE DRIP IRRIGATION SYSTEMS

1. PRIOR TO PLANTING, CONTRACTOR SHALL PREPARE SOIL FOR PLANTING BY HAND WATERING TO BRING SOIL MOISTURE CONTENT UP TO AN IDEAL GROWING CONDITION THROUGHOUT THE INTENDED ROOT ZONE. OPERATE SUB-SURFACE DRIP SYSTEM AS NECESSARY TO MAINTAIN MOISTURE LEVEL IN SOIL. DO NOT LET SOIL DRY OUT. MOISTURE DEPLETION SHOULD NOT EXCEED 20% DEPLETION (80% OF DESIRED MOISTURE CONTENT REMAINS). CONTRACTOR SHALL MONITOR MOISTURE CONTENT TO ENSURE DESIRED MOISTURE CONTENT IS MAINTAINED WITHOUT OVER-SATURATION. USE CARE TO NOT DAMAGE SUB-SURFACE DRIP TUBING WHEN PROBING SOIL FOR MOISTURE CONTENT TESTING.

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NOTES:

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4. STORMWATER PLANTERS: WHERE IRRIGATION PIPES AND/OR WIRES PASS THROUGH STORMWATER PLANTER WALLS, PENETRATIONS SHALL BE SLEEVED WITH SCHEDULE 40 PVC PIPE. SEAL PENETRATIONS AS DIRECTED IN CIVIL DESIGN SPECIFICATIONS AND CONSTRUCTION DETAILS. SIZE SLEEVES TO ACCOMMODATE PIPE SIZES AND WIRES AS SHOWN ON THE IRRIGATION DESIGN DRAWINGS.

ACTUAL LOCATIONS AND QUANTITIES OF FLUSH VALVES AND AIR/VACUUM RELIEF VALVES SHALL BE FIELD DETERMINED BASED ON SUB-SURFACE IRRIGATION EQUIPMENT MANUFACTURER'S RECOMMENDATION. (TYPICAL)

EXISTING PARKING

MAINTENANCE BLDG. PROPOSED

SUB-SURFACE DRIP IRRIGATION BOUNDARY. SEE DETAILS. (TYPICAL)

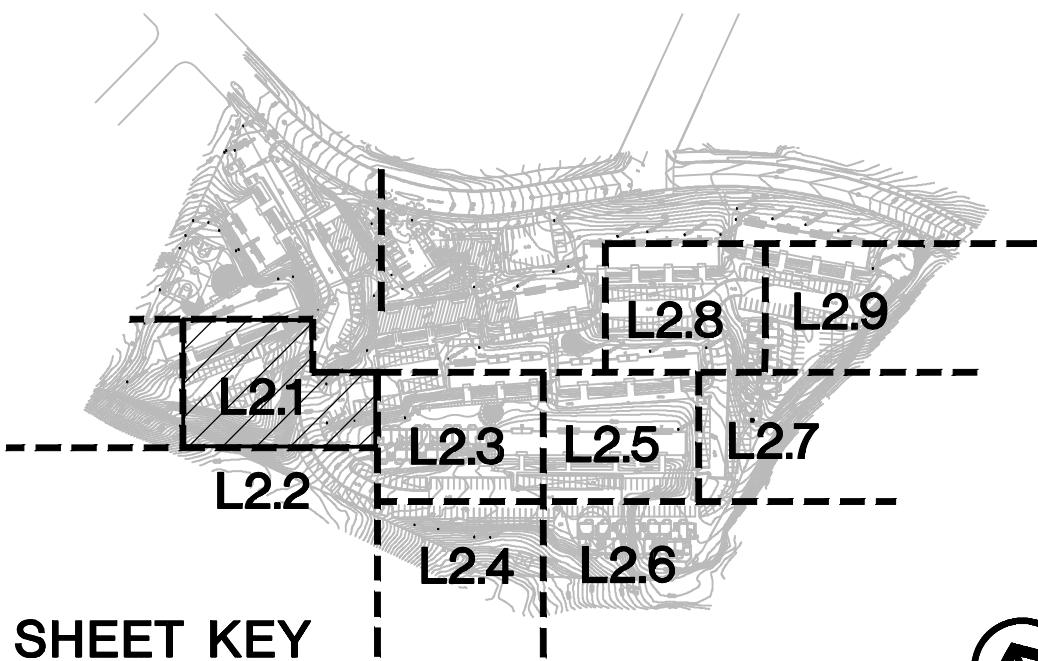
EXISTING PARKING

PRIVATE STREET

GROUNDING PLATE LOCATION FOR GROUNDING IRRIGATION CONTROL TWO-WIRE PATH. SEE DETAILS AND MANUFACTURER'S INSTRUCTIONS. (TYPICAL)

MATCHLINE - SEE SHEET L2.3

MATCHLINE - SEE SHEET L2.2



SHEET KEY

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IRRIGATION PLAN
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California



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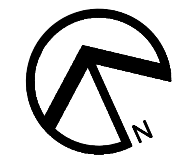
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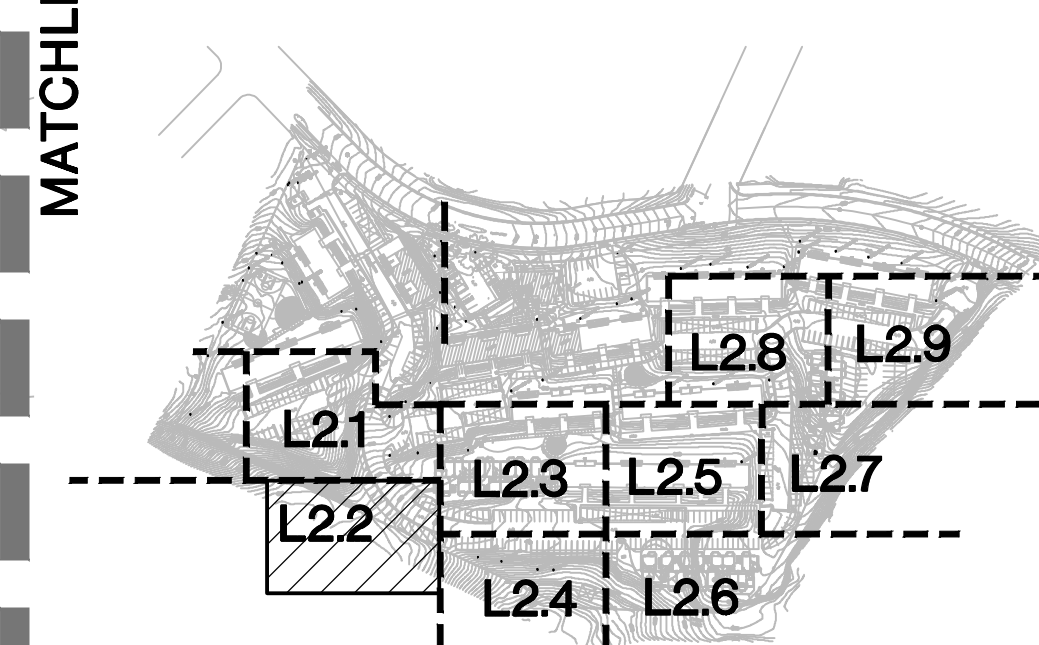
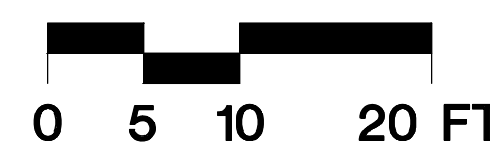
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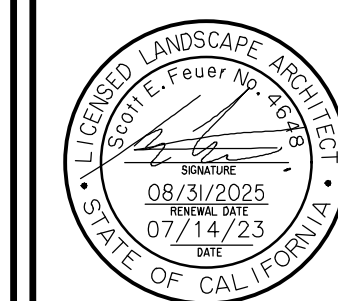
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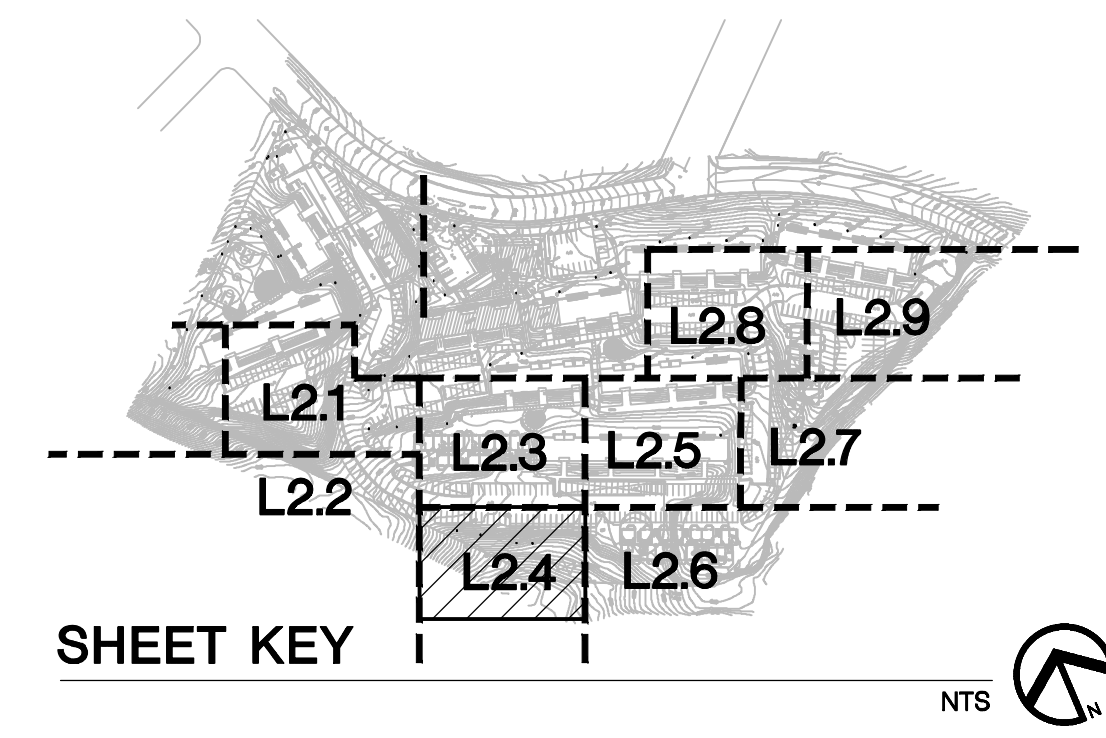
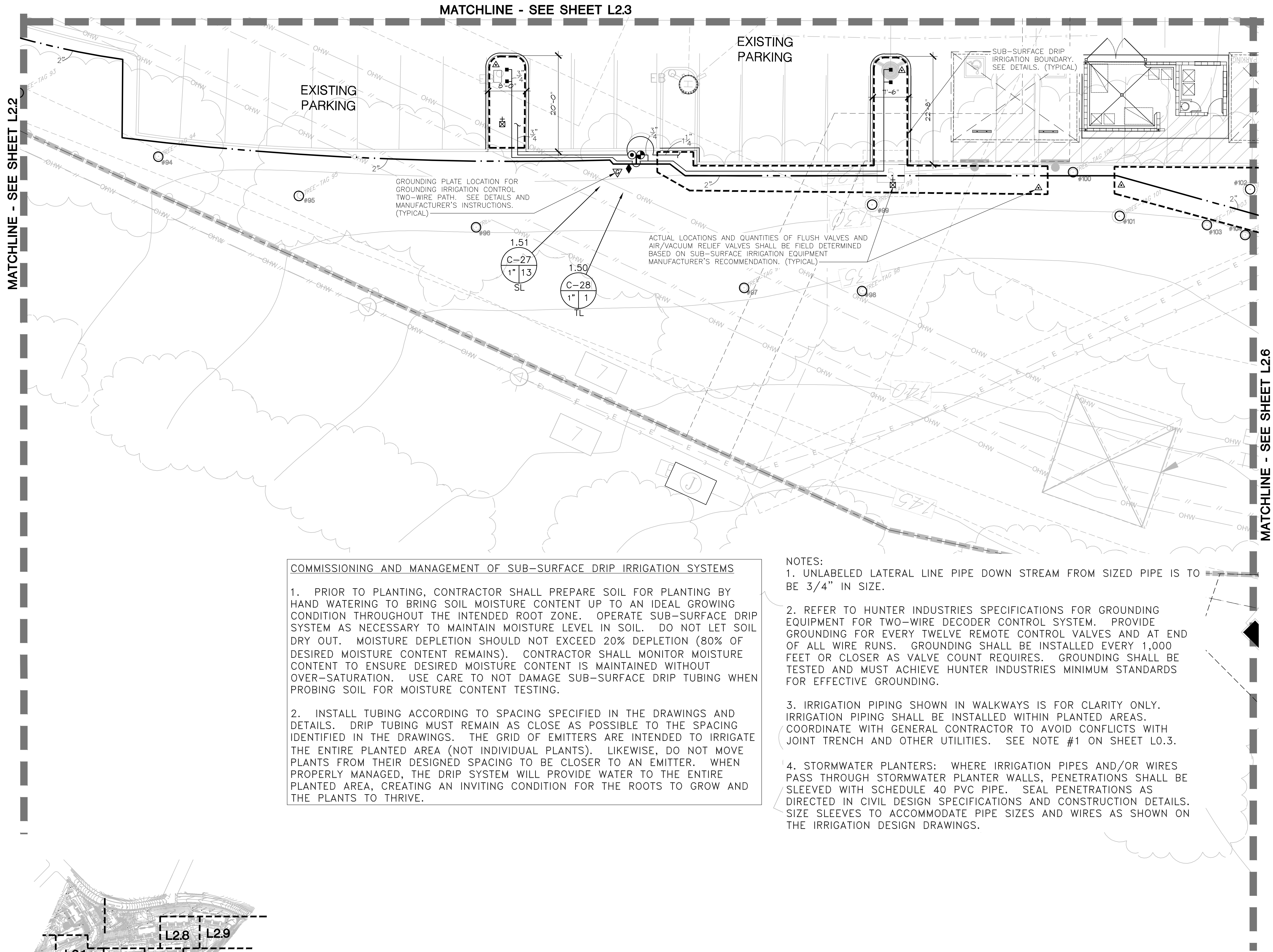
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COMMISSIONING AND MANAGEMENT OF SUB-SURFACE DRIP IRRIGATION SYSTEMS

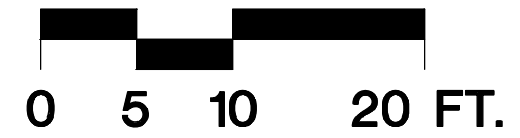
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IRRIGATION PLAN
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**1005 PORTER STREET
EXISTING BUILDING**

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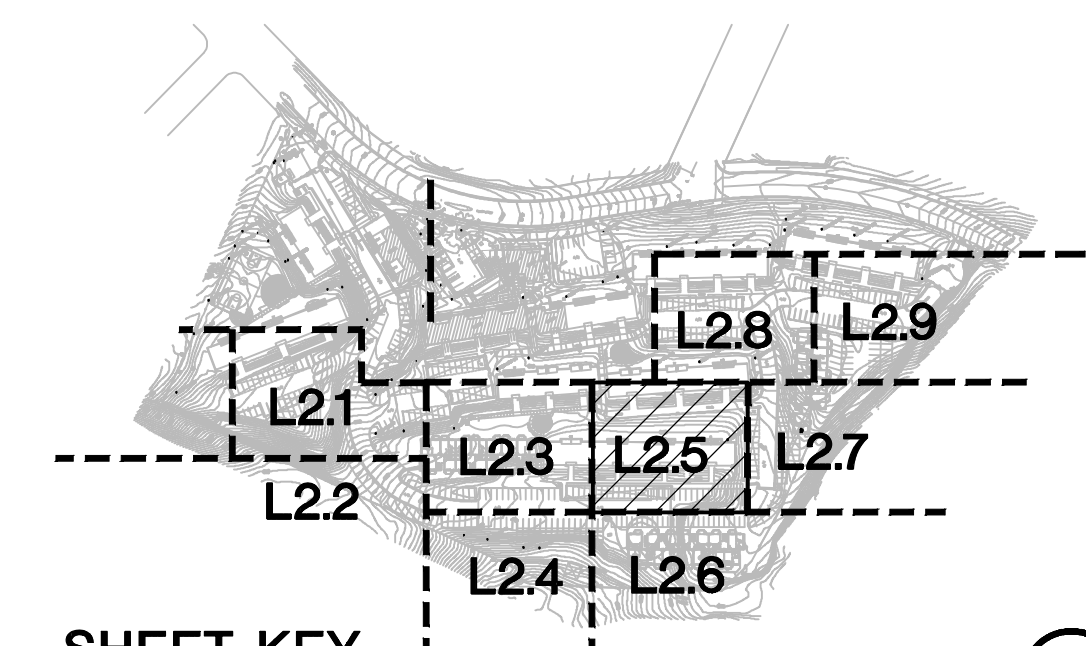
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EXISTING
PARKING LOT

PRIVATE STREET

MATCHLINE - SEE SHEET L2.7

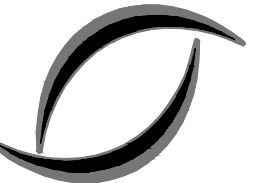
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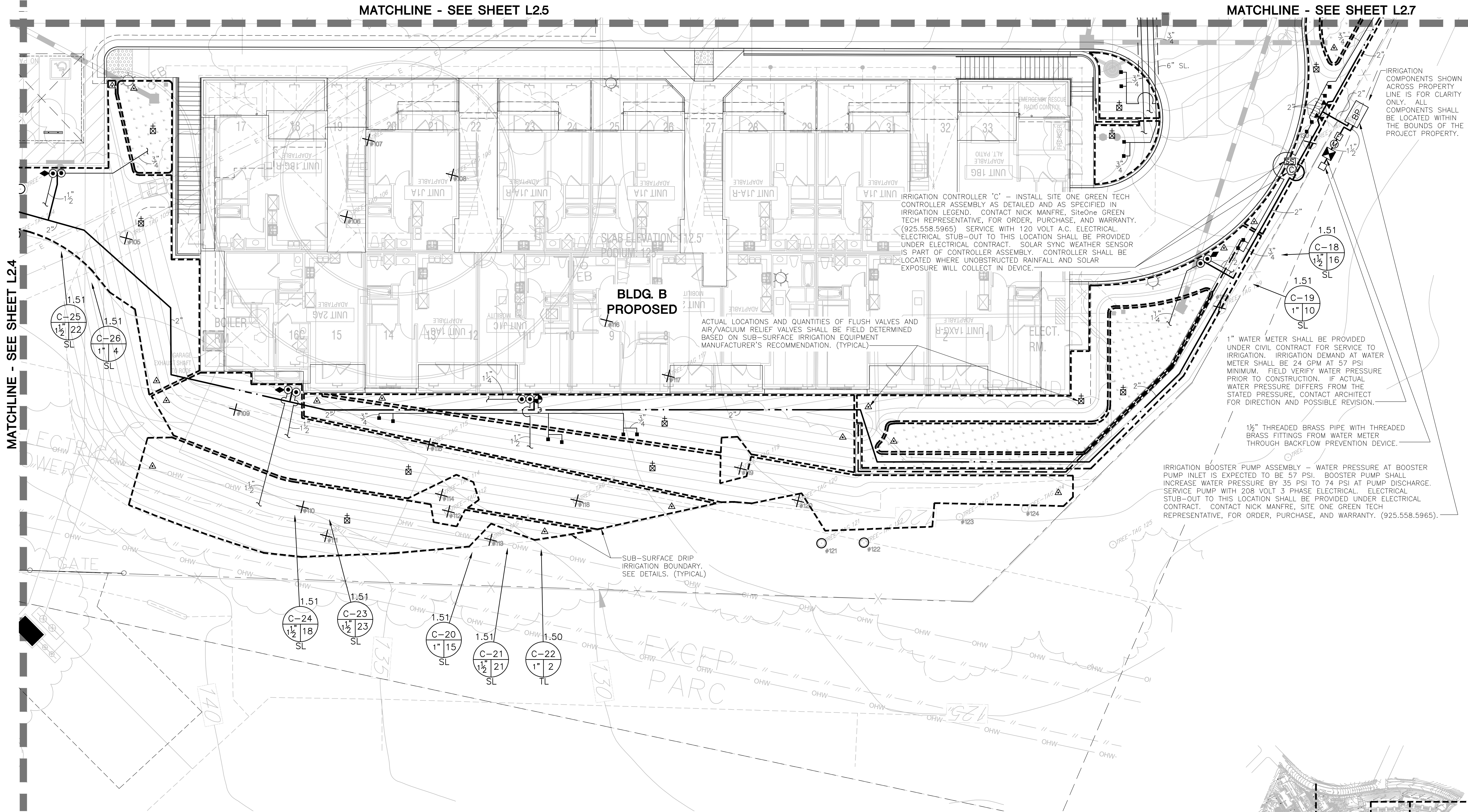


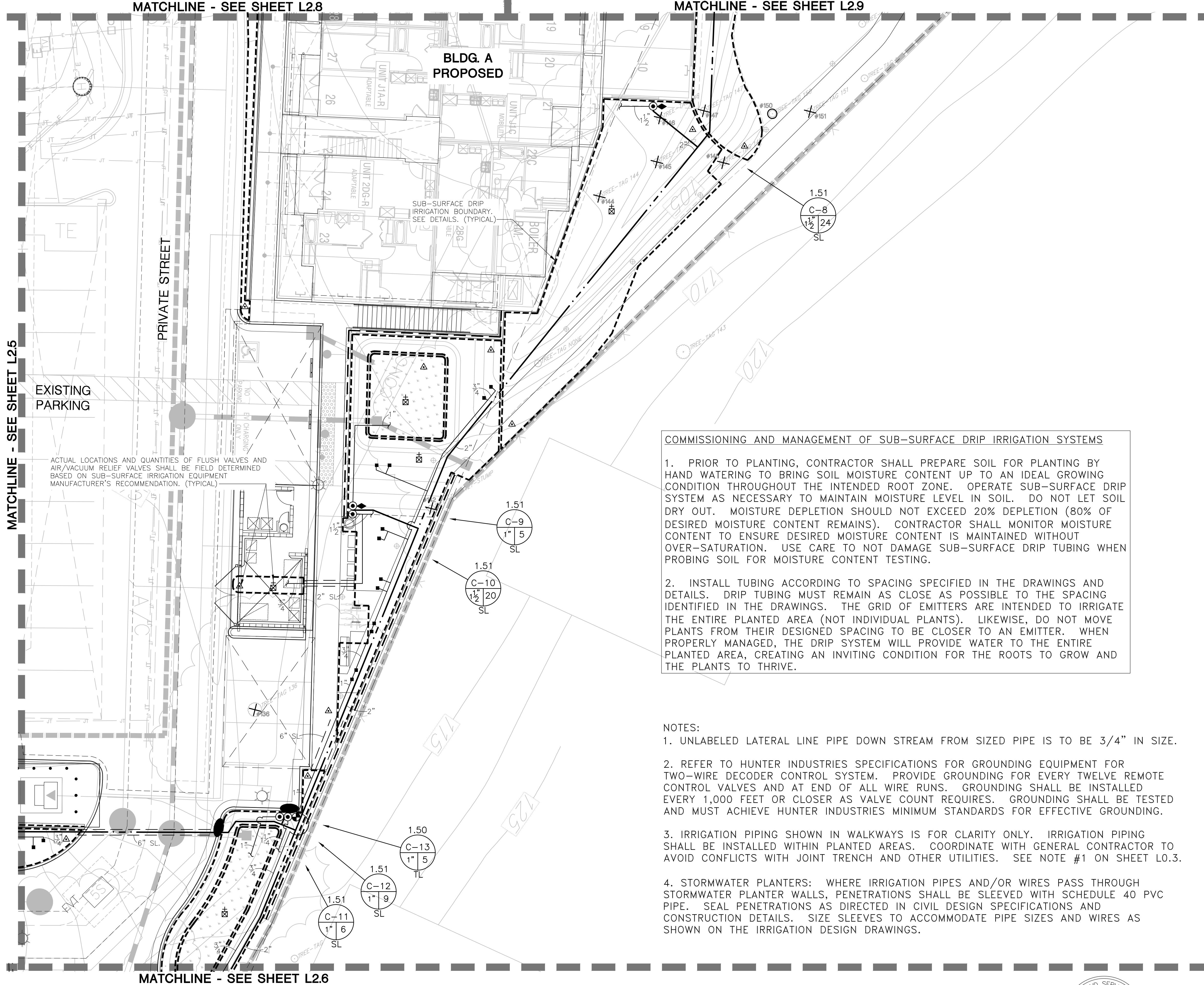
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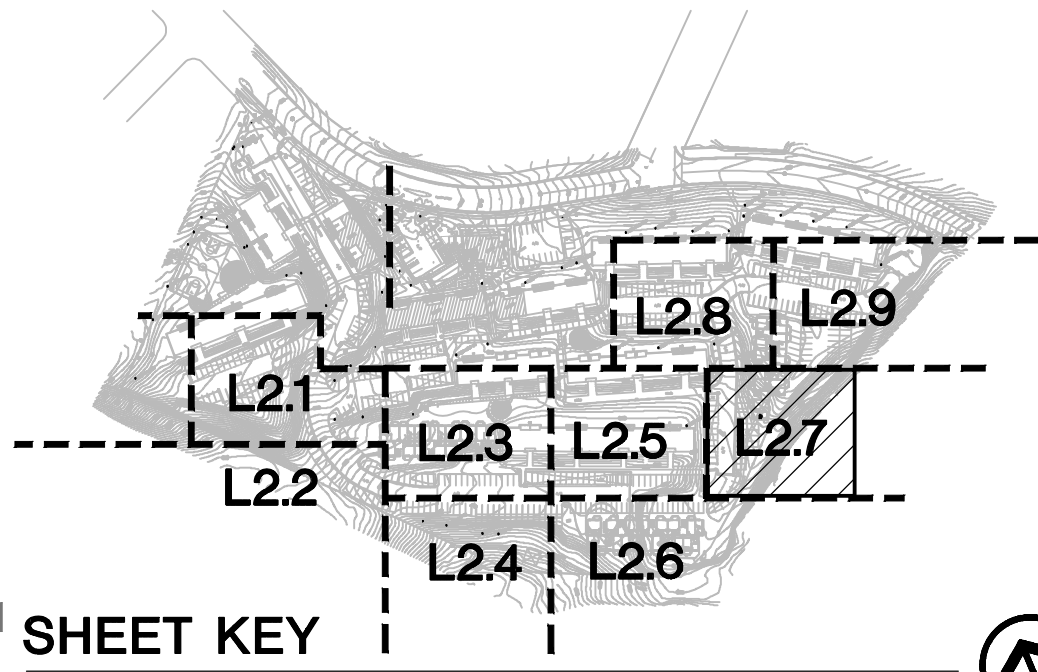


COMMISSIONING AND MANAGEMENT OF SUB-SURFACE DRIP IRRIGATION SYSTEMS

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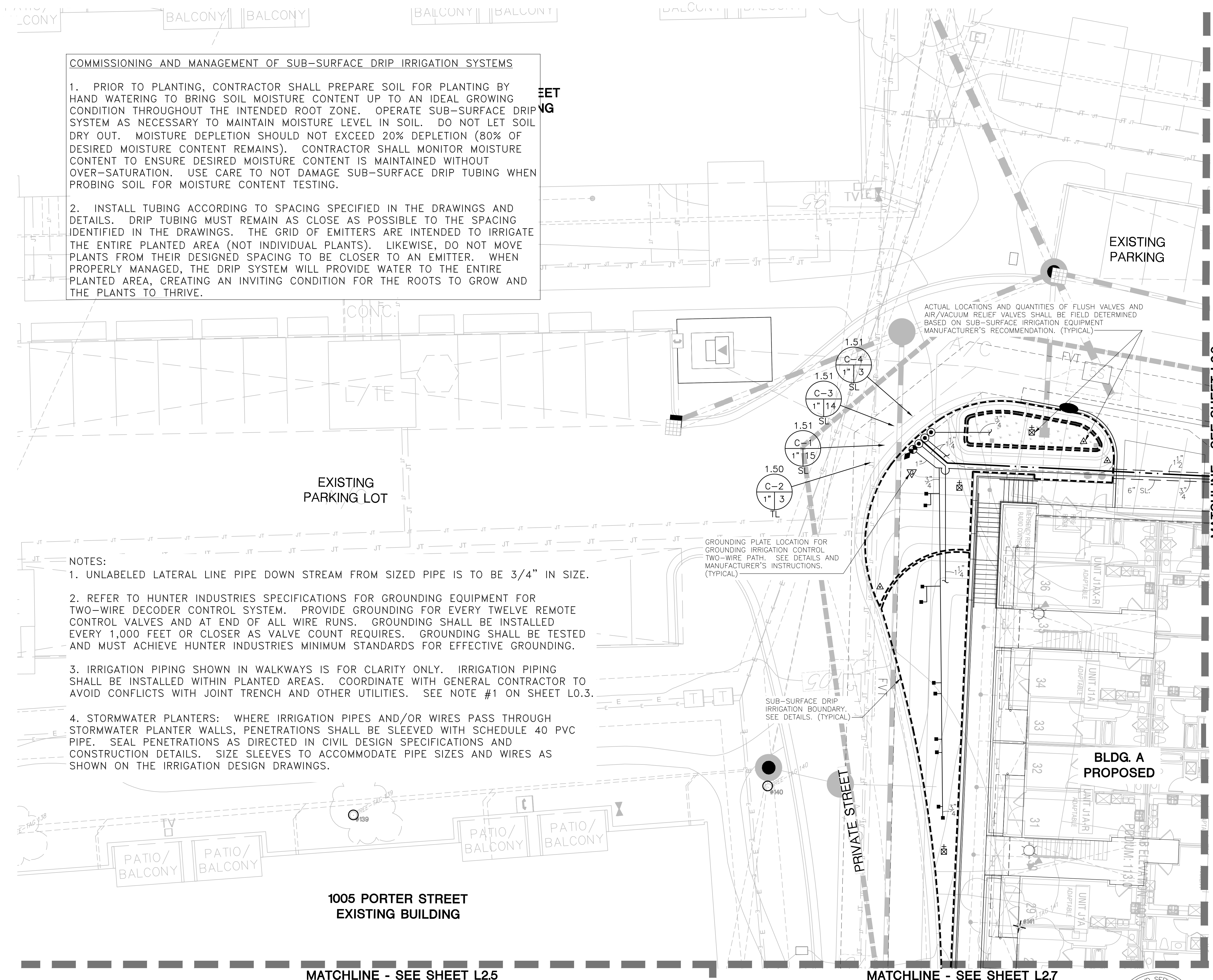
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COMMISSIONING AND MANAGEMENT OF SUB-SURFACE DRIP IRRIGATION SYSTEMS

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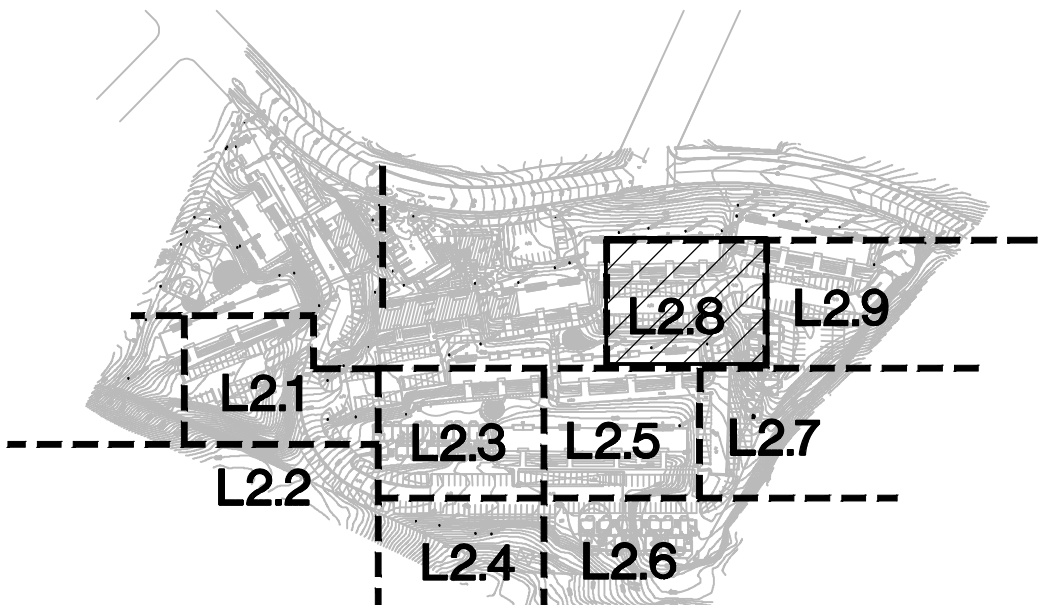
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MATCHLINE - SEE SHEET L2.9

