Oakland City Planning Commission STAFF REPORT

Case File Number PLN20004 **December 2, 2020**

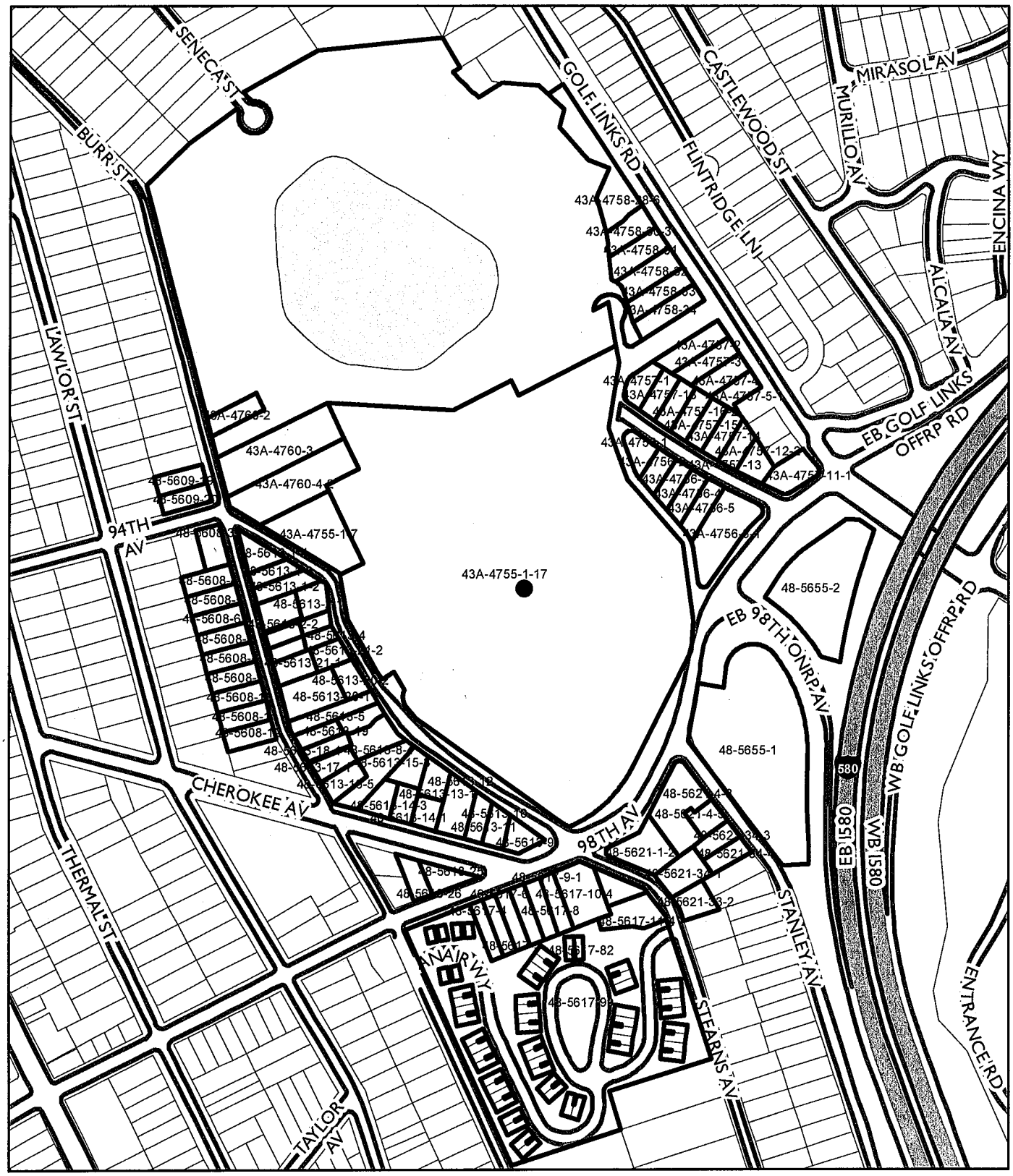
Location:	**9500 Stearns Avenue (APN: 043A-4755-001-17)**
Proposal:	Construction of a 36,000 square-foot, multi-story building on the Bishop O'Dowd High School campus, consisting of a 1,300-seat gymnasium, training rooms, music rooms, drama/rehearsal space, and multipurpose rooms. The proposal includes a determination of the required number of parking spaces per Planning Code Section 17.116.040.
Applicant:	Bishop O'Dowd High School, Kim Walsh
Phone Number:	(510) 553-8626
Owner:	The Roman Catholic Welfare Corporation of Oakland
Case File Number:	**PLN20004**
Planning Permits Required:	Regular Design Review for new construction, Major Conditional Use Permit for expanding a Community Education Civic Activity in the RD-1 Zone involving more than 25,000 square feet of floor area, Minor Conditional Use Permit for height of a civic building in the RD-1 Zone (where up to 75 feet is permitted and 58 feet is proposed), Minor Variance for lot coverage (where 15 percent is permitted and 19 percent is proposed), Minor Variance for maximum sign area in a Residential Zone, Minor Variance to exceed the maximum 600-foot distance for required off-street parking on separate lot, and Minor Variance for signage area in a Residential Zone. The project also requires a Tree Removal Permit (T200001) and a Category 3 Creek Protection Permit (CP20133).
General Plan:	Institutional
Zoning:	Detached Unit Residential (RD) – 1 Zone
Environmental Determination:	Project exempt from CEQA under the following sections of the State California Environmental Quality Act (CEQA) Guidelines: 15314 – Minor Additions to Schools; 15332 - Infill Development CEQA also does not apply to the project under the following section of the State CEQA Guidelines: 15183 – Projects Consistent with a Community Plan, General Plan, or Zoning
Historic Status:	Non-historic property
City Council district	7
Status:	Pending
Staff Recommendation:	Approval subject to the attached Conditions
Finality of Decision:	Appealable to City Council within 10 days
For further information:	Contact Case Planner Brittany Lenoir at (510) 238-4977 or blenoir@oaklandca.gov

SUMMARY

The applicant, Bishop O'Dowd High School, is a Catholic college preparatory high school that proposes to construct a new building of approximately 36,000 square feet (the "Center") on their existing school campus. The Center would include a 1,300-seat capacity gymnasium and have three stories of weight and training rooms, music rooms, rehearsal space, and multipurpose rooms. The proposal is not intended to increase student enrollment. Current student enrollment for the 2020-2021 school year is 1,250 students. The proposed Center building would be able to accommodate the entire study body at one time for assemblies, rallies, and other school functions. A parking analysis was conducted for the new building, which can be found as **Attachment E** in this report. The outcome of the report, its conclusions, and recommendations can be found in the *Key Issues and Impacts* portion of this staff report.

The proposal requires multiple Conditional Use Permits and Variances due to its unique nature of being a civic activity in a Residential Zone, but the project would be consistent with all required findings, which are contained in **Attachment A.**

Staff recommends approval of the project subject to the attached condition of approval found in **Attachment B.**



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PLN20004
9500 STEARNS AVE
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Date: 11/2/2020

PROJECT DESCRIPTION

The proposed Center building would replace portable facilities toward the middle of campus that are located adjacent to the existing baseball, football and track fields.

The school currently has two gymnasiums, one smaller girl's gym and one larger boy's gym. The smaller gym would be converted to additional classroom space under this proposal, while the larger gym would be maintained for team practices. The project is not intended to increase school enrollment. The current enrollment at Bishop O'Dowd High School for the 2020-2021 school year is 1,250 students, and the seating capacity of the new Center building is 1,300, which would accommodate the entire student body for schoolwide functions such as rallies and assemblies. The school's enrollment is expected to increase to approximately 1,320 in the coming years regardless of the construction of the Center.

The new building is proposed to be three stories tall, and at its tallest point would measure 58 feet. It would have a mix of indoor facilities and outdoor walkways and terraces. Exterior materials would include cement plaster, steel guardrails, and aluminum trellises. Signs identifying the school would be located on the façade facing the football, track, and baseball fields oriented toward 98th Avenue. The project must break ground by March 2021 to retain its funding.

303 campus parking spaces would be available after construction of the new building, which would be accessible from Stearns Avenue. For large events on campus, the baseball field would be utilized for parking on a temporary basis, providing an additional 250 parking spaces, for a total of 553 on-campus spaces. For the school's largest events, when additional parking spaces are needed, offsite parking with shuttle service at two local parishes and the Oakland Zoo would be provided. The Zoo is approximately one-half mile away and has approximately 150 parking spaces. St. Paschal Baylon Catholic Church is located approximately 0.75 miles away on the east side of I-580 near the Oakland Zoo and has approximately 110 striped spaces. The Church of the Assumption Parish is located three miles south of the school and has approximately 145 spaces. As conditioned, written agreements would be entered into and recorded, subject to staff verification, to assure these offsite spaces remain available in perpetuity or otherwise replaced.

The gym would host athletic games and practices and school events such as back to school night and performances. Last year, 43 of the 48 games had fewer than 800 attendees and 10-12 non-athletic events experienced 800 or more attendees, which is the capacity of the current gym.

Creek Protection measures have been included as a Condition of Approval to reduce construction impacts on the Arroyo Viejo Creek that runs along the side and back of the campus, on the opposite side of Seneca Reservoir and Las Vegas Avenue (Condition of Approval #32). A Tree Permit has also been submitted for this project, for both protection and removal of on-site trees. The proposed removal of protected trees can be found on Sheet C-200 of the project plans in **Attachment C**, and Conditions of Approval #21 and #22 has been included to address this removal.

PROPERTY DESCRIPTION

Bishop O'Dowd High School is located at 9500 Stearns Avenue, and is partially surrounded by lower density residential homes along Stearns and Las Vegas Avenues. In addition, Seneca Reservoir is located west of the campus. The project site, including the construction, staging, and building area, is approximately 3.5 acres of the 18-acre campus. The primary vehicle entrance to the school is on Stearns Avenue between

98th Avenue and Burr Street. The school campus currently has many of its buildings oriented toward the middle and back of the lot away from 98th Avenue.

ZONING ANALYSIS

Bishop O'Dowd High School is located within the Detached Unit Residential (RD-1) – 1 Zone. Per the Planning Code, "The intent of the RD-1 Zone is to create, maintain, and enhance areas with detached, single unit structures. A limited number of commercial uses will be permitted or conditionally permitted in existing Nonresidential Facilities." Bishop O' Dowd High School is a longstanding civic facility in this neighborhood. The project would enhance the residential character of the neighborhood by expanding a civic facility that provides critical educational services to the neighborhood and is a centerpiece of the area.

The project will need the following permits:

Regular Design Review

The project requires approval through the Regular Design Review process for new construction. The Design Review permit requires approval from the Planning Commission because it involves an increase in floor area over 25,000 square feet.

Conditional Use Permits

The proposed expansion requires a Conditional Use Permit (CUP) because Community Education Civic Activities are conditionally permitted in the RD-1 Zone. A CUP is also required to accommodate a civic building over the height limit generally prescribed for the underlying zone. The CUP allows for a one-foot increase in the height limit for each foot the facility is set back from the closest property line. The Center is proposed to be 58 feet while the height limit for the RD-1 Zone is 30 feet. This increase of 28 feet over the normally allowed height limit can be permitted upon the granting of a CUP because the Center is more than 100 feet from any property line.

Per Section 17.134.020 of the Planning Code, the Conditional Use Permits require approval from the Planning Commission because they involve the expansion of nonresidential activities of more than 25,000 square feet of floor area.

Staff supports the granting of the CUPs because, as conditioned, the proposal would not have a major parking or queuing impact on the neighborhood. This issue is further discussed in the "Key Issues and Impacts" section of this report.

Variances

The project requires the following Variances, as described below.

1. As stated in the "Project Description Section," above, the proposal includes providing required parking off site from the school with shuttle service. A variance is required because the location of this off-site parking will exceed the maximum distance of 600 feet from the subject site allowed by the Planning Code. Staff supports this Variance because, as conditioned, the satellite parking areas would be well advertised to those attending the school events and shuttle services would be provided. Parking is further discussed in the "Key Issues and Impacts" section, below.

2. A Variance is required for lot coverage. Lots over an acre in the RD-1 Zone have a maximum lot coverage of 15 percent, while the Center would result in a lot coverage of approximately 19 percent. Staff supports this Variance because the maximum lot coverage regulation was intended for relatively low density residential construction, not a high school campus or other large civic activity. The additional lot coverage would not crowd the large lot or reduce the appearance of openness from the street.
3. The Planning Code states that no single sign for a civic activity can have a display surface greater than one square-foot on any one face, except that two civic signs on a lot greater than 20,000 square feet can be larger, but cannot cumulatively be greater than 30 square feet. The project includes a new sign of 54 square feet featuring the school's name. Staff supports this Variance because the proposed sign would be in scale with the new building and the larger campus, is customary signage for a gym, and would not be prominently seen from the street.

Required Parking Spaces

There is no specific number of parking spaces in the Planning Code required for Community Education Civic Activities in a Residential Zone. Instead, the requirements are prescribed by the Director of City Planning. Planning Code Section 17.116.040, outlines the steps required when the Code requires a Determination by the Director of City Planning:

> *In the case of activities for which the Director of City Planning is required to prescribe a number of parking spaces or loading berths, he or she shall base his or her determination on the traffic generation of the activities, the amount and frequency of loading operations thereof, the time of operation of the activities, their location, and such other factors as affect the need for off-street parking or loading. At his or her discretion, the Director of City Planning may require the applicant to provide an analysis of parking demand and capacity from an independent professional. Any such determination shall be subject to appeal pursuant to the administrative appeal procedure in Chapter 17.132.*

As such, the Planning Bureau required that a study be performed to analyze parking and queuing to make an informed decision on the number of parking spaces the City should require for the new Center building. The focus of the study, contained in Attachment D, is to assure that parking and queueing for large events at the Center would not have a major impact on the residents of Stearns Avenue. A determination has been made that 618 parking spaces are required for the gymnasium capacity of 1,300 attendees. This is further discussed in the "Key Issues and Impacts" Section of this report.

GENERAL PLAN ANALYSIS

The site is classified as being within the *Institutional* land use classification of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. "The Institutional classification is intended to create, maintain, and enhance areas appropriate for educational facilities, cultural and institutional uses, health services and medical uses as well as other uses of similar character." The project is consistent with the following LUTE objectives and policies:

Objective N2
Encourage adequate civic, institutional, and educational facilities located within Oakland, appropriately designed and sited to serve the community.

Policy N2.1 - Designing and Maintaining Institutions.

As Institutional uses are among the most visible activities in the City and can be sources of community pride, high-quality design and upkeep/maintenance should be encouraged. The facilities should be designed and operated in a manner that is sensitive to surrounding residential and other uses.

Policy N2.3 Supporting Institutional Facilities.
The City should support many uses occurring in institutional facilities where they are compatible with surrounding activities and where the facility site adequately supports the proposed uses.

Policy N2.5 Balancing City and Local Benefits of Institutions.
When reviewing land use permit applications for the establishment or expansion of institutional uses, the decision-making body should take into account the institution's overall benefit to the entire Oakland community, as well as its effect upon the immediately surrounding area.

The proposal by Bishop O'Dowd High School to add a gymnasium and other classroom and multipurpose spaces to the existing school campus would support and strengthen a longstanding institution in the Oakland Community. The design is compatible with the surrounding lower density residential neighborhood by being significantly set back from any abutting property line and would not result in view or privacy impacts due to its central location on the site. A parking analysis indicates that, as conditioned, overflow parking and queuing from the project would not have a significant impact on the neighborhood (see the "Key Issues and Impacts" section of this report).

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines categorically exempts specific types of projects from environmental review. Section 15314 of the State CEQA Guidelines exempts minor additions to schools. This exemption applies when a project does not increase the original student capacity by more than 25 percent or ten classrooms, whichever is less. As previously discussed, this project is not intended to increase student capacity. Also, the Center would provide one weight and training room, one lecture room, one music room, one classroom/event space, and one drama classroom/rehearsal room, which results in only five new class spaces for students. In addition, Section 15332 of the State CEQA Guidelines exempts Infill development in urbanized areas and upon meeting the Class 32 exemption findings. Bishop O'Dowd High School is in an urbanized area and meets those findings. See the findings below in Attachment A. Lastly, Section 15183 of the State CEQA Guidelines relates to Projects Consistent with a Community Plan, General Plan or Zoning. The project adheres to this section, and therefore, the project is not subject to further Environmental Review.

KEY ISSUES AND IMPACTS

Queuing and overflow parking are common issues for a new civic facility such as the one proposed and are discussed below.

Parking

Attachment D shows the *Focused Traffic Impact, Parking Demand, and Vehicle Miles Traveled Analysis for The Proposed Bishop O'Dowd High School Athletic Center* that was prepared by GHD, a traffic consultant. According to the Study, 553 total on-site spaces are available on-site. This includes 303 permanent striped spaces that are on the campus and 259 temporary parking spaces on the baseball field. The Study assumes that when the parking supply is close to capacity there is a lower utilization rate, and

to allow for a ten percent supply cushion to address circulation issues and congestion. Therefore, for large events, the assumption is that there are 500 on-site spaces. The study also states that the capacity for the largest events in the Center is 1,300 people.

The demand analysis provides different parking utilization rates for nonathletic events (.43 parking spaces required per attendee) and athletic events (.38 parking spaces per attendee), because athletic events tend to have more drop-offs and, thus, require fewer parking spaces. The study also provides an analysis of how much off-site parking is required when the baseball field is available for overflow and when it is not.

Requirement for off-site parking spaces when the baseball field is available.

According to the study, up to 494 parking spaces would be required for the largest sporting event. Therefore, when the baseball field is available, on-site parking would be sufficient for all sporting events in the Center.

Up to 559 spaces would be required for the largest nonathletic events, which creates a deficit of 59 parking spaces. Using the demand factors in the study, any nonathletic event with over 1,200 attendees would exceed the available permanent on-site parking of 500 spaces.

Requirement for off-site parking spaces when the baseball field is not available.

For the largest events, significantly more off-site spaces would be required if the baseball field is unavailable. As mentioned, up to 494 parking spaces would be required for the largest sporting event. Using the demand factors in the study, any athletic event with over 800 attendees would exceed the available permanent on-site parking availability of 303 spaces. For a large sporting event of 1,300 attendees, at least 191 off-site parking spaces will need to be made available if the baseball field is unavailable.

Using the demand factor in the study for non-athletic events, off-site parking at satellite lots will be needed when an event exceeds 700 attendees. For the largest nonathletic event of 1,300 attendees, parking demand has been calculated to be 559 spaces. Which means that in the case that the baseball field is not available, at least 256 off-site parking spots will need to be provided at satellite locations.

The following table summarizes the findings:

	Nonathletic events	Athletic events
Parking deficit (baseball field available)	Up to 59 spaces at Center capacity – parking deficit starts when attendance is above 1,200 attendees	0
Parking deficit (baseball field unavailable)	Up to 256 spaces at Center capacity – parking deficit starts when attendance is above 700 attendees	Up to 191 spaces at Center capacity – parking deficit starts when attendance is above 800 attendees

As mentioned in the Project Description Section of this report, the remote lots have the following parking spaces available:

- Oakland Zoo – 150 spaces;
- St. Paschal Baylon Catholic Church – 110 spaces; and

- The Church of the Assumption Parish – 145 spaces.

Condition of Approval #47 requires any one of the above off-site lots be made available for non-athletic event when attendance is expected to be above 1,200 attendees and when the baseball field is available. The condition further states that when the baseball field is unavailable and the attendance for a non-athletic event exceeds 700 people or an athletic event exceeds 800 people, at least two of the off-site parking sites must be made available. This allows off-site availability to match (and exceed) what the parking availability is when the baseball field is available. As mentioned, attendance for most athletic games in the existing gym consists of fewer than 800 attendees (43 of the 48 games played last year had less than 800 attendees) and the school averages 10-12 non-athletic events per year that experience 800 or more attendees.

Application of this condition along with following proposed conditions will minimize overflow parking in the surrounding neighborhood:

- The school's traffic control and security personnel would oversee the baseball field parking, directing motorists to the proper parking spaces and circulation routes (Condition of Approval #52);
- Written agreements would be developed to assure satellite spaces remain available (Condition of Approval #47);
- Shuttle service from satellite parking lots would need to be in service during large events (Condition of Approval #47); and
- During large events, temporary parking prohibitions for event attendees would be implemented on Stearns Avenue between 98th Avenue and Burr Street. Temporary signs, placards, or moveable barriers prohibiting event parking would be in front of the homes on the opposite side of the school during the event to preserve street parking for the residents (Condition of Approval #49).

In addition, Condition of Approval #53 has been included to require monitoring for at least the next five years to ensure that all the parking and traffic conditions are being met and are successful reducing any parking, queuing, or traffic issues.

Queuing

Queuing along Stearns Avenue during the end of events, both for athletic and non-athletic school events, could cause disruption to the residents who live on Stearns Avenue. The *Focused Traffic Impact, Parking Demand, and Vehicle Miles Traveled Analysis for The Proposed Bishop O'Dowd High School Athletic Center* indicates that queue lengths after major events would range from 160 – 270 feet from the intersection of 98th Avenue and Stearns . This queueing is anticipated to be resolved within 20 minutes after an event ends. But it is possible to lessen the amount of queuing that occurs along Stearns Avenue by increasing the green light time for the Stearns and 98th Avenue intersection, thereby decreasing the impact to the surrounding residential neighborhood. As a result of this analysis, staff is proposing that the school work with the Oakland Department of Transportation (OakDOT) to alter the signal timing for the end of school events to minimize the occurrence of vehicle queuing along Stearns Avenue. (Condition of Approval #50). This condition is recommended by the traffic analysis and the Department of Transportation.

RECOMMENDATIONS:

1. Affirm staff's environmental determination.
2. Approve the Regular Design Review, Conditional Use Permits, and Variances subject to the attached findings and conditions.
3. Affirm staff's determination of number of required parking spaces for the Center.

Prepared by:

BRITTANY LENOIR
Planner II

Reviewed by:

ROBERT MERKAMP
Zoning Manager

Approved for forwarding to the
City Planning Commission:

ED MANASSE
Deputy Director
Bureau of Planning

LEGAL NOTICE: THE DECISION OF THE CITY PLANNING COMMISSION IS FINAL AND NOT ADMINISTRATIVELY APPEALABLE. ANY PARTY SEEKING TO CHALLENGE SUCH DECISION IN COURT MUST DO SO WITHIN NINETY (90) DAYS OF THE DATE THE DECISION IS ANNOUNCED (CODE OF CIVIL PROCEDURE SECTION 1094.6).

ATTACHMENTS:

A. Findings
B. Conditions
C. Project Plans
D. Sign Plan
E. Focused Traffic Impact, Parking Demand, and Vehicle Miles Traveled Analysis for The Proposed Bishop O'Dowd High School Athletic Center

ATTACHMENT A: FINDINGS

This proposal meets all the required findings under the Sections 17.136.050B, 17.134.050, 17.148.050A, and 17.148.050C of the Oakland Planning Code (OMC Title 17) as set forth below and which are required to approve your application. Required findings are shown in **bold** type; reasons your proposal satisfies them are shown in normal type.

Regular Design Review Criteria For Nonresidential Facilities and Signs (OMC Sec. 17.136.050B)

1. **That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal 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, except as otherwise provided in Section 17.136.060.**

   The proposed new Center building will be stucco and have a similar style of architecture to the other buildings on campus. At 58 feet tall, the Center it will be one of the taller buildings on the site, but with its proposed location adjacent to the existing gymnasium building that is approximately 39 feet tall and toward the center of the campus it will not be out of scale with the surrounding buildings. Although the new gymnasium will be the most prominent campus building as seen from 98th Avenue, it will remain setback approximately 182-212 feet from the property line. In addition, a large existing retaining wall fronting 98th Avenue blocks a majority of the view of the campus from the public right of way. Finally, the view from Stearns Avenue will also be limited due to the location of the new building on the site and existing surrounding retaining walls.

   Multiple terraces at the west elevation will break up the volume of the building of the building and help to further integrate it with the shorter buildings on campus. The project will also include site upgrades such as landscaping around the proposed Center and a new drive aisle.

2. **That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area.**

   The proposed design will be of high quality and will include features that reduce the appearance of bulk (see Finding #1). There will also be significant windows along all sides, which will provide visual interest and articulation. The east elevation will have a colored glass window groupings that will provide a unique feature for the building. This high-quality design will be an asset to Bishop O'Dowd High School and the surrounding community.

   At 54 square feet, the size of the proposed new signage will be in proportion to the scale of the building. The nonilluminated steel letters will be respectful to the surroundings and design of the building.

3. **That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control**

As shown in the *General Plan Analysis* portion of the staff report, the project will conform to all applicable objectives and policies of the Institutional classification of the Land Use and Transportation Element of the General Plan. The site is not a part of a specific plan area.

General Use Permit Criteria (OMC Sec. 17.134.050)

1. **That the location, size, design, and operating characteristics of the proposed development will be compatible with and will not adversely affect the livability or appropriate development of abutting properties and the surrounding neighborhood, with consideration to be given to harmony in scale, bulk, coverage, and density; to the availability of civic facilities and utilities; to harmful effect, if any, upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development.**

   The proposal will be compatible with the existing development on site and with the surrounding residential homes. In addition, the building design, including its height, will be consistent with the existing buildings on-site. The proposed building will be one of the tallest on the project site, but due to its central location on the lot, it will not have a significant street presence (see Regular Design Review Findings, above).

   As described in the "Key Issues and Impacts" section of this report, the project will have a minimal amount of negative effect on the surrounding neighborhood in terms of parking or on street queueing in front of the homes on Stearns Avenue.

2. **That the location, design, and site planning of the proposed development will provide a convenient and functional living, working, shopping, or civic environment, and will be as attractive as the nature of the use and its location and setting warrant.**

   The circulation, site planning, and layout of the Center will efficiently provide athletic and cultural services to students and attendees of events. As described in the "Key Issues and Impacts" section of this report, parking will be sufficiently accommodated on and off site. As described in the Design Review Findings, above, the site will be attractive and fit into the context of the institutional buildings on campus.

3. **That the proposed development will enhance the successful operation of the surrounding area in its basic community functions, or will provide an essential service to the community or region.**

   The proposal will enhance a basic community function by providing adequate facilities for the existing high school, thereby enhancing the essential service to the community and students.

4. **That the proposal conforms to all applicable regular design review criteria set forth in the regular design review procedure at Section 17.136.050.**

   This proposal meets all Regular Design Review criteria. See the above findings.

5. **That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable guidelines or criteria, district plan or development control map which has been adopted by the Planning Commission or City Council.**

   This site is not a part of a specific plan, but the project conforms to the Institutional classification of the LUTE of the General Plan. See the *General Plan Analysis* for further discussion.

6. **For proposals involving a One- or Two-Family Residential Facility: If the conditional use permit concerns a regulation governing maximum height, minimum yards, maximum lot coverage, or maximum floor area ratio, the proposal also conforms with at least one of the following additional criteria:**
    a. **The proposal when viewed in its entirety will not adversely impact abutting residences to the side, rear, or directly across the street with respect to solar access, view blockage and privacy to a degree greater than that which would be possible if the residence were built according to the applicable regulation, and, for conditional use permits that allow height increases, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height; or**
    b. **At least sixty percent (60%) of the lots in the immediate context are already developed and the proposal would not exceed the corresponding as-built condition on these lots, and, for conditional use permits that allow height increases, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height. The immediate context shall consist of the five (5) closest lots on each side of the project site plus the ten (10) closest lots on the opposite side of the street (see illustration I-4b); however, the Director of City Planning may make an alternative determination of immediate context based on specific site conditions. Such determination shall be in writing and included as part of any decision on any conditional use permit.**

This finding is not applicable since the proposal is not for a one- or two- family residential facility.

General Variance Findings (OMC Sec. 17.148.050A)

1. **That strict compliance with the specified regulation would result in practical difficulty or unnecessary hardship inconsistent with the purposes of the zoning regulations, due to unique physical or topographic circumstances or conditions of design; or, as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution improving livability, operational efficiency, or appearance.**

Strict compliance with the lot coverage regulations in the Detached Unit Residential (RD-1) - Zone would result in both practical difficulty and unnecessary hardship that is inconsistent with the intent of the RD Zone regulations. Development in the RD Zones primarily consists of lower density residential development. As such, many of the density, setback, and lot coverage regulations are very strict. In this case for a lot that is over 43,560 square feet, it would be an unnecessary hardship on the school to limit lot coverage to only 15%. The subject lot is about 793,445 square feet, thereby making lot coverage limited to 119,016 square feet. The proposal will be increasing coverage by approximately 23,000 square feet, resulting in total coverage of 141,000 square feet. This amount of coverage is not unusual for a civic activity like Bishop O'Dowd High School and will not result in any negative impact to the site or its surrounding area. The additional lot coverage would not crowd the large lot or reduce the appearance of openness from the street.

Also, strict compliance with the 600-foot distance regulations for required parking on off- site parking lots would preclude an effective solution and limit operational efficiency. As described in the "Key Issues and Impacts" section of this report, the use of off-site parking will be occasional and be served by a shuttle run by the school. The off-site parking is critical in minimizing negative effects from the occasional large events held at the gym. A Condition of Approval has been included in this project to ensure adequate transportation to and from the off-site parking lots is provided (Condition of Approval # 47).

2. **That strict compliance with the regulations would deprive the applicant of privileges enjoyed by owners of similarly zoned property; or, as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution fulfilling the basic intent of the applicable regulation.**

   Strict compliance of the lot coverage and off-site parking distance regulations would preclude an effective design solution. The site is unique due to its size in an RD-1 Zone, and so strict compliance with the 15 percent lot coverage regulations would be impractical for a school. In addition, strict compliance with the off-site parking distance requirement of 600 feet would preclude an effective solution to the parking requirements and would restrict both development and solution to on-street parking issues for the surrounding residential neighborhoods at Burr Street and Stearns Avenue.

3. **That the variance, if granted, will not adversely affect the character, livability, or appropriate development of abutting properties or the surrounding area, and will not be detrimental to the public welfare or contrary to adopted plans or development policy.**

   A Variance for lot coverage will not have an adverse effect on the character, livability, or appropriate development of the surrounding neighborhood. The addition of the Center will be used to accommodate the needs of the existing student body and is not intended to increase enrollment. Furthermore, the allowance to exceed the lot coverage regulations of 15 percent will not impact the surrounding development because the Center will be significantly setback from any surrounding residential uses or public streets, and will not impact any views.

   A Variance to exceed the distance requirements of 600-feet for off-site required parking will benefit the livability and character of the abutting properties by decreasing the possibility of on-street parking around the school at the surrounding residential neighborhood streets.

4. **That the variance will not constitute a grant of special privilege inconsistent with limitations imposed on similarly zoned properties or inconsistent with the purposes of the zoning regulations.**

   The RD-1 Zone is "intended to create, maintain, and enhance areas with detached, single unit structures. A limited number of commercial uses will be permitted or conditionally permitted in existing Nonresidential Facilities." The Variances for lot coverage and distance of off-site parking will not grant a special privilege since this site is unique and is a large high school in a low density residential zone. If the Variances are granted, usability of the school and its operations will be enhanced. The proposed coverage is not unusual for an urban high school setting.

5. **That the elements of the proposal requiring the variance (e.g., elements such as buildings, walls, fences, driveways, garages and carports, etc.) conform with the regular design review criteria set forth in the design review procedure at Section 17.136.050.**

   See the *Regular Design Review Criteria For Nonresidential Facilities and Signs* findings above.

6. **That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.**

   See the *General Plan Analysis* portion of the Staff Report.

7. **For proposals involving one (1) or two (2) residential dwelling units on a lot: That, if the variance would relax a regulation governing maximum height, minimum yards, maximum lot coverage or maximum floor area ratio, the proposal also conforms with at least one of the following additional criteria:**
    a. **The proposal when viewed in its entirety will not adversely impact abutting residences to the side, rear, or directly across the street with respect to solar access, view blockage and privacy to a degree greater than that which would be possible if the residence were built according to the applicable regulation and, for height variances, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height; or**
    b. **Over sixty percent (60%) of the lots in the immediate vicinity are already developed and the proposal does not exceed the corresponding as-built condition on these lots and, for height variances, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height. The immediate context shall consist of the five (5) closest lots on each side of the project site plus the ten (10) closest lots on the opposite side of the street (see illustration I-4b); however, the Director of City Planning may make an alternative determination of immediate context based on specific site conditions. Such determination shall be in writing and included as part of any decision on any variance.**

This finding is not applicable since the proposal does not involve one or two unit residential dwelling units.

Variance Findings for Sign Facilities (OMC Sec. 17.148.050C)

1. **That strict compliance with the specified regulation would result in practical difficulty or unnecessary hardship inconsistent with the purposes of the zoning regulations, due to unique physical or topographic circumstance or conditions of design.**

Strict compliance with the regulations for Civic Signs in residential zones at stated in Section 17.104.010F of the Planning Code would result in unnecessary hardship and practical difficulty. If the regulations were followed and the Variance was not granted, signage would be limited to 30 square feet. The site is unique in that it is significantly setback from the property lines fronting 98th Avenue and a portion of Stearns Avenue and the campus is a very large at about 18 acres. In addition, the signage will be non-illuminated and appropriate for the proposed Center development. The proposed sign is a standard feature of high school gyms.

2. **That strict compliance with the regulations would deprive the applicant of privileges enjoyed by owners of similarly zoned property.**

The site is unique in that it is a Civic Facility on a campus sized lot within a residential zone. The limitation of two 30-foot signs on a 18-acre lot is impractical.

3. **That the variance will not constitute a grant of special privilege inconsistent with limitations imposed on similarly zoned properties or inconsistent with the purposes of the zoning regulations.**

The amount of signage proposed is in scale with the proposed size of the building and its location on the campus. The signage is designed to contain the school name along the west elevation of the Center, measuring at 1'-6" by 36' or 54 square feet. The Center will be approximately 185 feet from 98th Avenue and 335 feet from Stearns Avenue, which will limit its visibility from the surrounding public streets. This amount of signage is typical for high school campuses in

Oakland. In addition, Condition of Approval #50 will restrict illumination and require non-moving signs.

CITY OF OAKLAND
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
CLASS 32 (IN-FILL DEVELOPMENT) EXMPTION FINDINGS

CEQA, or the California Environmental Quality Act, is a statute that requires that state and local agencies identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Categorical exemption are descriptions of types of projects which the Secretary of the Resources Agency of the State of California has determined do not have a significant effect on the environment, and therefore, are not subject to further environmental review under CEQA.

The Class 32 exemption (Section 15332 of the State CEQA Guidelines) is intended to promote infill development within urbanized areas. The class consists of environmentally benign in-fill projects which are consistent with the local general plan and zoning requirements. This class is not intended to be applied to projects which would result in any significant traffic, noise, air quality, or water quality effects. In order to qualify for this exemption, projects must comply with all of the following findings. Below are the findings required for projects found exempt under Section 15332 and the reasons the proposed project meets these findings:

(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.

As described in the Regular Design Review and the Conditional Use Permit criteria above, this project is consistent with all applicable general plan designations and policies found in the Institutional classification of the LUTE. In addition, the site is unique in that it is a Community Education Civic Facility in a Detached Unit Residential – 1 Zone. Therefore, regulations such as height, lot coverage, and sign area are not conforming with the RD-1 requirements, but the findings have be made to support all Variance and Conditional Use Permit requests.

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

The project is located within the City of Oakland limits and the Center's overall area, including the construction and staging area, will not exceed five acres.

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

The site has no value as habitat for endangered, rare, or threatened species, as it is currently being used as a high school campus.

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

Traffic: The project will not increase student enrollment or overall attendance to events (currently, the largest events are held at other locations), and so overall traffic generation will not be effected by the proposal.

Noise: The project would involve both construction noise and post-construction noise consistent with the typical noise associated with developments of this type in an urban location. Standard conditions of approval are applied to mitigate any potential disturbance due to the construction. In

addition, the implementation of the City's Noise Ordinance would reduce noise impacts to less than significant levels. Noise impacts from events in the Center will be insignificant because activities will be indoors and the building will be in the center of campus, far away from adjacent streets.

Air Quality: Implementation of standard conditions of approval involving dust control and construction emissions, will reduce air quality impacts to less than significant levels.

Water Quality: Implementation of the City's standard conditions of approval would reduce impacts to water quality to less than significant levels.

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

The project site is in an urbanized area that is accessible to all required utilities and public services.

ATTACHMENT B: CONDITIONS OF APPROVAL

The proposal is hereby approved subject to the following Conditions of Approval:

1. **Approved Use**

   The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, staff report, and the approved plans dated January 14, 2020 as amended by the following conditions of approval and mitigation measures, if applicable ("Conditions of Approval" or "Conditions").

2. **Effective Date, Expiration, Extensions and Extinguishment**

   This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten (10) calendar days unless an appeal is filed. Unless a different termination date is prescribed, this Approval shall expire **two years** from the Approval date, or from the date of the final decision in the event of an appeal, unless within such period a complete building permit application has been filed with the Bureau of Building and diligently pursued towards completion, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this Approval, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit or other construction-related permit for this project may invalidate this Approval if said Approval period has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

3. **Compliance with Other Requirements**

   The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, Department of Transportation, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

4. **Minor and Major Changes**

   a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning.

   b. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

5. Compliance with Conditions of Approval

a. The project applicant and property owner, including successors, (collectively referred to hereafter as the "project applicant" or "applicant") shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.

b. The City of Oakland reserves the right at any time during construction to require certification by a licensed professional at the project applicant's expense that the as-built project conforms to all applicable requirements, including but not limited to, approved maximum heights and minimum setbacks. Failure to construct the project in accordance with the Approval may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension, or other corrective action.

c. Violation of any term, Condition, or project description relating to the Approval is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approval or alter these Conditions if it is found that there is violation of any of the Conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

6. Signed Copy of the Approval/Conditions

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

7. Blight/Nuisances

The project site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within sixty (60) days of approval, unless an earlier date is specified elsewhere.

8. Indemnification

a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (hereafter collectively called "City") from any liability, damages, claim, judgment, loss (direct or indirect), action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

b. Within ten (10) calendar days of the filing of any Action as specified in subsection (a) above, the project applicant shall execute a Joint Defense Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

9. Severability

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if one or more of such Conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid Conditions consistent with achieving the same purpose and intent of such Approval.

10. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Monitoring

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with Engineering Services and/or the Bureau of Building, if directed by the Director of Public Works, Building Official, Director of City Planning, Director of Transportation, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

11. Public Improvements

The project applicant shall obtain all necessary permits/approvals, such as encroachment permits, obstruction permits, curb/gutter/sidewalk permits, and public improvement ("p-job") permits from the City for work in the public right-of-way, including but not limited to, streets, curbs, gutters, sidewalks, utilities, and fire hydrants. Prior to any work in the public right-of-way, the applicant shall submit plans for review and approval by the Bureau of Planning, the Bureau of Building, Engineering Services, Department of Transportation, and other City departments as required. Public improvements shall be designed and installed to the satisfaction of the City.

12. Trash and Blight Removal

Requirement: The project applicant and his/her successors shall maintain the property free of blight, as defined in chapter 8.24 of the Oakland Municipal Code. For nonresidential and multi-family residential projects, the project applicant shall install and maintain trash receptacles near public entryways as needed to provide sufficient capacity for building users.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

13. Graffiti Control

Requirement:

a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:
   i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.
   ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.
   iii. Use of paint with anti-graffiti coating.
   iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).
   v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.

b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:
   i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.
   ii. Covering with new paint to match the color of the surrounding surface.
   iii. Replacing with new surfacing (with City permits if required).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

14. Landscape Plan

a. Landscape Plan Required

Requirement: The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. Proposed plants shall be predominantly drought-tolerant. Specification of any street trees shall comply with the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively), and with any applicable streetscape plan.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. Landscape Installation

Requirement: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the

greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.

When Required: Prior to building permit final

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

c. Landscape Maintenance

Requirement: All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

15. Lighting

Requirement: Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

16. Dust Controls – Construction Related

Requirement: The project applicant shall implement all of the following applicable dust control measures during construction of the project:

a. Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible.
b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
c. All visible mud or dirt track-out 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.
d. Limit vehicle speeds on unpaved roads to 15 miles per hour.
e. All demolition activities (if any) shall be suspended when average wind speeds exceed 20 mph.
f. All trucks and equipment, including tires, shall be washed off prior to leaving the site.
g. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

17. Criteria Air Pollutant Controls - Construction Related

Requirement: The project applicant shall implement all of the following applicable basic control measures for criteria air pollutants during construction of the project as applicable:

a. Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.
b. Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations").
c. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. Equipment check documentation should be kept at the construction site and be available for review by the City and the Bay Area Air Quality District as needed.
d. Portable equipment shall be powered by grid electricity if available. If electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand.
e. Low VOC (i.e., ROG) coatings shall be used that comply with BAAQMD Regulation 8, Rule 3: Architectural Coatings.
f. All equipment to be used on the construction site shall comply with the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") and upon request by the City (and the Air District if specifically requested), the project applicant shall provide written documentation that fleet requirements have been met.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

18. Diesel Particulate Matter Controls-Construction Related

a. Diesel Particulate Matter Reduction Measures

Requirement: The project applicant shall implement appropriate measures during construction to reduce potential health risks to sensitive receptors due to exposure to diesel particulate matter (DPM) from construction emissions. The project applicant shall choose **one** of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment to determine the health risk to sensitive receptors exposed to DPM from project construction emissions. The HRA shall be submitted to the

City (and the Air District if specifically requested) for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, DPM reduction measures shall be identified to reduce the health risk to acceptable levels as set forth under subsection b below. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction.

-or-

ii. All off-road diesel equipment shall be equipped with the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications. This shall be verified through an equipment inventory submittal and Certification Statement that the Contractor agrees to compliance and acknowledges that a significant violation of this requirement shall constitute a material breach of contract.

When Required: Prior to issuance of a construction related permit (i), during construction (ii)

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

b. Construction Emissions Minimization Plan (if required by a above)

Requirement: The project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and the Bay Area Air Quality District if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following:

i. An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.

ii. A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract.

When Required: Prior to issuance of a construction related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

19. Exposure to Air Pollution (Toxic Air Contaminants)

a. Health Risk Reduction Measures

Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose **one** of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. The approved risk reduction measures shall be implemented during construction and/or operations as applicable.

- or -

ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:

- Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
- Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph).
- Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible.
- The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods.
- Sensitive receptors shall be located on the upper floors of buildings, if feasible.
- Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (*Pinus nigra* var. *maritima*), Cypress (*X Cupressocyparis leylandii*), Hybrid poplar (*Populus deltoids X trichocarpa*), and Redwood *(Sequoia sempervirens*).
- Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.
- Existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible.
- Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible:
    - Installing electrical hook-ups for diesel trucks at loading docks.
    - Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
    - Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.

- Prohibiting trucks from idling for more than two minutes.
- Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

b. Maintenance of Health Risk Reduction Measures

Requirement: The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

20. Asbestos in Structures

Requirement: The project applicant shall comply with all applicable laws and regulations regarding demolition and renovation of Asbestos Containing Materials (ACM), including but not limited to California Code of Regulations, Title 8; California Business and Professions Code, Division 3; California Health and Safety Code sections 25915-25919.7; and Bay Area Air Quality Management District, Regulation 11, Rule 2, as may be amended. Evidence of compliance shall be submitted to the City upon request.

When Required: Prior to approval of construction-related permit

Initial Approval: Applicable regulatory agency with jurisdiction

Monitoring/Inspection: Applicable regulatory agency with jurisdiction

21. Tree Removal During Bird Breeding Season

Requirement: To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as

appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

When Required: Prior to removal of trees

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

22. Tree Permit

a. Tree Permit Required

Requirement: Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit.

When Required: Prior to approval of construction-related permit

Initial Approval: Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building

Monitoring/Inspection: Bureau of Building

b. Tree Protection During Construction

Requirement: Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist:

i. Before the start of any clearing, excavation, construction, or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the project's consulting arborist. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

ii. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filling, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the project's consulting arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

iii. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the project's consulting arborist from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

iv. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

v. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.

vi. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

When Required: During construction

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

c. Tree Replacement Plantings

Requirement: Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria:

i. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.

ii. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division.

iii. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

iv. Minimum planting areas must be available on site as follows:
   a. For Sequoia sempervirens, three hundred fifteen (315) square feet per tree;
   b. For other species listed, seven hundred (700) square feet per tree.

v. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

vi. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings which fail to become established within one year of planting shall be replanted at the project applicant's expense.

When Required: Prior to building permit final

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

23. Archaeological and Paleontological Resources – Discovery During Construction

Requirement: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented.

In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense.

In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

24. Human Remains – Discovery During Construction

Requirement: Pursuant to CEQA Guidelines section 15064.5(e)(1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt and the project applicant shall notify the City and the Alameda County Coroner. If the County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety

Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

25. Construction-Related Permit(s)

Requirement: The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

26. Earthquake Fault Zone

Requirement: The project applicant shall submit a site-specific fault location investigation, as defined in California Geological Survey Note 49 (as amended), prepared by a certified engineering geologist for City review and approval containing at a minimum the results of subsurface investigations, locations of hazardous faults adjacent to the project site, recommended setback distances of proposed structures from hazardous faults, and additional recommended measures to accommodate warping and distributive deformation associated with faulting (e.g., strengthened foundations, engineering design, flexible utility connections). The project applicant shall implement the recommendations contained in the approved report during project design and construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

27. Seismic Hazards Zone (Landslide/Liquefaction)

Requirement: The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

28. Hazardous Materials Related to Construction

Requirement: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following:

a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction;
b. Avoid overtopping construction equipment fuel gas tanks;
c. During routine maintenance of construction equipment, properly contain and remove grease and oils;
d. Properly dispose of discarded containers of fuels and other chemicals;
e. Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and
f. If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

29. Designated Very High Fire Severity Zone – Vegetation Management

a. Vegetation Management Plan Required

Requirement: The project applicant shall submit a Vegetation Management Plan for City review and approval, and shall implement the approved Plan prior to, during, and after construction of the project. The Vegetation Management Plan may be combined with the Landscape Plan otherwise required by the Conditions of Approval. The Vegetation Management Plan shall include, at a minimum, the following measures:

i. Removal of all tree branches and vegetation that overhang the horizontal building roof line and chimney areas within 10 feet vertically;
ii. Removal of leaves and needles from roofs and rain gutters;
iii. Planting and placement of fire-resistant plants around the building and phasing out flammable vegetation, however, ornamental vegetation shall not be planted within 5 feet of the foundation of the residential structure;
iv. Trimming back vegetation around windows;
v. Removal of flammable vegetation on hillside slopes greater than 20%; Defensible space requirements shall clear all hillsides of non-ornamental vegetation within 30 feet of the structure on slopes of 5% or less, within 50

feet on slopes of 5 to 20% and within 100 feet or to the property line on slopes greater than 20%.

vi. All trees shall be pruned up at least ¼ the height of the tree from the ground at the base of the trunk;

vii. Clearing out ground-level brush and debris; and All non-ornamental plants, seasonal weeds & grasses, brush, leaf litter and debris within 30 feet of the residential structure shall be cut, raked and removed from the parcel.

viii. Stacking woodpiles away from structures at least 20 feet from residential structures.

ix. If a biological report, prepared by a qualified biologist and reviewed by the Bureau of Planning, identifies threatened or endangered species on the parcel, the Vegetation Management Plan shall include islands of habitat refuge for the species noted on a site plan and appropriate fencing for the species shall be installed. Clearing of vegetation within these islands of refuge shall occur solely for the purpose of fire suppression within a designated Very High Fire Severity Zone and only upon the Fire Code Official approving specific methods and timeframes for clearing that take into account the specific flora and fauna species.

When Required: Prior to approval of construction-related permit

Initial Approval: Oakland Fire Department

Monitoring/Inspection: Oakland Fire Department

b. Fire Safety Prior to Construction

Requirement: The project plans shall specify that prior to construction, the project applicant shall ensure that the project contractor cuts, rakes and removes all combustible ground level vegetation project to a height of 6" or less from the construction, access and staging areas to reduce the threat of fire ignition per Sections 304.1.1 and 304.1.2 of the California Fire Code.

When Required: Prior to approval of construction-related permit

Initial Approval: Oakland Fire Department

Monitoring/Inspection: Oakland Fire Department

c. Fire Safety During Construction

Requirement: The project applicant shall require the construction contractor to implement spark arrestors on all construction vehicles and equipment to minimize accidental ignition of dry construction debris and surrounding dry vegetation. Per section 906 of the California Fire Code, during construction, the contractor shall have at minimum three (3) type 2A10BC fire extinguishers present on the job site, with current SFM service tags attached and these extinguishers shall be deployed in the immediate presence of workers for use in the event of an ignition.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

d. Smoking Prohibition

Requirement: The project applicant shall require the construction contractor to implement a no smoking policy on the site and surrounding area during construction per Section 310.8 of the California Fire Code.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building and Oakland Fire Department

30. NPDES C.3 Stormwater Requirements for Regulated Projects

a. Post-Construction Stormwater Management Plan Required

Requirement: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES). The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements, and shall implement the approved Plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following:

i. Location and size of new and replaced impervious surface;
ii. Directional surface flow of stormwater runoff;
iii. Location of proposed on-site storm drain lines;
iv. Site design measures to reduce the amount of impervious surface area;
v. Source control measures to limit stormwater pollution;
vi. Stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size the treatment measures; and
vii. Hydromodification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning; Bureau of Building
Monitoring/Inspection: Bureau of Building

b. Maintenance Agreement Required

Requirement: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following:

i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; and
ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures and to take corrective action if necessary.

The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

31. Vegetation Management on Creekside Properties

Requirement: The project applicant shall comply with the following requirements when managing vegetation prior to, during, and after construction of the project:

a. Identify and leave "islands" of vegetation in order to prevent erosion and landslides and protect habitat;
b. Trim tree branches from the ground up (limbing up) and leave tree canopy intact;
c. Leave stumps and roots from cut down trees to prevent erosion;
d. Plant fire-appropriate, drought-tolerant, preferably native vegetation;
e. Provide erosion and sediment control protection if cutting vegetation on a steep slope;
f. Fence off sensitive plant habitats and creek areas if implementing goat grazing for vegetation management;
g. Obtain a Tree Permit before removing a Protected Tree (any tree 9 inches diameter at breast height (dbh) or greater and any oak tree 4 inches dbh or greater, except eucalyptus and Monterey pine);
h. Do not clear-cut vegetation. This can lead to erosion and severe water quality problems and destroy important habitat;
i. Do not remove vegetation within 20 feet of the top of the creek bank. If the top of bank cannot be identified, do not cut within 50 feet of the centerline of the creek or as wide a buffer as possible between the creek centerline and the development;
j. Do not trim/prune branches that are larger than 4 inches in diameter;
k. Do not remove tree canopy;
l. Do not dump cut vegetation in the creek;
m. Do not cut tall shrubbery to less than 3 feet high; and
n. Do not cut short vegetation (e.g., grasses, ground-cover) to less than 6 inches high.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

32. Creek Protection Plan

a. Creek Protection Plan Required

Requirement: The project applicant shall submit a Creek Protection Plan for review and approval by the City. The Plan shall be included with the set of project drawings submitted to the City for site improvements and shall incorporate the contents required under section 13.16.150 of the Oakland Municipal Code including Best Management Practices ("BMPs") during construction and after construction to protect the creek. Required BMPs are identified below in sections (b), (c), and (d).

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. Construction BMPs

Requirement: The Creek Protection Plan shall incorporate all applicable erosion, sedimentation, debris, and pollution control BMPs to protect the creek during construction. The measures shall include, but are not limited to, the following:

i. On sloped properties, the downhill end of the construction area must be protected with silt fencing (such as sandbags, filter fabric, silt curtains, etc.) and hay bales oriented parallel to the contours of the slope (at a constant elevation) to prevent erosion into the creek.

ii. The project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent biodegradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species. All bare slopes must be covered with staked tarps when rain is occurring or is expected.

iii. Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible.

iv. All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be repacked and native vegetation planted.

v. Install filter materials (such as sandbags, filter fabric, etc.) acceptable to the City at the storm drain inlets nearest to the project site prior to the start of the wet weather season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness and prevent street flooding.

vi. Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains.

vii. Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek.

viii. Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the creek or storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site.

ix. Gather all construction debris on a regular basis and place it in a dumpster or other container which is emptied or removed at least on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution.

x. Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work.

xi. Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek, street, gutter, or storm drains.

xii. All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and

Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB).

xiii. Temporary fencing is required for sites without existing fencing between the creek and the construction site and shall be placed along the side adjacent to construction (or both sides of the creek if applicable) at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of the City.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

c. Post-Construction BMPs

Requirement: The project shall not result in a substantial increase in stormwater runoff volume or velocity to the creek or storm drains. The Creek Protection Plan shall include site design measures to reduce the amount of impervious surface to maximum extent practicable. New drain outfalls shall include energy dissipation to slow the velocity of the water at the point of outflow to maximize infiltration and minimize erosion.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

d. Creek Landscaping

Requirement: The project applicant shall include final landscaping details for the site on the Creek Protection Plan, or on a Landscape Plan, for review and approval by the City. Landscaping information shall include a planting schedule, detailing plant types and locations, and a system to ensure adequate irrigation of plantings for at least one growing season.

Plant and maintain only drought-tolerant plants on the site where appropriate as well as native and riparian plants in and adjacent to riparian corridors. Along the riparian corridor, native plants shall not be disturbed to the maximum extent feasible. Any areas disturbed along the riparian corridor shall be replanted with mature native riparian vegetation and be maintained to ensure survival.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

e. Creek Protection Plan Implementation

Requirement: The project applicant shall implement the approved Creek Protection Plan during and after construction. During construction, all erosion, sedimentation, debris, and pollution control measures shall be monitored regularly by the project applicant. The City may require that a qualified consultant (paid for by the project applicant) inspect the control measures and submit a written report of the adequacy of the control measures to the City. If measures are deemed inadequate, the project applicant shall develop and implement additional and more effective measures immediately.

When Required: During construction; ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

33. Construction Days/Hours

Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.
b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.
c. No construction is allowed on Sunday or federal holidays.

Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

34. Construction Noise

Requirement: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following:

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible.
b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are

commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Applicant shall use temporary power poles instead of generators where feasible.
d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.
e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

35. Extreme Construction Noise

a. Construction Noise Management Plan Required

Requirement: Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:

i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings;
ii. Implement "quiet" pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;
iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site;
iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and
v. Monitor the effectiveness of noise attenuation measures by taking noise measurements.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

b. Public Notification Required

Requirement: The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the

estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented.

When Required: During construction

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

36. Operational Noise

Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

37. Capital Improvements Impact Fee

Requirement: The project applicant shall comply with the requirements of the City of Oakland Capital Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

When Required: Prior to issuance of building permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

38. Construction Activity in the Public Right-of-Way

a. Obstruction Permit Required

Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets, sidewalks, bicycle facilities, and bus stops.

When Required: Prior to approval of construction-related permit

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

b. Traffic Control Plan Required

Requirement: In the event of obstructions to vehicle or bicycle travel lanes, bus stops, or sidewalks, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian accommodations (or detours, if accommodations are not feasible), including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The Traffic Control Plan shall be in conformance with the City's Supplemental Design Guidance for

Accommodating Pedestrians, Bicyclists, and Bus Facilities in Construction Zones. The project applicant shall implement the approved Plan during construction.

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

c. Repair of City Streets

Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks, caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Department of Transportation

39. Transportation Impact Fee

Requirement: The project applicant shall comply with the requirements of the City of Oakland Transportation Impact Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

When Required: Prior to issuance of building permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

40. Plug-In Electric Vehicle (PEV) Charging Infrastructure

a. PEV-Capable Parking Spaces

Requirement: The applicant shall submit, for review and approval of the Building Official, plans that show the location of inaccessible conduit to supply PEV-capable parking spaces per the requirements of Chapter 15.04 of the Oakland Municipal Code. Building electrical plans shall indicate sufficient electrical capacity to supply the required PEV-capable parking spaces.

When Required: Prior to Issuance of Building Permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

41. Construction and Demolition Waste Reduction and Recycling

Requirement: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert

construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.

When Required: Prior to approval of construction-related permit

Initial Approval: Public Works Department, Environmental Services Division

Monitoring/Inspection: Public Works Department, Environmental Services Division

42. Underground Utilities

Requirement: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

43. Green Building Requirements

a. Compliance with Green Building Requirements During Plan-Check

Requirement: The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code).

i. The following information shall be submitted to the City for review and approval with the application for a building permit:

- Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards.
- Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit.
- Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit.
- Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below.
- Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance.
- Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable

Hardship Exemption was granted during the review of the Planning and Zoning permit.
- Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

ii. The set of plans in subsection (i) shall demonstrate compliance with the following:
- CALGreen mandatory measures.
- **Green building point level/certification requirement: LEED Gold** per the appropriate checklist approved during the Planning entitlement process.
  - All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted.
  - The required green building point minimums in the appropriate credit categories.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

b. Compliance with Green Building Requirements During Construction

Requirement: The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project.

The following information shall be submitted to the City for review and approval:

i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit.

ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance.

iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

c. Compliance with Green Building Requirements After Construction

Requirement: Prior to the finaling the Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.

When Required: Prior to Final Approval

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

44. Water Efficient Landscape Ordinance (WELO)

Requirement: The project applicant shall comply with California's Water Efficient Landscape Ordinance (WELO) in order to reduce landscape water usage. For the specific ordinance requirements, see the link below:

http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf

For any landscape project with an aggregate (total noncontiguous) landscape area equal to 2,500 sq. ft. or less, the project applicant may implement either the Prescriptive Measures or the Performance Measures, of, and in accordance with the California's Model Water Efficient Landscape Ordinance. For any landscape project with an aggregate (total noncontiguous) landscape area over 2,500 sq. ft., the project applicant shall implement the Performance Measures in accordance with the WELO.

a. **Prescriptive Measures:** Prior to construction, the project applicant shall submit the Project Information (detailed below) and documentation showing compliance with Appendix D of California's Model Water Efficient Landscape Ordinance (see website below starting on page 38.14(g) in the link above):
b. **Performance Measures:** Prior to construction, the project applicant shall prepare and submit a Landscape Documentation Package for review and approval, which includes the following

i. Project Information:
   - Date,
   - Applicant and property owner name,
   - Project address,
   - Total landscape area,
   - Project type (new, rehabilitated, cemetery, or home owner installed),
   - Water supply type and water purveyor,
   - Checklist of documents in the package,
   - Project contacts, and
   - Applicant signature and date with the statement: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."

ii. Water Efficient Landscape Worksheet
   - Hydrozone Information Table
   - Water Budget Calculations with Maximum Applied Water Allowance (MAWA) and EstimatedTotal Water Use

iii. Soil Management Report
iv. Landscape Design Plan
v. Irrigation Design Plan, and
vi. Grading Plan

Upon installation of the landscaping and irrigation systems, and prior to the final of a construction-related permit, the Project applicant shall submit a Certificate of Completion (see page 38.6 in the link above) and landscape and irrigation maintenance schedule for review and approval by the City. The Certificate of Completion shall also be submitted to the local water purveyor and property owner or his or her designee.

For the specific requirements within the Water Efficient Landscape Worksheet, Soil Management Report, Landscape Design Plan, Irrigation Design Plan and Grading Plan, see the link below:

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

45. Employee Rights

Requirement: The project applicant and business owners in the project shall comply with all state and federal laws regarding employees' right to organize and bargain collectively with employers and shall comply with the City of Oakland Minimum Wage Ordinance (chapter 5.92 of the Oakland Municipal Code).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

46. Public Art for Private Development

Requirement: The project is subject to the City's Public Art Requirements for Private Development, adopted by Ordinance No. 13275 C.M.S. ("Ordinance"). The public art contribution requirements are equivalent to one-half percent (0.5%) for the "residential" building development costs, and one percent (1.0%) for the "non-residential" building development costs.

The contribution requirement can be met through: 1) the installation of freely accessible art at the site; 2) the installation of freely accessible art within one-quarter mile of the site; or 3) satisfaction of alternative compliance methods described in the Ordinance, including, but not limited to, payment of an in-lieu fee contribution. The applicant shall provide proof of full payment of the in-lieu contribution and/or provide plans, for review and approval by the Planning Director, showing the installation or improvements required by the Ordinance prior to issuance of a building permit.

Proof of installation of artwork, or other alternative requirement, is required prior to the City's issuance of a final certificate of occupancy for each phase of a project unless a separate, legal binding instrument is executed ensuring compliance within a timely manner subject to City approval.

When Required: Payment of in-lieu fees and/or plans showing fulfillment of public art requirement – Prior to Issuance of Building permit

Installation of art/cultural space – Prior to Issuance of a Certificate of Occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

47. Required Parking Located Off-Site and on the Baseball Field

Prior to Certificate of Occupancy.

A. If available, the 250 parking spaces on the baseball field shall be used for parking when 700 or more attendees are expected for a non-athletic event and 800 or more attendees are expected for an athletic event at the Center.
B. The lots at the Oakland Zoo, St. Paschal Baylon Catholic Church, and/or The Church of the Assumption Parish shall be available to accommodate overflow parking in the following amount and circumstances:
    1. If the baseball field is available for parking, no overflow parking is required off-site for athletic events.
    2. If the baseball field is not available for parking, overflow parking is required for athletic events of 800 or more attendees. At least two of the off-site lots must be made available for overflow parking.

3. If the baseball field is available for parking, overflow parking is required for non-athletic events of 1,200 or more attendees. At least one of the off-site lots must be made available for overflow parking.
4. If the baseball field is not available for parking, overflow parking is required for non-athletic events of 700 or more attendees. At least two of the off-site lots must be made available for overflow parking.

Events attended primarily by students during the school day are excluded from this requirement.

C. If the owner(s) of the lots containing Bishop O'Dowd High School and a lot containing the overflow parking are different, then the owner or owners of both lots shall prepare and execute to the satisfaction of the City Attorney, and file with the Alameda County Recorder, an agreement guaranteeing that such facilities will be maintained and reserved for the activity served, for the duration of said activity.

D. Shuttle service shall be provided to transport attendees from the satellite parking areas to the gym prior to the event and from the gym to the satellite parking areas after the event. Potential attendees of the event shall be made aware of satellite parking at least a week prior to the event and through signs at the event.

48. Conversion of "Existing Small Gymnasium"

Prior to issuance of Building Permit

Plans showing the conversion of the existing small gymnasium to classrooms shall be reviewed and approved by the Zoning Manager. A revised proposal of six or more classrooms may require additional analysis under the California Environmental Quality Act.

49. Requiring No-Parking Signage in Front of Residents on Stearns Avenue

Ongoing.

"Parking for Residents Only During Bishop O'Dowd Event" signage shall be placed in front of residential homes along Stearns Avenue between 98th Avenue and Burr Street to prohibit on-street parking by attendees for any events that will exceed 700 people. Events attended primarily by students during the school day are excluded from this requirement. Information for residents to contact responsible Bishop O'Dowd staff shall be on the signs. If contacted, Bishop O'Dowd staff shall make an announcement at the event requesting that the car be moved.

50. Stearns Avenue/98thAvenue Intersection Signal Timing

Ongoing.

The signal timing at the intersection of Stearns and 98th Avenues shall be adjusted to reduce automobile queueing on Stearns Avenue after major events. The signal timing plans shall be reviewed and approved by the Zoning Manager and the Department of Transportation. The signal timing shall be adjusted whenever events exceeds 800 attendees to reduce queuing at the aforementioned intersection as vehicles leave the parking lot. Events attended primarily by students during the school day are excluded from this requirement.

51. Signage

Prior to issuance of Building Permit.

The proposed signage shall be constructed per the plans attached with this report and dated July 13, 2020. All signage will remain nonmoving and not illuminated.

52. Traffic Control

Ongoing.

The school's traffic control and security personnel shall oversee: the baseball field parking, directing motorists to the proper parking spaces and circulation routes, and the dropping off and picking up of event attendees using shuttles to and from satellite parking facilities.

53. Parking and Traffic Compliance Report

Ongoing.

The school shall submit an annual parking and traffic compliance report for review and approval by the City. This report will be submitted within one year of occupancy and every following year for a total of at least five (5) years. If timely reports are not submitted, the reports indicate a failure to achieve the state policy goals, or the required parking or traffic conditions are not met, staff will work with the school to find ways to meet their commitment to achieve trip reduction and parking goals. If the issues cannot be resolved, the matter may be referred to the Planning Commission for resolution. Project sponsors shall be required, through this condition of approval, to reimburse the City for costs incurred in maintaining and enforcing the trip reduction program for the approved project.

Applicant Statement:

I have read and accept responsibility for the Conditions of Approval. I agree to abide by and conform to the Conditions of Approval, as well as to all provision of the Oakland Planning Code and Oakland Municipal Code pertaining to the project.

