Draft Initial Study / Proposed Mitigated Negative Declaration

Boundary Oak Golf Course Driving Range Project

City of Walnut Creek, California

Prepared for:

City of Walnut Creek
Department of Public Works
1666 North Main Street
Walnut Creek, CA 94596

Attn: Alex Wong
wong@walnut-creek.org

April 2024

Prepared by:

WRA, Inc.
2169 G East Francisco Boulevard
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WRA#320033

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List of Acronyms and Abbreviations

AB	Assembly Bill
APN	Assessor's Parcel Number
AWS	Alameda whipsnake
BAAQMD	Bay Area Air Quality Management District
BMPs	best management practices
CAAQS	California ambient air quality standards
Cal Fire	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CAP	Clean Air Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CCWD	Contra Costa Water District
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
City	City of Walnut Creek
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO_2	carbon dioxide
C&D	construction and demolition
dB	decibel
dBA	A-weighted sound level
DBH	diameter at breast height
DPM	diesel particulate matter
Energy Code	2022 California Building Energy Efficiency Standards
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GHG	greenhouse gas
IS/MND	Initial Study/Mitigated Negative Declaration
L_{dn}	day-night average noise level

L_{eq}	energy-equivalent noise level
L_{max}	maximum noise level
MBTA	Migratory Bird Treaty Act
$MTCO_{2e}$	metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standard
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NFHL	National Flood Hazard Layer
NMFS	National Marine Fisheries Service
NO_x	nitrogen oxides
Origer	Tom Origer & Associates
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
Rank	California Rare Plant Rank
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gas
RMS	root mean square
RWQCB	Regional Water Quality Control Board
SAP	Sustainability Action Plan
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VdB	vibration decibel
WEAP	Worker Environmental Awareness Training Program
WRA	WRA, Inc.

1.0 INTRODUCTION AND PURPOSE

This Initial Study/Proposed Mitigated Negative Declaration (IS/MND) is being prepared to conform to the requirements of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations 15000 et. seq.), and the regulations and policies of the City of Walnut Creek (City). This IS/MND evaluates the potential environmental impacts which might reasonably be anticipated to result from implementation of the Boundary Oak Golf Course Driving Range Project (Project).

The City is the Lead Agency under CEQA and has prepared this IS/MND to address the impacts of implementing the Project. The purpose of the Project is to improve the existing driving range facility at the municipally owned and operated Boundary Oak Golf Course. The existing facility requires improvements to drainage and irrigation, as well as such enhancements as a putting green, tee areas, gaming options, shade structures, a teaching tee, ball washing and vending operations, gathering spaces, food options, a child's play area, and netting/fencing.

2.0 PROJECT INFORMATION

2.1 Project Title

Boundary Oak Golf Course Driving Range Project

2.2 Lead Agency Name and Address

City of Walnut Creek - Public Works

1666 North Main Street

Walnut Creek, CA 94596

2.3 Contact Person and Phone Number

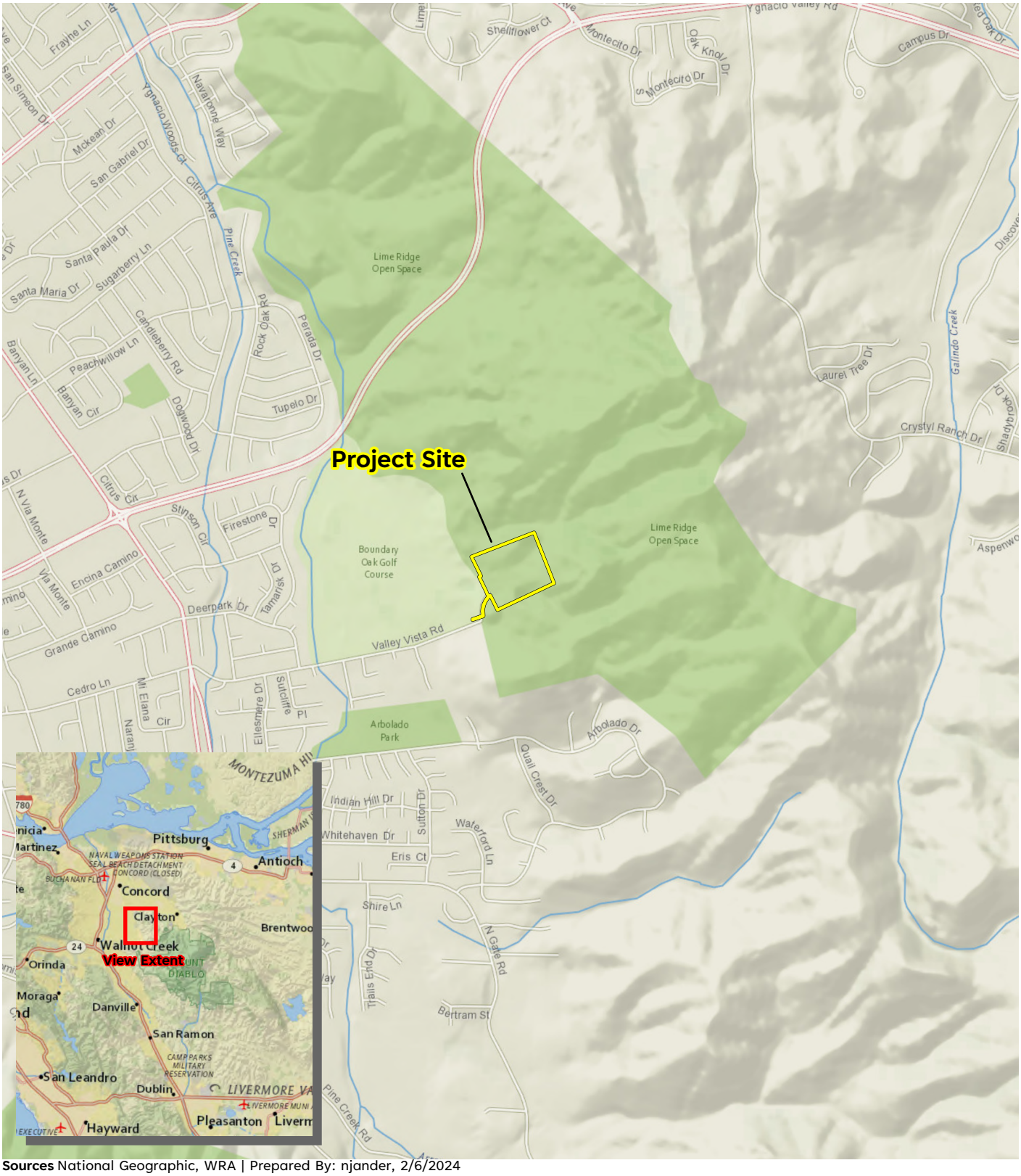
Alex Wong, Senior Engineer

City of Walnut Creek Public Works

(925) 943-5899

2.4 Project Location

The 10.3-acre Project site is located within the City on a parcel (Accessor's Parcel Number [APN] 135-021-004) located at 3800 Valley Vista Road, Walnut Creek, California 94958 (Figure 2-1). The Project parcel is owned by the City and contains the municipally owned Boundary Oak Golf Course (Golf Course). The Project site is currently developed with the Golf Course driving range and is open to the public daily between 7:30 a.m. and 7:30 p.m. The site is bounded by the main Golf Course to the west and the Lime Ridge Open Space on its other three sides. The Lime Ridge Open Space is owned and managed by the City and is used for cattle grazing, horseback riding, hiking, biking, plant and animal habitat, and other recreational purposes (Figure 2-2). See Figure 2-3 for photographs of existing conditions of the Project site.



Path: L:\Acad 2000 Files\320000\320033\GIS\ArcMap\320033Base.aprx Layout Name:ISMND_Fig3_1_Regional Location

Sources National Geographic, WRA | Prepared By: njander, 2/6/2024

Figure 2-1. Regional Location

Boundary Oak Golf Course
City of Walnut Creek, California

0 0.25 0.5 Miles

N

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Path: L:\Acad 2000 Files\320000\320033\GIS\ArcMap\320033Base.aprx Layout Name: ISMND_Fig3_2_Project Site Aerial View

Sources USDA NAIP Imagery 2022, WRA | Prepared By: njander, 2/6/2024

Figure 2-2. Project Site Aerial View

Boundary Oak Golf Course
City of Walnut Creek, California

0 250 500 Feet

N

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2.5 Existing General Plan Designation and Zoning District

The Project site has a General Plan land use designation of Open Space Recreation (OSR) and a zoning designation of O-S-R (Open Space/Recreation District) (City of Walnut Creek "Zoning Web Map") (City of Walnut Creek 2006). Surrounding areas on all sides of the Project site have the same land use designation and are within the same zoning district. Areas beginning approximately 0.25 miles southeast of the Project site are zoned for PD (Planned District) and R12 (Single Family Residential) and have a General Plan land use designation of Single Family Low Density (City of Walnut Creek "Zoning Web Map").

2.6 Surrounding Land Uses and Setting

The Project site is surrounded by recreational open space lands of the Lime Ridge Open Space to the north, east, and south, and by the main portion of the Boundary Oak Golf Course to the west. Further west and south of the Golf Course are medium density single family residential neighborhoods.

Existing trees, driving and putting area

Parking lot with overhead solar

Range dirt areas

Range and adjacent open space

Figure 2-3. Photographs of Existing Conditions

Boundary Oak Golf Course

City of Walnut Creek, CA

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3.0 PROJECT DESCRIPTION

3.1 Background Information and Project Purpose

The Boundary Oak Golf Course is a public golf course owned by the City of Walnut Creek. The 18-hole Golf Course was built in 1969 and features a full pro shop, a driving range, a golfer's grille, and five practice putting greens. The driving range is comprised of 60 stalls including grass tees and six stalls covered for shade (Boundary Oak Golf Course 2023). The purpose of the Project is to upgrade and modernize the existing driving range to make it more appealing to a wide range of potential users as well as to improve its drainage and irrigation infrastructure.

3.2 Detailed Description of the Project

The Project would include upgrades to the Golf Course driving range including overall grading and drainage improvements and the addition of new features such as a small plaza with a concession area, a new putting green and teaching tee, an electronic golf ball tracking system, a bioretention facility, and a new irrigation system. The new plaza would include an upper and lower area, entry ramps, shading structures, and seating (i.e., benches, tables). The Project would also include demolition of an existing ball machine shed and a sanitary sewer line. Extended hours at the Golf Course driving range may be considered after the Project is fully constructed but are not assumed for this analysis. Project details for the demolition plan are in Figure 3-1. An overall site plan is provided in Figure 3-2. A more complete Project plan set is also provided in Appendix A.

3.2.1 Landscaping

Proposed landscaping for the Project would involve a mix of trees, shrubs, and other ground covers. All species identified in the landscaping plans require low water usage (Gates & Associates 2023). Plant species included in Project landscaping would include:

- Marina strawberry tree (*Arbutus x* 'marina')
- Pink velour grape myrtle (*Lagerstroemia indica* 'whit III')
- Coast live oak (*Quercus agrifolia*)
- Foxtail agave (*Agave attenuata*)
- Big red kangaroo paw (*Anigozzanthos x* 'big red')
- Feather reed grass (*Calamagrostis x acutiflora* 'Karl Foerster')
- Breeze™ mat rush (*Lomandra longifolia* 'Breeze')
- Pink cloud pink muhly grass (*Muhlenbergia capillaris* 'pink cloud')
- Deer grass (*Muhlengergia rigens*)
- Twin peaks coyote brush (*Baccharis pilularis* 'twin peaks')
- Pink trailing myoproum (*Myoporum parvifolum* 'pink')
- Irene trailing rosemary (*Rosmarinus officinalis* 'Irene')

The driving range would be recontoured and subsequently replanted with grass seed or sod. The proposed grassing scheme for the driving range is shown in Figure 3-3. The Project would also install a new irrigation system under the driving range, which is shown in Figure 3-4. Plaza-area irrigation details are shown in Figure 3-5.

The Project would include the removal of 14 trees on-site. The Project would implement tree protection measures for the remaining two trees that are adjacent to the direct impact area of the Project (WRA Inc. 2024). The complete list of existing trees on the Project site can be found

in Appendix B. The Project applicant proposes to plant a total of 20 trees of three different ornamental species and cultivars, including coast live oak, to replace the 14 trees to be removed. Planting plans and details are shown in Figure 3-6 and Figure 3-7.

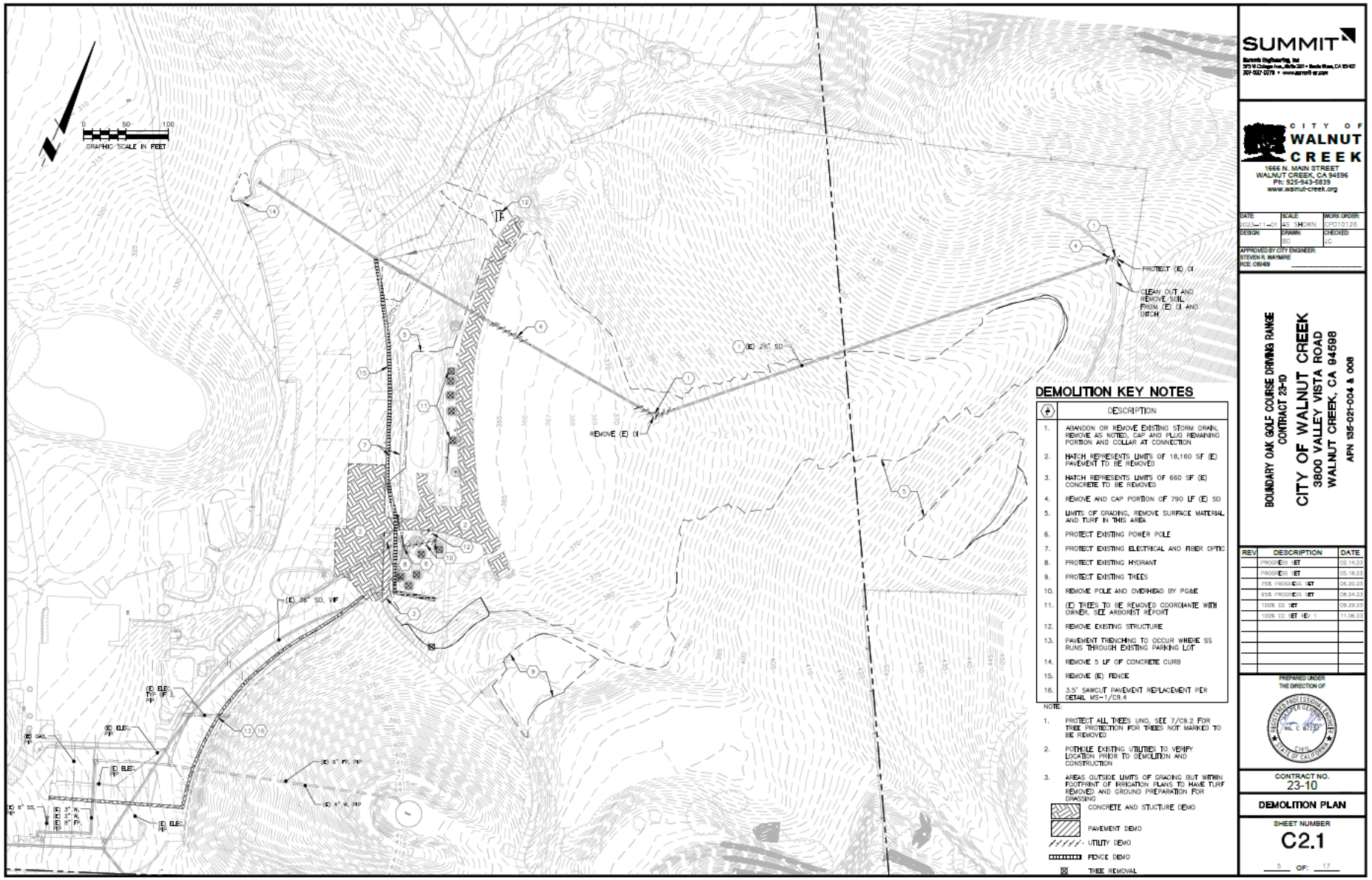

Figure 3-1. Demolition Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

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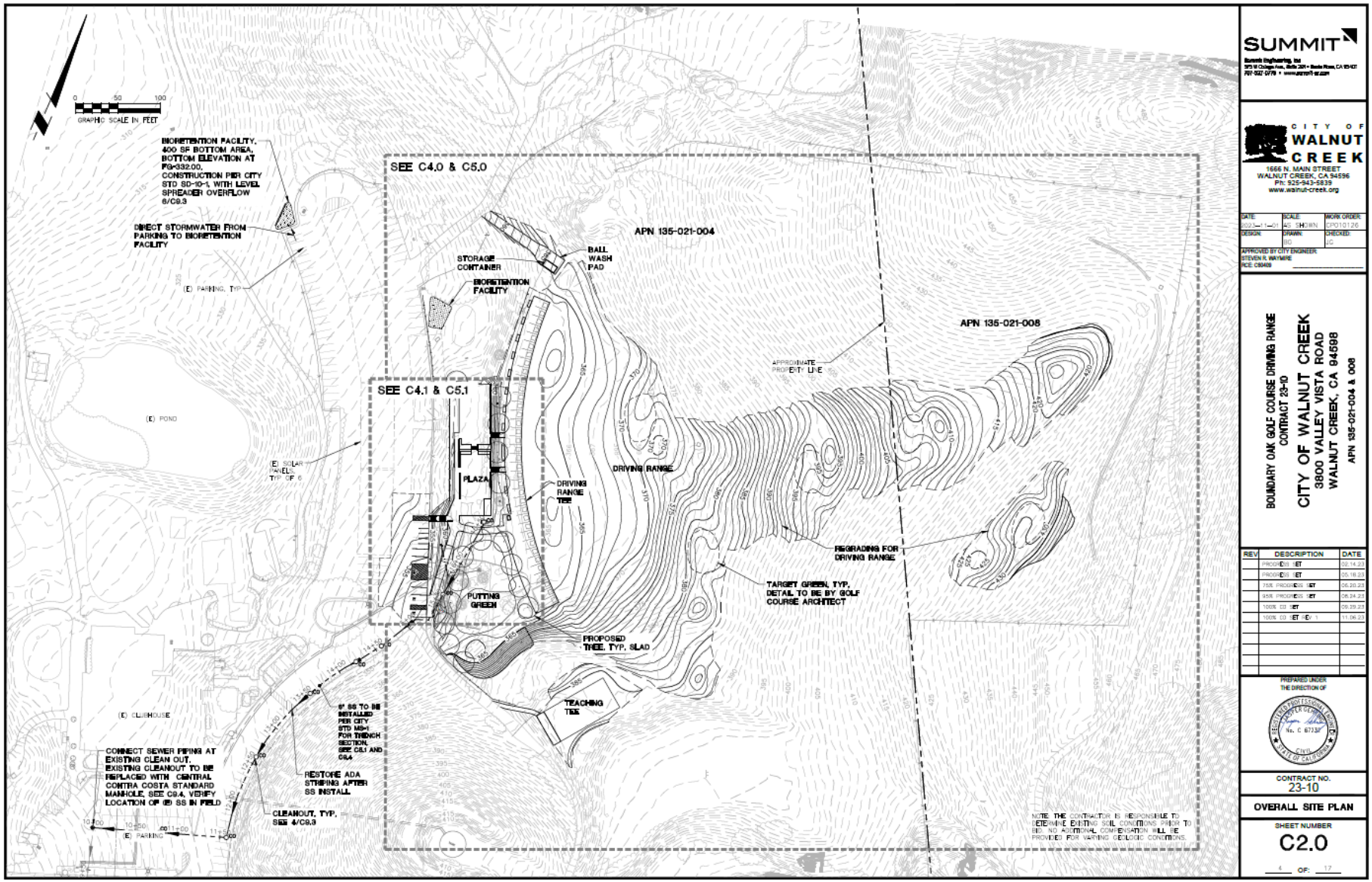

Figure 3-2. Project Site Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

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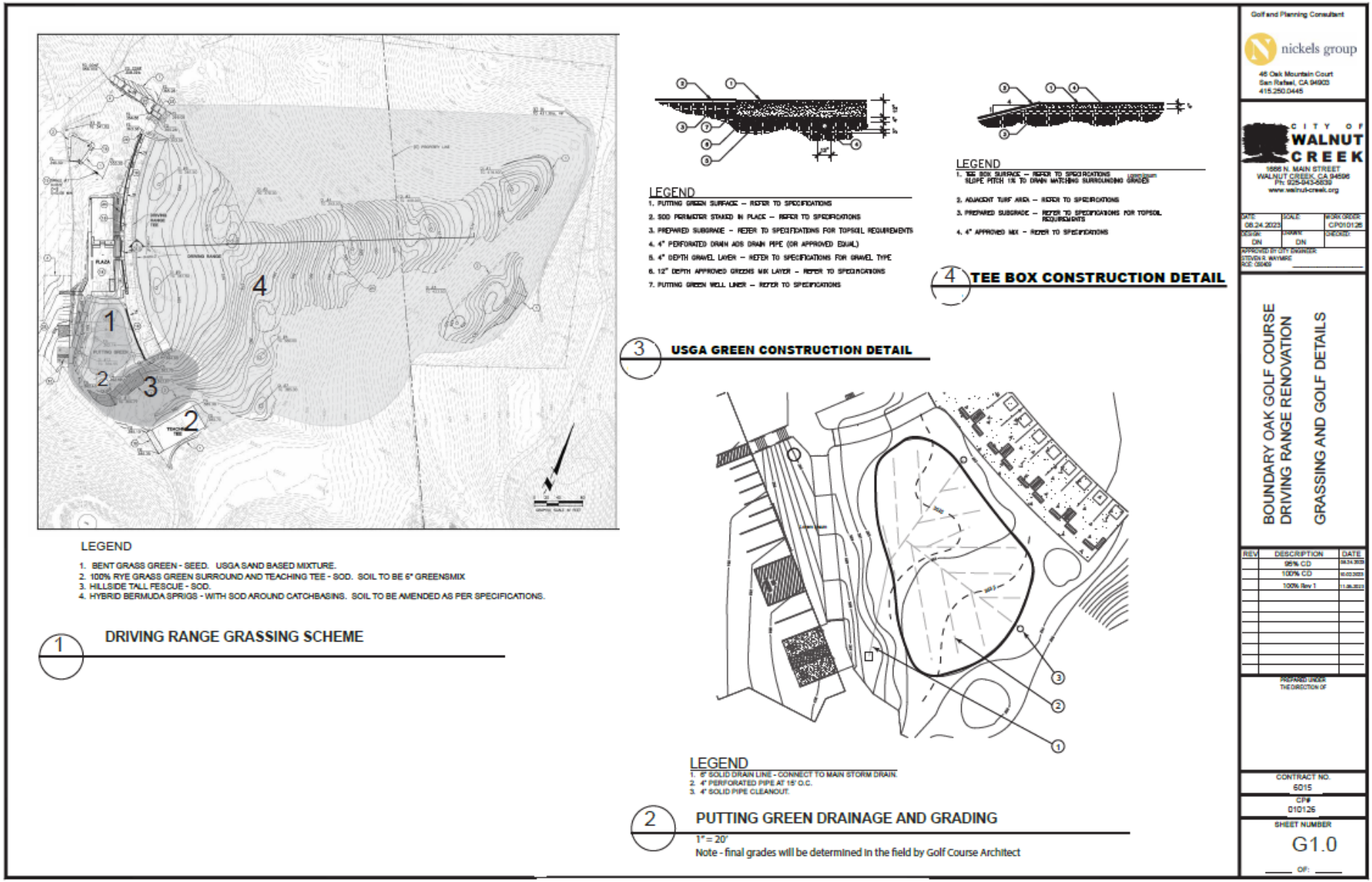

Figure 3-3. Project Grassing and Golf Details

Boundary Oak Golf Course
City of Walnut Creek, CA

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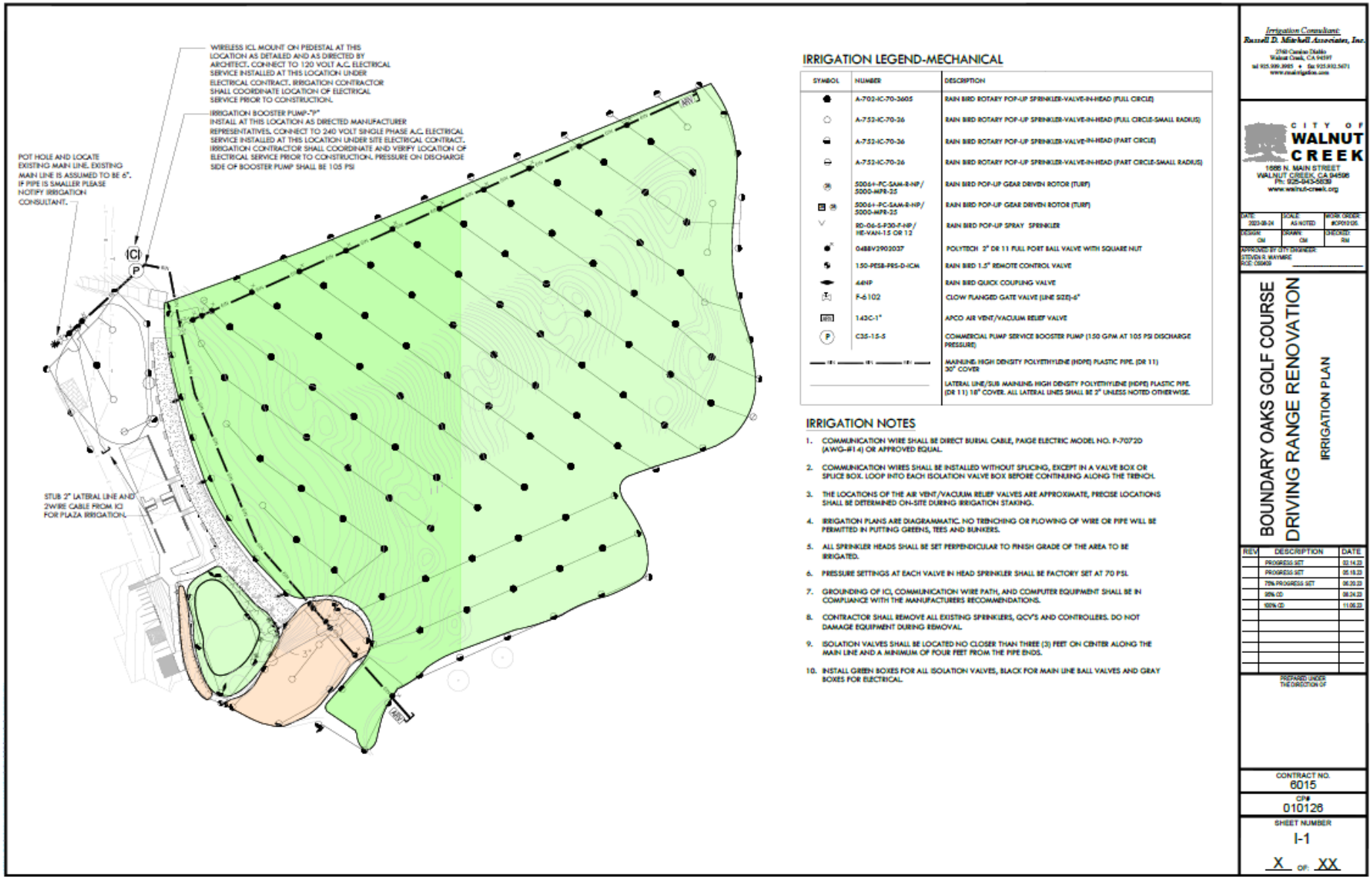

Figure 3-4. Irrigation Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

wra Environmental Consultants

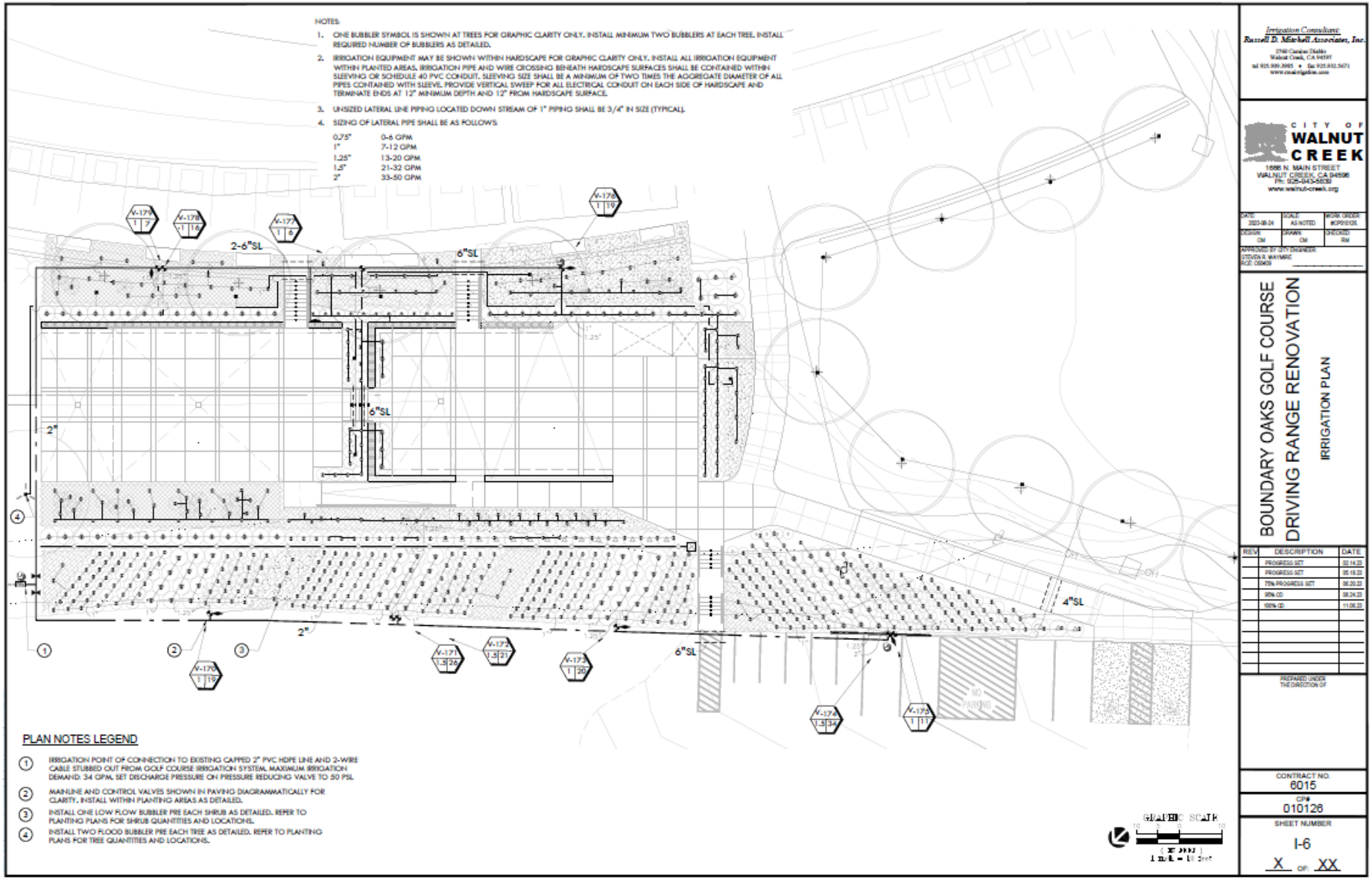

Figure 3-5. Plaza Irrigation Details

Boundary Oak Golf Course

City of Walnut Creek, CA

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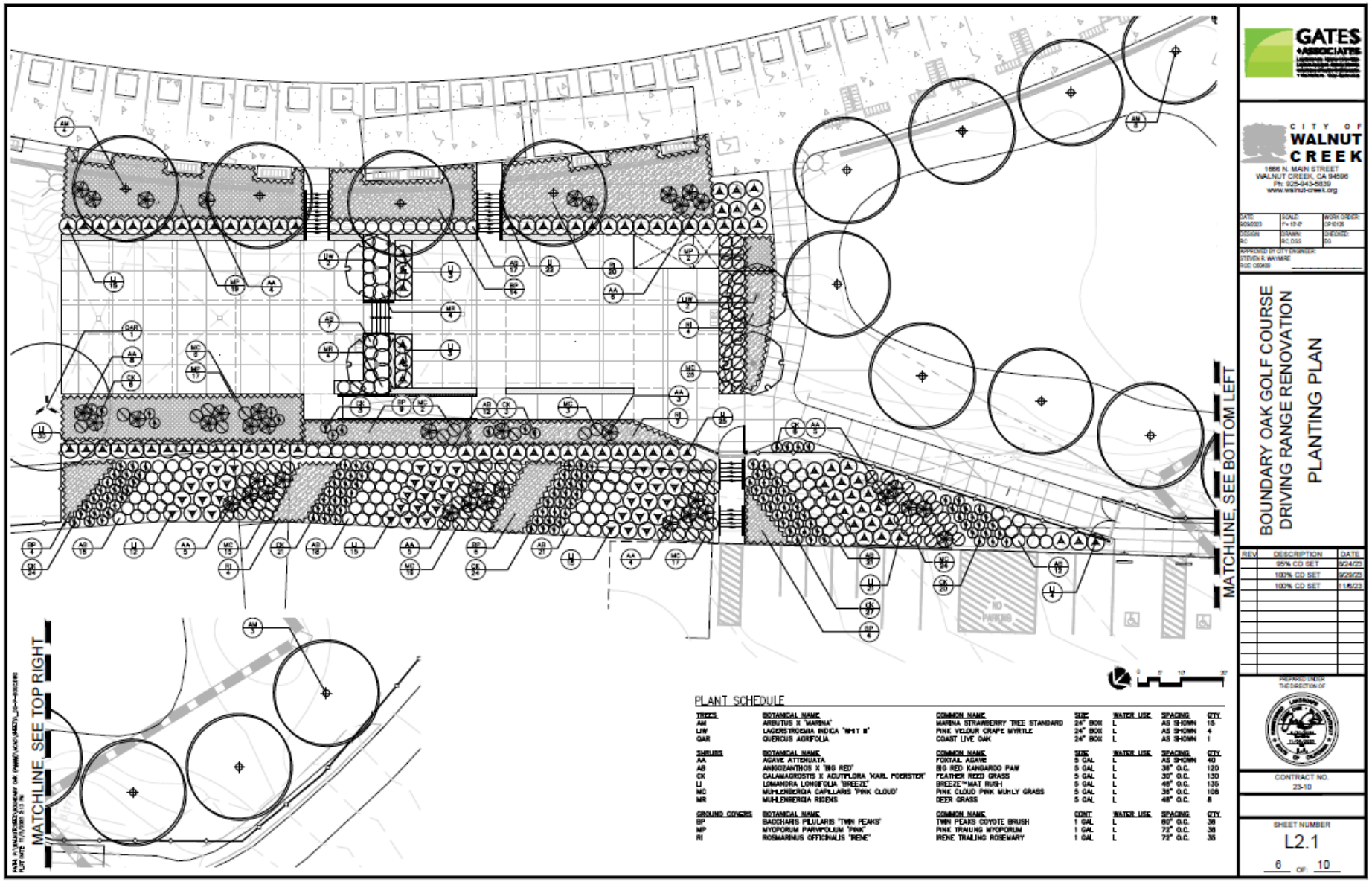

Figure 3-6. Planting Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

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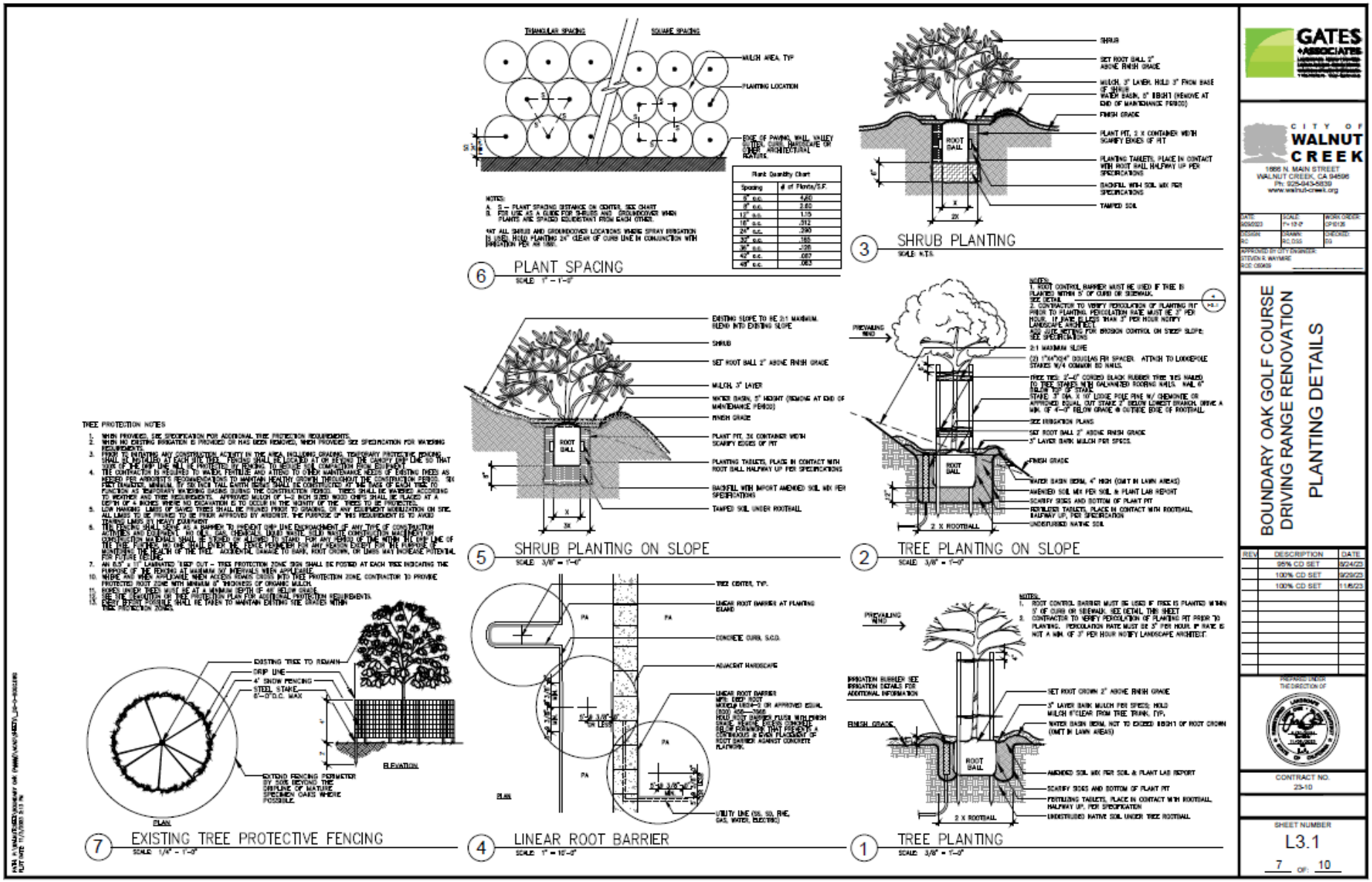

Figure 3-7. Planting Details

Boundary Oak Golf Course
City of Walnut Creek, CA

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3.2.2 Utilities and Stormwater Control

The Project would require the expansion of sewer, water, and electrical utilities to serve the proposed facilities on the Project site. Utilities would be extended from existing infrastructure serving the Golf Course clubhouse, which is located approximately 200 feet southwest of the Project site. Project cross sections are shown in Figure 3-8. Project utility plan details are shown in Figure 3-9 and Figure 3-10.

The Project would include erosion and sediment control measures to reduce the amount of sediment pollution in stormwater runoff from the Project site during construction. Erosion and sediment control plans are shown in Figure 3-11. Key best management practices (BMPs) to be used for erosion and sediment control include, but are not limited to:

- Earth berms,
- Fiber rolls or silt fences,
- Moisture conditioning,
- Riprap protection, and
- Erosion control mats.

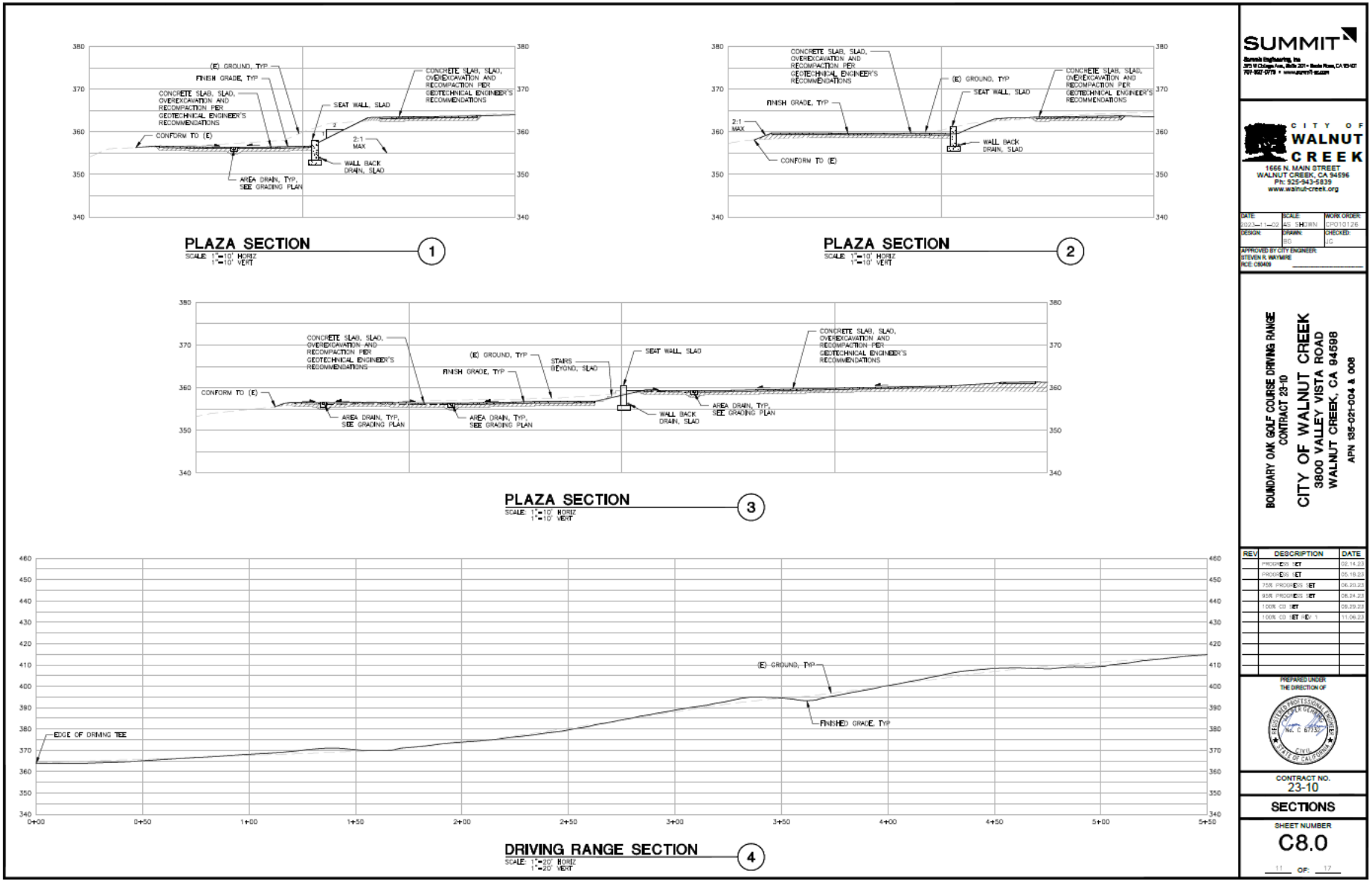

Figure 3-8. Project Cross-Sections

Boundary Oak Golf Course
City of Walnut Creek, CA

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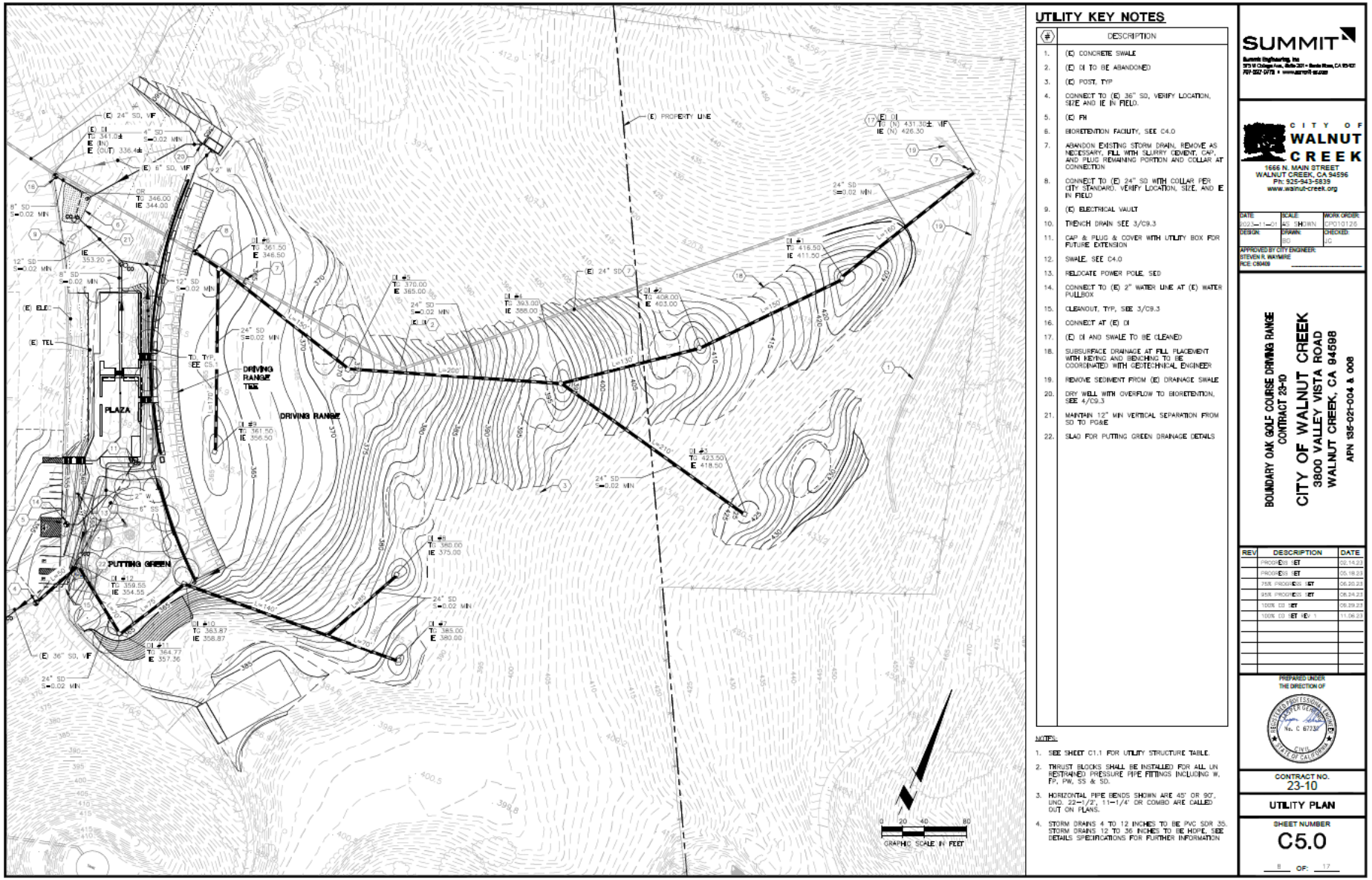

Figure 3-9. Utility Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

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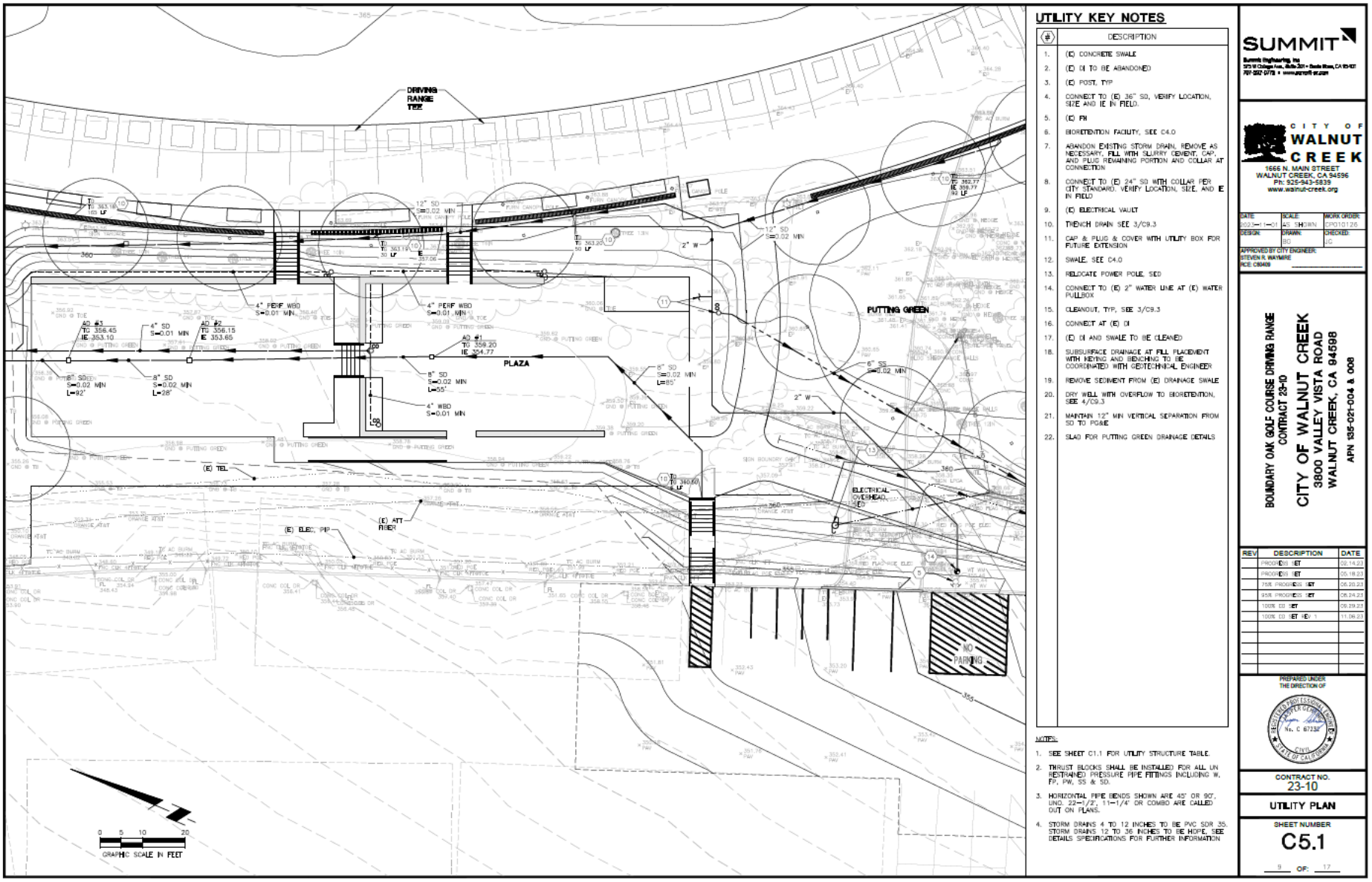

UTILITY KEY NOTES

#	DESCRIPTION
1.	(E) CONCRETE SWALE
2.	(E) DI TO BE ABANDONED
3.	(E) POST, TYP
4.	CONNECT TO (E) 36" SD, VERIFY LOCATION, SIZE AND IE IN FIELD.
5.	(E) FH
6.	BIORETENTION FACILITY, SEE C4.0
7.	ABANDON EXISTING STORM DRAIN, REMOVE AS NECESSARY, FILL WITH SLURRY CEMENT, CAP, AND PLUG REMAINING PORTION AND COLLAR AT CONNECTION
8.	CONNECT TO (E) 24" SD WITH COLLAR PER CITY STANDARD. VERIFY LOCATION, SIZE, AND IE IN FIELD
9.	(E) ELECTRICAL VAULT
10.	TRENCH DRAIN SEE 3/C9.3
11.	CAP & PLUG & COVER WITH UTILITY BOX FOR FUTURE EXTENSION
12.	SWALE, SEE C4.0
13.	RELOCATE POWER POLE, SED
14.	CONNECT TO (E) 2" WATER LINE AT (E) WATER PULLBOX
15.	CLEANOUT, TYP, SEE 3/C9.3
16.	CONNECT AT (E) DI
17.	(E) DI AND SWALE TO BE CLEANED
18.	SUBSURFACE DRAINAGE AT FILL PLACEMENT WITH KEYING AND BENCHING TO BE COORDINATED WITH GEOTECHNICAL ENGINEER
19.	REMOVE SEDIMENT FROM (E) DRAINAGE SWALE
20.	DRY WELL WITH OVERFLOW TO BIORETENTION, SEE 4/C9.3
21.	MAINTAIN 12" MIN VERTICAL SEPARATION FROM SD TO PG&E
22.	SLAB FOR PUTTING GREEN DRAINAGE DETAILS

NOTES:

1. SEE SHEET C1.1 FOR UTILITY STRUCTURE TABLE.
2. THRUST BLOCKS SHALL BE INSTALLED FOR ALL UN RESTRAINED PRESSURE PIPE FITTINGS INCLUDING W, FP, PW, SS & SD.
3. HORIZONTAL PIPE BENDS SHOWN ARE 45° OR 90°, UNO. 22-1/2°, 11-1/4° OR COMBO ARE CALLED OUT ON PLANS.
4. STORM DRAINS 4 TO 12 INCHES TO BE PVC SDR 35. STORM DRAINS 12 TO 36 INCHES TO BE HDPE. SEE DETAILS SPECIFICATIONS FOR FURTHER INFORMATION

SUMMIT

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE	SCALE	WORK ORDER
2023-11-01	AS SHOWN	CP0103126
DESIGN	DRAWN:	CHECKED:
	BG	

APPROVED BY CITY ENGINEER:
STEVEN R. WARMBIE
RCE 69409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
	100% CD SET REV 1	11.09.23

PREPARED UNDER THE DIRECTION OF
REGISTERED PROFESSIONAL ENGINEER
No. C 67332
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

UTILITY PLAN

SHEET NUMBER
C5.1

9 OF 17

Figure 3-10. Plaza Utility Plan Detail

Boundary Oak Golf Course
City of Walnut Creek, CA

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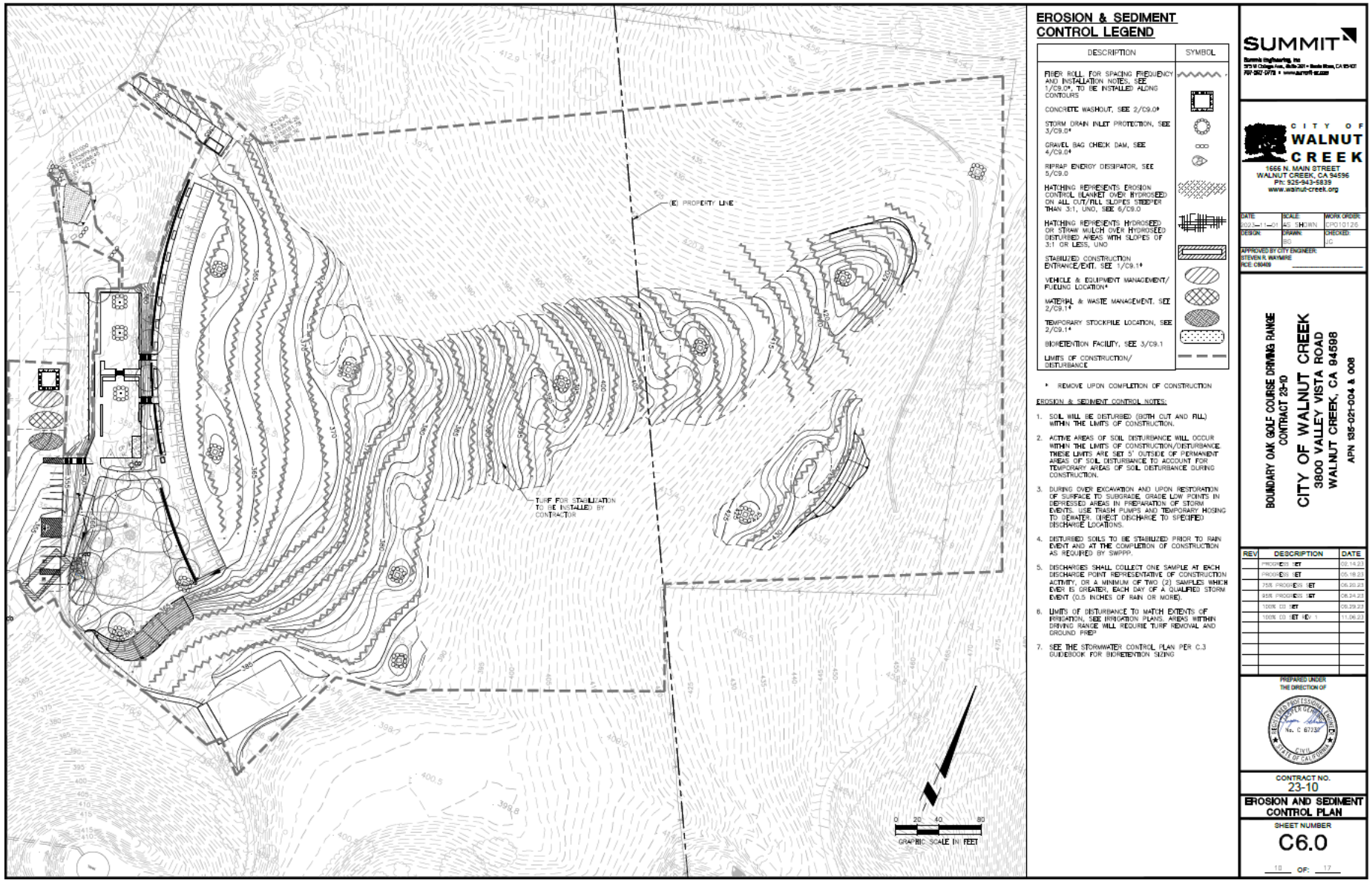

Figure 3-11. Erosion and Sediment Control Plan

Boundary Oak Golf Course

City of Walnut Creek, CA

wra Environmental Consultants

3.3 Project Construction

3.3.1 Schedule and Equipment

Project construction is anticipated to start in June 2024 and would last for approximately 16 weeks. The following equipment would be required for Project construction:

- Excavator
- Dump truck
- Bulldozer
- Skid steer
- Compactor
- Tractor
- Skip loader
- Trencher
- Asphalt paving machine
- Roller
- D4 dozer
- Sand pro
- Sprigging attachment and tractor
- Tractor with disc

3.3.2 Staging, Grading and Site Work

Construction staging would occur within existing paved areas of the Golf Course parking lot.

The total excavation cut volume is estimated at 3,849 cubic yards and the total fill volume is estimated at 4,038 cubic yards. With in-field adjustments during grading, no import nor export of earth would be required. The total amount of area to be disturbed during Project construction is approximately 5.5 acres. The Project would result in a total of 0.43 acre of impervious surface area.

The Project grading plan is shown in Figure 3-12 with additional details of the plaza-area grading shown in Figure 3-13.

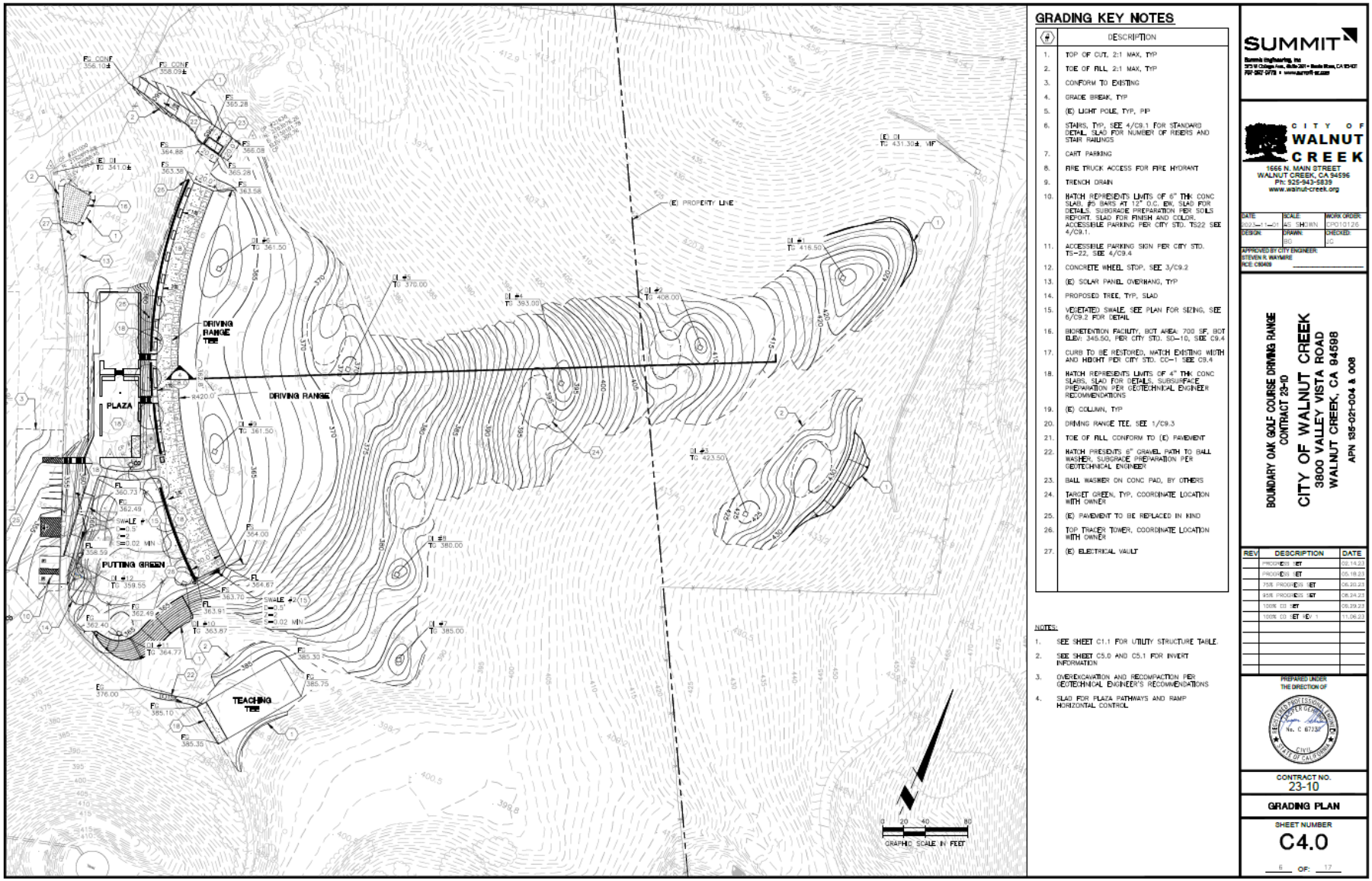

Figure 3-12. Grading Plan

Boundary Oak Golf Course
City of Walnut Creek, CA

wra Environmental Consultants

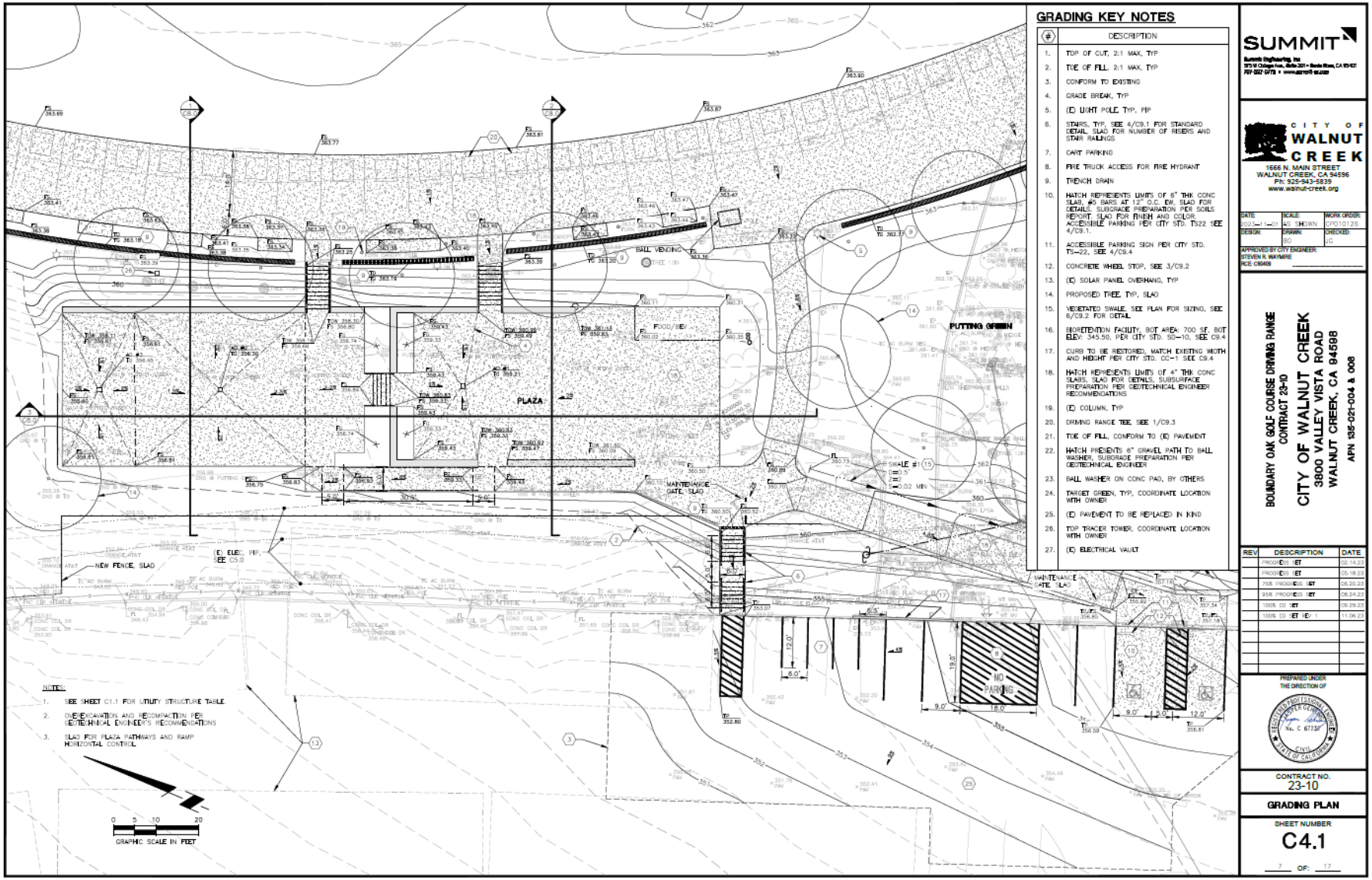

Figure 3-13. Plaza Grading Plan Detail

Boundary Oak Golf Course
City of Walnut Creek, CA

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3.4 Project-Related Approvals, Agreements, and Permits

The information contained in this IS/MND will be used by the City as it considers whether or not to approve the Project. If the Project is approved, the IS/MND would be used by the City in conjunction with various approvals and permits. These actions include, but may not be limited to, the following approvals:

- City of Walnut Creek Building Permit
- Central Contra Costa Sanitary District Permit
- Contra Costa Fire Protection District Permit
- Notice of Intent for coverage under the Statewide Construction Stormwater General Permit (State Water Resources Control Board)

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is potentially significant unless mitigation is incorporated, as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☒ Public Services
☐ Agricultural Resources	☐ Hazards and Hazardous Materials	☒ Recreation
☒ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☒ Biological Resources	☐ Land Use/Planning	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☒ Geology and Soils	☐ Population and Housing	☒ Mandatory Findings of Significance

4.1 Determination

On the basis of this initial evaluation:

☐ I find that the Project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Project MAY have a "Potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

_____ _____

Signature **Date**

Name and Title: Heather Ballenger, Interim City Engineer

4.2 Initial Study Checklist

This section describes the existing environmental conditions in and near the Project site and evaluates environmental impacts associated with the Project. The environmental checklist, as recommended in the CEQA Appendix G Guidelines, was used to identify environmental impacts that could occur if the Project is implemented.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

"No Impact" means that no impact to the resource would occur as a result of implementing the Project.

"Less than Significant Impact" means that implementation of the Project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.

"Less than Significant with Mitigation Incorporated" means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to less than significant.

"Potentially Significant Impact" means that there is either substantial evidence that a Project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.

4.2.1 Aesthetics

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The Project site is located on the driving range of a public golf course within the City. The Project site is within the Open Space/Recreation zoning district and has a General Plan designation of Open Space Recreation. The site is visible from some areas of the Golf Course and from various viewpoints within the Lime Ridge Open Space lands to the north and east.

DISCUSSION OF IMPACTS

a) Have a substantial adverse effect on a scenic vista?

Less than Significant Impact

The Project site is visible from various scenic vistas within the Lime Ridge Open Space to the north and east. During construction, the Project would result in temporary impacts to views visible from these locations, as the presence of construction equipment and materials on the site would generally degrade the visual character of the site. These impacts would be temporary and would not be substantial, and therefore the impact would be less than significant. During operation, the view of the Project site would be similar to existing conditions, with the exception of some new permanent structures. All permanent structures on the site would be constructed in a similar style to the existing Golf Course facilities, meaning that they would have similar scale, architectural features, and appearance such as roofing materials and paint colors. Therefore, a substantial change in the visual characteristics of the site would not occur. The Project would not have a substantial adverse effect on a scenic vista. The impact would be less than significant.

b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

No Impact

There are no officially designated or eligible State scenic highways within the vicinity of the Project site. The closest officially designated state scenic highway is Interstate 680 which is located approximately four miles southwest of the Project site. Therefore, the Project would not damage scenic resources within a State scenic highway No impact would occur.

c) *In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

Less than Significant Impact

The Project site is located on a golf course in a primarily non-urbanized area. Surrounding land uses include open space and low density residential. During construction, the Project would slightly degrade the existing visual character or quality of public views of the site due to the presence of construction equipment and materials. These impacts would be temporary and therefore would not constitute a significant impact. New permanent structures that would be constructed as part of the Project include a new plaza consisting of an upper and lower area, entry ramps to the plaza, shading structures, and seating (i.e., benches, tables). Some trees would be removed on-site; however, they would be replaced with new trees and additional landscaping. The impact of the Project during operation would be less than significant because the proposed new permanent structures would not substantially alter the existing site characteristics. The new plaza and associated structures are compatible with other development on the Golf Course site, including the existing club house and driving range. The new plaza and associated structures would be constructed in a similar style to the existing structures, and therefore would not substantially alter the existing visual character of the Project site. Therefore, the impact of the Project would be less than significant.

d) *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Less than Significant Impact

The Project would include the construction of some new built structures that would constitute a new source of light and glare that would be visible from surrounding areas. The new plaza is designed to be smaller than the existing clubhouse, and therefore would not cause a significant change in the light or glare. While not proposed at this time, extended hours at the Golf Course driving range may be considered once the Project is constructed. The Project site is surrounded by open space areas on all sides that are not open to the public at night-time. Therefore, extended night-time lighting at the Project site would not adversely affect night-time views in the area or disturb any residents. Construction would take place during normal construction hours during the day and therefore would also not cause a temporary increase in nighttime lighting. The impact of the Project related to light and glare would be less than significant.

4.2.2 Agricultural and Forestry Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Project site is mapped as Urban and Built-Up Land by the California Important Farmland Finder database prepared by the California Department of Conservation (CDC) (CDC 2023). Open space areas of the Lime Ridge Open Space to the north and east are classified as Grazing Land, which is an agricultural use.

DISCUSSION OF IMPACTS

a-e) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? Conflict with existing zoning for agricultural use, or a Williamson Act contract? Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland(as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? Result in a loss of forest land or conversion of forest land to non-forest use? Involve other changes in the existing environment which, due to their location or nature,

could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact

The Project site is located on a public golf course that is classified as Urban and Built-Up Land by the CDC. The Project would have no impact on surrounding agricultural lands and would not convert any farmland or timberland to non-agricultural use. The Project site is zoned for open space uses and therefore the Project would not conflict with any applicable zoning regulations. The Project would have no impact related to agriculture and forestry resources.

4.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d)	Result in other emissions (such as those leading to odors) affecting a substantial number of people?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The Project site is located within the San Francisco Bay Area Air Basin (SFBAAB) which has natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone. The following discussion provides an overview of the environmental setting regarding air quality in the SFBAAB.

Ambient Air Quality and Climate

The Bay Area has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that generally keeps storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

Air Pollutants of Concern

The California Air Resources Board (CARB) and United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- Ozone
- Coarse particulate matter (PM10)
- Fine particulate matter (PM2.5)
- Nitrogen dioxide
- Carbon monoxide
- Sulfur dioxide
- Lead

Because these are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents, they are referred to as "criteria air pollutants." In the SFBAAB, the primary criteria air pollutants of concern are ground-level ozone formed through reactions of oxides of nitrogen oxides (NOx) and reactive organic gases (ROG), PM10, and PM2.5. Regional air pollutants, such as ozone, PM10, and PM2.5, can be formed and/or transported over long distances and affect ambient air quality far from the emissions source. The magnitude and location of specific health effects from exposure to increased ozone, PM10, and PM2.5 concentrations are the result of emissions generated by numerous sources throughout the SFBAAB, as opposed to a single project.

Localized air pollutants generally dissipate with distance from the emission source and can pose a health risk to nearby populations. Toxic air contaminants (TACs), such as diesel particulate matter (DPM), are considered localized pollutants. PM2.5 is also considered a localized air pollutant, in addition to being considered a regional air pollutant. Air dispersion models can be used to reliably quantify the health risks to nearby receptors associated with emissions of localized air pollutants from an individual project.

REGULATORY SETTING

Federal and State Regulations

The U.S. EPA is responsible for implementing the programs established under the Federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a state fails to enforce its implementation of approved regulations, or if the EPA determines that a State Implementation Plan is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given State Implementation Plan.

CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California State Implementation Plans, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by CARB and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

In accordance with the Federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the NAAQS and CAAQS for each criteria air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB

(BAAQMD 2017). Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM10 (CAAQS only), and PM2.5, and is designated an attainment or unclassified area for all other pollutants. The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions.

BAAQMD Screening Criteria

The BAAQMD has established screening criteria to determine whether individual projects could result in potentially significant criteria air pollutant and precursor emissions, which are described in Section 4 of the BAAQMD 2022 CEQA Guidelines ([BAAQMD CEQA Guidelines] BAAQMD 2022). Preliminary screening for construction and operational criteria provides lead agencies with a conservative indication of whether a project would result in the generation of criteria air pollutants or precursors that exceed the BAAQMD thresholds significance. If all screening criteria for criteria air pollutants and precursors are met by a proposed project, then the lead agency need not perform a detailed assessment of the project's criteria air pollutant and precursor emissions.

Table 4-1 of the BAAQMD CEQA Guidelines contains single land use construction and operational criteria air pollutant and precursor screening levels for various land use categories. For operational emissions, it is assumed that projects would result in a less-than-significant impact related to criteria air pollutants and precursor emissions if: 1) the project size is at or below the operational screening level size for the applicable land use category (contained in Table 4-1 of the BAAQMD CEQA Guidelines); 2) operational activities would not include stationary engines and industrial sources subject to BAAQMD rules and regulations; and 3) operational activities would not overlap with construction activities. For construction emissions, it is assumed that projects would result in a less-than-significant impact related to criteria air pollutants and precursors if: 1) the project size is below the applicable screening level shown in Table 4-1; 2) All BAAQMD-recommended BMPs are included in the project design and implemented during construction, 3) construction-related activities would not overlap with operational activities; and 4) construction-related activities would not include demolition, simultaneous occurrence of two or more construction phases, extensive site preparation, extensive material transport, or stationary sources subject to BAAQMD rules and regulations.

DISCUSSION OF IMPACTS

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact

The 2017 Clean Air Plan (CAP) is the only applicable air quality plan that applies to the Project area. The BAAQMD CEQA Guidelines (BAAQMD 2022) recommend that a project's consistency with the current CAP be evaluated using the following three criteria:

- Would the project support the goals of the CAP?
- Would the project include applicable control measures from the CAP?
- Would the project not disrupt or hinder implementation of any control measures from the CAP?

If these questions (listed above) can be concluded in the affirmative with substantial evidence, then the BAAQMD would consider the project to be consistent with air quality plans prepared for the Bay Area.

The CAP includes 85 control measures categorized into nine economic sectors including stationary (industrial) sources, transportation, energy, building, agriculture, natural and working lands, waste management, water, and super greenhouse gas pollutants. The Project seeks to maintain and improve existing recreational uses at the Golf Course. The Project would not disrupt or hinder implementation of any control measures and would be consistent with applicable measures of the CAP. Therefore, the Project would not result in a significant impact related to consistency with the CAP. The impact would be less than significant.

b) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

Less than Significant with Mitigation Incorporated

Project construction activities would generate criteria air pollutant emissions that could potentially affect regional air quality. During construction, the primary pollutant emissions of concern would be ROG, NOx, PM10, and PM2.5 from the exhaust of off-road construction equipment and on-road construction vehicles related to worker vehicles, vendor trucks, and haul trucks. In addition, fugitive dust emissions of PM10 and PM2.5 would be generated by soil disturbance and demolition activities, and fugitive ROG emissions would result from paving. The Project was evaluated for consistency with BAAQMD screening criteria for the applicable land use category of "City Parks" included in Table 4-1 of the BAAQMD 2022 CEQAA Air Quality Guidelines. The screening level for construction emissions for this land use category is ten acres, and the screening level for operational emissions is 175 acres. The Project would meet the screening criteria size for both operational and construction emissions as the Project site is only 5.5 acres.

The Project size is below the screening size for the applicable land use category for construction emissions. The Project would implement Mitigation Measure AQ-1, which contains the BAAQMD-recommended BMPs from the BAAQMD CEQA Guidelines. Project construction activities would not overlap with operational activities, as the Golf Course driving range would be closed during Project construction. In addition, construction activities would not include demolition, simultaneous occurrence of two or more construction phases, extensive site preparation, extensive material transport, or stationary sources subject to BAAQMD rules and regulations. As such, the Project would meet all screening criteria identified for criteria air pollutant and precursor emissions during construction. The impact of the Project during construction would be less than significant with mitigation incorporated.

The Project size is below the screening size for the applicable land use category for operational emissions. Operational activities of the Project would not include stationary engines and/or industrial sources subject to BAAQMD rules and regulations. In addition, operational activities would not overlap with construction-related activities, as the Golf Course driving range would be closed during Project construction. As such, the Project would meet all screening criteria identified for criteria air pollutant and precursor emissions during operation. The operational impact of the Project would be less than significant.

Implementation of Mitigation Measure AQ-1 would ensure that Project construction activities would not result in a cumulatively considerable net increase in criteria air pollutants for which

the region is in nonattainment. The impact of the Project related to criteria pollutant emissions for which the region is in nonattainment would be less than significant with mitigation incorporated.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact

Sensitive receptors are groups of people that are more affected by air pollution than others. CARB has identified the following categories of persons that are considered air quality sensitive receptors: children, elderly, asthmatics, and others whose are at a heightened risk of negative health outcomes due to exposure to air pollution (CARB 2023). Locations that may contain a high concentration of these sensitive population groups include residential areas, schools, hospitals, daycare facilities, and elder care facilities. Construction equipment and heavy-duty truck operation associated with construction activities generate TACs in the form of DPM, as well as fugitive dust. Construction activities could generate DPM and PM2.5 emissions from off-road diesel construction equipment and on-road heavy-duty diesel trucks that could potentially result in elevated health risks at nearby sensitive receptors. The BAAQMD recommends evaluating a project's potential health risks to sensitive receptors within 1,000 feet of the project site during project construction. The nearest sensitive receptors to the Project site are single-family residences and the Carondelet High School athletics complex located approximately 1,000 feet southwest of the Project site. Emissions generated during Project construction would be less than significant due to the distance between the site and potential receptors and the prevailing wind direction that is normally from the west/northwest. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact

Construction activities would involve the use of gasoline- or diesel-powered equipment that emit exhaust fumes. These activities would take place intermittently throughout the workday and the associated odors are expected to dissipate within the immediate vicinity of the work area. The Project site is not immediately surrounded by residential areas or other sensitive receptors which would find these odors objectionable. The Project would not introduce a new use that has been identified as a potential source of objectionable odors. Such sources include restaurants, manufacturing plants, landfills, and agricultural and industrial operations. The impact of the Project would be less than significant.

MITIGATION MEASURES

Mitigation Measure AQ-1

The Project shall implement BMPs as recommended by the BAAQMD 2022 CEQA Air Quality Guidelines, which include the following measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- 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.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- 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.

4.2.4 Biological Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

On November 23, 2023, WRA, Inc. (WRA) biologists visited the Project site to map vegetation, unvegetated land cover types, document plant and wildlife species presence, and evaluate

habitat for the potential to support special-status species as defined by CEQA. The research and survey methodology and results of these surveys are summarized in the following sections.

REGULATORY SETTING

Endangered and Threatened Plants, Fish, and Wildlife

Specific species of plants, fish and wildlife may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of "endangered" and "threatened" plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. Take under the ESA is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in "take" of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species." Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGC 2050 et seq.) prohibits the "take" of any plant and animal species that the California Fish and Game Commission determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to "candidate species" which are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. The California Department of Fish and Wildlife (CDFW) may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), if the NCCP covers that activity. CDFW may also authorize take for voluntary restoration projects through the Restoration Management Permit.

Fully Protected Species and Designated Rare Plant Species

This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or the ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in the CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for the

take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the CFGC and the CESA.

Special Protections for Nesting Birds and Bats

The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species (bald [Haliaeetus leucocephalus] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the U.S., including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 (MBTA) and CFGC, i.e., Sections 3503, 3503.5 and 3513. Under these laws/codes, the harm or collection of adult birds as well as the collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA (Western Bat Working Group 2021).

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA

A Species of Special Concern is a species formally designated by CDFW which meet one or more criteria related to federal ESA status (if it is not listed under CESA), extirpation from California, documented population declines, or small population size within California and risk of declines. Section 15280 of the CEQA Guidelines state that species of special concern must be included in project impact analyses. In addition, CDFW has developed a special animals list as "a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2024a) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

City of Walnut Creek

General Plan

The City's General Plan contains the following relevant policies related to biological resources:

> Policy 26.4: Protect tree resources on public and private property.
>
> Policy 26.5: Protect tree groves (especially oaks) and their understories.
>
> Action 26.5.1: Assess the effectiveness and efficiency of and, if necessary, modify the City's Tree Preservation Ordinance. (Walnut Creek Municipal Code, Title 3, Chapter 8.)
>
> Action 26.5.1: Plan for the replacement of trees that have been removed.
>
> Policy 26.6. Recognize the benefit of urban wildlife and their habitat.

Tree Ordinance

The City of Walnut Creek Title 11 Chapter 1 "Park and Open Space Regulations" states in Section 101, that a park is defined as: "all public open spaces, parks, recreation areas and trails owned and maintained by the City of Walnut Creek or similar areas under the care, maintenance and supervision of the City of Walnut Creek." And all open space is defined as: "land left basically in its natural, undeveloped state, used for the preservation of natural resources, managed production of resources, and outdoor recreation and designated as Walnut Creek Open Space." The Project site is within a City Park and therefore not subject to the City of Walnut Creek Title 3, Chapter 8 "Preservation of Trees on Private Property", however, under Section 11-1.519 "Civil Penalty" and Section 01 of Title 3, Chapter 8, the unauthorized removal or damage of tree within City parks and open space is prohibited unless authorized (Municipal Code 2023a, c).

METHODOLOGY

On November 2, 2023, WRA biologists visited the Project site to map vegetation, aquatic features, and other land cover types; document plant and wildlife species present; and evaluate on-site habitat for the potential to support special-status species as defined by CEQA. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive land cover types and special-status species, including:

- Contemporary aerial photographs (Google Earth 2024)
- Historical aerial photographs (NETR 2024)
- National Wetlands Inventory (USFWS 2024a)
- California Aquatic Resources Inventory (SFEI 2024)
- CNDDB (CDFW 2024b)
- CNPS Inventory (CNPS 2024b)
- Consortium of California Herbaria (CCH1 2024, CCH2 2024)
- USFWS Information for Planning and Consultation (USFWS 2024b)
- eBird Online Database (Cornell Lab of Ornithology 2024)
- California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2024a)
- California Natural Community List (CDFW 2024a)
- Database searches (i.e., CNDDB, CNPS) for special-status species focused on the Clayton and eight surrounding USGS 7.5-minute quadrangles.

Following the remote assessment, WRA biologists completed a field review over the course of one day to document: (1) land cover types (e.g., vegetation communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic land cover types (e.g., wetlands) are present, and (4) if special-status species are present.

Special-status Species

Potential occurrence of special-status species at the Project site was evaluated by first determining which special-status species occur in the vicinity of the Project site through a literature and database review as described above. Presence of suitable habitat for special-

status species was evaluated during the site visits based on physical and biological conditions in the Project site as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project site was then determined according to the following criteria:

- **No Potential.** Habitat on and adjacent to the Project site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project site is unsuitable or of very poor quality. The species is not likely to be found in the Project site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Study Area is unsuitable. The species has a moderate probability of being found in the Study Area.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project site is highly suitable. The species has a high probability of being found in the Project site.
- **Present.** Species is observed on the site or has been recorded (i.e., CNDDB, other reports) in the Project site in the recent past.

Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement and migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2024c). Additionally, aerial imagery (Google Earth 2024) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Project sites. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

Tree Survey

An Arborist Report for the Project was prepared by WRA in February 2024 (WRA, 2024 [Appendix B]). On July 18, 2023, WRA's International Society of Arboriculture -certified arborist conducted an arborist survey at the site for the purpose of identifying and documenting the presence of all trees within a City park and/or open space area of Walnut Creek that may be offered protection under the City's Municipal Code. Municipal Code Title 11, Section 1.519 offers protections to trees in public parks within the City (City of Walnut Creek 2023c).