1005 PORTER STREET
EXISTING BUILDING

MATCHLINE - SEE SHEET L2.5

MATCHLINE - SEE SHEET L2.7



SHEET KEY



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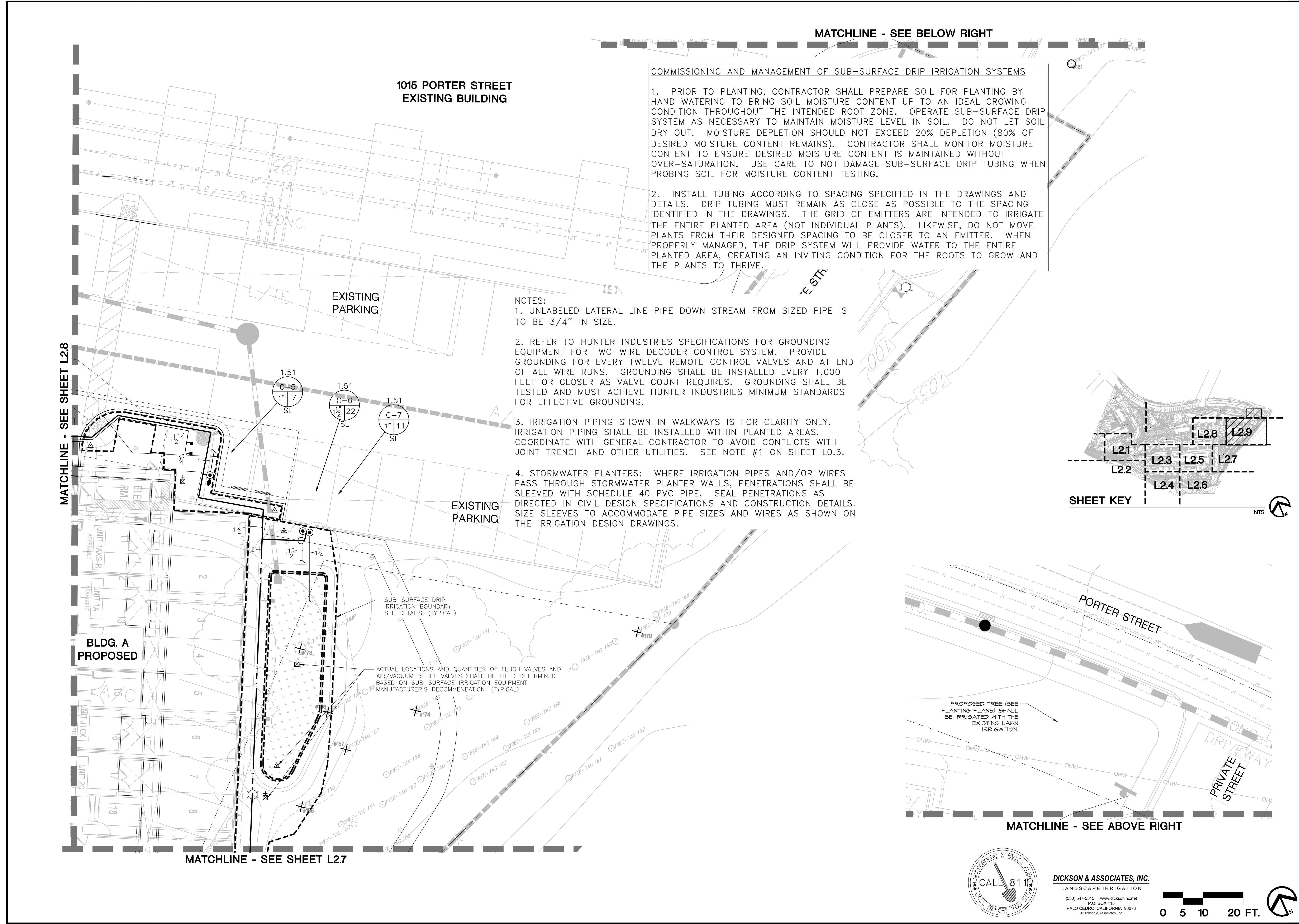
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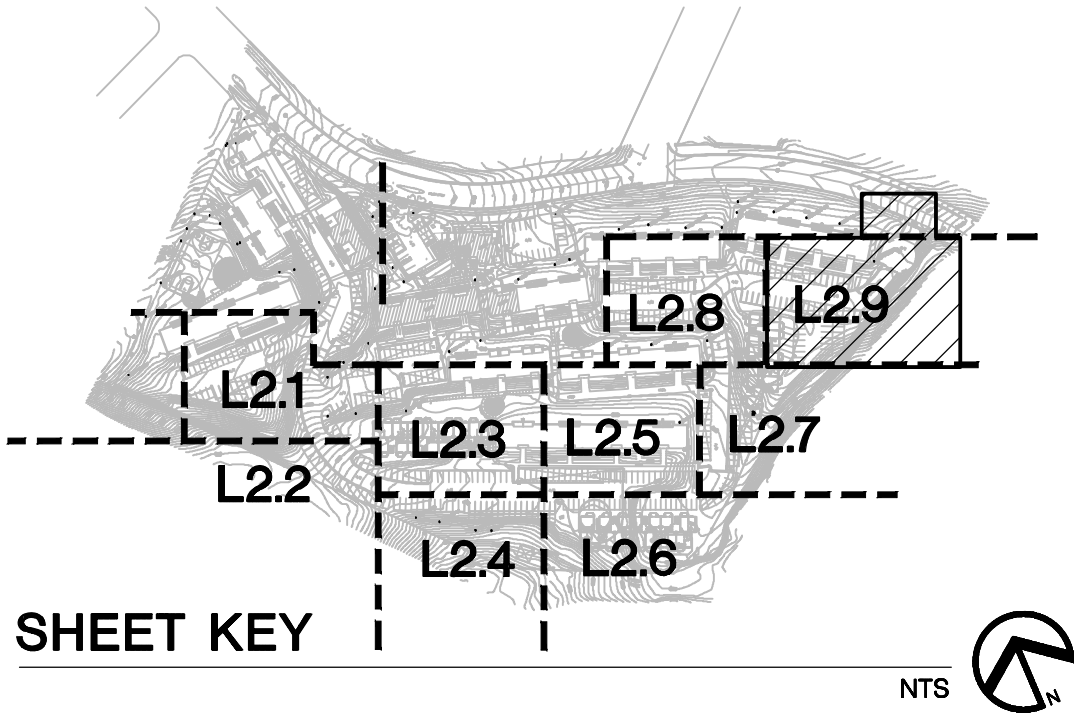


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- NOTES:
1. UNLABELED LATERAL LINE PIPE DOWN STREAM FROM SIZED PIPE IS TO BE 3/4" IN SIZE.
2. REFER TO HUNTER INDUSTRIES SPECIFICATIONS FOR GROUNDING EQUIPMENT FOR TWO-WIRE DECODER CONTROL SYSTEM. PROVIDE GROUNDING FOR EVERY TWELVE REMOTE CONTROL VALVES AND AT END OF ALL WIRE RUNS. GROUNDING SHALL BE INSTALLED EVERY 1,000 FEET OR CLOSER AS VALVE COUNT REQUIRES. GROUNDING SHALL BE TESTED AND MUST ACHIEVE HUNTER INDUSTRIES MINIMUM STANDARDS FOR EFFECTIVE GROUNDING.
3. IRRIGATION PIPING SHOWN IN WALKWAYS IS FOR CLARITY ONLY. IRRIGATION PIPING SHALL BE INSTALLED WITHIN PLANTED AREAS. COORDINATE WITH GENERAL CONTRACTOR TO AVOID CONFLICTS WITH JOINT TRENCH AND OTHER UTILITIES. SEE NOTE #1 ON SHEET L0.3.
4. STORMWATER PLANTERS: WHERE IRRIGATION PIPES AND/OR WIRES PASS THROUGH STORMWATER PLANTER WALLS, PENETRATIONS SHALL BE SLEEVED WITH SCHEDULE 40 PVC PIPE. SEAL PENETRATIONS AS DIRECTED IN CIVIL DESIGN SPECIFICATIONS AND CONSTRUCTION DETAILS. SIZE SLEEVES TO ACCOMMODATE PIPE SIZES AND WIRES AS SHOWN ON THE IRRIGATION DESIGN DRAWINGS.



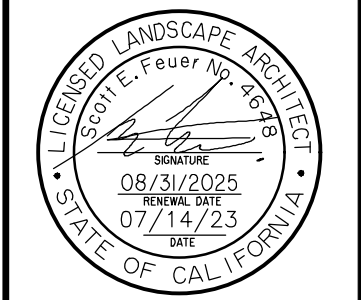
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IRRIGATION PLAN
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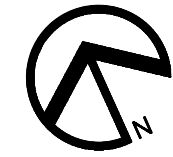
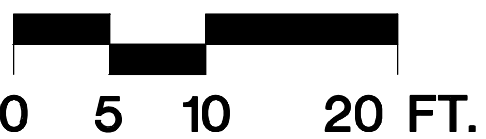


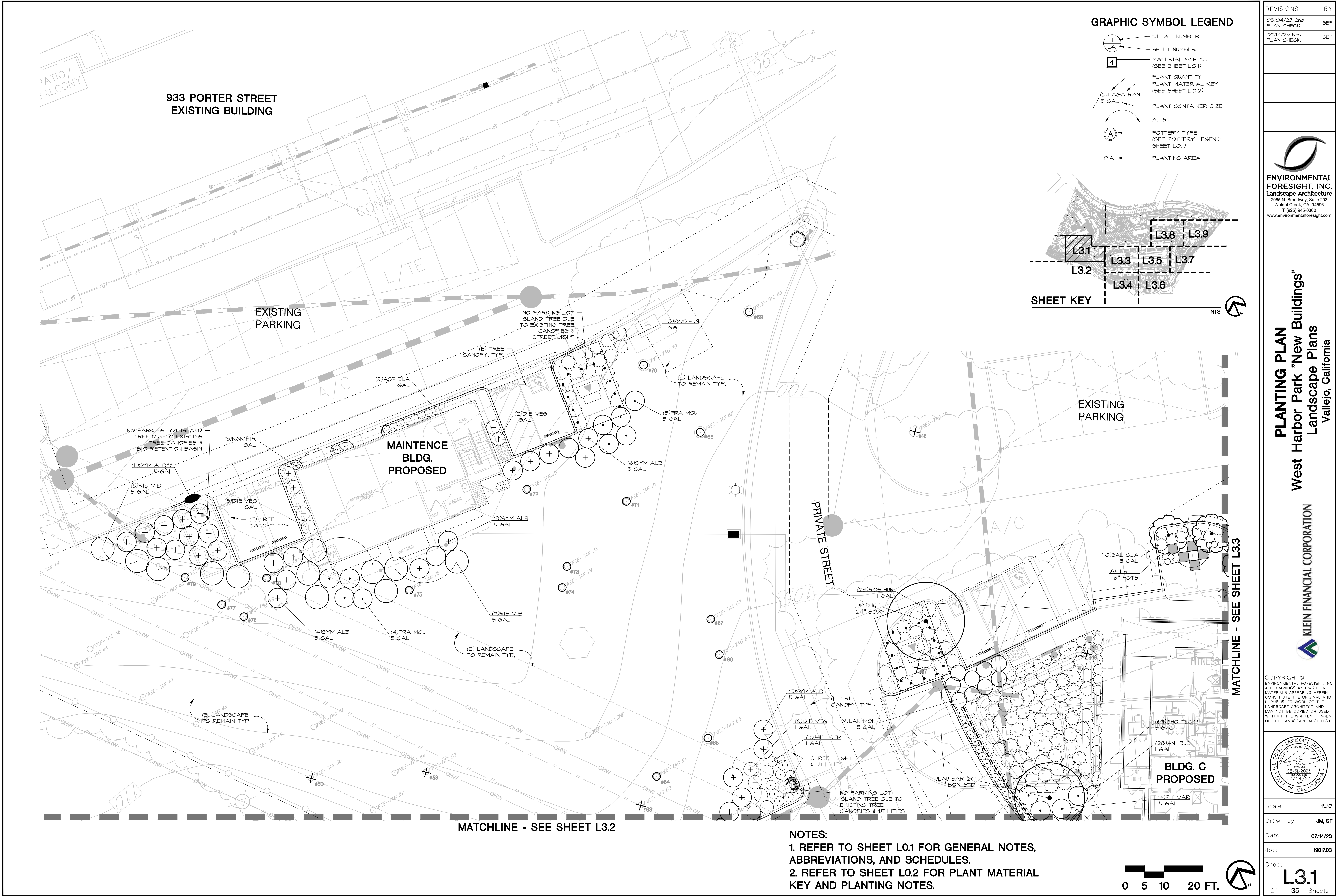
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Date: 07/14/23
Job: 19017.03

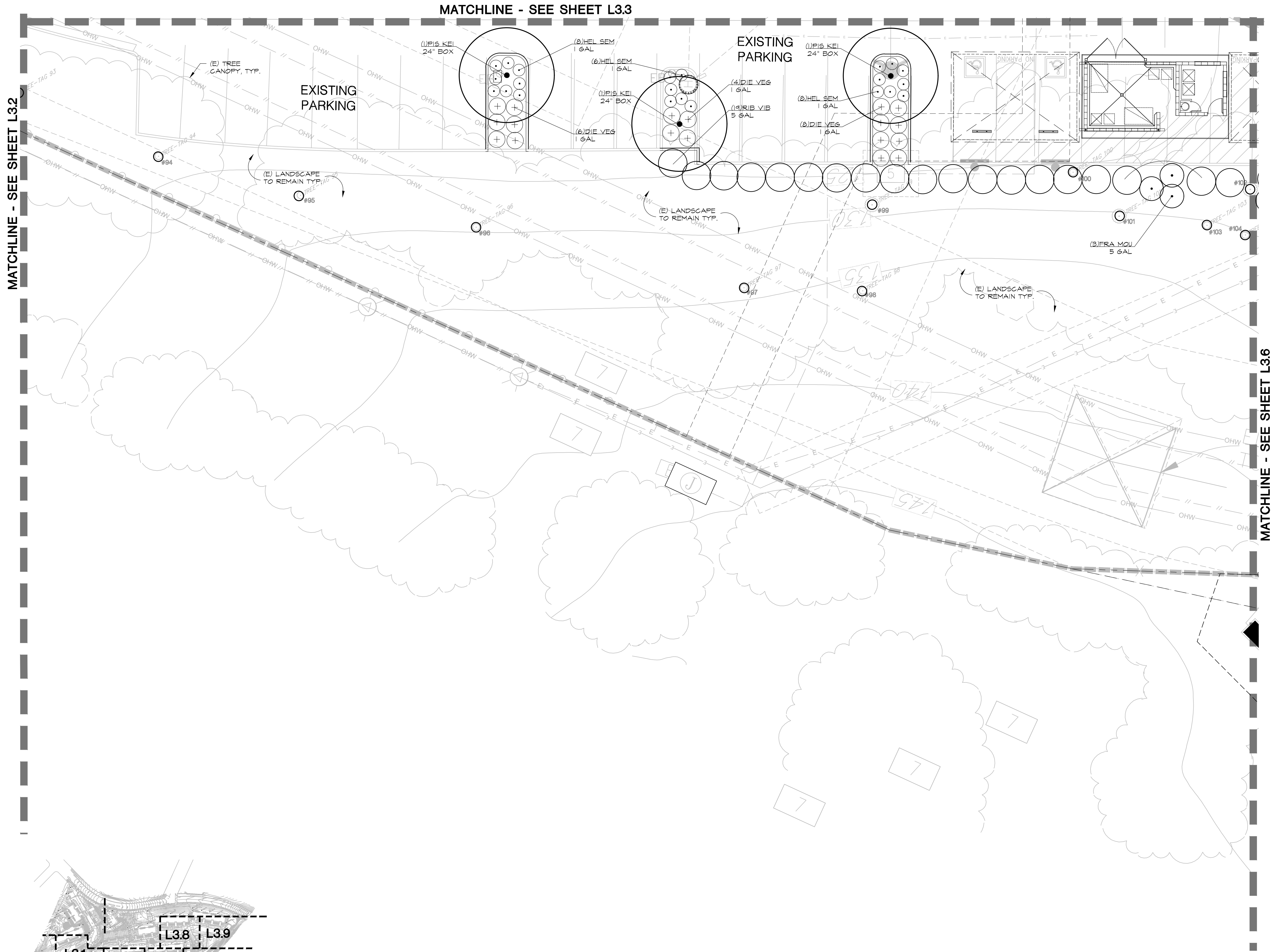
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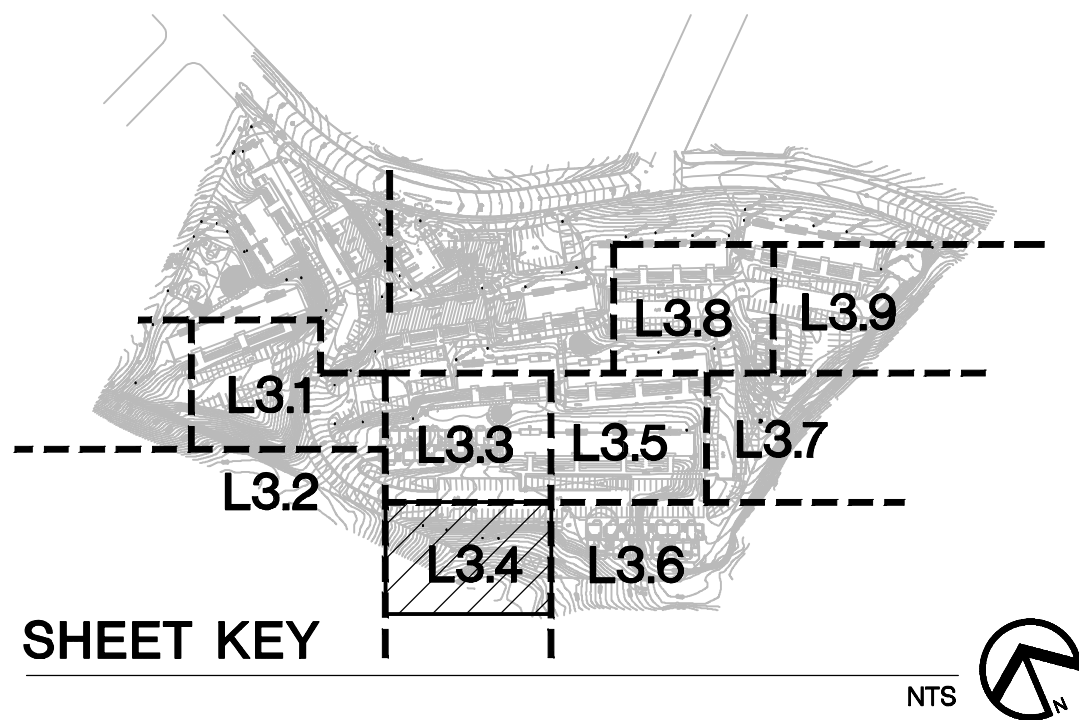




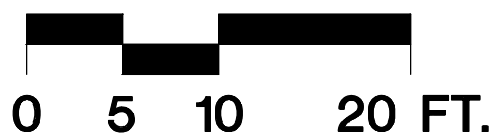


GRAPHIC SYMBOL LEGEND

- DETAIL NUMBER
- SHEET NUMBER
- MATERIAL SCHEDULE (SEE SHEET L0.1)
- PLANT QUANTITY
- PLANT MATERIAL KEY (SEE SHEET L0.2)
- PLANT CONTAINER SIZE
- ALIGN
- POTTERY TYPE (SEE POTTERY LEGEND SHEET L0.1)
- P.A. PLANTING AREA



- NOTES:
- REFER TO SHEET L0.1 FOR GENERAL NOTES, ABBREVIATIONS, AND SCHEDULES,
 - REFER TO SHEET L0.2 FOR PLANT MATERIAL KEY AND PLANTING NOTES.



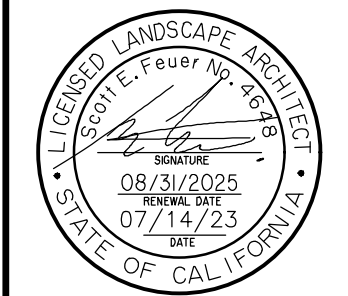
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PLANTING PLAN
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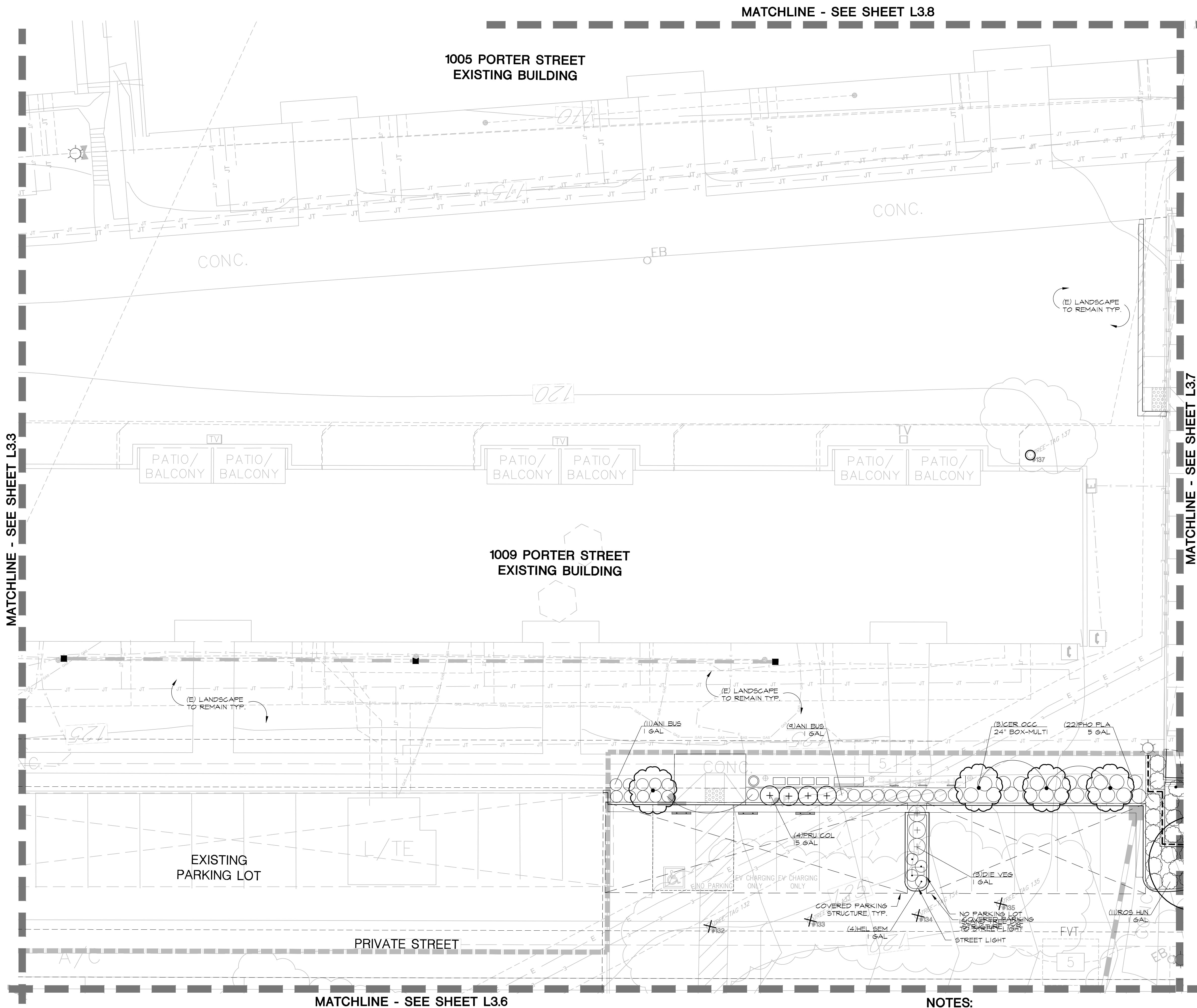
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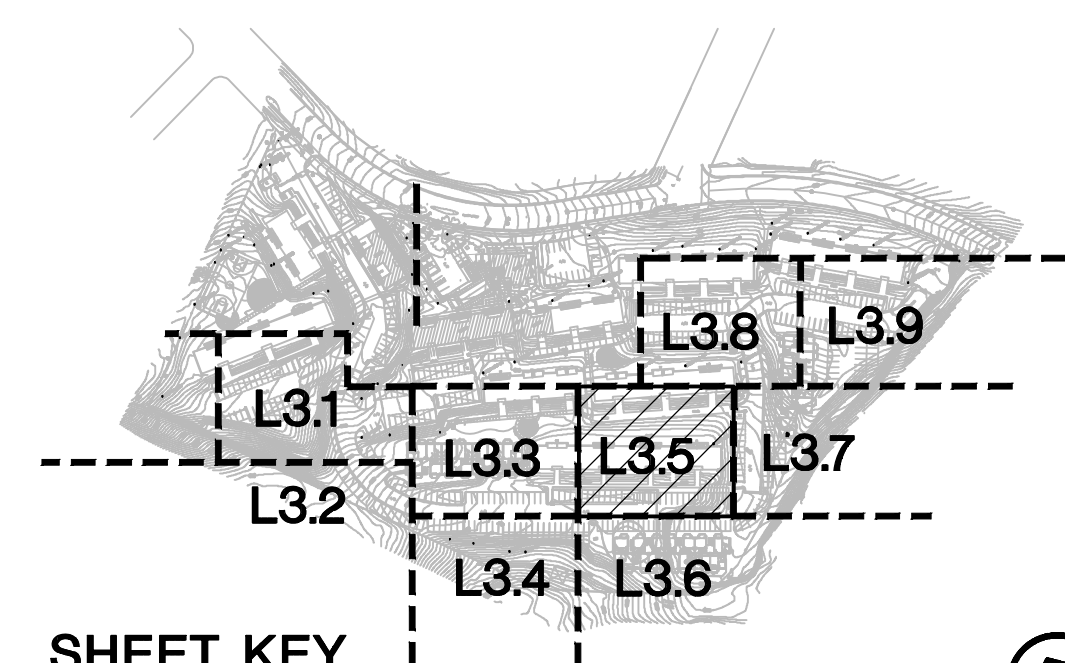
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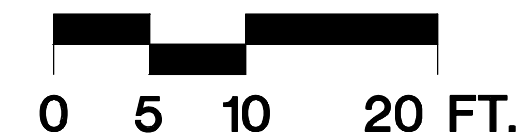


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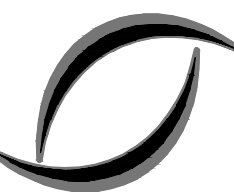
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- 4 MATERIAL SCHEDULE (SEE SHEET L0.1)
- PLANT QUANTITY
- PLANT MATERIAL KEY (SEE SHEET L0.2)
- (24) AGA RAN 5 GAL PLANT CONTAINER SIZE
- ALIGN
- A POTTERY TYPE (SEE POTTERY LEGEND SHEET L0.1)
- P.A. PLANTING AREA



NOTES:
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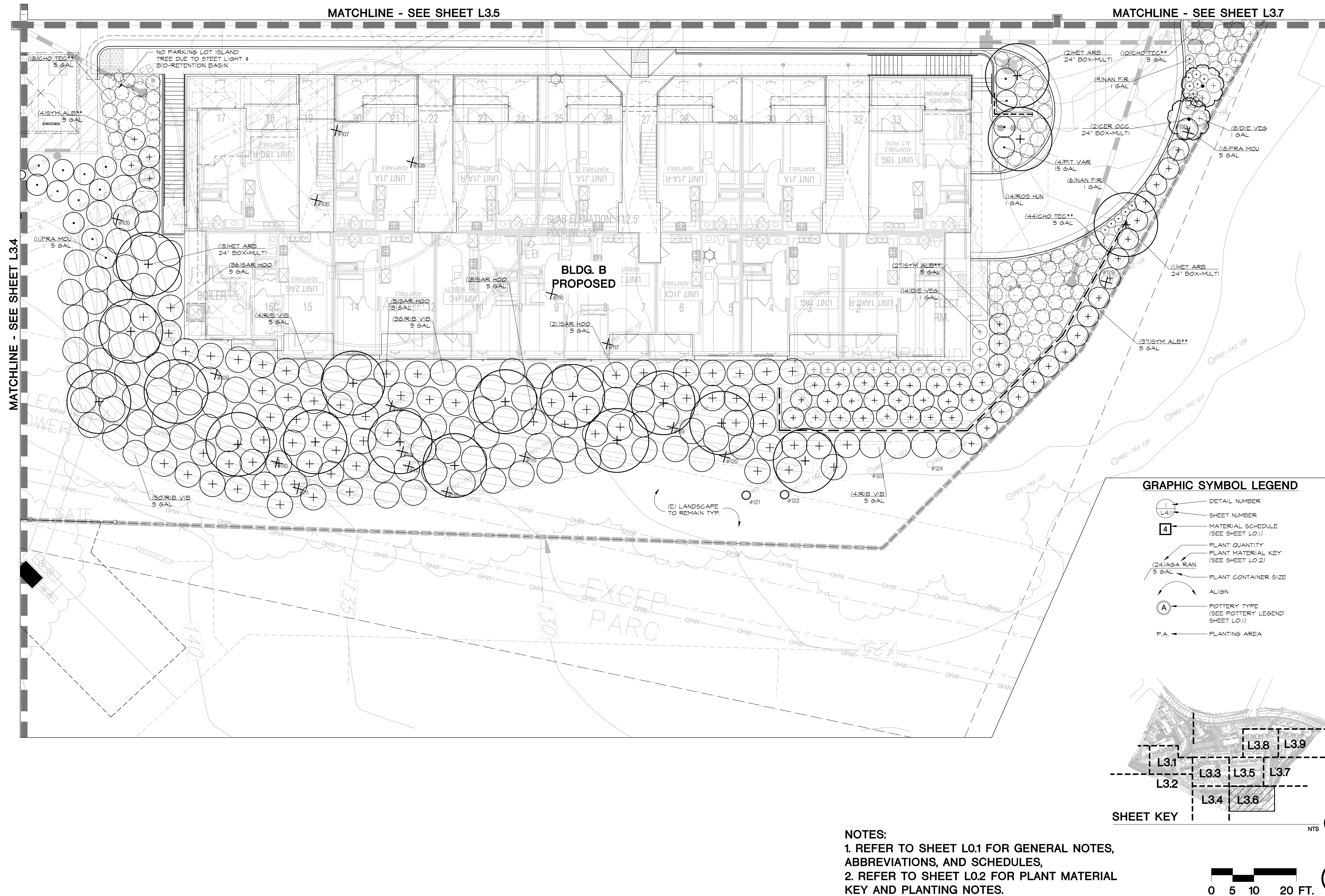
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Of	35 Sheets

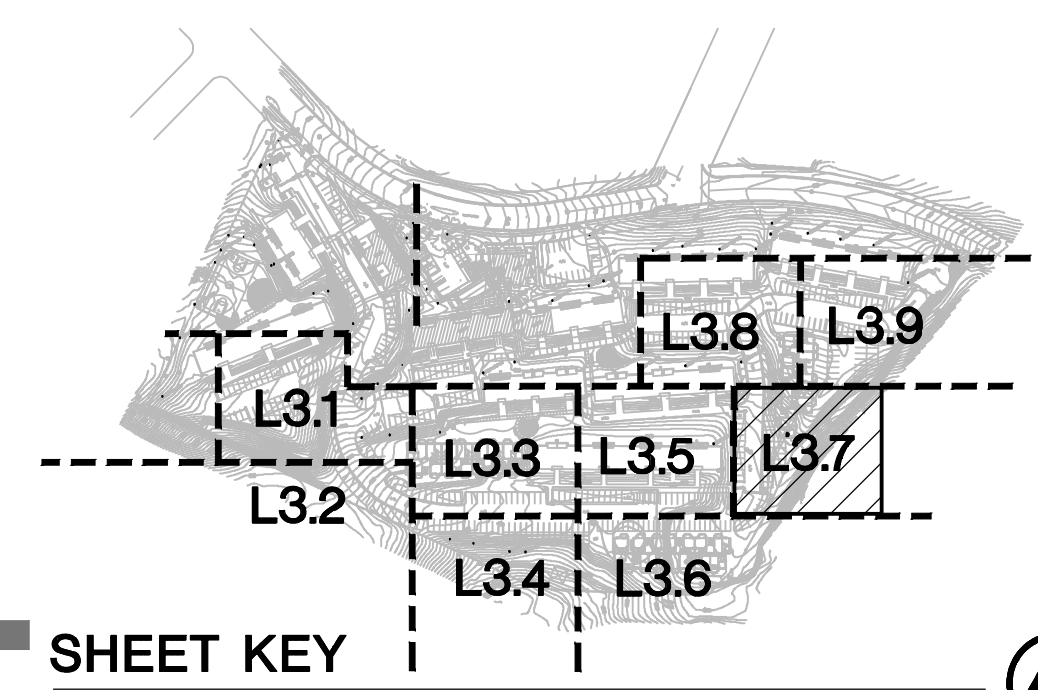
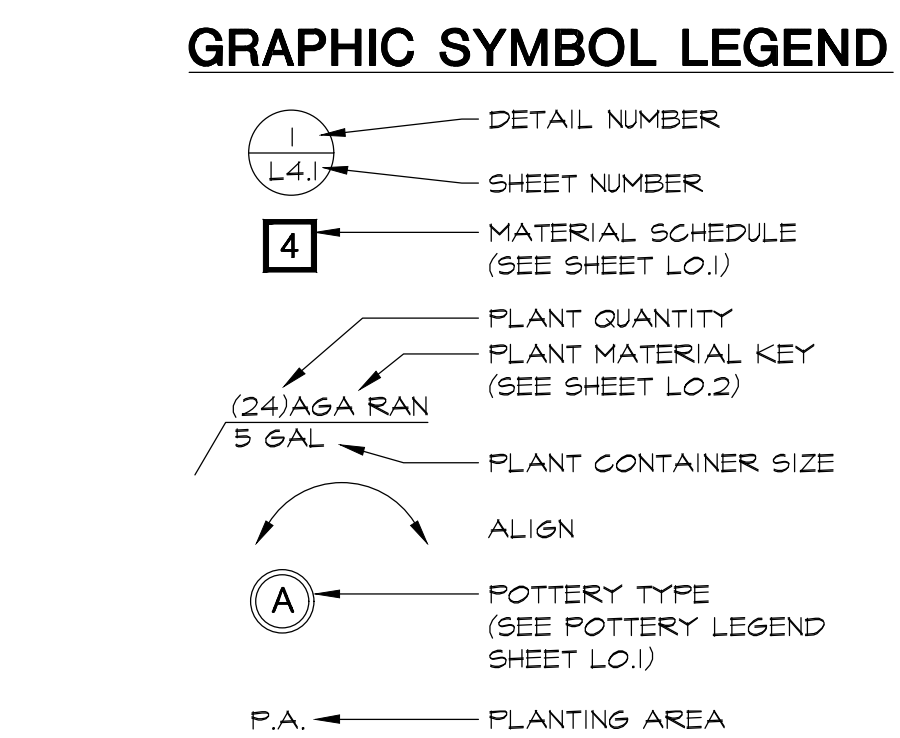
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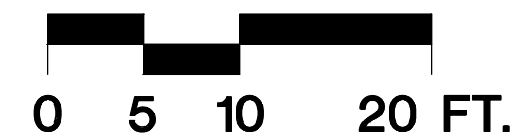
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2. REFER TO SHEET L0.2 FOR PLANT MATERIAL KEY AND PLANTING NOTES.