_____

Name of Project Applicant

_____

Signature of Project Applicant

_____

Date

APPROVED BY:
City Planning Commission:_____ **(date)**_____**(vote)**

ABBREVIATIONS

#	POUND / NUMBER
&	AND
(E)	EXISTING
(N)	NEW
(R)	REMOVE
-E	ELECTRICALLY OPERATED (SOLAR CONTROL)
-M	MANUALLY OPERATED (SOLAR CONTROL)
-R	REMOVABLE, MOUNTED TO DOOR AND SIDELITES ONLY (SOLAR CONTROL)
//	PARALLEL
<	LESS THAN
>	GREATER THAN
@	AT
[	CHANNEL
A.G.B.	AUTOMATIC GASKET BOTTOM
AB	ANCHOR BOLT
AB	ACOUSTICAL BOARD
ABV	ABOVE
AC	AIR CONDITIONING
ACC	ACCESSIBLE
ACOUS	ACOUSTICAL
ACP	ACOUSTICAL PANEL
ACT	ACOUSTICAL TILE
AD	AREA DRAIN
ADA O	ADA OPERATOR
ADD	ADDITIONAL
ADJ	ADJUSTABLE
AF	ACCESS FLOORING
AFF	ABOVE FINISH FLOOR
AGGR	AGGREGATE
AL(HD)	ALUMINUM-HEAVY DUTY
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
ANOD.	ANODIZED
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BB	BULLETIN BOARD
BD	BOARD
BEJ	BRICK EXPANSION JOINT
BITUM	BITUMINOUS
BKP	BACKING PLATE
BLDG	BUILDING
BLK	BLOCK
BM	BEAM
BOT/BO	BOTTOM / BOTTOM OF
BRK	BRICK
BS	BLACKOUT SHADE, NO SIDE TRACKS
BSMT	BASEMENT
BT	BOLT
BUR	BUILT-UP ROOFING
CAB	CABINET
CAT	CATEGORY
CAT.	CATEGORY
CB	CATCH BASIN
CBD	CHALK BOARD
CBU	CEMENTITIOUS BACKER UNIT
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CH	CHILLER
CHAN	CHANNEL
CI	CAST IRON
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT / CONSTRUCTION JOINT
CL	CENTER LINE
CLG	CEILING
CLKG	CAULKING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CASED OPENING
COL	COLUMN
COMPAT	COMPARTMENT
CONC	CONCRETE
COND	CONDITION
CONF	CONFERENCE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CR	CARD READER
CS	CLEAR SEALED
CT	CERAMIC TILE
CTR	CENTER
CTSK	COUNTER SUNK
CW	COLD WATER (PIPING)
D	DEEP / DEPTH
DA	DISABLED
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DISP	DISPENSER
DMPF	DAMP PROOFING
DMT	DEMOUNTABLE
DN	DOWN
DO	DOOR OPENING
DP	DIMENSION POINT
DPTN	DEMOUNTABLE PARTITION
DR	DOOR
DRN	DRAIN
DS	DUAL SOLAR AND BLACKOUT SHADE

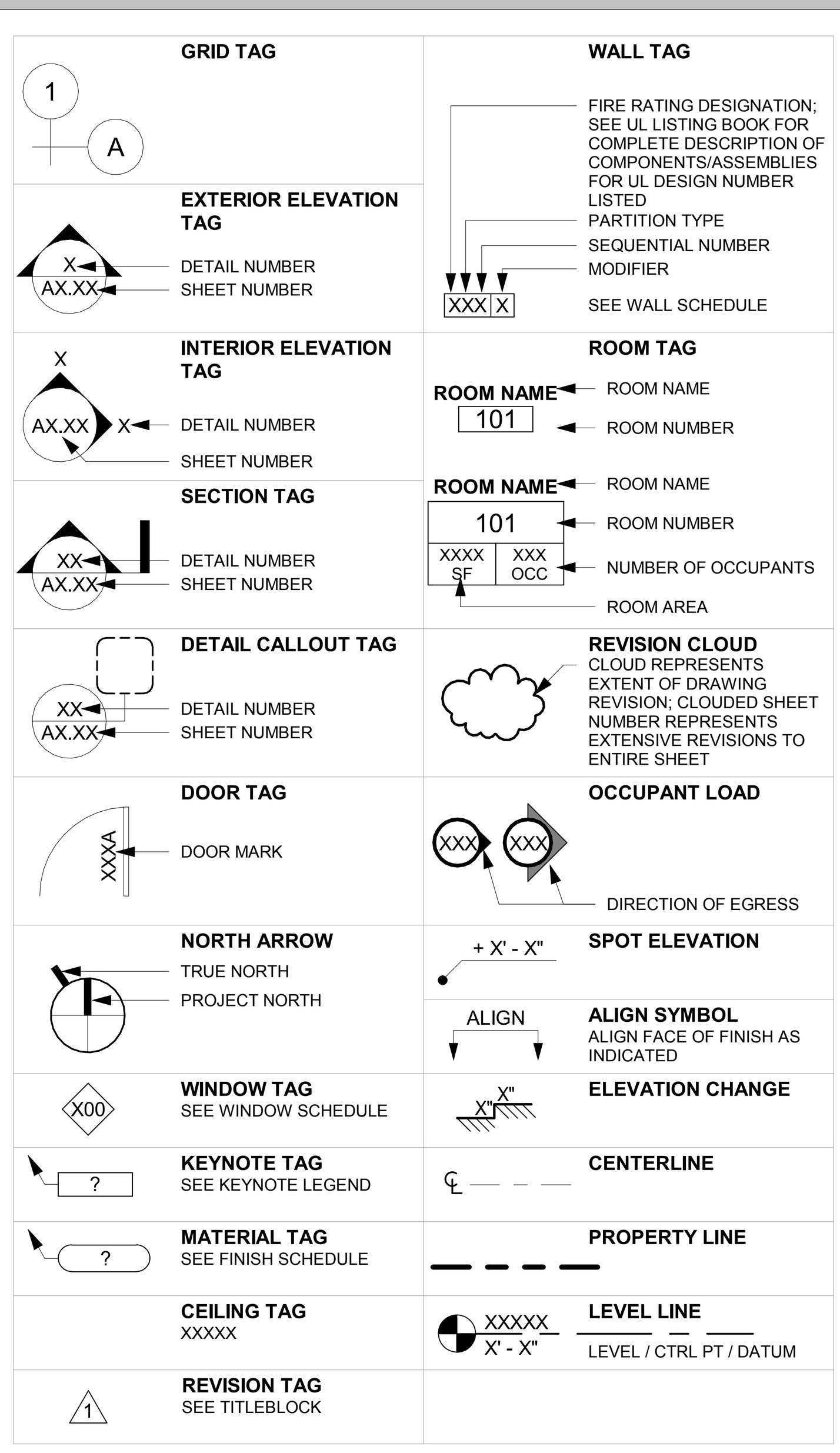
DS	DOWNSPOUT
DSP	DRY STANDIPE
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EB	EXPANSION BOLT
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
EP	ELECTRICAL PANELBOARD
EQ	EQUAL
EQPT	EQUIPMENT
EWC	ELECTRICAL WATER COOL
EXH	EXHAUST
EXP	EXPANSION
EXPO	EXPOSED
EXT	EXTERIOR
FA	FIRE ALARM
FB	FLAT BAR
FC	FACE
FC	FIRE HOSE CABINET
FC	FABRIC WALL COVERING
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONN.
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH
FF&E	FURNITURE FINISHES AND EQUIPMENT
FH	FLAT HEAD
FIN	FINISH
FIXT	FIXTURE
FL	FLOOR
FLASH	FLASHING
FLUOR	FLUORESCENT
FND	FOUNDATION
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF STUDS
FP	FIRE PROTECTION
FP	FABRIC WRAPPED PANEL
FR	FIREPROOF
FRM	FRAME
FRT	FIRE RETARDANT TREATED WOOD
FSD	FIRE SEPARATION DISTANCE
FT	FEET / FOOT
FTG	FOOTING
FURN	FURNITURE
FURR	FURRING
FUT	FUTURE
GA	GAUGE / GAGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACT(OR)
GFDG	GLASS FIBER REINFORCED GYPSUM
GFRC	GLASS FIBER REINFORCED CONCRETE
GIRDLE	GIRDLING
GL	GLAZING
GL	GLASS
GR	GRADE
GRND	GROUND
GSM	GALVANIZED SHEET METAL
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
HB	HOSE BIB
HC	HOLLOW CORE
HC	HOSE REEL CABINET
HC/V	HONEY-COMB CORE / WD VENEER
HD	HAND DRYER
HDR	HANDRAIL
HDR	HYDRAULIC
HDWD	HARDWOOD
HDWE	HARDWARE
HM	HOLLOW METAL
HO	HOLD OPEN (MAGNETIC)
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HS	HEAT STRENGTHENED (GLASS)
HT	HEIGHT
HVAC	HEATING, VENTILATION, AIR CONDITIONING
ID	INTEGRATED DOOR ASSEMBLY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IM	INSULATED (ACOUSTIC) HOLLOW METAL DOOR
IN	INCH
INC	INCLUDE / INCLUDING
INCAN	INCANDESCENT
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INTERM	INTERMEDIATE
INV	INVERT
IPS	INTERNATIONAL PIPE STANDARD
IRMA	INVERTED ROOF MEMBRANE ASSEMBLY
JAN	JANITOR
JB	JUNCTION BOX
JCL	JANITOR'S CLOSET
JOH	JAMB OPENING HEIGHT
JOW	JAMB WIDTH
JST	JOIST
JT	JOINT
K	KICK PLATE (STAINLESS STEEL)
KG	KILOGRAM
KIT	KITCHEN
KO	KNOCKOUT
KP	KICK PLATE
L.L.E.S.	LOW LEVEL EXIT SIGN, SEE LIGHTING DWGS.
LAB	LABORATORY
LAM	LAMINATE / LAMINATION

LAM.	LAMINATED
LAM.	LAMINATED
LAV	LAVATORY
LB	POUND
LD	LANDING
LF	LINEAR FOOT
LH	LONG LEG HORIZONTAL
LKR	LOCKER
LO	LONG
LP	LOW POINT
LT	LIGHT
LV	LONG LEG VERTICAL
LW	LIQUID WRITING CHALKBOARD
MACH	MACHINE
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	HORIZONTAL LOUVER BLINDS (MINI BLINDS)
MB	METAL BOLT
MC	MEDICINE CABINET
MC/V	MINERAL CORE / WD VENEER
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MDO	MEDIUM DENSITY OVERLAY PLYWOOD
MECH	MECHANICAL
MEM	MEMBRANE
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	MODULE LINE
MM	MILLIMETER
MO	MASONRY OPENING
MP	MIDPOINT
MS	MACHINE SCREW
MT	MOUNTING
MTD	MOUNTED
MTL.	METAL
MULL	MULLION
MWF	MATCH WINDOW MULLION FINISH
N	NORTH
N.I.C.	NOT IN CONTRACT
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NO	NUMBER
NR	NON-RATED
NR	NON-RATED
NTS	NOT TO SCALE
O/	OVER
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OCD	OVERHEAD COILING DOOR
OCEW	ON CENTER EACH WAY
OCG	OVERHEAD COILING GRILLE
OD	OUTSIDE DIAMETER / DIMENSION
OFCI	OWNER FURNISHED. CONTRACTOR INSTALLED
OFD	OVERFLOW DRAIN
OFF	OFFICE
OFOI	OWNER FURNISHED, OWNER INSTALLED
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OUTS	OUTSIDE
OVHD	OVERHEAD
PAV	PAVING
PB	PLUMBING
PBD	PARTICLEBOARD
PC	PRECAST CONCRETE
PCP	PORTLAND CEMENT PLASTER
PDF	POWER DRIVEN FASTENER
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PH	PANIC HARDWARE
PH	PHASE
PISA	PRESSURE SENSITIVE ADHESIVE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOO
PNL	PANEL
POL	POLISHED
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOR
PT	POINT / PAINT
PTD.	PAINTED
PTD/R	PAPER TOWEL DISPENSER / RECEPTACLE
PTN	PARTITION
PV	PHOTOVOLTAIC
QT	QUARRY TILE
QTY	QUANTITIY
R	RISER
RA	RETURN AIR
RAD	RADIUS
RBI	RESILIENT BASE
RC	RECESSED
RCP	REFLECTED CEILING PLAN
RCPT	RECEPTACLE
RD	ROOF DRAIN
RDWD	REDWOOD
RE:	REFER TO
RECOM	RECOMMENDED
REF	REFERENCE
REFL	REFLECTED / REFLECTIVE / REFLECT
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED / REINFORCING
RELO	RELOCATE
REM	REMOVABLE

REQD	REQUIRE / REQUIRED
REQS.	REQUIREMENTS
RESIL	RESILIENT
REV	REVISION / REVISED / REVERSED
RM	ROOM
RO	ROUGH OPENING
RT	RATING
RTD	RATED
RWL	RAIN WATER LEADER
S	SOUTH
S/L	SIDELITE
SA	SUPPLY AIR
SAD	SEE ARCHITECTURAL DRAWINGS
SAN	SANITARY
SASK	SERVICE SINK
SATS	SELF TAPPING SCREW
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SCL	SELF-CLOSING DEVICE
SCLC	STRUCTURAL COMPOSITE LUMBER CORE
SD	STORM DRAIN / SOAP DISPENSER
SECT	SECTION
SED	SEE ELECTRICAL DRAWINGS
SF	SQUARE FEET / FOOT
SH	SHELF
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SJ	SCORE JOINT
SLDR	SEE LANDSCAPE DRAWINGS
SM	SHEET METAL
SMD	SEE MECHANICAL DRAWINGS
SND	SANITARY NAPKIN DISPENSER
SP	STANDPIPE
SPD	SEE PLUMBING DRAWINGS
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SPKR	SPEAKER
SQ	SQUARE
SR	SANITARY NAPKIN RECEPTACLE
SS	STAINLESS STEEL
SS	SOLAR SHADE
SS	STRUCTURE SLAB (ELEVATION)
SSD	SEE STRUCTURAL DRAWINGS
ST.	STAIN
STA	STATION
STD	STANDARD
STL.	STEEL
STOR	STORAGE
STR	STRUCTURAL
SUBCAT	SUBCATEGORY
SUSP	SUSPENDED
SYM	SYMMETRICAL
SYS	SYSTEM
T	TEMPERED GLASS
T&G	TONGUE AND GROOVE
T.O.	TOP OF
T/LAM	TEMPERED & LAMINATE GLASS
T/W	TRANSOM WINDOW
TB	TOWEL BAR
TB	TOGGLE BOLT
TBD	TO BE DETERMINED
TBD	TO BE DETERMINED
TEL	TELEPHONE
TEMP	TEMPERATURE
TEMPRD	TEMPERED
TER	TERRAZZO
TH	THRESHOLD
THK	THICKNESS / THICK
THRU	THROUGH
TIS	TENANT IMPROVEMENT STANDARD
TOC	TOP OF CONCRETE OR CURB
TOS	TOP OF STEEL, TOP OF SLAB, TOP OF STRUCTURE
TOW	TOP OF WALL
TP	TOP OF PAVEMENT
TPDISP	TOILET PAPER DISPENSER
TR	TRANSLUCENT
TRD	TREAD
TS	TUBE STEEL
TV	TELEVISION
TYP	TYPICAL
UNFIN	UNFINISHED
UON	UNLESS OTHERWISE NOTED
URL	URINAL
VC	VINYL WALL COVERING
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VR	VAPOR RETARDER
VT	VINYL TILE
VTR	VENT THROUGH ROOF
W	WIDE / WIDTH / WEST
W/	WITH
W/O	WITHOUT
WAR	WATER RESISTANT / REPELLANT
WB	WHITE BOARD
WCS	WATER CLOSET
WD	WOOD
WD/MTL	SOLID WOOD/METAL CLAD
WDW	WINDOW
WHM	WELDED HOLLOW METAL
WO	WINDOW OPENING, WHERE OCCURS
WP	WATERPROOF
WPM	WATERPROOF MEMBRANE
WPT	WORK POINT
WS	WEATHER STRIPPING
WS	WOOD SCREW
WSCT	WAINSCOT
WT	WEIGHT
WW	HOT WATER
WW	WALL TO WALL
WWM	WELDED WIRE MESH

BISHOP O'DOWD HIGH SCHOOL CENTER

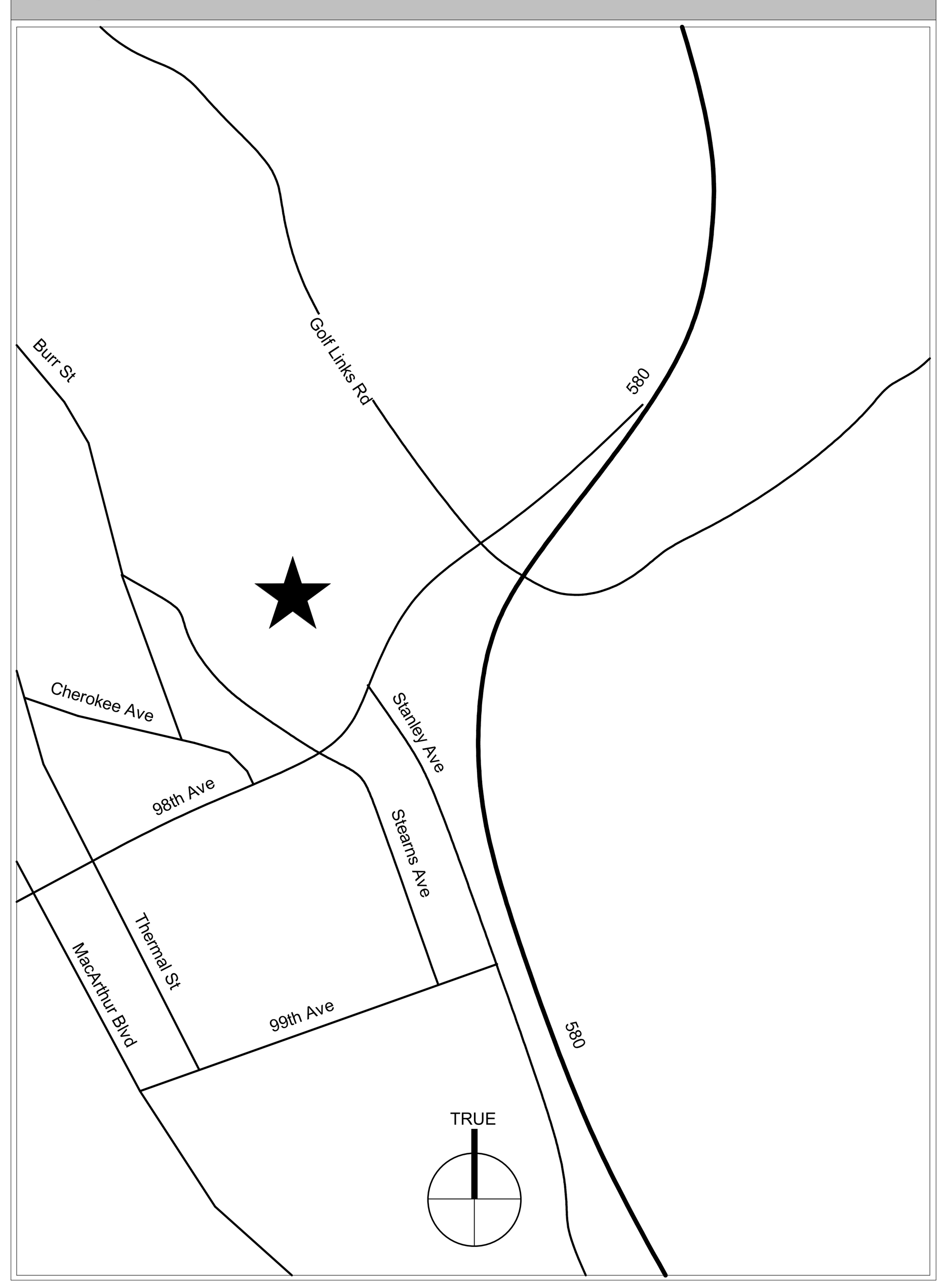
SYMBOLS LEGEND



GENERAL NOTES

1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PROJECT SPECIFICATIONS.
2. ALL WORK SHALL MEET OR EXCEED THE MINIMUM STANDARDS OF THE 2019 CALIFORNIA BUILDING CODE AND ALL APPLICABLE CODES AND ORDINANCES.
3. INFORMATION CONTAINED WITHIN THESE DOCUMENTS SHALL NOT BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE APPLICABLE CODES.
4. CONTRACTOR SHALL EXAMINE THE DOCUMENTS AND SHALL NOTIFY THE ARCHITECT OF ANY VARIATIONS AND DISCREPANCIES WHICH MAY BE FOUND PRIOR TO THE START OF THE WORK.
5. CONTRACTOR SHALL REVIEW ALL DOCUMENTS TO COORDINATE WITH EXISTING SITE CONDITIONS. ANY VARIATIONS AND DISCREPANCIES THAT ARISE IN THIS REVIEW ARE TO BE BROUGHT IMMEDIATELY TO THE ARCHITECT'S ATTENTION.
6. ALL DETAILS, SCHEDULES, ADDENDA, AND SPECIFICATIONS BOUND SEPARATELY ARE A PART OF THE CONTRACT DOCUMENTS.
7. DIMENSIONS:
   A. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND NOTIFY ARCHITECT OF ACTUAL FIELD CONDITIONS PRIOR TO LAYOUT OF NEW WORK.
   B. IN NO CASE SHALL WORKING DIMENSIONS BE SCALED OFF OF THE DRAWINGS.
   C. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE:
      a. TO STRUCTURAL GRID
      b. TO FACE OF CONCRETE
      c. TO FACE OF WALL FINISH
      d. TO ROUGH OPENING
      e. CEILING ELEVATIONS ARE FROM TOP OF FINISHED FLOOR TO FINISHED FACE OF CEILING.
   D. COORDINATE WITH EQUIPMENT CONTRACTORS FOR ROUGH-IN DIMENSIONS AND TEMPLATES.
   E. ALL DIMENSIONS NOTED TO BE "CLEAR" OR "CLR" MUST BE STRICTLY MAINTAINED. "CLEAR" MEANS FROM FACE OF FINISH TO FACE OF FINISH OR OBJECT.
   F. ALL DIMENSIONS NOTED "VERIFY" OR "VIF" ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY VARIANCE FROM THE REQUIRED DIMENSIONS MUST BE BROUGHT IMMEDIATELY TO THE ARCHITECT'S ATTENTION.
8. CONTRACTOR IS RESPONSIBLE TO VERIFY AND COORDINATE WALL AND DOOR FRAMES THAT REQUIRE NON-TYPICAL WALL THICKNESS DUE TO STRUCTURAL, ELECTRICAL, MECHANICAL, AND EQUIPMENT REQUIREMENTS.
9. INTERIOR PARTITION SOUND INSULATION SHALL BE CONTINUOUS BEHIND EQUIPMENT, PANELS, FIXTURES, AND OTHER WALL PENETRATIONS TO MAINTAIN ACOUSTIC INTEGRITY.
10. CONTRACTOR SHALL VERIFY ALL MOUNTING HEIGHTS AND SPECIAL STRUCTURALLY SUPPORT REQUIREMENTS WITH EQUIPMENT AND CASEWORK MANUFACTURERS BEFORE INSTALLING BACKING BLOCKS AND SUPPORTS.
11. CONSULTANT DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR / SUB-CONTRACTOR IS RESPONSIBLE TO COORDINATE DEVICE, EQUIPMENT, ETC. LOCATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES AND/OR CONFLICTS, IF NOT EXPLICITLY LOCATED ON DRAWING.
12. DETAILS MARKED "TYPICAL" SHALL APPLY IN ALL CASES, UON.
13. WHERE NO SPECIFIC DETAIL IS SHOWN, THE FRAMING OR CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THE PROJECT.
14. ALL WORK IS UNDERSTOOD TO BE NEW (N) UNLESS NOTED AS EXISTING (E).
15. THE DRAWINGS INDICATE THE GENERAL EXTENT OF (N) CONSTRUCTION NECESSARY FOR THE WORK, BUT ARE NOT INTENDED TO BE ALL-INCLUSIVE. ALL DEMOLITION AND (N) WORK NECESSARY FOR A FINISHED JOB, IN ACCORDANCE WITH THE INTENTIONS OF THE CONTRACT DOCUMENTS, IS INCLUDED REGARDLESS OF WHETHER IT IS SHOWN IN THE CONTRACT DOCUMENTS.
16. A MINIMUM OF 75% OF CONSTRUCTION WASTE GENERATED AT THE SITE SHALL BE DIVERTED TO RECYCLE OR SALVAGE ACHIEVED BY EITHER USING CITY PRE-CERTIFIED LANDFILLS OR IMPLEMENTATION OF A WASTE MANAGEMENT PLAN.
17. WASTE MANAGEMENT PLAN SHALL BE PRE-APPROVED BY ENVIRONMENTAL SERVICES DEPARTMENT.

VICINITY MAP



PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES THE FOLLOWING:

- CONSTRUCTION OF ONE NEW BUILDING INCLUDING A GYMNASIUM, ATHLETIC TRAINING FACILITIES, MUSIC & DRAMA REHEARSAL SPACES, A LECTURE HALL, A CLASSROOM/EVENT SPACE AND ASSOCIATED SUPPORT SPACES ON THE CAMPUS OF BISHOP O'DOWD HIGH SCHOOL. CONSTRUCTION INCLUDES ARCHITECTURAL, STUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WORK.

- SITE WORK INCLUDING RENOVATED VEHICLE PARKING AND EMERGENCY VEHICLE ACCESS AREAS, NEW LANDSCAPING, SITE PATHS, FENCING, SITE LIGHTING AND BIO-RETENTION AREAS.

PROJECT DIRECTORY

OWNER

BISHOP O'DOWD HIGH SCHOOL
9500 STEARNS AVENUE
OAKLAND, CA 94605

CONTACT: CHRISTINE GARAVAGLIA
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GENERAL CONTRACTOR

DEVCON CONSTRUCTION INC.
690 GIBRALTAR DRIVE
MILPITAS, CA 95035

CONTACT: KRISSY SCHREIBER
P: 408.964.5631
KSCHREIBER@DEVCON-CONST.COM

ARCHITECT

STUDIO BONDY ARCHITECTURE
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CIVIL ENGINEER

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WALNUT CREEK, CA 94596

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STRUCTURAL ENGINEER

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TSZFUNG.T.WONG@IMEGCORP.COM

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SILICON VALLEY MECHANICAL
2115 RINGWOOD AVE
SAN JOSE, CA 95131

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DESIGN ELECTRIC
39 WYOMING STREET
PLEASANTON, CA 94566

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CCHANDLER@DESIGNELCO.COM

PLUMBING ENGINEER

ACCO ENGINEERED SYSTEMS
1133 ALADDIN AVENUE
SAN LEANDRO, CA 94577

CONTACT: JOSH TERWILLIGER
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JTERWILLIGER@ACCOES.COM

FIRE PROTECTION ENGINEER

BFP FIRE PROTECTION, INC.
17 JANIS WAY
SCOTTS VALLEY, CA 95066

CONTACT: CHRIS AMOS
P: 831.345.4334
CHRIS.AMOS@BFPFIRE.COM

LANDSCAPE ARCHITECT

THE GUZZARDO PARTNERSHIP INC.
181 GREEMWICH STREET
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CONTACT: KURT CULVER
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KCULVER@TGP-INC.COM

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APPROVALS

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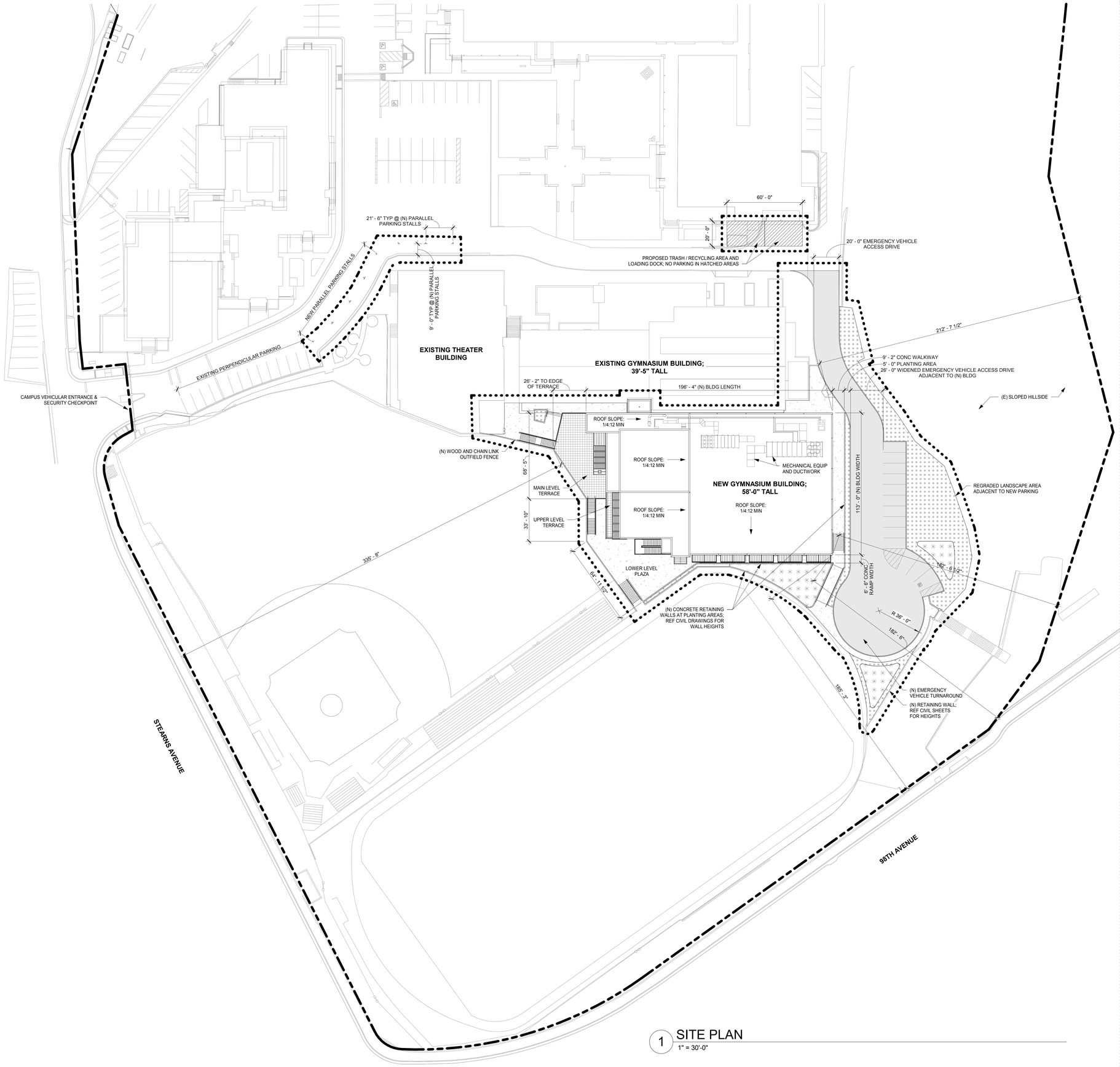
COVER SHEET

A0.00



1 SITE PLAN
1" = 30'-0"

LEGEND - SITE

- PROPERTY LINE
- EXTENTS OF BUILDING AND SITE WORK
- AC PAVEMENT
- CONCRETE
- BIORETENTION PLANTER
- LANDSCAPE PLANTING AREA
- PEDESTAL CONCRETE PAVERS

1. REFERENCE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION INCLUDING LOCATIONS AND HEIGHTS OF EXISTING AND PROPOSED FENCING AND RETAINING WALLS, CURBS, PARKING SPACES, EXISTING BUILDING (DRAMA/BAND ROOM) TO BE DEMOLISHED ETC.

2. REFERENCE LANDSCAPE AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION INCLUDING EXISTING TREES AND TREES TO BE REMOVED

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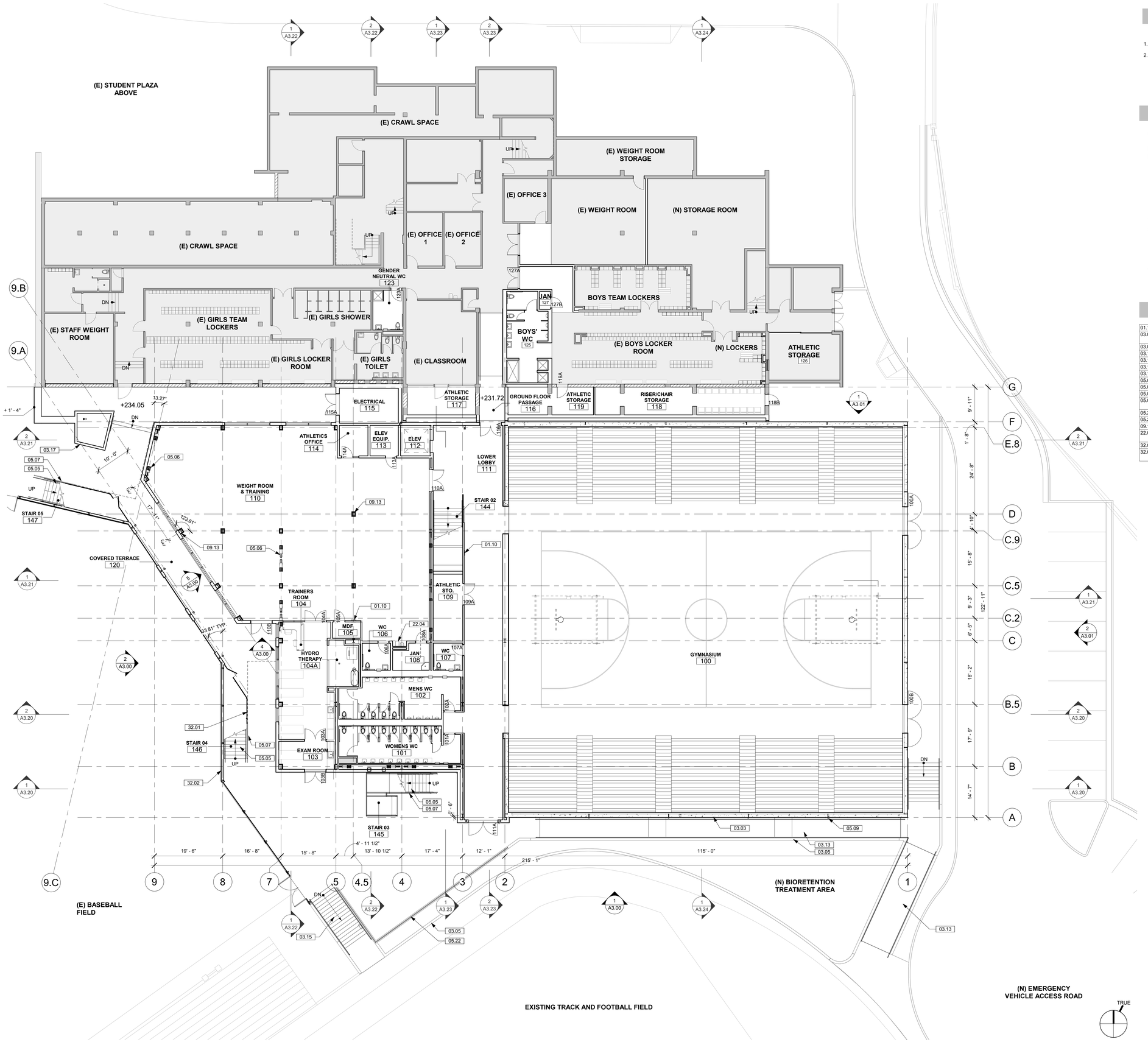
SITE PLAN

A1.00



1 LOWER LEVEL FLOOR PLAN
3/32" = 1'-0"

PLAN GENERAL NOTES

1. FOR ACCESSIBILITY REQUIREMENTS & DETAILS, SEE SHEETS A0.11 & A0.12
2. FOR PARTITION TYPE CALLOUTS AND RATED WALL LOCATIONS, SEE ENLARGED DIMENSION PLANS, NEXT SHEET(S).

PLAN LEGEND

- EXTENT OF NEW BUILDING WORK
- DEMOLISHED CONSTRUCTION
- EXISTING WALL
- NEW WALL
- FILL IN WALL AT EXISTING
- 1 HOUR FIRE RATED WALL
- 3 HOUR FIRE RATED WALL

KEYNOTES

01.10	FIRE EXTINGUISHER CABINET
03.03	TILT-UP CONCRETE WALL WITH BOARD-FORMED EXTERIOR FACE; MTL FURRING, INSULATION AND GWB AT INTERIOR FACE
03.05	CONCRETE RETAINING WALL
03.10	INFILL (E) WINDOW OPENINGS W/ CONC.
03.13	CONC. RAMP
03.15	CAST IN PLACE CONCRETE STAIR
03.17	CONCRETE PLANTER; SEE CIVIL AND LANDSCAPE DRAWINGS
05.05	EXT. PTD. STEEL STAIR W/ CONC.-FILLED METAL PANS
05.06	EXPOSED STEEL STRUCTURE WITH INTUMESCENT PAINT, TYP.
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.09	PRE-FINISHED ROUND METAL DOWNSPOUT AND COLLECTOR HEAD AT THRU-WALL SCUPPER
05.21	STAINLESS STEEL HANDRAIL
05.22	PAINTED STEEL PICKET GUARDRAIL
09.13	RATED GWB COL. ENCLOSURE, TYP.
22.04	ACCESSIBLE HI-LO DRINKING FOUNTAIN W/BOTTLE FILLER; REF ACCESSIBILITY STANDARDS SHEETS A0.11 & A0.12
32.01	CHAIN LINK FENCE
32.02	PAINTED WOOD OUTFIELD FENCE W/ TUBE STL FRAMING AND CHAIN LINK FENCING INFILL; SEE ELEVS

KEY PLAN, NTS

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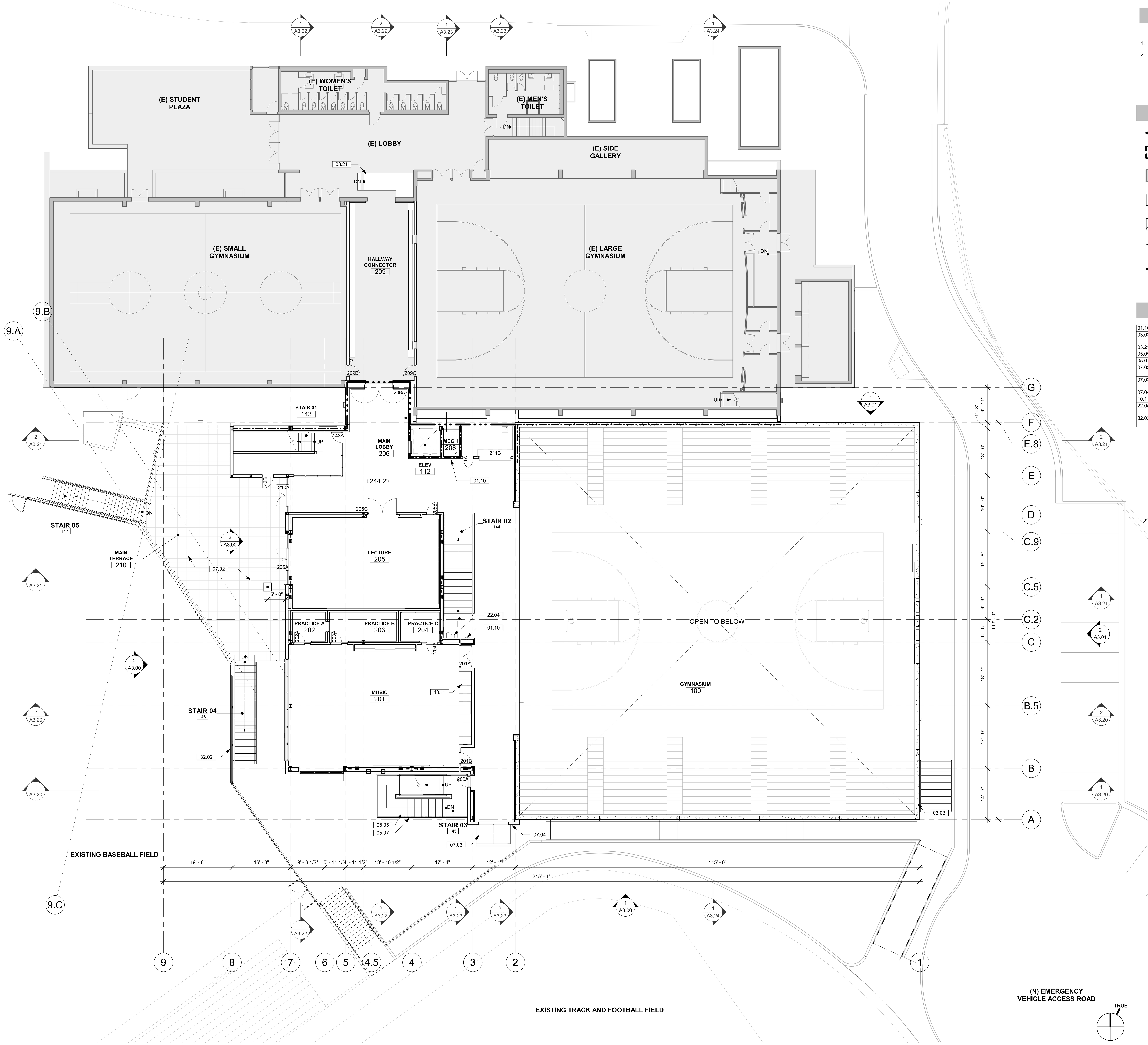
LOWER LEVEL FLOOR PLAN

A2.10



1 MAIN FLOOR PLAN
3/32" = 1'-0"

PLAN GENERAL NOTES

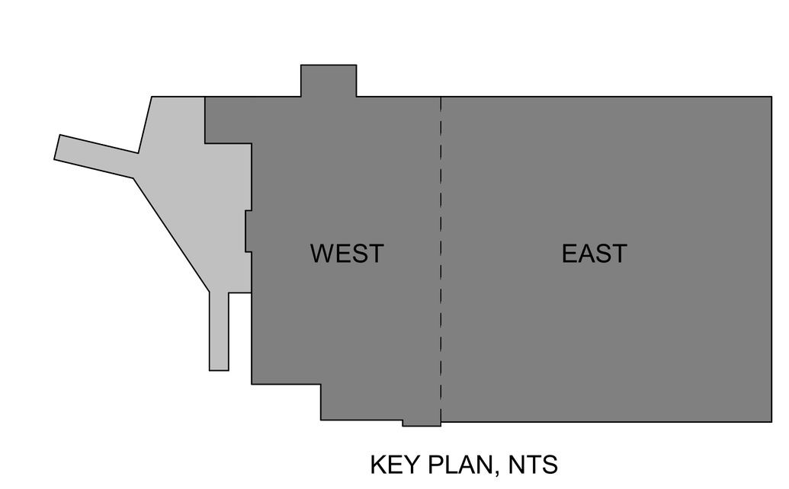
1. FOR ACCESSIBILITY REQUIREMENTS & DETAILS, SEE SHEETS A0.11 & A0.12.
2. FOR PARTITION TYPE CALLOUTS AND RATED WALL LOCATIONS, SEE ENLARGED DIMENSION PLANS, NEXT SHEET(S).

PLAN LEGEND

- EXTENT OF NEW BUILDING WORK
- DEMOLISHED CONSTRUCTION
- EXISTING WALL
- NEW WALL
- FILL IN WALL AT EXISTING
- 1 HOUR FIRE RATED WALL
- 3 HOUR FIRE RATED WALL

KEYNOTES

01.10	FIRE EXTINGUISHER CABINET
03.03	TILT-UP CONCRETE WALL WITH BOARD-FORMED EXTERIOR FACE; MTL FURRING, INSULATION AND GWB AT INTERIOR FACE
03.21	INFILL FLOOR CAVITY FROM PREVIOUS STAIRCASE
05.05	EXT. PTD. STEEL STAIR W/ CONC.-FILLED METAL PANS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
10.11	INSTRUMENT STORAGE LOCKERS
22.04	ACCESSIBLE HI-LO DRINKING FOUNTAIN W/BOTTLE FILLER; REF ACCESSIBILITY STANDARDS SHEETS A0.11 & A0.12
32.02	PAINTED WOOD OUTFIELD FENCE W/ TUBE STL FRAMING AND CHAIN LINK FENCING INFILL; SEE ELEVS



KEY PLAN, NTS

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APPROVALS

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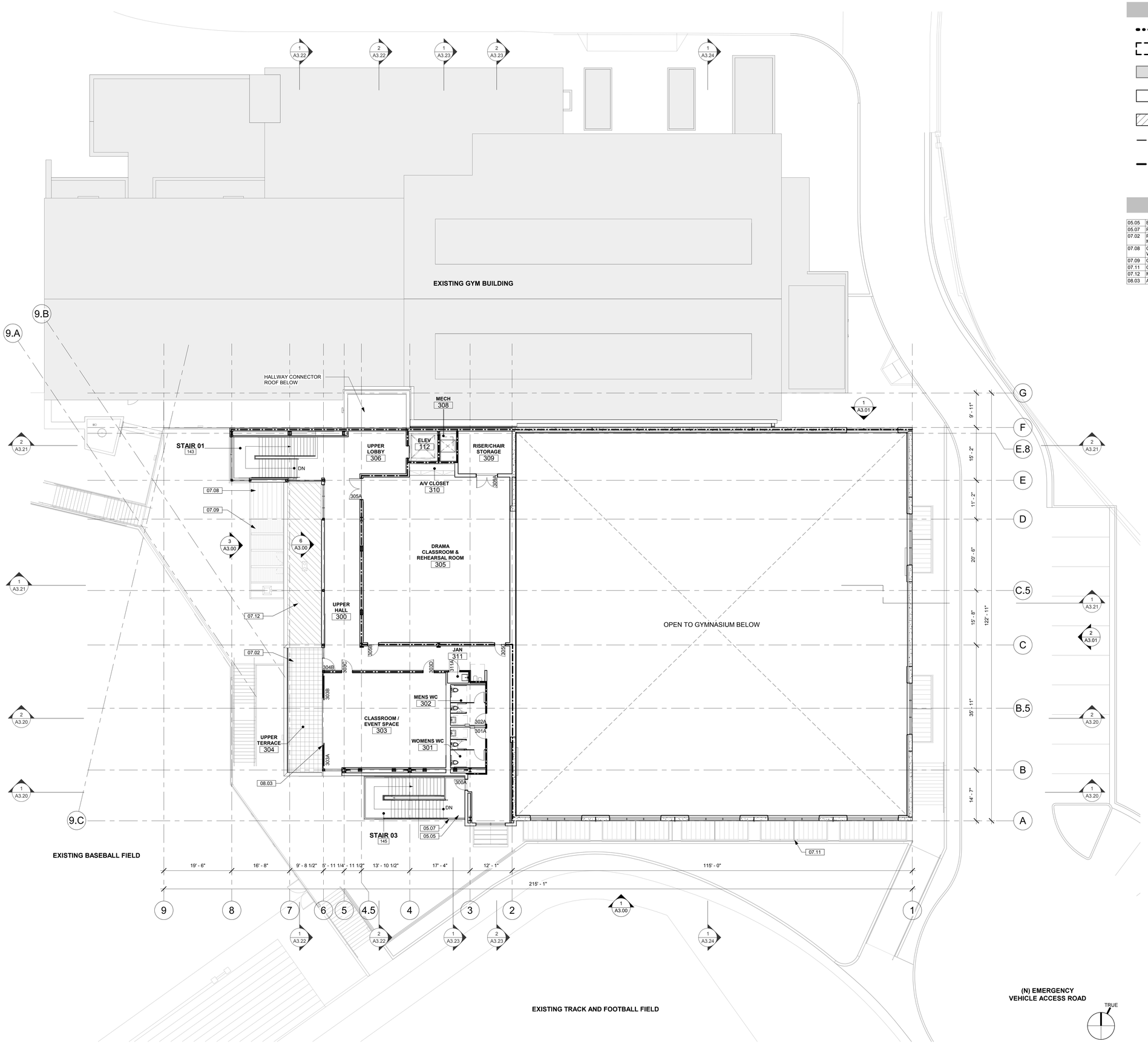
MAIN FLOOR PLAN

A2.20

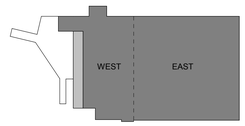


PLAN LEGEND

- EXTENT OF NEW BUILDING WORK
- DEMOLISHED CONSTRUCTION
- EXISTING WALL
- NEW WALL
- FILL IN WALL AT EXISTING
- 1 HOUR FIRE RATED WALL
- 3 HOUR FIRE RATED WALL

KEYNOTES

05.05	EXT. PTD. STEEL STAIR W/ CONC.-FILLED METAL PANS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.08	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND WOOD SOFFIT
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS
07.11	CANOPY W/ PTD STL FRAME AND SLOPED STANDING SEAM ROOFING
07.12	MEXICAN PEBBLES OVER MEMBRANE ROOFING ASSEMBLY
08.03	ALUM. SLIDING DOORS TO MATCH WINDOW/DOOR SYSTEM



KEY PLAN, NTS

1 UPPER LEVEL FLOOR PLAN
3/32" = 1'-0"

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APPROVALS

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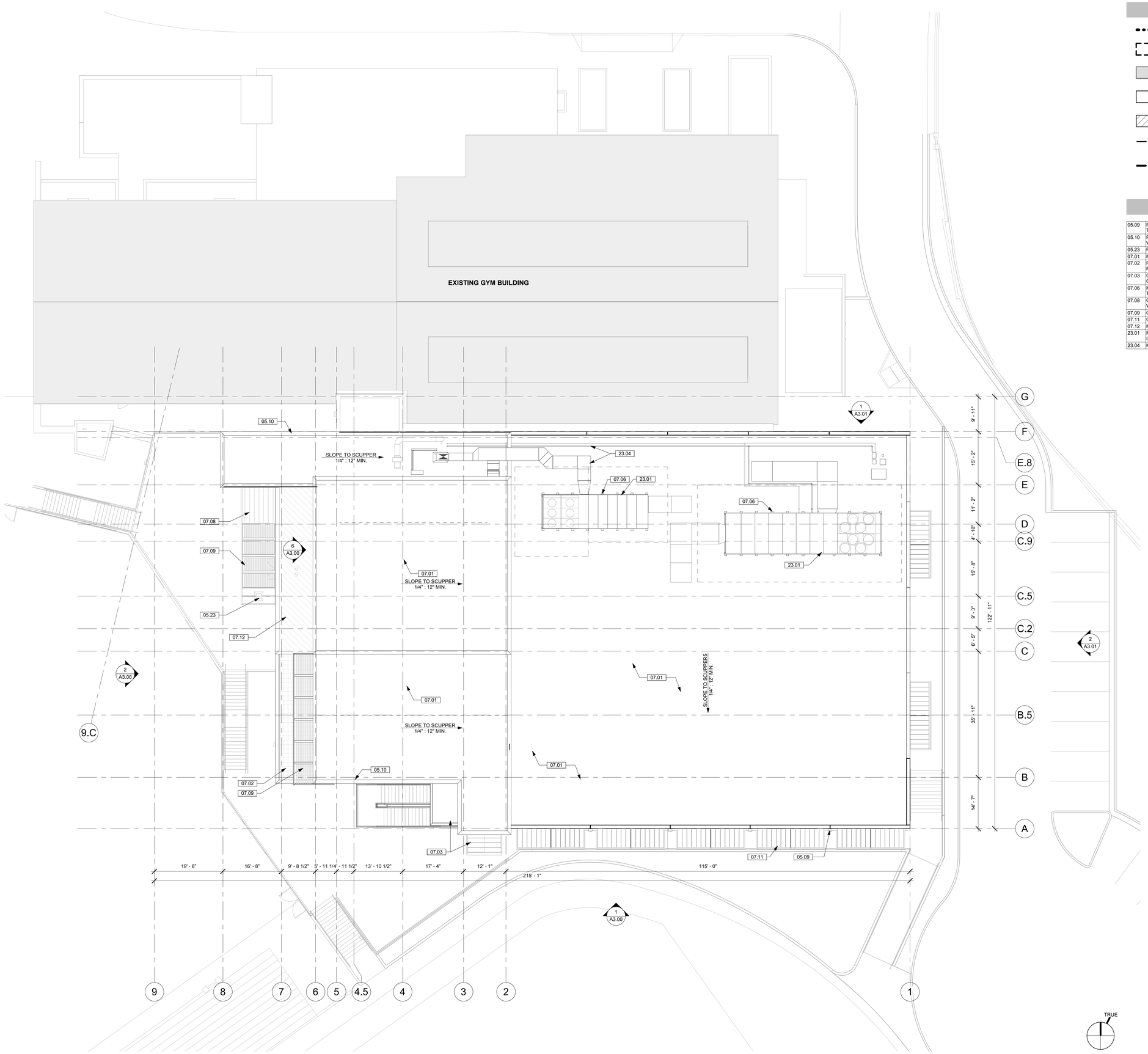
UPPER LEVEL FLOOR PLAN

A2.30



1 ROOF PLAN
3/32" = 1'-0"

PLAN LEGEND

- EXTENT OF NEW BUILDING WORK
- DEMOLISHED CONSTRUCTION
- EXISTING WALL
- NEW WALL
- FILL IN WALL AT EXISTING
- 1 HOUR FIRE RATED WALL
- 3 HOUR FIRE RATED WALL

KEYNOTES

05.09	PRE-FINISHED ROUND METAL DOWNSPOUT AND COLLECTOR HEAD AT THRU-WALL SCUPPER
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.23	PRE-FINISHED CUSTOM PERFORATED
07.01	MEMBRANE ROOFING OVER RIGID INSULATION
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.06	METAL FRAMED SLEEPERS BENEATH MECHANICAL EQUIPMENT CURB; TPO ROOFING CONTINUOUS OVER SLEEPERS, TYP
07.08	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND WOOD SOFFIT
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS
07.11	CANOPY W/ PTD STL FRAME AND SLOPED STANDING SEAM ROOFING
07.12	MEXICAN PEBBLES OVER MEMBRANE ROOFING ASSEMBLY
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT
23.04	MECHANICAL DUCTS AND PIPING; SMD

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APPROVALS

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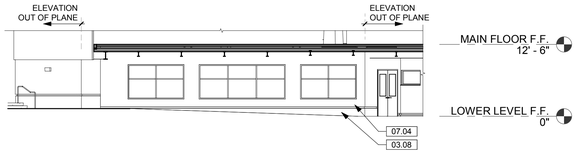
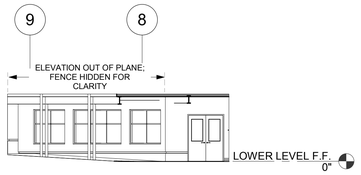
ROOF PLAN

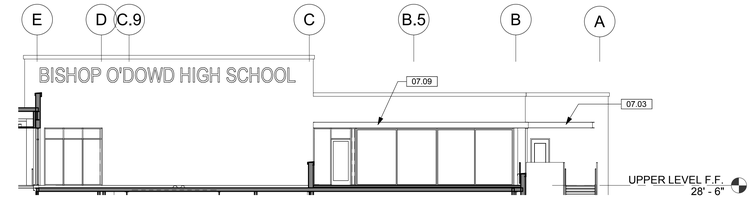
A2.40



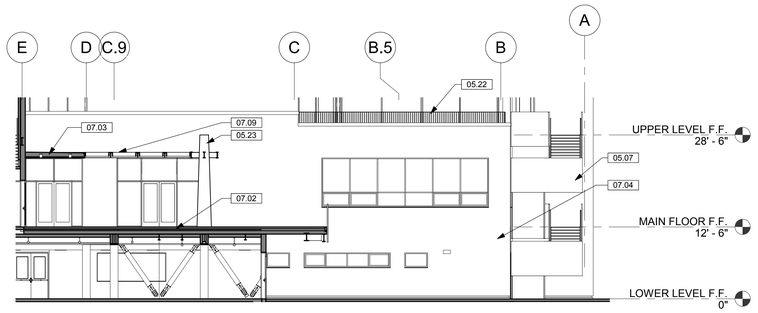
5 EXTERIOR ELEVATION NW
3/32" = 1'-0"



4 EXTERIOR ELEVATION SOUTH
3/32" = 1'-0"



6 EXTERIOR ELEVATION WEST - HIDDEN 2
3/32" = 1'-0"



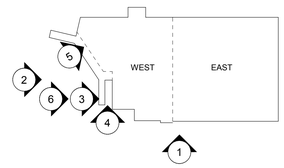
3 EXTERIOR ELEVATION WEST - HIDDEN 1
3/32" = 1'-0"

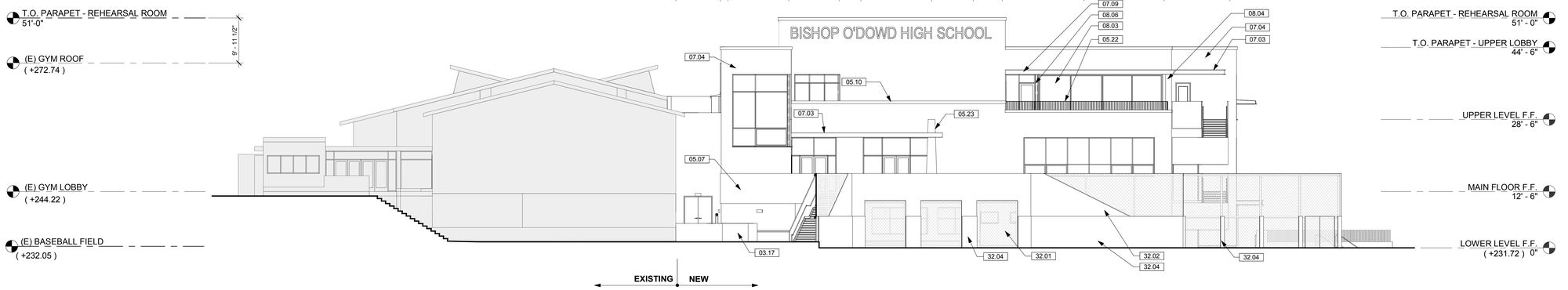
NOTES - ELEVATIONS

1. SEE SHEETS A0.11 & A0.22 FOR ACCESSIBILITY REQUIREMENTS & DETAILS
2. SEE SHEET A10.00 FOR FINISH SCHEDULE KEY.
3. SEE SHEET A3.10 & A3.11 FOR TILT-UP PANEL DIMENSIONS.
4. BUILDING SHALL MEET OR EXCEED THE PROVISIONS OF CALIFORNIA BUILDING CODE, CCR, TITLE 24, PART 2, CHAPTER 14 (EXTERIOR WALLS)
5. EXPOSED STEEL STRUCTURE SHALL BE PAINTED WITH INTUMESCENT PAINT TO ACHIEVE A 1-HR FIRE RATING

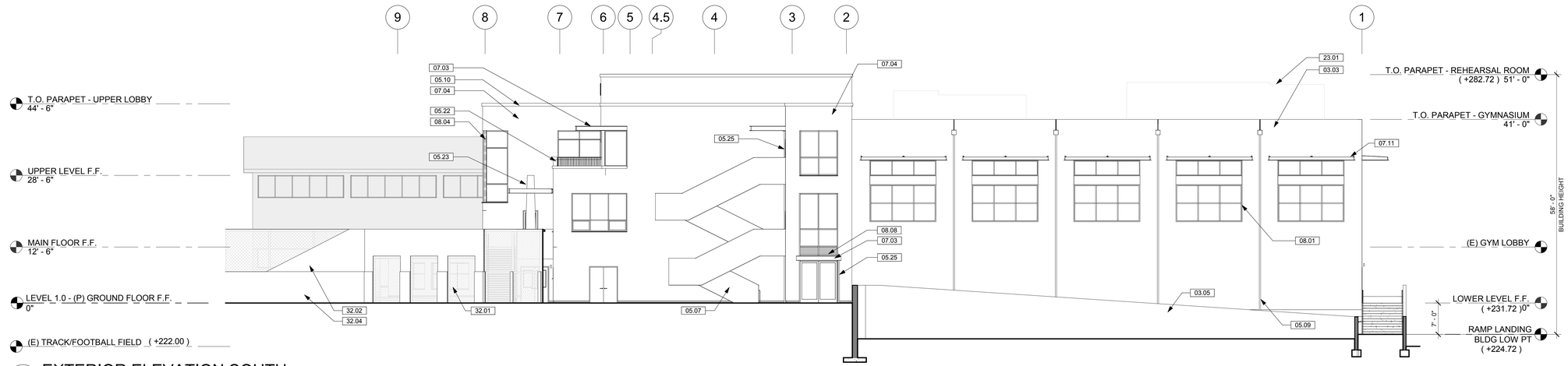
KEYNOTES

03.03	TILT-UP CONCRETE WALL WITH BOARD-FORMED EXTERIOR FACE; MTL FURRING, INSULATION AND GWB AT INTERIOR FACE
03.05	CONCRETE RETAINING WALL
03.08	CONC. CURB, TYP @ EXTERIOR PLASTER WALLS
03.17	CONCRETE PLANTER; SEE CIVIL AND LANDSCAPE DRAWINGS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.09	PRE-FINISHED ROUND METAL DOWNSPOUT AND COLLECTOR HEAD AT THRU-WALL SCUPPER
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.22	PAINTED STEEL PICKET GUARDRAIL
05.23	PRE-FINISHED CUSTOM PERFORATED
05.25	PRE-FINISHED METAL DOWNSPOUT TO UNDERGROUND STORM DRAIN SYSTEM
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS
07.11	CANOPY W/ PTD STL FRAME AND SLOPED STANDING SEAM ROOFING
08.01	ALUM. STOREFRONT DOOR/WINDOW SYSTEM W/LOW E GLAZING
08.03	ALUM. SLIDING DOORS TO MATCH WINDOW/DOOR SYSTEM
08.04	PRE-FINISHED ALUM. CORNER OF STOREFRONT SYS.
08.06	PRE-FINISHED ALUM. PANEL IN STOREFRONT SYS.
08.08	LOW-E SPANDREL GLASS IN STOREFRONT SYSTEM; FRIT ON SURFACE 4
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT
32.01	CHAIN LINK FENCE
32.02	PAINTED WOOD OUTFIELD FENCE W/ TUBE STL FRAMING AND CHAIN LINK FENCING INFILL; SEE ELEVS
32.04	WALL PADS MOUNTED TO OUTFIELD FENCE & FENCE STRUCTURE





2 EXTERIOR ELEVATION WEST
3/32" = 1'-0"



1 EXTERIOR ELEVATION SOUTH
3/32" = 1'-0"

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APPROVALS

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EXTERIOR ELEVATIONS

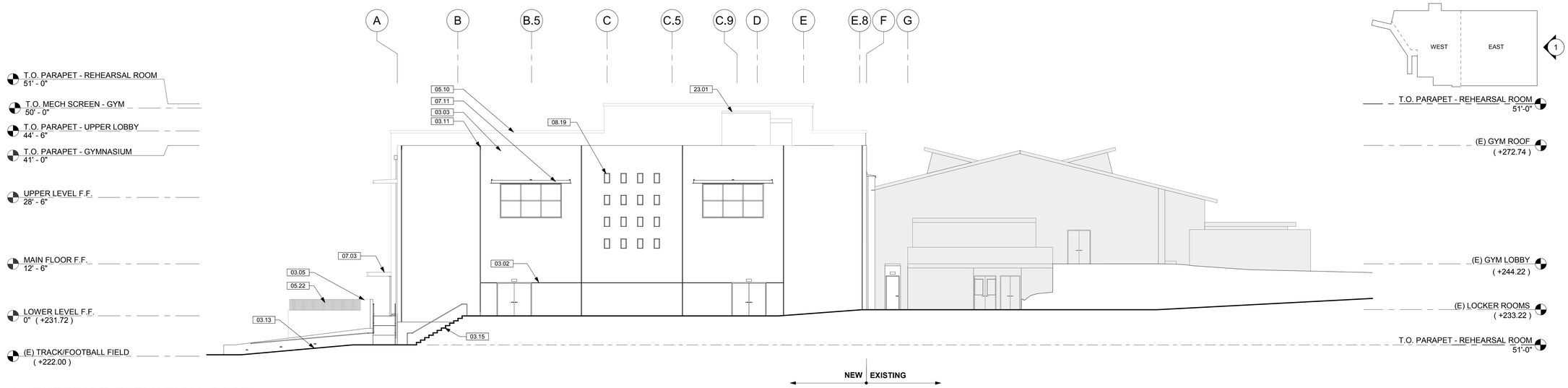
A3.00

NOTES - ELEVATIONS

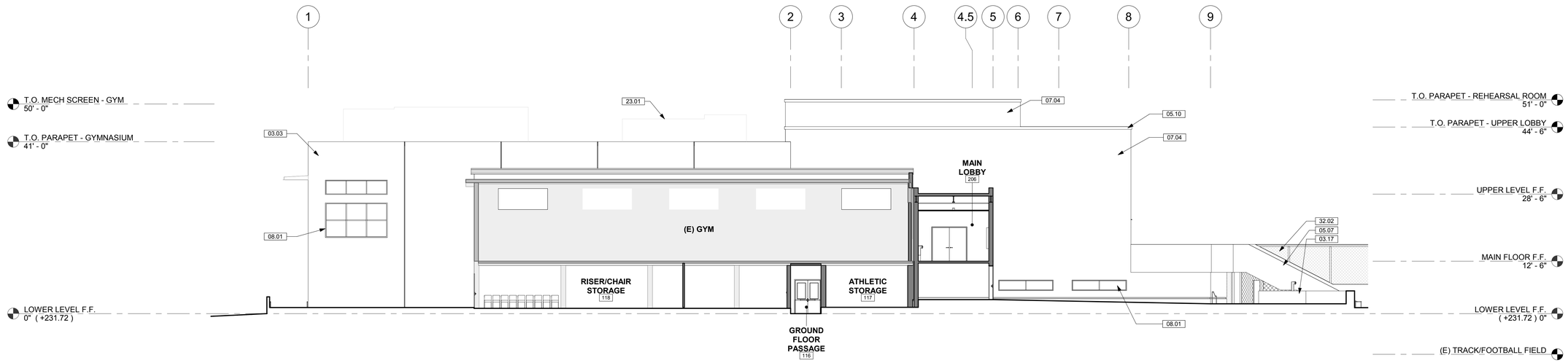
1. SEE SHEETS A0.11 & A0.22 FOR ACCESSIBILITY REQUIREMENTS & DETAILS
2. SEE SHEET A10.00 FOR FINISH SCHEDULE KEY.
3. SEE SHEET A3.10 & A3.11 FOR TILT-UP PANEL DIMENSIONS.
4. BUILDING SHALL MEET OR EXCEED THE PROVISIONS OF CALIFORNIA BUILDING CODE, CCR, TITLE 24, PART 2, CHAPTER 14 (EXTERIOR WALLS)
5. EXPOSED STEEL STRUCTURE SHALL BE PAINTED WITH INTUMESCENT PAINT TO ACHIEVE A 1-HR FIRE RATING

KEYNOTES

03.02	3/4" REVEAL IN CONC. PANELS
03.03	TILT-UP CONCRETE WALL WITH BOARD-FORMED EXTERIOR FACE; MTL FURRING, INSULATION AND GWB AT INTERIOR FACE
03.05	CONCRETE RETAINING WALL
03.11	TILT-UP CONC. PANEL JOINT
03.13	CONC. RAMP
03.15	CAST IN PLACE CONCRETE STAIR
03.17	CONCRETE PLANTER; SEE CIVIL AND LANDSCAPE DRAWINGS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.22	PAINTED STEEL PICKET GUARDRAIL
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
07.11	CANOPY W/ PTD STL FRAME AND SLOPED STANDING SEAM ROOFING
08.01	ALUM. STOREFRONT DOOR/WINDOW SYSTEM W/LOW E GLAZING
08.19	FRAMELESS COLORED GLASS WINDOWS SET INTO TILT-UP CONCRETE WALL
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT
32.02	PAINTED WOOD OUTFIELD FENCE W/ TUBE STL FRAMING AND CHAIN LINK FENCING INFILL; SEE ELEVS



2 EXTERIOR ELEVATION EAST
3/32" = 1'-0"



1 EXTERIOR ELEVATION NORTH
3/32" = 1'-0"

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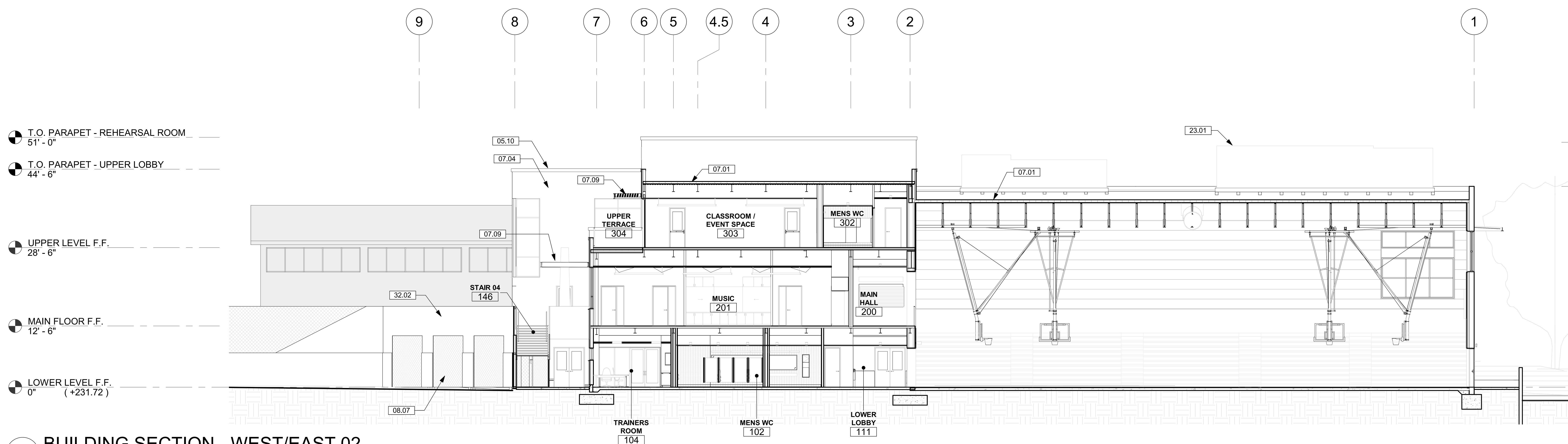
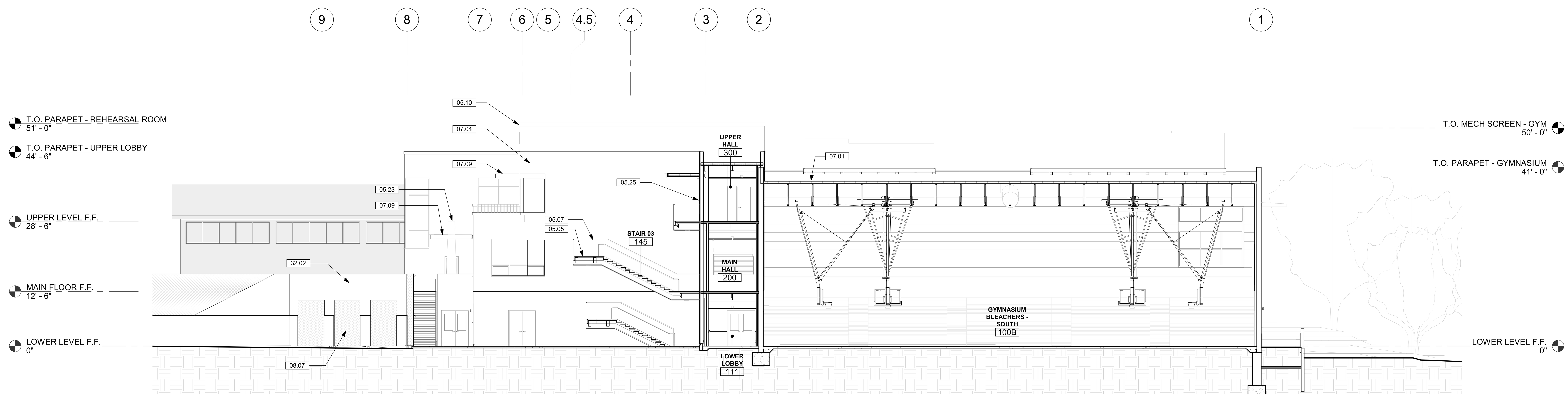
EXTERIOR ELEVATIONS

A3.01



2 BUILDING SECTION - WEST/EAST 02

3/32" = 1'-0"



1 BUILDING SECTION - WEST/EAST 01

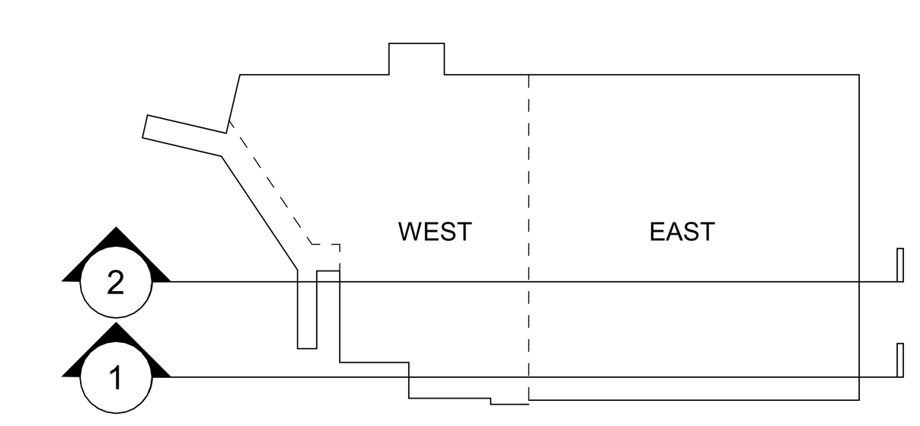
3/32" = 1'-0"

NOTES - SECTIONS

1. ALL DIMENSIONS NOTED AS "VIF" TO BE REVIEWED WITH ARCHITECT. NOTIFY ARCHITECT OF ANY DISCREPANCIES WITH DIMENSIONS NOTED AS "VIF"
2. DIMENSIONS ARE TO FACE OF FINISH, UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THICKNESS OF ALL FINISH MATERIALS.
3. SEE SHEET A0.11 & A0.12 FOR ACCESSIBILITY REQUIREMENTS AND DETAILS.
4. DO NOT SCALE OFF DRAWINGS. NOTIFY ARCHITECT OF ANY OMITTED DIMENSIONS.

KEYNOTES

05.05	EXT. PTD. STEEL STAIR W/ CONC.-FILLED METAL PANS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.23	PRE-FINISHED CUSTOM PERFORATED
05.25	PRE-FINISHED METAL DOWNSPOUT TO UNDERGROUND STORM DRAIN SYSTEM
07.01	MEMBRANE ROOFING OVER RIGID INSULATION
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS
08.07	FROSTED CLEAR POLYCARBONATE FLUSH W/ FACE OF WOOD
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT
32.02	PAINTED WOOD OUTFIELD FENCE W/ TUBE STL FRAMING AND CHAIN LINK FENCING INFILL; SEE ELEVS



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A3.20

NOTES - SECTIONS

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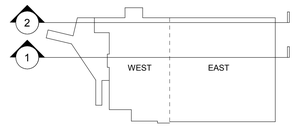
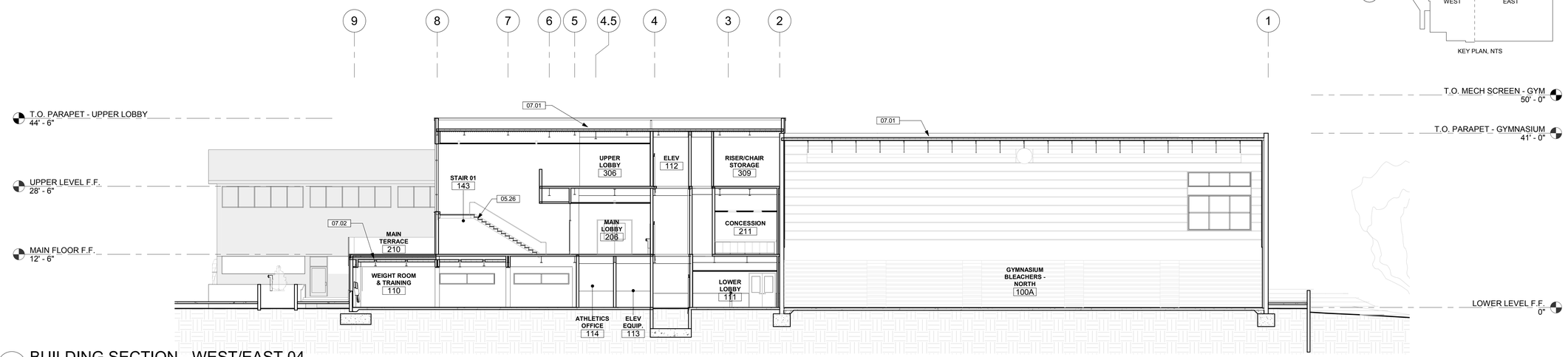
KEYNOTES

05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.26	INT. CONC. FILLED METAL PAN STAIR W/ RUBBERIZED TREADS AND RISERS
07.01	MEMBRANE ROOFING OVER RIGID INSULATION
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT

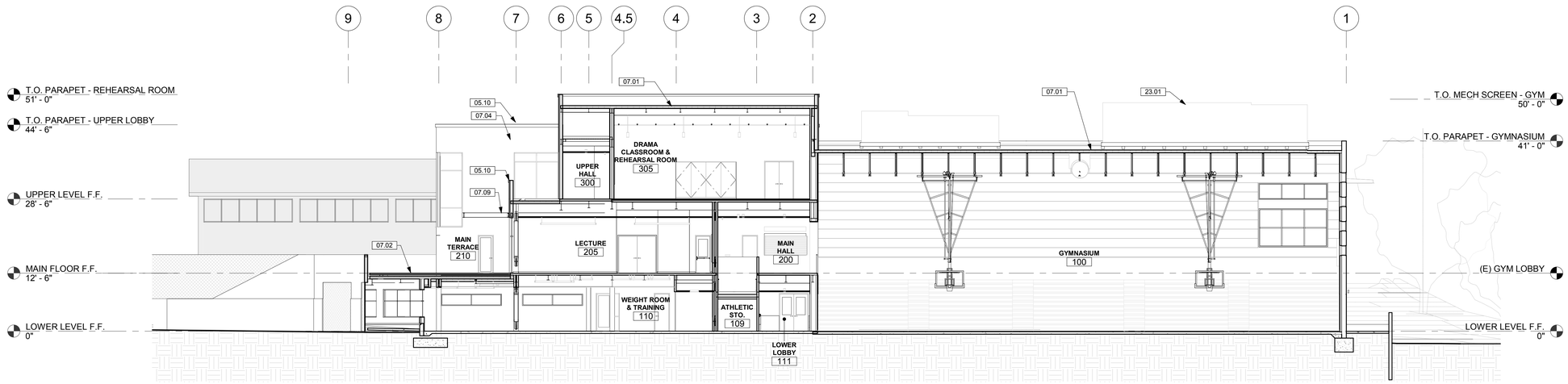


KEY PLAN, NTS



2 BUILDING SECTION - WEST/EAST 04

3/32" = 1'-0"



1 BUILDING SECTION - WEST/EAST 03

3/32" = 1'-0"

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A3.21

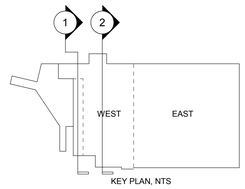
9/4/2020 11:24:50 AM

NOTES - SECTIONS

1. ALL DIMENSIONS NOTED AS "VIF" TO BE REVIEWED WITH ARCHITECT. NOTIFY ARCHITECT OF ANY DISCREPANCIES WITH DIMENSIONS NOTED AS "VIF"
2. DIMENSIONS ARE TO FACE OF FINISH, UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THICKNESS OF ALL FINISH MATERIALS.
3. SEE SHEET A0.11 & A0.12 FOR ACCESSIBILITY REQUIREMENTS AND DETAILS.
4. DO NOT SCALE OFF DRAWINGS. NOTIFY ARCHITECT OF ANY OMITTED DIMENSIONS.