GPS locations for all the protected trees surveyed within and around the Project site and information regarding the species, size in diameter-at-breast height (DBH), estimated crown radius, estimated height, and health, condition, and structure ratings were collected.

DISCUSSION OF IMPACTS

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS)?*

Less than Significant Impact with Mitigation Incorporated

Special-status Plant Species

Based upon a review of the resource databases listed in the Methodology Section above, 80 special-status plant species have been documented in the vicinity of the Project site. Of these, 68 were determined to have no potential to occur or are unlikely to occur within the Project site due to one or more of the following:

- The Project site does not contain the necessary hydrologic, edaphic (soil), topographic, and pH conditions necessary to support the special-status species.
- Associated natural communities necessary to support the special-status species are not present within the Project site.
- The Project site is geographically isolated from the documented range of the special-status plant species.
- The historical landscape and/or habitat(s) of the Project site was not suitable habitat prior to land/type conversion to support the special-status plant species.
- Land use history and contemporary management has degraded the localized habitat necessary to support the special-status plant species.

The following 12 species were determined to have a moderate or high potential to occur within or immediately adjacent to the Project site.

- *Calandrinia breweri* - Brewer's calandrinia, Rank 4.2, Moderate Potential
- *Calochortus pulchellus* - Mt. Diablo fairy-lantern, Rank 1B.2, Moderate Potential
- *Calochortus umbellatus*- Oakland star-tulip, Rank 4.2, Moderate Potential
- *Delphinium californicum* ssp. *Interius*- Hospital Canyon larkspur, Rank 1B.2, Moderate Potential
- *Eriastrum ertterae* - Lime Ridge eriastrum, SS, Rank 1B.1, High Potential
- *Eriogonum truncatum*- Mt. Diablo buckwheat, Rank 1B.1, Moderate Potential
- Helianthella *castanea*- Diablo helianthella, Rank 1B.2, High Potential
- *Hesperolinon breweri*- Brewer's western flax, Rank 1B.2, Moderate Potential
- *Malacothamnus hallii* – Hall's bush-mallow, Rank 1B.2, High Potential
- *Microseris sylvatica*- sylvan microseris, Rank 4.2, Moderate Potential
- *Monolopia gracilens*- woodland woollythreads, Rank 1B.2, Moderate Potential
- *Navarretia gowenii*- Lime Ridge navarretia, Rank 1B.1, High Potential

These species are unlikely to occur in the developed Golf Course, but may occur in adjacent scrub, ruderal grassland, or oak woodland. Special-status plants may be impacted during construction activities such as vegetation removal or initial ground disturbance in scrub, grassland, or oak woodland. Such impacts would be considered significant under CEQA. The Project would implement Mitigation Measure BIO-1, which requires that 1) the Project avoid all

direct impacts to scrub, ruderal grassland, and oak woodland; 2) employees on the Project will attend a Worker Environmental Awareness Training Program (WEAP) from a qualified biologist prior to beginning work at the site. The WEAP shall include a description of visual identification of any special-status species and required habitat, an explanation of the status of these species and their protection, consequences of non-compliance, and a description of the Project-specific measures being taken to reduce effects to these species. With implementation of Mitigation Measure BIO-1, the Project would avoid all direct impacts to potential habitat for these species and therefore, would not impact special-status plant species. The impact would be less than significant with mitigation incorporated.

Special-status Wildlife Species

Based upon a review of the resource databases listed in the Methodology Section above, 71 special-status wildlife species have been documented in the vicinity of the Project site. Of the 71 special-status species, 68 are considered unlikely, or have no potential, to occur within the Project site based on a lack of suitable habitat features. Features not found within the Project site that are required to support special-status wildlife species include:

- Vernal pools,
- Perennial aquatic habitat (e.g., streams, rivers, or ponds),
- Tidal marsh areas,
- Old growth forest,
- Open grassland or scrub,
- Sandy beaches or alkaline flats,
- Presence of specific host plants, and
- Caves, mine shafts, or abandoned buildings.

The absence of such habitat features eliminates components critical to the survival or movement of many special-status species found in the vicinity. The remaining three species have habitat that may occur within or adjacent to the Project site. These species are discussed further below.

Alameda whipsnake (*Masticophis lateralis euryxanthus*). Federal Threatened Species, State Threatened Species. Moderate Potential. The range of Alameda whipsnake (AWS) is restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties (USFWS 2006). The historical range of AWS has been fragmented into five disjunct populations: Tilden-Briones, Oakland-Las Trampas, Hayward-Pleasanton Ridge, Sunol-Cedar Mountain, and Mount Diablo-Black Hills (USFWS 1997).

The Project site is within designated critical habitat for AWS. The physical and biological features for AWS include scrub/shrub communities with a mosaic of open and closed canopy; woodland or annual grassland plant communities contiguous to lands containing scrub communities; lands containing rock outcrops, talus, and small mammal burrows within or in proximity to scrub communities; and accessible dispersal habitat (USFWS 2006). Use of habitats other than scrub by AWS is now known to be more common, especially for corridor movement. Thus, habitats, including grassland and riparian communities, adjacent to scrub habitat are considered essential to AWS conservation (USFWS 2006).

AWS is documented to occur at the eastern extent of the Project site (CDFW 2024). The majority of the Project site is developed as a golf course and lacks the key features to support AWS. Habitats that may be essential to AWS conservation including scrub, oak woodland, and ruderal

grassland are present adjacent to the Project site. Removal or alteration of these habitats would be considered a significant impact.

The development within and west of the Project site reduces the likelihood for this species to disperse through the Project site. AWS could be killed or injured during construction activities such as vegetation removal or initial ground disturbance if this species were to venture into the construction area. Such impacts would be considered significant under CEQA. Implementation of Mitigation Measure BIO-1 would ensure that the Project would not result in direct impacts to AWS habitat, including scrub, ruderal grassland, and oak woodland. In addition, the Project would implement Mitigation Measure BIO-2 which requires that exclusionary fencing be placed around the Project site adjacent undeveloped land to prevent any wildlife species, including AWS, from entering the work area. This mitigation measure would ensure that AWS would not enter the construction work area while ground disturbing activities are underway. The Project would also implement Mitigation Measure BIO-3, which requires that preconstruction surveys for AWS be conducted by a qualified biologist no more than 48 hours prior to the start of ground disturbing construction activities at the Project site. If the biologist identifies AWS individuals within the work area, work will be halted until the animal leaves the Project site of its own volition. The implementation of Mitigation Measure BIO-2 and BIO-3 would prevent direct harm to AWS individuals. Therefore, with the implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3, the Project would not have a substantial direct or indirect adverse effect on AWS. The impact would be less than significant with mitigation incorporated.

Crotch bumble bee (*Bombus crotchii*), State Candidate. Moderate Potential. Crotch's bumble bee occurs primarily in central and southern California, from coastal areas inland to the foothills (Williams et al. 2014). Crotch's bumble bee occurs in grassland and scrub habitats and has also been documented in forested and agricultural areas with sufficient flowering resources. Nests are built in pre-existing cavities. They are commonly found underground, in abandoned rodent burrows, or aboveground in grass tufts, rock piles, abandoned bird nests, or tree cavities.

The only nearby documented occurrence of this species is from 1926 (CDFW 2024), and the Project site is within this species' current range. The majority of the Project site is developed as a golf course and does not provide suitable habitat for this species. Crotch bumble bee could nest and hibernate in upland areas with suitable burrows or other cavities which may occur in in ruderal grassland and scrub along the perimeter of the Project site. Construction activities including grading and operation of heavy equipment could result in mortality or injury of individuals, through the crushing of nests or hibernating queens if these adjacent habitats were impacted by the Project. Such impacts would be considered significant under CEQA. With implementation of Mitigation Measure BIO-1, the Project would avoid all potential habitats for Crotch bumble bee, and therefore, would not have an adverse indirect or direct impact on this species. The impact would be less than significant with mitigation incorporated.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. Trees and shrubs that may support nesting by this species are present within

and adjacent to the Project site. The Project area is subject to a high level of anthropogenic disturbance, decreasing likelihood for this species to nest within or adjacent to the Project site.

Common birds protected under the MBTA and CFGC may also nest within trees or on the ground within the Project site. Project construction activities, such as grading and other earth-disturbing activities, could impact nesting birds or their eggs, which is considered a potentially significant impact. The Project would implement Mitigation Measure BIO-4, which requires that preconstruction nesting bird surveys be conducted by a qualified biologist no more than seven days prior to initial vegetation removal or ground disturbing activities at the Project site. If active nests of native nesting bird species are located during the preconstruction nesting bird survey, a work exclusion zone will be established around each nest by the qualified biologist. Established exclusion zones will remain in place until all young in the nest have fledged or the nest otherwise becomes inactive. With implementation of this measure, the Project would not have a substantial adverse direct or indirect effect on white -tailed kite or other protected nesting bird species.

With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4, the Project would not have a substantial adverse effect on any candidate, sensitive, or special-status species. The impact would be less than significant with mitigation incorporated.

b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?*

No Impact

No sensitive natural communities are present within the Project site. The majority of the Project site is developed as a golf course. Implementation of Mitigation Measure BIO-1 would ensure that the Project would not result in direct impacts to sensitive and common natural communities, including scrub, ruderal grassland, and oak woodland. In addition, there are no streams with riparian vegetation within the Project site. Therefore, the Project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact

The majority of the Project site is developed as a golf course and lacks any federally or state protected aquatic resources, including wetlands and streams. Therefore, the Project would not have a substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means. No impact would occur.

d) *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Less than Significant Impact

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. As described in the Methodology Section above, WRA biologists reviewed maps from the California Essential Connectivity Project and habitat connectivity data available

through the CDFW Biogeographic Information and Observation System, as well as aerial imagery for the local area to assess if local core habitat areas were present within or connected to the Project site. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The Project site is not a mapped wildlife corridor in the California Essential Connectivity Project database. This is consistent with the observed conditions at the Project site. Dense development to the west and north serves as a barrier to regional movement. The majority of the Project site is developed as a golf course. The Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. The impact would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact

A total of 14 trees and one shrub have been identified as unavoidably needing to be removed to accommodate the Project. Two of the trees to be removed are coast live oaks greater than 9 inches in DBH, which are considered protected by the City. The rest of the trees to be removed are non-protected tree species, including strawberry trees (*Arbutus unedo*), southern magnolia (*Magnolia grandiflora*), American beech (*Fagus grandiflora*), witch hazel (*Hamamelis* sp.) and mousehole tree (*Myoporum laetum*).

As described in Section 3.2.1, Landscaping, the Project includes 20 trees to be planted on the Project site, which would replace those removed by the Project. As a self-permitting agency, the City is exempt from obtaining a tree removal permit for its own project. However, the City would replant an equivalent number of trees to replace those removed by the Project. As such, the Project would not conflict with any ordinances or policies, such as a tree ordinance, and the impact would be less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact

The Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. The City is not located within the East Contra Costa County Habitat Conservation Plan & Natural Community Conservation Plan Service Area, and no other Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan exists that would be applicable to the Project site. No impact would occur.

MITIGATION MEASURES

Mitigation Measure BIO-1: Avoidance of Impacts to Sensitive Species and Associated Habitats

The following measures shall be implemented in order to avoid impacts to sensitive species and their associated habitats:

1. The grading envelope of the Project shall avoid all direct impacts to scrub, ruderal grassland, and oak woodland.
2. Construction employees on the Project site will attend a Worker Environmental Awareness Training Program (WEAP) prior to beginning work at the site. The WEAP will consist of a brief presentation by a qualified biologist, which may be given either in-person or via an automated PowerPoint presentation. The program will include a description of visual identification of any special-status species and required habitat, an explanation of the status of these species and their protection, consequences of non-compliance, and a description of the Project-specific measures being taken to reduce effects to these species.

Mitigation Measure BIO-2: Exclusionary Fencing

Exclusionary fencing will be placed around the Project site that is located immediately adjacent to undeveloped land to prevent any wildlife species from entering the work area. A qualified biologist will be present during the installation of the fence. The fence should be constructed of a sturdy, non-climbable plastic material such as ERTEC or Animex. Fence support posts should be installed on the work-side of the fence. No shrubs, trees, and other climbable structures should be within three feet of the fence. The fence should at least three feet above ground level and be buried at least 4 inches below the ground for increased stability. Exclusion fencing will be inspected and maintained throughout construction. The exclusion fence will be checked for breaches on a daily basis by a qualified biologist or an on-site representative. Fencing will be removed only when all construction equipment is removed from the site.

Mitigation Measure BIO-3: Preconstruction Surveys for Alameda whipsnake

Within 48 hours prior to the start of ground disturbing construction activities, including grading or vegetation removal, a qualified biologist shall conduct a preconstruction survey for AWS within and adjacent to the work areas. If an individual is observed within the work area, work will be halted until the animal leaves the Project site of its own volition. The qualified biologist will be given authority to stop any work that may result in take of a listed species.

Mitigation Measure BIO-4: Nesting Birds

If Project activities must be conducted during the nesting bird season (February 15 through September 1), a pre-construction nesting bird survey will be conducted by a qualified biologist no more than seven (7) days prior to vegetation removal or initial ground disturbance. The survey will include the Project site and surrounding 500 feet to identify the location and status of any nests that could potentially be affected either directly or indirectly by Project activities.

If active nests of native nesting bird species are located during the preconstruction nesting bird survey, a work exclusion zone will be established around each nest by the qualified biologist. Established exclusion zones will remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Suggested buffer zone distances differ depending on species, location, baseline conditions, and placement of nest and shall be determined in the field by a qualified biologist.

4.2.5 Cultural Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☒	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Tom Origer & Associates (Origer) prepared a Cultural Resources Study for the Project in January 2024 (Barrow 2024 [Appendix C]). The study was conducted to meet the requirements of the City and of CEQA, and to identify potential historical resources other than Tribal Cultural Resources, as defined in Public Resources Code 21074 (a)(1)(A)-(B), in the Project vicinity. The study included archival research at the Northwest Information Center, Sonoma State University, examination of the library and files of Origer, Native American contact, and a field survey of the Project site. Information in this section is adapted from and relies on the Cultural Resources Study. The study is available for review at the City by qualified individuals only.

ENVIRONMENTAL SETTING

Prehistorical Setting

The concept of prehistory refers to the period of time before events were recorded in writing and vary worldwide. Because there is no written record, our understanding of California prehistory relies on archaeological materials and oral histories passed down through generations. Native peoples have occupied the northern San Francisco Bay region for over 11,000 years (Fredrickson 1973). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems. Prehistoric archaeological site indicators expected to be found in the region include, but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and hand-stones, and mortars and pestles; and locally-darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire-affected stones.

Historical Setting

While initial European arrival to Walnut Creek area occurred in 1772, with the Captain Pedro Fages Spanish exploration party, a permanent non-native settlement did not occur until 1849 when William Slusher built a cabin near what is now considered Mt. Diablo Boulevard and South Main Street. Walnut Creek was known as "The Corners" up until 1862, when the United States Postal Service established a post office. At that time, the name was permanently changed to "Walnut Creek." In 1871, Homer Shuey laid out the parcels around the intersection of Mt. Diablo Boulevard and South Main Street, which at the time were the main thoroughfares between Oakland and Antioch and then continuing to the San Joaquin Valley, Livermore, and Pacheco. The following year, Shuey subdivided an even bigger area and established a street pattern for Walnut Creek's downtown area.

Historic site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

Cultural Resource Study Findings

Archival research indicated that the Project site has not been previously subjected to cultural resources survey. Three cultural resource studies have been conducted within a quarter mile of the Project site. No cultural resources have been documented within the Project site. One cultural resource has been documented within a quarter mile (825 feet away) of the Project site. No ethnographic villages or camps are reported in or near the Project site.

A review of 19th and 20th-century maps and aerial photos indicated no buildings are within the study area until sometime between 1979 and 1991 when a driving range was constructed for the Golf Course. The Golf Course was constructed in 1968.

A model for predicting a location's sensitivity for buried archaeological sites was formulated by Byrd et al. based on the age of the landform, slope, and proximity to water (Byrd et al. 2017). A location is considered to have the highest sensitivity if the landform dates back to the Holocene, has a slope of five percent or less, is within 150 meters of fresh water, and 150 meters of a confluence. The Holocene Epoch is the current period of geologic time, which began approximately 11,700 years ago, and coincides with the emergence of human occupation of the area. A basic premise of the model is that archaeological deposits will not be buried within landforms that predate human colonization of the area. Calculating these factors using the buried site model (Byrd et al. 2017), a location's sensitivity is scored on a scale of 1 to 10 and classed as follows: lowest (<1); low (1-3); moderate (3-5.5); high (5.5-7.5); highest (>7.5). Based on the application of this model, the Project site was determined to have the lowest potential for buried archaeological sites due to the type of geologic formations and the age of the geologic formations upon which the study area lies (Barrow 2024).

A surface examination of the Project site was completed by Origer staff on December 17, 2023. The field survey was conducted by walking in zig-zagging corridors spaced no more than ten meters apart. There was no visibility in the parking lot, so the perimeter of the parking lot was examined. Hoes were used, as needed, to remove duff and vegetation so that the ground surface could be examined. No archaeological site indicators were observed during the course of the survey. The Golf Course structures within the Project site are too recently constructed to be considered potentially important and do not require further consideration.

DISCUSSION OF IMPACTS

a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

Less than Significant Impact with Mitigation Incorporated

No previously identified historical resources were documented within the Project site. Ground disturbing activities may impact unknown archaeological resources, which may be historical resources, but the likelihood is low given the lack of structures historically occurring within the Project site. The Project would implement Mitigation Measure CUL-1 pertaining to the accidental discovery of unknown archaeological resources and/or human remains during Project construction. Implementation of this measure would ensure that any archaeological resources, including potential historical resources, discovered during Project construction would be handled in a proper manner in accordance with Public Resources Code (PRC) Section 21083. Implementation of this measure would prevent damage to any potential unknown historical resources that may be present within the Project site. The impact would be less than significant with mitigation incorporated.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

Less than Significant Impact with Mitigation Incorporated

There are no previously documented cultural resources documented within the Project site. Although the Project site has low potential for buried archaeological resources, there is potential for ground disturbing activities during construction to affect unknown archaeological resources on the Project site. The Project would implement Mitigation Measure CUL-1 pertaining to the accidental discovery of unknown archaeological resources and/or human remains during construction. With implementation of this mitigation measure, the Project would not cause a substantial change in the significance of an archaeological resource because any accidentally discovered archaeological resources would be handled in a proper manner in accordance with PRC Section 21083. Mitigation Measure CUL-1 would prevent damage to any potential unknown cultural resources that may be present within the Project site. The impact would be less than significant with mitigation incorporated.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant with Mitigation Incorporated

Origer staff completed a field survey of the Project site on December 17, 2023, which consisted of a surface examination of the Project site conducted by walking in zig-zagging corridors spaced no more than ten meters apart. The site was surveyed for the presence of human remains or archaeological site indicators. As stated in the environmental setting section above, prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains and fire-affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps). No human remains or archaeological site indicators were observed during the field

survey conducted by Origer staff on December 17, 2023. The Project would implement Mitigation Measure CUL-1 pertaining to the accidental discovery of unknown archaeological resources and/or human remains on the Project site. With implementation of this mitigation measure, the impact would be less than significant because any accidentally discovered human remains would be handled in a proper manner in accordance with CEQA Guidelines §15064.5(e). Mitigation Measure CUL-1 would prevent damage to any potential unknown human remains that may be buried within the Project site.

MITIGATION MEASURES

Mitigation Measure CUL-1: Accidental Discovery of Archaeological Resources or Human Remains

If archaeological remains are uncovered, work at the place of discovery shall be halted immediately until a qualified archaeologist can evaluate the finds as required by PRC Section 21083. Prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools, grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles), bedrock outcrops and boulders with mortar cups, and locally darkened midden soils. Midden soils may contain a combination of any previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits.

In accordance with CEQA Guidelines Section 15064.5 (e), if human remains are encountered, excavation or disturbance of the location shall be halted in the vicinity of the find, and the county coroner shall be contacted. If the coroner determines the remains are Native American, the coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendant shall make recommendations regarding the treatment of the remains with appropriate dignity.

4.2.6 Energy

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Power in the City is provided by MCE and Pacific Gas and Electric (PG&E). MCE is a public, non-profit clean electricity provider that has been the City's default electricity provider since September 2016 (City of Walnut Creek 2023a). Customers may opt out of MCE services and elect PG&E as their electricity provider. PG&E continues to be responsible for transmitting and distributing electricity through the grid, maintaining infrastructure, billing customers, and providing customer services (City of Walnut Creek 2023a).

REGULATORY SETTING

Sustainability Action Plan

The City of Walnut Creek 2023 Sustainability Action Plan (SAP) was adopted on July 18, 2023 (City of Walnut Creek 2023b). The SAP is the first update to the City's Climate Action Plan that includes measures for the reduction of greenhouse gas (GHG) emissions in the short-term and long-term. The SAP identifies strategies for the City to implement to achieve GHG reduction targets set by the State.

DISCUSSION OF IMPACTS

a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact

The Project would include improvements to the driving range which will increase electrical consumption. The Project proposes to install additional newer technology such as tracers, a ball washing machine, and outlets to the main plaza where there will be a concession stand. Existing photovoltaic arrays and underground utilities will remain in place. All of the electrical improvements will be constructed in consultation with PG&E. No new additional off-site facilities are required to provide power to the driving range. The Project site has a maximum fault current available of 10,390 amps. The Project will create a total electrical demand of 146 amps. Therefore, there is sufficient power available at the Project site to accommodate the proposed driving range improvements.

The Project's proposed lighting complies with all applicable lighting standards contained in the 2022 California Building Energy Efficiency Standards (Energy Code). Project operation would not result in wasteful, inefficient, or unnecessary consumption of energy resources, because all electrical fixtures would comply with the 2022 Energy Code and would not conflict with any requirements of the SAP. The impact would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

The applicable local plan that pertains to renewable energy and energy efficiency is the SAP. The SAP contains strategies for the City to achieve Statewide goals of reducing GHG emission levels by 40 percent from 1990 levels by 2030, and by 85 percent from 1990 levels by 2045. Strategies included in the plan pertaining to energy resources include (City of Walnut Creek 2023b):

1. Require transition to renewable and carbon free energy sources.
2. Facilitate energy efficiency and electrification at existing municipal buildings and infrastructure.
3. Facilitate energy efficiency and electrification at existing buildings and infrastructure.
4. Require electrification and low-carbon materials for new buildings.

The Project would comply with applicable City energy efficiency standards and electrification requirements. The Project would not include natural gas infrastructure, nor would it increase the usage of carbon-based fuels. No impact would occur.

4.2.7 Geology and Soils

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i)	*Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*	☐	☐	☒	☐
ii)	*Strong seismic ground shaking?*	☐	☐	☒	☐
iii)	*Seismic-related ground failure, including liquefaction?*	☐	☐	☒	☐
iv)	*Landslides?*	☐	☐	☒	☐
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

A Geotechnical Investigation Memorandum was prepared for the Project in May 2022 (Miller Pacific Engineering Group 2022 [Appendix D]). Information in this section is based on and adapted from information in the Geotechnical Investigation Memorandum.

The Project site is located in the Contra Costa County region of the Coast Range Geomorphic Province. The Coast Range Geologic Province borders the Coast of California and generally consists of northwesterly/southeasterly trending ridges of granitic, metavolcanic, and metasedimentary rocks. Numerous northwest to southeast trending faults parallel the trend of the Coast Ranges.

The Project site is within a seismically active region, and many moderate earthquakes related to the Concord-Green Valley Fault system have occurred. Active faults are those that have moved during the past 11,000 years and are considered when evaluating seismic risk for building construction. The nearest active fault is the Concord-Green Valley Fault, a strike-slip fault located approximately 0.5 miles west of the western Project boundary near the Golf Course (USGS 2016). Other major faults that could cause significant shaking at the Project site are the Franklin Fault, the Southampton Fault, the N. Calaveras Fault, and the Mount Diablo Thrust Fault.

The Project site is located east of the existing pro shop and asphalt parking lot and is currently undeveloped. The topography is gently to moderately sloping with a broad drainage swale through the central portion of the driving range. The site is covered with low grasses and exposed soil with several mature trees around the perimeter (Miller Pacific Engineering Group 2022).

DISCUSSION OF IMPACTS

a-i) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Less than Significant Impact

The Concord-Green Valley Fault is mapped on an Earthquake Zones of Required Investigation Map. The Project site is located in the Alquist Priolo fault zone for this Fault (California Geological Survey 2023a).

Although unlikely, rupture of the Concord-Green Valley Fault could pose potential risks to construction workers on the Project site. The Project contractor would comply with all federal Occupational Safety and Health Administration (OSHA) (see 29 CFR Standard 1926) and California OSHA (Cal/OSHA) (see CCR Title 8, Chapter 4) requirements related to constrution worker safety, which would reduce risks associated with fault rupture during construction to a less than significant level. The Project would not cause a change in existing conditions which would exacerbate the risk of substantial adverse effects associated with rupture of a known earthquake fault. Therefore, the Project would not cause substantial effects including the risk of loss, injury, or death associated with rupture of a known earthquake fault. The impact would be less than significant.

a-ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

Less than Significant Impact

As described in Impact a-i) above, the Project site is located in a seismically active region and is within one fault zone. As discussed above in Impact a-i), the Project contractor would adhere to all OSHA and Cal/OSHA requirements for construction worker safety, which would minimize risks associated with strong seismic ground shaking during construction. Operation of the Project would not alter the existing use of the site. As such, the Project would not result in any conditions that would exacerbate the risk of potential substantial effects related to strong seismic ground shaking. Therefore, the Project would not result in substantial effects associated with strong seismic ground shaking. The impact would be less than significant.

a-iii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

Less than Significant Impact

Liquefaction primarily occurs in relatively loose, saturated, cohesionless soils that lose their strength and become incapable of supporting the weight of overlying soils or structures when subject to earthquake stresses. Liquefaction primarily occurs within loose, granular, saturated soil materials. The Project site is not located in a liquefaction zone identified by the California Geological Survey (CGS) (CGS 2023b). The impact would be less than significant.

a-iv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

Less than Significant Impact

The Project site is not located within a Landslide Zone of Required Investigation (California Geological Survey 2023). Therefore, the Project would not cause substantial adverse effects involving landslides. The impact would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact

During construction, excavation and trenching would be required to construct the new drainage lines and connections to existing water and sewer infrastructure. Portions of the excavation would occur within existing paved areas, and thus would not result in substantial loss of topsoil. Within the grassed driving range, excavated earth would be replaced, leveled, and revegetated after the new infrastructure is installed. Some soil erosion and loss of topsoil would be unavoidable, as newly compacted soils may erode due to precipitation during Project operation. Projects that disturb over one acre of land are required to prepare a Stormwater Pollution Prevention Plan (SWPPP) to comply with the Construction General Permit requirements. As the Project would disturb approximately 5.5 acres of land, preparation of a SWPPP is required. The SWPPP will contain measures to control surface runoff, reduce erosion, and minimize the potential for sediment to leave the Project site and enter waterways during construction activities. With the implementation of measures included in the SWPPP, the Project would not result in substantial soil erosion or loss of topsoil during construction.

After the ground-disturbing activities are complete, areas impacted by ground disturbance will be compacted with previously removed soil, and new soil from off-site, if necessary, reseeded, mulched, and shall be monitored and maintained until vegetation is established. During operation, the Project site would be properly maintained with vegetation, as appropriate for its

designated use, to prevent substantial soil erosion and loss of topsoil. As such, the impact of the Project during operation would be less than significant.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Less than Significant Impact

The Project site is a moderately sloping area that is characterized by sandy soils. The Project site is not located in a landslide or liquefaction hazard zone. The Project would comply with all federal, State, and local regulations regarding seismic safety and infrastructure would be designed to conform to all building requirements. Project impacts during construction and operation would be less than significant.

d) *Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?*

Less than Significant Impact

Expansive soils (clays) are those that contain minerals such as smectite clays that are capable of absorbing water. These soils are prone to expansion and shrinkage due to variation in water volume. Soils with a plasticity index of less than 20 are considered to be only marginally expansive. Soils at the Project site were tested and found to have a plasticity index of 14; therefore, the Project would not be located on expansive soil and would not create substantial direct or indirect risks to life or property. The impact would be less than significant.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact

The Project would not include any septic tanks or additional alternative wastewater disposal systems. No impact would occur.

f) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less than Significant Impact with Mitigation Incorporated

Paleontological resources are the fossilized remains of organisms from prehistoric environments found in geologic strata. There are no known paleontological resources within the Project site. The Project site is primarily located on an existing golf course and therefore has a very low potential for unknown paleontological resources to occur. Although it is unlikely that paleontological resources are present on-site, construction activities could result in the disturbance and/or accidental discovery of unknown paleontological resources.

Mitigation Measure GEO-1 requires all construction personnel to receive paleontological resources training and requires stop work and appropriate treatments if vertebrate fossils are discovered. With implementation of Mitigation Measure GEO-1, impacts to paleontological resources would be less than significant.

MITIGATION MEASURES

Mitigation Measure GEO-1: Accidental Discovery of Paleontological Resources

All construction personnel shall receive paleontological resources awareness training that includes information on the possibility of encountering fossils during construction; the types of fossils likely to be discovered; and proper procedures to follow in the event that fossils are encountered. Worker training shall be prepared and presented by a qualified paleontologist.

If vertebrate fossils are discovered during construction, all work within 50 feet of the discovery shall stop immediately until a qualified professional paleontologist can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include avoidance, if feasible, preservation in place, or preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds.

4.2.8 Greenhouse Gas Emissions

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Greenhouse gases (GHGs) are recognized by wide consensus among the scientific community to contribute to global warming/climate change and associated environmental impacts. The most common GHGs released from human activity are carbon dioxide, methane, and NOx (Governor's Office of Planning and Research 2008). The primary sources of GHGs are vehicles (including planes and trains), energy plants, and industrial and agricultural activities (e.g., dairies and hog farms).

In the United States, the major sources of GHG emissions are transportation, electricity generation, and industrial activities (U.S. Environmental Protection Agency 2022). These three sources are also the top contributors of GHG emissions in California (CARB 2022).

REGULATORY SETTING

Global Warming Solutions Act

AB 32, adopted in 2006, established the Global Warming Solutions Act of 2006 which requires the State to reduce GHG emissions to 1990 levels by 2020. In 2016, SB 32 was signed into law, amending the California Global Warming Solution Action. SB 32 and Executive Order B-30-15 require CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. CARB updated its Climate Change Scoping Plan in December of 2017 to express the 2030 statewide target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Based on the emissions reductions directed by SB 32, the annual 2030 statewide target emissions level for California is 260 MMTCO2e.

Bay Area 2017 Clean Air Plan

The 2017 CAP is the most recently adopted air quality plan in the Bay Area. The CAP focuses on two related BAAQMD goals: protecting public health and protecting the climate. To protect the climate, the CAP includes control measures designed to reduce emissions of methane and other super-GHGs that are potent climate pollutants in the near-term, and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines are intended to serve as a guide for those who prepare or evaluate air quality impact analyses for projects and plans in the San Francisco Bay Area. The City of Los Altos and other jurisdictions in the San Francisco Bay Area Air Basin utilize the thresholds and methodology for assessing GHG impacts developed by BAAQMD within the CEQA Air Quality Guidelines. The guidelines include information on legal requirements, BAAQMD rules, methods of analyzing impacts, and recommended mitigation measures.

City of Walnut Creek 2023 Sustainability Action Plan

The City of Walnut Creek 2023 SAP identifies that the highest GHG emissions associated with transportation, nonresidential electricity, residential natural gas, and residential electricity. Chapter three of this Plan presents 21 new sustainability strategies that, when implemented, will reduce GHG emissions, improve community adaptation and resilience to climate change-related hazards, and address other sustainability issues (City of Walnut Creek 2023b). One strategy listed involves requiring the transition to renewable and carbon-free energy sources.

DISCUSSION OF IMPACTS

a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less than Significant Impact

BAAQMD has adopted thresholds of significance that were designed to establish the level at which GHG emissions would cause significant environmental impacts under CEQA. The thresholds are included in the 2022 CEQA Air Quality Guidelines (BAAQMD 2022). The General Plan discusses GHGs but does not contain specific policies pertaining to GHG emissions.

The proposed Project would generate minor GHG emissions during construction activities resulting from emission sources such as small construction equipment and worker/volunteer vehicles. These emissions would be temporary and short-term in nature. The impact would be less than significant.

b) *Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

No Impact

There is no local applicable Plan that has been adopted for the purpose of reducing the emissions of GHGs. The General Plan does not contain specific policies regarding GHGs. The Project would not conflict with any Statewide plan, policy, or regulations adopted for the purpose of reducing the emissions of GHGs. No impact would occur.

4.2.9 Hazards and Hazardous Materials

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

a), b) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact

Project construction would involve the use and transport of typical construction-related hazardous materials such as fuels, lubricants, adhesives, and solvents. Heavy equipment would be staged and refueled within the Project staging areas. Construction activities would be required to comply with numerous hazardous materials regulations and implement BMPs to ensure that hazardous materials are handled properly and do not pose a threat to worker safety or the environment. Workers handling hazardous materials are required to adhere to all OSHA and Cal/OSHA health and safety requirements. Hazardous materials must be transported to and from the Project area in accordance with the Resource Conservation and Recovery Act (RCRA) and U.S. Department of Transportation regulations and disposed of in accordance with RCRA at a facility that is permitted to accept the waste.

Although a spill or leak of hazardous materials is unlikely, a spill or leak that is not handled properly would have the potential to contaminate the environment. As discussed in Section 4.2.10, Hydrology and Water Quality, Project contractors would be required to prepare a SWPPP for construction activities in accordance with the National Pollutant Discharge Elimination System Construction General Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction and describe spill response and control measures, equipment inspections, equipment storage, and protocols for responding immediately to spills.

With implementation of the SWPPP and compliance with existing regulations, the potential impact related to routine transport and accidental releases of hazardous materials would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact

There are no existing or proposed schools located within one-quarter mile of the Project site. The closest school is Walnut Acres Elementary School, situated approximately two miles west from the Project site. The Carondelet High School athletics complex (but not the school itself) is located approximately 1,000 feet southwest of the Project site. However, as discussed above, the Project would not emit hazardous emissions or handle hazardous materials, substances, or waste in a manner that is different from existing conditions at the site, which involves the application of various turf and soil treatments in common usage at golf courses. Therefore, the Project would not emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of a school. No impact would occur.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact

The Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Department of Toxic Substances Control 2023) (State Water Resources Control Board 2023). There are no such listed sites within one-half mile of the Project site. Therefore, the Project would not create a significant hazard to the public or environment due to its location on a hazardous materials site. No impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact

The Project is not located within the boundaries of an airport land use plan or within two miles of a public or public use airport. The nearest airport is the Buchanan Field Airport which is situated approximately five miles northwest of the Project site. The Project would not result in a safety hazard for people residing or working on the Project area. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact

There are no adopted emergency response plans or emergency evacuation plans within the Project area. The Project site is not located adjacent to residential areas and would not interfere with any established evacuation routes. Further, the Project does not represent a new land use in the area. No impact would occur.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant Impact

As discussed in Section 4.2.20, Wildfire, the proposed Project is located within a Local Responsibility Area for wildfire management. Surrounding State Responsibility Areas are designated as Very High Fire Hazard Severity Zones by the California Department of Forestry and Fire Protection (CalFire) (CalFire 2023). Although unlikely, it is possible for fire ignition to occur during Project construction. The most common factors contributing to the ignition of fires on construction sites include heat sources being too close to combustible materials or abandoned or discarded materials or products. Construction equipment uses various fuels and creates a lot of heat, which can pose risk of fire ignition if equipment and materials are not stored and managed properly. As described in Impact a)-b) above, the Project contractor would be required to implement and enforce various regulations related to hazardous materials storage, handling, transport, and disposal, and would be required to comply with federal and Cal/OSHA regulations pertaining to fire safety. Specifically, federal OSHA regulations contained in 29 CFR Section 1926 Subpart F pertain to fire protection and prevention. With implementation of these measures during Project construction, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. In addition, as discussed in Impact f) above, the Project would not obstruct any evacuation routes that may be used by residents to evacuate in case of wildfire. The impact would be less than significant.

4.2.10 Hydrology and Water Quality

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
iii) create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Project site is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The San Francisco Bay Region (Region 2) Water Quality Control Plan (Basin Plan) indicates that the Project site is within the South Bay Hydrologic Planning Area (San Francisco Bay RWQCB 2017). The Project site is not within a groundwater basin (San Francisco Bay RWQCB 2017). Leland Reservoir is located about 6.8 miles east of the Project site.

METHODOGY

In September 2023, Summit Engineering, Inc. analyzed the peak runoff calculations for 100-year storm events and sizing of stormwater conveyance systems (Hydrology Report, Appendix E), Summit Engineering conducted a Hydraulic Analysis by using the Rational Method to appropriately size the storm drainpipes and drainage inlets. Storm drains will convey stormwater through the site, discharging impervious areas to a bioretention facility and improving drainage within the driving range to connect to existing storm drainage infrastructure. Based on the hydrologic analysis, all pipes and associated drainage inlet structures were found to have been adequately sized to convey the 100-year storm event per applicable Contra Costa County Flood Control District standards. The improvements have been designed to preserve the natural hydrology of the site. The area is proposed to drain to bioretention and maintain the existing drainage pattern.

DISCUSSION OF IMPACTS

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact

The Basin Plan sets narrative and numerical water quality objectives for the San Francisco Bay Region. Numerical objectives typically describe pollutant concentration, physical and chemical conditions of water, and the toxicity of water to aquatic organisms.

The Project will follow the Stormwater C.3 Guidebook, prepared for the Contra Costa Clean Water Program (Contra Costa Clean Water Program 2024). During construction, BMPs would be implemented to reduce substantial erosion which could lead to off-site water pollution and/or sedimentation of waterways, as described in Section 3.2.2, Utilities and Stormwater Control. With the implementation of the measures contained in the SWPPP and BMPs for erosion prevention, the Project would not violate any water quality standards or waste discharge requirements. Project operations would not include any activities that would violate water quality standards or waste discharge requirements or degrade surface or groundwater quality. The impact would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact

The Project would not use groundwater supplies during construction activities. The City of Walnut Creek General Plan does not indicate groundwater as a source of potable water supply. No impact would occur.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (iii) create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?

Less than Significant Impact

Project construction work staging areas would not occur on steep slopes or on sensitive habitat areas and would therefore not cause substantial erosion or siltation. In addition, as described in Impact a), the Project would implement a Stormwater Control Plan to prevent excessive runoff and erosion and siltation during Project construction. Project operation would not result in a substantial increase in impervious surface area which would cause an increase in surface runoff. The impact would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact

The Project site is not located within a Federal Emergency Management Agency National Flood Layer Hazard zone nor a tsunami inundation area (Federal Emergency Management Agency 2023). No impact would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact

The Project site is not located within a groundwater basin and is not within the boundaries of any sustainable groundwater management plan. The applicable water quality control plan is the Basin Plan. As discussed in Impact a), the Project would not violate any water quality standards or waste discharge requirements established in the Basin Plan. Therefore, the Project would not conflict with any applicable water quality control plan. No impact would occur.

4.2.11 Land Use and Planning

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Project site has a General Plan land use designation of Open Space - Recreation and a zoning designation of OSR (Open Space/Recreation District). Surrounding areas on all sides of the Project site have the same land use designation and are within the same zoning district. Areas beginning approximately 0.25 miles southeast of the Project site are zoned for PD (Planned District) and R12 (Single Family Residential) and have a General Plan land use designation of Single Family Low Density (City of Walnut Creek "Zoning Web Map").

DISCUSSION OF IMPACTS

a, b) Physically divide an established community? Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact

The Project site is surrounded by open space/recreational lands including the Golf Course and the Lime Ridge Open Space. Proposed Project activities would include upgrades to the existing Golf Course driving range, which would not physically divide any established community. The Project site is zoned as O-S-R (Open Space/Recreation District) and has a General Plan designation of Open Space Recreation (OSR). The proposed Project would not change the use of the Project site, and therefore would not conflict with the existing zoning or any other land use plan, policy or regulation. No impact would occur.

4.2.12 Mineral Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a, b) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

No Impact

The Project site is not located within or near a mineral resource site. Online databases prepared by the CDC and the CGS indicate that there are no known mineral resource sites of value to the State within the vicinity of the Project site (CDC, CGS 2023). The nearest known mineral resource site is the Clayton Aggregates Quarry, located approximately three miles east of the Project site. The City's General Plan does not identify any locally important mineral resources within the City of Walnut Creek (City of Walnut Creek 2006). Therefore, the Project would not result in the loss of availability of a known mineral resource that would be of Statewide or local significance. No impact would occur.

4.2.13 Noise

Would the project result in:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

BACKGROUND INFORMATION

Noise Concepts and Terminology

Noise is commonly defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is measured in decibels (dB), which is a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but they cannot accurately describe sound as perceived by the human ear since the human ear is only capable of hearing sound within a limited frequency range. For this reason, a frequency-dependent weighting system is used and monitoring results are reported in A-weighted decibels (dBA). Decibels and other acoustical terms are defined in Table 1.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people: 1) a change of 1 dBA cannot typically be perceived except in carefully controlled laboratory experiments; 2) a 3-dBA change is considered a just-perceivable difference; 3) a minimum of 5-dBA change is required before any noticeable change in community response is expected; and 4) a 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness (Charles M. Salter Associates, Inc. 1998).

Table 1. Definition of Acoustical Terms

TERM	DEFINITION
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise "level." This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Maximum Sound Levels (Lmax)	The maximum sound level measured during a given measurement period.
Equivalent Noise Level (Leq)	The average A-weighted noise level during the measurement period. For this CEQA evaluation, Leq refers to a 1-hour period unless otherwise stated.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels during the evening from 7:00 to 10:00 p.m. and after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The existing level of environmental noise at a given location from all sources near and far.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Sources: Charles M. Salter Associates, Inc. 1998. Federal Transit Administration 2018.

General Information on Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures) and people (especially residents, the elderly, and sick). Vibration amplitudes are usually expressed as either Peak Particle Velocity

(PPV) or as Root Mean Square (RMS) velocity. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration event. Thus, RMS is more appropriate for evaluating human response to vibration. PPV and RMS are described in units of inches per second (in/sec), and RMS is also described in vibration decibels (VdB).

ENVIRONMENTAL SETTING

Sensitive Receptors

Sensitive receptors are defined as land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. Examples of noise-sensitive land uses include residences, schools, hospitals, and retirement homes. Examples of noise-sensitive activities are those that occur in locations such as churches and libraries. The primary source of noise in the Project site is visitors using the existing Golf Course. No sensitive receptors are located within 1,000 feet of the Project site.

REGULATORY SETTING

City of Walnut Creek General Plan

The Safety and Noise of the General Plan identifies Interstate 680 as the loudest source of noise in the City of Walnut Creek. In a typical location 250 feet from the center of the highway, the Day/Night Average Sound Level (Ldn) was 75 dBA. At or near the freeway, the noise level ranged from 78 Ldn to 80 Ldn. Away from streets carrying substantial through traffic, the City is quiet. Action 9.1.1 of the Geneal Plan requires the evaluation of noise mitigation measures for projects that would cause a substantial increase in noise.

Municipal Code

The City's Noise Ordinance (City Walnut Creek 2023d) is contained in Chapter 6, Article 2 of the Municipal Code. Section 4-6.203.F states the following:

> "The erection, construction, demolition, alteration or repair of any building, structure or residence that requires a permit, or the excavation of any earth, fill, streets or highways that requires a grading permit, other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays which are not holidays, or those precise hours of operation enumerated in individual building and grading permits."

DISCUSSION OF IMPACTS

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

Less than Significant Impact

Noise generated during Project construction would primarily be associated with the regrading and shaping of the existing driving range. While this noise could be substantial at certain times and could present annoyance to recreational users in the adjacent Lime Ridge Open Space, it would be temporary in nature.

Policies relating to noise in the City's General Plan are applicable to new, permanent sources of noise. During operation, the noise at the Project site would be similar to existing conditions as the usage of the Project site would remain the same. Noise would generally be limited to noise from recreational use of the driving range and vehicles and equipment for occasional maintenance activities. Although not proposed at this time, extended hours for the Golf Course driving range may be considered once the Project is fully constructed. Any noise associated with extended hours would not exceed typical daily noise levels. Since the Project site is surrounded by open space areas, noise generated during extended hours would not impact any nearby residential areas or other sensitive receptors. Once the Project is fully implemented, improvements at the Project site would be "completely compatible" with the noise compatibility guidelines for the corresponding land use. Therefore, the Project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project site in excess of applicable standards. The impact would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact

Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Project construction would generate negligible ground vibrations during construction based on the type of equipment being used (e.g., compactor, roller) and the construction method being employed. The impact would be less than significant.

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

No Impact

The nearest airport, Buchanan Field Airport, is located approximately five miles north of the Project site. The Project site is not located within a comprehensive land use planning area, and the Project would not involve habitable improvements that would be sensitive to airport operations.

4.2.14 Population and Housing

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact

The Project would modernize and upgrade facilities at the Golf Course driving range for the benefit of users. The Project would not include the extension of infrastructure that would cause or encourage population growth. The Project site is located in an open space area and is not situated adjacent to residential neighborhoods. Therefore, the proposed Project would not induce substantial unplanned population growth in an area, either directly or indirectly. No impact would occur.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact

The Project would include upgrades to the Golf Course driving range and would not displace any people or housing. No impact would occur.

4.2.15 Public Services

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The Contra Costa County Fire Protection District provides fire protection and first responder emergency medical services to the City (City of Walnut Creek 2006). The nearest fire station to the Project site is Station No. 7, located approximately 1.3 miles southwest. Fire Station No. 10 is also located approximately 1.8 miles to the northwest. The Project site is served by the Walnut Creek Police Department located approximately 3.8 miles southwest. There are various schools located within two miles of the Project site, however no schools are located within one-half mile of the Project site with the exception of the athletics facilities for Carondelet High School. Parks within one mile of the Project site include Lime Ridge Open Space which borders the Project site to the north and east, Arbolado Park located approximately 0.35 miles southwest, and Diablo Shadows Park located approximately 0.6 miles to the west.

DISCUSSION OF IMPACTS

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- Fire Protection?
- Police Protection?
- Schools?
- Parks?

No Impact

As described in Section 4.2.14, Population and Housing, the Project would not induce substantial population growth, either directly or indirectly. The Project would be adequately served by existing fire protection, police protection, school, and park facilities, and would not result in a need for new facilities to maintain acceptable service ratios, response times, or other performance objectives for these facilities. No impact would occur.

- Other Public Facilities?

Less than Significant Impact with Mitigation Incorporated

The Project would include upgrades to the Golf Course driving range, which is a public facility. The environmental impacts of upgrading the driving range are analyzed throughout this IS/MND, and are further summarized in Section 4.2.21, Mandatory Findings of Significance. The Project would result in some environmental impacts which would require mitigation measures to be reduced to a less than significant level. The implementation of Mitigation Measures AQ-1, BIO-1, BIO-2, BIO-3, BIO-4, CUL-1, and GEO-1 would reduce impacts of the Project related to construction or expansion of other public facilities to a less than significant level. Therefore, the proposed Project would have a less than significant impact with mitigation related to the provision of new or physically altered public facilities, the construction of which could cause significant environmental impacts.

4.2.16 Recreation

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The Project site is situated on the driving range of the Golf Course, a publicly owned recreational facility. The Project site is surrounded by recreational lands of the Golf Course to the south and west, and recreational lands of the Lime Ridge Open Space to the north and east.

DISCUSSION OF IMPACTS

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact

The purpose of the Project is to upgrade the existing Golf Course driving range for benefit of its users. Therefore, the Project would likely increase the use of the driving range and could potentially increase the use of the Golf Course as well. However, proposed improvements to the driving range are designed to support increased levels of use that are expected to result from the Project. The Project would not increase use of the Golf Course such that substantial physical deterioration of the facility would occur. The Project would not increase the use of other recreational facilities within the area such that physical deterioration of the facilities would occur or be accelerated. The impact of the proposed Project would be less than significant.

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than Significant Impact with Mitigation Incorporated

The Project would include upgrades to the Golf Course driving range, which is a public recreational facility. The environmental impacts of upgrading the driving range are analyzed throughout this IS/MND, and are further summarized in Section 5.2.21, Mandatory Findings of Significance. The Project would result in some environmental impacts which would require mitigation measures to be reduced to a less than significant level. The implementation of Mitigation Measures AQ-1, BIO-1, BIO-2, BIO-3, BIO-4, CUL-1, and GEO-1 would reduce impacts of the Project related to construction or expansion of recreational facilities to a less than significant level. Therefore, the proposed Project would have a less than significant impact with

mitigation related to the construction or expansion of recreational facilities, the construction of which might have an adverse physical effect on the environment.

4.2.17 Transportation

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b)	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d)	Result in inadequate emergency access?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Regional and Local Access

Regional access to the Project site is provided via Interstate 680 (I-680). I-680 links central Contra Costa County from north to south. Local access to the Project site in the City of Walnut Creek is provided by Valley Vista Road and Oak Grove Road.

REGULATORY SETTING

City of Walnut Creek General Plan

The City of Walnut Creek's General Plan does not contain any transportation-related policies that are relevant to the proposed Project.

DISCUSSION OF IMPACTS

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact

All Project work would occur within the Golf Course footprint and construction equipment would be staged within existing Golf Course parking lots. No Project work would occur within public roadways, and therefore the Project would not substantially interfere with the circulation system. The Project would not impact bicycle or pedestrian facilities. Construction truck trips would occur during construction to bring materials to and from the Project site, however the Project is located in a primarily non-urbanized area, and therefore these trips would not substantially interfere with nearby intersection level of service. Transportation conditions during Project operation would be similar to existing conditions. Therefore, the Project would not conflict with

any program, plan, ordinance, or policy addressing the circulation system. No impact would occur.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact

Construction of the Project would generate off-site traffic including the delivery of construction equipment and materials to the Project site and the daily arrival and departure of construction workers. Construction-related traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any locally used roadways. During Project operation, slight increases in vehicular traffic would be expected due to the increased usage of the driving range. However, total vehicle miles traveled would be expected to be substantially similar to existing conditions as local trips to other driving ranges in the region could be replaced with trips to the new Boundary Oak facility. Therefore, the Project would not conflict with CEQA Guidelines relating to reducing total vehicle miles traveled. No impact would occur.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact

The Project would not increase hazards due to a geometric design feature or incompatible use. Construction activities would be limited to the Project site and staging areas and would not increase hazards near any sharp curves or dangerous intersections. During Project operation, circulation conditions would be similar to existing conditions. The Project would not introduce any new incompatible use. No impact related to geometric design features or incompatible uses would occur.

d) Result in inadequate emergency access?

No Impact

The Project would not cause any conditions that would result in inadequate emergency access. The Project site is located on a golf course and would not constrict access to residences or emergency services such as police and fire protection facilities or hospitals. As described in Section 4.2.9 Hazards and Hazardous Materials, the Project would not interfere with any emergency response plan or emergency evacuation plan. The Project would have no impact related to emergency access.

4.2.18 Tribal Cultural Resources

Would the project:		*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i)	*Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*	☐	☐	☒	☐
ii)	*A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*	☐	☒	☐	☐

ENVIRONMENTAL SETTING

A description of the environmental setting related to tribal cultural resources can be found in Section 4.2.5, Cultural Resources.

REGULATORY SETTING

Tribal Cultural Resources Assembly Bill 52 (AB 52)

Assembly Bill (AB) 52 (Chapter 532, Statutes 2014) required an update of the CEQA Guidelines to include questions related to impacts to tribal cultural resources. AB 52 establishes a consultation process with all California Native American Tribes on the Native American Heritage Commission List, Federal and Non-Federal Recognized Tribes. AB 52 also establishes a new class of resources: Tribal Cultural Resources. Key components of AB 52 include consideration of tribal cultural values in determination of project impacts and mitigation and required Tribal notice and meaningful consultation.

PRC Section 21080.3.2(b) states that consultation ends when either 1) parties agree to mitigation measures or avoid a significant effect on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort concludes that mutual agreement cannot be reached.

State of California Public Resources Code

Section 21074 of the PRC defines historical resources related to tribal cultural resources.

a) "Tribal cultural resources" are either of the following:
    a. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
        A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
        B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
    b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Section 5020.1(k) defines "Local register of historical resources" as a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

Section 5024.1 is the establishment of the California Register of Historical Resources (California Register).

TRIBAL OUTREACH AND COMMUNICATIONS

As part of the Cultural Resources Study, Origer sent a request to the State of California's NAHC seeking information from the Sacred Lands File and the names of Native American individuals and groups that would be appropriate to contact regarding this Project. Letters were also sent to the following tribal contacts in 2023:

- Chicken Ranch Rancheria of Me-Wuk Indians,
- Confederated Villages of Lisjan Nation,
- Federated Indians of Graton Rancheria
- Guidiville Rancheria of California,
- Indian Canyon Mutsun Band of Costanoan,
- Muwekma Ohlone Indian Tribe of the SF Bay Area,
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe,
- Northern Valley Yokut/Ohlone Tribe,
- The Ohlone Indian Tribe,
- Wilton Rancheria, and
- Wuksachi Indian Tribe/Eshom Valley Band.

The NAHC replied with a letter dated December 15, 2023, which indicated that the Sacred Lands File has information about the presence of Native American cultural resources within the township and range of the Project area.

Pursuant to AB 52 requirements, the City sent out letters to tribal contacts informing them of the Project on December 11, 2023. The following responses were received:

- Francis Ranstead, representative for the Confederated Villages of Lisjan Nation, responded via email on January 10, 2024. Mr. Ranstead requested that a copy of the Cultural Resources Study be shared with the Tribe.
- Andrew Galvin (Ohlone Indian Tribe) requested to see a copy of the California Historical Resources Information System (CHRIS) search and NAHC's response to the SLF search request including all attachments, specifically the Contact List
- Corrina Gould (Lisjan Nation) requested to see a copy of the final CHRIS search and CEQA document (as well as the SLF response letter from NAHC and any additional archaeological reports).
- Venesa Kremer (Wilton Rancheria) requested to open formal consultation with the City on the Project.

Consultation between the City and the Lisjan Nation was conducted on March 6th and 20th, 2024. Corrina Gould, representative of the Lisjan Nation, provided the City with background information about their organization and their concerns. The City provided specific information in response to their questions related to project scope such as ground disturbance, depths and area. The City also provided results of the Cultural Resources Inventory Study (CRIS) inquiries (provided by Origer). Lisjan Nation was satisfied with the information provided and will be providing follow-up communication to that effect, concluding consultation with the City. Origer will be providing the Lisjan Nation Tribe, by email, with a summary of their CRIS research. Gould mentioned that they did not have staff available to provide on-site tribal monitoring during construction and accepted that Wilton Rancheria will provide that service.

Consultation between the City and Wilton Rancheria was conducted on March 5th, 2024. Venesa Kremer, representative of Wilton Rancheria, provided the City with background information about their organization and their concerns. The City provided an overview of the Project, including the extents of excavation activities. Kremer recommended on-site tribal monitoring during construction that would include sensitivity training; they deferred to Lisjan Nation to provide this service, but if for some reason they were not able to provide it, Wilton Rancheria would. They also requested the City to provide signage along nearby trails to acknowledge tribal history. The City agreed to both of these requests. The City will be following up by email with Kremer with the results of consultation with Lisjan Nation and to coordinate tribal monitoring and trail signage. The City anticipates receiving their email concluding tribal consultation.

DISCUSSION OF IMPACTS

a) *Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

i) *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

ii) *ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Less Than Significant with Mitigation Incorporated

The NAHC reported that the Sacred Lands File showed the presence of cultural resources within the township and range of the Project site. No tribal cultural resources on the Project site have been identified by previous cultural resources study or by Native American individuals or groups to date. However, as described in Section 4.2.5, Cultural Resources, ground-disturbing activities during construction may lead to the discovery of buried archaeological resources on the Project site, which may include tribal cultural resources. The Project would implement Mitigation Measure CUL-1 pertaining to the accidental discovery of unknown archaeological resources on the Project site, which will ensure that the Project will not damage any unknown cultural resources, including tribal cultural resources, that may be present within the Project site.

As discussed above, City staff contacted the NAHC to request a review of the Sacred Lands file for information on Native American cultural resources within the Project site and to request a list of Native American contacts in the Project area. The NAHC responded with a letter stating that the Sacred Lands File has information about the presence of Native American cultural resources within the township and range of the Project area. Tribal representatives were identified from a list previously provided by the NAHC for the area. The City sent letters to each of these tribal groups associated with the Project area and to the Tribal Historic Preservation Officer to inform them of the proposed Project. Tribal consultation was conducted with the Lisjan Nation and Wilton Rancheria. The Lisjan Nation was satisfied with the information provided by the City and concluded that due to the lack of staff would like Wilton Rancheria to provide tribal monitoring. Wilton Rancheria has agreed to provide tribal monitoring. They also requested the City to provide signage along nearby trails to acknowledge tribal history. The City committed to both of these requests, which are presented below as Mitigation Measure TCR-1. With the implementation of Mitigation Measures CUL-1 and TCR-1, Project impacts would be less than significant with mitigation incorporated.

MITIGATION MEASURES

Mitigation Measure TCR-1: Tribal Monitoring and Signage

Prior to the instigation of ground-disturbing construction activity, the City shall enter into an agreement with Wilton Rancheria to provide tribal monitoring of ground-disturbing construction activity associated with the Project. Tribal monitors shall have the authority to require work to be stopped in the immediate vicinity of a resource discovery, should one occur. Tribal monitors shall investigate the resource and determine the appropriate conditions and precautions under which construction work at the location may resume.

In accordance with a formal request from Wilton Rancheria, the City shall arrange for signage acknowledging the tribal history of the area to be installed along public trails within the nearby

Lime Ridge Open Space. The precise location, number, and content of this signage shall be determined by the City in collaboration with Wilton Rancheria.

4.2.19 Utilities and Service Systems

Would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Water within the City is provided by two water districts: Contra Costa Water District (CCWD) serves primarily the northern and eastern third of the city, while the East Bay Municipal Utility District serves the remaining two-thirds of the City. Water at the Project site is provided by CCWD. The CCWD water supply comes from the Sacramento-San Joaquin Delta. The CCWD stores water in the Los Vaqueros Reservoir south of Brentwood, Contra Loma Reservoir in Antioch, the Mallard Reservoir in Concord, and the Martinez Reservoir in Martinez. Electrical service is provided by PG&E. Trash and recycling is provided by the Central Contra Costa Solid Waste Authority (RecycleSmart 2024).

REGULATORY SETTING

With respect to the irrigation of landscaping, Section 10-2.3.1107 of the Walnut Creek Municipal Code (City of Walnut Creek 2023e) states that the estimated total water use of the irrigated landscape area shall not exceed the maximum applied water allowance.

DISCUSSION OF IMPACTS

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact

The Project is located on an existing driving range and would not change the overall use of the site. As part of the proposed upgrades to the facility, the Project would replace the existing irrigation system with a new, more efficient state-of-the-art system and would replace the existing drainage system with a new network of drainage pipes and inlets that would connect to existing off-site infrastructure. The existing drain beneath the driving range would be disconnected and abandoned in place. New electrical power connections will be required to serve the proposed plaza area and driving range facilities; however, no improvements or modifications to off-site electrical power infrastructure are necessary. No wastewater treatment, natural gas, or telecommunications facilities would be affected by the Project.

As described in Section 4.2.10, Hydrology and Water Quality, the Project will implement Source Control BMPs to reduce the environmental effects associated with stormwater runoff during construction work to a less than significant impact. No other environmental effects would result from the replacement or relocation of existing utility infrastructure at the site. Therefore, the Project's impact would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact

The existing driving range currently has an estimated total water use of 6,184 gallons/day. The improvements and enhancements to the existing driving range which are proposed in the Project would result in an overall increase in total water consumption at the site to 26,078 gallons/day. Based upon the methodology established in Section 10-2.3.1107 of the Walnut Creek Municipal Code, the maximum applied water allowance for the Project is 27,804 gallons/day. Therefore, the Project's proposed estimated total water use would be compliant with the City of Walnut Creek's Municipal Code.

The CCWD 2020 Urban Water Management Plan states that the projected water demand for its entire service area in 2025 in an average year is 131,501,138 gallons/day and the projected water supply is 193,368,272 gallons/day. During a single dry year, the projected water demand is 131,501,138 gallons/day and the projected water supply is 155,337,393 gallons/day. Under various multiple-dry-year scenarios, projected water demands begin to exceed projected water supplies. However, the proposed Project would not conflict with any water conservation measures included in the Urban Water Management Plan and would therefore not interfere with the CCWD's ability to address water shortages during dry and multiple dry years. Further, in the event of extreme multi-year dry periods, the City may restrict the use of irrigation at municipal recreational facilities such as golf courses in order to reduce the overall demand on constrained water supplies. Therefore, the Project's impact would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact

As described in Section 4.2.14, Population and Housing, the proposed Project would not generate any population growth, and therefore would not generate new demand for wastewater treatment. No impact would occur.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact

The Project would generate construction and demolition (C&D) waste during construction, which would need to be disposed of at a facility that accepts C&D waste. The Project would comply with all applicable C&D waste recycling requirements, as described below in Impact e). Project operation would not cause a substantial increase in solid waste generation because the additional waste stream generated by usage of the proposed plaza area would not be enough to exceed capacity of local infrastructure or impede achievement of waste reduction goals. In accordance with City requirements, trash receptacles for landfill, compost, and recycled materials would be provided. As the proposed uses of the Project would not differ substantially from existing conditions, the anticipated increase in solid waste generation associated with the Project would be minimal. The impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact

The City of Walnut Creek has a Solid Waste and Recycling Ordinance that requires submission and approval of a Waste Management Plan prior to the issuance of building, site development, grading, or demolition permits. The Project would generate C&D waste and would comply with all the requirements described above. Project operation would not result in substantial amounts of waste because trash from usage of the proposed plaza area would not be enough to exceed capacity of local infrastructure or impede achievement of waste reduction goals. No restrooms are proposed. Recycling and composting options would be made available per City requirements. Therefore, the impact would be less than significant.

4.2.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	*Potentially Significant Impact*	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The Project site is located within a wildfire hazard Local Responsibility Area. The City's General Plan indicates that the Project site and surrounding areas are located in a "Very High" wildfire threat zone (City of Walnut Creek 2006).

DISCUSSION OF IMPACTS

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact

The City's adopted emergency plan includes prearranged emergency response procedures (City of Walnut Creek 2020). I-680 is one of the emergency routes for the Walnut Creek evacuation. The Project involves the upgrade of an existing golf course driving range and would not require changes to existing evacuation routes. Construction of the Project would not have an impact on the existing adopted emergency response plan or evacuation plan. Therefore, the Project would have no impact on an adopted emergency response plan or emergency evacuation plan.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant Impact

The Project site is located in an area that is particularly susceptible to wildfire risk. Lime Ridge Open Space located to the east of the Project is designated as a State Responsibility Area Very High Fire Hazard Severity Zone by CalFire. Wildland areas under the County's jurisdiction are included in the fire district's weed-abatement program, which aims to reduce the risk of fire.

Although unlikely, it is possible for fire ignition to occur during Project construction. The most common factors contributing to the ignition of fires on construction sites include heat sources being too close to combustible materials or abandoned or discarded materials or products. Construction equipment uses various fuels and creates a lot of heat, which can pose risk of fire ignition if equipment and materials are not stored and managed properly. As described in Section 4.2.9, Hazards and Hazardous Materials, the Project contractor would be required to implement and enforce various regulations related to hazardous materials storage, handling, transport, and disposal, and would be required to comply with federal and Cal/OSHA regulations pertaining to fire safety. Specifically, federal OSHA regulations contained in 29 CFR Section 1926 Subpart F pertain to fire protection and prevention. With implementation of these measures during Project construction, the Project would not expose occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

The Project would not alter the existing operational use of the Project site. Project operation would not exacerbate wildfire risks as compared to existing conditions, and therefore would not expose occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The impact would be less than significant.

c) *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Less than Significant Impact

The Project proposes to install additional newer technology such as tracers, a ball washing machine, and outlets to the main plaza where there will be a concession stand. Existing photovoltaic arrays and underground utilities will remain in place. No new additional off-site facilities are required to provide power to the driving range. No new roads or fuel breaks or power lines are proposed as part of the Project. All of the electrical improvements will be constructed in consultation with PG&E. None of the proposed infrastructure improvements are expected to exacerbate fire risk at the site or within the surrounding area. Therefore, the impact would be less than significant.

d) *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Less than Significant Impact

The Project would not expose people or structures to significant risks as a result of runoff, slope instability, or drainage changes. The Project would modify an existing driving range and would install drainage improvements designed to accommodate design storm runoff from the site. Therefore, the impact would be less than significant.

4.2.21 Mandatory Findings of Significance

		Potentially Significant Impact	*Less than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact with Mitigation Incorporated

Implementation of the Project would not substantially degrade the quality of the environment, reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the range of a rare or endangered plant or animal. Implementation of mitigation measures presented in Section 4.2.4 Biological Resources would mitigate potential significant impacts that could substantially degrade the quality of the environment or impact biological resources. As discussed in Section 4.2.5, Cultural Resources, and Section 4.2.18, Tribal Cultural Resources, impacts to potentially unknown resources within the Project site would be mitigated to a less than significant level by Mitigation Measure CUL-1. Given the fact that potential impacts to biological and cultural resources would primarily occur during active construction (not long term) and that measures have been identified to reduce these temporary impacts, impacts would not be considered significant. Impacts would be less than significant with mitigation incorporated.

b) *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Less than Significant Impact

Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The lead agency identified one other project in the area, the proposed Walnut Creek Flow Trail Project, (Flow Trail Project), which is located north of the Project site and consists of construction of a mountain biking trail within the Lime Ridge Open Space. Construction work for the Project is expected to begin in the dry late spring/summer months of 2024, and therefore may overlap with construction of the nearby Flow Trail Project for up to three months. Potentially significant impacts of the Project identified in this IS/MND would be mitigated to a less than significant level with the implementation of mitigation measures described in this document. Most potentially significant impacts are site-specific, meaning that construction of a nearby project would not exacerbate any potential impacts resulting from the Project. Specifically, impacts pertaining to biological resources, cultural resources, and paleontological resources are considered site-specific, and these impacts would be mitigated to a less than significant level by implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4. As such, the Project would not result in a cumulatively considerable impact related to biological, cultural, or paleontological resources when taking into account other projects in the area.

Simultaneously occurring construction activities at the Project site and the Flow Trail Project site may result in elevated levels of criteria pollutant emissions than would by generated by either project individually. The draft IS/MND prepared for the Flow Trail Project found that estimated emissions from the Flow Trail Project would meet BAAQMD screening criteria for applicable land use category and would not result in a cumulatively considerable net increase of any criteria pollutant. In As described in Section 4.2.3, Air Quality, the Project would also meet BAAQMD screening criteria for the applicable land use category and would not result in a cumulatively considerable net increase of any criteria pollutant. The draft IS/MND for the Flow Trail Project indicates that the total disturbed area of the project would be approximately 1.12 acres. As the total disturbed area for the Project is 5.5 acres, the total disturbed area for both the Project and the Flow Trail Project combined would be approximately 6.62 acres, which remains below the applicable construction and operational screening sizes for "City Park" land uses. As such, the cumulative impact of both projects combined would meet BAAQMD screening criteria, and the cumulative impact would be less that significant.

The analysis within this IS/MND demonstrates that the Project would not have any individually limited, but cumulatively considerable impacts. All potentially significant Project impacts related to biological, cultural, and paleontological resources are site-specific, and would be reduced to a less than significant level with the mitigation measures contained in this IS/MND. Project impacts related to air quality would not be cumulatively considerable, as the impact of the Project when combined with other projects in the area would remain less than significant. Consequently, the Project along with other cumulative projects (e.g., Flow Trail Project) would result in a less than significant cumulative impact with respect to all environmental issues analyzed in this IS/MND.

c) *Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant with Mitigation Incorporated

The proposed Project would include upgrades to the existing driving range. The Project site is located on a golf course in a primarily non-urbanized area. Potential impacts to humans in the Project vicinity have been analyzed in this Initial Study, including Air Quality and Noise. Project construction would cause potential temporary impacts to humans, which would be considered less than significant under CEQA with the implementation of Mitigation Measure AQ-1. Mitigation Measure AQ-1 requires that the Project implement BMPs as recommended by the BAAQMD 2022 CEQA Air Quality Guidelines. Humans would be impacted by noise generated from construction activities, however, as discussed in Section 4.2.13, Noise, the impact would be less than significant. With the implementation of mitigation measures, potential environmental impacts of the Project would not cause substantial adverse effects on human beings, either directly or indirectly. The impacts would be less than significant with mitigation incorporated.

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APPENDIX A. BASIS OF DESIGN REPORT

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10
CITY OF WALNUT CREEK
WALNUT CREEK, CA 94598

PROJECT TEAM

SUMMIT ENGINEERING, INC.
CIVIL & ELECTRICAL ENGINEERING
SANTA ROSA, CALIFORNIA
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CIVIL ENGINEERING ASSOCIATES
SURVEYOR
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MILLER PACIFIC ENGINEERING GROUP
GEOTECHNICAL ENGINEER
NOVATO, CALIFORNIA
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NICKELS GROUP
CLIENT
SAN RAFAEL, CALIFORNIA
(415) 250-0445

GATES AND ASSOCIATES
LANDSCAPE ARCHITECT
WALNUT CREEK, CALIFORNIA
(925) 736-8176

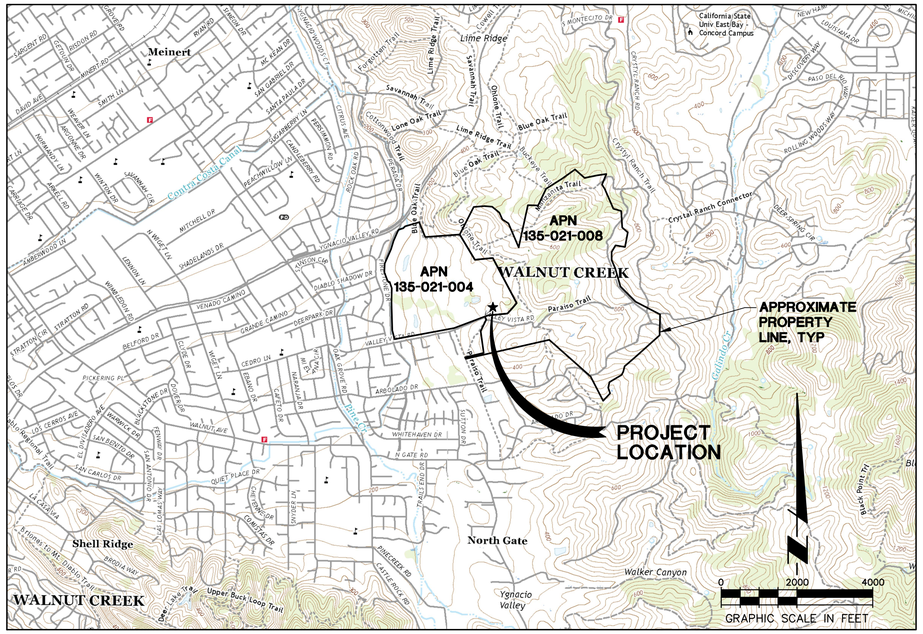
CONTROL

1. VERTICAL DATUM OF THIS MAP IS BASED ON THE MAP OF TOPOGRAPHY OF BOUNDARY OAKS DRIVING RANGE DRAWN BY CIVIL ENGINEERING ASSOCIATES, DATED MARCH 24, 2023 AND IS STATED AS NAVD88
2. HORIZONTAL DATUM OF THIS MAP IS BASED ON THE CONTROL POINTS ESTABLISHED BY CIVIL ENGINEERING ASSOCIATES, ON THE ORIGINAL MAP OF TOPOGRAPHY OF BOUNDARY OAKS DRIVING RANGE, DATED MARCH 24, 2023 AND IS STATED AS NAD83.
3. CONTOURS OUTSIDE OF THE DRIVING RANGE AREA ARE FROM AERIAL TOPOGRAPHY AND ARE APPROXIMATE.

EARTHWORK

VALUES ARE FOR PERMITTING ONLY AND ARE NOT TO BE USED FOR BIDDING. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK CALCULATIONS. GOLF COURSE ARCHITECT SHALL BE CONSULTED REGARDING GRADING ON DRIVING RANGE AREA TO ACHIEVE BALANCE CUT/FILL

DISTURBED AREA:	10.3 ACRES
CUT VOLUME:	3,849 CU. YDS.
FILL VOLUME:	4,038 CU. YDS.
NET VOLUME PER PLANS:	189 CU. YDS. (FILL)
IN FIELD GRADING ADJUSTMENTS:	189 CU. YDS. (FILL)
TOTAL NET VOLUME:	0 CU. YDS.



LOCATION MAP

PURPOSE OF PROJECT

THIS PROJECT WILL INCLUDE IMPROVEMENTS TO THE EXISTING BOUNDARY OAKS GOLF COURSE DRIVING RANGE WITH ASSOCIATED GRADING AND DRAINAGE.

OWNER/PERMITEE

BOUNDARY OAK GOLF COURSE
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

LIST OF DRAWINGS

SUMMIT
Summit Engineering, Inc
575 W College Ave., Suite 201 • Santa Rosa, CA 95401
707-527-0775 • www.summit-sr.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
2023-10-30	AS SHOWN	CP010126
DESIGN:	DRAWN:	CHECKED:
	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
	100% CD SET REV 1	11.06.23

PREPARED UNDER THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER
JASPER GENTRY
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

TITLE SHEET

SHEET NUMBER
C1.0

1 OF: 17

ABBREVIATIONS

<	ANGLE
A.D.	ALGEBRAIC DIFFERENCE
℄	CENTERLINE
ø	DIAMETER
FL	FLOWLINE
PL	PROPERTY LINE/ PLATE
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
AD	AREA DRAIN
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AGG	AGGREGATE
AH	AHEAD
ALT	ALTERNATE
ANSI	AMERICAN NATION STANDARDS INSTITUTE
ARCH	ARCHITECT/ ARCHITECTURAL
ASB	AGGREGATE SUBBASE
AVG	AVERAGE
BC	BEGIN CURVE
BK	BACK
BLDG	BUILDING
BM	BENCHMARK
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BVC	BEGINNING OF VERTICAL CURVE
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
CB	CATCH BASIN
CI	CURB INLET/ CAST IRON
CIP	CAST IN PLACE/ CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE PIPE
CJ	CONTROL JOINT/ CONSTRUCTION JOINT
CKRD	CHECKERED
CL	CLASS
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT/ COUNTY
COL	COLUMN
CONC	CONCRETE
CONS	CONSTRUCTION
CONT	CONTINUOUS
CPP	CENTRAL PRECAST PRODUCTS
CSP	CORRUGATED STEEL PIPE
CTR	CENTER
CV	CHECK VALVE
D	DITCH DEPTH
DB	DRAINAGE BOX
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DIST	DISTANCE
DIV	DIVERSION
DS	DOWNSPOUT
DWG	DRAWING
E	EAST/ ELECTRICAL
(E)	EXISTING
EA	EACH
EC	END CURVE
ECR	END CURB RETURN
EF	EACH FACE
EFL	EFFLUENT FEED LINE
EG	EXISTING GROUND/ EXISTING GRADE
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL/ EQUATION
EQPT	EQUIPMENT
ES	EACH SIDE
ETW	EDGE OF TRAVELED WAY
EVC	ENDING OF VERTICAL CURVE
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EW	EACH WAY
EXC	EXCAVATION/ EXCAVATE
EXIST	EXISTING
EXP	EXPANSION JOINT
EXT	EXTERIOR
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FES	FLARED END SECTION
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FIN	FINISH/ FINISHED
FLGD	FLANGED
FLR	FLOOR
FM	FORCE MAIN
FO	FACE OF
FOC	FACE OF CONCRETE/ COLUMN/CURB
FOCC	FACE OF CONCRETE CURB
FOW	FACE OF WALL
FP	FIRE PROTECTION
FRL	FLUSH RETURN LINE
FS	FINISH SURFACE
FT	FOOT/ FEET
FTG	FOOTING
FUT	FUTURE
G	GAS/ ROAD GRADIENT
GALV	GALVANIZED
GB	GRADE BREAK
GP	GUARD POST
GRD	GRADE
GRND	GROUND
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HV	HEAVY DUTY
HW	HIGH WATER
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IN	INCH
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
IRR	IRRIGATION
IW	INDUSTRIAL WASTE
JB	JUNCTION BOX
K	CURVE COEFFICIENT
L	LENGTH
LAT	LATERAL
LF	LINEAL FOOT
LP	LOW POINT
LPG	LIQUID PROPANE GAS
LS	LANDSCAPE
LT	LEFT
LT DTY	LIGHT DUTY
MAX	MAXIMUM
MEG	MATCH EXISTING GRADE
MFR	MANUFACTURER
MG	MILLION GALLON
MH	MANHOLE
MHW	MAXIMUM HIGH WATER LINE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
(N)	NEW
N	NORTH
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OH	OVERHEAD
ORIG	ORIGINAL
OSD	OVERSIDE DRAIN
PC	BEGINNING POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE /POINT OF COMPOUND CURVE
PD	PLANTER DRAIN
PI	POINT OF INTERSECTION/ TANGENT–TANGENT INTERSECTION
PIP	PROTECT IN PLACE
PIV	POST INDICATOR VALVE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PSD	PERFORATED SUBDRAIN
PT	POINT OF TANGENT/ PRESSURE TREATED
PUE	PUBLIC UTILITIES EASEMENT
PVC	POLYVINYL CHLORIDE/ POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PW	PROCESS WASTEWATER
R	RADIUS
RAD	RADIUS
RC	RELATIVE COMPACTION
RCP	REINFORCED CONCRETE PIPE
RCW	RECYCLED WATER
RED	REDUCER/ REDUCING
REF	REFERENCE
REIN	REINFORCING
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT OF WAY
RW	RAINWATER
RWL	RAINWATER LEADER
RWD	REDWOOD
QSP	QUALIFIED SWPPP PRACTITIONER
S	SOUTH/ SLOPE
SAD	SEE ARCHITECT'S DRAWINGS
SCD	SEE CIVIL DRAWINGS
SCH	SCHEDULE
SD	STORM DRAIN
SED	SEE ELECTRICAL DRAWINGS
SF	SQUARE FEET
SFPD	SEE FIRE PROTECTION DRAWINGS
SG	SUBGRADE
SHT	SHEET
SIM	SIMILAR
SLAD	SEE LANDSCAPE ARCHITECT'S DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SPEC	SPECIFICATION
SPD	SEE PLUMBING DRAWINGS
SQ	SQUARE
SS	STAINLESS STEEL/ SANITARY SEWER
SSD	SEE STRUCTURAL DRAWINGS/ SUBSURFACE DRAIN
SSR	SEE SOILS REPORT
STA	STATION
STD	STANDARD
STL	STEEL
SWPP	STORMWATER POLLUTION PREVENTION PLAN
SWM	STORMWATER MANAGEMENT
SWW	SEE WASTEWATER DRAWINGS
SYM	SYMMETRICAL
T	TANGENT/ TELEPHONE
TAN	TANGENT
TEL	TELEPHONE
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCH MARK
TC	TOP OF CONCRETE
TCC	TOP OF CONCRETE CURB
TD	TRENCH DRAIN
TG	TOP OF GRATE
THK	THICK
TOB	TOP OF BERM
TOE	TOE OF WALL
TOF	TOP OF FOOTING
TOW	TOP OF WALL
TP	TOP OF PAVEMENT
TRANS	TRANSITION
TYP	TYPICAL
UC	UTILITY CHASE
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
USP	UNDER SEPARATE PERMIT
VC	VERTICAL CURVE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VSD	VINEYARD SUBDRAIN
W	WEST/ WATER
W/	WITH
W/O	WITHOUT
W(T)	TREATED WATER
W(W)	WATER FROM WELL
WBD	WALL BACK DRAIN
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER
YD	YARD
YDS	YARDS
Z	DITCH SIDE SLOPE

UTILITY STRUCTURE TABLE

NO.	MODEL NO.	COVER/GRATE	REMARKS
DI (ALL)	CB4848	TRAFFIC RATED	OLDCASTLE PRECAST
TD (ALL)	–	TRAFFIC RATED	SEE 5 & 6/C9.0
AD (ALL)	INFINITY LTD5B	–	INFINITY DRAIN

NOTES:

1. GROUT FLOWLINE TRANSITION AND PIPE PENETRATIONS FOR ALL CONCRETE DRAINAGE STRUCTURES, SEE 3/C9.3

2. WHERE THE ADJACENT PAVED SURFACE IS SLOPING GREATER THAN 5%, THE TOP OF THE DRAINAGE STRUCTURE SHALL BE SLOPED TO MATCH THE ADJACENT GRADE.

3. ALL INLETS TO BE MARKED "NO DUMPING – DRAINS TO STREAM", MARKERS TO BE PROVIDED BY CITY.

4. COVER/GRATE CLASSIFICATION SHALL BE DESIGNED TO MEET ANSI A112.21.1M LOADING CLASSIFICATIONS IN A STATIC CONDITION.

SHEET NUMBERING GUIDE

SHEET No.	TYPICAL CONTENT
C1.X	TITLE SHEET, NOTES & GENERAL INFORMATION SHEETS
C2.X	OVERALL SITE PLANS, EXISTING CONDITIONS AND DEMOLITION PLANS
C3.X	LAYOUT AND HORIZONTAL CONTROL PLANS (OR COMBINED PLAN)
C4.X	GRADING PLANS
C5.X	UTILITY PLANS
C6.X	EROSION & SEDIMENT CONTROL PLANS
C7.X	PLAN & PROFILE DRAWINGS
C8.X	SECTIONS
C9.X	DETAILS

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE AND/OR APPLICABLE CITY OF WALNUT CREEK CODES, ORDINANCES, ZONING AND PLANNING LAWS, CALTRANS STANDARDS, AND THE PROJECT USE PERMIT CONDITIONS.
2. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.) STANDARDS AS SET FORTH BY THE FEDERAL DEPARTMENT OF LABOR AND/OR THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL SECURE A TRENCH PERMIT FROM THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO EXCAVATION OF ANY TRENCH OVER FIVE FEET DEEP.
3. ALL ON–SITE SEWER, WATER AND GAS LINE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE CALIFORNIA PLUMBING CODE, (C.P.C.) AND ALL APPLICABLE REGULATIONS OF THE CITY OF WALNUT CREEK, AND COGNIZANT UTILITY COMPANIES.
4. THE DRAWINGS SHALL NOT BE SCALED. ALL WORK SHALL BE GOVERNED BY THE DIMENSIONS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS SHOWN AND BRING DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
5. DETAILS OF CONSTRUCTION NOT INDICATED OR NOTED SHALL BE CONSIDERED OF THE SAME CHARACTER SHOWN FOR SIMILAR OR EXISTING CONSTRUCTION.
6. THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY. PROPERTY LINES HAVE BEEN PLOTTED FOR INFORMATIONAL PURPOSES ONLY AND ARE APPROXIMATE.
7. THE CONTRACTOR SHALL NOTIFY P.G.&E. AND AT&T PRIOR TO STARTING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THESE UTILITY COMPANIES INFORMED OF THE CONSTRUCTION SCHEDULE.
8. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND INSPECTIONS FROM THE CITY OF WALNUT CREEK. THE OWNER WILL MAKE APPLICATIONS AND PAY ALL PERMIT FEES.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING FACILITIES AND IMPROVEMENTS FROM DAMAGE RESULTING FROM CONSTRUCTION WORK. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
10. CONTRACTOR SHALL COORDINATE CONSTRUCTION WORK WITH EXISTING FACILITIES REQUIREMENTS & OPERATIONS. CONTRACTOR SHALL BE PREPARED TO PHASE PORTIONS OF THE WORK SO THAT IT DOES NOT INTERFERE WITH OR INHIBIT EXISTING FACILITY OPERATIONS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ACCESS TO THE SITE AND ADJOINING OPERATIONS OPEN TO THE OWNERS AT ALL TIMES.
12. ALL EXISTING VALVE AND METER BOXES, MANHOLES AND CLEANOUTS SHALL BE RAISED TO NEW GRADE AS REQUIRED.
13. ALL EXISTING FENCES AND GATES AT THE SITE SHALL BE LOCATED, PROTECTED AND MAINTAINED AT ALL TIMES.
14. ON–SITE GRADING SHALL NOT INHIBIT OFF–SITE DRAINAGE.
15. THE SCREENED CONTOURS AND TOPOGRAPHIC INFORMATION ON THESE DRAWINGS REPRESENT THE APPROXIMATE SURFACE CONDITIONS TO BE FOUND AT THE PROJECT LOCATION AS OF MARCH 24, 2023. THIS INFORMATION HAS BEEN FURNISHED BY CIVIL ENGINEERING ASSOCIATES AND AERIAL TOPOGRAPHY FOR THE BASIS OF ELEVATIONS, SEE "CONTROL" REFERENCE ON THIS DRAWING.
16. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR SOIL CONDITIONS IN THE AREA OF CONSTRUCTION OPERATIONS. ALL WORK SHALL CONFORM TO THE GEOTECHNICAL STUDY REPORT FOR BOUNDARY OAKS DRIVING RANGE, PREPARED BY MILLER PACIFIC ENGINEERING GROUP, DATED MAY 17, 2022.
17. SUBSTITUTIONS FOR MATERIALS OR EQUIPMENT INDICATED ON THE CONTRACT DRAWINGS SHALL BE REVIEWED BY THE ENGINEER. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR WORK AFFECTED BY SUCH CHANGES ACCOMPLISHED WITHOUT ENGINEER'S REVIEW.
18. AS THE RESPONSIBILITY FOR THE ENGINEERING DESIGN WORK DEPICTED ON THESE DRAWINGS RESTS WITH THE FIRM OF SUMMIT ENGINEERING, INC., NO CHANGES ARE TO BE MADE TO THE WORK DURING OR PRIOR TO CONSTRUCTION WITHOUT THE EXPRESSED WRITTEN PERMISSION OR ACKNOWLEDGMENT OF SUMMIT ENGINEERING, INC.
19. REMOVE ONLY THOSE TREES THAT ARE NECESSARY TO CLEAR THE NEW CONSTRUCTION. NO TREE SHALL BE REMOVED WITHOUT PRIOR REVIEW WITH THE ENGINEER.
20. TREE BRANCHES SHALL BE PRUNED TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 16 FEET MEASURED FROM ROAD SUBGRADE. PAINT ALL BRANCH CUTS 4 INCHES IN DIAMETER AND LARGER WITH A TREE SEAL COMPOUND.
21. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND OTHER SERVICES NECESSARY FOR PROPER EXECUTION OF THIS CONTRACT.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A DAILY RECORD OF "AS BUILT" CONDITIONS THAT DIFFER FROM THE ORIGINAL DRAWINGS. THE CONTRACTOR WILL BE PROVIDED WITH A SET OF REPRODUCIBLE DRAWINGS ON WHICH THE "AS BUILT" CONDITIONS SHALL BE RECORDED. THE "AS BUILT" DRAWING (SIGNED AND DATED) SHALL BE FURNISHED TO THE ENGINEER UPON COMPLETION OF THE WORK AND PRIOR TO FINAL PAYMENT.
23. SEE DETAILED PROJECT MANUAL FOR FURTHER INFORMATION.