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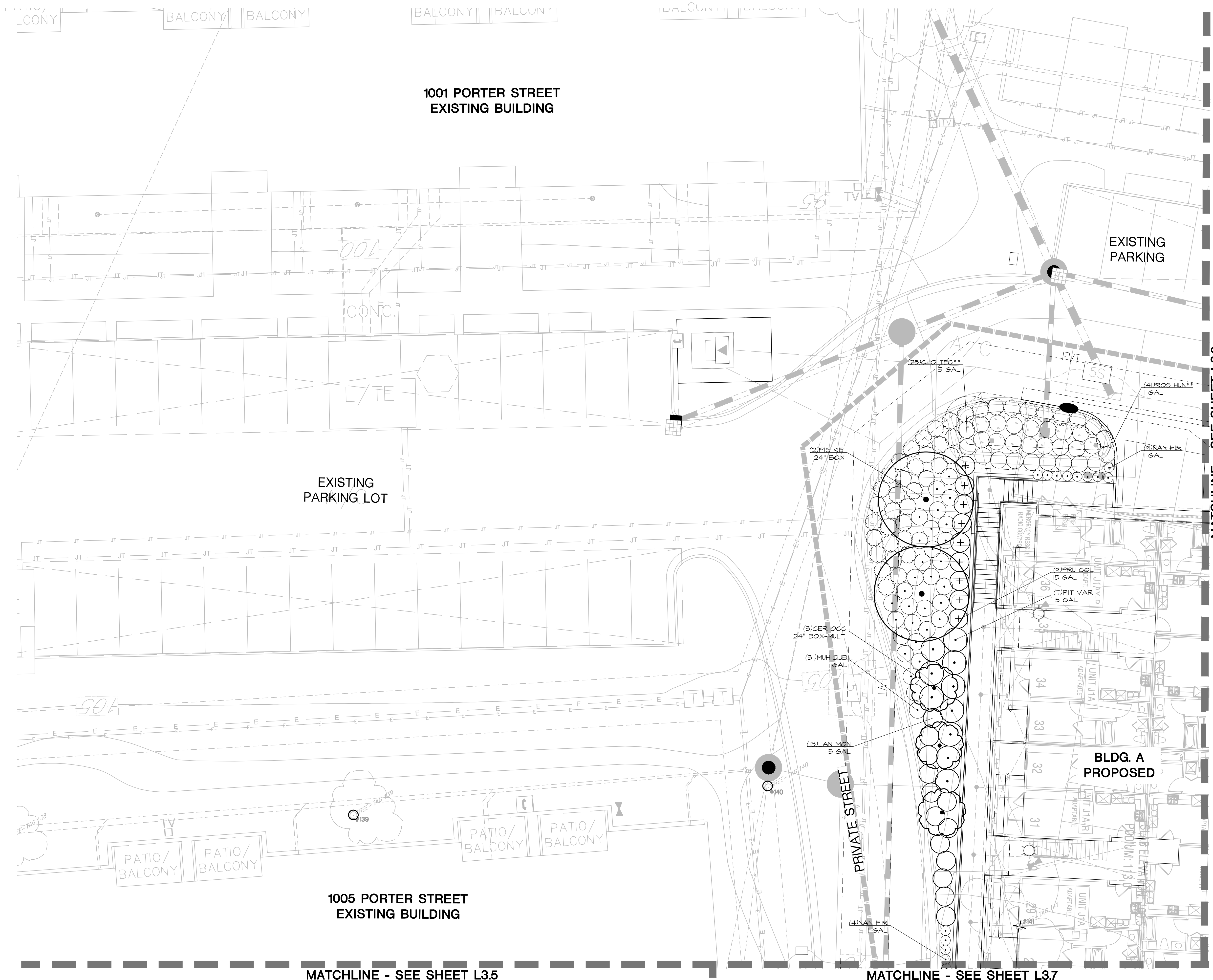
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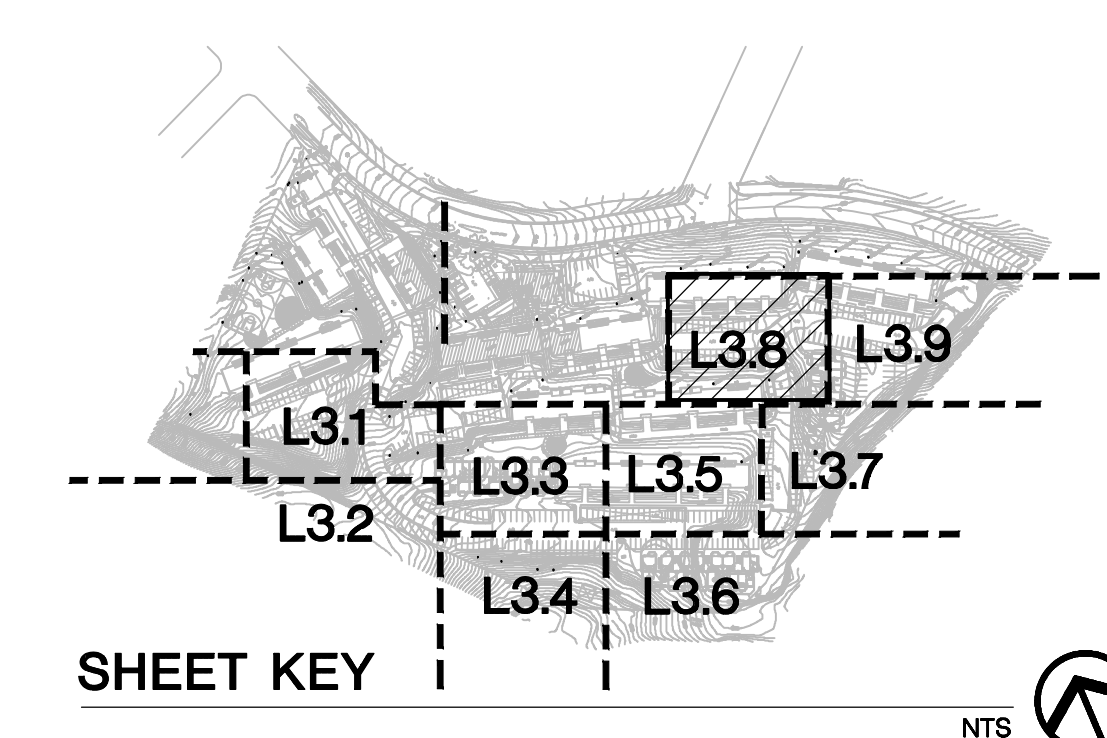
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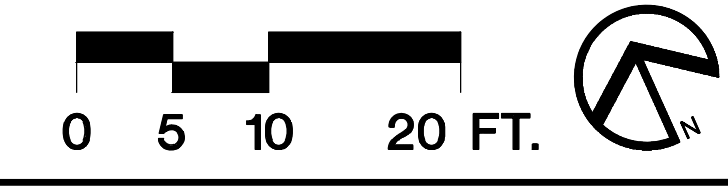
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Of	35 Sheets



- GRAPHIC SYMBOL LEGEND**
- DETAIL NUMBER
 - SHEET NUMBER
 - MATERIAL SCHEDULE (SEE SHEET L0.1)
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 - POTTERY TYPE (SEE POTTERY LEGEND SHEET L0.1)
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NOTES:
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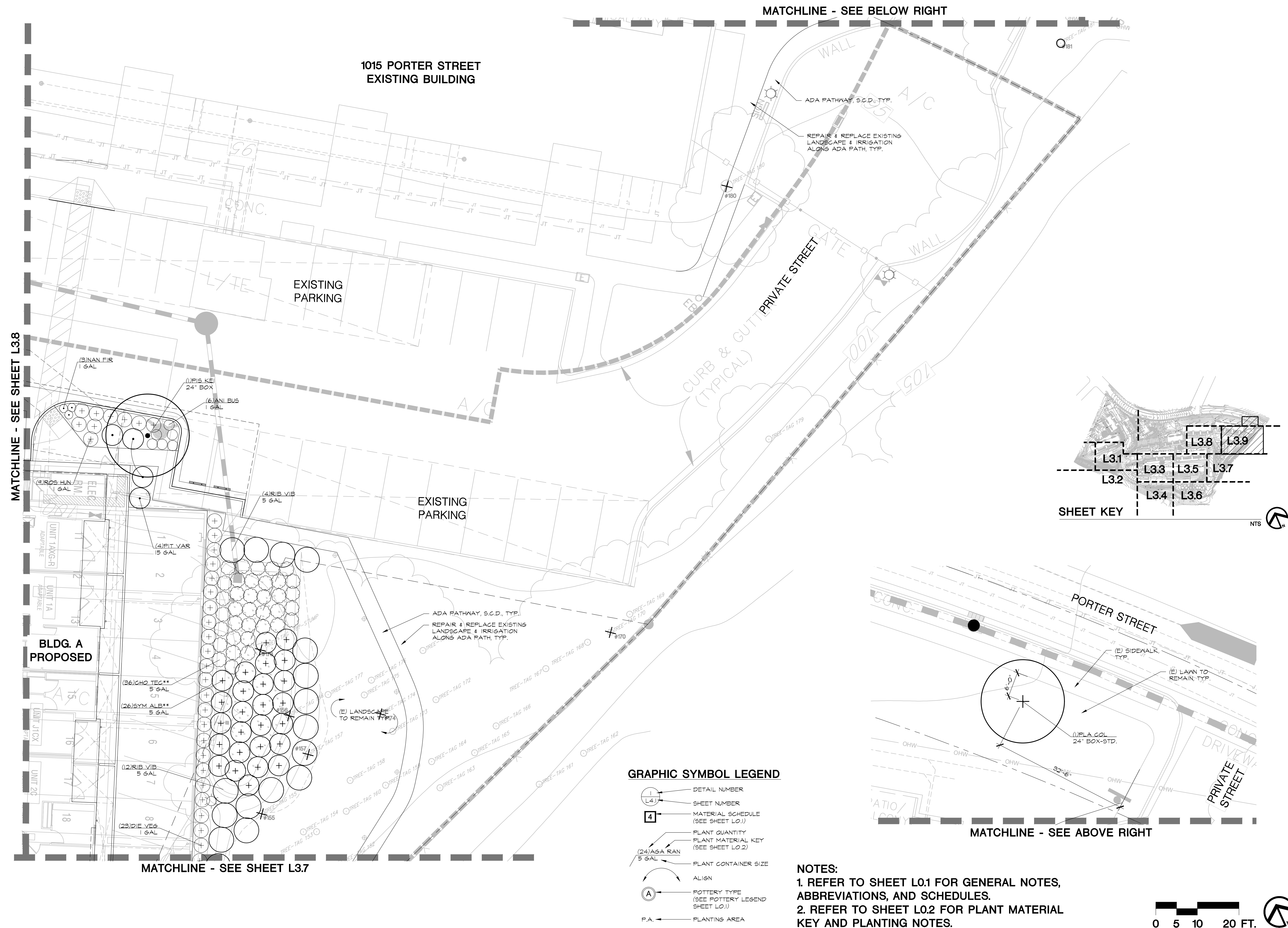
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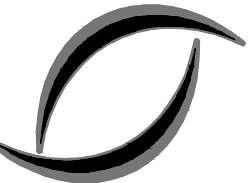
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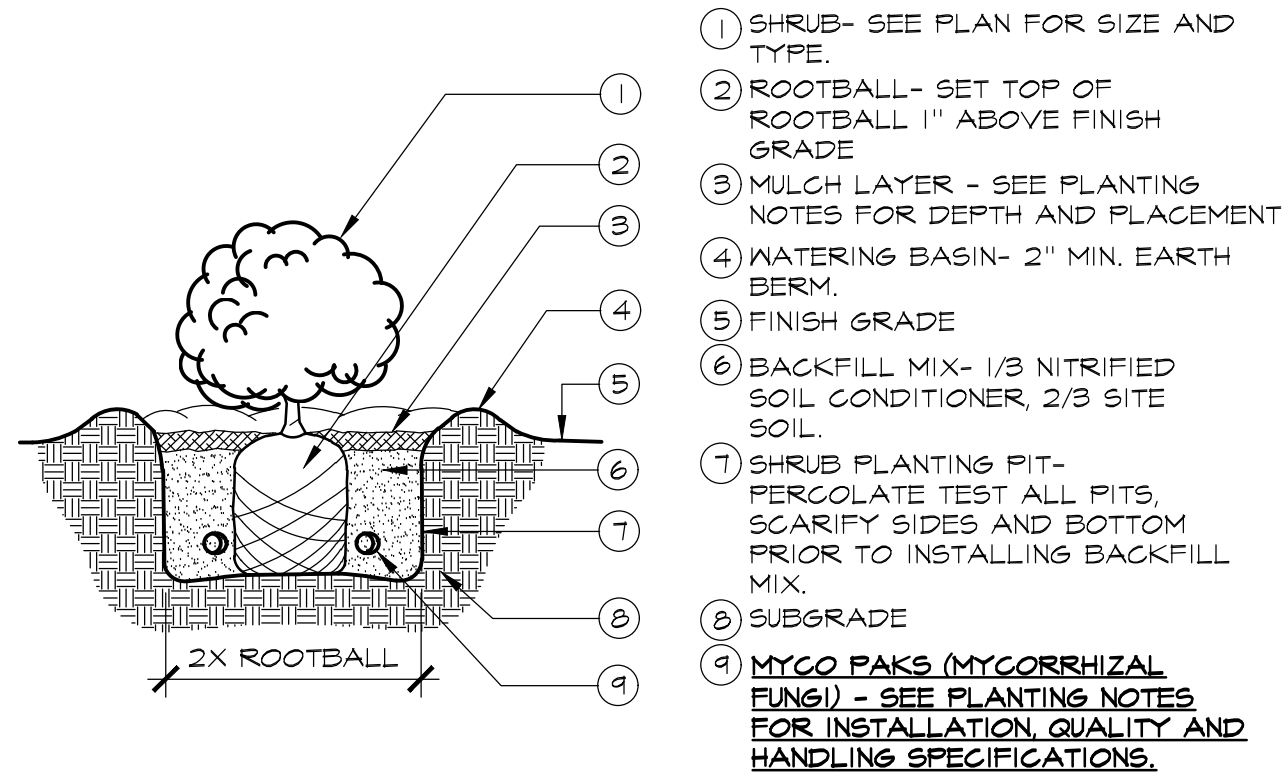


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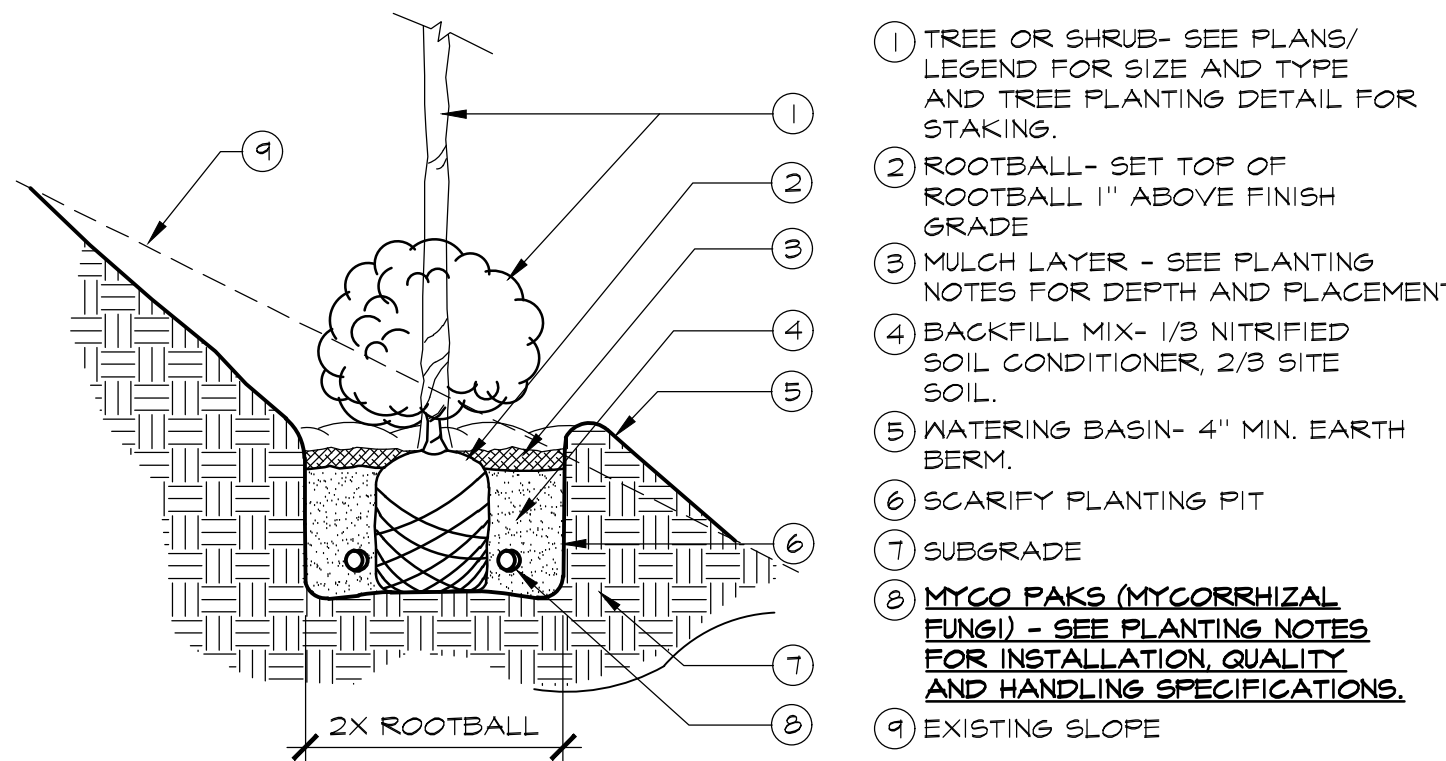


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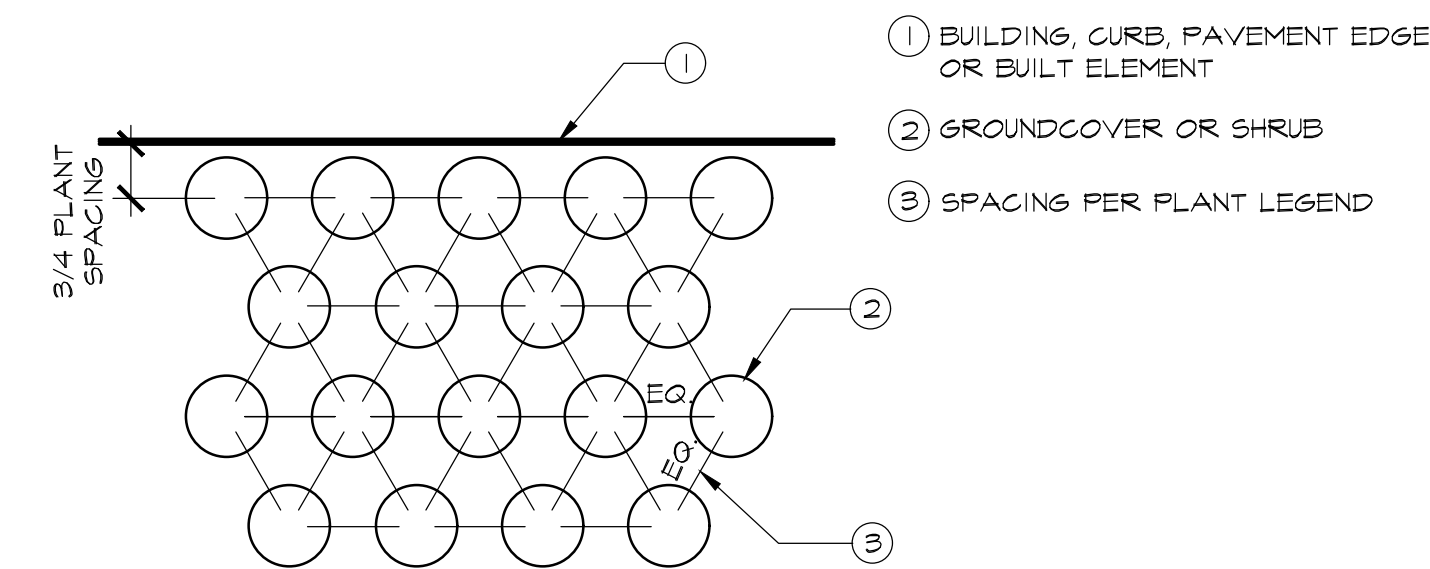
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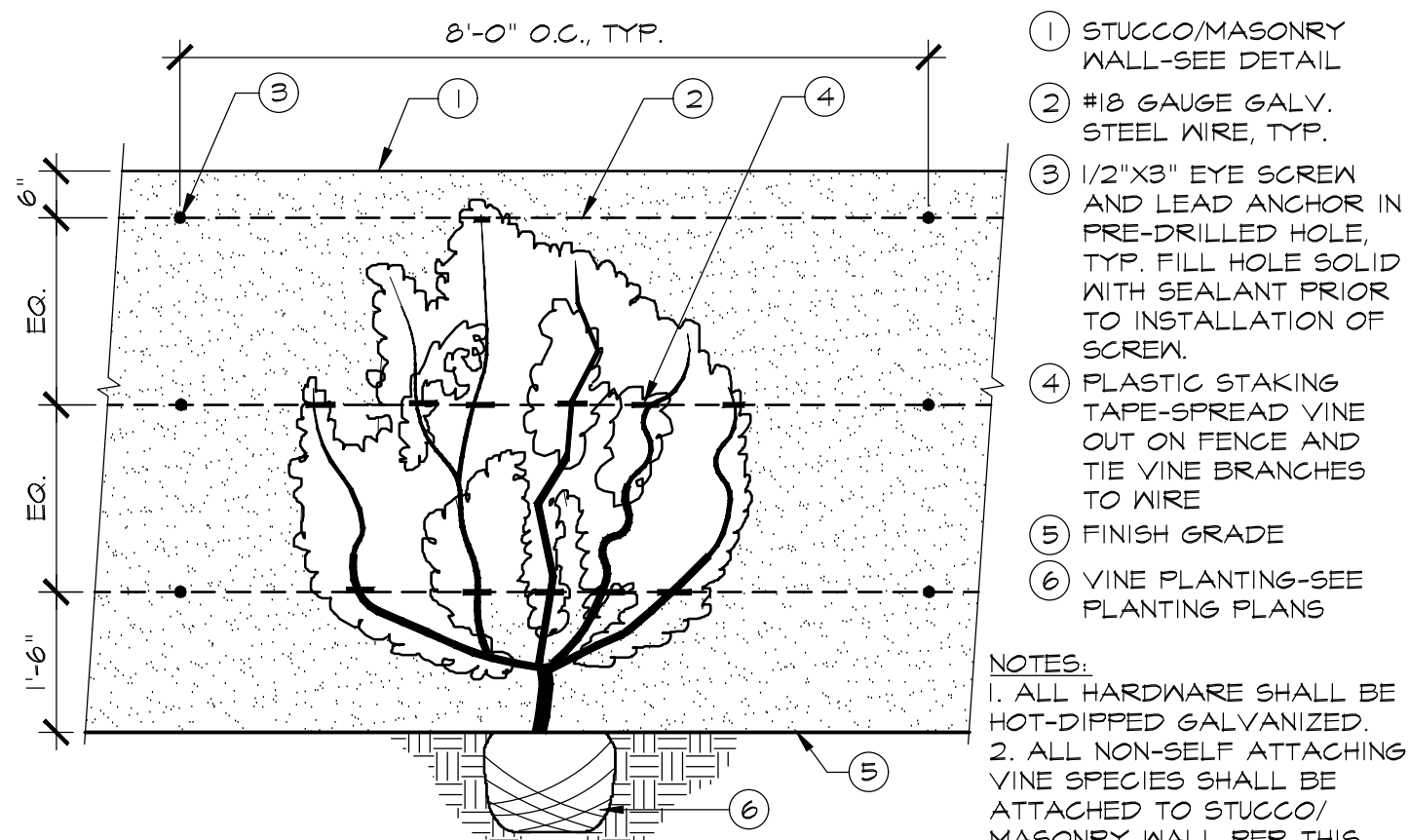
10 SHRUB PLANTING SCALE: N.T.S.
1/1 DT-Shrub-Green01.dwg



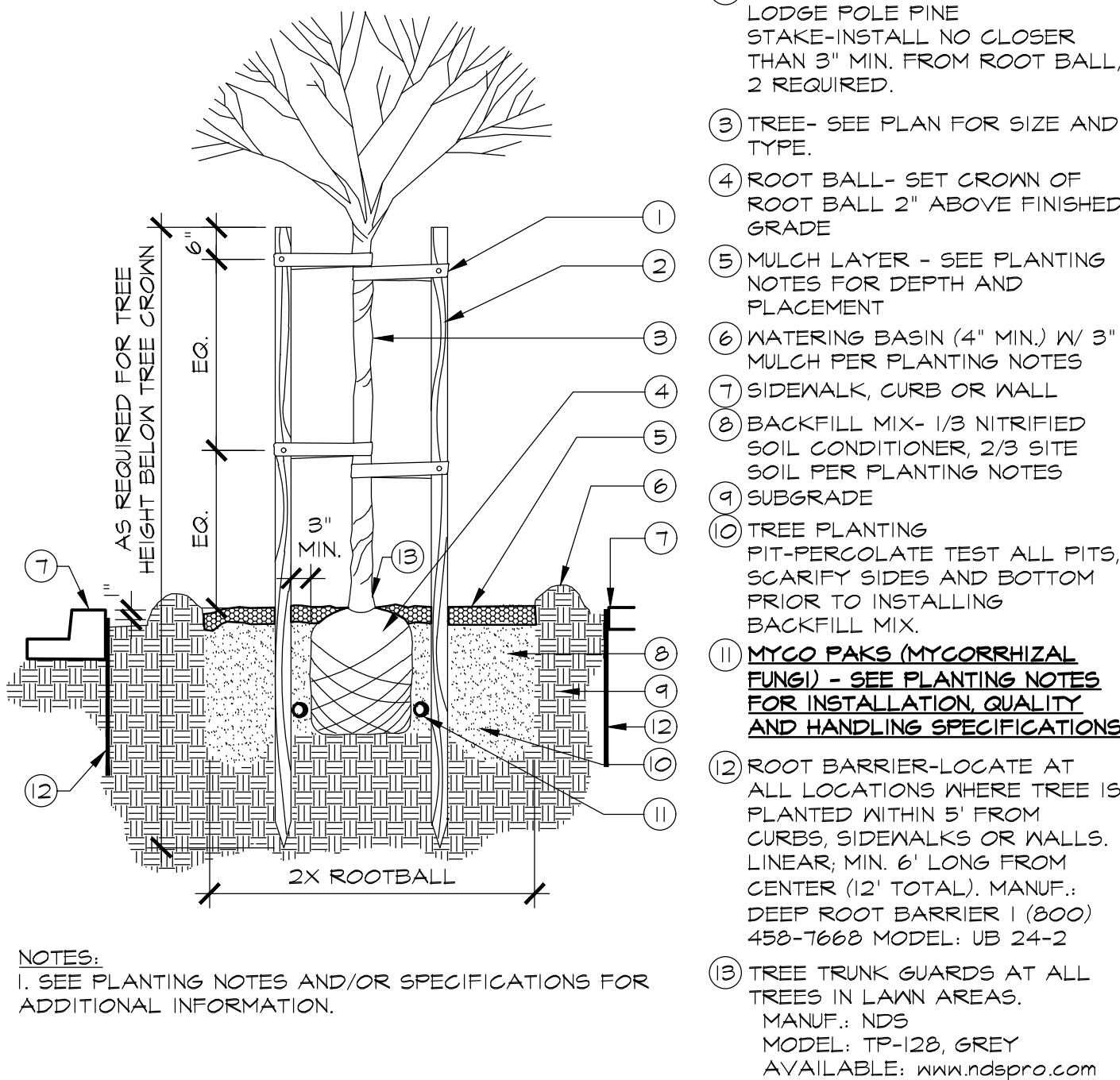
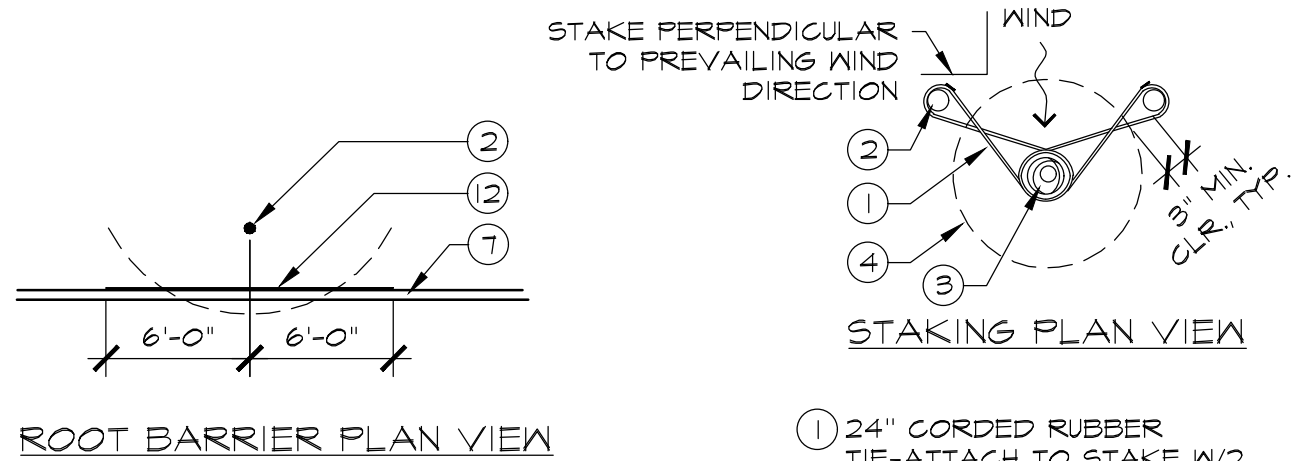
11 PLANTING ON SLOPE SCALE: N.T.S.
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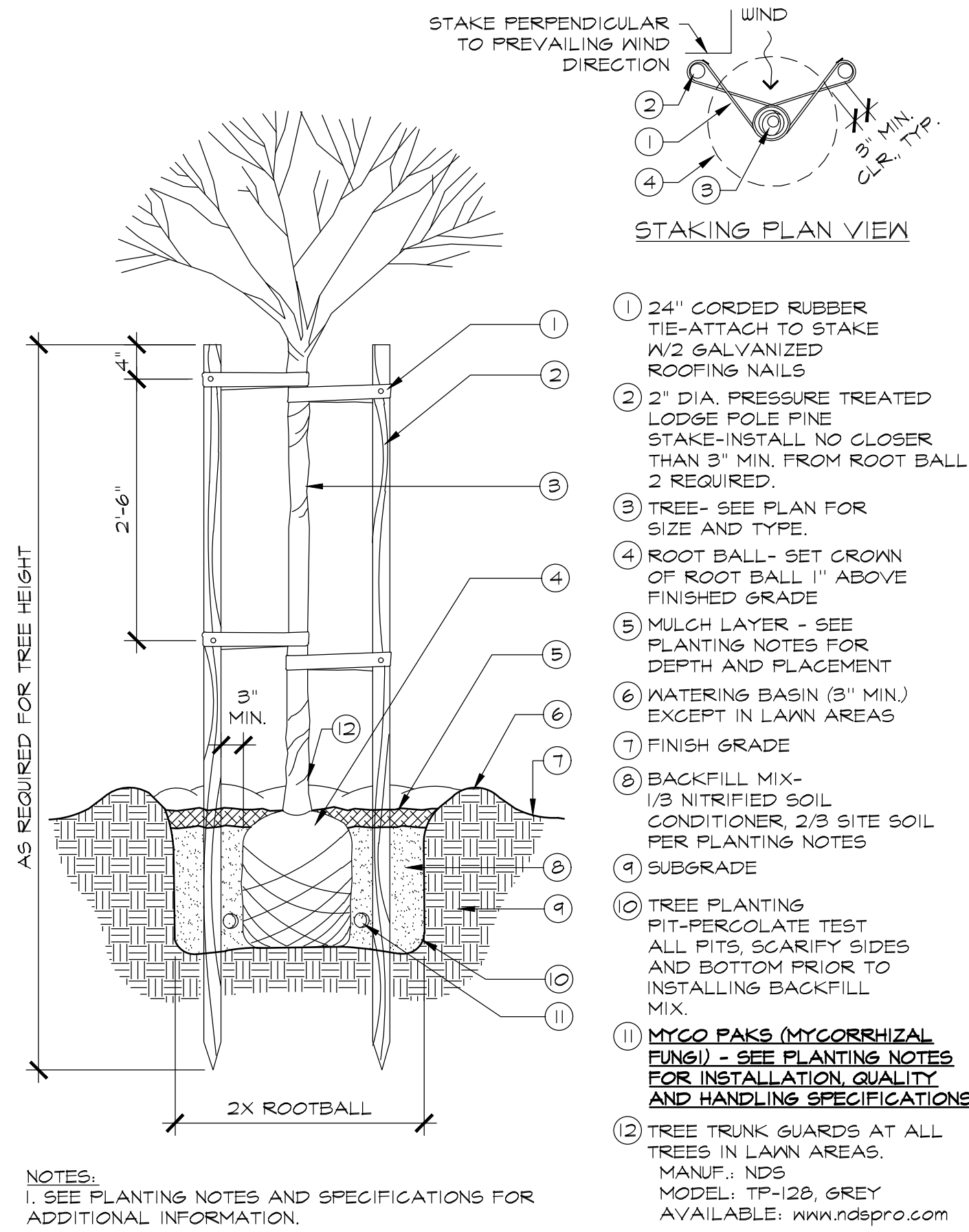
12 GROUNDCOVER SPACING/LAYOUT SCALE: N.T.S.
1/1 DT-GndCov01.dwg



13 VINE TYING TO STUCCO/MASONRY WALL SCALE: 1/2" = 1'-0"
1/24 DT-Vine04.dwg



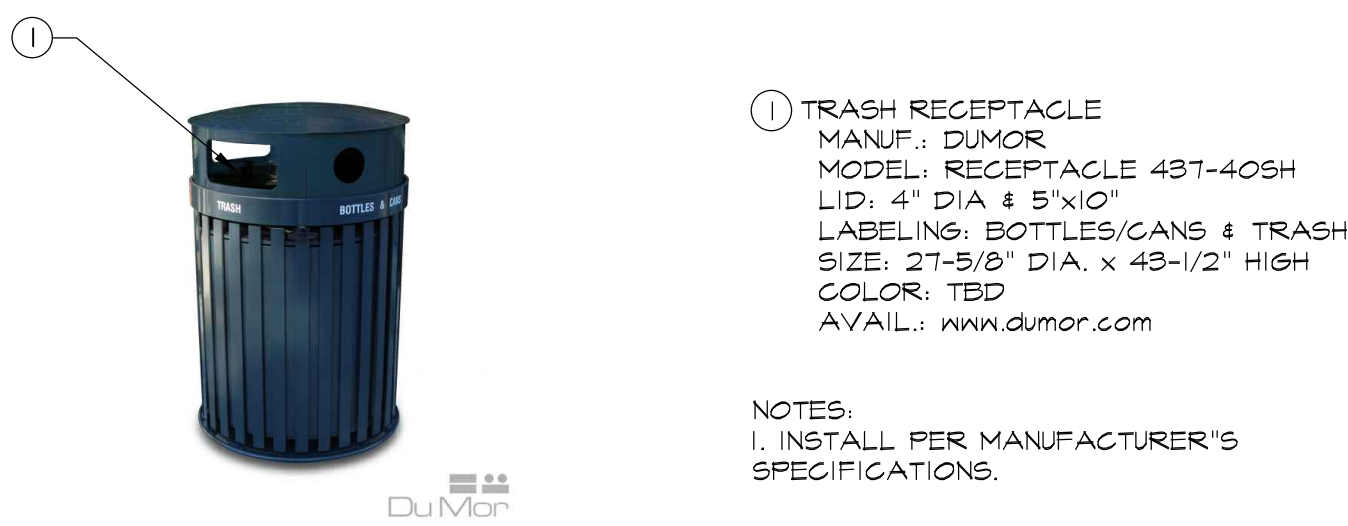
8 TREE PLANTING WITH ROOT BARRIER SCALE: N.T.S.
1/1 DT-Tree-Green01.dwg