KEYNOTES

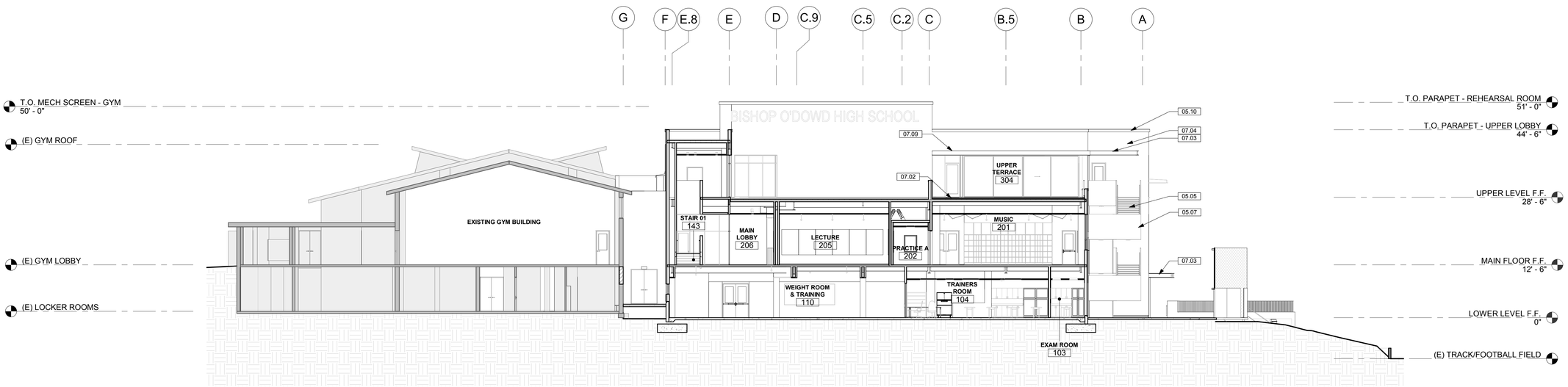
05.05	EXT. PTD. STEEL STAIR W/ CONC.-FILLED METAL PANS
05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
07.01	MEMBRANE ROOFING OVER RIGID INSULATION
07.02	PEDESTAL PAVERS OVER HOT RUBBER ROOFING OVER CONC. OVER METAL DECKING
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING
07.09	CANOPY W/ PTD STL FRAME AND PREFABRICATED ALUMINUM TRELLIS



KEY PLAN, NTS

2 BUILDING SECTION - NORTH/SOUTH 02

3/32" = 1'-0"



1 BUILDING SECTION - NORTH/SOUTH 01

3/32" = 1'-0"

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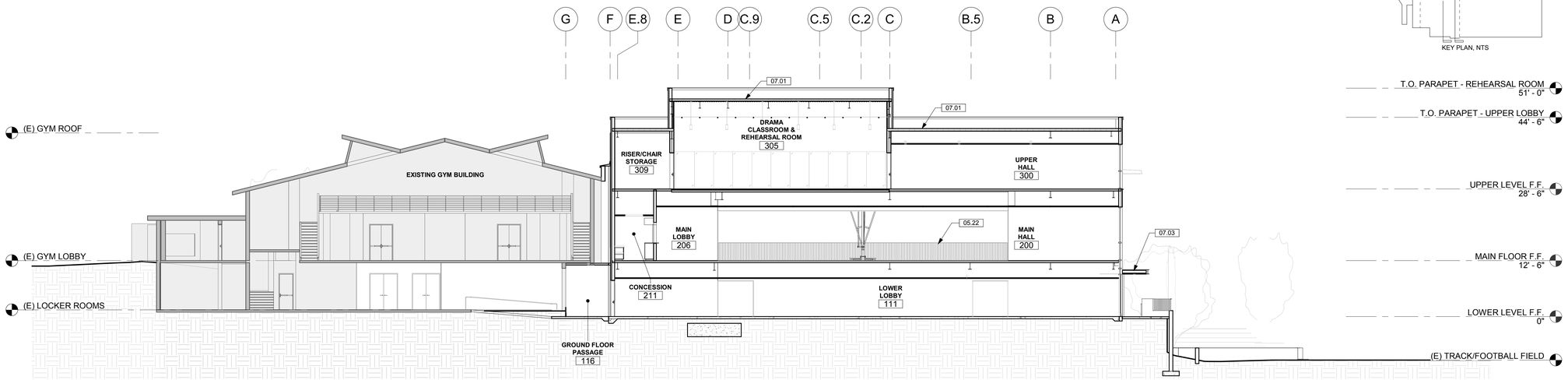
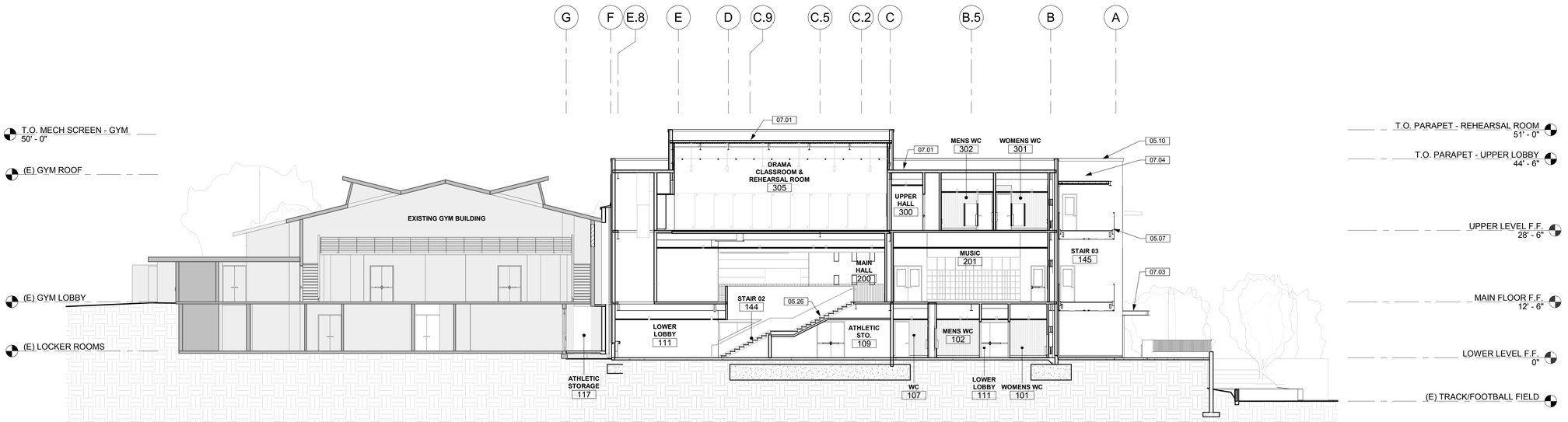


2 BUILDING SECTION - NORTH/SOUTH 04
3/32" = 1'-0"



1 BUILDING SECTION - NORTH/SOUTH 03
3/32" = 1'-0"

NOTES - SECTIONS

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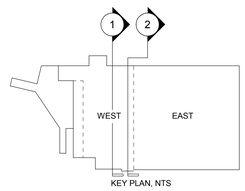
KEYNOTES

05.07	PRE-FINISHED PERFORATED METAL BOK GUARDRAIL SYS.
05.10	PRE-FINISHED ALUM. PARAPET CAP - 3/32" THICK BRAKEMETAL W/ WELDED CORNERS
05.22	PAINTED STEEL PICKET GUARDRAIL
05.26	INT. CONC. FILLED METAL PAN STAIR W/ RUBBERIZED TREADS AND RISERS
07.01	MEMBRANE ROOFING OVER RIGID INSULATION
07.03	CANOPY W/ PTD STL FRAME, SINGLE PLY MEMBRANE ROOFING, AND CEMENT BOARD SOFFIT
07.04	CEMENT PLASTER OVER RIGID INSULATION OVER METAL FRAMING



KEY PLAN, NTS

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A3.23

NOTES - SECTIONS

1. ALL DIMENSIONS NOTED AS "VIF" TO BE REVIEWED WITH ARCHITECT. NOTIFY ARCHITECT OF ANY DISCREPANCIES WITH DIMENSIONS NOTED AS "VIF"
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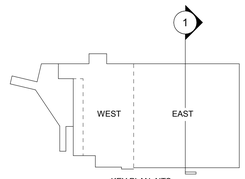
KEYNOTES

07.01	MEMBRANE ROOFING OVER RIGID INSULATION
23.01	MECHANICAL EQUIPMENT ON STEEL CURB AND SPRING VIBRATION ISOLATORS; SMD FOR ROOFTOP DUCT LAYOUT



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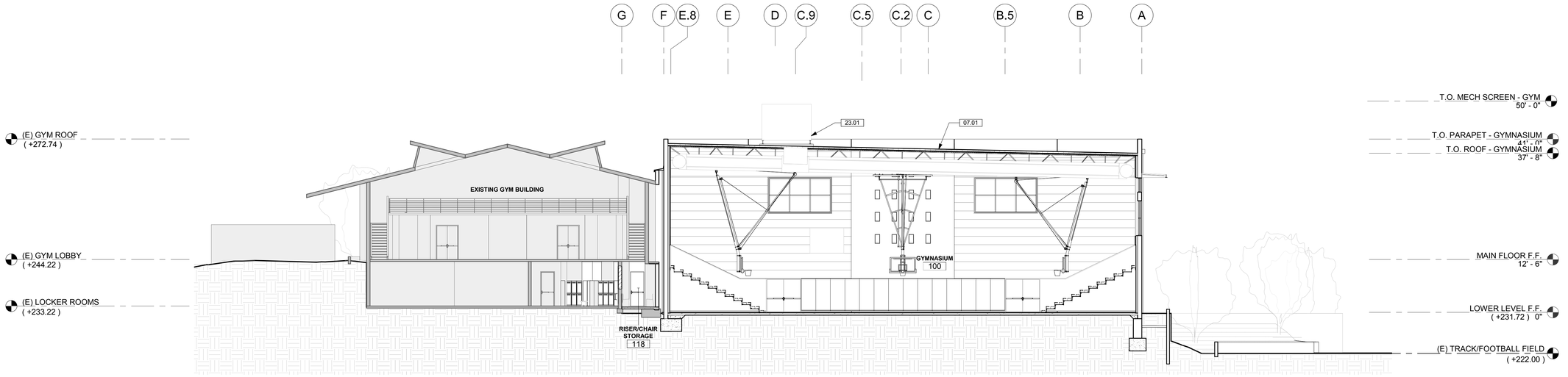

1 BUILDING SECTION - NORTH/SOUTH 05
3/32" = 1'-0"

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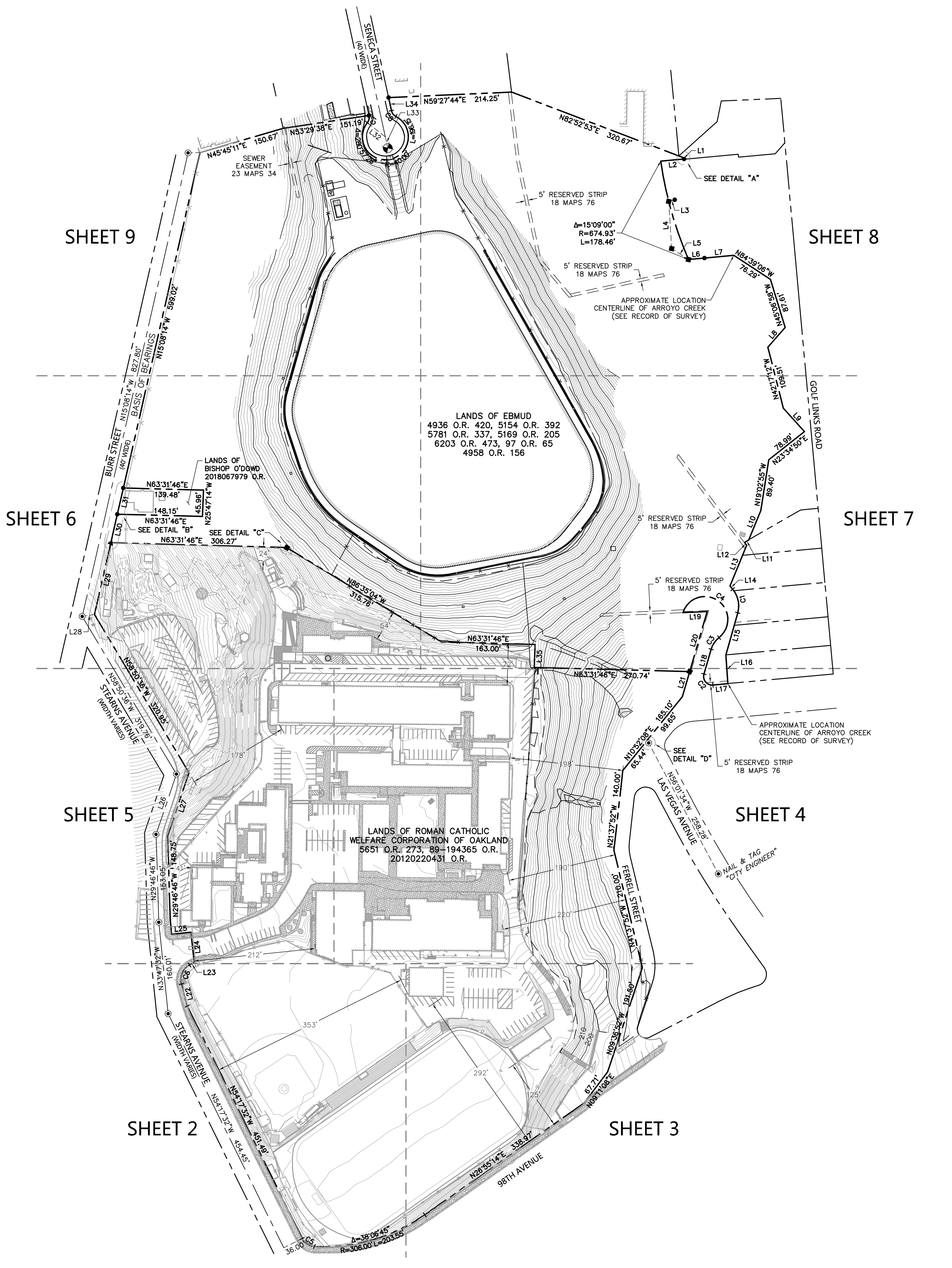


scale 1" = 80'

LEGEND:

- PROPERTY LINE
- ADJOINING LOT LINE
- CENTERLINE
- EASEMENT
- SURVEY TIE
- FOUND PIN IN CONCRETE IN HANDHOLE, UNLESS OTHERWISE NOTED
- FOUND 1.5" BRASS PIN w/PUNCH
- FOUND 2" IRON PIPE w/TACK AND BRASS TAG STAMPED, "EBMUD"
- FOUND CONCRETE MONUMENT & 3" BRASS DISK STAMPED, "EBMUD PROPERTY CORNER"
- FOUND NGS BENCHMARK, DESIGNATION "SENECA" PID HT2524

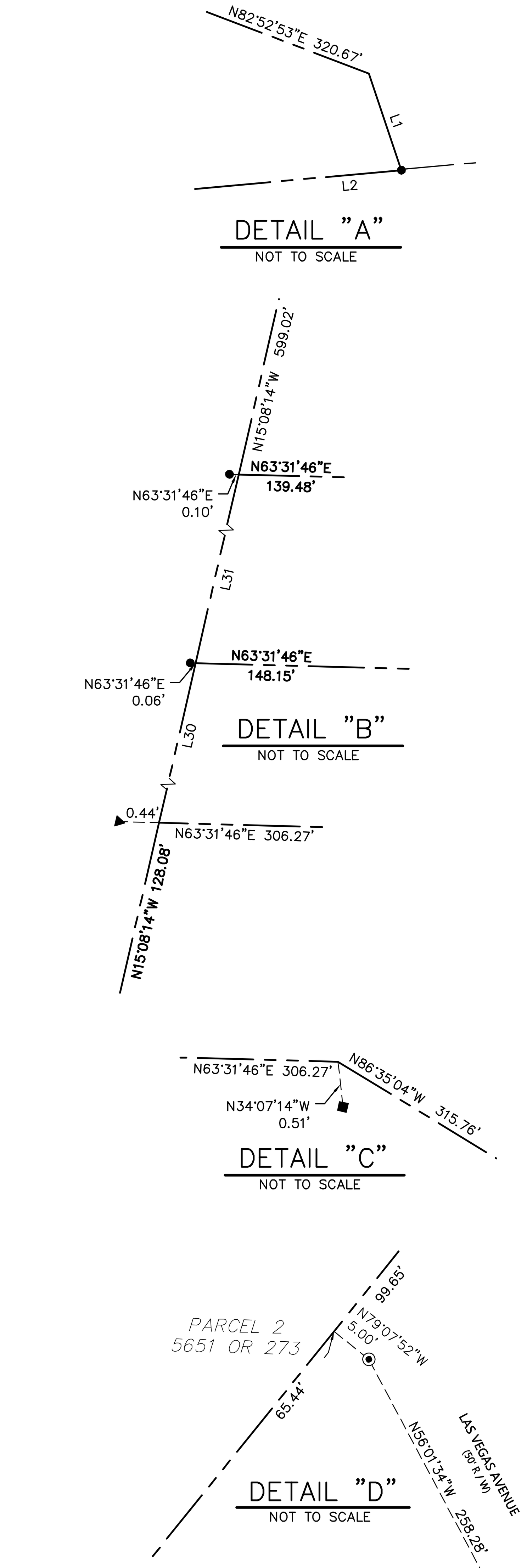
O.R. OFFICIAL RECORDS

LINE TABLE

LINE	DIRECTION	LENGTH
L1	N46°34'21"W	2.28'
L2	N56°48'07"E	40.79'
L3	N46°42'53"E	10.82'
L4	N31°34'27"W	82.28'
L5	N85°00'38"W	34.84'
L6	N56°44'26"E	28.03'
L7	N56°44'26"E	51.21'
L8	N13°19'55"E	45.80'
L9	N69°53'19"W	54.82'
L10	N05°42'03"W	55.46'
L11	N32°15'07"E	8.37'
L12	N64°36'47"W	6.02'
L13	N05°42'03"W	76.63'
L14	N67°59'25"W	7.39'
L15	N12°18'53"W	76.46'
L16	N31°58'53"W	50.01'
L17	N56°56'59"E	26.06'
L18	N11°43'01"W	45.00'
L19	N59°32'17"E	42.23'
L20	N11°43'01"W	108.85'
L21	N11°43'01"W	45.40'
L22	N43°13'54"W	39.78'
L23	S33°26'40"W	9.09'
L24	S33°47'32"E	53.00'
L25	N56°12'27"E	34.00'
L26	N09°23'36"W	110.75'
L27	N09°23'36"W	116.36'
L28	N53°00'35"E	21.55'
L29	N15°08'14"W	128.08'
L30	N15°08'14"W	50.97'
L31	N15°08'14"W	46.87'
L32	N79°50'41"W	40.00'
L33	N40°27'01"W	19.96'
L34	N40°19'25"W	23.26'
L35	N25°35'06"W	40.00'

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH
C1	55°43'01"	45.00'	43.76'
C2	111°20'41"	15.00'	29.15'
C3	35°39'08"	40.00'	24.89'
C4	214°35'07"	40.00'	149.80'
C5	60°40'29"	25.00'	26.47'
C6	76°40'34"	29.00'	38.81'
C7	50°28'44"	15.00'	13.22'
C8	50°28'44"	15.00'	13.22'



BASIS OF BEARINGS

THE BEARING OF NORTH 15°08'14" WEST BETWEEN TWO FOUND MONUMENTS ON BURR STREET, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "SENECA RESERVOIR PROPERTY", DRAWING NUMBER 158-R, DATED 9/19/51, LAST REVISION 4/27/73, ON FILE AT THE OFFICES OF EAST BAY MUNICIPAL UTILITY DISTRICT, WAS USED AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK

THE ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND NGS BENCHMARK, PID HT2524, DESIGNATION "SENECA", ELEVATION 325.79' (CONVERTED FROM DATASHEET METRIC VALUE). (DATUM = NAVD88)

NOTES

1. TOPOGRAPHY SHOWN HEREON WAS COMPILED BY FIELD SURVEYS PERFORMED IN OCTOBER OF 2016, JUNE THROUGH AUGUST OF 2017, NOVEMBER AND DECEMBER OF 2018, AND JANUARY AND FEBRUARY OF 2019.
2. THE BOUNDARY SHOWN HEREON IS THE RESULT OF A SURVEY PERFORMED BY BKF ENGINEERS. A RECORD OF SURVEY FOR THE EBMUD PARCEL WAS FILED WITH THE COUNTY OF ALAMEDA ON NOVEMBER 20, 2018, IN BOOK 45 OF RECORDS OF SURVEY AT PAGES 25-29 AND A RECORD OF SURVEY FOR THE BISHOP O'DOWD PARCEL HAS BEEN SUBMITTED FOR REVIEW BY THE COUNTY SURVEYOR AND WILL BE FILED UPON APPROVAL. SEE RECORDS OF SURVEY FOR BOUNDARY DETAILS NOT SHOWN HEREON.
3. THE EASEMENTS SHOWN HEREON ARE THOSE REFERENCED IN THE PRELIMINARY TITLE REPORTS PREPARED BY OLD REPUBLIC TITLE COMPANY, ORDER NUMBERS 1117020618-JM, DATED MAY 23, 2019, AND 1117016929-JM, DATED MARCH 17, 2017.
4. ALL DISTANCES AND DIMENSIONS ARE IN FEET AND DECIMALS THEREOF.
5. ALL TIES ARE PERPENDICULAR UNLESS NOTED OTHERWISE.
6. NOT ALL FINISHED FLOORS WERE ACCESSIBLE AT THE TIME OF THE SURVEY. FINISHED FLOOR ELEVATIONS ARE INDICATED WITH THE ABBREVIATION FF.

UTILITY NOTE

THE UTILITY LINES SHOWN ON THIS PLAN ARE DERIVED FROM SURFACE OBSERVATION, RECORD DATA AND BY UNDERGROUND UTILITY LOCATING METHODS. ACTUAL LOCATION AND SIZE, TOGETHER WITH THE PRESENCE OF ANY ADDITIONAL UTILITY LINES NOT SHOWN ON THIS PLAN SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

SURVEYOR'S CERTIFICATE

THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECTION AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

KEVIN STEIN, P.L.S. NO. 9028

2019-10-25
DATE

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BISHOP O'DOWD HIGHSCHOOL
9500 STEARNS AVENUE
ALAMEDA COUNTY

STATE OF CALIFORNIA

CITY OF OAKLAND

Revisions	No.

Date: 2019-10-25
Scale: AS SHOWN
Design: N/A
Drawn: RGM
Approved: KS
Job No:20165154-52

Drawing Number:
165154

20 0 20 40
scale 1" = 20' feet

MATCHLINE SHEET 5

MATCHLINE SHEET 3

SYMBOLS & LEGEND

EXISTING

- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
- BACKFLOW PREVENTION DEVICE
- FIRE DEPARTMENT CONNECTION
- POST INDICATOR VALVE
- RISER
- SIGN
- STREET LIGHT
- LIGHT POLE
- GUY ANCHOR
- UTILITY POLE
- TREE

- PROPERTY LINE
- ADJOINING LOT LINE
- CENTERLINE
- EASEMENT
- GRADE BREAK
- FLOW LINE
- FENCE
- STORM DRAIN
- SANITARY SEWER
- UNDERGROUND WATER
- UNDERGROUND FIRE WATER
- OVERHEAD UTILITY LINE
- UNDERGROUND UTILITY LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- CONCRETE
- DETECTABLE WARNING
- VALLEY GUTTER

ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
AR	AREA DRAIN
BFP	BACKFLOW PREVENTOR
BLDG	BUILDING
BLRD	BOLLARD
CB	CATCH BASIN
CO	CLEAN OUT
CONC	CONCRETE
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FL	SURFACE FLOWLINE
G	GAS
GR	GUARD RAIL
GB	GRADE BREAK
GYP	GUY POLE
HB	HOSE BIB
HCR	HANDICAP RAMP
HR	HANDRAIL
INV	BOTTOM INSIDE OF PIPE
LG	LIP OF GUTTER
MH	MANHOLE
OH	OVERHEAD UTILITY LINE
OVHG	BUILDING OVERHANG
PG&E	PACIFIC GAS & ELECTRIC
RTWL	RETAINING WALL
SD	STORM DRAIN
SL	STREETLIGHT
SS	SANITARY SEWER
TB	TOP OF BOX
TC	TOP FACE OF CURB
TEL	TELECOMMUNICATION LINE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TV	TELEVISION
TW	TOP OF WALL
TYP	TYPICAL
UB	UTILITY BOX
UT	UNDERGROUND UTILITY LINE
VLT	VAULT
W	WATER
WF	FIRE WATER
WL	WHITE LINE

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STATE OF CALIFORNIA

No.	Revisions

Date:	2019-10-25
Scale:	AS SHOWN
Design:	N/A
Drawn:	RDM/AUD
Approved:	KS
Job No:	20165154-52

Drawing Number:
165154
2 OF 9

DRAWING NAME: C:\Temp\AcPublish_42772\165154_--_TOPO.dwg
PLOT DATE: 10/25/2019 PLOTTED BY: Audrey Duong

BOUNDARY AND TOPOGRAPHIC SURVEY
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Revisions

Date:	2019-10-25
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Job No.	20165154-S2
No.	

Drawing Number: 165154 3 OF 9

SYMBOLS & LEGEND

EXISTING

- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
- FIRE DEPARTMENT CONNECTION
- POST INDICATOR VALVE
- RISER
- GAS VALVE
- STREET LIGHT
- LIGHT POLE
- GUY ANCHOR
- UTILITY POLE
- TREE
- PROPERTY LINE
- ADJOINING LOT LINE
- CENTERLINE
- EASEMENT
- GRADE BREAK
- FLOW LINE
- FENCE
- STORM DRAIN
- SANITARY SEWER
- UNDERGROUND WATER
- UNDERGROUND FIRE WATER
- OVERHEAD UTILITY LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- CONCRETE
- DETECTABLE WARNING
- VALLEY GUTTER

ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
AR	AREA DRAIN
BFP	BACKFLOW PREVENTOR
BLDG	BUILDING
BLVD	BOULEVARD
CB	CATCH BASIN
CO	CLEAN OUT
COMC	COMBO INLET
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FL	SURFACE FLOWLINE
G	GAS
GR	GUARD RAIL
GB	GRADE BREAK
GYP	GUY POLE
HB	HOSE BIB
HC/R	HANDICAP RAMP
HR	HANDRAIL
INV	BOTTOM INSIDE OF PIPE
LG	LIP OF GUTTER
MH	MANHOLE
OH	OVERHEAD UTILITY LINE
OVHG	BUILDING OVERHANG
P/SE	PACIFIC GAS & ELECTRIC
RET WAL	RETAINING WALL
SD	STORM DRAIN
SL	STREETLIGHT
SS	SANITARY SEWER
TB	TOP OF BOX
TC	TOP FACE OF CURB
TEL	TELECOMMUNICATION LINE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TV	TELEVISION
TW	TOP OF WALL
TYP	TYPICAL
UB	UTILITY BOX
UT	UNDERGROUND UTILITY LINE
VLT	VAULT
W	WATER
WF	FIRE WATER
WL	WHITE LINE

scale: 1" = 20' (20 0 20 40 feet)

MATCHLINE SHEET 4

MATCHLINE SHEET 2

98TH AVENUE

FIELD GOAL POST

FOOTBALL FIELD (ASTRO TURF)

DRAMA ROOM BAND ROOM

SECOND STORY BUILDING OVERHANG

EXISTING BUILDING

CONCRETE PAD

CONCRETE SIDEWALK

CONCRETE SIDEWALK FOOTING

TRACK SURFACE

OUTER TRACK LANE

TRACK OVAL

CHAIN LINK FENCE

ELEC CANOPY

DRINKING FOUNTAIN

BENCH

GATE

STAIRS

LANDING

RAMP

CONC WALL

AC BERM

VALLEY GUTTER

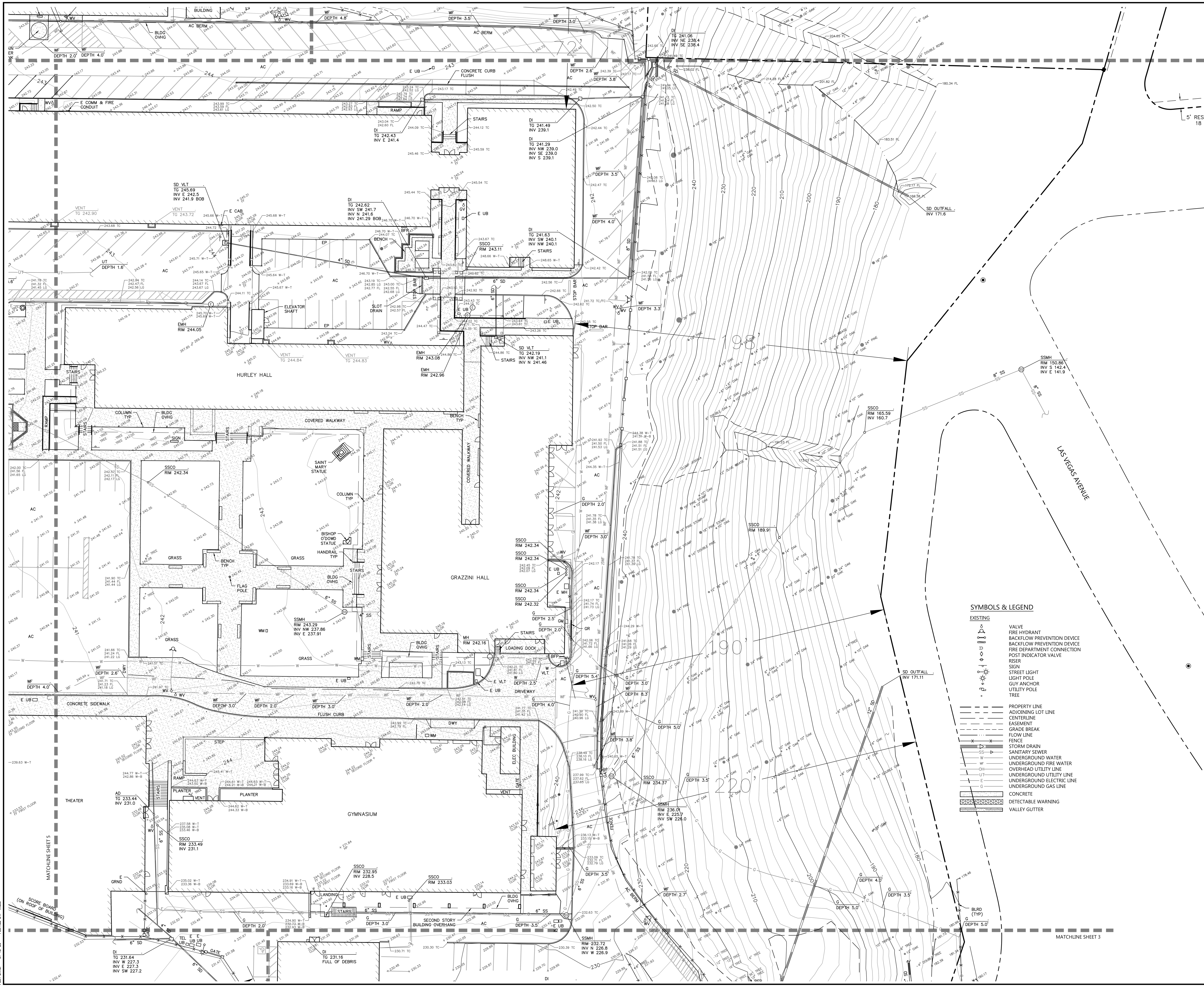
PLANTER (TYP)

SIDEWALK

DRIVE GATE

DRIVEWAY

DRAWING NAME: G:\Temp\AcPublish_8372\165154_V-TOPO.dwg
PLOT DATE: 01-13-20 PLOTTED BY: rnaco



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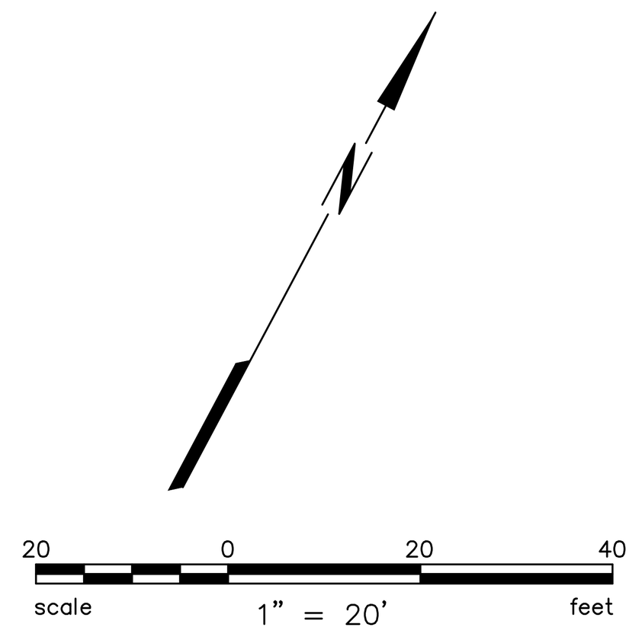

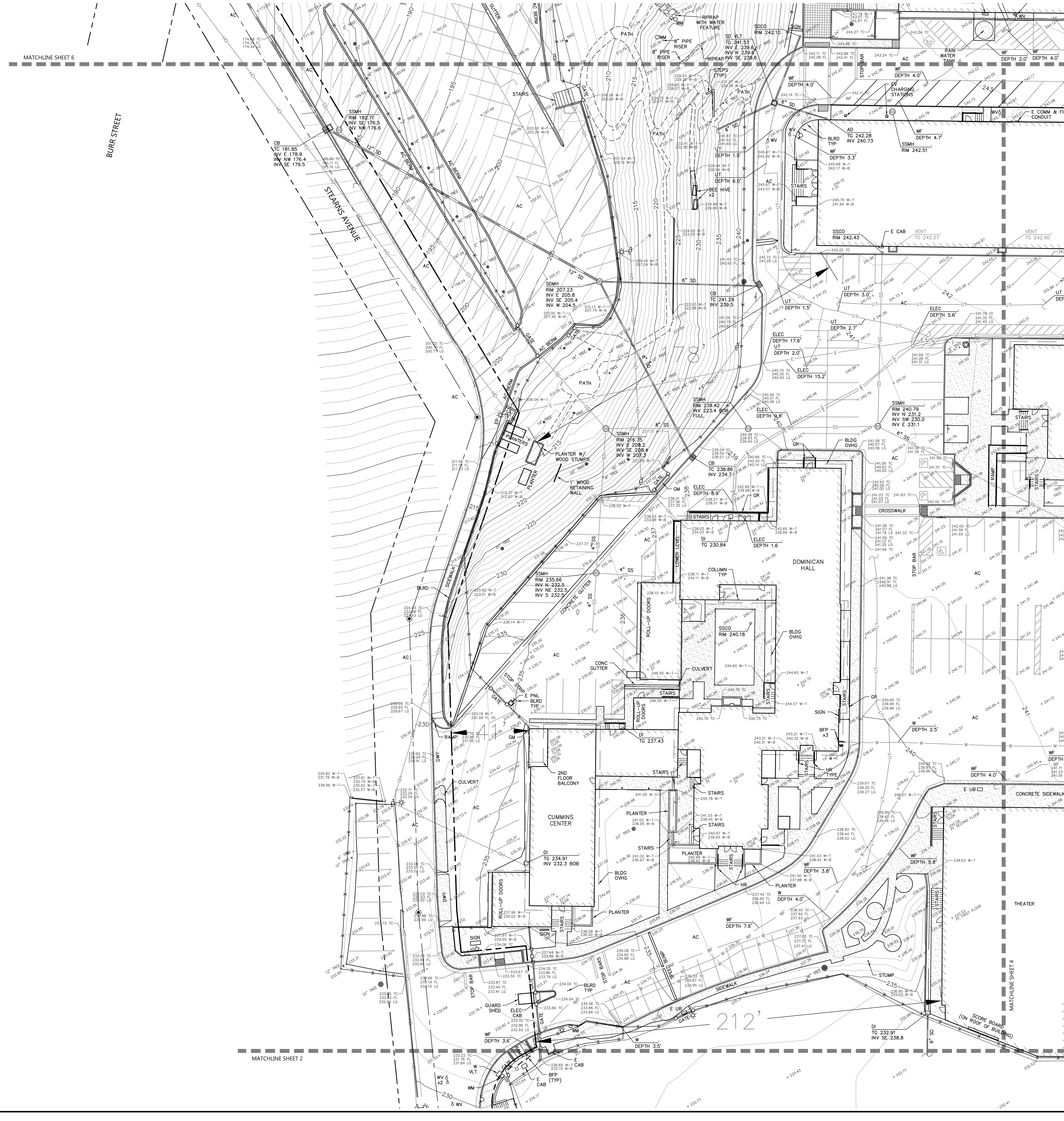

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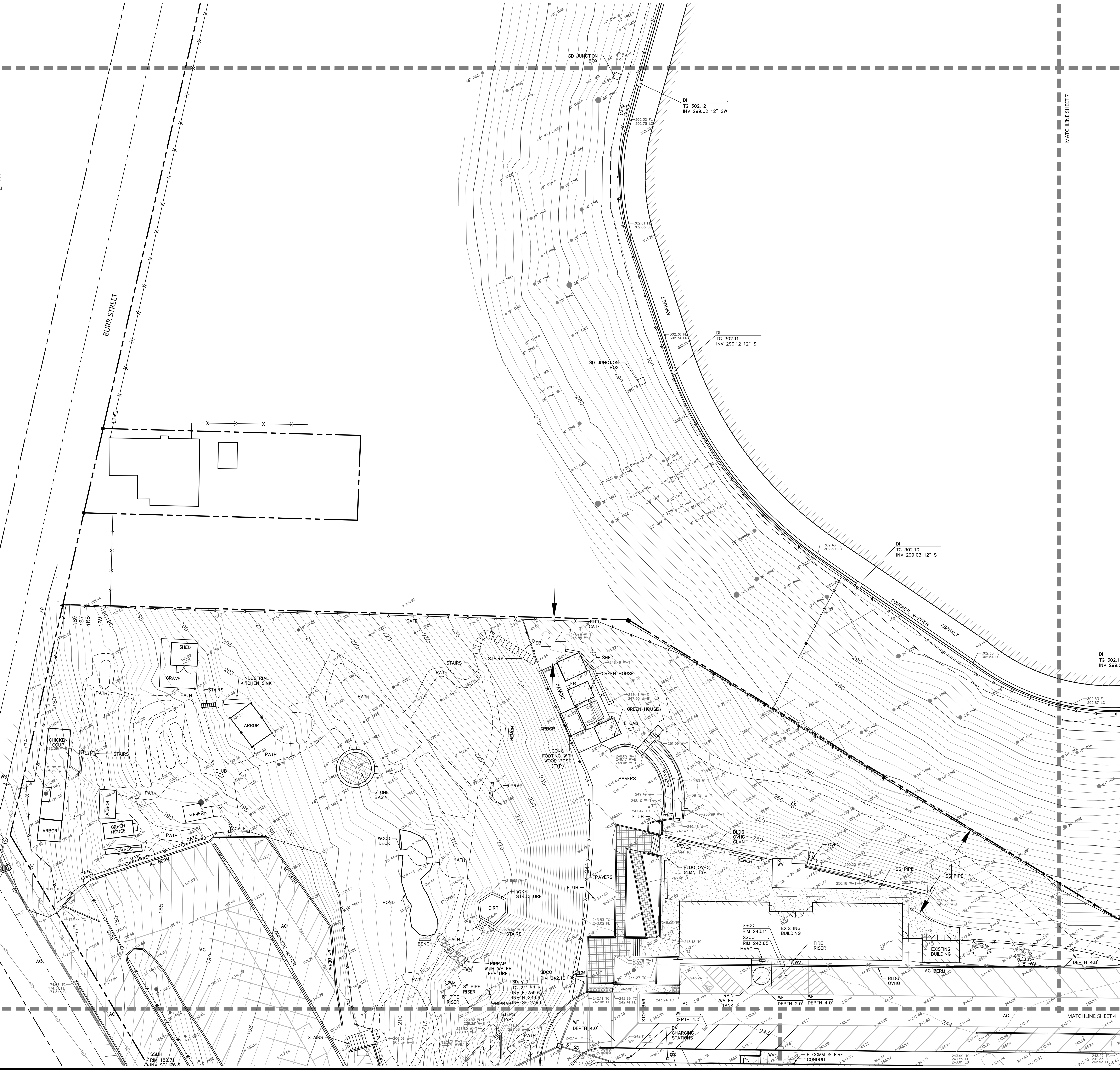

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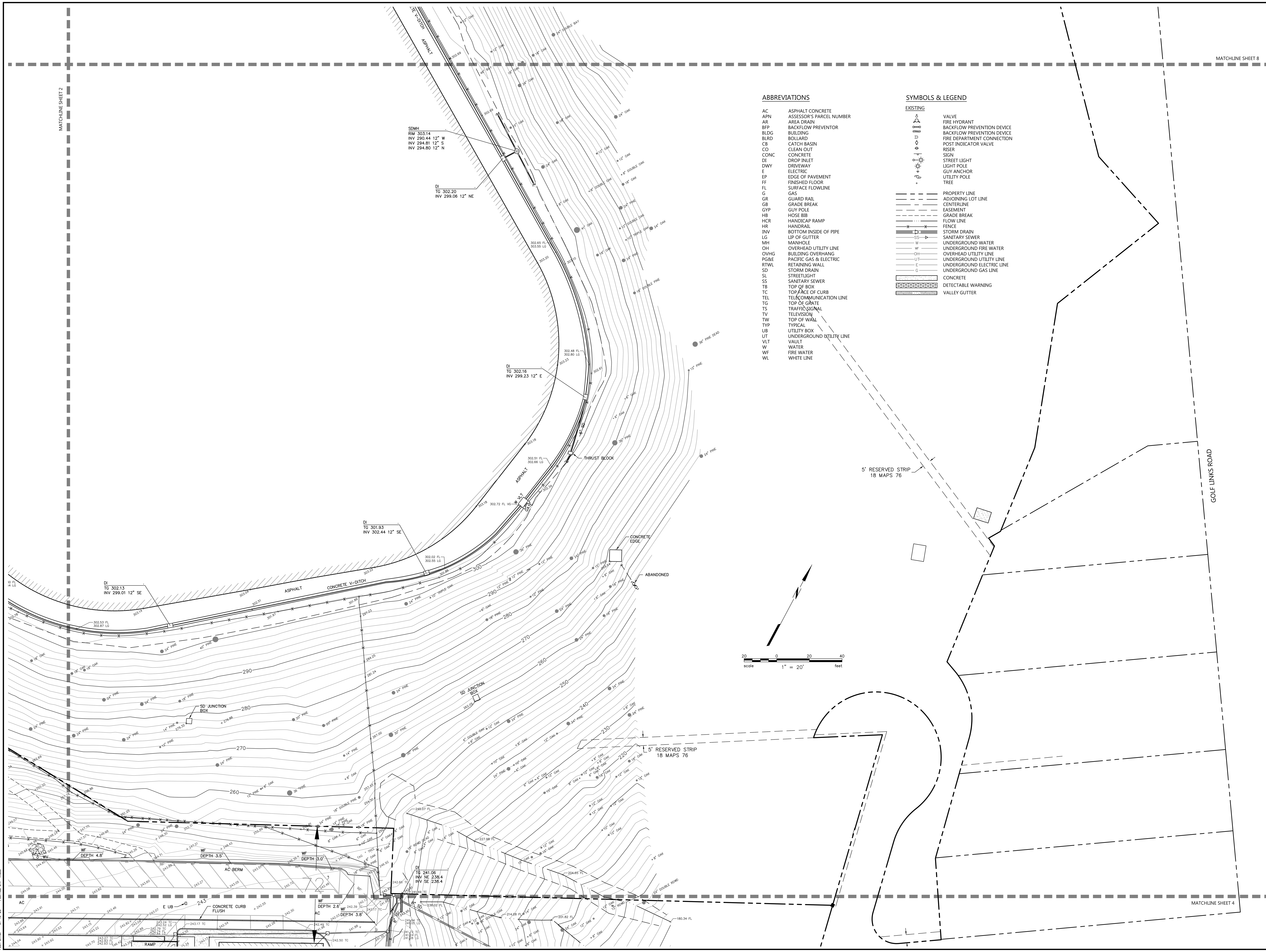

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ⓒ BKF Engineers

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20 0 20 40
scale 1" = 20' feet

ASPHALT

5' RESERVED STRIP
18 MAPS 76

DI
TG 302.22
INV 298.97 8" NE

DI
TG 302.22
INV 299.13 12" NE

302.47 FL
302.86 LG

302.44 FL
302.84 LG

CONCRETE V-DITCH

ASPHALT

GOLF LINKS ROAD

MATCHLINE SHEET 9

MATCHLINE SHEET 7

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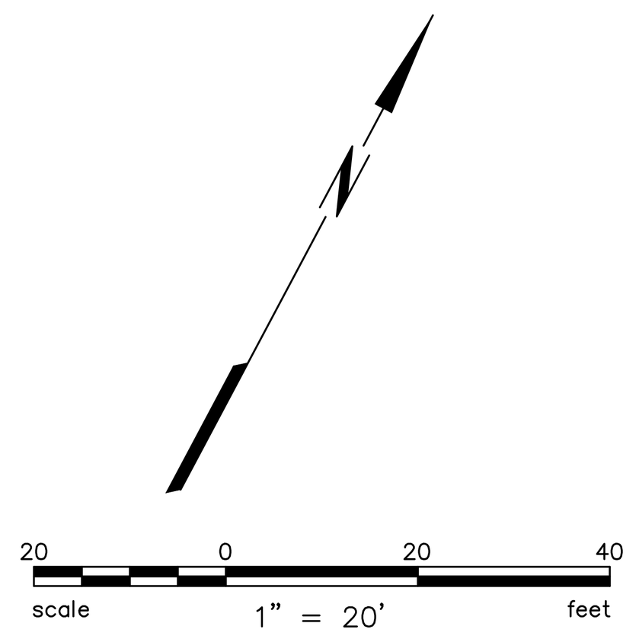

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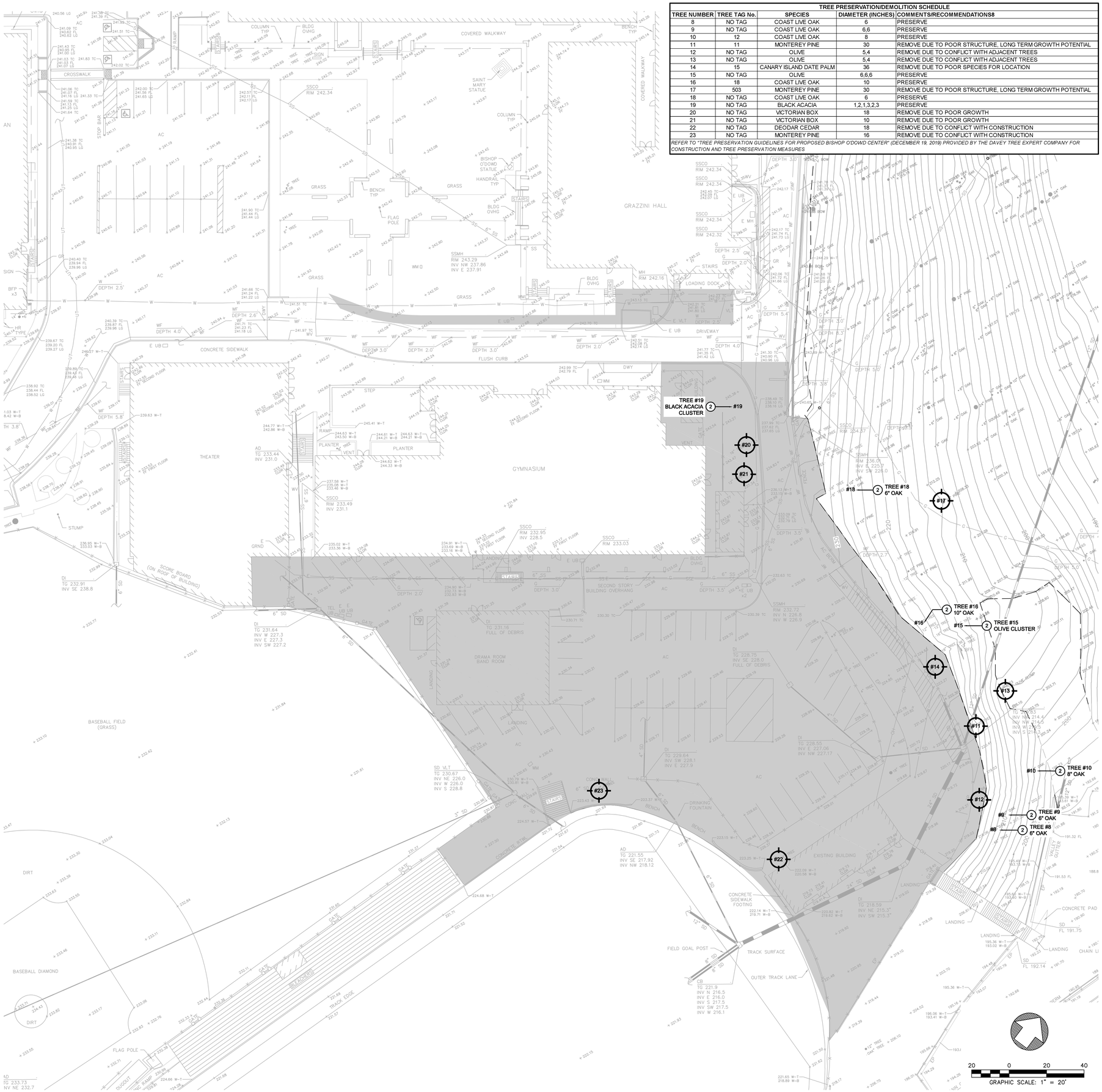

TREE PRESERVATION/DEMOLITION SCHEDULE

TREE NUMBER	TREE TAG No.	SPECIES	DIAMETER (INCHES)	COMMENTS/RECOMMENDATIONS8
8	NO TAG	COAST LIVE OAK	6	PRESERVE
9	NO TAG	COAST LIVE OAK	6,6	PRESERVE
10	12	COAST LIVE OAK	8	PRESERVE
11	11	MONTEREY PINE	30	REMOVE DUE TO POOR STRUCTURE, LONG TERM GROWTH POTENTIAL
12	NO TAG	OLIVE	5,4	REMOVE DUE TO CONFLICT WITH ADJACENT TREES
13	NO TAG	OLIVE	5,4	REMOVE DUE TO CONFLICT WITH ADJACENT TREES
14	15	CANARY ISLAND DATE PALM	36	REMOVE DUE TO POOR SPECIES FOR LOCATION
15	NO TAG	OLIVE	6,6,6	PRESERVE
16	18	COAST LIVE OAK	10	PRESERVE
17	503	MONTEREY PINE	30	REMOVE DUE TO POOR STRUCTURE, LONG TERM GROWTH POTENTIAL
18	NO TAG	COAST LIVE OAK	6	PRESERVE
19	NO TAG	BLACK ACACIA	1,2,1,3,2,3	PRESERVE
20	NO TAG	VICTORIAN BOX	18	REMOVE DUE TO POOR GROWTH
21	NO TAG	VICTORIAN BOX	10	REMOVE DUE TO POOR GROWTH
22	NO TAG	DEODAR CEDAR	18	REMOVE DUE TO CONFLICT WITH CONSTRUCTION
23	NO TAG	MONTEREY PINE	16	REMOVE DUE TO CONFLICT WITH CONSTRUCTION

REFER TO "TREE PRESERVATION GUIDELINES FOR PROPOSED BISHOP O'DOWD CENTER" (DECEMBER 19, 2019) PROVIDED BY THE DAVEY TREE EXPERT COMPANY FOR CONSTRUCTION AND TREE PRESERVATION MEASURES

LEGEND

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- CONCRETE
- DETECTABLE WARNING
- VALLEY GUTTER

DEMOLITION PLAN

- ON-SITE DEMOLITION INCLUDES, SEE NOTE 6
- TREE REMOVAL
  TREE NUMBER AS NOTED

KEY NOTES

1. UNUSED
2. PROTECT TREE IN PLACE (SEE ARBORIST REPORT)

BASIS OF BEARINGS

THE BEARING OF NORTH 15°08'14" EAST BETWEEN TWO FOUND MONUMENTS ON BURR STREET, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "SENECA RESERVOIR PROPERTY", DRAWING NUMBER 158-R, DATED 9/19/51, LAST REVISION 4/27/73, ON FILE AT THE OFFICES OF EAST BAY MUNICIPAL UTILITY DISTRICT, WAS USED AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK

THE ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND NGS BENCHMARK, PID HT2524, DESIGNATION "SENECA", ELEVATION 325.79'(CONVERTED FROM DATASHEET METRIC VALUE). (DATUM = NAVD88)

NOTES

1. TOPOGRAPHY SHOWN HEREON WAS COMPILED BY FIELD SURVEYS PERFORMED IN OCTOBER OF 2016, JUNE THROUGH AUGUST OF 2017, NOVEMBER AND DECEMBER OF 2018, AND JANUARY AND FEBRUARY OF 2019. PERFORMED BY BKF ENGINEERS. A RECORD OF SURVEY WAS FILED
2. THE BOUNDARY SHOWN HERE ON IS THE RESULT OF A SURVEY WITH THE COUNTY OF ALAMEDA ON NOVEMBER 20, 2018, IN BOOK 45 OF RECORDS OF SURVEY AT PAGES 25-29.
3. ASSESSOR'S PARCEL NUMBERS: 43A-4755-1-17 THEREOF.
4. ALL DISTANCES AND DIMENSIONS ARE IN FEET AND DECIMALS SURVEY. FINISHED FLOOR ELEVATIONS ARE INDICATED WITH THE
5. NOT ALL FINISHED FLOORS WERE ACCESSIBLE AT THE TIME OF THE ABBREVIATION FF.
6. ON-SITE DEMOLITION INCLUDES, BUT NOT LIMITED TO:
   - BUILDING FOUNDATION (SEE NOTE 7)
   - CONCRETE VERTICAL CURB AND SIDEWALK
   - ASPHALT CONCRETE
   - LANDSCAPE/TREES
   - UNDERGROUND UTILITIES
   - ANY ORGANIC MATERIAL

   REMOVE ALL FACILITIES AS REQUIRED FOR EXCAVATION UNLESS OTHERWISE SPECIFICALLY NOTED.

UTILITY NOTE

THE UTILITY LINES SHOWN ON THIS PLAN ARE DERIVED FROM SURFACE OBSERVATION, RECORD DATA AND BY UNDERGROUND UTILITY LOCATING METHODS. ACTUAL LOCATION AND SIZE, TOGETHER WITH THE PRESENCE OF ANY ADDITIONAL UTILITY LINES NOT SHOWN ON THIS PLAN SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
AR	AREA DRAIN
BFP	BACKFLOW PREVENTOR
BLDG	BUILDING
BLRD	BOLLARD
CB	CATCH BASIN
CO	CLEAN OUT
CONC	CONCRETE
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FL	SURFACE FLOWLINE
G	GAS
GR	GUARD RAIL
GB	GRADE BREAK
GYP	GUY POLE
HB	HOSE BIB
HCR	HANDICAP RAMP
HR	HANDRAIL
INV	BOTTOM INSIDE OF PIPE
LG	LIP OF GUTTER
MH	MANHOLE
OH	OVERHEAD UTILITY LINE
OVHG	BUILDING OVERHANG
PG&E	PACIFIC GAS & ELECTRIC
RTWL	RETAINING WALL
SD	STORM DRAIN
SL	STREETLIGHT
SS	SANITARY SEWER
TB	TOP OF BOX
TC	TOP FACE OF CURB
TEL	TELECOMMUNICATION LINE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TV	TELEVISION
TW	TOP OF WALL
TYP	TYPICAL
UB	UTILITY BOX
UT	UNDERGROUND UTILITY LINE
VLT	VAULT
W	WATER
WF	FIRE WATER
WL	WHITE LINE

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DESIGN DEVOLPMENT

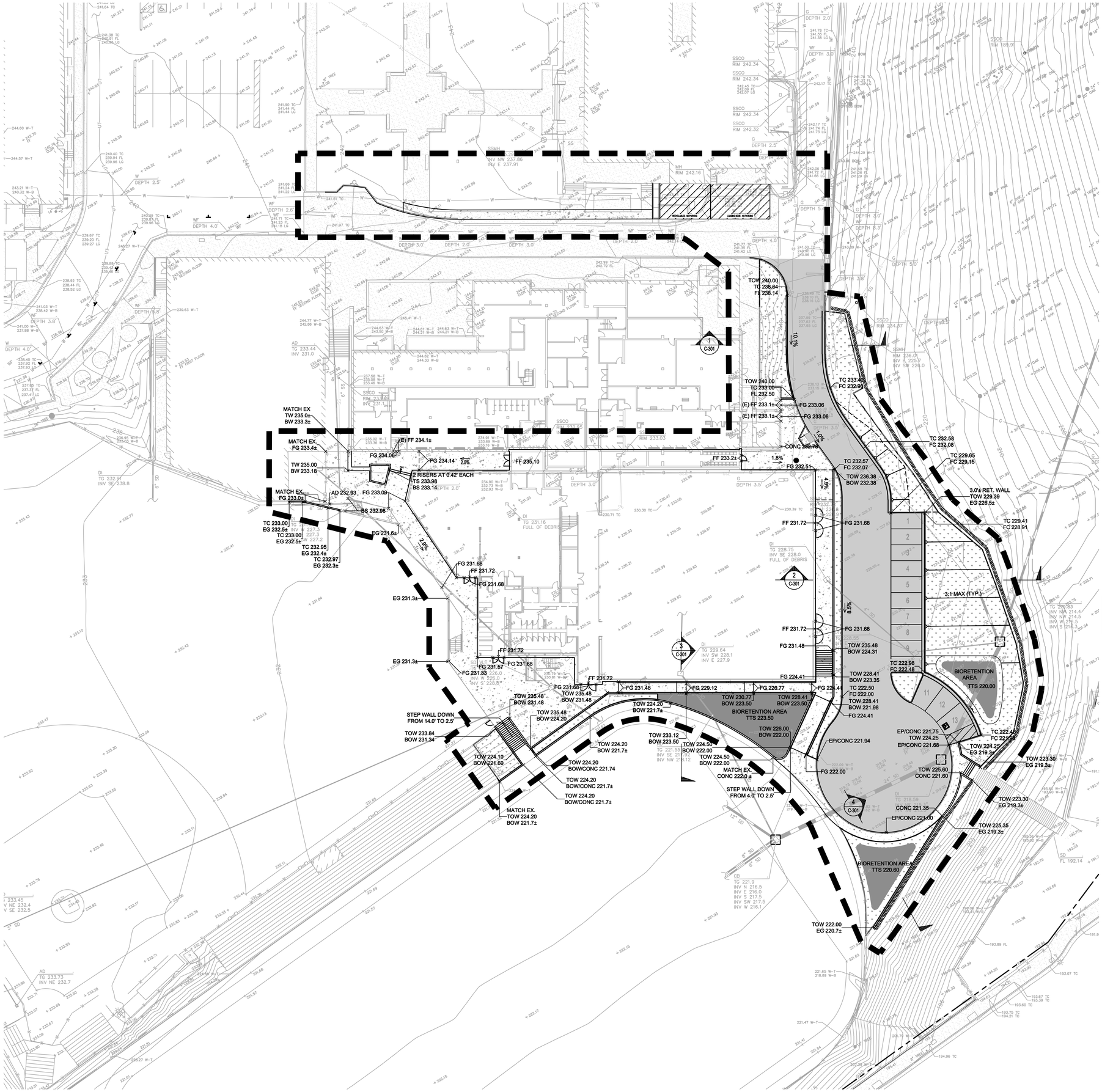
10.25.2019

No.	Description	Date

APPROVALS

DEMOLITION PLAN

C-200



LEGEND

- AC PAVEMENT
- CONCRETE
- BIORETENTION PLANTER
- TRADITIONAL LANDSCAPE
- GRADE BREAK
- FILL SLOPE
- FIBER ROLL
- X.X% SLOPE
- DRAIN INLET SEDIMENT PROTECTION

ABBREVIATIONS

AD	AREA DRAIN
BOW	BACK OF WALK
CONC	CONCRETE
(E)	EXISTING
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
EX.	EXISTING
FC	FACE OF CURB
FF	FINISHED FLOOR
FG	FINISHED GROUND
FL	FLOW LINE
TC	TOP OF CURB
TOW	TOP OF WALL

GENERAL NOTES

1. THE UTILITIES SHOWN ON THIS PLAN AREA DERIVED FROM RECORD DATA AND/OR SURFACE OBSERVATION AND ARE APPROXIMATE ONLY. ACTUAL LOCATION AND SIZE, TOGETHER WITH THE PRESENCE OF ANY ADDITIONAL UTILITY LINES NOT SHOWN ON THIS PLAN SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION.
2. ALL EXISTING UNDERGROUND IN THE PUBLIC RIGHT OF WAY SHALL BE PROTECTED UNLESS OTHERWISE NOTED.
3. ALL EXISTING UTILITY BOXES, STRUCTURES, MANHOLES AND VALVES WITHIN THE LIMIT OF WORK SHALL BE ADJUSTED TO FINAL GRADE UNLESS OTHERWISE NOTED.
4. GRADING OPERATIONS WILL OCCUR OVER EXISTING UTILITIES. CONTRACTOR SHALL EXERCISE THE NECESSARY CARE TO ENSURE EXISTING UTILITIES ARE NOT DAMAGED OR EXPERIENCE ANY INTERRUPTION IN SERVICE. ANY UTILITIES DAMAGED DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED TO ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR.
5. EXISTING CATCH BASIN TO BE RELOCATED OUTSIDE OF DRIVEWAY APPROACH. COUNTY OF ALAMEDA TO PROVIDE DIRECTION FOR RELOCATION.

APPROXIMATE EARTHWORK QUANTITIES		
CUT (CY)	FILL (CY)	NET (CY)
4,000	1,700	2,300 (CUT)

EARTHWORK NOTES

1. EARTHWORK NUMBERS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR PERFORMING TAKEOFFS FOR THEIR OWN ESTIMATION AS ANALYSIS METHODS MAY VARY.
2. EARTHWORK NUMBERS DO NOT INCLUDE TRENCH, FOUNDATION OR FOOTING SPOILS.
3. EARTHWORK NUMBERS DO NOT ACCOUNT FOR SHRINK/SWELL FACTORS.
4. EXISTING SURFACE INFORMATION USED FOR THIS ANALYSIS WAS DERIVED FROM TOPOGRAPHIC SURVEYS PERFORMED BY BKF ENGINEERS IN 2018.
5. AC PAVEMENT THICKNESS FOR THIS ANALYSIS WAS CONSERVATIVELY ACCOUNTED FOR WITH A 18" STRUCTURAL SECTION
6. CONCRETE PAVING THICKNESS FOR THIS ANALYSIS WAS CONSERVATIVELY ACCOUNTED FOR WITH A 12" STRUCTURAL SECTION.

20 0 20 40
GRAPHIC SCALE: 1" = 20'

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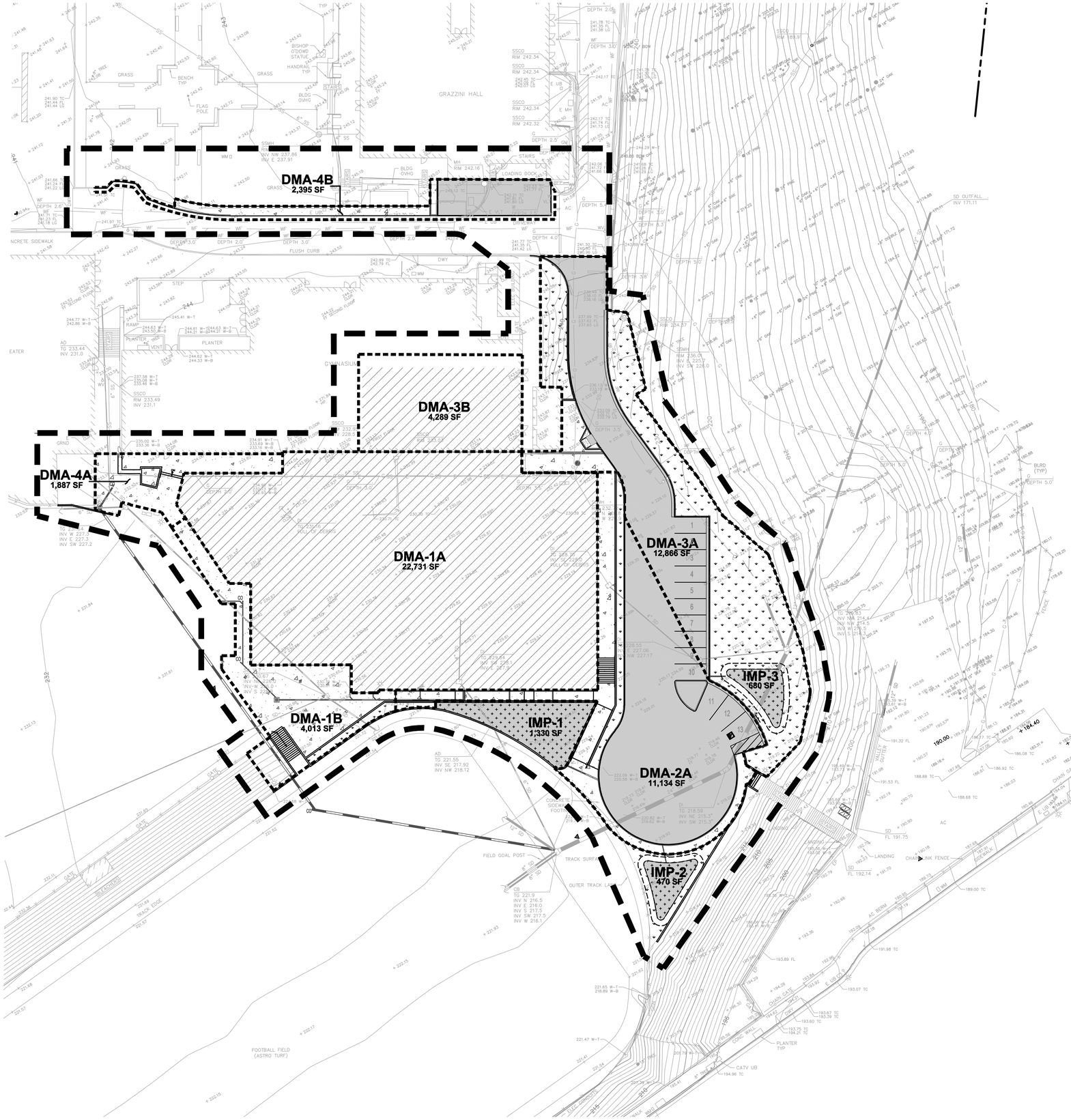
APPROVALS

GRADING PLAN

C-300



LEGEND

- CONCRETE (IMPERVIOUS)
- AC PAVEMENT (IMPERVIOUS)
- BIORETENTION AREA
- LANDSCAPE AREA (SELF-TREATING PERVIOUS)
- ROOF (IMPERVIOUS)
- REMEDIATED AC PAVING
- DRAINAGE MANAGEMENT AREA (DMA)
- LIMIT OF WORK

GENERAL NOTES

1. STORM WATER QUALITY CONTROL BMP BIORETENTION FACILITIES ARE DESIGNED IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS FROM ALAMEDA COUNTY CLEAN WATER PROGRAM C.3 STORMWATER TECHNICAL GUIDANCE.

BOUNDARY			CONVENTIONAL SURFACES (SF)			LID/BMPs (SF)	TOTAL (SF)
WATERSHED	LVL	DRAINS TO	IMPERVIOUS	LANDSCAPE	ROOF	BMP	
DMA-1A	ROOF	IMP-1	0	0	22,731	0	22,731
DMA-1B	GROUND	IMP-1	3,782	231	0	0	4,013
DMA-2A	GROUND	IMP-2	10,813	321	0	0	11,134
DMA-3A	GROUND	IMP-3	5,399	7,037	0	0	12,436
DMA-3B (IN-LIEU)	ROOF	IMP-3	0	0	4,289	0	4,289
DMA-4A**	GROUND	UNTREATED	1,887	0	0	0	1,887
DMA-4B**	GROUND	UNTREATED	2,395	0	0	0	2,395
OVERALL TOTAL (SF)	-	-	19,994	7,589	27,020	0	54,603

** AREA TO BE ACCOUNTED FOR AS IN-LIEU TREATMENT AREA (SEE DMA-3B)

20 0 20 40
GRAPHIC SCALE: 1" = 20'

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DESIGN DEVOLPMENT

10.25.2019

No.	Description	Date

APPROVALS

STORMWATER CONTROL PLAN

C-500

LAYOUT LEGEND

	Planting Area
	Pedestrian/ Vehicular Concrete
	Detail Number
	Sheet Number
	Property Line
	Center Line
	Match Line
	Align
	Start Point
	Bollard Light, S.E.D.
	Uplight, S.E.D.
	String Lights, S.E.D.
	Glass Pool Fence
	Metal Picket Fence
	Handrail
	Guardrail
	Below-grade utilities as noted, S.C.D.
S.C.F.S.	See Color and Finish Schedule
E.J.	Expansion Joint
V.I.F.	Verify in Field
S.A.D.	See Architect's Drawings
S.C.D.	See Civil Engineer's Drawings
S.E.D.	See Electrical Engineer's Drawings
S.M.D.	See Mechanical Engineer's Drawings
S.P.D.	See Plumbing Engineer's Drawings
S.M.E.P.	See M.E.P. Drawings

LAYOUT NOTES

1. The Contractor shall verify all distances and dimensions in the field and bring any discrepancies to the attention of the Landscape Architect for a decision before proceeding with the work.
2. Contractor to take all necessary precautions to protect buildings and waterproof membranes from damage. Any damage caused by the Contractor or the Contractor's representatives during their activities shall be repaired at no cost to the Owner.
3. All written dimensions supersede all scaled distances and dimensions. Dimensions shown are from the face of building wall, face of curb, edge of walk, property line, or centerline of column unless otherwise noted on the drawings.
4. Walk scoring, expansion joints and paving shall be located as indicated on the Layout Plans, Landscape Construction Details, in the Specifications, or as field adjusted under the direction of the Landscape Architects.
5. All building information is based on drawings prepared by:
   510.836.6594x122
   Studio Bondy Architecture
   110 Linden Street,
   Oakland, CA 94607
   Contact— Daniel Jarcho
6. All site civil information is based on drawings prepared by:
   925.940.2271
   BKF Engineers
   1646 N. Califonia Blvd, #400
   Walnut Creek, CA 94596
   Contact— Jon Machado
7. For Structural information see drawings prepared by:
   415.836.9312
   Nishkian Menninger
   600 Harrison Street, Suite 110
   San Francisco, CA 94107
   Contact— Trevor Wong
8. For Mechanical information see drawings prepared by:
   510.263.1546
   Taylor Engineering
   1080 Marina Village Parkway, Suite 501
   Alameda, CA 94501
   Contact— Elizabeth Balke
9. The Contractor is to verify location of all on—site utilities before commencing with the work. The Contractor shall be responsible for the repair of any damage to utilities caused by the activities of the Contractor or the Contractor's representatives. Any utilities shown on Landscape Drawings are for reference and coordination purposes only.
10. All uplights are to be directed upward into the trees or objects they are intended to illuminate. Uplight positioning is subject to field modification by the Landscape Architect.
11. Protect all existing construction from damage. The Contractor shall be responsible for the repair of any damage to existing construction caused by the activities of the Contractor or the Contractor's representatives.
12. Expansion joints shall be located no less than 16' o.c. nor greater than 20' o.c. and/or as indicated on the Layout Plans, Landscape Construction Details, in Specifications, or as field adjusted under the direction of the Landscape Architect.

TREE PROTECTION/PRUNING NOTES

1. All trees designated to be preserved shall be verified by the Project Superintendent. This shall occur prior to the removal of any trees on—site.
2. Neighboring trees overhanging the site should be protected from site construction impacts in the same manner as existing on—site trees to be preserved.
3. Tree drip zone areas shall be protected with a 5' high chain link fence enclosure mounted on 2 inch diameter galvanized iron posts driven into the ground to a depth of at least 2 feet at no more than 10 foot spacing. The fence shall enclose the entire area under the dripline. Spray paint the top of the fence with bright orange paint before unrolling the fabric to ensure visibility of the barrier. In no case shall any vehicles or equipment be permitted to be stored within this enclosed area. Fence shall be erected before construction begins and remain in place until time for relocation.
4. No materials or topsoil shall be stored within the tree enclosure area.
5. No trenching within enclosure shall be permitted. Any tree roots encountered outside of the enclosure smaller than 2" shall be cut clean with the approved tree pruning tools and sealed with an approved fungicidal tree sealant. Tree roots 2" or larger shall not be cut. Route pipes into alternate location to avoid conflict. Any damaged or torn roots are to be root pruned and sealed with orange shellac.
6. No grading or trenching shall be permitted within the fenced zone or under the dripline except as specifically noted on the plans.
7. No soil sterilants shall be applied under pavement near existing trees.
8. Fertilizer and water soil injections must be done during April—May of the year of construction as well as the year after. These shall consist of Miller Nutrileaf 20—20—20 or equal at 5.5 pounds per 100 gallons of water or equivalent, or as recommended by the Arborist. This shall be applied to a depth of at least 18" and at a 20 degree angle toward the tree trunk at a rate of 10 gallons per inch of tree caliper.
9. Above ground surface runoff shall not be directed into the tree canopy area from adjacent areas.
10. A supplemental irrigation program is recommended at regular intervals (every three to four weeks) during the period in May 1 through Oct. 31. Irrigation is to be applied at or above the 'dripline' in an amount sufficient to supply approximately firteen gallons of water for each inch in trunk diameter.
11. Irrigation can be provide by means of a soil needle, 'soaker' or permeable hose. When using 'soaker' or permeable hose, water is to be run at low pressure, avoiding runoff/puddling, allowing the needed moisture to penetrate the soil to feeder root depths.
12. Periodic inspections by a qualified Arborist are recommended during construction activities, particularly as trees are impacted by trenching/grading operations. Any recommendations by the Arborist for maintaining the health of trees are to be implemented.
13. Tree Pruning Notes. All trees shall be pruned in compliance with the following industry standards:

    A. All specifications for working on protected trees shall be written and administered by a qualified arborist.

    B. All work on protected trees shall be in accordance with the industry Standard Practices for Tree Care Operations outlined in the ANSII A300—1995 and ANSI33—1994.

    C. All Specified tree work shall be designed to promote practices which encourage the preservation of tree structure and health, in accordance with the current Tree Pruning Guidelines (International Society of Arboriculture). An I.S.A. Certified Arborist or Tree Worker must be present at all times during pruning operations.

COLOR AND FINISH SCHEDULE

PEDESTRIAN CONCRETE PAVINg

Type 1 Natural grey concrete with light broom finish. Sweep perpendicular to path of travel.

Type 2 Integral color concrete with light sandblast finish. Color: mxxxx Colors by Davis Colors

PEDESTRIAN AND VEHICULAR ACCENT PAVING

Precast Concrete Pavers by xxxx

Type 1

Type 2

LIGHTING FIXTURES

Pedestrian—scale Pole Light: xxxxx. See Electrical Drawings.

Bollard Light: xxxxx. See Electrical Drawings.

Wall Light: xxxxx. See Electrical Drawings.

LANDSCAPE BIDDING NOTES

THE FOLLOWING NOTES ARE FOR BIDDING PURPOSES ONLY, SUBJECT TO SITE SOIL TEST RECOMMENDATIONS IN NOTES #7.

1. The contractor is required to submit plant quantities and unit prices for all plant materials as a part of the bid.
2. Assume 15 gallon plant for any un—labelled or un—sized tree; 5 gallon plant for any un—labelled or un—sized shrub; and 1 gallon @ 18" o.c. for any un—labelled ground cover.
3. Assume 5 gallon plant size at 36" o.c. for all planting beds not provided with planting callouts or planting information.
4. The planting areas on grade shall be ripped to a depth of 8" to reduce compaction. The native subgrade soil shall be treated with 100 lbs of gypsum/1000 sf and leached to improve drainage and reduce the soil interface barrier. Contractor shall coordinate this work with other trades. This is subject to the final recommendations of the soils test (see below) and review by the Landscape Architect and the Owner.
5. All planting areas on grade are to receive Vision Comp OMRI Listed Compost by Vision Recycling, (510) 429—1300, or approved equal, at the rate of 6 cubic yards/1000 square feet, evenly tilled 6" deep into the soil to finish grade. All planting areas shall have 6—20—20 Commercial Fertilizer at 25lbs/1000 square feet evenly distributed into the soil. This is subject to the final recommendations and review of the soils test (see below) by the Landscape Architect and the Owner.
6. Planting pits are to be backfilled with a mixture of 50% native soil and 50% amended native soil per note #5 above.
7. The General Contractor is to provide an agricultural suitability analysis for representative samples of on—site rough graded soil and any imported topsoil. Recommendations for amendments contained in this analysis are to be carried out before planting occurs. Such changes are to be accompanied by equitable adjustments in the contract price if/when necessary. See specifications for testing procedure.
8. The Maintenance Period(s) shall be for 60 (sixty) days. Portions of the installed landscape of a project may be placed on a maintenance period prior to the completion of the project at the Owner's request and with the Owner's concurrence.
9. For built in place planters on structure, use imported regular weight soil mix.
10. For planter pots, use lightweight soil mix.
11. See civil drawings for imported storm water treatment area soil. Contractor to provide agricultural suitability analysis of the soil with amendment recommendations to the Landscape Architect for review.