CITY STANDARD NOTES

1. STANDARD PLANS AND SPECIFICATIONS: ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS, CITY OF WALNUT CREEK STANDARD PLANS, AND THE PROJECT SPECIFICATIONS, SUBJECT TO INSPECTION AND APPROVAL OF THE CITY PUBLIC WORKS DEPARTMENT.
2. NOTWITHSTANDING THE PRESENCE OF A CITY INSPECTOR, EITHER FULL OR PART–TIME, THE CONTRACTOR IS NOT RELIEVED OF THE RESPONSIBILITY OF PERFORMING THE WORK IN ACCORDANCE WITH THESE DOCUMENTS.
3. EXACT FIELD LOCATION FOR NEW IMPROVEMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. VERIFICATION OF EXISTING CONDITIONS: CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS AND CONSTRUCTION IN THE FIELD PRIOR TO BID. IF ANY DISCREPANCIES ARE NOTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR DIRECTION.
5. UNDERGROUND SERVICE ALERT: A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT 800–227–2600 FOR EXISTING UTILITY LOCATIONS.
6. UNDERGROUND FACILITIES: THE LOCATION OF EXISTING UNDERGROUND UTILITY FACILITIES, IF SHOWN ON THE PLANS, IS APPROXIMATE ONLY. CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANY TO OBTAIN INFORMATION REGARDING THE EXACT DEPTH OF BURIAL AND HORIZONTAL LOCATION OF UTILITY LINES AS NECESSARY. PRIOR TO PERFORMING UNDERGROUND CONSTRUCTION, THE CONTRACTOR SHALL MAKE THE NECESSARY PROBES TO IDENTIFY AREAS OF POSSIBLE CONFLICT WITH PROPOSED CONSTRUCTION AS NEEDED. CONTRACTOR SHALL EXCAVATE TO DETERMINE TYPES, EXTENT, SIZE AND DEPTHS OF UNDERGROUND UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL NECESSARY UTILITY RELOCATIONS AND ADJUSTMENTS WITH THE APPROPRIATE UTILITY COMPANIES.
7. UTILITY REPAIR: CONTRACTOR SHALL REPAIR ANY DAMAGE OR INTERRUPTION OF UTILITIES, WATER LINES OR IRRIGATION SYSTEMS WITHIN 48 HOURS OF THE TIME OF DAMAGE.
8. NOTICE TO PROCEED: CONTRACTOR SHALL NOT COMMENCE WORK UNTIL A PRE–CONSTRUCTION MEETING HAS BEEN HELD WITH THE CITY, AND AFTER A NOTICE TO PROCEED HAS BEEN ISSUED BY THE CITY.
9. TOILET FACILITIES: CONTRACTOR SHALL PROVIDE PORTABLE SANITARY FACILITIES ADEQUATE FOR ALL WORKERS. THE TYPE OF TOILETS USED, THEIR LOCATIONS AND MAINTENANCE ARE SUBJECT TO APPROVAL BY THE CITY. HAND WASHING FACILITIES SHALL BE PROVIDED NEARBY THE TOILET FACILITIES.
10. THE CONTRACTOR IS RESPONSIBLE FOR MATCHING EXISTING STREETS, SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING AND GRADING, ETC., AND TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES, LOW SPOTS OR HAZARDOUS CONDITIONS.
11. CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS AND CAL OSHA.
12. WHEN HAULING ANY EARTH, SAND, GRAVEL, STONE, DEBRIS, PAPER, OR ANY OTHER SUBSTANCE OVER ANY PUBLIC STREET, ALLEY OR PUBLIC PLACE, NO PERSON SHALL ALLOW MATERIAL TO BLOW OR SPILL OVER AND UPON SAID PUBLIC, ADJACENT OR PRIVATE PROPERTY.
13. GRADING OR ANY OTHER OPERATIONS THAT CREATE DUST MUST BE STOPPED IMMEDIATELY. SUBSEQUENTLY, CONTRACTOR SHALL REMOVE MUD TRACKS FROM STREETS OR ADJACENT PROPERTIES AND SWEEP STREETS, AS DIRECTED BY THE CITY INSPECTOR.
14. ALL EXISTING IRRIGATION, LANDSCAPE MATERIALS, PAVEMENT DELINEATION AND OTHER IMPROVEMENTS, THAT ARE NOT TO BE REMOVED BUT ARE DAMAGED DURING CONSTRUCTION, SHALL BE REPLACED OR RESTORED TO EXISTING CONDITIONS AT NO ADDITIONAL EXPENSE TO THE CITY.
15. THE CONTRACTOR IS TO PROTECT EXISTING DRIVEWAYS ADJACENT TO STREETS THAT ARE TO BE CAPE OR SLURRY SEALED. CONTRACTOR TO REMOVE OIL TRACKS FROM DRIVEWAYS WITHING 48 HOURS AT NO ADDITIONAL EXPENSE TO THE CITY.
16. REMOVE OIL TRACKS FROM STRIPING, SIDEWALK, AND PAVEMENT DELINEATORS ON ADJOINING STREETS WITHIN 48 HOURS.
17. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER ON SITE EXCAVATION, EARTHWORK OCCURRING WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST, WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA), HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES IF DEEMED NECESSARY.
18. CITY WILL RESERVE THE RIGHT TO TAKE PHOTOGRAPHS AND VIDEOS DURING THE COURSE OF CONSTRUCTION.
19. REMOVE ALL MARKERS AND STRIPING WITHIN THE PAVING LIMITS AND PLACE TEMPORARY MARKERS PER SPECIFICATIONS.

SUMMIT
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CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
2023-10-30	AS SHOWN	CP010126
DESIGN:	DRAWN:	CHECKED:
	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
	100% CD SET REV 1	11.06.23

PREPARED UNDER
THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER
JASPER GEMMEN
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

GENERAL INFORMATION

SHEET NUMBER
C1.1

2 OF: 17

EROSION AND SEDIMENT CONTROL NOTES

1. EROSION & SEDIMENT CONTROL MEASURES AS INDICATED ON THE PLANS SHALL INCLUDE, BUT NOT BE LIMITED, TO THE FOLLOWING:

   A. STABILIZED CONSTRUCTION ENTRANCE AND EXITS TO REDUCE TRACKING OF MUD AND DIRT ONTO PUBLIC ROADS BY CONSTRUCTION VEHICLES.

   B. EARTH BERMS TO DIVERT RUN-OFF AWAY FROM THE WORK AREA OR TO CONTAIN RUN-OFF WITHIN A SPECIFIED AREA.

   C. FIBER ROLLS OR SILT FENCES BELOW THE TOE OF EXPOSED AND ERODIBLE SLOPES, DOWNSLOPE OF EXPOSED SOIL AREAS, AND AS INDICATED ON THE PLANS.

   D. COBBLE OR RIPRAP PROTECTION FOR STORM DRAIN PIPE OUTLETS AND DRAINAGE DITCHES.

   E. ROCK OR FIBER ROLL CHECK DAMS TO REDUCE VELOCITY OF CONCENTRATED FLOW AND ENCOURAGE SEDIMENT SETTLING.

   F. EARTH BERM SEDIMENT TRAPS WITH ROCK FILTER OUTLET, TO ALLOW SEDIMENT IN COLLECTED SW TO SETTLE OUT AND BE FILTERED.

   G. DROP INLET GRAVEL FILTERS TO PROTECT STORM DRAIN INLETS THAT ARE SUBJECT TO RUN-OFF FROM CONSTRUCTION ACTIVITIES.

   H. PROTECTION OF CUT OR FILL SLOPES, BORROW AREAS AND SOIL STOCKPILE AREAS WITH IMPERMEABLE COVER IF OTHER MEASURES ARE NOT IN PLACE.

   I. MOISTURE CONDITIONING AND TRACKWALKING OF ALL FILL SLOPES AND HORIZONTAL SURFACES DISTURBED BY CONSTRUCTION OPERATIONS WITH A HEAVY BULLDOZER TO PROVIDE A FIRM AND UNIFORMLY ROUGHENED SURFACE, FREE OF LOOSE MATERIAL.

   1.2. APPLICATIONS:

   a. STRAW MULCH AND HYDROSEED

   COMBINED APPLICATION OF SEED, FERTILIZER AND STRAW SHALL BE APPLIED TO ALL CUT AND FILL SLOPES AND DISTURBED AREAS WITH SLOPES GREATER THAN 15%.

   EXCEPTIONS
   - INTERIOR SLOPES OF PONDS AND WETLAND CELLS
   - INTERIOR SLOPES OF "V" DITCHES
   - LANDSCAPED AREA TO BE ESTABLISHED PRIOR TO OCTOBER 15TH

   b. HYDROMULCH

   COMBINED APPLICATION OF SEED, MULCH FIBER AND FERTILIZER ON ALL DISTURBED AREAS WITH SLOPES LESS THAN 15%.

   EXCEPTIONS
   - BUILDING PAD
   - TOP OF DIKE
   - INTERIOR OF PONDS
   - ROADWAY SURFACES

   K. OTHER STORMWATER MANAGEMENT MEASURES SHALL BE UTILIZED AS FIELD CONDITIONS REQUIRE.

2. REQUIREMENTS:

   A. CONTRACTOR SHALL INSTALL BEST MANAGEMENT PRACTICES (BMP'S) WITH THE INTENT OF PREVENTING SEDIMENT OR OTHER CONTAMINANTS FROM LEAVING THE SITE AND ENTERING DRAINAGE WAYS.

   B. CONTRACTOR SHALL MINIMIZE DISTURBANCES OF EXISTING SOILS OUTSIDE OF THE LIMITS OF THE WORK AREA AND AS INDICATED ON PLAN.

   C. A NOTICE OF INTENT SHALL BE FILED BY THE OWNER FOR THIS PROJECT PER NPDES REQUIREMENTS. CONTRACTOR SHALL COMPLY WITH ALL NPDES GENERAL PERMIT NO. CAS000002 AND SWPPP REQUIREMENTS.

   D. INSTALLATION OF ALL BMP'S SHALL BE COMPLETED PRIOR TO OCTOBER 15TH OR BEFORE THE START OF CONSTRUCTION IN ACCORDANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN. ALL BMP'S SHALL BE MAINTAINED FOR THE ENTIRE PERIOD BETWEEN OCTOBER 15TH AND APRIL 15TH OF EACH YEAR WHERE CONSTRUCTION ACTIVITY OCCURS ON THE SITE.

   E. WHEN TEMPORARY MEASURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE MEASURES CAN BE REMOVED AND ANY SEDIMENT DEPOSITS DISPOSED OF ACCORDING TO LOCAL, STATE AND FEDERAL ORDINANCES. DISPOSAL OR REUSE OF SEDIMENT ON-SITE AS FILL MUST HAVE THE APPROVAL OF THE SOILS ENGINEER.

   F. STORMWATER MANAGEMENT MEASURES SHOWN ON THE PLAN THAT INTERFERE WITH THE WORK MAY BE RELOCATED OR MODIFIED WITH APPROVAL OF LOCAL GOVERNING AGENCY AND/OR ENGINEER.

   G. AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED AND PRIOR TO PERMANENT RESURFACING, THE SURFACES OVER THE UTILITY TRENCH SHALL BE SURFACED WITH TEMPORARY ASPHALT PAVING OR BE MOUNDED TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA.

   H. INSTALLATION OF GRAVEL ROADWAYS, WALKWAYS, OR OTHER MEASURES SHALL BE UTILIZED IN ADDITION TO WATER OR OTHER DUST PALLIATIVES TO CONTROL AND PREVENT BLOWING DUST OR MINIMIZE THE CREATION OF DUST.

3. MAINTENANCE

   A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF BMP'S AT ALL TIMES DURING THE CONSTRUCTION PERIOD. ALL BMP'S SHALL BE INSPECTED AND REPAIRED AS REQUIRED AT THE END OF EACH WORKING DAY.

   B. AFTER THE FIRST HEAVY RAIN OF THE SEASON, THE BMP'S SHALL BE INSPECTED FOR DEFICIENCIES. FIBER ROLLS, DITCHES, ROCK RIPRAP OR OTHER BMP'S WILL BE ADDED AS NECESSARY TO ENSURE THAT WATER POLLUTION IS MINIMIZED TO THE MAXIMUM EXTENT PRACTICAL.

   C. AFTER HEAVY RAINS, THE SITE SHALL BE INSPECTED FOR EXCESSIVE EROSION AND ERODED AREAS REPAIRED AS REQUIRED BY ADDING RIPRAP OR COBBLE TO PREVENT FURTHER EROSION.

EROSION AND SEDIMENT CONTROL NOTES (CONTINUED)

   D. SEDIMENT IS TO BE REMOVED FROM SEDIMENT TRAPS WHEN SEDIMENT LEVEL REACHES 50% OF MAXIMUM.

   E. DURING THE RAINY SEASON, ALL PAVED SURFACES SHALL BE MAINTAINED FREE OF EARTH MATERIAL AND DEBRIS. WHEN THE WORK REQUIRES THAT MATERIALS BE PLACED UPON PAVED SURFACES, APPROPRIATE MEASURES SHALL BE TAKEN TO PROTECT THE MATERIAL FROM ERODING.

   F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF MUD AND DEBRIS CARRIED ONTO SURROUNDING PROPERTIES, STREETS AND ROADS AS A RESULT OF CONSTRUCTION ACTIVITY ON THE SITE TO THE SATISFACTION OF THE LOCAL GOVERNING AGENCY. ANY MUD THAT IS TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED THAT SAME DAY.

4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND REFERENCE LATEST EDITION OF BMP HANDBOOK FOR FURTHER DETAILS ON BMP'S.

5. THIS PLAN WILL NOT COVER ALL THE SITUATIONS THAT MAY ARISE DURING CONSTRUCTION. ADJUSTMENTS TO THE PLAN MAY BE MADE AS CONDITIONS WARRANT WITH APPROVAL OF THE LOCAL GOVERNING AGENCY.

6. SEE CONSTRUCTION SWPPP FOR INSTALLATION AND MAINTENANCE GUIDELINES (ONLY IF SWPPP WAS REQUIRED).

UTILITY NOTES

1. ALL EXISTING UTILITIES TO REMAIN IN THE WORK AREA SHALL BE PROTECTED DURING CONSTRUCTION ACTIVITIES (UNO).

2. ALL WORK SHALL CONFORM TO THE LATEST APPLICABLE CODES, ORDINANCES, INCLUDING THE LATEST ADOPTED EDITION OF THE CALIFORNIA PLUMBING CODE.

3. SEE ELECTRICAL DRAWINGS FOR LOCATION OF POWER AND CONTROL UTILITIES. COORDINATE INSTALLATION OF THOSE UTILITIES WITH THOSE SHOWN HERE.

4. SEE PLUMBING/STRUCTURAL DRAWINGS FOR CONTINUATION OF UTILITY LINES INTO BUILDINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LOCATION OF UTILITY CONNECTIONS TO STRUCTURES WITH ARCHITECTURAL, PLUMBING AND STRUCTURAL DRAWINGS.

5. WHERE POSSIBLE AND WHERE SEPARATION STANDARDS CAN BE MET, UTILITIES CAN BE INSTALLED IN COMMON TRENCHES. THE CONTRACTOR SHALL VERIFY BEDDING AND BACKFILL DETAILS WITH THE ENGINEER WHERE COMMON TRENCHING IS DESIRED.

6. CONTRACTOR SHALL EXPOSE, BY POTHOLING, AND VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES, INCLUDING STORM DRAINS, SANITARY SEWERS, WATER LINES, COMMUNICATION, AND ELECTRICAL BEFORE ORDERING MATERIALS AND/OR CONSTRUCTING NEW FACILITIES.

7. ALL TRENCHES AND EXCAVATIONS SHALL BE CONSTRUCTED IN STRICT COMPLIANCE WITH THE APPLICABLE SECTIONS OF CALIFORNIA AND FEDERAL O.S.H.A. REQUIREMENTS AND OTHER APPLICABLE SAFETY ORDINANCES. CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR TRENCH SHORING DESIGN AND INSTALLATION. SEE GENERAL NOTES.

   PIPELINE DEPTH OF BURY:

A.	GRAVITY LINES	TO ELEV NOTED, 1.5' MIN IN LANDSCAPED AREAS 2.0' MIN IN ALL OTHER AREAS (UNO)
B.	FIRE PROTECTION/WATER	3' MINIMUM (UNO)
C.	FORCE MAINS	2.5' MINIMUM (UNO)
D.	GAS	2.5' MINIMUM (UNO)
E.	ELECTRIC	3' MINIMUM (UNO) SEE ELECTRICAL DRAWINGS

8. SLOPE FOR GRAVITY LINES (SD & PW) = 0.02 MIN (UNO), (SS) = 0.02 MIN (UNO)

9. GRAVITY PW, SS, SD LINES AND PRESSURE FORCE MAINS SHALL BE CONSTRUCTED USING MANUFACTURER'S STANDARD FITTINGS FOR THE PIPE SYSTEM SPECIFIED. FITTINGS USED SHALL PROVIDE FOR SMOOTH, UNIFORM TRANSITIONS IN SIZE, DIRECTION AND WHEN PIPES JOIN. THE USE OF 90° BENDS AND TEES WILL NOT BE ALLOWED UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

10. PVC WATER SYSTEM MAINS AND OTHER PRESSURE FORCE MAINS SHALL HAVE LOCATING WIRE INSTALLED IN THE TRENCH ABOVE THE PIPE.

11. CONTRACTOR SHALL COORDINATE LOCATION OF UTILITY TRENCH WITH STRUCTURAL DRAWINGS TO ENSURE THAT UTILITY TRENCHES ARE LOCATED OUTSIDE THE ZONE OF INFLUENCE.

12. ALL UTILITY CROSSINGS ARE TO HAVE A MINIMUM OF 6" SEPARATION AS MEASURED FROM THE OUTSIDE EDGE OF ALL PIPES. IF MINIMUM CROSSING SEPARATION CANNOT BE MET, CONSULT ENGINEER REGARDING REDUCED CLEARANCE OPTIONS INCLUDING CONCRETE ENCASEMENT OF CROSSING.

13. WHENEVER A PUBLIC WATER MAIN IS TO CROSS A SANITARY SEWAGE FORCE MAIN, THE PUBLIC WATER MAIN SHALL BE INSTALLED A MINIMUM OF 1 FOOT ABOVE THE SEWER LINE WHERE POSSIBLE AND SHALL BE OF DUCTILE IRON OR AWWA C-900 CLASS 305 PVC WITH NO JOINTS WITHIN 10 FEET ON EACH SIDE OF THE FORCE MAIN. IF THE PUBLIC WATER MAIN CROSSES A SEWER LINE CLOSER THAN 1 FOOT, THE WATER MAIN SHALL BE COMPLETELY ENCASED IN CLASS B CONCRETE FOR THE SAME DISTANCE SPECIFIED ABOVE.

14. THE HORIZONTAL DISTANCE BETWEEN PUBLIC PRESSURE WATER MAINS AND SANITARY SEWER LINES SHALL BE AT LEAST 10'.

15. IF THERE IS A SITUATION WHERE A SANITARY SEWER LINE MUST CROSS ABOVE A PUBLIC WATER LINE, THE DESIGN OF SUCH A CROSSING MUST CONFORM TO STATE AND LOCAL HEALTH LAWS AND BE APPROVED BY BOTH THE COUNTY PUBLIC HEALTH SERVICE DEPARTMENT AND STATE HEALTH DEPARTMENT.

16. NON-PUBLIC WATER (W), SEWER (SS) AND/OR PROCESS WASTE (PW) LINES MAY BE INSTALLED IN A COMMON TRENCH WHERE THE W LINE IS ABOVE THE SS OR PW LINES AND A MINIMUM OF 1 FOOT HORIZONTAL AND VERTICAL SEPARATION BETWEEN THE W AND SS OR PW LINES IS MAINTAINED. WHERE W AND SS OR PW LINES CROSS, THE SAME SEPARATION DISTANCES SHALL APPLY.

UTILITY NOTES (CONTINUED)

17. WHERE A ROOF DRAIN IS SHOWN CONNECTING TO A DROP INLET, IT SHALL CONNECT AT 6" ABOVE THE INVERT ELEVATION OF THE DROP INLET IF POSSIBLE.

18. ALL TEES, BENDS, PLUGS, AND OTHER FITTINGS & APPURTENANCES ON ALL PRESSURE PIPING GREATER THAN 3" IN SIZE WITH MECHANICAL JOINT, PUSH ON OR OTHER FLEXIBLE FITTINGS SHALL BE ANCHORED BY THE USE OF THRUST BLOCKS, THRUST ANCHORS OR HARNESSES AS SHOWN ON THE DRAWINGS. THE BEARING PRESSURES OF THRUST BLOCKING ON THE SUPPORTING SOIL SHALL NOT EXCEED THAT ALLOWABLE FOR THE SOIL INVOLVED (SEE SOILS REPORT). REQUIRED THRUST BLOCK BEARING AREAS SHALL BE CALCULATED BY THE CONTRACTOR IN ACCORDANCE WITH THE DETAILS ON THE DRAWINGS AND NFPA STANDARDS.

19. ALL BURIED METAL VALVES AND FITTINGS REQUIRE PROTECTIVE COATINGS, SEE SPECIFICATIONS.

20. PIPE BEDDING AND BACKFILL FOR STORM DRAIN PIPE SHALL INCLUDE AN 12" THICK IMPERVIOUS CLAY OR SLURRY CEMENT PLUG COMPACTED IN THE TRENCH AND AROUND THE PIPE AT THE INLET AND OUTLET, AND AT 50 FOOT INTERVALS WHERE SLOPES EXCEED 10%. WHERE THE SLOPE OF OTHER UTILITY PIPES EXCEED 10%, THE SAME PLUG SHALL BE INSTALLED IN THE TRENCH AND AROUND THE PIPE AT THE BEGINNING AND END OF THE PIPE AND AT 50' INTERVALS BETWEEN.

21. ALL NON-STORM DRAIN UTILITIES ARE SHOWN FOR REFERENCE ONLY AND SHALL BE COVERED UNDER SEPARATE PERMIT(S).

ACCESSIBILITY NOTES

1. ALL ACCESSIBLE PATHS OF TRAVEL WITH A DIRECTED ROUTE OF TRAVEL SHALL HAVE A MAXIMUM 1:48 (2%) CROSS SLOPE & MAXIMUM 1:20 (5.0%) SLOPE IN THE DIRECTION OF TRAVEL. AT AREAS WITH A NON-DIRECTED ROUTE OF TRAVEL (SUCH AS COURTYARD) AND AT CHANGES IN DIRECTION AT A DIRECTED ROUTE OF TRAVEL, THE SLOPE SHALL NOT EXCEED 1:48 (2%) IN ANY DIRECTION.

2. ALL ACCESSIBLE PARKING AREAS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS.

3. FINISH GRADE ADJACENT TO ALL ACCESSIBLE PATH OF TRAVEL TO BE MAXIMUM 1/2" BELOW TOP OF FINISH SURFACE ELEVATION, TYP.

4. CONC CURB ELEVATION SHALL BE 6" ABOVE ADJACENT CONCRETE PATH ELEVATION, UNO.

5. ALL RAMP LANDINGS TO HAVE A MAXIMUM SLOPE OF 1:48 (2%) IN ALL DIRECTIONS.

6. ALL ACCESSIBLE RAMPS TO HAVE A MAXIMUM 1:48 (2%) CROSS SLOPE AND A MAXIMUM SLOPE OF 1:12 (8.3%) IN THE DIRECTION OF TRAVEL.

7. ALL ACCESSIBLE RAMPS WIDTHS SHALL BE AT LEAST 48" WIDE. ALL WALKS SHALL BE AT LEAST 48" WIDE, MEASURED FROM BACK OF CURB WHEN ADJACENT TO A VEHICLE AREA.

8. ACCESSIBLE RAMP LANDINGS AT TOP AND BOTTOM OF RAMPS SHALL BE AS FOLLOWS:

   A. DIMENSION TOP LANDING NOT LESS THAN 60" X 60.

   B. DIMENSION BOTTOM LANDING NOT LESS THAN RAMP WIDTH BY 72" IN LENGTH.

   C. INDICATE DOORS IN THE FULLY OPEN POSITION NOT REDUCING THE REQUIRED RAMP LANDING WIDTH BY MORE THAN 3.

   D. INDICATE DOORS IN A POSITION NOT REDUCING THE MINIMUM DIMENSION OF THE LANDING TO LESS THAN 42 INCHES.

   E. PROVIDE INTERMEDIATE LANDINGS FOR RAMPS SUCH THAT VERTICAL RISE DOES NOT EXCEED 30" BETWEEN LANDINGS. INTERMEDIATE LANDINGS AT A CHANGE OF DIRECTION, SHALL HAVE DIMENSIONS IN THE DIRECTION OF THE DOWNWARD RAMP RUN OF NOT LESS THAN 72".

9. RAMPS (OTHER THAN CURB RAMPS) SHALL REQUIRE CONTINUOUS HANDRAILS ON BOTH SIDES, 34" TO 38" HIGH, WITH MIN. HORIZONTAL EXTENSION IN THE DIRECTION OF RAMP RUN OF 1 FOOT BEYOND TOP AND BOTTOM OF RAMP. SLAD FOR DETAILS.

10. PROVIDE EDGE PROTECTION WHERE REQUIRED. SLAD FOR DETAILS.

11. DETECTABLE/TACTILE WARNING SURFACE TILES SHALL BE VITRIFIED POLYMER COMPOSITE (VPC) WITH AN ULTRA VIOLET STABILIZED COATING EMPLOYING ALUMINUM OXIDE PARTICLES. PROVIDE ONE DSAAC-APPROVED PRODUCTS IN DARK GRAY FEDERAL COLOR NO. 33538 PER CBC SECTION 11B.705.1.1.3 OF THE 7/1/2021 SUPPLEMENT TO THE 2019 CBC. SEE DETAIL 5/C9.2 FOR ADDITIONAL INFORMATION.

GENERAL/ CIVIL LEGEND

EXISTING

- (E/ELEC) ELECTRICAL
- (FP) FIRE PROTECTION
- (G) GAS
- (IRR) IRRIGATION
- (OH) OVERHEAD POWERLINE
- (PW) PROCESS WASTEWATER
- (SD) STORM DRAIN
- (SS) SANITARY SEWER
- (T/TEL) TELEPHONE LINE
- (W) WATER LINE
- LEACHLINE
- LEACHFIELD OUTLINE
- UG TANK OR SUMP
- MANHOLE OR SUMP
- CULVERT
- FH
- PIV, CV, FDC
- VALVE
- x15.25 SPOT ELEVATION
- 70 CONTOUR
- ℄/SWALE/DITCH
- VINEROW
- VINEYARD LIMITS
- FENCE
- PROPERTY LINE
- EASEMENT
- CP # / N E ELEV CONTROL POINT

NEW

- (E/ELEC) ELECTRICAL
- (FP) FIRE PROTECTION
- (G) GAS
- (IRR) IRRIGATION
- (OH) OVERHEAD POWERLINE
- (PW) PROCESS WASTEWATER
- (SD) STORM DRAIN
- (SS) SANITARY SEWER
- (T/TEL) TELEPHONE LINE
- (W) WATER LINE
- LEACHLINE
- LEACHFIELD OUTLINE
- UG TANK OR SUMP
- MANHOLE OR SUMP
- CULVERT
- GRADE (2 HORIZ TO 1 VERT) 2 / 1 2:1
- SLOPE (PERCENT) 2% S=0.02
- ELEVATION XX 232.00
- TOP OF CUT/BANK
- EMBANKMENT 2:1
- TOE OF FILL
- GRADE BREAK
- 70 CONTOUR
- ℄/SWALE/DITCH
- FENCE
- REMOVE/ABANDON

- FH
- PIV, CV, FDC
- SPRINKLER RISER
- THRUSTBLOCK
- HOSE BIBB
- CONNECTION POINT
- CAP OR PLUG
- CLAY OR SLURRY CEMENT PLUG
- CHECK VALVE
- GATE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- REDUCER/ENLARGER
- CO CLEANOUT
- DS DOWNSPOUT
- DRAINAGE STRUCTURE
- ACCESSIBLE PARKING
- ACCESSIBLE PATH OF TRAVEL
- RIPRAP ENERGY DISSIPATOR
- OVERLAND RELEASE ROUTE

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CITY OF WALNUT CREEK
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DATE:	SCALE:	WORK ORDER:
2023-10-30	AS SHOWN	CP010126
DESIGN:	DRAWN:	CHECKED:
	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
	100% CD SET REV 1	11.06.23

PREPARED UNDER
THE DIRECTION OF

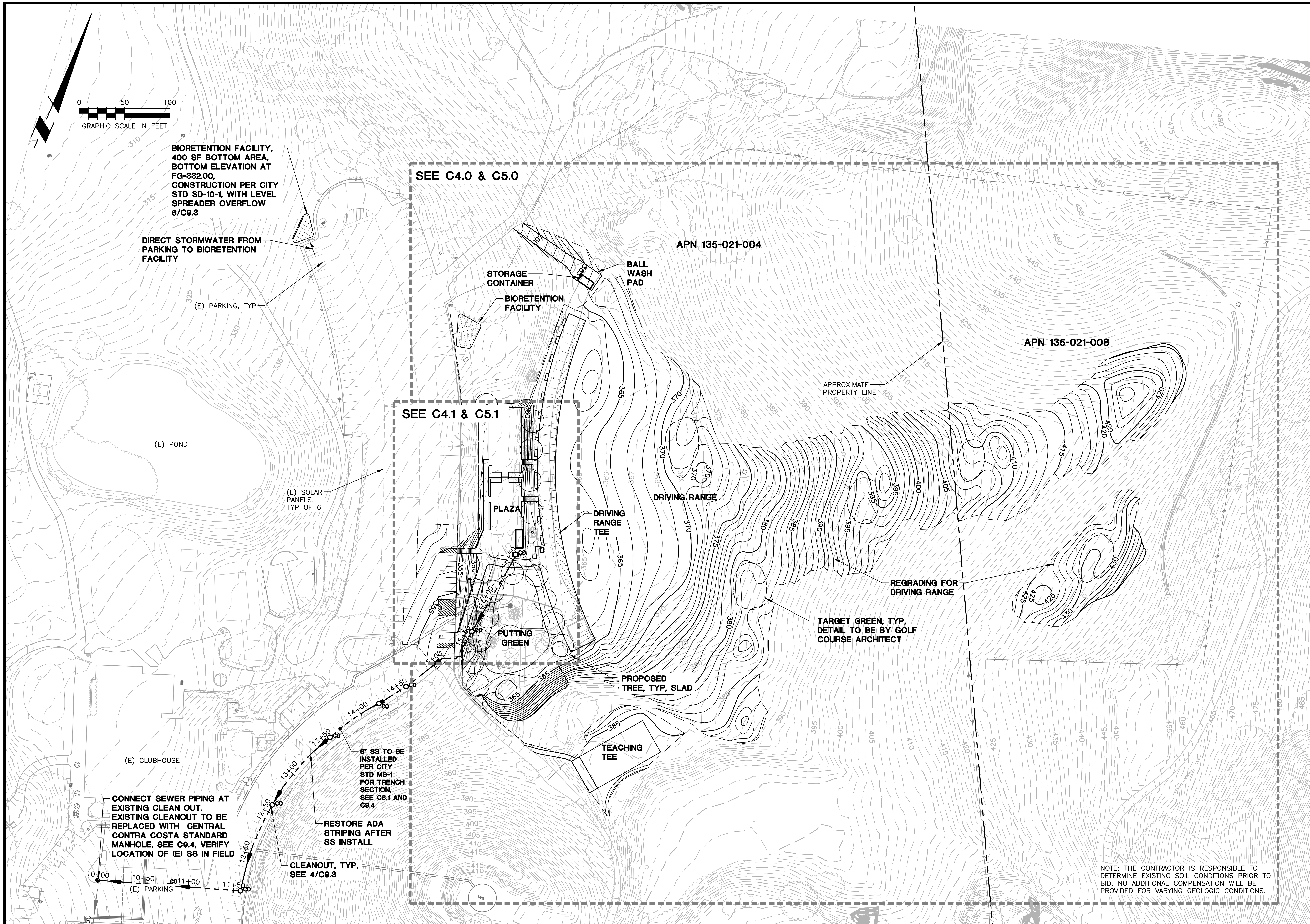
REGISTERED PROFESSIONAL ENGINEER
JESPER GEMMELL
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

GENERAL INFORMATION

SHEET NUMBER
C1.2

3 OF: 17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GRAPHIC SCALE IN FEET
BIORETENTION FACILITY, 400 SF BOTTOM AREA, BOTTOM ELEVATION AT FG=332.00, CONSTRUCTION PER CITY STD SD-10-1, WITH LEVEL SPREADER OVERFLOW 6/C9.3
DIRECT STORMWATER FROM PARKING TO BIORETENTION FACILITY
(E) PARKING, TYP
(E) POND
(E) SOLAR PANELS, TYP OF 6
(E) CLUBHOUSE
SEE C4.0 & C5.0
SEE C4.1 & C5.1
STORAGE CONTAINER
BIORETENTION FACILITY
BALL WASH PAD
APN 135-021-004
APN 135-021-008
APPROXIMATE PROPERTY LINE
PLAZA
DRIVING RANGE TEE
DRIVING RANGE
PUTTING GREEN
REGRADING FOR DRIVING RANGE
TARGET GREEN, TYP, DETAIL TO BE BY GOLF COURSE ARCHITECT
PROPOSED TREE, TYP, SLAD
TEACHING TEE
6" SS TO BE INSTALLED PER CITY STD MS-1 FOR TRENCH SECTION, SEE C8.1 AND C9.4
RESTORE ADA STRIPING AFTER SS INSTALL
CONNECT SEWER PIPING AT EXISTING CLEAN OUT. EXISTING CLEANOUT TO BE REPLACED WITH CENTRAL CONTRA COSTA STANDARD MANHOLE, SEE C9.4, VERIFY LOCATION OF (E) SS IN FIELD
CLEANOUT, TYP, SEE 4/C9.3
(E) PARKING
NOTE: THE CONTRACTOR IS RESPONSIBLE TO DETERMINE EXISTING SOIL CONDITIONS PRIOR TO BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR VARYING GEOLOGIC CONDITIONS.

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STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
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PREPARED UNDER THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER JASPER GEHRING No. C 67232 CIVIL STATE OF CALIFORNIA

CONTRACT NO.
23-10

OVERALL SITE PLAN

SHEET NUMBER
C2.0

DEMOLITION KEY NOTES

#	DESCRIPTION
1.	ABANDON OR REMOVE EXISTING STORM DRAIN, REMOVE AS NOTED, CAP AND PLUG REMAINING PORTION AND COLLAR AT CONNECTION
2.	HATCH REPRESENTS LIMITS OF 18,160 SF (E) PAVEMENT TO BE REMOVED
3.	HATCH REPRESENTS LIMITS OF 660 SF (E) CONCRETE TO BE REMOVED
4.	REMOVE AND CAP PORTION OF 790 LF (E) SD
5.	LIMITS OF GRADING, REMOVE SURFACE MATERIAL AND TURF IN THIS AREA
6.	PROTECT EXISTING POWER POLE
7.	PROTECT EXISTING ELECTRICAL AND FIBER OPTIC
8.	PROTECT EXISTING HYDRANT
9.	PROTECT EXISTING TREES
10.	REMOVE POLE AND OVERHEAD BY PG&E
11.	(E) TREES TO BE REMOVED COORDIANTE WITH OWNER, SEE ARBORIST REPORT
12.	REMOVE EXISTING STRUCTURE
13.	PAVEMENT TRENCHING TO OCCUR WHERE SS RUNS THROUGH EXISTING PARKING LOT
14.	REMOVE 5 LF OF CONCRETE CURB
15.	REMOVE (E) FENCE
16.	3.5' SAWCUT PAVEMENT REPLACEMENT PER DETAIL MS-1/C9.4

NOTE:

1. PROTECT ALL TREES UNO, SEE 7/C9.2 FOR TREE PROTECTION FOR TREES NOT MARKED TO BE REMOVED
2. POTHOLE EXISTING UTILITIES TO VERIFY LOCATION PRIOR TO DEMOLITION AND CONSTRUCTION
3. AREAS OUTSIDE LIMITS OF GRADING BUT WITHIN FOOTPRINT OF IRRIGATION PLANS TO HAVE TURF REMOVED AND GROUND PREPARATION FOR GRASSING

CONCRETE AND STUCTURE DEMO

PAVEMENT DEMO

UTILITY DEMO

FENCE DEMO

TREE REMOVAL

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STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

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PREPARED UNDER THE DIRECTION OF

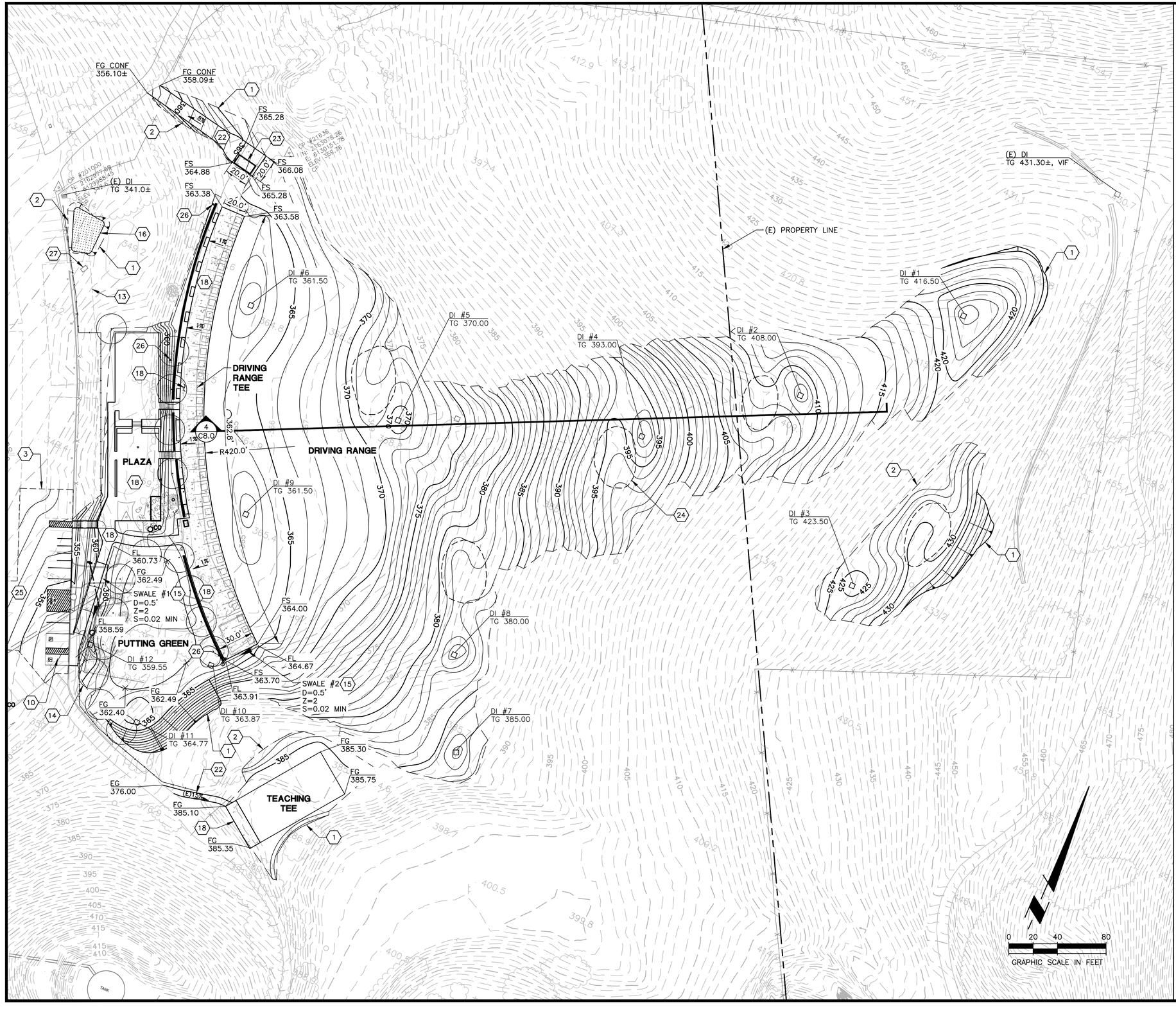
REGISTERED PROFESSIONAL ENGINEER
JASPER GERRING
No. C 67252
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

DEMOLITION PLAN

SHEET NUMBER
C2.1

5 OF: 17



GRADING KEY NOTES

#	DESCRIPTION
1.	TOP OF CUT, 2:1 MAX, TYP
2.	TOE OF FILL, 2:1 MAX, TYP
3.	CONFORM TO EXISTING
4.	GRADE BREAK, TYP
5.	(E) LIGHT POLE, TYP, PIP
6.	STAIRS, TYP, SEE 4/C9.1 FOR STANDARD DETAIL, SLAD FOR NUMBER OF RISERS AND STAIR RAILINGS
7.	CART PARKING
8.	FIRE TRUCK ACCESS FOR FIRE HYDRANT
9.	TRENCH DRAIN
10.	HATCH REPRESENTS LIMITS OF 6" THK CONC SLAB, #5 BARS AT 12" O.C. EW, SLAD FOR DETAILS. SUBGRADE PREPARATION PER SOILS REPORT. SLAD FOR FINISH AND COLOR. ACCESSIBLE PARKING PER CITY STD. TS22 SEE 4/C9.1.
11.	ACCESSIBLE PARKING SIGN PER CITY STD. TS-22, SEE 4/C9.4
12.	CONCRETE WHEEL STOP, SEE 3/C9.2
13.	(E) SOLAR PANEL OVERHANG, TYP
14.	PROPOSED TREE, TYP, SLAD
15.	VEGETATED SWALE, SEE PLAN FOR SIZING, SEE 6/C9.2 FOR DETAIL
16.	BIORETENTION FACILITY, BOT AREA: 700 SF, BOT ELEV: 345.50, PER CITY STD. SD-10, SEE C9.4
17.	CURB TO BE RESTORED, MATCH EXISTING WIDTH AND HEIGHT PER CITY STD. CC-1 SEE C9.4
18.	HATCH REPRESENTS LIMITS OF 4" THK CONC SLABS, SLAD FOR DETAILS, SUBSURFACE PREPARATION PER GEOTECHNICAL ENGINEER RECOMMENDATIONS
19.	(E) COLUMN, TYP
20.	DRIVING RANGE TEE, SEE 1/C9.3
21.	TOE OF FILL, CONFORM TO (E) PAVEMENT
22.	HATCH PRESENTS 6" GRAVEL PATH TO BALL WASHER, SUBGRADE PREPARATION PER GEOTECHNICAL ENGINEER
23.	BALL WASHER ON CONC PAD, BY OTHERS
24.	TARGET GREEN, TYP, COORDINATE LOCATION WITH OWNER
25.	(E) PAVEMENT TO BE REPLACED IN KIND
26.	TOP TRACER TOWER, COORDINATE LOCATION WITH OWNER
27.	(E) ELECTRICAL VAULT

NOTES:

1. SEE SHEET C1.1 FOR UTILITY STRUCTURE TABLE.
2. SEE SHEET C5.0 AND C5.1 FOR INVERT INFORMATION
3. OVEREXCAVATION AND RECOMPACTION PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS
4. SLAD FOR PLAZA PATHWAYS AND RAMP HORIZONTAL CONTROL

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RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

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APN 135-021-004 & 008

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PREPARED UNDER
THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER
JASPER GEMMEN
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

GRADING PLAN

SHEET NUMBER
C4.0

6 OF: 17

GRADING KEY NOTES

#	DESCRIPTION
1.	TOP OF CUT, 2:1 MAX, TYP
2.	TOE OF FILL, 2:1 MAX, TYP
3.	CONFORM TO EXISTING
4.	GRADE BREAK, TYP
5.	(E) LIGHT POLE, TYP, PIP
6.	STAIRS, TYP, SEE 4/C9.1 FOR STANDARD DETAIL, SLAD FOR NUMBER OF RISERS AND STAIR RAILINGS
7.	CART PARKING
8.	FIRE TRUCK ACCESS FOR FIRE HYDRANT
9.	TRENCH DRAIN
10.	HATCH REPRESENTS LIMITS OF 6" THK CONC SLAB, #5 BARS AT 12" O.C. EW, SLAD FOR DETAILS. SUBGRADE PREPARATION PER SOILS REPORT. SLAD FOR FINISH AND COLOR. ACCESSIBLE PARKING PER CITY STD. TS22 SEE 4/C9.1.
11.	ACCESSIBLE PARKING SIGN PER CITY STD. TS-22, SEE 4/C9.4
12.	CONCRETE WHEEL STOP, SEE 3/C9.2
13.	(E) SOLAR PANEL OVERHANG, TYP
14.	PROPOSED TREE, TYP, SLAD
15.	VEGETATED SWALE, SEE PLAN FOR SIZING, SEE 6/C9.2 FOR DETAIL
16.	BIORETENTION FACILITY, BOT AREA: 700 SF, BOT ELEV: 345.50, PER CITY STD. SD-10, SEE C9.4
17.	CURB TO BE RESTORED, MATCH EXISTING WIDTH AND HEIGHT PER CITY STD. CC-1 SEE C9.4
18.	HATCH REPRESENTS LIMITS OF 4" THK CONC SLABS, SLAD FOR DETAILS, SUBSURFACE PREPARATION PER GEOTECHNICAL ENGINEER RECOMMENDATIONS
19.	(E) COLUMN, TYP
20.	DRIVING RANGE TEE, SEE 1/C9.3
21.	TOE OF FILL, CONFORM TO (E) PAVEMENT
22.	HATCH PRESENTS 6" GRAVEL PATH TO BALL WASHER, SUBGRADE PREPARATION PER GEOTECHNICAL ENGINEER
23.	BALL WASHER ON CONC PAD, BY OTHERS
24.	TARGET GREEN, TYP, COORDINATE LOCATION WITH OWNER
25.	(E) PAVEMENT TO BE REPLACED IN KIND
26.	TOP TRACER TOWER, COORDINATE LOCATION WITH OWNER
27.	(E) ELECTRICAL VAULT

NOTES:

1. SEE SHEET C1.1 FOR UTILITY STRUCTURE TABLE.
2. OVEREXCAVATION AND RECOMPACTION PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS
3. SLAD FOR PLAZA PATHWAYS AND RAMP HORIZONTAL CONTROL

0 5 10 20
GRAPHIC SCALE IN FEET

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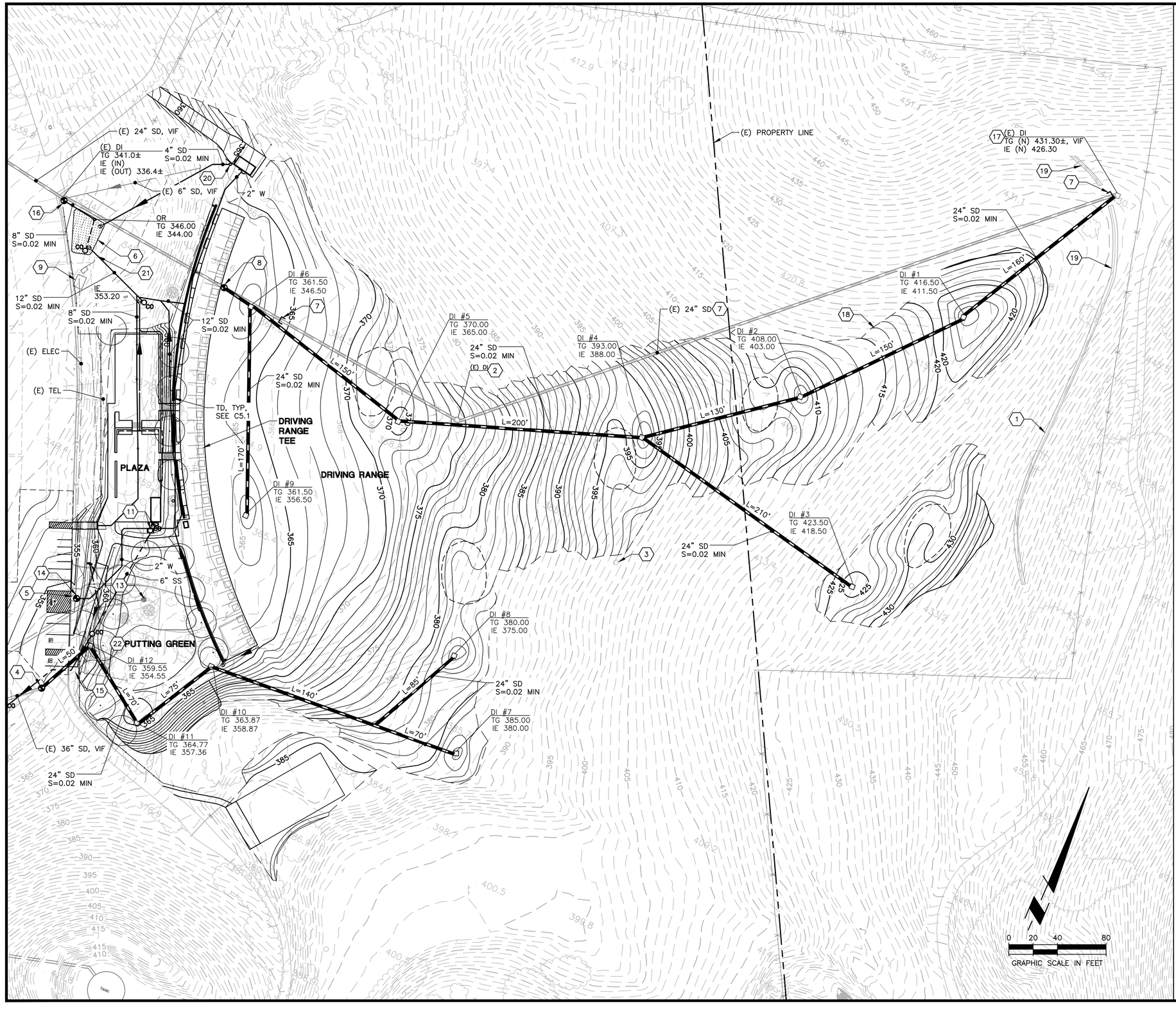
JASPER GERTZ
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

GRADING PLAN

SHEET NUMBER
C4.1

7 OF: 17



UTILITY KEY NOTES

#	DESCRIPTION
1.	(E) CONCRETE SWALE
2.	(E) DI TO BE ABANDONED
3.	(E) POST, TYP
4.	CONNECT TO (E) 36" SD, VERIFY LOCATION, SIZE AND IE IN FIELD.
5.	(E) FH
6.	BIORETENTION FACILITY, SEE C4.0
7.	ABANDON EXISTING STORM DRAIN, REMOVE AS NECESSARY, FILL WITH SLURRY CEMENT, CAP, AND PLUG REMAINING PORTION AND COLLAR AT CONNECTION
8.	CONNECT TO (E) 24" SD WITH COLLAR PER CITY STANDARD. VERIFY LOCATION, SIZE, AND IE IN FIELD
9.	(E) ELECTRICAL VAULT
10.	TRENCH DRAIN SEE 3/C9.3
11.	CAP & PLUG & COVER WITH UTILITY BOX FOR FUTURE EXTENSION
12.	SWALE, SEE C4.0
13.	RELOCATE POWER POLE, SED
14.	CONNECT TO (E) 2" WATER LINE AT (E) WATER PULLBOX
15.	CLEANOUT, TYP, SEE 3/C9.3
16.	CONNECT AT (E) DI
17.	(E) DI AND SWALE TO BE CLEANED
18.	SUBSURFACE DRAINAGE AT FILL PLACEMENT WITH KEYING AND BENCHING TO BE COORDINATED WITH GEOTECHNICAL ENGINEER
19.	REMOVE SEDIMENT FROM (E) DRAINAGE SWALE
20.	DRY WELL WITH OVERFLOW TO BIORETENTION, SEE 4/C9.3
21.	MAINTAIN 12" MIN VERTICAL SEPARATION FROM SD TO PG&E
22.	SLAD FOR PUTTING GREEN DRAINAGE DETAILS

NOTES:

1. SEE SHEET C1.1 FOR UTILITY STRUCTURE TABLE.
2. THRUST BLOCKS SHALL BE INSTALLED FOR ALL UN RESTRAINED PRESSURE PIPE FITTINGS INCLUDING W, FP, PW, SS & SD.
3. HORIZONTAL PIPE BENDS SHOWN ARE 45° OR 90°, UNO. 22-1/2°, 11-1/4° OR COMBO ARE CALLED OUT ON PLANS.
4. STORM DRAINS 4 TO 12 INCHES TO BE PVC SDR 35. STORM DRAINS 12 TO 36 INCHES TO BE HDPE, SEE DETAILS SPECIFICATIONS FOR FURTHER INFORMATION

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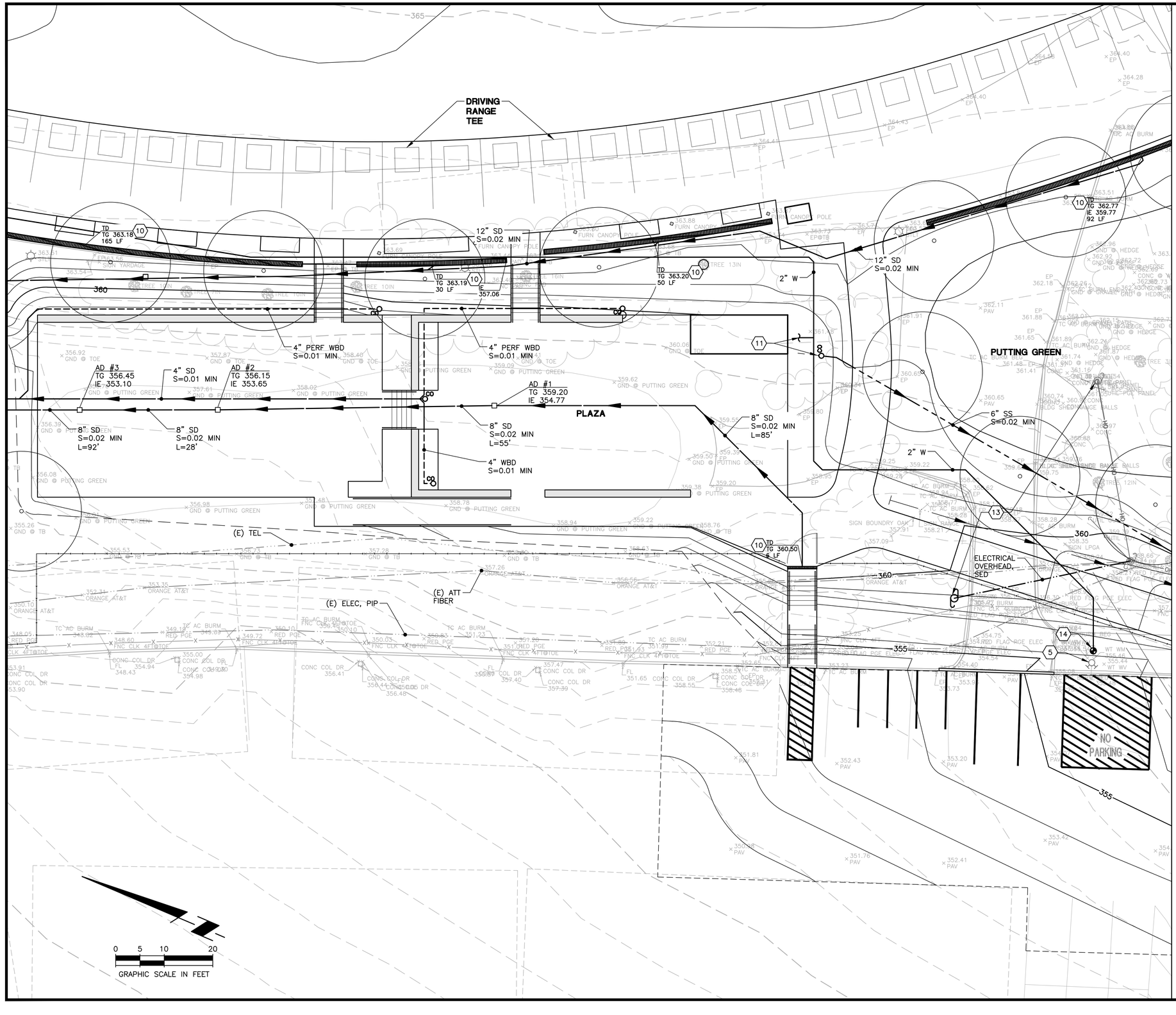
JASPER GERMAN
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

UTILITY PLAN

SHEET NUMBER
C5.0

8 OF: 17



UTILITY KEY NOTES

#	DESCRIPTION
1.	(E) CONCRETE SWALE
2.	(E) DI TO BE ABANDONED
3.	(E) POST, TYP
4.	CONNECT TO (E) 36" SD, VERIFY LOCATION, SIZE AND IE IN FIELD.
5.	(E) FH
6.	BIORETENTION FACILITY, SEE C4.0
7.	ABANDON EXISTING STORM DRAIN, REMOVE AS NECESSARY, FILL WITH SLURRY CEMENT, CAP, AND PLUG REMAINING PORTION AND COLLAR AT CONNECTION
8.	CONNECT TO (E) 24" SD WITH COLLAR PER CITY STANDARD. VERIFY LOCATION, SIZE, AND IE IN FIELD
9.	(E) ELECTRICAL VAULT
10.	TRENCH DRAIN SEE 3/C9.3
11.	CAP & PLUG & COVER WITH UTILITY BOX FOR FUTURE EXTENSION
12.	SWALE, SEE C4.0
13.	RELOCATE POWER POLE, SED
14.	CONNECT TO (E) 2" WATER LINE AT (E) WATER PULLBOX
15.	CLEANOUT, TYP, SEE 3/C9.3
16.	CONNECT AT (E) DI
17.	(E) DI AND SWALE TO BE CLEANED
18.	SUBSURFACE DRAINAGE AT FILL PLACEMENT WITH KEYING AND BENCHING TO BE COORDINATED WITH GEOTECHNICAL ENGINEER
19.	REMOVE SEDIMENT FROM (E) DRAINAGE SWALE
20.	DRY WELL WITH OVERFLOW TO BIORETENTION, SEE 4/C9.3
21.	MAINTAIN 12" MIN VERTICAL SEPARATION FROM SD TO PG&E
22.	SLAD FOR PUTTING GREEN DRAINAGE DETAILS

NOTES:

1. SEE SHEET C1.1 FOR UTILITY STRUCTURE TABLE.
2. THRUST BLOCKS SHALL BE INSTALLED FOR ALL UN RESTRAINED PRESSURE PIPE FITTINGS INCLUDING W, FP, PW, SS & SD.
3. HORIZONTAL PIPE BENDS SHOWN ARE 45° OR 90°, UNO. 22-1/2°, 11-1/4° OR COMBO ARE CALLED OUT ON PLANS.
4. STORM DRAINS 4 TO 12 INCHES TO BE PVC SDR 35. STORM DRAINS 12 TO 36 INCHES TO BE HDPE, SEE DETAILS SPECIFICATIONS FOR FURTHER INFORMATION

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	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
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	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
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UTILITY PLAN

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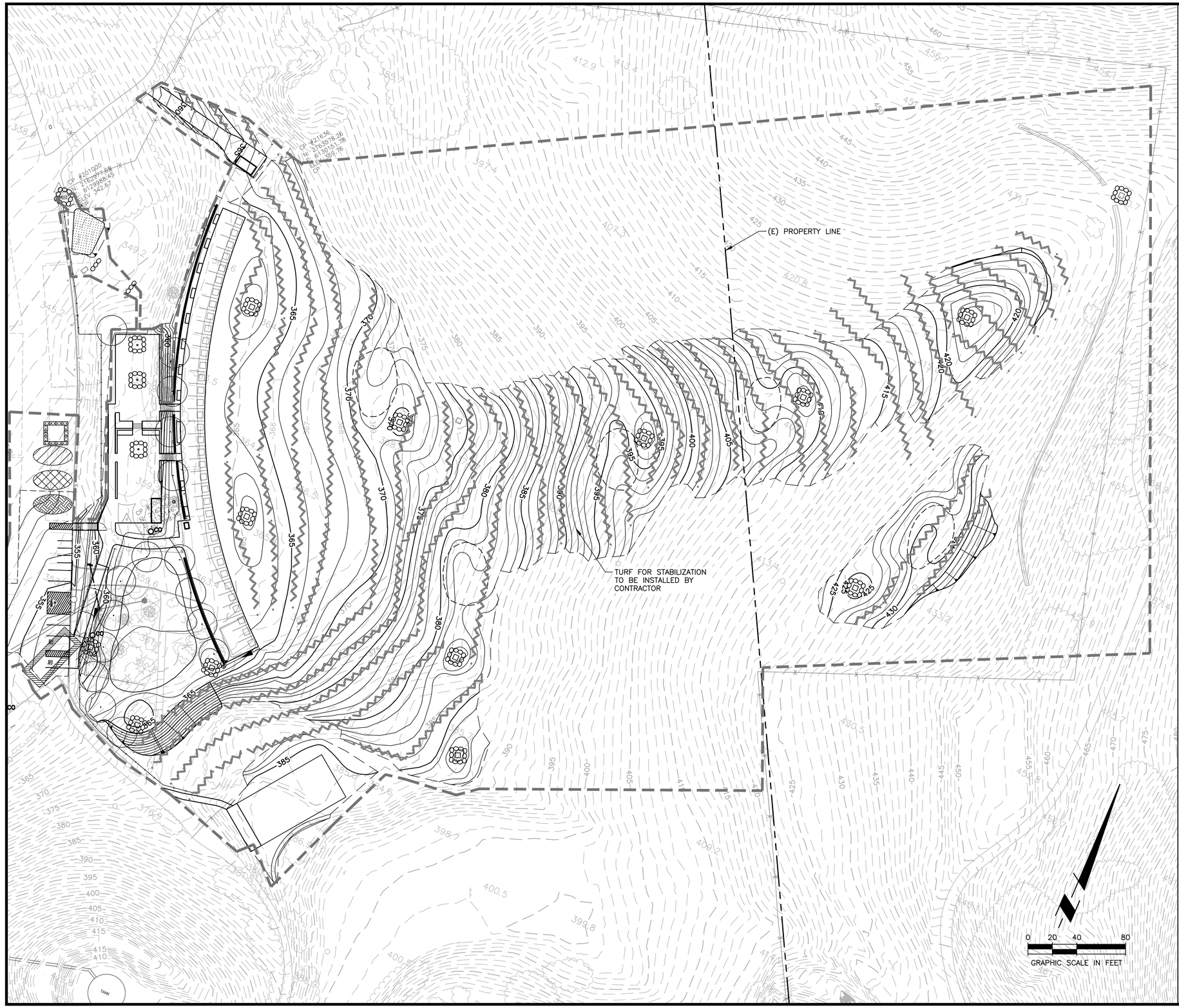

EROSION & SEDIMENT CONTROL LEGEND

DESCRIPTION	SYMBOL
FIBER ROLL, FOR SPACING FREQUENCY AND INSTALLATION NOTES, SEE 1/C9.0*, TO BE INSTALLED ALONG CONTOURS	
CONCRETE WASHOUT, SEE 2/C9.0*	
STORM DRAIN INLET PROTECTION, SEE 3/C9.0*	
GRAVEL BAG CHECK DAM, SEE 4/C9.0*	
RIPRAP ENERGY DISSIPATOR, SEE 5/C9.0	
HATCHING REPRESENTS EROSION CONTROL BLANKET OVER HYDROSEED ON ALL CUT/FILL SLOPES STEEPER THAN 3:1, UNO, SEE 6/C9.0	
HATCHING REPRESENTS HYDROSEED OR STRAW MULCH OVER HYDROSEED DISTURBED AREAS WITH SLOPES OF 3:1 OR LESS, UNO	
STABILIZED CONSTRUCTION ENTRANCE/EXIT, SEE 1/C9.1*	
VEHICLE & EQUIPMENT MANAGEMENT/ FUELING LOCATION*	
MATERIAL & WASTE MANAGEMENT, SEE 2/C9.1*	
TEMPORARY STOCKPILE LOCATION, SEE 2/C9.1*	
BIORETENTION FACILITY, SEE 3/C9.1	
LIMITS OF CONSTRUCTION/ DISTURBANCE	

* REMOVE UPON COMPLETION OF CONSTRUCTION

EROSION & SEDIMENT CONTROL NOTES:

1. SOIL WILL BE DISTURBED (BOTH CUT AND FILL) WITHIN THE LIMITS OF CONSTRUCTION.
2. ACTIVE AREAS OF SOIL DISTURBANCE WILL OCCUR WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE. THESE LIMITS ARE SET 5' OUTSIDE OF PERMANENT AREAS OF SOIL DISTURBANCE TO ACCOUNT FOR TEMPORARY AREAS OF SOIL DISTURBANCE DURING CONSTRUCTION.
3. DURING OVER EXCAVATION AND UPON RESTORATION OF SURFACE TO SUBGRADE, GRADE LOW POINTS IN DEPRESSED AREAS IN PREPARATION OF STORM EVENTS. USE TRASH PUMPS AND TEMPORARY HOSING TO DEWATER. DIRECT DISCHARGE TO SPECIFIED DISCHARGE LOCATIONS.
4. DISTURBED SOILS TO BE STABILIZED PRIOR TO RAIN EVENT AND AT THE COMPLETION OF CONSTRUCTION AS REQUIRED BY SWPPP.
5. DISCHARGES SHALL COLLECT ONE SAMPLE AT EACH DISCHARGE POINT REPRESENTATIVE OF CONSTRUCTION ACTIVITY, OR A MINIMUM OF TWO (2) SAMPLES WHICH EVER IS GREATER, EACH DAY OF A QUALIFIED STORM EVENT (0.5 INCHES OF RAIN OR MORE).
6. LIMITS OF DISTURBANCE TO MATCH EXTENTS OF IRRIGATION, SEE IRRIGATION PLANS. AREAS WITTHIN DRIVING RANGE WILL REQURIE TURF REMOVAL AND GROUND PREP
7. SEE THE STORMWATER CONTROL PLAN PER C.3 GUIDEBOOK FOR BIORETENTION SIZING

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BOUNDARY OAK GOLF COURSE DRIVING RANGE
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CIVIL
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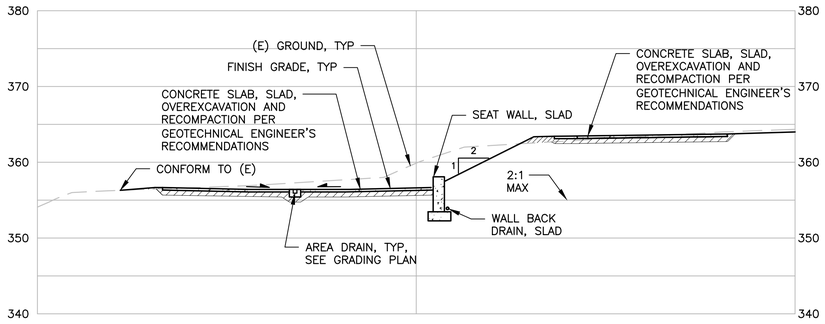
EROSION AND SEDIMENT CONTROL PLAN

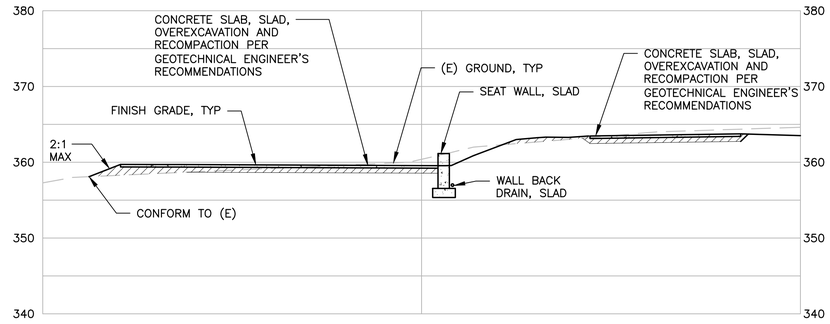
SHEET NUMBER
C6.0

10 OF: 17



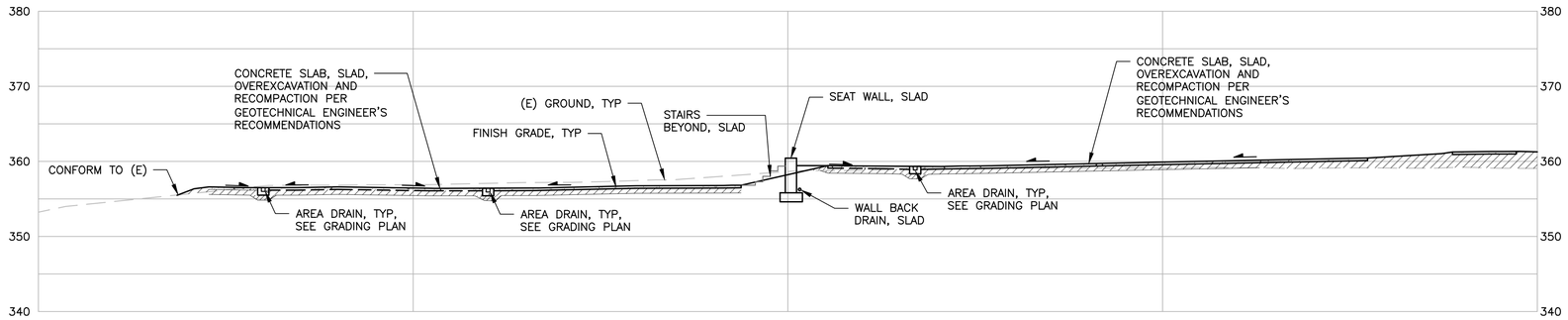
PLAZA SECTION 1

SCALE: 1"=10' HORIZ
1"=10' VERT



PLAZA SECTION 2

SCALE: 1"=10' HORIZ
1"=10' VERT



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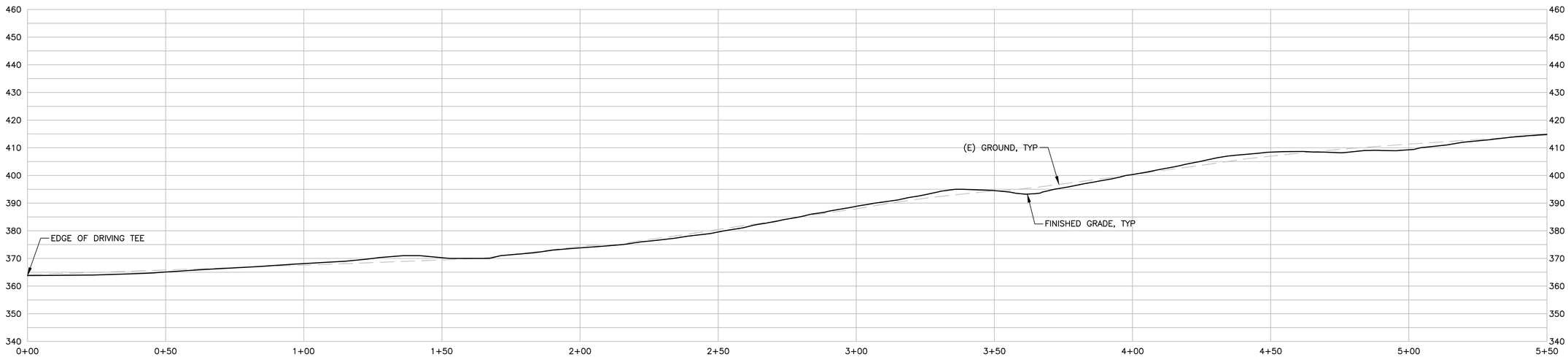

DRIVING RANGE SECTION 4

SCALE: 1"=20' HORIZ
1"=20' VERT

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BOUNDARY OAK GOLF COURSE DRIVING RANGE
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SECTIONS

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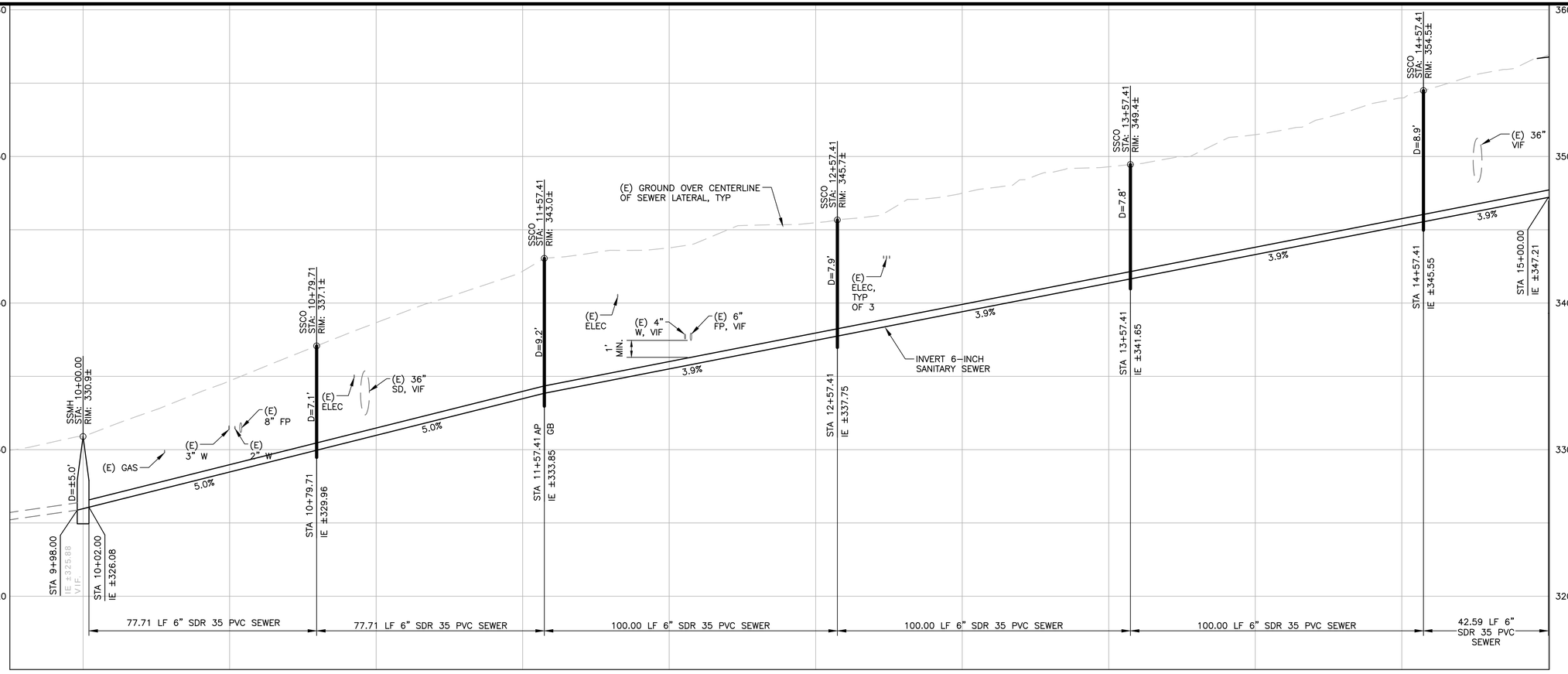
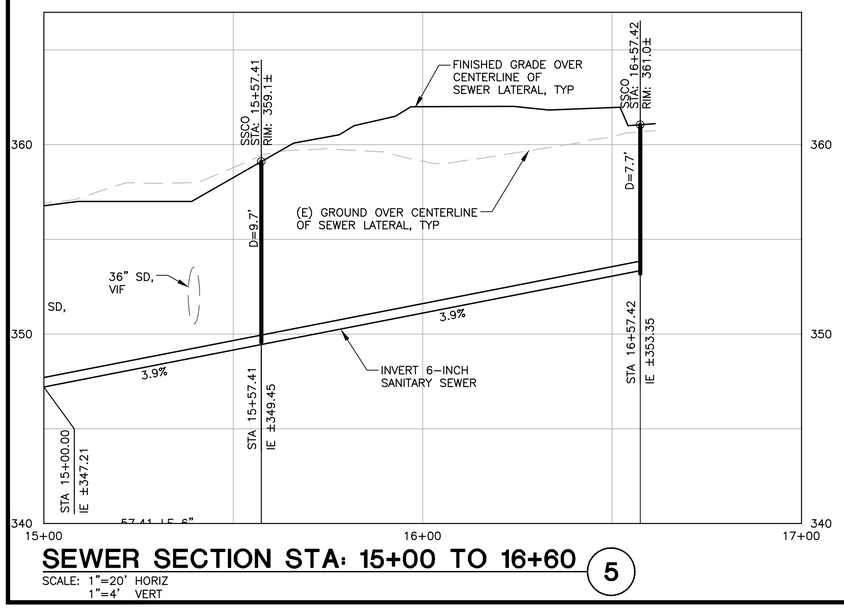
11 OF: 17



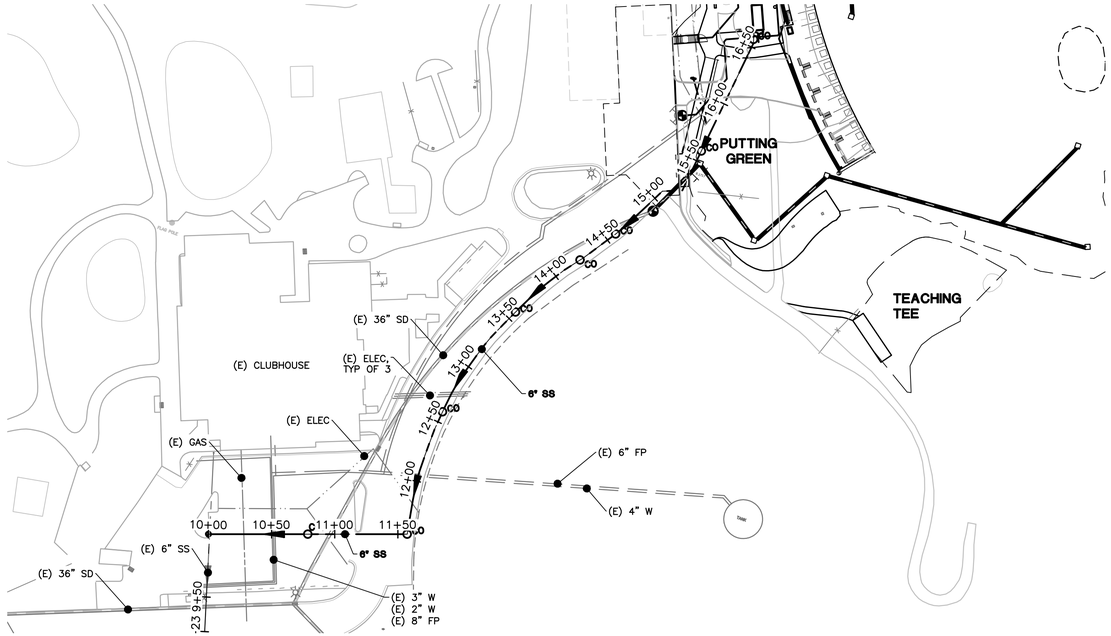
SEWER SECTION STA: 10+00 TO 15+00 (5)

SCALE: 1"=20' HORIZ
1"=4' VERT



SEWER SECTION STA: 15+00 TO 16+60 (5)

SCALE: 1"=20' HORIZ
1"=4' VERT



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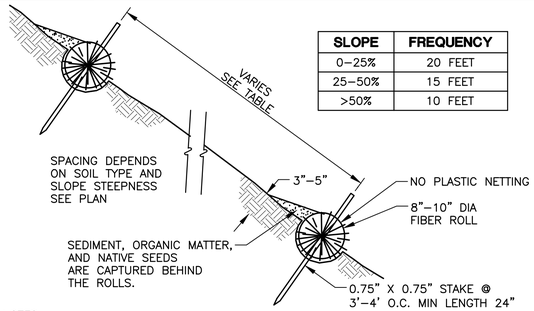
12 OF: 17

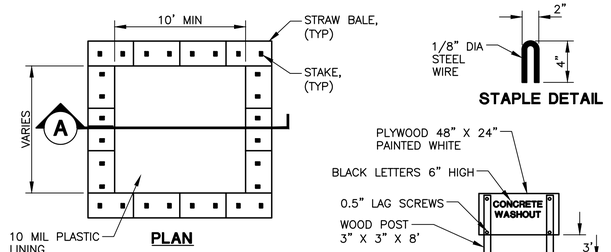


SLOPE	FREQUENCY
0–25%	20 FEET
25–50%	15 FEET
>50%	10 FEET

NOTES:

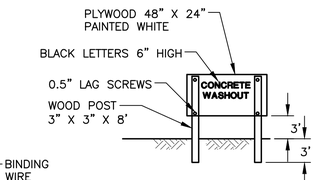
1. IMPLEMENTATION, SPECIFICATIONS, AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD SE–5.
2. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
3. ENDS OF ADJACENT ROLLS SHALL OVERLAP 1' MINIMUM.
4. FIBER ROLLS MUST BE PLACED ALONG SLOPE CONTOURS.
5. EXPOSED SLOPES SHALL HAVE FIBER ROLLS INSTALLED ALONG THE TOE OF SLOPE, AT GRADE BREAKS, AND IN ACCORDANCE WITH THE TABLE ABOVE.
6. FIBER ROLLS SHALL NOT BE PLACED ALONG THE TOP OF CUT SLOPES UPHILL OF THE GRADE BREAK.

FIBER ROLL 1
NTS ER013



SECTION A

STAPLE DETAIL

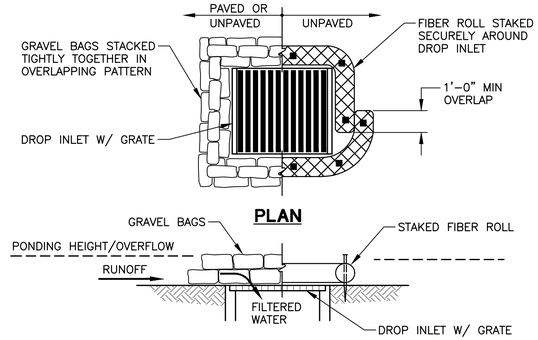


CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)

NOTES:

1. IMPLEMENTATION, SPECIFICATIONS, AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD WM–8.
2. ACTUAL LAYOUT DETERMINED IN FIELD.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
4. TIGHTLY STACKED GRAVEL BAGS CAN BE SUBSTITUTED FOR STRAW BALES.

CONCRETE WASHOUT 2
NTS ER019

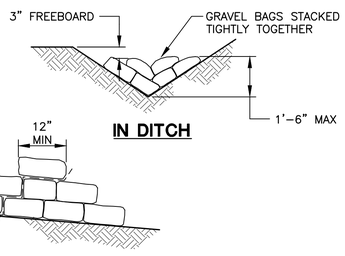


SECTION

NOTES:

1. IMPLEMENTATION, SPECIFICATIONS, AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD SE–10.
2. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

DROP INLET FIBER ROLL/ GRAVEL BAG FILTER 3
NTS ER023

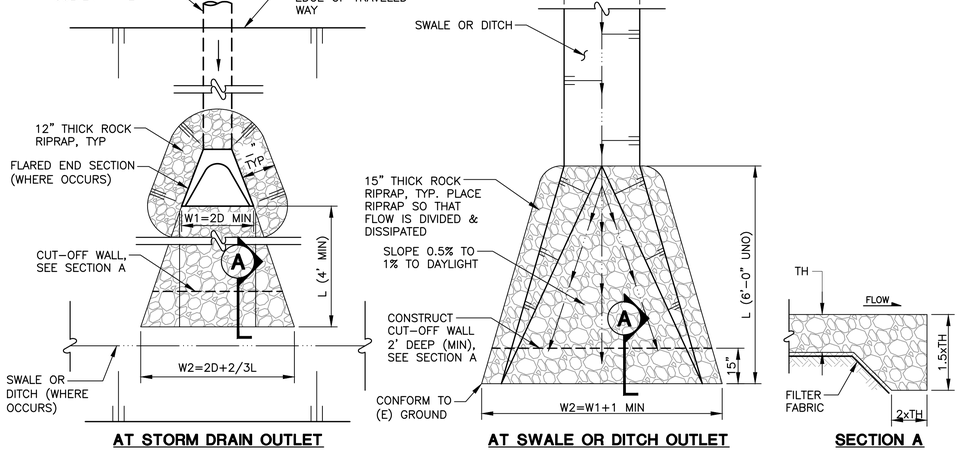


LONGITUDINAL SECTION

NOTES:

1. IMPLEMENTATION, SPECIFICATIONS AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD SE–4.
2. EACH GRAVEL–FILLED BAG SHOULD HAVE A LENGTH OF 18 ON., WIDTH OF 12IN., THICKNESS OF 3 IN., AND MASS OF APPROXIMATELY 33 LBS. BAG DIMENSIONS ARE NOMINAL, AND MAY VARY BASED ON LOCALLY AVAILABLE MATERIALS.
3. BAGS SHOULD BE WOVEN POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE FABRIC OR BURLAP, MINIMUM UNIT WEIGHT OF 4 OUNCES/YD^2, MULLEN BURST STRENGTH EXCEEDING 300 LB/IN^2 IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355.
4. FILL MATERIAL SHOULD BE NON–COHESIVE, CLASS 3 (CALTRANS STANDARD SPECIFICATION, SECTION 25) OR SIMILAR PERMEABLE MATERIAL FREE FROM CLAY AND DELETERIOUS MATERIAL, SUCH AS RECYCLED CONCRETE OR ASPHALT.