9 TREE PLANTING SCALE: N.T.S.
1/1 DT-Tree-Green02.dwg



4 42" HT. BOLLARD LIGHT SCALE: N.T.S.
1/1 DT-LightBollard01.dwg



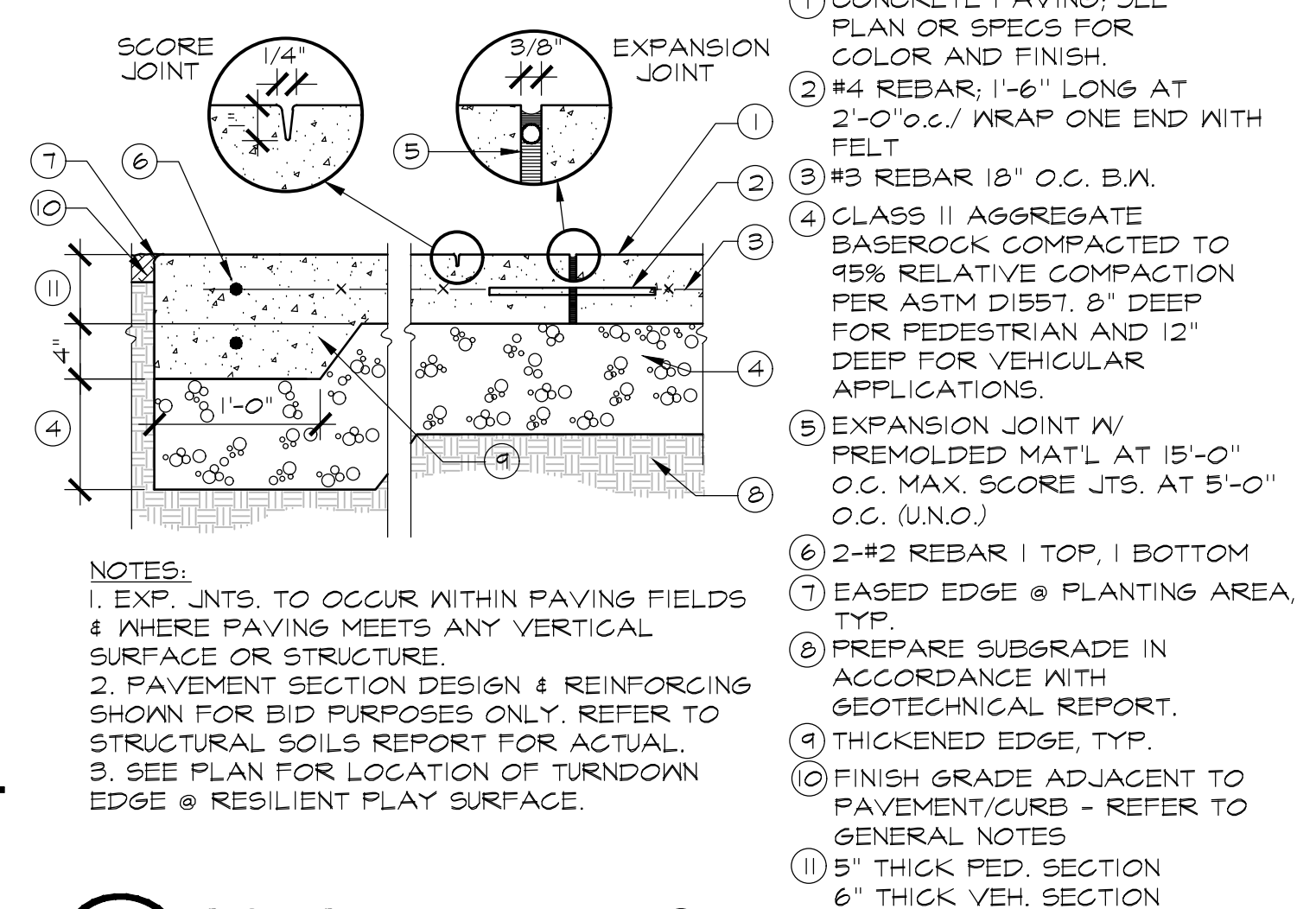
5 TRASH & RECYCLE RECEPTACLE SCALE: N.T.S.
1/1 DT-Trash01.dwg



6 BICYCLE RACK SCALE: N.T.S.
1/1 DT-BikeRack09.dwg



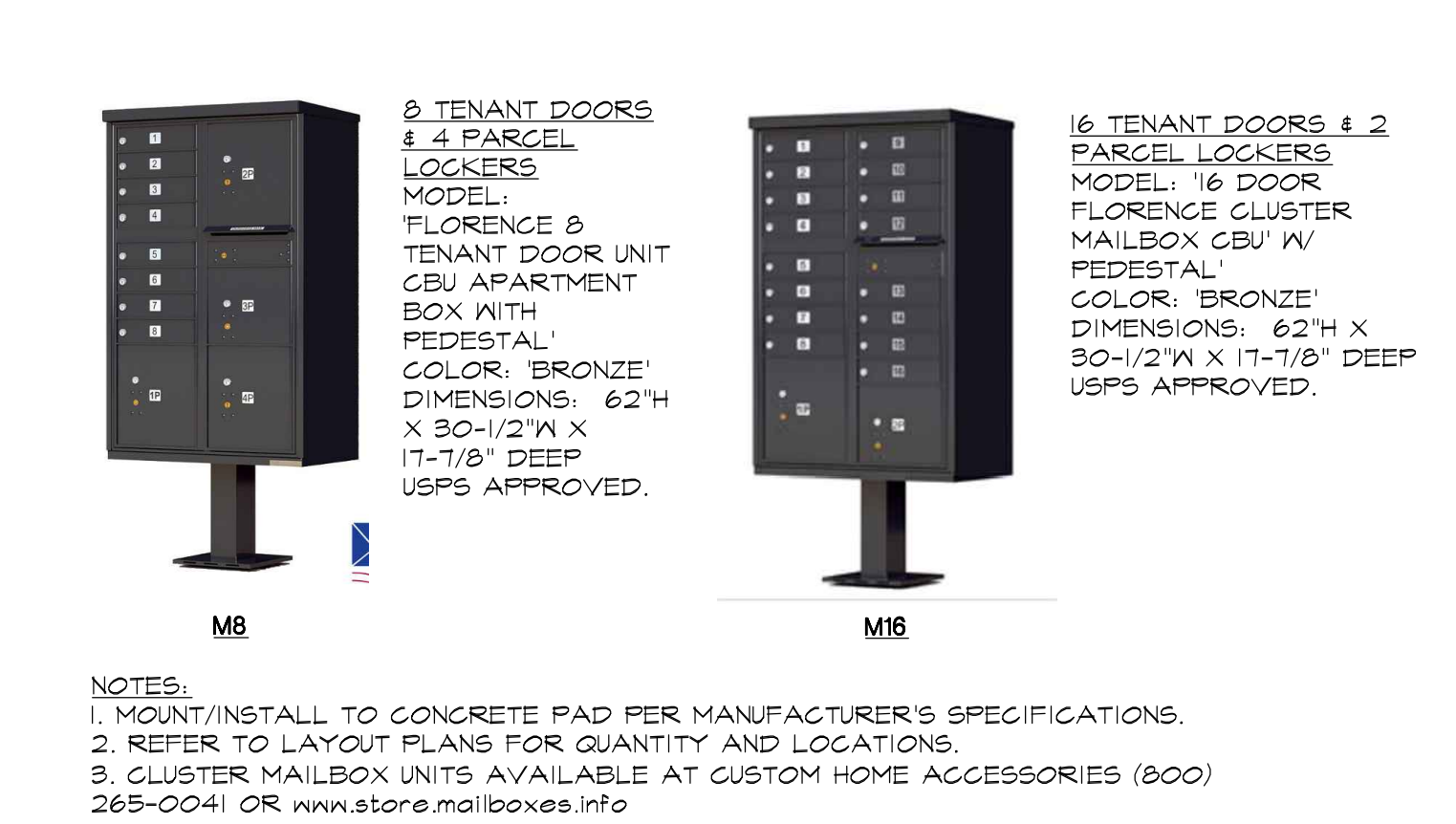
7 BENCH SEATING SCALE: N.T.S.
1/1 DT-Bench01.dwg



1 CONCRETE PAVING (PEDESTRIAN & VEHICULAR) SCALE: 1" = 1'-0"
1/12 DT-PavConc02.dwg



2 CUBE SEATING FEATURE SCALE: N.T.S.
1/1 DT-Seating01.dwg



3 CLUSTER MAILBOXES SCALE: N.T.S.
1/1 DT-Mailbox-03.dwg

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CONSTRUCTION DETAILS
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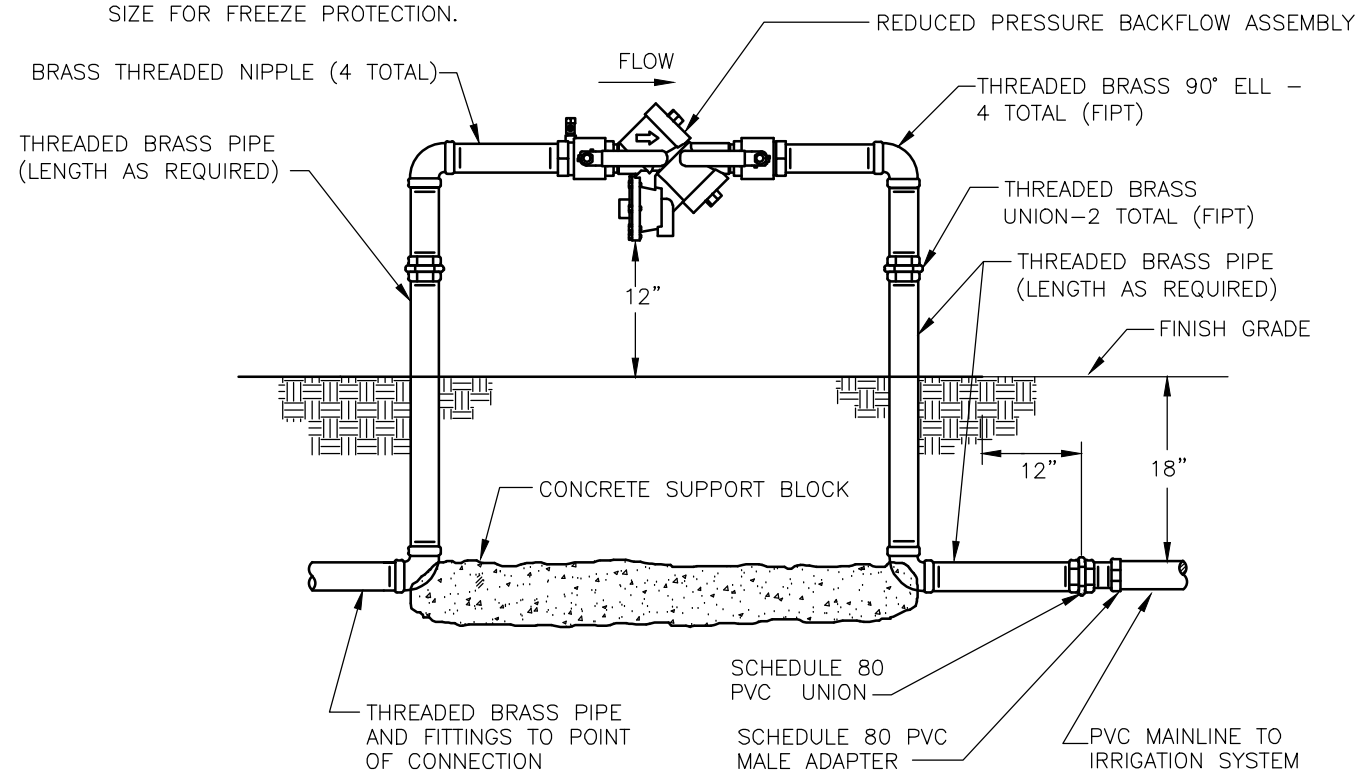


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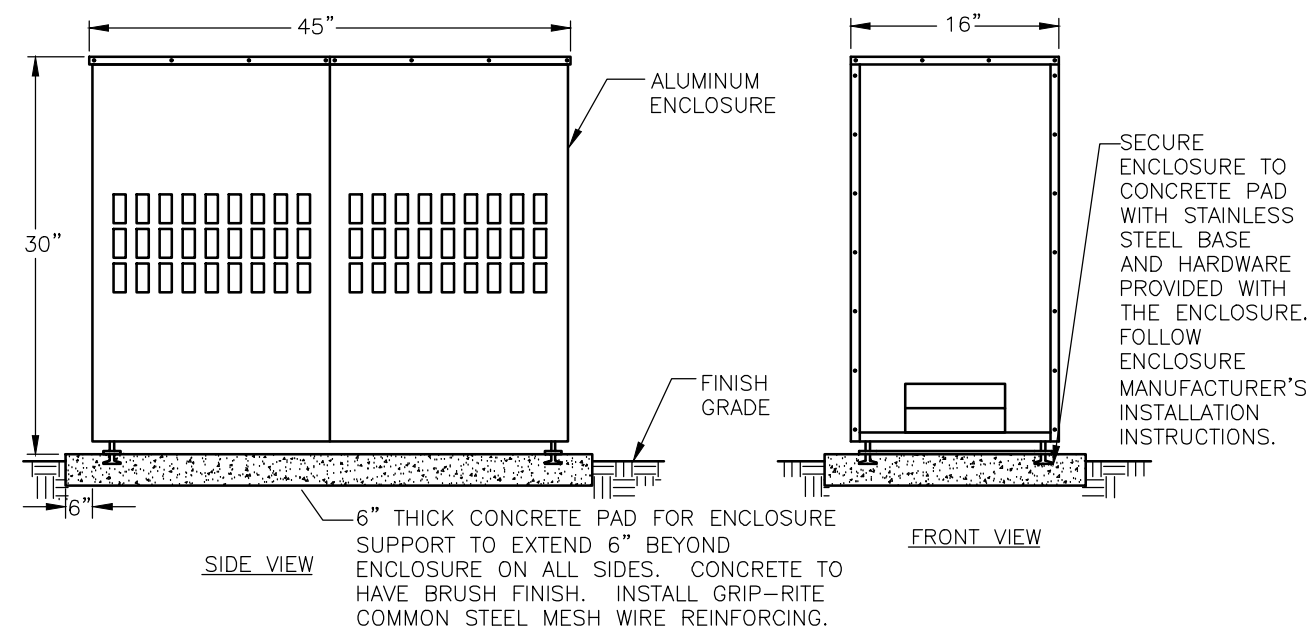
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NOTE: PROVIDE POLAR PARKA OF APPROPRIATE SIZE FOR FREEZE PROTECTION.

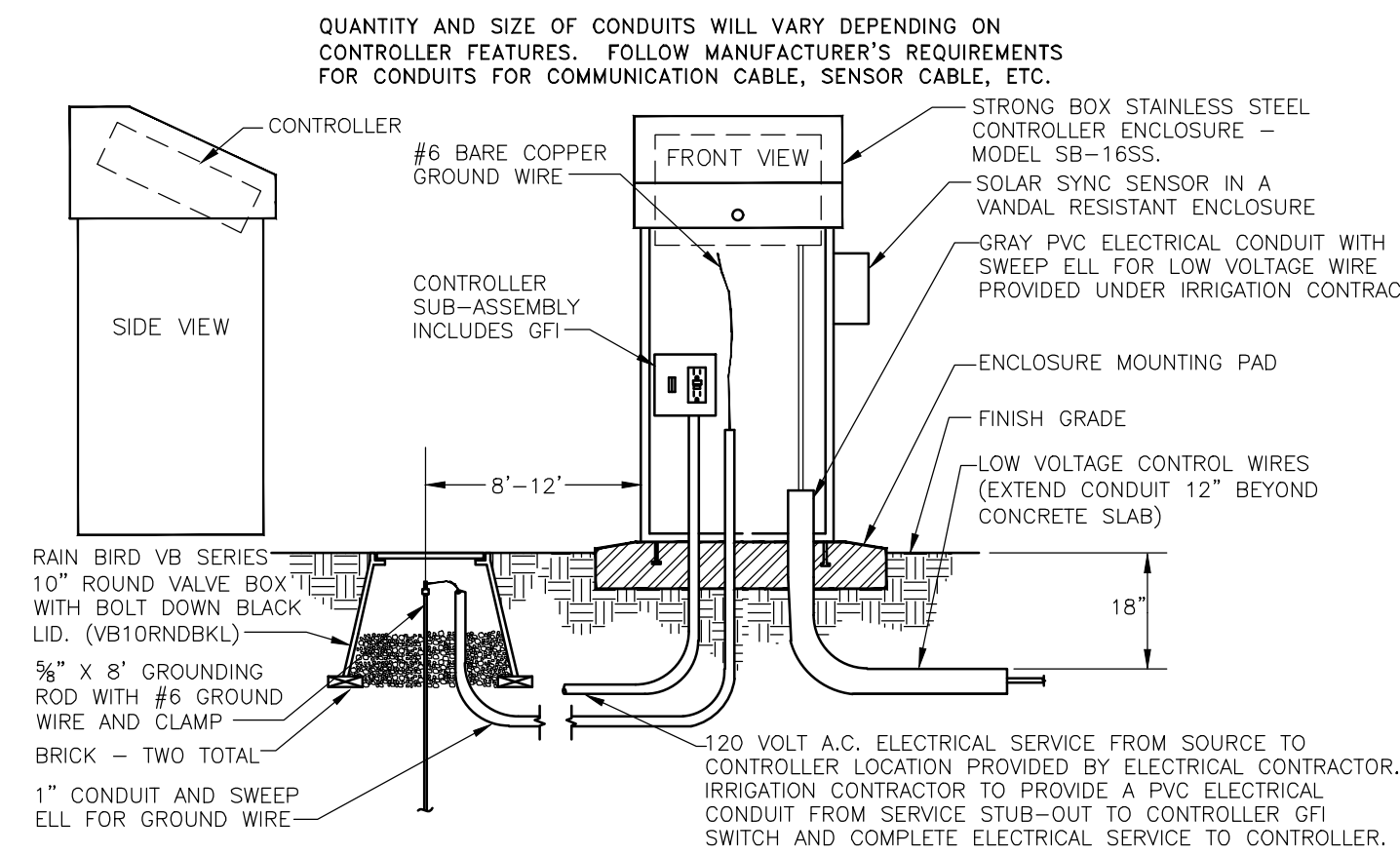


REDUCED PRESSURE BACKFLOW ASSEMBLY
NOT TO SCALE

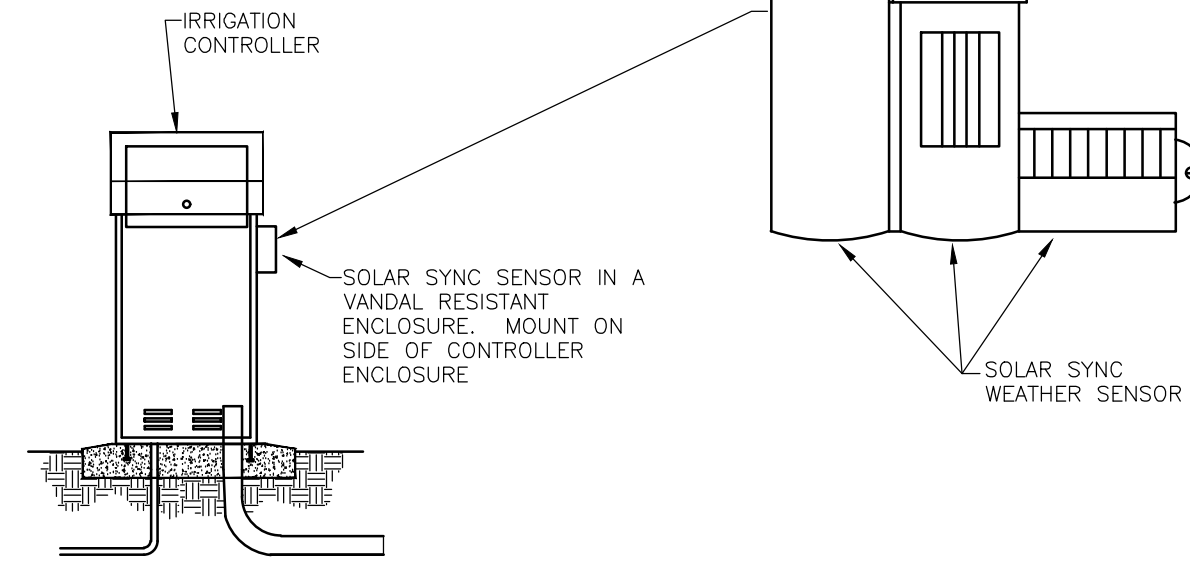
NOTE: 1. IRRIGATION CONTRACTOR SHALL PROVIDE AND INSTALL BACKFLOW ENCLOSURE MODEL #5B8C-45AL BY STRONG BOX. (800) 729-1314.



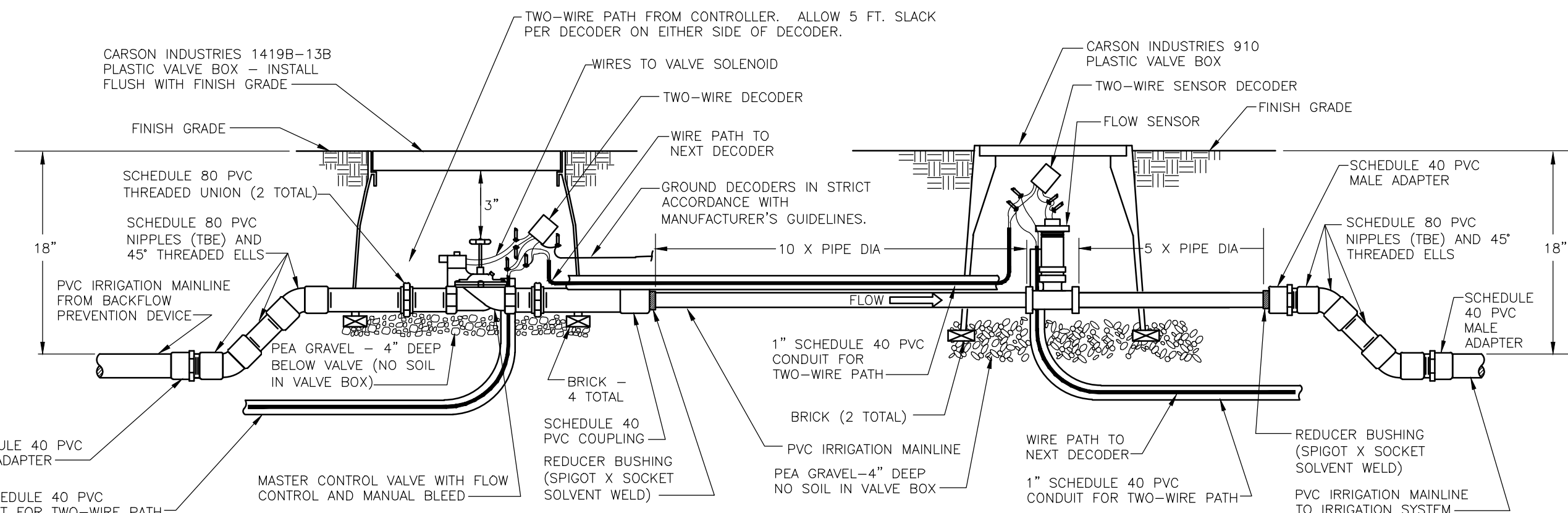
BACKFLOW PREVENTER ENCLOSURE
NOT TO SCALE



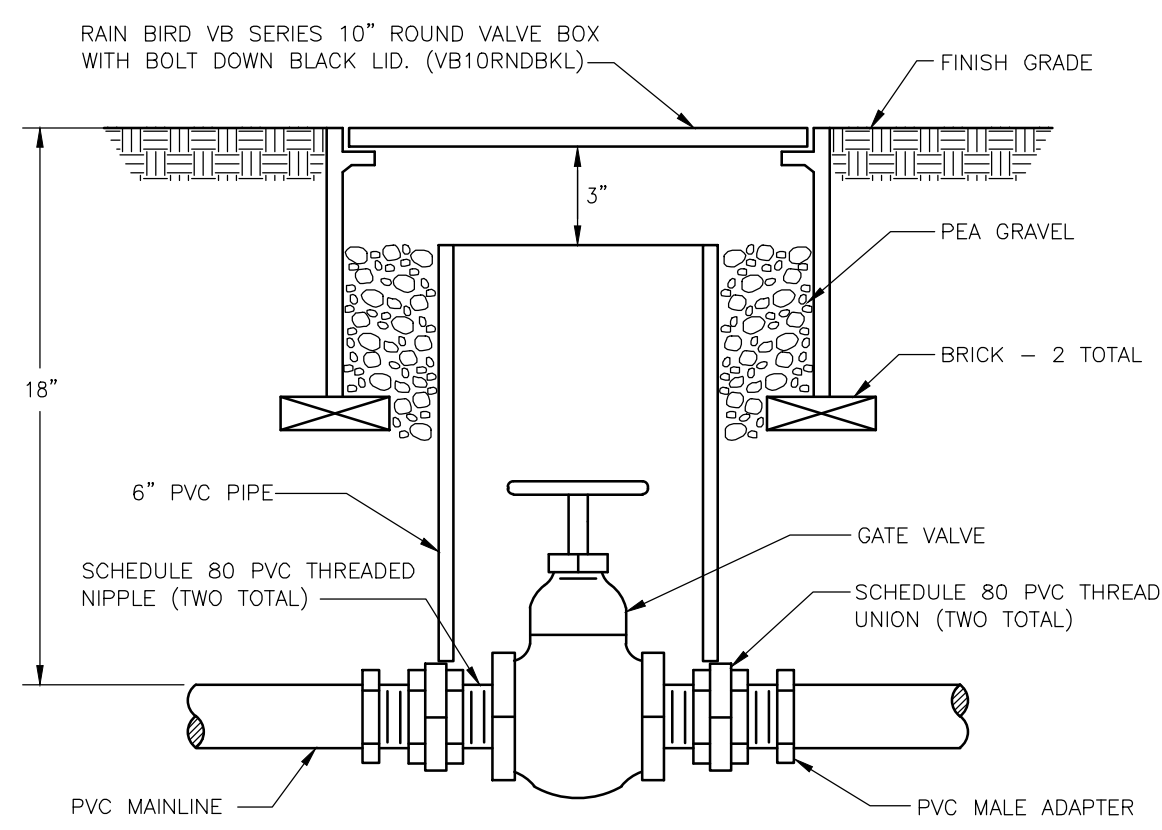
CONTROLLER - TOP OPENING ENCLOSURE
NOT TO SCALE