SHEET INDEX

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Landscape Architects • Land Planners
181 Greenwich Street
San Francisco, CA 94111
T 415 433 4672
F 415 433 5003

90% DD
10.25.19

No.	Description	Date

APPROVALS

Landscape Notes and Legends

L-1.1

PLANT SPACING DIAGRAM

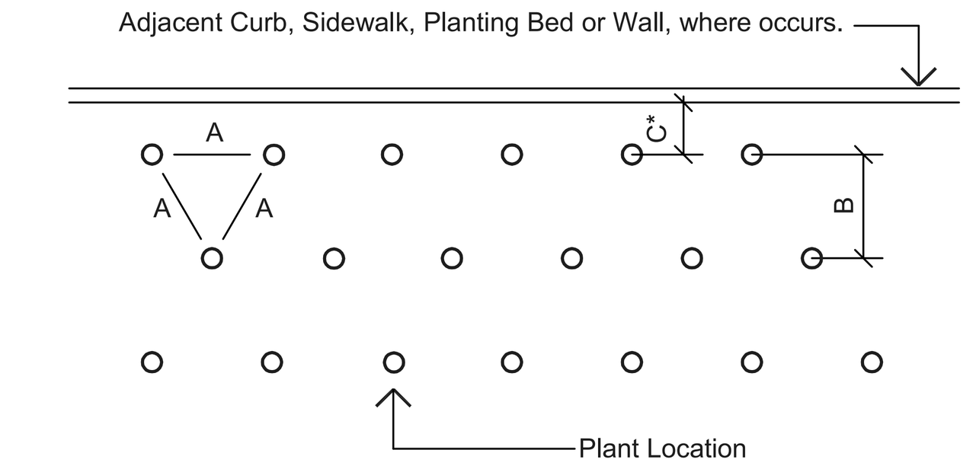
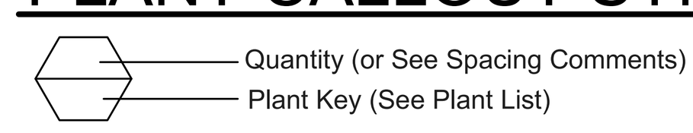


Diagram for use when plants are spaced equidistant from each other as in all ground cover plantings and massed shrub plantings

PLANT CALLOUT SYMBOL

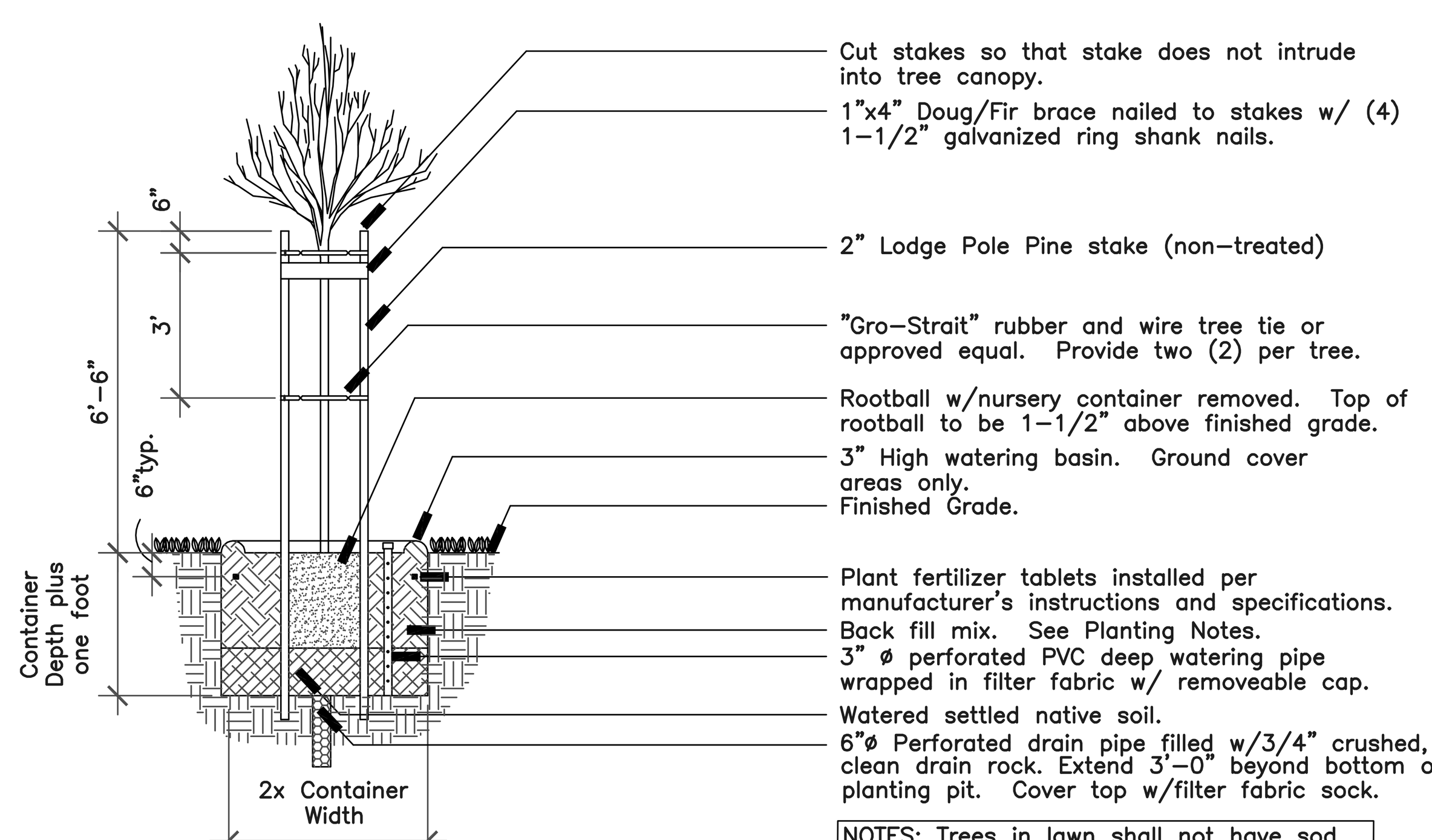


PLANT QUANTITY DIAGRAM

SPACING 'A'	SPACING 'B'	SPACING 'C'	NO. OF PLANTS/SQUARE FOOT
6" O.C.	5.20"	2.60"	4.60
8" O.C.	6.93"	3.47"	2.60
9" O.C.	7.79"	3.90"	1.78
10" O.C.	8.66"	4.33"	1.66
12" O.C.	10.40"	5.20"	1.15
15" O.C.	13.00"	6.50"	0.74
18" O.C.	15.60"	7.80"	0.51
24" O.C.	20.80"	10.40"	0.29
30" O.C.	26.00"	13.00"	0.18
36" O.C.	30.00"	15.00"	0.12
48" O.C.	40.00"	20.00"	0.07
72" O.C.	62.35"	31.18"	0.04

See Plant Spacing Diagram for maximum triangular spacing 'A'. This chart is to be used to determine number of ground cover required in a given area and spacing between shrub massings. Where shrub massings are shown, calculate shrub mass areas before utilizing spacing chart to determine plant quantities.

* Where curb, sidewalk, adjacent planting bed or wall condition occurs, utilize spacing 'C' to determine plant distance from wall, sidewalk, adjacent planting bed or back of curb, where C=1/2 B.

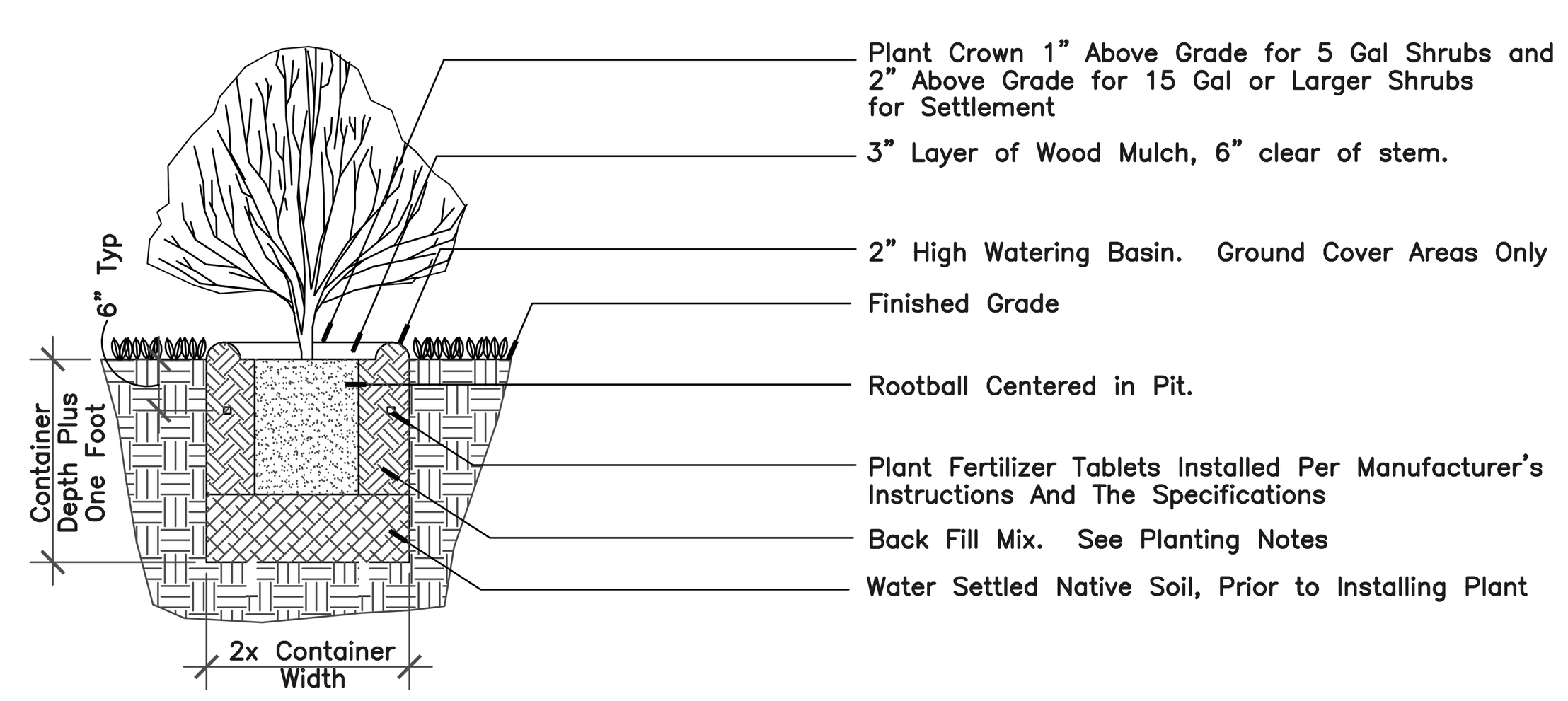


NOTES: Trees in lawn shall not have sod or seed placed over the rootball.

Hold all mulch 6" from trunk of tree where mulch applied over rootball.

Tree Staking Diagram

Not to Scale



Shrub Planting Detail

Not to Scale

PLANTING NOTES

1. All work shall be performed by persons familiar with planting work and under supervisions of a qualified planting foreman.
2. Plant material locations shown are diagrammatic and may be subject to change in the field by the Landscape Architect before the maintenance period begins.
3. All trees are to be staked as shown in the staking diagrams.
4. All tree stakes shall be cut 6" above tree ties after stakes have been installed to the depth indicated in the staking diagrams. Single stake all conifers per tree staking diagram.
5. Plant locations are to be adjusted in the field as necessary to screen utilities but not to block windows nor impede access. The Landscape Architect reserves the right to make minor adjustments in tree locations after planting at no cost to the Owner. All planting located adjacent to signs shall be field adjusted so as not to interfere with visibility of the signs.
6. The Landscape Architect reserves the right to make substitutions, additions, and deletions in the planting scheme as felt necessary while work is in progress. Such changes are to be accompanied by equitable adjustments in the contract price if/when necessary and subject to the Owner's approval.
7. The contractor is to secure all vines to walls and columns with approved fasteners, allowing for two (2) years growth. Submit sample of fastener to Landscape Architect for review prior to ordering.
8. All planting areas, except lawns and storm water treatment zones (as defined by the civil engineer), shall be top-dressed with a 3" layer of recycled wood mulch, "Colored Wood Chip" by Vision Recycling (510.429.1300; www.visionrecycling.com) or approved equal. Planter pots shall be top-dressed with "Colored Lumber Fines" mulch by Vision Recycling. Mulch sh all be natural in color. Submit sample to Landscape Architect for review prior to ordering. Hold all mulch six (6) inches from all plants where mulch is applied over the rootball.
9. All street trees to be installed in accordance with the standards and specifications of th e City of Santa Clara. Contractor to contact the city arborist to confirm plant type, plant size (at installation), installation detailing and locations prior to proceeding with installation of street trees. Contractor is to obtain street tree planting permit from the city, if a permit is required, prior to installation of street trees. Contractor is to consult with the Landscape Architect during this process.
10. Seasonal color is to be current and locally available. Plant material is to be selected by the Landscape Architect from a list of currently available stock provided by the Landscape Contractor prior to installation. Seasonal color to be 4" pots at 12" o.c. unless otherwise noted.
11. The lawn shall be sod or seeded (as noted) and consist of a drought tolerant hard fescue blend such as Pacific Sod "Medallion Dwarf with Bonsai", installed per manufacturer's recommendations and specifications. The mix shall consist of the following proportions of grass species: 100% Bonsai Double Dwarf fescue. Available through: Pacific Sod 800.542.7633
12. Trees planted in lawn areas shall have a 12" diameter cutout for trimming purposes.
13. Plants shall be installed to anticipate settlement. See Tree and Shrub Planting Details.
14. All trees noted with 'deep root' and those planted within 5'-0" of concrete paving, curbs, and walls shall have deep root barriers installed per manufacturer's specifications. See specifications and details for materials, depth of material, and location of installation.
15. The Landscape Contractor shall arrange with a nursery to secure plant material noted on the drawings and have those plants available for review by the Owner and Landscape Architect within thirty (30) days of award of contract. The Contractor shall purchase the material and have it segregated and grown for the job upon approval of the plant material. The deposit necessary for such contract growing is to be born by the Contractor.
16. The project has been designed to make efficient use of water through the use of drought tolerant plant materials. Deep rooting shall be encouraged by deep watering plant material as a part of normal landscape maintenance. The irrigation for all planting shall be limited to the amount required to maintain adequate plant health and growth. Water usage should be decreased as plants mature and become established. The irrigation controllers shall be adjusted as necessary to reflect changes in weather and plant requirements.
17. The Landscape Contractor shall verify the location of underground utilities and bring any conflicts with plant material locations to the attention of the Landscape Architect for a decision before proceeding with the work. Any utilities shown on the Landscape drawings are for reference and coordination purposes only. See Civil Drawings.
18. The design intent of the planting plan is to establish an immediate and attractive mature landscape appearance. Future plant growth will necessitate trimming, shaping and, in some cases, removal of trees and shrubs as an on-going maintenance procedure.
19. Install all plants per plan locations and per patterns shown on the plans. Install all shrubs to ensure that anticipated, maintained plant size is at least 2'-0" from the face of building(s) unless shown otherwise on the plans. Refer to Plant Spacing Diagram for plant masses indicated in a diagrammatic manner on the plans. Refer to Plant Spacing Diagram for spacing of formal hedge rows.
20. Contractor to provide one (1) Reference Planting Area for review by Landscape Architect prior to installation of the project planting. The Reference Planting Area shall consist of a representative portion of the site of not less than 900 (nine hundred) square feet. Contractor to set out plants, in containers, in the locations and patterns shown on the plans, for field review by the Landscape Architect. The Reference Planting Area will be used as a guide for the remaining plant installation.
21. The Maintenance Period(s) shall be for 60 (sixty) days. Portions of the installed landscape of a project may be placed on a maintenance period prior to the completion of the project at the Owner's request and with the Owner's concurrence.
22. Contractor to verify drainage of all tree planting pits. See Planting Specifications. Install drainage well per specifications and Tree Planting Detail(s) if the tree planting pit does not drain at a rate to meet the specifications.
23. Contractor shall remove all plant and bar code labels from all installed plants and landscape materials prior to arranging a site visit by the Landscape Architect.
24. Geotech drainage board or approved equal is to be installed in all on-structure planters and all pre-cast planters/pots as shown in the drawings. Material available through: TWE Products and Services, Walnut Creek, CA 925.708.0549. Allow 4 weeks lead time for ordering product. All Geotech board shall be completed covered with filter fabric as shown in the drawings and per manufacturer's specifications.
25. All tree rootballs shall be irrigated by water jet during the sixty (60) day maintenance period established by specifications. This irrigation shall occur each time normal irrigation is scheduled.
26. The Landscape Contractor shall, as a part of this bid, provide for a planting allowance for the amount of $8,000.000 (8 Thousand Dollars) to be used for supplying and installing additional plant material as directed by the Landscape Architect and approved by the Owner in writing. The unused portion of the allowance shall be returned to the Owner at the beginning of the maintenance period.

PLANT PALETTE

TREES (* 24" box standards unles noted otherwise)					
KEY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS	WUCOLS
AES CAL	Aesculus californica	California Buckeye	*	Native	Low
CAL DEC	Calocedrus Decurrens	California Incense–Cedar	*	Native	Medium
CER OCC	Cercis occidentalis	Western Redbud	*	Native	Low
CHI RET	Chionanthus retusus	Chinese Fringe Tree	*		Medium
GIN BIL	Ginkgo biloba	Ginkgo Tree	*		Medium
LAG TUS	Lagerstroemia 'Tuscarora'	Tuscarora Crepe Myrtle	*	Multi	Low
LAU SAR	Laurus n. 'Saratoga'	Sweet Bay	*		Low
OLE EUR	Olea europaea 'Swan Hill'	Fruitless Olive	*	Multi	Low
PLA COL	Platanus a. 'Colombia'	London Plane Tree	*		Medium
PLA RAC	Platanus Racemosa	Western Sycamore	*	Native	Medium
POP FRE	Populus fremontii	Freemont Poplar	*		Medium
POD GRA	Podocarpus gracilior	Fern Pine	*		Medium
ROB PUR	Robinia 'Purple Robe'	Locust	*		Low
QUE VIR	Quercus virginiana	Southern Live Oak	*		Low
SHRUBS					
1	Acacia cognata 'Cousin Itt'	Little River Wattle	5 gal	30" o.c.	Low
2	Acanthus mollis	Bears Breech	5 gal	30" o.c.	Medium
3	Achillea 'Island Pink'	Yarrow (native)	1 gal	24" o.c.	Low
4	Anigozanthus 'Bush Gold'	Kangaroo Paw	5 gal	30" o.c.	Low
5	Asparagus densiflorus	Foxtail Fern	5 gal	30" o.c.	Medium
6	Beschorneria yuccoides	Mexican Lily	5 gal	30" o.c.	Low
7	Callistemon v. 'Little John'	Dwarf Bottlebrush	5 gal	30" o.c.	Medium
8	Camellia sasanqua 'Yuletide'	Sasanqua Camellia	5 gal	30" o.c.	Medium
9	Cistus corbariensis	White Rockrose	5 gal	36" o.c.	Low
10	Coleonema p. 'Compacta'	Pink Breath of Heaven	5 gal	30" o.c.	Medium
11	Coleonema p. 'Sunset Gold'	Dwarf Breath of Heaven	5 gal	30" o.c.	Medium
12	Correa pulchella	Australian Fuchsia	5 gal	30" o.c.	Low
13	Dietes 'Tiny Dancer'	Fortnight Lily	5 gal	30" o.c.	Low
14	Euphorbia x martini	Euphorbia	1 gal	30" o.c.	Low
15	Fatsia j. 'Moseri'	Japanese Aralia	5 gal	30" o.c.	Medium
16	Feijoa sellowiana	Pineapple Guava	5 gal	42" o.c.	Low
17	Frangula californica	Coffeeberry	5 gal	48" o.c.	Low
18	Fremontodendron californicum	California Flannelbush	5 gal	48" o.c.	Low
19	Heuchera maxima	Island Alum Root (native)	1 gal	24" o.c.	Medium
20	Lavatera x clemntii 'Blushing Bride'	Tree Mallow	5 gal	42" o.c.	Low
21	Leucadendron 'Red Gem'	Leucdendron	5 gal	36" o.c.	Low
22	Nandina d. 'Harbor Dwarf'	Dwarf Heavenly Bamboo	5 gal	24" o.c.	Low
23	Nephrolepis cordifolia	Sword Fern	5 gal	30" o.c.	Medium
24	Olea e. 'Little Ollie'	Dwarf Olive	5 gal	36" o.c.	Low
25	Pennstemon spectabilis	Royal Beard Tongue (native)	5 gal	30" o.c.	Low
26	Philodendron 'Xanadu'	Winterbourn Philodendron	5 gal	24" o.c.	–
27	Phlomis fruticosa	Jerusalem Sage	5 gal	30" o.c.	Medium
28	Photinia x f. 'Indian Princess'	Indian Princess Photinia	5 gal	36" o.c.	Low
29	Phormium 'Maori Sunrise'	Maori Sunrise Flax	5 gal	36" o.c.	Low
30	Phormium t. 'Atropurpurea Compactum'	Compact Bronze Flax	5 gal	36" o.c.	Low
31	Podocarpus 'Icee Blue'	Icee Blue Fern Pine	15 gal	48" o.c.	Medium
32	Polygala f. 'Petite Butterflies'	Sweet Pea Shrub	5 gal	30" o.c.	Medium
33	Polystichum munitum	Western Sword Fern (native)	5 gal	30" o.c.	Low
34	Prunus l. ilicifolia	Holly Leaf Cherry (native)	5 gal	48" o.c.	Medium
35	Rhaphiolepis indica 'Georgia Petite'	Indian Hawthorn	5 gal	30" o.c.	Low
36	Rhaphiolepis u. 'Minor'	Yedda Hawthorn	5 gal	24" o.c.	Low
37	Ribes s. 'Claremont'	Pink Flowering Currant (native)	5 gal	48" o.c.	Low
38	Romneya coulteri	Matalija Poppy (native)	5 gal	30" o.c.	Low
39	Rosmarinus officinalis 'Tuscan Blue'	Tuscan Rosemary	5 gal	36" o.c.	Low
40	Salvia 'Bee's Bliss'	Bee's Bliss Sage (native)	5 gal	30" o.c.	Low
41	Salvia 'Dara's Choice'	Dara's Choice Sage (native)	5 gal	30" o.c.	Low
42	Salvia m. 'Hot Lips'	Hot Lips Sage	5 gal	30" o.c.	Low
43	Viburnum p. t. 'Summer Stars'	Doublefile Virburnum	5 gal	48" o.c.	Medium
44	Yucca gloriosa	Soft–tip Yucca	5 gal	36" o.c.	Low
45	Zauschneria c. 'Glasnevin'	California Fuchsia (native)	5 gal	30" o.c.	Low
46	Arctostaphylos d. 'Howard McMinn'	Manzanita	15 gal	42" o.c.	Low
GRASSES AND GROUNDCOVERS					
AR	Agapanthus 'Rancho White'	Dwarf Agapanthus	1 gal	24" o.c.	Medium
AE	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita (native)	5 gal	42" o.c.	Low
CD	Carex divulsa	Berkeley Sedge	1 gal	24" o.c.	Low
CG	Ceanothus g. h. 'Yankee Point'	Yankee Point Ceanothus	1 gal	42" o.c.	Low
CT	Chondropetalum tectorum	Cape Rush	5 gal	36" o.c.	Low
CM	Clivia miniata	Kaffir Lily	5 gal	12" o.c.	Low
CK	Coprosma x kirkii	Creeping Coprosma	1 gal	30" o.c.	Low
CD	Cotoneaster d. 'Lowfast'	Lowfast Cotoneaster	1 gal	30" o.c.	Low
CS	Convolvulus sabatius	Ground Morning Glory	1 gal	30" o.c.	Low
CL	Cuphea l. 'Flamenco Rumba'	Bat–faced Cuphea	1 gal	24" o.c.	Medium
EG	Elymus glaucus	Blue Wild Rye	1 gal	36" o.c.	Low
LM	Liriope muscari	Big Blue Lilyturf	1 gal	18" o.c.	Medium
LL	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal	30" o.c.	Low
MR	Muhlenbergia rigens	Deer Grass	1 gal	36" o.c.	Low
ND	Nandina d. 'Murasaki'	'Flirt' Nandina	1 gal	24" o.c.	Medium
RO	Rosmarinus o. 'Huntington Carpet'	Creeping Rosemary	1 gal	36" o.c.	Low
RP	Rubus pentalobus	Bramble	1 gal	36" o.c.	Medium
VINES					
CC	Clytostoma callistegioides	Lavender Trumpet Vine	5 gal		Medium
FP	Ficus pumila	Creeping Fig	5 gal		Medium
PT	Parthenocissus tricuspidata	Boston Ivy	5 gal		Medium
RS	Rosa 'Sally Holmes'	Sally Holmes Rose	5 gal		Medium

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San Francisco, CA 94111
T 415 433 4672
F 415 433 5003

90% DD

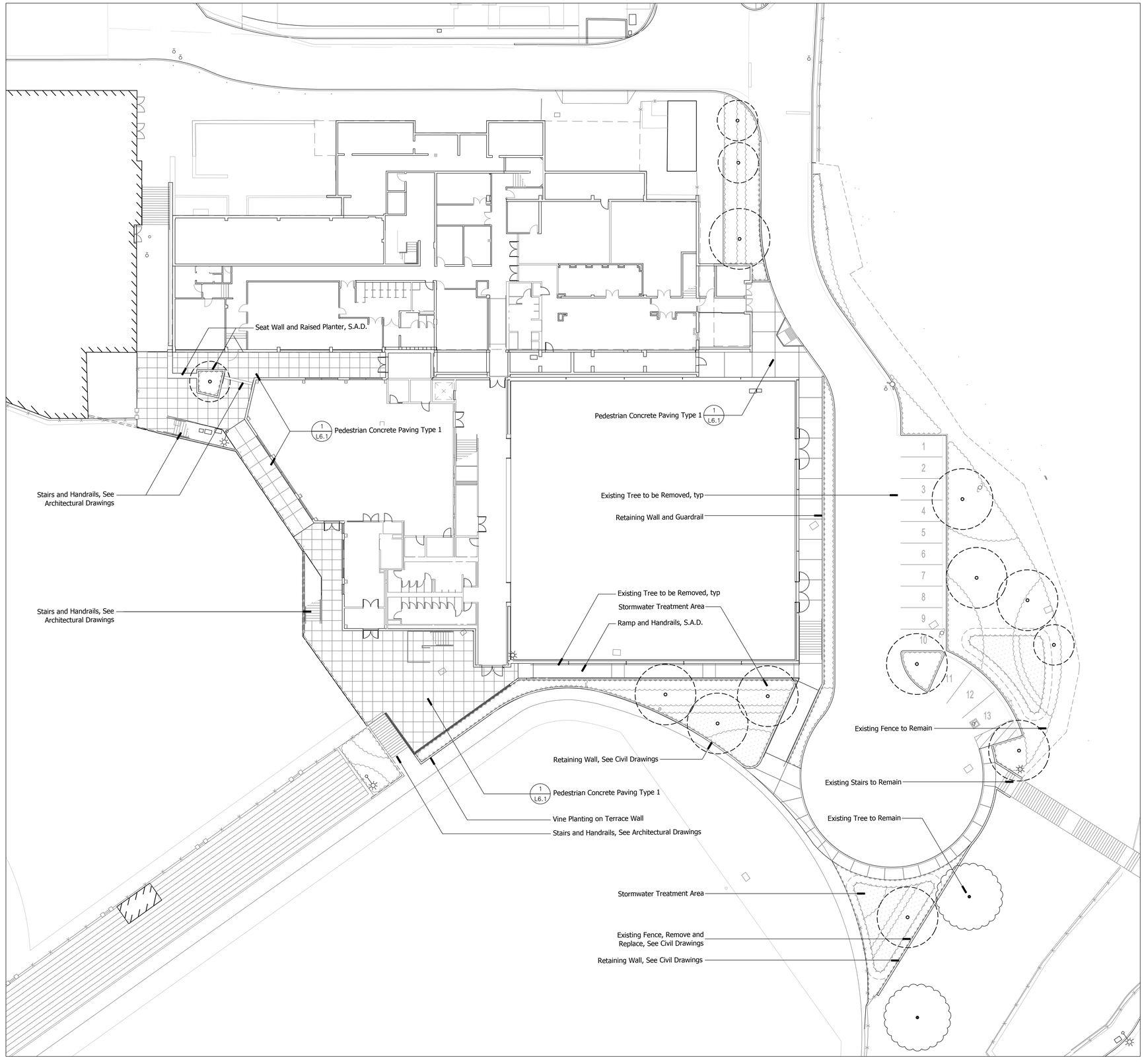
10.25.19

No.	Description	Date

APPROVALS

Landscape Planting Notes and Legends

L-1.2



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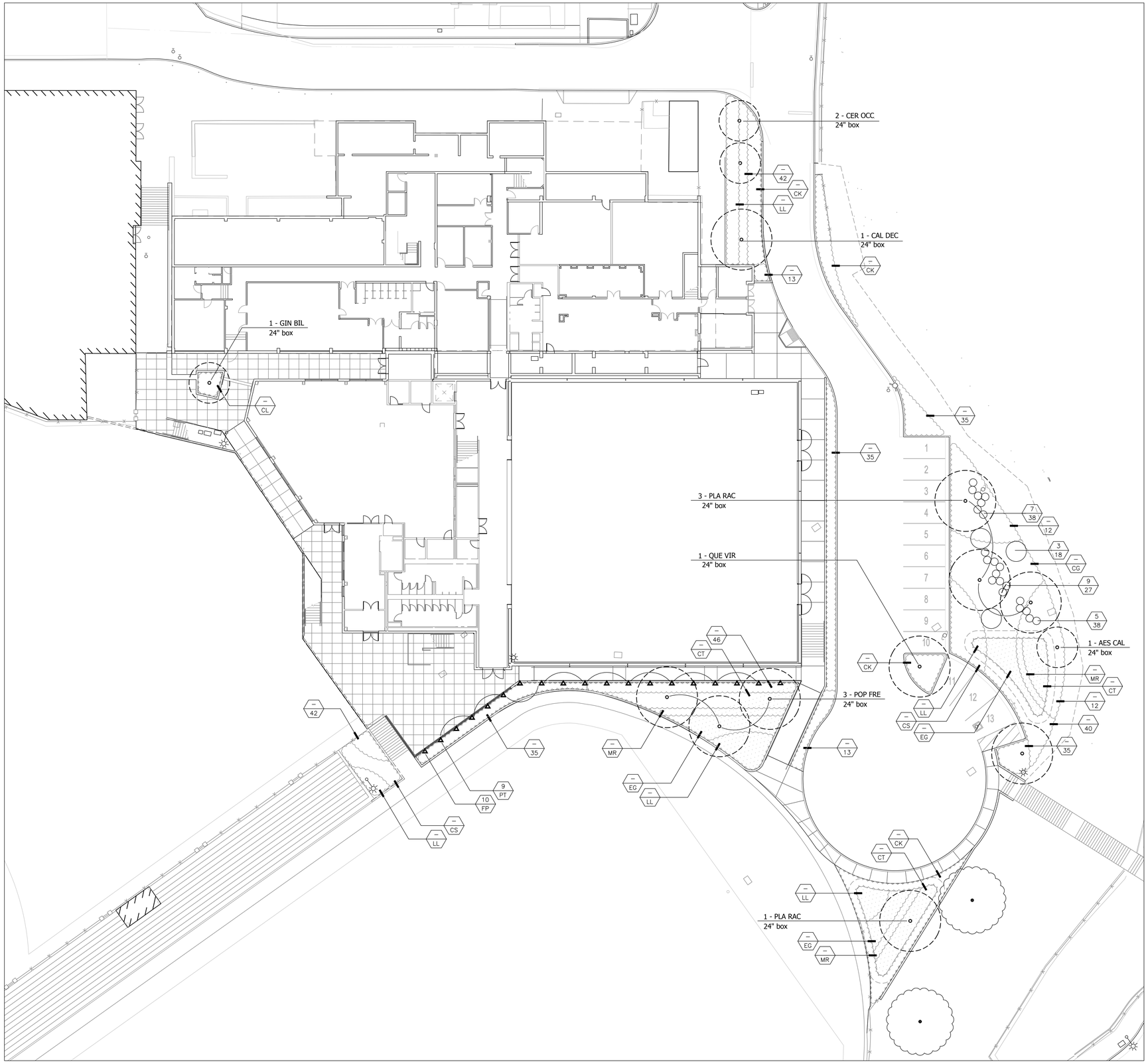
APPROVALS

Layout Plan

L-2.1



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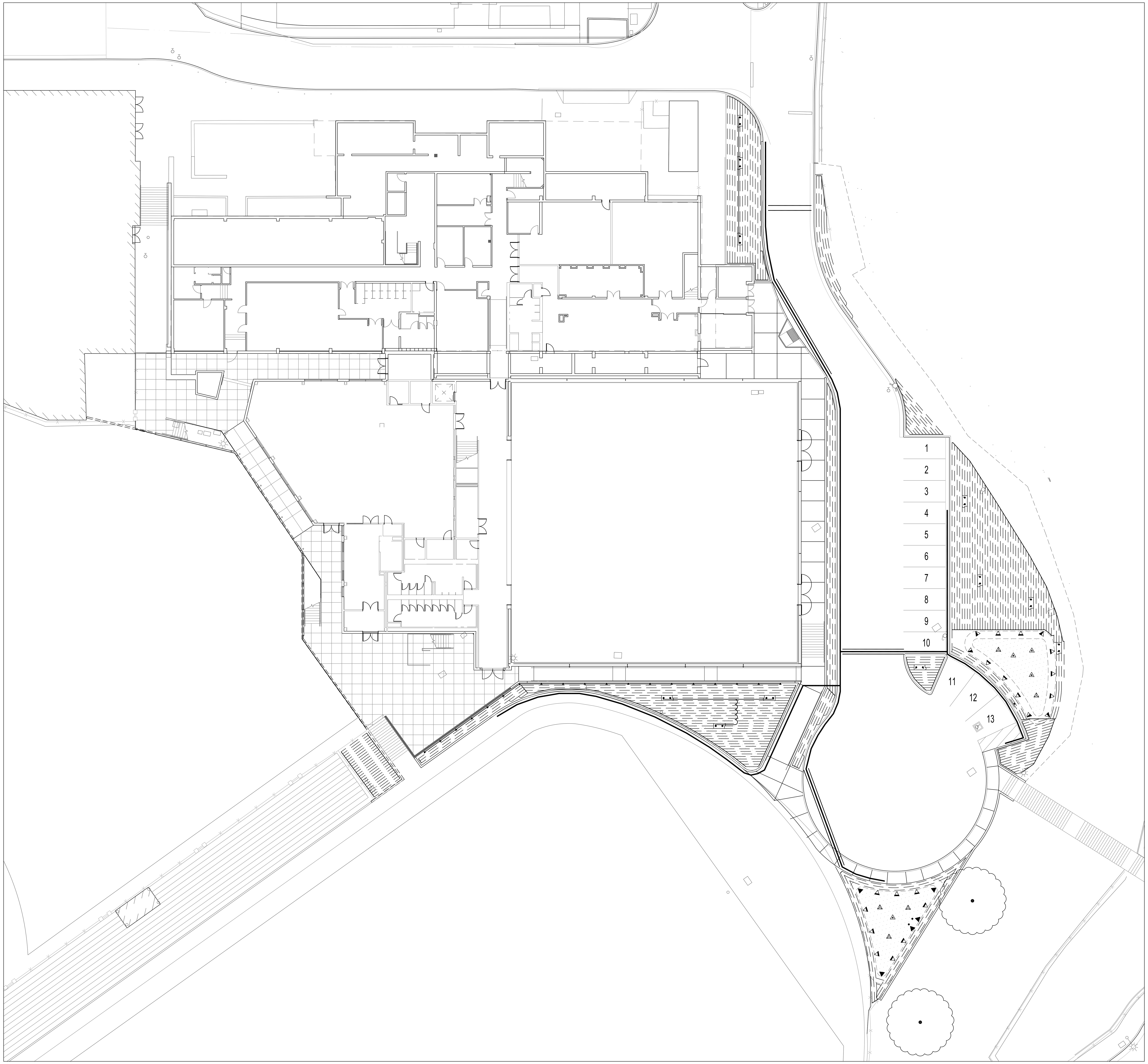
APPROVALS

Planting Plan

L-3.1



ARTHUR LANDSCAPE IRRIGATION CONSULTING

ALI Consulting

Professional Member - ASIC

Post Office Box 3490
Livermore, Calif. 94551
T 925.518.3956
E ray@aliconsulting.net

North

Scale: 1/16" = 1'

0 8 16 32

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APPROVALS

Irrigation Plan

L-4.1

IRRIGATION SYSTEM EQUIPMENT LIST/PARTIAL LEGEND

GATE VALVE	–NIBCO–T113–IRR–LINE SIZE	
MASTER CONTROL VALVE	–TO BE DETERMINED	
FLOW SENSOR	–TO BE DETERMINED	
QUICK COUPLING VALVE	–RAINBIRD–33DRC	
REMOTE CONTROL VALVE	–IRRITROL–700 SERIES	
DRIP ZONE KIT	–TORO–DZK–700	
AIR VACUUM RELIEF VALVE	–TORO–T–YD–500–34	
DRIP FLUSH VALVE	–SEE DETAIL	
12" POP–UP SPRAY HEAD	–TORO–570C–HP SERIES	
TREE BUBBLER	–RAINBIRD–1401	
VINE BUBBLER	–RAINBIRD–1401	
IRRIGATION SUPPLYLINE	–1120/SCHEDULE 40 PVC PIPE	–18" COVER
IRRIGATION LATERAL LINE	–1120/SCHEDULE 40 PVC PIPE	–12" COVER
SUBSURFACE DRIPLINE	–TORO–RGP–4–12 (1 GPH AT 12" O.C.)	–3" COVER
SLEEVING	–1120/SCHEDULE 40 PVC PIPE	–24" COVER
ELECTRICAL CONDUIT	–1120/SCHEDULE 40 PVC CONDUIT	–24" COVER

sta / gpm / size:

CONTROLLER STATION NUMBER
GALLONS PER MINUTE THROUGH VALVE
CONTROL VALVE SIZE

IRRIGATION SYSTEM NOTES

1. IRRIGATION SYSTEM ADDITIONS ARE DESIGNED FOR A MAXIMUM OF 20 G.P.M. AT 60 P.S.I. OPERATING PRESSURE. VERIFY PRESSURE AT THE POINTS OF CONNECTION PRIOR TO INSTALLATION OF THE IRRIGATION SYSTEM ADDITIONS. NOTIFY OWNERS REPRESENTATIVE OF ANY DISCREPANCIES IN PRESSURE.
2. NOTIFY OWNERS REPRESENTATIVE SIX (6) DAYS PRIOR TO INSTALLATION FOR A PRE–INSTALLATION CONFERENCE AND FIELD REVIEW COORDINATION FOR TRENCH DEPTHS, ASSEMBLY REVIEW, PRESSURE TESTS, COVERAGE AND OPERATIONAL TESTS, PRE–MAINTENANCE AND FINAL REVIEWS. A CONTINUITY TEST WILL BE REQUIRED FOR CONTROL WIRE STUBOUTS. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNERS REPRESENTATIVE.
3. CONNECT TO EXISTING IRRIGATION SYSTEM AT APPROXIMATE LOCATIONS SHOWN ON PLANS. EXACT LOCATIONS TO BE DETERMINED FROM FIELD INVESTIGATIONS.
4. INSTALL EQUIPMENT AS DETAILED. INSTALL R.C.V. ID TAGS MANUFACTURED BY T. CHRISTY ENT. STANDARD SIZE, 1 1/8" HOT STAMPED BLACK LETTERS ON YELLOW BACKGROUND ON SOLENOID WIRES. LETTERS TO CONFORM TO CONTROLLER/STATION NUMBER.
5. PIPE UNDER PAVEMENT SHALL BE SCHEDULE 40 PVC. PIPE AND WIRING UNDER PAVEMENT SHALL BE INSTALLED AT A TWENTY–FOUR INCH (24") DEPTH BELOW GRADE. SURROUND PIPE WITH SAND IN AREAS WHERE ROCKY TERRAIN IS ENCOUNTERED.
6. VALVE CONTROL WIRE SHALL BE MINIMUM NO. 14 AWG COPPER UL APPROVED FOR DIRECT BURIAL IN GROUND. CONNECT WIRES WITH 3M DBY CONNECTORS PER MANUFACTURERS SPECIFICATIONS. EACH WIRE AT VALVES SHALL HAVE 24" EXCESS COILED LOOP IN VALVE BOXES. TAPE WIRES IN BUNDLES EVERY TEN FEET IN PLANTING AREAS.
7. PRIOR TO INSTALLATION OF SUBSURFACE DRIP SYSTEMS REVIEW DRIP COMPONENTS, EQUIPMENT AND INSTALLATION TECHNIQUES WITH MANUFACTURERS REPRESENTATIVE. SPECIAL ATTENTION SHALL BE PAID WHEN COORDINATING INSTALLATION OF PLANT MATERIALS AND DRIP SYSTEM. AVOID CONFLICTS BETWEEN INSTALLATION OF EMITTERLINE AND PLANT LOCATIONS. IF CONFLICTS OCCUR, THEN PLANT INSTALLATION LOCATIONS SHALL HAVE PRIORITY. LAYOUT SHOWN IS DIAGRAMMATIC ONLY. INSTALL SPECIFIED SUBSURFACE DRIPLINE AS DETAILED AND PER MANUFACTURERS SPECIFICATIONS.
8. INSTALL ADDITIONAL TORO MODEL T–DPC08–DC–RED EMITTERS AT LARGER CONTAINER PLANTS AS FOLLOWS:
   15 GALLON PLANTS: TWO (2) 2 GPH EMITTERS
9. PROVIDE LITERATURE OF DRIP SYSTEM COMPONENTS INCLUDING ANY PREVENTATIVE MAINTENANCE AND TROUBLE SHOOTING GUIDES TO OWNER AND REVIEW MAINTENANCE PROCEDURES INCLUDING:
   CLEANING FILTER IN WYE STRAINERS
   REPAIRING BREAKS IN PIPES AND RISERS
   ADDING EMITTERS OR TUBING FOR EXPANSION/INSTALLING PLUGS
10. MAINTENANCE CONSIDERATIONS:
    FILTER CLEANING AND FLUSHING SHOULD START OUT AS A MONTHLY PROCEDURE(MORE FREQUENT FOR DIRTY WATER SITUATIONS) AND ADJUST TIMING AS APPROPRIATE. VISUALLY CHECK FOR INDICATIONS OF PIPE BREAKS OR CLOGGED EMITTERS ON A REGULAR BASIS. DURING WINTER MONTHS, WHEN THE SYSTEM IS NOT IN USE, THE EMITTERLINE SYSTEM(S) SHOULD BE RUN ABOUT EVERY 2 WEEKS FOR 2–4 MINUTE MINIMUM RUNTIME.
11. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING THIS PROJECT.

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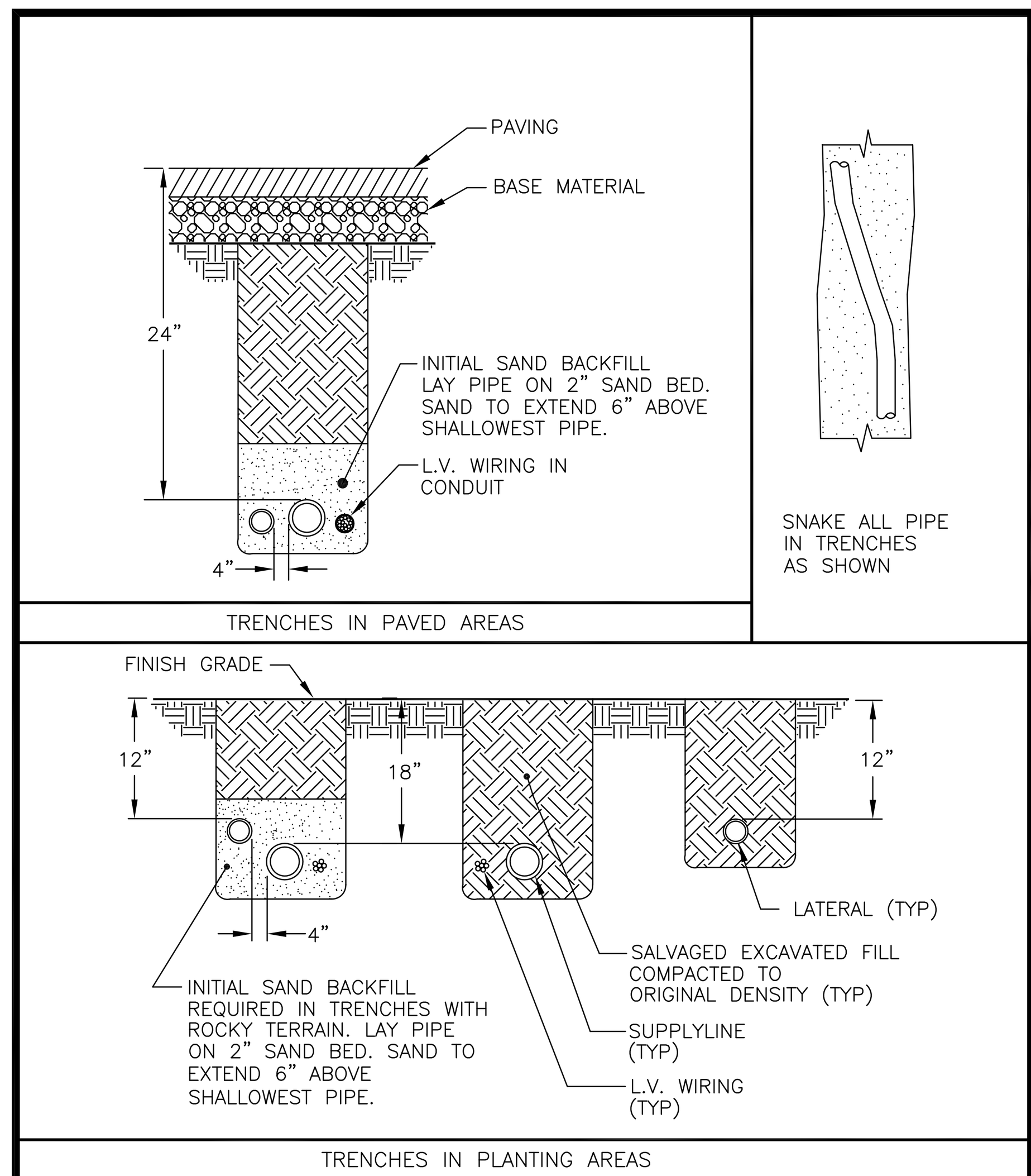
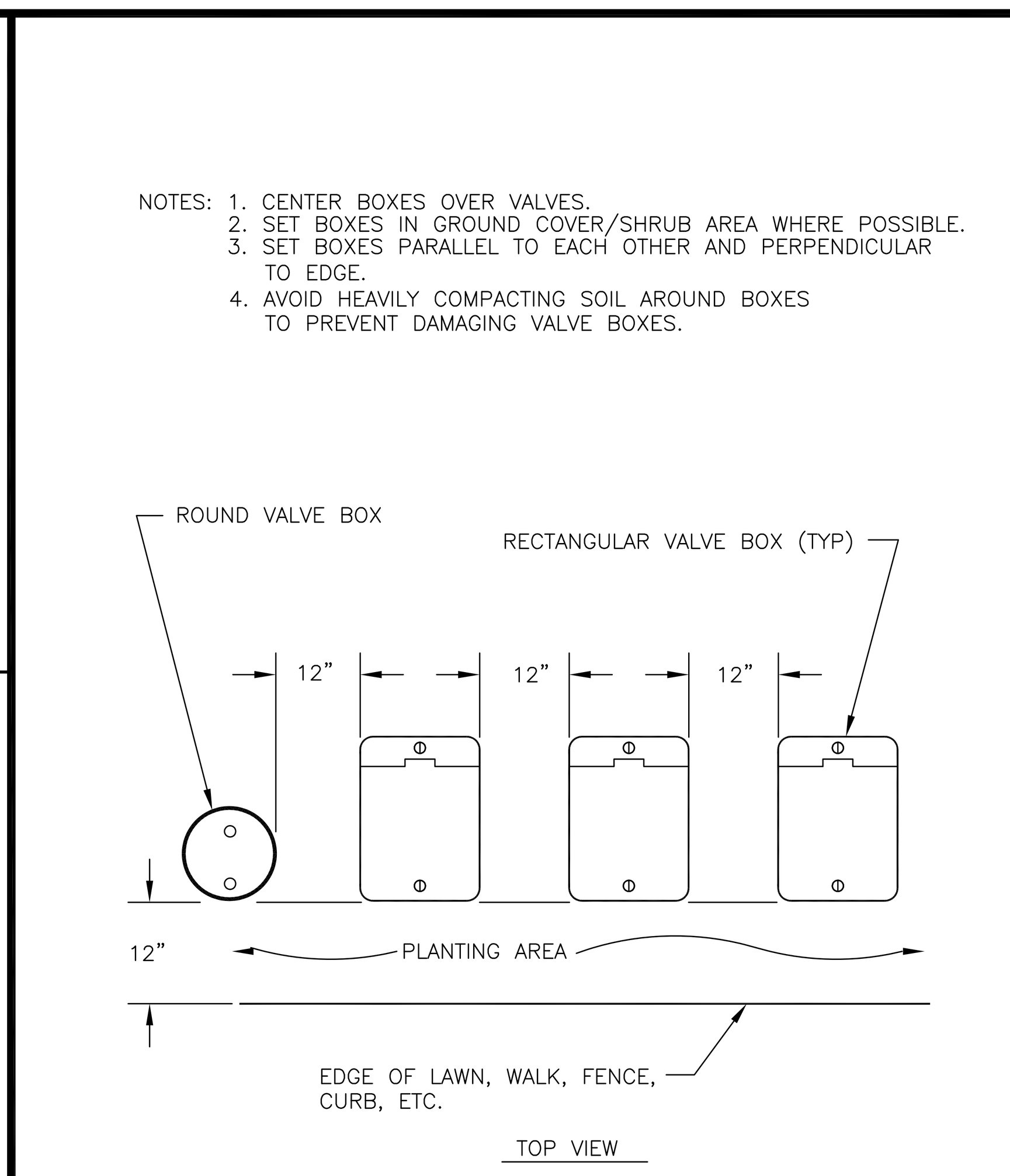
APPROVALS

Irrigation Notes and Legend

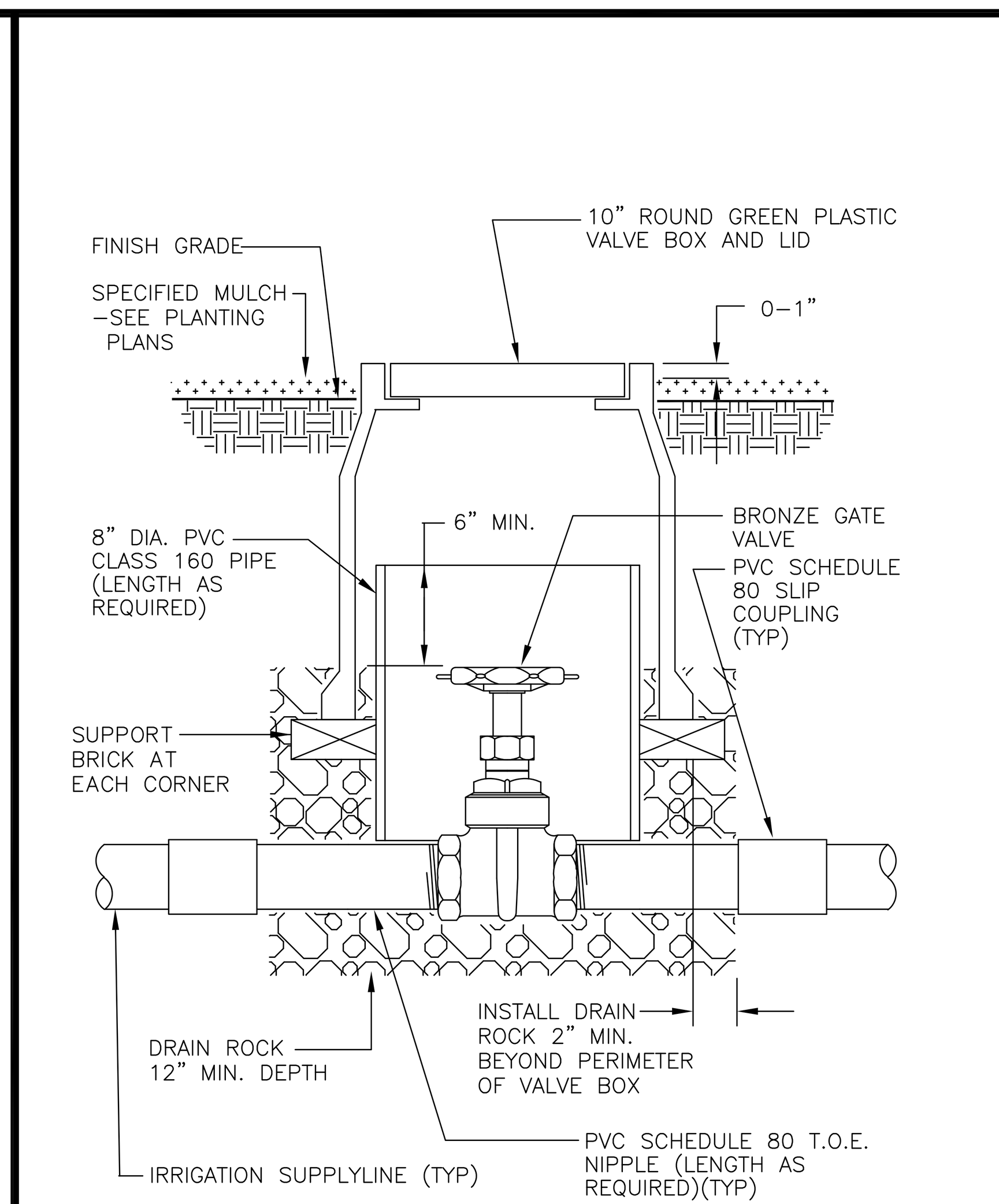
L-4.2



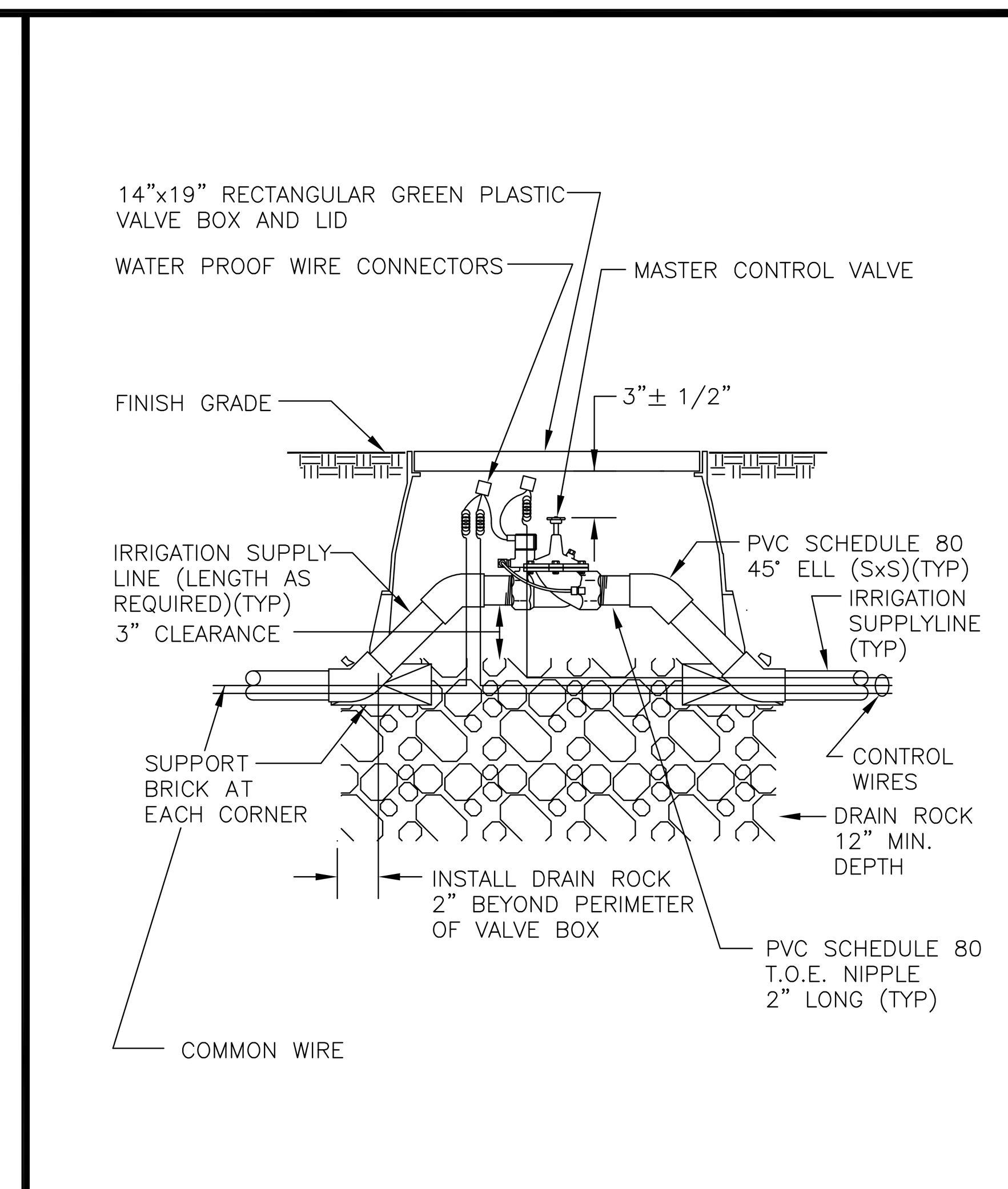
A TRENCHING DETAILS
NTS



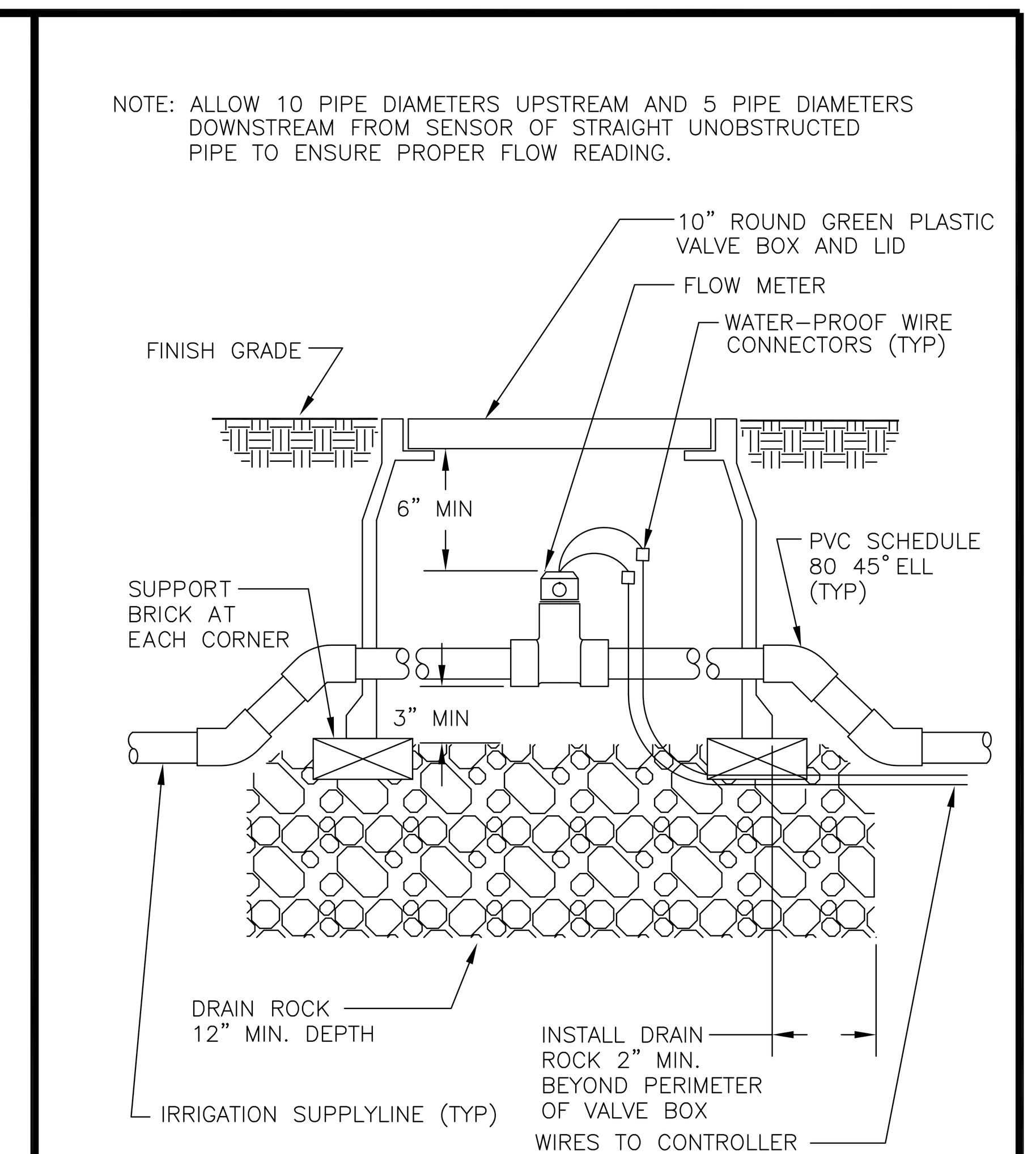
B VALVE BOX INSTALLATION DETAIL
NTS



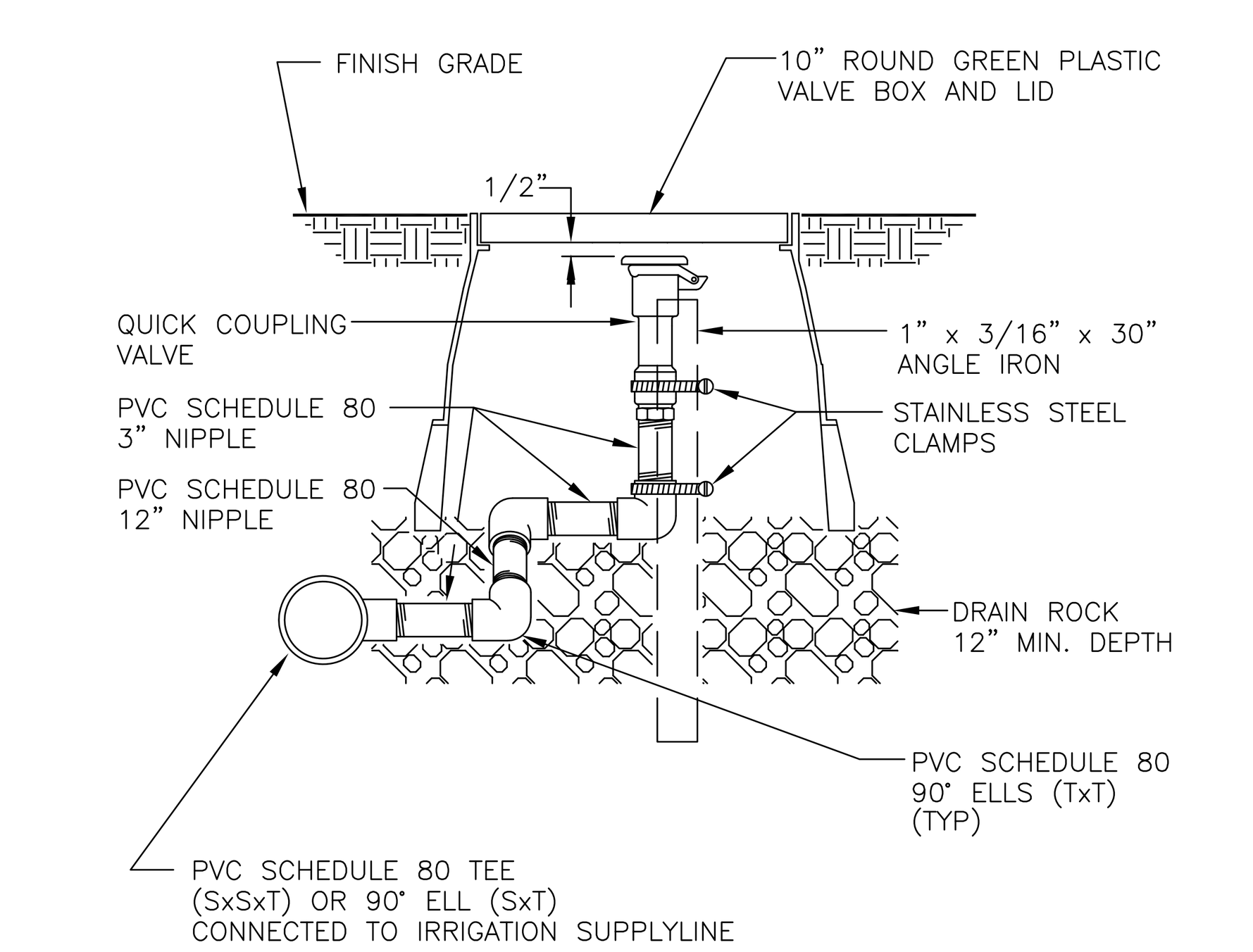
C GATE VALVE INSTALLATION DETAIL
NTS



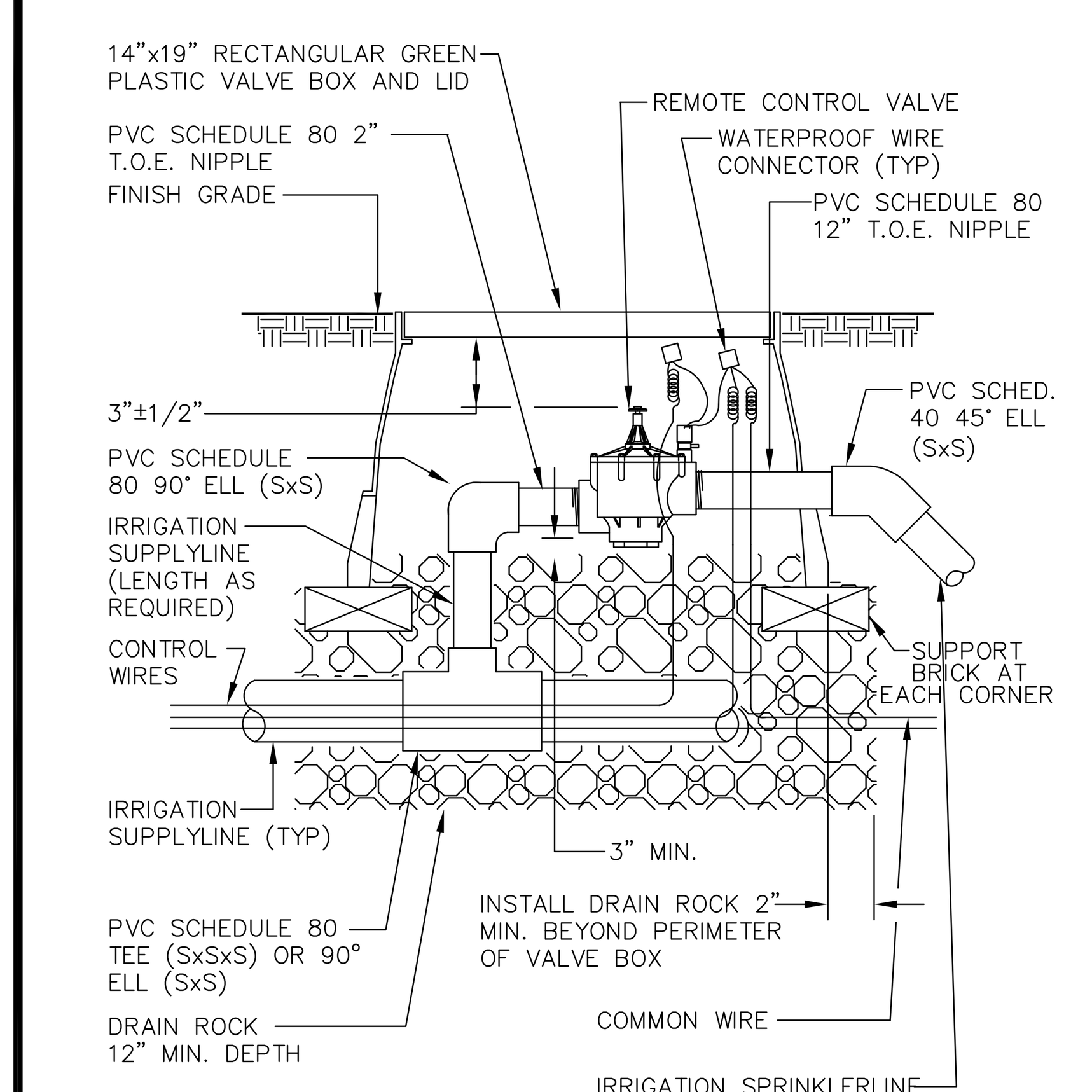
D MASTER CONTROL VALVE INSTALLATION DETAIL
NTS



E FLOW SENSOR INSTALLATION DETAIL
NTS



F QUICK COUPLING VALVE RISER ASSEMBLY DETAIL
NTS



G REMOTE CONTROL VALVE INSTALLATION DETAIL
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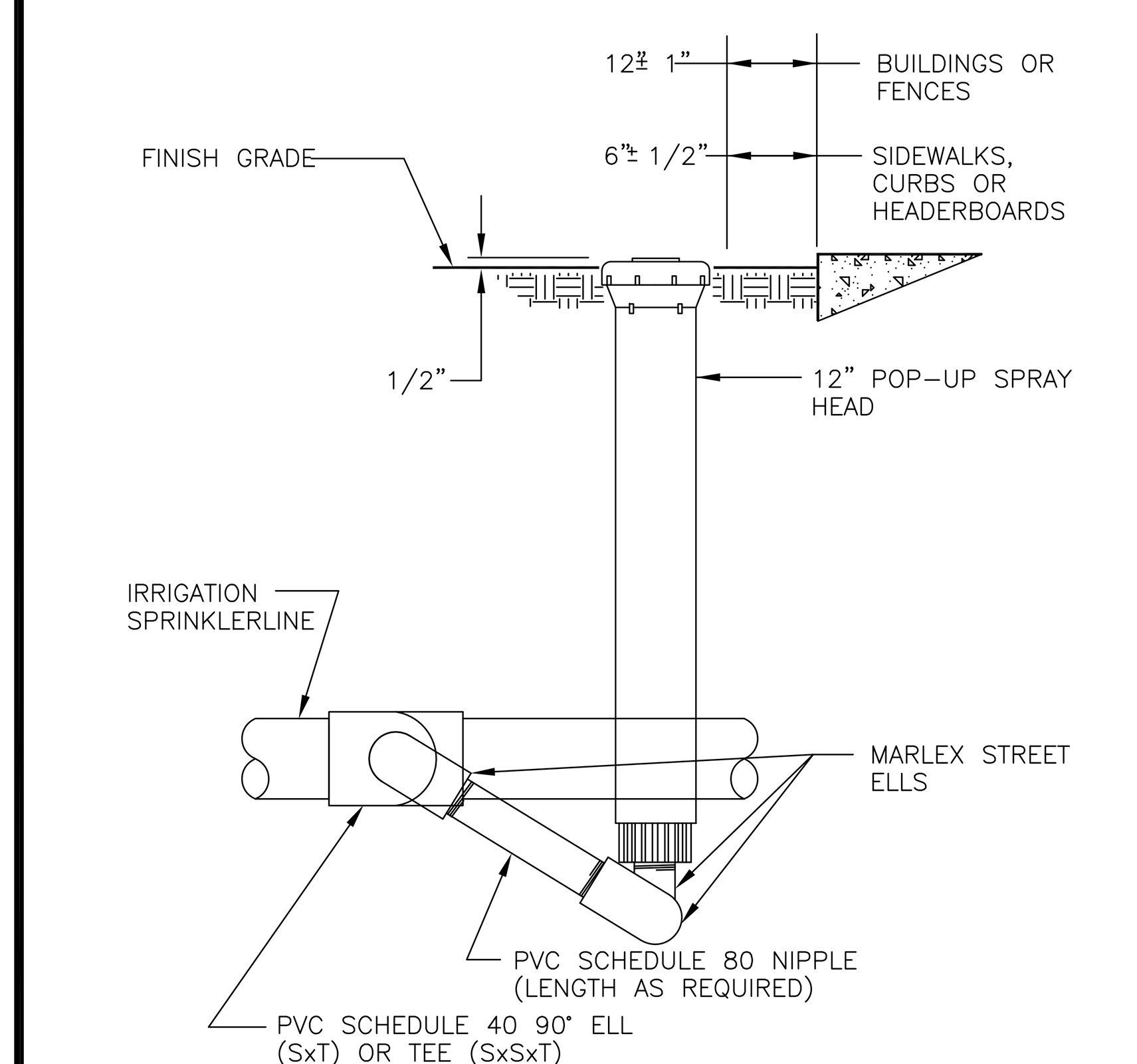
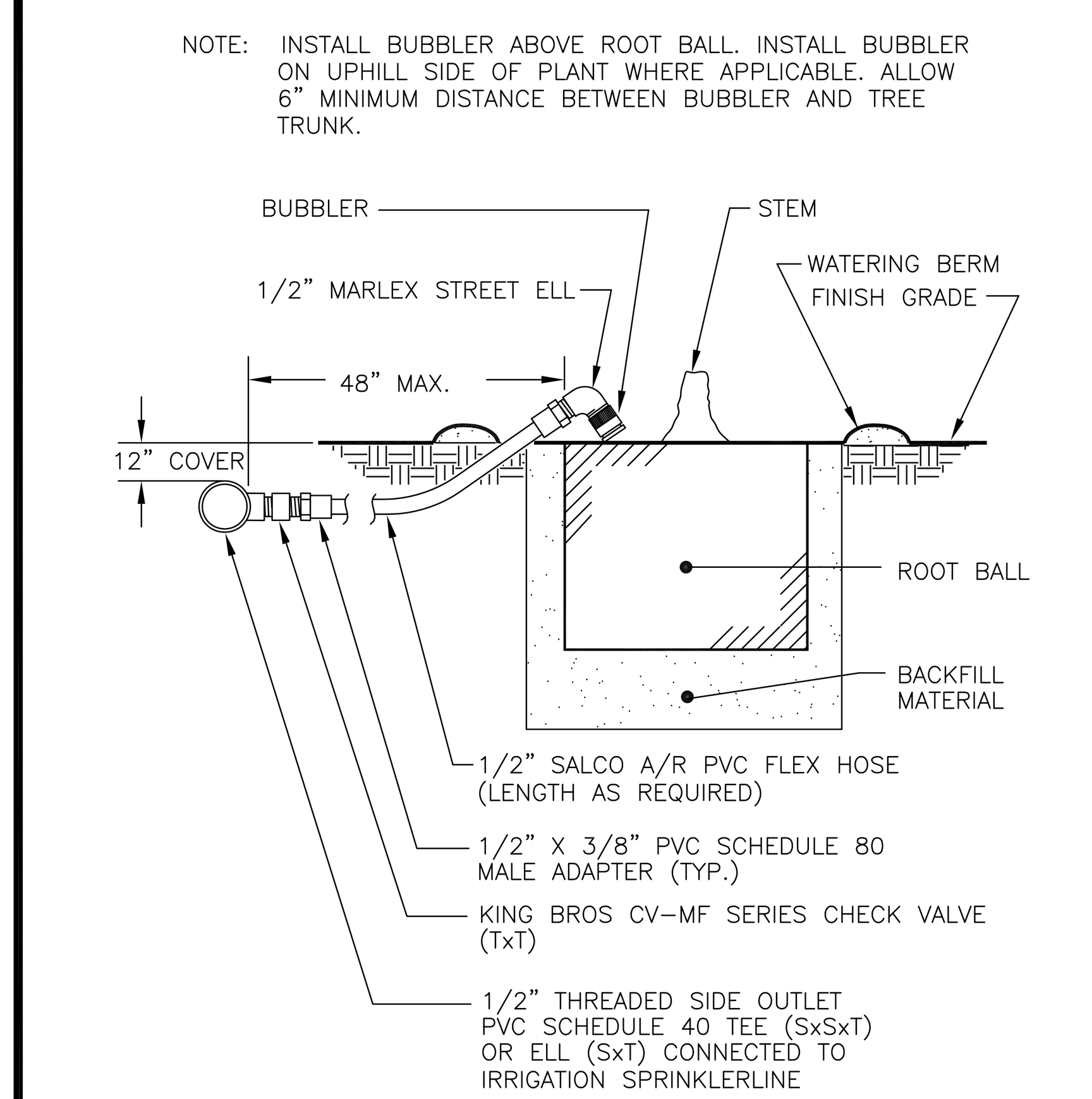
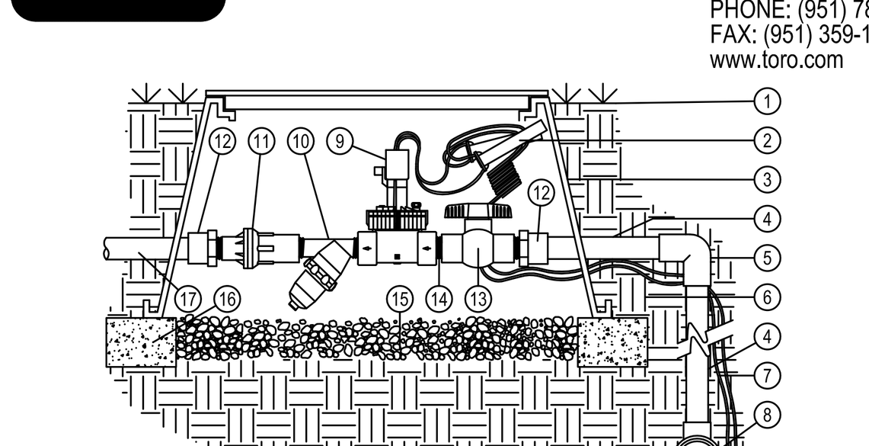


H 12" POP-UP SPRAY HEAD RISER ASSEMBLY DETAIL
NTS



I BUBBLER INSTALLATION DETAIL FOR TREES
NTS

TORO-IRRIGATION DIVISION
5825 JASMINE STREET
RIVERSIDE, CA 92504
TOLL FREE: 1-800-664-4740
PHONE: (951) 785-3152
FAX: (951) 359-1870
www.toro.com



SECTION/ELEVATION
NOT TO SCALE

MIN. FLOW RATE - 0.25 GPM
MAX. FLOW RATE - 8.0 GPM

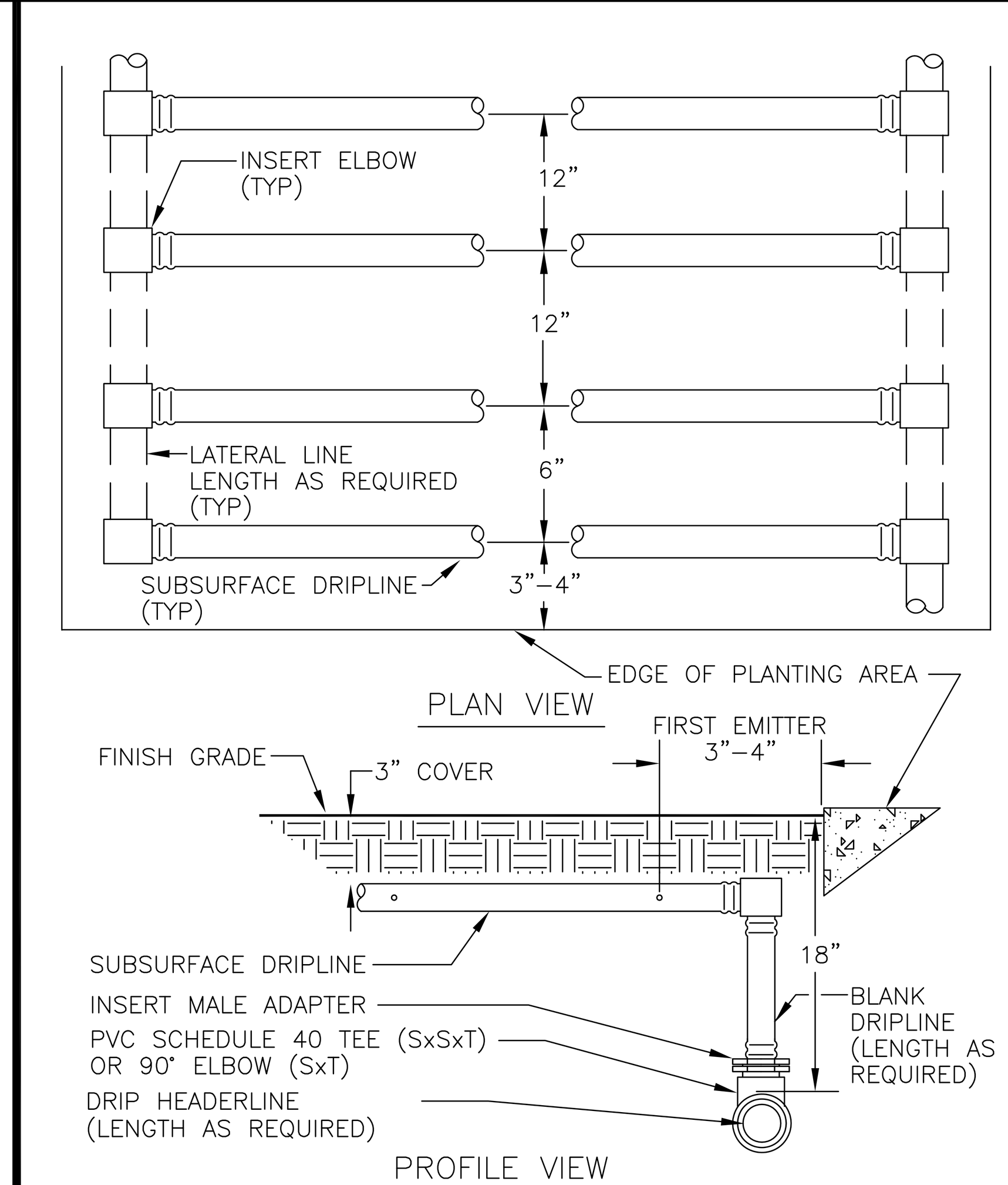
LEGEND

1.	FINISH GRADE.	10.	TORO 150 MESH Y-FILTER (*).
2.	CONTROL WIRES WITH 36" SERVICE COIL AND WATER PROOF WIRE CONNECTIONS, DBY OR EQUAL.	11.	TORO 25 PSI LOW FLOW PRESSURE REGULATOR (*).
3.	RECTANGULAR PLASTIC VALVE BOX. HEAT BRAND STATION NUMBER ON LID IN 2" HIGH CHARACTERS.	12.	SCH 40 PVC MALE ADAPTER.
		13.	SCH 40 PVC BALL VALVE (*).
		14.	SCH 80 PVC CLOSE NIPPLE (*).
4.	PVC MAINLINE PER SPECIFICATIONS (LENGTH AS REQUIRED).	15.	PEA GRAVEL SUMP, MINIMUM 6" DEEP.
5.	SCH 40 PVC ELL (SxS).	16	BRICK SUPPORTS (4 COMMON BRICKS REQUIRED).
6.	NATIVE SOIL PER SPECIFICATIONS.	17.	LATERAL LINE TO DRIP SYSTEM.
7.	CONTROL WIRES TO CONTROLLER.		(*) PARTS IN DRIP ZONE KIT.
8.	PVC MAINLINE FITTING.		
9.	TORO 700-1 INLINE VALVE (*).		