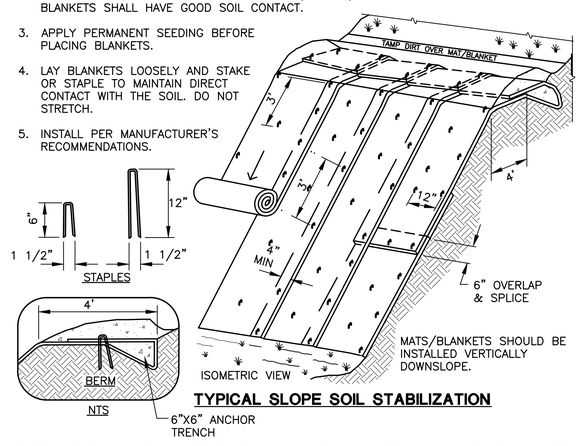
GRAVEL BAG CHECK DAM 4
NTS ER022A



RIPRAP ENERGY DISSIPATOR 5
NTS DR002

NOTES:

1. IMPLEMENTATION, SPECIFICATIONS, AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD EC–7.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS BLANKETS SHALL HAVE GOOD SOIL CONTACT.
3. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
5. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



TYPICAL SLOPE SOIL STABILIZATION

EROSION CONTROL MAT INSTALLATION 6
NTS ER015B

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DETAILS

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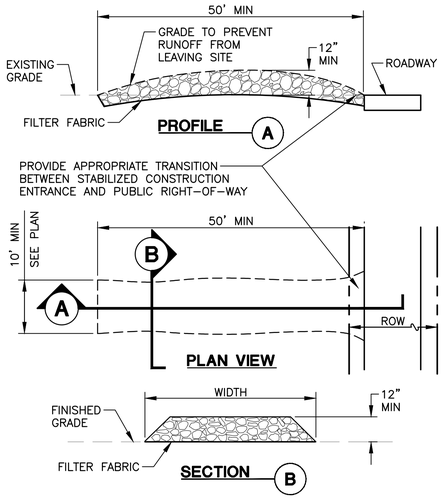
13 OF: 17

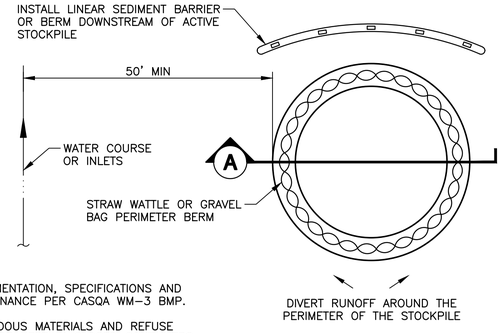


NOTES:

1. IMPLEMENTATION, SPECIFICATIONS AND MAINTENANCE PER CASQA BMP HANDBOOK STANDARD TC-1
2. STONE SIZE: 3"-6" CRUSHED ANGULAR AGGREGATE.
3. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50'.
4. THICKNESS: NOT LESS THAN 12"
5. WIDTH: AS REQUIRED TO ACCOMMODATE ANTICIPATED TRAFFIC.
6. WASHING: WHEN NECESSARY. VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT ARE SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED WITHIN 24 HOURS.
8. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE/EXIT

NTS ER018 **1**

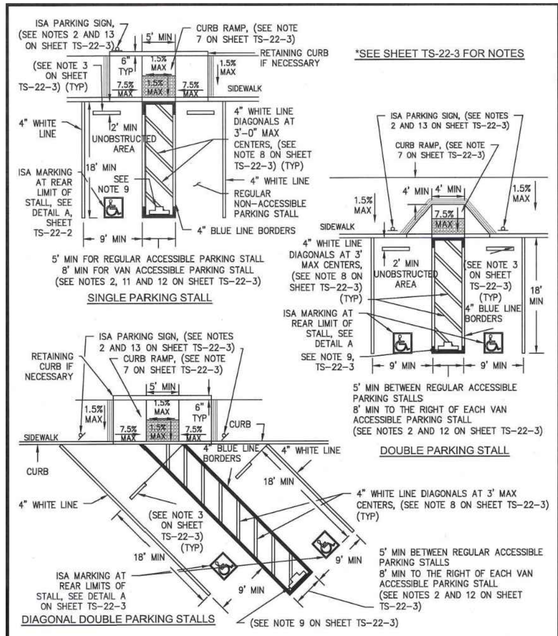


NOTES:

1. IMPLEMENTATION, SPECIFICATIONS AND MAINTENANCE PER CASQA WM-3 BMP.
2. HAZARDOUS MATERIALS AND REFUSE MUST BE KEPT IN CLOSED CONTAINERS THAT ARE COVERED AND UTILIZE SECONDARY CONTAINMENT NOT DIRECTLY ON SOIL.
3. PLACE BAGGED MATERIALS ON PALLETS AND UNDER COVER.
4. STOCKPILES NEED TO BE PROTECTED IMMEDIATELY IF THEY ARE NOT SCHEDULED TO BE USED WITHIN 14 DAYS.

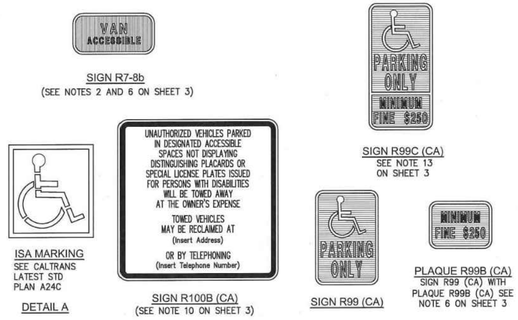
STOCKPILE BMP

NTS ER025 **2**



TOTAL NUMBER OF PARKING SPACES OR STALLS	MINIMUM NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1000	2 PERCENT OF TOTAL
GREATER THAN 1000	20 PLUS 1 FOR EACH 100 OR FRACTION THEREOF OVER 1001

TABLE A



GENERAL NOTES:

1. ACCESSIBLE PARKING SPACES SERVING A PARTICULAR BUILDING SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE ENTRANCE. IN PARKING FACILITIES THAT DO NOT SERVE A PARTICULAR BUILDING, ACCESSIBLE PARKING SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE OF TRAVEL TO AN ACCESSIBLE PEDESTRIAN ENTRANCE OF THE PARKING FACILITY.
2. ONE IN EVERY EIGHT ACCESSIBLE OFF-STREET PARKING STALLS, BUT NOT LESS THAN ONE, SHALL BE SERVED BY AN ACCESSIBLE AISLE OF 8'-0" MINIMUM WIDTH AND SHALL BE SIGNED VAN ACCESSIBLE. THE R7-8B SIGN SHALL BE MOUNTED BELOW THE R99B (CA) PLAQUE OR THE R99C (CA) SIGN.
3. IN EACH PARKING STALL, A CURB OR BUMPER SHALL BE PROVIDED AND LOCATED TO PREVENT ENCROACHMENT OF VEHICLES OVER THE REQUIRED WIDTH OF WALKWAYS. PARKING STALLS SHALL BE SO LOCATED THAT PERSONS WITH DISABILITIES ARE NOT COMPELLED TO WHEEL OR WALK BEHIND PARKED CARS OTHER THAN THEIR OWN.
4. SURFACE SLOPES OF ACCESSIBLE OFF-STREET PARKING STALLS SHALL BE THE MINIMUM POSSIBLE AND SHALL NOT EXCEED 2 PERCENT IN ANY DIRECTION.
5. TABLE A SHALL BE USED TO DETERMINE THE REQUIRED NUMBER OF ACCESSIBLE PARKING STALLS IN ANY PARKING LOT OR GARAGE.
6. WHERE PLAQUE R99B (CA), SIGN R99C (CA) OR SIGN R7-8B ARE INSTALLED, THE BOTTOM OF THE PLAQUE SHALL BE A MINIMUM OF 7'-0" ABOVE THE SURROUNDING SURFACE.
7. CURB RAMPS SHALL CONFORM TO THE DETAILS SHOWN ON CC-7, EXCEPT THAT THE DETECTABLE WARNING SURFACE SHALL ONLY APPLY WHERE THE CURB RAMP IS PROVIDED FOR A PEDESTRIAN TO CROSS A VEHICULAR WAY.
8. ALL MARKINGS SHALL BE PAINT, THERMOPLASTIC IS NOT TO BE USED.
9. THE WORDS "NO PARKING" SHALL BE PAINTED IN WHITE LETTERS NO LESS THAN 1'-0" HIGH AND LOCATED SO THAT IT IS VISIBLE TO TRAFFIC ENFORCEMENT OFFICIALS. SEE TS-21 FOR DETAILS OF THE "NO PARKING" PAVEMENT MARKING.
10. A R100B (CA) SIGN SHALL BE POSTED IN A CONSPICUOUS PLACE AT EACH ENTRANCE TO OFF-STREET PARKING FACILITIES OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL. THE SIGN SHALL INCLUDE THE ADDRESS WHERE THE TOWED VEHICLE MAY BE RECLAIMED AT, AND THE TELEPHONE NUMBER OF THE LOCAL TRAFFIC LAW ENFORCEMENT AGENCY.
11. WHERE A SINGLE (NON-VAN) ACCESSIBLE PARKING SPACE IS PROVIDED, THE LOADING AND UNLOADING ACCESS AISLE SHALL BE ON THE PASSENGER SIDE OF THE VEHICLE AS THE VEHICLE IS GOING FORWARD INTO THE PARKING SPACE.
12. WHERE VAN ACCESSIBLE PARKING SPACE IS PROVIDED, THE LOADING AND UNLOADING ACCESS AISLE SHALL BE 8'-0" WIDE MINIMUM, AND SHALL BE ON THE PASSENGER SIDE OF THE VEHICLE AS THE VEHICLE IS GOING FORWARD INTO THE PARKING SPACE.
13. ACCESSIBLE PARKING ONLY SIGN SHALL BE SIGN R99C (CA) OR SIGN R99 (CA) WITH PLAQUE R99B (CA).

APP	CT	RC	NOVEMBER 2018
CITY ENGINEER	CHECKED BY	DRAWN BY	DATE

ACCESSIBLE PARKING OFF-STREET (DETAILS)

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL TS-22-1

SHT 1 OF 3

ACAD FILE NAME : H:\STDPLNS\2018 Update\DWG\TS-22-1.dwg

APP	CT	RC	NOVEMBER 2018
CITY ENGINEER	CHECKED BY	DRAWN BY	DATE

ACCESSIBLE PARKING OFF-STREET (SIGNAGE)

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL TS-22-2

SHT 2 OF 3

ACAD FILE NAME : H:\STDPLNS\2018 Update\DWG\TS-22-2.dwg

APP	CT	RC	NOVEMBER 2018
CITY ENGINEER	CHECKED BY	DRAWN BY	DATE

ACCESSIBLE PARKING OFF-STREET (NOTES)

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL TS-22-3

SHT 3 OF 3

ACAD FILE NAME : H:\STDPLNS\2018 Update\DWG\TS-22-3.dwg

ACCESSIBLE PARKING

NTS CITY OF WALNUT CREEK TS-22 **4**

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www.walnut-creek.org

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	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

REV	DESCRIPTION	DATE
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	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23
	100% CD SET REV 1	11.06.23

PREPARED UNDER THE DIRECTION OF

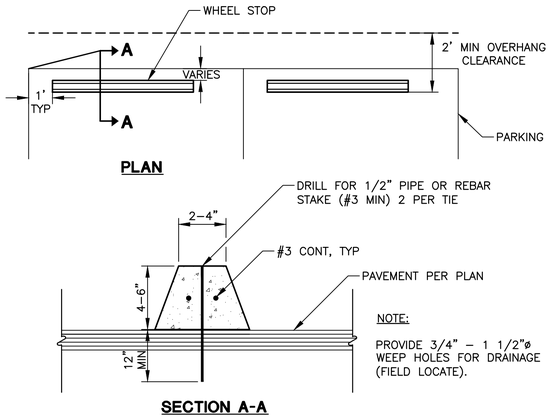
REGISTERED PROFESSIONAL ENGINEER
JASPER GETTIS
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

DETAILS

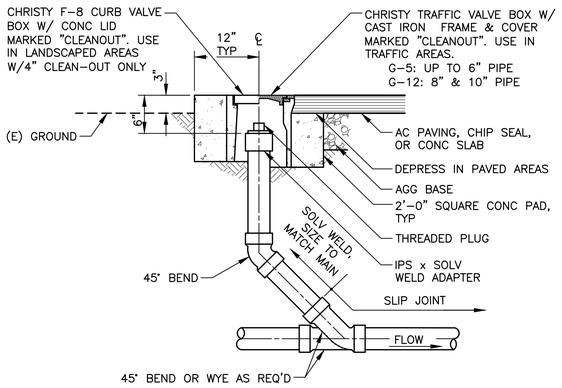
SHEET NUMBER
C9.1

14 OF: 17



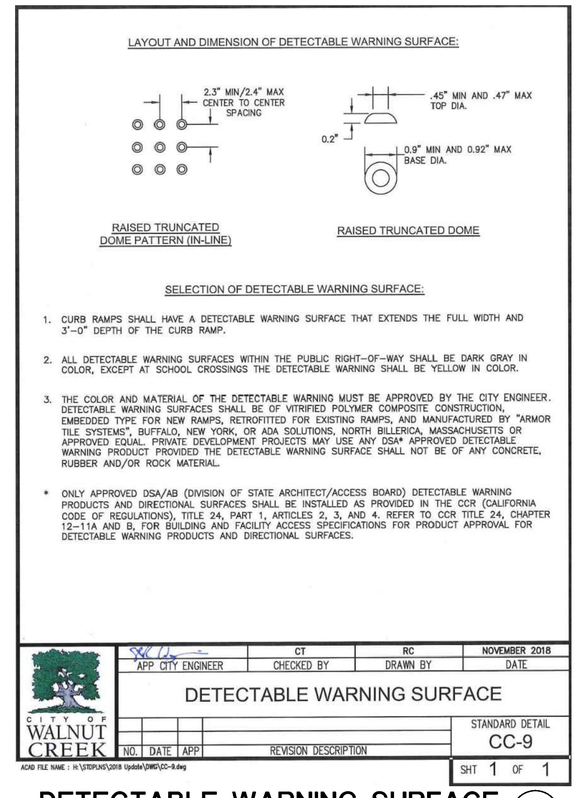
CONCRETE WHEEL STOP

NTS SW024 **3**



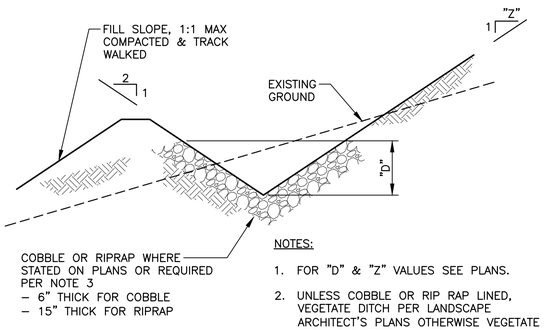
GRAVITY CLEANOUT TYPE "A"

NTS UG006A **4**



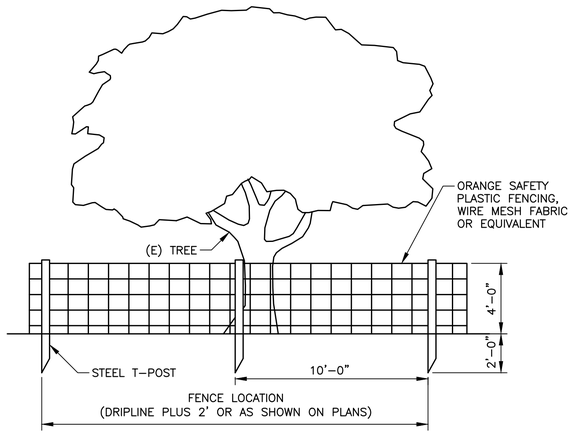
DETECTABLE WARNING SURFACE

NTS CITY OF WALNUT CREEK CC-9 **5**



"V" DITCH TYPICAL SECTION

NTS DR005 **6**



TREE PROTECTION FENCE

NTS SW016 **7**

TREE PROTECTION NOTES:

1. FENCE AROUND A SPECIMEN TREE AS FAR OUT AS ITS DRIPLINE TO KEEP EQUIPMENT OFF THE ROOT AREA.
2. IF A FENCE CANNOT BE ERECTED, CUSHION THE ROOT AREA WITH 6 IN. OF WOOD CHIPS.
3. CREATE TRAFFIC PATTERNS SO AS TO KEEP SOIL COMPACTION TO A MINIMUM.
4. STORE SUPPLIES AND EQUIPMENT AWAY FROM SPECIMEN TREE AREAS.
5. DESIGNATE SITES WELL AWAY FROM TREES FOR WASHING OUT CONCRETE TRUCKS AND/OR EQUIPMENT MAINTENANCE ACTIVITIES.
6. PER CITY OF WALNUT CREEK MUNICIPAL CODE, ALL FENCE SECTIONS SHALL BE CLEARLY MARKED WITH A SIGN STATING "THIS IS A TREE PROTECTION ZONE (TPZ) AND NO ONE IS ALLOWED TO DISTURB THIS AREA." THE SIGN SHALL ALSO LIST CONTACT INFORMATION FOR THE CONTRACTOR AND THE ARBORIST AND CLEARLY STATE THAT A VIOLATION OF THE TPZ WILL RESULT IN A STOP WORK ORDER.
7. TREE PROTECTION TO BE CITY OF WALNUT CREEK MUNICIPAL CODE INCLUDING SECTION 3-8-05 THROUGH 07.

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APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
CONTRACT 23-10

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

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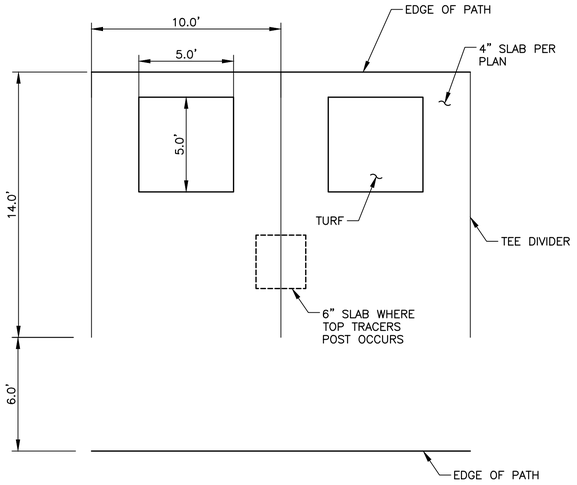
PREPARED UNDER THE DIRECTION OF
REGISTERED PROFESSIONAL ENGINEER
JASPER GERRITSEN
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

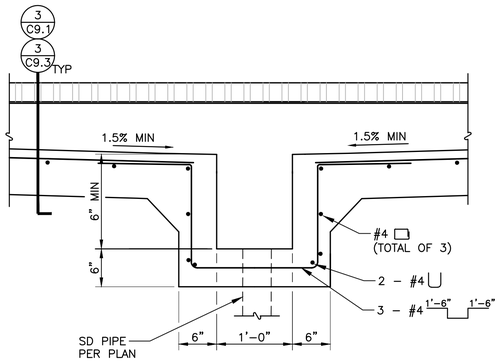
DETAILS

SHEET NUMBER
C9.2

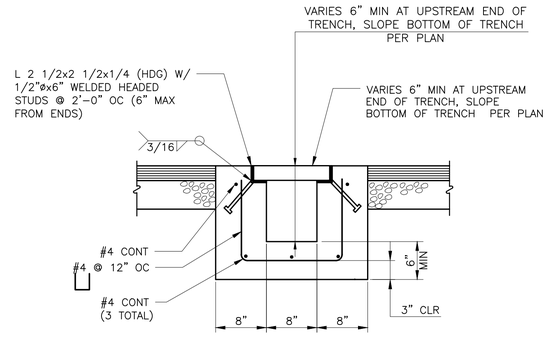
15 OF: 17



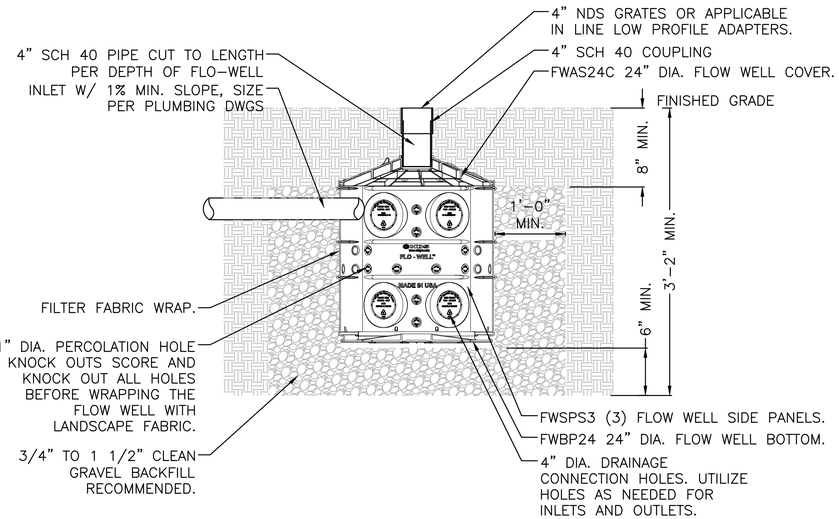
TEE BOX DETAIL
NTS — 1



TRENCH DRAIN OUTLET
NTS DR030 — 2

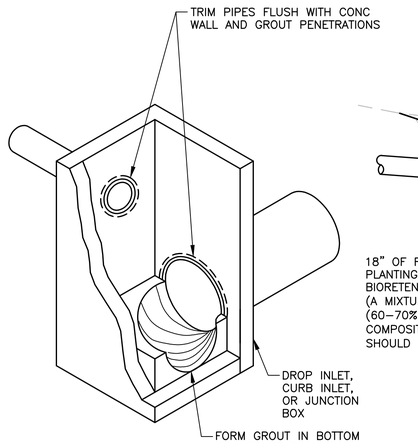


TRENCH DRAIN SECTION
NTS C9-F — 3



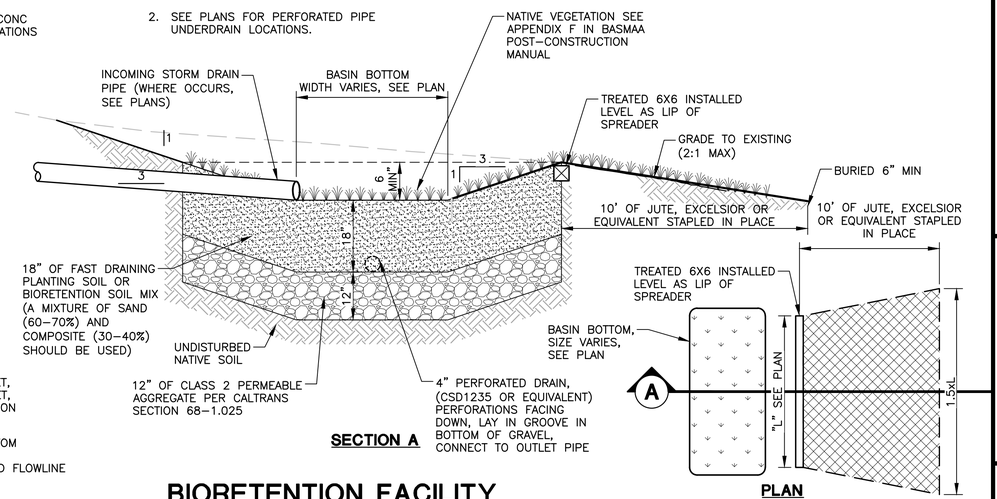
NOTES:
1. MUST BE INSTALLED 10' AWAY FROM STRUCTURE OR FOUNDATION.
2. FWAS24 KIT DOES NOT COME WITH FWPB24 BTM.
3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

DRY WELL
NTS — 4



GROUTING FOR DRAINAGE STRUCTURE
NTS DR020 — 5

NOTES:
1. SEE PLANS FOR SIZE AND DIMENSIONS.
2. SEE PLANS FOR PERFORATED PIPE UNDERDRAIN LOCATIONS.



BIORETENTION FACILITY W/LEVEL SPREADER OUTLET
NTS — 6

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STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE
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REGISTERED PROFESSIONAL ENGINEER
JASPER GEORGE
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

DETAILS

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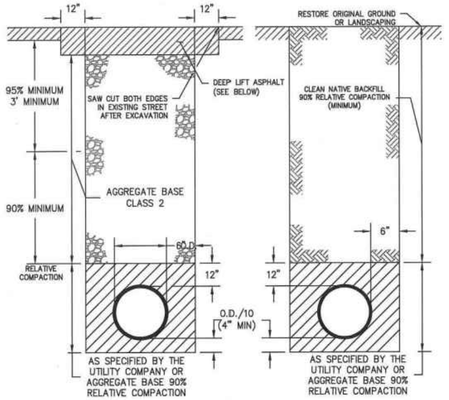
C9.3

16 OF: 17



EXISTING AND FUTURE PAVED AREAS — NON ROADWAY AREAS

DEEP LIFT ASPHALT SECTIONS MINIMUM REQUIREMENTS:
RESIDENTIAL – 5"

NOTE:
1. TRENCH WIDTH AND PIPE BEDDING FOR HDPE OR PVC PIPE SHALL BE APPROVED BY THE PUBLIC WORKS DIRECTOR OR THEIR DESIGNEE.
2. PAVING SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS, SECTION 39.
3. SLURRY CEMENT BACKFILL (1-SACK LEAN MIX) MAY BE CONSIDERED AS ALTERNATIVE TO CLASS 2 AB PER CALTRANS STD SPECS WITH APPROVAL OF THE CITY ENGINEER.
4. MAX TRENCH WIDTH IS PIPE O.D. PLUS 6" ON EITHER SIDE.
5. ALL TEMPORARY TRENCH AND PATCH PAVING SHALL BE MAINTAINED IN A COMPACTED AND SMOOTH CONDITION WITH A MINIMUM OF 2" HOT MIX ASPHALT OVER 95% COMPACTED BACKFILL. COLD MIX ASPHALT MAYBE USED ONLY AT THE DISCRETION AND PERMISSION OF THE ENGINEERING INSPECTOR.
6. ALL TRENCH PLATES IN THE ROADWAY OR SIDEWALK SHALL BE NON-SKID. TRENCH PLATES SHALL BE INSTALLED SO THAT THEY ARE FLUSH WITH THE SURROUNDING GRADE. AT THE DIRECTION OF THE ENGINEERING INSPECTOR, PLATES MAYBE SECURELY PINNED AND/OR TACK WELDED AT THE END OF EACH WORK DAY.
7. ALL PIPES ABANDONED IN THE PUBLIC RIGHT OF WAY SHALL BE REMOVED. WITH THE APPROVAL OF THE CITY ENGINEER PIPES MAY BE ABLE TO REMAIN IN PLACE IF THEY ARE SLURRY FILLED.

APP CITY ENGINEER	CT CHECKED BY	RC DRAWN BY	NOVEMBER 2018 DATE

CITY OF WALNUT CREEK

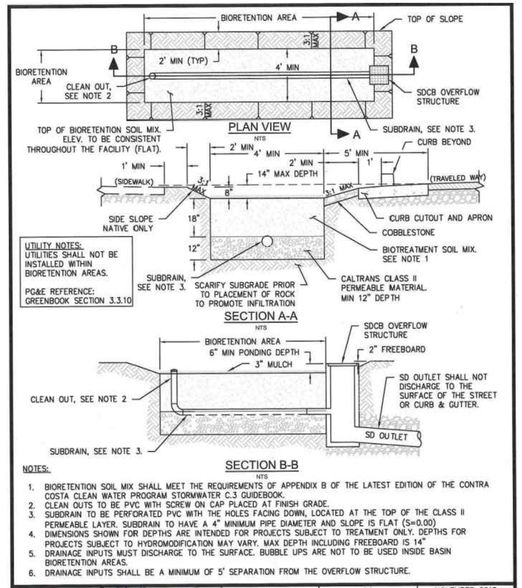
TRENCH BACKFILL AND RESURFACING

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL MS-1

SHT 1 OF 1

ACAD FILE NAME : H:\STDPLNS\2018 Update\DWG\MS-1.dwg



UTILITY NOTES:
UTILITIES SHALL NOT BE INSTALLED WITHIN BIORETENTION AREAS.

PG&E REFERENCE:
GREENBOOK SECTION 3.3.10

NOTES:
1. BIORETENTION SOIL MIX SHALL MEET THE REQUIREMENTS OF APPENDIX B OF THE LATEST EDITION OF THE CONTRA COSTA CLEAN WATER PROGRAM STORMWATER C.3 GUIDEBOOK.
2. CLEAN OUTS TO BE PVC WITH SCREW ON CAP PLACED AT FINISH GRADE.
3. SUBDRAIN TO BE PERFORATED PVC WITH THE HOLES FACING DOWN, LOCATED AT THE TOP OF THE CLASS II PERMEABLE LAYER. SUBDRAIN TO HAVE A 4" MINIMUM PIPE DIAMETER AND SLOPE IS FLAT (S=0.00)
4. DIMENSIONS SHOWN FOR DEPTHS ARE INTENDED FOR PROJECTS SUBJECT TO TREATMENT ONLY. DEPTHS FOR PROJECTS SUBJECT TO HYDROMODIFICATION MAY VARY. MAX DEPTH INCLUDING FREEBOARD IS 14"
5. DRAINAGE INPUTS MUST DISCHARGE TO THE SURFACE. BUBBLE UPS ARE NOT TO BE USED INSIDE BASIN BIORETENTION AREAS.
6. DRAINAGE INPUTS SHALL BE A MINIMUM OF 5' SEPARATION FROM THE OVERFLOW STRUCTURE.

APP CITY ENGINEER	CT CHECKED BY	RC DRAWN BY	NOVEMBER 2018 DATE

CITY OF WALNUT CREEK

BIORETENTION FACILITY
(INFILTRATION PLANTER)

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL SD-10-1

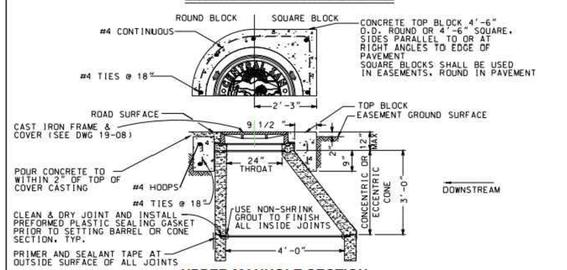
SHT 1 OF 5

ACAD FILE NAME : H:\STDPLNS\2018 Update\DWG\Bioswale.dwg

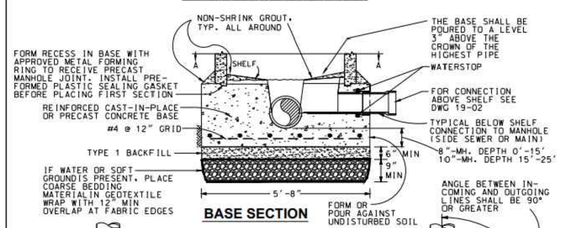
DWG 19-01

CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA

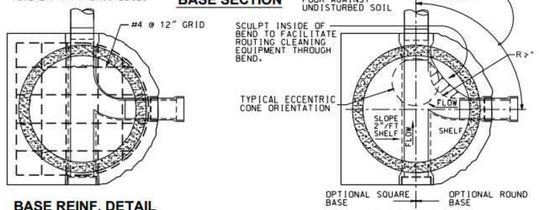
STANDARD MAIN MANHOLE



UPPER MANHOLE SECTION

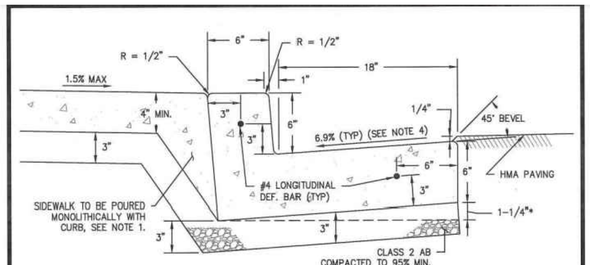


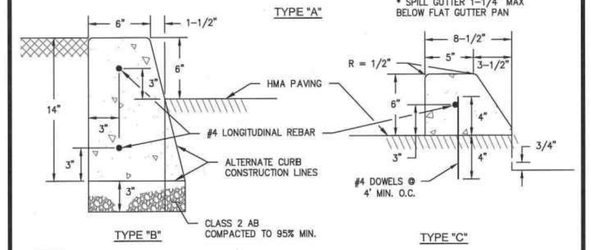
BASE SECTION



BASE REINF. DETAIL (CAST-IN-PLACE)

BASE SECTION A-A





NOTES:
1. TYPE "A" CURB SHALL BE CONSTRUCTED MONOLITHICALLY WITH THE SIDEWALK UNLESS APPROVED BY THE CITY ENGINEER. IF NOT POURED MONOLITHICALLY, DOWEL WITH #4 REBAR PER CC-5 @ 2' O.C
2. CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 90-2 "MINOR CONCRETE" OF STATE STANDARD SPECIFICATION, 3/4" AGGREGATE WITH 1 LB. OF LAMP BLACK PER CY.
3. CURBS SHALL BE BACKFILLED (COMPACTED) PRIOR TO FINISH SUBGRADE.
4. FLATTEN TO 5% OR LESS @ CURB RAMP.
5. NO PAVING AGAINST NEW CURB OR GUTTER FOR 7 DAYS.
6. WEAKENED PLANE JOINTS AT 10' O.C.
7. LONGITUDINAL GUTTER FLOW LINE SHALL HAVE A MINIMUM SLOPE OF 0.6% (S=0.006).

APP CITY ENGINEER	CT CHECKED BY	RC DRAWN BY	NOVEMBER 2018 DATE

CITY OF WALNUT CREEK

STANDARD CURB, GUTTER, AND SIDEWALK

NO.	DATE	APP	REVISION DESCRIPTION

STANDARD DETAIL CC-1

SHT 1 OF 1

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BOUNDARY OAK GOLF COURSE DRIVING RANGE
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JESPER GEMMELL
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

DETAILS

SHEET NUMBER
C9.4

17 OF: 17

SYMBOLS LIST AND ABBREVIATIONS

NOTES:
1. ALL SYMBOLS MAY NOT APPEAR ON THE DRAWINGS
2. DASHED LINETYPE INDICATES EXISTING DEVICE OR EQUIPMENT
3. +48" WALL MOUNTING SHALL BE TO TOP OF BOX (ADA).

ABBREVIATIONS

A	AMPERES
AF	AMP–FRAME
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CURRENT
ARCH	ARCHITECT
ARF	ABOVE RAISED FLOOR
AT	AMP–TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CEC	CALIFORNIA ELECTRICAL CODE
CL	CENTER–LINE
CLG	CEILING
CKT	CIRCUIT
CO	CONDUIT ONLY
CONC	CONCRETE
CONT.	CONTINUED/CONTINUATION
CT	CURRENT TRANSFORMER
CU	COPPER
△	DELTA–CONNECTED
D	DEEP, DEPTH
DIA	DIAMETER
DN	DOWN
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
DWG	DRAWING
(E)	EXISTING
EA	EACH
ELEC	ELECTRIC, ELECTRICAL
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EOL	END–OF–LINE
EQUIP	EQUIPMENT
EV	ELECTRIC VEHICLE CHARGING STATION
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAEP	FIRE ALARM EXTENDER PANEL
FATC	FIRE ALARM TERMINAL CABINET
FIXT	FIXTURE
FLUOR	FLUORESCENT
FT	FOOT, FEET
G	GROUND
GD	GARBAGE DISPOSAL
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
Hz	HERTZ
IDF	INTERMEDIATE DISTRIBUTION FRAME
IG	ISOLATED GROUND
INCAN	INCANDESCENT
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
LCP	LIGHTING CONTROL PANEL
LL	LOW–LEVEL
LTG	LIGHTING
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CONTROL PANEL
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MPOE	MAIN POINT OF ENTRY
MTD	MOUNTED
(N)	NEW
NATS	NON–AUTOMATIC TRANSFER SWITCH
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION AGENCY
NIC	NOT INCLUDED IN CONTRACT
NL	NIGHTLIGHT
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OL	OVERLOAD
P	POLE
PA	PUBLIC ADDRESS
PH	PHASE
PNL	PANELBOARD
POC	POINT OF CONNECTION
(R)	RELOCATED
RAC	RIGID ALUMINUM CONDUIT
RECEP	RECEPTACLE
REFRIG.	REFRIGERATOR/REFRIGERATION
RM	ROOM
SAD	SEE ARCHITECTURAL DRAWINGS
SCA	SHORT CIRCUIT AVAILABLE
SCD	SEE CIVIL DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SSD	SEE STRUCTURAL DRAWINGS
STC	SIGNAL TERMINAL CABINET
SWBD	SWITCHBOARD
TEL	TELEPHONE
TTB	TELEPHONE TERMINAL BOARD
TC	TERMINAL CABINET
TV	TELEVISION
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UGPS	UNDERGROUND PULL SECTION
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
V	VOLT(S)
VA	VOLT AMPERE(S)
W	WIRE
WM	SURFACE RACEWAY ("WIREMOLD")
WP	WEATHERPROOF
XFMR	TRANSFORMER
Y	WYE–CONNECTED

SIGNAL AND CONTROL

- CLOCK, +96" AFF, UON
- PUBLIC ADDRESS SPEAKER, +96" AFF, UON
- COMBINATION CLOCK/SPEAKER, +96" AFF, UON
- BELL, +96" AFF, UON
- VOLUME CONTROL, +48" AFF, UON
- MICROPHONE OUTLET, +18" AFF, UON
- THERMOSTAT, +48" AFF, UON
- CONTACTOR
- RELAY
- SELECTOR SWITCH
- SOLENOID VALVE
- SECURITY DOOR CONTACT

GENERAL

- 1 — SHEET NOTE
- 1 / E1.0 — DETAIL OR PLAN REFERENCE (DETAIL 1, SHEET E1.0)
- 1 / E1.0 — SECTION/CUT SEE FLOOR PLAN 1, SHEET E1.0

LIGHTING AND CONTROLS

LIGHTING FIXTURE SUBSCRIPTS:
1,2,3, ETC. = CIRCUIT NUMBER(S)
(Z1),(Z2),(Z3), ETC. = ZONE IDENTIFICATION
a,b,c, ETC. = SWITCHLEG IDENTIFICATION
NL = NIGHT/SECURITY LIGHT

- RECESSED DOWNLIGHT
- RECESSED LINEAR FIXTURE
- SURFACE LINEAR FIXTURE
- RECESSED INDIRECT FIXTURE, INSIDE LINES INDICATE DIRECTION OF DIFFUSER.
- SURFACE INDIRECT FIXTURE, INSIDE LINES INDICATE DIRECTION OF DIFFUSER.
- PENDANT FIXTURE (● = POWER FEED = NON–POWER)
- WALL–MOUNTED LINEAR FIXTURE
- STRIP FIXTURE
- CEILING MOUNTED FIXTURE
- WALLWASH FIXTURE
- WALL MOUNTED FIXTURE
- FLOODLIGHT FIXTURE
- EMERGENCY FIXTURE
- REMOTE EMERGENCY BATTERY PACK UNIT
- EXIT SIGN
- EMERGENCY LIGHTING FIXTURE
- COMBINATION EXIT SIGN AND EMERGENCY LIGHTING FIXTURE
- POLE–MOUNTED FIXTURE
- POST MOUNTED OR BOLLARD FIXTURE
- Sa — SINGLE–POLE SINGLE–THROW SWITCH (SWITCHES +48" AFF TO TOP OF BOX, UON)

SWITCH SUBSCRIPTS:
a,b,c, ETC. = SWITCHLEG IDENTIFICATION
2 = TWO POLE
3 = THREE WAY
4 = FOUR WAY
P = PILOT LIGHT
S = SPRING WOUND TIMER SWITCH

- Sabc — INDICATES MULTIPLE SWITCHES IN GANGED BOX WITH COMMON FACEPLATE
- LS3 — LOW–VOLTAGE SWITCH AND SWITCH NUMBER
- KEY–OPERATED SWITCH
- DIMMER SWITCH
- MOTION DETECTOR
- OCCUPANCY SENSOR, CEILING MOUNTED
- OCCUPANCY SENSOR W/ INTEGRAL POWER SUPPLY
- OCCUPANCY SENSOR, WALL MOUNTED
- OCCUPANCY SENSOR POWER PACK
- OCCUPANCY SENSOR SLAVE PACK
- SELF–CONTAINED OCCUPANCY SENSOR WALL SWITCH (SWITCHES +48" AFF TO TOP OF BOX)
- PHOTOCELL
- DAYLIGHT SENSOR

POWER AND ROUGH-IN

- SWITCHBOARD, DISTRIBUTION PANEL OR MOTOR CONTROL CENTER
- SURFACE PANELBOARD
- FLUSH PANELBOARD
- UTILITY POLE
- POLE MOUNTED TRANSFORMER
- TRANSFORMER
- UNDERGROUND MANHOLE, HANDHOLE OR PULLBOX
  - P = POWER
  - TE = TELCOM/SIGNAL
  - FA = FIRE ALARM
- GROUND CONNECTION
- CIRCUIT BREAKER (100 AMP TRIP, 3–POLE)
- METER
- FUSED SWITCH
- GROUND–FAULT INTERRUPTER
- SURGE PROTECTION DEVICE
- SHUNT–TRIP
- TRANSIENT VOLTAGE SURGE SUPPRESSION
- BUS OR TERMINALS ("G" DENOTES GROUND, "N" DENOTES NEUTRAL)
- SPLICE OR TAP
- AC–1 — EQUIPMENT TAG (MECHANICAL OR OTHER)
- L1 — FEEDER TAG "L1" = FEEDER TO EQUIPMENT 'L1'
- MOTOR
- GENERATOR
- DISCONNECT SWITCH – BLANK INDICATES UNFUSED, "F" INDICATES FUSED
- ENCLOSED CIRCUIT BREAKER
- MOTOR CONTROLLER
- COMBINATION MOTOR CONTROLLER AND DISCONNECT SWITCH – UNFUSED, UON
- SM — MOTOR–RATED TOGGLE SWITCH, UON
- DUPLEX RECEPTACLE 125V 20A 3W (WALL MTD. RECEPTACLES +18" AFF UON) C = CLG. MTD.
- DUPLEX RECEPTACLE 125V 20A 3W – TOP RECEPTACLE SWITCHED
- DUPLEX RECEPTACLE 125V 20A 3W – DEDICATED 20A/1P CIRCUIT
- DOUBLE–DUPLEX RECEPTACLE 125V 20A 3W
- DOUBLE–DUPLEX RECEPTACLE 125V 20A 3W ON 20A/1P CIRCUIT
- SPECIAL RECEPTACLE AS NOTED
- COMBINATION NON–FUSED DISCONNECT/ PIN AND SLEEVE RECEPTACLE
- RECEPTACLE STATION
- DUPLEX RECEPTACLE FLOOR OUTLET
- DOUBLE–DUPLEX RECEPTACLE FLOOR OUTLET
- FLOOR OUTLET ASSEMBLY
- FLUSH FLOOR POKETHROUGH ASSEMBLY
- MULTI–OUTLET ASSEMBLY OR PLUG STRIP, LENGTH AS INDICATED ON PLANS
- CONDUIT
- UNDERGROUND/UNDERFLOOR CONDUIT
- UNDERGROUND CONDUIT THROUGH EXISTING A/C PAVING, CONCRETE OR LANDSCAPE
- EXISTING CONDUIT
- CONDUIT TO BE REMOVED
- HOMERUN TO PANELBOARD OR CABINET AS NOTED
- CONDUIT STUBBED AND CAPPED
- CONDUIT UP
- CONDUIT DOWN
- CONDUIT AND WIRE: HATCHES INDICATE QUANTITY OF CONDUCTORS IN CONDUIT. NOTE: GROUND WIRE(S) NOT SHOWN. REFER TO BRANCH CIRCUIT SIZING NOTES ON DRAWINGS
- FLEXIBLE CONDUIT CONNECTION
- JUNCTION BOX SIZED PER CODE, UON
- SURFACE TERMINAL CABINET OR CONTROL PANEL AS NOTED
- FLUSH TERMINAL CABINET OR CONTROL PANEL AS NOTED

LIST OF ELECTRICAL DRAWINGS

LIST OF ELECTRICAL SPECIFICATIONS

26 0000	BASIC ELECTRICAL REQUIREMENTS
26 0500	BASIC ELECTRICAL MATERIALS AND METHODS
26 2400	SERVICE AND DISTRIBUTION
26 5000	LIGHTING

CODE REQUIREMENTS

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)
PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS
2022 CALIFORNIA BUILDING CODE (CBC)
PART 2, TITLE 24, CCR, BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC)
2022 CALIFORNIA NONRESIDENTIAL BUILDING CODE (CRBC)
PART 2.5, TITLE 24, CCR, BASED ON THE 2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
2022 CALIFORNIA ELECTRICAL CODE (CEC)
PART 3, TITLE 24, CCR, BASED ON THE 2020 NATIONAL ELECTRICAL CODE (NEC)
2022 CALIFORNIA MECHANICAL CODE (CMC)
PART 4, TITLE 24, CCR, BASED ON THE 2018 UNIFORM MECHANICAL CODE (UMC)
2022 CALIFORNIA PLUMBING CODE (CPC)
PART 5, TITLE 24, CCR, BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC)
2022 CALIFORNIA ENERGY CODE
PART 6, TITLE 24, CCR; CALIFORNIA ENERGY COMMISSION BUILDING EFFICIENCY STANDARDS: 2022 NONRESIDENTIAL COMPLIANCE MANUAL
2022 CALIFORNIA FIRE CODE (CFC)
PART 9, TITLE 24, CCR, BASED ON THE 2018 INTERNATIONAL FIRE CODE (IFC)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)
PART 11, TITLE 24, CCR
2022 NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE
WITH CA AMENDMENTS

PROJECT CONTACTS

NORM VACHON, PROJECT MANAGER (707) 636–9163 norman@summit–sr.com

PLAN REVISIONS

PLAN REVISIONS ARE INDICATED IN THE TITLE BLOCK ON THE REVISED SHEET(S) AND ON THE COVER SHEET.

REVISED SHEET(S) WILL INCLUDE A REVISION ENTRY AND A DELTA (Δ) IN THE TITLE BLOCK.
CHANGES FOR THE MOST RECENT REVISION ARE INDICATED WITH CLOUDING ON EACH SHEET AND THE DELTA REVISION IS NOTED. IF IT IS NOT FEASIBLE TO CLOUD INDIVIDUAL CHANGES DUE TO SUBSTANTIAL CHANGES ON A SHEET OR A NEW SHEET HAS BEEN ADDED TO THE DRAWING SET, THEN THE SHEET NUMBER WITHIN THE TITLE BLOCK IS CLOUDED WITH A DELTA NOTED.

FOR REISSUANCE OF THE ENTIRE SET OF DRAWINGS, A REVISION ENTRY APPEARS IN THE TITLE BLOCK OF EACH SHEET, BUT A DELTA (Δ) WILL ONLY APPEAR IN THE TITLE BLOCK ON THE SHEET(S) THAT HAVE CHANGED.

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Ph: 925-943-5839
www.walnut-creek.org

DATE: 02/14/2023	SCALE: AS NOTED	WORK ORDER:
DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
SYMBOLS AND ABBREVIATIONS, LIST OF DRAWINGS
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

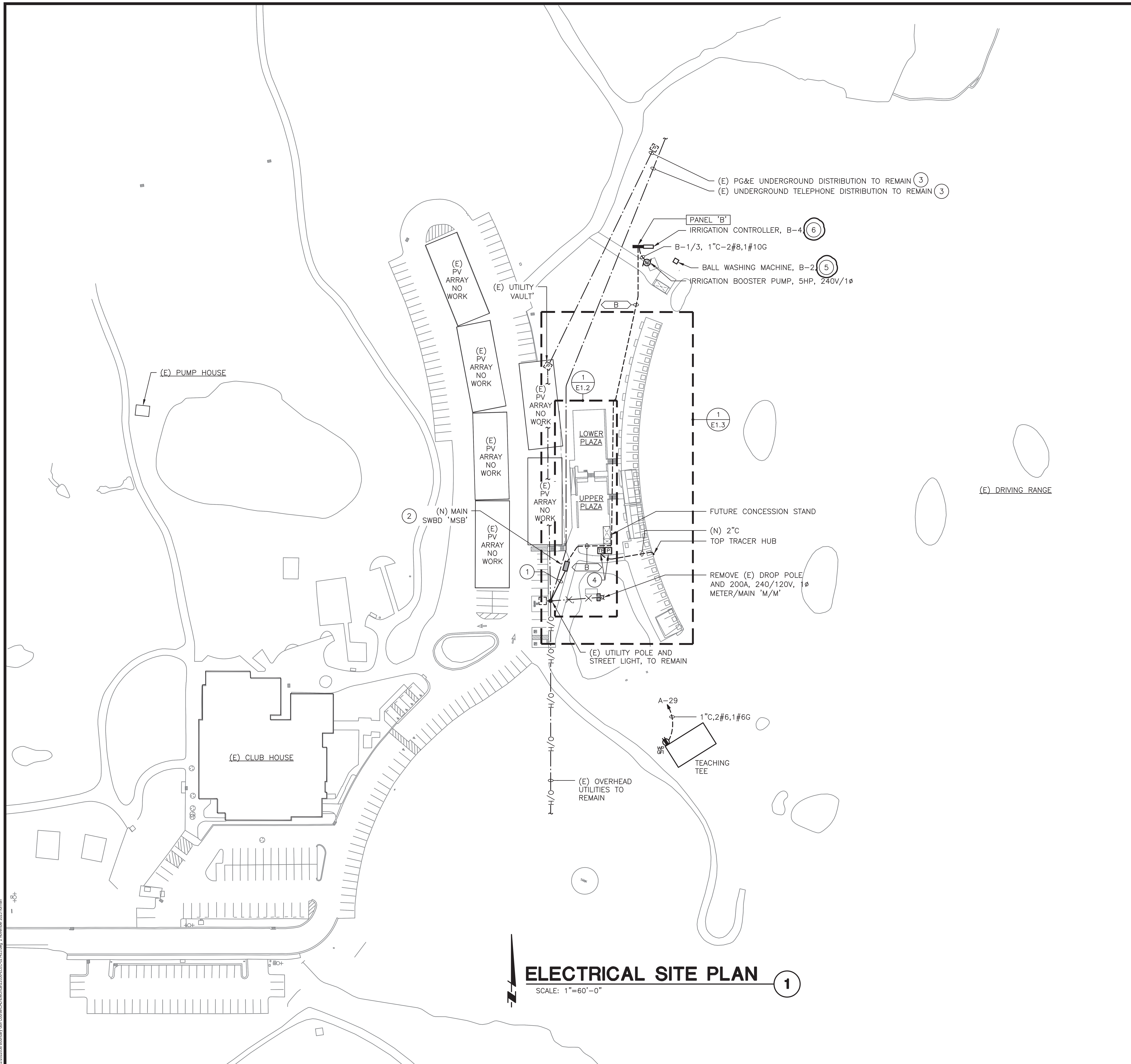
REV	DESCRIPTION	DATE
	95% CONST. SET	8-24-23
	100% CD SET	10-04-23
	100% CD SET REV 1	10-30-23

PREPARED UNDER THE DIRECTION OF
LICENSED PROFESSIONAL ENGINEER
MUSTAFA RETAD JIBAT
E 24172
ELECTRICAL
STATE OF CALIFORNIA
EXP. 09/30/2024

CONTRACT NO.
0000

CP#
0000

SHEET NUMBER
E1.0



ELECTRICAL SITE PLAN (1)

SCALE: 1"=60'-0"

GENERAL NOTES

1. BRANCH CIRCUIT SIZES – MAX 3% VOLT DROP BRANCH CIRCUIT WIRING SHALL BE SIZED BY THE CONTRACTOR TO MEET THE 2022 CA BUILDING ENERGY EFFICIENCY STANDARDS OF 3% MAXIMUM DROP, WITH THE FOLLOWING CRITERIA:

   A. MAXIMUM DESIGN CURRENT ON 15A AND 20A BRANCH CIRCUITS (INCLUDING 75% DERATING) = 12 AMPS.

   B. MAXIMUM DISTANCE TO CENTROID (OR WEIGHTED CENTER, DETERMINED BY APPROXIMATING THE MIDPOINT BETWEEN ALL OF THE LOADS) OF BRANCH CIRCUIT LOADS FOR EACH SIZE WIRE (COPPER):

   i. 120V: #12 = 80FT, #10 = 125FT, #8 = 200FT, #6 = 300FT
   ii. 208V: #12 = 135FT, #10 = 215FT, #8 = 340FT, #6 = 530FT
   iii. 240V: #12 = 155FT, #10 = 250FT, #8 = 400FT, #6 = 600FT
   iv. 277V: #12 = 180FT, #10 = 290FT, #8 = 450FT, #6 = 700FT

   SELECT CONDUCTOR SIZES THAT WILL NOT EXCEED THE ONE–WAY CIRCUIT DISTANCES NOTED ABOVE TO THE CENTROID OF THE CIRCUIT LOADS, WITH THE CIRCUIT DISTANCE TO INCLUDE UP AND DOWN LENGTHS TO THE CEILING OR UNDERFLOOR SPACES. THE WHOLE BRANCH CIRCUIT SHALL CONSIST OF THE SAME CONDUCTOR SIZES UNLESS CONTRACTOR–PROVIDED CALCULATIONS INDICATE THE LAST DEVICE ON EACH CIRCUIT BRANCH WILL NOT EXCEED 3% VOLT DROP. FOR CONDUCTOR SIZES REQUIRED TO BE LARGER THAN #10, INSTALL INLINE HEAT–SHRUNK SPLICES IN RESPECTIVE PANELBOARD OR OUTLET BOX.

2. COORDINATE THE REQUIREMENTS TO INSTALL THE NEW OVERHEAD ELECTRIC SERVICE WITH PG&E. OBTAIN THEIR ENGINEERED DRAWINGS AND PROVIDE ALL REQUIRED LABOR AND MATERIALS.

3. PLAN TRENCHING AND UNDERGROUND PULLBOX LOCATIONS TO COINCIDE WITH LANDSCAPE AREAS OR AREAS AS NOTED ON THE DRAWINGS; INSTALL PULLBOXES MINIMUM 36" FROM STORM DRAIN INLETS AND SIMILAR UTILITIES.

4. MINIMUM SIZE OF SITE CONDUIT AND WIRING IS 1"C, #10AWG.

5. REFER TO SHEET E5.1 FOR SINGLE LINE POWER DIAGRAM.

(#) KEY NOTES

1. PG&E TO INSTALL NEW 'SWING OVER' OVERHEAD SECONDARY ELECTRIC SERVICE WITH MINIMUM OF 18FT VERTICAL CLEARANCE TO GROUND.

2. INSTALL OVERHEAD SECONDARY SERVICE TO NEW OVERHEAD SERVICE ENTRANCE CONDUIT HIGH ENOUGH SO THAT PG&E SERVICE DROP HAS THE REQUIRED VERTICAL CLEARANCE TO GROUND. SEE KEY NOTE 1. SEE PG&E REQUIREMENTS IN THEIR GREENBOOK SECTION 4.

3. CONTRACTOR TO EXERCIZE EXTENSIVE RESPECT FOR THE EXISTING UNDERGROUND PG&E AND AT&T DISTRIBUTION WIRING.

4. PULLBOX CHRISTY #9, 10" x 17".

5. CONNECT POWER TO THE BALL WASHING MACHINE THAT IS N.I.C. AND PROVIDED BY OTHERS. PROVIDE A CONCRETE PAD BENEATH THE MACHINE.

6. CONNECT 120 VOLT POWER TO THE IRRIGATION CONTROLLER THAT IS PROVIDED WITH INTEGRAL WIRELESS COMMUNICATION.

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www.walnut-creek.org

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DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
ELECTRICAL SITE PLAN
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	95% CONST. SET	8-24-23
	100% CD SET	10-04-23
	100% CD SET REV 1	10-30-23

PREPARED UNDER THE DIRECTION OF
LICENSED PROFESSIONAL ENGINEER
MUSTAFA RETAD JIBAT
E 24172
ELECTRICAL
STATE OF CALIFORNIA
EXP. 09/30/2024

CONTRACT NO.
0000

CP#
0000

SHEET NUMBER
E1.1

2 OF: 8

(#) KEY NOTES

1. NOT USED.
2. REFER TO DETAIL 8/L3.2 FOR THE STRING LIGHT POST DETAIL.
3. REFER TO DETAILS 2&3/L3.2 FOR THE CONCRETE SEAT WALL MOUNTING DETAILS.
4. PROVIDE POWER PEDESTAL WITH 1-GANG DEVICE PLATE WITH HINGED COVER, BLACK FINISH, 16" HIGH, WIREMOLD #XPP1G16C-BK. PROVIDE (3) SPARE REPLACEMENT COVERS #XPPC-BK. INSTALL PEDESTAL ATOP CONCRETE BASE THAT IS FLUSH TO GRADE.
5. PULLBOX CHRISTY #F08, 8" DIA.
6. PULLBOX CHRISTY #N09R, 10" x 17".
7. PRIOR TO COMMENCING CONSTRUCTION ACCURATELY LOCATE AND MARK THE FULL LENGTH OF THE EXACT LOCATION OF THE EXISTING UNDERGROUND UTILITY. DO NOT INTERFERE WITH THE EXISTING UTILITIES. MAINTAIN THE MARKING OF THE UNDERGROUND UTILITY THROUGHOUT CONSTRUCTION. MAINTAIN THE REQUIRED COVER ABOVE THE UTILITY.

GENERAL LIGHTING NOTES

1. BRANCH CIRCUIT SIZES – MAX 3% VOLT DROP BRANCH CIRCUIT WIRING SHALL BE SIZED BY THE CONTRACTOR TO MEET THE 2022 CA BUILDING ENERGY EFFICIENCY STANDARDS OF 3% MAXIMUM DROP, WITH THE FOLLOWING CRITERIA:

   A. MAXIMUM DESIGN CURRENT ON 15A AND 20A BRANCH CIRCUITS (INCLUDING 75% DERATING) = 12 AMPS.

   B. MAXIMUM DISTANCE TO CENTROID (OR WEIGHTED CENTER, DETERMINED BY APPROXIMATING THE MIDPOINT BETWEEN ALL OF THE LOADS) OF BRANCH CIRCUIT LOADS FOR EACH SIZE WIRE (COPPER):

   i. 120V: #12 = 80FT, #10 = 125FT, #8 = 200FT, #6 = 300FT
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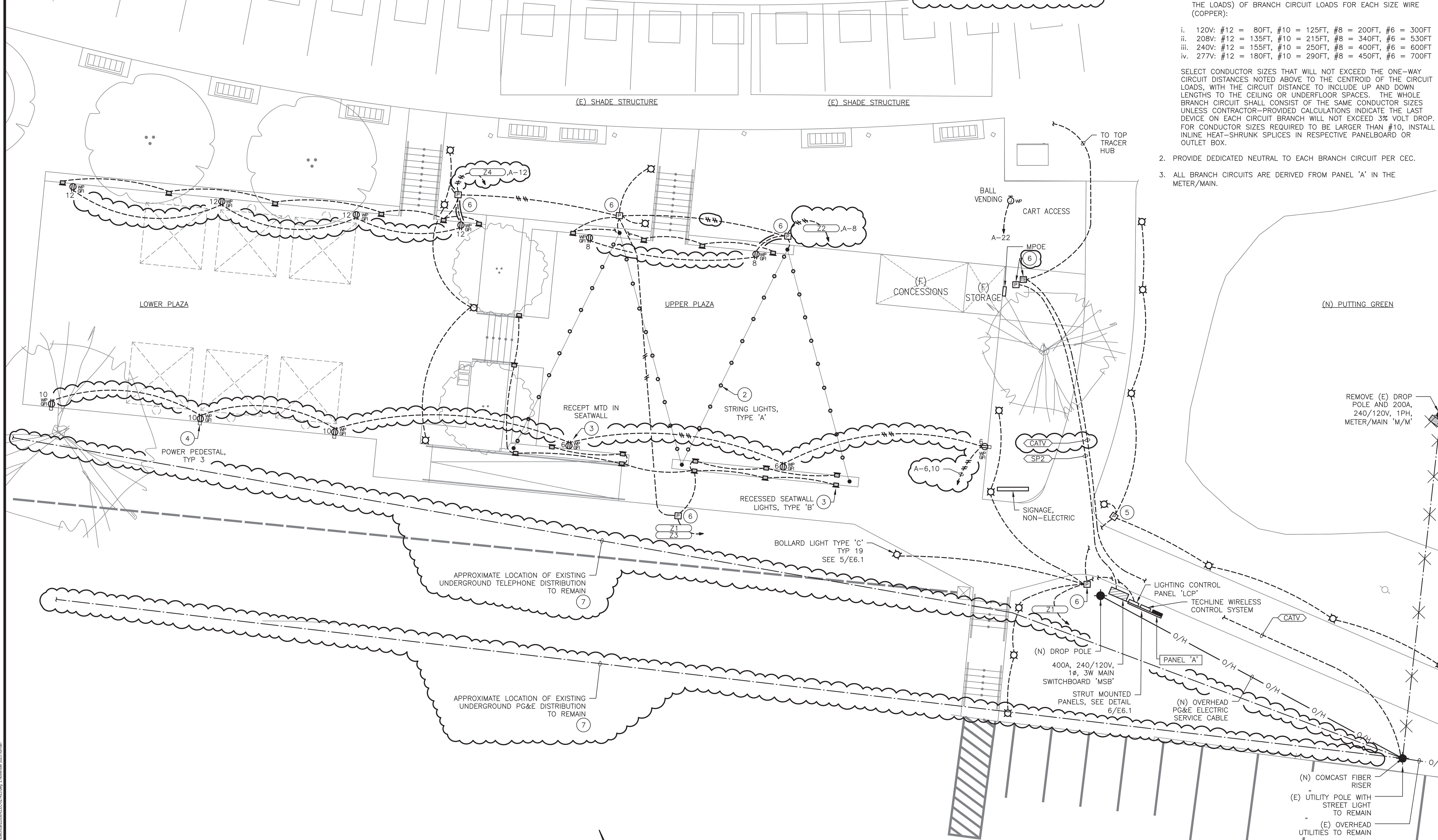
   iv. 277V: #12 = 180FT, #10 = 290FT, #8 = 450FT, #6 = 700FT

   SELECT CONDUCTOR SIZES THAT WILL NOT EXCEED THE ONE-WAY CIRCUIT DISTANCES NOTED ABOVE TO THE CENTROID OF THE CIRCUIT LOADS, WITH THE CIRCUIT DISTANCE TO INCLUDE UP AND DOWN LENGTHS TO THE CEILING OR UNDERFLOOR SPACES. THE WHOLE BRANCH CIRCUIT SHALL CONSIST OF THE SAME CONDUCTOR SIZES UNLESS CONTRACTOR-PROVIDED CALCULATIONS INDICATE THE LAST DEVICE ON EACH CIRCUIT BRANCH WILL NOT EXCEED 3% VOLT DROP. FOR CONDUCTOR SIZES REQUIRED TO BE LARGER THAN #10, INSTALL INLINE HEAT-SHRUNK SPLICES IN RESPECTIVE PANELBOARD OR OUTLET BOX.

2. PROVIDE DEDICATED NEUTRAL TO EACH BRANCH CIRCUIT PER CEC.
3. ALL BRANCH CIRCUITS ARE DERIVED FROM PANEL 'A' IN THE METER/MAIN.



PLAZA ELECTRICAL PLAN (1)

SCALE: 1/8"=1'-0"

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APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE PLAZA ELECTRICAL PLAN
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
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	100% CD SET REV 1	10-30-23

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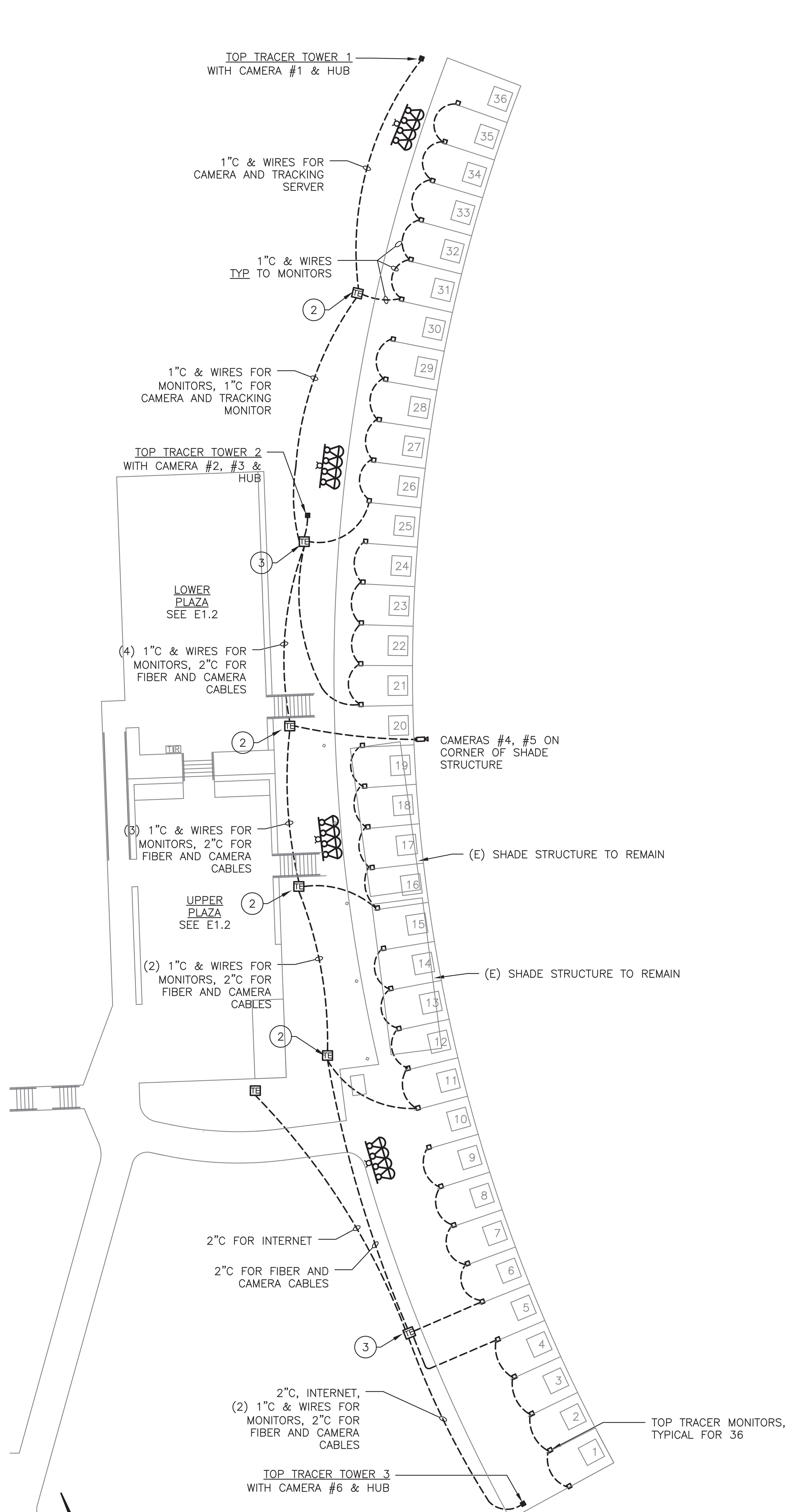
EXP. 09/30/2024

CONTRACT NO. 0000

CP# 0000

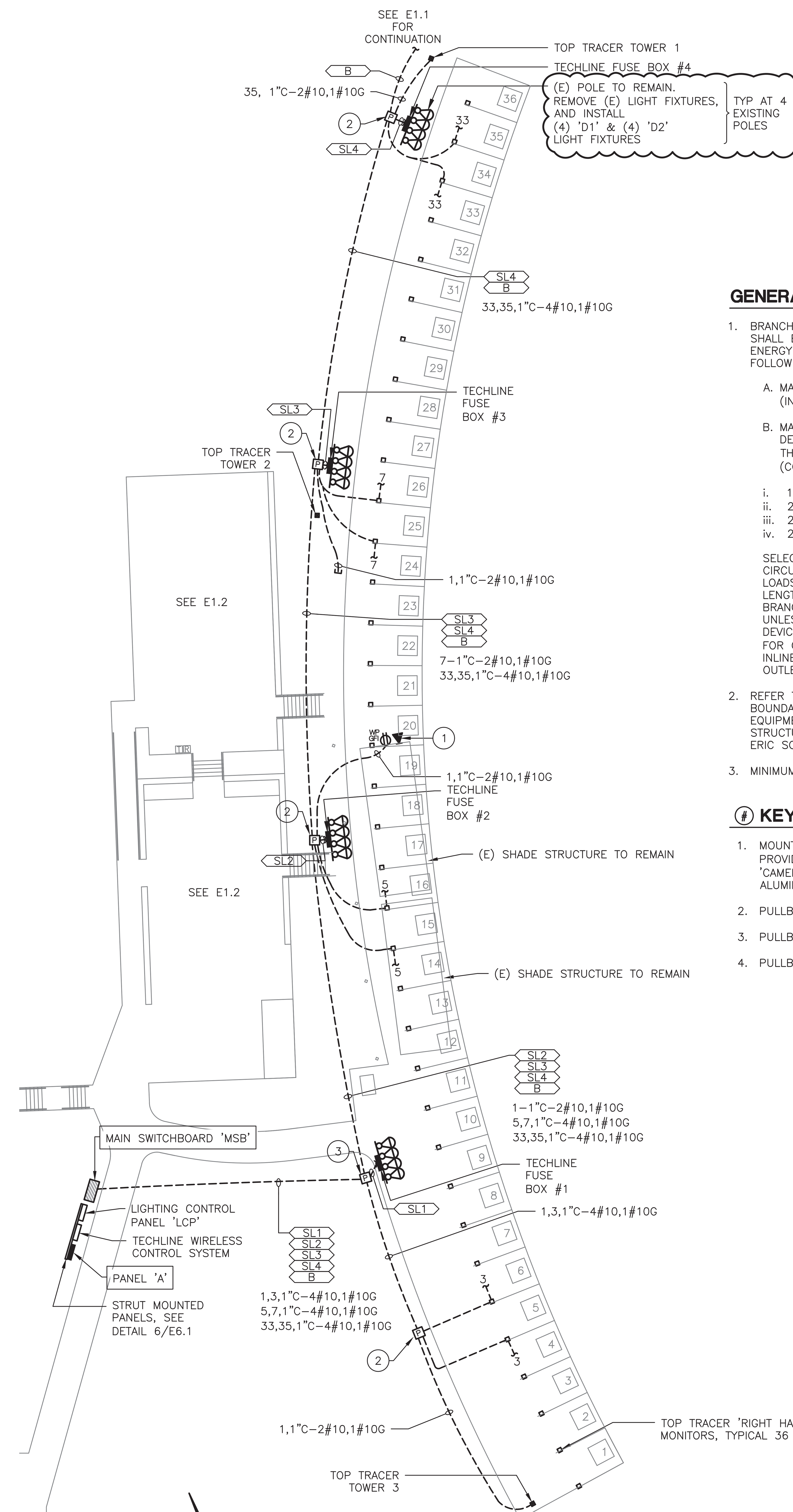
SHEET NUMBER E1.2

3 OF: 8



DRIVING TEES TOP TRACER L.V. PLAN (2)

SCALE: 1" =20'-0"



DRIVING TEES ELECTRICAL PLAN (1)

SCALE: 1" =20'-0"

GENERAL LIGHTING NOTES

1. BRANCH CIRCUIT SIZES – MAX 3% VOLT DROP BRANCH CIRCUIT WIRING SHALL BE SIZED BY THE CONTRACTOR TO MEET THE 2022 CA BUILDING ENERGY EFFICIENCY STANDARDS OF 3% MAXIMUM DROP, WITH THE FOLLOWING CRITERIA:

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   B. MAXIMUM DISTANCE TO CENTROID (OR WEIGHTED CENTER, DETERMINED BY APPROXIMATING THE MIDPOINT BETWEEN ALL OF THE LOADS) OF BRANCH CIRCUIT LOADS FOR EACH SIZE WIRE (COPPER):

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   SELECT CONDUCTOR SIZES THAT WILL NOT EXCEED THE ONE-WAY CIRCUIT DISTANCES NOTED ABOVE TO THE CENTROID OF THE CIRCUIT LOADS, WITH THE CIRCUIT DISTANCE TO INCLUDE UP AND DOWN LENGTHS TO THE CEILING OR UNDERFLOOR SPACES. THE WHOLE BRANCH CIRCUIT SHALL CONSIST OF THE SAME CONDUCTOR SIZES UNLESS CONTRACTOR-PROVIDED CALCULATIONS INDICATE THE LAST DEVICE ON EACH CIRCUIT BRANCH WILL NOT EXCEED 3% VOLT DROP. FOR CONDUCTOR SIZES REQUIRED TO BE LARGER THAN #10, INSTALL INLINE HEAT-SHRUNK SPLICES IN RESPECTIVE PANELBOARD OR OUTLET BOX.

2. REFER TO THE 'TOP TRACER DESIGN PACK' THAT IS SPECIFIC TO THE BOUNDARY OAK PROJECT. THE DESIGN PACK CONTAINS LAYOUT OF THE EQUIPMENT AND THE LOW VOLTAGE SIGNAL, ELECTRICAL AND STRUCTURAL REQUIREMENTS. FOR QUESTIONS ON TOP TRACER, CONTACT ERIC SCHOENBERG AT 503.807.8582, ERIC.SCHOENBERG@TOPGOLF.COM.

3. MINIMUM SIZE OF SITE CONDUIT AND WIRING IS 1"C, #10 AWG.

(#) KEY NOTES

1. MOUNT RECEPTACLE AND DATA BOX ON EXISTING STRUCTURE. PROVIDE IN USE 'BUBBLE' COVER, SEE TOP TRACER SUBMITTAL, 'CAMERA 4 AND 5' DETAIL FOR MORE INFORMATION. INSTALL ALUMINUM RIGID CONDUIT ON EXISTING STRUCTURE FOR CAMERAS.
2. PULLBOX CHRIST #N16, 12"X22".
3. PULLBOX CHRISTY #N30, 13"X24".
4. PULLBOX CHRISTY #N9, 10"X17".

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DRIVING TEES ELECTRICAL PLAN
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	95% CONST. SET	8-24-23
	100% CD SET	10-04-23
	100% CD SET REV 1	10-30-23

PREPARED UNDER THE DIRECTION OF

LICENSED PROFESSIONAL ENGINEER
MUSTAFA RETAD JIBAT
E 24172
ELECTRICAL
STATE OF CALIFORNIA
EXP. 09/30/2024

CONTRACT NO.
0000

CP#
0000

SHEET NUMBER
E1.3

4 OF: 8

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER AND MODEL	DESCRIPTION	LAMP TYPE	DRIVER TYPE	WATTS PER FIXTURE	VOLTAGE
A	PRIMUS LIGHTING #DSW-48-120-G16.5F-27/35-SHADE-STK	STRING LIGHTS ON 12 GA UV RATED CABLES AND SUPPORTED BY 3/32" STAINLESS STEEL SUPPORT CABLES, WEATHERPROOF MEDIUM BASE SOCKETS ON 48" CENTERS. TERMINATE SUPPORT CABLES WITH NICOPRESS FITTINGS. FIELD MEASURE THE EXACT LENTHS REQUIRED FOR THE ORDER. LANDSCAPE ARCHITECT TO SELECT THE SHADE TYPE	LED 2700K 325LM CLEAR	ELV	3.5W/LAMP	120
B	FC LIGHTING FCSL2041-UNV-3K-CRI85-6L-BKE-ET	13"W X 4.5"H X 3.9"D RECESSED INJECTION MOLDED PLASTIC HOUSING, MARINE GRADE, CORRROSION RESISTANT DIE-CAST ALUMINUM, BLACK, WHITE GLASS LENSE, IP68 HOUSING, 85CRI	LED 3000K 568M	TRIAC	19	120
C	LIGMAN – PRAGUE 2 MEDIUM BOLLARD #UPRA-10012-14W LED-T3-W27-01-120/277	BOLLARD, 39"H X 8" WIDE. ALUMINUM CONSTRUCTION, WET LOCATION RATED, INTEGRAL DRIVER, TYPE 3 OPTICS, ANCHOR BOLTS INCLUDED, BLACK FINISHES	LED 3000K 1660LM	0-10V	14	120
D1	SEE TECHLINE SPORTS LIGHTING PROJECT SPEC PACKAGE (512)-736-4794	FLOOD LIGHT REFER TO THE ELECTRICAL SPECIFICATION SECTION 26 50 00 FRO DETAILED IINFORMATION ON THE NEW SPORTS LIGHTING	LED 5700K 120,000LM	INTEGRAL DRIVER CONTROLLED VIA TECHLINE WIRELESS CONTROLLER	800	240
D2	SEE TECHLINE SPORTS LIGHTING PROJECT SPEC PACKAGE (512)-736-4794	SAME AS TYPE 'D1' EXCEPT WITH EXTENDED 20" VISOR.	LED 5700K 120,000LM	INTEGRAL DRIVER CONTROLLED VIA TECHLINE WIRELESS CONTROLLER	800	240

LOW VOLTAGE LIGHTING CONTROL RELAY PANEL 'LCP'

LOCATION: BOUNDARY OAKS GOLF COURSE

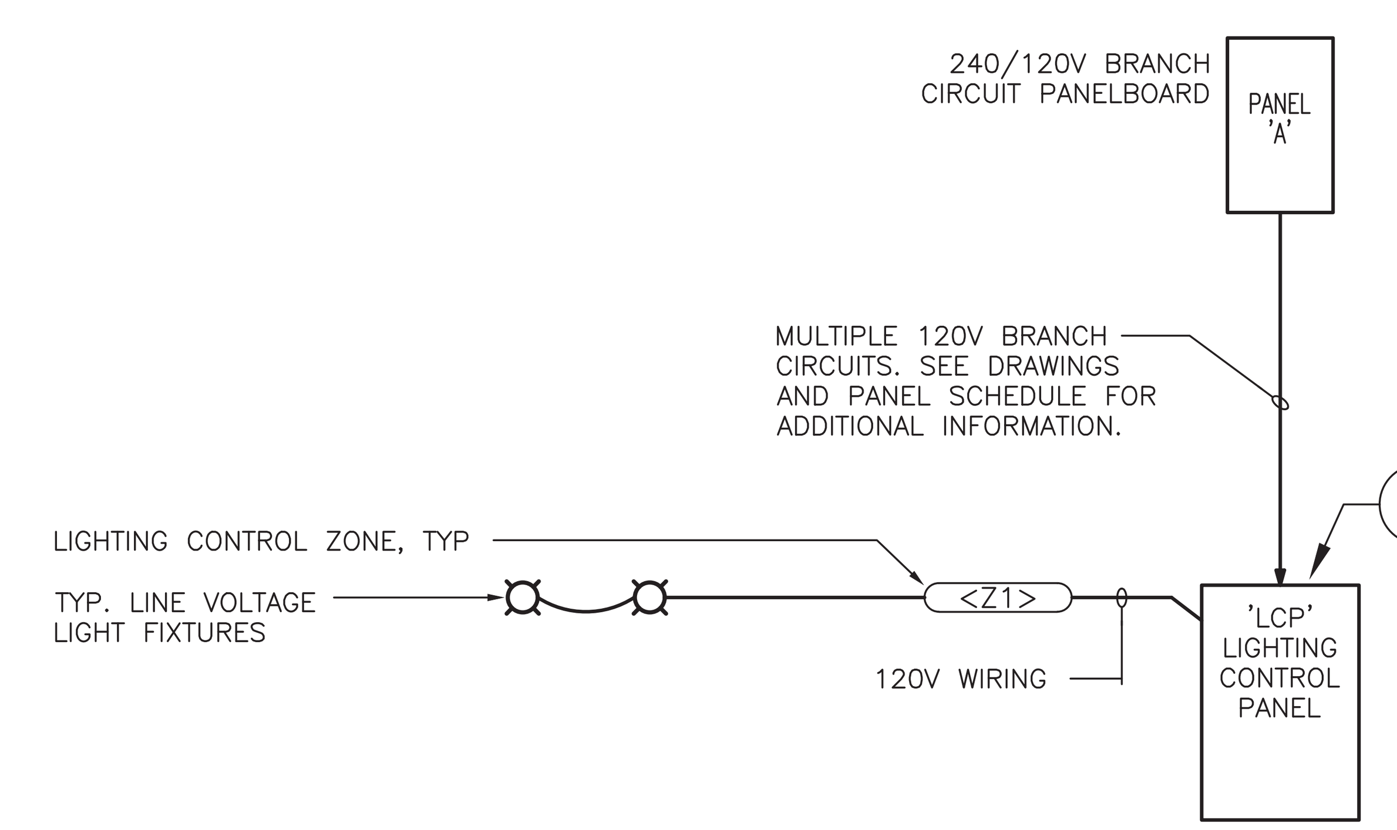
RELAY NUMBER	BRANCH CKT. NUMBER	CONTROL ZONE	CONTROL MODE	LOW VOLTAGE SWITCH STATION	ZONE DESCRIPTION	WATTS/ ZONE
1	A-18	Z1	PCO, TCF	a	BOLLARD LIGHTING	266
2	A-14	Z2	PCO, TCF	a	STRING LIGHTS	140
3	A-16	Z3	PCO, TCF	a	LOWER PATIO SEATING WALL LIGHTS	114
4	A-16	Z3	PCO, TCF	a	UPPDER PATIO SEATING WALL LIGHTS	266
					TOTAL	786

CONTROL MODE LEGEND

EMERGENCY INVERTER TOTAL

LS LOW VOLTAGE SWITCH STATION
S LOCAL LINE VOLTAGE SWITCH
D LOCAL DIMMER

PCO PHOTOCELL ON
PCF PHOTOCELL OFF
TCO TIMECLOCK ON
TCF TIMECLOCK OFF



(#) KEY NOTES DETAIL 1

1. LIGHTING CONTROL PANEL EQUIVALENT TO WATTSTOPPER SERIES. MOUNT LIGHTING CONTROL CABINET IN A NEMA-4 LOCKABLE ENCLOSURE. FURNISH AND INSTALL PHOTOCELL ACCESSORY.

LIGHTING CONTROL PANEL WIRING DIAGRAM (1)

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CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 02/14/2023	SCALE: AS NOTED	WORK ORDER:
DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
LIGHT FIXTURE SCHEDULE AND LIGHTING CONTROLS
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

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5 OF: 8

GROUNDING AND BONDING SHEET NOTES

(G1) GROUND ROD #1 IN FRONT RIGHT CORNER OF SECONDARY WINDOW OF TRANSFORMER PAD PER PG&E REQUIREMENTS.

(G2) GROUND ROD #2 IN GROUND WELL BOX ADJACENT TO TRANSFORMER PAD PER PG&E REQUIREMENTS, MINIMUM 6 FEET FROM GROUND ROD #1.

(G3) INSTALL CONTINUOUS #2 BARE COPPER FROM ROD #2 (MINIMUM 18" BELOW GRADE) TO PAD PRIMARY WINDOW, THEN EXPOSED ABOVE PAD FROM PRIMARY WINDOW TO GROUND ROD IN SECONDARY WINDOW PER PG&E REQUIREMENTS.

(G4) GROUNDING ELECTRODE CONDUCTOR TO NEAREST EFFECTIVELY GROUNDED METAL COLD WATER PIPING SYSTEM AND/OR OTHER METAL PIPING SYSTEMS NOTED, FULLY-SIZED PER TABLE 250.66. CONNECT WITHIN 5 FEET OF THE PIPING ENTRANCE INTO THE BUILDING. (THIS SHALL NOT BE THE ONLY ELECTRODE.) CEC 250.52, 250.53(D) AND 250.66.

(G5) GROUNDING ELECTRODE CONDUCTOR TO NEAREST EFFECTIVELY-GROUNDED BUILDING STEEL STRUCTURE, FULLY-SIZED PER TABLE 250.66.

(G6) GROUNDING ELECTRODE CONDUCTOR TO UFER GROUND, SIZED PER TABLE 250.66, MAXIMUM #4 CU. CEC 250.66(B)

(G7) GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD (IN EQUIPMENT OR ADJACENT GROUND WELL BOX), SIZED PER TABLE 250.66, MAXIMUM #6 CU. CEC 250.66(A)

(G8) BONDING JUMPER TO METAL COLD WATER PIPING SYSTEM, FULLY-SIZED PER TABLE 250.66. CONNECT WITHIN 5 FEET OF THE PIPING ENTRANCE INTO THE BUILDING. THIS IS NOT REQUIRED WHERE THE GROUNDING ELECTRODE CONDUCTOR IN SHEET NOTE #G4 IS INSTALLED TO THE SAME PIPE. CEC 250.104(A)(1)

(G9) BONDING JUMPER TO ABOVE-GROUND GAS AND/OR OTHER PIPING SYSTEM NOTED, #6 CU. CONNECT WITHIN 5 FEET OF THE PIPING ENTRANCE INTO THE BUILDING. THIS IS NOT REQUIRED WHERE THE GROUNDING ELECTRODE CONDUCTOR IN SHEET NOTE #G4 IS INSTALLED TO THE SAME PIPE. CEC 250.104(B)

(G10) BONDING JUMPER TO STRUCTURAL METAL FRAMES (SUCH AS CATWALKS, STAIRS, LANDING AND RAMPS), INSTALLED PER 250.104(C), 250.64(A), (B) AND (E). SIZE BONDING JUMPER PER TABLE 250.66 ACCORDING TO THE SIZE OF THE LARGEST UNGROUNDED CONDUCTORS THAT MAY POTENTIALLY ENERGIZE THE FRAME, AND PROVIDE JUMPERS ACROSS DISCONTINUOUS SECTIONS OF THE METAL FRAME. INSTALL DEDICATED BONDING JUMPERS FROM THE METAL FRAME TO THE MAIN SERVICE EQUIPMENT GROUND BUS, OR, THE FRAME MAY BE BONDED TO AN ATTACHED OR NEARBY ELECTRICAL EQUIPMENT GROUND BUS, BUT THE EQUIPMENT GROUNDING CONDUCTORS (EGC'S) FROM THE ELECTRICAL EQUIPMENT GROUND BUS TO THE MAIN SERVICE EQUIPMENT GROUND BUS MUST BE SIZED TO TABLE 250.66 (BASED ON THE SIZE OF THE LARGEST UNGROUNDED CONDUCTORS TO THE ELECTRICAL EQUIPMENT).