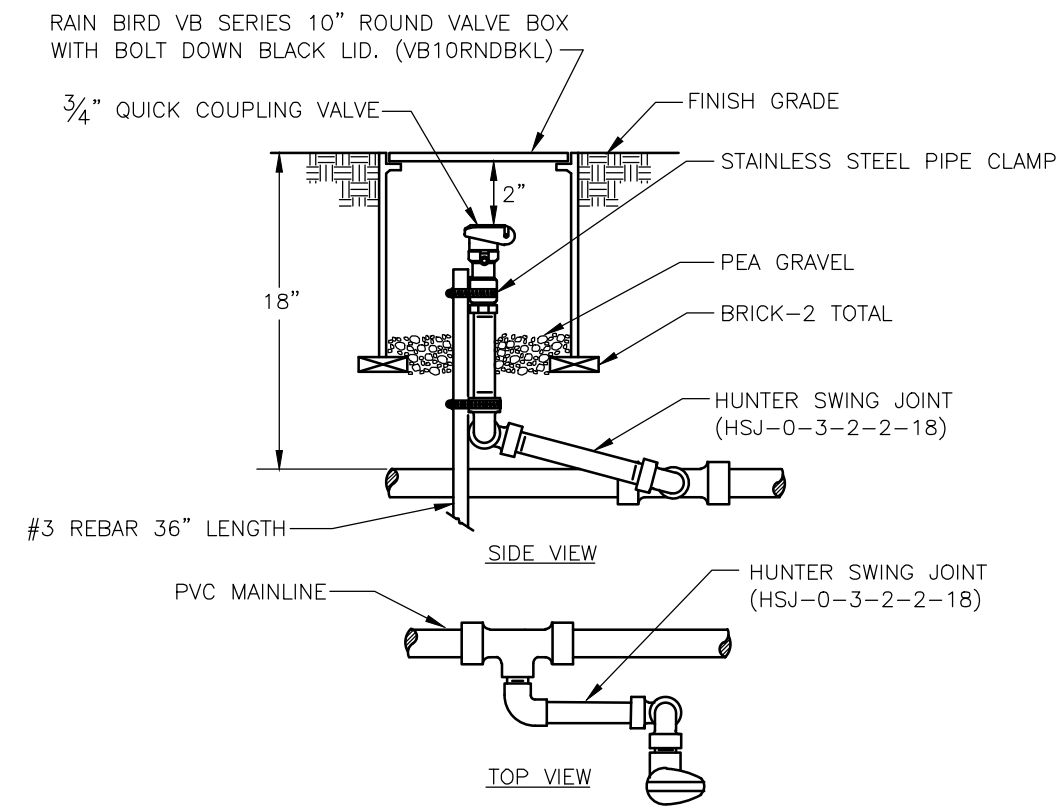
SOLAR SYNC SENSOR
NOT TO SCALE



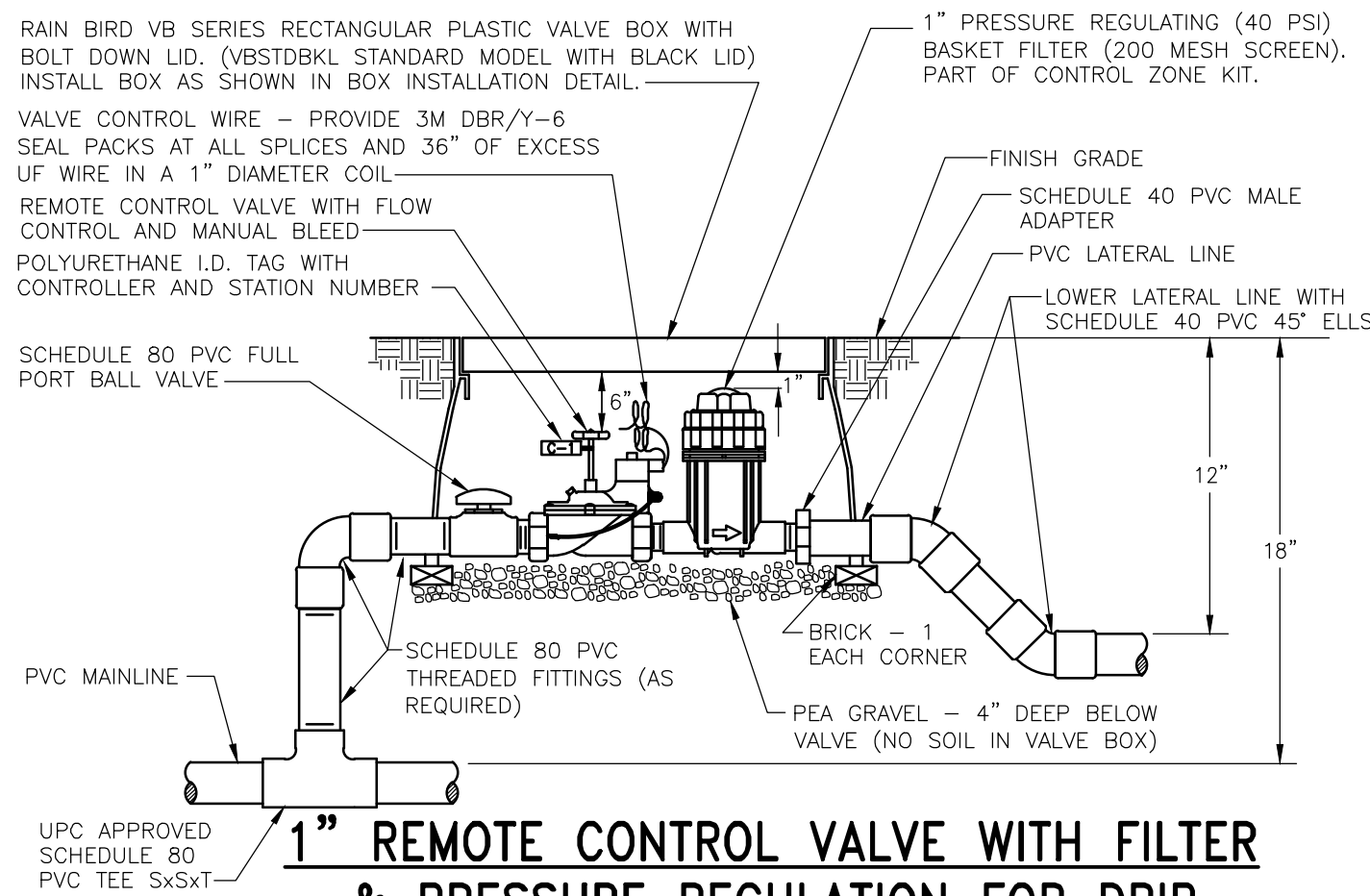
MASTER VALVE / FLOW SENSOR
NOT TO SCALE



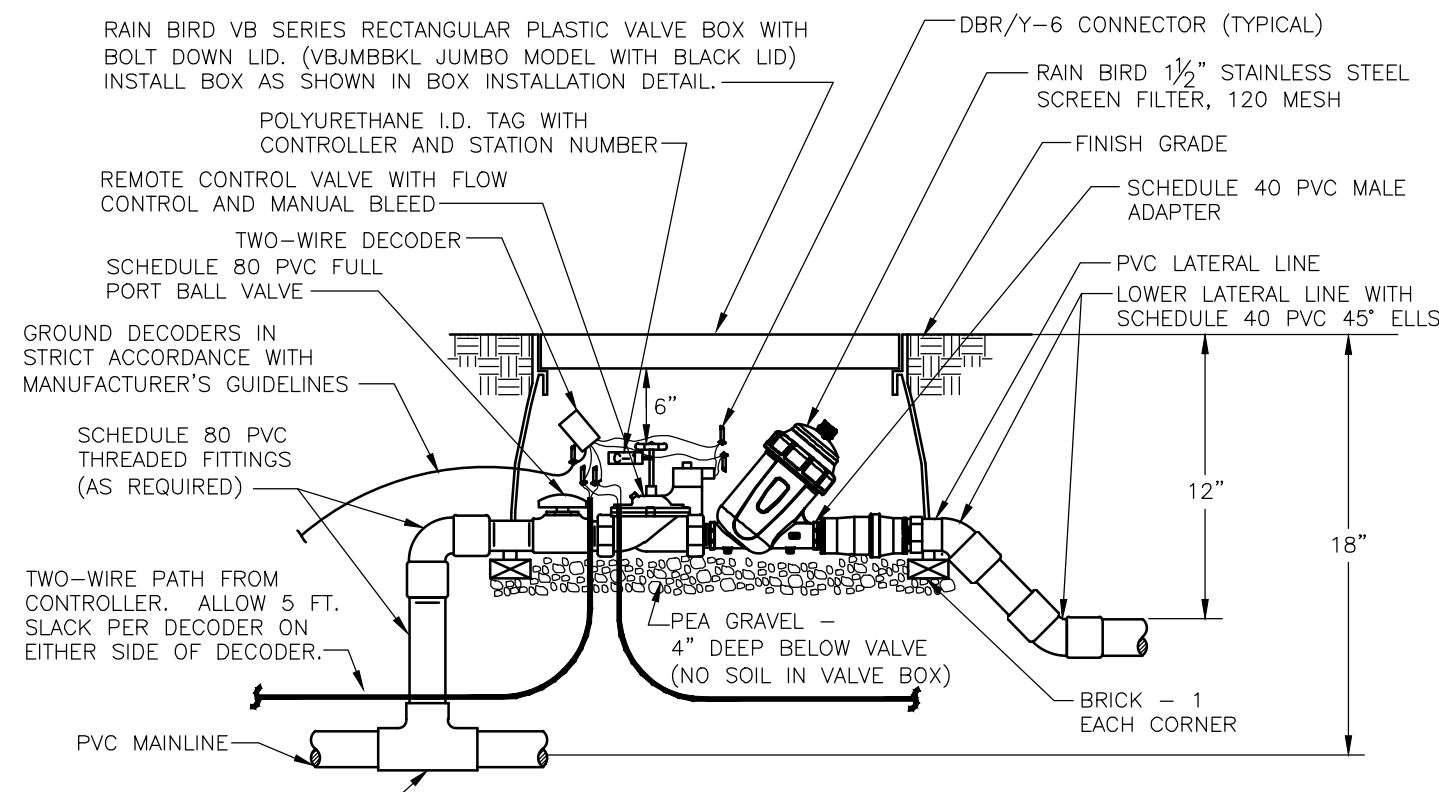
GATE VALVE
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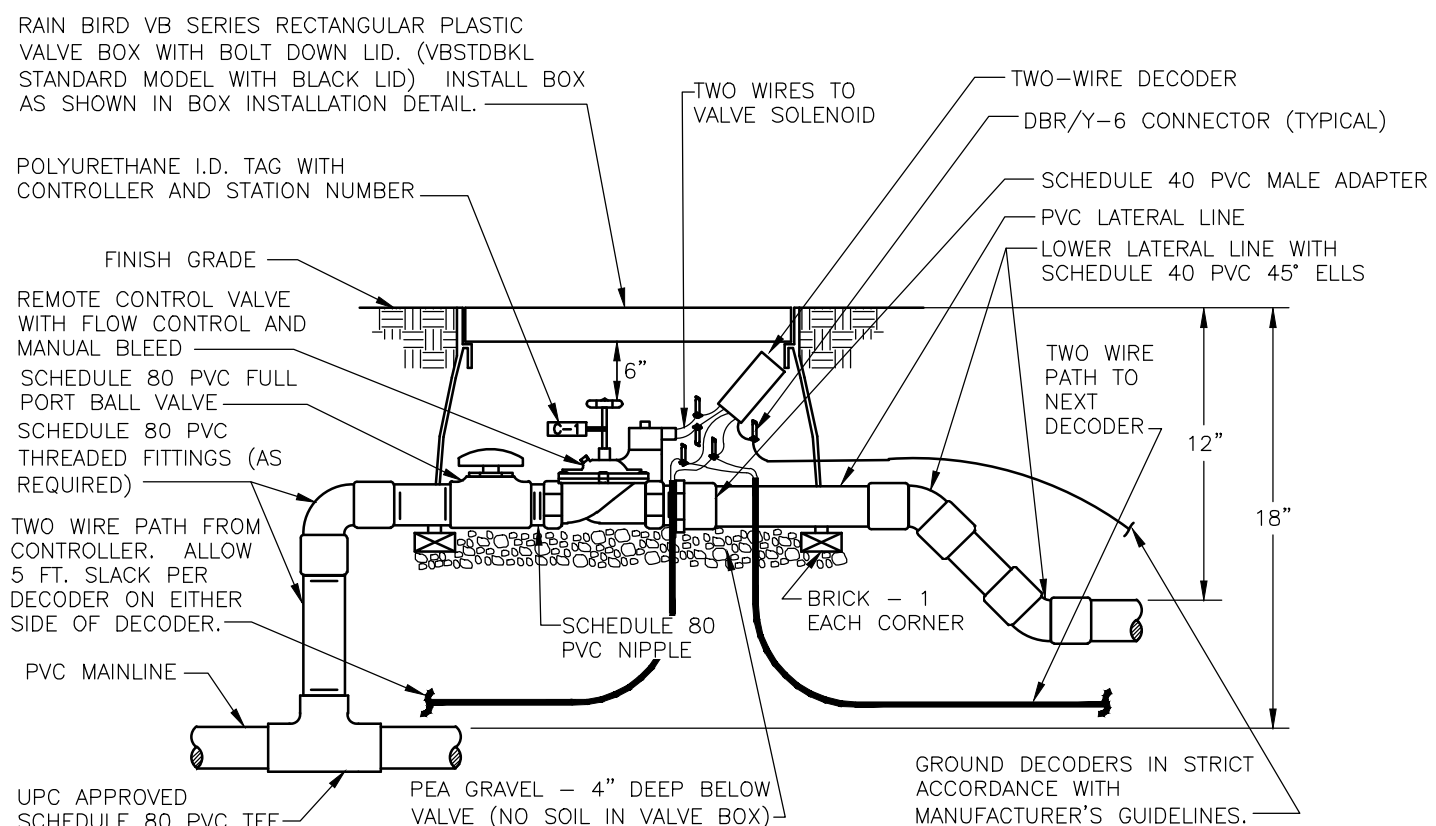
QUICK COUPLING VALVE
NOT TO SCALE



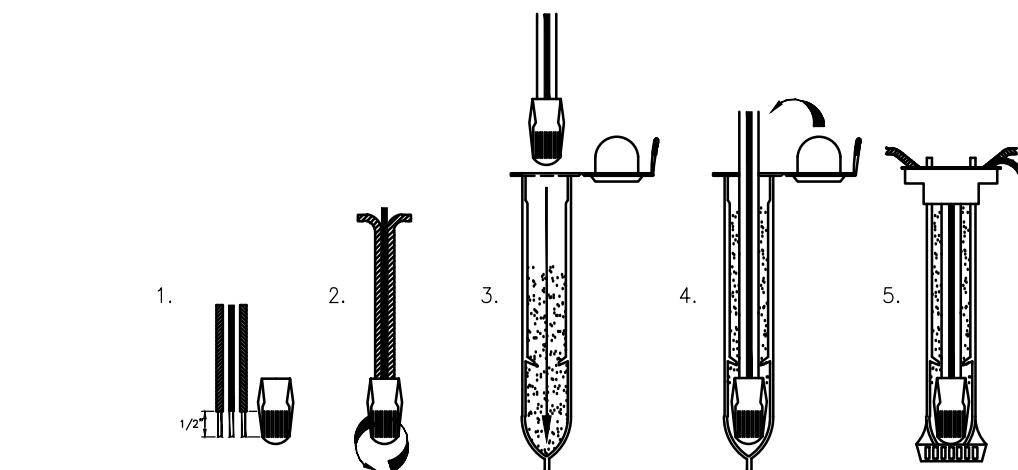
1" REMOTE CONTROL VALVE WITH FILTER & PRESSURE REGULATION FOR DRIP
NOT TO SCALE



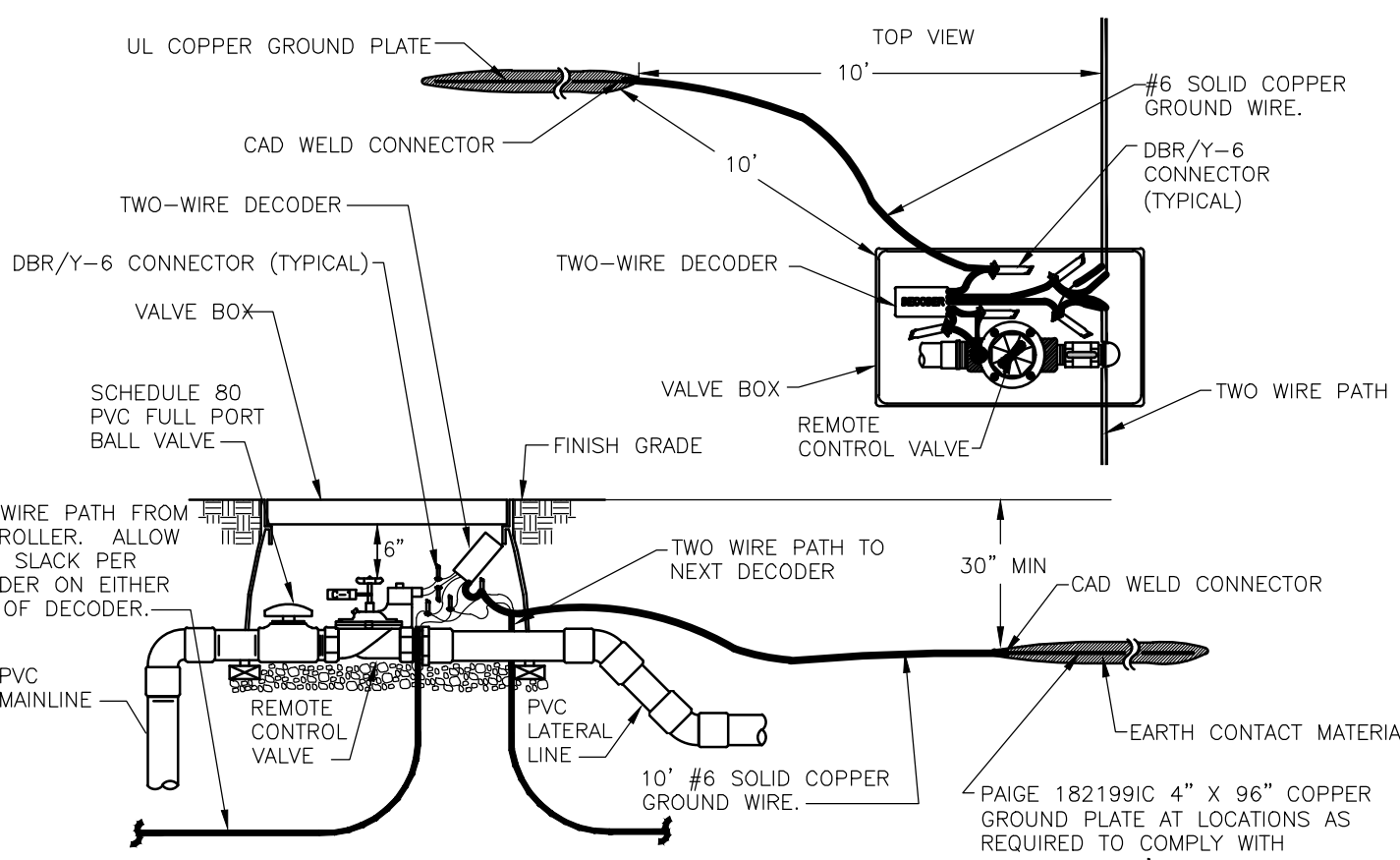
1.5" REMOTE CONTROL VALVE WITH FILTER & PRESSURE REGULATION FOR DRIP
NOT TO SCALE



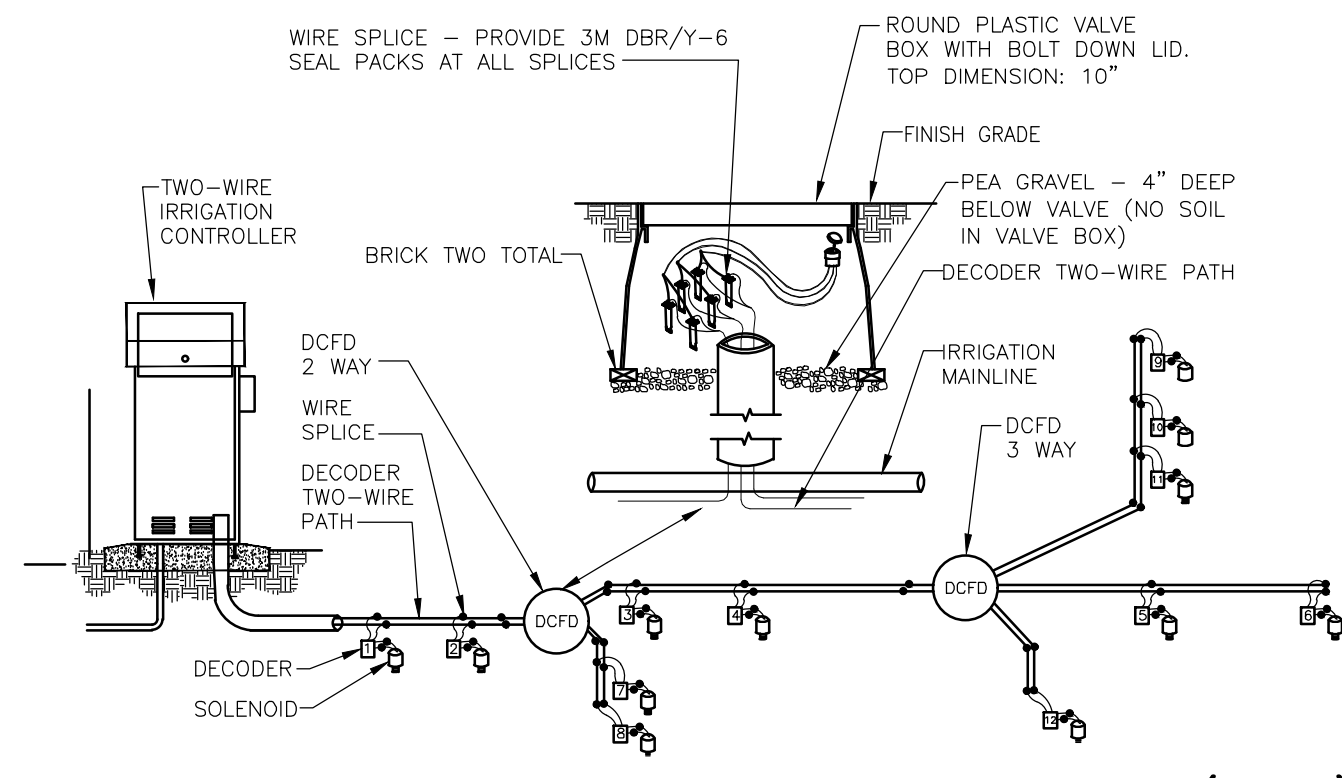
REMOTE CONTROL VALVE
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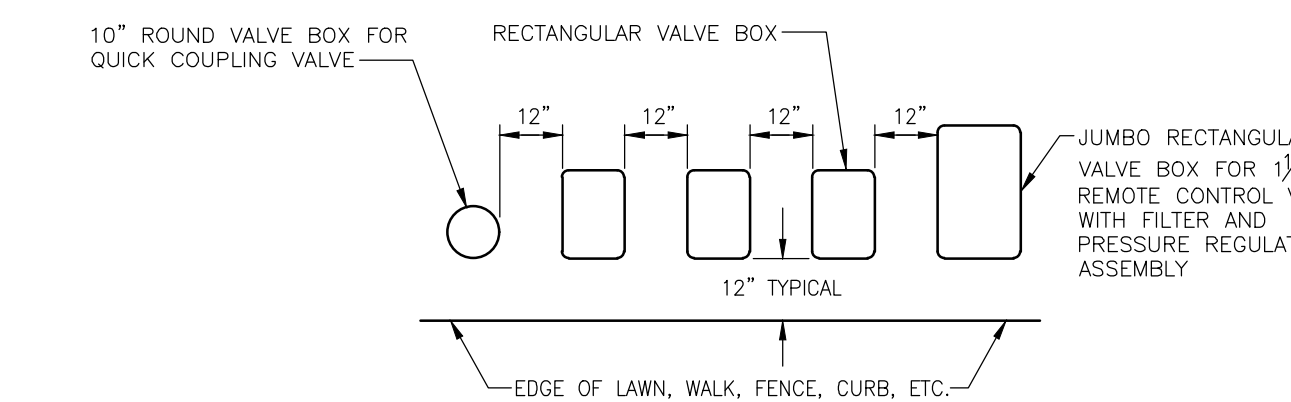
WEATHERPROOF SPLICE ASSEMBLY
NOT TO SCALE



DECODER GROUNDING
NOT TO SCALE

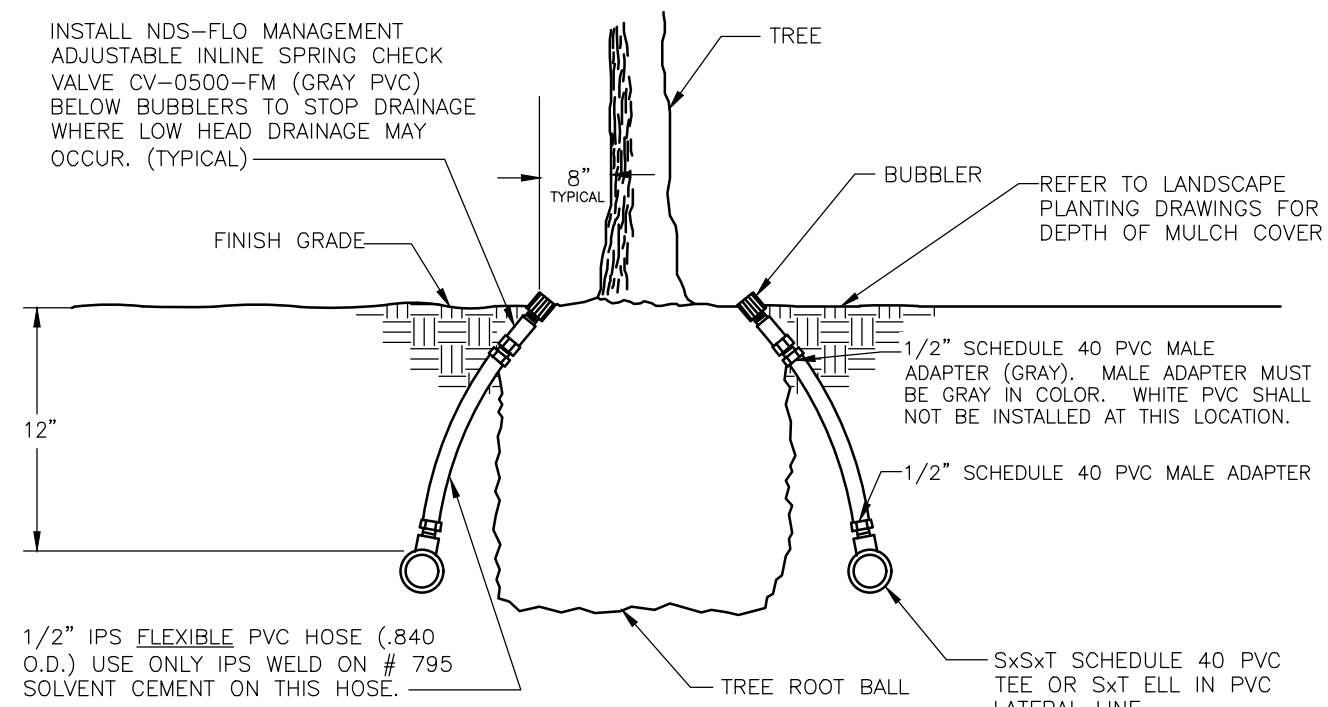


TWO-WIRE DECODER CABLE FUSE DEVICES (DCFD)
NOT TO SCALE



1. CENTER VALVE BOX OVER REMOTE CONTROL VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 1" ABOVE FINISH GRADE OR MULCH COVER IN GROUND COVER/SHRUB AREA AND FINISH GRADE IN TURF AREA.
3. SET RCV AND VALVE BOX ASSEMBLY IN GROUND COVER/SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN ONLY IF GROUND COVER DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE OF LAWN, WALK, FENCE, CURB, ETC.
5. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOXES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. INSTALL EXTENSION BY VALVE BOX MANUFACTURER AS REQUIRED TO COMPLETELY ENCLOSE ASSEMBLY FOR EASY ACCESS.