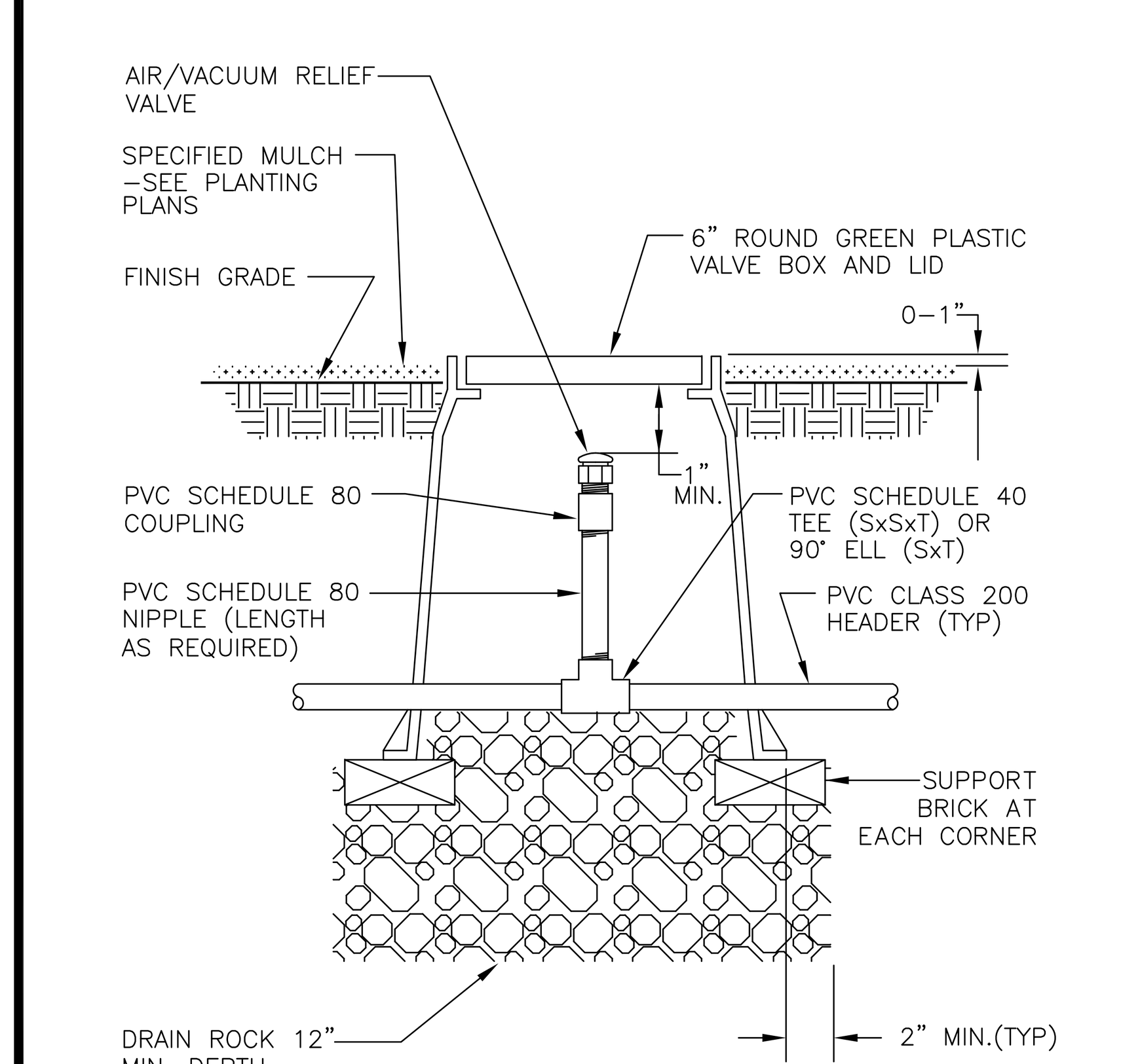
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 382-190g.

J TORO DRIP ZONE KIT
DZK-700-1-LF

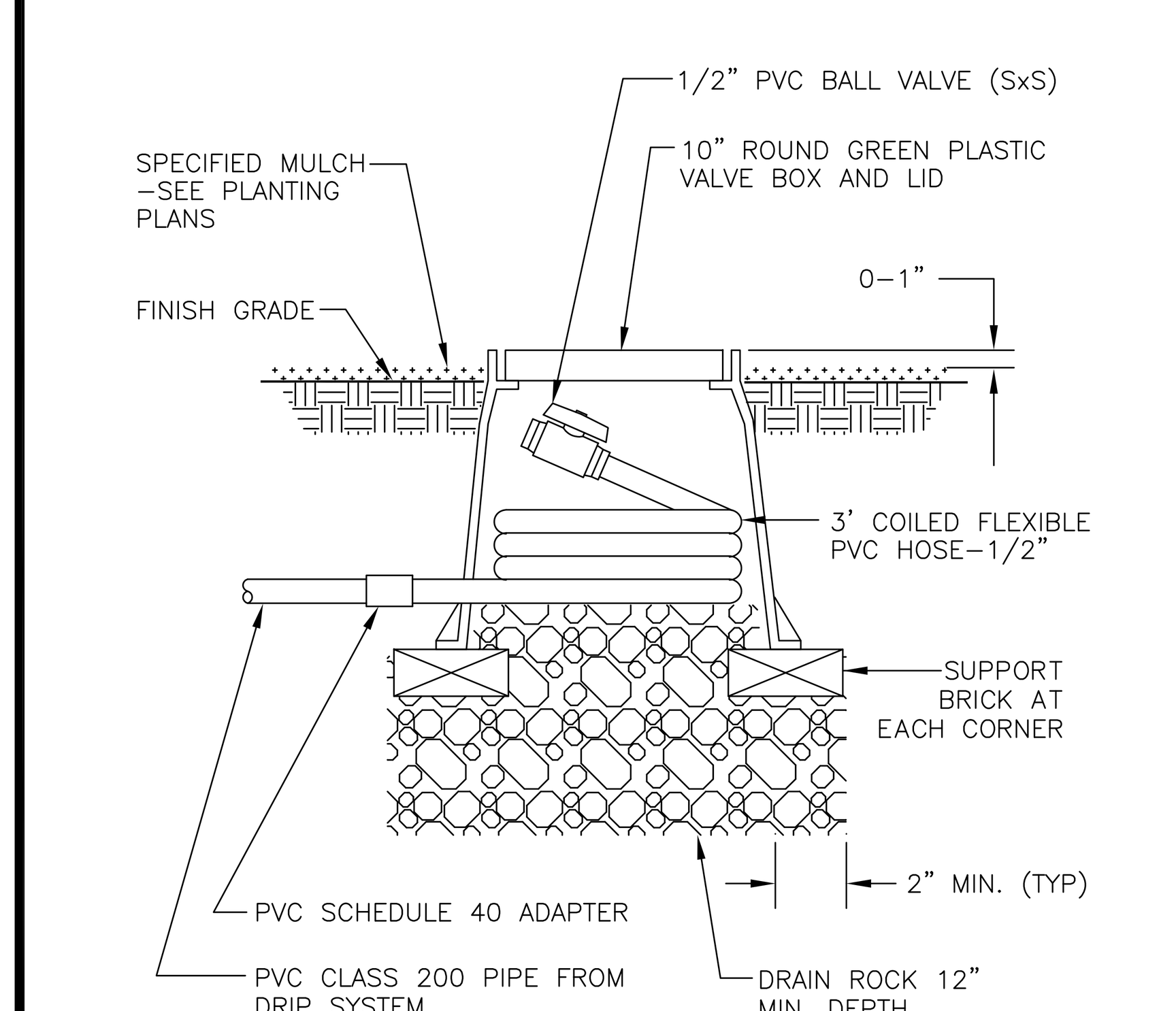
382-190g



K SUBSURFACE DRIP INSTALLATION DETAIL
NTS



L AIR VACUUM RELIEF VALVE INSTALLATION DETAIL
NTS



M FLUSH VALVE INSTALLATION DETAIL
NTS

Studio Bondy Architecture
110 LINDEN STREET | OAKLAND, CA | 94607
510.836.6594 | studiobondy.com

BISHOP O'DOWD HIGH SCHOOL CENTER

9500 STEARNS AVE
OAKLAND, CA 94605

1818.00

CONSULTANT

THE GUZZARDO PARTNERSHIP INC.
Landscape Architects · Land Planners
181 Greenwich Street
San Francisco, CA 94111
T 415 433 4672
F 415 433 5003

90% DD
10.25.19

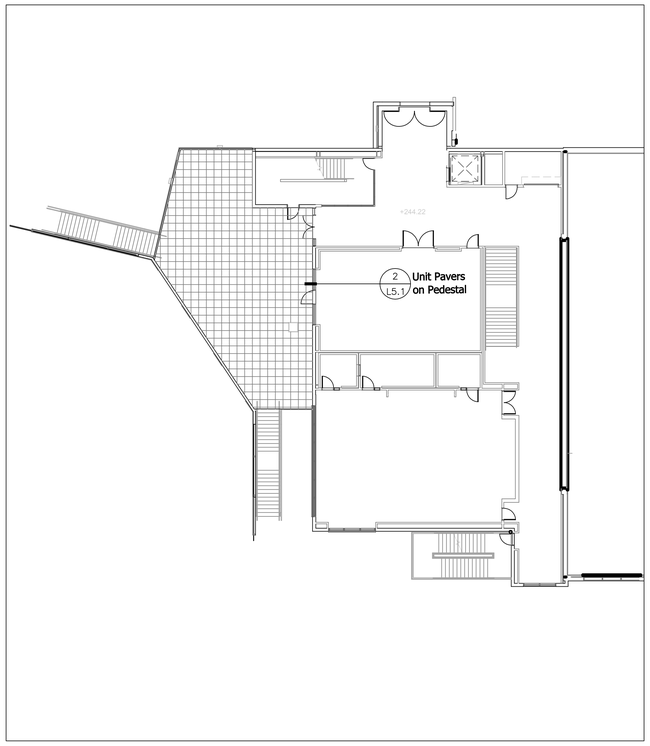
No.	Description	Date

APPROVALS

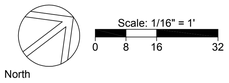
ARTHUR LANDSCAPE IRRIGATION CONSULTING
ALI Consulting
Professional Member - ASIC
Post Office Box 3490
Livermore, Calif. 94551
T 925.518.3956
E ray@aliconsulting.net

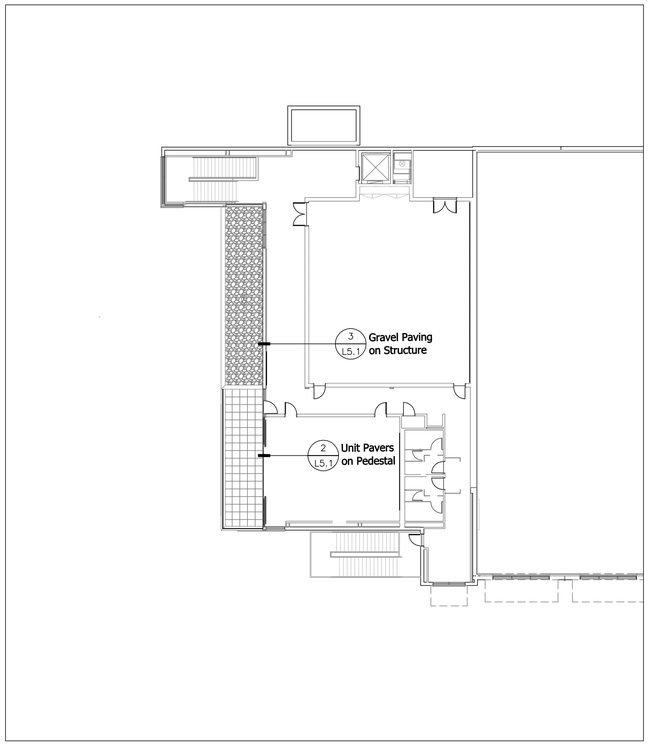
Irrigation Details

L-4.3

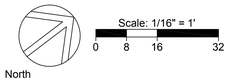


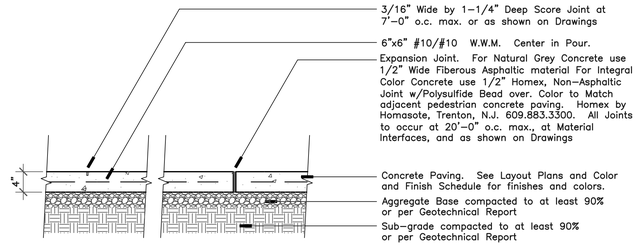
Second Floor





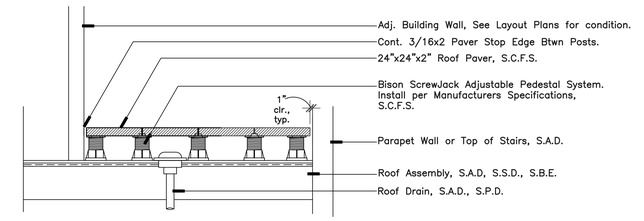
Third Floor





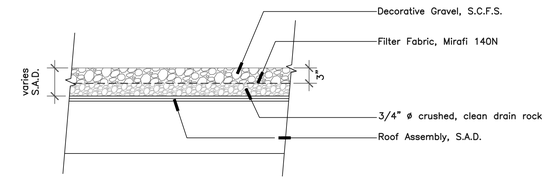
1 Pedestrian Concrete Paving

Scale: 1" = 1'-0"



2 Unit Pavers on Pedestal

Scale: 1/2" = 1'-0"



3 Gravel Paving on Structure

Scale: 1" = 1'-0"

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No.	Description	Date

APPROVALS

Construction Details and Second and Third Floor Layout Plans

L-5.1

TREE MITIGATION CHART

Total Existing Trees on Site	16
Existing Trees to be Removed	14
Existing Trees to Remain	2
Total Proposed Trees (24" box)	14

Existing Tree to be Removed, typ

Existing Tree to be Removed, typ

Existing Tree to be Removed, typ

Existing Tree to Remain

1 2 3 4 6 7 8 9 10 11 12 13

North

Scale: 1/16" = 1'

0 8 16 32

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No.	Description	Date

APPROVALS

Tree Disposition Plan

L-6.1

SYMBOLS: (ALL SYMBOLS MAY OR MAY NOT BE USED)

- RECESS LED DOWNLIGHT W/ EMERGENCY CIRCUIT
- RECESS LED DOWNLIGHT
- RECESS LOW VOLTAGE DOWNLIGHT
- WALL MOUNTED FIXTURE
- WALL MOUNTED SCONCE
- BATHROOM VANITY LIGHT
- SURFACE OR PENDANT MOUNTED FIXTURE
- PENDANTDOWNLIGHT
- CEILING MOUNTED DIRECTIONAL FIXTURE
- CEILING MOUNTED ANGLED REFLECTOR
- LED FIXTURE
- LED FIXTURE TANDEM WIRED
- DENOTES FIXTURE ON EMERGENCY CIRCUIT
- LED STRIP FIXTURE
- LED STRIP FIXTURE W/EMERGENCY CIRCUIT
- TRACK LIGHT
- UNIVERSAL MOUNTED EXIT FIXTURE AND OUTLET
- WALL RECESS OR SURFACE MOUNTED EXIT FIXTURE AND OUTLET
- PROVIDE ARROW AND NUMBER OF FACES AS REQUIRED 'LL' DENOTES LOW LEVEL
- SURFACE MOUNTED EMERGENCY LIGHT WITH TWO TRACTOR HEADS
- SURFACE MOUNTED EMERGENCY LIGHT WITH ONE TRACTOR HEADS
- 1 POLE, 20A SPECIFICATION GRADE SWITCH INDICATES LAMP SWITCHING
- 2 POLE, 20A SPECIFICATION GRADE SWITCH
- 3 WAY, 20A SPECIFICATION GRADE SWITCH
- 4 WAY, 20A SPECIFICATION GRADE SWITCH
- TIMER SWITCH
- KEY OPERATED SWITCH
- SWITCH WITH PILOT LIGHT
- MANUAL MOTOR STARTER SWITCH FOR 3/4HP MOTORS AND BELOW
- DIMMER SWITCH
- LOW VOLTAGE SWITCH
- CEILING MOUNTED OCCUPANCY SENSOR WITH POWER PACK
- CEILING MOUNTED OCCUPANCY SENSOR
- WALL MOUNTED OCCUPANCY SENSOR
- PHOTO CELL, CEILING MOUNTED
- ROOM CONTROLLER
- THERMOSTAT OUTLET BOX
- NETWORK SWITCH
- GATEWAY
- JUNCTION BOX WITH COVER, CEILING MOUNTED
- JUNCTION BOX WITH COVER, WALL MOUNTED
- SPECIAL RECEPTACLE 50A-208V, WALL MOUNTED
- SPECIAL RECEPTACLE 30A-208V, WALL MOUNTED
- SPECIAL RECEPTACLE, 264V, 20A, 50HZ CIRCUIT. WALL MOUNTED
- DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED
- 20A-120V DUPLEX RECEPTACLE OUTLET, SPECIFICATION GRADE. WALL MOUNTED
- 20A-120V DUPLEX GFCI RECEPTACLE OUTLET, SPECIFICATION GRADE
- HALF SWITCH DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE WITH USB CHARGER. WALL MOUNTED
- SPECIAL RECEPTACLE 50A-208V. MOUNTED ABOVE COUNTER SPLASH
- 20A-120V DUPLEX RECEPTACLE OUTLET, SPECIFICATION GRADE. MOUNTED ABOVE COUNTER SPLASH
- 20A-120V DUPLEX GFCI RECEPTACLE OUTLET, SPECIFICATION GRADE. MOUNTED ABOVE COUNTER SPLASH
- HALF SWITCH DUPLEX RECEPTACLE. MOUNTED ABOVE COUNTER SPLASH
- 20A-120V CEILING MOUNTED SINGLE TWIST-LOCK RECEPTACLE OUTLET, SPECIFICATION GRADE
- 20A-120V CEILING MOUNTED DUPLEX RECEPTACLE OUTLET
- 20A-120V CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE OUTLET
- 20A-120V DUPLEX FLOOR RECEPTACLE OUTLET (WALKER BOX RESOURCE RFB)
- 20A-120V FLOOR MOUNTED MONUMENT WITH NETWORK CONNECTION
- SPECIAL RECEPTACLE, 264V, 20A, 50HZ CIRCUIT. CEILING MOUNTED
- FOURPLEX RECEPTACLE, 120V, 20A. CEILING MOUNTED
- SPECIAL RECEPTACLE, 208V, 50A. CEILING MOUNTED
- UNDER COMPUTER RAISED FLOOR. SEE RECEPTACLE SCHEDULE FOR TYPE
- FLOOR MOUNTED POWER PEED MONUMENT OR POKE THROUGH
- HARDWIRE CONNECTION TO EQUIPMENT
- POWER POLE SUPPLIED BY FURNITURE CONTRACTOR
- TELE/DATA POLE SUPPLIED BY FURNITURE CONTRACTOR
- MOTOR CONNECTION
- FAN
- FAN/LIGHT COMBINATION
- MAGNETIC MOTOR STARTER
- COMBINATION MAGNETIC MOTOR STARTER WITH NON-FUSED DISCONNECT
- COMBINATION MAGNETIC MOTOR STARTER WITH NON-AUTOMATIC CIRCUIT BREAKER
- HEAVY-DUTY DISCONNECT SWITCH, N.F. DENOTES NON FUSED, MOUNTED
- FUSED DISCONNECT SWITCH, MOUNTED
- ENCLOSED CIRCUIT BREAKER
- FLUSH MOUNTED PANEL BOARD
- SURFACE MOUNTED PANEL BOARD
- SWITCHBOARD, DISTRIBUTION PANEL, MCC
- FLUSH MOUNTED MEDIA PANEL
- SURFACE MOUNTED MEDIA PANEL
- TRANSFORMER
- SHUNT TRIP PUSHBUTTON STATION
- EMERGENCY POWER OFF
- RELAY
- RELAY PUSH BUTTON STATION
- WALL MOUNTED BELL
- CHIME
- CIRCUIT BREAKER
- CIRCUIT BREAKER WITH CURRENT LIMITING FUSES - SIZE AS SHOWN ON PLANS
- CURRENT TRANSFORMER
- WATT/HOUR METER
- VOLT/AMP METER
- NEUTRAL LINK
- FIXTURE IDENTIFICATION TAG - SEE SCHEDULE
- MECHANICAL EQUIPMENT TAG
- FEEDER TAG - SEE FEEDER SCHEDULE
- SHEET NOTE IDENTIFICATION TAG, SEE RESPECTIVE "SHEET NOTES"
- CONDUIT AND CONDUCTORS INSTALLED UNDERGROUND OR BELOW SLAB
- CONDUIT AND CONDUCTORS CONCEALED IN WALL OR CEILING
- HOMERUN WITH NO CROSS LINES DENOTES 2#12 AWG & 1#12 GND IN 1/2" CONDUIT, UON.
- HOMERUN CONDUIT & CONDUCTORS TO PANEL & CIRCUIT; SLASH MARKS INDICATE NUMBER OF CONDUCTORS, 2 #12 AWG + 1 #12 GRN IN 1/2" CONDUIT MINIMUM, UON
- TICS = DENOTES QUANTITY OF CONDUCTORS
- = NUMBER OF PHASE WIRES
- = GROUND WIRE
- = NEUTRAL WIRE
- = ISOLATED GROUND WIRE
- COPPERWELD GROUND ROD 10' X 3/4" U.O.N.
- GROUND CONNECTION
- BARE COPPER GROUND CABLE
- WIRING TURNED UP
- WIRING TURNED DOWN
- CONDUIT OR DUCT STUB AND CAP
- CONDUIT AND CONDUCTORS ON EMERGENCY ON EMERGENCY CIRCUIT
- METAL CLAD CABLE
- FLEXIBLE RACEWAY
- PRE-WIRED LIGHTING FLEXIBLE RACEWAY SYSTEM
- TELEPHONE RACEWAY AND PULL WIRE 3/4" C.O. UNLESS OTHERWISE NOTED
- FIRE ALARM SYSTEM RACEWAY AND WIRING
- TELEVISION RACEWAY AND PULL WIRE 3/4" C.O. UNLESS OTHERWISE NOTED
- PUBLIC ADDRESS RACEWAY AND WIRING
- VOICE OUTLET ONLY, W/ RING AND STRING
- DATA OUTLET ONLY, W/ RING AND STRING
- VOICE/DATA OUTLET, W/ RING AND STRING
- VOICE/DATA OUTLET, W/ RING AND STRING. MOUNTED ABOVE COUNTER SPLASH
- FLOOR VOICE/DATA OUTLET, FLUSH MOUNTED (WALKER BOX RESOURCE RFB)
- FLOOR VOICE ONLY, FLUSH MOUNTED
- FLOOR DATA ONLY, FLUSH MOUNTED
- CEILING DATA ONLY
- FIRE ALARM PULL STATION, FLUSH MOUNTED
- FIRE ALARM HORN AND STROBE
- FIRE ALARM STROBE
- HORN
- SMOKE DETECTOR
- SMOKE DETECTOR UNDER RAISED FLOOR
- CARBON/SMOK DETECTOR
- CARBON MONOXIDE SENSOR
- COMBINATION FIRE/SMOKE DAMPER
- FIRE ALARM ANNUNCIATOR PANEL
- BUTTON PANEL
- DUCT SMOKE DETECTOR
- MAGNETIC DOOR HOLDER
- DOOR CONTACT
- DOOR RELEASE
- CARD READER
- FLOW SWITCH
- TAMPER SWITCH
- POST INDICATED VALVE TAMPER SWITCH
- FLOAT SWITCH
- LIMIT SWITCH
- CEILING SPEAKER, FLUSH MOUNTED
- CEILING SPEAKER, SURFACE MOUNTED
- WALL SPEAKER, FLUSH MOUNTED
- WALL SPEAKER, SURFACE MOUNTED
- CEILING SPEAKER ARRAY, FLUSH MOUNTED
- CEILING SPEAKER ARRAY, SURFACE MOUNTED
- WALL SPEAKER ARRAY, FLUSH MOUNTED
- WALL SPEAKER ARRAY, SURFACE MOUNTED
- MICROPHONE OUTLET
- MICROPHONE OUTLET
- FLOOR MICROPHONE OUTLET
- TELEVISION OUTLET, WALL MOUNTED
- TELEVISION INPUT PLATE, WALL MOUNTED
- WALL CONTROLLER
- TOUCH PANEL
- CLOSE CIRCUIT TELEVISION OUTLET
- CLOSE CIRCUIT TELEVISION CAMERA

FIRE ALARM SYSTEM, FIRE PREVENTION SYSTEM, SECURITY SYSTEM AND POWER STUDIES BASED ON THE ACTUALLY INSTALLED EQUIPMENT ARE DEFERRED ITEMS.

NOTE: SYMBOLS AND ABBREVIATIONS LISTED ARE FOR GENERAL USE. DISREGARD THOSE WHICH ARE NOT USED ON DRAWINGS.

ANCHORAGE NOTE

ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:

THE TOTAL DESIGN LATERAL SEISMIC FORCE SHALL BE DETERMINED FROM SECTION 1614A CALIFORNIA BUILDING CODE (CBC) 2016. FORCES SHALL BE APPLIED IN THE HORIZONTAL DIRECTIONS, WHICH RESULT IN THE MOST CRITICAL LOADING FOR DESIGN.

THE VALUE OF Ap (COMPONENT AMPLIFICATION FACTOR) AND Rp (COMPONENT RESPONSE MODIFICATION FACTOR) OF SECTION 13.3.1 OF THE ASCE7-05 SHALL BE SELECTED FROM TABLE 13.6-1, ASCE7-05. THE VALUE OF Ip (SEISMIC IMPORTANCE FACTOR) AND Sds (SEISMIC COEFFICIENT) SHALL BE SELECTED FROM 13.1.3 OF THE ASCE7-05 AND 11.4.4 OF THE ASCE7-05, RESPECTIVELY.

WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.

NOTES:

1. ANCHORAGE NOTE APPLIES TO ALL ELECTRICAL DISTRIBUTION EQUIPMENT, LIGHTING FIXTURES, CONTROL PANEL & EQUIPMENT.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL SUPPORTS FOR THE EQUIPMENT LISTED ABOVE AND SHOWN ON DRAWINGS.

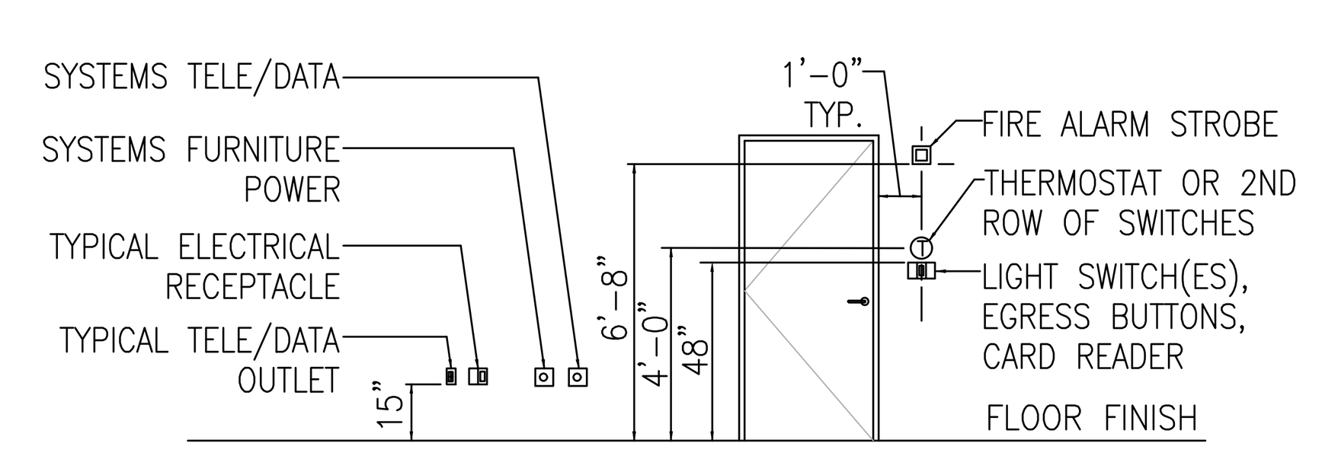
CONSTRUCTION NOTES:

1. ALL WIRE TO BE THHN/THWN COPPER, STRANDED EXCEPT WHERE NOTED OTHERWISE.
2. ALL DEVICES AND EQUIPMENT INSTALLED OUTDOORS OR EXPOSED TO THE WEATHER SHALL BE OF WEATHERPROOF CONSTRUCTION.
3. ALL DEVICES SHALL BE COMMERCIAL GRADE. ALL SINGLE AND GANGED PLATES SHALL BE THERMOPLASTIC AND SHALL MATCH THE DEVICE IN COLOR. COORDINATE DEVICE COLOR WITH THE ARCHITECT PRIOR TO INSTALLATION. GANG DEVICES AT GROUP LOCATIONS UNDER A SINGLE COVER PLATE.
4. ALL FIXTURES INSTALLED IN SUSPENDED T-BAR CEILINGS SHALL BE SUPPORTED BY A MINIMUM OF TWO FIXTURE SUPPORT WIRES FURNISHED BY OTHERS.
5. THE ELECTRICAL PLANS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL OF THE ARCHITECTURAL DETAIL OR SPECIFICS OF ELECTRICAL CONSTRUCTION. TAKE ALL DIMENSIONS FROM THE ARCHITECTURAL DRAWINGS.
6. REFER TO THE LATEST EDITION OF THE NEC, TITLE 24, UBC AND LOCAL ORDINANCES IN EFFECT AT THE TIME OF CONSTRUCTION AS THE CONTROLLING DOCUMENTS.
7. ALL CONNECTIONS TO MECHANICAL EQUIPMENT SHALL BE MADE WITH A MINIMUM OF 24" OF WEATHERPROOF FLEXIBLE CONDUIT TO PREVENT SOUND AND VIBRATION TRANSMISSION TO THE STRUCTURE.
8. COORDINATE ALL MOTOR OVERLOADS AND/OR FUSES FURNISHED BY THIS CONTRACT WITH THE ACTUAL EQUIPMENT INSTALLED. SIZE OVERLOADS BASED ON MOTOR NAMEPLATE FULL LOAD CURRENT AND SERVICE FACTOR. FUSES FOR MOTOR AND TRANSFORMER CIRCUITS SHALL BE DUAL ELEMENT. FUSES FOR OTHER "NON-INRUSH" LOADS SHALL BE FAST ACTING. ALL FUSES SHALL BE CURRENT LIMITING CLASS "RK5" OR CLASS "L" UNLESS OTHERWISE NOTED.
9. GROUNDING CONDUCTORS ARE GENERALLY NOT SHOWN. GROUND AND BOND ALL EQUIPMENT, RACEWAYS, MOTORS, PANELBOARDS AND SWITCHBOARDS, ETC. IN ACCORDANCE WITH NEC ARTICLE 250.
10. BONDING OF ALL INTERIOR METAL PIPING SHALL BE IN ACCORDANCE WITH ARTICLE 250-104 AS FOLLOWS:
    a. ALL INTERIOR METAL WATER PIPING SHALL BE BONDED TO ONE OR MORE GROUNDING ELECTRODES USED. THE BONDING JUMPING SHALL BE SIZED IN ACCORDANCE WITH TABLE 250-66.
    b. INTERIOR METAL PIPING THAT MAY BECOME ENERGIZED (i.e. GAS PIPING, ETC.), SHALL BE BONDED TO ONE OR MORE GROUNDING ELECTRODES USED. THE BONDING JUMPER SHALL BE SIZED IN ACCORDANCE WITH TABLE 250-122, USING THE RATING OF THE CIRCUIT THAT MAY ENERGIZE THE PIPING.
11. INSTALL ALL WALL MOUNTED POWER, TELEPHONE AND DATA OUTLETS NO LESS THAN +15" FROM THE BOTTOM OF THE BOX ABOVE FINISHED FLOOR (A.F.F.), UNLESS OTHERWISE NOTED. INSTALL ALL LIGHTING CONTROL SWITCHES, FIRE ALARM PULLSTATIONS, FIREMANS TELEPHONE JACKS, AND WALL TELEPHONE JACKS NO MORE THAN +48" FROM THE TOP OF OUTLET BOX ABOVE FINISHED FLOOR (A.F.F.), UNLESS OTHERWISE NOTED. ALL HEIGHT MEASUREMENTS SHALL BE TO THE CENTERLINE OF THE DEVICE.
12. ISOLATED GROUNDING TYPE RECEPTACLES' TERMINALS SHALL BE GROUNDED BY AN INSULATED EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CIRCUIT CONDUCTORS. THIS GROUNDING CONDUCTOR SHALL BE PERMITTED TO PASS THROUGH ONE OR MORE PANELBOARDS WITHOUT CONNECTION TO THE PANELBOARD GROUNDING TERMINAL SO AS TO TERMINATE WITHIN THE SAME BUILDING OR STRUCTURE. DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE APPLICABLE DERIVED SYSTEM OR SERVICE. NOTE: USE OF AN ISOLATED EQUIPMENT GROUNDING CONDUCTOR DOES NOT RELIEVE THE REQUIREMENT FOR GROUNDING THE RACEWAY SYSTEM AND OUTLET BOX.
13. WHERE MORE THAN ONE NOMINAL VOLTAGE SYSTEM EXITS IN A BUILDING, EACH UNGROUNDED SYSTEM CONDUCTOR SHALL BE IDENTIFIED BY PHASE AND SYSTEM. THE MEANS OF IDENTIFICATION SHALL BE POSTED AT EACH BRANCH CIRCUIT PANELBOARD. THE PHASE COLOR CODING OF THE INSULATION OF THE CONDUCTORS SHALL BE:
    c. BROWN-PURPLE-YELLOW FOR 480/277 VOLTS.
    d. BLACK-RED-BLUE FOR 208/120 VOLTS.
14. ALL EQUIPMENT SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE SPECIFIC APPLICATION IN WHICH USED. IT SHALL BE INSTALLED AS PER LISTING OR LABELING.
15. ELECTRICAL WORK WILL COMPLY WITH THE 2016 NATIONAL ELECTRICAL CODE [NEC] AS AMENDED BY THE 2014 CALIFORNIA ELECTRICAL CODE [CEC], 2016 CALIFORNIA BUILDING ENERGY EFFICIENCY CODE, TITLE 24 [CEES] AND LEGALLY-ADOPTED CITY OF OAKLAND ORDINANCES AND POLICIES.

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR	FIN	FINISH	PC	PHOTO ELECTRIC CELL
AL	ALUMINUM CONDUCTOR OR BUS	FLA	FULL LOAD AMPS	PNL	PANEL
AM	AMMETER	FSD	FIRE SMOKE DAMPER	PR	PAIR
ANN	ANNUNCIATING	FUT	FUTURE	QTY	QUANTITY
ART	ARTICLE	GEN	GENERATOR	R	REMOVE
AUTO	AUTOMATIC	GFI	GROUND FAULT INTERRUPTER	REC	RECEPTACLE
AUX	AUXILIARY	GND	GROUND	RECEPT	RECEPTACLE
AWG	AMERICAN WIRE GAGE	HGT	HEIGHT	REF	REFRIGERATOR; REFERENCE
BD	BOARD	HP	HORSE POWER	REQ'D	REQUIRED
BF	BOTTOM FEED	HPS	HIGH PRESSURE SODIUM	RL	RELOCATED
BKBD	BACK BOARD	HTR	HEATER	SCHED	SCHEDULE
BKR	BREAKER	HW	HOT WATER	SECT	SECTION
BTM	BOTTOM	IG	ISOLATED GROUND	SIM	SIMILAR
CAB	CABINET	INCAND	INCANDESCENT	SQ	SQUARE
CB	CIRCUIT BREAKER	JB	JUNCTION BOX	SW	SWITCH
CCTV	CLOSED CIRCUIT TELEVISION	KV	KILOVOLT	SWBD	SWITCHBOARD
CKT	CIRCUIT	KVA	KILOVOLT AMPERE	SWGR	SWITCHGEAR
CO	CONDUIT ONLY	KW	KILOWATT	SYS	SYSTEM
CU	COPPER CONDUCTOR OR BUS	LT	LIGHT	TC	TIME CLOCK
DD	DUCT DETECTOR	LTG	LIGHTING	TEL	TELEPHONE
DIA	DIAMETER	MAX	MAXIMUM	TEMP	TEMPORARY; TEMPERATURE
D	DEDICATED	MCB	MAIN CIRCUIT BREAKER	TF	TOP FEED
DIM	DIMENSION	MCC	MOTOR CONTROL CENTER	TRANS	TRANSFORMER
DISC	DISCONNECT	MCM	MILLI CIRCULAR MILS	TTB	TELEPHONE TERMINAL BACKBOARD
DN	DOWN	MIN	MINIMUM	TV	TELEVISION
DS	DISCONNECT SWITCH	MISC	MISCELLANEOUS	TYP	TYPICAL
(E)	EXISTING	MLO	MAIN LUG ONLY	UC	UNDER CABINET
(ER)	EXISTING TO REMAIN	MTD	MOUNTED	UG	UNDERGROUND
EA	EACH	MTG	MOUNTING	UL	UNDERWRITERS LABORATORY
EM	EMERGENCY	MTR	MOTOR	UON	UNLESS OTHERWISE NOTED
EQ	EQUAL	N	NORTH	USB	UNIVERSAL SERIAL BUS
EQUIP	EQUIPMENT	NC	NORMALLY CLOSED	V	VOLT
EX	EXPLOSION PROOF	NEC	NATIONAL ELECTRIC CODE	W	WALL MOUNTED; WATT
EXH	EXHAUST	NEUT	NEUTRAL	W/	WITH
FA	FIRE ALARM	NIC	NOT IN CONTRACT	W/O	WITH OUT
FAAP	FIRE ALARM ANNUNCIATING PANEL	NO	NORMALLY OPEN	WP	WEATHER PROOF
FACP	FIRE ALARM CONTROL PANEL	NTS	NOT TO SCALE	XFMR	TRANSFORMER
FBO	FURNISHED BY OTHERS	OL	OVERLOAD		
FF	FLOOR FINISH	PB	PULL BOX		

TYPICAL MOUNTING HEIGHTS



DISCLOSURE

6737.3 EXEMPTION OF CONTRACTOR

A CONTRACTOR, LICENSED UNDER CHAPTER 9 (COMMENCING WITH SECTION 7000) OF DIVISION 3, IS EXEMPT FROM THE PROVISIONS OF THIS CHAPTERRELATING TO THE PRACTICE OF ELECTRICAL OR MECHANICAL ENGINEERING SO LONG AS THE SERVICES HE OR SHE HOLDS HIMSELF OR HERSELF OUT AS ABLE TO PERFORM OR DOES PERFORM, WHICH SERVICES ARE SUBJECT TO THE PROVISIONS OF THIS CHAPTER, ARE PERFORMED BY, OR UNDER THE RESPONSIBLE CHARGE OF A REGISTERED ELECTRICAL OR MECHANICAL ENGINEER PRACTICES THE BRANCH OF ENGINEERING FOR WHICH HE OR SHE IS REGISTERED. THIS SECTION SHALL NOT PROHIBIT A LICENSED CONTRACTOR, WHILE ENGAGED IN THE BUSINESS OF CONTRACTING FOR THE INSTALLATION OF ELECTRICAL OR MECHANICAL SYSTEMS OR FACILITIES, FROM DESIGNING THOSE SYSTEMS OR FACILITIES IN ACCORDANCE WITH APPLICABLE CONSTRUCTIONS CODES AND STANDARDS FOR WORK TO BE PERFORMED AND SUPERVISED BY THAT CONTRACTOR WITHIN THE CLASSIFICATION FOR WHICH HIS OR HER LICENSE IS ISSUED, OR FROM PREPARING ELECTRICAL OR MECHANICAL SHOP OR FIELD DRAWINGS FOR WORK WHICH HE OR SHE HAS CONTRACTED TO PERFORM. NOTHING IS THIS SECTION IS INTENDED TO IMPLY THAT A LICENSED CONTRACTOR MAY DESIGN WORK WHICH IS TO BE INSTALLED BY ANOTHER PERSON.

DRAWING SCHEDULE:

SHEET	DESCRIPTION	ISSUED FOR DD 50% DATE: 09/20/2019	ISSUED FOR DD 90% DATE: 10/18/2019	ISSUED FOR DD 100% DATE: 10/25/2019
E0-01	COVER SHEET: LEGEND, ABBREVIATIONS & DRAWING SCHEDULE	●	●	●
E0-10	PANEL SCHEDULE AND LIGHTING FIXTURE SCHEDULE	●	●	●
E1-10	SITE GROUND FLOOR LIGHTING PLAN	●	●	●
E2-11	ENLARGED LIGHTING PLAN - LOWER LEVEL WEST	●	●	●
E2-12	ENLARGED LIGHTING PLAN - LOWER LEVEL EAST	●	●	●
E2-21	ENLARGED LIGHTING PLAN - MAIN LEVEL WEST	●	●	●
E2-22	ENLARGED LIGHTING PLAN - MAIN LEVEL EAST		●	●
E2-31	ENLARGED LIGHTING PLAN - UPPER LEVEL WEST	●	●	●
E2-32	ENLARGED LIGHTING PLAN - UPPER LEVEL EAST	●	●	●
E3-11	POWER & SIGNAL ENLARGED PLAN - LOWER LEVEL WEST	●	●	●
E3-12	POWER & SIGNAL ENLARGED PLAN - LOWER LEVEL EAST	●	●	●
E3-21	ENLARGED POWER & SIGNAL PLAN - MAIN LEVEL WEST	●	●	●
E3-31	ENLARGED POW	●	●	●
E3-40	OVERALL POWE	●	●	●
E5-11	ELECTRICAL SI	●	●	●
E6-11	DETAILS SHEET	●	●	●

these sheets not part of this submittal

CODES

CODES:

- CALIFORNIA ELECTRICAL CODE/NEC 2016
- CALIFORNIA BUILDING CODE 2016
- CALIFORNIA FIRE CODE 2016
- CALIFORNIA ENERGY CODE 2016
- CALIFORNIA GREEN BUILDING STDS. 2016

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COVER SHEET AND DRAWING INDEX

E0-01

P:_PROJECTS\2019\19-08 Bishop O'Dowd High School Center\DRAWINGS\E0-10 PANEL SCHEDULE.dwg

FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL NO.	WATTS	VOLTS	NOTES
A1	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RD-XTM19-40LM-30K-83-D50-277-DIM10-NC-WH-WH	49.00	277V	
A2	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RD-XTM19-40LM-35K-83-D50-277-DIM10-NC-WH-WH	49.00	277V	
A3	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RA-XTM19-40LM-30K-83-S30-277-DIM10-NC-WH-WH		277V	
A4	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RW-XTM19-40LM-30K-83-WW-277-DIM10-NC-WH-WH		277V	
A5	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RD-XTM19-50LM-30K-83-D50-277-DIM10-NC-WH-WH		277V	
A6	6" ROUND DOWNLIGHT	ALPAHBET LIGHTING	NU6-RD-XTM19-13LM-30K-83-D50-277-DIM10-NC-WH-WH		277V	
B		CONTECH	CYL6-2-35K-OPTION		277V	
B1	35' LINEAR WALL WASH					
B2	22' LINEAR WALL WASH					
B3	42' LINEAR WALL WASH					
B4	14.5" ROUND DOWNLIGHT	METEOR	DS2-300-408-UNV-XXX-100-XXX-XXXX		277	
D1	10' LINEAR DOWNLIGHT	FINELITE	HP-4 ID-XX-H-H-835-TG-F-277-FA50-FE-SC-CX			
D2	4' LINEAR DOWNLIGHT					
D3	9' LINEAR DOWNLIGHT					
E1	2' X 2' RECESSED DOWNLIGHT	FINELITE	HPR-LED-F-2X2-DCO-B-835-277-SC-CX	37.10	277V	
E2	2' X 4' RECESSED DOWNLIGHT	FINELITE	HPR-LED-F-2X4-DCO-B-835-277-SC-CX	35.20	277V	
F	4' FULLY ENCLOSED LED DOWNLIGHT	H.E. WILLIAMS, INC.	96-4-L40/835-HIAFR-OCCWS-FSP-211B-L2-DIM-UNV	30.00	277V	
H1	6" X 40' INDIRECT/DIRECT LED STRIP DOWN LIGHT	FINELITE	HP-4-ID-40'-V-V-835-TG-F-277-FA50-FE-SC-C? (ADVISE CEILING TYPE)	740.00	277V	
J	JAM JAR LIGHT				277V	
K1	4' LINEAR DOWNLIGHT	DAY-BRITE	FSI-4-40L-835-UNV-DIM			
L1	16 LED WALL MOUNT SCONCE	VISIONAIRE LIGHTING	VSC-1-T3-16LC-5-4K-UNV-WM-BZ	26.00	277V	
L2	48 LED WALL MOUNT SCONCE	VISIONAIRE LIGHTING	VSC-1-T4-48LC-5-4K-UNV-WM-BZ-WSC-40	78.00	277V	
L3	STAND-ALONE ILLUMINATING BOLLARD	HESS	CENTO 780 LED			
L3		VISIONAIRE LIGHTING	VMX-1-T3-64LC-5-4K-UNV			
L4	RECESSED STAIR LIGHT	BEGA	24060			
L5	PARKING LOT LIGHT	VISIONAIRE LIGHTING	VMX-T3-64LC-7-5K-UNV-AM-BZ	145.00	277	
L6	PARKING LOT LIGHT	VISIONAIRE LIGHTING	VMX-XX-XXXX-X-XX-UNV-AM-BZ		277	
L7	LINEAR STRIP LIGHT					
L8	LINEAR STRIP LIGHT					
EX1	SINGE/DOUBLE FACE SURFACE/RECESSED MOUNT LED EXIT SIGN	EMERGI-LITE	PNG6	4.00	277V	
EX2	EXIT SIGN, RECESSED	EVENLITE	CCDS		277V	
EX3	VANDAL RESISTANT EXIT SIGN, NEMA-4X	EMERGI-LITE	BB-SVXN-ADVISE # OF FACES-G-D-4X	3.70	277V	

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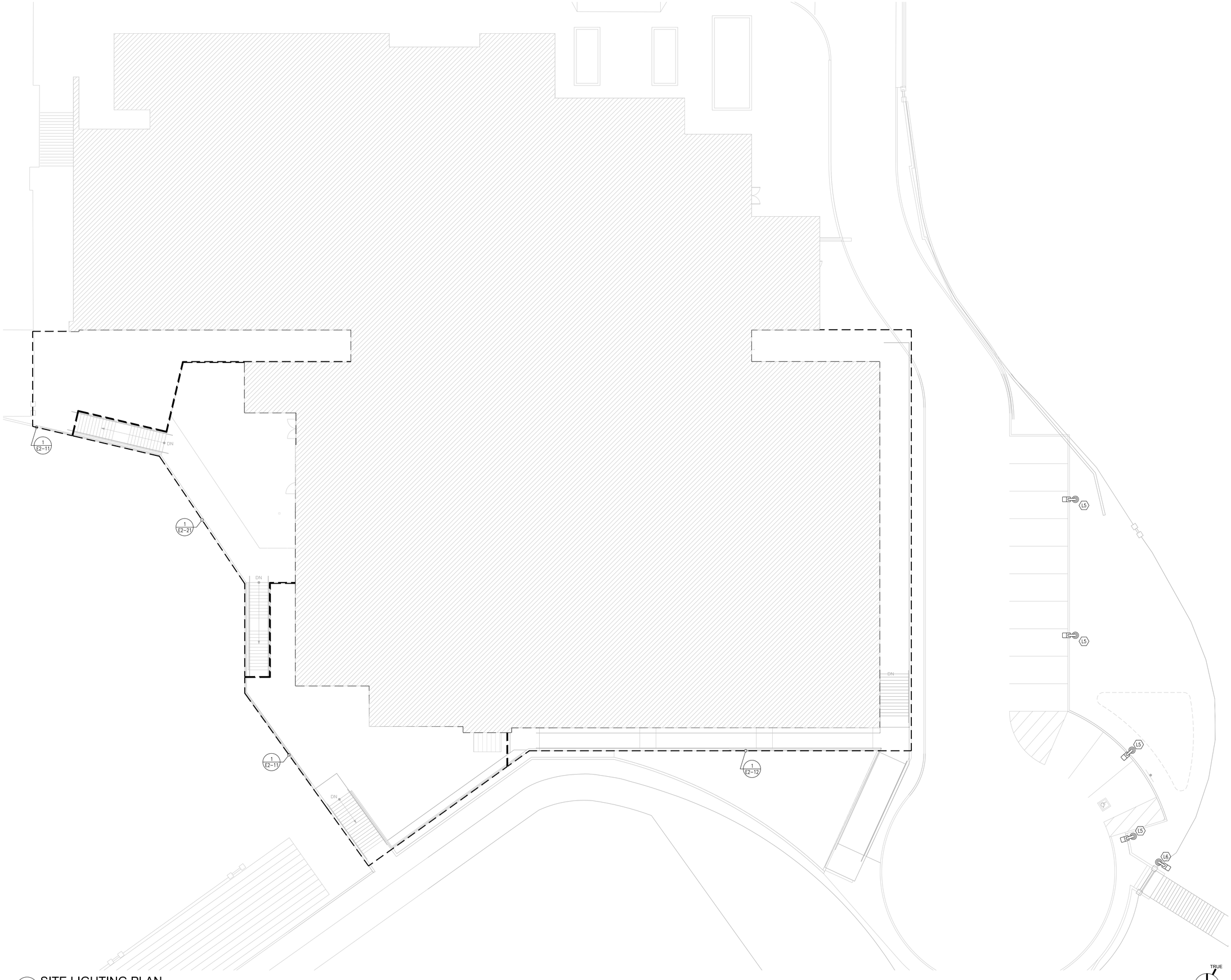
PANEL SCHEDULE AND LIGHTING FIXTURE SCHEDULE

E0-10

10/25/2019 1:06:49 PM

P:_PROJECTS\2019\19-08 Bishop O'Dowd High School Center\DRAWINGS\E1-20 SITE GROUND FLOOR LIGHTING PLAN.dwg



1 SITE LIGHTING PLAN
3/32" = 1'-0"

TRUE

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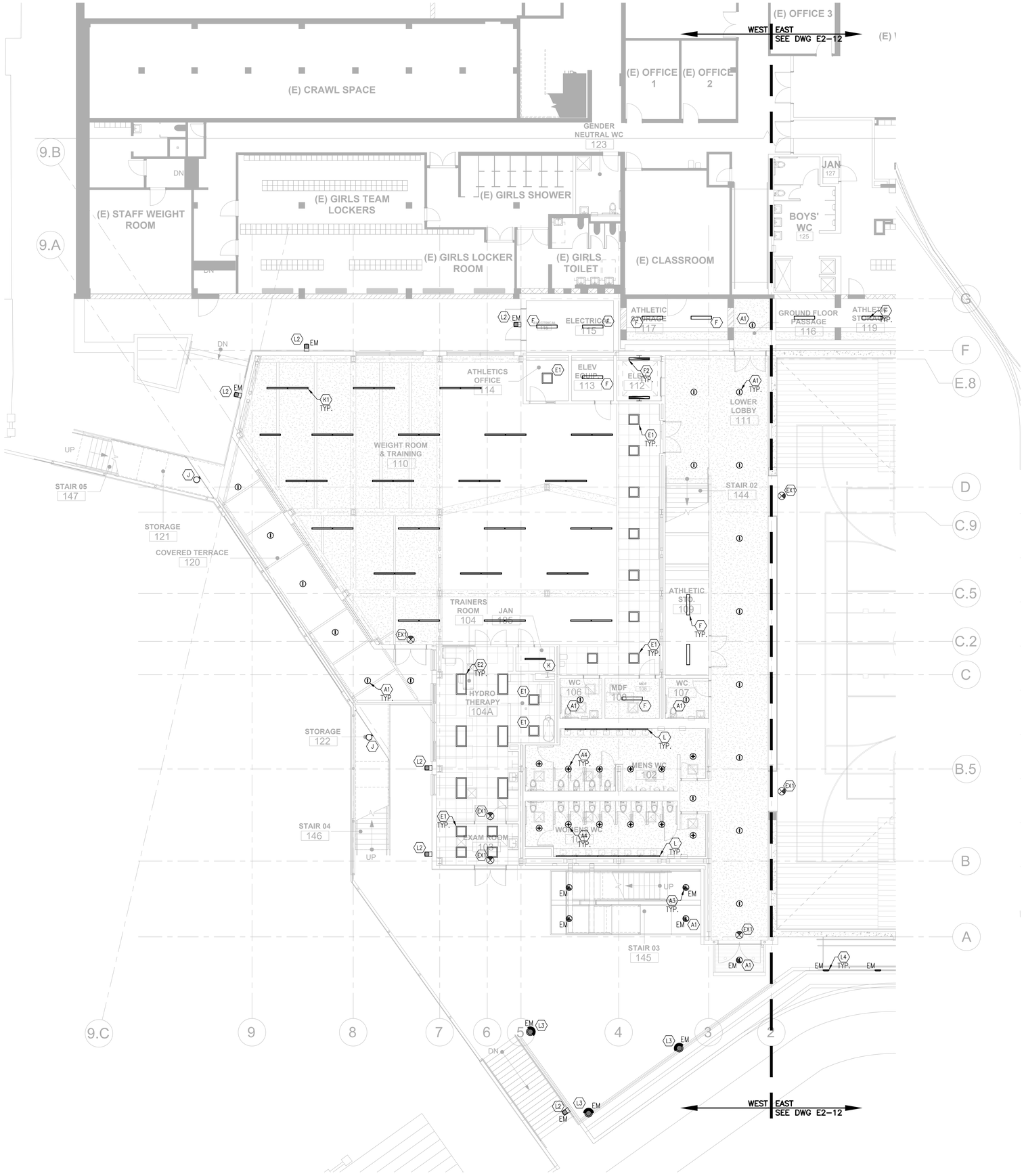
SITE LIGHTING PLAN

E1-10

10/25/2019 1:05:37 PM

P:_PROJECTS\2018\18-08 Bishop O'Dowd High School Center\DRAWINGS\E2-11 ENLARGED LIGHTING PLANS - LOWER LEVEL.dwg



GENERAL NOTES

A. XXXXX

SHEET NOTES

1. XXXXX

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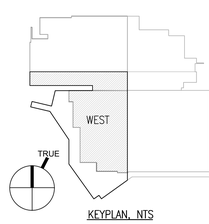


KEYPLAN, NTS

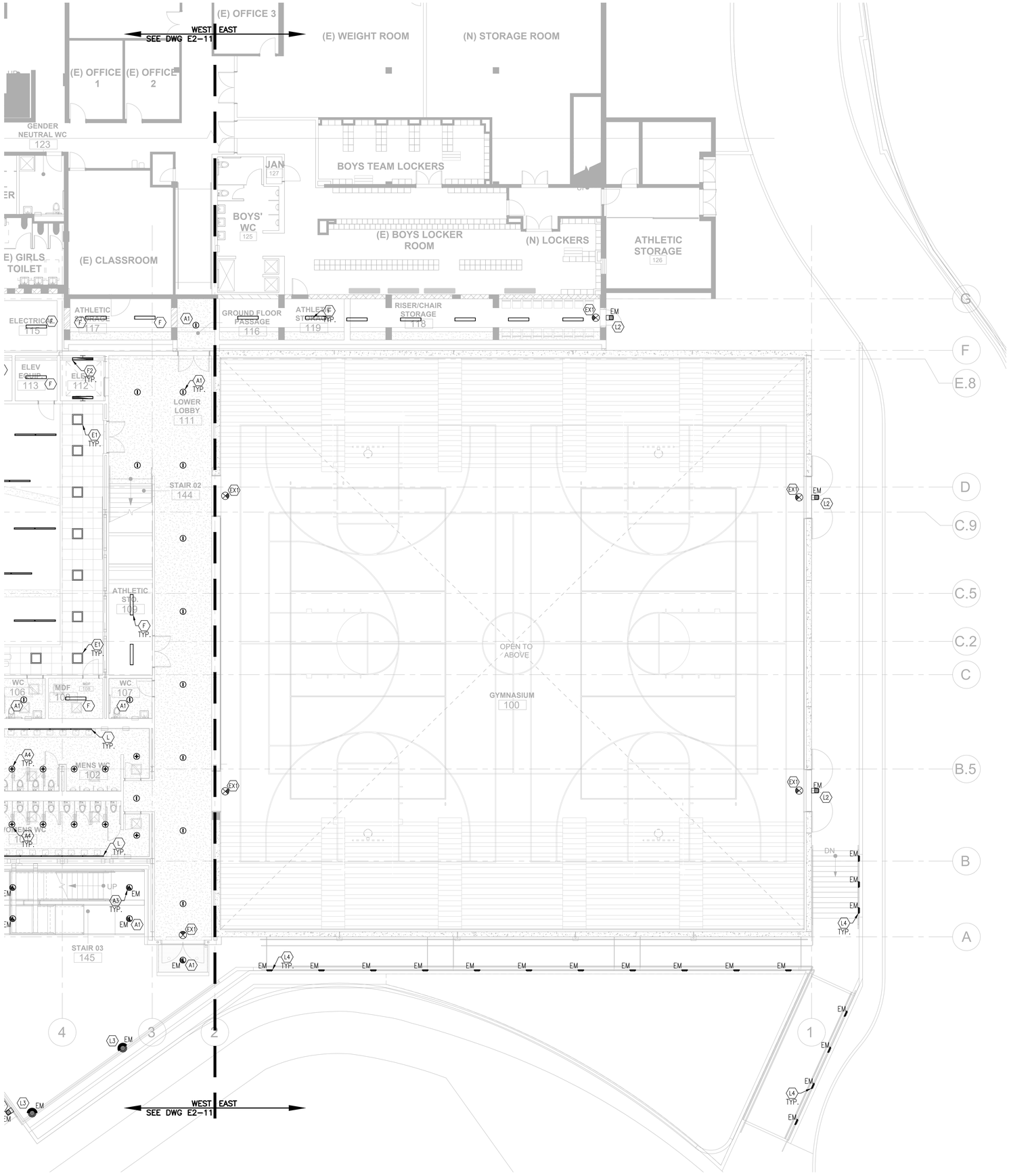
ENLARGED LIGHTING PLAN - LEVEL 1 WEST

E2-11

1 ENLARGED LIGHTING PLAN - LEVEL 1 WEST
1/8" = 1'-0"

9/2/2019 9:35:34 AM

P:_PROJECTS\2019\19-08 Bishop O'Dowd High School Center\DRAWINGS\E2-11 ENLARGED LIGHTING PLANS - LOWER LEVEL.dwg



1 ENLARGED LIGHTING PLAN - LEVEL 1 EAST
1/8" = 1'-0"

GENERAL NOTES	
A.	XXXXX

SHEET NOTES	
1	XXXXX

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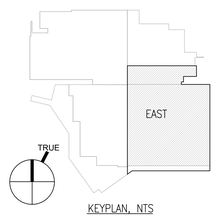

KEYPLAN, NTS

ENLARGED LIGHTING PLAN - LEVEL 1 EAST

E2-12

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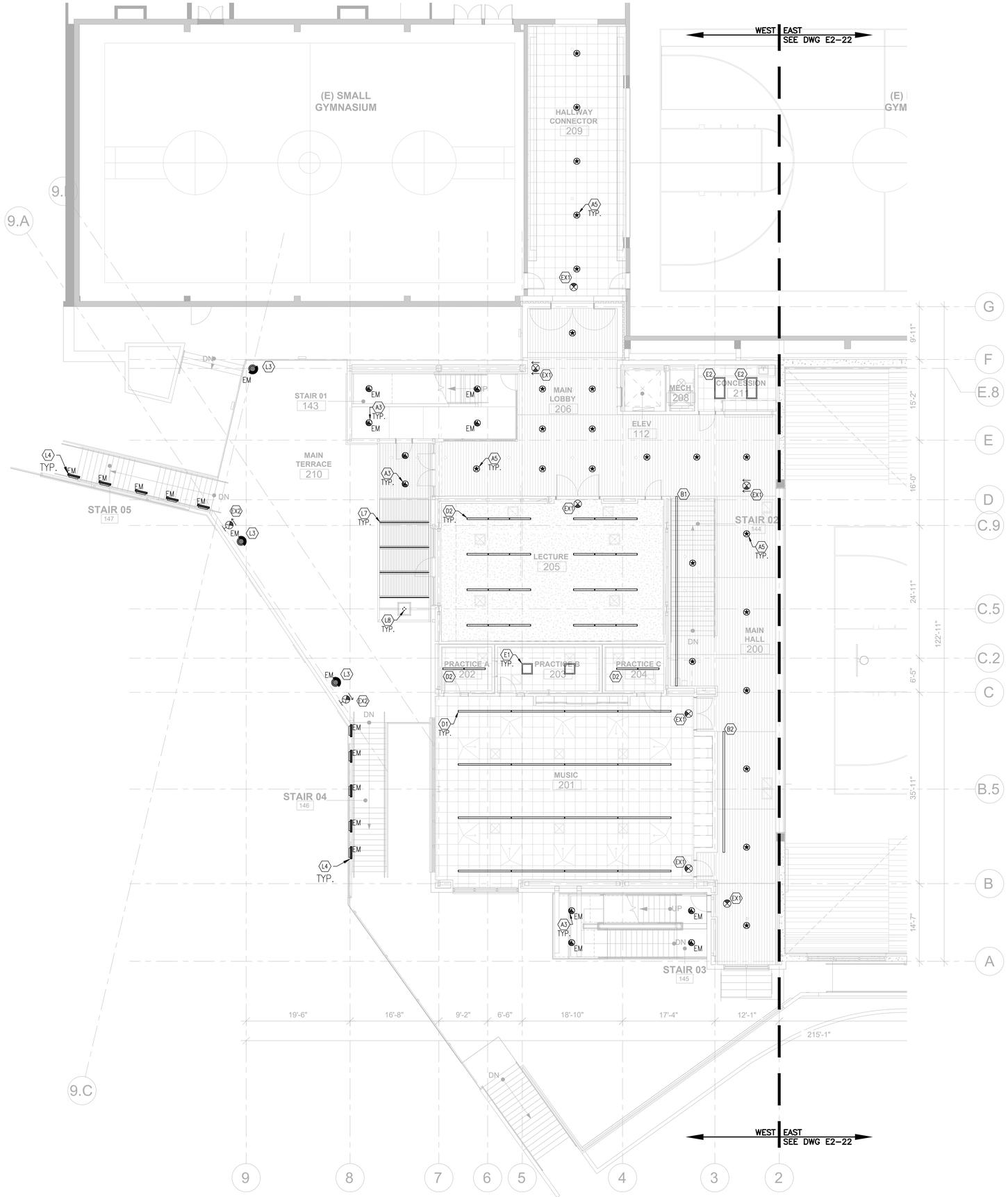

1 ENLARGED LIGHTING PLAN - LEVEL 2 WEST
1/8" = 1'-0"

GENERAL NOTES

A. XXXXX

SHEET NOTES

1 XXXXX

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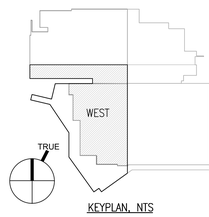
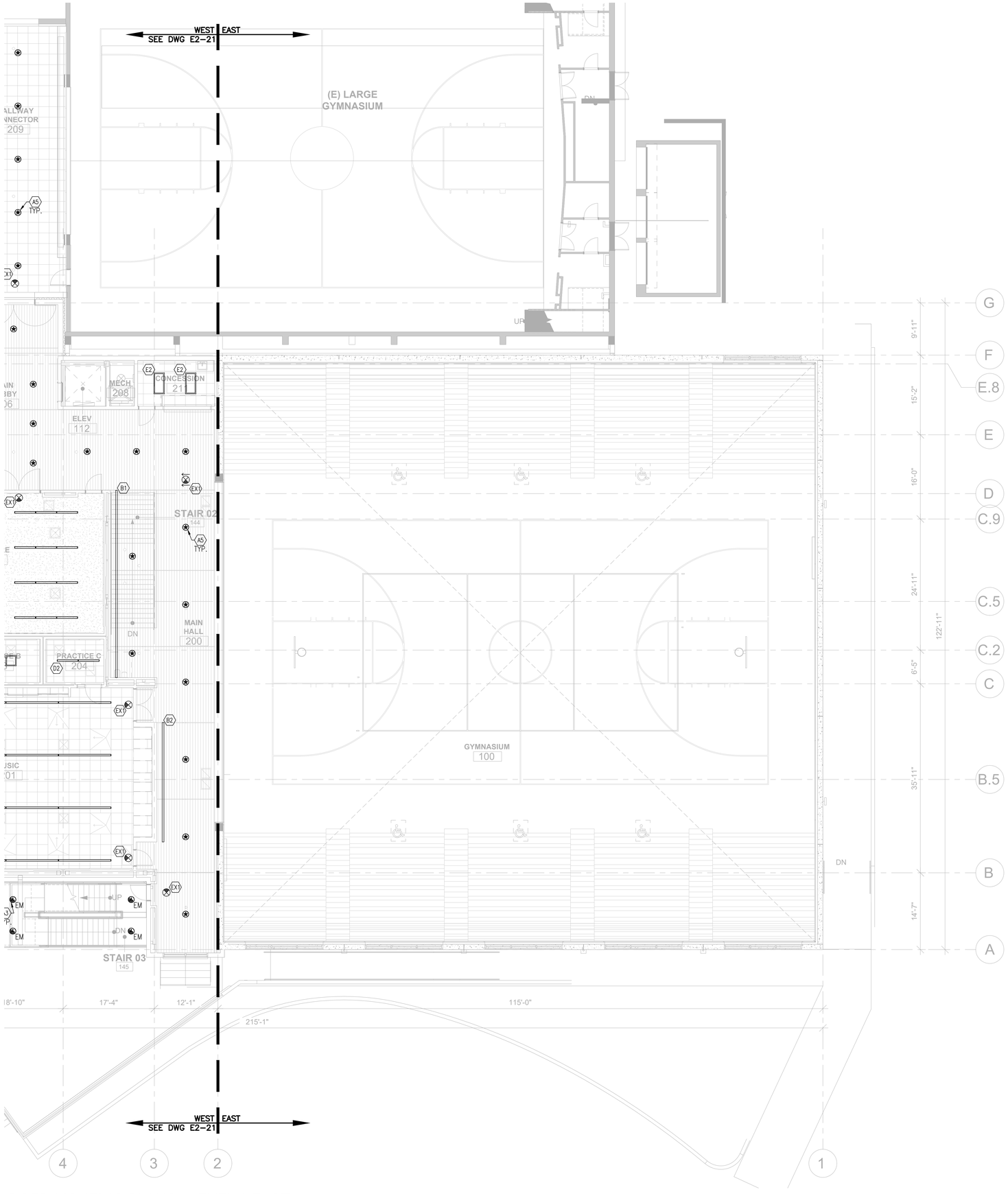


KEYPLAN, NTS

ENLARGED LIGHTING PLAN - LEVEL 2 WEST

E2-21

P:_PROJECTS\2019\19-08 Bishop O'Dowd High School Center\DRAWINGS\E2-2x ENLARGED LIGHTING PLANS - MAIN LEVEL.dwg