(G11) #6 CU EQUIPMENT BONDING CONDUCTOR TO GROUND BUS AT TELEPHONE TERMINAL BOARD OR OTHER EQUIPMENT AS NOTED.

(G12) TRANSFORMER SECONDARY BONDING: CEC 250.104(D)

A) PROVIDE GROUNDING ELECTRODE CONDUCTOR TO NEAREST EFFECTIVELY-GROUNDED COLD WATER PIPING SYSTEM IF AVAILABLE, SIZE PER TABLE 250.66.

B) IF (A) IS NOT AVAILABLE, PROVIDE GROUNDING ELECTRODE CONDUCTOR TO NEAREST EFFECTIVELY-GROUNDED STEEL FRAME OF BUILDING OR STRUCTURE IF AVAILABLE, SIZE PER TABLE 250.66.

C) PROVIDE GROUNDING ELECTRODE CONDUCTORS TO UFER AND GROUND RODS AT TRANSFORMER AS SPECIFIED IN NOTES 6 AND 7 (UFER NOT REQUIRED AT EXISTING CONCRETE SLABS/PADS).

GROUNDING ELECTRODE CONDUCTOR SIZES – CEC TABLE 250.66

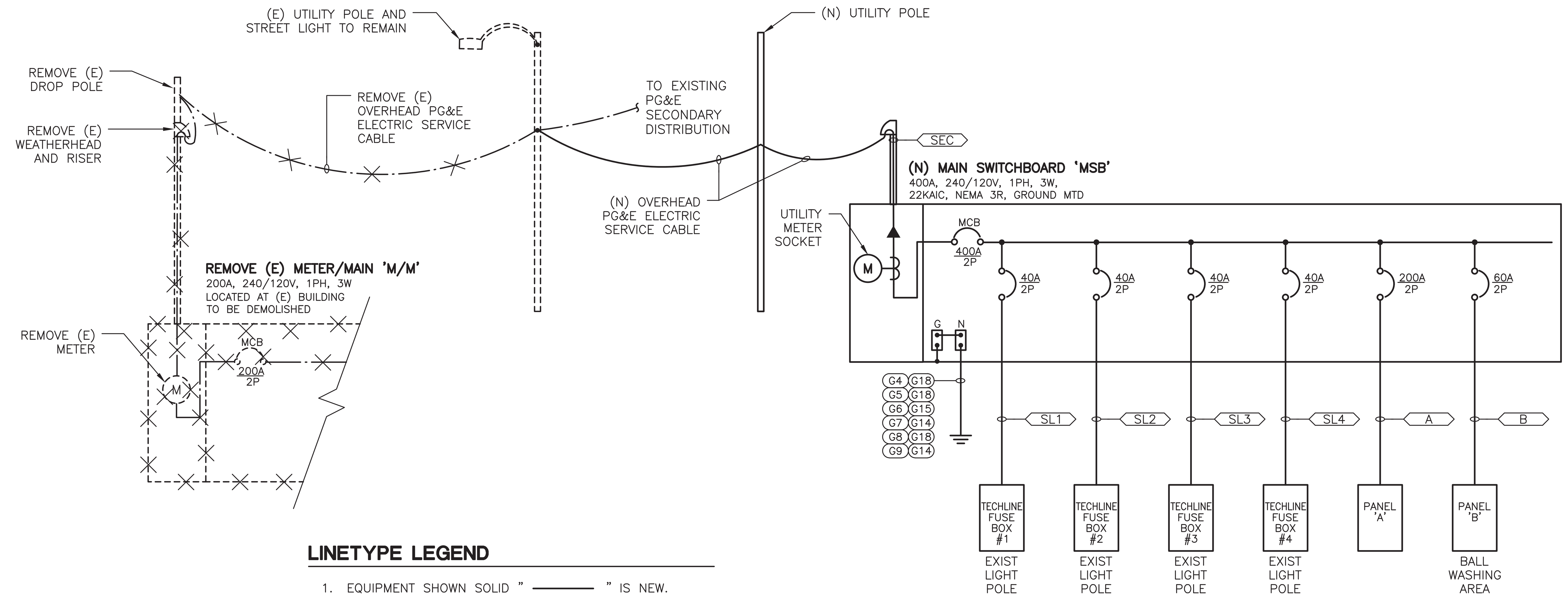
	PROVIDE G.E.C. SIZE AS NOTED	SERVICE CONDUCTOR SIZES
(G13)	#8 CU	#2 AND SMALLER
(G14)	#6 CU	#1 OR 1/0
(G15)	#4 CU	2/0 OR 3/0
(G16)	#2 CU	4/0 THROUGH 350KCMIL
(G17)	1/0 CU	400KCMIL THROUGH 600KCMIL
(G18)	2/0 CU	700KCMIL THROUGH 1100KCMIL
(G19)	3/0 CU	OVER 1100KCMIL

GROUNDING AND BONDING GENERAL NOTES

1. GROUND RODS SHALL BE VERTICALLY DRIVEN AT A 6'-0" MINIMUM SPACING FROM OTHER RODS AND OTHER GROUNDING ELECTRODES (I.E., WATER PIPING AND STRUCTURAL STEEL). RODS MAY BE DIAGONALLY DRIVEN OR INSTALLED HORIZONTALLY AND BURIED 30" BELOW GRADE WHEN THE SOIL PREVENTS RODS FROM BEING VERTICALLY DRIVEN. CEC 250.53(G)
2. UFER GROUNDS SHALL BE A CONCRETE-ENCASED (MIN 2") BARE COPPER CONDUCTOR, MINIMUM #4, 20 FOOT LENGTH, LOCATED NEAR THE BOTTOM OF THE CONCRETE FOUNDATION, FOOTING OR PAD, AND BELOW ANY VAPOR BARRIERS. CEC 250.52(3)
3. CONNECTIONS TO GROUNDING ELECTRODES SHALL BE MADE WITH LISTED CONNECTORS, FITTINGS OR EXOTHERMIC WELDING. CEC 250.70
4. DO NOT INSTALL GROUNDING ELECTRODE CONDUCTORS TO UNDERGROUND GAS PIPING SYSTEMS. CEC 250.52(7)(B)
5. INSTALL BONDING JUMPERS ACROSS INSULATED OR REMOVABLE JOINTS OF BONDED METALLIC PIPING SYSTEMS. CEC 250.68(B)
6. ALL GROUNDING AND BONDING CONNECTIONS SHALL BE ACCESSIBLE FOR TESTING. CEC 250.68(A)
7. ALL GROUNDING ELECTRODE CONDUCTORS AND BONDING JUMPERS SHALL BE INSTALLED IN RIGID METALLIC CONDUIT WHERE EXPOSED IN OUTDOOR AREAS, OR IN EMT CONDUIT WHERE INSTALLED IN FRAMED BUILDING STRUCTURE, OR IN PVC CONDUIT WHERE INSTALLED IN-SLAB OR IN UNDERGROUND LOCATIONS. ALL CONDUCTORS AND JUMPERS SHALL BE SUITABLY PROTECTED FROM DAMAGE AND SHALL BE BONDED TO THEIR ENCLOSING METALLIC RACEWAY. CEC 250.64
8. SEE SECTION 26 0500, BASIC ELECTRICAL MATERIALS AND METHODS, FOR ADDITIONAL GROUNDING AND BONDING REQUIREMENTS.

GENERAL NOTES

1. PER NEC 110.24 AND 110.21 PROVIDE LABELS ON ELECTRICAL SERVICE EQUIPMENT INDICATING MAXIMUM AVAILABLE FAULT CURRENT AND DATE OF FAULT CURRENT CALCULATION. REFER TO LABELING DETAILS, THIS SHEET.
2. PROVIDE AN ELECTRIC HEATER WITH THERMOSTAT IN EACH SECTION OF A NEMA 3R SWITCHBOARD SECTION, EXCEPT THE UTILITY SECTION. COORDINATE WITHTHE SWITCHBOARD MANUFACTURER.
3. PER NEC 110.16 AND 110.21 PROVIDE LABELS AND MARKINGS ON ELECTRICAL DISTRIBUTION EQUIPMENT (I.E. SWITCHBOARDS, PANELBOARDS) INDICATING POTENTIAL ARC FLASH HAZARDS. REFER TO LABELING DETAILS, THIS SHEET.



LINETYPE LEGEND

1. EQUIPMENT SHOWN SOLID " ——— " IS NEW.
2. ALL EQUIPMENT SHOWN DASHED " ------- " IS EXISTING.
3. EQUIPMENT SHOWN AS " -X-X- " IS EXISTING TO BE REMOVED.
4. EXISTING CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS AND SITE OBSERVATIONS. ALL INFORMATION SHOWN IS TO BE FIELD VERIFIED BY THE ELECTRICAL CONTRACTOR. REPORT ANY DISCREPANCIES TO THE ENGINEER.

SINGLE LINE POWER DIAGRAM (1)

NTS

INSTALL PERMANENT LABEL AT MAIN SWITCHBOARD:

SERVICE AVAILABLE FAULT CURRENT

(2022 CEC 110.24)

SERVICE VOLTAGE AND AMPERAGE:
240/120V 1PH 3W VOLTS 400 AMPS

AVAILABLE CURRENT ON UTILITY PRIMARY:
ASSUMED INFINITE BUS

ASSUMED MAXIMUM UTILITY TRANSFORMER SIZE:
100 kVA 180 % Z

ASSUMED MAXIMUM UTILITY SECONDARY CONDUCTORS:
750 AL PER PHASE 175 FEET

ASSUMED MAXIMUM MOTOR CONTRIBUTION:
320 AMPS

CALCULATED MAXIMUM FAULT CURRENT AVAILABLE:
10,390 AMPS (MAX 1PH L-L OR L-N)

DATE OF CALCULATION:
Oct 4, 2023
THIS CALCULATION MUST BE REVIEWED IF THE SERVICE IS ALTERED

PANEL: B — VOLTAGE: 240 / 120V 1PH 3W — ENCLOSURE: NEMA 3R
PROJECT: BOUNDARY OAK DRIVING RANGE — BUS RATING: 100 A — MOUNTING: SURFACE
LOCATION: DRIVING RANGE — MAINS RATING: 60 MCB
KAIC RATING: 10 KAIC

CKT	TRIP	POLE	CODE	LOAD DESCRIPTION	LOAD	A	B	C	LOAD	LOAD DESCRIPTION	CODE	TRIP	POLE	CKT
1	60	2	M	IRRIGATION BOOSTER PUMP 5HP (NOTE 1)	3200	3800			600	BALL WASHING MACHINE	M	15	1	2
3	–	–	M	"	3200			3300	100	IRRIGATION C.P.	C	20	1	4
5		1		SPACE		0				SPARE		20	1	6
7		1		SPACE				0		SPARE		20	1	8
9		1		SPACE		0				SPARE		20	1	10
11		1		SPACE				0		SPACE			1	12
13		1		SPACE		0				SPACE			1	14
15		1		SPACE				0		SPACE			1	16
17		1		SPACE		0				SPACE			1	18
					VA	3800		3300						
					AMPS	32		28						

PANEL NOTES:

1. IRRIGATION BOOSTER PUMP TO OPERATE IN AFTER HOURS AND NOT WITH THE OTHER EQUIPMENT.

LOAD SUMMARY

CKT CODE	LOAD TYPE AND NEC DEMAND FACTORS NEC 220-10(b), 13, 20, & 430-24	PNL B	SUB PNL -	SUB PNL -	SUB PNL -	CON SUB TTL	DEM SUB TTL
C	CONTINUOUS LOADS	0.1				0.1	0.1
N	NON-CONTINUOUS LOADS	0.0				0.0	0.0
R	RECEPTACLE LOADS	0.0				0.0	0.0
M	MOTOR LOADS	7.0				7.0	8.6
	LARGEST MOTOR kVA	6.4				6.4	
K	KITCHEN LOADS	0.0				0.0	0.0
	NUMBER OF APPLIANCES	0.0				0.0	

TOTAL CONNECTED kVA 7.1 kVA
TOTAL DEMAND KVA 8.7 kVA
TOTAL DEMAND AMPS 36 A

10/30/23 11:35 AM

PANEL: A — VOLTAGE: 240 / 120V 1PH 3W — ENCLOSURE: NEMA 3R
PROJECT: BOUNDARY OAK DRIVING RANGE — BUS RATING: 225 A — MOUNTING: SURFACE
LOCATION: DRIVING RANGE — MAINS RATING: 225 MCB
KAIC RATING: 22 KAIC

CKT	TRIP	POLE	CODE	LOAD DESCRIPTION	LOAD	A	B	C	LOAD	LOAD DESCRIPTION	CODE	TRIP	POLE	CKT
1	20	1	C	TOP TRACER CAMERA TOWER 3	1050	6810			5760	FUTURE CONCESSION STAND	C	60	2	2
3	20	1	C	TOP TRACER MONITORS	1050			6810	5760	"	C	–	–	4
5	20	1	C	TOP TRACER MONITORS	1050	1590			540	UPPER PLAZA RECEPT.	R	20	1	6
7	20	1	C	TOP TRACER MONITORS	1050			1410	360	UPPER PLAZA RECEPT.	R	20	1	8
9		1		SPACE		540			540	LOWER PLAZA RECEPT	R	20	1	10
11		1		SPACE				720	720	LOWER PLAZA RECEPT	R	20	1	12
13		1		SPACE		140			140	STRING LIGHTS	C	20	1	14
15		1		SPACE				380	380	SEATING WALL LIGHTS	C	20	1	16
17		1		SPACE		266			266	BOLLARD LIGHTING TYPE 'C'	C	20	1	18
19		1		SPACE				10	10	LANDSCAPE CONTROLLER	C	20	1	20
21		1		SPACE		600			600	BALL VENDING	R	20	1	22
23		1		SPACE				0		SPARE		20	1	24
25		1		SPACE		0				SPARE		20	1	26
27		1		SPACE				0		SPARE		20	1	28
29	20	1	R	TEACHING TEE RECEPT.	180	180				SPARE		20	1	30
31	20	1	C	TECHLINE WIRELESS CONTROLLER	100			100		SPARE		20	1	32
33	20	1	C	TOP TRACER MONITORS	1050	1050				SPARE		20	1	34
35	20	1	C	TOP TRACER CAMERA TOWER 1	1050			1050		SPARE		20	1	36
37		1		SPACE		0				SPARE		20	1	38
39		1		SPACE				0		SPARE		20	1	40
41		1		SPACE		0				SPARE		20	1	42
					VA	11176		10480						
					AMPS	93		87						

PANEL NOTES:

LOAD SUMMARY

CKT CODE	LOAD TYPE AND NEC DEMAND FACTORS NEC 220-10(b), 13, 20, & 430-24	PNL A	SUB PNL -	SUB PNL -	SUB PNL -	CON SUB TTL	DEM SUB TTL
C	CONTINUOUS LOADS	18.7				18.7	23.4
N	NON-CONTINUOUS LOADS	0.0				0.0	0.0
R	RECEPTACLE LOADS	2.9				2.9	2.9
M	MOTOR LOADS	0.0				0.0	0.0
	LARGEST MOTOR kVA	0.0				0.0	
K	KITCHEN LOADS	0.0				0.0	0.0
	NUMBER OF APPLIANCES	0.0				0.0	

TOTAL CONNECTED KVA 21.7 kVA
TOTAL DEMAND KVA 26.3 kVA
TOTAL DEMAND AMPS 110 A

10/6/23 9:59 AM

ELECTRICAL FEEDER SCHEDULE

FEEDER TAG	FEEDER CONDUIT AND WIRING	FED FROM	FED TO	NOTES/COMMENTS	ESTIM. LENGTH (FT)	DESIGN LOAD (AMPS)	FEEDER AMPACITY (AMPS)	OCPD SIZE (AMPS)	FEEDER VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %	SHORT CIRCUIT AVAIL
SEC	4" CO	PG&E XFMR	MAIN SWTCHBRD 'MSB'	CONDUCTORS BY PG&E	0	–	–	–	240	–	0%	–
A	2"C – 3#4/0, 1#4 GRD	MAIN SWTCHBRD 'MSB'	PANEL 'A'		10	169	230	225	240	0.1%	32%	15250 A
B	1 1/2"C – 3#2, 1#6 GRD	MAIN SWTCHBRD 'MSB'	PANEL 'B'		450	32	115	60	240	2.0%	21%	1670 A
SL1	1"C – 3#8, 1#10 GRD	MAIN SWTCHBRD 'MSB'	TECHLINE FUSE BOX #1		60	30	50	40	208	1.2%	16%	2620 A
SL2	1"C – 3#4, 1#6 GRD	MAIN SWTCHBRD 'MSB'	TECHLINE FUSE BOX #2		150	30	85	40	120	2.0%	36%	1590 A
SL3	1 1/2"C – 3#4, 1#6 GRD	MAIN SWTCHBRD 'MSB'	TECHLINE FUSE BOX #3		250	30	85	40	208	1.9%	16%	1650 A
SL4	1 1/2"C – 3#2, 1#4 GRD	MAIN SWTCHBRD 'MSB'	TECHLINE FUSE BOX #4		340	30	115	40	208	1.7%	23%	1890 A
SP2	2" CO	MAIN SWTCHBRD 'MSB'	POWER PULLBOX		60	–	–	–	–	–	0%	–
CATV	2" CO	(E) UTILITY POLE	TELECOM PULLBOX		110	–	–	–	–	–	0%	–

ELECTRICAL FEEDER SCHEDULE NOTES (DESCRIPTION OF COLUMNS)

1. FEEDER TAG: REFER TO PLANS AND/OR SINGLE-LINE DIAGRAM FOR FEEDER LOCATIONS
2. FEEDER CONDUIT AND WIRING: PROVIDE CONDUIT AND WIRING AS SPECIFIED CORRESPONDING TO FEEDER TAG ("AL" = ALUMINUM XHHW 90C)
3. FED FROM: FEEDER IS FED FROM EQUIPMENT OR LOCATION AS NOTED
4. FED TO: FEEDER FEEDS THE EQUIPMENT OR LOCATION AS NOTED; CORRESPONDS TO FEEDER NAME
5. NOTES/COMMENTS: NOTES OR COMMENTS SPECIFIC TO THE SPECIFIED FEEDER
6. ESTIM. LENGTH (FT): ESTIMATED LENGTH OF FEEDER IN FEET
7. DESIGN LOAD (AMPS): MAXIMUM DESIGN FEEDER CURRENT
8. MAXIMUM FEEDER AMPACITY: MAXIMUM DESIGN FEEDER AMPACITY (AMPS) AFTER TEMPERATURE AND CONDUCTOR QUANTITY DERATIONS
9. OCPD (AMPS): OVER-CURRENT PROTECTION DEVICE AMPACITY
10. FEEDER VOLTAGE: LINE VOLTAGE OF FEEDER, UON
11. VOLTAGE DROP % : ESTIMATED MAXIMUM PERCENT VOLTAGE DROP BASED ON DESIGN LOAD; BASED ON METALLIC CONDUIT (WORST CASE)
12. CONDUIT FILL % : ESTIMATED MAXIMUM PERCENT CONDUIT FILL
13. SHORT CIRCUIT CURRENT: MAX AVAILABLE FAULT CURRENT AT END OF FEEDER

NOTE: THE ESTIMATED LENGTHS IN THE SCHEDULE ABOVE ARE FOR CALCULATION PURPOSES. THESE LENGTHS SHOULD NOT BE USED AS A BASIS FOR BIDDING; CONTRACTOR SHALL VERIFY FEEDER LENGTHS ON DRAWINGS AND IN FIELD.

NOTE: ALL FEEDERS AND GROUNDS SHALL BE COPPER THHN/THWN UNLESS NOTED AS "AL" IN SCHEDULE.

10/30/23 11:35 AM

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DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
SINGLE LINE DIAGRAM, PANEL AND FEEDER SCHEDULES
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3800 VALLEY VISTA ROAD
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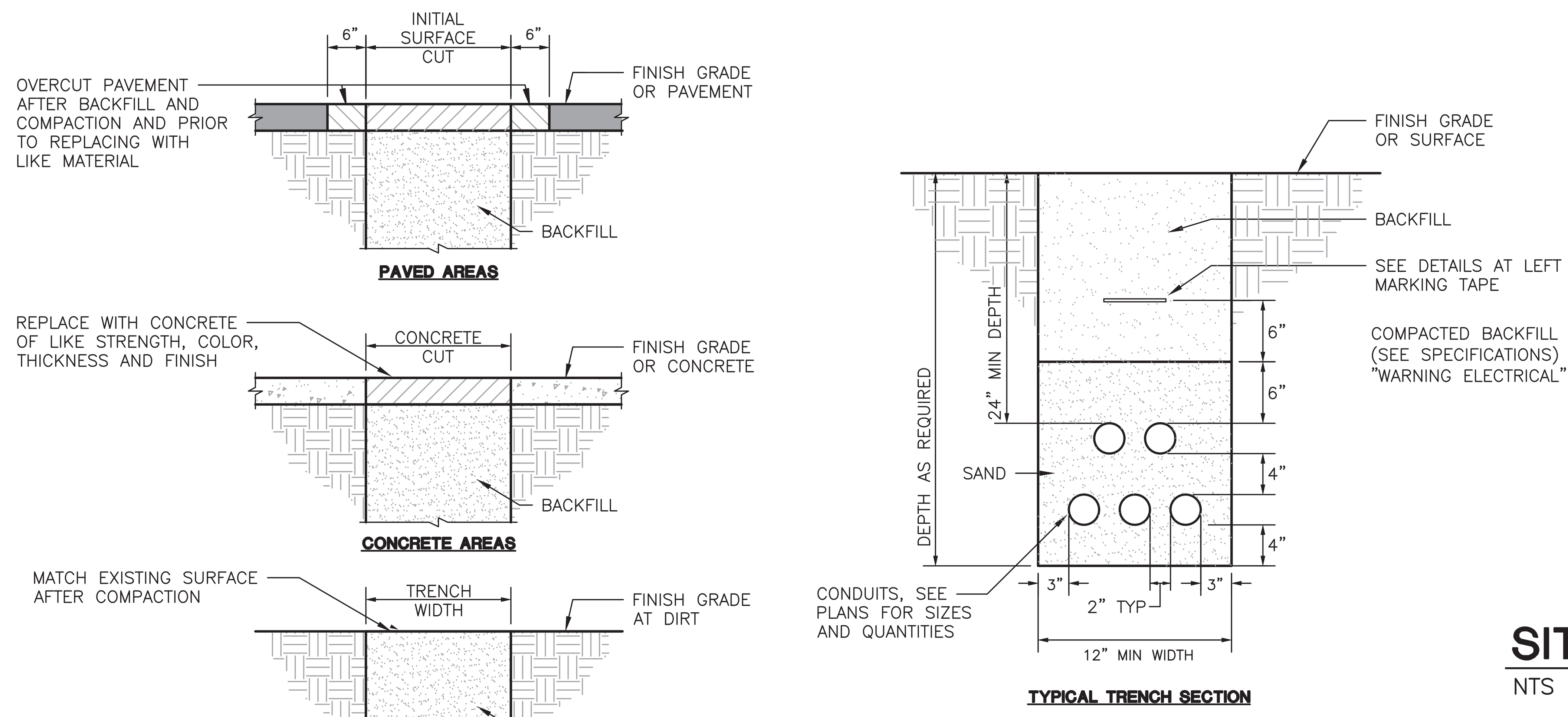
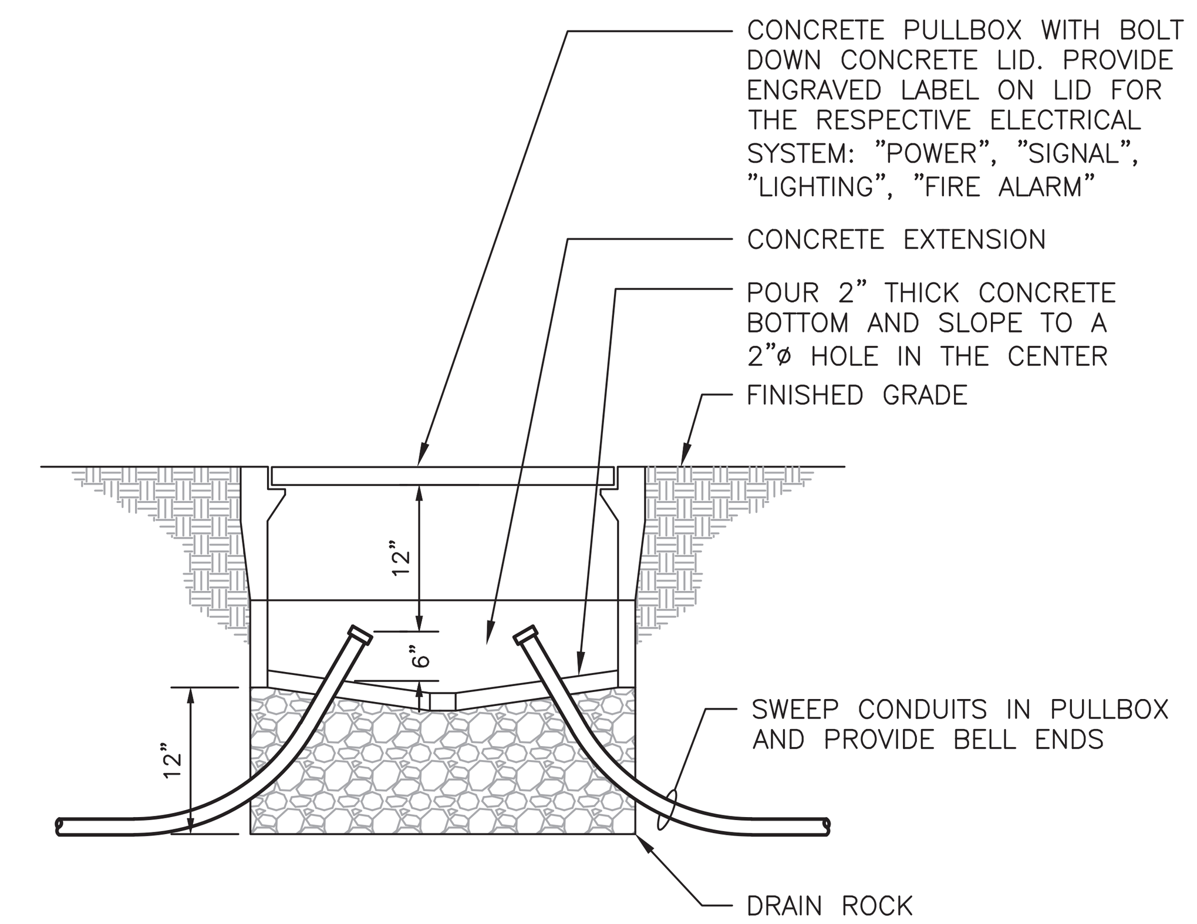
6 OF: 8



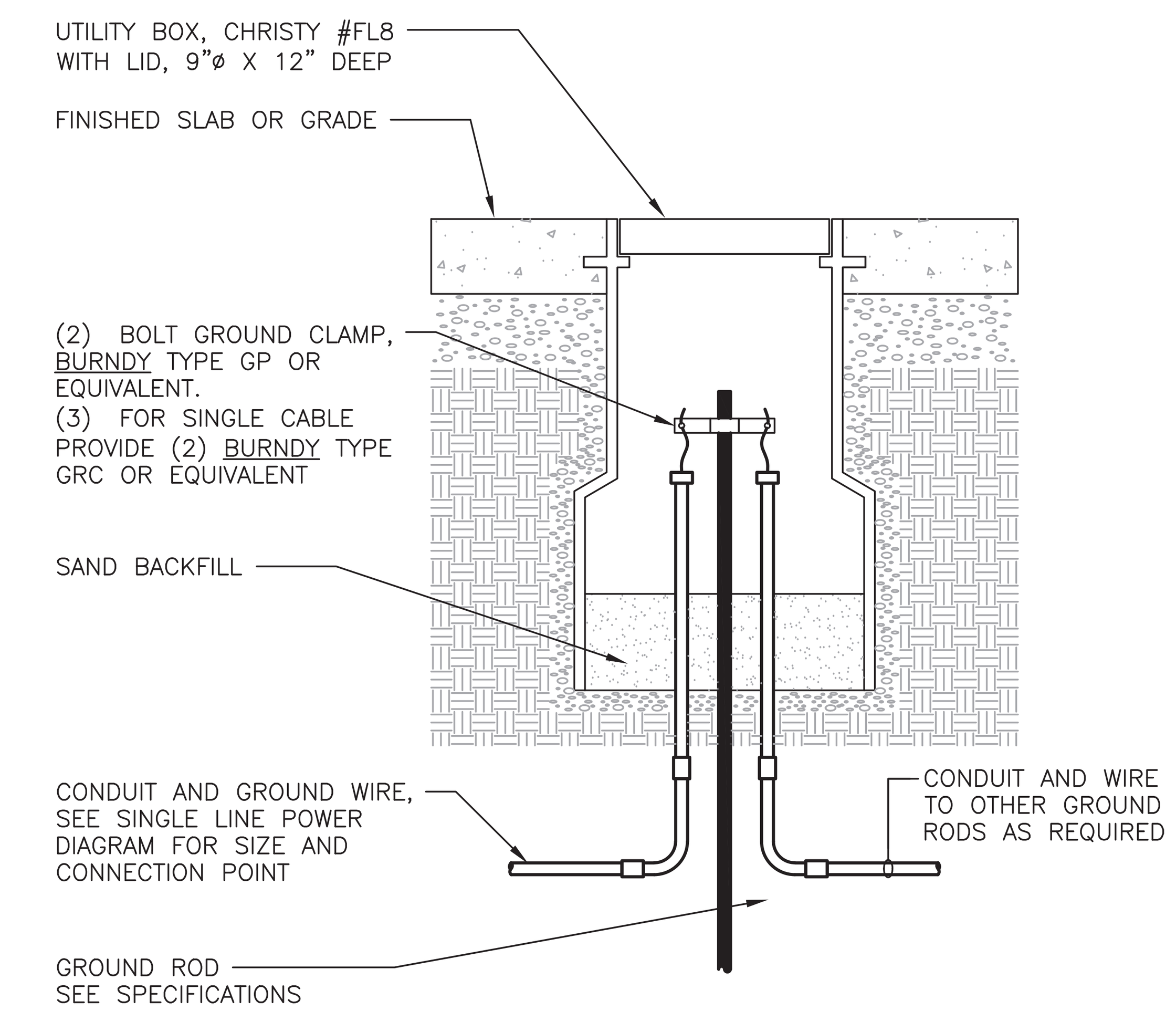
TYPICAL TRENCH SECTIONS (5)

NTS



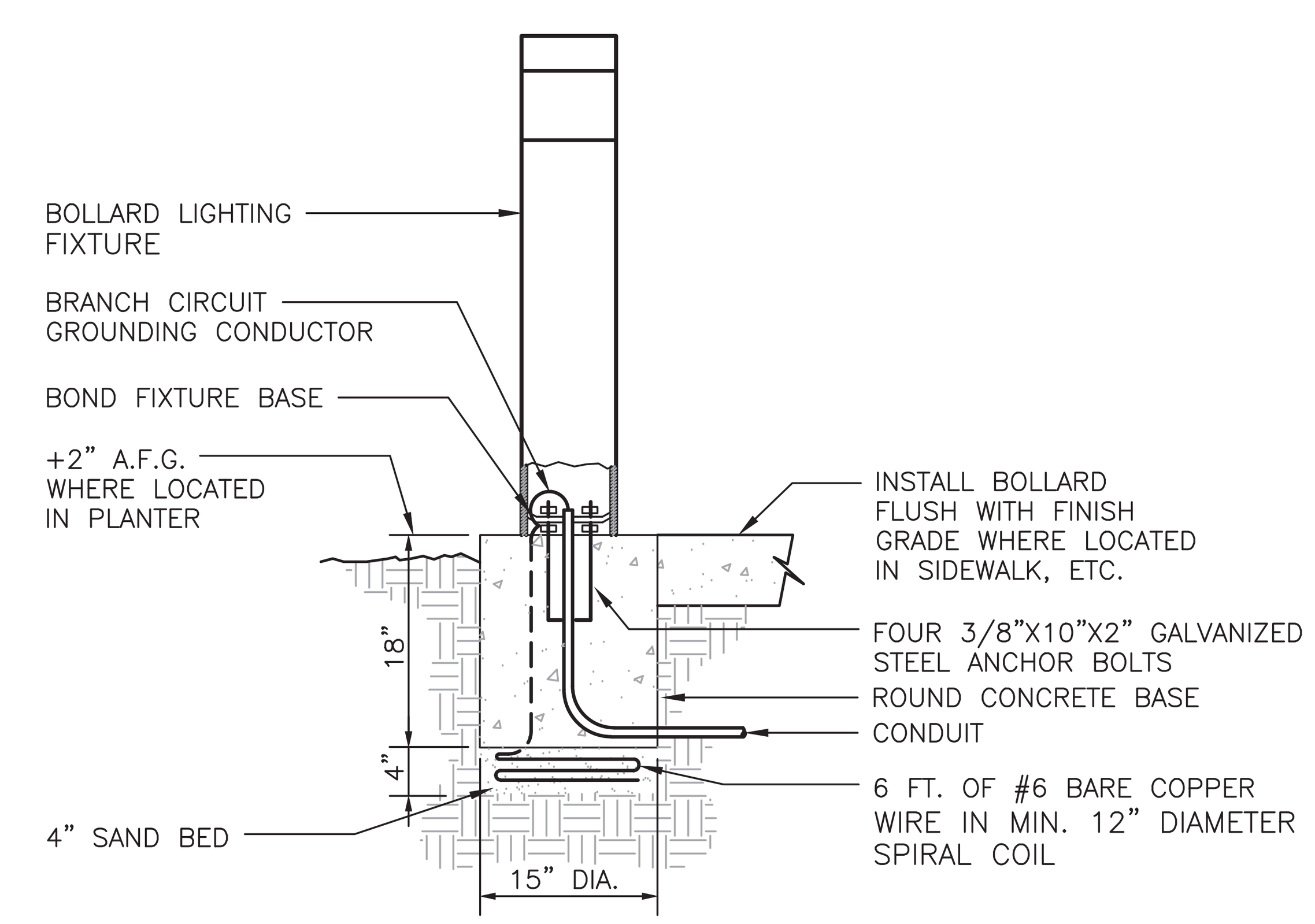
SITE PULLBOX INSTALLATION (3)

NTS



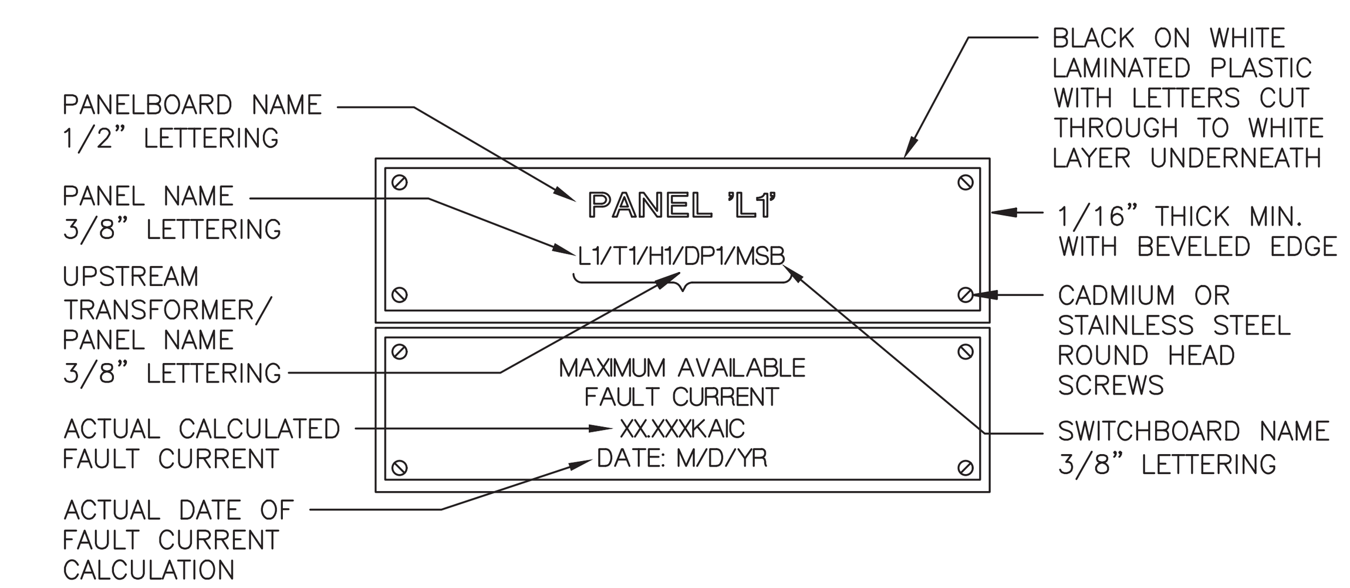
GROUND ROD INSTALLATION DETAIL (1)

NTS



BOLLARD LIGHT MOUNTING (4)

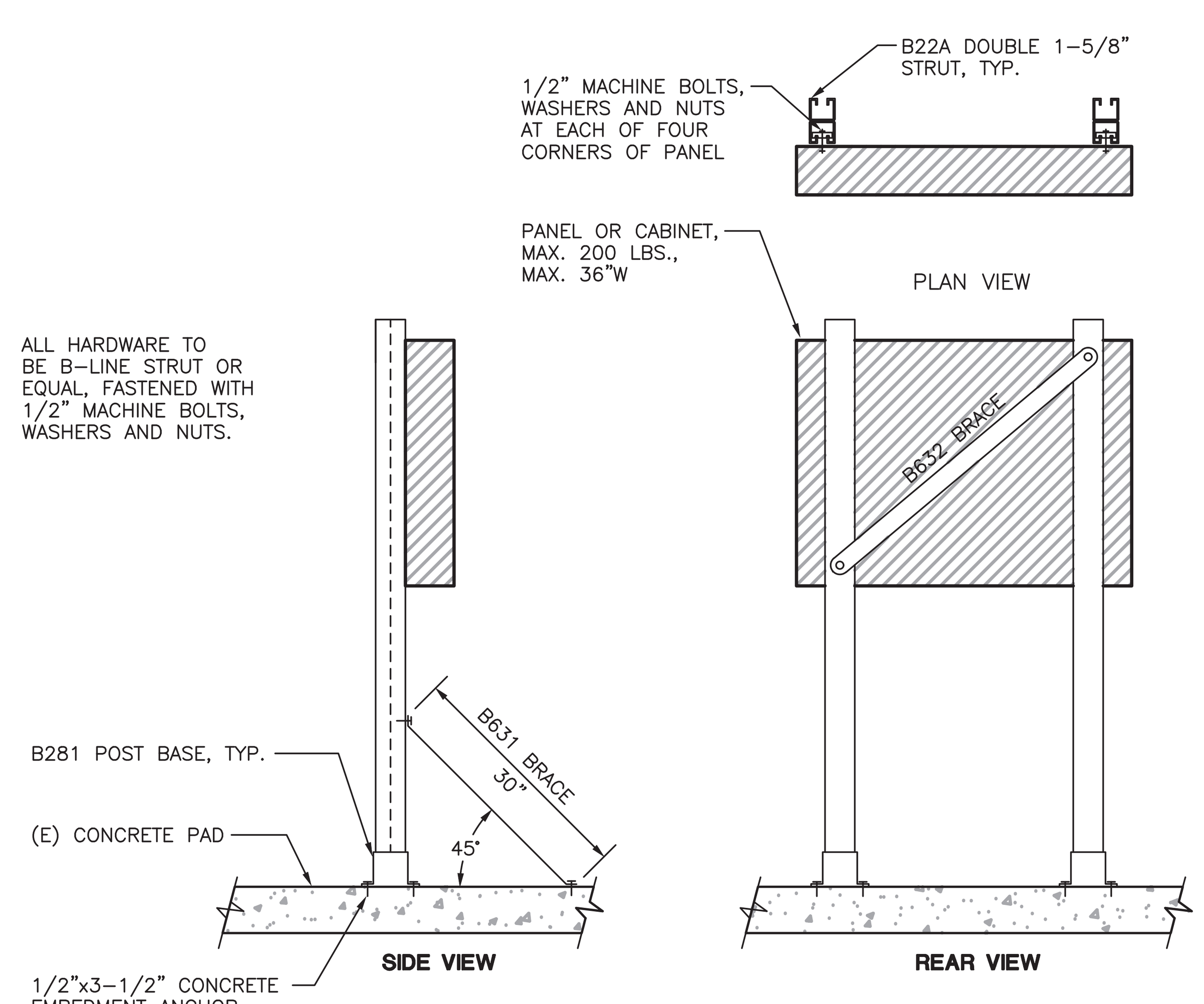
NTS



NOTE:
PROVIDE THIS NAMEPLATE ON ALL SWITCHBOARDS, DISTRIBUTION PANELBOARDS, TRANSFORMERS, AND BRANCH CIRCUIT PANELBOARDS ON RESPECTIVE COVER DOORS.

PANELBOARD NAMEPLATE (2)

NTS



STRUT MOUNTED PANEL (6)

NTS

SUMMIT

Summit Engineering, Inc
575 W College Ave., Suite 201 • Santa Rosa, CA 95401
707-527-0775 • www.summit-sr.com

CITY OF WALNUT CREEK

1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 02/14/2023	SCALE: AS NOTED	WORK ORDER:
DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE

ELECTRICAL DETAILS

CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598

APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	95% CONST. SET	8-24-23
	100% CD SET	10-04-23
	100% CD SET REV 1	10-30-23

PREPARED UNDER THE DIRECTION OF

LICENSED PROFESSIONAL ENGINEER
MUSTAFA RETAD JIBAT
E 24172
ELECTRICAL
STATE OF CALIFORNIA
EXP. 09/30/2024

CONTRACT NO.
0000

CP#
0000

SHEET NUMBER
E6.1

7 OF: 8

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)2L for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)6, 180.1(a) and 180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.			
Project Name: BOUNDARY OAK GOLF COURSE		**Report Page:**	**(Page 1 of 7)**
Project Address:	3800 VALLEY VISTA ROAD	**Date Prepared:**	10/4/2023

A. GENERAL INFORMATION

01	Project Location (city)	WALNUT CREEK	04	Total Illuminated Hardscape Area (ft^2)	231070
02	Climate Zone	12			
03	Outdoor Lighting Zone per Title 24 Part 1 10.114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☒ LZ-2: Moderate - Urban Clusters	☐	LZ-4: High - Must be reviewed by CA Energy Commission for Approval	
☐	LZ-1: Low - Rural Areas	☐ LZ-3: Moderately High - Urban Areas			
05	Occupancy Types within Project				
• All Other Occupancies					

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv for alterations.

My Project Consists of:

01	02	
☒ New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)6	
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?	○ Yes ○ No
03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE	**Report Page:**	**(Page 2 of 7)**
	Date Prepared:	10/4/2023

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv												Compliance Results			
01		02		03		04		05		06		07		08	09
General Hardscape Allowance 140.7(d)1 / 170.2(e)6 (See Table I)	+	Per Application 140.7(d)2 / 170.2(e)6 (See Table J)	+	Sales Frontage 140.7(d)2 (See Table K)	+	Ornamental 140.7(d)2 / 170.2(e)6 (See Table L)	+	Per Specific Area 140.7(d)2 / 170.2(e)6 (See Table M)	OR	Existing Power Allowance 141.0(b)2L / 180.2(b)4Bv (See Table N)	=	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 must be >= 08**
5,053	+	---	+	---	+	---	+	---	OR	---	=	5,053	≥	817	COMPLIES
Shielding Compliance (See Table G for Details)															N/A
Controls Compliance (See Table H for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

UPPER AND LOWER PLAZA ARE EXEMPT PER 130.2(C)3 EXCEPTION 1: LUMINAIRE IS LESS THAN 40W

DRIVING RANGE LIGHTING EXEMPT PER 140.7(A)4: LIGHTING IS FOR SPORT FIELD

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE	**Report Page:**	**(Page 3 of 7)**
	Date Prepared:	10/4/2023

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1, 2]	How is Wattage determined	Total Number Luminaires[2]	Luminaire Status[3]	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)1[4]	Field Inspector Pass	Fail
TYPE A	TYPE A	☐ Linear	3.5	Mfr. Spec	38	New	☐	133	NA: < 6200 lumens	☐	☐
TYPE B	TYPE B	☐ Linear	19	Mfr. Spec	22	New	☐	418	NA: < 6200 lumens	☐	☐
TYPE C	TYPE C	☐ Linear	14	Mfr. Spec	19	New	☐	266	NA: < 6200 lumens	☐	☐
TYPE D1/D2	TYPE D1/D2	☐ Linear	800	Mfr. Spec	32	New	☒	---	NA: < 6200 lumens	☐	☐
							Total Design Watts:	817			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

[1] *FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)*
[2] *For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*
[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*
[4] *Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/ 160.5(c)*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE	**Report Page:**	**(Page 4 of 7)**
	Date Prepared:	10/4/2023

G. SHIELDING REQUIREMENTS (BUG)

This section does not apply to this project.

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit

Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings

01	02	03	04	05	
Area Description	Shut-Off 130.2(c)1 / 160.5(c)	Auto-Schedule 130.2(c)2 / 160.5(c)	Motion Sensor 130.2(c)3 / 160.5(c)	Field Inspector Pass	Fail
UPPER PLAZA EAST	Astronomical Timer	Provided	EXEMPT	☐	☐
UPPER PLAZA CENTRAL	Astronomical Timer	Provided	EXEMPT	☐	☐
UPPER PLAZA NORTH	Astronomical Timer	Provided	EXEMPT	☐	☐
LOWER PLAZA WEST	Astronomical Timer	Provided	EXEMPT	☐	☐
DRIVING RANGE	Astronomical Timer	Provided	EXEMPT	☐	☐

[1] *FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.*
[2] *Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.*
[3] *Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE	**Report Page:**	**(Page 5 of 7)**
	Date Prepared:	10/4/2023

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))

This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance. Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

01				
☒ General Hardscape Allowance Table I (below)	"Use it or lose it" Allowance (select all that apply) (select all that apply)			
	☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

02	03	04	05	06	07	08	09
	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			
Area Description	Illuminated Area (ft^2)	Allowed Density (W/ft^2)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	Total General AWA + LWA (Watts)
UPPER PLAZA EAST	2070	0.019	39.3	403	0.2	60.4	100
UPPER PLAZA CENTRAL	3210	0.019	61	264	0.2	39.6	101
LOWER PLAZA WEST	2715	0.019	51.6	230	0.2	34.5	86
UPPER PLAZA NORTH	1110	0.019	21.1	167	0.2	25	46
Initial Wattage Allowance for Entire Site (Watts):							200
Instances of Initial Wattage Allowance (LZ 0 only)[1]							
Total General Hardscape Allowance (Watts):							5053

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE	**Report Page:**	**(Page 6 of 7)**
	Date Prepared:	10/4/2023

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTO-E - Must be submitted for all buildings

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	UPPER PLAZA EAST ; UPPER PLAZA CENTRAL; UPPER PLAZA NORTH ; LOWER PLAZA WEST; DRIVING RANGE;

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: BOUNDARY OAK GOLF COURSE		**Report Page:**	**(Page 7 of 7)**
Project Address:	3800 VALLEY VISTA ROAD	**Date Prepared:**	10/4/2023

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: VISHAL DOLA	Documentation Author Signature: VDola
Company: Summit Engineering, Inc.	Signature Date: 2023-10-04
Address: 575 W COLLEGE AVE SUITE 201	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: SANTA ROSA CA 95401	Phone: 707-527-0775

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: MUSTAFA JIBAT	Responsible Designer Signature:
Company: SUMMIT ENGINEERING	Date Signed: 2023-10-04
Address: 575 W COLLEGE AVE SUITE 201	License: E24172 EXP 09/24
City/State/Zip: SANTA ROSA CA 95401	Phone: 707-527-0775

SUMMIT
Summit Engineering, Inc
575 W College Ave., Suite 201 • Santa Rosa, CA 95401
707-527-0775 • www.summit-sr.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 02/14/2023	SCALE: AS NOTED	WORK ORDER:
DESIGN: NV	DRAWN: JO	CHECKED: MJ

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
TITLE 24 COMPLIANCE FORMS
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

REV	DESCRIPTION	DATE
	95% CONST. SET	8-24-23
	100% CD SET	10-04-23
	100% CD SET REV 1	10-30-23

PREPARED UNDER THE DIRECTION OF

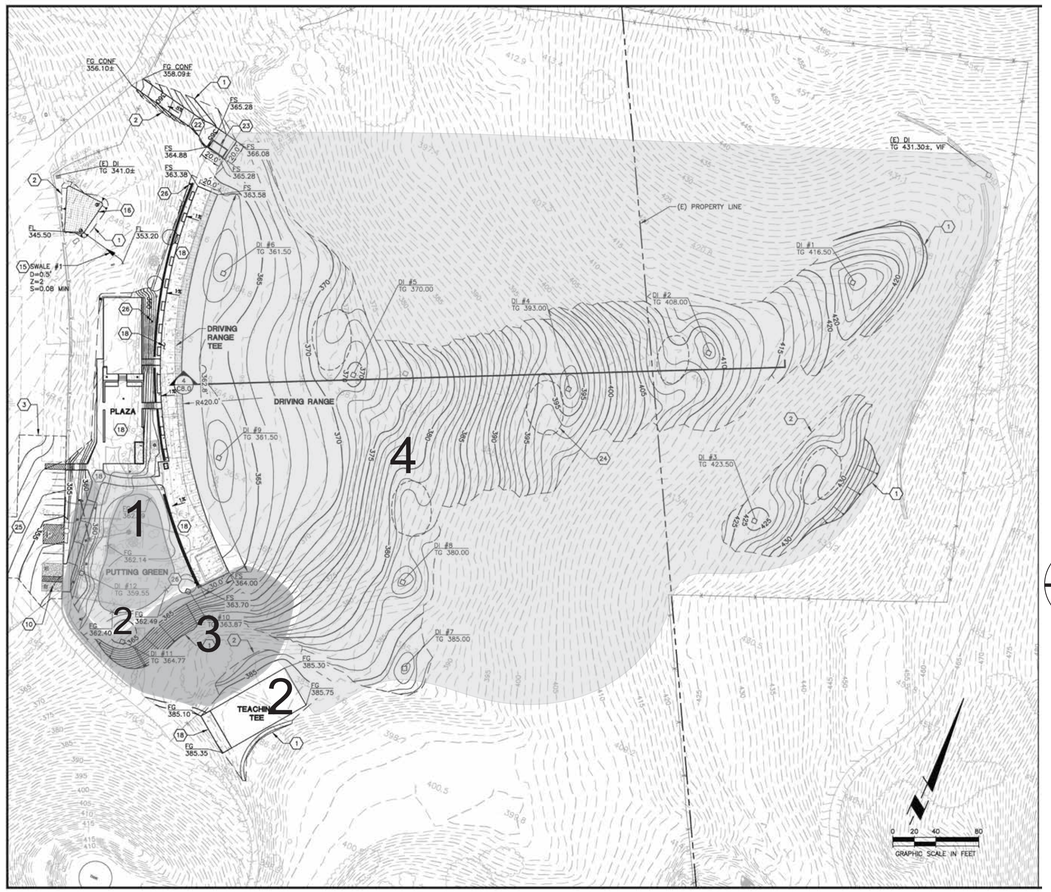
LICENSED PROFESSIONAL ENGINEER
MUSTAFA RETAD JIBAT
E 24172
ELECTRICAL
STATE OF CALIFORNIA
EXP. 09/30/2024

CONTRACT NO.
0000

CP#
0000

SHEET NUMBER
ET24.1

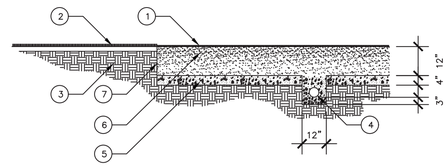
8 OF: 8



LEGEND

1. BENT GRASS GREEN - SEED. USGA SAND BASED MIXTURE.
2. 100% RYE GRASS GREEN SURROUND AND TEACHING TEE - SOD. SOIL TO BE 6" GREENSMIX
3. HILLSIDE TALL FESCUE - SOD.
4. HYBRID BERMUDA SPRIGS - WITH SOD AROUND CATCHBASINS. SOIL TO BE AMENDED AS PER SPECIFICATIONS.

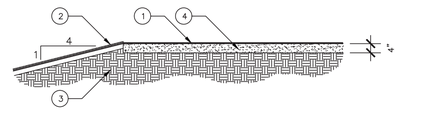
1 DRIVING RANGE GRASSING SCHEME



LEGEND

1. PUTTING GREEN SURFACE – REFER TO SPECIFICATIONS
2. SOD PERIMETER STAKED IN PLACE – REFER TO SPECIFICATIONS
3. PREPARED SUBGRADE – REFER TO SPECIFICATIONS FOR TOPSOIL REQUIREMENTS
4. 4" PERFORATED DRAIN ADS DRAIN PIPE (OR APPROVED EQUAL)
5. 4" DEPTH GRAVEL LAYER – REFER TO SPECIFICATIONS FOR GRAVEL TYPE
6. 12" DEPTH APPROVED GREENS MIX LAYER – REFER TO SPECIFICATIONS
7. PUTTING GREEN WELL LINER – REFER TO SPECIFICATIONS

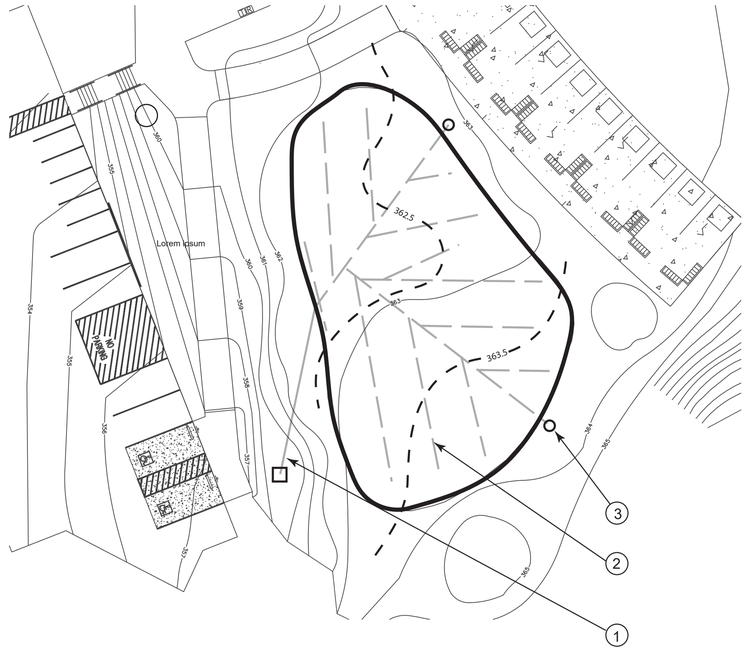
3 USGA GREEN CONSTRUCTION DETAIL



LEGEND

1. TEE BOX SURFACE – REFER TO SPECIFICATIONS SLOPE PITCH 1% TO DRAIN MATCHING SURROUNDING GRADES Lorem ipsum
2. ADJACENT TURF AREA – REFER TO SPECIFICATIONS
3. PREPARED SUBGRADE – REFER TO SPECIFICATIONS FOR TOPSOIL REQUIREMENTS
4. 4" APPROVED MIX – REFER TO SPECIFICATIONS

4 TEE BOX CONSTRUCTION DETAIL



LEGEND

1. 6" SOLID DRAIN LINE - CONNECT TO MAIN STORM DRAIN.
2. 4" PERFORATED PIPE AT 15' O.C.
3. 4" SOLID PIPE CLEANOUT.

2 PUTTING GREEN DRAINAGE AND GRADING

1" = 20'

Note - final grades will be determined in the field by Golf Course Architect

Golf and Planning Consultant

nickels group

46 Oak Mountain Court
San Rafael, CA 94903
415.250.0445

CITY OF WALNUT CREEK

1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
08.24.2023		CP010126
DESIGN: DN	DRAWN: DN	CHECKED:

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
DRIVING RANGE RENOVATION
GRASSING AND GOLF DETAILS

REV	DESCRIPTION	DATE
	95% CD	08.24.2023
	100% CD	10.02.2023
	100% Rev 1	11.06.2023

PREPARED UNDER
THE DIRECTION OF

CONTRACT NO.
6015

CP#
010126

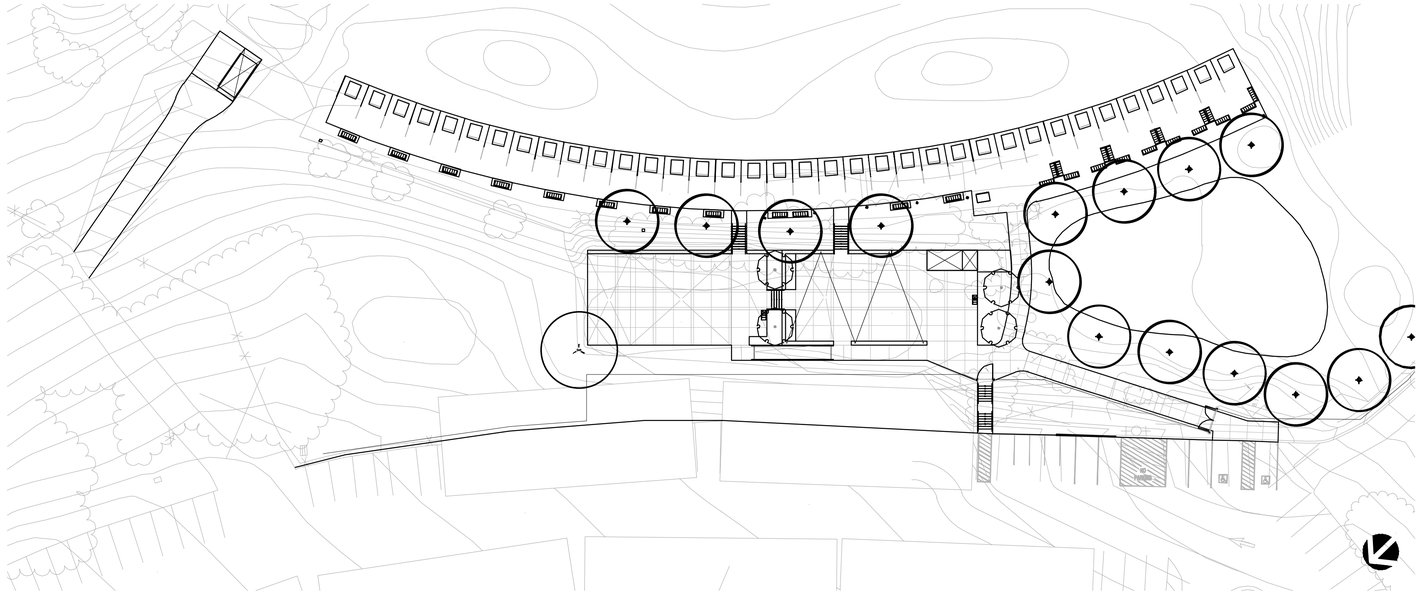
SHEET NUMBER
G1.0

_____ OF: _____

BOUNDARY OAKS GOLF COURSE

WALNUT CREEK, CALIFORNIA

OVERALL SITE PLAN



SHEET INDEX

LOCATION MAP

PROJECT DIRECTORY

CLIENT
NICKELS GROUP
46 OAK MOUNTAIN CT
SAN RAFAEL, CA 94903
PH: (415) 250-0445
CONTACT: DOUG NICKELS

LANDSCAPE ARCHITECT
GATES + ASSOCIATES
1655 N. MAIN STREET, STE 365,
WALNUT CREEK, CA 94596
PH: (925) 736-8176
CONTACT: DANIEL SHAFIR-SCHORR

CIVIL ENGINEER
SUMMIT ENGINEERING
575 W COLLEGE AVE, SUITE 201
SANTA ROSA CA, 95401
PH: (707 527 0775
CONTACT: JASPER GEHRING

STATEMENT OF PEER REVIEW CERTIFICATION

THE UNDERSIGNED HEREBY CERTIFIES THAT A PROFESSIONAL PEER REVIEW OF THESE PLANS AND THE REQUIRED DESIGNS WAS CONDUCTED BY A PROFESSIONAL LANDSCAPE ARCHITECT WITH EXPERTISE AND EXPERIENCE IN THE APPROPRIATE FIELDS OF LANDSCAPE ARCHITECTURE EQUAL TO OR GREATER THAN THE LANDSCAPE ARCHITECTURE OF RECORD, AND THAT APPROPRIATE CORRECTIONS HAVE BEEN MADE.

XXX _____ DATE _____

XXX, LANDSCAPE ARCHITECT DATE

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN
1655 N. MAIN ST., STE 365, WALNUT CREEK, CA 94596
T 925.736.8176 www.dgates.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 9/29/2023	SCALE: 1"= 10'-0"	WORK ORDER: CP10126
DESIGN: RC	DRAWN: RC, DSS	CHECKED: EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409 _____

BOUNDARY OAK GOLF COURSE
DRIVING RANGE RENOVATION
COVER SHEET

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER
THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT · DANIEL CHASE · No. 6062 · STATE OF CALIFORNIA
6/30/2024
Issued On
11/06/2023
L.A.

CONTRACT NO.
23-10

SHEET NUMBER
L0.1

1 OF: 10

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-C-BOCC.DWG
PLOT DATE: 11/3/2023 2:12 PM

GENERAL NOTES

1. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF ENGINEER.

2. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL EFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE, OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA, THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

3. ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA CONSTRUCTION AND GENERAL INDUSTRY SAFETY ERRORS, THE OCCUPATIONAL SAFETY AND HEALTH ACT AND THE CONSTRUCTION SAFETY ACT SHALL BE MET.

4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK SHOWN IN THESE PLANS FROM THE APPROPRIATE AGENCIES.

5. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THEIR FAILURE TO DO SO.

6. THE CONTRACTOR MUST PROVIDE FOR SAFE ACCESSIBLE INGRESS AND EGRESS FOR ADJACENT PROPERTY OWNERS AND EVA THROUGHOUT THE PERIOD OF CONSTRUCTION . TEMPORARY THROUGH ACCESS FOR THE GENERAL PUBLIC DUE TO CONSTRUCTION STAGING OR LIMITATIONS MUST BE FULLY REVIEWED AND APPROVED BY THE OWNER PRIOR TO IMPLEMENTATION. ALL ACCESS MUST BE SAFE, SECURED, FLAGGED, SIGNED, AND ACCESSIBLE PER THE APPROVED SITE ACCESS PLAN SUBMITTED BY THE CONTRACTOR AND REQUIRED BY THE OWNER.

7. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EMERGENCY VEHICLE ACCESS, PUBLIC SAFETY AND SAFETY OF EXISTING STRUCTURES. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, FENCING, BARRICADES, TRAFFIC CONTROLS, FLAGGERS , SHORINGS, BRACING AND GUYS OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY IN ACCORDANCE WITH ALL NATIONAL, STATE SPECS AND LOCAL SAFETY ORDINANCES.

8. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF JOB SITE.

9. ALL EXISTING UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 800-227-2600. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.

10. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION MUST BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY ENGINEER OR UTILITY AGENCY REPRESENTATIVE, AT THE CONTRACTOR'S SOLE EXPENSE.

11. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY REPRESENTATIVE INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT NO EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.

12. THE CONSTRUCTION OF ALL GRAVITY UNDERGROUND LINES (STORM DRAINS) SHALL BEGIN AT THE MOST DOWNSTREAM END, UNLESS OTHERWISE SPECIFICALLY APPROVED BY ENGINEER OR BY THE OWNER.

13. IF ARCHEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

14. THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS, IS NEITHER SPECIFIED NOR RECOMMENDED. ANY PARTY INSTALLING OR USING ANY PARTY SUCH MATERIALS OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGES, OR LIABILITIES OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS OR EQUIPMENT.

15. THE CONTRACTOR MUST MEET AND IMPLEMENT ALL NPDES, SWPPP, AND EROSION CONTROL REQUIREMENTS IN EFFECT AT THE TIME OF CONSTRUCTION.

16. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT GATES & ASSOCIATES AT (925) 736-8176 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

LAYOUT NOTES

1. CONTRACTOR SHALL VERIFY ALL UTILITIES, GRADES, EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. ALL DISCREPANCIES OR QUESTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR RESOLUTION.

2. ALL WRITTEN DIMENSIONS SUPERCEDE ALL SCALED DISTANCES AND DIMENSIONS. DIMENSIONS SHOWN ARE FROM THE FACE OF THE BUILDING, WALL, BACK OF CURB, EDGE OF WALK, PROPERTY LINE, OR CENTERLINE OF COLUMN UNLESS OTHERWISE NOTED ON THE DRAWINGS.

3. ALL DIMENSIONS AT BUILDING ARE TO FACE OF BUILDING. ALL DIMENSIONS AT ROADWAY ARE TO FACE OF CURB.

4. ALL ANGLES ARE 45 DEGREE, 90 DEGREE, OR 135 DEGREE UNLESS OTHERWISE NOTED.

5. ALL CURVES AND ALL TRANSITIONS BETWEEN CURVES AND STRAIGHT EDGES SHALL BE SMOOTH.

6. ALL RETURN RADII AND CURB DATA ARE TO FACE OF CURB.

7. WHENEVER BOTTOM OF WALL (BW) ELEVATION IS GIVEN, IT IS FINISH PAVEMENT OR GRADE ELEVATION AT FACE OF WALL.

8. SCORE LINES IN SIDEWALKS SHALL BE SPACED TO EQUAL THE WIDTH OF THE WALKWAY, UNLESS OTHERWISE SHOWN. EXPANSION JOINTS IN SIDEWALKS SHALL BE 20' ON CENTER MAXIMUM.

9. EXPANSION JOINTS IN CONCRETE WALLS SHALL BE AT 40' O.C. MAXIMUM.

10. BUILDING LAYOUT AND LOCATION, SIDEWALK, CURB AND GUTTER, GRADING AND DRAINAGE IS BASED ON DRAWINGS PREPARED BY THE ARCHITECT AND THE CIVIL ENGINEER.

11. STATIONING HEREON IS ALONG CONSTRUCTION CENTERLINE UNLESS OTHERWISE SHOWN OR INDICATED.

12. ANY EXTRA CONSTRUCTION STAKING NECESSITATED SOLELY BY THE CONTRACTOR'S NEGLIGENCE WILL BE CHARGED TO THE CONTRACTOR ON A TIME AND EXPENSES BASIS AND PAID FOR BY THE CONTRACTOR.

13. SEE IRRIGATION DRAWINGS FOR GENERAL SYSTEM REQUIREMENTS AND FOR LOCATION OF IRRIGATION MAINLINE PIPING. SLEEVES TO ACCOMMODATE IRRIGATION PIPING, SIZED AS NEEDED, SHALL BE IN PLACE UNDER AND THROUGH SLABS AND WALLS, PRIOR TO POURING.

14. PROVIDE CONTINUOUS HEADERS AT THE EDGES OF ALL AC PAVING, SHRUB AREAS, LAWN AREAS, DECOMPOSED GRANITE WHERE IT IS NOT CONSTRAINED BY A CONCRETE PAVING OR MOW BAND.

15. ALL CONCRETE PAVEMENTS SHALL BE DOWELED INTO CURBS, SIDEWALKS, AND BUILDING FOUNDATIONS.

16. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION, SECTIONS, REINFORCEMENT, AND PREPARATION. IN CASE OF DISCREPANCY THE GEOTECHNICAL REPORT SHALL GOVERN.

17. ALL TYPICAL DETAILS SHALL APPLY UNLESS NOTED OTHERWISE.

18. ANY AND ALL WORK WITHIN CITY RIGHT OF WAY SHALL CONFORM TO ALL CITY STANDARD DETAILS AND SPECIFICATIONS.

19. CONCRETE FOOTINGS INSTALLED FOR ALL SITE FURNISHINGS, SPORTS EQUIPMENT, ETC. IN DECORATIVE PAVEMENT, ASPHALT PAVING, DECOMPOSED GRANITE, CONCRETE PAVING, AND PLANTERS SHALL BE HELD BELOW GRADE.

20. ALL EXISTING ITEMS TO REMAIN SHALL BE PROTECTED AS REQUIRED. ANY DAMAGED ITEMS SHALL BE FULLY REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE TO THE FULL SATISFACTION OF THE OWNER.

21. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH OPERATIONS.

22. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

23. ALL PATTERNS, LINE TYPES, AND SYMBOLS SHOWN WITHIN THE PLAN SET REFERENCE THE LAYOUT LEGEND AND ARE PART OF THE SCOPE OF WORK. CALLOUTS ARE SHOWN FOR CLARIFICATION OF WORK, BUT DO NOT INDICATE EVERY AND ALL INSTANCES OF SUCH WORK. THE CONTRACTOR SHALL REQUEST CLARIFICATION TO ANY ITEMS (INCLUDING BUT NOT LIMITED TO PAVING, WALLS, FINISHES, COLORS, FENCING, FOUNTAINS, POTS, AND SITE FURNITURE) NOT CLEARLY IDENTIFIED TO BE PART OF THE SCOPE OF WORK PRIOR TO BID.

24. THE CONTRACT DRAWINGS MUST BE ACCOMPANIED BY CONTRACT SPECIFICATIONS. THE CONTRACTOR MUST CONTACT THE LANDSCAPE ARCHITECT AT 925-736-8176 FOR SPECIFICATIONS IF NOT RECEIVED.

25. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK AND MATERIALS OF THE CONTRACT DOCUMENTS INCLUDING ALL WORK AND MATERIALS PROVIDED BY SUBCONTRACTORS. ALL QUALIFICATIONS OF THE CONTRACT DOCUMENTS INCLUDING ALL SPECIFIC EXCLUSIONS OF ANY WORK, DETAILS, MATERIALS, AND INCIDENTALS SHALL BE CONFIRMED AND ACCEPTED IN WRITING BY THE CONTRACTOR AND OWNER UPON FINALIZATION OF BIDS AND CONTRACT. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ALL QUALIFICATIONS AND NOTIFICATIONS.

LAYOUT LEGEND

PAVING SCHEDULE

SYMBOL	NAME	DETAIL	DESCRIPTION/ MANUFACTURER	MODEL	COLOR AND FINISH
	PEDESTRIAN CONCRETE PAVING	1-L3.2	-	-	STANDARD GREY, MEDIUM SANDBLAST

WALL SCHEDULE

SYMBOL	NAME	DETAIL	DESCRIPTION/ MANUFACTURER	MODEL	COLOR AND FINISH
	CONCRETE SEATWALL	2-L3.2	-	-	STANDARD GREY, LIGHT SANDBLAST
	CONCRETE RETAINING SEATWALL	3-L3.2	-	-	STANDARD GREY, LIGHT SANDBLAST

FENCE AND GATE SCHEDULE

SYMBOL	NAME	DETAIL	DESCRIPTION/ MANUFACTURER	MODEL	COLOR AND FINISH
	SCREEN FENCE	7-L3.2	-	-	SEE DETAIL
	6'HT X 6'W WOOD MAINTENANCE GATE	1-L3.4	-	-	SEE DETAIL
	6'HT X 10'W WOOD DOUBLE MAINTENANCE GATE	2-L3.4	-	-	SEE DETAIL

SITE FURNISHING SCHEDULE

SYMBOL	NAME	DETAIL	DESCRIPTION/ MANUFACTURER	MODEL	COLOR AND FINISH
	BENCH	2-L3.3	BELSON	WILMINGTON MODEL 974-S6	MATTE BLACK
	BALL VENDING	-	RANGE SERVANT	BALL DISPENSER ULTIMA-15	-
T|R	TRASH/RECYCLING	-	BELSON	ARCADIA MODEL ACTR-26-CSQ, SURFACE MOUNT PER MFR	BLACK
	STRING LIGHTS	8-L3.2	S.E.D.	S.E.D.	S.E.D.
	TEE STATION	-	TURFHOUND	PS049 SURFACE MOUNT PER MFR	-
	TEE DIVIDER	-	RANGESERVANT	LC1008 SURFACE MOUNT PER MFR	BLACK
	SHIPPING CONTAINER CONCESSIONS/STORAGE BUILDING	1-L3.3	CONTAINER CONCEPTS	PER MFR	SEE DETAIL

SYMBOLS LEGEND

SYMBOL	NAME
PA	PLANTING AREA
	SCORE LINE
EJ	EXPANSION JOINT

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING • URBAN DESIGN

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 9/29/2023	SCALE: 1"= 10'-0"	WORK ORDER: CP10126
DESIGN: RC	DRAWN: RC, DSS	CHECKED: EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION

LAYOUT NOTES & LEGEND

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT
CASEY CASE • No. 6032
Signature
6/30/2024
Renewal Date
11/06/2023
Date
L.A.
STATE OF CALIFORNIA

CONTRACT NO.
23-10

SHEET NUMBER
L0.2

2 OF: 10

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-C-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

PLANTING NOTES

GENERAL

1. ALL WORK SHALL BE PERFORMED BY PERSONS FAMILIAR WITH PLANTING WORK AND UNDER THE SUPERVISION OF A QUALIFIED PLANTING FOREMAN.

2. ALL QUANTITIES AND PLANT COUNTS ARE FOR THE CONVENIENCE OF THE CONTRACTOR. IN CASE OF DISCREPANCIES, THE PLAN SHALL GOVERN.

3. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO MAKE SUBSTITUTIONS, ADDITIONS, AND DELETIONS IN THE PLANTING SCHEME AS THEY FEEL NECESSARY WHILE WORK IS IN PROGRESS, UPON APPROVAL BY THE OWNER. SUCH CHANGES ARE TO BE ACCOMPANIED BY EQUITABLE ADJUSTMENTS IN THE CONTRACT PRICE, WHEN NECESSARY.

4. PLANT MATERIAL LOCATIONS SHOWN ARE DIAGRAMMATIC AND MAY BE SUBJECT TO CHANGE IN THE FIELD BY THE LANDSCAPE ARCHITECT. PLANT LOCATIONS ARE TO BE ADJUSTED IN THE FIELD AS NECESSARY TO SCREEN UTILITIES, BUT SHALL NOT BLOCK WINDOWS, BLOCK SIGNS NOR IMPEDE ACCESS.

5. THE DESIGN INTENT OF THE PLANTING PLAN IS TO ESTABLISH AN ATTRACTIVE MATURE LANDSCAPE APPEARANCE. FUTURE PLANT GROWTH WILL NECESSITATE TRIMMING, SHAPING, AND IN SOME CASE REMOVAL OF TREES AND SHRUBS AS AN ON-GOING MAINTENANCE PROCEDURE.

6. ALL PLANTING AREA MUST BE IRRIGATED WITH AUTOMATIC IRRIGATION SYSTEM. IRRIGATION SYSTEM SHALL BE FULLY AUTOMATED AND OPERATIONAL WITH FULL COVERAGE PRIOR TO PLANTING.

7. CONTRACTOR TO REVIEW ALL EXISTING, PROPOSED, & AS BUILT UTILITY PLANS PRIOR TO CONSTRUCTION. CONTRACTOR TO TAKE PRECAUTIONS IN EXCAVATION OF ALL TREE PLANTING PITS. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS FOUND DURING CONSTRUCTION.

8. CONTRACTOR MUST REVIEW ALL PLANS PRIOR TO THE BEGINNING OF CONSTRUCTION AND MAINTAIN THE FOLLOWING CLEARANCES FOR ALL TREE PLANTINGS. CONTRACTOR TO TAKE PRECAUTION IN ALL EXCAVATION ACTIVITY. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLATION.
   - FIRE HYDRANTS AND PIVS: 5' MINIMUM
   - LIGHT POLES: 10' MINIMUM
   - UTILITIES: 5' MINIMUM
   - BUILDING ROOF EDGE: 5' MINIMUM

9. CONTRACTOR TO PROVIDE AND ARRANGE FOR PLANT MATERIAL THRU CONTRACT GROW, PLANT BROKERS, OR DIRECT PURCHASE AS REQUIRED FOR THE FULL IMPLEMENTATION OF THE PROJECTS PLANTING PLAN. CONTRACTOR MUST SUBMIT WITHIN 30 DAYS AFTER AWARD OF A BID A DETAILED NURSERY LIST OF SECURED PLANT MATERIAL, CONTRACT GROW PLANT MATERIAL, AND ANY SUBSTITUTION REQUESTS. CONTRACTOR SHALL ARRANGE AND SECURE ALL PLANT MATERIAL WITHIN 30 DAYS OF BID. UPON DELIVERY, PLANT MATERIAL THAT DOES NOT MEET NURSERY STANDARDS, IS ROOT BOUND, OF POOR QUALITY & HEALTH, SUBSTANDARD SIZE, AND/OR IS NOT APPROVED BY THE LANDSCAPE ARCHITECT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. MATERIAL WHICH IS NOT SECURED AND IS UNAVAILABLE IN THE SIZE SPECIFIED SHALL BE UP-SIZED, IF AVAILABLE. ALL REPLACEMENT MATERIAL, SUBSTITUTIONS OR UP-SIZED PLANT MATERIAL MUST BE PROVIDED AS REQUIRED FOR THE FULL IMPLEMENTATION OF THE PLANTING PLAN AT NO ADDITIONAL COST TO THE CONTRACT AND OWNER.

10. PROCUREMENT OF PLANT MATERIAL SHALL NOT BE LIMITED TO NORTHERN CALIFORNIA. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRUCKING, INSPECTIONS, AND INCIDENTALS FOR PROVIDING PLANT MATERIAL FROM SOURCES OUT OF STATE AS REQUIRED BY THE PROJECT PLANTING PLAN.

11. CONTRACTOR SHALL PERFORM A PERCOLATION TEST AT THE BEGINNING OF CONSTRUCTION AT 1 LOCATION PER ACRE (MAX OF 4) TO DETERMINE THE DRAINAGE CAPACITY OF THE EXISTING SITE SOIL FOR TREE HEALTH. NOTIFY THE LANDSCAPE ARCHITECT IF DRAINAGE IS LESS THAN 2" PER HOUR.

EXISTING PLANT MATERIAL

1. ALL EXISTING PLANT MATERIAL, TREES, OR LAWN TO REMAIN MUST BE PROTECTED AND MAINTAINED IN PLACE BY THE CONTRACTOR.

2. ANY DAMAGED MATERIAL MUST BE FULLY REPLACED TO MATCH EXISTING BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT AND OWNER.

3. CONTRACTOR MUST MAINTAIN ANY EXISTING IRRIGATION SYSTEMS OR PROVIDE TEMPORARY IRRIGATION SYSTEMS AS REQUIRED TO ALL EXISTING PLANTING AREAS TO REMAIN.

SOILS

1. THE CONTRACTOR MAY PROTECT AND STOCKPILE EXISTING SITE SOILS WHICH MAY BE REUSED FOR PLANTING PURPOSES. EXISTING SOILS SHALL BE TESTED PRIOR TO STOCKPILE FOR SOILS SUITABILITY PER THE REQUIREMENTS BELOW.

3. ALL ORGANIC COMPOST SHALL HAVE AN AGRICULTURAL SUITABILITIES TEST FOR COMPATIBILITY TO EXISTING SITE SOILS. TEST RESULTS SHALL BE DATED WITHIN THE LAST 3 MONTHS OF THE SUBMITTAL.

4. ALL EXISTING SITE SOILS SHALL HAVE AN AGRICULTURAL SUITABILITIES TEST BY AN APPROVED SOILS TESTING LAB (WAYPOINT ANALYTICAL OR APPROVED EQUAL) AND ANALYSIS FOR RECOMMENDATIONS ON ORGANIC COMPOST, AMENDMENTS, GRO POWER FERTILIZER AND ANY INCIDENTALS. RECOMMENDATIONS CONTAINED IN THE SOILS ANALYSIS RESULTS ARE TO BE IMPLEMENTED BEFORE PLANTING OCCURS. CONTRACTOR SHALL PROVIDE UP TO 4 COMBINED TESTS AT LOCATIONS SELECTED BY THE LANDSCAPE ARCHITECT. SOIL SAMPLES TO BE TAKEN AND COMBINED FROM A DEPTH OF 6" AND 24". PROVIDE ADDITIONAL TESTING (ONE 6" AND ONE 24" DEPTH TEST PER 25,000 SF FOR AREAS WHICH WERE LIME TREATED). THE ORGANIC COMPOST TEST RESULTS LISTED ABOVE SHALL BE SUBMITTED TO THE SOILS LAB FOR ACCURATE RECOMMENDATIONS OF THE SOIL AMENDMENT REQUIREMENTS. TEST RESULTS SHALL BE TAKEN AFTER ALL GRADING OPERATIONS ARE COMPLETE.

5. ALL LIME TREATED SOILS IN AREAS TO RECEIVE PLANTING SHALL BE FULLY REMOVED AND REPLACED WITH CLEAN APPROVED IMPORT TOP SOIL AT NO COST TO THE OWNER. AN ADDITIONAL 8 SOILS TESTS MAY BE REQUESTED BY THE LANDSCAPE ARCHITECT. ALL TESTING SHALL BE PAID FOR BY THE CONTRACTOR.

6. ALL SOILS IMPORTED ONTO THE SITE FOR ANY PURPOSE SUCH AS GRADING, NON EXPANSIVE FILL, FILL, OR FOR ANY GENERAL PURPOSE MUST BE TESTED FOR PLANT SUITABILITY PRIOR TO PLACEMENT. ALL IMPORT SOILS SHALL BE NON-DETRIMENTAL TO PLANT MATERIAL AND SOILS ANALYSIS SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. PROVIDE 1 TEST PER 500 CY OF MATERIAL.

7. ALL IMPORT SOILS SHALL BE FREE OF DELETERIOUS MATERIALS, AGGREGATES, AND ROCK. IMPORT SOIL SHALL BE LOAM/ CLAY LOAM WITH A PH BETWEEN 6 AND 7.5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

8. FOR BID PURPOSES AMEND ALL SOIL WITH 6 YARDS OMRI COMPOST, 50LBS GYPSUM, 20LBS SOIL SULFUR AND 160LBS OF GRO-POWER PLUS 5-3-1 W/ M PER 1000SF. CONTRACTOR TO SUBMIT ALL DELIVERY TICKETS FOR COMPOST AND FERTILIZERS FOR VERIFICATION.

9. SOIL IS TO BE AMENDED, AT THE RATE INDICATED BY THE SOIL ANALYSIS, TO BRING THE SOIL ORGANIC MATTER CONTENT TO A MINIMUM OF 3.5% BY DRY WEIGHT, AND A MINIMUM OF 2" OF QUALITY RECYCLED COMPOST, ON ALL PLANTING AREAS.

10. ALL PLANTERS IN AREAS WHICH HAVE BEEN COMPACTED, SUCH AS CONSTRUCTION STAGING AREAS AND IN PARKING LOTS, SHALL BE CROSS RIPPED TO THE FOLLOWING DEPTHS: PLANTERS LESS THAN THREE (3) FEET WIDE SHALL HAVE COMPACTION RELIEVED TO A MINIMUM DEPTH OF TWENTY-FOUR (24) INCHES BELOW SUBGRADE. PLANTERS THREE TO TEN (3-10) FEET WIDE MUST HAVE COMPACTION RELIEVED TO A MINIMUM DEPTH OF 18" BELOW SUBGRADE, PLANTERS MORE THAN 10' WIDE SHALL HAVE COMPACTION RELIEVED TO A MINIMUM DEPTH OF 12" BELOW SUBGRADE. AREAS SHALL BE PROTECTED AFTER DECOMPACTION.

TREES

1. ALL TREES SHALL BE STANDARDS UNLESS SPECIFICALLY NOTED.

2. ALL TREES ARE TO BE STAKED AS SHOWN ON THE TREE STAKING/GUYING DIAGRAMS. BRANCHING HEIGHT OF TREES SHALL BE A 6'-0" MINIMUM ABOVE FINISH GRADE. ALL TREES IN A FORMAL GROUP PLANTING MUST BE MATCHING IN SIZE AND SHAPE. ALL STREET TREES TO BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE OWNER. LANDSCAPE ARCHITECT SHALL BE CONSULTED REGARDING ORIENTATION OF TREES PRIOR TO PLANTING AND/OR BACKFILLING.

3. PLANT TREES 3'-0" MINIMUM FROM FACE OF CURB AT PARKING, AND FROM EDGES OF PAVING. ALL TREES WITHIN 5' OF PAVING AREAS AND BUILDINGS MUST HAVE ROOT BARRIERS INSTALLED. SEE ROOT BARRIER DETAIL. DEEP ROOT BARRIER MODEL NO. UB.24.2. (415) 344-1464. INSTALL PER MANUFACTURER'S SPECIFICATIONS. WHERE WATER BARRIERS AND ROOT BARRIERS ARE REQUIRED, USE CENTURY PRODUCTS DUAL PURPOSE WATER/ ROOT BARRIER CR-PE24-20, (714)632-7083, S.C.D. FOR LOCATIONS OF WATER BARRIER.

4. PROVIDE 4" BERM AROUND TREE FOR WATER BASIN. SEE TREE STAKING DETAIL. BERM TO BE REMOVED IN LAWN AREA AFTER INITIAL MAINTENANCE PERIOD. MULCH TREE WELL WITH 3" LAYER OF RECYCLED CHIPPED MULCH. KEEP MULCH AWAY FROM TREE TRUNK. HOLD LAWN AND HYDROSEED 2' CLEAR FROM TRUNKS, TYP.

5. TREES MUST HAVE AN UNCUT LEADER THAT HAS A UNIFORM TAPER FROM BASE TO TIP. TREES MUST MEET AT LEAST NORMAL CALIPER AND HEIGHT FOR CONTAINER SIZE. OVERGROWN OR ROOT BOUND TREES ARE NOT ACCEPTABLE.