VALVE BOX INSTALLATION
NOT TO SCALE



TREE BUBBLERS
NOT TO SCALE

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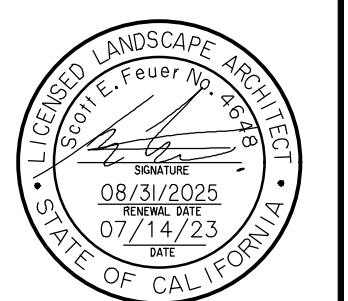
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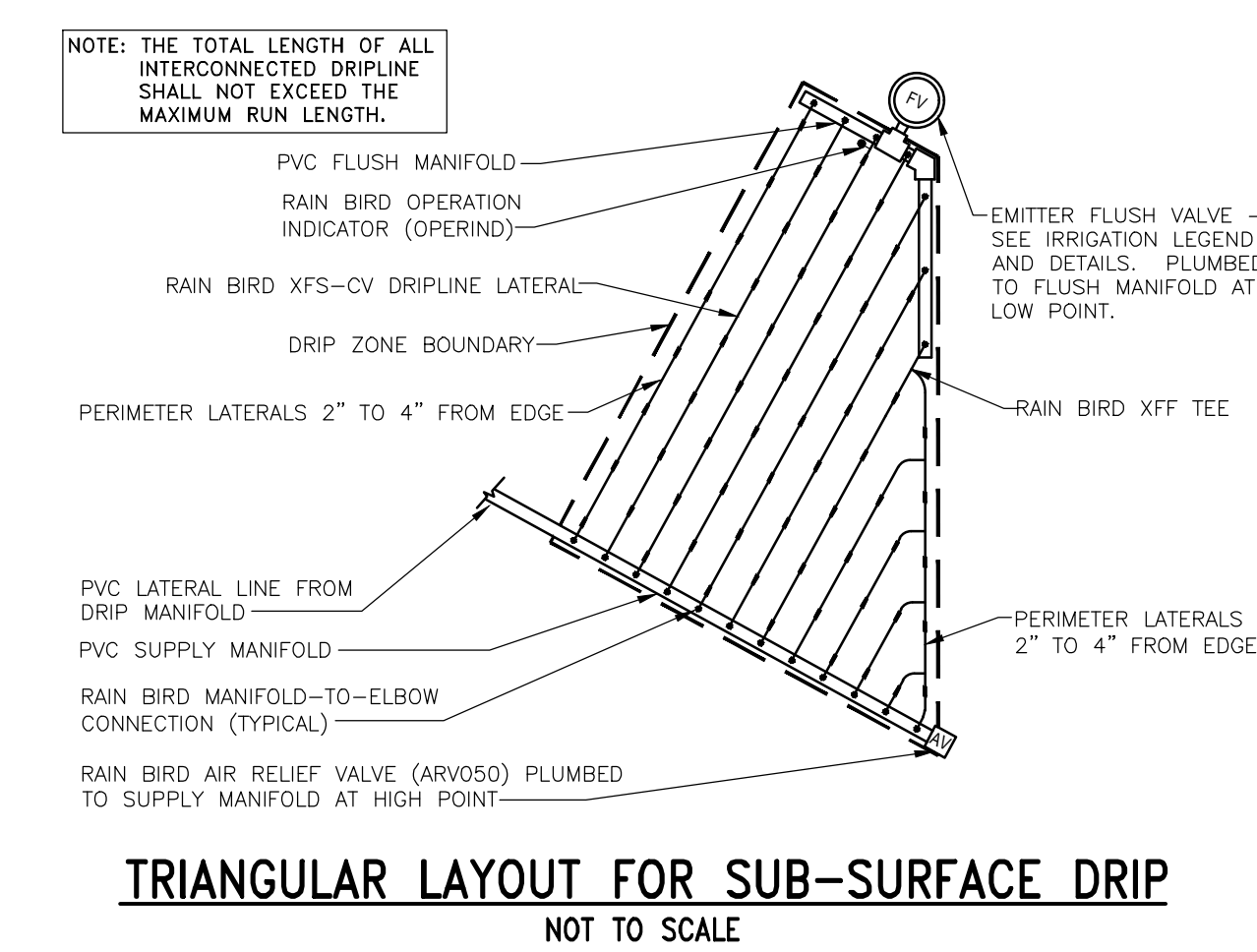
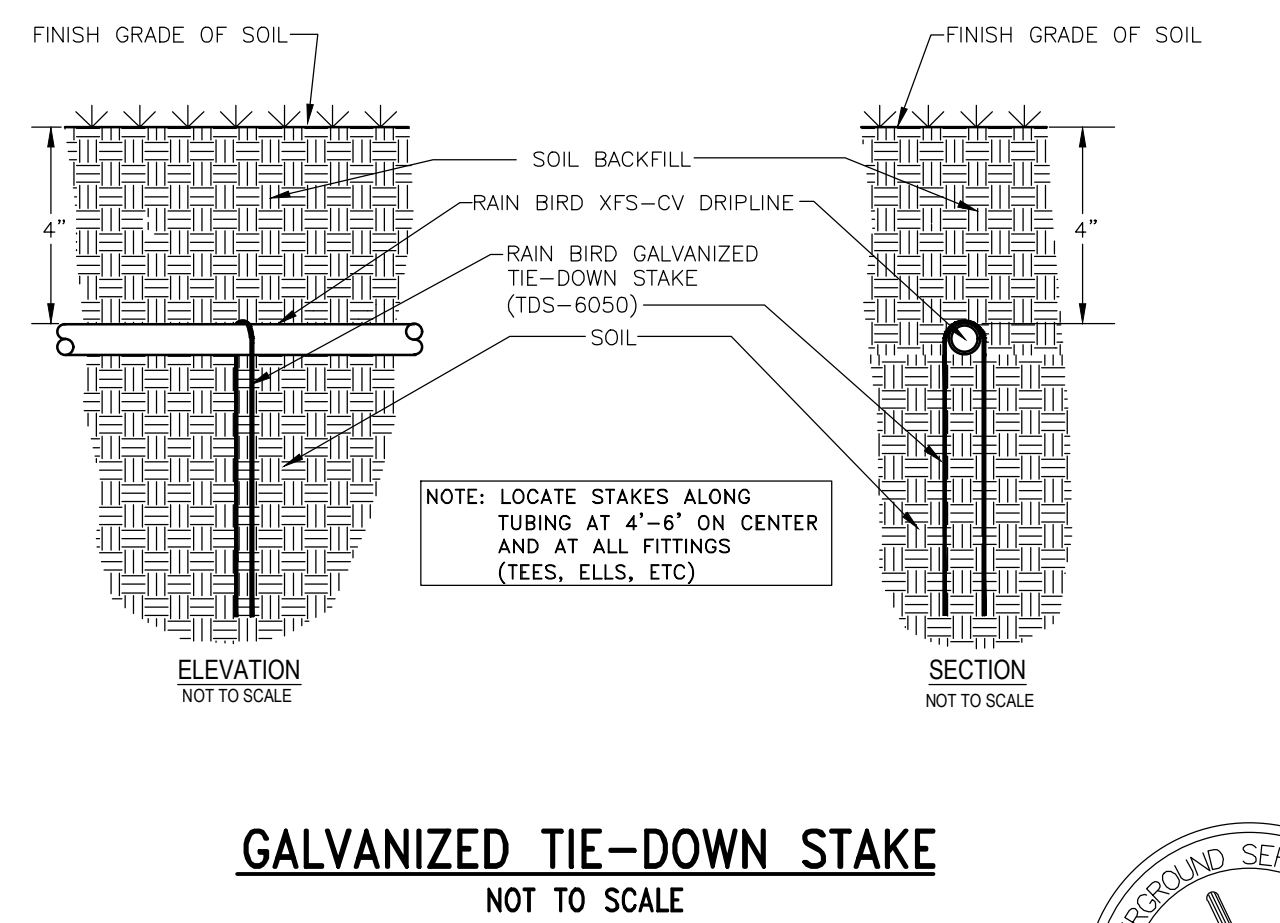
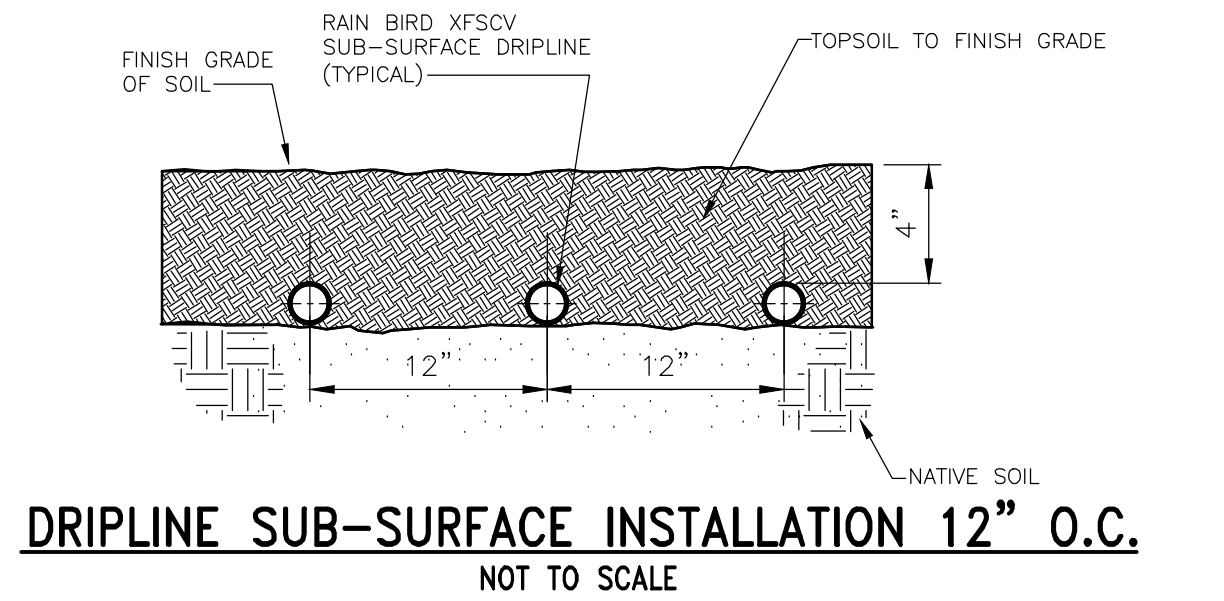
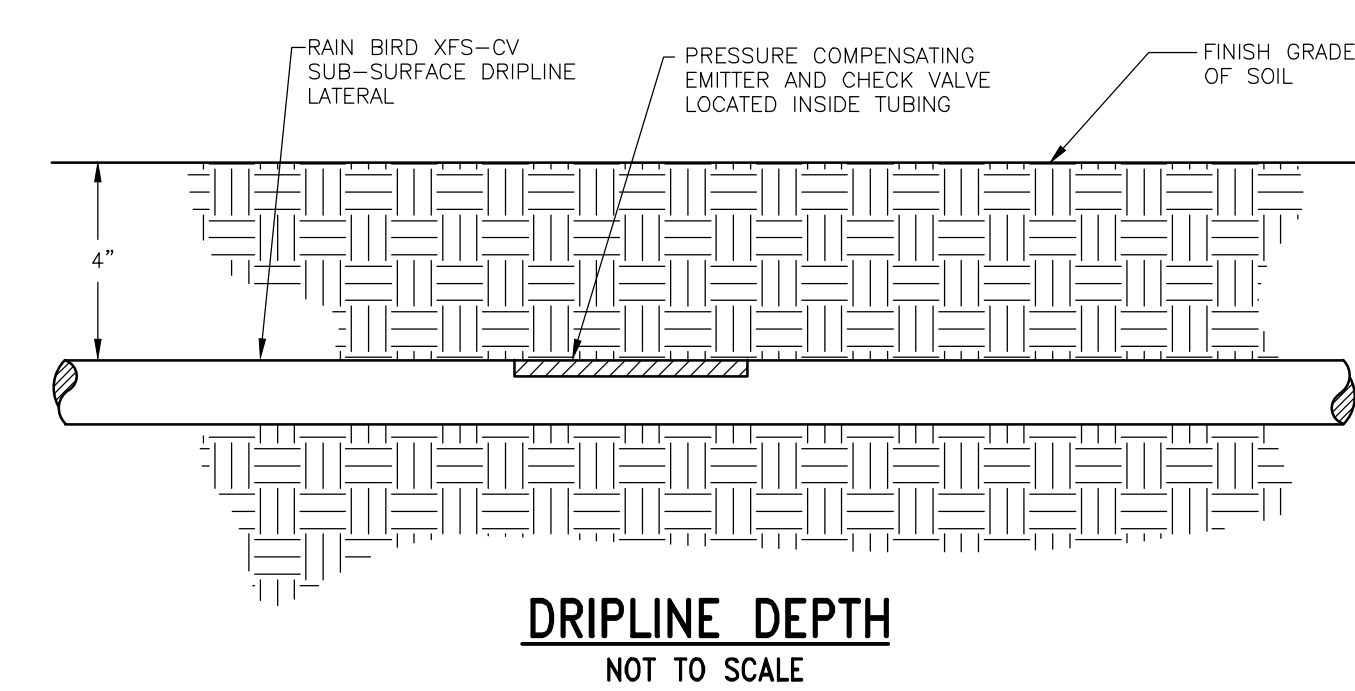
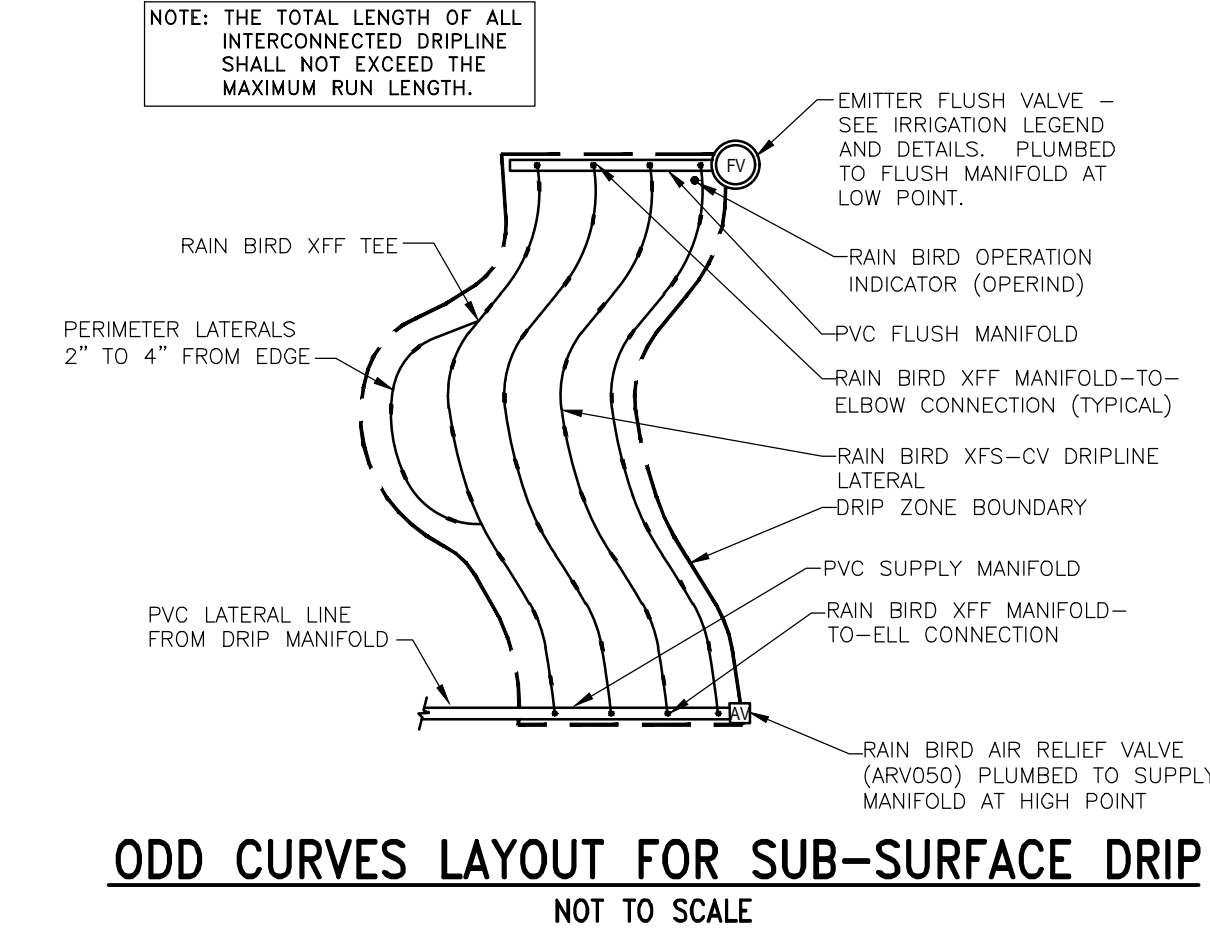
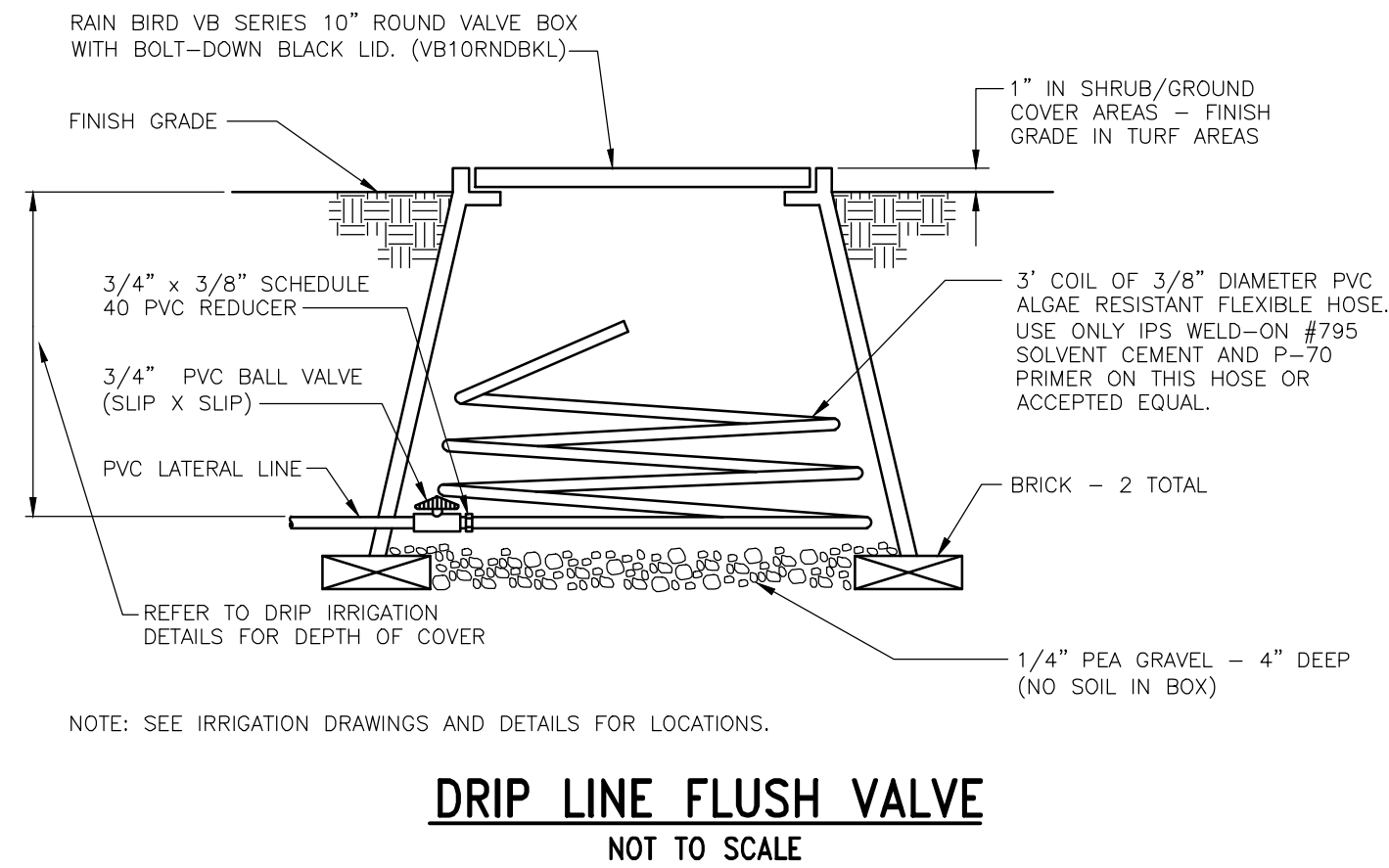
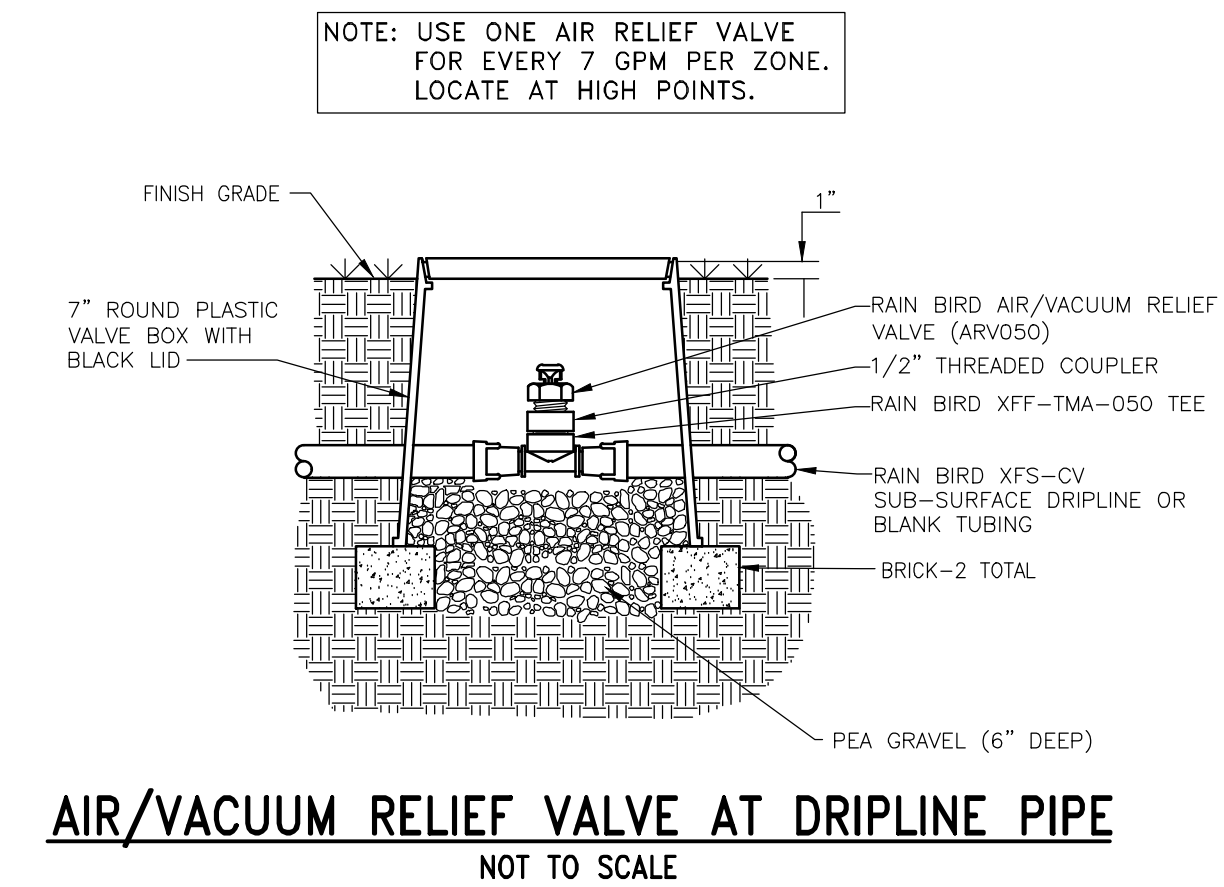
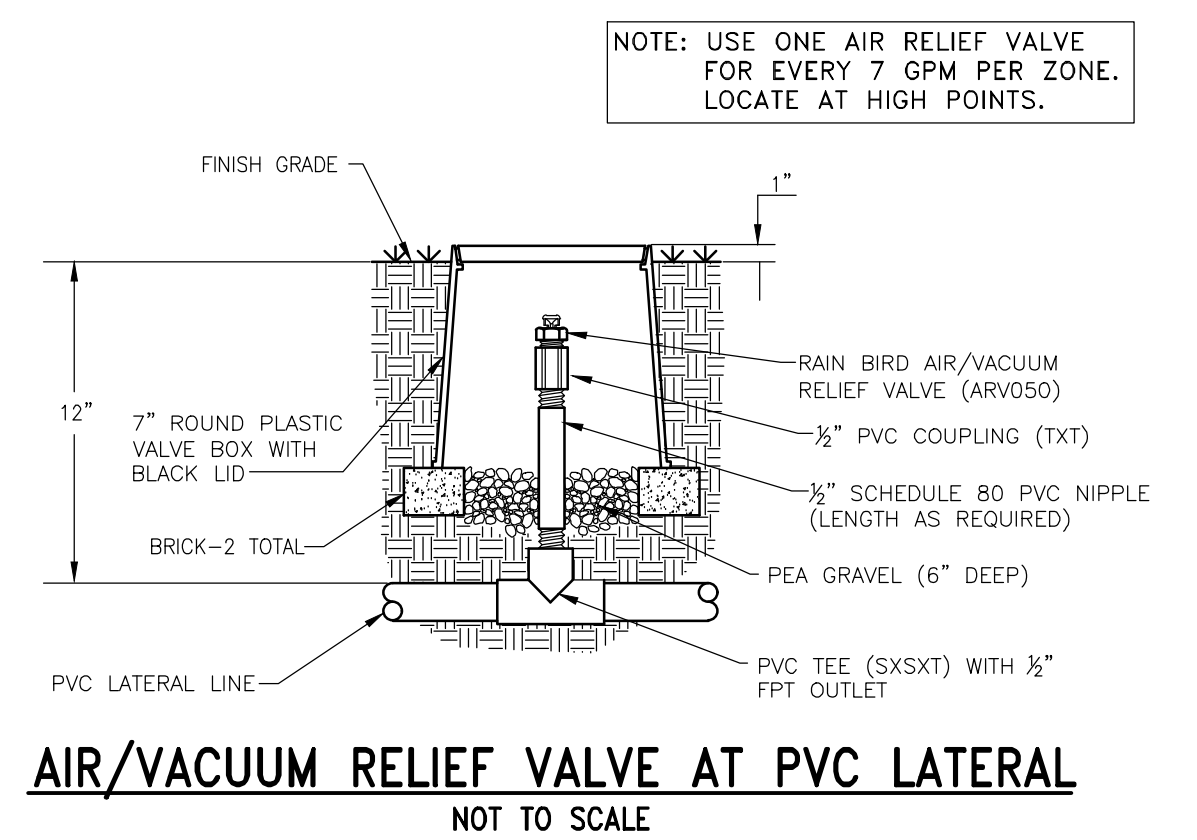
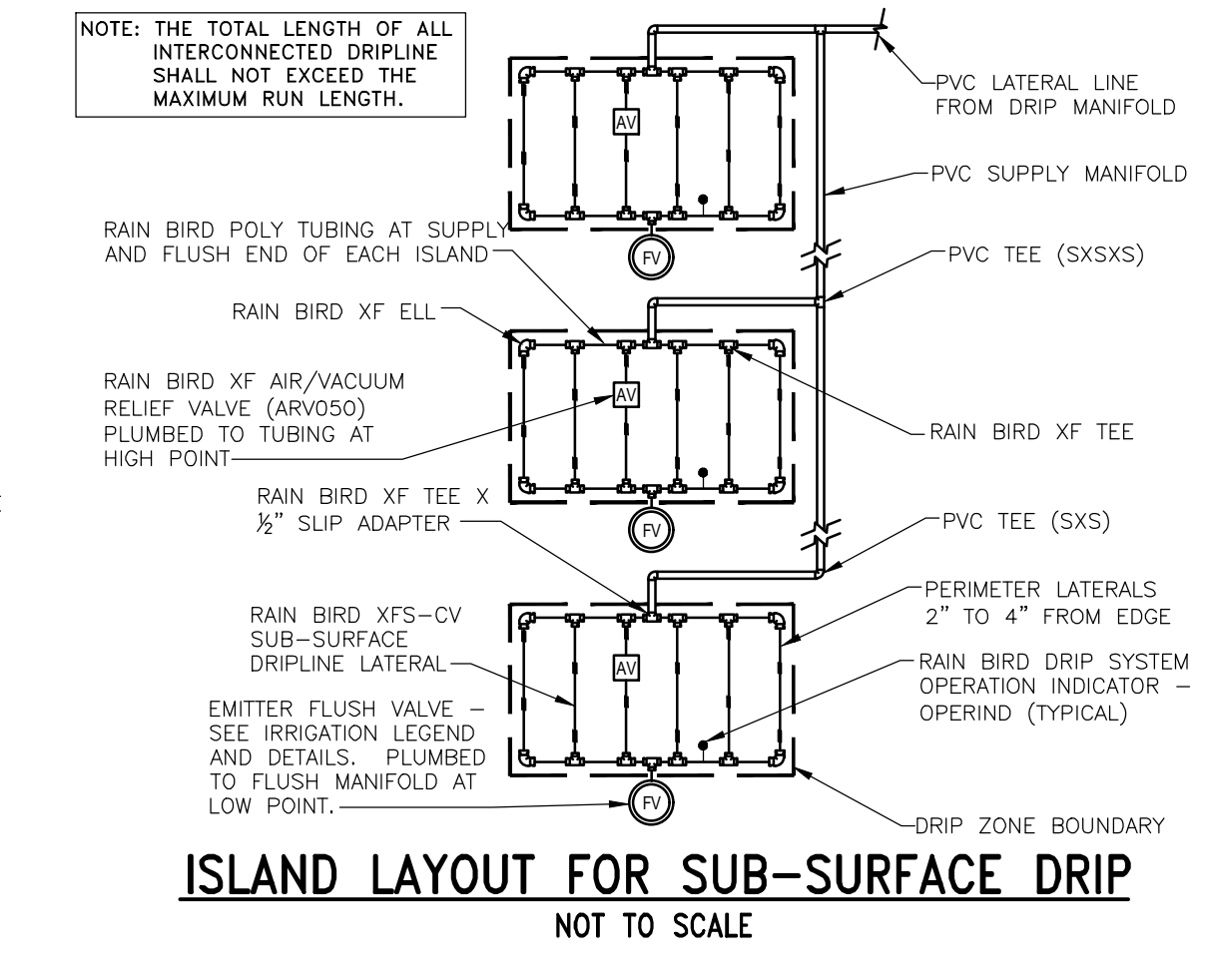
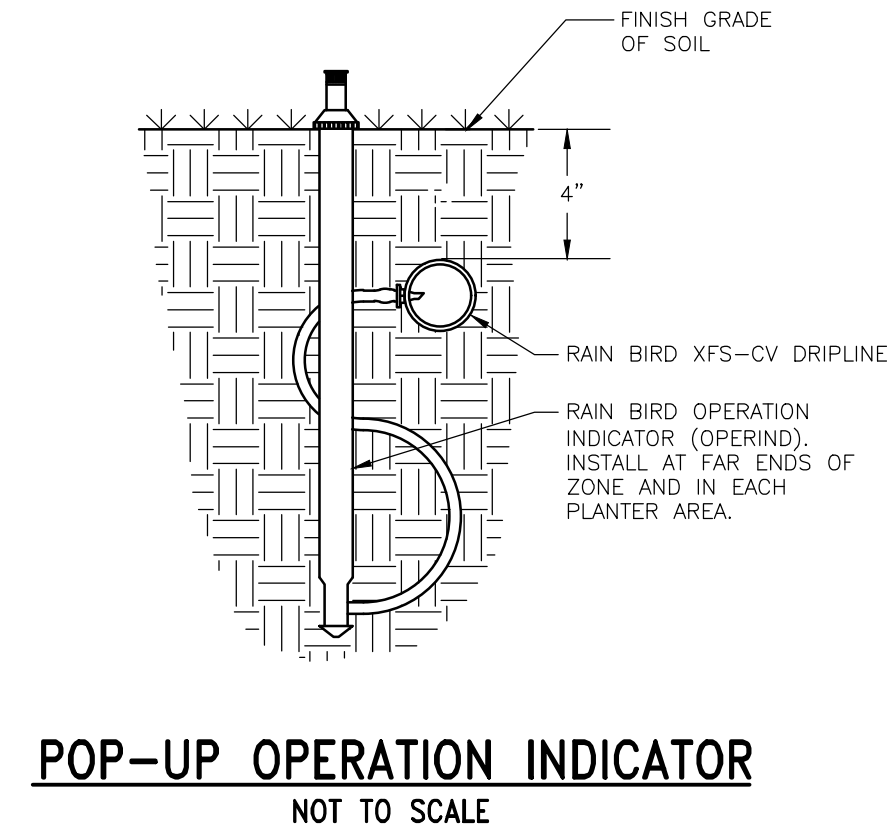
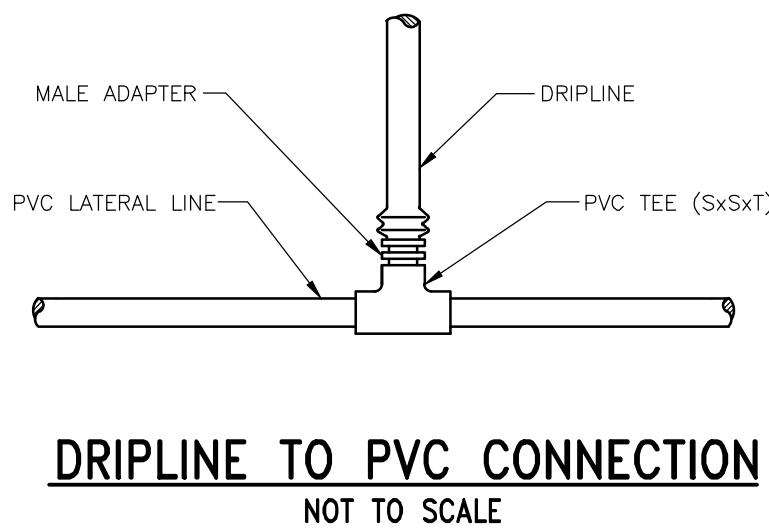
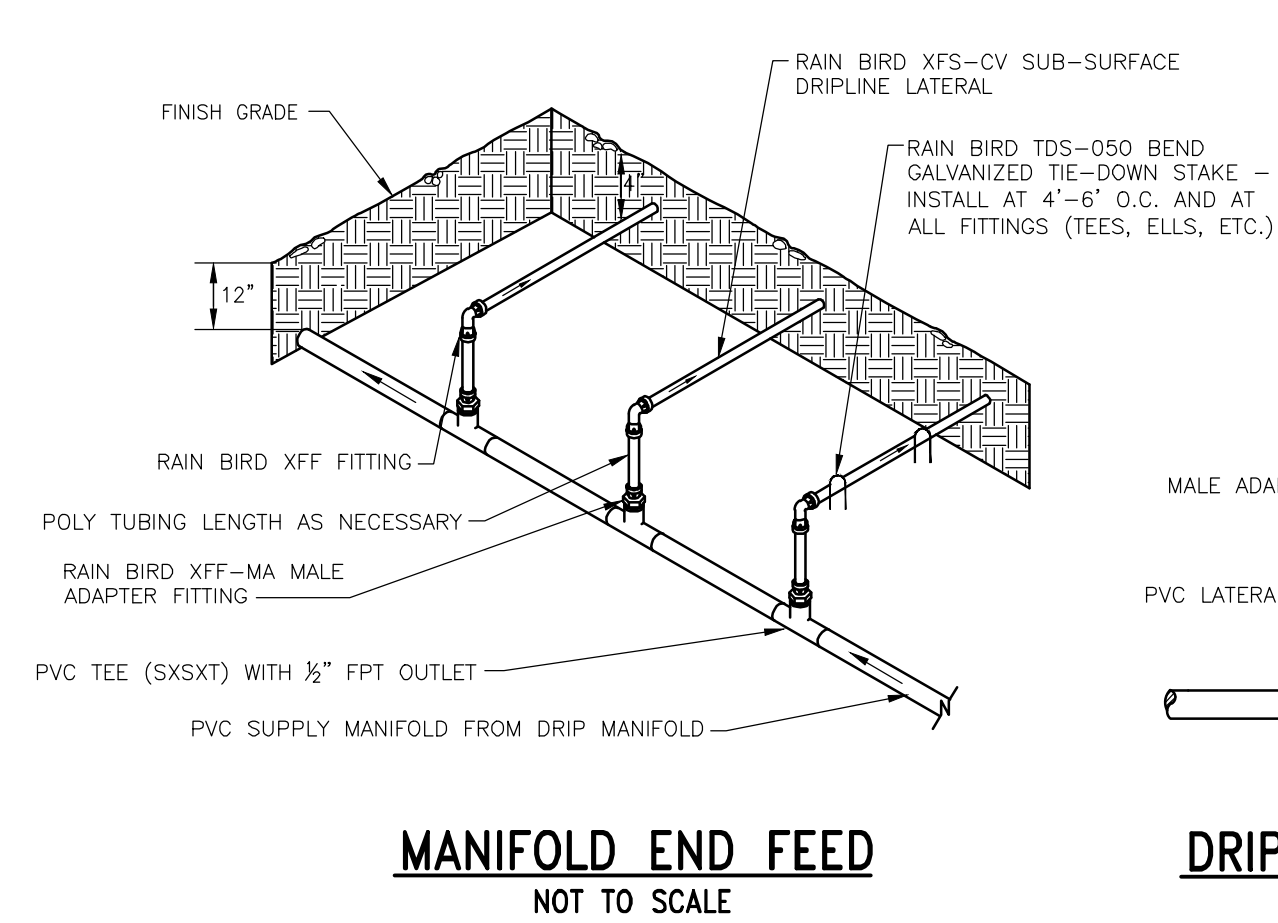
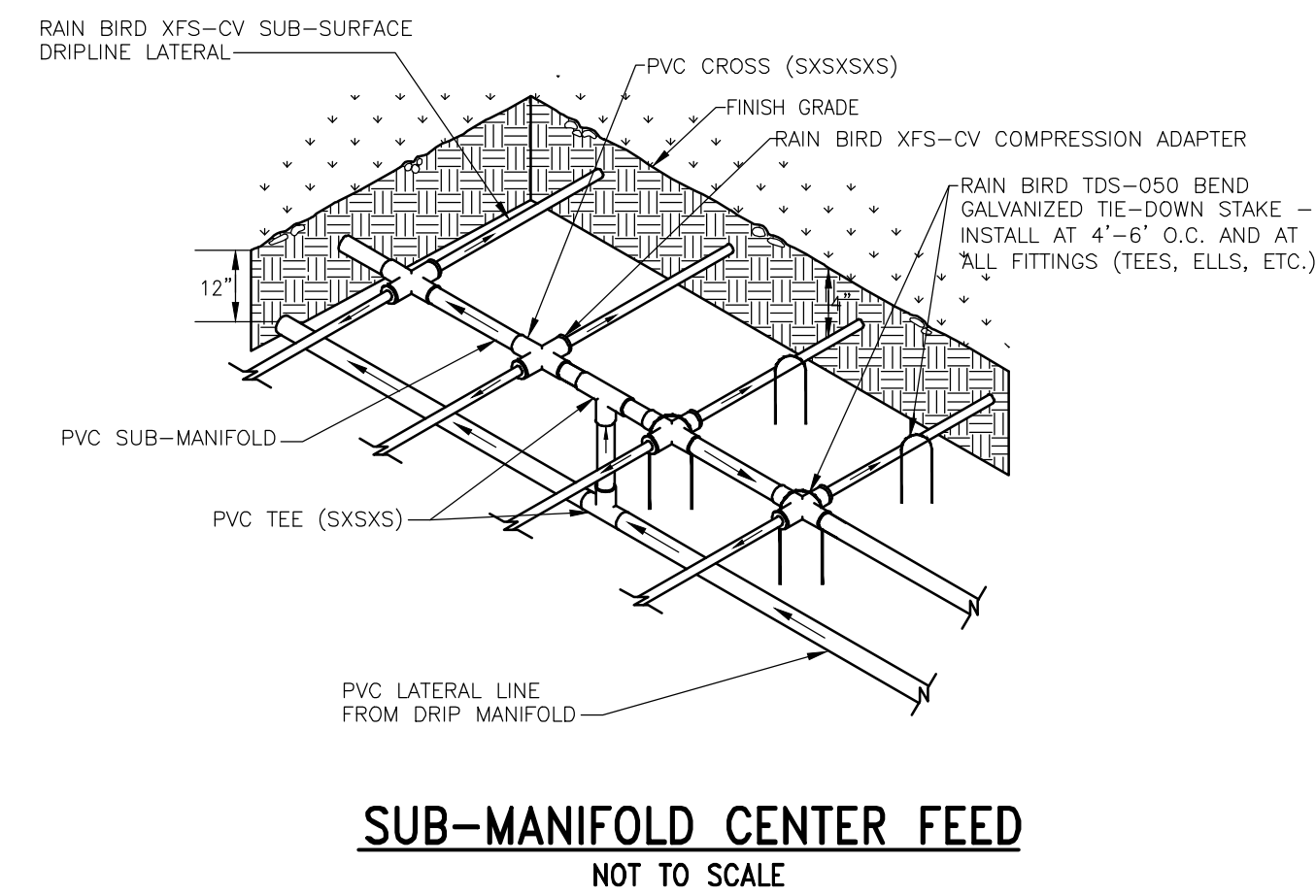
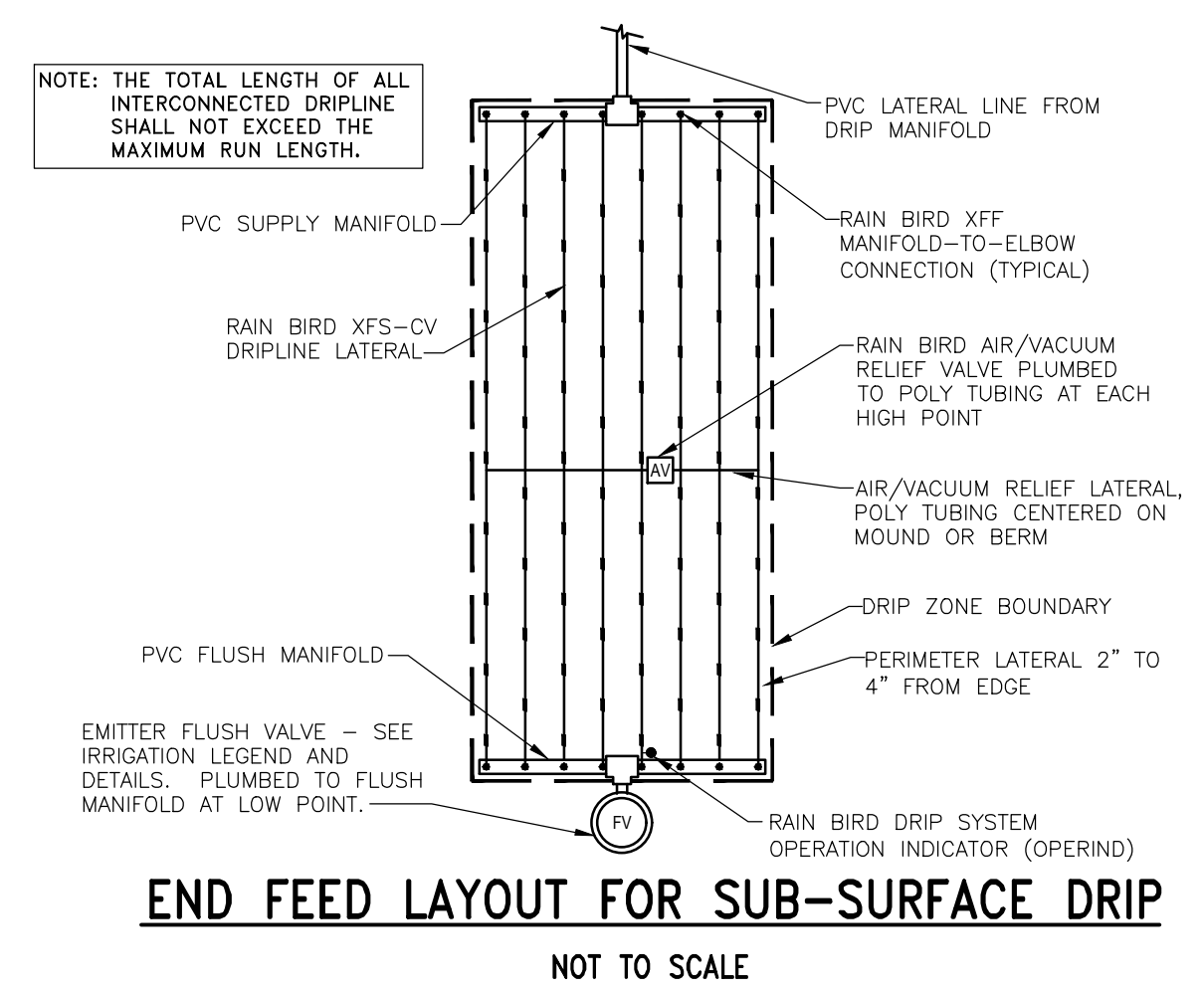
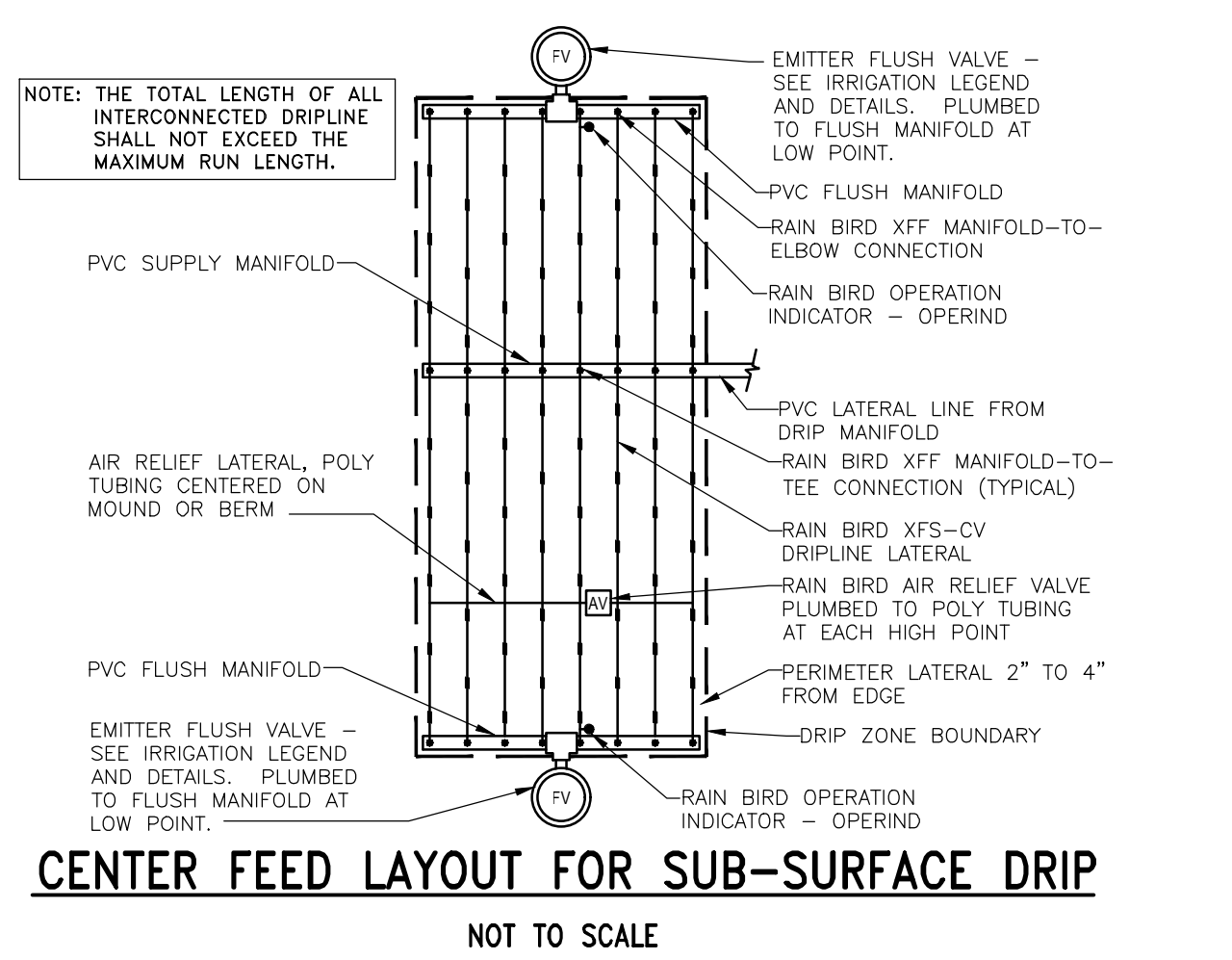
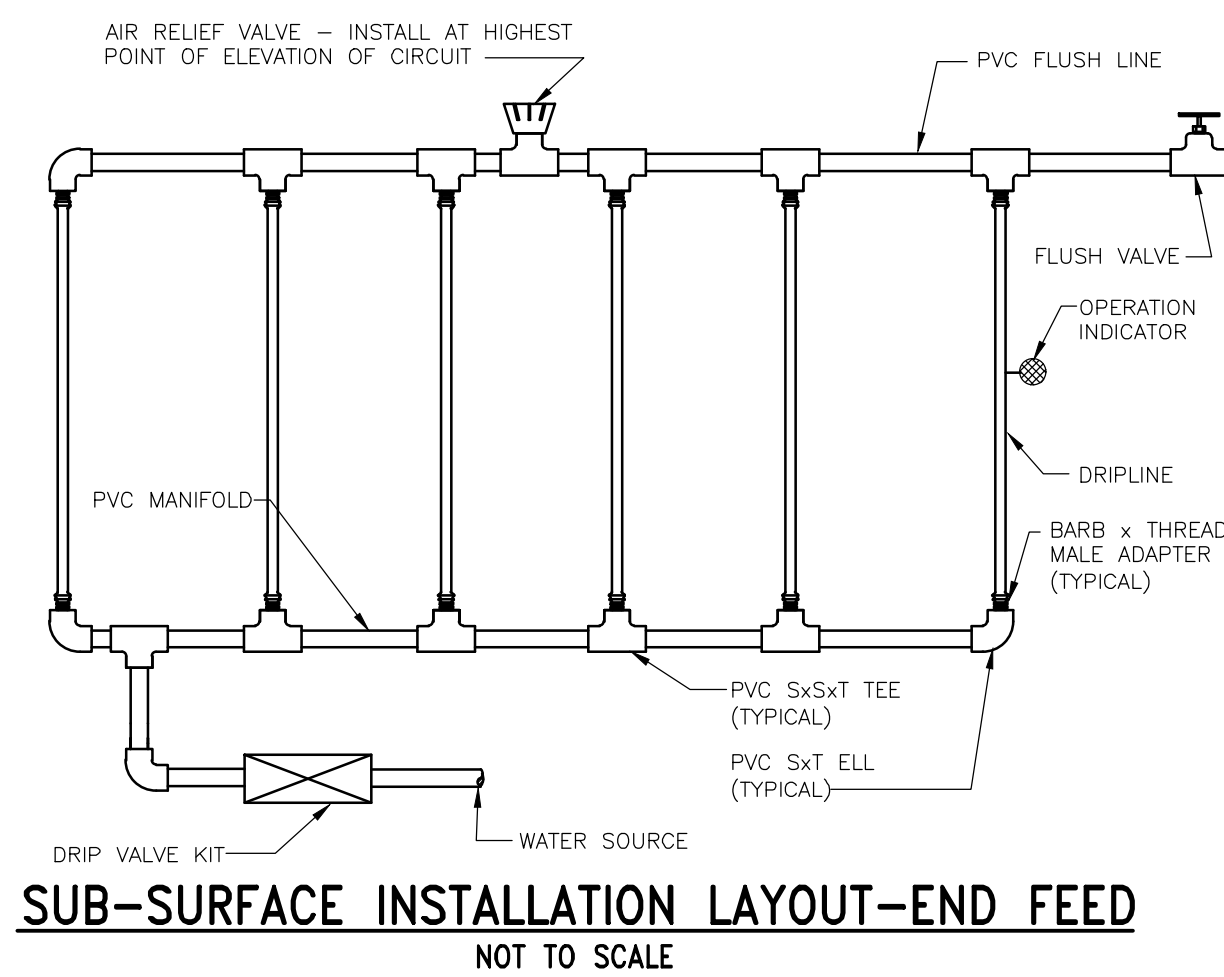
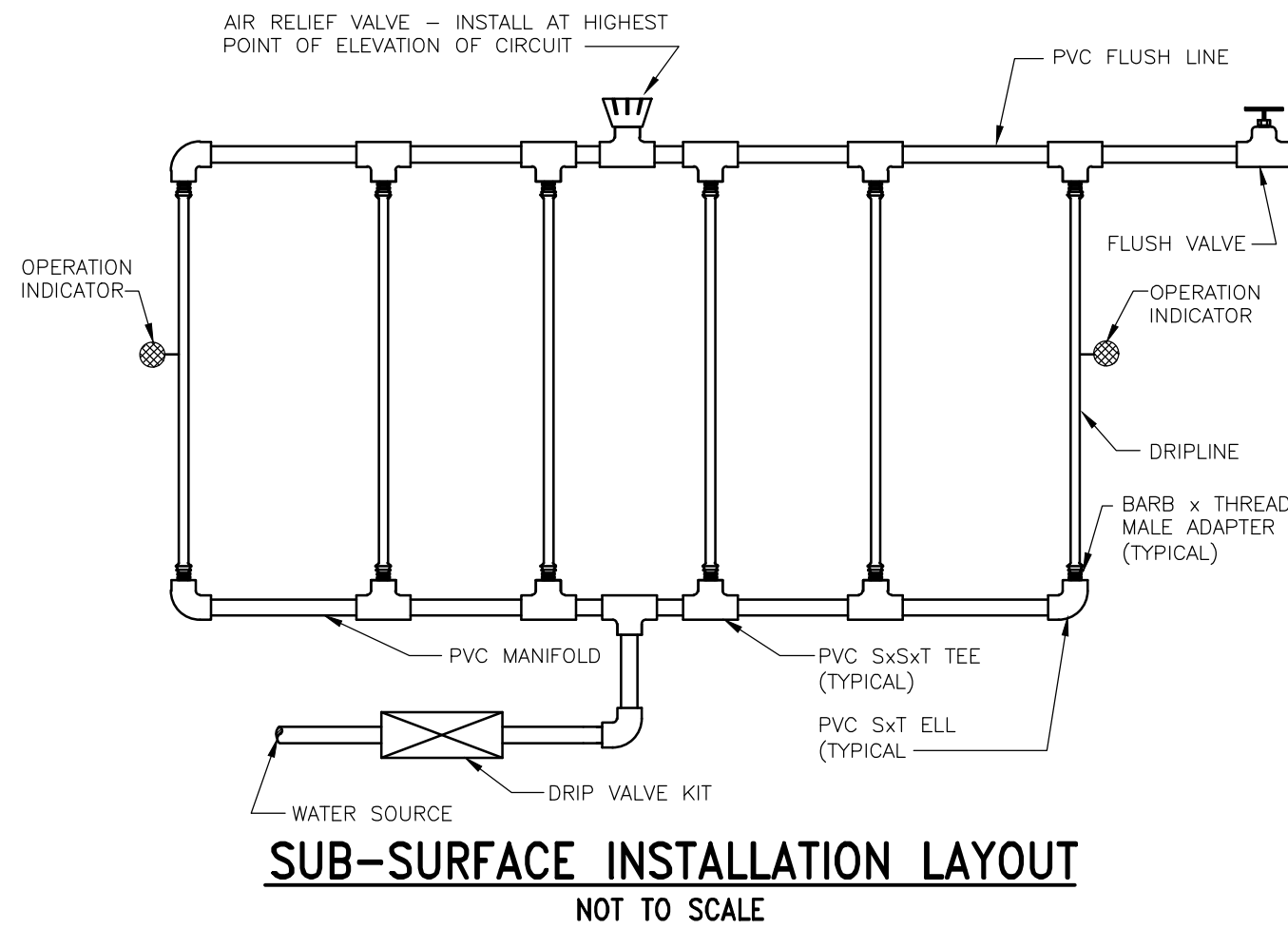
IRRIGATION DETAILS
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