1 ENLARGED LIGHTING PLANS - LEVEL 2 EAST
1/8" = 1'-0"

9/5/2019 9:38:43 AM

GENERAL NOTES

A. XXXXX

SHEET NOTES

1 XXXXX

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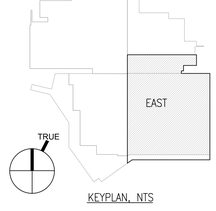
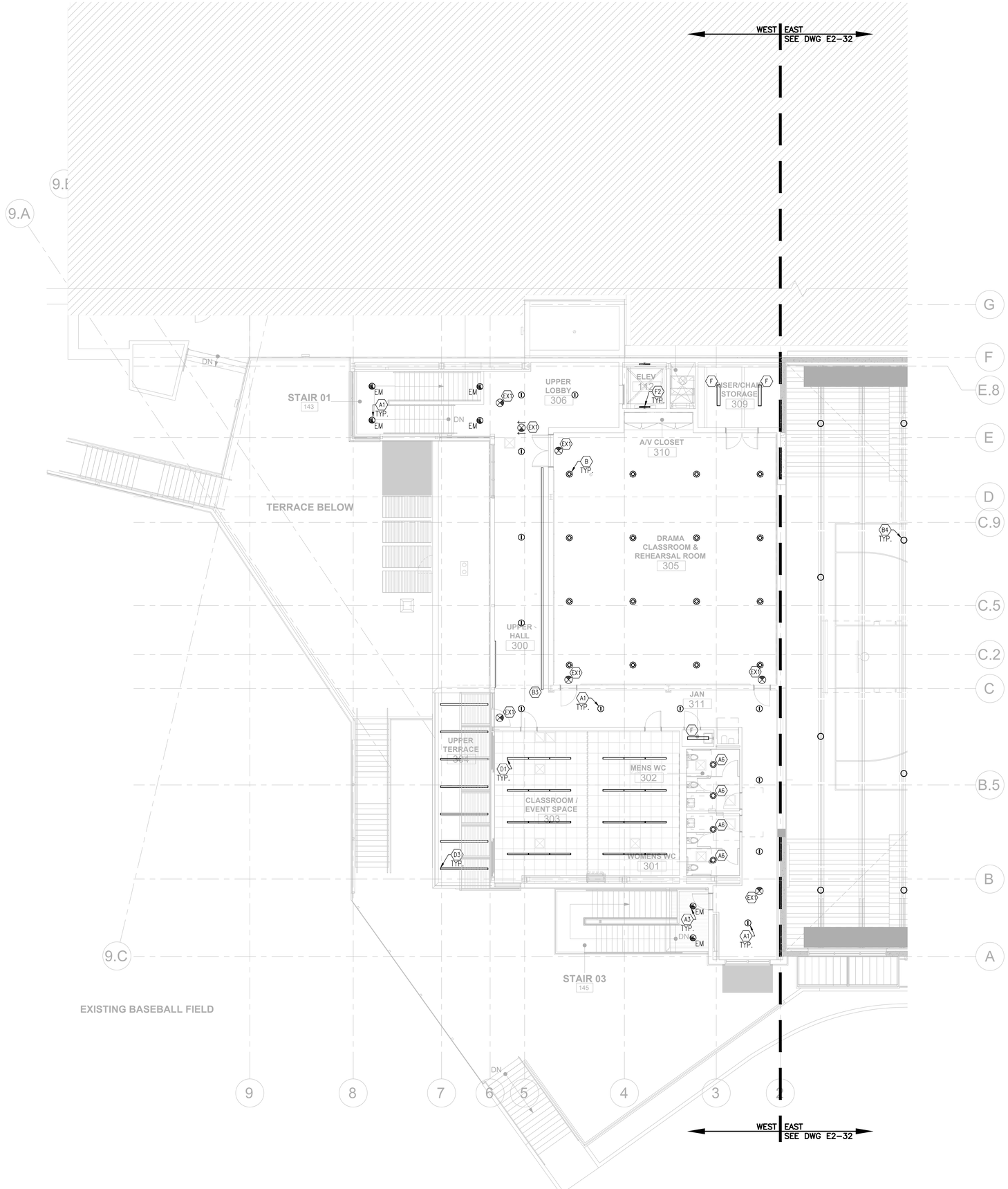


KEYPLAN, NTS

ENLARGED LIGHTING PLANS - LEVEL 2 EAST

E2-22



GENERAL NOTES

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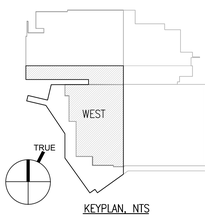


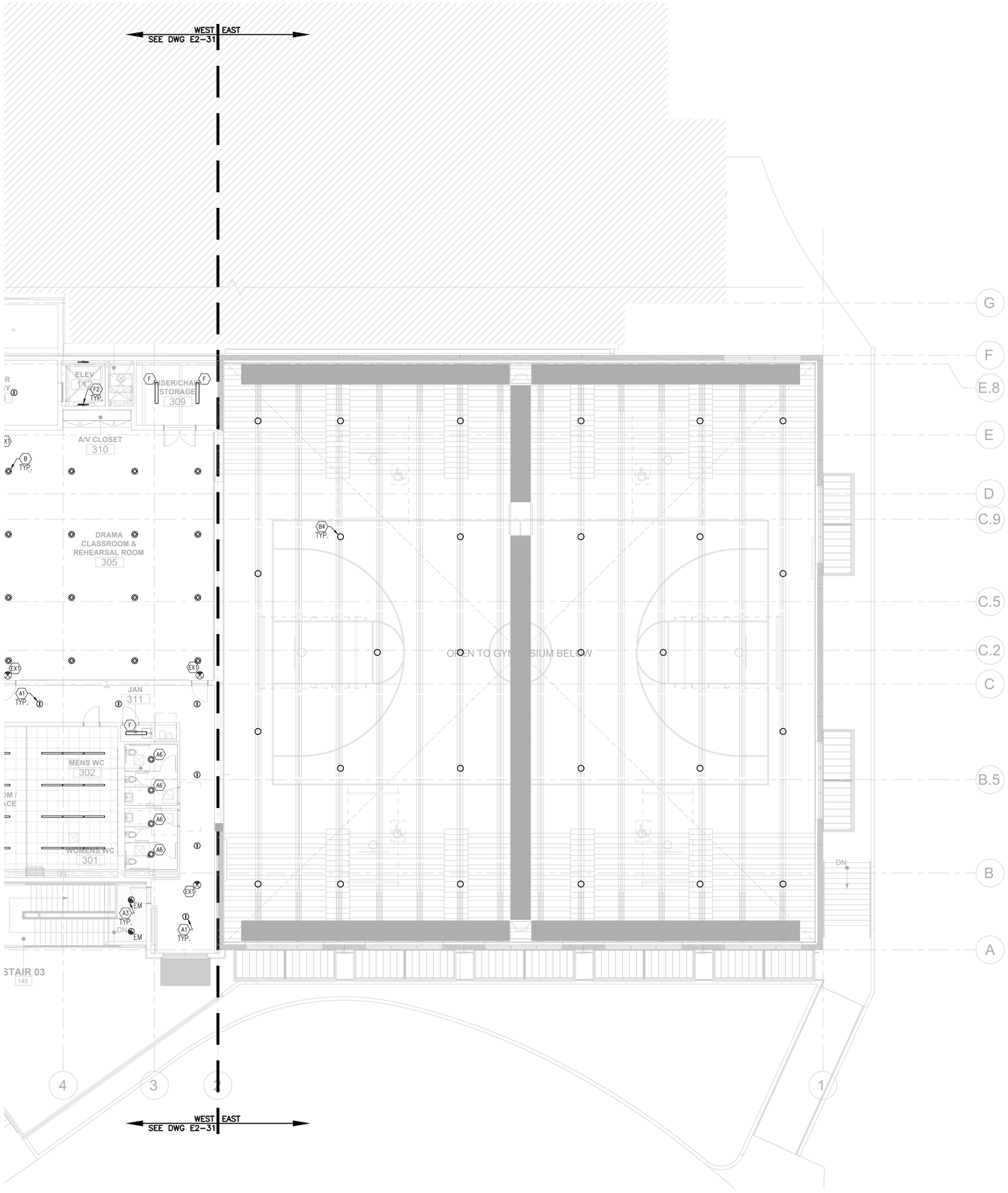
KEYPLAN, NTS

ENLARGED LIGHTING PLAN - LEVEL 3 WEST

E2-31

1 ENLARGED LIGHTING PLAN - LEVEL 3 WEST
1/8" = 1'-0"

C:_Revit local Projects\1818_ARCH_NEW GYM_R19_CENTRAL_Detail.rvt



1 ENLARGED LIGHTING PLAN - LEVEL 3 EAST
1/8" = 1'-0"

GENERAL NOTES

A. XXXXX

SHEET NOTES

1 XXXXX

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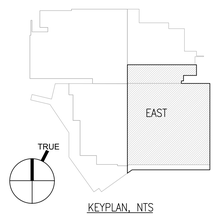


KEYPLAN, NTS

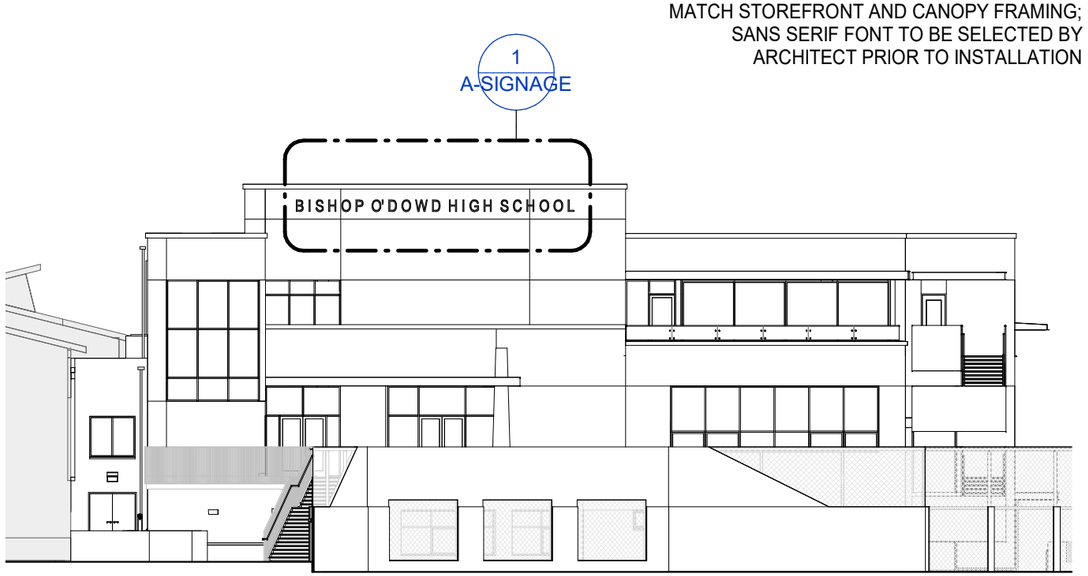
ENLARGED LIGHTING PLAN
- LEVEL 3 EAST

E2-32

9/5/2019 9:34:3 AM

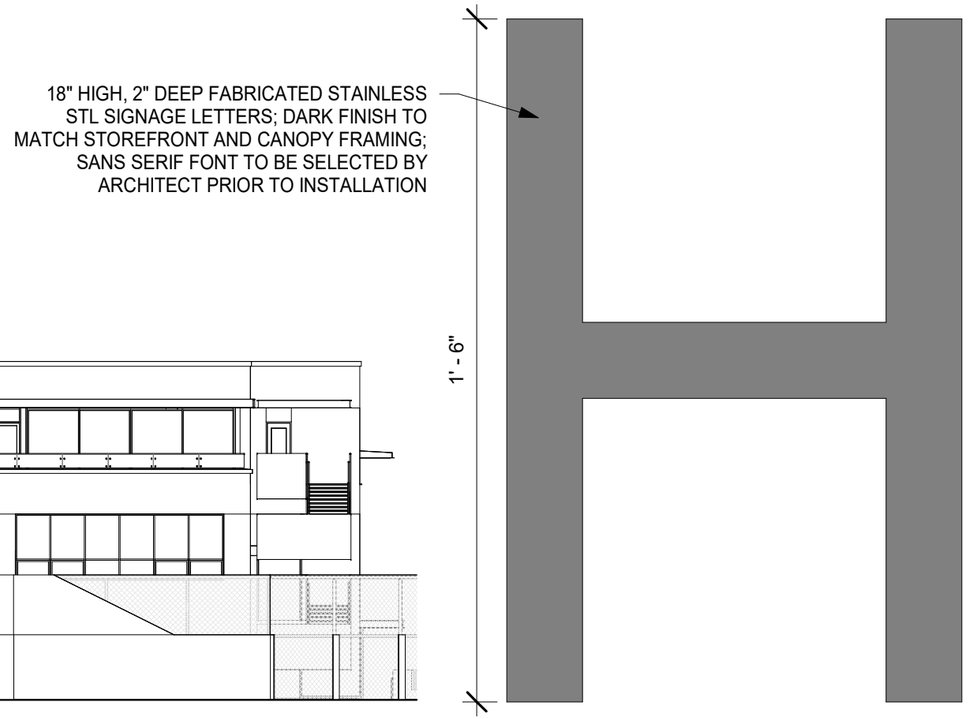
1 ENLARGED ELEVATION - SIGNAGE

3/8" = 1'-0"



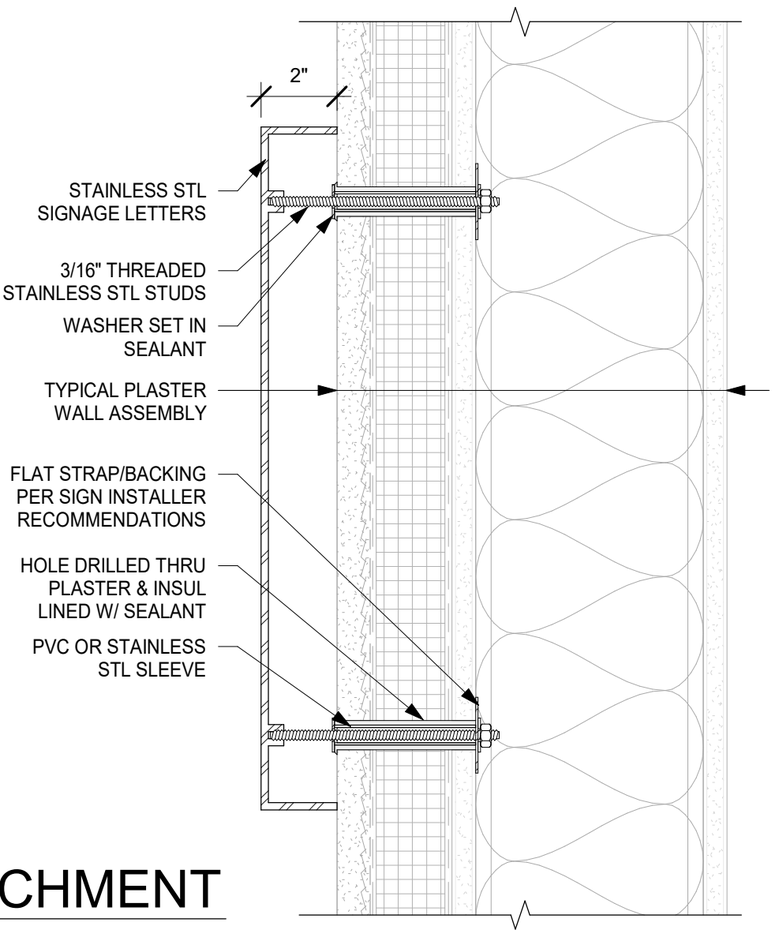
2 WEST ELEVATION - SIGNAGE

1" = 20'-0"



3 SIGNAGE ATTACHMENT

3" = 1'-0"



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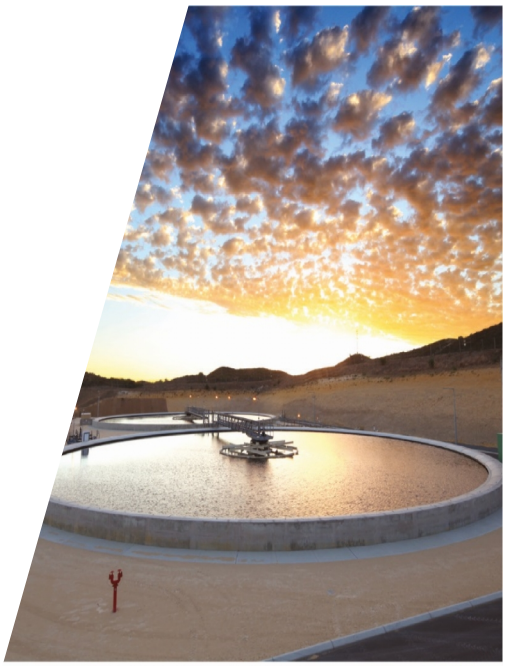
BISHOP O'DOWD HIGH SCHOOL CENTER

DRAWING NAME:	BUILDING SIGNAGE DETAILS		
PROJECT NO:	1818.00	DATE:	07/13/20
REFERENCE:		SCALE:	As indicated

A-SIGNAGE

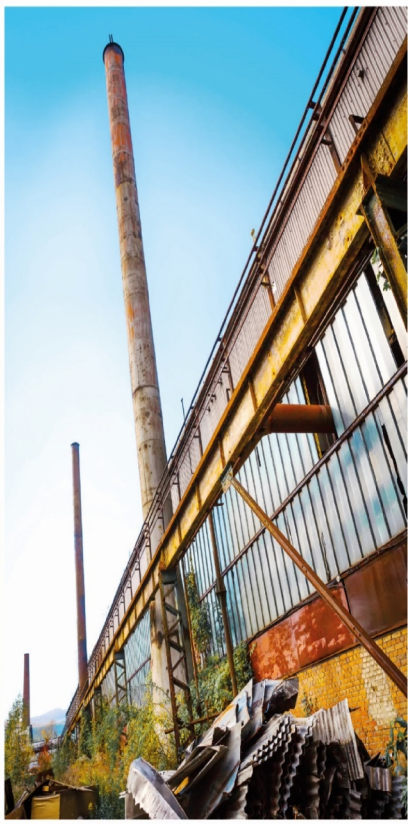


Focused Traffic Impact, Parking Demand,
And Vehicle Miles Traveled Analysis
For the Proposed

Bishop O'Dowd High School Athletic Center

Prepared for:
The City of Oakland, CA

November 20, 2020



Final Report

FOCUSED TRAFFIC IMPACT, PARKING DEMAND, AND VEHICLE MILES TRAVELED ANALYSIS FOR THE PROPOSED

BISHOP O'DOWD HIGH SCHOOL ATHLETIC CENTER PROJECT

Prepared For:

THE CITY OF OAKLAND, CA

Prepared By:

GHD Inc.

2300 Clayton Road, Suite 920

Concord, CA 94520

Final Report

NOVEMBER 20, 2020

11216692

R11216692TIA003.docx

Executive Summary

The following report provides a focused traffic analysis of the athletic Center building proposed to be built at Bishop O'Dowd High School in Oakland, California. The proposed project would consist of a new on-campus building (the "Center") for school gatherings, indoor athletics, and classroom space. The Center building would house a new gymnasium, strength and conditioning facilities, two multi-purpose rooms, and music and drama classrooms. The Center would be located on campus near the existing gym, which would be retained as a practice gym, and would replace portable classroom buildings that currently serve the music and drama departments.

Consistent with the City of Oakland's *Transportation Impact Review Guidelines*, the traffic analysis has included the following tasks:

- Calculate traffic generation associated with the Center and assess traffic operations.
- Evaluate project parking conditions, including supply and demand for games and events.
- Evaluate the site access for all travel modes.
- Assess the Transportation and Parking Demand Management Plan, and evaluate CEQA thresholds relative to vehicle miles traveled (VMT).

The proposed Center would provide increased seating capacity from the existing gymnasium's 800 seats to 1,300 seats. The larger capacity would allow all students to attend a single function at one time, whereas the current gym's capacity requires two functions to address all of the students. For events that draw attendees from offsite, most are not expected to increase in attendance as a result of the new Center, as they are accommodated within the existing gym's capacity. However, traffic operations and parking demand reflecting existing sized events and the proposed Center's maximum capacity have been evaluated.

Traffic operations at the study intersections providing access to the school would continue to function acceptably for existing attendance levels and proposed capacity levels

Parking demands associated with athletic games and non-athletic school events were evaluated relative to attendance levels and compared to the available supply of parking spaces. The onsite supply consists of the school's parking lot spaces, and additional baseball field parking for larger events. Parking demand associated with the most common attendance levels would be accommodated in the school's parking lot spaces. Parking demand for all attendance levels, including the Center's capacity of 1,300 people, can be accommodated if the supplemental baseball field parking is available.

The potential increase in annual VMT (Vehicle Miles Traveled) was evaluated relative to City of Oakland and California office of OPR guidelines. Based on the applicable screening thresholds and calculated VMT as reviewed by City staff, the project screens out.

Other transportation improvements relative to traffic and parking, including adjusting the signal timing at the Stearns Avenue/98th Avenue intersection to reduce temporary vehicle queues on Stearns Avenue after large events, installing curve warning signs on 98th Avenue as a collision reduction measure, and temporary parking control measures to preserve on-street parking for nearby residents during events, have also been presented.

Summary of Findings / Recommendations

The proposed Center building project would not significantly impact traffic operations, VMT, or parking conditions compared to existing conditions. Attendance levels associated with most athletic games and non-athletic school events are lower than the existing gymnasium's capacity of 800 people, and would not be expected to increase as a result of the project. Several athletic games with attendance at the existing gym's capacity could increase as a result of the project's additional capacity of 1,300 people. However, with attendance levels at the proposed project's capacity, traffic operations would remain acceptable and parking demand would be accommodated within the total supply of school parking areas. Higher attendance for the games at existing capacity would result in a modest annual increase in daily trips, which would not create a significant impact based on the applicable screening thresholds for VMT.

Traffic operations and parking demand associated with the proposed project would be acceptable. However, several measures identified in the report to enhance or optimize existing conditions and conditions with the project are summarized as follows:

Section 3.7: Collision History –
98th Avenue/Stearns Avenue intersection: Consideration could be given to installing "Curve Ahead" warning signs in advance of the curved section on 98th Avenue just east of Stearns Avenue.

Section 5.5: Vehicle Queuing –
To reduce temporary vehicle queuing on Stearns Avenue which can occur at the end of the school's largest events, the Stearns Avenue/98th Avenue intersection's signal timing may be conducive to increasing the maximum green time for the southbound Stearns Avenue signal phase at night when large events typically end (9:00-10:00 pm).

Section 6.4: Parking –
Attendance levels for most events have parking demands accommodated in the school parking lot spaces without needing the supplemental baseball field parking. Parking demand for all attendance levels can be accommodated with the supplemental baseball field parking.

Baseball field parking would be necessary for approximately 14 events per year (5-8 basketball games and 6 school events). Although very infrequent, rain or other factors might render the field unusable. To guarantee that an adequate supply of parking spaces is available should the field not be usable, providing offsite parking with shuttle service would ensure adequate parking supply is available. Based on the City's Municipal Parking Code the project applicant would prepare a shared parking agreement (acceptable to City staff) to guarantee off-site facilities are available during these "peak event" activities if the field is not available.

To minimize parking and traffic congestion for the school's largest non-athletic event(s) that generate parking demand over 500 vehicles (over 1,200 attendees), offsite parking with shuttle service, which the school has historically provided, should continue to be provided.

If large event street parking occupies spaces in front of the residential homes on Stearns Avenue opposite the school, consideration could be given to implementing temporary parking prohibitions for event attendees (using signs or moveable barriers) to preserve street parking for the residents.

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Appendix Index

1. Introduction

Bishop O'Dowd High School is proposing to modernize current programs for their athletic, school gatherings, and co-curricular experiences. To that goal, a proposed 36,397 square-foot "Center" building would be constructed on the existing campus and include the following components:

- New Gymnasium;
- Strength and Conditioning Facilities;
- Music Classroom & Drama Classroom;
- Two Multi-Purpose Rooms

The Center will have a maximum seating capacity for 1,300. In addition to providing new gym space, the Center would replace other existing gym space and portable classrooms currently housing Bishop O'Dowd's music and drama programs.

Based on direction from City of Oakland Planning staff and Department of Transportation staff, focused transportation analyses for the proposed project has been conducted with the methodology described in the City of Oakland's *Transportation Impact Review Guidelines* (TIRG, April 2017) and includes document review, accident history analysis, trip generation analysis, parking demand analysis, and VMT analysis. Some of the key components of this study include the following:

- Review and summary of the "Bishop O'Dowd High School Center Project Overview" document provided to the City of Oakland and surrounding neighborhood by Bishop O'Dowd staff. Review of consistency with City of Oakland Plans and Policies associated with proposed project development;

- Traffic generation associated with events in the existing gym and the proposed Center, including overlapping events, based on capacity and attendance projections. Events consist of athletic games and non-athletic school events, such as plays, musical or informational programs, and several school-wide events. As part of this task, operations of local intersections serving the Bishop O'Dowd campus were analyzed for operating conditions and potential vehicle queuing issues, including the 98th Avenue/Stearns Avenue, 98th Avenue/Stanley Avenue, and Stearns Avenue/Burr Street intersections.

- Parking demand associated with athletic games and school events generated by the Center. Parking demand and intersection operations based on data collection conducted for the Bishop O'Dowd campus prior to Covid-19 conditions.

- Vehicle miles traveled (VMT) analyses have been conducted to assess the proposed project's impacts on vehicle travel. The VMT analysis was based on screening thresholds established by the Governor's Office of Planning and Research and the City of Oakland Traffic Impact Review Guidelines, combined with VMT modeling/mapping provided by the Alameda County Travel Demand Model.

2. Document Review

Bishop O'Dowd High School Center Project Overview

A review of the applicant's project overview has the following highlights and relevant information associated with project background, needs, and planned operations *(Ms. Kim Walsh, President Emeritus, Bishop O'Dowd High School, "Bishop O'Dowd High School Center Project Overview", 2020)*:

The proposed Center project would be designed to modernize the school's athletic facilities, replace existing portable music and drama classrooms, and primarily to improve school function capabilities for the student body. The new facility would accommodate all students at one time, whereas currently, the student population is unable to gather inside at one time due to the existing gymnasium's size limitations and must hold two sessions to address all students. A larger gym facility would also provide greater flexibility to schedule sports-related practices.

Bishop O'Dowd High School's typical hours of operation extend between 8:30 a.m. to 3:00 p.m. on a weekday for student/staff arrival and departures. The School maintains a visible security team to direct and facilitate traffic flows in and around the campus. In addition, the School has a "closed campus" policy that minimizes vehicular ingress/egress during school hours.

The Project Overview describes Bishop O'Dowd's Transportation Demand Management (TDM) program. Several of the measures implemented to reduce overall traffic volumes include:

- Alameda-County Transit Routes provide transit service to the school campus. Approximately 150 students commute to/from the campus using these transit lines.
- School shuttles are available to/from BART during the morning, afternoon, and evening hours.
- A carpool/rideshare program for students/faculty living in adjacent demographic areas.
- Priority parking for carpoolers and zero-emissions vehicles.
- School drop-off/pick-up areas in the main lot and on 98th Avenue, to facilitate traffic flows and prevent significant vehicle queuing.

City of Oakland Transportation Impact Review Guidelines

City Planning and Transportation staff were consulted in the development of the proposed project scope-of-work for transportation analyses. *(Ms. Brittany Lenoir, Planner II, City of Oakland, Review and comments on Bishop O'Dowd High School Athletic Center Transportation Scope-of-Work, GHD, July 13, 2020)*. In addition, the transportation analysis has been based on the City of Oakland's Traffic Impact Review Guidelines (TIRG). The primary analysis components of the TIRG are highlighted below as detailed in Table 1 of the document *(City of Oakland, Transportation Impact Review Guidelines, Land Use Development Projects, April 4, 2017)*:

Project Summary
- Project Description
- Study Area Description

Travel Analysis
- Trip Generation
- Transportation Counts/Surveys
- Collision History/Analysis

Transportation Demand Management
- Transportation Demand Management (TDM) Plan
- TDM Compliance

CEQA Analysis
- Consistency with Plans
- Detailed VMT Analysis
- Mitigations (if applicable)

City of Oakland Planning Codes and Policies

Additional City of Oakland municipal codes and policies were reviewed pertaining to the project's potential traffic and parking conditions. Including the City's Off-Street Parking and Loading Requirements as identified in Section 17 of the Planning Code *(City of Oakland Planning Code, Chapter 17.116, Off-Street Parking and Loading Requirements)*:

- Section 17.116.040 - Determination by Director of City Planning.
- 17.116.170 - Property on which parking and loading must be provided.
- 17.116.180 - Conditions for off-street parking or loading.

The project study components associated with the transportation analysis for the proposed Bishop O'Dowd Athletic Center are presented in the following sections.

3. Setting

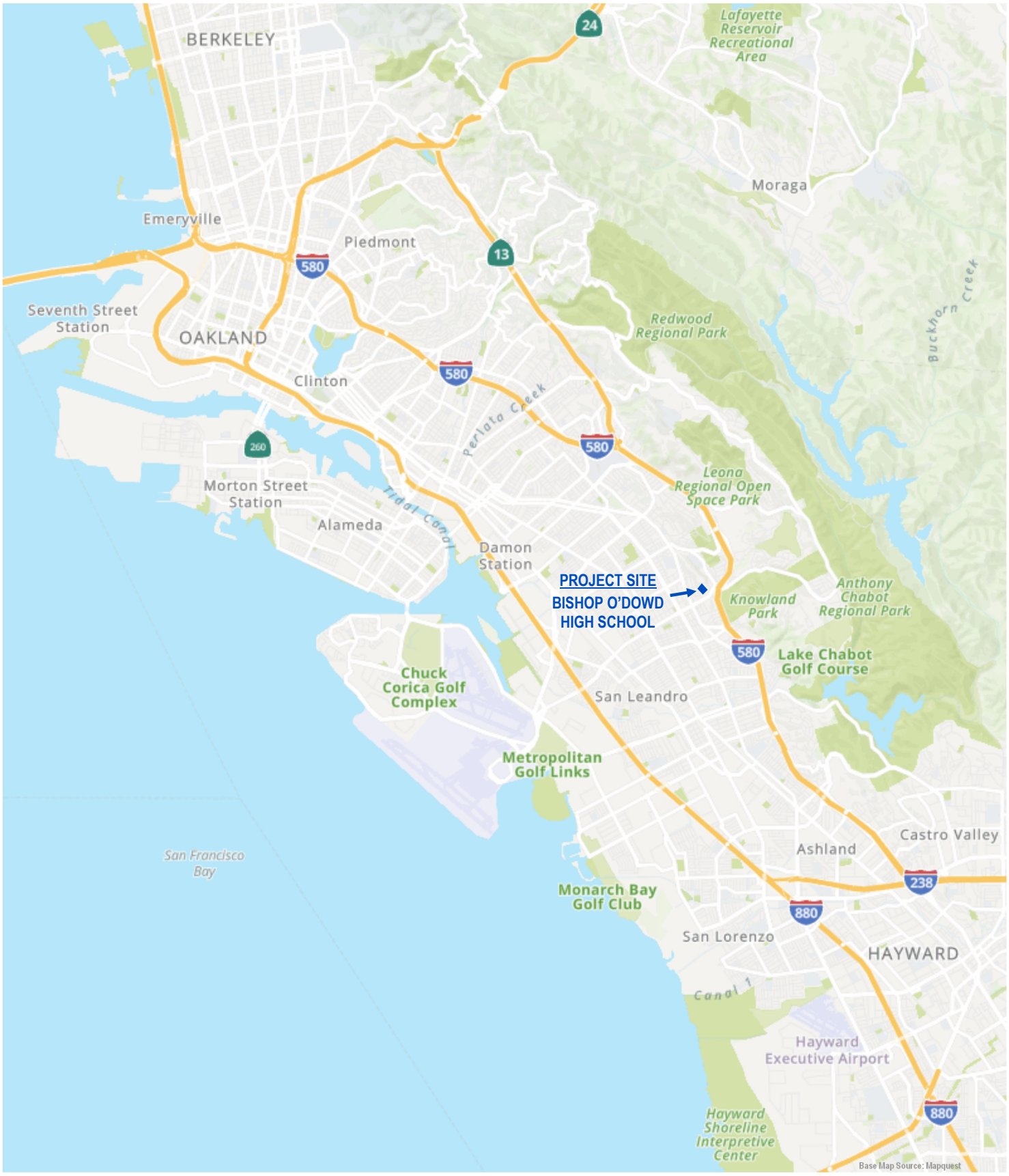
3.1 Study Area

Bishop O'Dowd High School is located at 9500 Stearns Avenue, Oakland, on the western side of the I-580 freeway. Specifically, the school grounds are located on the northwest corner of the 98th Avenue/Stearns Avenue intersection. There are two school parking lots, both of which are accessed via Stearns Avenue between 98th Avenue and Burr Street. There is also a drop-off/pick-up area located on 98th Avenue near Stanley Avenue. A vicinity map of the school location is provided in Figure 1. The existing school site plan is shown in Figure 2.

3.2 Proposed Project Description

The proposed project would consist of a 36,397 square feet multi-purpose athletic/event building (termed the "Center"), which would provide a modernized facility compared to the existing gymnasium building. The new Center would include a gymnasium, strength training facilities, sports medicine center, multipurpose room, and music and drama classrooms. The Center would be constructed near the existing gym building and connect to it via a hallway, with the existing gym remaining as a practice gym. The new Center would also replace existing portable classrooms that currently serve as the music and drama classrooms. The proposed project site plan is shown in Figure 3.

The proposed Center would provide 1,300 seats in bleachers compared to the existing gym which has 400 bleacher seats, but can accommodate up to 800 with additional temporary seating for athletic events. School representatives state the primary purpose of the new gym is to provide a gathering space large enough to accommodate the entire student and faculty population at one time for school functions such as masses, assemblies, and rallies which currently cannot be done given the existing gym capacity. The added athletic space will also allow for increased flexibility of practice schedules for indoor sports athletic teams.



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Bishop O'Dowd High School Vicinity Map

FIGURE 1

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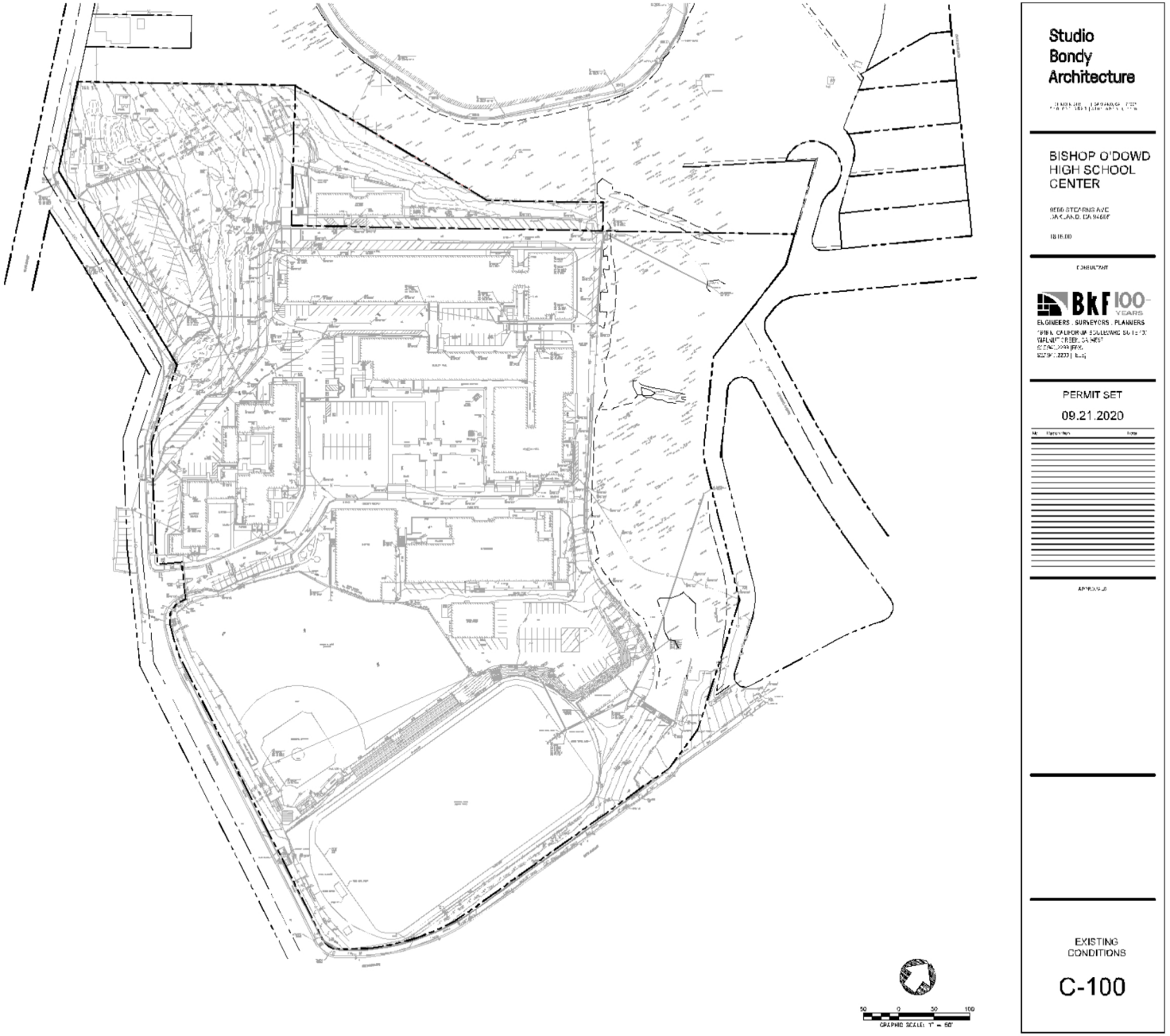

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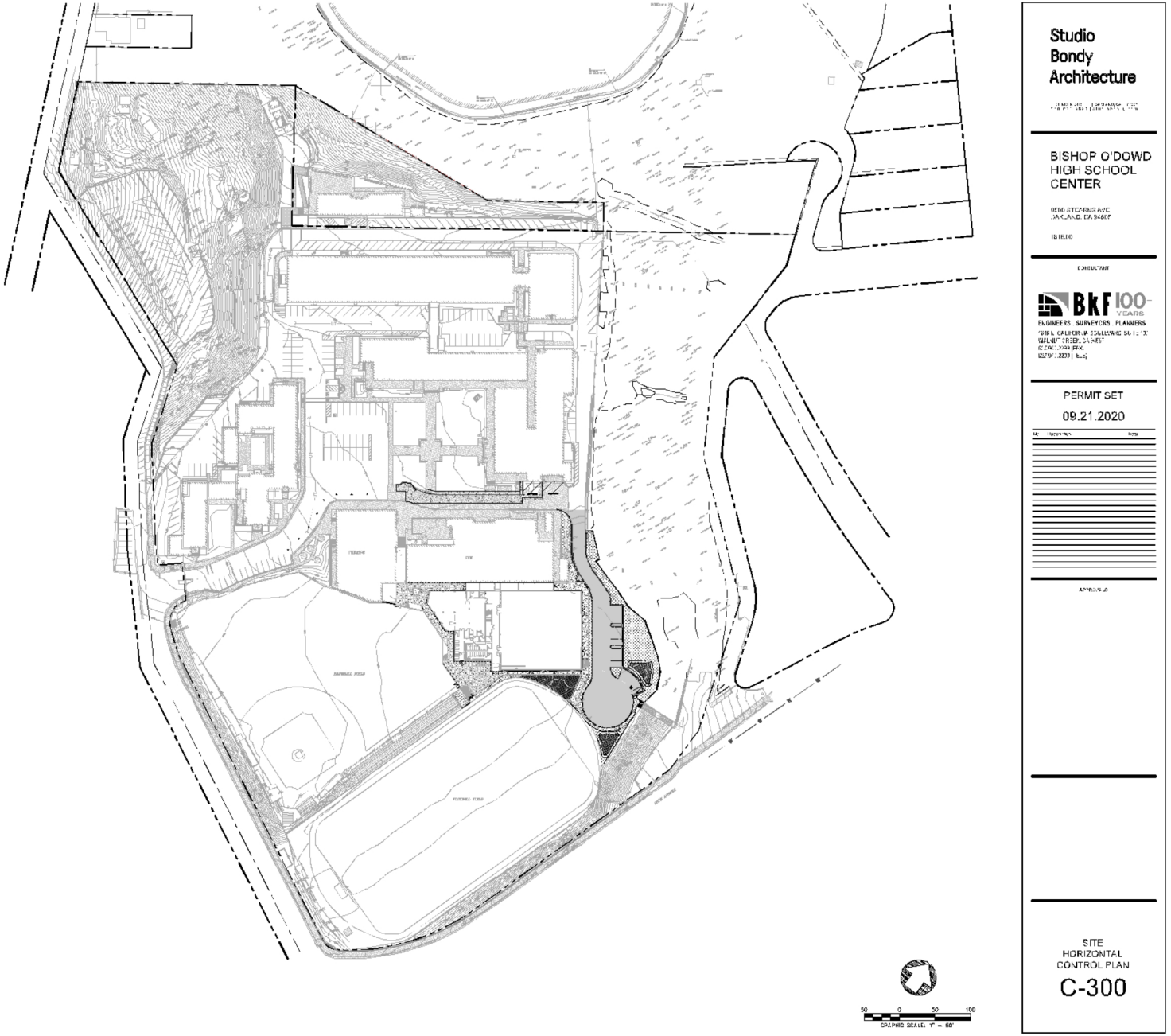
Existing Site Plan

FIGURE 2



GHD

Proposed Site Plan

FIGURE 3

3.3 Street Network

Roadways in the school vicinity include the following:

98th Avenue extends west from Golf Links Road near I-580 through the City of Oakland to I-880 and Bay Farm Island. The City of Oakland classifies streets into five categories: Local Streets, Collector Streets, Arterial Streets, Transit Streets, and Truck Routes (*City of Oakland General Plan, Land Use and Transportation Element, March 1998*). 98th Avenue is classified as a Regional Transit Street, indicating it is an arterial street where a continuing high level of transit service is to be provided and have priority for service and transit preferential treatments. In the vicinity of Bishop O'Dowd it is 72-80 feet wide consisting of four through lanes (two each way) with raised center medians and separate turn lanes at major intersections.

Stearns Avenue is a two lane local road along the school frontage between 98th Avenue and Burr Street, (94th Avenue continues west from Burr Street). Stearns Avenue also extends south of 98th Avenue approximately 1/4 mile where it terminates at 99th Avenue. The intersection at 98th Avenue has signalized traffic control, and the Burr Street intersection consists of all-way stop-sign control.

Stearns Avenue provides direct access to residential units on the west side of the street opposite the school frontage and to residential units on both sides of the street south of 98th Avenue. Stearns Avenue provides direct access to the school's two parking lots located on the east side between 98th Avenue and Burr Street. Stearns Avenue provides two-way travel between 98th Avenue and the primary school parking lot, then becomes one-way toward Burr Street. The two-way section is approximately 34 feet wide (17 foot travel lanes, but parked vehicles narrow the travel lanes to approximately 10 feet wide). The one-way section narrows to approximately 20 feet wide. Unrestricted street parking is allowed on the west side. Parking on the east side (school frontage) is allowed between 98th Avenue and the main parking lot entrance, but is prohibited on school days from 8:00 am to 4:00 pm.

Burr Street is a local residential street located just west of the school that extends in a primarily north-south direction between Thermal Street and Cherokee Avenue. The segment between Thermal Street and Lawlor Street provides two-way travel, then Burr Street becomes a one-way southbound street to Cherokee Avenue. North of Stearns Avenue it is approximately 15 feet wide with mostly unimproved shoulder areas. South of Stearns Avenue it widens to approximately 22 feet with improved shoulders and sidewalks.

MacArthur Boulevard is located approximately four blocks west of the school and extends from I-580 to downtown Oakland. It is classified as a Regional Transit Street. Near the 98th Avenue intersection, MacArthur Boulevard is approximately 54 feet wide and transitions from four travel lanes with yellow centerline striping south of 98th Avenue to two lanes with center medians and a two-way left-turn lane north of 98th Avenue.

Stanley Avenue intersects 98th Avenue approximately 300 east of Stearns Avenue, forming a T-intersection with stop-sign control for the Stanley Avenue approach, and extends southeast to Foothill Boulevard. It is a local street ranging from 24-26 feet wide with unimproved shoulders for most of its length, but is approximately 30 feet wide with raised curb & gutter along the west side extending south from 98th Avenue for approximately 130 feet.

Golf Links Road is located north of the school and is oriented in an east-west direction extending from Fontaine Road west of I-580 to Grass Valley Road east of I-580, providing access to the Oakland Zoo and Lake Chabot golf course. It varies in width and adjacent land use, from a two lane residential local-collector street west of 98th Avenue, to four lanes with separate left-turn lanes between 98th Avenue and the I-580 freeway ramps, to a two lane collector-arterial road east of the freeway. Access to/from the I-580 freeway is provided via northbound on/off-ramps and a southbound off-ramp. (The southbound on-ramp is accessed from 98th Avenue.)

Interstate 580 (I-580) is a freeway that extends through the City of Oakland and Alameda County, continuing west to State Route 101 in Marin County and east to Interstate 5 in San Joaquin County. In the project vicinity it is an eight lane divided facility (four lanes in each direction). Freeway ramps nearest to the school are located on Golf Links Road and 98th Avenue.

3.4 Transit Facilities

Public transit service is provided by the Alameda-Contra Costa Transit District (AC Transit). City of Oakland has a robust transit system consisting of a substantial number of transit routes. Bus routes provide service throughout Oakland and also connect to regional transit service hubs such as BART and Amtrak.

Bus stops nearest the school are located on 98th Avenue just west of the Stearns Avenue intersection. The westbound stop (Bishop O'Dowd-Cherokee Avenue Stop) consists of a bus pull-out (curb-cut) area. The eastbound stop does not have pullout area, but a wide shoulder/parking lane allows buses to stop out of the flow of traffic. Additional bus stops further from the school are located on 98th Avenue to the east near Las Vegas Avenue and to the west near Lawlor Street, MacArthur Boulevard, and further west.

There are School service routes serving the school and Local transit routes within several blocks of the school. A map of the service routes in the vicinity of the school is provided in Figure 4. The service routes are described as follows:

There are three “School” routes which stop at the Bishop O’Dowd bus stops located on 98th Avenue at Stearns Avenue. These routes have service times intended to serve students arriving in the morning and departing in the afternoon.

AC Transit Route 680: This route provides weekday service between Bishop O’Dowd High School and locations northwest to/from Lakeshore Avenue/Lake Park Avenue (Lake Merritt area), primarily along MacArthur Boulevard. There is one morning bus (arrives Bishop O’Dowd 8:10 am) and one afternoon bus (departs Bishop O’Dowd 3:17 pm).

AC Transit Route 682: This route also provides weekday service in the morning and afternoon. The route provides service between Bishop O’Dowd High School and locations to the north to/from 40th Street/Broadway, primarily along I-580 and SR-13 with stops in the Montclair and Broadway Terrace areas and along Broadway. Three service times are provided in the morning (arrives Bishop O’Dowd at 8:07 am, 8:09 am, and 8:11 am). One service time is provided in the afternoon (departs Bishop O’Dowd 3:17 pm).

AC Transit Route 652: This route provides service between 90th Avenue/International Boulevard and Skyline High School, primarily along 90th Avenue, MacArthur Boulevard, and 98th Avenue west of Bishop O’Dowd, and Mountain Boulevard, Sequoyah Road, and Skyline Boulevard east of Bishop O’Dowd. The route provides weekday service with one eastbound morning bus (from 90th Avenue to Skyline High School), arriving Bishop O’Dowd at approximately 7:10 am. Two service times are provided in the afternoon in the westbound direction (from Skyline High School to 90th Avenue), arriving at Bishop O’Dowd at approximately 2:00 pm and 3:30 pm.

There are several additional transit routes within several blocks of the school, primarily on MacArthur Boulevard with stops at the 98th Avenue intersection.

AC Transit Route 57: This route provides service between the Foothill Square shopping center (located south of Bishop O’Dowd) and Emeryville near the Powell Street Plaza and the Emeryville Public Market. The route travels primarily on MacArthur Boulevard and 40th Street. It includes stops at the Eastmont Transit Center and MacArthur BART station. Daily service is provided from approximately 5:00 am through the day to 12:30 am, with headways of approximately 20 minutes.

AC Transit Route 90: This route provides service between Foothill Square and the Coliseum BART Station, along MacArthur Boulevard, 90th and 85th Avenues, International Boulevard, and San Leandro Street. It provides weekday service from approximately 6:00 am to 11:20 pm with 20 minute headways, and weekend service from 6:00 am to 10:15 pm with 30 minute headways.

AC Transit Route 98: This route provides service between the Eastmont Transit Center and Coliseum BART station along MacArthur Boulevard, 98th Avenue, Edgewater Drive, and 66th Avenue. It provides weekday service from 6:00 am to 11:20 pm with 20 minute headways, and weekend service from 6:00 am to 10:40 pm with 30 minute headways.

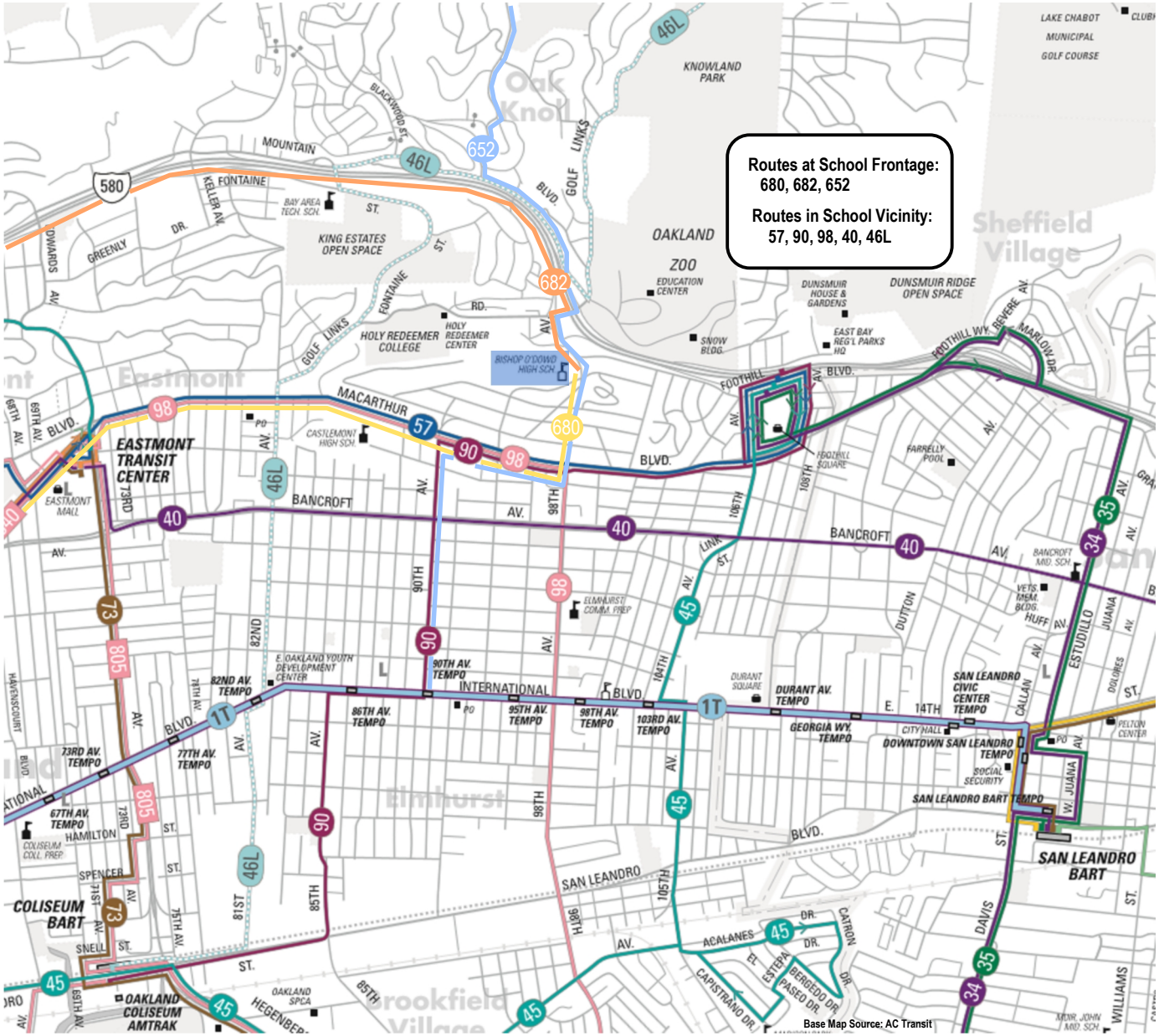
Two additional routes located somewhat farther from the school include Route 40 and Route 46.

AC Transit Route 40: This route is located along Bancroft Avenue west of Bishop O'Dowd, with a stop at 98th Avenue. The route provides service between the Bayfair BART station and downtown Oakland Civic Center- Broadway area, including stops at the Eastmont Transit Center, Lake Merritt BART, 12th Street BART, and 19th Street BART stations. It provides daily service from approximately 5:20 am through the day to 12:30 am with headways of 4-15 minutes between the Eastmont Transit Center and downtown Oakland. There are fewer service times for the portion of the route between the Eastmont Transit Center and the Bayfair BART station. Service along this segment is from approximately 5:30 am to 8:30 pm, with weekday headways of 20 minutes and weekend headways of 30 minutes.

AC Transit Route 46L: This route is located east of Bishop O'Dowd and provides service between the Coliseum BART station, Oakland Zoo, and areas further east on Golf Links Road to Shetland Avenue. It provides service primarily along San Leandro Street, 81st and 82nd Avenues, Mountain Boulevard, and Golf Links Road, with a stop nearest Bishop O'Dowd at the Mountain Boulevard/Golf Links Road intersection. It provides weekday service from 6:20 am to 8:05 pm with headways of approximately 60 minutes.

Bay Area Rapid Transit (BART): The BART rail transit system provides regional transit service throughout the greater Bay Area, including service to Oakland and San Francisco airports. AC-Transit bus service connects BART to local transit routes throughout the City. BART is generally in service from 4:00 am to 1:00 am on weekdays, 6:00 am to 1:00 am Saturdays, and 8:00 am to 1:00 am Sundays, with headways of 15-20 minutes. However, the current schedule is reduced as a result of the corona virus, operating from 5:00 am to 9:00 pm weekdays, and 8:00 am to 9:00 pm weekdays. BART stations nearest to Bishop O'Dowd High School are the Coliseum BART station and the San Leandro BART station.

The East Bay Paratransit Service provides door-to-door service for mobility or health impaired individuals unable to use buses or BART trains. Service areas and service times are the same days and times as AC Transit buses or BART Trains.



Transit Routes Serving Bishop O'Dowd High School Area

FIGURE 4

3.5 Bicycle Facilities

Bicycle travel is allowed on all public streets in the project vicinity (excluding freeway), but to enhance travel for bicyclists, the City of Oakland has established a network of streets that consist of bikeways of various classifications as outlined in the Oakland Bicycle Master Plan. A Bicycle Plan was prepared in 2007 and updated in 2019 (*City of Oakland, Bicycle Master Plan, Land Use & Transportation Element of the Oakland General Plan, December 2007 and Oakland Bike Plan, July 2019*). As stated in the Master Plan, developing a bikeway network "focuses and prioritizes the implementation of bikeways where they will provide the best connectivity and greatest community benefit. Designated bikeways also improve safety by concentrating cyclists and thereby building awareness amongst drivers to expect cyclists on those streets. The overall goal of the network is to provide safe and convenient bikeways such that the majority of any bicycle trips could be made on a designated facility." The plan outlines the City policies, bikeway designations, and identifies the existing and proposed bicycle networks.

The City categorizes bikeways into three primary types:

Bicycle Paths (Class1) provide for bicycle travel on a paved right-of-way that is completely separated from the street. There are generally a limited number of cross-streets and driveways that create conflict points. They are typically shared with pedestrians and often called mixed-use paths.

Bicycle Lanes (Class 2) are striped lanes on streets for the exclusive use of bicyclists, designated with specific signage and pavement markings.

Bicycle Routes (Class 3) are preferred streets signed as bikeways for bicycle travel using lanes shared with motor vehicles. Bicycle routes are typically designated because they are suitable for sharing with motor vehicles and provide better connectivity to the overall bikeway network than other streets. The City of Oakland categorizes three variations within the bicycle route classification.

> Arterial Bicycle Routes (Class 3A) are routes that may be used on some arterial streets where bicycle lanes are not feasible and parallel streets do not provide adequate connectivity. These streets should promote shared use with lower posted speed limits (preferably 25 mph), shared lane bicycle stencils, wide curb lanes, and signage.
>
> Bicycle Boulevards (Class 3B) are bicycle routes on residential streets that prioritize through trips for bicyclists. The route should appeal to cyclists of varied skill levels by providing direct connections on streets with low traffic volumes. The route should reduce delay to bicyclists by assigning right-of-way to travel on the route. Traffic calming should be introduced as needed to discourage drivers from using the boulevard as a through route. Intersections with major streets should be controlled by traffic signals with bicycle activation.

Neighborhood Connectors are streets that provide good connections within neighborhoods. There are no bicycle street improvements, but these streets reflect preferred routes to be highlighted in printed or online bikeway maps as recommended routes.

3.5.1 Existing Bikeway Network

Within the vicinity of Bishop O'Dowd, the Bicycle Master Plan designates a primarily east-west bicycle route that connects the streets of Golf Links Road (beginning from Skyline Boulevard east of I-580 to 98th Avenue west of I-580), 98th Avenue (from Golf Links Road to Stanley Avenue), Stanley Avenue (from 98th Avenue to 106th Avenue), then continuing west on 106th Avenue (and 104th & 105th Avenues) to west Oakland. The section of 98th Avenue between Golf Links Road and Stanley Avenue provides the closest access on this route to the Bishop O'Dowd school grounds.

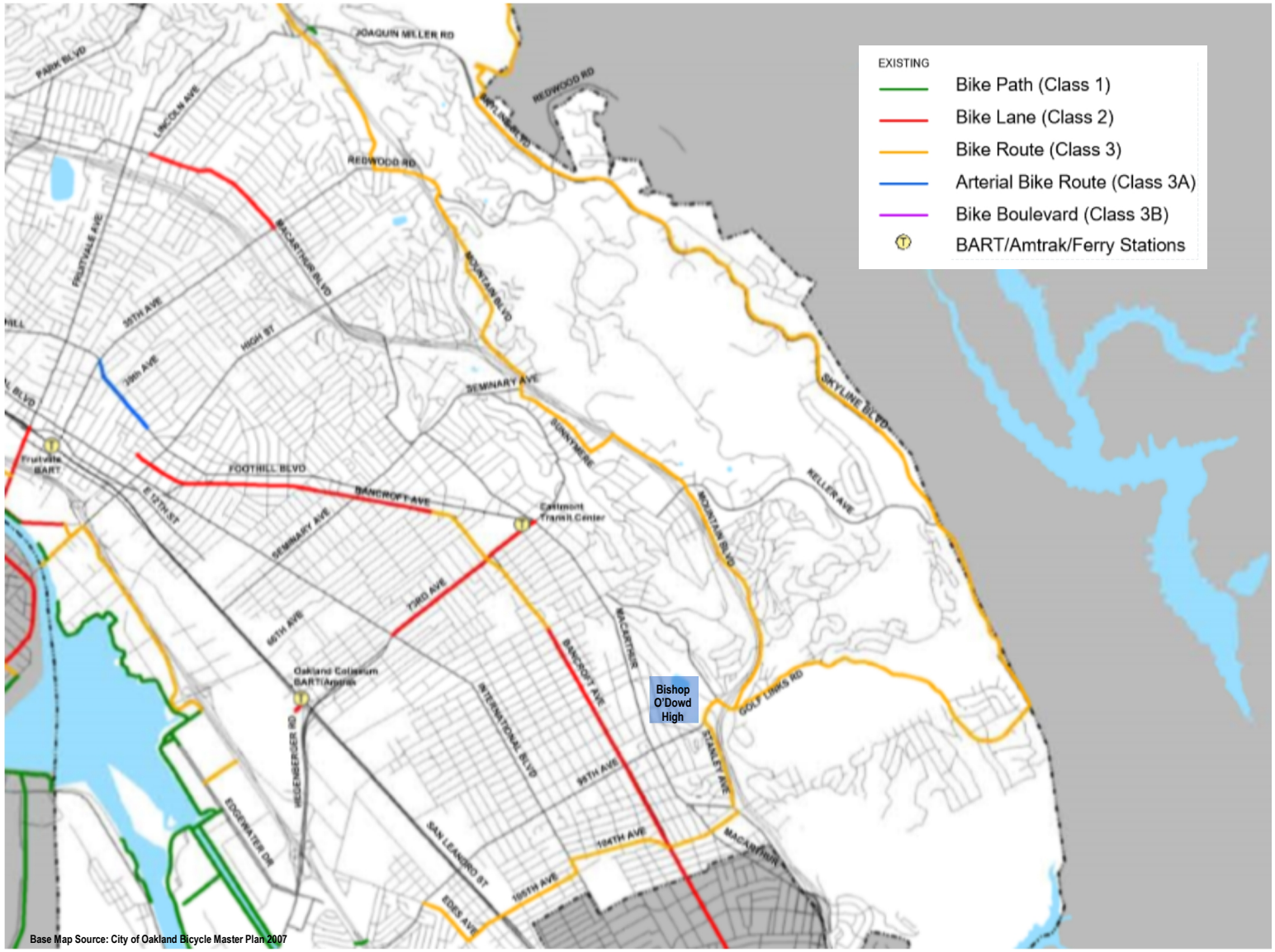
Mountain Boulevard is also a designated bike route providing a north-south connection east of the school, extending north from Golf Links Road to north Oakland.

Bancroft Avenue provides a north-south connection seven blocks west of the school. Bancroft Avenue is a Class 2 bikeway with striped bicycle lanes for most of its length.

3.5.2 Proposed Bikeway Network

The Bicycle Master Plan identifies proposed improvements to the bikeway network. Within the school vicinity, the existing east-west bike route is proposed to be improved in several sections. Buffered Class 2 bike lanes are proposed on 98th Avenue between Golf Links Road and Stanley Avenue, as well as on Golf Links Road between 98th Avenue and Mountain Boulevard. Golf Links Road west from 98th Avenue, and Stanley Avenue south from 98th Avenue are proposed to be designated Neighborhood Bike Routes. MacArthur Boulevard and Mountain Boulevard are proposed to be striped with Class 2 bike lanes.

Maps of the existing and proposed bikeways are provided in Figures 5 and 6.



Existing Bikeway Network
Serving Bishop O'Dowd High School Area

FIGURE 5

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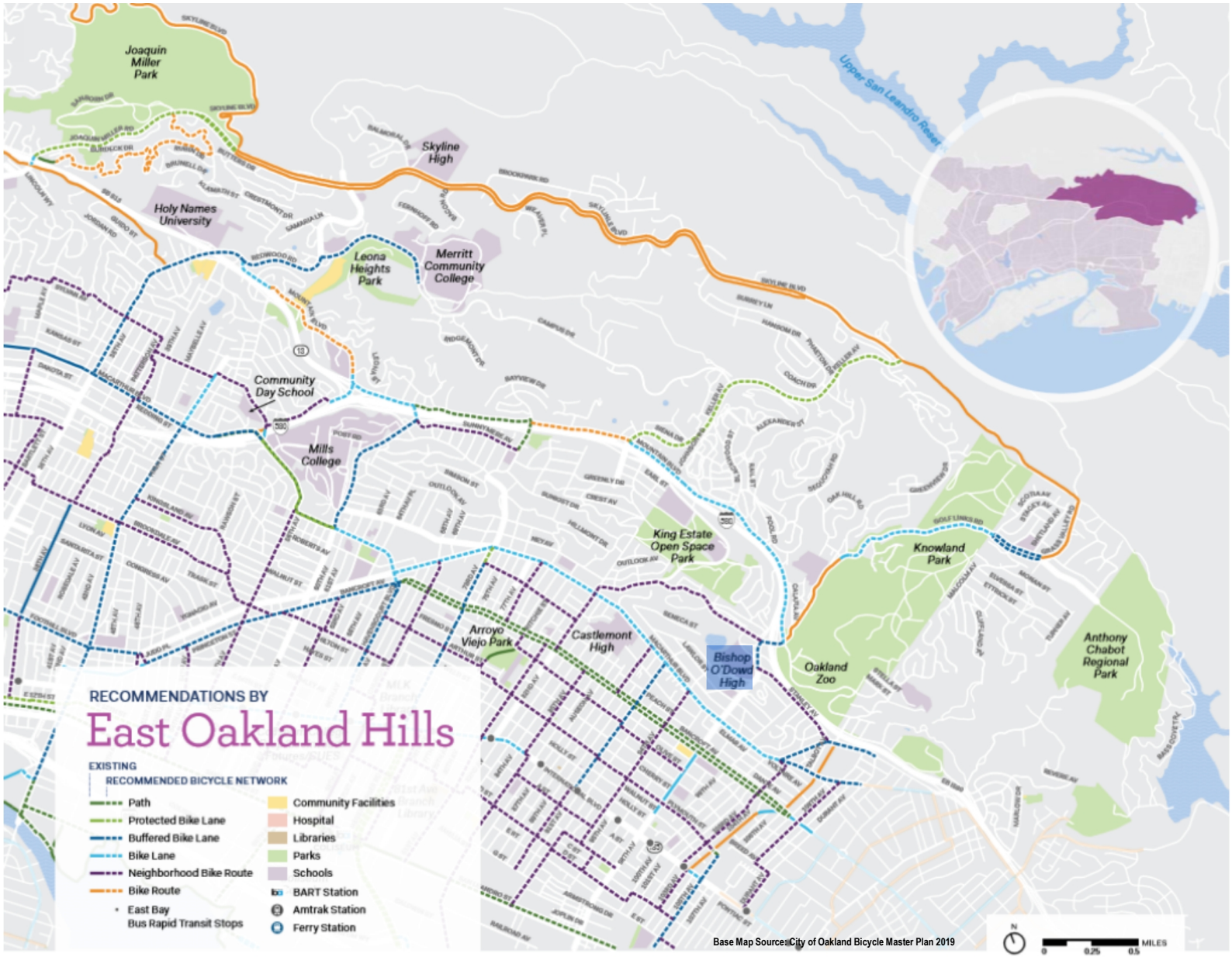


Proposed Bikeway Network
Serving Bishop O'Dowd High School Area

FIGURE 6

3.6 Pedestrian Facilities

Pedestrian facilities consist of sidewalks or paths providing walkable connections along the street network to or from the project site, as well as within a project site to/from entrances and/or parking areas.

The existing pedestrian network in the vicinity of the school consists of the following:

On Stearns Avenue, a sidewalk is located on the east side fronting the school grounds from 98th Avenue to the lower parking lot entrance where it connects to a paved parking aisle with a raised pathway adjacent to the parking spaces. On the west side of Stearns Avenue, a sidewalk segment extends approximately 250 feet from 98th Avenue then terminates and no other sidewalk facilities are located on the west side.

The Stearns Avenue/98th Avenue intersection has yellow striped crosswalks (school area) across both Stearns Avenue approaches and only on the west side of the intersection across 98th Avenue. The intersection has signalized control and there are button-activated pedestrian countdown timers (walk/don't walk).

Stearns Avenue south of 98th Avenue has a sidewalk on the east side that extends 600 feet (approximately half the distance to the 99th Avenue cross-street) then terminates. No sidewalk facilities are located on the west side.

98th Avenue has sidewalks on both sides the length of the street, beginning from Golf Links Road, along the school frontage to Stearns Avenue, and continuing west from Stearns Avenue to central Oakland.

Stanley Avenue has a sidewalk on the west side that extends for 150 feet from 98th Avenue then terminates.

East of the school, Golf Links Road has sidewalks on both sides between 98th Avenue and Mountain Boulevard, but no sidewalks west of 98th or east of Mountain Boulevard. The intersections on Golf Links Road at 98th Avenue/I-580 EB Off-ramp, and the I-580 WB Ramps, have signalized controls with marked crosswalks and pedestrian countdown timers.

South of the school, most of the neighborhood streets (such as Burr Street, Lawlor Street, Taylor Avenue, and Thermal Avenue) have sidewalk facilities on one or both sides, but there are sections with gaps (no sidewalk) and on some streets the sidewalks do not extend the length of the block.

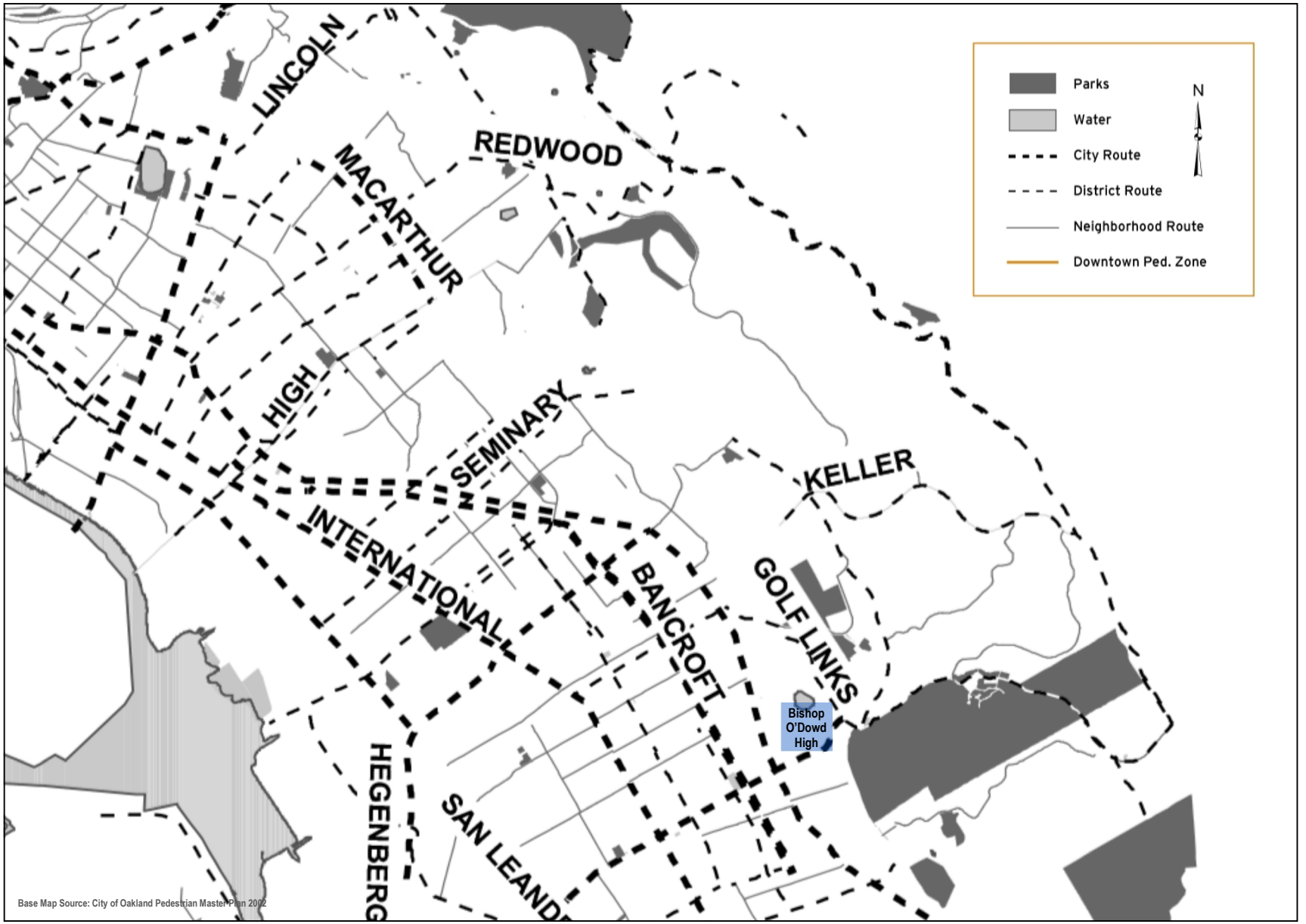
West of the school, the neighborhood streets (such as Cherokee Avenue, Lawlor Street, Thermal Avenue, and 94th Avenue) have sidewalks on both sides extending the length of the block. Burr Street is a narrow, low volume, one-way street that does not have sidewalks north of 94th Avenue. There are sidewalks south of 94th Avenue to Cherokee Avenue.

Pedestrian facilities within the campus footprint consist of sidewalks into the main parking lot from Stearns Avenue. There is also a paved staircase located at the drop-off area on 98th Avenue that provides pedestrian access to the school grounds in the southeast area of the campus.

The City of Oakland's Pedestrian Master Plan describes the existing pedestrian network and analyzes the needs and recommended actions to improve pedestrian travel throughout the City (*City of Oakland, Pedestrian Master Plan, Part of the Land Use & Transportation Element of the Oakland General Plan, November 12, 2002. And 'Oakland Walks' Pedestrian Plan Update, 2017).* The plan includes a needs analysis for improvements with a particular emphasis on improving safety at high accident locations. Additional priorities include Safe Routes to School and Safe Routes to Major Transit.

The Pedestrian Plan divides the city into nine plan areas. Bishop O'Dowd is located in the East Oakland Hills area. There are no High Injury Intersections in the vicinity of the school (there is only one in the plan area). However, there is a "High Injury Corridor" that has been designated on 94th Avenue between Cherry Street and Burr Street (west of the school). The plan describes the short-term and long-term measures to improve safety. Closest to the school, recommended measures are described for the 94th Avenue/Thermal Street and 94th Avenue/MacArthur Boulevard intersections. Measures for 94th Avenue/Thermal Street intersection consist of installing advanced yield signage at marked crosswalks and re-striping marked crosswalks with high visibility markings. Measures for the 94th Avenue/MacArthur Boulevard intersection also consist of installing advanced yield signage at marked crosswalks, and implementing crossing treatments to provide pedestrian safety zones and access to transit stops.

The City has established a priority Pedestrian Route Network to ensure and provide walking routes to schools, transit, neighborhood commercial districts, and other pedestrian destinations. The two nearest routes to Bishop O'Dowd High School that connect to other routes are 98th Avenue and MacArthur Boulevard. A map of the pedestrian route network is provided in Figure 7.



Pedestrian Route Network
Serving Bishop O'Dowd High School Area

FIGURE 7

N

3.7 Collision History

The collision history for intersections and roadway segments within the school vicinity have been evaluated for the five year period from 2015-2019. The collision data was derived from the California Statewide Integrated Traffic Records System (SWITRS). The recorded collision history is the source used by transportation engineers in assessing collision history. A location may have unrecorded collisions in addition to the recorded ones. However, unrecorded collisions cannot be scientifically evaluated.

Collison rates were calculated for each location. The rate for intersections reflects the number of vehicles entering the intersection and is stated as "collisions per million vehicles (c.m.v.). For street segments, the rate reflects collisions per million vehicle miles of travel and is stated as "collisions per million vehicle miles (c.m.v.m.). The calculated collision rates were compared with statewide average rates compiled by the California Department of Transportation (*California State Department of Transportation, Collision Data on California State Highways – road miles, travel, collisions, collision rates, 2017*).