6. FOR ALL TREES IN STORMWATER INFILTRATION ZONES HOLD FG OF ROOTBALL 4" ABOVE FG OF FLOWLINE. ADJUST ADJACENT GRADE OF SOIL TO BLEND UNIFORMLY AROUND ROOTBALL AND ALLOW UNIMPEDED FLOW OF WATER.

SHRUBS, GROUNDCOVERS AND VINES

1. GROUNDCOVER MUST BE PLANTED AS SHOWN ON THE PLAN, INCLUDING UNDER SHRUBS AND IN TREE WATERING BASINS.

2. SHRUBS AND PERENNIALS MUST HAVE ADEQUATE SETBACK FROM THE ADJACENT SIDEWALK AND EDGES OF PARKING LOT CURBS. NOTIFY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION IF PLANT MATERIAL MAY PROTRUDE INTO THE PATH OF TRAVEL.

3. THE CONTRACTOR IS TO SECURE ALL VINES TO TRELLISES WITH APPROVED FASTENERS, ALLOWING FOR TWO (2) YEARS GROWTH. SUBMIT SAMPLE TO LANDSCAPE ARCHITECT.

ACCESSORIES

1. ALL PLANTING NOT BOUNDED BY CONCRETE OR A HARDSCAPE EDGE SHALL BE COMPLETELY SURROUNDED BY HEADERS. ALL ASPHALT AND DECOMPOSED GRANITE AREAS TO BE COMPLETELY SURROUNDED BY HEADERS OR ADJACENT CONCRETE WORK.

2. ALL PLANTING AREAS MUST BE TOP-DRESSED WITH 3" LAYER OF RECYCLED CHIPPED MULCH. COLOR: BROWN. SUBMIT SAMPLE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ORDERING.

3. ALL MULCH WITHIN STORMWATER PLANTING AREAS MUST BE 3" OF WASHED PEA GRAVEL. SUBMIT SAMPLE FOR REVIEW AND APPROVAL.

4. ALL STORMWATER CURB CUTS MUST BE REINFORCED WITH A MINIMUM 12" WIDE X18" LONG X 6" DEEP BAND OF COBBLE. COBBLE SHALL BE 40% 4"-6" AND 60% 2"-3" NOIYO COBBLE. PROVIDE 24" WIDE BY 6" DEPTH OF COBBLE AROUND ALL CATCH BASINS LOCATED IN DRAINAGE AREAS. SUBMIT SAMPLE FOR REVIEW AND APPROVAL

5. ALL RAINWATER LEADERS DISCHARGING INTO LANDSCAPE AREAS MUST HAVE SPLASH BLOCKS. MODEL: CDI 16X24". COLOR: TO MATCH PAVING. (800) 279-2278.

6. ALL SLOPES GREATER THAN 2.5:1 MUST BE COVERED WITH EROSION CONTROL NETTING PER THE MANUFACTURER'S SPECIFICATIONS. OVERLAP ALL EDGES A MINIMUM OF 12" AND SECURE AS REQUIRED WITH METAL STAPLES. EROSION CONTROL NETTING TO BE WESTERN EXCELSIOR, EXCEL CS-3 OR APPROVED EQUAL.AVAILABLE FROM REED & GRAHAM 888-381-0800.

7. SEE SPECIFICATIONS FOR ALL FERTILIZER REQUIREMENTS

SUBMITTALS

1. CONTRACTOR MUST SUBMIT ALL TESTS, PRODUCTS, ACCESSORIES, INCIDENTALS, CUT SHEETS OF ALL ITEMS SPECIFIED FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

2. ALL PLANT MATERIAL MUST BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO DELIVERY. CONTRACTOR SHALL SUBMIT PHOTOS OF ALL SHRUBS, GROUND COVERS, VINES, AND TREES FOR PRELIMINARY REVIEW AND APPROVAL.

3. ALL SUBMITTALS AND PLANT MATERIAL NOT REVIEWED AND APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT MAY BE SUBJECT TO FULL REMOVAL AND REPLACEMENT WITH APPROVED SOILS, FERTILIZERS, AND PLANT MATERIAL AT NO ADDITIONAL COST TO THE CONTRACT OR OWNER.

4. SUBMITTALS AND SITE MOCKUPS OF ALL WORK SHALL BE REQUIRED PRIOR TO FINAL PLACEMENT INCLUDING BUT NOT LIMITED TO ALL WALLS, PAVEMENTS, COLORS, FINISHES, METAL WORK, FENCING, AND PAINTING FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT. SEE SPECIFICATIONS.

MUNICIPAL REQUIREMENTS

1. ALL PLANT MATERIAL TO BE INSPECTED & APPROVED BY CITY REPRESENTATIVE AND LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

2. CONTACT THE PROJECT LANDSCAPE ARCHITECT FOR FINAL INSPECTION OF LANDSCAPE AND IRRIGATION. PRIOR TO RELEASE OF BUILDING FOR OCCUPANCY, THE PROJECT LANDSCAPE ARCHITECT WILL SUBMIT A LETTER TO THE CITY CERTIFYING THE PLANTING AND IRRIGATION HAS BEEN INSTALLED IN CONFORMANCE WITH THE APPROVED PLANTING AND IRRIGATION PLANS, SUBJECT TO THE REVIEW AND APPROVAL OF THE CITY LANDSCAPE ARCHITECT. SECURITIES IN LIEU OF INSTALLATION WILL NOT BE ACCEPTED.

3. DURING THE INSTALLATION OF LANDSCAPING AND INSTALLATION AND PRIOR TO THE ISSUANCE OF A BUILDING OCCUPANCY PERMIT, THE LANDSCAPE ARCHITECT MUST INSPECT AND MONITOR THE INSTALLATION OF MATERIALS TO VERIFY CONFORMANCE TO THESE PLANS. ONCE APPROVED, THE LANDSCAPE ARCHITECT SHALL PROVIDE A WRITTEN LETTER TO DEPARTMENT OF PLANNING AND DEVELOPMENT STATING COMPLIANCE WITH THE APPROVED PLANS.

PLANTING LEGEND

Symbol	Name		Symbol
XXX / ##	TREE NAME / QUANTITY	SEE PLANT LIST / FOR ADDT'L. INFO.	X / LX
XX / ##	SHRUB NAME / QUANTITY	SEE PLANT LIST / FOR ADDT'L. INFO.	X / LX

PLANTING SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING
AM	ARBUTUS X 'MARINA'	MARINA STRAWBERRY TREE STANDARD	24" BOX	L	AS SHOWN
LIW	LAGERSTROEMIA INDICA 'WHIT III'	PINK VELOUR CRAPE MYRTLE	24" BOX	L	AS SHOWN
QAR	QUERCUS AGRIFOLIA	COAST LIVE OAK	24" BOX	L	AS SHOWN
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**WATER USE**	**SPACING**
AA	AGAVE ATTENUATA	FOXTAIL AGAVE	5 GAL	L	AS SHOWN
AB	ANIGOZANTHOS X 'BIG RED'	BIG RED KANGAROO PAW	5 GAL	L	36" O.C.
CK	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	5 GAL	L	30" O.C.
LI	LOMANDRA LONGIFOLIA 'BREEZE'	BREEZE ™ MAT RUSH	5 GAL	L	48" O.C.
MC	MUHLENBERGIA CAPILLARIS 'PINK CLOUD'	PINK CLOUD PINK MUHLY GRASS	5 GAL	L	36" O.C.
MR	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL	L	48" O.C.
GROUND COVERS	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**WATER USE**	**SPACING**
BP	BACCHARIS PILULARIS 'TWIN PEAKS'	TWIN PEAKS COYOTE BRUSH	1 GAL	L	60" O.C.
MP	MYOPORUM PARVIFOLIUM 'PINK'	PINK TRAILING MYOPORUM	1 GAL	L	72" O.C.
RI	ROSMARINUS OFFICINALIS 'IRENE'	IRENE TRAILING ROSEMARY	1 GAL	L	72" O.C.

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 9/29/2023	SCALE: 1"= 10'-0"	WORK ORDER: CP10126
DESIGN: RC	DRAWN: RC, DSS	CHECKED: EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION

PLANTING NOTES & LEGEND

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

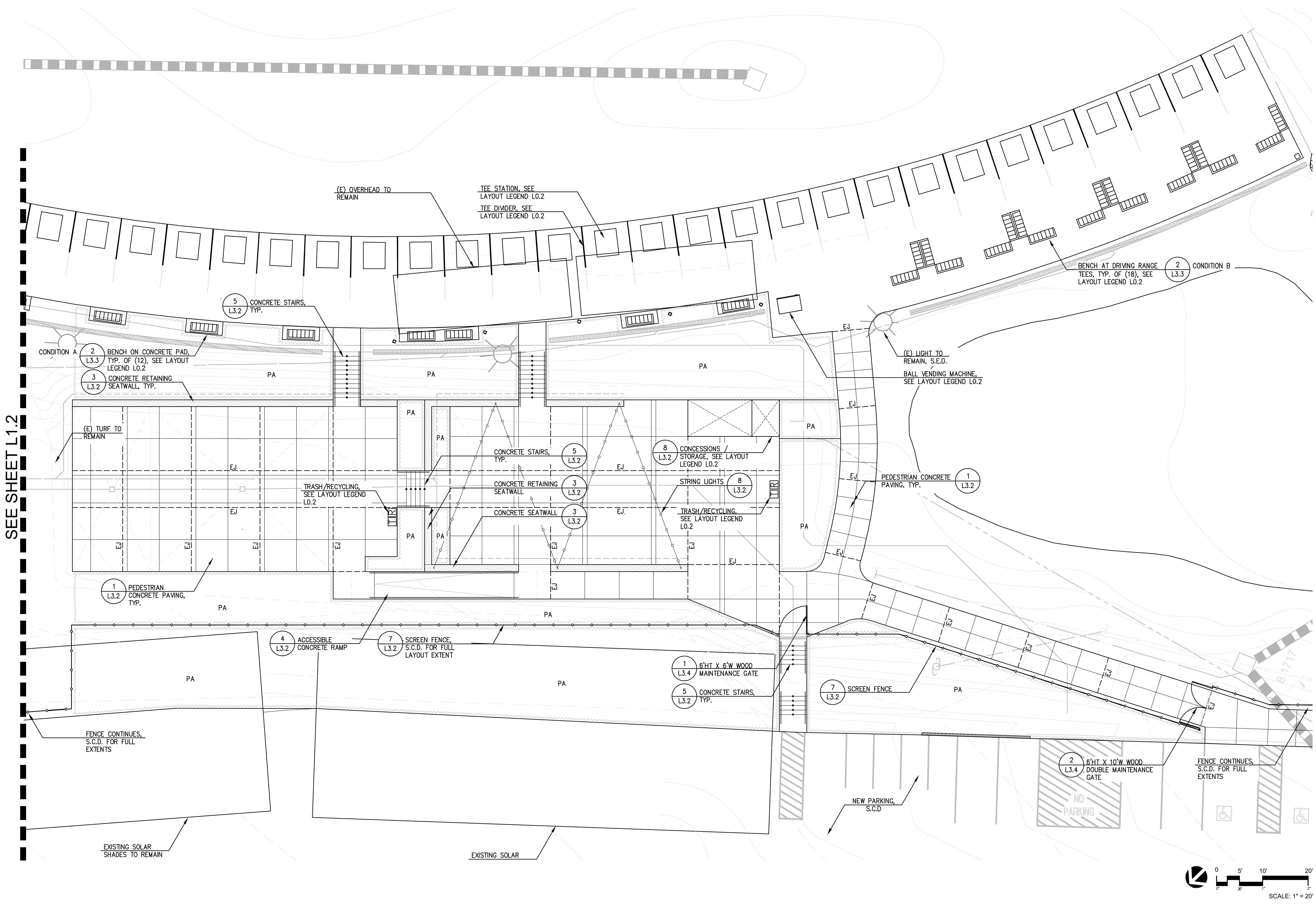
PREPARED UNDER THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT · 8/30/2024 · 11/06/2023 · L.A. · STATE OF CALIFORNIA

CONTRACT NO.
23-10

SHEET NUMBER
L0.3

3 OF: 10



(E) OVERHEAD TO REMAIN
TEE STATION, SEE LAYOUT LEGEND L0.2
TEE DIVIDER, SEE LAYOUT LEGEND L0.2
5 L3.2 CONCRETE STAIRS, TYP.
CONDITION A
2 L3.3 BENCH ON CONCRETE PAD, TYP. OF (12), SEE LAYOUT LEGEND L0.2
3 L3.2 CONCRETE RETAINING SEATWALL, TYP.
PA
(E) TURF TO REMAIN
SEE SHEET L1.2
EJ
5 L3.2 CONCRETE STAIRS, TYP.
8 L3.2 CONCESSIONS STORAGE, SEE LAYOUT LEGEND L0.2
TRASH/RECYCLING, SEE LAYOUT LEGEND L0.2
3 L3.2 CONCRETE RETAINING SEATWALL
8 L3.2 STRING LIGHTS
3 L3.2 CONCRETE SEATWALL
TRASH/RECYCLING, SEE LAYOUT LEGEND L0.2
1 L3.2 PEDESTRIAN CONCRETE PAVING, TYP.
BENCH AT DRIVING RANGE TEES, TYP. OF (18), SEE LAYOUT LEGEND L0.2
2 L3.3 CONDITION B
(E) LIGHT TO REMAIN, S.E.D.
BALL VENDING MACHINE, SEE LAYOUT LEGEND L0.2
1 L3.2 PEDESTRIAN CONCRETE PAVING, TYP.
4 L3.2 ACCESSIBLE CONCRETE RAMP
7 L3.2 SCREEN FENCE, S.C.D. FOR FULL LAYOUT EXTENT
1 L3.4 6'HT X 6'W WOOD MAINTENANCE GATE
5 L3.2 CONCRETE STAIRS, TYP.
7 L3.2 SCREEN FENCE
FENCE CONTINUES, S.C.D. FOR FULL EXTENTS
EXISTING SOLAR SHADES TO REMAIN
EXISTING SOLAR
NEW PARKING, S.C.D
2 L3.4 6'HT X 10'W WOOD DOUBLE MAINTENANCE GATE
NO PARKING
FENCE CONTINUES, S.C.D. FOR FULL EXTENTS
0 5' 10' 20'
SCALE: 1" = 20'

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P#####)\ACAD\SHEETS_DG-L-BOOC.DWG
PLOT DATE: 11/3/2023 2:13 PM

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN

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APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION
LAYOUT PLAN

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

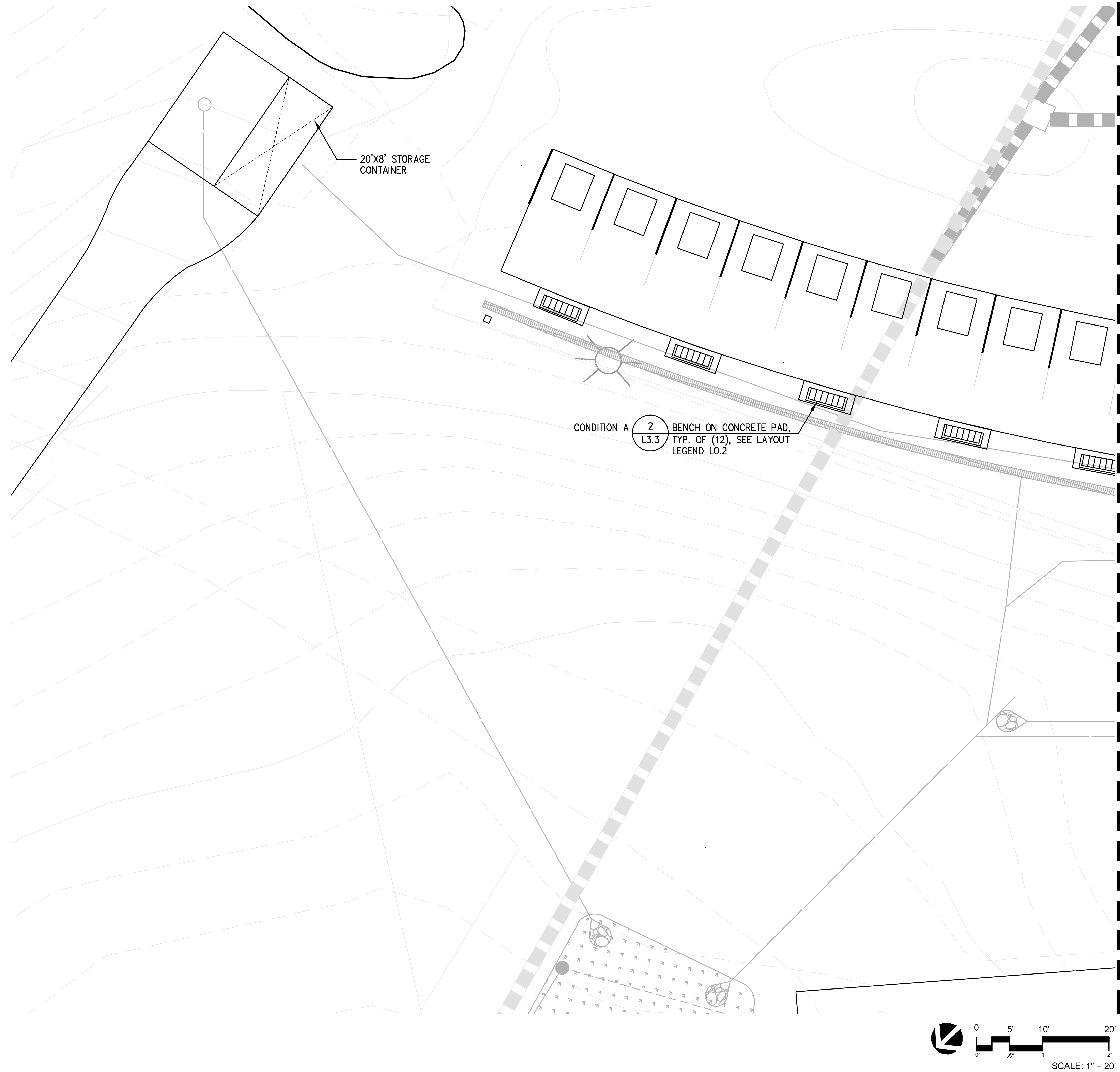
PREPARED UNDER THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT, STATE OF CALIFORNIA, 8/30/2024, 11/06/2023

CONTRACT NO.
23-10

SHEET NUMBER
L1.1

4 OF: 10



GATES +ASSOCIATES
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APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION
LAYOUT PLAN

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT · STATE OF CALIFORNIA
8/30/2024
11/06/2023
L.A.

CONTRACT NO.
23-10

SHEET NUMBER
L1.2
5 OF: 10

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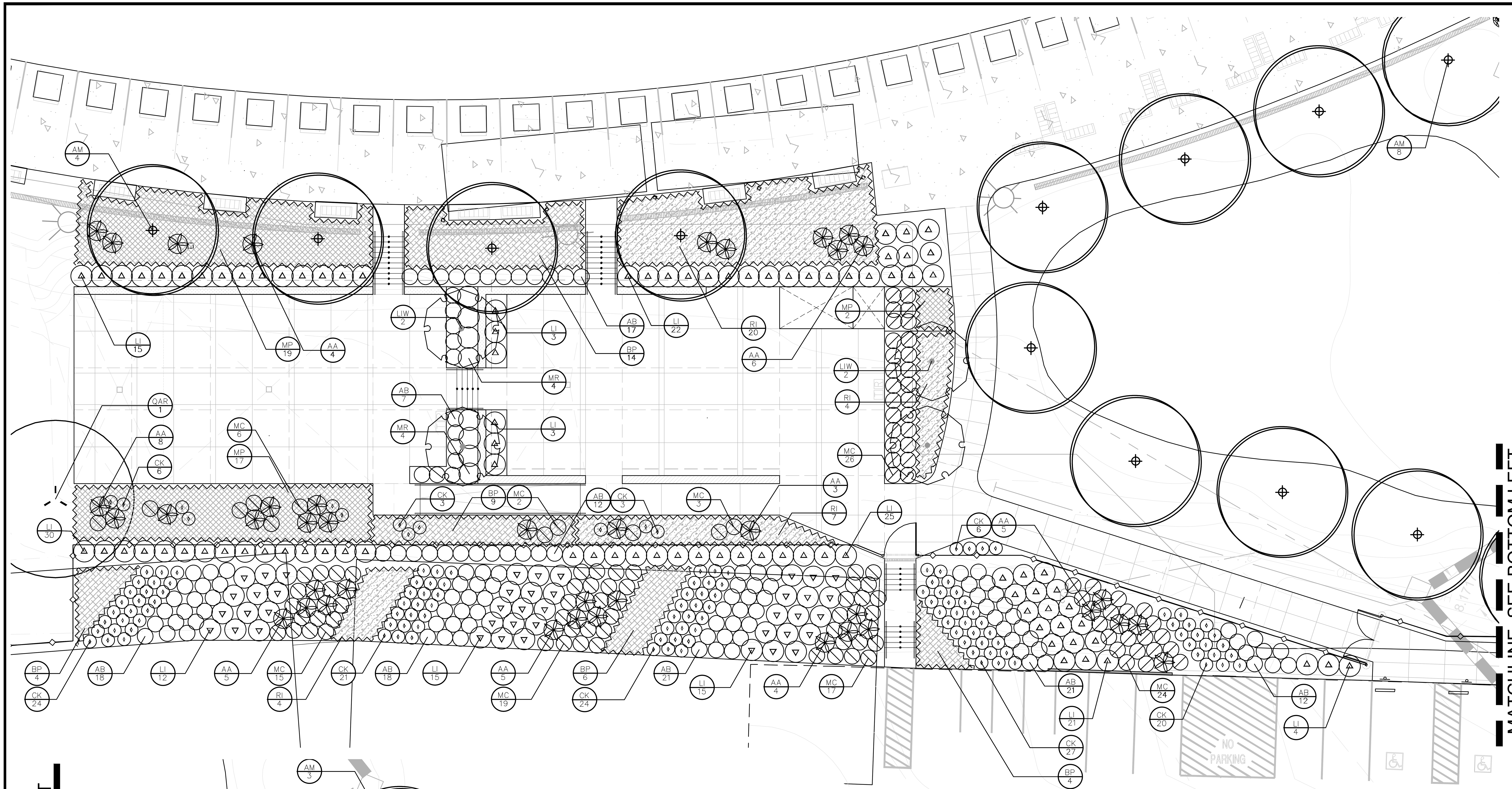
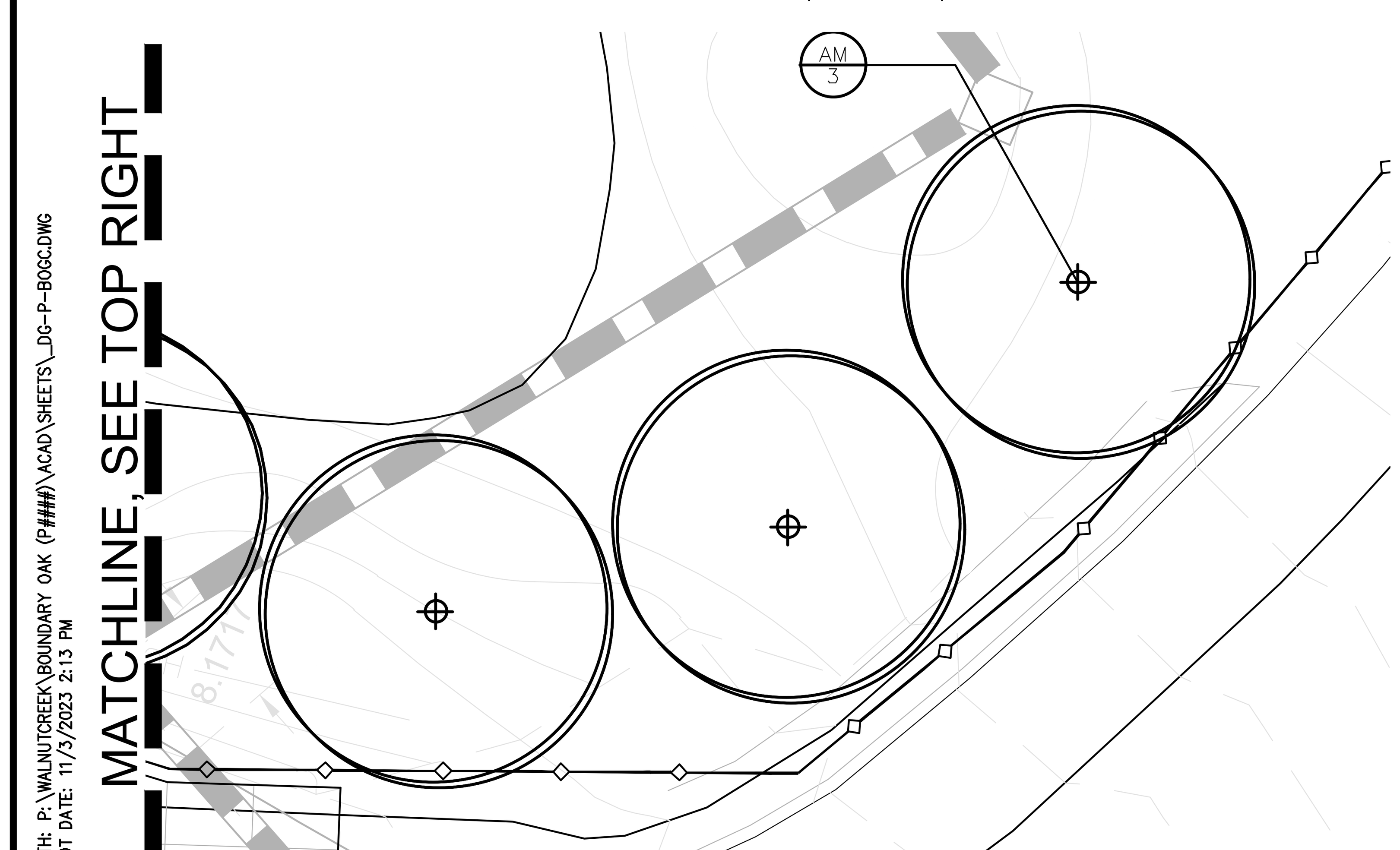
PLOT DATE: 11/3/2023 2:13 PM





0 5' 10' 20'

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE	SPACING	QTY
AM	ARBUTUS X 'MARINA'	MARINA STRAWBERRY TREE STANDARD	24" BOX	L	AS SHOWN	15
LIW	LAGERSTROEMIA INDICA 'WHIT III'	PINK VELOUR CRAPE MYRTLE	24" BOX	L	AS SHOWN	4
QAR	QUERCUS AGRIFOLIA	COAST LIVE OAK	24" BOX	L	AS SHOWN	1
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**WATER USE**	**SPACING**	**QTY**
AA	AGAVE ATTENUATA	FOXTAIL AGAVE	5 GAL	L	AS SHOWN	40
AB	ANIGOZANTHOS X 'BIG RED'	BIG RED KANGAROO PAW	5 GAL	L	36" O.C.	120
CK	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	5 GAL	L	30" O.C.	130
LI	LOMANDRA LONGIFOLIA 'BREEZE'	BREEZE™ MAT RUSH	5 GAL	L	48" O.C.	135
MC	MUHLENBERGIA CAPILLARIS 'PINK CLOUD'	PINK CLOUD PINK MUHLY GRASS	5 GAL	L	36" O.C.	108
MR	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL	L	48" O.C.	8
GROUND COVERS	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**WATER USE**	**SPACING**	**QTY**
BP	BACCHARIS PILULARIS 'TWIN PEAKS'	TWIN PEAKS COYOTE BRUSH	1 GAL	L	60" O.C.	36
MP	MYOPORUM PARVIFOLIUM 'PINK'	PINK TRAILING MYOPORUM	1 GAL	L	72" O.C.	38
RI	ROSMARINUS OFFICINALIS 'IRENE'	IRENE TRAILING ROSEMARY	1 GAL	L	72" O.C.	35

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-P-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN
1655 N. MAIN ST, STE 365, WALNUT CREEK, CA 94596
T 925.736.8176 www.dgates.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
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STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION

PLANTING PLAN

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF

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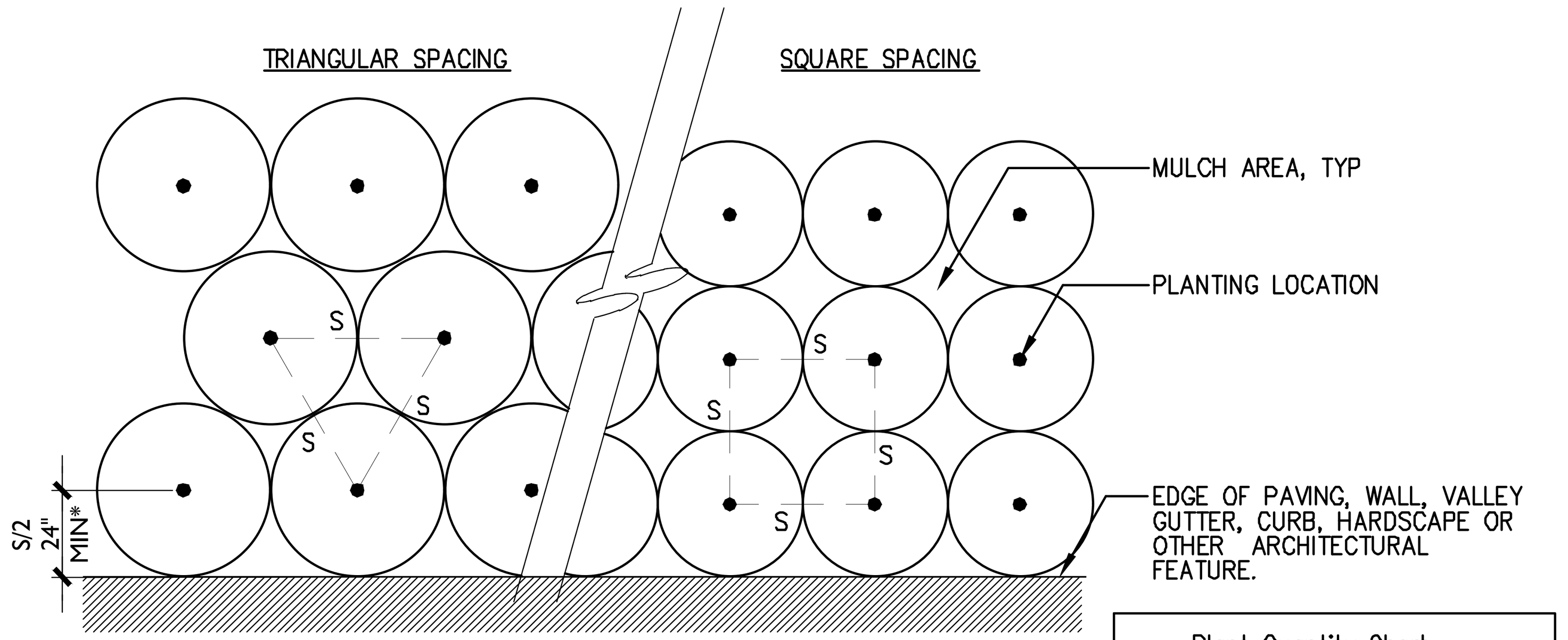
CONTRACT NO.
23-10

SHEET NUMBER
L2.1

6 OF: 10

6 PLANT SPACING
SCALE: 1" = 1'-0"



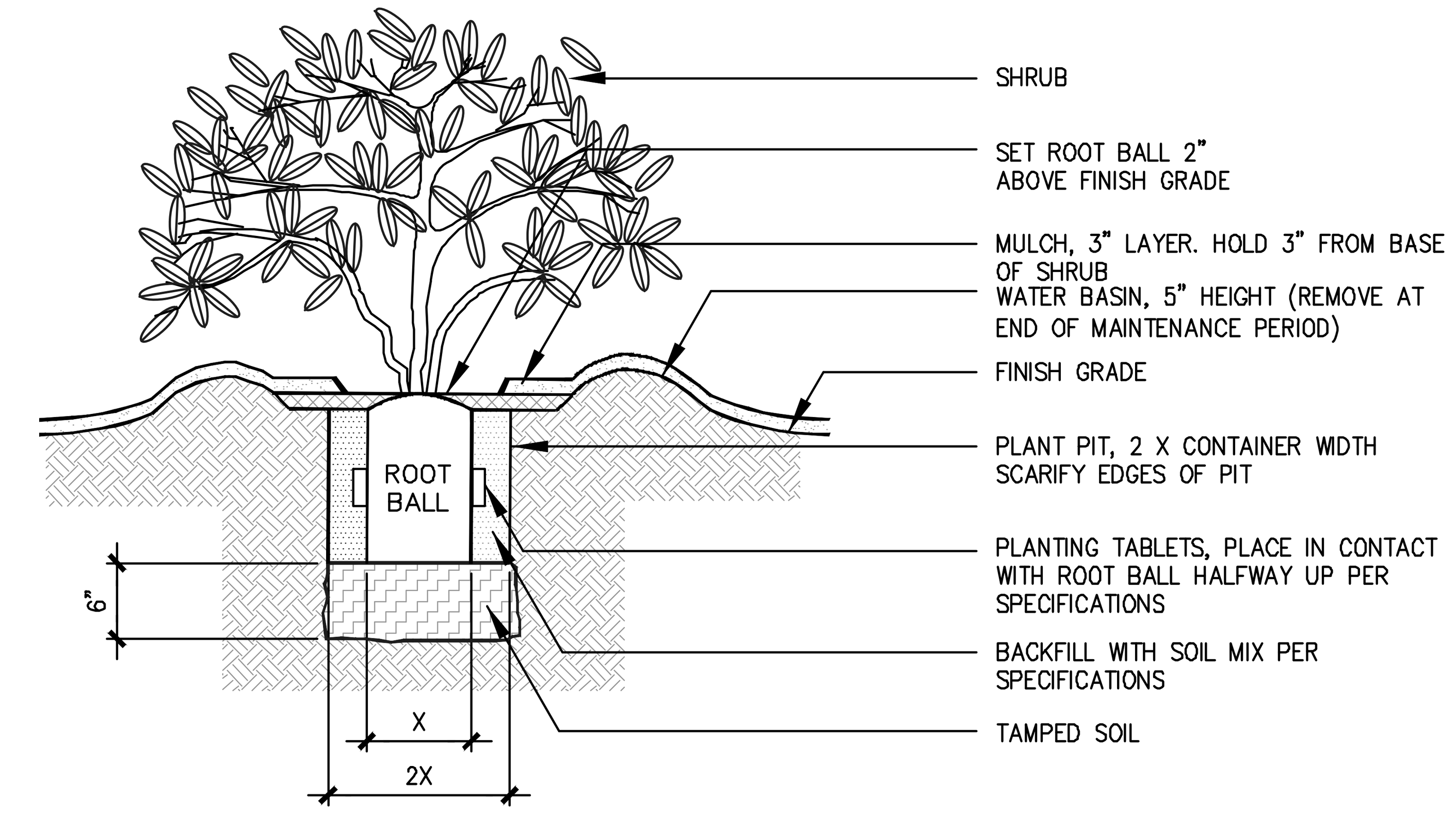
NOTES:
A. S = PLANT SPACING DISTANCE ON CENTER, SEE CHART
B. FOR USE AS A GUIDE FOR SHRUBS AND GROUNDCOVER WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER.

*AT ALL SHRUB AND GROUNDCOVER LOCATIONS WHERE SPRAY IRRIGATION IS USED, HOLD PLANTING 24" CLEAR OF CURB LINE IN CONJUNCTION WITH IRRIGATION PER AB 1881.

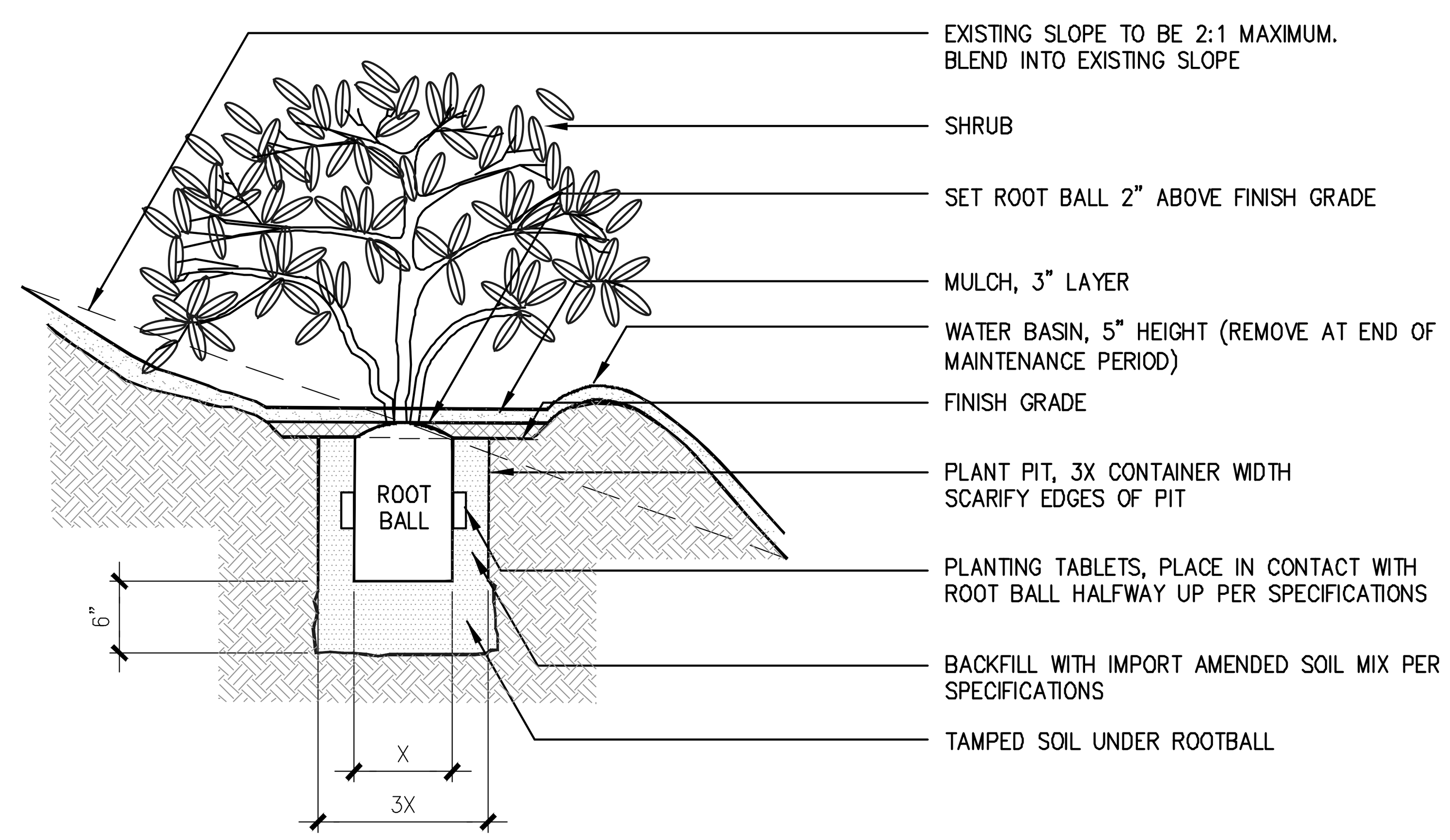
Plant Quantity Chart

Spacing	# of Plants/S.F.
6" o.c.	4.60
8" o.c.	2.60
12" o.c.	1.15
18" o.c.	.512
24" o.c.	.290
30" o.c.	.185
36" o.c.	.128
42" o.c.	.087
48" o.c.	.063

3 SHRUB PLANTING
SCALE: N.T.S.

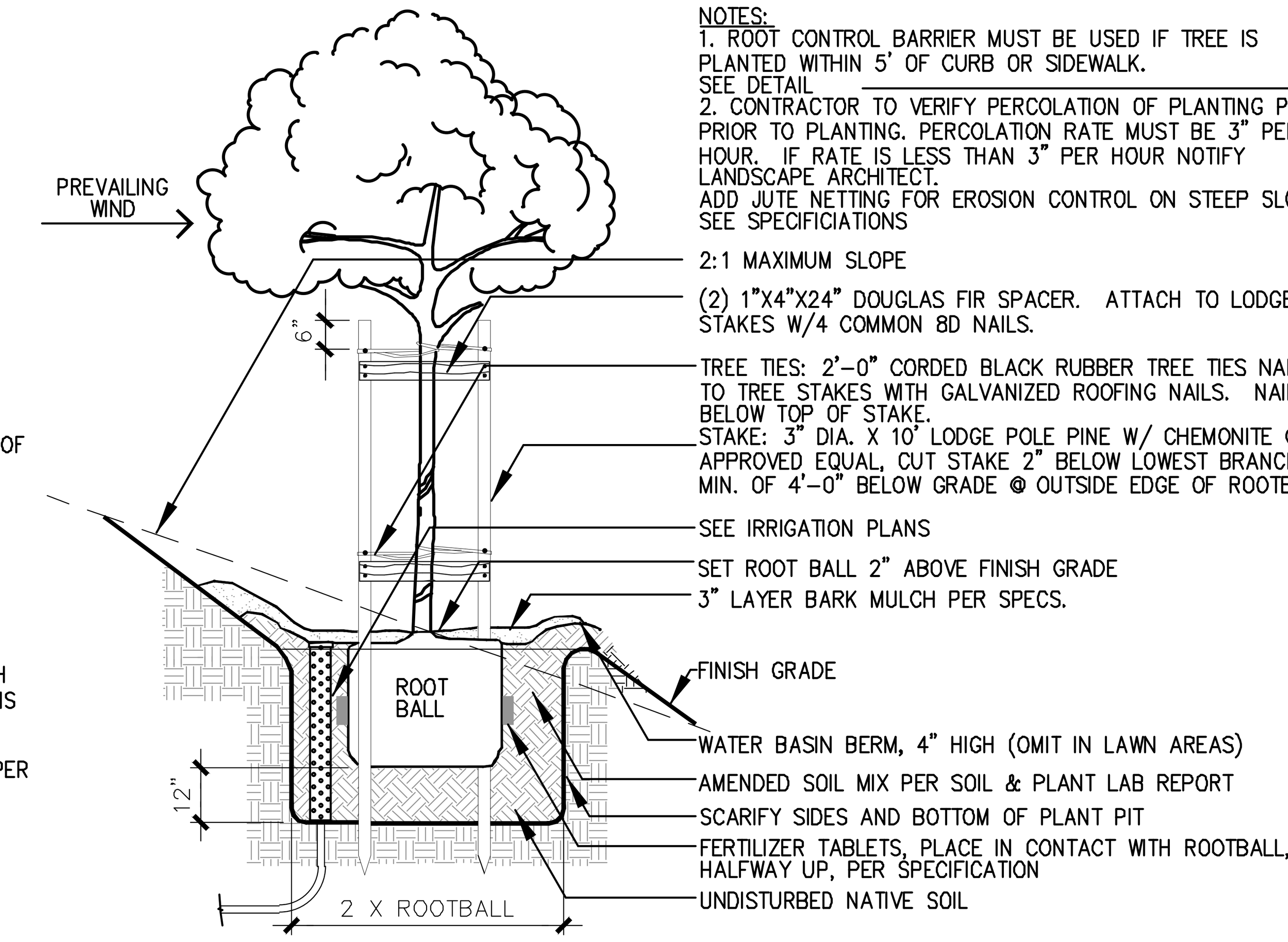


5 SHRUB PLANTING ON SLOPE
SCALE: 3/8" = 1'-0"



2 TREE PLANTING ON SLOPE
SCALE: 3/8" = 1'-0"

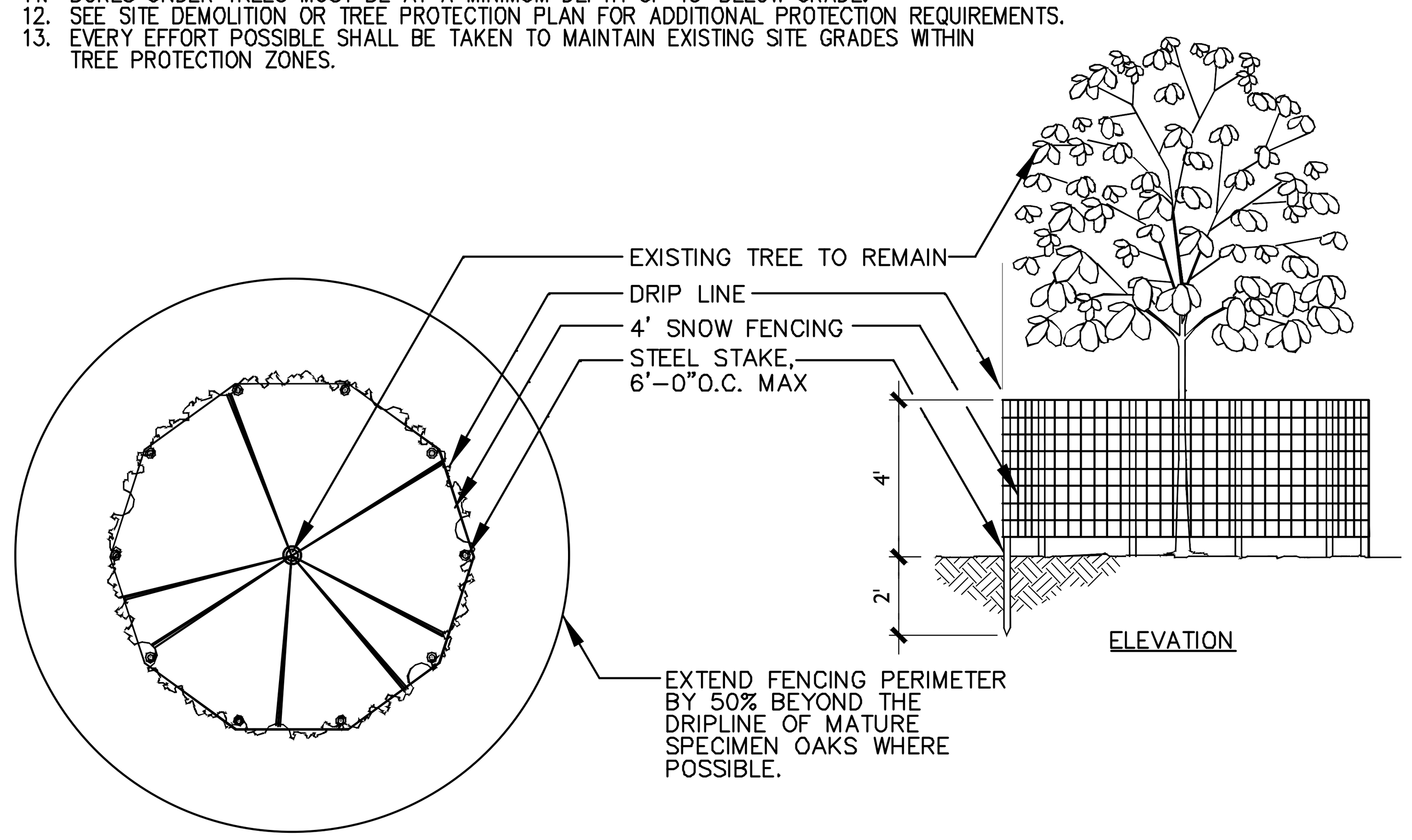
NOTES:
1. ROOT CONTROL BARRIER MUST BE USED IF TREE IS PLANTED WITHIN 5' OF CURB OR SIDEWALK. SEE DETAIL 4 / I-3.1
2. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO PLANTING. PERCOLATION RATE MUST BE 3" PER HOUR. IF RATE IS LESS THAN 3" PER HOUR NOTIFY LANDSCAPE ARCHITECT.
ADD JUTE NETTING FOR EROSION CONTROL ON STEEP SLOPE; SEE SPECIFICIATIONS



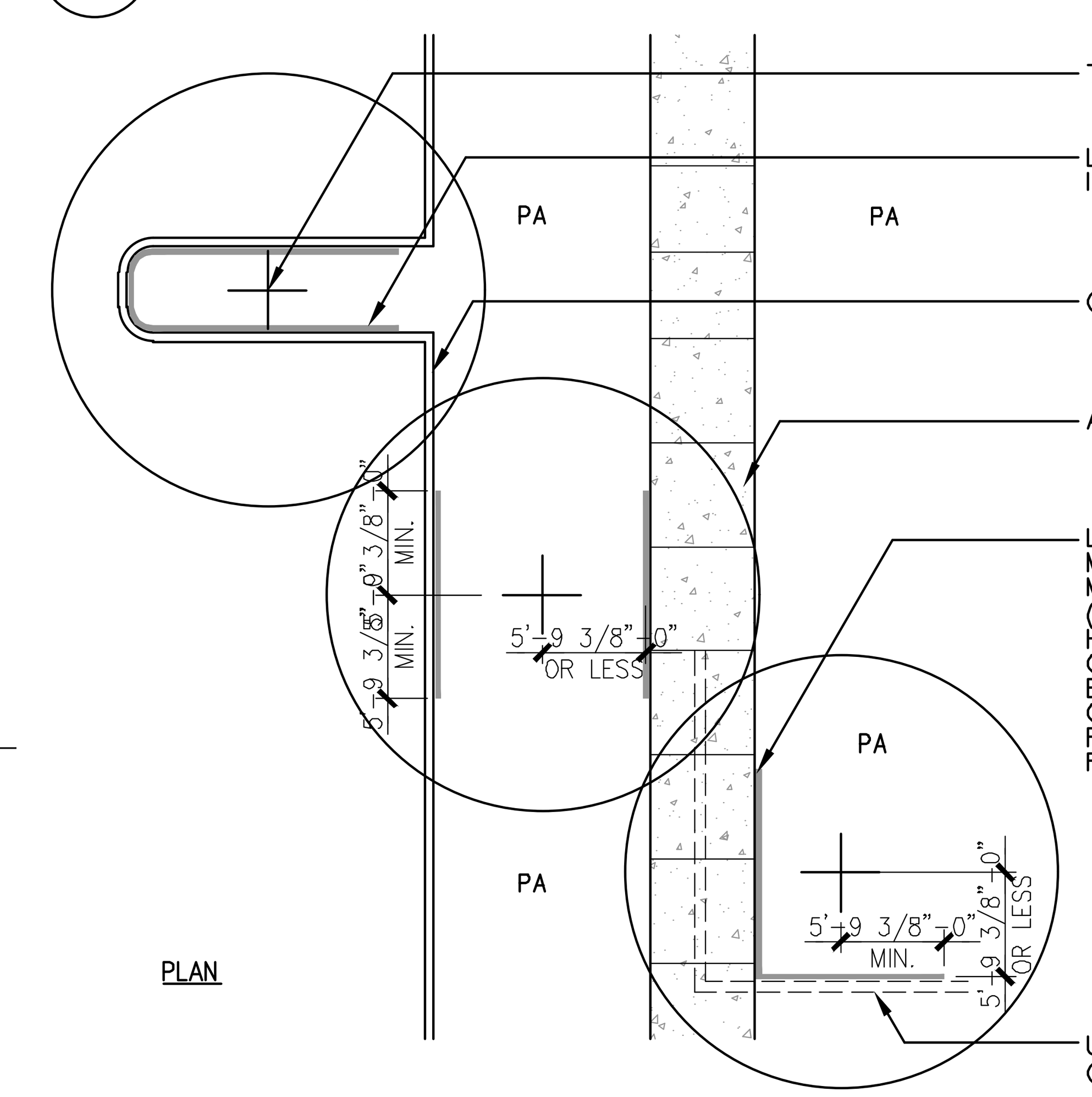
TREE PROTECTION NOTES

1. WHEN PROVIDED, SEE SPECIFICATION FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. WHEN NO EXISTING IRRIGATION IS PROVIDED OR HAS BEEN REMOVED, WHEN PROVIDED SEE SPECIFICATION FOR WATERING REQUIREMENTS.
3. PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITY IN THE AREA, INCLUDING GRADING, TEMPORARY PROTECTIVE FENCING SHALL BE INSTALLED AT EACH SITE TREE. FENCING SHALL BE LOCATED AT OR BEYOND THE CANOPY DRIP LINE SO THAT 100% OF THE DRIP LINE WILL BE PROTECTED BY FENCING. TO REDUCE SOIL COMPACTION FROM EQUIPMENT.
4. THE CONTRACTOR IS REQUIRED TO WATER, FERTILIZE AND ATTEND TO OTHER MAINTENANCE NEEDS OF EXISTING TREES AS NEEDED PER ARBORIST'S RECOMMENDATIONS TO MAINTAIN HEALTHY GROWTH THROUGHOUT THE CONSTRUCTION PERIOD. SIX FEET DIAMETER, MINIMUM, BY SIX INCH TALL EARTH BERMS SHALL BE CONSTRUCTED AT THE BASE OF EACH TREE TO FUNCTION AS TEMPORARY WATERING BASINS DURING THE CONSTRUCTION PERIOD. TREES SHALL BE WATERED ACCORDING TO WEATHER AND TREE REQUIREMENTS. APPROVED MULCH OF 1-2 INCH SIZED WOOD CHIPS SHALL BE PLACED AT A DEPTH OF 4 INCHES WHERE NO EXCAVATION IS TO OCCUR IN THE VICINITY OF THE TREES TO BE PROTECTED.
5. LOW HANGING LIMBS OF SAVED TREES SHALL BE PRUNED PRIOR TO GRADING, OR ANY EQUIPMENT MOBILIZATION ON SITE. ALL LIMBS TO BE PRUNED TO BE PRIOR APPROVED BY ARBORIST. THE PURPOSE OF THIS REQUIREMENT IS TO AVOID TEARING LIMBS BY HEAVY EQUIPMENT
6. THIS FENCING SHALL SERVE AS A BARRIER TO PREVENT DRIP LINE ENCROACHMENT OF ANY TYPE OF CONSTRUCTION ACTIVITIES AND EQUIPMENT. NO OILS,. GAS, CHEMICALS, LIQUID WASTE, SOLID WASTE CONSTRUCTION MACHINERY OR CONSTRUCTION MATERIALS SHALL BE STORED OR ALLOWED TO STAND FOR ANY PERIOD OF TIME WITHIN THE DRIP LINE OF THE TREE. FURTHER, NO ONE SHALL ENTER THE FENCE PERIMETER FOR ANY REASON EXCEPT FOR THE PURPOSE OF MONITORING THE HEALTH OF THE TREE. ACCIDENTAL DAMAGE TO BARK, ROOT CROWN, OR LIMBS MAY INCREASE POTENTIAL FOR FUTURE DECLINE.
7. AN 8.5" x 11" LAMINATED 'KEEP OUT – TREE PROTECTION ZONE' SIGN SHALL BE POSTED AT EACH TREE INDICATING THE PURPOSE OF THE FENCING AT MAXIMUM 50' INTERVALS WHEN APPLICABLE.
10. WHERE AND WHEN APPLICABLE WHEN ACCESS ROADS CROSS INTO TREE PROTECTION ZONE, CONTRACTOR TO PROVIDE PROTECTED ROOT ZONE WITH MINIMUM 8" THICKNESS OF ORGANIC MULCH.
11. BORES UNDER TREES MUST BE AT A MINIMUM DEPTH OF 48' BELOW GRADE.
12. SEE SITE DEMOLITION OR TREE PROTECTION PLAN FOR ADDITIONAL PROTECTION REQUIREMENTS.
13. EVERY EFFORT POSSIBLE SHALL BE TAKEN TO MAINTAIN EXISTING SITE GRADES WITHIN TREE PROTECTION ZONES.

7 EXISTING TREE PROTECTIVE FENCING
SCALE: 1/4" = 1'-0"

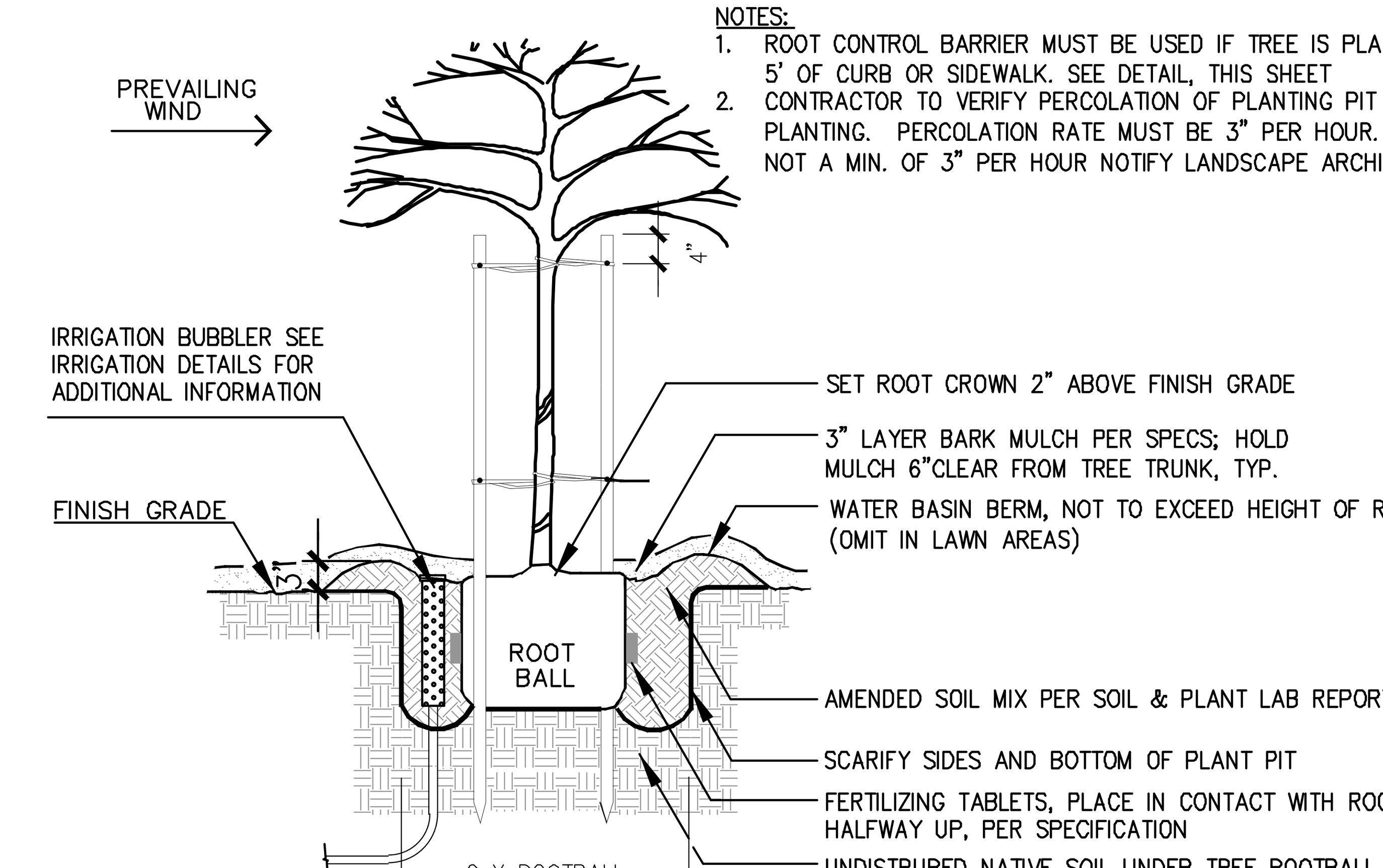


4 LINEAR ROOT BARRIER
SCALE: 1" = 10'-0"



1 TREE PLANTING
SCALE: 3/8" = 1'-0"

NOTES:
1. ROOT CONTROL BARRIER MUST BE USED IF TREE IS PLANTED WITHIN 5' OF CURB OR SIDEWALK. SEE DETAIL, THIS SHEET
2. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO PLANTING. PERCOLATION RATE MUST BE 3" PER HOUR. IF RATE IS NOT A MIN. OF 3" PER HOUR NOTIFY LANDSCAPE ARCHITECT.



GATES +ASSOCIATES
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STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION
PLANTING DETAILS

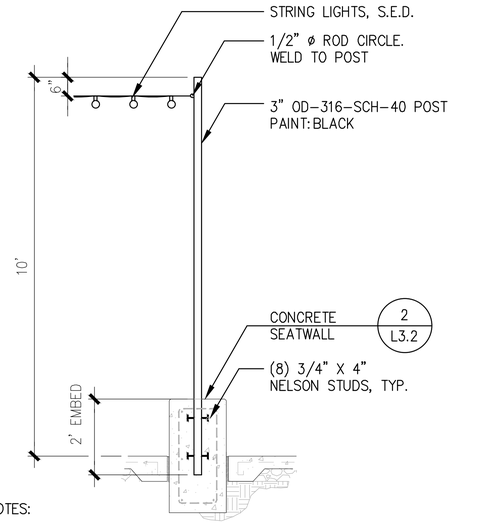
REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF
LANDSCAPE ARCHITECT · REGISTERED · STATE OF CALIFORNIA · 8/30/2024 · 11/06/2023 · L.A.

CONTRACT NO.
23-10

SHEET NUMBER
L3.1
7 OF: 10

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-D-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

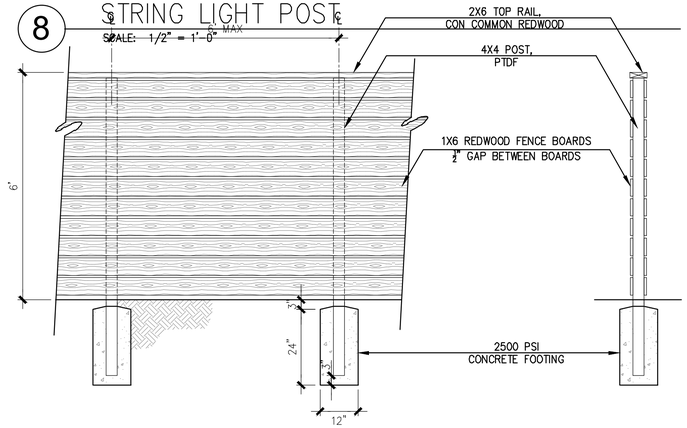


NOTES:

1. GRIND ALL WELDS SMOOTH.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO FABRICATION
3. CAP ALL ENDS.

8 STRING LIGHT POST

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

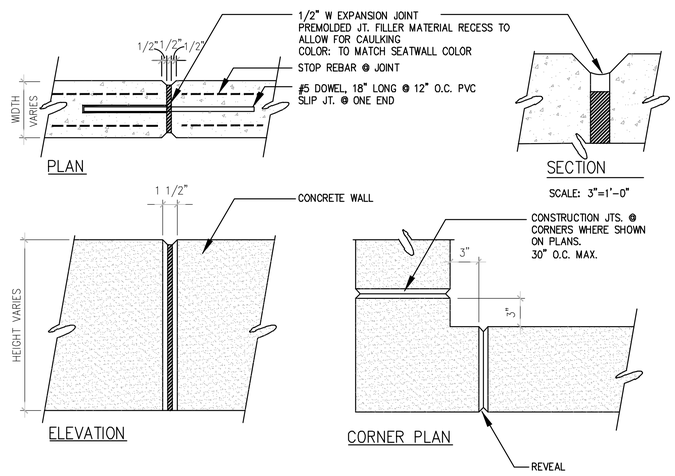


NOTES:

1. ALL EXPOSED WOOD SURFACES TO BE STAINED: MFR: PENOFIN | MODEL: PENOFIN 550 VOC REDWOOD ALL HEART
2. ALL FASTENERS EXTERIOR RATED, COLOR BLACK. ALIGN VERTICALLY
3. CONTRACTOR TO FIELD MEASURE AND SUBMIT SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

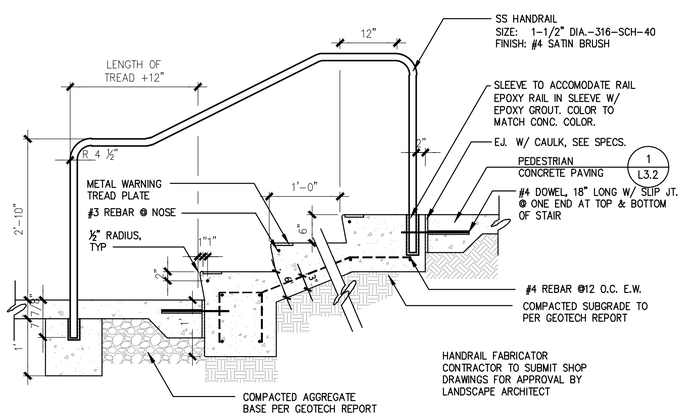
7 SCREEN FENCE

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



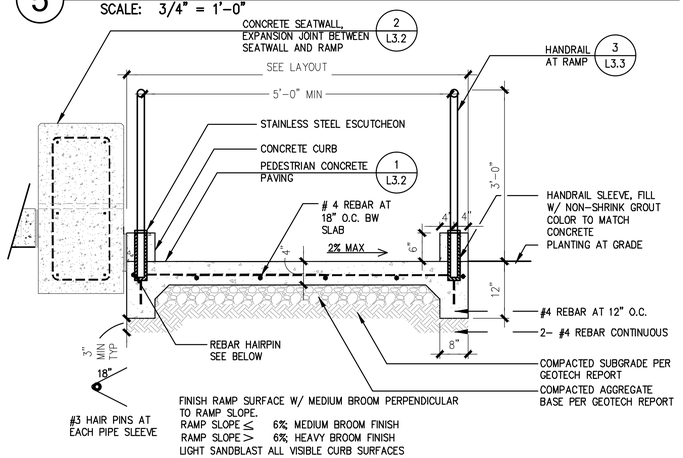
6 EXPANSION JOINT @ SEAT WALL

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



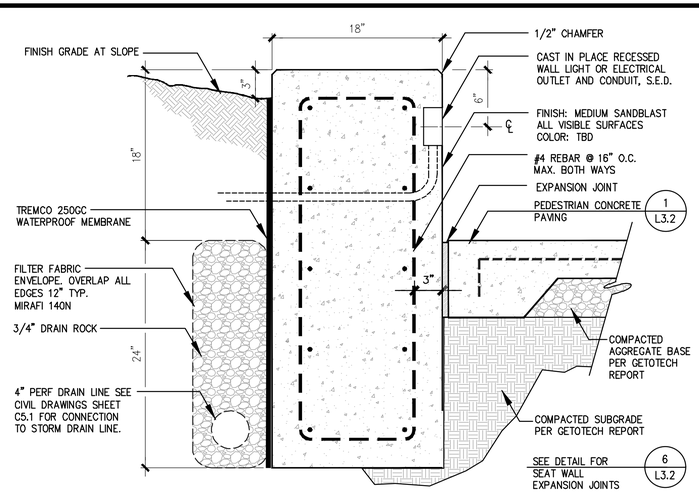
5 CONCRETE STAIRS

SCALE: 3/4" = 1'-0"



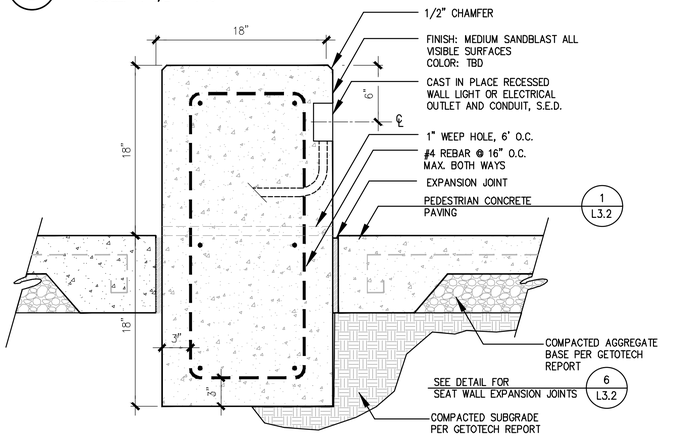
4 ACCESSIBLE CONCRETE RAMP

SCALE: 3/4" = 1'-0"



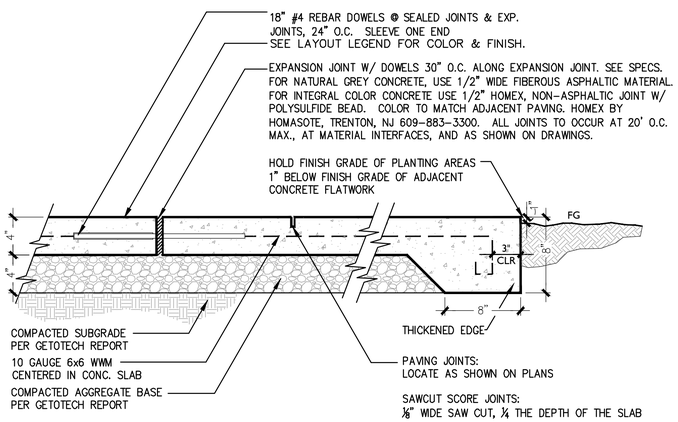
3 CONCRETE RETAINING SEATWALL

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



2 CONCRETE SEATWALL

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



1 CONCRETE PAVING

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

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P###)\ACAD\SHEETS_DG-D-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN
1485 N. MAIN ST., STE 260, WALNUT CREEK, CA 94596
T 925.726.0174 www.dgates.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
9/29/2023	1"= 10'-0"	CP10126
DESIGN:	DRAWN:	CHECKED:
RC	RC, DSS	EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

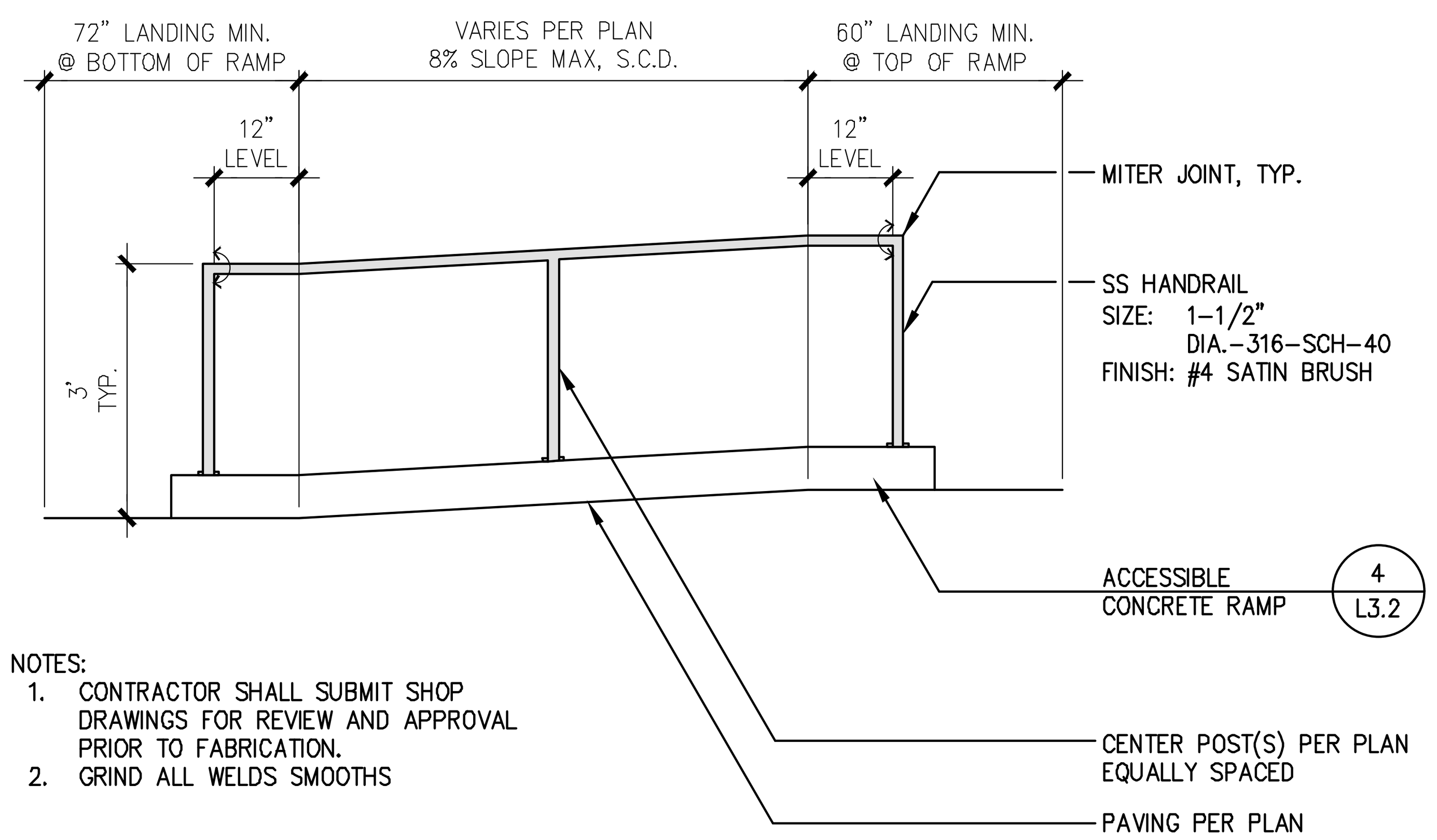
BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION CONSTRUCTION DETAILS

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF

CONTRACT NO.
23-10

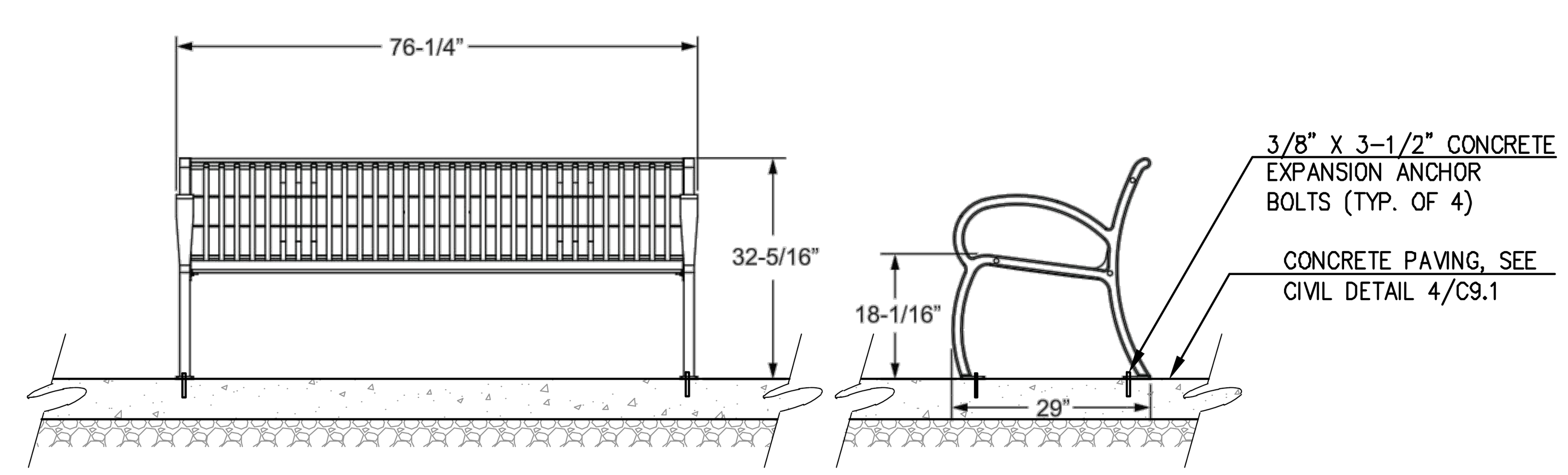
SHEET NUMBER
L3.2
8 OF: 10



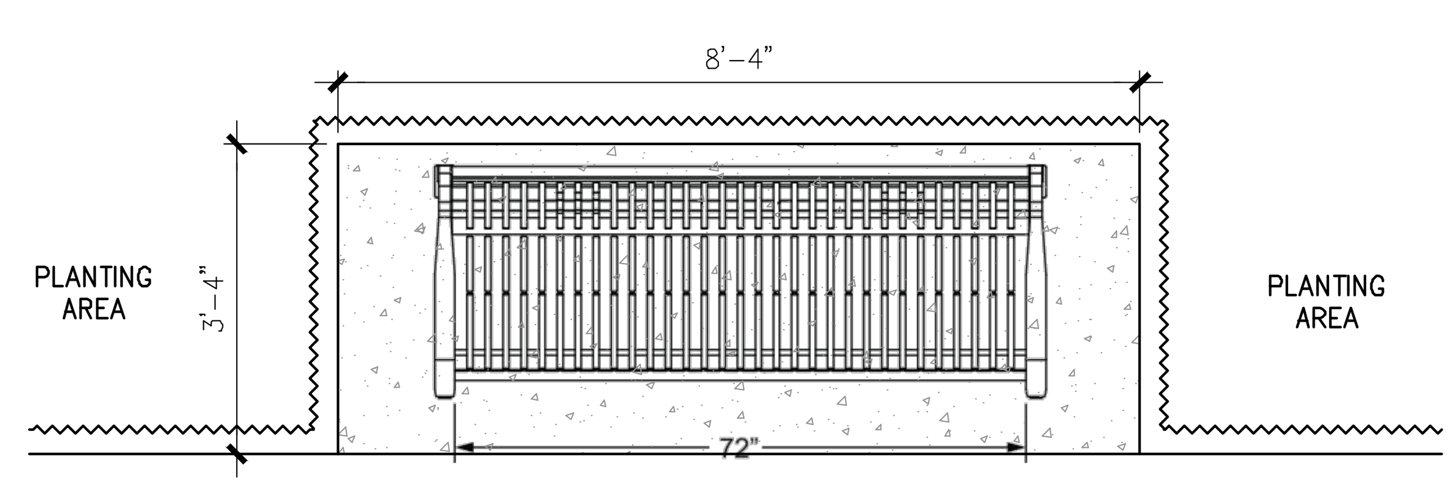
NOTES:
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
2. GRIND ALL WELDS SMOOTHS

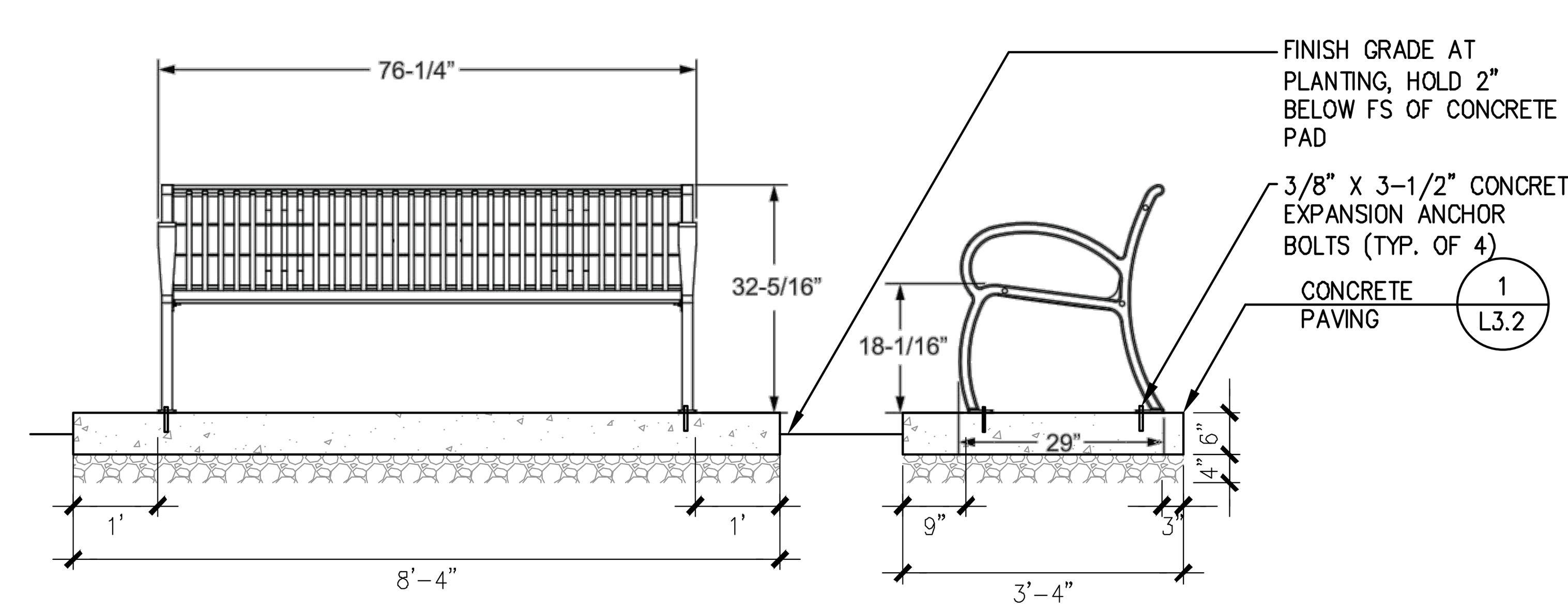
3 HANDRAIL AT RAMP

SCALE: NTS



CONDITION B: BENCH AT DRIVING RANGE TEES

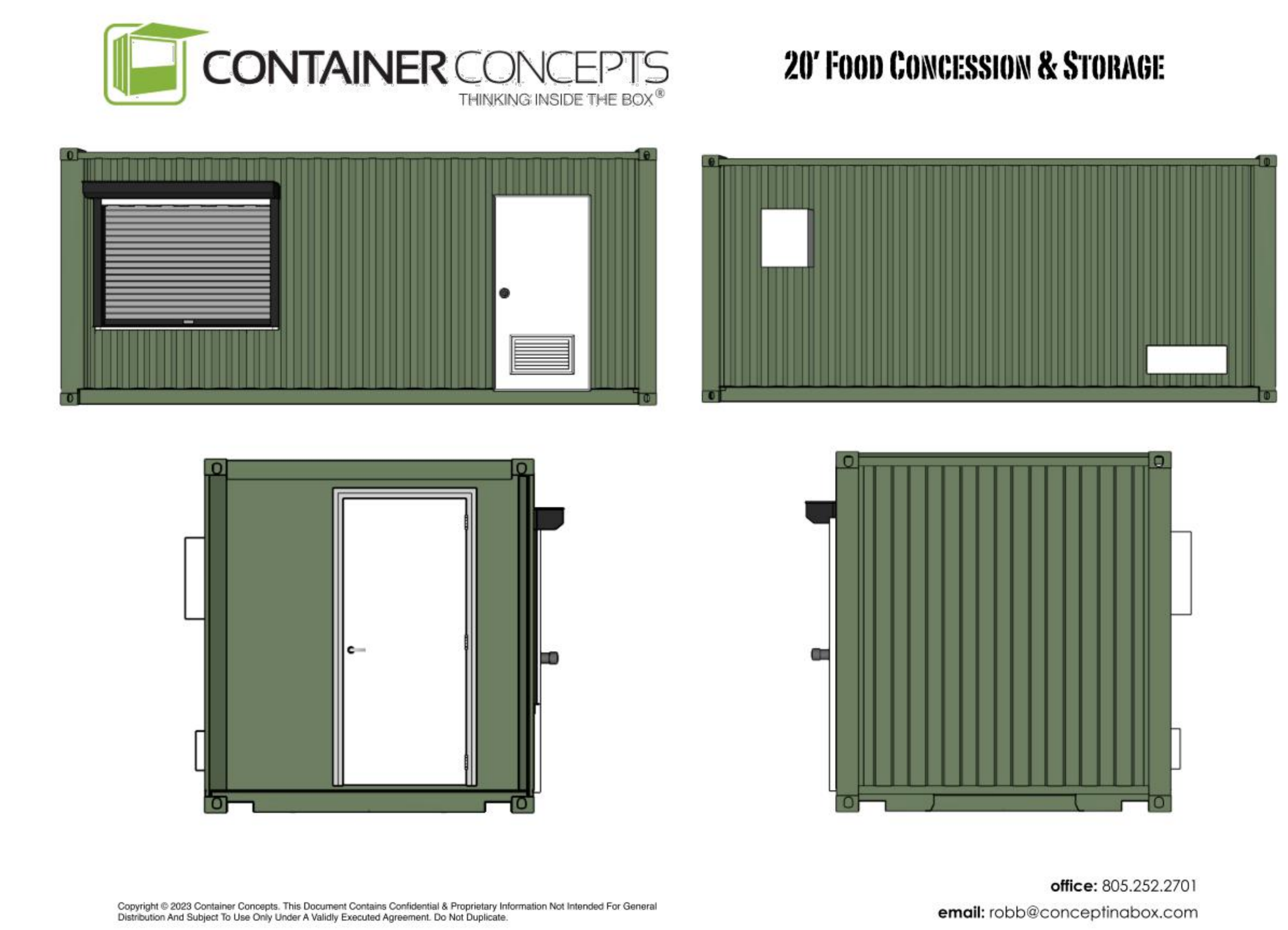


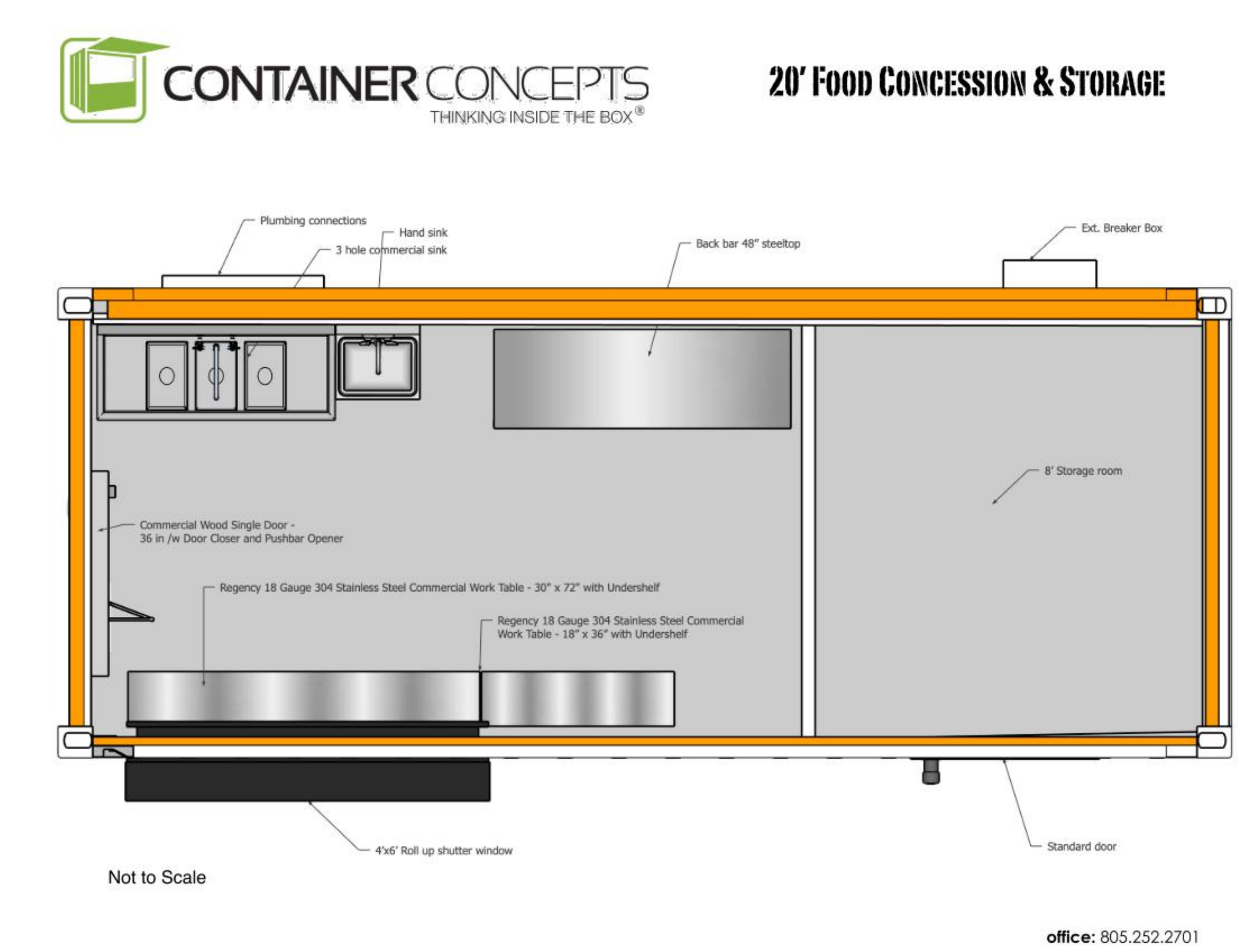


CONDITION A: BENCH ON CONCRETE PAD

2 BENCH

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





NOTE: CONCEPTUAL LAYOUT FOR REFERENCE ONLY. FINAL CONSTRUCTION DOCUMENTS, STRUCTURAL CALCULATIONS AND SPECIFICATIONS TO BE PROVIDED BY CONTAINER CONCEPTS OR APPROVED EQUAL

1 CONCESSIONS AND STORAGE – 20'X8'

SCALE: 6" = 1'-0"

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 9/29/2023	SCALE: 1"= 10'-0"	WORK ORDER: CP10126
DESIGN: RC	DRAWN: RC, DSS	CHECKED: EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION CONSTRUCTION DETAILS

REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

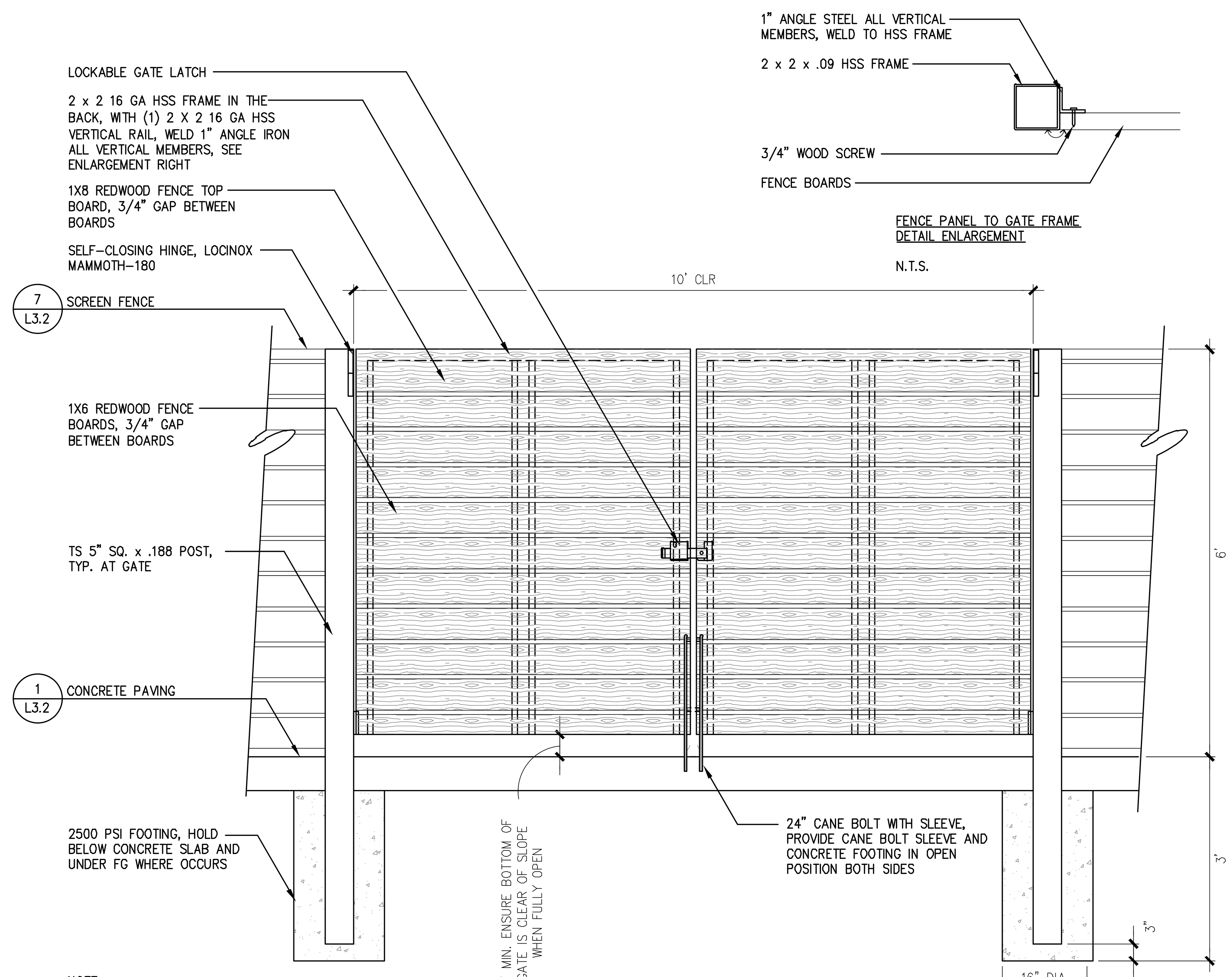
PREPARED UNDER THE DIRECTION OF

REGISTERED LANDSCAPE ARCHITECT, STATE OF CALIFORNIA — 8/30/2024, 11/06/2023

CONTRACT NO.
23-10

SHEET NUMBER
L3.3

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-D-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

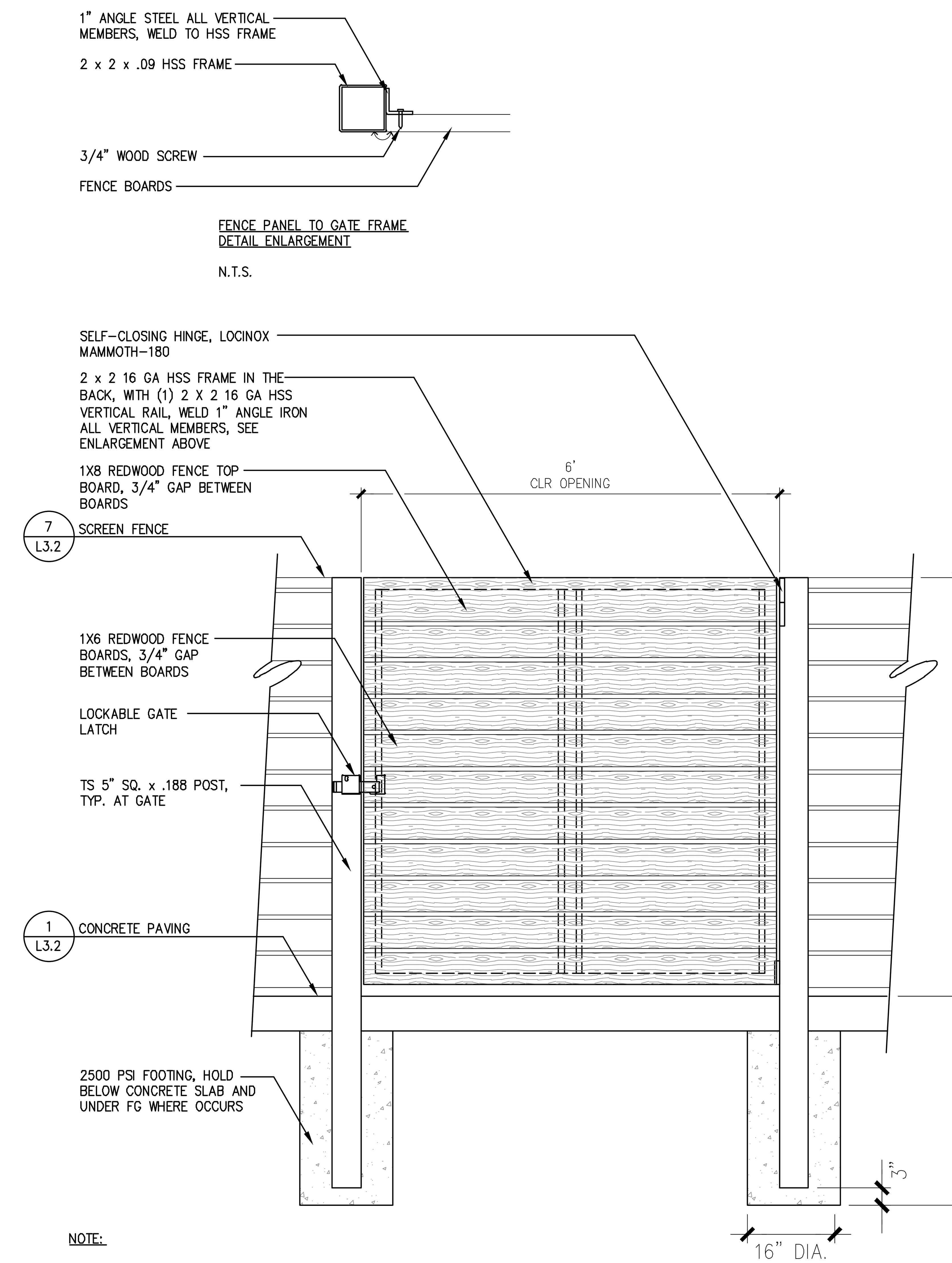


NOTE:

1. FOR DESIGN INTENT ONLY. SUBMIT SHOP DRAWINGS BEFORE FABRICATION
2. HOLD TOP OF FENCE AND GATE LEVEL
3. CONTRACTOR TO APPLY (2) COATS OF PRIMER AND (2) COATS OF EXTERIOR GRADE ENAMEL
4. CONTRACTOR SHALL VERIFY ALL THE DIMENSIONS IN FIELD.