KLEIN FINANCIAL CORPORATION

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Scale: **AS SHOWN**
Drawn by: **JM, SF**
Date: **07/14/23**
Job: **1907.03**
Sheet
L4.2
Of 35 Sheets



DICKSON & ASSOCIATES, INC.
LANDSCAPE IRRIGATION
(530) 547-5515 www.dicksoninc.net
P.O. BOX 415
PALO CEDRO, CALIFORNIA 96073
© Dickson & Associates, Inc.

REVISIONS	BY
05/04/23 2nd PLAN CHECK	SEF
07/14/23 3rd PLAN CHECK	SEF

ENVIRONMENTAL FORESIGHT, INC.
Landscape Architecture
2065 N Broadway, Suite 203
Walnut Creek, CA 94596
T (925) 945-0300
www.environmentalforesight.com

IRRIGATION DETAILS
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

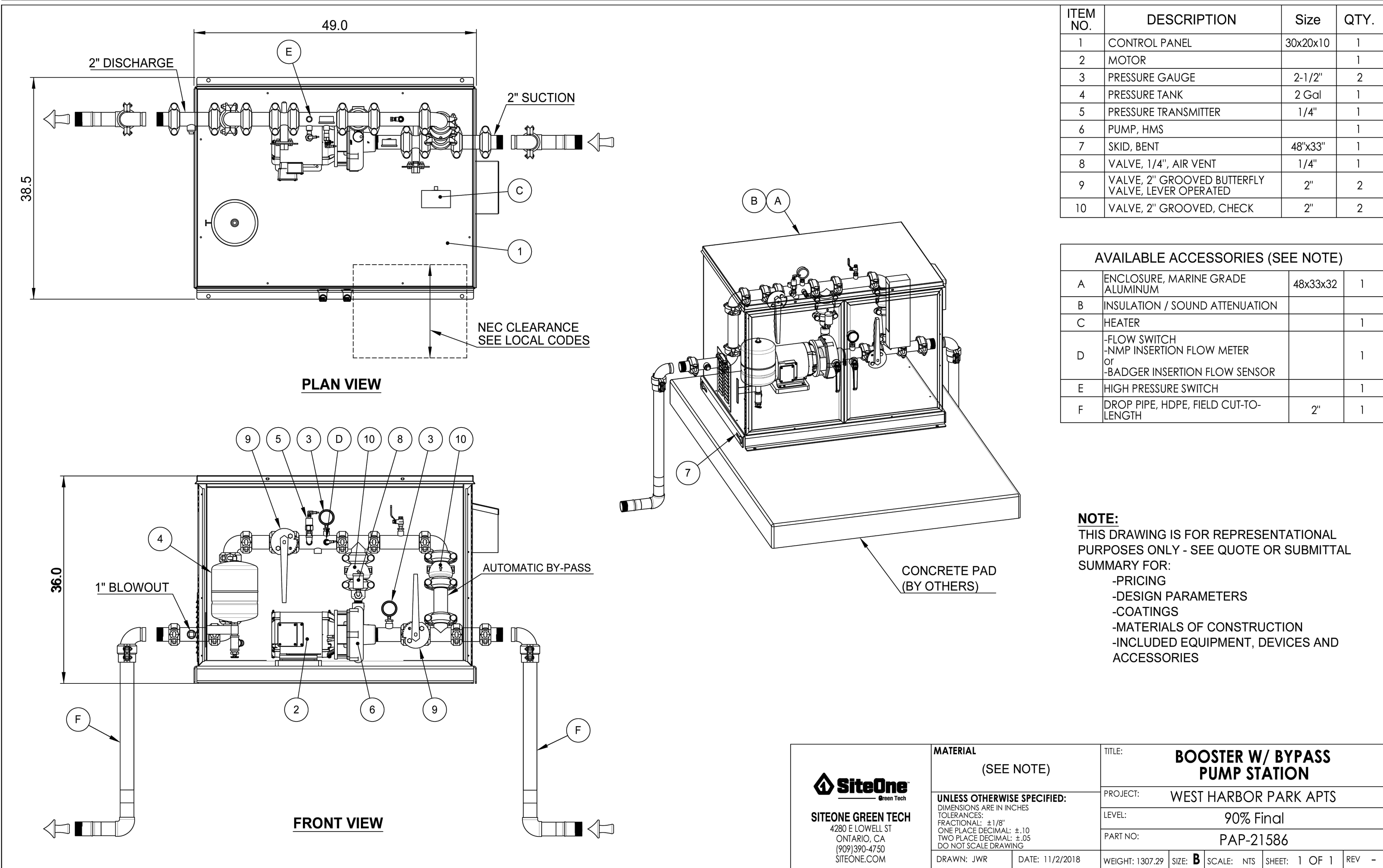
KLEIN FINANCIAL CORPORATION

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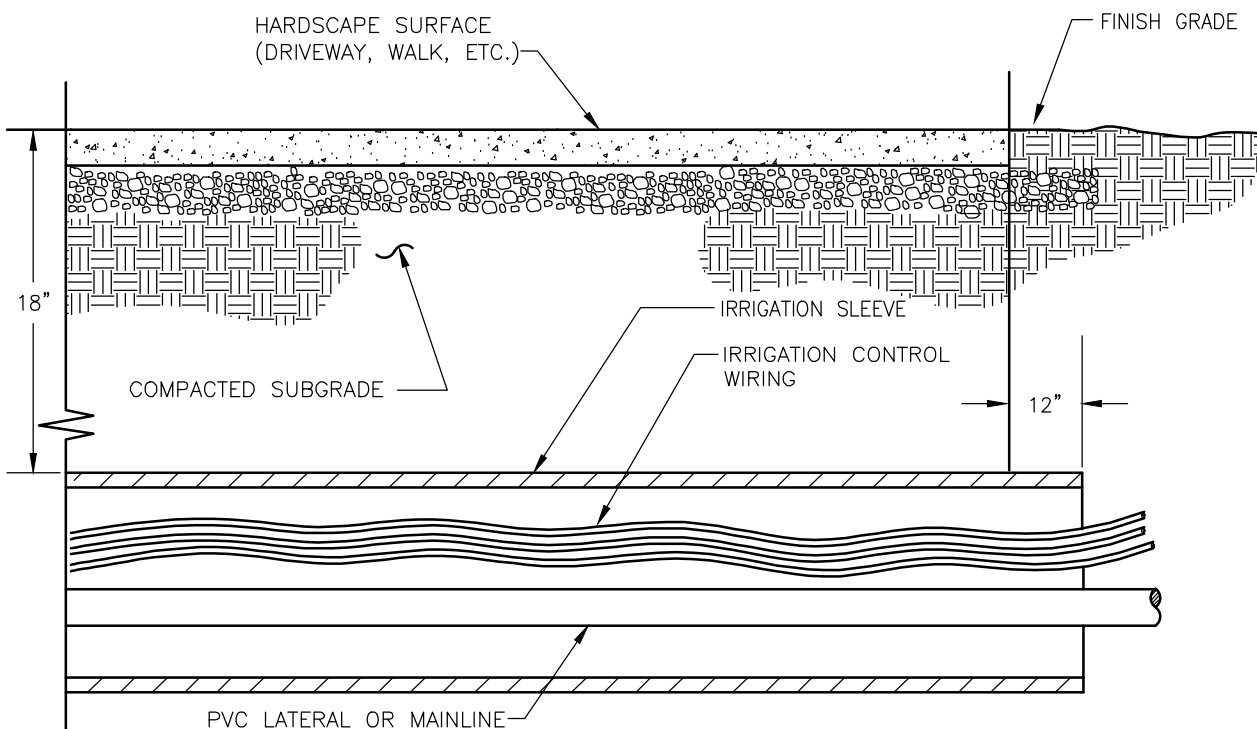


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Drawn by: **JM, SF**
Date: **07/14/23**
Job: **190703**
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Of **35** Sheets

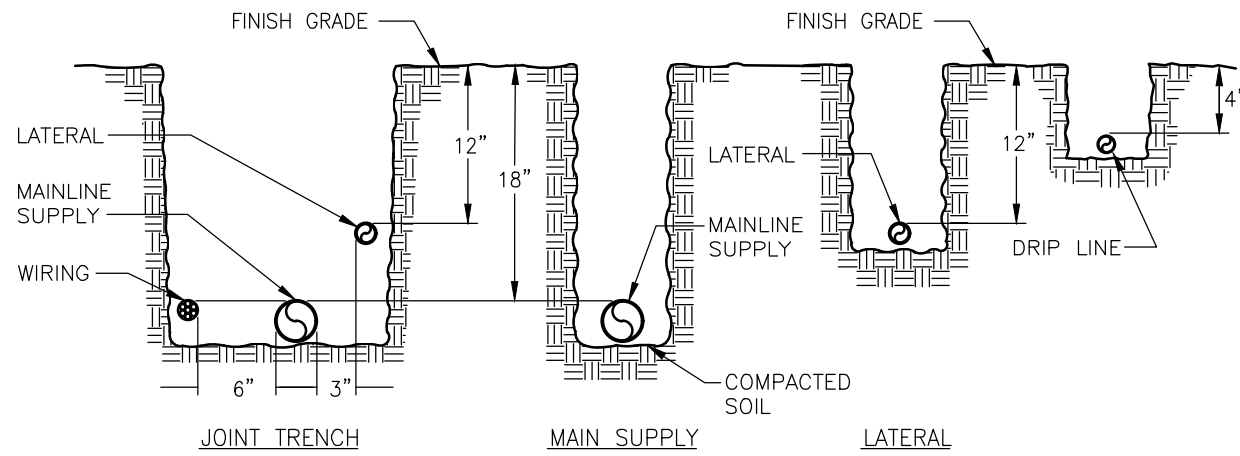
IRRIGATION BOOSTER PUMP ASSEMBLY DETAIL



NOTES:
1. SLEEVE UNDER VEHICULAR PAVING SHALL BE BURIED TO A DEPTH OF 24" COVER.
2. SLEEVE IS TO EXTEND 12" BEYOND EDGE OF PAVING.



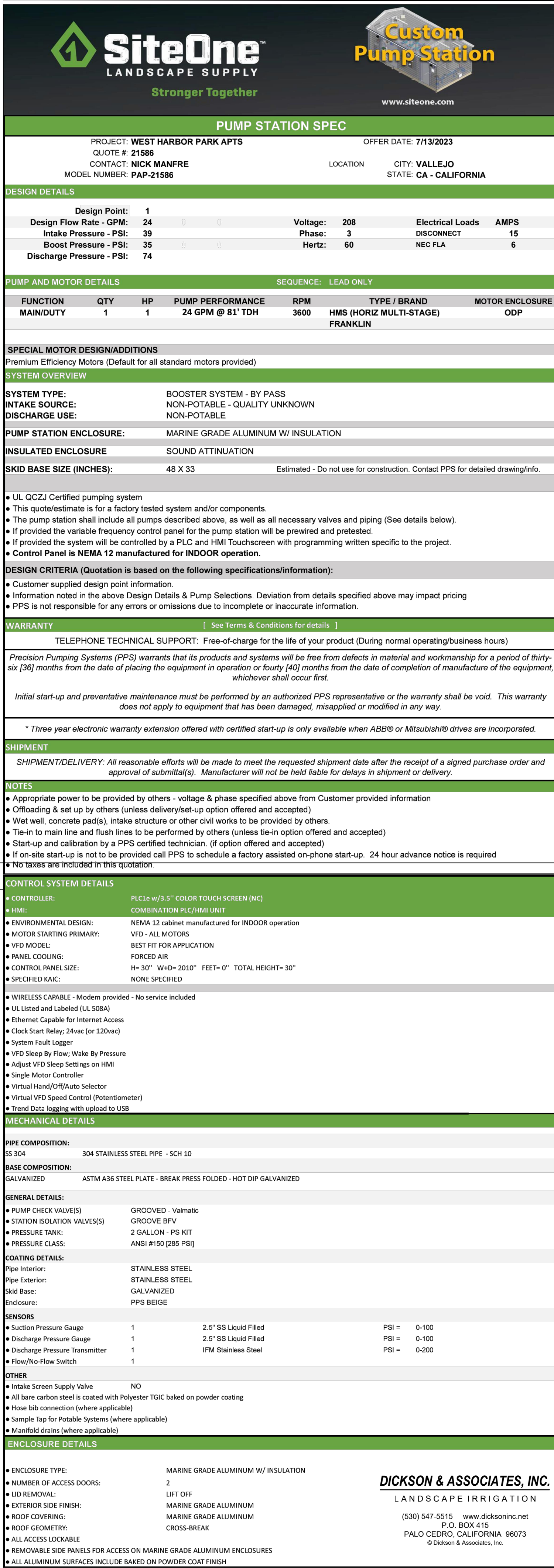
SLEEVING INSTALLATION
NOT TO SCALE



NOTES:
1. ALL PLASTIC PIPING SHALL BE INSTALLED IN THE TRENCH IN A SERPENTINE MANNER AS PER THE MANUFACTURER'S SPECIFICATIONS.
2. ALL SUPPLY LINES TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS.
3. TAPE AND BUNDLE TUBING OR WIRING AT 10 FEET INTERVALS.
4. ALL 120 VOLT WIRING IN CONDUIT TO BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES.
5. BACKFILL MATERIAL SHALL BE THE EARTH EXCAVATED FROM THE TRENCHES, FREE FROM ROCKS, CONCRETE CHUNKS, AND OTHER FOREIGN OR COARSE MATERIALS. CAREFULLY SELECT BACKFILL THAT IS TO BE PLACED NEXT TO PLASTIC PIPE TO AVOID ANY SHARP OBJECTS WHICH MAY DAMAGE THE PIPE.

TRENCHING
NOT TO SCALE

BOOSTER PUMP ASSEMBLY SPECIFICATION



REVISIONS	BY
05/04/23 2nd PLAN CHECK	SEF
07/14/23 3rd PLAN CHECK	SEF



IRRIGATION DETAILS
West Harbor Park "New Buildings"
Landscape Plans
Vallejo, California

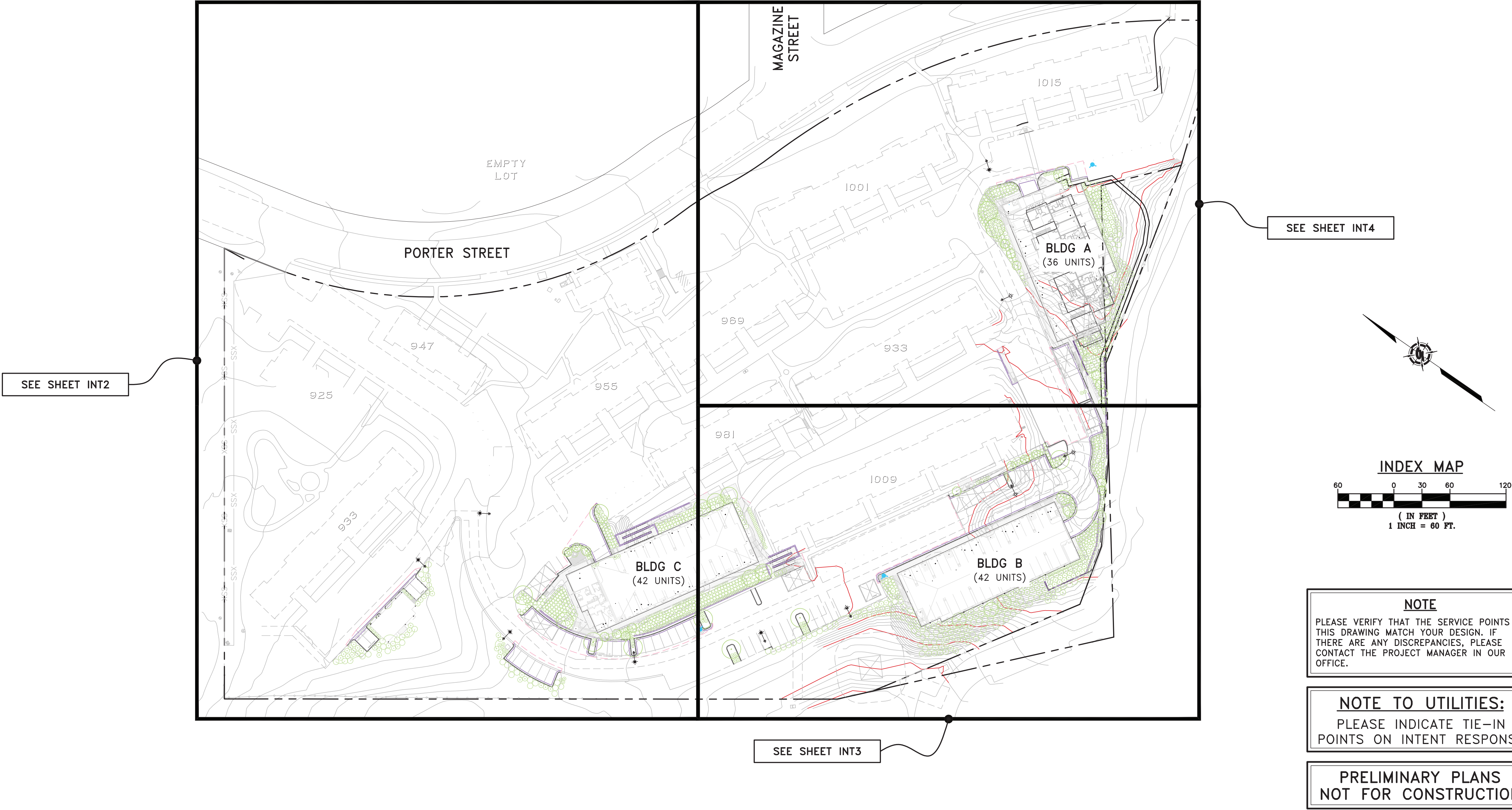
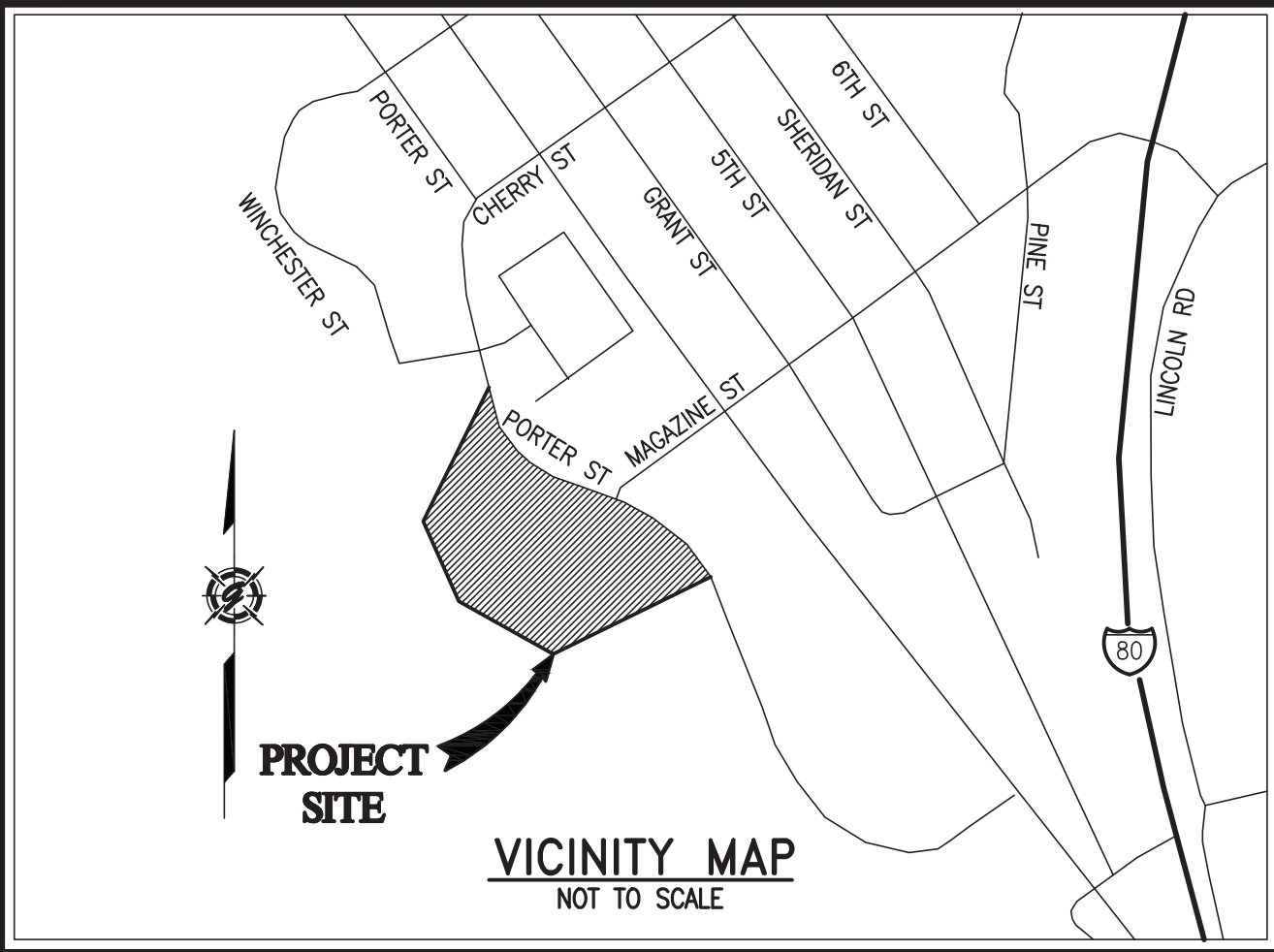


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Scale: AS SHOWN
Drawn by: JM, SF
Date: 07/14/23
Job: 1907.03
Sheet
L4.4
Of 35 Sheets

KLEIN FINANCIAL CORPORATION
WEST HARBOR PARK APARTMENTS
925-1015 PORTER STREET
VALLEJO, CALIFORNIA
(JOINT TRENCH INTENT - NOT FOR CONSTRUCTION)



NOTE
PLEASE VERIFY THAT THE SERVICE POINTS IN THIS DRAWING MATCH YOUR DESIGN. IF THERE ARE ANY DISCREPANCIES, PLEASE CONTACT THE PROJECT MANAGER IN OUR OFFICE.

NOTE TO UTILITIES:
PLEASE INDICATE TIE-IN POINTS ON INTENT RESPONSE

**PRELIMINARY PLANS
NOT FOR CONSTRUCTION**

PROJECT TEAM CONTACTS		
COMPANY:	CONTACT:	PHONE:
KLEIN FINANCIAL CORPORATION	MITU WALIA	650-304-3311
CBG	JEFF KAISER	925-866-0322
PGE	AYANNA CLOY	707-257-5933
AT&T - VALLEJO	PAM BURNS	707-575-2122
CABLECOM	ANDREW GREENWOOD	707-332-7519
GIACALONE DESIGN SERVICES, INC.	FRED YARRA, JR.	925-467-1740

PG&E PM NO.
ELECTRIC:
RULE 15:
RULE 16:
RULE 20:
RELOC:
GAS:
RULE 15:
RELOC:

LATEST FILES RECEIVED			
DESCRIPTION:	BY:	DATE:	STATUS:
GAS DESIGN	N/A		
ELECTRIC DESIGN			
TELEPHONE LAYOUT			
CATV LAYOUT			
STREET LIGHT PLANS - PUBLIC	N/A		
STREET LIGHT PLANS - PRIVATE			
IMPROVEMENT PLANS (ELECTRONIC FILE)	CBG	04-27-23	
A=Approved • ANS=Approved Not Signed • NA=Not Approved • F=First Submittal • SS=Second Submittal			

PROJECT DESCRIPTION & SCOPE
• NEW SERVICE TO 122 APTS CONSISTING OF (4) BUILDINGS. (E,T,C)
• NO PG&E GAS SERVICE REQUIRED.
• ON-SITE PRIVATE LIGHTING AND IRRIGATION CONTROLLER
• RELOCATION OF EXISTING PRIMARY UNDERGROUND LINE (460'~)
• ELECTRIC VEHICLE CHARGERS
•

SHEET INDEX	
SHEET	DESCRIPTION
INT1	JOINT TRENCH INTENT TITLE SHEET
INT2-INT4	JOINT TRENCH INTENT

REVISIONS

SYMBOL	DATE	DESCRIPTION

GIACALONE

DESIGN SERVICES, INC.

5920 STONERIDGE MALL RD., #345 | PLEASANTON, CA 94588
925-467-1740 | WWW.GIACALONEDSIGN.COM

JOINT TRENCH INTENT TITLE SHEET

KLEIN FINANCIAL CORPORATION
WEST HARBOR PARK APARTMENTS
925-1015 PORTER STREET
VALLEJO
CALIFORNIA

PROJECT MANAGER:
FRED YARRA JR.