Collision rate calculations utilize daily traffic volumes. These can be obtained directly from machine tube counts for a 24-hour period, or lacking 24-hour counts, can be derived from peak hour counts using an industry standard multiplier of 10 times the peak hour to calculate the daily volume. Due to altered traffic volumes during the ongoing covid protocols, daily counts cannot currently be conducted. The ADT volumes used 24-hour counts where available and converted peak hour counts at other locations.

All of the collisions involved only motor vehicles; none of the collisions involved a pedestrian or bicyclist.

3.7.1 Intersections

The two intersections providing access to/from the school parking lots are the Stearns Avenue/98th Avenue and Stearns-94th Avenue/Burr Street intersections. There were no recorded collisions at the Stearns-94th Avenue/Burr Street intersection.

The Stearns Avenue/98th Avenue intersection experienced 12 collisions over the five year period, for an average of 2.4 per year. It is a four-leg signalized intersection with protected left-turn phasing on 98th Avenue and split signal phasing (separate green phases for each approach) on Stearns Avenue. Seven of the collisions were rear-end collisions, four involved vehicles hitting a fixed object, and one was a broadside collision. Five of the collisions consisted of property damage only (PDO) and six had recorded injuries of complaint of pain (C-of-P), which is the least severe type of injury recorded. One collision involved visible injury from a single northbound vehicle that ran off the road. One collision had a stated cause of fatigue (ran off road) which is unrelated to roadway conditions and not included in the collision rate.

The calculated rate of 0.32 collisions per million vehicles is marginally higher than the statewide average of 0.24. (Note: the volume used in the calculation is derived from an evening peak hour count and doesn't capture mid-day student trips, therefore ADT is likely higher, which would generate a lower collision rate.) The calculated rate is in the range of the statewide rate, indicating the intersection is not experiencing collisions at a rate that is substantially higher than similar intersections.

Eleven of the twelve collision types are listed as either rear-end collisions or a vehicle hitting a fixed object. The primary cause for both types of collisions is generally listed as unsafe speed. The precise causes cannot be verified, but the posted speed limit on 98th Avenue is 25 mph, which suggests excessive speed may have been a factor.

3.7.2 Crash Modification Factors

The existing collision rate is similar to the statewide average rate and the proposed Center would not generate new trips meriting improvements at a design level. However, the Federal Highway Administration has developed a catalogue of safety treatments, along with the predicted reduction in crash rates associated with each treatment. These "Crash Modification Factors" (CMF's) provide a quantitative method of calculating the efficacy and applicability of specific safety treatments (*Federal Highway Administration, Crash Modification Factors, CMF Clearinghouse, cmfclearinghouse.org).* Each CMF value is derived from research studies using methodology provided in the Highway Safety Manual (*American Association of State Highway and Transportation Officials, Highway Safety Manual, 1st Edition with 2014 Supplement).*

The CMF values represent the percentage reduction in predicted collisions. The CMF's are rated using a star system (from 1 to 5 stars, with 5 best) based on the extent of data evaluated in the original research study. The star rating is not necessarily a reflection of the efficacy of the improvement. It reflects the size and scope of the original research. Safety treatment studies with an abundance of research data have a higher confidence level about the calculated crash modification value and, thus, a higher star value.

A review of potential CMF's relative to effectiveness of the collision types was conducted for the 98th Avenue/Stearns Avenue intersection. The intersection is located on a grade and 98th Avenue is curved just west of the intersection. There are existing "Signal Ahead" warning signs (Type W3-3) on 98th Avenue for the westbound approach to the curve. However, there are no "Curve Ahead" warning signs (Type W1-2) (*California Department of Transportation, California Manual on Uniform Traffic Control Devices, Revision 5, March 27, 2020.*)

Two CMF's for Curve warning signs are provided in the CMF Clearinghouse, distinguished by crash severity. CMF #71 has a higher crash reduction factor (0.70) but the research only analyzed collisions involving injuries. CMF #72 has a lower crash reduction factor (0.92) but the research evaluated collisions involving only property damage. Since 11 of the 12 collisions involved only property damage or minor injuries (complaint of pain), the lower CMF factor has been used to calculate the collision reduction. (CMF detail sheets are provided in the Appendix.)

98th Avenue/Stearns Avenue CMF Safety Treatment - Predicted Collison Reduction

. Treatment	CMF ID	CMF Value	Crash Type	Star Rating	Existing Collisions	Predicted Collision Reduction
Advance Static Curve Warning Signs	72	0.92	All	1	2.4 per year 0.32 cmv rate	2.4 x 0.92 = 2.2 per year 0.32 cmv x 0.92 = 0.29 cmv rate

CMF Safety Treatment:

- **Therefore the following treatment is presented for the 98th Avenue/Stearns Avenue intersection: Consideration could be given to installing "Curve" warning signs (Type W1-2) on 98th Avenue in advance of the Stearns Avenue intersection to alert motorists of the curved section. This treatment has a predicted CMF value of 0.92, thereby reducing the annual number of collisions from 2.4 per year to 2.2 per year, and the collision rate from 0.32 cmv to 0.29 cmv.**

Collision histories were also evaluated for the intersections in the vicinity of Bishop O'Dowd on 98th Avenue, from Golf Links Road to MacArthur Boulevard.

The 98th Avenue/MacArthur Boulevard intersection experienced the highest number of collisions, with 31, for an average of 6.2 per year. It is a four-leg signalized intersection with separate left-turn lanes and protected left-turn phasing. Of the 31 total collisions, 11 were rear-end collisions, seven were broadsides, seven were side-swipes, three were head-on, and three involved hitting a fixed object. All collisions involved only motor vehicles (no pedestrians or bicycles) and 30 had only property damage or minor injury (complaint of pain). Two of the collisions had a stated cause of impaired driver. The intersection's calculated collision rate of 0.61 cmv, is above the statewide rate of 0.24 cmv. The predominant collisions were rear-ends, broadsides, and side-swipes.

A more detailed review of the collision types finds that of the ten broadsides or head-on collisions, 5 were on MacArthur Boulevard involving left-turning vehicles colliding with through vehicles, and 5 involved vehicles traveling straight on MacArthur Boulevard colliding with vehicles on 98th Avenue. The rear-end collisions were also evenly distributed, with 5 on MacArthur Boulevard and 6 on 98th Avenue. Of the 7 sideswipes, 5 were on MacArthur Boulevard and 2 were on 98th Avenue.

The 98th Avenue corridor from A Street to MacArthur Boulevard has been recognized and evaluated in the Oakland Pedestrian Plan and earmarked for safety improvements (High Safety Improvement Program) at intersections, including installing advanced "dilemma zone" detection, crosswalks, speed feedback signs, and curb bulb-outs.

The 98th Avenue/Thermal Street intersection has a collision rate slightly above the statewide rate. However, the intersection has averaged only 1.40 collisions per year, and except for four collisions in 2016, has not experienced more than two in a year, and did not experience any recorded collisions in two of the five years. Of the seven collisions, three were broadsides, two were head-ons, one was a side-swipe, and one involved a vehicle hitting a fixed object. Five of the collisions had property damage only and the other two had minor injuries (complaint of pain).

The 98th Avenue/Stanley Avenue intersection also has a collision rate slightly above the statewide rate. However, it also has averaged a relatively low number of 1.2 collisions per year and did not experience any collisions in two of the five years. Three of the collisions were rear-end collisions on 98th Avenue. Given that the 98th Avenue approaches are not controlled (no need to stop), suggests these collisions occurred during congested conditions on 98th Avenue.

3.7.3 Roadway Segments

The roadway segment of 98th Avenue from Golf Links Road to MacArthur Boulevard was evaluated. There were eight collisions recorded over five years. All of the collisions involved only motor vehicles (no pedestrians or bicycles) and all involved property damage or minor injuries (complaint of pain). Three collisions involved a vehicle hitting a fixed object, two were rear-ends, two were broadsides, and one was a side-swipe. The calculated collision rate of 0.41 is lower than the statewide average rate 0f 0.94, indicating the segment experiencing a lower number of collisions than similar segments statewide. It is noted that one of the collisions with a fixed-object occurred within the curved section of 98th Avenue west of Stearns Avenue. Advanced curve warning signs, as discussed for the Stearns Avenue intersection, may serve to decrease these types of collisions within the curved section.

The roadway segment of Stearns Avenue from 98th Avenue to Burr Street, which provides access to the school, was also evaluated. The segment had no recorded collisions over the five year period.

The recorded collisions for the study intersections are listed in Table 1 and the roadway segments are listed in Table 2.

Table 1: Collision Rates for Intersections

Intersection	Number of Collisions						ADT	Collision Rate (c.m.v.)	Statewide Rate (c.m.v.)	Collision Type			Injury Type				
	2015	2016	2017	2018	2019	Ave./Yr.				Vehicle Only	Pedestrian	Bicycle	PDO	C-of-P	V	S	F
98th Ave. / Golf Links Rd.	0	2	1	0	0	0.60	19,000	0.09	0.24[a]	3	0	0	3	0	0	0	0
98th Ave. / Las Vegas Ave.	0	0	1	0	0	0.20	19,000	0.03	0.09[c]	1	0	0	0	1	0	0	0
98th Ave. / I-580 EB On-ramp	1	0	0	0	0	0.20	19,000	0.03	0.09[c]	1	0	0	1	0	0	0	0
98th Ave. / Stanley Ave.	2	0	1	0	3	1.20	19,000	0.17	0.09[c]	6	0	0	2	3	1	0	0
98th Ave. / Stearns Ave.	1	2	0	5	4	2.40	19,000	0.32	0.24[a]	12	0	0	5	6	1	0	0
98th Ave. / Cherokee Ave.	1	0	0	0	0	0.20	19,000	0.03	0.09[c]	1	0	0	1	0	0	0	0
98th Ave. / Burr St.	0	0	1	1	0	0.40	19,000	0.06	0.09[c]	2	0	0	2	0	0	0	0
98th Ave. / Lawlor St,	1	1	1	1	1	1.00	19,000	0.14	0.24[a]	5	0	0	2	3	0	0	0
98th Ave. / Thermal St.	0	4	1	2	0	1.40	19,000	0.20	0.14[b]	7	0	0	5	2	0	0	0
98th Ave. / MacArthur Blvd.	5	8	8	4	6	6.20	26,100	0.61	0.24[a]	31	0	0	21	9	1	0	0
Stearns Ave.-94th Ave. / Burr St.	0	0	0	0	0	0.00	1,500	0.00	0.17[d]	0	0	0	0	0	0	0	0

Intersection Category: Basic Average Rates for Intersections

[a] Four-Legged, Signalized, Urban Area Intersection.

[b] Four-Legged, Minor-street Stop, Urban Area Intersection.

[c] Tee (Three-Legged), Minor-street Stop, Urban Area Intersection.

[d] Four-Legged, All-way Stop, Urban Area Intersection.

Table 2: Collision Rates for Roadway Segments

Roadway Segment	Number of Collisions						ADT	Segment Length (miles)	Collision Rate (cmvm)	Statewide Rate (cmvm)	Collision Type			Injury Type				
	2015	2016	2017	2018	2019	Ave./Yr.					Vehicle Only	Pedestrian	Bicycle	PDO	C-of-P	V	S	F
98th Ave. between MacArthur Blvd. & Golf Links Rd.	1	1	3	2	1	1.60	18,000	0.49	0.43	0.94[a]	8	0	0	5	3	0	0	0
Stearns Ave. between 98th Ave. & Burr St.	0	0	0	0	0	0.00	1,200	0.22	0.00	1.20[b]	0	0	0	0	0	0	0	0

Roadway Category: Basic Average Rates for Highways

[a] Undivided 4-Lanes, Speed < 45 mph, Urban Area Roadway.

[b] Conventional 2-Lanes, Speed < 45 mph, Urban Area Roadway.

Source: Caltrans, 2017 Collision Data on California State Highways.

PDO = Property Damage Only

C-of-P: Complaint of Pain (minor injury)

V: Visible Injury

S: Severe Injury

F: Fatal

ADT Sources - Intersections:

98th Ave/Stearns Ave: ADT derived from 5:00-6:00 pm peak hour intersection volume count at 98th/Stearns (GHD 12/1/2017) of 1,900 total intersection volumes x 10 = 19,000 ADT.

All other 98th Avenue intersections (except MacArthur Blvd): ADT derived from 5:00-6:00 pm peak hour count volumes on 98th at Stearns (GHD 12/1/2017) of 1,800 plus assumed side street volume of 100 = 1,900 x 10 = 19,000 ADT.

98th Ave/MacArthur Blvd ADT derived from 5:00-6:00 pm peak hour count volume on 98th Avenue of 1,800 plus City of Oakland ADT count on MacArthur Blvd. north of 98th of 8,100 ADT = 26,100 ADT.

ADT Sources - Segments:

98th Avenue ADT derived from 5:00-6:00 pm peak hour count volumes on 98th Avenue at the Stearns Avenue intersection (GHD 12/1/2017) of 1,800 x 10 = 18,000 ADT

Stearns Avenue ADT derived from 5:00-6:00 pm peak hour count volumes on Stearns Avenue (GHD 12/1/17) of 122 x 10 = 1,200 ADT.

4. Bishop O'Dowd High School Events

4.1 Event Activity / Attendance Levels

The school's athletic-game and event schedules for the 2018-2019 school year were evaluated regarding the number and size of events that occurred throughout the year. As shown in Table 3, the school held 203 total events (approximately one event per day), consisting of 136 athletic games and 67 non-sporting events. Some types of events do not use the gymnasium and would remain unaffected by the new Center, including all outdoor sports games and all non-sporting campus events not held in the gym.

There were 48 athletic games held inside the gym, consisting of volleyball (22 games) and basketball (26 games). Volleyball attendance averaged 100-200 attendees. Basketball games for Freshman and Junior Varsity teams averaged 150-200 attendees. Games played by the Catholic Youth Organization averaged 200-400 attendees. There were 16 varsity basketball games of which 6 had 200-500 attendees, 5 had 600-700 attendees, and 5 had 800 attendees.

The school held 67 non-sporting events, most of which had attendance below 500 people, such as academic workshops, informational presentations, and school plays or concerts, which had 50-400 attendees. There were 7 events with attendance ranging from 500-800 people (including 1 with 500, 2 with 600, 1 with 700, and 3 with 800 people). The remaining three events had 900 people, 1,000 people, and 1,250 people in attendance.

Combined attendance from overlapping events (two or more events occurring at the same time) was also evaluated. There were 37 days when overlapping events occurred. Attendance at 25 of the combined events was below 500 people, attendance at 7 events ranged from 500-700 people, and the 5 largest overlapping events had 800-1,000 people. The combined attendance levels are within the range of attendance levels associated with the individual events on campus.

Attendance for most games and events (approximately 88%) was 500 people or less. Attendance within this range reflects the most common conditions. Of the 48 games played, attendance for 38 games was under 500 attendees, five had attendance of 600-700 attendees, and five basketball games had attendance of 800 people.

The school's largest non-athletic events have attendance of 1,250 people or less. The proposed Center's capacity of 1,300 seats accommodates the largest individual and overlapping events.

Although attendance for most games is under 800 attendees, the traffic analysis has evaluated operating conditions reflecting the proposed Center's capacity of 1,300 attendees in order to identify the Center's highest trip generation.

Table 3: Summary of Bishop O'Dowd Events 2018-2019 School Year

Attendance	Athletic Games Outside Gym	Athletic Games Inside Gym	School Events	Overlapping Events
0-199 =	51	19	19	1
200-299 =	27	9	22	7
300-399 =	5	2	15	13
400-499 =	0	4	1	4
500-599 =	0	4	1	5
600-699 =	0	3	2	2
700-799 =	3	2	1	0
800-899 =	1	5	3	1
900-999 =	0	0	1	1
1000 =	1	0	1	3
1250 =	0	0	1	0
Total Events:	88	48	67	37

4.2 Trip Generation

4.2.1 Athletic Game Trip Rates

Trip generation methodology has been determined in consultation with City staff and is based on surveys previously conducted by GHD of Bishop O'Dowd football games. The surveys were conducted in November of 2017, reflecting pre-COVID conditions with the school in full attendance and normal traffic volumes on adjacent streets (*GHD, Bishop O'Dowd Football Game Surveys, November 3 & 11, 2017*). The surveys provide comparable data in that they reflect similar use and unaffected traffic levels prior to any covid influence.

The surveys were conducted at two home football games, including a regular season game played on a Friday evening and a Saturday afternoon playoff game. Attendance for the Friday game reflected maximum attendance conditions, with approximately 1,100 people, and the Saturday game had 800 attendees. (Football games average approximately 800 people, but attendance can reach approximately 1,100 people for a few select games during the year.)

The time periods relevant to peak traffic associated with athletic games occur during the hour at the beginning and the hour at the end of a game. The traffic counts identified a pre-game (6:00-7:00 pm) peak hour trip rate of 0.39 trips per person. (Attendance of 1,100 people generated 434 trips, with 392 inbound (90%) and 42 outbound (10%)). Most of the traffic generation after a game occurs within one hour of the game ending time. The traffic counts identified a post-game (9:30-10:30 pm) peak hour trip rate of 0.43 trips per person (473 trips, with 48 inbound (10%) and 425 outbound (90%)). The pre-game outbound trips and post-game inbound trips primarily reflect vehicles dropping off and picking up attendees. The trip rates and vehicle trips are provided in Table 4.

Applying the surveyed trip rates to the existing gym's capacity of 800 seats results in 320 pre-game peak hour trips (288 in, 32 out), and 344 post-game peak hour trips (34 in, 310 out) generated. Applied to the proposed Center's capacity of 1,300 seats results in 520 pre-game peak hour trips (468 in, 52 out), and 560 post-game peak hour trips (56 in, 504 out) generated.

4.2.2 School Event (Non-Athletic) Trip Rates

In addition to athletic games, other school events are held throughout the year, some of which utilize the gymnasium. Trip generation rates for non-athletic events are likely to differ somewhat from athletic games. A portion of athletic game trips are comprised of parents dropping-off and picking-up students before and after the game, respectively. The amount of drop-off/pick-up activity for non-athletic school events is likely to be lower, as these events are generally oriented to students and parents together. With approximately 10% of game trips drop-off/pick-up trips, assuming no drop-off/pick-up trips (all vehicles remain parked) results in 0.36 pre-event trips per person (100% in, 0% out) and 0.39 post-event trips per person (0% in, 100% out).

As a result of lower drop-off and pick-up activity, the trips calculated for non-athletic events are lower than the trips calculated for athletic games of equal attendance. Applying the non-athletic event rates to the existing gym's capacity of 800 people results in 288 pre-event peak hour trips (288 in, 0 out) and 310 post-event peak hour trips (0 in, 310 out). Applied to the Center's 1,300 seat capacity results in 468 pre-event peak hour trips (468 in, 0 out), and 504 post-event peak hour trips (0 in, 504 out).

Table 4: Motor Vehicle Trip Rates and Trip Generation

Trip Rates

Athletic Game Trip Rate Calculation:

Pre-Game Peak Hour: 434 trips (392 in, 42 out) / 1,100 people[1] = **0.40 trips per person (90% in, 10% out)**

Post-Game Peak Hour: 473 trips (48 in, 425 out) / 1,100 people[1] = **0.43 trips per person (10% in, 90% out)**

[1]Surveyed trips at Bishop O'Dowd football game (November 2017).

School Event (non-athletic) Trip Rate Calculation:

Pre-Event Peak Hour: 392 trips (392 in, 0 out) / 1,100 people[2] = **0.36 trips per person (100% in, 0% out)**

Post-Event Peak Hour: 425 trips (0 in, 425 out) / 1,100 people[2] = **0.39 trips per person (0% in, 100% out)**

[2]Trip rates for non-athletic events assume no drop-off/pick-up trips (all vehicles remain parked for event).

Trip Generation

Athletic Game:

800 Attendees:

Pre-Game Peak Hour: 800 people x 0.40 trips per person = **320 (288 in, 32 out) pre-game peak hour trips**

Post-Game Peak Hour: 800 people x 0.43 trips per person = **344 (34 in, 310 out) post-game peak hour trips**

1,300 Attendees:

Pre-Game Peak Hour: 1,300 people x 0.40 trips per person = **520 (468 in, 52 out) pre-game peak hour trips**

Post-Game Peak Hour: 1,300 people x 0.43 trips per person = **560 (56 in, 504 out) post-game peak hour trips**

School Event:

800 Attendees:

Pre-Event Peak Hour: 800 people x 0.36 trips per person = **288 (288 in, 0 out) pre-event peak hour trips**

Post-Event Peak Hour: 800 people x 0.39 trips per person = **310 (0 in, 310 out) post-event peak hour trips**

1,300 Attendees:

Pre-Event Peak Hour: 1,300 people x 0.36 trips per person = **468 (468 in, 0 out) pre-event peak hour trips**

Post-Event Peak Hour: 1,300 people x 0.39 trips per person = **504 (0 in, 504 out) post-event peak hour trips**

4.3 Trip Distribution

The game surveys observed that most vehicle trips are to/from the east on 98th Avenue in the direction of Golf Links Road and the I-580 freeway ramps. The surveys identified approximately 70% of the trips are to/from the east on 98th Avenue, 15% are to/from the west/southwest on 98th Avenue, 14% are to/from the north/northwest via Stearns-94th Avenue and 1% are to/from the south via Stearns and Stanley Avenues.

The school's two campus parking lots are accessed via Stearns Avenue between 98th Avenue and Burr Street. Stearns Avenue provides two-way travel between 98th Avenue and the main campus lot (or "upper" lot). Stearns Avenue becomes one-way northbound from the upper lot to Burr Street. The "lower" lot is located on this one-way section. Therefore, inbound trips to the two school lots travel northbound on Stearns Avenue from 98th Avenue. Outbound trips from the main lot are able to travel southbound to 98th Avenue or northbound to Burr Street. All outbound trips from the lower lot must travel northbound to Burr Street.

As a result of the one-way section, some of the regional trips are rerouted in the immediate vicinity of the school. Inbound trips from the west route to eastbound 98th Avenue and access the school via a left-turn onto Stearns Avenue. Outbound trips from the lower lot desiring to travel east must exit north to 94th Avenue before making their way east.

5. Traffic Operations

Existing school activities consist of athletic games and school events of various sizes and frequency. Attendance associated with almost all activities is accommodated within the existing gymnasium's capacity of 800 seats and, therefore, would not be expected to change as a result of the proposed Center's higher capacity. The school's larger non-athletic events take place, in part, in the gymnasium but encompass the school campus.

There are approximately five varsity basketball games per year when attendance reaches the existing capacity of 800 seats. It is possible attendance may increase for these games given the additional capacity of the proposed Center. There are also 1-3 playoff basketball games currently held offsite (at the Laney College campus). Home playoff games currently held offsite could be held in the proposed Center.

School representatives state that attendance reaching the Center's capacity of 1,300 people is not anticipated. The highest attendance currently generated by other athletic games (football) reaches 1,100 people. Traffic operations associated with games up to 1,100 people would be the same as these other existing school activities. However, attendance above 800 people for athletic games held inside the gym would represent increased trip generation for those games as a result of the proposed Center. Therefore, traffic operations have been analyzed reflecting the net change in trip generation from 800 people assuming attendance reaches the 1,300 person capacity.

5.1 Intersection Level-of-Service (LOS) Concept

A measure of traffic operational performance is provided by Level-of-Service (LOS), which identifies traffic flow conditions with a rating scale from LOS A to F which correspond to vehicle delays. LOS A represents free-flow conditions with little delay at intersections. LOS E represents unstable or unbalanced flow conditions with volumes at or near design capacity. LOS F represents a significantly congested condition where traffic flows can exceed design capacities resulting in long vehicle queues and delays from the minor-street approach. At signalized intersections and all-way stop controlled intersections, the LOS is measured by the average vehicle delay in seconds. At intersections with side-street stop controls, stated LOS usually refers to the approach with the highest delay. The peak hour intersection LOS calculations have been calculated based on the *HCM 2010 methodology* using the Synchro/Simtraffic modeling software (*Transportation Research Board, Highway Capacity Manual, Intersection Operations, Chapters 16 & 17*). (Level-of-service definitions and calculation worksheets are provided in the Appendix.)

5.2 Existing No-Event Traffic Operations

The previous surveys of Bishop O'Dowd included traffic turning movement counts conducted on a non-game weekday evening in order to establish "baseline" volumes without an event. Turning counts were conducted at the 98th Avenue/Stearns Avenue intersection, the 98th Avenue/Stanley Avenue intersection, and the Stearns - 94th Avenue/Burr Street intersection (*GHD, Traffic counts, December 1, 2017*).

The higher attendance games (varsity) usually start at 7:00 or 7:30 pm. The pre-game LOS conditions were analyzed for the 6:00-7:00 p.m. period reflecting a 7:00 p.m. game start time. The post-game conditions were analyzed for the 9:30-10:30 p.m. period.

For existing conditions without an event during the "pre-game" peak hour, the 98th Avenue/Stearns Avenue intersection operates at LOS A (8.6 seconds delay). The 98th Avenue/Stanley Avenue intersection operates at LOS B (12.1 seconds delay for the stop-controlled northbound approach), and the Stearns-94th Avenue/Burr Street intersection operates at LOS A (7.2 seconds delay).

For existing conditions without an event during the "post-game" peak hour, the 98th Avenue/Stearns Avenue intersection operates at LOS A (7.7 seconds delay). The 98th Avenue/Stanley Avenue intersection operates at LOS B (11.0 seconds delay), and the Stearns-94th Avenue/Burr Street intersection operates at LOS A (7.1 seconds delay).

5.3 Existing Traffic Operations (800 Attendees)

For existing conditions associated with the gymnasium's current capacity of 800 people during the pre-game peak hour, the 98th Avenue/Stearns Avenue intersection operates at LOS B (10.7 seconds delay). The 98th Avenue/Stanley Avenue intersection operates at LOS B (13.4 seconds delay), and the Stearns-94th Avenue/Burr Street intersection operates at LOS A (7.1 seconds delay).

During the post-game peak hour, the 98th Avenue/Stearns Avenue intersection operates at LOS B (11.7 seconds delay), the 98th Avenue/Stanley Avenue intersection operates at LOS B (13.9 seconds delay), and the Stearns-94th Avenue/Burr Street intersection operates at LOS A (7.9 seconds delay).

5.4 Existing Plus Project Operations (1,300 Attendees)

With game trips reflecting the Center's capacity of 1,300 people during the pre-game peak hour, the 98th Avenue/Stearns Avenue intersection has calculated operations of LOS B (12.7 seconds delay). The 98th Avenue/Stanley Avenue intersection would also operate at LOS B (14.6 seconds delay). The Stearns Avenue-94th Avenue/Burr Street intersection would operate at LOS A conditions (7.2 seconds delay).

During the 9:30-10:30 pm post-game peak hour, the 98th Avenue/Stearns Avenue intersection has calculated conditions of LOS B (19.9 seconds delay). The 98th Avenue/Stanley Avenue intersection would operate at LOS C (16.6 seconds delay), and the Stearns-94th Avenue/Burr Street intersection would operate at LOS A (8.4 seconds delay).

The LOS conditions remain acceptable for 1,300 attendees. The longest delays are experienced during the post-game when vehicles depart within a relatively short period of time. This pertains primarily to the outbound travel directions on Stearns Avenue, when vehicle delays temporarily increase as vehicles depart the school, but overall LOS remains satisfactory. Existing and maximum attendance operating conditions are shown in Table 5. The volumes are illustrated in Figures 8 and 9.

Table 5: Intersection Level-of-Service
Existing (No Game & 800 Attendees) Plus Project (1,300 Attendees)

Intersection	Control	Pre-Game Peak Hour LOS & Delay			Post-Game Peak Hour LOS & Delay		
		Existing No Event	Existing With 800 Attendees	Project With 1,300 Attendees	Existing No Event	Existing With 800 Attendees	Project With 1,300 Attendees
98th Ave. / Stearns Ave.	Signal	A 8.6"	B 10.7"	B 12.7"	A 7.7"	B 11.7"	B 19.9"[1]
98th Ave. / Stanley Ave.	MSSC	B 12.1"	B 13.4	B 14.6"	B 11.0"	B 13.9"	C 16.6"
Stearns-94th Ave. / Burr St.	AWSC	A 7.2"	A 7.1"	A 7.2"	A 7.1"	A 7.9"	A 8.4"

Listed LOS represents vehicle delay expressed in seconds. MSSC = Minor Street Stop Control; AWSC = All-Way Stop Control

[1] Conditions remain at LOS B with signal timing adjusted as described in Section 5.5 to address vehicle queuing.

Regional Trip Distribution & Game Trips with Existing Capacity of 800 Attendees, And Game Trips with Project Capacity of 1,300 Attendees. Pre-game 6:00-7:00 pm & (Post-game 9:30-10:30 pm) Peak Hour

FIGURE 8

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Volumes With Existing Capacity Game of 800 Attendees,
And Volumes With Project Capacity Game of 1,300 Attendees.
Pre-game 6:00-7:00 pm & (Post-game 9:30-10:30 pm) Peak Hour

FIGURE 9

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5.5 Vehicle Queuing

A vehicle queuing analysis was conducted to calculate vehicle queue lengths on the intersection approaches associated with game conditions. Queue length distances are expressed in feet and are generally evaluated for the 95th percentile queue length or the maximum queue length. Given the temporary, but potentially substantial, increase in queue lengths associated with events, the maximum queue lengths have been evaluated. The calculated lengths reflect conditions over the course of the evaluated peak hour. Periods with temporarily longer queues may occur within the hour. The projections were derived utilizing SimTraffic micro-simulation software. (Queuing calculation worksheets are provided in the Appendix.)

It is noted that the queue length simulations are approximations. A standard measure for vehicle spacing is 25 feet. Variations in queue lengths less than 25 feet represent differences of less than one vehicle. The listed queue lengths should be considered a general measuring tool (not a precise number) to help identify conditions. Queue lengths substantially longer than the available storage length denote a higher probability that a genuine queuing problem exists.

The calculated queue lengths associated with No Event, Existing 800 Attendees, and 1,300 Attendees are presented in Table 6. Vehicle queue lengths for most approaches are within the lane storage length and would remain so with added event trips. A discussion of the calculated and field observed queuing conditions is provided as follows:

Table 6: Vehicle Queue Lengths
Existing (No Game & 800 Attendees) Plus Project (1,300 Attendees)

Intersection	Approach	Storage Length	Pre-Game Peak Hour Vehicle Queue Length (feet)			Post-Game Peak Hour Vehicle Queue Length (feet)		
			Existing No Event	Existing With 800 Attendees	Project With 1,300 Attendees	Existing No Event	Existing With 800 Attendees	Project With 1,300 Attendees
98th Avenue / Stearns Avenue	SB L	100	16	41	47	0	61	122
	SB LTR	480	48	78	81	16	94 (155[1])	146 (268[1])
	NB LTR	270	31	35	34	35	31	31
	EB L	110	30	88	122	38	64	61
	EB TR	430	79	78	94	28	66	71
	WB L	90	31	28	32	22	28	32
	WB TR	285	84	194	199	70	82	100
98th Avenue / Stanley Avenue	NB LR	500+	35	36	36	36	35	31
	WB L	125	25	31	31	31	31	31
Stearns-94th Ave. / Burr Street	NB LT	600	57	48	54	58	59	65
	SB R	250	27	28	32	28	32	28
	WB TR	500+	30	34	30	30	34	35

Highlighted fields denote calculated queue length at or exceeding lane storage length.

[1]Field observations found outbound trips queue as a single lane, with total length equal to combined lane lengths.

Stearns Avenue/98th Avenue intersection: Not surprisingly, the southbound vehicle queues on the Stearns Avenue approach to 98th Avenue increase at the end of an event. The southbound Stearns Avenue approach consists of a left-turn lane pocket (100 feet) and a shared left/through/right turn lane. Based on our field observations during large event departure periods, outbound vehicles may occupy both turn lanes near the intersection, but primarily extend back as a single queue of vehicles toward the school. At these times, southbound Stearns Avenue functions as a single lane approach and the effective queue lengths are better represented by the combined calculated queue lengths of each lane. Typical queue lengths are closer to 160 feet for 800-attendee games and 270 feet for 1,300-attendee games, but the southbound queue can temporarily extend from 98th Avenue to the school parking lot entrance during the peak 20 minutes of departure.

Field observations observed that the outbound traffic flow rate is a function of the green time allocated to the southbound Stearns Avenue approach at the 98th Avenue intersection. The intersection's total cycle length was approximately 60 seconds, with 10 seconds allocated for the southbound Stearns Avenue approach. The short overall cycle length beneficially minimizes wait times for all approaches, but the 10 second green time for southbound Stearns Avenue limits the number of southbound vehicles able to turn during the signal phase. Extensive queuing dissipates within 20 minutes. However, increasing the green time for the southbound Stearns Avenue approach at the end of events would facilitate the flow of outbound traffic.

For comparison, GHD conducted a queuing and LOS analysis assuming a 30-second green phase time and a 60-second phase time for the southbound Stearns Avenue approach during the post-game peak hour. The southbound Stearns Avenue vehicle queues would decrease and, given the relatively low volumes at the other approaches, there would be no substantial delay increases to the other approaches and overall LOS would remain at LOS B conditions.

Therefore, although extensive queuing dissipates within 20 minutes when events end, to improve outbound traffic flow and reduce the duration of vehicle queuing for existing and project conditions, consideration could be given to the following transportation improvement:

- **The Stearns Avenue/98th Avenue intersection's signal timing may be conducive to increasing the southbound Stearns Avenue maximum allowed green time when large events typically end (approximately 9:00-10:00 pm). Increased green time would allow more southbound vehicles to clear the intersection during each signal phase, thereby reducing the duration of vehicle queuing. LOS calculations with the southbound green time increased to 30-60 seconds indicate overall operations would remain LOS B without substantially increasing delays for the other approaches.**

During the pre-game peak hour for a game with 1,300 attendees, the eastbound 98th Avenue left-turn approach has a calculated queue length (122') that just exceeds the left turn lane storage length (110'). The excess queue length represents approximately 1 vehicle. However, attendance at this level would be expected to occur a couple of times per year; and queue lengths associated with the more common-sized events (800 attendees or less) are within the lane storage lengths. Pre-game vehicle queues and inbound traffic flows at all other approaches are within the lane storage lengths.

Stearns-94th Avenue/Burr Street intersection: The Stearns-94th Avenue/Burr street intersection has stop-sign control for all approaches. The northbound Stearns Avenue approach to Burr Street (one-way travel lane) consists of a single left/through lane. (Right turns are prohibited as Burr Street also consists of a one-way approach). During the peak 15-20 minute departure period after an event, the northbound Stearns Avenue approach also experiences vehicle queuing beyond the calculated queue lengths. However, volumes on the other approaches to the intersection are very low, allowing efficient progression for the Stearns Avenue vehicles, resulting in a relatively short period of queuing which is reflected in the calculated queue lengths.

5.6 Signal Warrants

The Stanley Avenue/98th Avenue intersection volumes were compared to peak hour volume warrants for installing traffic signals *(California Manual on Uniform Traffic Control Devices, March 27, 2020).* The peak hour warrants are one of several standards to help determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour warrants does not necessarily mean signals should be installed. The 5:00-6:00 pm time period was evaluated, which reflects the peak hour of traffic on 98th Avenue, as well as the 6:00-7:00 pm time period, which reflects the typical peak hour of event related traffic. The intersection volumes would remain below the threshold for signalization for all scenarios, including 800 person events and 1,300 person events. (Signal warrant worksheets are provided in the Appendix.)

6. Parking

6.1 Parking Supply

The total inventory of onsite parking spaces utilized by the school consists of the paved/striped on-campus parking lot spaces, plus additional supplemental onsite parking provided on the school grounds.

As shown in Table 7, the school's current supply of paved/striped parking lot spaces consists of 343 spaces located in two separate parking lots accessed via Stearns Avenue. The main parking lot (or upper lot) is located adjacent to the school buildings and has 266 striped spaces. The second lot (or lower lot) is located just downhill from the main campus lot and provides 77 striped spaces. The current supply exceeds the supply of 321 spaces listed in the school's existing Conditional Use Permit (2012). In anticipation of the Center project, which would remove parking spaces currently located within the proposed building's footprint, Bishop O'Dowd has added 22 campus parking spaces. After construction of the Center, 303 campus parking spaces would be available. The 303 spaces result in a net loss of 40 spaces from the supply of existing spaces, and a net loss of 18 spaces from the supply at the time of the Conditional Use Permit.

Table 7: Supply of Official On-Campus Parking Spaces

Parking Supply of Official On-Campus Spaces	# Parking Spaces
Parking spaces at time of 2012 Conditional Use Permit:	321
Parking spaces added in anticipation of losing spaces with Center:	+22
Existing spaces	= 343
Parking spaces temporarily lost during construction of Center:	-54
Parking spaces available during construction of Center:	= 289
Parking spaces added back in after construction of Center:	+14
Parking Spaces with Center:	= 303
Net loss from existing supply of 343 spaces = 40 spaces.	
Net loss from 2012 Conditional Use Permit supply of 321 spaces = 18 spaces.	

As noted, Bishop O'Dowd representatives state that the parking supply can be increased to serve various sized events. For larger events, the baseball field can be utilized providing an additional 250 spaces, for a total of 553 spaces. The school's traffic control and security personnel oversee the baseball field parking, directing motorists to the proper parking spaces and circulation routes.

For the school's largest events, offsite parking has also been historically provided with shuttle service to/from the school campus (made in arrangement with the Oakland Zoo).

There would be a net loss of 18 parking spaces from the current Conditional Use Permit as a result of the Center building. The school is evaluating longer-term options to increase the supply of spaces in the future and school representatives state that offsite parking for faculty could be provided to offset the loss of spaces for daily parking. The supply would still exceed the parking code requirement (active at the time) of 153 spaces that was applied to the school's current Conditional Use Permit (see Code Requirements discussion below).

School representatives state 22 vehicles can also be parked in the drop-off area accessed off of 98th Avenue on the east side of the school. Although officially not counted toward onsite supply, the extra spaces represent a potential of 325 parking spaces without the baseball field, and 575 total spaces with the baseball field. The drop-off area is currently unstriped, but a preliminary striping plan has been prepared by the school and is provided in the Appendix.

6.2 Municipal Code Parking Requirements

Parking requirements are defined by the City of Oakland's Planning Code (Title 17 of the Oakland Municipal Code). In prior applications for Bishop O'Dowd land use changes, the Planning Code requirements active at the time were applied. Most recently, the City's historical planning code requirements were applied to the school's Center for Environmental Studies Building application (2012). The Planning Code established the parking space requirement based on the number of students and employees. The parking requirement was calculated with the following formula:

1 space for each three employees, plus 1 space for each 10 students of planned capacity.

As implemented in 2012 for the Environmental Studies building application, the required number of parking spaces was 153 spaces (1,130 students @ 1 space per 10, and 120 employees @ 1 space per 3).

Based on population numbers recently provided by Bishop O'Dowd representatives for the school's current enrollment (year 2019) and projected capacity enrollment, the historical Planning Code would result in 183 required spaces for current enrollment (1,250 students and 175 employees) and 199 required spaces for projected capacity enrollment (1,320 students and 200 employees). The supply of 303 spaces would meet the prior Planning Code requirements, with a surplus of 120 spaces and 104 spaces, respectively.

6.2.1 Current Planning Code

The Oakland Planning Code has been updated as of June 9, 2020 with revisions to off-street parking requirements. High Schools are categorized under Chapter 17.116.070 – Off-Street Parking for Civic Activities. For high schools (located outside of the Central Business District), the parking requirements are now defined as follows:

17.116.070 - *A number of spaces to be prescribed by the Director of City Planning pursuant to Section 17.116.040*. The full text of Section 17.116.040 reads as follows:

17.116.040 - *In the case of activities for which the Director of City Planning is required to prescribe a number of parking spaces or loading berths, he or she shall base his or her determination on the traffic generation of the activities, the amount and frequency of loading operations thereof, the time of operation of the activities, their location, and such other factors as affect the need for offstreet parking or loading. At his or her discretion, the Director of City Planning may require the applicant to provide an analysis of parking demand and capacity from an independent professional. Any such determination shall be subject to appeal pursuant to the administrative appeal procedure in Chapter 17.132.*

For property on which parking and loading must be provided, Section 17.116.170 states - *A. Parking Spaces and Loading. Required off-street parking spaces and loading berths shall be located as set forth below for the specified activities except as otherwise provided in Subsection 17.116.290.B. When a maximum distance from the lot containing the activity served to another lot is prescribed, it shall be measured along a permanently accessible pedestrian route between a lot line of the former lot and the nearest boundary of the offsite parking or loading area. Required parking provided on a lot other than the Facility or Activity it serves shall not count toward any of the required parking serving the Facility or Activity on the off-site lot.*

Location of parking spaces for any other activity. Any Zone (17.116.170) - *On the same lot as the activity served; or, subject to the provisions of Section 17.116.180, on another lot located within three hundred (300) feet or, upon the granting of a Conditional Use Permit (see Chapter 17.134 for the CUP procedure), within six hundred (600) feet.*

17.116.180 - Conditions for off-street parking or loading - *Whenever, pursuant to Section 17.116.170, any required off-street parking or loading facilities are located on a lot other than the lot containing the activity served, the owner or owners of both lots shall prepare and execute to the satisfaction of the City Attorney, and file with the Alameda County Recorder, an agreement guaranteeing that such facilities will be maintained and reserved for the activity served, for the duration of said activity.*

6.3 Parking Demand Associated with Games and Events

Based on the surveyed and calculated parking rates, parking demand for the school's various sized events has been evaluated and compared to the parking supply.

6.3.1 Athletic Game Parking Demand

The football game surveys identified a peak parking demand rate of 0.38 parked vehicles per person (420 parked vehicles / 1,100 attendees = 0.38 vehicles per person).

Applied to the existing gymnasium's capacity of 800 people results in a parking demand of 304 vehicles, which is accommodated within the current supply of 343 parking lot spaces and would essentially be accommodated within the supply of 303 parking lot spaces after construction of the Center.

Attendance for most athletic games in the existing gym consists of fewer than 800 attendees (43 of the 48 games played had less than 800 attendees). Though not anticipated, games with attendance at the proposed Center's capacity of 1,300 people have a calculated parking demand of 494 vehicles that would be generated. This would exceed the 303 parking lot spaces, but would be accommodated within the 553 spaces if the baseball field is available.

Therefore, parking demand for games with attendance above 800 people up to the Center's capacity of 1,300 seats would exceed the parking lot supply of 303 spaces, but would be accommodated onsite if the baseball field is available.

6.3.2 School Event (Non-Athletic) Parking Demand

In the absence of surveys for the school's non-athletic events, parking demand rates were established based on the methodology used to identify vehicle trips for non-athletic events, combined with an evaluation of historical parking demands of the school's larger events.

The primary difference expected with non-athletic events is lower drop-off/pick-up activity than athletic games, resulting in higher parking demand since more vehicles remain parked for the event. The football surveys identified approximately 50 pick-up/drop-off vehicles and 420 parked vehicles with attendance of 1,100 people. Converting all of the drop-off vehicles to parked vehicles results in a parking demand rate of 0.43 vehicles per person, or a vehicle occupancy of 2.3 people per car (420 parked vehicles + 50 drop-off vehicles converted to parked vehicles = 470 parked vehicles /1,100 people = 0.43 parked vehicles per person or 2.3 people per car).

Parking information provided by school representatives regarding larger-sized events was also reviewed. School representatives state that the baseball field is utilized for parking 10-12 times per year when demand can exceed the existing supply of 343 parking lot spaces. This corresponds with the school's 10-12 non-athletic events per year that experience 800 or more

attendees. With 800 attendees generating demand for 343+ spaces, the calculated parking rate is 0.43 vehicles per person (344 spaces / 800 attendees = 0.43 vehicles per person, or 2.3 people per vehicle).

Published information regarding vehicle occupancy values typically associated with special events was also reviewed. The Federal Highway Administration provides data regarding expected vehicle occupancy factors for special events *(FHWA, Managing Travel for Planned Special Events, Publication No. FHWA-NHI-03-120, September, 2003)*. Average vehicle occupancy is generally considered to be 2.5 persons per vehicle, but occupancies from 2.2 to 2.8 persons per vehicle are within the expected range depending on local conditions. The parking rate of 0.43 vehicles per attendee equates to a vehicle occupancy of 2.3 people per vehicle. This is within the expected range and near the lower end of vehicle occupancies, reflecting a conservatively high parking demand rate (lower vehicle occupancy equates to higher parking demand rate).

Applying the parking rate of 0.43 vehicles per person to non-athletic school events, attendance up to 700 people generates a parking demand of 301 vehicles, which would be accommodated in the school's 303 parking lot spaces.

The highest existing attendance of 1,250 people generates a parking demand of 538 vehicles. The 538 vehicles are accommodated by the 553 parking lot and baseball field spaces, but demand is approaching the onsite capacity.

6.3.3 Parking Supply and Demand Levels

The calculated parking demands associated with increasing attendance levels are provided in Table 8. The required parking supply tiers, comprised of the school parking lots (303 spaces) and baseball field (250 spaces) for 553 total spaces, are presented for athletic games and non-athletic school events.

As noted, athletic games have a lower parking demand than non-athletic events. Attendance up to 800 people (304 vehicles) would be accommodated in the school's parking lot spaces. Attendance above 800 to the Center's capacity of 1,300 seats (494 vehicles) would be accommodated with the additional baseball field spaces.

Non-athletic school events have a slightly higher calculated parking demand than the athletic games. Parking demand up to 700 attendees (301 vehicles) is accommodated in the school's parking lot spaces. Parking demand for events over 700 people to the existing largest event of 1,250 people (538 vehicles) can be accommodated onsite if the baseball field is available. Therefore, all attendance levels would be accommodated onsite assuming the baseball field is available.

Table 8: Parking Demand Associated With Attendance Levels

Event Type	Existing Attendance	Existing Number of Events	Associated Parking Demand	Attendance with Project	Number of Games/Events with Project	Parking Demand with Project	Parking Supply Tier Level with Project	Notes
Student Assemblies	800 capacity		--	up to 1300		--	--	Center's capacity would allow all students to attend one assembly, whereas existing capacity requires two asssemblies.
Athletic Games In Gym / Center	100	10	38	NC	NC	NC	1 (303)	
	200	18	76	NC	NC	NC	1	
	300	0	114	NC	NC	NC	1	
	400	6	152	NC	NC	NC	1	
	500	4	190	NC	NC	NC	1	
	600	3	228	NC	NC	NC	1	
	700	2	266	NC	NC	NC	1	Game attendance up to 800 accommodated in
	800	5[A]	304	--	--		1	school's 303 parking lot spaces.
	900	--	342	--	--		2 (553)	Game attendance over 800 to 1,300 (capacity)
	1000	--	380	--	--		2	accommodated with baseball field (250 spaces).
	1100	--	418	--	--		2	
	1200	--	456	--	--		2	
	1300	--	494	1300[B]	5-8[A]	494	2	
		48			up to 51			

[A] 5 regular season games with attendance at existing gym's 800 capacity may increase a result of Center's higher capacity. Plus 1-3 added playoff games currently held offsite ≈ 5-8 games with potentially higher attendance as a result of Center project.

[B] Attendance levels above 800 attendees to Center's capacity of 1,300 attendees accommodated with baseball field.

School Events	100	5	43	NC	NC	NC	1 (303)	
	200	15	86	NC	NC	NC	1	
	250	21	108	NC	NC	NC	1	
	300	11	129	NC	NC	NC	1	
	350	4	151	NC	NC	NC	1	
	400	1	172	NC	NC	NC	1	
	500	1	215	NC	NC	NC	1	
	600	2	258	NC	NC	NC	1	School Event attendance up to 700
	700	1	301	NC	NC	NC	1	accommodated in school's 303 parking lot spaces.
	800	2	344	NC	NC	NC	2 (553)	School Event attendance over 700 to 1,250 (largest event)
	850	1	366	NC	NC	NC	2	accommodated with baseball field (250 spaces).
	900	1	387	NC	NC	NC	2	
	1000	1	430	NC	NC	NC	2	
	1100	0	473	NC	NC	NC	2	
	1200	0	516	NC	NC	NC	2	
	1250	1	538	NC	NC	NC	2	All School Events accommodated onsite but providing offsite parking for events above 1,200 attendees (500 cars) would reduce parking congestion at school.
		67 events			67 events			

NC = No Change from Existing.
Parking supply with Project: Tier 1: 303 campus parking lot spaces; Tier 2: plus baseball field 250 spaces (553 total).

However, as demand approaches capacity, parking congestion increases. Some reserve capacity is generally recommended in order to facilitate the flow of vehicles looking for a space, vehicles moving in and out of spaces, peak surges, etc. To account for lower utilization as demand reaches capacity, a design safety factor of 10% is generally recommended for planning purposes *(Weant and Levinson, Parking, 1990)*. Applied to the parking space supply, this means the 553 total spaces equates to an effective supply of 500 spaces to maintain optimal traffic circulation.

Due to the lower parking demand associated with athletic games, attendance at the Center's capacity of 1,300 seats has a calculated parking demand of 494 vehicles, which is less than 500 spaces, and therefore would be accommodated within the 553 spaces while providing a 10% supply cushion.

Non-athletic events of 1,200 or more attendees have a calculated demand over 500 vehicles. This applies to the school's one largest event of 1,250 attendees (538 vehicles). Although accommodated onsite, offsite parking, if allowable, would reduce congested parking conditions at the school. With existing demand of 538 vehicles, providing a minimum offsite supply of 38 spaces would be recommended.

School representatives state increased attendance is not anticipated for school events as a result of the proposed Center's increased capacity. Non-athletic events are less related to the gymnasium/proposed Center's capacity, as they often incorporate other areas of the campus as well as the gymnasium. However, attendance may increase if future student enrollment increases. The school's existing enrollment of 1,250 students could eventually increase to the school's projected capacity enrollment of 1,320 students, reflecting a 5% increase above the existing enrollment. As a result, attendance for the school's single largest event may eventually increase from 1,250 people to approximately 1,300 people, which has a calculated parking demand of 559 vehicles. This would essentially be accommodated in the parking lot and baseball field spaces, and would be accommodated in the 575 space total if the 98th Avenue drop-off area spaces are included. However, to maintain a 10% supply buffer, providing a minimum offsite supply of 59 spaces would be recommended.

School representatives state offsite parking has historically been provided with shuttle service to/from the school for the largest events. The school states offsite parking has been utilized one time each year over the previous three years, with offsite demand of 31 vehicles last year. Parking has historically been provided at the Oakland Zoo by prior-arrangement. The Zoo has approximately 150 spaces. School representatives state that offsite parking agreements can also be provided for spaces at two local parishes. St. Paschal's is located approximately 0.75 miles away on the east side of I-580 near the Oakland Zoo and has approximately 110 striped spaces. The Church of the Assumption parish is located three miles south of the school via MacArthur Boulevard or Foothill Boulevard and has approximately 145 spaces.

6.3.4 Potential Street Parking Demand

If the baseball field is not available, events above 700 people and games above 800 people would be expected to generate parking demand on the adjacent streets. Though infrequent, the largest expected games of 1,100 people would result in spillover street parking of approximately 120 vehicles. A game at capacity attendance of 1,300 would generate street parking of approximately 200 vehicles.

Street parking would be concentrated along the school frontage on Stearns Avenue between 98th Avenue and Burr Street (fully occupied) and street spaces near the 98th Avenue and Burr Street intersections (such as 98th Avenue, Cherokee Avenue, 94th Avenue, and Burr Street). For an event at capacity attendance, demand would likely extend farther from the school, primarily along 98th Avenue and 94th Avenue, with potentially some demand on adjacent streets (such Stanley Avenue or Las Vegas Avenue).

It is noted that street parking along Stearns Avenue occurs even if parking is available in the on-campus spaces. Given the proximity to the main school grounds, street spaces on the upper portion of Stearns Avenue are located close to the school entrance and also provide outbound vehicle access to 98th Avenue.

6.4 Parking Findings / Recommendations

As noted, attendance for most games and events is low enough to be accommodated in the onsite parking lot supply without the need for the supplemental baseball field area. All attendance levels, including the Center's capacity of 1,300 people for games and the school's largest event of 1,250 people, would be accommodated on the school grounds if the baseball field is available. Therefore, based on the evaluated parking demands and supply levels, the following measures are recommended to address parking for the various attendance levels:

- **Athletic games with up to 800 people and non-athletic events with up to 700 people would be accommodated within the school's 303 parking lot spaces.**

- Athletic games with attendance above 800 people to 1,300 people have a calculated parking demand of 304 to 494 parked vehicles. Non-athletic events above 700 people to the school's largest event of 1,250 people have a calculated parking demand of 301 to 538 parked vehicles. The parking demands associated with these attendance levels are accommodated by the baseball field's additional 250 spaces (553 total spaces).

  To provide adequate parking supply for athletic games in the Center above 800 people and non-athletic events above 700 people, the 250-space baseball field should be made available.

- As calculated in Table 8, the baseball field parking supply would be necessary for approximately 5-8 basketball games and 6 school events per year. Although very infrequent, the possibility of a weather event (rain) might render the field unusable. To guarantee that an adequate supply of parking spaces is available should the field not be usable, providing offsite parking spaces with shuttle service would ensure adequate parking supply is available. The number of needed offsite spaces would vary depending on the size of the event, but providing up to 250 spaces would equal the supply of baseball field spaces.

  Based on the City's Municipal Parking Code (Section 17.116.070), the project applicant would prepare a shared parking agreement (acceptable to City staff) to guarantee adequate off-site spaces are available during these "peak events" if the field is not available.

- The parking lot and baseball field supply of 553 spaces would accommodate all game and non-athletic events onsite. However, for an event generating parking demand over 500 vehicles, onsite parking and traffic congestion increases. Preserving a 10% supply buffer would help to minimize congestion. For the largest events, offsite parking with shuttle service has historically been provided.

  To minimize parking and traffic congestion for the school's largest non-athletic event(s) that generate parking demand over 500 vehicles (over 1,200 attendees), offsite parking should continue to be provided.

  The number of offsite spaces should assume an on-campus capacity of 500 spaces in order to preserve the 10% supply buffer. The school's largest existing event of 1,250 people (and potentially 1,300 people with future enrollment) have a calculated demand of 538-559 vehicles. Therefore, providing a minimum offsite supply of 38-59 spaces (more if available) would be recommended.

  The school should provide advance notification to students and parents of the offsite location and directions.

  To the extent possible, it is recommended that employees, teachers, and people who normally arrive early, be requested to utilize the offsite parking. This would provide greater availability of on-campus spaces when attendees arrive at the start of the event.

- As noted, some amount of street parking occurs even if adequate supply is available on campus. The number of street parked vehicles would be expected to increase in proportion to higher attendance levels. This has the potential to displace street parking used by nearby residents, particularly on Stearns Avenue across from the school grounds.

  If street parking during large events impacts adjacent resident households, temporary parking prohibitions for event attendees could be implemented, particularly on Stearns Avenue between 98th Avenue and Burr Street. Temporary signs, placards, or moveable barriers prohibiting event parking could be located in front of the homes on the opposite side of the school during the event to preserve street parking for the residents.

The recommended measures above would adequately address nearly all school event situations. It is nevertheless noted that a few events per year may generate parking demand above the calculated levels given the diversity and variety of events that occur on a school campus. For a singular event that generates parking demand above expected rates, street parking on adjacent streets would likely occur. As noted in the recommendations, the most impacted residents are those located on Stearns Avenue across from the school. Temporary parking restrictions prohibiting event goers from parking in front of these homes would preserve street spaces for the most affected residents.

7. Site Circulation

The proposed Center building would be located internally within the existing school grounds. There would be no physical alterations to the external street network to access the school as a result of the project.

The two school parking entrances are located on Stearns Avenue, consisting of the main parking area and a separate parking lot located north of the main entrance. Inbound trips enter both parking lots by traveling north from 98th Avenue. Outbound trips from the main lot can exit south toward 98th Avenue or north toward Burr Street. Outbound trips from the lower lot must travel northbound to exit (Stearns Avenue is one-way northbound from the main entrance to Burr Street). There would be no changes to the parking lot entrances or ingress/egress traffic patterns.

Bicycle and pedestrian access to the school grounds would also remain the same as existing conditions. Existing sidewalk facilities connect the bus stops located on 98th Avenue at Stearns Avenue to the school grounds. The proposed project would not alter or change bus access to the school. There are two existing bicycle rack areas at the school accommodating 15 bicycles. However, according to the school representatives, very few students currently ride bikes to the school. Ridership to events, which are frequently held at night, is likely similar. School representatives say concerns about busy streets likely discourage bicycle riding.

The pedestrian facilities within the campus footprint provide sidewalks/paths from parking areas to the proposed Center location. An existing paved staircase provides pedestrian access to/from the drop-off area on 98th Avenue in the southeast corner of the campus and would remain unchanged with the project.

The primary internal circulation change would be a new vehicle access location to the baseball field for parking. The existing entrance to the baseball field is located on the eastern side of the school near the proposed Center building location. Vehicles currently travel through the main parking lot area and continue around the eastern campus perimeter to the baseball field access. A new access location would be created along the school's main drive-aisle on the west side of the school much closer to the school entrance. The new location would beneficially facilitate the circulation of vehicles on campus when the baseball field is used for parking by shortening the travel distance to the field parking access and eliminating the circulatory flow of vehicles around the campus perimeter.

8. Vehicle Miles Traveled (VMT)

8.1 Technical Analysis Parameters and Methodologies

Caltrans

Senate Bill (SB) 743 was signed into law in 2013, with the intent to better align CEQA practices with statewide sustainability goals related to efficient land use, greater multimodal choices, and greenhouse gas reductions. The provisions of SB 743 became effective Statewide on July 1, 2020.

Under SB 743, automobile delay, traditionally measured as level of service (LOS), are no longer considered an environmental impact under CEQA. Instead, impacts are determined by changes to Vehicle Miles Traveled (VMT). VMT measures the number and length of vehicle trips made on a daily basis. VMT is a useful indicator of overall land use and transportation efficiency, where the most efficient system is one that minimizes VMT by encouraging shorter vehicle trip lengths, more walking and biking, or increased carpooling and transit. In recognition that the character of communities, availability of travel mode options, and geographic areas all differ throughout the State, each jurisdiction, from regional agency, to County, to City, have been given the opportunity to establish their own VMT thresholds consistent with the State's guidelines and regulatory framework. Still, LOS will be utilized as a metric outside of CEQA, within agency policies for development approval. The following section outlines the analysis parameters and methodologies used in the transportation impact study to quantify potential project impacts for the analysis scenarios.

City of Oakland

The City of Oakland has established VMT screening thresholds based on project types, characteristics, and/or location. As specified in the City TIRG, there are three criteria for screening land use development projects that include the following (*City of Oakland, Transportation Impact Review Guidelines, Land Use Development Projects, 5.4.1, VMT Screening Criteria, April 14, 2017*):

1. Small Size: Projects that generate less than 100 daily vehicle trips;

2. Project location in low-VMT areas: Residential, locally serving retail, and office projects located in areas of low-VMT (map-based) that incorporate density, mixed-uses, low parking ratios, and transit accessibility;

3. Development projects (residential, retail, and office) and/or mixed-use projects that are located within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor.

Applied to the City of Oakland's TIR Guidelines regarding daily trips, net new VMT from the proposed Center would occur on an occasional basis, which generates less than 100 daily trips on an annualized basis (see net increase in daily trips discussion in Section 8.2 below). The project is also located within one-half mile of an existing major transit stop on 98th Avenue and MacArthur Boulevard. The project screens out on these criteria.

Moreover, a strong case could be made that the new proposed facility would actually reduce VMT in the area due to the following factors:

- Not having to host "dual events" at existing on-campus facilities due to the limited size of the current gym;
- Non-athletic events (school plays, music, assemblies, etc.) could be held on a more efficient schedule reducing the number of events;
- Currently, student athletes and parents must drive to off-site facilities that can host larger events (primarily basketball) for play-offs. With a larger gym/center, there would no longer be a need to travel to off-site facilities reducing additional vehicle trips.

8.2 Net Increase in Proposed Project Daily Vehicle Trips from Large Events

To determine the net increase in daily trip generation from proposed project uses, the proposed center's capacity of 1,300 people was compared with the existing current gym capacity of 800 people. Currently, the majority of events (both athletic and non-athletic) on the Bishop O'Dowd campus fall in the attendance range below 800 persons. Attendance for most events is not expected to change. However, the exception would be where existing attendance is at the current gym's capacity. In the previous year, five basketball games had attendance at the existing gym's capacity of 800 seats. With the proposed Center's higher capacity, it is possible attendance could increase for these 5 basketball games if there is existing demand that is currently unable to attend. Additionally, school representatives state that 1-3 playoff games, currently held offsite at another location (Laney College), could be moved to the proposed Center if the team makes the playoffs. Therefore, attendance could increase for approximately 8 games played in the Center. Attendance is not generally expected to increase to the proposed Center's capacity. The school's highest attended games (football) average approximately 1,100 people. However, the net increase in trip generation reflecting the Center's capacity of 1,300 people was evaluated.

Based on the trip generation surveys, estimated trip increases associated with a 500-person increase in attendance (800 to 1,300 attendees) is shown as follows:

800 attendance game total vehicle trips:
Pre-game: 50 in to park, 288 in & 32 out peak hour
Post-game: 20 out early, 34 in & 310 out peak hour, 8 out after. Total = 742 trips
Existing: 1 game = 742 trips (8 games = 5,936 trips)

1,300 attendance game total vehicle trips:
Pre-game: 50 in to park, 468 in & 52 out peak hour, 34 in after
Post-game: 40 out early, 56 in & 504 out peak hour, 12 out after. Total = 1,216 trips.
Future: 1 game = 1,216 trips (8 games = 9,728 trips)

Total vehicle trips per year (9,728 - 5,936) = 3,792 trips

As shown above, the proposed project would be expected to generate 3,792 vehicle trips on an annual basis or approximately 10.4 trips per day.

8.3 VMT Transportation Model Projections/Methodology

As previously noted, the City's TIRG indicates that K-12 schools activity should be treated as office development. This would equate to VMT per "Employee". Reviewing the Alameda Countywide Travel Demand Model, the Bishop O'Dowd High School Campus is located in Travel Analysis Zone (TAZ) 411. Within this TAZ, the model indicates that the 2020 VMT per employee is 28.61 (*Alameda Countywide Travel Demand Model, North Planning Area, TAZ 411, VMT per employee, 2020*). However, it is suggested that an average VMT per employee of 28.61 metric is not appropriate for the proposed project for the following reasons:

- The proposed project would not increase commute lengths in the study area;
- VMT trip length per student/attendee will not increase.

Therefore, it is recommended that increases in proposed project VMT be based on the daily project trips as calculated in Table 9. Based on this methodology, the daily increase in proposed project VMT would be 298 vehicle miles traveled.

Table 9: Vehicle Miles Traveled (VMT) Summary

Land Use	Daily Project Trips	Average Trip Length	Daily VMT
Gym/Center	10.4	28.61	298

Alameda Countywide Travel Demand Model, North Planning Area, TAZ 411, VMT per employee (28.61 vmt per employee), 2020

Based on the applicable screening criteria, and in consultation with City Traffic Engineering staff, the increase of 10 daily trips screens out below the daily volume threshold.

9. Multimodal Trip Generation

The City of Oakland recognizes that the number of vehicle trips associated with projects in Oakland in relation to other travel modes (transit, bicycle, walking) is often over estimated given Oakland's denser environment, developed public transit system, and other alternatives to driving. The City has established Trip Generation Adjustment Factors specific to the City based on the distance from regional transit (BART/Amtrak) and land use density (urban to suburban).

The City of Oakland classification for the land use zone that Bishop O'Dowd is located in (Suburban, > 1 mile from BART/Amtrak) establishes the following default Multimodal Trip Generation Adjustment factors as shown in Table 10.

Table 10: City of Oakland
Default Multimodal Trip Generation Adjustment Factors

Mode	%	Attendance 800 Total Game Trips	Attendance 1,300 Total Game Trips
Motor Vehicle Trips	84.4 %	742[A]	1216[A]
Transit Trips	11.3 %	99	163
Bike Trips	0.9 %	8	13
Walk Trips	2.6 %	23	37

[A] The Transit/Bike/Walk trips have been calculated from the motor vehicle trips.

The alternative transportation mode trips (transit, bicycle, and walking) were calculated by applying the percentage for each from the motor vehicle trips.

However, the multimodal percentages listed in the City's TIRG are more applicable to the school-day student trips than to the school events. Bishop O'Dowd representatives state that approximately 150 students utilize bus service to get to school in the morning and from school in the afternoon. This represents approximately 12% of the student population, which corresponds closely with the City's 11.3% assumption. However, there would be no expected change in the number of students utilizing public transit to attend classes as a result of the Center project.

The number of people utilizing transit for events is expected to be lower, given events usually occur at night and have somewhat unpredictable finish times. For most events there would be no expected change in the number of people (students or general public) that utilize public transit, since attendance would remain unchanged for most events.

Transit ridership may increase slightly for the 5-8 basketball games where attendance might increase above existing conditions. Bishop O'Dowd representatives state shuttle service to

transit locations can be provided. The increased transit ridership for these 5-8 games would be expected to be at a level accommodated by existing school and transit services.

As noted, bicycle racks are available at the school for school-day students and for event attendees. Based on the City's multimodal percentages, an increase of 5 bicycle trips, or a total of 13 bicycle trips, could be generated by capacity attendance. The existing and calculated ridership at capacity attendance would be accommodated in the supply of bicycle racks located at the school.

10. TDM Strategies/Alternative Transportation Modes

Bishop O'Dowd has existing established Transportation Demand Management (TDM) strategies for school day operations and events (after school operations). The strategies are intended to reduce the number of vehicle trips through on-campus parking strategies and alternative transportation modes, and to facilitate traffic circulation during periods of traffic activity. The TDM plan incorporates the following components (the TDM plan provided by school representatives is provided in the Appendix):

- The school encourages and facilitates the use of public transit. For school day operations, three AC Transit bus routes (Lines 680, 682, 652) serve the school directly, with stops located on 98th Avenue near Stearns Avenue. According to school officials, approximately 150 students utilize these routes to/from school. Additional transit routes are located along MacArthur Boulevard (Lines 57, 90, 98), Bancroft Avenue (Line 40), and Golf Links Road (Line 46).
- The school has its own shuttle vehicles and, according to school officials, is able to provide service to/from BART (the nearest stations are Oakland Coliseum and San Leandro) in the morning, afternoon, and for evening events.
- Carpooling is encouraged, with priority parking spaces provided for carpool vehicles.
- Parking spaces for zero-emission vehicles are provided.
- The school employs traffic control/security personnel who monitor and oversee traffic operations in the morning and afternoon, as well as during events.
- To facilitate traffic circulation, drop-off and pick-up areas have been established in the main parking lot and in the pull-out area located on 98th Avenue.

10.1 Large Event TDM Strategies

School officials state specific TDM/Circulation measures are implemented for large events:

- Extra traffic control/security personnel are provided to supervise traffic circulation.
- Supplemental onsite parking on the baseball field is provided.
- Offsite parking with shuttle service for the largest events has historically been provided.
- Advance notice of the offsite parking plan and directions are distributed to school parents prior to event.

The TDM measures listed above for daily and special event operations would continue to be utilized in conjunction with the project.

10.2 TDM Strategies During Construction

During construction of the proposed Center, the available supply of parking spaces would be reduced. Out of the school's 343 existing parking lot spaces (321 spaces at time of previous CUP approval), 54 spaces would temporarily be removed, resulting in 289 parking lot spaces. (After construction 14 spaces would be re-added, creating 303 parking lot spaces.)

School representatives state a site logistics plan has been established to address school operations during construction.

The baseball field would be utilized as a staging area with an access location for construction vehicles to/from the main parking lot. A separate area of the baseball field would preserve approximately 60 spaces for overflow parking.

The baseball program would be moved offsite during the construction period. The school states it is evaluating alternatives for other events, such as football games, playoff games, or school-wide functions that have higher attendance, to be held offsite. (A construction staging plan provided by the school is included in the Appendix for reference.)