2 6'HT X 10'W WOOD DOUBLE MAINTENANCE GATE

SCALE: 3/4" = 1'-0"



NOTE:

1. FOR DESIGN INTENT ONLY. SUBMIT SHOP DRAWINGS BEFORE FABRICATION
2. HOLD TOP OF FENCE AND GATE LEVEL
3. CONTRACTOR TO APPLY (2) COATS OF PRIMER AND (2) COATS OF EXTERIOR GRADE ENAMEL
4. CONTRACTOR SHALL VERIFY ALL THE DIMENSIONS IN FIELD.

1 6'HT X 6'W WOOD MAINTENANCE GATE

SCALE: 3/4" = 1'-0"

PATH: P:\WALNUTCREEK\BOUNDARY OAK (P####)\ACAD\SHEETS_DG-D-BOGC.DWG
PLOT DATE: 11/3/2023 2:13 PM

GATES +ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING · URBAN DESIGN

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE: 9/29/2023	SCALE: 1"= 10'-0"	WORK ORDER: CP10126
DESIGN: RC	DRAWN: RC, DSS	CHECKED: EG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE DRIVING RANGE RENOVATION CONSTRUCTION DETAILS

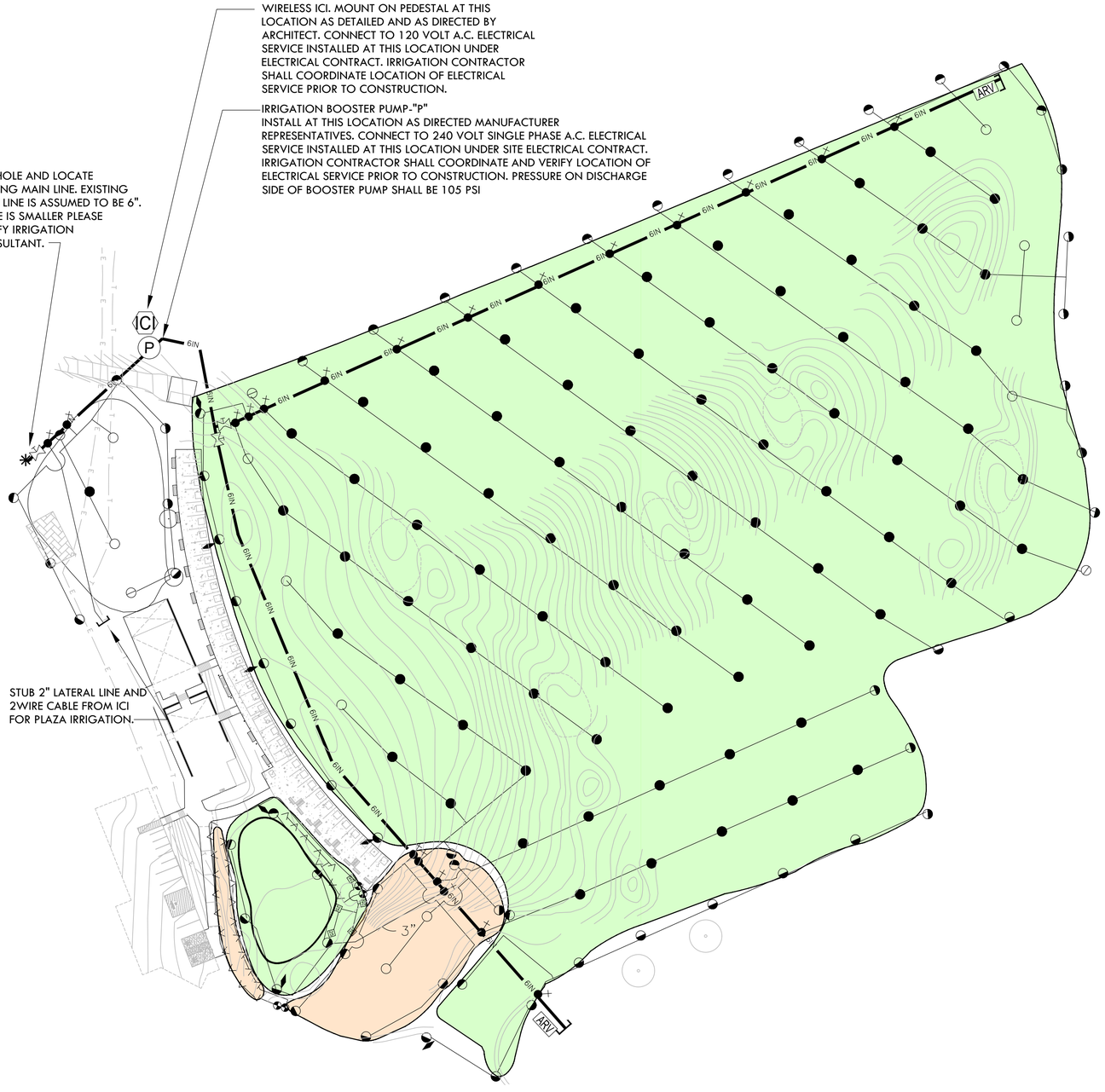
REV	DESCRIPTION	DATE
	95% CD SET	8/24/23
	100% CD SET	9/29/23
	100% CD SET	11/6/23

PREPARED UNDER THE DIRECTION OF

CONTRACT NO.
23-10

SHEET NUMBER
L3.4

10 OF: 10



IRRIGATION LEGEND-MECHANICAL

SYMBOL	NUMBER	DESCRIPTION
●	A-702-IC-70-3605	RAIN BIRD ROTARY POP-UP SPRINKLER-VALVE-IN-HEAD (FULL CIRCLE)
○	A-752-IC-70-26	RAIN BIRD ROTARY POP-UP SPRINKLER-VALVE-IN-HEAD (FULL CIRCLE-SMALL RADIUS)
◒	A-752-IC-70-36	RAIN BIRD ROTARY POP-UP SPRINKLER-VALVE-IN-HEAD (PART CIRCLE)
⊖	A-752-IC-70-26	RAIN BIRD ROTARY POP-UP SPRINKLER-VALVE-IN-HEAD (PART CIRCLE-SMALL RADIUS)
25	5006+-FC-SAM-R-NP/ 5000-MPR-25	RAIN BIRD POP-UP GEAR DRIVEN ROTOR (TURF)
25 25	5006+-PC-SAM-R-NP/ 5000-MPR-25	RAIN BIRD POP-UP GEAR DRIVEN ROTOR (TURF)
V	RD-06-S-P30-F-NP/ HE-VAN-15 OR 12	RAIN BIRD POP-UP SPRAY SPRINKLER
●×	04BBV2902037	POLYTECH 2" DR 11 FULL PORT BALL VALVE WITH SQUARE NUT
◔	150-PESB-PRS-D-ICM	RAIN BIRD 1.5" REMOTE CONTROL VALVE
◆	44NP	RAIN BIRD QUICK COUPLING VALVE
⋈	F-6102	CLOW FLANGED GATE VALVE (LINE SIZE)-6"
ARV	143C-1"	APCO AIR VENT/VACUUM RELIEF VALVE
P	C35-15-5	COMMERCIAL PUMP SERVICE BOOSTER PUMP (150 GPM AT 105 PSI DISCHARGE PRESSURE)
6IN 6IN 6IN		MAINLINE: HIGH DENSITY POLYETHYLENE (HDPE) PLASTIC PIPE. (DR 11) 30" COVER
		LATERAL LINE/SUB MAINLINE: HIGH DENSITY POLYETHYLENE (HDPE) PLASTIC PIPE. (DR 11) 18" COVER. ALL LATERAL LINES SHALL BE 2" UNLESS NOTED OTHERWISE.

IRRIGATION NOTES

1. COMMUNICATION WIRE SHALL BE DIRECT BURIAL CABLE, PAIGE ELECTRIC MODEL NO. P-7072D (AWG-#14) OR APPROVED EQUAL.
2. COMMUNICATION WIRES SHALL BE INSTALLED WITHOUT SPLICING, EXCEPT IN A VALVE BOX OR SPLICE BOX. LOOP INTO EACH ISOLATION VALVE BOX BEFORE CONTINUING ALONG THE TRENCH.
3. THE LOCATIONS OF THE AIR VENT/VACUUM RELIEF VALVES ARE APPROXIMATE, PRECISE LOCATIONS SHALL BE DETERMINED ON-SITE DURING IRRIGATION STAKING.
4. IRRIGATION PLANS ARE DIAGRAMMATIC. NO TRENCHING OR PLOWING OF WIRE OR PIPE WILL BE PERMITTED IN PUTTING GREENS, TEES AND BUNKERS.
5. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED.
6. PRESSURE SETTINGS AT EACH VALVE IN HEAD SPRINKLER SHALL BE FACTORY SET AT 70 PSI.
7. GROUNDING OF ICI, COMMUNICATION WIRE PATH, AND COMPUTER EQUIPMENT SHALL BE IN COMPLIANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
8. CONTRACTOR SHALL REMOVE ALL EXISTING SPRINKLERS, QCV'S AND CONTROLLERS. DO NOT DAMAGE EQUIPMENT DURING REMOVAL.
9. ISOLATION VALVES SHALL BE LOCATED NO CLOSER THAN THREE (3) FEET ON CENTER ALONG THE MAIN LINE AND A MINIMUM OF FOUR FEET FROM THE PIPE ENDS.
10. INSTALL GREEN BOXES FOR ALL ISOLATION VALVES, BLACK FOR MAIN LINE BALL VALVES AND GRAY BOXES FOR ELECTRICAL.

Irrigation Consultant:
Russell D. Mitchell Associates, Inc.
2760 Camino Diablo
Walnut Creek, CA 94597
tel 925.939.3985 ♦ fax 925.932.5671
www.rmairrigation.com

CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
2023-08-24	AS NOTED	#CP010126.
DESIGN:	DRAWN:	CHECKED:
CM	CM	RM

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAKS GOLF COURSE DRIVING RANGE RENOVATION

IRRIGATION PLAN

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% CD	08.24.23
	100% CD	11.06.23

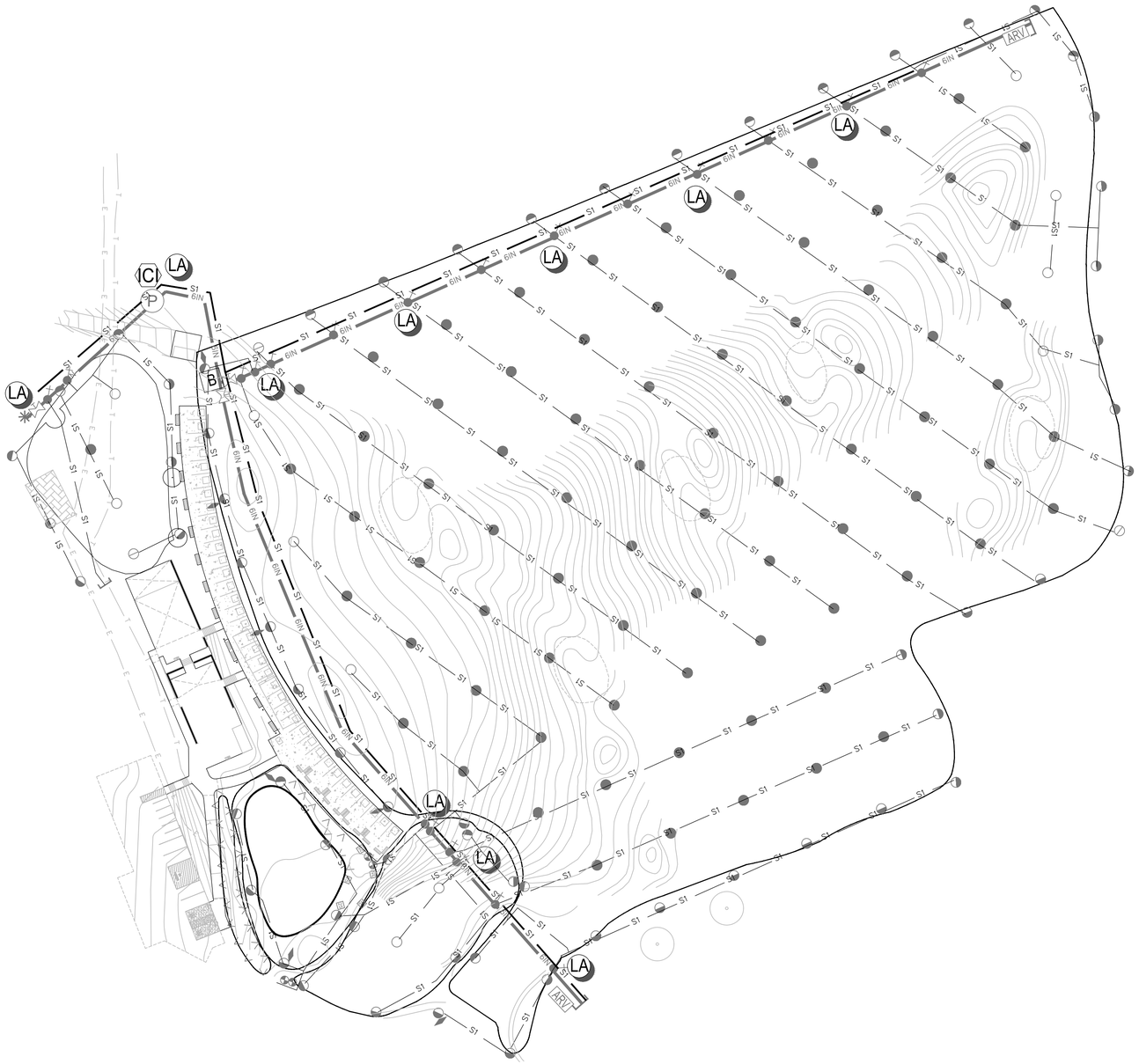
PREPARED UNDER
THE DIRECTION OF

CONTRACT NO.
6015

CP#
010126

SHEET NUMBER
I-1

X OF: XX



IRRIGATION LEGEND-COMMUNICATON

SYMBOL	NUMBER	DESCRIPTION
B	---	RECTANGULAR SPLICE BOX
LA	ICSD	RAIN BIRD LIGHTNING ARRESTOR/GROUNDING DEVICE
IC	ICI30000120/MRLK900	RAIN BIRD ICI+ INTERFACE AND MAXI REMOTE LOCATION KIT
S1 S1 S1		RAIN BIRD MAXI (14 GAUGE) WIRE - DIRECT BURY PIPE - PLACE UNDER SHOULDER OF PIPE. (IC INTERFACE AT CENTRAL ALONG MAIN LINE TO ISOLATION VALVES)
S1 S1 S1		RAIN BIRD MAXI (14 GAUGE) WIRE - DIRECT BURY PIPE - PULL WITH HDPE LATERAL LINE (ISOLATION VALVES TO SPRINKLERS AND VALVES) USE COLOR YELLOW.

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WALNUT CREEK, CA 94596
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DATE:	SCALE:	WORK ORDER:
2023-08-24	AS NOTED	#CP010126.
DESIGN:	DRAWN:	CHECKED:
CM	CM	RM

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAKS GOLF COURSE DRIVING RANGE RENOVATION

IRRIGATION PLAN - COMMUNICATION

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% CD	08.24.23
	100% CD	11.06.23

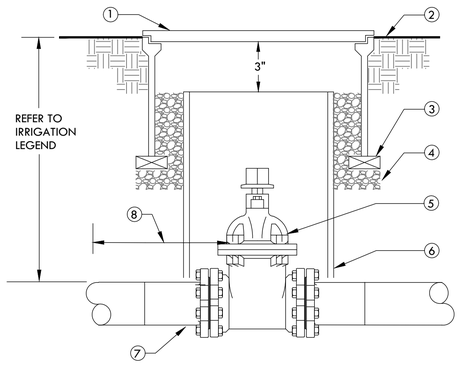
PREPARED UNDER
THE DIRECTION OF

CONTRACT NO.
6015

CP#
010126

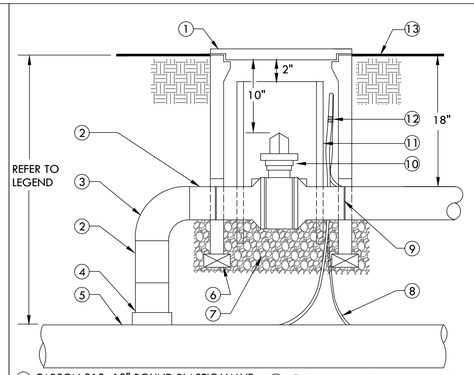
SHEET NUMBER
I-2

X OF: XX



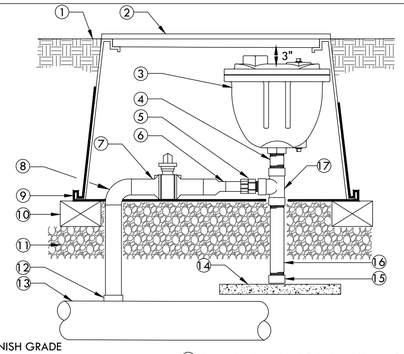
1. 10" ROUND BLACK LID AND VALVE BOX
2. FINISH GRADE.
3. BRICK-2 TOTAL.
4. PEA GRAVEL OR 3/4" DRAIN ROCK - 4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX).
5. FLANGED GATE VALVE WITH 2" OPERATING NUT.
6. 8" FLEXIBLE DRAIN PIPE OR PVC. CUT OUT AROUND PIPE.
7. HARCO DR11 PE IPS TRANSITION FLANGE ADAPTER (65-31600x). REQUIRES A HARCO DUCTILE IRON BACKUP RING 65-07770xF AND A FLANGE ACCESSORY KIT (65-07720x)
8. PROVIDE A MINIMUM OF 4' BETWEEN GATE VALVE AND MAIN LINE TEE OR ELBOW.

1 GATE VALVE
SCALE: NONE



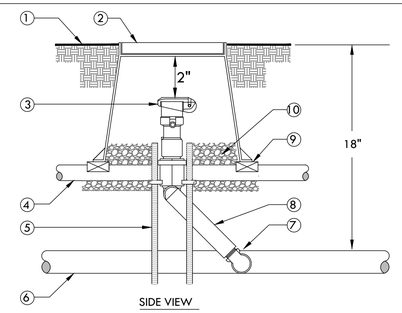
1. CARSON 910- 10" ROUND PLASTIC VALVE BOX WITH EXTENSIONS AND GREEN LID.
2. 2" HDPE PIPE WITH FUSION WELDS (DR11) LENGTHS AS REQUIRED.
3. HDPE FUSION WELDED 90° ELBOW
4. HARCO HDPE ROUND SIDE WALL FUSION SADDLE WITH 2" DR11 HDPE OUTLET. CUT 1.5" HOLE IN MAIN LINE WITH HOLE SAW.
5. HDPE MAIN LINE WITH FUSION WELDS
6. BRICK-2 TOTAL
7. 3/4" DRAIN ROCK - 6" DEEP
8. TWO WIRE CABLE. ROUTE BELOW SHOULDER OF MAIN LINE. CAREFULLY SWEEP INTO EACH ISOLATION VALVE
9. FUSION WELD FROM POLY VALVE TO HDPE LATERAL LINE TO SPRINKLERS
10. 2" DR 11 FULL PORT BALL VALVE.
11. 6" FLEXIBLE DRAIN PIPE - EXTEND BELOW BOTTOM OF VALVE
12. LOCATE TWO WIRE SPLICES BETWEEN VALVE BOX AND SLEEVE. PROVIDE A MINIMUM OF 24" EXCESS OF CABLE TO ALLOW SPLICES TO EXTEND OUTSIDE BOX
13. FINISH GRADE

2 ISOLATION VALVE
SCALE: NONE



1. FINISH GRADE
2. CARSON 1730 -24" DEPTH BOX.
3. AIR RELEASE VALVE
4. 1" BRASS NIPPLE (3" IN LENGTH)
5. HARCO 3G IPS MALE ADAPTER (1") HARCO #75-33044
6. DR11 2"x1" HDPE REDUCER WITH SHORT SECTION OF 1" HDPE PIPE.
7. 2" IPS HDPE FULL PORT BALL VALVE
8. DR11 2" HDPE PIPE AND FUSED FITTINGS. LENGTH AS REQUIRED.
9. 19 GAUGE 1/2" SQUARE WIRE MESH. WRAP UP SIDES OF BOX.
10. BRICK SUPPORT. (4 TOTAL/ 1 @ EA CORNER).
11. PEA GRAVEL OR 3/4" DRAIN ROCK- 4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX).
12. HARCO HDPE ROUND SIDE WALL FUSION SADDLE WITH 2" DR11 HDPE OUTLET. CUT 1.5" HOLE IN MAIN LINE WITH HOLE SAW.
13. HDPE MAIN LINE
14. 12" CONCRETE PAVER SUPPORT BLOCK
15. 1" BRASS CAP
16. 1" BRASS NIPPLE (LENGTH AS REQUIRED DEPENDING ON MAIN LINE DEPTH)
17. 1" BRASS THREADED TEE

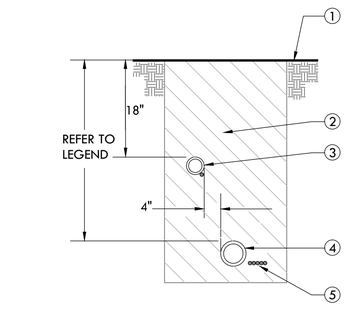
3 COMBINATION AIR RELEASE VALVE-HDPE
SCALE: NONE



INSTALLATION NOTES:
1. ACME O-RING SEALED THREADS ARE TO BE FINGER TIGHTENED AND "BACKED OFF" ONE FULL ROTATION BEFORE INSTALLATION.
2. THE SWING JOINT LAY ARM IS TO BE INSTALLED AT AN ANGLE BETWEEN 30° AND 45°.

1. FINISH GRADE
2. 10" ROUND PLASTIC VALVE BOX WITH BOLT DOWN LID
3. QUICK COUPLING VALVE
4. 1" SCH 40 PVC PIPE STABLIZER. 12" LENGTH
5. 2-#4 REBAR. 24" IN LENGTH
6. HDPE LATERAL LINE (SUB-MAIN)
7. AQUAFUSE FUSIBLE SERVICE SADDLE FOR SWING JOINTS. MODEL # AFAS150-020
8. AQUAFUSE SWING JOINT MODEL AF3AS212 WITH 1" BRASS MALE MIPT OUTLET. 315 PSI RATED MODEL. ADJUST ANGLE OF SWING JOINT LAY ARM BETWEEN 30° TO 45° TO ALLOW ADEQUATE IMPACT ABSORPTION. DO NOT USE TEFLON TAPE OR PIPE DOPE WITH ACME THREADS.
9. BRICK - 2 TOTAL.
10. PEA GRAVEL- 4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX).

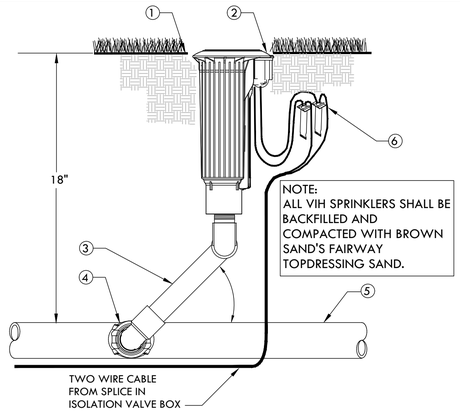
4 QUICK COUPLING VALVE
SCALE: NONE



NOTES:
1. REUSE SALVAGED EXCAVATED FILL AND COMPACT TO ORIGINAL DENSITY IN LANDSCAPE AREAS. BACKFILL MATERIAL SHALL BE THE EARTH EXCAVATED FROM THE TRENCHES, FREE FROM ROCKS (ANYTHING LARGER THAN 2"), CONCRETE CHUNKS, AND OTHER FOREIGN OR COARSE MATERIALS.

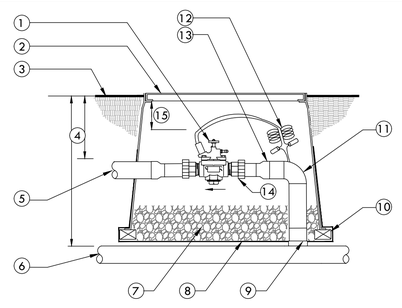
1. FINISH GRADE.
2. CLEAN BACKFILL MATERIAL.
3. HDPE LATERAL LINE (SUB-MAIN)
4. HDPE MAIN LINE.
5. TWO WIRE CABLE. INSTALL BELOW SHOULDER OF PIPE. USE A DIFFERENT COLOR PER WIRE PATH.

5 TRENCHING
SCALE: NONE



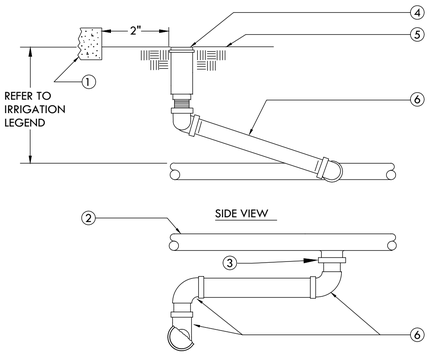
1. FINISH GRADE
2. VALVE-IN-HEAD SPRINKLER SET FLUSH WITH FINISH GRADE AT THE TIME OF INSTALLATION.
3. RAIN BIRD SWING JOINT MODEL JE0000R3 WITH 1.25" MALE ACME OUTLET AND 1.5" ACME INLET 315 PSI RATED MODEL. AN AQUAFUSE TRANSITION ELBOW (AFGELL-150) WILL BE REQUIRED TO TRANSITION TO THE AQUAFUSE SERVICE SADDLE. ADJUST ANGLE OF SWING JOINT LAY ARM BETWEEN 30° TO 45° TO ALLOW ADEQUATE IMPACT ABSORPTION. DO NOT USE TEFLON TAPE OR PIPE DOPE WITH ACME THREADS.
4. AQUAFUSE FUSIBLE SERVICE SADDLE FOR SWING JOINTS. MODEL # AFAS150-020
5. HDPE DR11 LATERAL LINE (SUB-MAIN)
6. LOCATE ALL SPLICES BELOW SPRINKLER SOLENOID COMPARTMENT. TAPE SPLICES TO BODY OF SPRINKLER. USE 3M-DBR6 WATERPROOF SPLICE KITS FOR ALL SPLICES. PROVIDE SUFFICIENT WIRE TO ALLOW THE SPLICES TO BE RAISED 24" ABOVE GRADE.

6 VIH SPRINKLER RISER
SCALE: NONE



1. REMOTE CONTROL VALVE WITH FLOW CONTROL AND MANUAL BLEED AND PRESSURE REGULATOR
2. RECTANGULAR PLASTIC VALVE BOX WITH BOLT DOWN LID. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL. TOP DIMENSION: 11 3/4" X 17" (12" DEEP)
3. FINISH GRADE
4. REFER TO IRRIGATION LEGEND
5. HDPE LATERAL LINE TO SPRINKLERS
6. HDPE DR 11 SUB MAIN LINE
7. PEA GRAVEL- 4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX)
8. 19 GAUGE 1/2" SQUARE WIRE MESH. WRAP UP SIDES OF BOX.
9. HARCO HDPE ROUND SIDE WALL FUSION SADDLE WITH 2" DR11 HDPE OUTLET. CUT 1.5" HOLE IN MAIN LINE WITH HOLE SAW.
10. BRICK-1 EACH CORNER
11. 2" HDPE SUB MAIN WITH HDPE DR11 90° FITTING
12. 2-WIRE CABLE. PROVIDE 3M-DBY SEAL PACKS AT ALL SPLICES AND 36" OF EXCESS WIRE IN VALVE BOX.
13. 2" HDPE DR11 LATERAL LINE. USE HDPE DR 11 REDUCER 2" x 1.5" ON EACH SIDE OF VALVE. ADD 4" OF 1.5" HDPE PIPE TO REDUCER FOR COMPRESSION MALE ADAPTER
14. HARCO (75-33054) 1.5" COMPRESSION MALE ADAPTER FOR HDPE PIPE (COMPRESSION X MIPT) (2 TOTAL)
15. 3" MIN 6" MAX

7 REMOTE CONTROL VALVE
SCALE: NONE



1. WALL, WALK, CURB OR HEADER
2. HDPE LATERAL LINE
3. AQUAFUSE FUSIBLE SERVICE SADDLE FOR SWING JOINTS. MODEL # AFAS150-020

TOP VIEW
4. POP-UP ROTARY SPRINKLER
5. FINISH GRADE
6. AQUAFUSE SWING JOINT MODEL AF1AF208 WITH 3/4" MIPT OUTLET. 315 PSI RATED MODEL. ADJUST ANGLE OF SWING JOINT LAY ARM BETWEEN 30° TO 45° TO ALLOW ADEQUATE IMPACT ABSORPTION.

8 POP-UP 3/4" NON-VIH ROTARY SPRINKLER
SCALE: NONE

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RCE: C60409

BOUNDARY OAKS GOLF COURSE
DRIVING RANGE RENOVATION
IRRIGATION DETAILS

REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% CD	08.24.23
	100% CD	11.06.23

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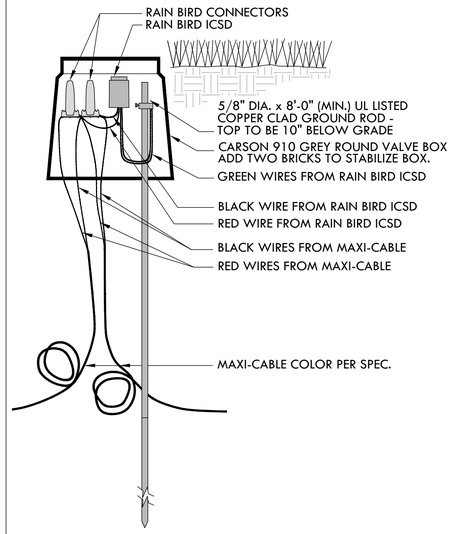
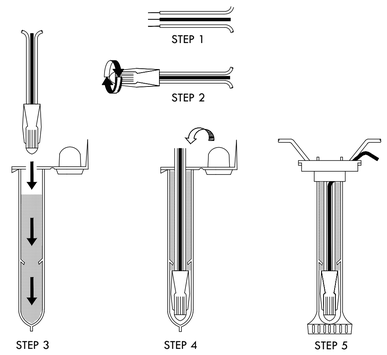


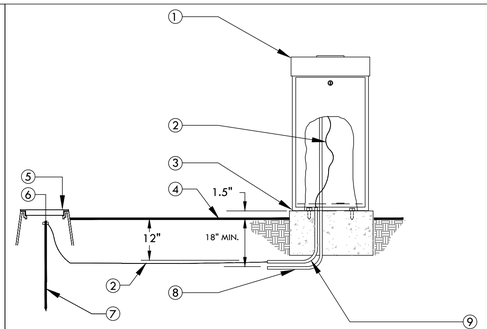
1 GROUNDING DETAIL
SCALE: NONE



NOTE:
MAXIMUM # OF WIRES PER CONNECTOR:
- 3-#14 GAUGE
- 2-#12 GAUGE

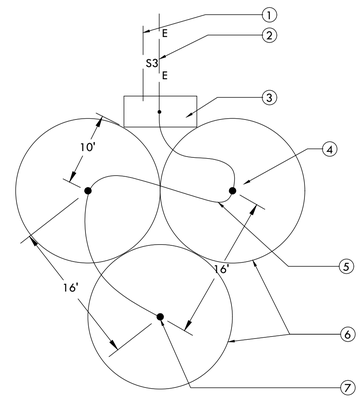
INSTRUCTIONS:
1. STRIP WIRES APPROXIMATELY 1/2" FROM ENDS TO EXPOSE WIRE.
2. TWIST CONNECTOR AROUND WIRES CLOCKWISE UNTIL HAND TIGHT, DO NOT OVERTIGHTEN.
3. INSERT WIRE ASSEMBLY TO BOTTOM OF GEL-FILLED TUBE. CHECK TO MAKE SURE CONNECTOR HAS BEEN PUSHED PAST LOCKING FINGERS AND IS SEATED AT THE BOTTOM OF THE TUBE.
4. PLACE WIRES WHICH EXIT TUBE IN WIRE EXIT HOLES AND CLOSE CAP UNTIL IT SNAPS.
5. INSPECT FINAL SPLICE ASSEMBLY THAT IT IS SECURED.

2 WEATHERPROOF WIRE SPLICE ASSEMBLY
SCALE: NONE



1. ICI+ IN PEDESTAL ENCLOSURE-SET LEVEL
2. #6 AWG SOLID BARE COPPER WIRE - INSTALL WITHOUT SHARP BENDS. PROVIDE 12" COVER OVER WIRE.
3. CONCRETE PAD-6" THICK (MIN.) EXTEND 12" BEYOND EACH SIDE AND BACK, 24" IN FRONT. PAD SHALL BE 1.5" ABOVE FINISH GRADE.
4. FINISH GRADE.
5. 6" ROUND BLACK PLASTIC BOX WITH T-LID FOR GROUND ROD.
6. CADWELD CONNECTIONS
7. 8' LONG COPPER GROUND RODS (PLACE 3 RODS IN A 16 FOOT TRIANGULAR PATTERN) SEE GROUNDING DETAIL
8. 2-1" SCH 40 PVC CONDUITS 120 VOLT A.C. ELECTRICAL SERVICE FROM SOURCE TO CONTROLLER AND COMMUNICATION CABLE.
9. 1" PVC CONDUIT WITH SWEEP ELL FOR GROUND WIRE.

3 ICI+ IN PEDESTAL ENCLOSURE
SCALE: NONE



1. COMMUNICATION WIRE
2. ELECTRICAL SERVICE WIRE TO ICI+ (120 VAC)
3. ICI+ IN PEDESTAL ENCLOSURE - SEE ICI+ DETAIL
4. GROUNDING RODS (3 TOTAL) 5/8"x8' U.L. LISTED "COPPER CLAD" STEEL
5. #6 AWG SOLID BARE COPPER WIRE - INSTALL WITHOUT SHARP BENDS. PROVIDE 12" COVER OVER WIRE.
6. SPHERE OF INFLUENCE FOR EACH GROUND ROD (8' RADIUS). KEEP ALL OTHER WIRING OUTSIDE THE SPHERE OF INFLUENCE.
7. CONNECT GROUND WIRE TO EACH CROUND ROD WITH CADWELD CONNECTIONS. LOCATE IN 6" DIAMETER GRAY ELECTRICAL BOX.

4 EARTH GROUNDING FOR PEDESTAL MOUNT ICI+
SCALE: NONE

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IRRIGATION DETAILS

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WATER USE CALCULATIONS

WATER USE ESTIMATION - CURRENT DR IRRIGATED AREA

WATER TYPE	CANAL
SITE ETO=	46.2

REGULAR LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME	PLANT WATER USE TYPE	PLANT FACTOR (PF)	IRRIGATION METHOD	IRRIGATION EFFICIENCY	ETAF (PF/IE)	AREA (SQ. FT) (HA)	ETAF X AREA (HA)	ETWU (GAL/YR)	ACRE FEET/ YEAR	HCF/ YEAR	PERCENTAGE OF LANDSCAPE
1	FESCUE AREAS	MOD	0.4	ROTORS	0.75	0.533	14,342	**7,649**	219,100	0.67	292.91	4%
2	TURF AREAS	HIGH	0.7	ROTORS	0.75	0.933	347,843	**324,653**	9,299,374	28.54	12,432.32	96%
					TOTALS		**362,185**	**332,303**	**9,518,474**	**29.21**	**12,725.23**	**100%**

SPECIAL LANDSCAPE AREAS

HYDROZONE #	HYDROZONE NAME											
2	TURF AREAS					1	347,843					96%
						TOTALS	347,843					**96%**

MAWA	GALLONS/YR	10,148,480
	ACRE FEET/YR	31.14
	HCF/YR	13,567.49
ETWU	GALLONS/YR	9,518,474
	ACRE FEET/YR	29.21
	HCF/YR	12,725.23

SITE IRRIGATION EFFICIENCY	SITE PLANT FACT0R	MAWA COMPLIANT
3.0%	0.02	YES

MAWA FORMULA
MAXIMUM APPLIED WATER ALLOWANCE (MAWA) GALLONS PER YEAR
MAWA = (ETo)(0.62)[(LA x 0.45) + (0.55 x SLA)]

ETo = REFERENCE EVAPOTRANSPIRATION
0.55= ET ADJUSTMENT FACTOR
LA=LANDSCAPED AREA (SQUARE FEET)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

ETWU FORMULA
ESTIMATED TOTAL WATER USE (ETWU) GALLONS PER YEAR
ETWU= ((ETO)(.62)(ETAF x LA))

ETo = REFERENCE EVAPOTRANSPIRATION
PF = PLANT FACTOR FOR HYDROZONES
HA = HYDROZONE AREA (SQ.FT)
0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

IE = IRRIGATION EFFICIENCY (0.81)-BUBBLER/DRIP
IE = IRRIGATION EFFICIENCY (0.75)-ROTORS/SPRAY

ETAF Calculations	
REGULAR LANDSCAPE AREAS	
TOTAL ETAF x AREA	332,303
TOTAL AREA	362,185
AVG. ETAF	91.75%

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BOUNDARY OAKS GOLF COURSE
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IRRIGATION WATER USE CALCULATIONS

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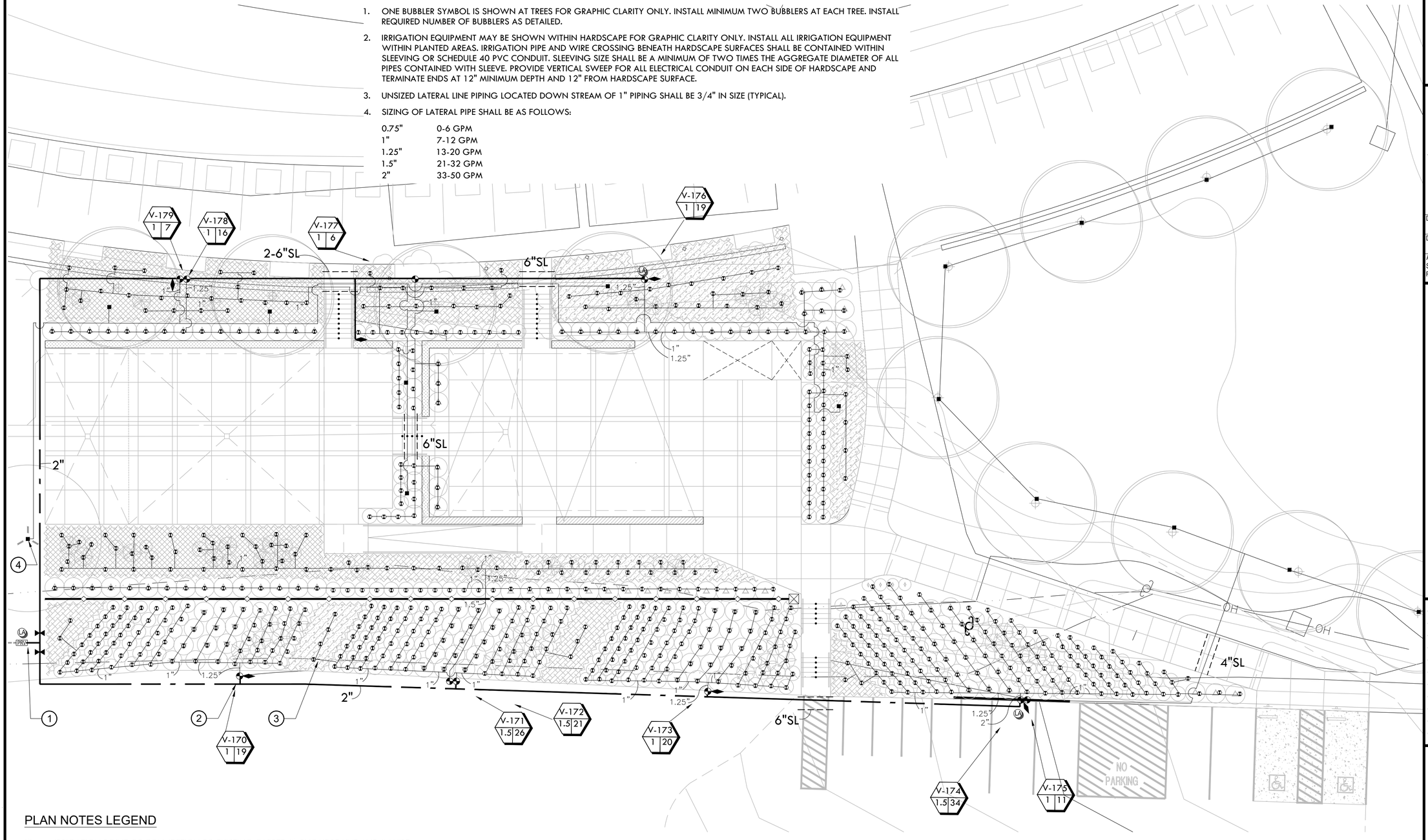
NOTES:

1. ONE BUBBLER SYMBOL IS SHOWN AT TREES FOR GRAPHIC CLARITY ONLY. INSTALL MINIMUM TWO BUBBLERS AT EACH TREE. INSTALL REQUIRED NUMBER OF BUBBLERS AS DETAILED.
2. IRRIGATION EQUIPMENT MAY BE SHOWN WITHIN HARDSCAPE FOR GRAPHIC CLARITY ONLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN PLANTED AREAS. IRRIGATION PIPE AND WIRE CROSSING BENEATH HARDSCAPE SURFACES SHALL BE CONTAINED WITHIN SLEEVING OR SCHEDULE 40 PVC CONDUIT. SLEEVING SIZE SHALL BE A MINIMUM OF TWO TIMES THE AGGREGATE DIAMETER OF ALL PIPES CONTAINED WITH SLEEVE. PROVIDE VERTICAL SWEEP FOR ALL ELECTRICAL CONDUIT ON EACH SIDE OF HARDSCAPE AND TERMINATE ENDS AT 12" MINIMUM DEPTH AND 12" FROM HARDSCAPE SURFACE.
3. UNSIZED LATERAL LINE PIPING LOCATED DOWN STREAM OF 1" PIPING SHALL BE 3/4" IN SIZE (TYPICAL).
4. SIZING OF LATERAL PIPE SHALL BE AS FOLLOWS:

0.75"	0-6 GPM
1"	7-12 GPM
1.25"	13-20 GPM
1.5"	21-32 GPM
2"	33-50 GPM



PLAN NOTES LEGEND

1. IRRIGATION POINT OF CONNECTION TO EXISTING CAPPED 2" PVC HDPE LINE AND 2-WIRE CABLE STUBBED OUT FROM GOLF COURSE IRRIGATION SYSTEM. MAXIMUM IRRIGATION DEMAND: 34 GPM. SET DISCHARGE PRESSURE ON PRESSURE REDUCING VALVE TO 50 PSI.
2. MAINLINE AND CONTROL VALVES SHOWN IN PAVING DIAGRAMMATICALLY FOR CLARITY. INSTALL WITHIN PLANTING AREAS AS DETAILED.
3. INSTALL ONE LOW FLOW BUBBLER PRE EACH SHRUB AS DETAILED. REFER TO PLANTING PLANS FOR SHRUB QUANTITIES AND LOCATIONS.
4. INSTALL TWO FLOOD BUBBLER PRE EACH TREE AS DETAILED. REFER TO PLANTING PLANS FOR TREE QUANTITIES AND LOCATIONS.

GRAPHIC SCALE
10 5 0 10
(IN FEET)
1 inch = 10 feet

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IRRIGATION PLAN

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IRRIGATION NOTES

1. THESE IRRIGATION DRAWINGS ARE DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. ALL PIPING, VALVES, AND OTHER IRRIGATION COMPONENTS MAY BE SHOWN WITHIN PAVED AREAS FOR GRAPHIC CLARITY ONLY AND ARE TO BE INSTALLED WITHIN PLANTING AREAS. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, CONDUIT, AND OTHER ITEMS WHICH MAY BE REQUIRED. INVESTIGATE THE STRUCTURAL AND FINISHED CONDITION AFFECTING THE CONTRACT WORK INCLUDING OBSTRUCTIONS, GRADE DIFFERENCES OR AREA DIMENSIONAL DIFFERENCES. IN THE EVENT OF FIELD DISCREPANCY WITH CONTRACT DOCUMENTS, PLAN THE INSTALLATION WORK ACCORDINGLY BY NOTIFICATION AND APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE AND ACCORDING TO THE CONTRACT SPECIFICATIONS. NOTIFY AND COORDINATE IRRIGATION CONTRACT WORK WITH APPLICABLE CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE, CONDUIT OR SLEEVES THROUGH OR UNDER WALLS, ROADWAYS, PAVING AND STRUCTURES BEFORE CONSTRUCTION. IN THE EVENT THESE NOTIFICATIONS ARE NOT PERFORMED, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR REQUIRED REVISIONS.

2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE NATIONAL ELECTRIC CODE; THE UNIFORM PLUMBING CODE, PUBLISHED BY THE WESTERN PLUMBING OFFICIALS ASSOCIATION; AND OTHER STATE OR LOCAL LAWS OR REGULATIONS. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR REGULATIONS. THE CONTRACTOR SHALL FURNISH WITHOUT ANY EXTRA CHARGE, ANY ADDITIONAL MATERIAL AND LABOR WHEN REQUIRED BY THE COMPLIANCE WITH THESE CODES AND REGULATIONS.

3. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF IRRIGATION SYSTEM WITH LAYOUT AND INSTALLATION OF THE PLANT MATERIALS TO INSURE THAT THERE WILL BE COMPLETE AND UNIFORM IRRIGATION COVERAGE OF PLANTING IN ACCORDANCE WITH THESE DRAWINGS, AND CONTRACT DOCUMENTS. THE IRRIGATION LAYOUT SHALL BE CHECKED BY THE CONTRACTOR AND OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO CONSTRUCTION TO DETERMINE IF ANY CHANGES, DELETIONS, OR ADDITIONS ARE REQUIRED. IRRIGATION SYSTEM SHALL BE INSTALLED AND TESTED PRIOR TO INSTALLATION OF PLANT MATERIAL.

4. THE INTENT OF THIS IRRIGATION SYSTEM IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.

5. IT IS THE RESPONSIBILITY OF THE MAINTENANCE CONTRACTOR AND/OR OWNER TO PROGRAM THE IRRIGATION CONTROLLER(S) TO PROVIDE THE MINIMUM AMOUNT OF WATER NEEDED TO SUSTAIN GOOD PLANT HEALTH. THIS INCLUDES MAKING ADJUSTMENTS TO THE PROGRAM FOR SEASONAL WEATHER CHANGES, PLANT MATERIAL, WATER REQUIREMENTS, MOUNDS, SLOPES, SUN, SHADE AND WIND EXPOSURE.

6. VALVE BOXES: INSTALL GREEN PLASTIC VALVE BOXES WITH BOLT DOWN, NON HINGED COVER MARKED "IRRIGATION". BOX BODY SHALL HAVE KNOCK OUTS. ACCEPTABLE VALVE BOX MANUFACTURER'S INCLUDE NDS, CARSON OR APPROVED EQUAL.

7. INSTALL REMOTE CONTROL VALVE BOXES 12" FROM WALK, CURB, BUILDING OR LANDSCAPE FEATURE. AT MULTIPLE VALVE BOX GROUPS, INSTALL EACH BOX AN EQUAL DISTANCE FROM THE WALK, CURB, BUILDING OR LANDSCAPE FEATURE AND PROVIDE 12" BETWEEN BOX TOPS. ALIGN THE SHORT SIDE OF RECTANGULAR VALVE BOXES PARALLEL TO WALK, CURB, BUILDING OR LANDSCAPE FEATURE.

8. VALVE LOCATIONS SHOWN ARE DIAGRAMMATIC. INSTALL IN GROUND COVER/SHRUB AREAS (AVOID LAWN AREAS WHERE POSSIBLE).

9. INSTALL 2-WIRE CABLE ALONG THE MAIN LINE. CONTACT CONTROLLER REPRESENTATIVE FOR A PRE-CONSTRUCTION MEETING.

10. INSTALL 2-WIRE CABLE WITHIN 1.25" CONDUIT WITH LONG SWEEPS IN AND OUT OF EACH VALVE BOX. SEAL ALL CONDUIT OPENINGS WITH WATERPROOF FOAM.

11. INSTALL A 14"X19" GREY ELECTRICAL PULL BOX EVERY 200' AND AT EVERY CHANGE IN DIRECTION. ONLY SPLICE TWO WIRE CABLE AT THREE WAY WIRE CONNECTIONS.

12. IRRIGATION CONTROL WIRES: SOLID COPPER WITH U.L. APPROVAL FOR DIRECT BURIAL IN GROUND. SIZE #14AWG WIRE WITH A JACKETED 2-CONDUCTOR. PREFERRED WIRE MAKE AND MODEL IS P7072D. ALL SPLICING SHALL BE MADE WITH 3-M DBR/Y-6 WATERPROOF SPLICE KIT.

13. DECODER GROUNDING SHALL BE PROVIDED AT THE END OF THE 2 WIRE PATH. GROUND WITH A 5/8" X 8' COPPER CLAD GROUNDING ROD. #6 COPPER WIRE TO SURGE DEVICE/DECODER. INCLUDE A SURGE ARRESTOR AT EACH GROUNDING LOCATION. A SPLIT BOLT CONNECTION TO BE USED TO CONNECT THE SURGE DEVICE TO THE GROUND WIRE WITH A DBR/Y-6 WATERPROOF CONNECTOR.

14. SPLICING OF JACKETED 2-WIRE IS PERMITTED IN VALVE BOXES ONLY. LEAVE A 24" LONG COIL OF WIRE AT EACH SPLICE AND A 24" LONG EXPANSION LOOP IN ALL PULL BOXES.

15. THE CONTRACTOR SHALL LABEL CONTROL LINE WIRE AT EACH REMOTE CONTROL VALVE WITH A 2 1/4" X 2 3/4" POLYURETHANE I.D. TAG, INDICATING IDENTIFICATION NUMBER OF VALVE (CONTROLLER AND STATION NUMBER). ATTACH LABEL TO CONTROL WIRE. THE CONTRACTOR SHALL PERMANENTLY STAMP ALL VALVE BOX LIDS WITH APPROPRIATE IDENTIFICATION AS NOTED IN CONSTRUCTION DETAILS.

16. INSTALL A GATE VALVE TO ISOLATE EACH REMOTE CONTROL VALVE OR GROUP OF RCV'S LOCATED TOGETHER. GATE VALVE SIZE SHALL BE SAME AS THE LARGEST REMOTE CONTROL VALVE IN MANIFOLD.

17. FLUSH AND ADJUST IRRIGATION OUTLETS AND NOZZLES FOR OPTIMUM PERFORMANCE AND TO PREVENT OVER SPRAY ONTO WALKS, ROADWAYS, AND/OR BUILDINGS. SELECT THE BEST DEGREE OF THE ARC AND RADIUS TO FIT THE EXISTING SITE CONDITIONS AND THROTTLE THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH CONTROL ZONE.

18. SET SPRINKLER HEADS PERPENDICULAR TO FINISH GRADE.

19. WHERE IT IS NECESSARY TO EXCAVATE ADJACENT TO EXISTING TREES, USE CAUTION TO AVOID INJURY TO TREES AND TREE ROOTS. EXCAVATE BY HAND IN AREAS WHERE TWO (2) INCH AND LARGER ROOTS OCCUR. BACK FILL TRENCHES ADJACENT TO TREE WITHIN TWENTY-FOUR (24) HOURS. WHERE THIS IS NOT POSSIBLE, SHADE THE SIDE OF THE TRENCH ADJACENT TO THE TREE WITH WET BURLAP OR CANVAS.

20. NOTIFY LOCAL JURISDICTIONS FOR INSPECTION AND TESTING OF INSTALLED BACKFLOW PREVENTION DEVICE.

21. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE SHOWN ON THE IRRIGATION DRAWINGS. VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE.

22. PIPE SIZING SHOWN ON THE DRAWINGS IS TYPICAL. AS CHANGES IN LAYOUT OCCUR DURING STAKING AND CONSTRUCTION THE SIZE MAY NEED TO BE ADJUSTED ACCORDINGLY.

23. PIPE THREAD SEALANT COMPOUND SHALL BE RECTOR SEAL #5.

24. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR CHANGES IN THE IRRIGATION LAYOUT DUE TO OBSTRUCTIONS NOT SHOWN ON THE IRRIGATION DRAWINGS SUCH AS LIGHTS, FIRE HYDRANTS, SIGNS, ELECTRICAL ENCLOSURES, ETC.

25. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CHANGES IN THE IRRIGATION LAYOUT AND VALVE ZONING DUE TO VARIATIONS IN THE EXISTING SITE CONDITIONS SUCH AS EXPOSURE FROM BUILDINGS, TRELLISES, TREES, ETC., AS WELL AS SLOPE AND SOIL CONDITIONS. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND IRRIGATION CONSULTANT OF THE PROPOSED CHANGES PRIOR TO INSTALLATION FOR APPROVAL.

26. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE IRRIGATION SYSTEM DESIGN IF THE PLANTING DESIGN CHANGES FROM THE ORIGINAL PLAN AND NEEDS TO ADAPT TO THE NEW PLANTING DESIGN. THE LANDSCAPE CONTRACTOR NEEDS TO NOTIFY THE LANDSCAPE ARCHITECT AND IRRIGATION CONSULTANT OF PROPOSED CHANGES PRIOR TO INSTALLATION FOR APPROVAL.

27. WHEN WORK OF THIS SECTION HAS BEEN COMPLETED AND SUCH OTHER TIMES AS MAY BE DIRECTED, REMOVE ALL TRASH, DEBRIS, SURPLUS MATERIALS AND EQUIPMENT FROM SITE.

25. VERIFY LOCATIONS OF ALL IRRIGATION COMPONENTS INSTALLED WITHIN A VALVE BOX AND MAIN LINE ROUTING WITH CITY REPRESENTATIVE PRIOR TO INSTALLATION. DO NOT INSTALL UNTIL LANDSCAPE ARCHITECT PROVIDES ACCEPTABLE LOCATIONS.

IRRIGATION LEGEND

SYMBOL	MODEL NUMBER	DESCRIPTION	NOZZLE GPM	OPERATING PSI	OPERATING RADIUS (FEET)
	PCT 10 SERIES	RAIN BIRD LOW FLOW BUBBLER (SHRUB)	0.17	30	TRICKLE
	1401 SERIES	RAIN BIRD BUBBLER (TREE) MIN. 2 PER TREE. REFER TO BUBBLER DETAIL FOR QUANTITY OF BUBBLERS PER TREE SIZE.	0.25	30	TRICKLE
	100-EFIC-CP	RAIN BIRD BRASS REMOTE CONTROL VALVE WITH IC MODULE.			
	100-EFIC-CP/ QKCHK-100	RAIN BIRD BRASS REMOTE CONTROL VALVE WITH IC MODULE AND 1" BASKET FILTER.			
	44 LRC	RAIN BIRD QUICK COUPLING VALVE			
LA	ICSD	RAIN BIRD LIGHTNING ARRESTOR/GROUNDING DEVICE			
PRV	500XLHLR-2"	WILKINS PRESSURE REDUCING VALVE			

CONTROLLER AND STATION NUMBER
FLOW (GPM)
REMOTE CONTROL VALVE SIZE (IN INCHES)
ASSOCIATED REMOTE CONTROL VALVE

CONTROLLER AND STATION NUMBER
AREA (SQ. FT.)
FLOW (GPM)
REMOTE CONTROL VALVE SIZE (IN INCHES)
ASSOCIATED REMOTE CONTROL VALVE

MAIN LINE: 2" AND SMALLER: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH LASCO SCHEDULE 80 PVC SOLVENT WELD FITTINGS. 18" COVER.

LATERAL LINE: 1" AND LARGER: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH LASCO SCHEDULE 40 PVC SOLVENT WELD FITTINGS. 12" COVER.

SLEEVING: SCHEDULE 40 PVC PLASTIC PIPE. COVER TO BE AS INDICATED IN SPECIFICATIONS OR AS INDICATED ABOVE FOR PIPE DEPTH OF COVER.

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CITY OF WALNUT CREEK
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WALNUT CREEK, CA 94596
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www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
2023-08-24	AS NOTED	#CP010126.
DESIGN:	DRAWN:	CHECKED:
CM	CM	RM

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAKS GOLF COURSE
DRIVING RANGE RENOVATION
IRRIGATION NOTES AND LEGEND

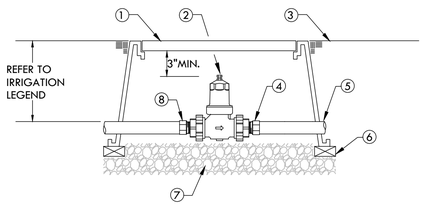
REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% CD	08.24.23
	100% CD	11.06.23

PREPARED UNDER
THE DIRECTION OF

CONTRACT NO.
6015

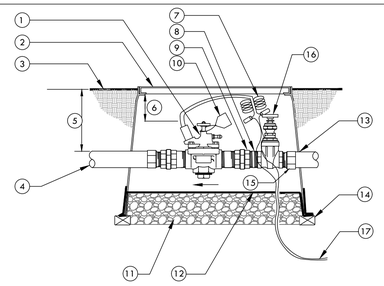
CP#
010126

SHEET NUMBER
I-7
x OF: XX



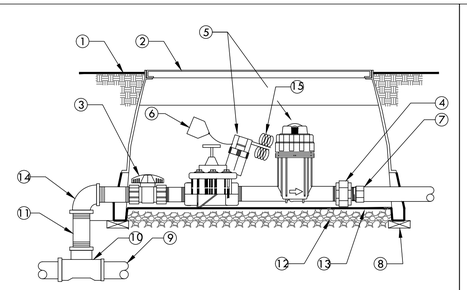
1. WILKINS PRESSURE REDUCING VALVE..
2. RECTANGULAR PLASTIC VALVE BOX WITH BOLT- DOWN LID. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL. TOP DIMENSION: 15 3/4" X 25 1/4" (15" DEEP)
3. FINISH GRADE
4. SCHEDULE 80 PVC MALE ADAPTER.
5. PVC MAIN LINE.
6. BRICK - ONE EACH CORNER OF BOX
7. PEA GRAVEL - 4" DEEP (NO SOIL IN VALVE BOX)
8. 2" PHILMAC COMPRESSION MALE ADAPTER.

1 PRESSURE REDUCING VALVE
SCALE: NONE



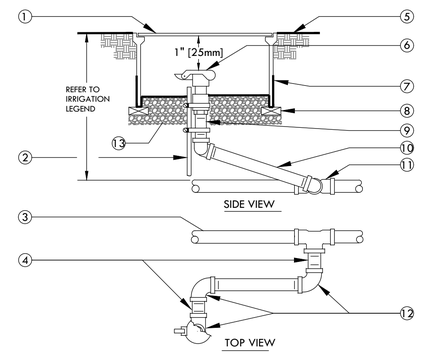
1. REMOTE CONTROL VALVE WITH FLOW CONTROL AND MANUAL BLEED (PRESSURE REGULATOR WHERE SHOWN ON PLANS)
2. JUMBO RECTANGULAR PLASTIC VALVE BOX WITH BOLT DOWN LID. ONE VALVE PER BOX- NO EXCEPTIONS. INSTALL BOX AS SHOWN IN VALVE BOX INSTALLATION DETAIL.
3. FINISH GRADE
4. PVC LATERAL LINE
5. REFER TO LEGEND
6. 3" MIN 6" MAX
7. VALVE CONTROL WIRE- PROVIDE 3M-DBY SEAL PACKS AT ALL SPLICES AND 36" OF EXCESS UF WIRE IN A 1" DIAMETER COIL
8. SCHEDULE 80 PVC NIPPLES
9. SCHEDULE 80 PVC THREADED UNION-2 TOTAL
10. VALVE I.D. TAG (CONTROLLER AND STATION NUMBER).
11. PEA GRAVEL OR 3/4" DRAIN ROCK- 4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX).
12. 19 GAUGE 1/2" SQUARE WIRE MESH.
13. SCH 80 PVC PIPE FROM MANIFOLD
14. BRICK-ONE ON EACH CORNER
15. SCH 80 MALE ADAPTER-VALVE SIZE
16. GATE VALVE-1 PER VALVE
17. CONTROL WIRES FROM CONTROLLER TO CONTROL VALVES.

2 REMOTE CONTROL VALVE
SCALE: NONE



1. FINISH GRADE.
2. RECTANGULAR PLASTIC VALVE BOX WITH BOLT DOWN LID. ONE VALVE PER BOX- NO EXCEPTIONS. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL.
3. SCHEDULE 80 PVC UNION BALL VALVE (ONE PER VALVE).
4. SCHEDULE 80 PVC THREADED UNION.
5. REMOTE CONTROL VALVE DRIP ZONE KIT.
   (SHALL INCLUDE VALVE, FILTER AND A 40 PSI PRESSURE REDUCING VALVE)
6. VALVE I.D. TAG (CONTROLLER AND STATION NUMBER).
7. SCHEDULE 40 MALE ADAPTER
8. BRICK-1 EACH CORNER.
9. PVC MAIN LINE.
10. UPC APPROVED SCHEDULE 40 PVC TEE.
11. SCHEDULE 80 PVC NIPPLE-(4-TOTAL) LENGTH AS REQUIRED.
12. PEA GRAVEL OR 3/4" [20mm] DRAIN ROCK - 4" [102mm] DEEP BELOW VALVE (NO SOIL IN VALVE BOX).
13. 19 GAUGE 1/2" [13mm] SQUARE WIRE MESH.
14. SCHEDULE 80 PVC 90° ELBOW (TxT).
15. VALVE CONTROL WIRE- PROVIDE 3M-DBY SEAL PACKS AT ALL SPLICES AND 3' [1m] OF EXCESS UF WIRE IN A 1" [25mm] DIAMETER COIL.

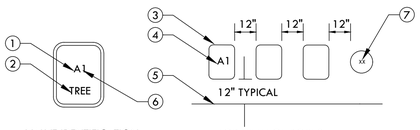
3 REMOTE CONTROL VALVE (DRIPZONE)
SCALE: NONE



1. 10" ROUND PLASTIC VALVE BOX WITH BOLT DOWN LID.
2. 1 1/4" x 1 1/4" x 3/16" [30mm x 30mm x 5mm] ANGLE IRON 30" [760mm] LONG W/2 STAINLESS STEEL STRAPS (ONE AROUND QCV).
3. PVC MAIN LINE.
4. 3" [75mm] LONG SCHEDULE 80 PVC THREADED NIPPLE.
5. FINISH GRADE.
6. QUICK COUPLING VALVE.
7. 19 GAUGE 1/2" [13mm] SQUARE WIRE MESH.
8. BRICK - 2 TOTAL.
9. SCHEDULE 80 PVC THREADED NIPPLE.
10. 10" [250mm] LONG SCHEDULE 80 PVC THREADED NIPPLE.
11. UPC APPROVED SCHEDULE 40 PVC TEE OR ELBOW.
12. SCHEDULE 80 PVC THREADED 90° ELL.
13. PEA GRAVEL OR 3/4" DRAIN ROCK- 4" [100mm] DEEP BELOW VALVE (NO SOIL IN VALVE BOX).

NOTE:
NIPPLES AND FITTINGS TO BE SAME SIZE AS VALVE IPT INLET THREAD SIZE.

4 QUICK COUPLING VALVE
SCALE: NONE



VALVE IDENTIFICATION

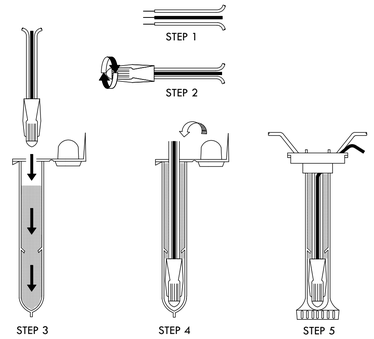
1. CONTROLLER ID.
2. ALL TREE VALVES TO HAVE TREE BRANDED INTO LID.
3. RECTANGULAR VALVE BOX.
4. HEAT BRAND VALVE TYPE PER TABLE OR CONTROLLER ID AND STATION NUMBER INTO LID.
5. EDGE OF LAWN, WALK, FENCE, CURB, ETC.
6. STATION NUMBER.
7. ROUND VALVE BOX FOR QCV AND GATE VALVE. HEAT BRAND VALVE TYPE INTO INTO LID PER TABLE.

TOP VIEW OF BOXES

ITEMS TO BRAND:	BRAND CODE
GATE VALVE	GV
PRESSURE REDUCER	PRV
MASTER VALVE	MV
FLOW SENSOR	FS
HYDROMETER	HM
MAIN LINE AIR RELIEF	ARV
REMOTE CONTROL VALVE	A___
QUICK COUPLER	QC
SPLICE BOX	SB
PULL BOX	PB
LIGHTNING ARRESTOR	LA
GROUND ROD	GR

INSTRUCTIONS:
1. CENTER VALVE BOX OVER REMOTE CONTROL VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 1" ABOVE FINISH GRADE OR MULCH COVER IN GROUND COVER/SHRUB AREA AND FLUSH WITH FINISH GRADE IN TURF AREA.
3. SET RCV AND VALVE BOX ASSEMBLY IN GROUND COVER/SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN ONLY IF GROUND COVER DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE OF LAWN, WALK, FENCE, CURB, ETC.
5. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOXES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. INSTALL EXTENSION BY VALVE BOX MANUFACTURER AS REQUIRED TO COMPLETELY ENCLOSE ASSEMBLY FOR EASY ACCESS.

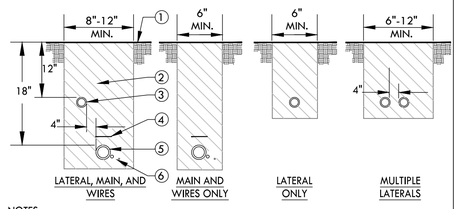
5 VALVE BOX INSTALLATION
SCALE: NONE



NOTE:
MAXIMUM # OF WIRES PER CONNECTOR:
- 3-#14 GAUGE
- 2-#12 GAUGE

INSTRUCTIONS:
1. STRIP WIRES APPROXIMATELY 1/2" FROM ENDS TO EXPOSE WIRE.
2. TWIST CONNECTOR AROUND WIRES CLOCKWISE UNTIL HAND TIGHT, DO NOT OVERTIGHTEN.
3. INSERT WIRE ASSEMBLY TO BOTTOM OF GEL-FILLED TUBE. CHECK TO MAKE SURE CONNECTOR HAS BEEN PUSHED PAST LOCKING FINGERS AND IS SEATED AT THE BOTTOM OF THE TUBE.
4. PLACE WIRES WHICH EXIT TUBE IN WIRE EXIT HOLES AND CLOSE CAP UNTIL IT SNAPS.
5. INSPECT FINAL SPLICE ASSEMBLY THAT IT IS SECURED.

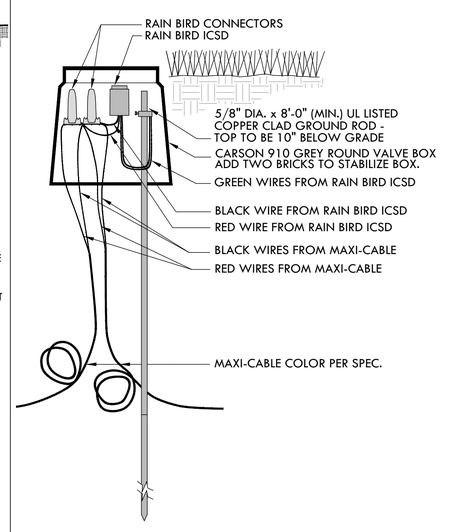
6 WEATHERPROOF WIRE SPLICE ASSEMBLY
SCALE: NONE



NOTES:
1. ALL MAIN SUPPLY LINES AND LATERAL LINES SHALL BE PLACED IN SLEEVES UNDER PAVED SURFACES. INSTALL LOW VOLTAGE WIRES WITHIN A SEPARATE CONDUIT UNDER PAVED SURFACES. DO NOT TAPE WIRES WITHIN CONDUIT.
2. REUSE SALVAGED EXCAVATED FILL AND COMPACT TO ORIGINAL DENSITY IN LANDSCAPE AREAS. ALL OTHER AREAS SHALL BE AT 95% COMPACTION. BACKFILL MATERIAL SHALL BE THE EARTH EXCAVATED FROM THE TRENCHES, FREE FROM ROCKS (ANYTHING LARGER THAN 2"), CONCRETE CHUNKS, AND OTHER FOREIGN OR COARSE MATERIALS.
3. WHEN 12" POP-UP SPRINKLER HEADS ARE USED, INCREASE THE DEPTH OF LATERAL TO 18" AT THE SPRINKLER LOCATION ONLY.

1. FINISH GRADE.
2. CLEAN BACKFILL MATERIAL.
3. LATERAL LINE.
4. 3" DETECTABLE WARNING TAPE OVER MAIN LINE. INSTALL 3" ABOVE MAIN LINE. USE CHRISTY MODEL #TA-DT-3-BIRR FOR POTABLE IRRIGATION SYSTEMS OR #TA-DT-3-PRW FOR RECYCLED IRRIGATION WATER SYSTEMS
5. MAIN LINE.
6. TWO-WIRE CABLE. WIRING SHALL BE LAID OUT LOOSELY IN THE TRENCH.

7 TRENCHING
SCALE: NONE



8 GROUNDING DETAIL
SCALE: NONE

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BOUNDARY OAKS GOLF COURSE
DRIVING RANGE RENOVATION
IRRIGATION DETAILS

REV	DESCRIPTION	DATE
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PREPARED UNDER
THE DIRECTION OF

CONTRACT NO.
6015

CP#
010126

SHEET NUMBER
I-8
X OF: XX

APPENDIX B. ARBORIST REPORT

Boundary Oak Golf Course Walnut Creek

Arborist Report

Walnut Creek, Contra Costa County, California

Prepared for:

Nickels Group
46 Oak Mountain Court
San Rafael, CA 94903

Attn: Doug Nickels

Doug@nickelsgroup.com

Prepared by:

WRA, Inc.
2169 G East Francisco Boulevard
San Rafael, CA 94901

Attn: Carla Angulo

carla.angulo@wra-ca.com

February 2024

WRA#320033

Contents

List of Tables

List of Appendices

List of Preparers

Justin Semion	Principal in Charge
Rob Carnachan	Project Manager
Carla Angulo	ISA Certified Arborist
Neal Jander	GIS Analyst

List of Acronyms

DBH	Diameter at breast height
ISA	International Society of Arboriculture
WRA	WRA, Inc.

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1.0 INTRODUCTION

On July 18, 2023, WRA, Inc. (WRA) conducted an arborist survey at the site of the proposed improvements within the Boundary Oak Golf Course in Walnut Creek (Project), located at the driving range within 3800 Valley Vista Rd, Walnut Creek, California (Accessor Parcel Number [APN]: 135-021-004; Study Area). The survey was conducted by ISA-Certified Arborist, Carla Angulo (ISA #WE-13563A) for the purpose of identifying and documenting the presence of all trees within a city park and/or open space of Walnut Creek Municipal Code Title 11, Chapter 1 Park and Open Space Regulations (Municipal Code 2023a).

GPS locations for all the protected trees surveyed within and around the Study Area and information regarding the species, size in DBH, estimated crown radius, estimated height, and health, condition, and structure ratings were collected and are included in this report. A table with all the relevant information pertaining to surveyed trees is provided in Appendix A. A tree survey location map is provided in Appendix B. Tree photographs are provided in Appendix C.

1.1 Study Area Description

The site of the proposed improvement Project is approximately 17 acres, however, the Study Area in which the tree impacts will occur is approximately 1.5 acres and predominantly consists of a putting green and driving range adjacent to existing parking and landscaped trees near the golf ball vending machines. Trees, including native and non-native trees are present and present along the perimeter of the Study Area. The proposed improvement Project includes the upgrade of the existing driving range, including installing a new irrigation and drainage system, redeveloping the existing putting green to a plaza behind the existing tees with restrooms, a small kitchen, and an area for entertainment, and adding some putting and teaching tees to the south side of the existing driving range tees.

1.2 Regulatory Background

1.2.1 City of Walnut Creek Tree Ordinance

The City of Walnut Creek (City) Title 11 Chapter 1 “Park and Open Space Regulations” states in Section 101, that a park is defined as: “all public open spaces, parks, recreation areas and trails owned and maintained by the City of Walnut Creek or similar areas under the care, maintenance and supervision of the City of Walnut Creek.” And all open space is defined as: “land left basically in its natural, undeveloped state, used for the preservation of natural resources, managed production of resources, and outdoor recreation and designated as Walnut Creek Open Space.” The Project and the Study Area are within a City Park and therefore not subject to the City of Walnut Creek Title 3, Chapter 8 “Preservation of Trees on Private Property”, however, under Section 11-1.519 “Civil Penalty” and Section 01 of Title 3, Chapter 8, the unauthorized removal or damage of tree within City parks and open space is prohibited unless authorized (Municipal Code 2023a, c). Therefore, this report will use the guidance in Title 9.9.04 “Site Improvements – Permit Application” and allow for the description of the trees within the Study Area and those that may be impacted within the limits of construction of improvement activities of the Project in order for the City to review and authorize (Municipal Code 2023b). In addition, the report will include best management practices to ensure the protection of trees that will remain in place.

Since Title 9 Chapter 9 Article 2 “Permit Application” calls for Title 3 Chapter 8, the following definitions will be used to categorize the trees within the Project Area (Municipal Code 2023c).

- Construction Limits shall mean that portion of property on which any construction activity including demolition, grading, building construction, stockpiling, storage, access, landscaping, installation of utility services, sub-drains, water, sewer, or underground services is to occur.

- Development shall mean any improvement of real property which requires the approval of a subdivision, design review approval, a conditional use permit, a minor use permit, a planned development permit, a hillside planned development permit, a variance, a grading permit, a site development permit, a demolition permit or a building permit.

- Discretionary Development Approval shall mean the approval of a subdivision, design review approval, a conditional use permit, a minor use permit, a planned development permit, a hillside planned development permit, a variance or any other approval by the City Council, Planning Commission, Design Review Commission or Zoning Administrator.

- Dripline shall mean the largest outside perimeter of the canopy of a tree. For excurrent species, leaning trees, trees with suppressed canopies, irregular rooting areas (due to infrastructure or geological factors), trees with asymmetrical canopies or canopies altered through pruning, the trunk diameter method shall be used.

- Grove shall mean three (3) or more trees of any size which are part of an integral cover with stems having an aggregate circumference of forty (40) inches or more measured four and one-half (4 1/2) feet above the natural grade.

- Highly Protected Tree shall mean any tree (as defined in subsection (j) of this section) which is any of the following type of tree: Valley oak (*Quercus lobata*), blue oak (*Q. douglasii*), coast live oak (*Q. agrifolia*), California black oak (*Q. kelloggii*), canyon live oak (*Q. chrysoleis*)(*chrysolepis*), interior live oak (*Q wilizeni* var. *wilizeni*)(*wislizeni*i var. *wislizenii*), madrone (*Arbutus menziesii*), California buckeye (*Aesculus californica*), California black walnut (*Juglans hindsii*), grey pine (*Pinus sabiniana*).

- Tree means any live woody plant having a single perennial stem of twenty-eight (28) inches or more in circumference or multistemmed perennial plant having an aggregate circumference of forty (40) inches or more measured four and one-half (4 1/2) feet above the natural grade. A multistemmed plant having one (1) stem of twenty-eight (28) inches or more in circumference shall also be considered to meet this definition. Tree shall also include a tree of any size which is part of a grove.