DRAWN BY:
S. ORMAN

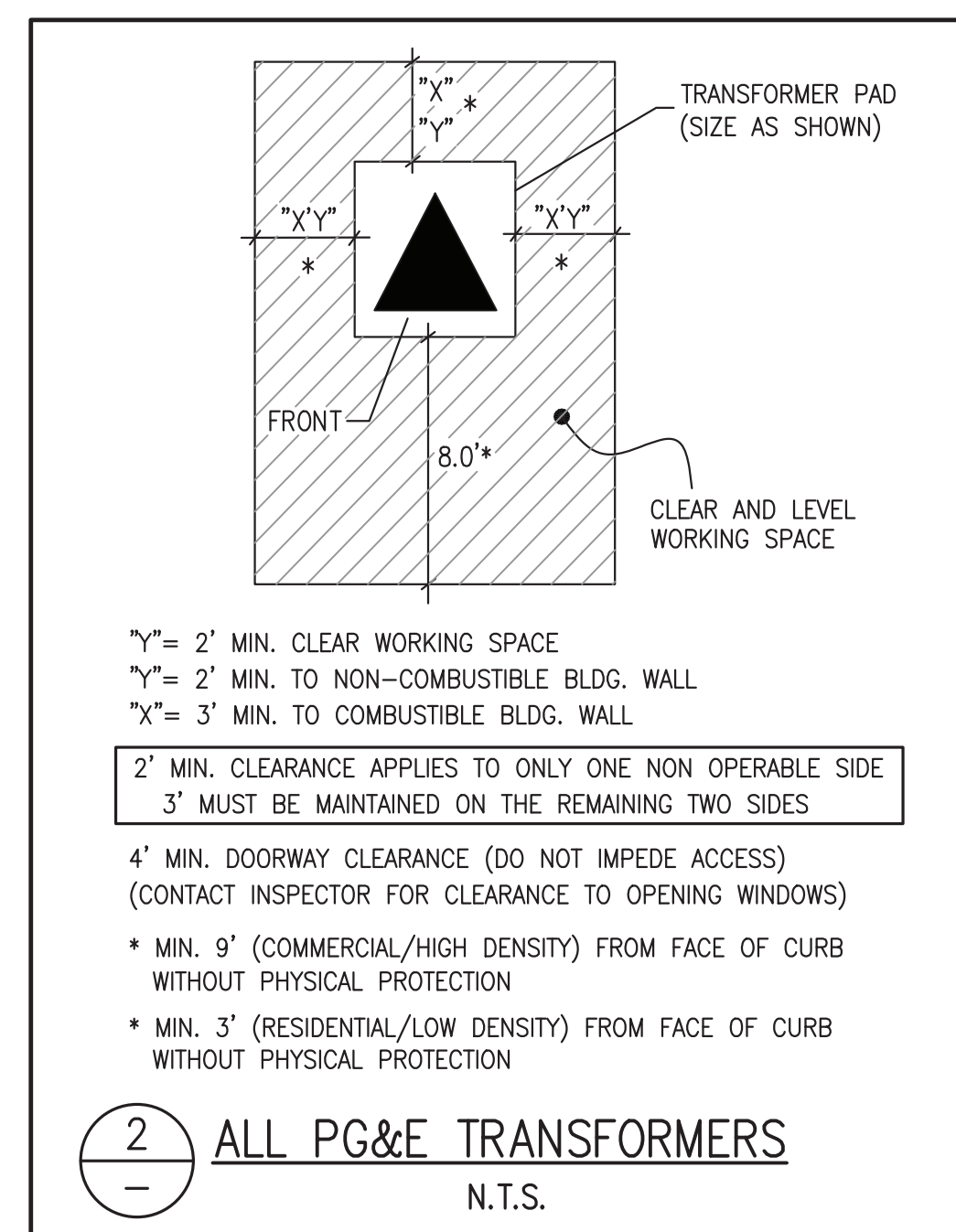
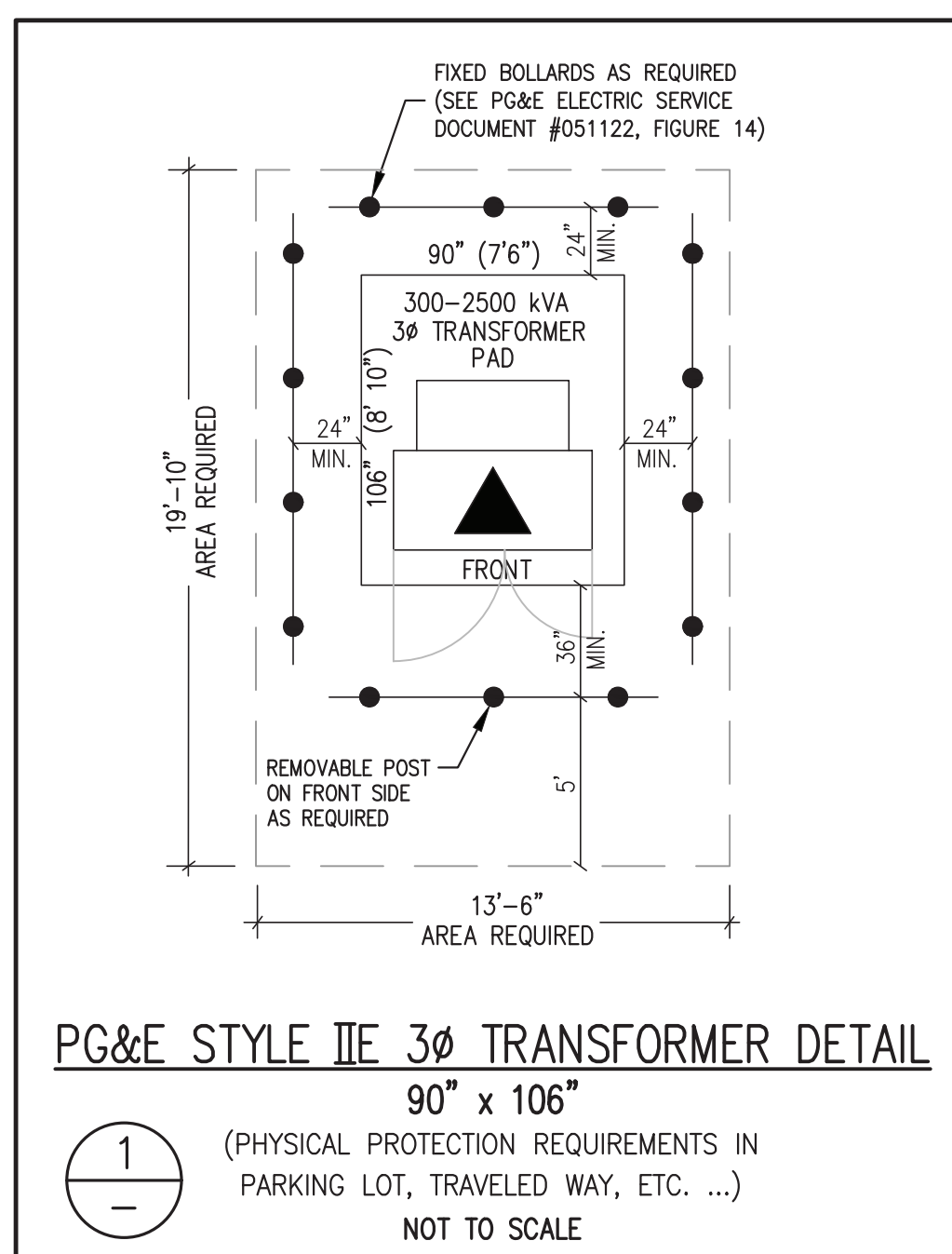
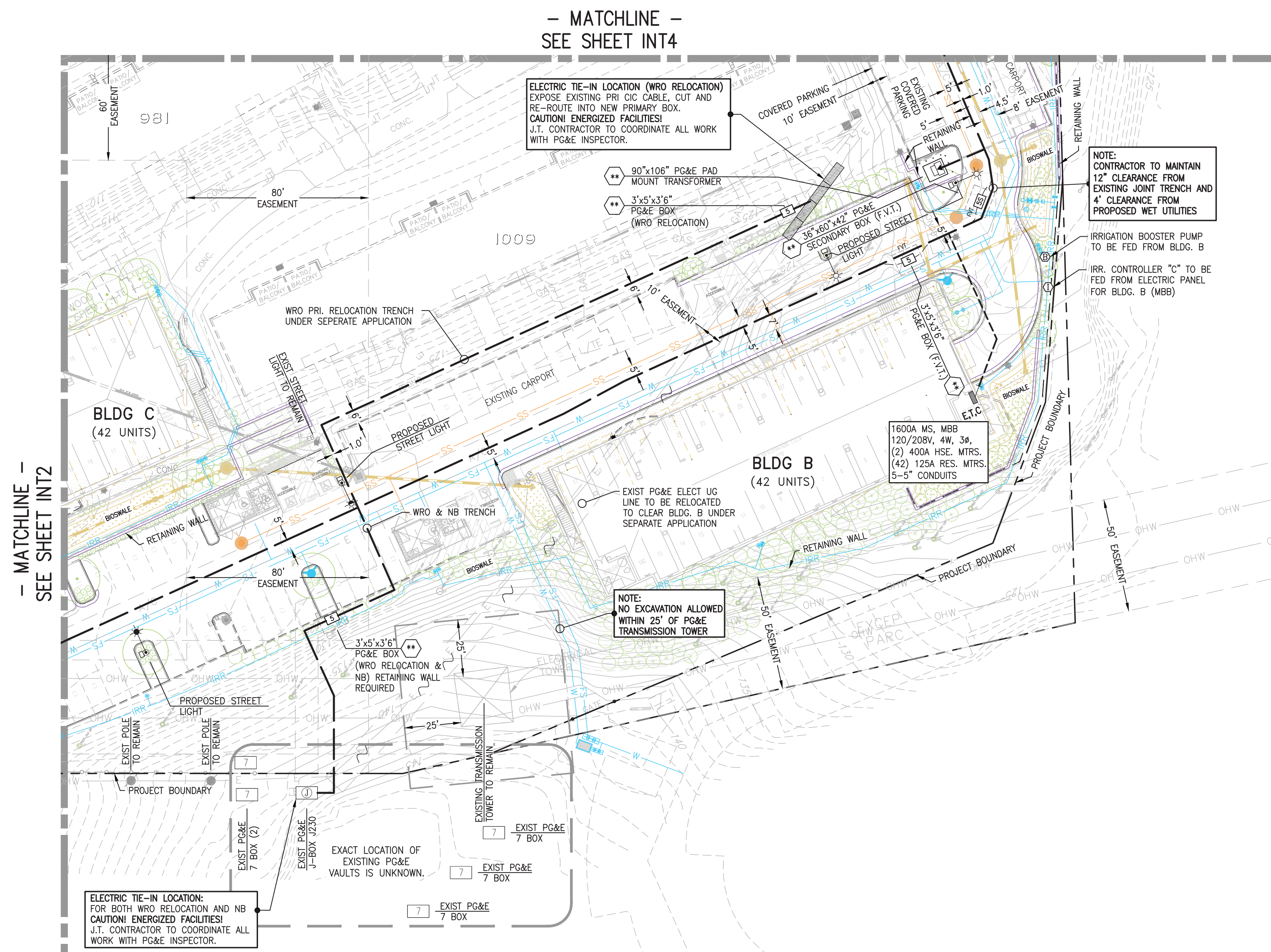
CHECKED BY:
DAVID CROWFOOT, P.E.

SCALE:
1"=60'

JOB NUMBER:
22-246

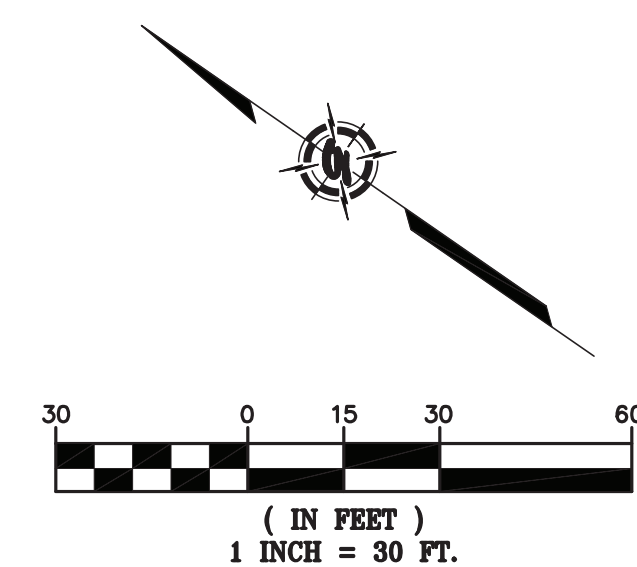
DATE LAST MODIFIED:
05-04-23

SHEET
INT1
OF 4 SHEETS



LEGEND

	EXISTING TRENCH OR UTILITIES
	EXISTING OVERHEAD CONDUCTORS
	PROPOSED TRENCH (DISTRIBUTION)
	PROPOSED TRENCH (SERVICE)
	PROPOSED STREET LIGHT TRENCH
	EXISTING UTILITY SPlice BOX
	24"x36"x26" PG&E SPlice BOX
	36"x60"x30" W/12" EXT PG&E SECONDARY BOX
	3'x5'x3'6" PG&E SPlice BOX
	90"x106" PG&E PAD MOUNT TRANSFORMER
	IRRIGATION CONTROLLER (BY OTHERS)
	PROPOSED STREET LIGHT
	PROPOSED STREET LIGHT
	PROPOSED STREET LIGHT
	EXISTING STREET LIGHT
	EXISTING UTILITY POLE
	EXISTING UTILITY POLE GUY ANCHOR
	PG&E SKETCH LOCATION NUMBER
(F.V.T.)	FULL VEHICULAR TRAFFIC LID
(N.T.S.)	NOT TO SCALE
(U.O.N.)	UNLESS OTHERWISE NOTED



R/W, P.U.E. & P.S.E. ACQUISITION NOTE:

CONTRACTOR TO VERIFY RIGHT OF WAY, PUBLIC UTILITY EASEMENT
AND/OR PUBLIC SERVICE EASEMENT ACQUISITION WITH THE
APPLICANT PRIOR TO CONSTRUCTION WITHIN AREAS OF QUESTION.

CAUTION!!!! ENERGIZED FACILITIES!!

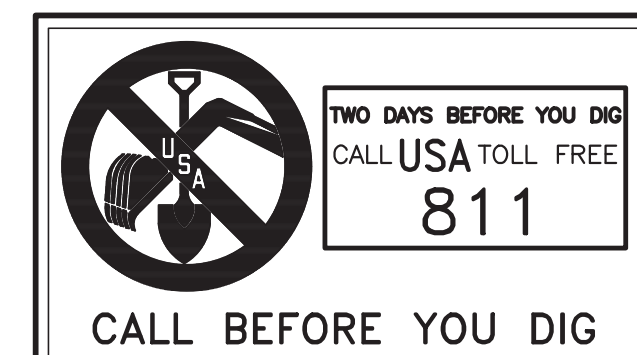
CONTRACTOR TO EXERCISE EXTREME CAUTION TO AVOID DAMAGING EXISTING UNDERGROUND UTILITIES. OBSTRUCTIONS INDICATED ARE FOR INFORMATION ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH WITH THE APPROPRIATE AGENCIES. NEITHER THE OWNER NOR THE DESIGNER ASSUME ANY RESPONSIBILITY THAT THE OBSTRUCTIONS INDICATED WILL ACTUALLY BE THE OBSTRUCTIONS ENCOUNTERED. POTHOLING IS REQUIRED. HAND EXCAVATE ONLY IN PRESENCE OF UTILITY INSPECTOR.

NOTE

PLEASE VERIFY THAT THE SERVICE POINTS IN THIS DRAWING MATCH YOUR DESIGN. IF THERE ARE ANY DISCREPANCIES, PLEASE CONTACT THE PROJECT MANAGER IN OUR OFFICE.

NOTE TO UTILITIES:
PLEASE INDICATE TIE-IN
POINTS ON INTENT RESPONSE

PRELIMINARY PLANS
NOT FOR CONSTRUCTION



CAUTION!! EXISTING UTILITIES
CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN
WORKING NEAR EXISTING GAS LINES!!! LOCATION OF
EXISTING UTILITIES IS APPROXIMATE AND SHOULD
BE VERIFIED PRIOR TO START OF CONSTRUCTION.

[illegible]

GIACALONE
DESIGN SERVICES, INC.

5820 STONERIDGE MALL RD., #345 | PLEASANTON, CA 94588
925.467.1740 | WWW.GIACALONEDSIGN.COM

JOINT TRENCH INTENT

KLEIN FINANCIAL CORPORATION
WEST HARBOR PARK APARTMENTS
925-1015 PORTER STREET
VALLEJO CALIFORNIA

PROJECT MANAGER:
FRED YARRA JR.

DRAWN BY:
S. ORMAN

CHECKED BY:
DAVID CROWFOOT, P.E.

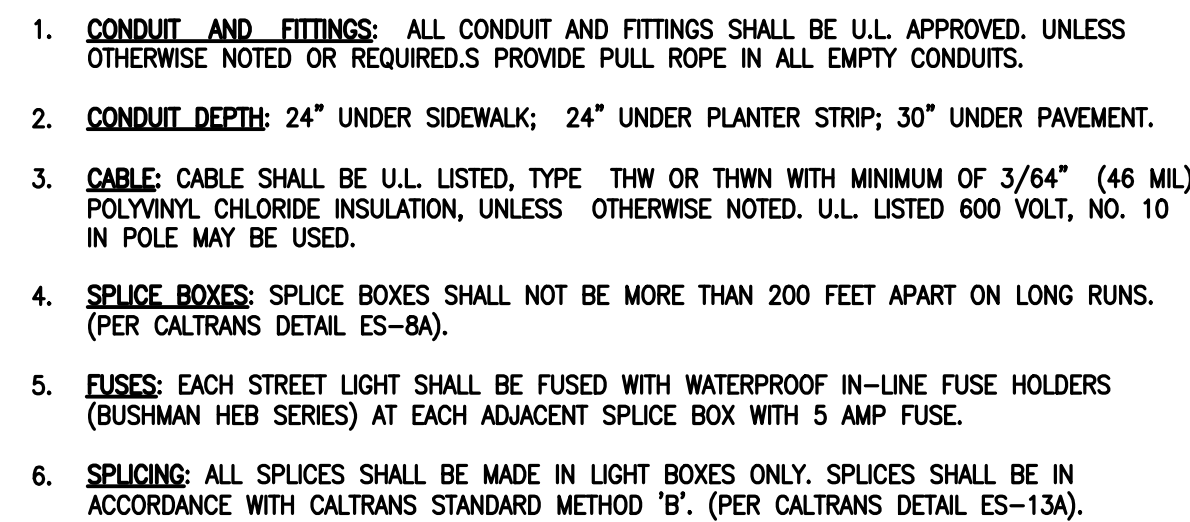
SCALE:
1"=30'

JOB NUMBER:
22-246

DATE LAST MODIFIED:
05-04-23

SHEET
INT3

OF 4 SHEETS

[illegible]

1. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE STATE FIRE MARSHALL, FEDERAL, AND ALL APPLICABLE CITY, COUNTY, STATE AND LOCAL UTILITY COMPANY REGULATIONS; N.E.C., AND THE LATEST APPROVED STANDARDS OF I.E.E.E., A.S.A., N.E.M.A., U.L. AND OSHA WHERE APPLICABLE; NOTHING IN THESE PLANS OR SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE ABOVE. ALSO, ALL SECTIONS OF STATE OF CALIFORNIA PUC G.O. 95 SHALL APPLY.
2. MATERIALS FURNISHED UNDER THIS SECTION OF THESE SPECIFICATIONS FOR WHICH UL STANDARDS HAVE BEEN ESTABLISHED SHALL BE LISTED AND BEAR THE LABEL OF UNDERWRITER'S LABORATORIES, INC.
3. WHERE REQUIREMENTS OF APPLICABLE CODES AND STANDARDS CONFLICT WITH THE DRAWINGS OR THESE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
4. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT FIRST NOTIFYING & OBTAINING APPROVAL FROM CITY/COUNTY AGENCY & GIALONCE DESIGN SERVICES, INC.
5. CONTRACTOR TO INSTALL CIRCUIT GROUNDING AND GROUND WIRE IN CONDUIT PER N.E.C. STANDARDS AND LOCAL GOVERNING AGENCIES REQUIREMENTS.
6. A LIST OF ALL MATERIALS & SUPPLIERS SHOULD BE PROVIDED TO AUTHORITY HAVING JURISDICTION FOR APPROVAL.
7. GROUNDING & BONDING SHALL PROPERLY INTERCONNECT ALL METAL PARTS OF THE SYSTEM.
8. ALL CONNECTIONS SHALL BE SECURED WITH LOCK NUTS AND INSULATED BUSHINGS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE OPERATING SYSTEM.
10. GIALONCE DESIGN SERVICES, INC. ASSUMES NO RESPONSIBILITY FOR ANY VARIANCE BETWEEN THESE PLANS AND THE ACTUAL FIELD CONDITIONS. CONTRACTOR SHOULD REVIEW PROJECT SITE PRIOR TO SUBMITTING ITS BID.
11. ANY CHANGES OR MODIFICATIONS TO PROPOSED LIGHT LOCATIONS SHALL BE APPROVED, IN WRITING, BY THE CITY/COUNTY AGENCY PRIOR TO INSTALLATION.
12. AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE STREET LIGHT ADMINISTRATION DEPT. OF THE CITY/COUNTY PRIOR TO ACCEPTANCE OF THE PRIVATE LIGHTING SYSTEM.



LUMINAIRE SCHEDULE								
TYPE	LUMINAIRE	DIST.	MTG. HT.	ARM	POLE HT.	COLOR	MATERIAL	QUANTITY
"AA"  AREA LIGHT	27W, LED, 120V	TYPE T4S	20'-0"	SM ARM	20'-4"	T.B.D	ALUMINUM	1
"BB"  AREA LIGHT	27W, LED, 120V	TYPE T3M	20'-0"	SM ARM	20'-4"	T.B.D	ALUMINUM	6
"CC"  AREA LIGHT	27W, LED, 120V	TYPE T2M	20'-0"	SM ARM	20'-4"	T.B.D	ALUMINUM	3
"DD"  WALLPAK LIGHT	34W, LED, 120V	TYPE 4	8'-6±"	FOR REFERENCE ONLY		T.B.D	ALUMINUM	3



PUBLIC/PRIVATE LIGHTING: PRIVATE

PG&E RATE SCHEDULE: BLDG PANELS

INSTALL IN JOINT TRENCH: _____

INSTALL IN SEPARATE TRENCH: ✓

CITY PERMIT REQUIRED: ✓

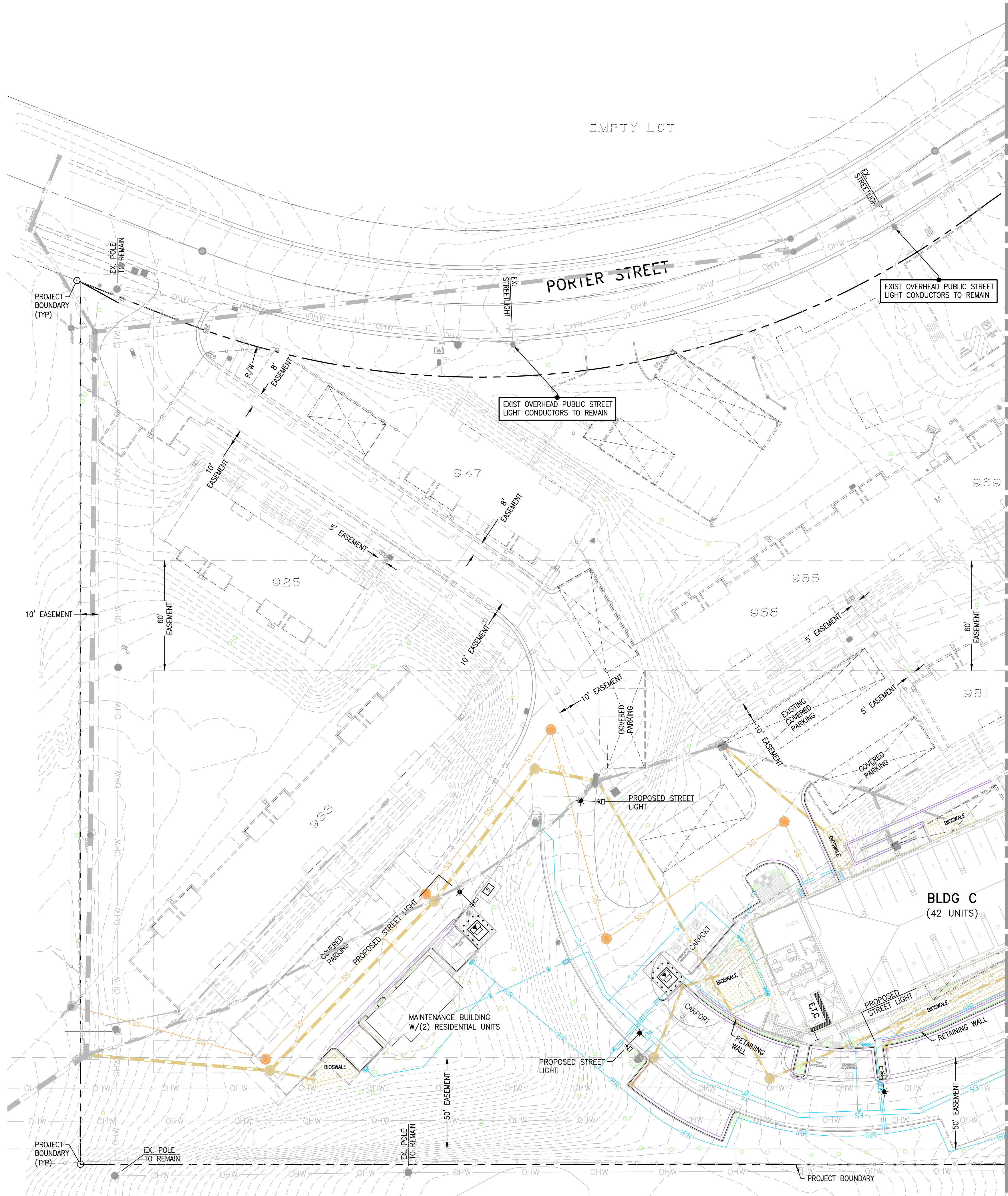
CONTACT U.S.A. (811) (2) FULL WORKING DAYS PRIOR TO STARTING WORK IF EXISTING UTILITIES CONFLICT WITH POLE LOCATION, FIELD ADJUST TO CLEAR EXISTING UTILITIES A MINIMUM OF 3'-0".



PRIVATE STREET LIGHTING TITLE SHEET

KLEIN FINANCIAL CORPORATION
WEST HARBOR PARK APARTMENTS
925-1015 PORTER STREET
VALLEJO CALIFORNIA

PrSL¹



LEGEND

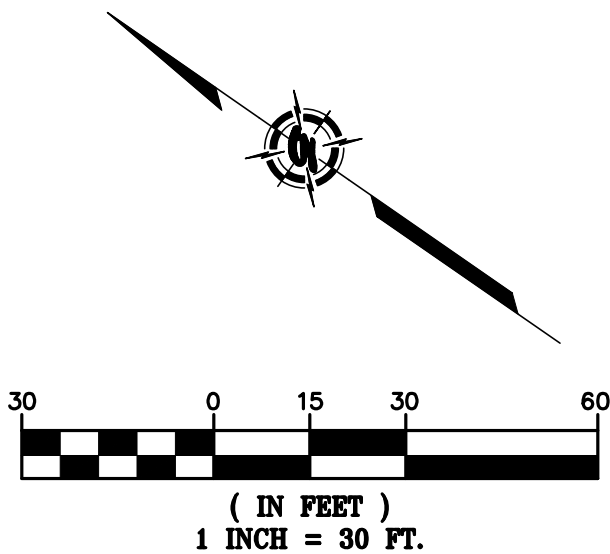
PROPOSED SINGLE ARM STREET LIGHT (TYPE T4S)

PROPOSED SINGLE ARM STREET LIGHT (TYPE T3M)

PROPOSED SINGLE ARM STREET LIGHT (TYPE T2M)

PROPOSED WALLPACK LIGHT (TYPE 4)(INSTALLED BY OTHERS, FOR REFERENCE ONLY)

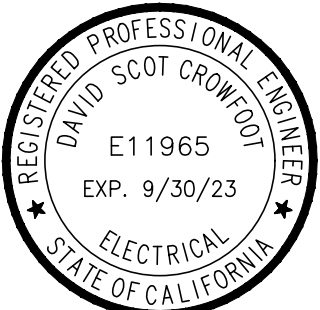
FIRE HYDRANT (BY OTHERS)



PRELIMINARY PLANS
NOT FOR CONSTRUCTION

TWO DAYS BEFORE YOU DIG
CALL USA TOLL FREE
811

CALL BEFORE YOU DIG



CAUTION:
CONTACT U.S.A. (811) (2) FULL WORKING DAYS PRIOR TO STARTING WORK IF EXISTING UTILITIES CONFLICT WITH POLE LOCATION, FIELD ADJUST TO CLEAR EXISTING UTILITIES A MINIMUM OF 3'-0".

REVISIONS	
SYMBOL	DATE

GIACALONE

DESIGN SERVICES, INC.

5520 STONERIDGE HILL RD., #545 | PLEASANTON, CA 94588
925.467.1740 | WWW.GIACALONEDSIGN.COM

PRIVATE LIGHTING SITE PLAN

KLEIN FINANCIAL CORPORATION
WEST HARBOR PARK APARTMENTS
925-1015 PORTER STREET
VALLEJO

CALIFORNIA

PROJECT MANAGER:
FRED YARRA JR.

DRAWN BY:
H. GALLARDO

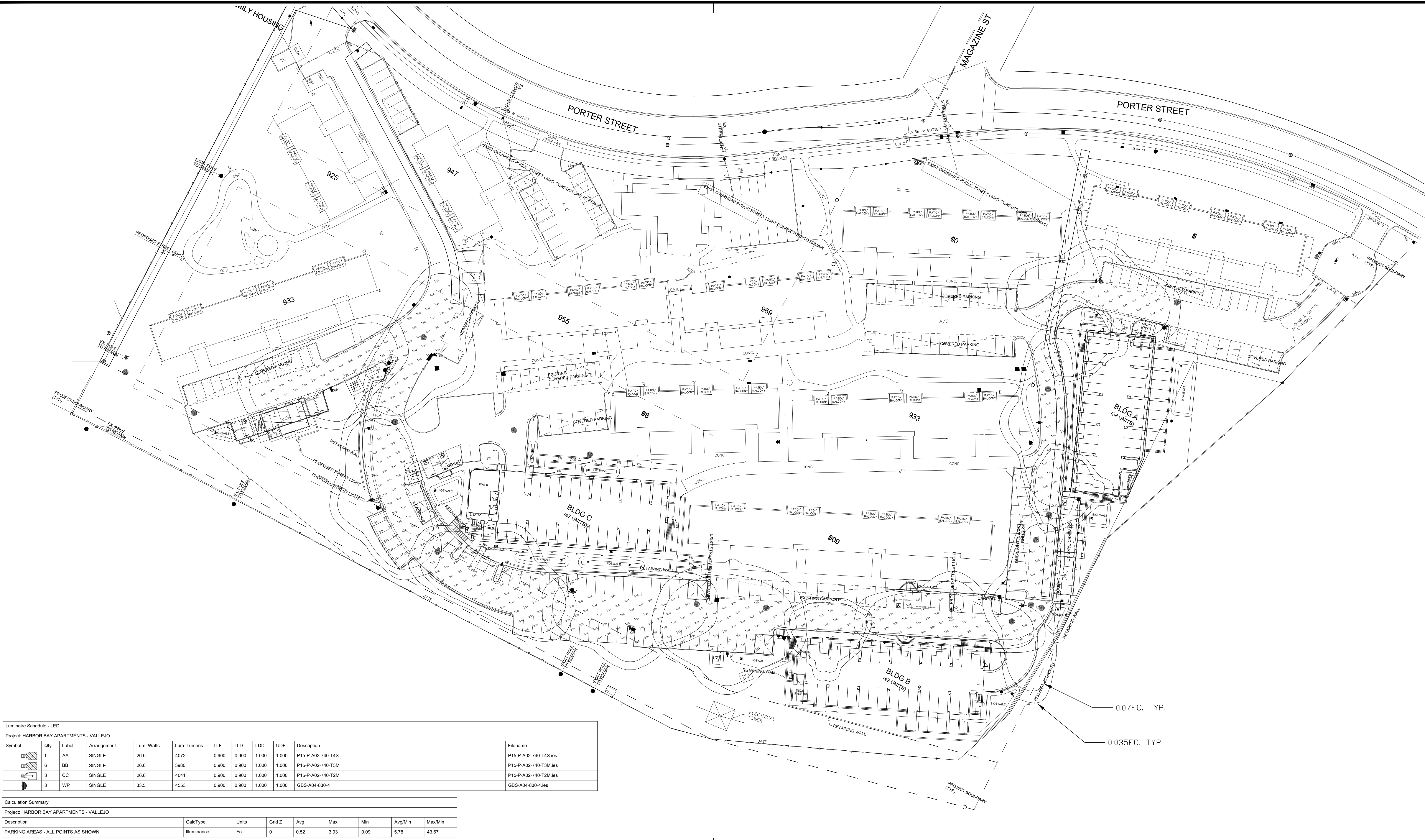
CHECKED BY:
C. PENN

SCALE:
1"=30'

JOB NUMBER:
22-246

DATE LAST MODIFIED:
05-04-23

SHEET
PrSL2
OF 4 SHEETS



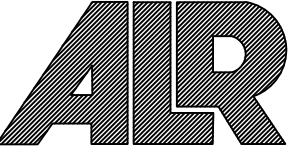
Luminaire Schedule - LED										
Project: HARBOR BAY APARTMENTS - VALLEJO										
Symbol	Qty	Label	Arrangement	Lum. Watts	Lum. Lumens	LLF	LLD	LDD	UDF	Description
	1	AA	SINGLE	26.6	4072	0.900	0.900	1.000	1.000	P15-P-A02-740-T4S
	6	BB	SINGLE	26.6	3980	0.900	0.900	1.000	1.000	P15-P-A02-740-T3M
	3	CC	SINGLE	26.6	4041	0.900	0.900	1.000	1.000	P15-P-A02-740-T2M
	3	WP	SINGLE	33.5	4553	0.900	0.900	1.000	1.000	GBS-A04-830-4
				Filename						
				P15-P-A02-740-T4S.ies						
				P15-P-A02-740-T3M.ies						
				P15-P-A02-740-T2M.ies						
				GBS-A04-830-4.ies						

Calculation Summary									
Project: HARBOR BAY APARTMENTS - VALLEJO									
Description	CalcType	Units	Grid Z	Avg	Max	Min	Avg/Min	Max/Min	
PARKING AREAS - ALL POINTS AS SHOWN	Illuminance	Fc	0	0.52	3.93	0.09	5.78	43.67	

ALL VALUES SHOWN ARE MAINTAINED HORIZONTAL FOOTCANDLES AT GRADE

PHOTOMETRIC DATA USED AS INPUT FOR THESE CALCULATIONS
IS BASED ON ESTABLISHED IES PROCEDURES AND PUBLISHED
LAMP RATINGS. FIELD PERFORMANCE WILL DEPEND ON ACTUAL
LAMP, BALLAST, ELECTRICAL, AND SITE CHARACTERISTICS.

Calculations have been performed according to IES standards and good practice.
Some differences between measured values and calculated results may occur due to
tolerances in calculation methods, testing procedures, component performance,
measurement techniques and field conditions such as voltage and temperature
variations. Input data used to generate the attached calculations such as room
dimensions, reflectances, furniture and architectural elements significantly affect the
lighting calculations. If the real environment conditions do not match the input data,
differences will occur between measured values and calculated values.



ASSOCIATED LIGHTING REPRESENTATIVES, INC
7777 PARDEE LANE
P.O. BOX 2265
OAKLAND, CA 94621
PHONE: (510) 638-0158 - FAX (510) 638-2908

REPORT FOR: GIALCONE DESIGN SERVICES
BY: APPLICATIONS ENGINEERING; RAMON ZAPATA
SALES REPRESENTATIVE: ALR: JOHN BENSON

\\AGI32\AGI32_Logo.jpg

PROJECT DESCRIPTION
WEST HARBOR PARK APARTMENTS
CITY OF VALLEJO

DRAWING NO. / INPUT FILE
18619BEN-R4.DWG / 18619BEN-R4.A32

SCALE	SHEET	DATE	REV
1" = 40'	1 OF 1	12.02.2022	4