Appendix

Level-of-Service Definitions

LOS Calculation Worksheets

Vehicle Queuing Calculation Worksheets

Peak Hour Signal Warrant Worksheets

Intersection Volume Worksheets

CMF Details Worksheets

Bishop O'Dowd Travel Demand Management Plan

Figure A-1: 98th Avenue Drop-off Area Striping Plan

Figure A-2: Temporary Construction Parking Plan

INTERSECTION LEVEL-OF-SERVICE DEFINITIIONS

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec)	
				Signalized/ Roundabouts	Unsignalized/ All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and < 20.0	>10.0 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20.0 and < 35.0	>15.0 and < 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and < 55.0	>25.0 and < 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and < 80.0	>35.0 and < 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0

References: 2010 Highway Capacity Manual

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	480	1	3	508	60	1	2	3	39	1	2
Future Volume (veh/h)	7	480	1	3	508	60	1	2	3	39	1	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	527	1	3	584	69	2	3	5	57	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.63	0.63	0.63	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	15	1300	2	6	1120	132	5	8	13	270	142	0
Arrive On Green	0.01	0.36	0.36	0.00	0.35	0.35	0.02	0.02	0.02	0.08	0.00	0.00
Sat Flow, veh/h	1774	3624	7	1774	3169	373	336	504	840	3548	1863	0
Grp Volume(v), veh/h	8	257	271	3	325	328	10	0	0	57	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1772	1680	0	0	1774	1863	0
Q Serve(g_s), s	0.1	3.2	3.2	0.0	4.3	4.3	0.2	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.1	3.2	3.2	0.0	4.3	4.3	0.2	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.21	0.20		0.50	1.00		0.00
Lane Grp Cap(c), veh/h	15	635	668	6	625	626	27	0	0	270	142	0
V/C Ratio(X)	0.52	0.41	0.41	0.50	0.52	0.52	0.37	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	363	3744	3937	363	3744	3749	459	0	0	968	508	0
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.5	7.1	7.1	14.6	7.5	7.5	14.3	0.0	0.0	12.7	0.0	0.0
Incr Delay (d2), s/veh	25.1	0.4	0.4	51.5	0.7	0.7	8.3	0.0	0.0	0.4	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	0.2	1.6	1.7	0.1	2.2	2.2	0.1	0.0	0.0	0.2	0.0	0.0
LnGrp Delay(d),s/veh	39.6	7.5	7.4	66.0	8.2	8.2	22.6	0.0	0.0	13.1	0.0	0.0
LnGrp LOS	D	A	A	E	A	A	C			B		
Approach Vol, veh/h		536			656			10			57	
Approach Delay, s/veh		7.9			8.5			22.6			13.1	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.5	4.1	14.5		6.2	4.3	14.4
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		8.0	6.0	62.0		8.0	6.0	62.0
Max Q Clear Time (g_c+I1), s		2.2	2.0	5.2		2.4	2.1	6.3
Green Ext Time (p_c), s		0.0	0.0	2.3		0.1	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	518	4	2	10	566	5	19
Future Vol, veh/h	518	4	2	10	566	5	19
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	93	93	88	88	88	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	557	4	2	11	643	7	25

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	561	571	0	917	291
Stage 1	-	-	-	-	-	569	-
Stage 2	-	-	-	-	-	348	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	633	998	-	271	706
Stage 1	-	-	-	-	-	530	-
Stage 2	-	-	-	-	-	686	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	899	899	-	264	700
Mov Cap-2 Maneuver	-	-	-	-	-	264	-
Stage 1	-	-	-	-	-	517	-
Stage 2	-	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	700	-	-	899	-
HCM Lane V/C Ratio	0.025	0.036	-	-	0.015	-
HCM Control Delay (s)	19	10.3	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	9	5	11	38	0	0	0	7
Future Vol, veh/h	0	0	0	0	9	5	11	38	0	0	0	7
Peak Hour Factor	0.92	0.92	0.92	0.70	0.70	0.70	0.72	0.72	0.72	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	13	7	15	53	0	0	0	8
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.4	6.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	0%
Vol Thru, %	78%	64%	0%
Vol Right, %	0%	36%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	49	14	7
LT Vol	11	0	0
Through Vol	38	9	0
RT Vol	0	5	7
Lane Flow Rate	68	20	8
Geometry Grp	1	1	1
Degree of Util (X)	0.076	0.021	0.008
Departure Headway (Hd)	4.02	3.85	3.419
Convergence, Y/N	Yes	Yes	Yes
Cap	895	927	1047
Service Time	2.027	1.883	1.439
HCM Lane V/C Ratio	0.076	0.022	0.008
HCM Control Delay	7.4	7	6.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	392	1	5	377	28	0	2	8	2	0	0
Future Volume (veh/h)	15	392	1	5	377	28	0	2	8	2	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	417	1	6	477	35	0	2	10	2	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.94	0.94	0.94	0.79	0.79	0.79	0.83	0.83	0.83	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	1210	3	12	1078	79	0	5	26	14	7	0
Arrive On Green	0.02	0.33	0.33	0.01	0.32	0.32	0.00	0.02	0.02	0.00	0.00	0.00
Sat Flow, veh/h	1774	3622	9	1774	3329	243	0	267	1334	3548	1863	0
Grp Volume(v), veh/h	16	204	214	6	253	259	0	0	12	2	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1803	0	0	1601	1774	1863	0
Q Serve(g_s), s	0.2	2.2	2.2	0.1	2.8	2.9	0.0	0.0	0.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	2.2	2.2	0.1	2.8	2.9	0.0	0.0	0.2	0.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.13	0.00		0.83	1.00		0.00
Lane Grp Cap(c), veh/h	30	591	622	12	573	584	0	0	31	14	7	0
V/C Ratio(X)	0.54	0.34	0.34	0.52	0.44	0.44	0.00	0.00	0.39	0.14	0.00	0.00
Avail Cap(c_a), veh/h	424	1831	1925	424	1831	1866	0	0	382	847	445	0
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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	6.3	6.3	12.4	6.7	6.7	0.0	0.0	12.2	12.5	0.0	0.0
Incr Delay (d2), s/veh	14.1	0.3	0.3	31.5	0.5	0.5	0.0	0.0	7.9	4.5	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	0.2	1.1	1.1	0.1	1.4	1.5	0.0	0.0	0.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	26.4	6.6	6.6	44.0	7.2	7.2	0.0	0.0	20.1	17.0	0.0	0.0
LnGrp LOS	C	A	A	D	A	A			C	B		
Approach Vol, veh/h		434			518			12			2	
Approach Delay, s/veh		7.4			7.7			20.1			17.0	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.5	4.2	12.4		4.1	4.4	12.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		6.0	6.0	26.0		6.0	6.0	26.0
Max Q Clear Time (g_c+I1), s		2.2	2.1	4.2		2.0	2.2	4.9
Green Ext Time (p_c), s		0.0	0.0	1.6		0.0	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	395	5	2	8	406	4	14
Future Vol, veh/h	395	5	2	8	406	4	14
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	95	95	83	83	83	56	56
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	416	5	2	10	489	7	25

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	421	431	0	698	221
Stage 1	-	-	-	-	-	429	-
Stage 2	-	-	-	-	-	269	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	777	1125	-	375	783
Stage 1	-	-	-	-	-	624	-
Stage 2	-	-	-	-	-	752	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	1021	1021	-	368	776
Mov Cap-2 Maneuver	-	-	-	-	-	368	-
Stage 1	-	-	-	-	-	612	-
Stage 2	-	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	368	776	-	-	1021	-
HCM Lane V/C Ratio	0.019	0.032	-	-	0.012	-
HCM Control Delay (s)	15	9.8	-	-	8.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	7	3	9	32	0	0	0	4
Future Vol, veh/h	0	0	0	0	7	3	9	32	0	0	0	4
Peak Hour Factor	0.92	0.92	0.92	0.38	0.38	0.38	0.67	0.67	0.67	0.38	0.38	0.38
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	18	8	13	48	0	0	0	11
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.3	6.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	0%
Vol Thru, %	78%	70%	0%
Vol Right, %	0%	30%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	41	10	4
LT Vol	9	0	0
Through Vol	32	7	0
RT Vol	0	3	4
Lane Flow Rate	61	26	11
Geometry Grp	1	1	1
Degree of Util (X)	0.069	0.028	0.01
Departure Headway (Hd)	4.031	3.877	3.424
Convergence, Y/N	Yes	Yes	Yes
Cap	892	922	1045
Service Time	2.042	1.908	1.447
HCM Lane V/C Ratio	0.068	0.028	0.011
HCM Control Delay	7.3	7	6.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	480	1	3	508	264	1	3	3	61	1	6
Future Volume (veh/h)	91	480	1	3	508	264	1	3	3	61	1	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	97	511	1	3	546	284	1	4	4	87	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.75	0.75	0.75	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1637	3	6	854	443	3	11	11	341	179	0
Arrive On Green	0.07	0.45	0.45	0.00	0.39	0.39	0.01	0.01	0.01	0.10	0.00	0.00
Sat Flow, veh/h	1774	3624	7	1774	2211	1147	189	757	757	3548	1863	0
Grp Volume(v), veh/h	97	250	262	3	437	393	9	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1589	1703	0	0	1774	1863	0
Q Serve(g_s), s	2.0	3.3	3.3	0.1	7.4	7.4	0.2	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.3	3.3	0.1	7.4	7.4	0.2	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.72	0.11		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	122	799	841	6	683	614	24	0	0	341	179	0
V/C Ratio(X)	0.79	0.31	0.31	0.52	0.64	0.64	0.37	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	289	2980	3134	289	2980	2676	370	0	0	771	405	0
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.9	6.4	6.4	18.3	9.2	9.2	18.0	0.0	0.0	15.4	0.0	0.0
Incr Delay (d2), s/veh	10.9	0.2	0.2	56.4	1.0	1.1	9.0	0.0	0.0	0.4	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	1.3	1.6	1.7	0.1	3.7	3.4	0.1	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	27.8	6.7	6.7	74.7	10.2	10.3	27.0	0.0	0.0	15.8	0.0	0.0
LnGrp LOS	C	A	A	E	B	B	C			B		
Approach Vol, veh/h		609			833			9			87	
Approach Delay, s/veh		10.0			10.5			27.0			15.8	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.5	4.1	20.6		7.5	6.5	18.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		8.0	6.0	62.0		8.0	6.0	62.0
Max Q Clear Time (g_c+I1), s		2.2	2.1	5.3		2.8	4.0	9.4
Green Ext Time (p_c), s		0.0	0.0	2.2		0.1	0.0	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	540	4	2	10	768	7	19
Future Vol, veh/h	540	4	2	10	768	7	19
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	94	94	93	93	93	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	574	4	2	11	826	11	29

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	579	588	0	1025	299
Stage 1	-	-	-	-	-	586	-
Stage 2	-	-	-	-	-	439	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	617	983	-	231	697
Stage 1	-	-	-	-	-	519	-
Stage 2	-	-	-	-	-	617	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	883	883	-	226	691
Mov Cap-2 Maneuver	-	-	-	-	-	226	-
Stage 1	-	-	-	-	-	507	-
Stage 2	-	-	-	-	-	617	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	226	691	-	-	883	-
HCM Lane V/C Ratio	0.047	0.042	-	-	0.015	-
HCM Control Delay (s)	21.7	10.4	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	9	5	12	43	0	0	0	7
Future Vol, veh/h	0	0	0	0	9	5	12	43	0	0	0	7
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.85	0.85	0.85	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	11	6	14	51	0	0	0	11
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.3	6.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	22%	0%	0%
Vol Thru, %	78%	64%	0%
Vol Right, %	0%	36%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	55	14	7
LT Vol	12	0	0
Through Vol	43	9	0
RT Vol	0	5	7
Lane Flow Rate	65	17	11
Geometry Grp	1	1	1
Degree of Util (X)	0.072	0.018	0.011
Departure Headway (Hd)	4.016	3.852	3.412
Convergence, Y/N	Yes	Yes	Yes
Cap	896	928	1050
Service Time	2.022	1.881	1.429
HCM Lane V/C Ratio	0.073	0.018	0.01
HCM Control Delay	7.3	7	6.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	392	1	5	377	52	0	2	8	219	1	28
Future Volume (veh/h)	25	392	1	5	377	52	0	2	8	219	1	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	436	1	6	433	60	0	3	13	366	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.63	0.63	0.63	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1098	3	12	874	120	0	7	32	627	329	0
Arrive On Green	0.03	0.30	0.30	0.01	0.28	0.28	0.00	0.02	0.02	0.18	0.00	0.00
Sat Flow, veh/h	1774	3622	8	1774	3099	426	0	301	1304	3548	1863	0
Grp Volume(v), veh/h	28	213	224	6	246	247	0	0	16	366	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1755	0	0	1604	1774	1863	0
Q Serve(g_s), s	0.5	3.1	3.1	0.1	3.8	3.9	0.0	0.0	0.3	3.1	0.0	0.0
Cycle Q Clear(g_c), s	0.5	3.1	3.1	0.1	3.8	3.9	0.0	0.0	0.3	3.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.24	0.00		0.81	1.00		0.00
Lane Grp Cap(c), veh/h	49	536	564	12	499	495	0	0	40	627	329	0
V/C Ratio(X)	0.57	0.40	0.40	0.52	0.49	0.50	0.00	0.00	0.40	0.58	0.00	0.00
Avail Cap(c_a), veh/h	325	1406	1478	325	1406	1394	0	0	294	650	341	0
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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.7	9.0	9.0	16.2	9.8	9.8	0.0	0.0	15.7	12.4	0.0	0.0
Incr Delay (d2), s/veh	10.2	0.5	0.5	32.0	0.8	0.8	0.0	0.0	6.4	1.3	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	0.4	1.6	1.6	0.2	1.9	2.0	0.0	0.0	0.2	1.6	0.0	0.0
LnGrp Delay(d),s/veh	26.0	9.5	9.5	48.2	10.5	10.6	0.0	0.0	22.1	13.6	0.0	0.0
LnGrp LOS	C	A	A	D	B	B			C	B		
Approach Vol, veh/h		465			499			16			366	
Approach Delay, s/veh		10.5			11.0			22.1			13.6	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.8	4.2	13.9		9.8	4.9	13.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		6.0	6.0	26.0		6.0	6.0	26.0
Max Q Clear Time (g_c+I1), s		2.3	2.1	5.1		5.1	2.5	5.9
Green Ext Time (p_c), s		0.0	0.0	1.7		0.2	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	612	7	2	8	430	4	14
Future Vol, veh/h	612	7	2	8	430	4	14
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	77	77	87	87	87	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	795	9	2	9	494	5	19

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	804	814	0	1079	412
Stage 1	-	-	-	-	-	810	-
Stage 2	-	-	-	-	-	269	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	443	809	-	213	589
Stage 1	-	-	-	-	-	398	-
Stage 2	-	-	-	-	-	752	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	685	685	-	208	584
Mov Cap-2 Maneuver	-	-	-	-	-	208	-
Stage 1	-	-	-	-	-	388	-
Stage 2	-	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	208	584	-	-	685	-
HCM Lane V/C Ratio	0.026	0.032	-	-	0.017	-
HCM Control Delay (s)	22.8	11.4	-	-	10.3	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	7	3	24	79	0	0	0	4
Future Vol, veh/h	0	0	0	0	7	3	24	79	0	0	0	4
Peak Hour Factor	0.92	0.92	0.92	0.58	0.58	0.58	0.60	0.60	0.60	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	12	5	40	132	0	0	0	8
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.2	8	6.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	23%	0%	0%
Vol Thru, %	77%	70%	0%
Vol Right, %	0%	30%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	103	10	4
LT Vol	24	0	0
Through Vol	79	7	0
RT Vol	0	3	4
Lane Flow Rate	172	17	8
Geometry Grp	1	1	1
Degree of Util (X)	0.192	0.019	0.008
Departure Headway (Hd)	4.016	4.065	3.491
Convergence, Y/N	Yes	Yes	Yes
Cap	898	869	1019
Service Time	2.025	2.143	1.532
HCM Lane V/C Ratio	0.192	0.02	0.008
HCM Control Delay	8	7.2	6.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	480	1	3	508	390	1	4	3	76	1	7
Future Volume (veh/h)	143	480	1	3	508	390	1	4	3	76	1	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	152	511	1	3	546	419	1	5	4	108	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.75	0.75	0.75	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	1880	4	6	770	591	3	13	11	354	186	0
Arrive On Green	0.11	0.52	0.52	0.00	0.41	0.41	0.02	0.02	0.02	0.10	0.00	0.00
Sat Flow, veh/h	1774	3624	7	1774	1864	1431	172	858	687	3548	1863	0
Grp Volume(v), veh/h	152	250	262	3	518	447	10	0	0	108	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1525	1716	0	0	1774	1863	0
Q Serve(g_s), s	3.7	3.5	3.5	0.1	10.7	10.7	0.3	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	3.7	3.5	3.5	0.1	10.7	10.7	0.3	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.94	0.10		0.40	1.00		0.00
Lane Grp Cap(c), veh/h	194	918	965	6	731	630	27	0	0	354	186	0
V/C Ratio(X)	0.79	0.27	0.27	0.52	0.71	0.71	0.37	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	241	2486	2615	241	2486	2143	311	0	0	643	338	0
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.2	6.0	6.0	22.0	10.8	10.8	21.5	0.0	0.0	18.4	0.0	0.0
Incr Delay (d2), s/veh	12.6	0.2	0.2	56.8	1.3	1.5	8.3	0.0	0.0	0.5	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	2.5	1.7	1.8	0.1	5.4	4.7	0.2	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	31.8	6.1	6.1	78.7	12.0	12.2	29.8	0.0	0.0	18.9	0.0	0.0
LnGrp LOS	C	A	A	E	B	B	C			B		
Approach Vol, veh/h		664			968			10			108	
Approach Delay, s/veh		12.0			12.3			29.8			18.9	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.7	4.1	26.9		8.4	8.8	22.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		8.0	6.0	62.0		8.0	6.0	62.0
Max Q Clear Time (g_c+I1), s		2.3	2.1	5.5		3.2	5.7	12.7
Green Ext Time (p_c), s		0.0	0.0	2.2		0.1	0.0	5.5

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	555	4	2	10	893	8	19
Future Vol, veh/h	555	4	2	10	893	8	19
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	94	94	93	93	93	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	590	4	2	11	960	12	29

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	595	604	0	1108	307
Stage 1	-	-	-	-	-	602	-
Stage 2	-	-	-	-	-	506	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	602	970	-	204	689
Stage 1	-	-	-	-	-	510	-
Stage 2	-	-	-	-	-	571	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	869	869	-	199	683
Mov Cap-2 Maneuver	-	-	-	-	-	199	-
Stage 1	-	-	-	-	-	498	-
Stage 2	-	-	-	-	-	571	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	199	683	-	-	869	-
HCM Lane V/C Ratio	0.061	0.042	-	-	0.015	-
HCM Control Delay (s)	24.3	10.5	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	9	5	14	45	0	0	0	7
Future Vol, veh/h	0	0	0	0	9	5	14	45	0	0	0	7
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.85	0.85	0.85	0.63	0.63	0.63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	11	6	16	53	0	0	0	11
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.4	6.5
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	24%	0%	0%
Vol Thru, %	76%	64%	0%
Vol Right, %	0%	36%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	59	14	7
LT Vol	14	0	0
Through Vol	45	9	0
RT Vol	0	5	7
Lane Flow Rate	69	17	11
Geometry Grp	1	1	1
Degree of Util (X)	0.077	0.019	0.011
Departure Headway (Hd)	4.019	3.86	3.415
Convergence, Y/N	Yes	Yes	Yes
Cap	895	926	1048
Service Time	2.028	1.891	1.436
HCM Lane V/C Ratio	0.077	0.018	0.01
HCM Control Delay	7.4	7	6.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Future Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	436	1	6	433	78	0	3	13	594	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.63	0.63	0.63	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	1129	3	12	849	151	0	7	32	636	334	0
Arrive On Green	0.03	0.31	0.31	0.01	0.29	0.29	0.00	0.02	0.02	0.18	0.00	0.00
Sat Flow, veh/h	1774	3622	8	1774	2969	530	0	301	1303	3548	1863	0
Grp Volume(v), veh/h	34	213	224	6	256	255	0	0	16	594	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1729	0	0	1604	1774	1863	0
Q Serve(g_s), s	0.6	3.2	3.2	0.1	4.1	4.1	0.0	0.0	0.3	5.5	0.0	0.0
Cycle Q Clear(g_c), s	0.6	3.2	3.2	0.1	4.1	4.1	0.0	0.0	0.3	5.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.31	0.00		0.81	1.00		0.00
Lane Grp Cap(c), veh/h	57	552	580	12	506	494	0	0	40	636	334	0
V/C Ratio(X)	0.59	0.39	0.39	0.52	0.51	0.52	0.00	0.00	0.40	0.93	0.00	0.00
Avail Cap(c_a), veh/h	318	1374	1445	318	1374	1343	0	0	287	636	334	0
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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.0	9.0	9.0	16.6	10.0	10.0	0.0	0.0	16.1	13.5	0.0	0.0
Incr Delay (d2), s/veh	9.3	0.4	0.4	32.1	0.8	0.8	0.0	0.0	6.4	21.1	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	0.5	1.6	1.7	0.2	2.0	2.0	0.0	0.0	0.2	4.5	0.0	0.0
LnGrp Delay(d),s/veh	25.3	9.5	9.4	48.7	10.8	10.8	0.0	0.0	22.5	34.6	0.0	0.0
LnGrp LOS	C	A	A	D	B	B			C	C		
Approach Vol, veh/h		471			517			16			594	
Approach Delay, s/veh		10.6			11.2			22.5			34.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		4.8	4.2	14.4		10.0	5.1	13.6
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		6.0	6.0	26.0		6.0	6.0	26.0
Max Q Clear Time (g_c+I1), s		2.3	2.1	5.2		7.5	2.6	6.1
Green Ext Time (p_c), s		0.0	0.0	1.7		0.0	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	747	8	2	8	445	5	14
Future Vol, veh/h	747	8	2	8	445	5	14
Conflicting Peds, #/hr	0	10	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	125	-	25	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	77	77	87	87	87	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	970	10	2	9	511	7	19

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	981	990	0	1263	500
Stage 1	-	-	-	-	-	985	-
Stage 2	-	-	-	-	-	278	-
Critical Hdwy	-	-	6.44	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.52	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	341	694	-	162	516
Stage 1	-	-	-	-	-	322	-
Stage 2	-	-	-	-	-	744	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	567	567	-	158	512
Mov Cap-2 Maneuver	-	-	-	-	-	158	-
Stage 1	-	-	-	-	-	313	-
Stage 2	-	-	-	-	-	744	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	158	512	-	-	567	-
HCM Lane V/C Ratio	0.042	0.036	-	-	0.02	-
HCM Control Delay (s)	28.8	12.3	-	-	11.5	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	7	3	40	102	0	0	0	4
Future Vol, veh/h	0	0	0	0	7	3	40	102	0	0	0	4
Peak Hour Factor	0.92	0.92	0.92	0.58	0.58	0.58	0.60	0.60	0.60	0.50	0.50	0.50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	12	5	67	170	0	0	0	8
Number of Lanes	0	0	0	0	1	0	0	1	0	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	7.4	8.5	6.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	28%	0%	0%
Vol Thru, %	72%	70%	0%
Vol Right, %	0%	30%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	142	10	4
LT Vol	40	0	0
Through Vol	102	7	0
RT Vol	0	3	4
Lane Flow Rate	237	17	8
Geometry Grp	1	1	1
Degree of Util (X)	0.265	0.021	0.008
Departure Headway (Hd)	4.026	4.285	3.539
Convergence, Y/N	Yes	Yes	Yes
Cap	895	840	1001
Service Time	2.039	2.285	1.597
HCM Lane V/C Ratio	0.265	0.02	0.008
HCM Control Delay	8.5	7.4	6.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.1	0.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Future Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	436	1	6	433	78	0	3	13	594	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.63	0.63	0.63	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1054	2	11	789	141	0	7	32	960	504	0
Arrive On Green	0.03	0.29	0.29	0.01	0.27	0.27	0.00	0.02	0.02	0.27	0.00	0.00
Sat Flow, veh/h	1774	3622	8	1774	2967	529	0	301	1302	3548	1863	0
Grp Volume(v), veh/h	34	213	224	6	256	255	0	0	16	594	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1727	0	0	1603	1774	1863	0
Q Serve(g_s), s	0.7	3.8	3.8	0.1	4.9	5.0	0.0	0.0	0.4	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.7	3.8	3.8	0.1	4.9	5.0	0.0	0.0	0.4	5.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.31	0.00		0.81	1.00		0.00
Lane Grp Cap(c), veh/h	56	515	542	11	471	459	0	0	39	960	504	0
V/C Ratio(X)	0.61	0.41	0.41	0.52	0.54	0.55	0.00	0.00	0.41	0.62	0.00	0.00
Avail Cap(c_a), veh/h	271	1172	1232	271	1172	1144	0	0	245	2350	1234	0
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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	11.2	11.2	19.4	12.4	12.4	0.0	0.0	18.9	12.5	0.0	0.0
Incr Delay (d2), s/veh	10.2	0.5	0.5	32.5	1.0	1.0	0.0	0.0	6.7	0.7	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	0.5	1.9	2.0	0.2	2.5	2.5	0.0	0.0	0.2	2.9	0.0	0.0
LnGrp Delay(d),s/veh	28.9	11.7	11.7	51.9	13.4	13.4	0.0	0.0	25.5	13.2	0.0	0.0
LnGrp LOS	C	B	B	D	B	B			C	B		
Approach Vol, veh/h		471			517			16			594	
Approach Delay, s/veh		13.0			13.8			25.5			13.2	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		5.0	4.3	15.4		14.6	5.2	14.4
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		6.0	6.0	26.0		26.0	6.0	26.0
Max Q Clear Time (g_c+I1), s		2.4	2.1	5.8		7.8	2.7	7.0
Green Ext Time (p_c), s		0.0	0.0	1.7		2.9	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Future Volume (veh/h)	31	392	1	5	377	68	0	2	8	355	2	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	436	1	6	433	78	0	3	13	594	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	2	1	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.63	0.63	0.63	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1048	2	11	784	140	0	7	32	987	518	0
Arrive On Green	0.03	0.29	0.29	0.01	0.26	0.26	0.00	0.02	0.02	0.28	0.00	0.00
Sat Flow, veh/h	1774	3622	8	1774	2967	529	0	301	1302	3548	1863	0
Grp Volume(v), veh/h	34	213	224	6	257	254	0	0	16	594	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1727	0	0	1603	1774	1863	0
Q Serve(g_s), s	0.8	3.9	3.9	0.1	5.0	5.1	0.0	0.0	0.4	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.9	3.9	0.1	5.0	5.1	0.0	0.0	0.4	5.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.31	0.00		0.81	1.00		0.00
Lane Grp Cap(c), veh/h	56	512	538	11	468	456	0	0	39	987	518	0
V/C Ratio(X)	0.61	0.42	0.42	0.52	0.55	0.56	0.00	0.00	0.41	0.60	0.00	0.00
Avail Cap(c_a), veh/h	267	1155	1215	267	1155	1127	0	0	241	4989	2619	0
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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	11.4	11.4	19.7	12.6	12.6	0.0	0.0	19.1	12.5	0.0	0.0
Incr Delay (d2), s/veh	10.2	0.5	0.5	32.5	1.0	1.1	0.0	0.0	6.7	0.6	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	0.5	2.0	2.1	0.2	2.6	2.5	0.0	0.0	0.2	2.9	0.0	0.0
LnGrp Delay(d),s/veh	29.3	12.0	11.9	52.2	13.6	13.7	0.0	0.0	25.8	13.1	0.0	0.0
LnGrp LOS	C	B	B	D	B	B			C	B		
Approach Vol, veh/h		471			517			16			594	
Approach Delay, s/veh		13.2			14.1			25.8			13.1	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		5.0	4.3	15.5		15.1	5.3	14.5
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		6.0	6.0	26.0		56.0	6.0	26.0
Max Q Clear Time (g_c+I1), s		2.4	2.1	5.9		7.8	2.8	7.1
Green Ext Time (p_c), s		0.0	0.0	1.7		3.3	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

Notes

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	30	83	79	31	76	84	31	16	48
Average Queue (ft)	5	34	15	2	30	28	6	1	20
95th Queue (ft)	23	76	47	14	66	70	27	8	44
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)		0			0				
Queuing Penalty (veh)		0			0				

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	NB	NB
Directions Served	UL	L	R
Maximum Queue (ft)	25	30	35
Average Queue (ft)	5	4	15
95th Queue (ft)	23	22	40
Link Distance (ft)			530
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	25	
Storage Blk Time (%)		1	2
Queuing Penalty (veh)		0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	30	57	27
Average Queue (ft)	12	26	5
95th Queue (ft)	35	49	21
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	LTR
Maximum Queue (ft)	38	56	28	22	63	70	35	16
Average Queue (ft)	10	11	2	2	15	11	9	1
95th Queue (ft)	33	41	16	15	44	44	32	7
Link Distance (ft)		1200	1200		286	286	1125	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	110			90				
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	NB	NB
Directions Served	UL	L	R
Maximum Queue (ft)	31	30	36
Average Queue (ft)	4	2	13
95th Queue (ft)	20	16	39
Link Distance (ft)			530
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	25	
Storage Blk Time (%)		0	1
Queuing Penalty (veh)		0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	30	58	28
Average Queue (ft)	9	22	3
95th Queue (ft)	31	49	18
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	88	98	78	28	116	194	35	41	78
Average Queue (ft)	43	37	24	2	48	71	6	2	30
95th Queue (ft)	76	77	63	14	87	134	26	22	60
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)	0	0			1			0	0
Queuing Penalty (veh)	0	0			0			0	0

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	NB	NB
Directions Served	UL	L	R
Maximum Queue (ft)	31	31	36
Average Queue (ft)	7	5	17
95th Queue (ft)	27	24	42
Link Distance (ft)			530
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	25	
Storage Blk Time (%)		2	2
Queuing Penalty (veh)		0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	34	48	28
Average Queue (ft)	11	24	6
95th Queue (ft)	35	46	25
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	64	88	66	28	76	82	31	61	94
Average Queue (ft)	20	48	25	3	41	40	6	18	53
95th Queue (ft)	49	81	59	18	67	74	27	45	84
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)		0			0				0
Queuing Penalty (veh)		0			0				0

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	WB	NB	NB
Directions Served	UL	T	L	R
Maximum Queue (ft)	31	4	30	35
Average Queue (ft)	4	0	3	12
95th Queue (ft)	22	3	18	37
Link Distance (ft)		147		530
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125		25	
Storage Blk Time (%)			1	1
Queuing Penalty (veh)			0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	34	59	32
Average Queue (ft)	8	33	4
95th Queue (ft)	29	51	19
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	122	122	94	32	145	199	34	47	81
Average Queue (ft)	68	43	26	4	66	105	8	5	36
95th Queue (ft)	115	108	82	21	119	173	29	29	70
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)	4	0			2			0	0
Queuing Penalty (veh)	10	0			0			0	0

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	WB	NB	NB
Directions Served	UL	T	L	R
Maximum Queue (ft)	31	8	32	36
Average Queue (ft)	5	0	8	14
95th Queue (ft)	23	6	29	40
Link Distance (ft)		146		530
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	125		25	
Storage Blk Time (%)			4	2
Queuing Penalty (veh)			1	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	30	54	32
Average Queue (ft)	10	28	5
95th Queue (ft)	33	47	23
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	61	97	71	32	89	100	31	122	146
Average Queue (ft)	22	50	28	4	42	48	5	41	77
95th Queue (ft)	50	82	62	21	72	82	25	94	125
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)		0			0			0	2
Queuing Penalty (veh)		0			0			0	3

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	NB	NB
Directions Served	UL	L	R
Maximum Queue (ft)	31	30	31
Average Queue (ft)	3	3	10
95th Queue (ft)	19	17	34
Link Distance (ft)			530
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	25	
Storage Blk Time (%)		1	2
Queuing Penalty (veh)		0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	35	65	28
Average Queue (ft)	8	34	3
95th Queue (ft)	30	52	16
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	79	122	92	36	107	126	40	117	138
Average Queue (ft)	22	61	36	4	50	61	8	36	71
95th Queue (ft)	56	101	75	20	84	102	32	86	117
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)		0			1			0	1
Queuing Penalty (veh)		0			0			0	2

Intersection: 2: Stanley Avenue & 98th Avenue

Movement	WB	NB	NB
Directions Served	UL	L	R
Maximum Queue (ft)	35	34	35
Average Queue (ft)	6	4	12
95th Queue (ft)	25	21	38
Link Distance (ft)			530
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125	25	
Storage Blk Time (%)		1	2
Queuing Penalty (veh)		0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	39	62	28
Average Queue (ft)	9	34	3
95th Queue (ft)	32	52	18
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Stearns Avenue & 98th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	UL	T	TR	LTR	L	LTR
Maximum Queue (ft)	64	113	100	32	120	138	40	114	143
Average Queue (ft)	24	61	34	4	54	62	9	33	70
95th Queue (ft)	53	99	77	20	95	111	33	82	111
Link Distance (ft)		1200	1200		286	286	1125		478
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	110			90				100	
Storage Blk Time (%)		0			1			0	1
Queuing Penalty (veh)		0			0			0	2

Intersection: 2: Stanley Avenue & 98th Avenue

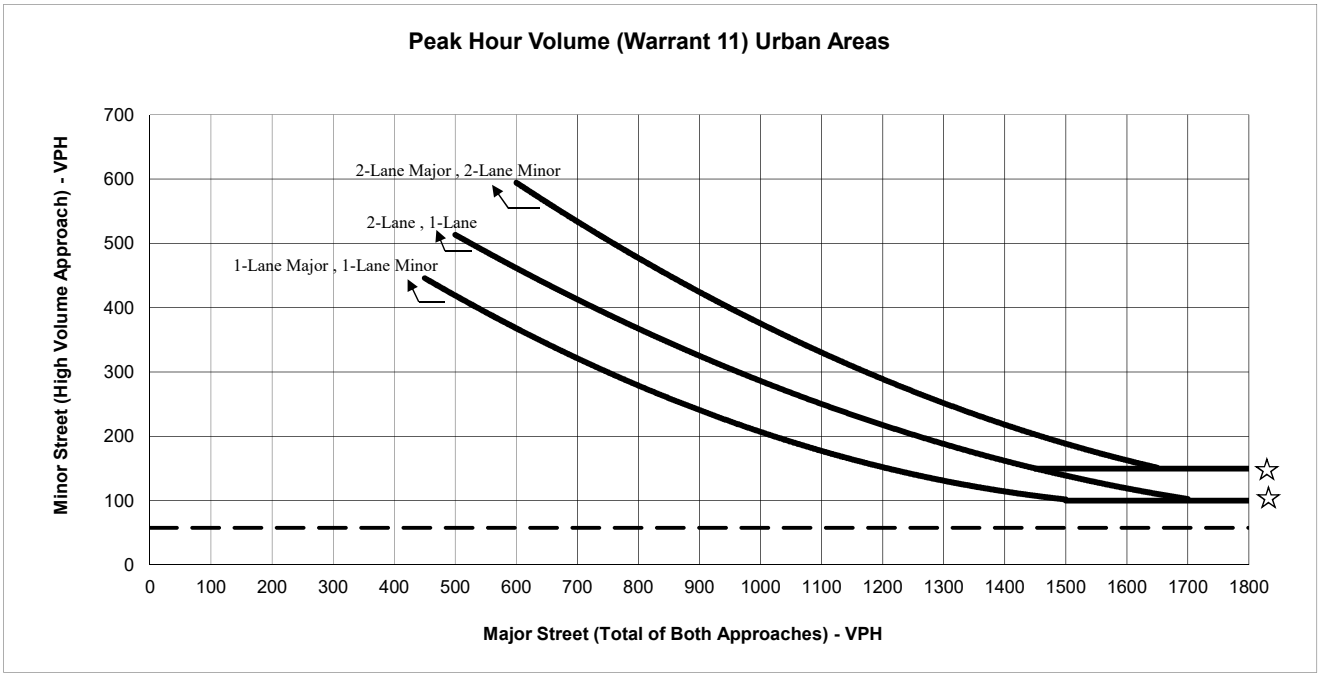
Movement	EB	WB	NB	NB
Directions Served	TR	UL	L	R
Maximum Queue (ft)	6	31	24	35
Average Queue (ft)	0	5	3	13
95th Queue (ft)	4	24	17	38
Link Distance (ft)	286			530
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		125	25	
Storage Blk Time (%)			1	2
Queuing Penalty (veh)			0	0

Intersection: 3: Stearns Avenue/94th Avenue & Burr Street

Movement	WB	NB	SB
Directions Served	TR	LT	R
Maximum Queue (ft)	35	73	27
Average Queue (ft)	9	33	3
95th Queue (ft)	32	53	18
Link Distance (ft)	866	609	542
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

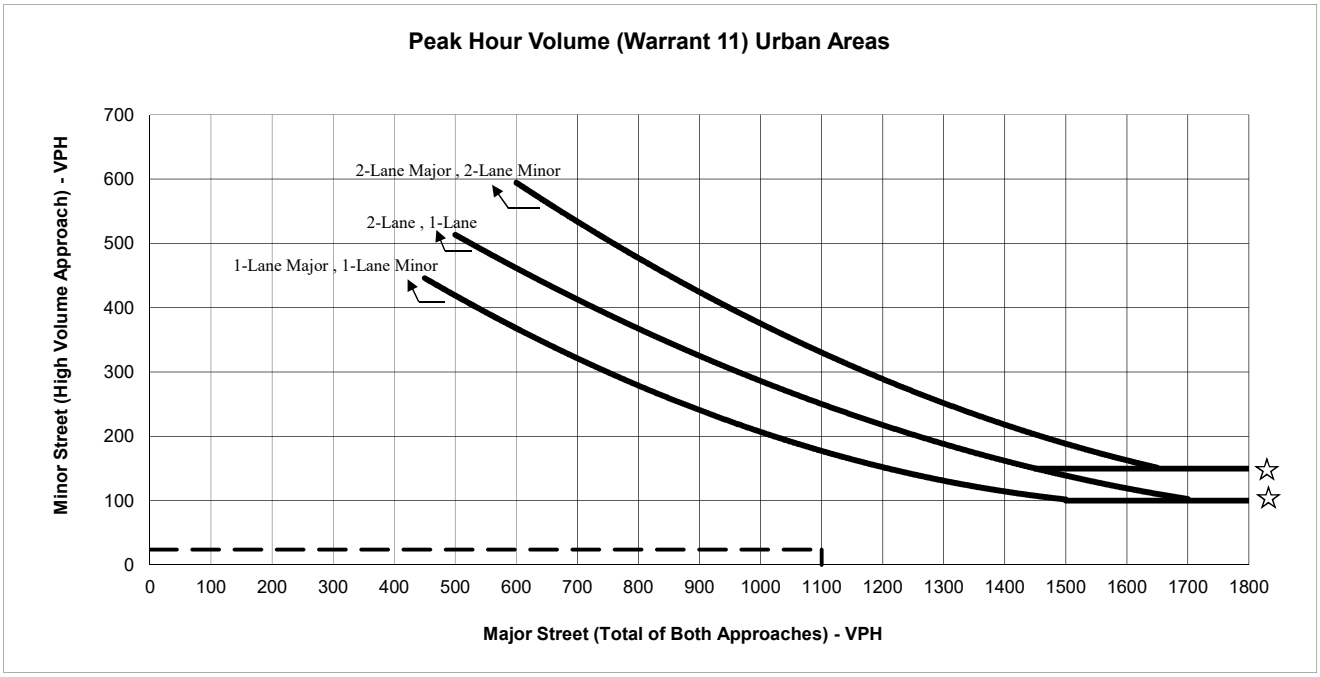


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Existing Friday 5:00-6:00 pm - No Game
Minor St. Volume: 58
Major St. Volume: 1881
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

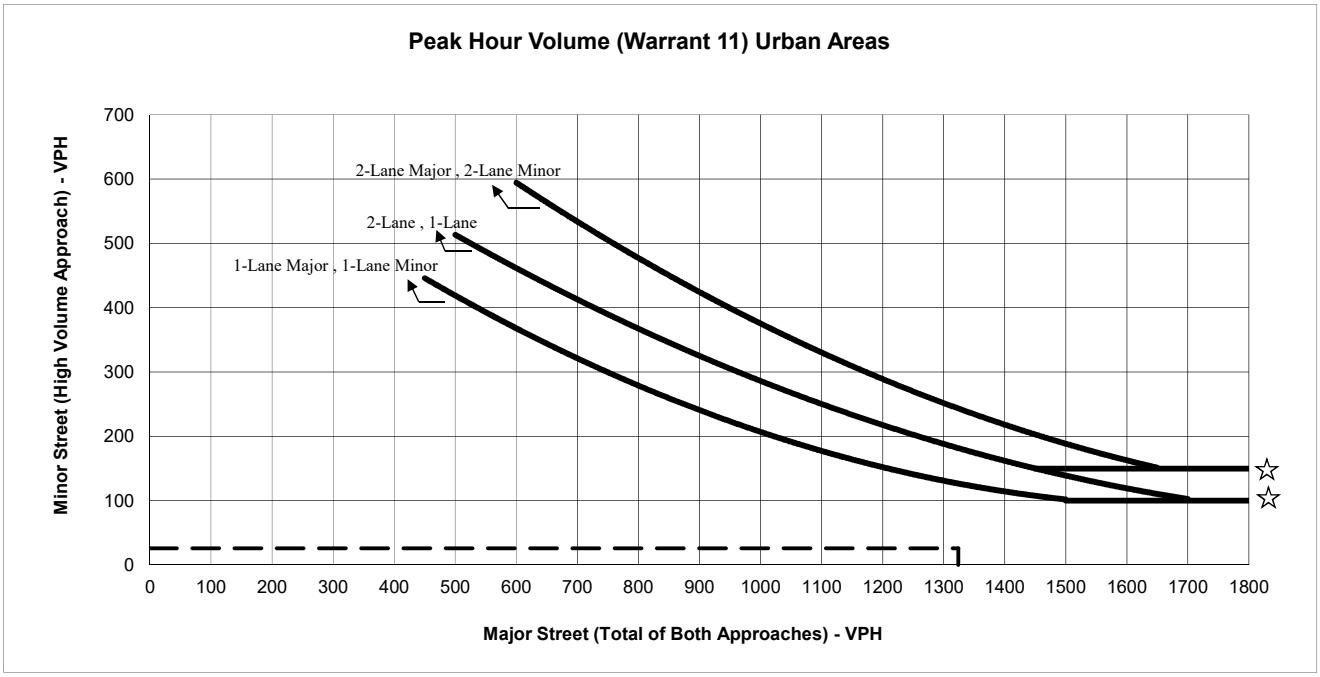


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Existing Friday 6:00-7:00 pm - No Game
Minor St. Volume: 24
Major St. Volume: 1100
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

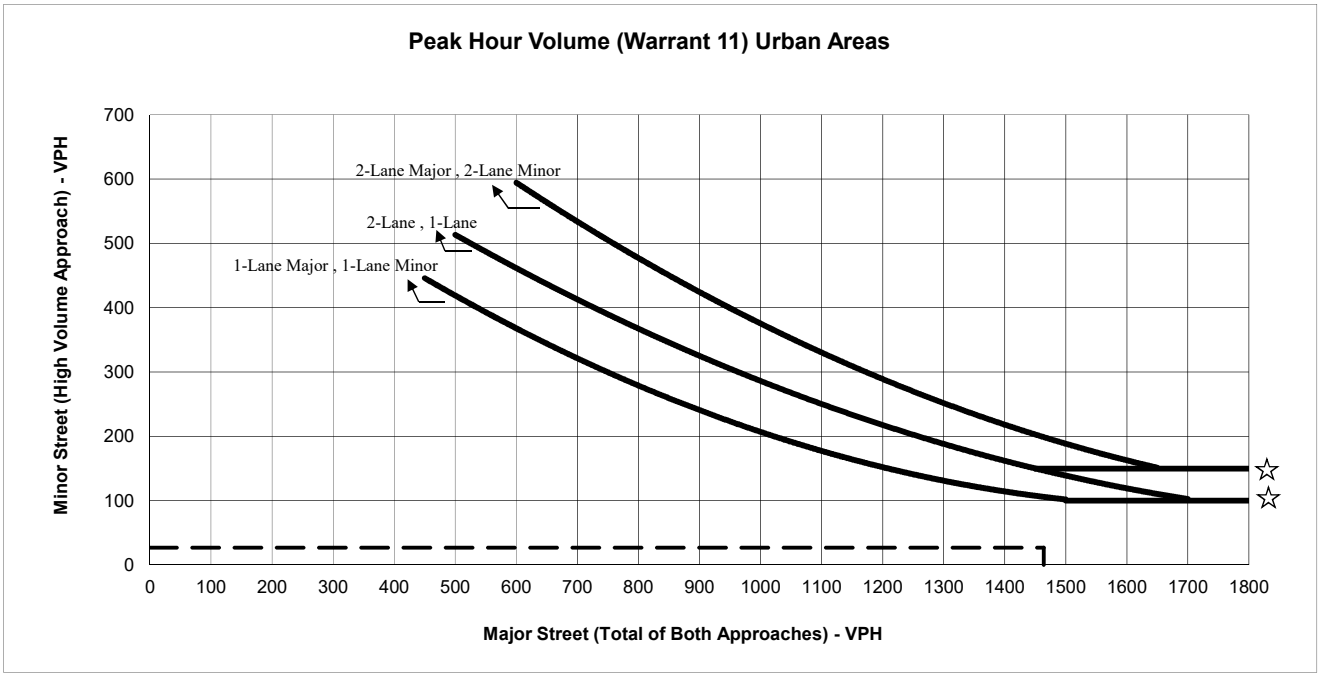


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Existing Friday 6:00-7:00 pm - 800 Attendee Game
Minor St. Volume: 26
Major St. Volume: 1324
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

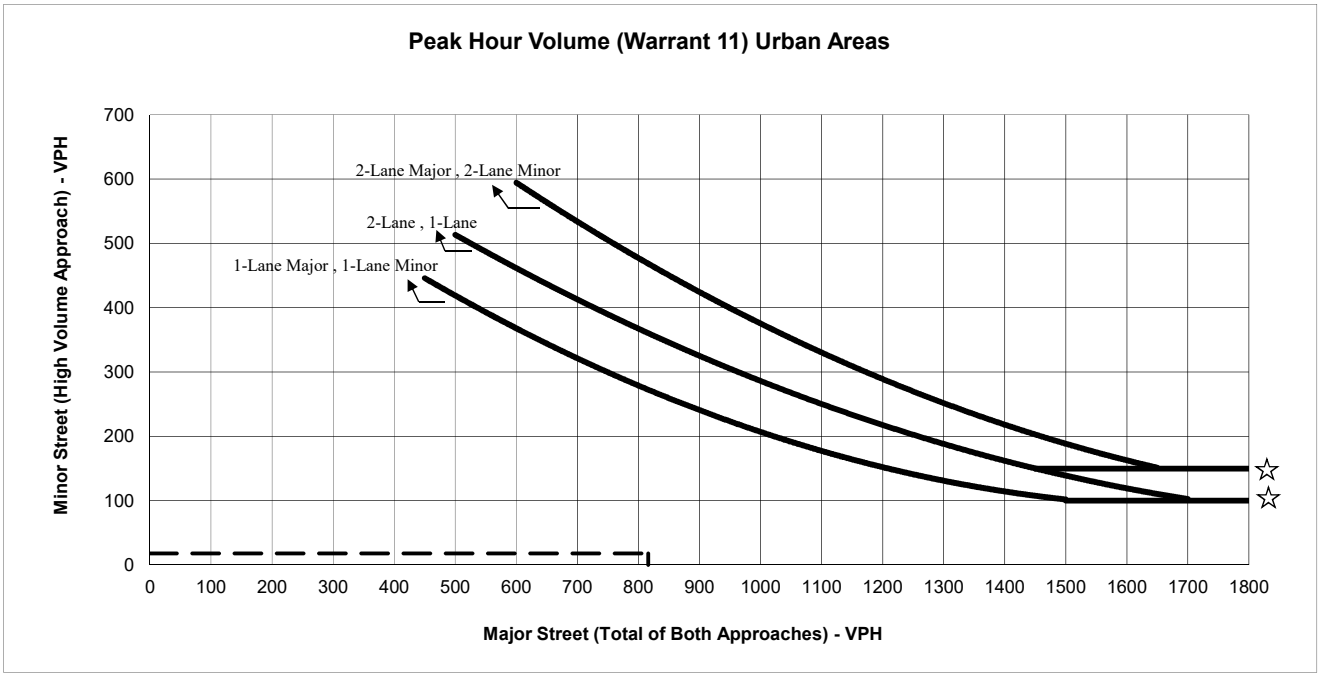


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Project Friday 6:00-7:00 pm - 1,300 Attendee Game
Minor St. Volume: 27
Major St. Volume: 1464
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

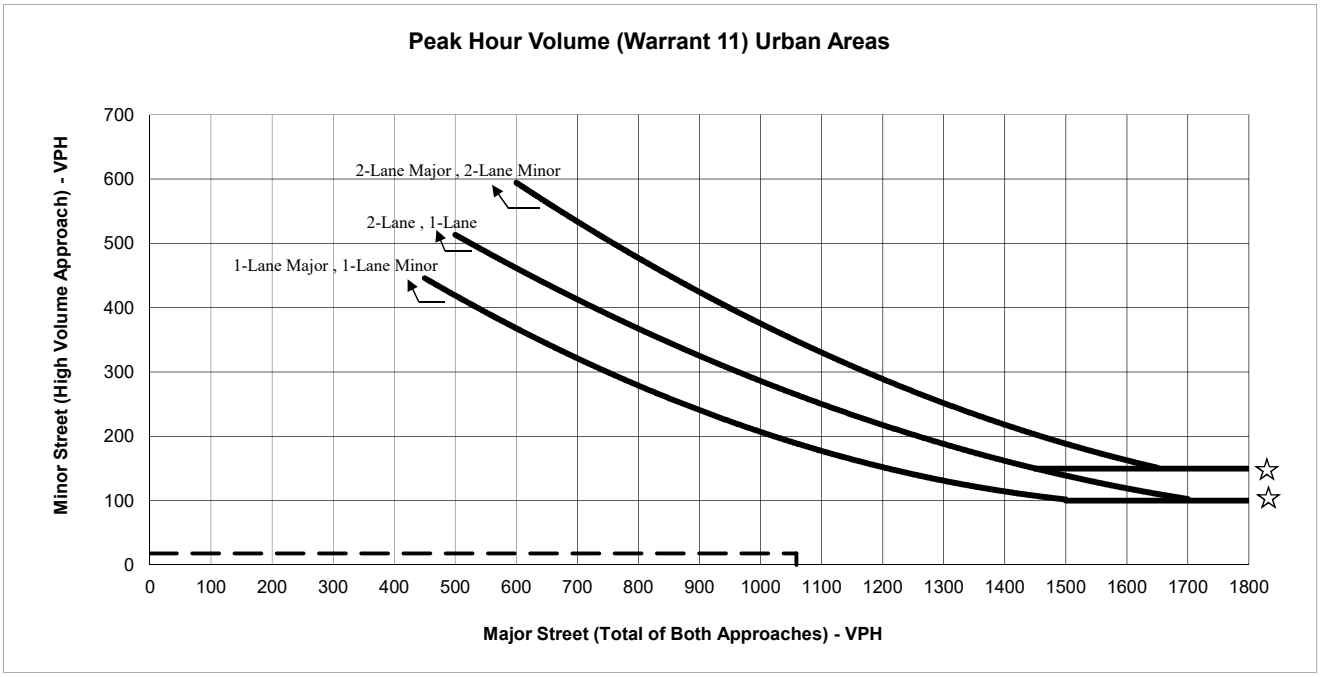


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Existing Friday 9:30-10:30 pm - No Game
Minor St. Volume: 18
Major St. Volume: 816
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*

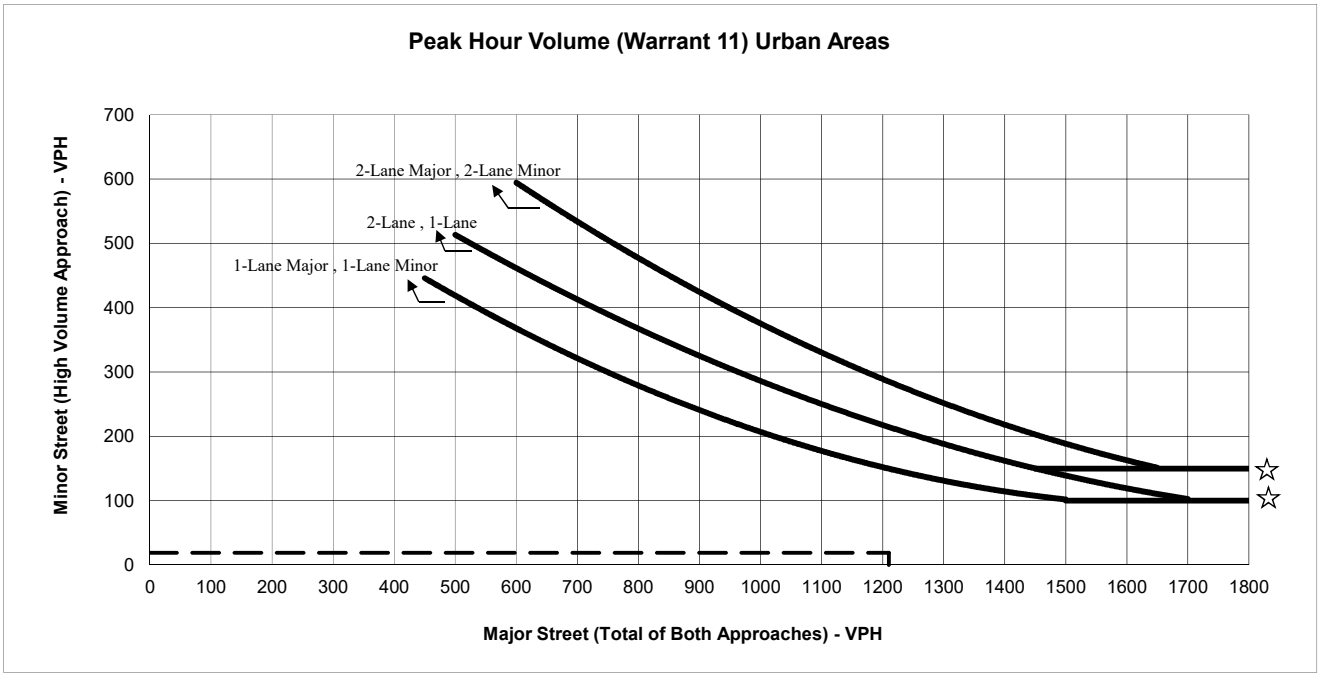


☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Existing Friday 9:30-10:30 pm - 800 Attendee Game
Minor St. Volume: 18
Major St. Volume: 1059
Warrant Met?: No

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



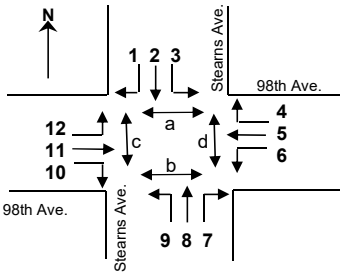
☆ NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: **98th Avenue / Stanley Avenue**
Scenario: Project Friday 9:30-10:30 pm - 1,300 Attendee Game
Minor St. Volume: 19
Major St. Volume: 1210
Warrant Met?: No

Intersection Volume Worksheet

98th Avenue / Stearns Avenue

12/1/2017 Friday (No Game)
Weather: Clear

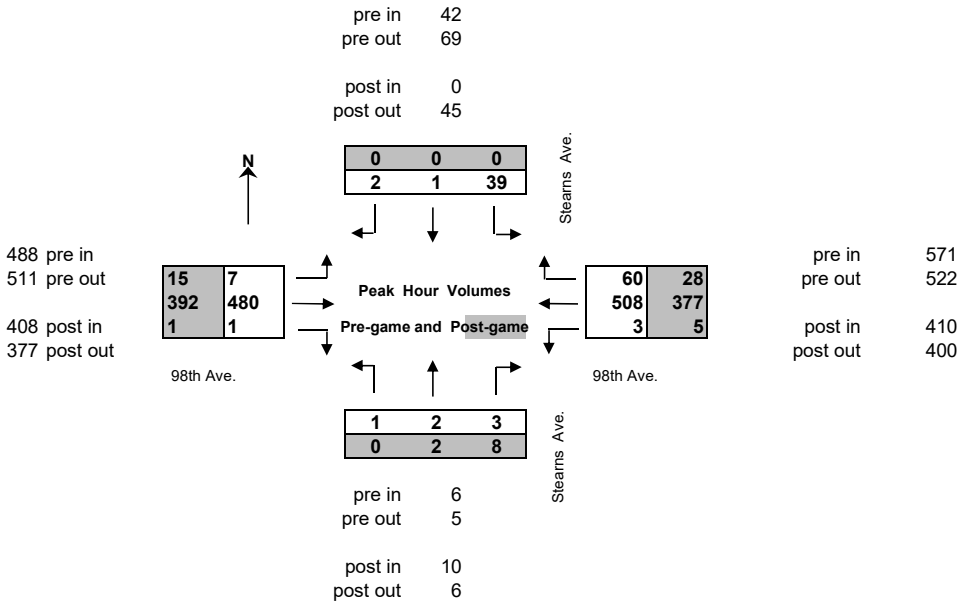


PM ("Pre-game")

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
5:00-5:15	0	1	45	15	202	3	1	0	1	0	236	1	505		0-0/0-0	1-0/0-0
5:15-5:30	0	0	35	17	206	2	0	0	0	0	270	1	531		1-0/0-0	0-1/0-0
5:30-5:45	0	0	14	14	199	3	3	0	1	1	232	2	469		0-0/0-0	0-0/0-0
5:45-6:00	0	0	18	14	196	1	0	3	0	0	171	1	404	1909	0-0/0-0	0-0/0-0
6:00-6:15	0	0	15	13	151	2	1	0	0	0	117	4	303	1707	0-0/1-0	0-0/0-0
6:15-6:30	0	1	7	13	131	1	1	0	0	0	132	1	287	1463	2-0/0-0	0-0/0-0
6:30-6:45	1	0	10	18	119	0	0	1	1	1	122	1	274	1268	0-0/0-0	0-0/0-0
6:45-7:00	1	0	7	16	107	0	1	1	0	0	109	1	243	1107	2-1/0-0	0-0/0-0
7:00-7:15	0	1	8	9	102	0	0	0	1	0	107	0	228	1032	0-0/0-0	0-0/0-0
7:15-7:30	1	0	15	11	87	1	0	0	0	0	120	2	237	982	1-0/0-0	0-0/0-0
7:30-7:45	0	0	2	11	96	2	0	0	0	0	101	1	213	921	0-0/0-0	0-0/0-0
PeakHour:																
6:00-7:00 pm	2	1	39	60	508	3	3	2	1	1	480	7	1107		4-1/1-0	1-1/0-0
						2 LT's										
						1 U										
phf:	0.7	0.7	0.7	0.87	0.87	0.87	0.63	0.63	0.63	0.91	0.91	0.91				

PM ("Post-game")

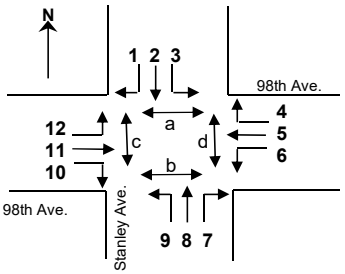
	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
9:00-9:15	0	0	0	8	108	0	0	0	1	1	117	3	238		0-0/0-0	0-0/0-0
9:15-9:30	0	0	0	8	129	2	1	0	0	0	105	2	247		0-0/0-0	0-0/0-0
9:30-9:45	0	0	0	10	77	2	1	1	0	0	93	5	189		0-0/0-0	0-0/0-0
9:45-10:00	0	0	0	14	110	1	4	0	0	1	101	6	237	911	1-0/0-0	0-0/0-0
10:00-10:15	0	0	0	3	97	0	1	1	0	0	97	3	202	875	0-0/0-0	0-0/0-0
10:15-10:30	0	0	0	1	93	2	2	0	0	0	101	1	200	828	1-0/0-0	0-0/0-0
10:30-10:45	0	0	0	2	85	0	0	0	1	0	88	0	176		0-0/0-0	0-0/0-0
PeakHour:																
9:30-10:30 pm	0	0	0	28	377	5	8	2	0	1	392	15	828		2-0/0-0	0-0/0-0
						4 LT										
						1 U										
phf:	1	1	1	0.79	0.79	0.79	0.83	0.83	0.83	0.94	0.94	0.94				



Intersection Volume Worksheet

98th Avenue / Stanley Avenue

12/1/2017 Friday (No Game)
Weather: Clear

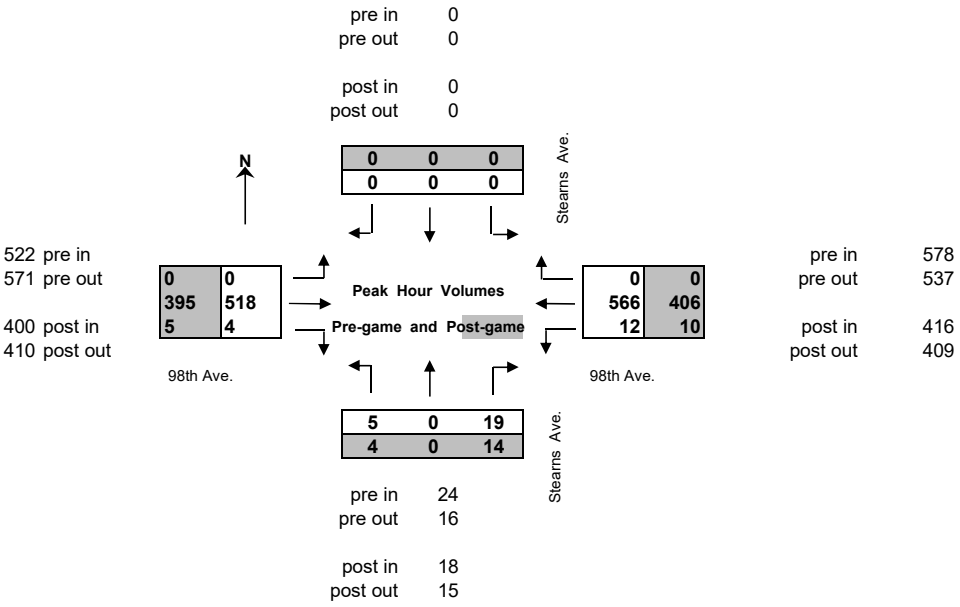


PM ("Pre-game")

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
5:00-5:15					219	16	5		1	1	281		523		0 - 0 / 0 - 0	1 - 0 / 0 - 0
5:15-5:30					221	13	9		4	1	254		502		1 - 0 / 0 - 0	0 - 1 / 0 - 0
5:30-5:45					212	8	15		4	2	247		488		0 - 0 / 0 - 0	0 - 0 / 0 - 0
5:45-6:00					206	11	15		5	4	185		426	1939	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:00-6:15					163	1	5		3	0	134		306	1722	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:15-6:30					144	3	5		1	2	138		293	1513	2 - 0 / 0 - 0	0 - 0 / 0 - 0
6:30-6:45					137	3	4		0	0	131		275	1300	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:45-7:00					122	5	5		1	2	115		250	1124	2 - 0 / 0 - 0	0 - 0 / 0 - 0
7:00-7:15					111	0	0		0	0	115		226	1044	0 - 0 / 0 - 0	0 - 0 / 0 - 0
7:15-7:30					98	5	7		1	3	132		246	997	1 - 0 / 0 - 0	0 - 0 / 0 - 0
7:30-7:45					106	6	7		3	2	101		225	947	0 - 0 / 0 - 0	0 - 0 / 0 - 0
PeakHour:																
6:00-7:00 pm					566	12	19		5	4	518		1124		4 - 0 / 0 - 0	1 - 1 / 0 - 0
						10 LT's										
						2 U's										
phf:					0.88	0.88	0.75		0.75	0.93	0.93					

PM ("Post-game")

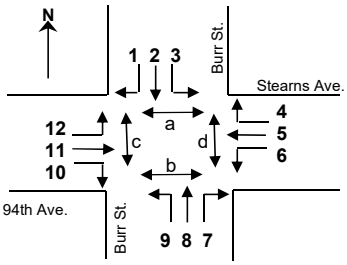
	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
9:00-9:15					116	0	0		0	0	117		233		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:15-9:30					139	2	9		0	0	106		256		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:30-9:45					88	6	3		1	3	92		193		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:45-10:00					124	0	0		1	0	105		230	912	1 - 0 / 0 - 0	0 - 0 / 0 - 0
10:00-10:15					99	2	7		1	2	95		206	885	0 - 0 / 0 - 0	0 - 0 / 0 - 0
10:15-10:30					95	2	4		1	0	103		205	834	1 - 0 / 0 - 0	0 - 0 / 0 - 0
10:30-10:45					87	1	4		0		88		180	821	0 - 0 / 0 - 0	0 - 0 / 0 - 0
PeakHour:																
9:30-10:30 pm					406	10	14		4	5	395		834		2 - 0 / 0 - 0	0 - 0 / 0 - 0
						8 LT's										
						2 U										
phf:					0.83	0.83	0.56		0.56	0.95	0.95					



GHD

Stearns - 94th Avenue / Burr Street

12/1/2017 Friday (No Game)
Weather: Clear

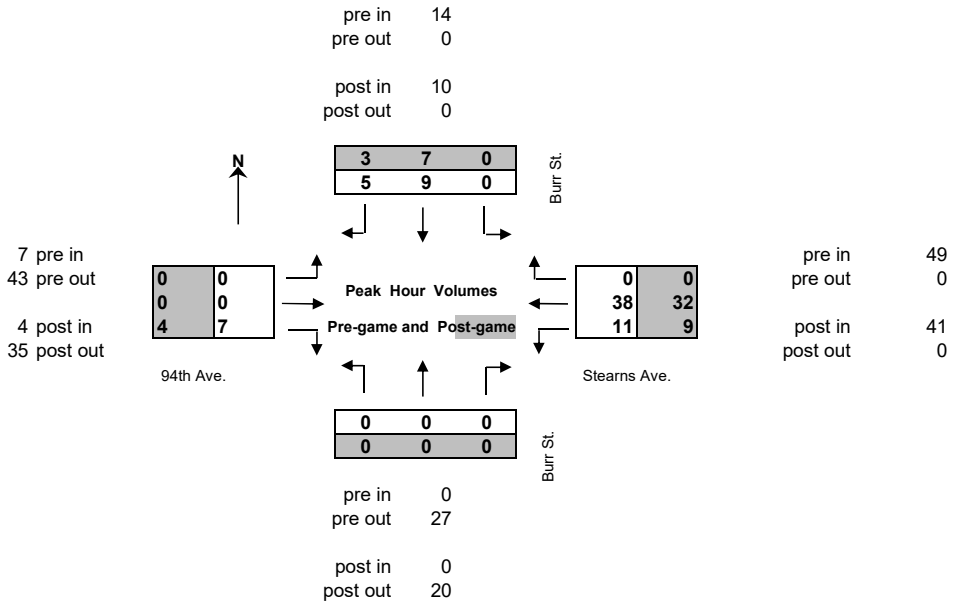


PM ("Pre-game")

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
5:00-5:15	1	2			7	2				3			15		0 - 0 / 0 - 0	0 - 0 / 0 - 0
5:15-5:30	1	1			5	1				3			11		0 - 0 / 0 - 0	0 - 0 / 0 - 0
5:30-5:45	2	2			7	0				2			13		0 - 0 / 0 - 0	0 - 0 / 0 - 0
5:45-6:00	0	1			9	2				1			13	52	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:00-6:15	1	4			13	4				2			24	61	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:15-6:30	1	3			10	3				2			19	69	0 - 0 / 0 - 0	0 - 0 / 0 - 0
6:30-6:45	2	1			8	2				2			15	71	0 - 0 / 2 - 0	0 - 0 / 0 - 0
6:45-7:00	1	1			7	2				1			12	70	0 - 0 / 0 - 0	0 - 0 / 0 - 0
7:00-7:15	1	2			8	1				2			14	60	0 - 0 / 0 - 0	0 - 0 / 0 - 0
7:15-7:30	1	1			5	0				0			7	48	0 - 0 / 0 - 0	0 - 0 / 0 - 0
7:30-7:45	0	3			4	2				1			10	43	0 - 0 / 0 - 0	0 - 0 / 0 - 0
PeakHour:																
6:00-7:00	5	9			38	11				7			70	71	0 - 0 / 2 - 0	0 - 0 / 0 - 0
phf:	0.7	0.7			0.72	0.72				0.88						

PM ("Post-game")

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Peds. a - b / c - d	Bikes a - b / c - d
9:00-9:15	1	1			6	1				0			9		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:15-9:30	1	1			5	0				0			7		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:30-9:45	1	2			9	2				1			15		0 - 0 / 0 - 0	0 - 0 / 0 - 0
9:45-10:00	0	3			7	2				1			13	44	0 - 0 / 1 - 0	0 - 0 / 0 - 0
10:00-10:15	1	1			9	2				0			13	48	0 - 0 / 0 - 0	0 - 0 / 0 - 0
10:15-10:30	1	1			7	3				2			14	55	0 - 0 / 0 - 0	0 - 0 / 0 - 0
10:30-10:45	1	0			5	0				0			6	46	0 - 0 / 0 - 0	0 - 0 / 0 - 0
PeakHour:																
9:30-10:30	3	7			32	9				4			55		0 - 0 / 1 - 0	0 - 0 / 0 - 0
phf:	0.38	0.38			0.67	0.67				0.38						



CMF / CRF Details

CMF ID: 72

Advance static curve warning signs

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Signs

Study: ***Handbook of Road Safety Measures*, Elvik, R. and Vaa, T., 2004**

Star Quality Rating:	★☆☆☆☆

Crash Modification Factor (CMF)	
Value:	0.92
Adjusted Standard Error:	0.76
Unadjusted Standard Error:	0.42

Crash Reduction Factor (CRF)	
Value:	8 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	76
Unadjusted Standard Error:	42

Applicability

Crash Type:	All
Crash Severity:	O (property damage only)
Roadway Types:	Not specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Not specified
Traffic Volume:	
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	

Type of Methodology Used:	Meta-analysis
Sample Size Used:	

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-01-2009
Comments:	

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 71

Advance static curve warning signs

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Signs

Study: ***Handbook of Road Safety Measures*, Elvik, R. and Vaa, T., 2004**

Star Quality Rating:	★☆☆☆☆

Crash Modification Factor (CMF)	
Value:	0.7
Adjusted Standard Error:	0.71
Unadjusted Standard Error:	0.39

Crash Reduction Factor (CRF)	
Value:	30 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	71
Unadjusted Standard Error:	39

Applicability

Crash Type:	All
Crash Severity:	A (serious injury),B (minor injury),C (possible injury)
Roadway Types:	Not specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Not specified
Traffic Volume:	
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	

Type of Methodology Used:	Meta-analysis
Sample Size Used:	

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-01-2009
Comments:	

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

BISHOP O'DOWD HIGH SCHOOL TRANSPORTATION DEMAND MANAGEMENT

WHAT ARE O'DOWD'S CURRENT TRANSPORTATION STRATEGIES?

Regular school operations:

O'Dowd operates regular school hours (8:30 am - 3:00 pm) Monday through Friday (with the exception of school holidays including a two-week winter and spring break) from late August to early June with the majority of students and employees arriving by 8:30 am and departing campus by 3:30 pm each day. During the morning and afternoon peak travel times, O'Dowd's security team maintains a visible presence, directing and facilitating traffic flow. O'Dowd's "closed campus" policy for students ensures minimal exit/entrance traffic during regular campus hours.

As a Green Ribbon school, O'Dowd works hard to reduce its carbon footprint and ease traffic in the neighborhood. The following demand management mitigation strategies are in place:

- Two ACT Transit Lines (680 and 682) service O'Dowd Monday through Friday arriving at O'Dowd by 8:15 am and departing by 3:20 pm. Approximately 150 of our students commute back and forth to school via these two lines.
- A carpool/rideshare program
- Priority parking for carpoolers
- Dedicated spots for zero-emissions vehicles
- Shuttles to BART in the morning, afternoon and evening
- Shuttles to the lower lot at the Oakland Zoo for overflow parking during large events
- Drop-off and pick up strategies managed by security at the 98th Street drop off and the Stearns Street entrance
- Investments in technologies to televise games on the NHFS network

After school operations:

Depending on the season, approximately 30% of students may remain on campus for after school athletic and co-curricular activities. Also depending on the season, O'Dowd hosts "home" athletic games that occur in the afternoon and evenings. As most campus parking is freed up after 3:30 pm, parking for these activities and regular season games is readily available on campus.

Large event operations:

O'Dowd has many strategies already in place to manage large events and limit the number of cars on campus:

- Proactively manage schedule to avoid multiple large events at one time.
- Currently host several large scale events (≈ 1200 people).
- Use baseball field for large event parking which can accommodate 250+ cars.
- With 303 on-campus spots post-construction, plus baseball field for overflow parking (250 spots) we will have a total of 553 spots for large events.
- Shuttle to zoo lower lot parking as back up.
- Security/ extra staff on site to manage traffic flow.

Summer school operations:

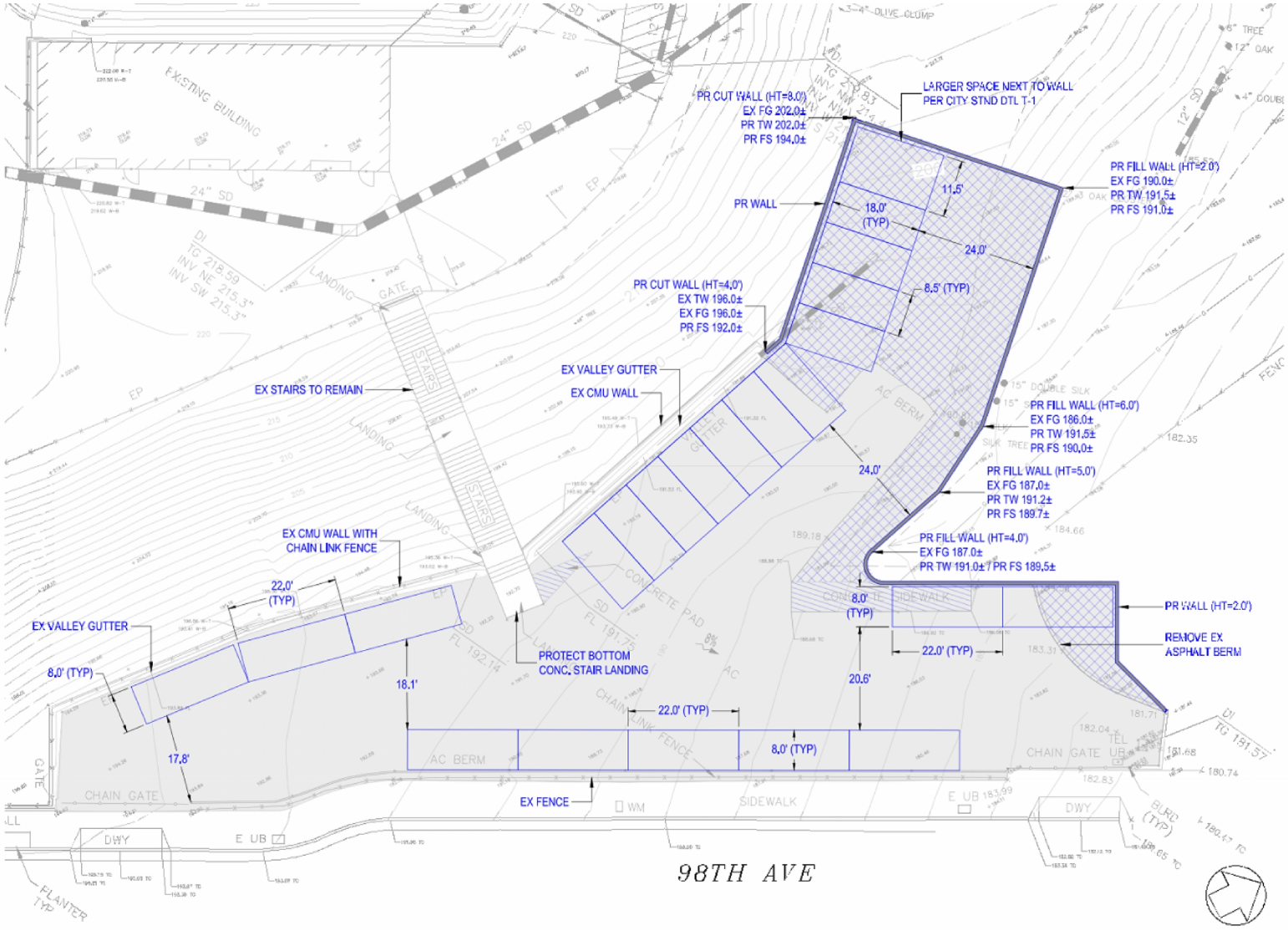
During the months of June and July, O'Dowd operates a small Summer Academy for various academic and athletic programming. Parking needs are fully met with on-campus parking.

WHAT ARE THE TRANSPORTATION STRATEGIES DURING CONSTRUCTION?

Comprehensive planning is already underway to anticipate school operations during construction:

- Our contractor, Devcon has a carefully designed site logistics plan (see attached) that ensures the safety of all stakeholders during the various stages of construction.
- O'Dowd will off-site its baseball program for the duration of construction. The baseball field will be repurposed as a staging area with a new entrance for construction vehicles. Another part of the baseball field will be available for O'Dowd overflow parking for approximately 60 spaces. Additional overflow parking would be available at the Oakland Zoo.
- In addition to off-siting baseball, O'Dowd will look at off-siting other large events such as home football games, athletic playoff games and summer programs, to ease logistical challenges during the construction period. All campus activities will be carefully scheduled and choreographed to minimize traffic impacts.

Source: Bishop O'Dowd High School.



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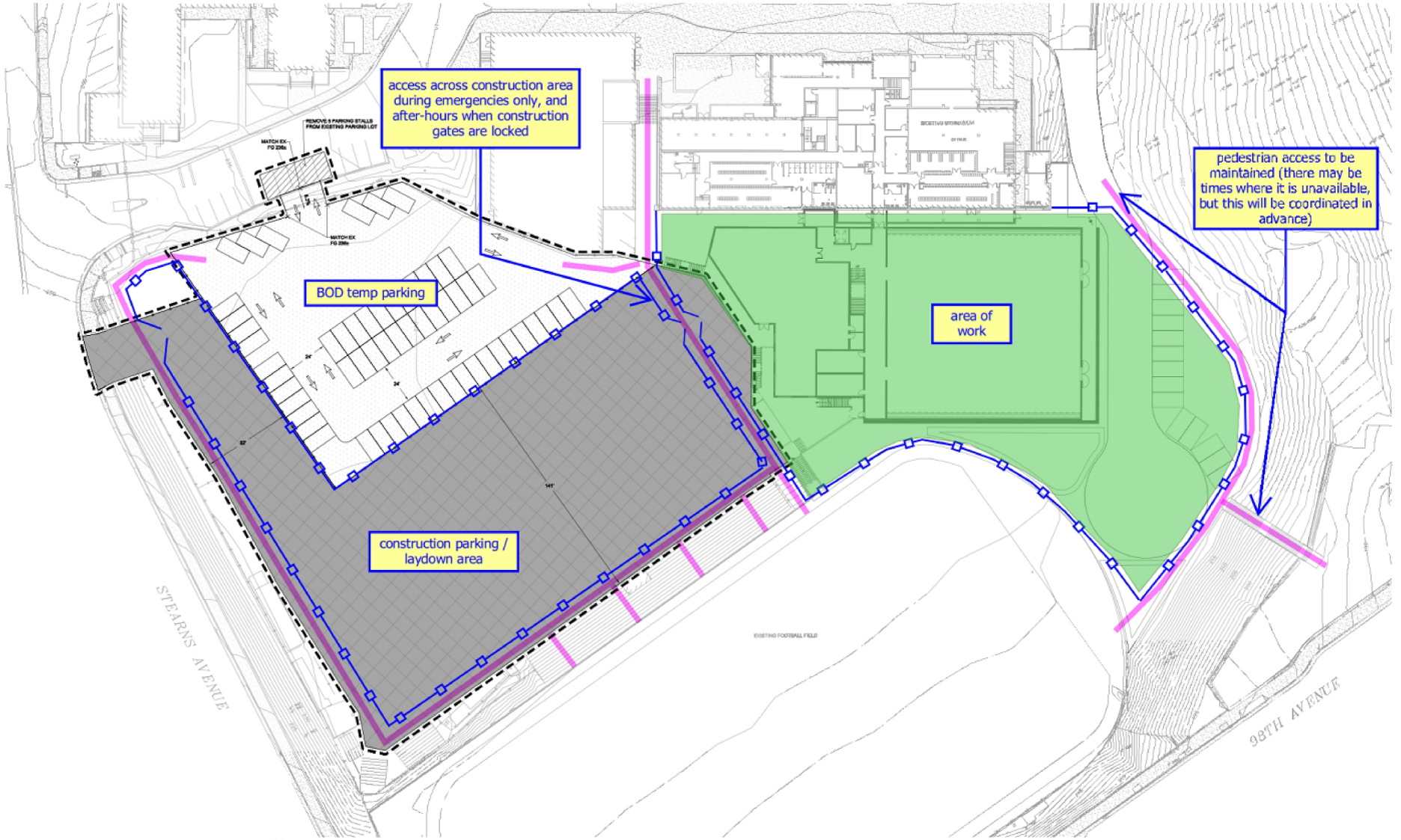
98TH AVE PARKING - OPTION 1
BISHOP O'DOWD HIGH SCHOOL CENTER

ORIGINAL SCALE: NTS
DATE: 07/12/19
SHEET NO.

GHD

98th Avenue Drop-Off Area Parking Striping Plan Option

FIGURE A-1



Temporary Construction Parking Plan

FIGURE A-2

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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