2.0 METHODS

On July 18, 2023, the Study Area was traversed on foot to inventory all trees within the City of Walnut Creek gold course. WRA’s ISA-Certified Arborist surveyed the area and recorded relevant tree information for each surveyed tree including species, DBH, estimated crown radius, estimated height, and health, condition, and structure ratings.

2.1 Tree Inventory

Locations of trees within the Study Area were recorded using a handheld GPS unit with sub-meter accuracy. Each tree was given an aluminum tree tag with unique identification number and are included in Appendix A.

DBH was calculated for surveyed trees by measuring the trunk diameter at 4.5 ft. above grade. DBH for multi-trunked trees was calculated by measuring each individual trunk and calculating the sum total of trunk diameters. In cases where multi-trunked trees had more than five main trunks, only the five largest trunks were measured. In cases where an irregular buttress or bulge occurred at two feet above ground or DBH, measurements were taken above or below the irregular feature in order to best represent the size of the tree.

2.2 Tree Assessment

General notes on the condition of trees were taken, including health, structure, and overall condition. Assessment of the health, structure, and overall condition of each tree was conducted according to the narratives listed in Table 1.

Table 1. Rating Narratives for Tree Assessment

	HEALTH	STRUCTURE	GENERAL CONDITION
Good	Tree is free from symptoms of disease and stress.	Tree is free from major structural defects.	Tree shows condition of foliage, bark, and overall structure characteristic of the species and lacking obvious defect, or disease.
Fair	Tree shows some symptoms of disease or stress including twig and small branch dieback, evidence of fungal / parasitic infection, thinning of crown, or poor leaf color.	Tree shows some structural defects in branches but overall structure is stable.	Tree shows condition of foliage, bark, and overall structure characteristic of the species with some evidence of stress, defect, or disease.
Poor	Tree shows symptoms of severe decline.	Tree shows structural failure of a major branch or co-dominant trunk.	Tree shows condition of foliage, bark, and overall structure uncharacteristic of the species with obvious evidence of stress, defect, or disease.

2.3 Tree Impact Assessment and Mitigation Requirements

Potential impacts to all trees were analyzed by comparing tree survey data with the Project's 100 Percent Overall Site Plan and Planting Plan (Summit Engineers; Gates and Associates; City of Walnut Creek 2023) which depicts the improvements with the tree impacts and preserved trees with associated recommended tree protection fencing. Potential tree impacts that may require an authorization from the City of Walnut Creek, include removal or encroachment into the dripline of any tree. The results of the impacts assessment is provided below.

According to Title 9 Chapter 9 and Title 3 Chapter 8 site improvement projects as this one, the City of Walnut Creek requires tree replacement mitigation for all trees, except for species on the exempt list, for every tree removal 9 inches DBH or greater. Tree removal impacts and required replacement tree can be provided once the City approves the removal of trees.

3.0 RESULTS

3.1 Tree Inventory

Twenty-four (24) trees were identified within and adjacent to the Study Area of the Project where the tree work will occur (see Appendix B). There are four highly protected trees within and around the Study Area, two coast live oaks and two valley oaks. A complete list of all surveyed trees surveyed is presented in Appendix A. The GPS locations of surveyed trees are shown in Appendix B. Trees present within the Study Area include coast live oak (*Quercus agrifolia*), Southern Magnolia (*Magnolia grandiflora*), strawberry tree (*Arbutus unedo*), mousehole tree (*Myoporum laetum*), aspen (*Poplar* sp.) and American beech (*Fagus grandiflora*). Surrounding trees were glossy privet (*Ligustrum lucidum*), London plain (*Platanus* x *acerifolia*), Canary Island pine (*Pinus canariensis*), valley oak (*Quercus lobata*) and coast redwood (*Sequoia sempervirens*). Trees range in size from 2 inches to 32 inches in diameter (measured at 4.5 feet above ground). The largest tree surveyed was a 32-inch Canary Island pine (CNT tree).

3.2 Tree Assessment

The condition, health, and structure of trees inventoried during this assessment mainly ranged from fair to good, with most trees ranking good in health, structure, and general condition. The only tree to have poor health was tree #474 a mousehole tree with 3 main trunks, significant dieback on the canopy. The remainder of the trees surveyed within the Study Area ranked good in general condition, health, and structure with trees #453, 472, 473, 474, and 475 displaying minimal signs of included bark, which is a sign of weak branch unions, or maladies or decline in vigor. The coast live oaks on the southern part of the Study Area within the landscaped area along the sidewalk are in very good condition and structure which indicates that they can withstand stressors. Table 2 below summarizes the assessment results for all trees surveyed.

Table 2: Tree Assessment Results Summary

CRITERIA ASSESSED/RATING	CONDITION	HEALTH	STRUCTURE
Good	17 (71%)	17 (71%)	16 (67%)
Fair	7 (29%)	6 (25%)	6 (25%)
Poor	0 (0%)	1 (4%)	0 (0%)

3.3 Tree Impact Assessment and Mitigation Summary

A total of 14 trees and one shrub have been identified as unavoidably needing to be removed to accommodate the improvements of the Project based on comparison of Project plans (Summit Engineers, Gates and Associates, City of Walnut Creek 2023, C2.1). Direct impacts on trees #448-453, 472-476, 483, 485 and 493 are to be removed. Two of the trees to be removed are coast live oaks greater than 9 inches in DBH (#448 and 451) and will need mitigation. The rest are not oak trees and not protected therefore do not need mitigation. Removals include strawberry trees (#449 and 450), southern magnolia, American beech, witch hazel and mousehole tree (#472-474, 483). Trees range in size from 2 inches to 14.9 inches DBH. The total inches diameter of coast oak trees potential impact is 26 inches. The trees that require attentive care and tree protection fence along the tree protection zone are trees #196 and #484 both valley oaks, which will be defined for this Project as the dripline plus one foot.

Representative photographs of trees to be removed in Appendix C. The plans depict removing the two coast live oaks #448 and #451 and replacing them with 1 tree of the same species (*Quercus agrifolia* (Summit Engineers 2023, sheet C2.1 and L2.1).

4.0 SUMMARY AND RECOMMENDATIONS

Twenty-four trees are located within the limits of disturbance of the Project. Sixteen trees are adjacent to the direct impact area and those that will not be removed have been noted to protect them in place as depicted in Gates and Associates 2023 Planting Details (sheet L2.1). A complete list of all trees surveyed is presented in Appendix A. The GPS locations of surveyed trees and removals are shown in Appendix B.

The Project is proposing to plant a total of 20 replacement trees of three different ornamental species and cultivars, including coast live oak.

4.1 Tree Protection Plan

The following tree protection measures can be used in addition to the tree protection fencing included in the plans on sheet L2.1.

1. Before the start of any construction activities the project arborist shall be present to review all work procedures, access routes, storage areas, and tree protection plans.
2. The tree protection zone shall be determined by the project arborist and can be known as the dripline plus one foot.
3. Before clearing, excavation, construction or other work on the site, every protected tree shall be securely fenced be a 6-ft chain link mounted on steel posts driven to the ground or on stanchions fastened by rebar staples 12 inches deep. at the “tree protection zone.
4. The fence shall remain in place for the duration of all work undertaken in connection with the development.
5. If the proposed development, including any site work for the development, will encroach upon the tree protection zone of a protected tree, special measures shall be utilized, as

approved by the Director or the Planning Commission, to allow the roots to obtain oxygen, water, and nutrients as needed.

6. Any excavation, cutting, filling, or compaction of the existing ground surface within the tree protection zone, if authorized at all by the Director. If any work need to occur within the tree protection zone or dripline, there shall be a 6-inch layer of mulch from tree clippings over the soil surface under the supervision of the project arborist.

7. Any work that needs to occur within the tree protection zone shall have the project biologist present and be done with man-powered tools by an ISA certified arborist or tree workers.

8. No significant change in existing ground level shall be made within the drip line of a protected tree. No burning or use of equipment with an open flame shall occur near or within the tree protection zone. All brush, earth and other debris shall be removed in a manner which prevents injury to the protected tree.

9. No oil, gas, chemicals or other substances that may be harmful to trees shall be stored or dumped within the tree protection zone of any protected tree, or at any other location on the site from which such substances might enter the perimeter of a protected tree.

10. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees. If avoidance is impractical, tunnels shall be made below the roots. Trenches shall be consolidated to service as many units as possible. Trenching within the drip line of protected trees shall be avoided to the greatest extent possible and shall only be done under the on-site directions of a project arborist.

11. No concrete or asphalt paving shall be placed over the root zones of protected trees [selected for preservation]. No artificial irrigation shall occur within the root zone of oaks.

12. No equipment, material, spoils, water or washout water may be deposited, stored or parked within the tree protection zone.

13. Any damage to a protected tree shall be evaluated as soon as possible by the project arborist.

5.0 REFERENCES

Gates and Associates 2023	Gates and Associates. 2023. Layout and Planting Plans. Boundary Oaks Golf Course. November. Pgs. 7.
Summit Engineers 2023	Summit Engineers. 2023. 100% Construction Demolition Set Revision 1: Boundary Oak Golf Course Driving Range. City of Walnut Creek, California. November.
Municipal Code 2023a	City of Walnut Creek Municipal Code (Municipal Code). Title 11 Parks and Recreation. Chapter 1 Parks and Open Space Regulations. https://www.codepublishing.com/CA/WalnutCreek/html/WalnutCreek11/WalnutCreek11.html
Municipal Code 2023b	City of Walnut Creek Municipal Code (Municipal Code). Title 9, Chapter 9 Site Development. Article 2 “Site Improvement”. https://www.codepublishing.com/CA/WalnutCreek/html/WalnutCreek09/WalnutCreek0909.html
Municipal Code 2023c	City of Walnut Creek Municipal Code (Municipal Code). Title 3. Chapter 8 “Preservation of Trees on Private Property”. https://www.codepublishing.com/CA/WalnutCreek/html/WalnutCreek03/WalnutCreek0308.html#3-8.02
Google Earth 2023	Google Earth. 2023. Aerial Photography 1993-2023.
SelecTree 2023	SelecTree. UFEI. 1995-2023. Cal Poly State University, San Luis Obispo. https://selectree.calpoly.edu/. Accessed: July 2023.

APPENDIX A. TREE SURVEY TABLE

Appendix A. Tree Inventory Table - Boundary Oak Golf Course, Walnut Creek, Ca								
Tag ID	**Common Name**	**Species Name**	**DBH (inches)**	**Protected**	**Remove**	**Condition**	**Health**	**Structure**
448	*Quercus agrifolia*	coast live oak	12.1	Yes	Yes	Good	Good	Good
449	*Arbutus unedo*	strawberry tree	2	No	Yes	Good	Good	Good
450	*Arbutus unedo*	strawberry tree	4.5	No	Yes	Good	Good	Good
451	*Quercus agrifolia*	coast live oak	13.9	Yes	Yes	Good	Good	Good
452	*Magnolia grandiflora*	southern magnolia	12.1	No	Yes	Good	Good	Good
453	*Fagus grandiflora*	American beech	14.9	No	Yes	Good	Fair	Fair
472	*Hamamelis sp.*	witch hazel	11	No	Yes	Good	Fair	Fair
473	*Myoporum laetum*	mousehole tree	2.3	No	Yes	Fair	Fair	Fair
474	*Myoporum laetum*	mousehole tree	6.3	No	Yes	Fair	Poor	Fair
475	*Myoporum laetum*	mousehole tree	7.5	No	Yes	Fair	Fair	Fair
476	*Ligustrum lucidum*	glossy privet	7.7	No	Yes	Fair	Fair	Fair
477	*Sequia sempervirens*	coast redwood	13	No	No	Good	Good	Good
479	*Platanus* x *acerifolia*	London plain	9.6	No	No	Good	Good	Good
480	*Platanus* x *acerifolia*	London plain	19	No	No	Good	Good	Good
481	*Sequia sempervirens*	coast redwood	23.5	No	No	Good	Good	Good
482	*Sequia sempervirens*	coast redwood	19	No	No	Good	Good	Good
483	*Myoporum laetum*	mousehole tree	9.9	No	Yes	Fair	Fair	Good
484	*Quercus lobata*	valley oak	28	Yes	No	Good	Good	Good
485	*Hamamelis sp.*	witch hazel	8.5	No	Yes	Fair	Good	Fair
493	*Magnolia grandiflora*	southern magnolia	9.7	No	Yes	Fair	Good	Fair
CNT	*Pinus canariensis*	Canary Island pine	32	No	No	Good	Good	Good
194	*Pinus canariensis*	Canary Island pine	31	No	No	Good	Good	Good
195	*Pinus canariensis*	Canary Island pine	14	No	No	Good	Good	Good
196	*Quercus lobata*	valley oak	16	Yes	No	Good	Good	Good

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APPENDIX B. TREE INVENTORY MAP – PLANNED IMPACTS

Path: L:\Acad 2000 Files\320000\320033\GIS\ArcMap\320033Base.aprx Layout Name: Appendix B_Tree Inventory Map - Planned Impacts

Sources USDA NAIP Imagery 2022, WRA | Prepared By: njander, 11/7/2023

Appendix B. Tree Inventory Map - Planned Impacts

Boundary Oak Golf Course
City of Walnut Creek, California

0 50 100 Feet

N

wra Environmental Consultants

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APPENDIX C. TREE PHOTOGRAPHS

Photo 1. Tree 448, coast live oak (*Quercus agrifolia*), to be removed.

Photo 2. Tree 449, strawberry tree *(Arbutus unedo*), to be removed.

Photo 3. Tree 450, strawberry tree, to be removed.

Photo 4. Tree 451, coast live oak, to be removed.

Photo 5. Tree 452, southern magnolia (*Magnolia grandiflora*), to be removed.

Photo 6. Tree 453, American beech(*Fagus grandiflora*), to be removed.

Photo 7. Tree 472, Aspen (*Poplar* sp.), to be removed.

Photo 8. Tree 473, mousehole tree (*Myoporum laetum*), to be removed.

Photo 9. Tree 473, mousehole tree, in poor health, to be removed.

Photo 10. Tree 473, mousehole tree, to be removed.

Photo 11. Tree 476 is a glossy privet (*Ligustrum lucidum*) that is adjacent to the Study Area, to be removed.

Photo 12. Tree 477 is a coast redwood(*Sequoia sempervirens*) that is southeast of the Study Area near and will not be impacted. On the background the hill where the transplanted oaks are proposed.

Photo 13. Tree 479 is a London plain (*Platanus* x *acerifolia*) that is southeast of the Study Area and will not be impacted.

Photo 14. Tree 480 is a London plain that is southeast of the Study Area and will not be impacted.

Photo 15. Tree 483 is a larger mousehole tree that is southeast of the Study Area. It will be removed.

Photo 16. Trees 481 and 482 are coast redwoods that will not have impacts and will remain. They are located adjacent to the hillslope that is proposed to host the transplanted oaks.

APPENDIX C.

CULTURAL RESOURCES STUDY *(UNDER SEPARATE COVER AND AVAILABLE FOR REVIEW BY QUALIFIED INDIVIDUALS ONLY)*

APPENDIX D.
GEOTECHNICAL INVESTIGATION REPORT

May 17, 2022
File: 3354.001altr.doc

Nickels Group Ltd.
Attn: Doug Nickels
48 Oak Mountain Court
San Rafael, California 94903

Re: Geotechnical Investigation
Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Introduction

We are pleased to present the results of our geotechnical investigation for the planned driving range improvements at Boundary Oak Golf Course, 3800 Valley Vista Road in Walnut Creek, California. The project site location is shown on Figure 1. We are providing our services in accordance with agreement dated January 28, 2022. The scope of our Phase 1 services is described in our agreement and includes subsurface exploration, laboratory testing, development of recommendations for site grading, foundation design criteria, and preparation of this letter report summarizing our geotechnical recommendations. Supplemental services should include geotechnical consultation during design, plan review, and geotechnical observation and testing during construction.

Project Description

We understand the project consists of improvements to an existing driving range including a 20-foot-high fence, teaching tee, putting green and bocce courts. A plaza is also planned with a golf ball vending prefabricated structure and a food and beverage prefabricated structure. Site grading is expected to include minor cuts and fills to grade the range for efficient drainage. The driving range will have hybrid Bermuda natural grass. The proposed project improvements are shown on the Site Plan, Figure 2.

Existing Conditions

The project site is located east of the existing pro shop and asphalt parking lot and is currently undeveloped. The topography is gently to moderately sloping with a broad drainage swale through the central portion of the driving range. The site is covered with low grasses and exposed soil with several mature trees around the perimeter.

Regional Geology

Contra Costa County is located within the Coast Range Geomorphic Province of California. This area is characterized by northwest-southeast trending mountain ridges and intervening valleys that were formed from tectonic activity between the Pacific and North American Plates. Tectonic activity within the Coast Range Geomorphic Province is concentrated along the San Andreas Fault Zone.

The regional bedrock geology mostly consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Jurassic-Cretaceous age (65-190 million years ago) Franciscan Complex. The Franciscan is characterized by a diverse assemblage of greenstone,

sandstone, shale, chert, and mélange, with lesser amounts of conglomerate, calc-silicate rock, schist, and other metamorphic rocks.

As presented on Figure 3, regional geologic mapping[1] indicates that the site is underlain by landslide rubble and Domengine Sandstone. Domengine sandstone is typically light gray to tan, semi friable, and medium grained.

Subsurface Exploration and Laboratory Testing

We explored subsurface conditions with two borings using track-mounted drilling equipment on March 15, 2022. The approximate subsurface exploration locations are shown on the Site Plan, Figure 2. The soils encountered were logged and identified by our field engineer in general accordance with ASTM Standard D 2487, "Field Identification and Description of Soils (Visual-Manual Procedure)." This standard is briefly explained on the Soil and Rock Classification Charts, Figures A-1, and A-2, respectively.

During our exploration, we collected select soil samples for laboratory testing. Laboratory testing included determination of moisture/density relations, percentage of particles (fines) passing the No. 200 sieve, and plasticity index/Atterberg limits. A summary of the subsurface conditions observed are presented on Figures A-3 through A-6. The results of moisture content, dry density, unconfined strength, percentage of particles (fines) passing the No. 200 sieve, and plasticity index/Atterberg limits tests are presented on the boring logs. A plasticity chart is shown on Figure A-7. The subsurface exploration and laboratory testing programs are discussed in further detail in Appendix A.

Subsurface Conditions

The subsurface conditions generally consist of colluvial soils and old landslide debris over sandstone bedrock at variable depths. Bedrock is expected to be relatively shallow along the topographic ridges on the north and south side of the planned driving range and deeper in the central portion.

Boring 1 encountered approximately 12 feet of very stiff, sandy clay underlain by very dense, clayey gravel with sand. Beneath the clayey gravel with sand is very stiff, sandy clay to approximately 23 feet below the ground surface. The colluvium is underlain by sandstone bedrock to the maximum explored depth of 25.5 feet below the ground surface. Boring 2 encountered approximately 11 feet of very loose to medium dense, silty sand over sandstone bedrock to the maximum explored depth of 28.0 feet below the ground surface. Groundwater was measured in Boring 1 at 24.0 feet below the ground surface.

Geologic Hazards Evaluation

The principal geologic hazards which could potentially affect the project site are strong seismic shaking and erosion. Other commonly considered geologic hazards, including fault surface rupture, flooding, liquefaction, and expansive soils are not considered significant with regard to the proposed project. Potentially significant geologic hazards, their anticipated impacts, and recommended mitigation measures are discussed below.

[1] Diblee Jr., T.W., et al (2006) “Geologic Map of the Clayton Quadrangle, Contra Costa County, California.

Seismic Shaking

The site will likely experience seismic ground shaking from future earthquakes in the San Francisco Bay Area. Earthquakes along several active faults in the region, as shown on Figure 4, could cause moderate to strong ground shaking at the site.

Deterministic Seismic Hazard Analysis – Deterministic Seismic Hazard Analysis (DSHA) predicts the intensity of earthquake ground motions by analyzing the characteristics of nearby faults, distance to the faults and rupture zones, earthquake magnitudes, earthquake durations, and site-specific geologic conditions. Using the Caltrans ARS Online web application (2022), we have calculated the median peak ground acceleration for the various nearby active faults, as presented below in Table A. The acceleration values shown are for an earthquake originating on the closest portion of the fault to the site.

TABLE A
ESTIMATED DETERMINISTIC PEAK GROUND ACCELERATION
Boundary Oak Driving Range
Walnut Creek, California

Fault	Moment Magnitude for Characteristic Earthquake(1)	Closest Estimated Distance(1)	Median Peak Ground Acceleration(2,3)	+1σ PGA(2,3)
Concord	6.45	1.0 km	0.52 g	0.93 g
Clayton	6.57	5.8 km	0.36 g	0.65 g
Mount Diablo	6.67	6.8 km	0.34 g	0.61 g
Calaveras	7.43	10.0 km	0.34 g	0.59 g
Great Valley	6.60	17.0 km	0.17 g	0.31 g

Notes:
1) Values determined using Google Earth KML files showing Quaternary Faults & Folds in the US obtained from USGS website April 12, 2022.
2) Values calculated using Vs_{30} = 537 m/s for Site Class "C" ("Very Dense Soil and Soft Rock" Conditions) in accordance with the 2019 CBC and 2016 ASCE-7.
3) Values determined using Pacific Earthquake Engineering Research Center (PEER) NGS-West2 Excel Spreadsheet, http://peer.berkeley.edu/ngawest2/databases/.

The potential for strong seismic shaking at the project site is moderate. Due to their close proximity, the Concord Fault (approximately 1.0 kilometers west) and Clayton Fault (approximately 5.8 kilometers east) present the highest potential for strong ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: *Less than significant with mitigation.*

Recommendation: *Mitigation measures include designing the new improvements in accordance with the most recent edition of the California Building Code (2019). Recommended site-specific seismic coefficients and foundation recommendations are presented in Section 5 of this report.*

Erosion

Sandy soils on moderate slopes or clayey soils on steep slopes are susceptible to erosion when exposed to concentrated surface water flows. The project area is moderately sloping, so we judge the likelihood of damage to improvements due to erosion is moderate. If site work is performed during the winter months, erosion control measures will likely be required, including a "stabilized" site entrance and other typical measures that the project Civil Engineer or Architect should show on the project plans.

Evaluation: *Less than significant with mitigation.*

Recommendations: *Restore and protect any areas where vegetation is removed or destroyed during construction, using standard erosion control measures as described in the most recent version of the California Regional Water Quality Control Board Erosion and Sediment Control Field Manual or similar standards. Additionally, the project Civil Engineer or Architect should design site grades and drainage systems to discharge water away from structures. Additional site drainage recommendations are presented in Section 5.4 of this report.*

Discussion and Recommendations

Based on our experience with previous projects in the area and the results of our subsurface exploration and geologic hazards evaluation, we conclude that the project is feasible from a geotechnical perspective. Primary geotechnical considerations for the project will include providing adequate foundation support and seismic design for new structures and erosion control following site grading.

Seismic Design

Minimum mitigation of seismic ground shaking includes design of new structures in conformance to the provisions of the most recent edition (2016) of the California Building Code. The magnitude and character of these ground motions will depend on the particular earthquake and the site response characteristics. Based on the interpreted subsurface conditions and close proximity of the Concord and Clayton Faults, we recommend the CBC coefficients and site values shown in Table B below to calculate the design base shear of the new construction. To determine site seismic coefficients, we used the USGS Seismic DesignMaps web application and the latitude and longitude coordinates shown on Figure 4.

TABLE B
2019 CBC SEISMIC DESIGN FACTORS
Boundary Oak Driving Range
Walnut Creek, California

Factor Name	Coefficient	CBC Table/ Figure	Site Specific Value[1]
Site Class[2]	$S_{A,B,C,D,E, or F}$	1613.5.2	S_C
Spectral Acc. (short)	S_s	1613.5(3)	2.412 g
Spectral Acc. (1-sec)	S_1	1613.5(4)	0.731 g
Site Coefficient	F_a	1613.5.3(1)	1.2
Site Coefficient	F_v	1613.5.3(2)	1.4

Notes:
1) Values determined in accordance with the 2016 ASCE-7 standard.
2) Soil Profile Type S_C Description: Very Dense Soil and Soft Rock, Shear Wave Velocity between 1,200 and 2,500 feet per second, Standard Penetration blow counts greater than 50, and undrained shear strength greater than 2,000 psf.

The effects of earthquake shaking (i.e., protection of life safety) can be mitigated by close adherence to the seismic provisions of the current edition of the CBC. However, some structural damage may still occur during strong ground shaking.

Site Preparation and Grading

Although no civil plans have been made available for review, we anticipate minor site grading could be incorporated to prepare level building pads for the shipping containers. Any site preparation and grading should be performed in accordance with the following recommendations.

1. **Surface Preparation** – Clear all foundations, trees, brush, roots, over-sized debris, and organic material from areas to be graded. Trees that will be removed (in structural areas) must also include removal of stumps and roots larger than two inches in diameter. Excavated areas (i.e., excavations for foundation or stump removal) should be restored with properly moisture conditioned and compacted fill as described in the following sections. Any loose soil or rock at subgrade will need to be excavated to expose firm natural soils or bedrock. Debris, rocks larger than four inches and vegetation are not suitable for structural fill and should be removed from the site. Alternatively, vegetation strippings may be used in landscape areas.

   Where fills or other structural improvements are planned on level ground, the subgrade surface should be scarified to a depth of about eight inches, moisture conditioned to at least 2% above the optimum moisture content and compacted to a minimum of 90% relative compaction (ASTM D-1557). Above-optimum moisture content should be maintained until concrete or aggregate baserock is placed. Relative compaction should be increased to a minimum of 95% where new asphalt pavements or slabs subjected to

vehicle loads are planned. Areas exposing bedrock at subgrade need not be scarified and compacted.

Relative compaction, maximum dry density, and optimum moisture content of fill materials should be determined in accordance with ASTM Test Method D 1557, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using a 10-lb. Rammer and 18-in. Drop." If soft, wet, or otherwise unsuitable materials are encountered at the subgrade elevation during construction, we will provide supplemental recommendations/field directives to address the specific condition.

2. **Excavations** -- Site excavations for new foundations, underground utilities and other improvements will generally encounter very stiff sandy clay and very loose silty sand. We judge that the surficial soils can be ripped and excavated with conventional equipment and the footings can be excavated with conventional equipment such as backhoes or small skid-steer loaders. Depending on the time of year that construction takes place, shallow groundwater may be encountered in excavations.

   All excavations in excess of five feet deep will need to be sloped or braced in accordance with Cal/OSHA regulations. Based on our exploration, native soils, and man-made fills, especially where disturbed by debris-removal activities may be prone to sloughing, raveling, and collapse in open excavations and should be considered “Type C.”

3. **Fill Placement and Compaction** – Following subgrade preparation in accordance with Section 5.3.1, fill materials should be conditioned to at least 2% above the optimum moisture content, placed in loose horizontal lifts not exceeding 8-inches in thickness, and be compacted to a minimum of 90% relative compaction. Fill placement on terrain steeper than 8:1 (horizontal:vertical) will require keying, benching and subsurface drainage as shown on Figure 6.

   Where asphalt pavements or other vehicle-loaded areas are planned, compaction should be increased to 95% minimum in the upper foot. Compaction may be reduced to 85% minimum in landscape areas where no new structures are planned and where finished slopes are flatter than 5 horizontal to 1 vertical.

   If imported fill is required, the material shall consist of soil and rock mixtures that: (1) are free of organic material, (2) have a Liquid Limit less than 40 and a Plasticity Index less than 15, and (3) have a maximum particle size of 4-inches. We should test any imported fill material to determine its suitability for use as fill material.

Foundation Design

We anticipate that the ball machine and food/beverage structures will be a lightly loaded. The perimeter fence is expected to have low vertical loads but higher seismic and wind loads. Based on our subsurface exploration, we expect shallow foundations for the structures and drilled pier foundations for driving range fence posts. Geotechnical design criteria for the foundations are presented in Table C.

TABLE C
FOUNDATION DESIGN CRITERIA
Boundary Oak Driving Range
Walnut Creek, California

Shallow Spread Footings	
Minimum width:	12 inches
Minimum depth:	18 inches
Allowable bearing capacity: [1]	2,000 psf
Base friction coefficient:	0.30
Lateral passive resistance: [2]	300 pcf
Drilled Piers	
Minimum embedment:	5 feet
Skin Friction: [3]	
Fill/ Colluvial Soils:	1,000 psf
Weathered Bedrock:	2,500 psf
Lateral Passive Resistance: [2]	
Colluvial Soils (up to 12 feet):	300 psf
Weathered Bedrock:	450 psf

Notes:
1) Dead plus live loads. Can increase values by 1/3 for total loads including seismic.
2) Equivalent fluid pressure for level conditions. Ignore upper 12 inches unless confined by concrete or asphalt pavements. For piers, apply values over effective width of two pier diameters. Reduce the passive pressure to 250 pcf for 3:1 downward sloping condition. Interpolate for intermediate slopes.
3) Uniform pressure distribution. Uplift resistance equals 80% of the skin friction. Ignore the upper 12 inches in sloping terrain.

Site Drainage

New grading could result in adverse drainage patterns causing water to pond around the new improvements. Careful consideration should be given to design of finished grades at the site. We recommend that the building areas be raised slightly and that the adjoining landscaped areas be sloped downward at least 0.25 feet for 5 feet (5 percent) from the perimeter of building foundations. Where hard surfaces, such as concrete or asphalt adjoin foundations, slope these surfaces at least 0.10 feet in the first 5 feet (2 percent).

Provide area drains for landscape planters adjacent to buildings and collect downspout discharges into a tight pipe collection system that discharges well away from the building foundations. Site drainage should be discharged away from the building area and outlets should be designed to reduce erosion. Site drainage improvements should be connected into an established storm drainage system.

Additional Services

During design, we will be available for consultation and plan/specification review. We can provide additional recommendations and criteria as needed. We anticipate we will be retained to provide construction services that would include submittal review, confirming subsurface conditions are as expected, and geotechnical inspection and testing.

We hope this provides you with the information you require at this time. Please do not hesitate to call with any questions or if we can be of further assistance.

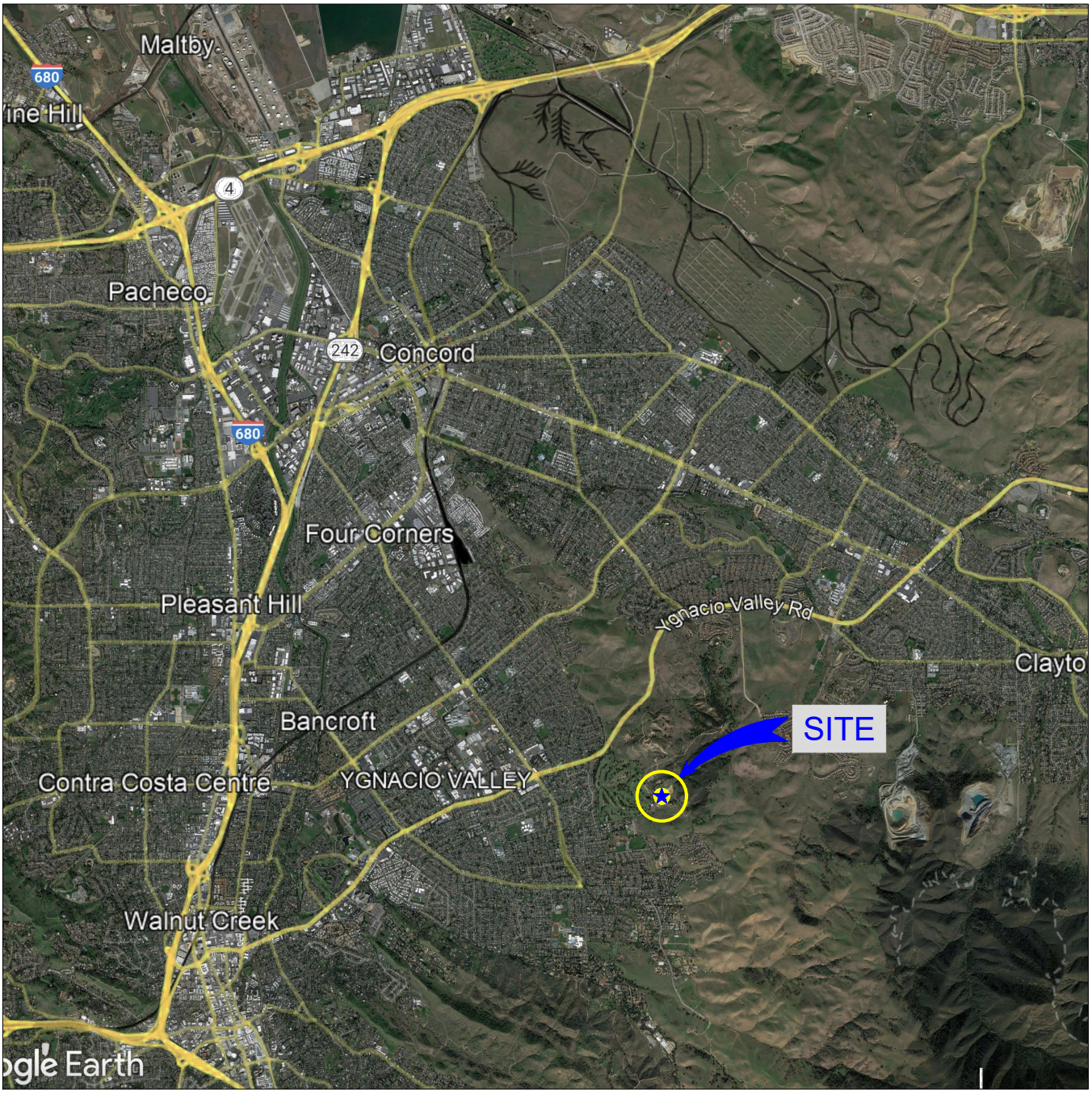
Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

Reviewed By:

Monica Thornton
Project Engineer

Scott Stephens
Geotechnical Engineer No. 2398
(Expires 6/30/23)

Attachments: Figures 1 through 6, Appendix A



SITE: LATITUDE, 37.9256°
LONGITUDE, -121.9950°

SITE LOCATION

N.T.S.

NORTH

REFERENCE: Google Earth, 2021

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

FILENAME: 3354.001 Figures.dwg

SITE LOCATION MAP

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

1
FIGURE

SITE PLAN

SCALE

0 80 160 320 FEET

NORTH

Approximate location of boring completed by MPEG, 2022

REFERENCE: Site plan provided by client, 2022.

MPEG MILLER PACIFIC ENGINEERING GROUP
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FILENAME: 3354.001 Figures.dwg

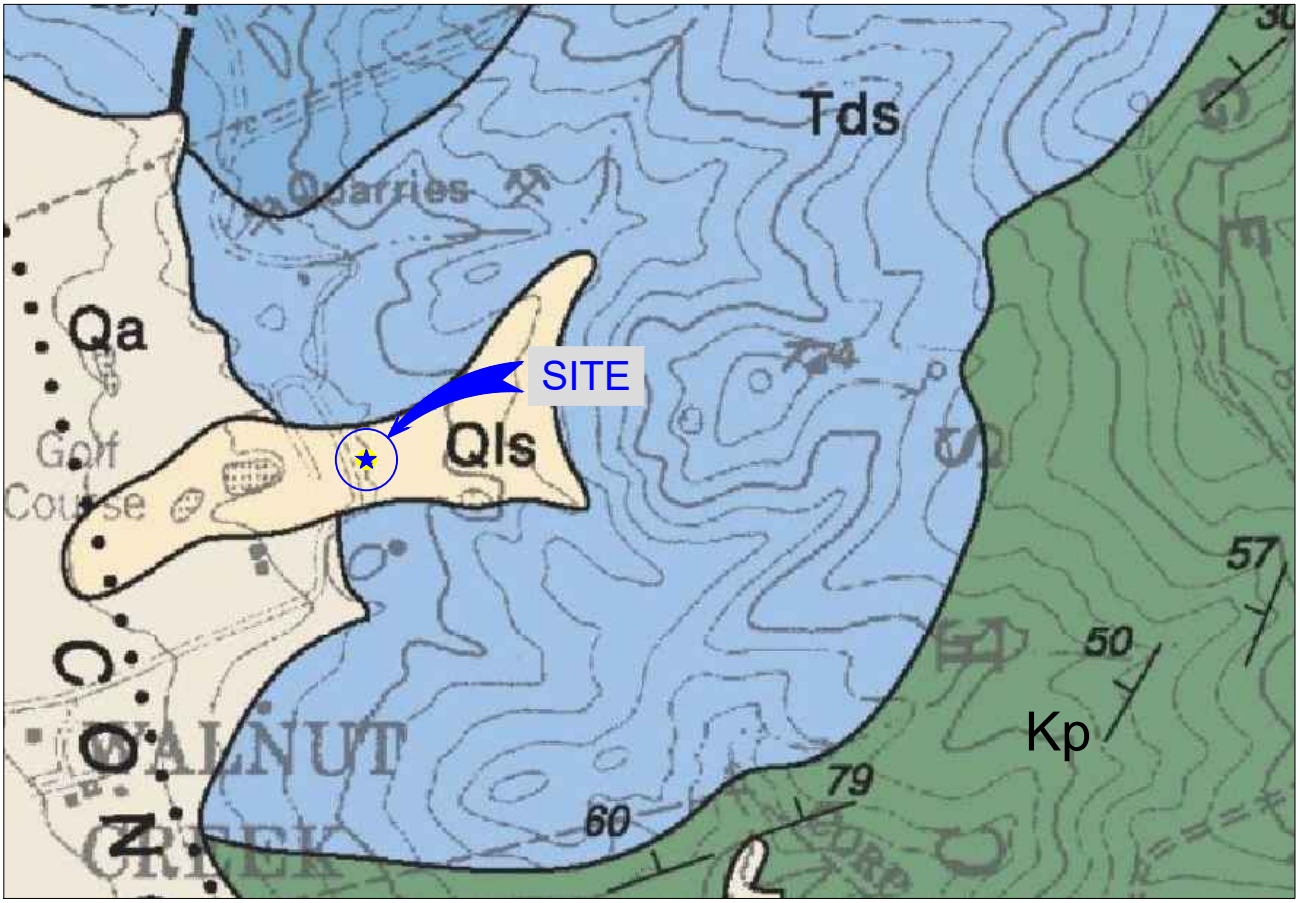
SITE PLAN

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

2
FIGURE



REGIONAL GEOLOGIC MAP

(NOT TO SCALE)

NORTH

LEGEND

Qa	**Surficial Sediments -** Alluvial gravel, sand and clay of valley areas
Qls	**Landslide Rubble**
Tds	**Domengine Sandsone -** Sandstone, light gray to tan, semi friable, medium grained
Kp	**Panoche Formation -** Clay shale or claystone, gray to dark gray, micaceous, bedded

Reference: Diblee, Jr., Thomas W., "Geologic Map of the Clayton Quadrangle, Contra Costa County, California" 2006.

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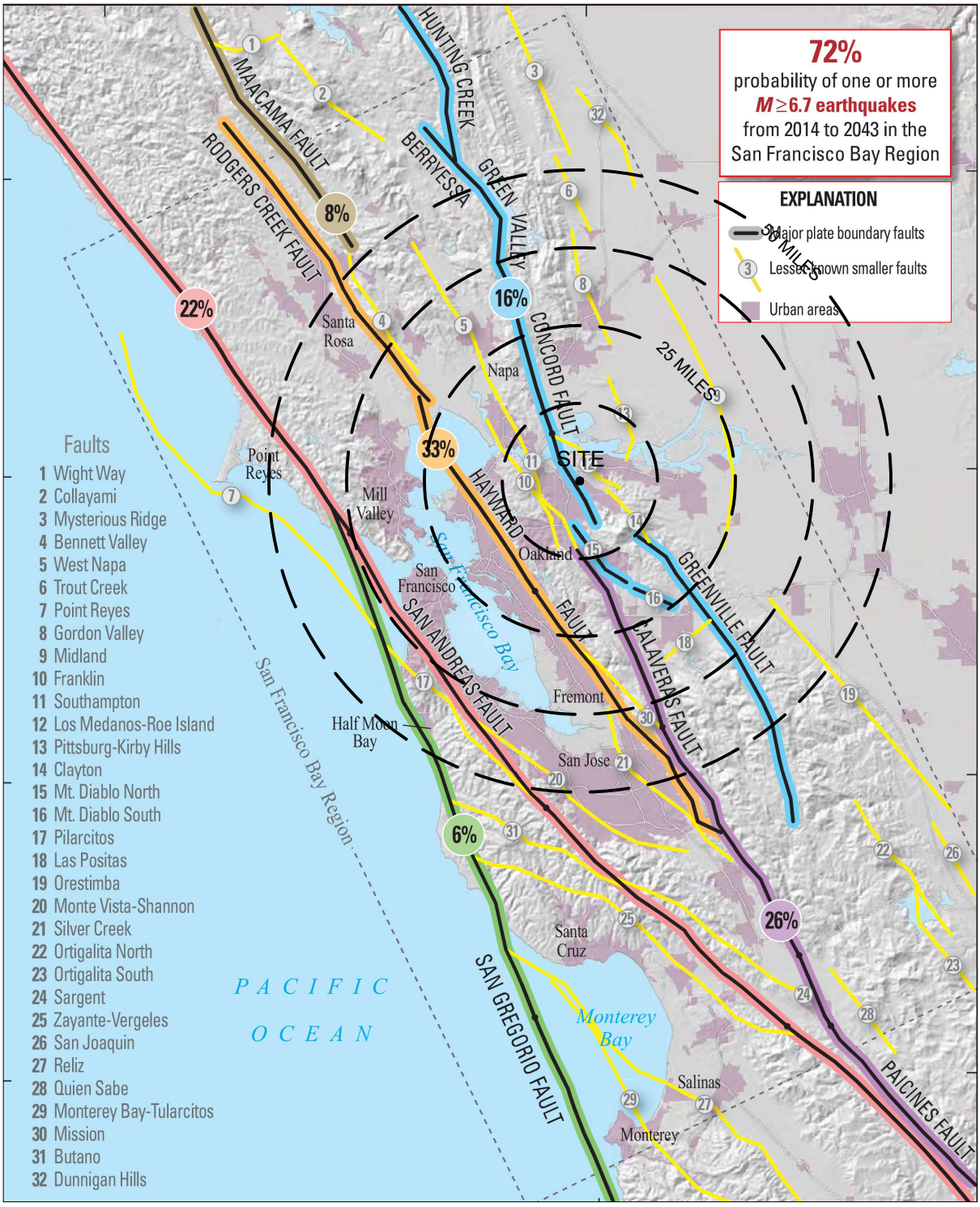
REGIONAL GEOLOGIC MAP

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

3
FIGURE



SITE COORDINATES
LAT. 37.9256°
LON. -121.9950°

SCALE
0 12.5 25 50 MILES

NORTH

DATA SOURCE:
1) U.S. Geological Survey, U.S. Department of the Interior, "Earthquake Outlook for the San Francisco Bay Region 2014-2043", Map of Known Active Faults in the San Francisco Bay Region, Fact Sheet 2016-3020, Revised August 2016 (ver. 1.1).

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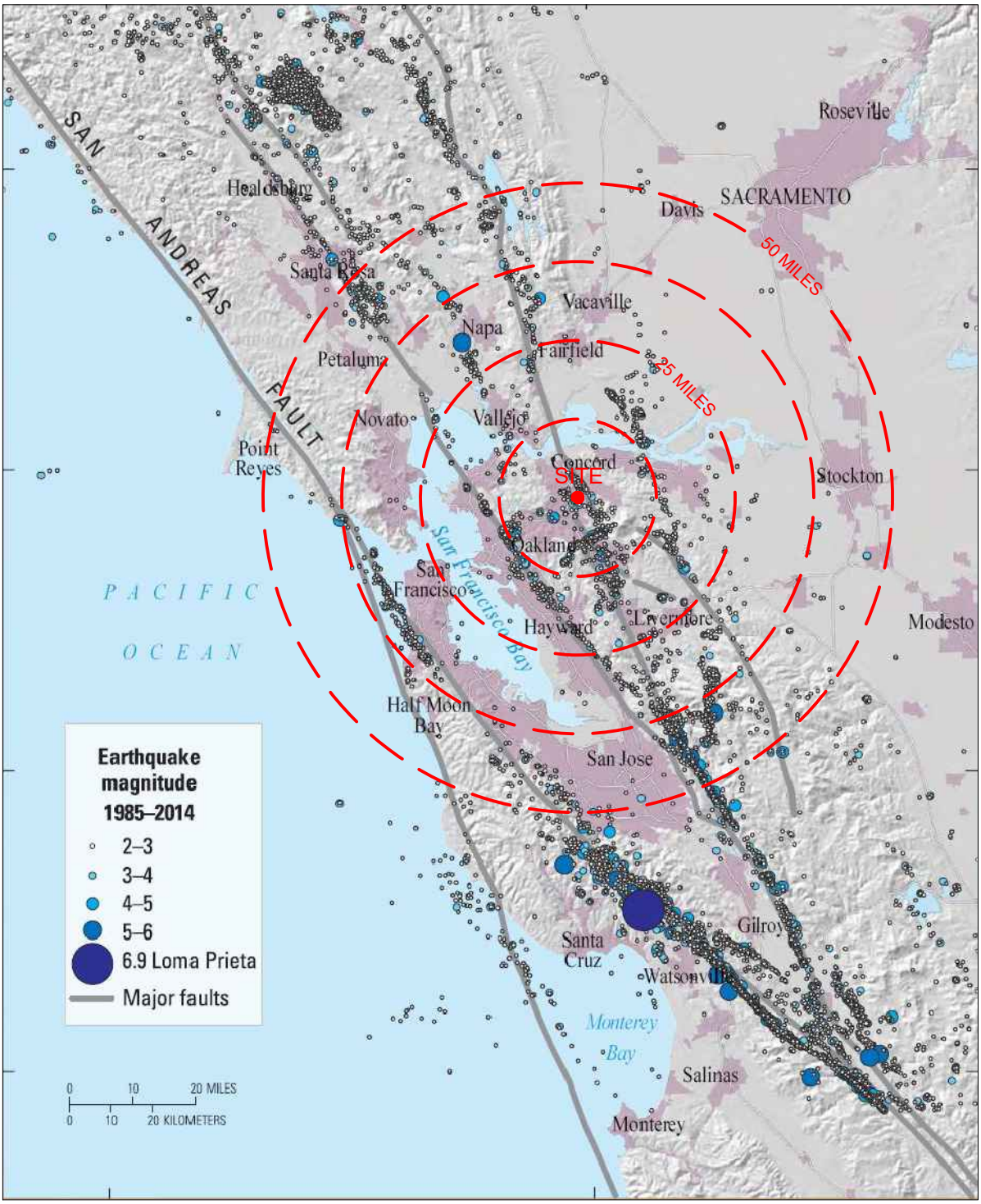
ACTIVE FAULT MAP

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

4
FIGURE



SITE COORDINATES
LAT. 37.9256°
LON. -121.9950°

SCALE
0 12.5 25 50 MILES

NORTH

DATA SOURCE:
1) U.S. Geological Survey, U.S. Department of the Interior, "Earthquake Outlook for the San Francisco Bay Region 2014-2043", Map of Earthquakes Greater Than Magnitude 2.0 in the San Francisco Bay Region from 1985-2014, Fact Sheet 2016-3020, Revised August 2016 (ver. 1.1).

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FILENAME: 3354.001 Figures.dwg

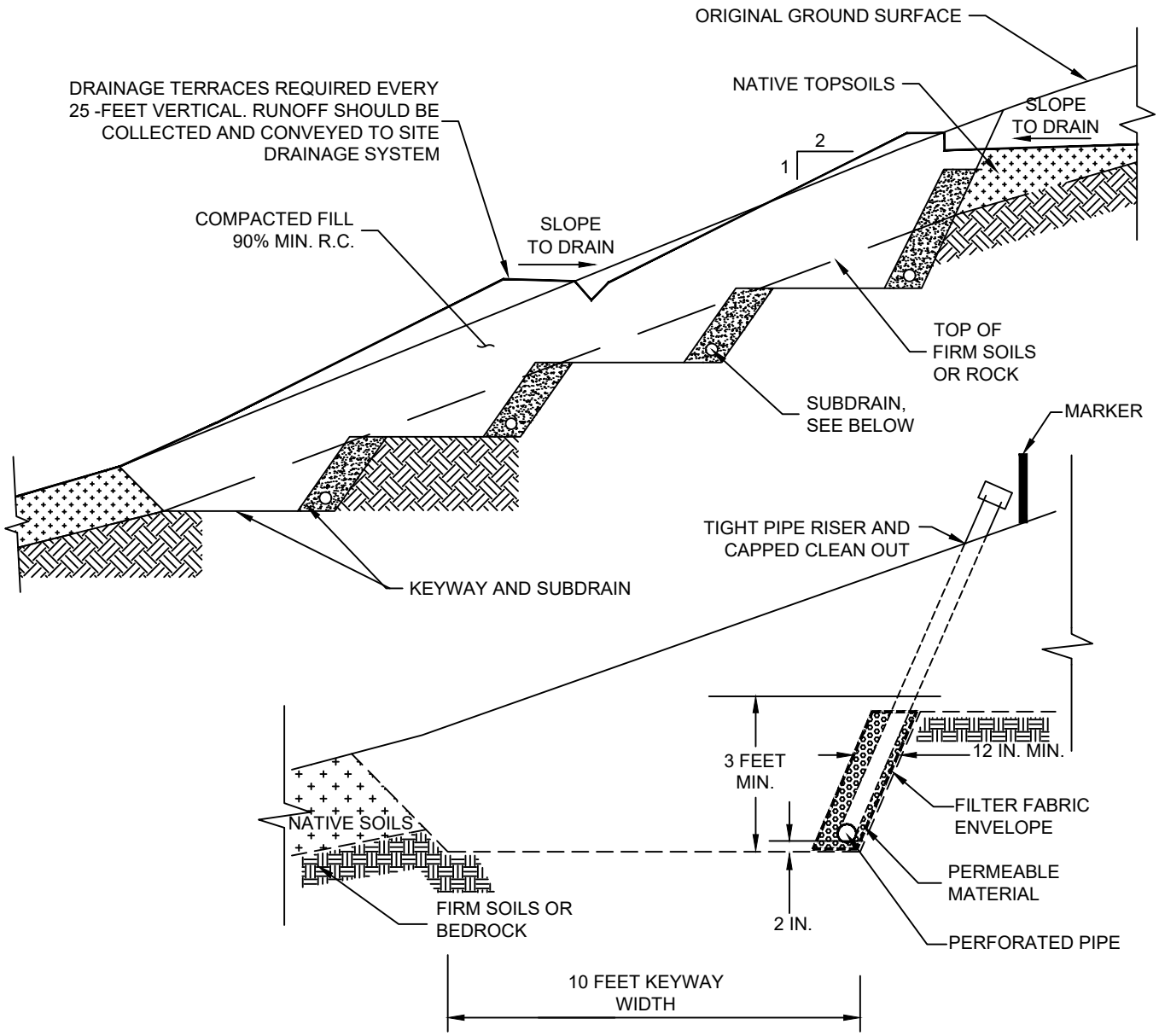
HISTORIC EARTHQUAKE ACTIVITY

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

5
FIGURE



NOTES:

1. Subdrain drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material.

2. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet, with tight pipe to gravity discharge.

3. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

4. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.

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TYPICAL HILLSIDE FILL

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn MMT
Checked

6
FIGURE

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ENGINEERING GROUP

APPENDIX A
SUBSURFACE EXPLORATION AND LABORATORY TESTING

A. Soil and Rock Classification Systems

We explored subsurface conditions at the site with two exploratory borings drilled on March 15, 2022. Borings were excavated to a depth of 28.0-feet below the ground surface by use of a track mounted drill rig with 4.0-inch solid flight augers. Borings were drilled at the approximate locations shown on Figure 2. The soils encountered were logged and identified by our field geologist in general accordance with ASTM Standard D 2487, "Field Identification and Description of Soils (Visual-Manual Procedure)." This standard is briefly explained on Figures A-1 and A-2, Soil and Rock Classification Charts. The exploratory boring logs are presented on Figures A-3 through A-6.

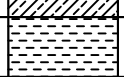
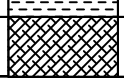
B. Laboratory Testing

We conducted laboratory tests on selected intact samples to verify field identifications and to evaluate engineering properties. The following laboratory tests were conducted in accordance with the ASTM standard test method cited:

- Laboratory Determination of Water (Moisture Content) of Soil, Rock, and Soil-Aggregate Mixtures, ASTM D 2216;
- Density of Soil in Place by the Drive-Cylinder Method, ASTM D 2937;
- Unconfined Compressive Strength of Cohesive Soil, ASTM D 2166;
- Amount of Material in Soils Finer than No. 200 (75-µm) Sieve, ASTM D 1140; and
- Liquid Limit, Plastic Limit, and Plasticity Index of Soils, ASTM D 4318.

The unconfined compressive strength, moisture content, dry density, and percentage of particles finer than the no. 200 sieve test results are shown on the Boring Logs, Figures A-3 through A-6. Plasticity index results are shown on Figure A-7.

The exploratory boring logs, description of soils encountered, and the laboratory test data reflect conditions only at the location of the excavation at the time they were excavated or retrieved. Conditions may differ at other locations and may change with the passage of time due to a variety of causes including natural weathering, climate, and changes in surface and subsurface drainage.

MAJOR DIVISIONS		SYMBOL		DESCRIPTION
COARSE GRAINED SOILS over 50% sand and gravel	CLEAN GRAVEL	GW		Well-graded gravels or gravel-sand mixtures, little or no fines
		GP		Poorly-graded gravels or gravel-sand mixtures, little or no fines
	GRAVEL with fines	GM		Silty gravels, gravel-sand-silt mixtures
		GC		Clayey gravels, gravel-sand-clay mixtures
	CLEAN SAND	SW		Well-graded sands or gravelly sands, little or no fines
		SP		Poorly-graded sands or gravelly sands, little or no fines
	SAND with fines	SM		Silty sands, sand-silt mixtures
		SC		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS over 50% silt and clay	SILT AND CLAY liquid limit <50%	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silt-clays of low plasticity
	SILT AND CLAY liquid limit >50%	MH		Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat, muck, and other highly organic soils
ROCK				Undifferentiated as to type or composition

KEY TO BORING AND TEST PIT SYMBOLS

CLASSIFICATION TESTS

PI	PLASTICITY INDEX
LL	LIQUID LIMIT
SA	SIEVE ANALYSIS
HYD	HYDROMETER ANALYSIS
P200	PERCENT PASSING NO. 200 SIEVE
P4	PERCENT PASSING NO. 4 SIEVE

SAMPLER TYPE

- MODIFIED CALIFORNIA
- STANDARD PENETRATION TEST
- THIN-WALLED / FIXED PISTON
- HAND SAMPLER
- ROCK CORE
- X DISTURBED OR BULK SAMPLE

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.

STRENGTH TESTS

UC	LABORATORY UNCONFINED COMPRESSION
TXCU	CONSOLIDATED UNDRAINED TRIAXIAL
TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL
	UC, CU, UU = 1/2 Deviator Stress
DS (2.0)	DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

SAMPLER DRIVING RESISTANCE

Modified California and Standard Penetration Test samplers are driven 18 inches with a 140-pound hammer falling 30 inches per blow. Blows for the initial 6-inch drive seat the sampler. Blows for the final 12-inch drive are recorded onto the logs. Sampler refusal is defined as 50 blows during a 6-inch drive. Examples of blow records are as follows:

- 25 sampler driven 12 inches with 25 blows after initial 6-inch drive
- 85/7" sampler driven 7 inches with 85 blows after initial 6-inch drive
- 50/3" sampler driven 3 inches with 50 blows during initial 6-inch drive or beginning of final 12-inch drive

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SOIL CLASSIFICATION CHART

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn JMB
Checked

A-1
FIGURE

FRACTURING AND BEDDING

Fracture Classification	Spacing	Bedding Classification
Crushed	less than 3/4 inch	Laminated
Intensely fractured	3/4 to 2-1/2 inches	Very thinly bedded
Closely fractured	2-1/2 to 8 inches	Thinly bedded
Moderately fractured	8 to 24 inches	Medium bedded
Widely fractured	2 to 6 feet	Thickly bedded
Very widely fractured	greater than 6 feet	Very thickly bedded

HARDNESS

Low	Carved or gouged with a knife
Moderate	Easily scratched with a knife, friable
Hard	Difficult to scratch, knife scratch leaves dust trace
Very hard	Rock scratches metal

STRENGTH

Friable	Crumbles by rubbing with fingers
Weak	Crumbles under light hammer blows
Moderate	Indentations <1/8 inch with moderate blow with pick end of rock hammer
Strong	Withstands few heavy hammer blows, yields large fragments
Very strong	Withstands many heavy hammer blows, yields dust, small fragments

WEATHERING

Complete	Minerals decomposed to soil, but fabric and structure preserved
High	Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates
Moderate	Fracture surfaces coated with weathering minerals, moderate or localized discoloration
Slight	A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation
Fresh	Rock unaffected by weathering, no change with depth, rings under hammer impact

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.

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ROCK CLASSIFICATION CHART

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

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A-2
FIGURE

BORING 1

EQUIPMENT: BobCat-Mounted Hydraulic Drill Rig with 4-inch Solid Stem Auger
DATE: 3/15/2022
ELEVATION: 362 feet*
*REFERENCE: Google Earth, 2022

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			Sandy CLAY (CL) Light brown, moist, very stiff, low plasticity clay, ~15-20% fine sand. [Colluvium]						
	5			Grades medium-dark brown.	31	112	14.7	UC 3350		LL: 32 PI: 14
1										
	10				55	111	13.7	UC 1500		
2				Clayey GRAVEL with Sand (GM) Light gray and black gravels with brown sand, dry to moist, very dense, angular gravels up to 1.5" Ø, ~35-40% low plasticity clay, ~15-20% fine to medium sand, white gravels weak and low hardness, partially lithified. [Older Colluvium]	55		8.4		P200 37.2%	
3	15									
				Sandy CLAY (CL) Medium brown, moist, very stiff, low to medium plasticity clay, ~25-30% fine to medium sand, trace light gray, black, and white gravels, partially lithified. [Older Colluvium]	38		18.6			
4	20									
5										
6										

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California
Project No. 3354.001 Date: 5/17/2022

Drawn JMB
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A-3
FIGURE

BORING 1 (CONTINUED)

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
20				Sandy CLAY (CL) Medium brown, moist, very stiff, low to medium plasticity clay, ~25-30% fine to medium sand, trace light gray, black, and white gravels, partially lithified. [Older Alluvium]						
7				SANDSTONE Medium brown, friable, low hardness, poorly cemented, completely weathered. [Bedrock]	88/12"	113	16.2	UC 1650		
	25			Bottom of boring at 25.5-feet. Groundwater measured at 24-feet upon completion of exploration.						
8										
9	30									
10										
	35									
11										
12	40									

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3= 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
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BORING LOG

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

Drawn JMB
Checked

A-4
FIGURE

BORING 2

EQUIPMENT: BobCat-Mounted Hydraulic Drill Rig with 4-inch Solid Stem Auger
DATE: 3/15/2022
ELEVATION: 432 feet*
*REFERENCE: Google Earth, 2022

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			Silty SAND (SM) Dark brown, moist, very loose, medium sand, ~40% low plasticity silt. [Colluvium]						
					6	98	8.8	UC 1100	P200 40.2%	
1	5									
2				Grades light brown and medium dense.	21	112	9.7	UC 1100	P200 40.8%	
3	10									
				SANDSTONE Light yellow brown, friable, low hardness, poorly cemented, completely weathered. [Bedrock]	85/11"	94	4.6		P200 27.8%	
4										
	15									
5					80/5"	88	5.6			
6	20									

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California
Project No. 3354.001 Date: 5/17/2022

Drawn JMB
Checked

A-5
FIGURE

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)	BORING 2 (CONTINUED)	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
	20			SANDSTONE Light yellow brown, friable, low hardness, poorly cemented, completely weathered. [Bedrock]						
					86		10.3		P200 49.6%	
7	25									
8					120/12"		6.5			
				Bottom of boring at 28-feet. No groundwater encountered during exploration.						
9	30									
10										
	35									
11										
12	40									

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3= 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

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A-6
FIGURE

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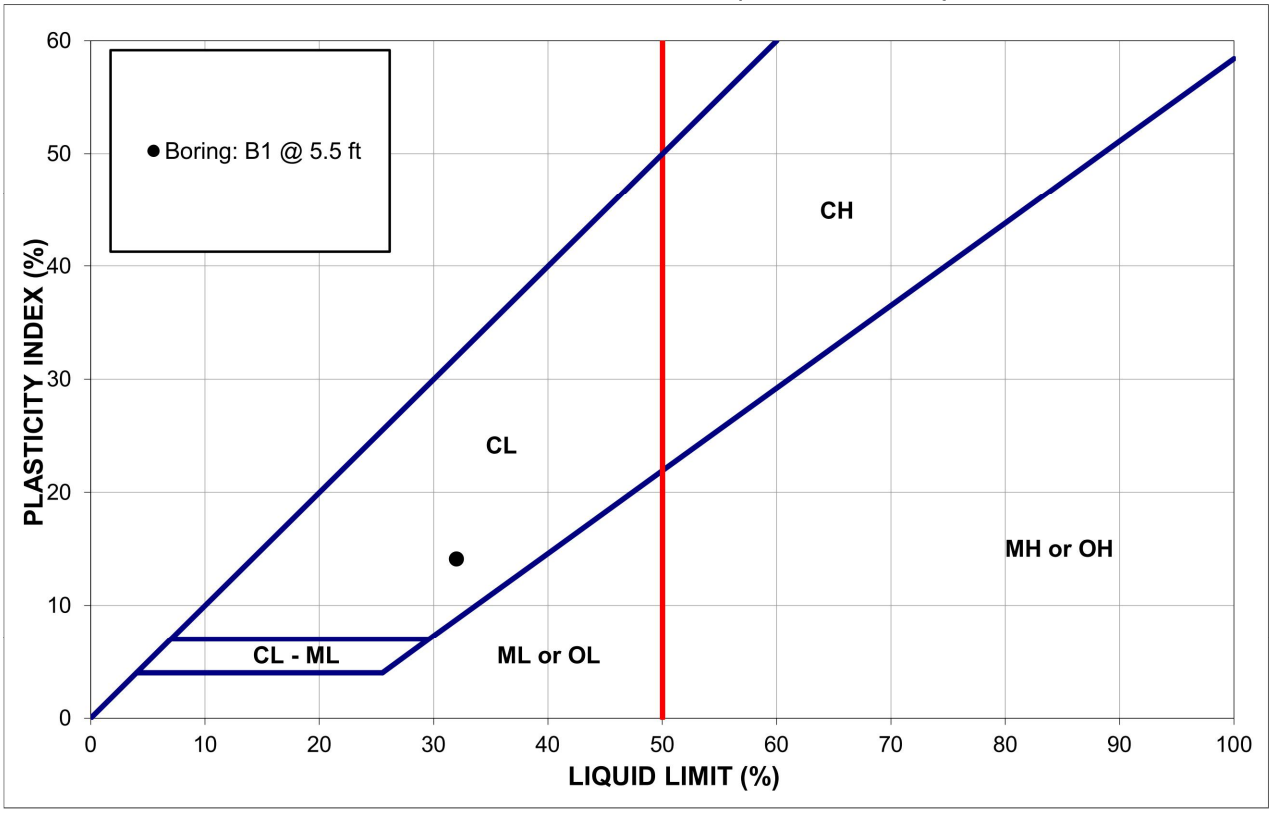
ATTERBERG LIMITS TEST (ASTM D 4318)



Sample	Classification	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)
Boring: B1 @ 5.5 ft	Sandy CLAY (CL) dark brown	32	18	14

PI = 0-3: Non-Plastic
PI = 3-15: Slightly Plastic
PI = 15-30: Medium Plasticity
PI = >30: High Plasticity

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PLASTICITY INDEX TEST RESULTS

Boundary Oak Driving Range
3800 Valley Vista Road
Walnut Creek, California

Project No. 3354.001 Date: 5/17/2022

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A-7
FIGURE

APPENDIX E. HYDROLOGY REPORT

HYDROLOGY SUMMARY

Boundary Oak Golf Course
Driving Range - Contract 23-10

3800 Valley Vista Road
Walnut Creek, CA 94598
APN 135-021-004 & 008

SUMMIT

CIVIL STRUCTURAL ELECTRICAL WATER|WASTEWATER
575 W COLLEGE AVE., SUITE 201 | SANTA ROSA, CA |95401
707.527.0775

Project No. 2022036
September 2023

TABLE OF CONTENTS

PURPOSE

This report describes the drainage improvements and stormwater conveyance systems associated with the proposed improvements at Boundary Oak Golf Course. Analyses include peak runoff calculations for 100-year storm events and sizing of stormwater conveyance systems.

PROJECT OVERVIEW

The Boundary Oak Golf Course project site for Nickels Group is approximately 5.5 acres and located at 3800 Valley Vista Rd, Walnut Creek, CA 94598. Refer to the Vicinity Map in Appendix A. The project improvements will include the renovation of a driving range and tee location, the addition of a plaza and the renovation of a portion of a parking lot.

RAINFALL DATA/DESIGN PARAMETERS

Hydraulic Analysis for this project was performed using the Rational Method in order to appropriately size the storm drain pipes and drainage inlets.

The location of the site and review of these standards provides the following mathematical models and constant values used in the hydraulic analysis. All supporting information for the parameters given in this section can be found in Appendix B.

The minimum initial time of concentration of 15 minutes was used. The following parameters were used with the Rational Method for hydraulic calculations of the drainage conveyances. See Appendix D for supporting calculations.

Minimum Initial Time of Concentration : T_C = 15 min

10-YEAR STORM EVENT

Rainfall Intensity : 1.38 in/hr (NOAA Atlas 14, see Appendix B)

100-YEAR STORM EVENT

Rainfall Intensity : 2.14 in/hr (NOAA Atlas 14, see Appendix B)

RATIONAL METHOD

The Rational Method was used to size the storm drain conveyances as shown on the Drainage Map in Appendix C. All pipes and valley gutter were sized using the flow rate from the 100-year storm event. Runoff Coefficients were determined based on the highest runoff coefficients of the Contra Costa County Flood Control District (CCCFCD), see Appendix B for reference.

Pervious/Landscaped Areas : 0.95

Impervious Area : 0.40

Drainage areas for the constructed conditions were developed and are presented in Appendix C. Flow rate calculations for each area were developed based on the Rational Method formula.

Rational Method : $Q = CiA$

Q= Flowrate (cubic feet per second)
A= Area (acres)
C= Runoff Coefficient
i= 100-year Rainfall Intensity

See Appendix D for flow rates by area for the 100-year storm.

STORMWATER TREATMENT: STORMWATER CONTROL PLAN

This project will follow the "Stormwater C.3 Guidebook", prepared for the Contra Costa Clean Water Program.

See the *Stormwater Control Plan for Boundary Oak Golf Course Driving Range* for detailed analysis of stormwater control measures and treatment.

HYDRAULICS

Hydraulic analysis was performed using a combination of Excel Software. Refer to Appendix D for support calculations.

STORM DRAIN SIZING

Storm drains will convey stormwater through the site, discharging impervious areas to a bioretention facility and improving drainage within the driving range to connect to existing storm drainage. These storm drains were designed to convey the 100-year storm event flow rate calculated using the Rational Method. The pipe sizes were calculated using Manning's Equation as shown below. See Appendix D for flow calculations.

Manning's Equation : $Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$

$$P = \pi\left(D - \left(\left(\frac{D}{2}\right)\theta^2\right)\right)$$

$$A = \pi\left(D - \left(\frac{\left(\frac{D}{2}\right)^2(\theta - sin\theta)}{2}\right)\right)$$

$$R = \frac{A}{P}$$

$$\theta = 4\cos^{-1}\frac{d}{D}^{0.5}$$

D = diameter of pipe (feet)
n = 0.012 (Manning's Roughness Coefficient)
S = Varies (Slope)
θ = Central Angle
d= depth of flow (must have d ≥ D/2)

Pipe sizes were selected based on the sub-region flow rate for the 100-year flow being conveyed with the pipe at or less than 90% full. See Appendix D for pipe size calculations.

DRAIN INLET SIZING

Drop inlets and area drains were sized to handle the 100-year storm event from contributing drainage areas.

For inlets in a sag configuration, the inlet will act as a weir up until the point where water has ponded above the grate to the Controlling Depth, determined by the equation: H = 0.08D + 0.35' (where 'D' is the diameter or width of the inlet.) For this situation, the weir equation will provide the highest level of accuracy for predicting flow rates entering the inlet. Water ponding above the controlling depth will make the inlet operate as an orifice, and thus the orifice equation is used. By decreasing the available inlet perimeter or area by half, all inlets were designed to account for clogging and grate thickness.

Weir Equation : $Q = C_W P h^{3/2}$

Q = Flow capacity (cfs)
C_W = Weir Coefficient = 3.3
P = ½ of the Inlet Perimeter (ft)
H = Maximum headwater depth = 0.17 ft

Orifice Equation : $Q = A C_O \sqrt{2gh}$

Q = Flow capacity (cfs)
C_O = Weir Coefficient = 0.67
A = Area of Orifice (sf)
H = Maximum headwater depth = 0.25 ft

The supporting calculations for drop inlets, area drains, and planter drains are shown in Appendix D.

SWALE AND DITCH DESIGN

Swale #1 collects stormwater discharge from the plaza stormdrain network and conveys stormwater to the bioretention facility to avoid impacting existing underground PG&E equipment.

Show PGE conflict on site plan.

The new swale was designed to handle the 100-year storm event. Hydraflow Express was used to calculate the flow rate at incremental depths of flow for a 0.5 foot deep design swale. The swale flow capacity at each depth of flow was used to check the adequacy of each proposed swale. The swales were sized to allow for a minimum of 2 inches freeboard to ensure that the swales will not overflow onto the adjacent roadway. The slope of the swales varied and typically matched the adjacent roadway profile. All swales were designed using a roughness coefficient of 0.035. All swales were v-shaped with varying side slopes and depth, see Appendix D.

The hydrology maps in Appendix C shows each contributing area used in the swale sizing. See Appendix D for supporting flow calculations and a summary of swale sizing.

CONCLUSION

Based on analysis, all pipes and associated drainage inlet structures have been adequately sized to convey the 100-year storm event per Contra Costa standards. The improvements have been designed to preserve the natural hydrology of the site. The area is proposed to drain to bioretention and maintain the existing drainage pattern.

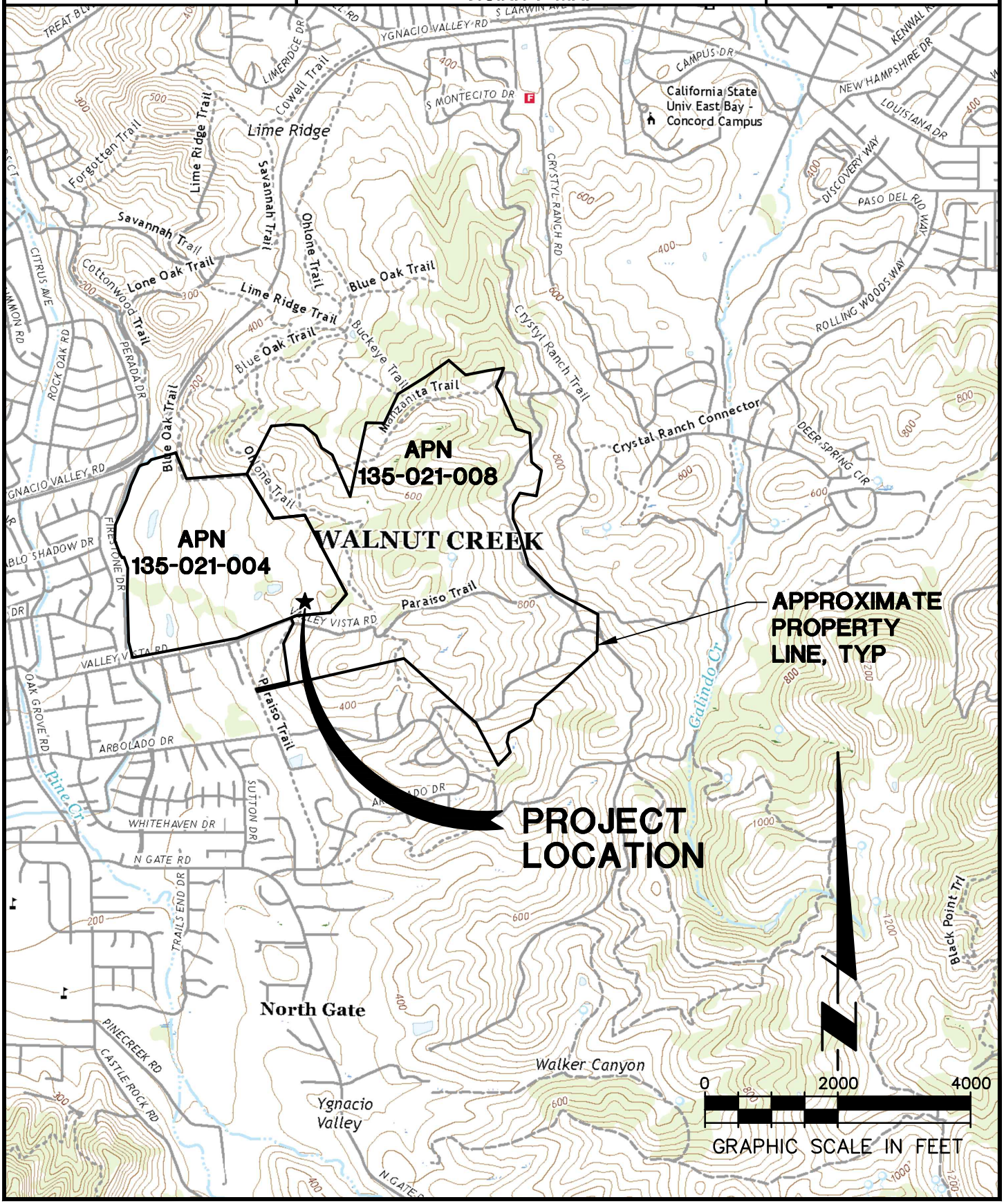
APPENDIX A: VICINITY MAP

SUMMIT

BOUNADRY OAK GOLF COURSE
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA
135-021-004 & 008

VICINITY MAP

PROJECT NO. 2022036
DATE 2023-08-21
SHT NO 1 OF 1
BY JVL CHK JG



Summit Engineering, Inc
575 W College Ave., Suite 201 • Santa Rosa, CA 95401 • 707-527-0775 • www.summit-sr.com

PLOTTED ON: 9/26/2023 1:28 PM
P:\2022\2022036 BOUNDARY GOLF COURSE\TECHNICAL DOCS\HYDRO\VICINITY MAP\XXXXX-VICINITY MAP.DWG

APPENDIX B: PARAMETER SUPPORT

CCCFCD STANDARD - RUNOFF COEFFICIENTS

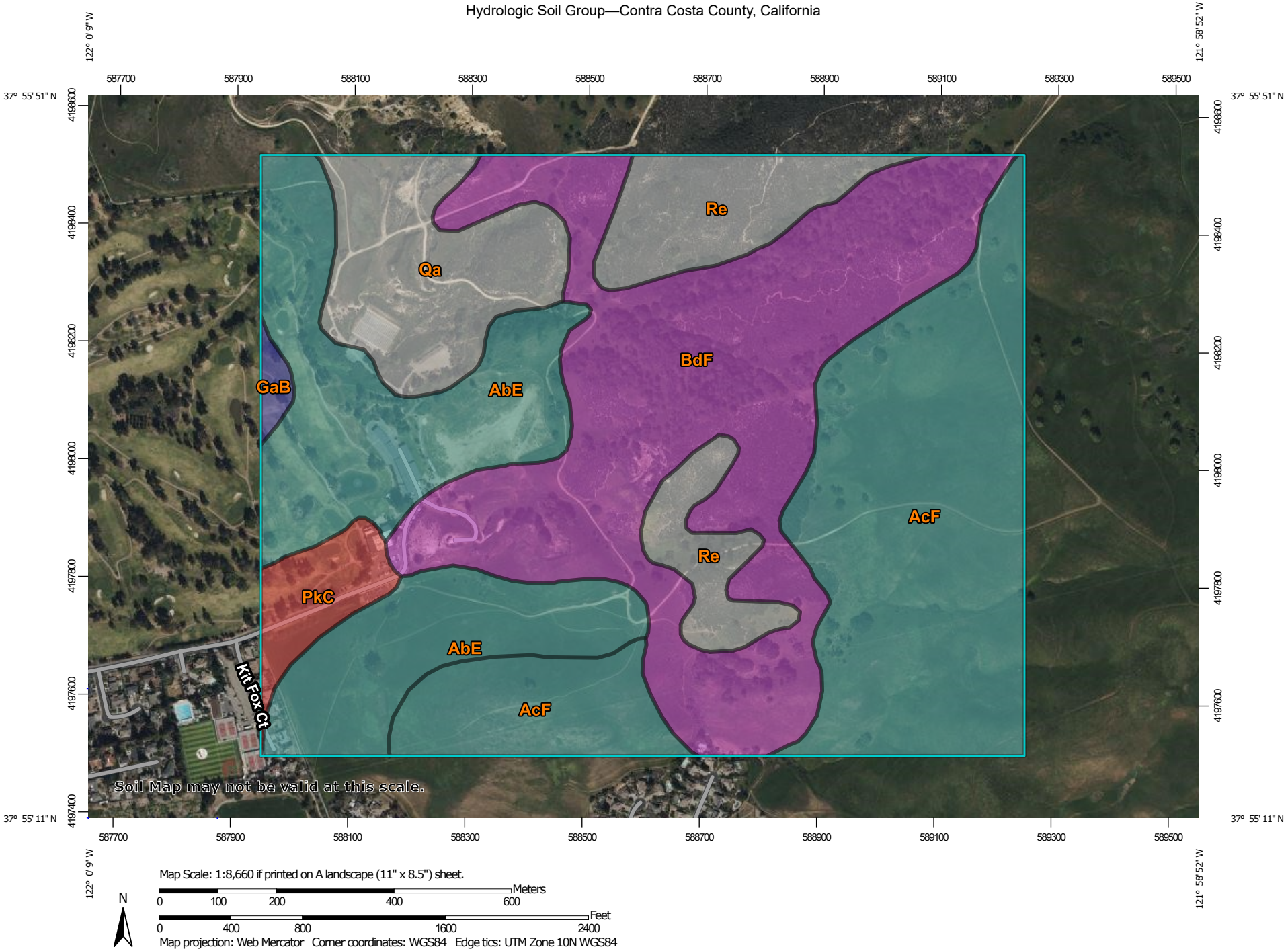
Rational Formula

Land Use	Runoff Coefficient	Average Impervious Area (%)	Time of Concentration-Roof to Gutter (min)
Residential:			
R - 6	.50 - .70	76	3 - 5
R - 10	.45 - .60	53	5 - 7
R - 20	.40 - .50	35	6 - 8
R - 40	.35 - .45	25	8 - 10
Apartment	.60 - .80		3 - 10
Commercial	.70 - .95		3 - 8
Industrial	.60 - .90		3 - 10
Open	.20 - .40		
Street:			
Asphalt	.75 - .95		
Concrete	.80 - .95		
Drives and Walks	.80 - .95		
Roofs	.75 - .95		

Legend

R - 6 = 6,000 ft^2 Lot
R - 10 = 10,000 ft^2 Lot
R - 20 = 20,000 ft^2 Lot
R - 40 = 40,000 ft^2 Lot

Note: For Contra Costa County Land Uses use the highest runoff coefficient in the range. This more closely approximates the peak flows calculated by the Unit Hydrograph method developed for Contra Costa County and calibrated with local rainfall and runoff data.



Map Scale: 1:8,660 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Contra Costa County, California
Survey Area Data: Version 19, Aug 31, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 9, 2022—Mar 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbE	Altamont clay, 15 to 30 percent slopes, MLRA 15	C	68.0	20.6%
AcF	Altamont-Fontana complex, 30 to 50 percent slopes	C	91.2	27.6%
BdF	Briones loamy sand, 30 to 50 percent slopes	A	103.2	31.3%
GaB	Garretson loam, 2 to 5 percent slopes	B	1.8	0.5%
PkC	Positas loam, 2 to 9 percent slopes	D	9.3	2.8%
Qa	Quarry		28.9	8.8%
Re	Rock outcrop-Xerorthents association		27.7	8.4%
Totals for Area of Interest			**330.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 6, Version 2
Location name: Walnut Creek, California, USA*
Latitude: 37.9241°, Longitude: -121.997°
Elevation: 335.89 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.33** (1.16-1.54)	**1.63** (1.43-1.88)	**2.05** (1.79-2.38)	**2.40** (2.08-2.81)	**2.89** (2.40-3.53)	**3.29** (2.65-4.12)	**3.71** (2.90-4.78)	**4.14** (3.13-5.52)	**4.74** (3.41-6.65)	**5.21** (3.60-7.62)
10-min	**0.954** (0.834-1.10)	**1.17** (1.03-1.35)	**1.47** (1.28-1.70)	**1.72** (1.48-2.01)	**2.08** (1.72-2.53)	**2.36** (1.90-2.95)	**2.65** (2.08-3.42)	**2.96** (2.24-3.95)	**3.40** (2.44-4.77)	**3.73** (2.57-5.46)
15-min	**0.768** (0.672-0.884)	**0.944** (0.824-1.09)	**1.18** (1.03-1.37)	**1.38** (1.20-1.62)	**1.67** (1.38-2.04)	**1.90** (1.54-2.38)	**2.14** (1.68-2.76)	**2.39** (1.81-3.19)	**2.74** (1.97-3.84)	**3.01** (2.08-4.40)
30-min	**0.526** (0.460-0.604)	**0.644** (0.564-0.744)	**0.810** (0.706-0.938)	**0.948** (0.818-1.11)	**1.14** (0.948-1.39)	**1.30** (1.05-1.63)	**1.46** (1.15-1.89)	**1.63** (1.24-2.18)	**1.87** (1.35-2.63)	**2.06** (1.42-3.01)
60-min	**0.370** (0.325-0.427)	**0.455** (0.398-0.525)	**0.571** (0.498-0.661)	**0.668** (0.577-0.782)	**0.807** (0.668-0.983)	**0.917** (0.740-1.15)	**1.03** (0.808-1.33)	**1.15** (0.872-1.54)	**1.32** (0.950-1.85)	**1.45** (1.00-2.12)
2-hr	**0.276** (0.242-0.318)	**0.338** (0.296-0.390)	**0.423** (0.369-0.489)	**0.494** (0.426-0.578)	**0.593** (0.492-0.724)	**0.672** (0.543-0.842)	**0.755** (0.591-0.973)	**0.840** (0.636-1.12)	**0.959** (0.690-1.35)	**1.05** (0.726-1.54)
3-hr	**0.229** (0.201-0.264)	**0.281** (0.246-0.324)	**0.351** (0.307-0.407)	**0.410** (0.354-0.480)	**0.493** (0.408-0.601)	**0.558** (0.450-0.698)	**0.626** (0.490-0.807)	**0.697** (0.527-0.930)	**0.794** (0.571-1.12)	**0.871** (0.601-1.27)
6-hr	**0.161** (0.141-0.186)	**0.199** (0.175-0.230)	**0.250** (0.218-0.290)	**0.293** (0.253-0.342)	**0.351** (0.291-0.429)	**0.398** (0.321-0.498)	**0.446** (0.349-0.575)	**0.495** (0.375-0.661)	**0.564** (0.406-0.792)	**0.618** (0.427-0.905)
12-hr	**0.103** (0.091-0.119)	**0.130** (0.114-0.150)	**0.165** (0.144-0.191)	**0.194** (0.168-0.227)	**0.235** (0.194-0.286)	**0.266** (0.215-0.334)	**0.299** (0.234-0.386)	**0.333** (0.252-0.444)	**0.379** (0.273-0.532)	**0.415** (0.287-0.608)
24-hr	**0.071** (0.064-0.079)	**0.090** (0.082-0.101)	**0.116** (0.106-0.130)	**0.138** (0.124-0.155)	**0.167** (0.146-0.195)	**0.190** (0.163-0.226)	**0.213** (0.179-0.260)	**0.238** (0.194-0.297)	**0.271** (0.213-0.353)	**0.297** (0.226-0.400)
2-day	**0.045** (0.041-0.050)	**0.057** (0.052-0.064)	**0.074** (0.068-0.083)	**0.088** (0.080-0.100)	**0.107** (0.094-0.125)	**0.122** (0.105-0.145)	**0.137** (0.115-0.167)	**0.153** (0.125-0.191)	**0.174** (0.136-0.226)	**0.190** (0.144-0.256)
3-day	**0.034** (0.031-0.038)	**0.044** (0.040-0.049)	**0.057** (0.052-0.064)	**0.067** (0.061-0.076)	**0.082** (0.072-0.096)	**0.093** (0.080-0.111)	**0.104** (0.087-0.127)	**0.116** (0.095-0.145)	**0.132** (0.103-0.172)	**0.144** (0.109-0.194)
4-day	**0.028** (0.025-0.031)	**0.036** (0.033-0.040)	**0.047** (0.043-0.053)	**0.056** (0.050-0.063)	**0.068** (0.059-0.079)	**0.077** (0.066-0.091)	**0.086** (0.072-0.105)	**0.095** (0.078-0.119)	**0.108** (0.085-0.141)	**0.118** (0.089-0.159)
7-day	**0.019** (0.018-0.021)	**0.025** (0.023-0.028)	**0.032** (0.030-0.036)	**0.038** (0.035-0.044)	**0.047** (0.041-0.054)	**0.053** (0.045-0.063)	**0.059** (0.049-0.071)	**0.065** (0.053-0.081)	**0.073** (0.057-0.095)	**0.079** (0.060-0.106)
10-day	**0.015** (0.014-0.017)	**0.020** (0.018-0.022)	**0.026** (0.023-0.029)	**0.030** (0.027-0.034)	**0.036** (0.032-0.043)	**0.041** (0.035-0.049)	**0.046** (0.038-0.056)	**0.050** (0.041-0.063)	**0.056** (0.044-0.073)	**0.060** (0.046-0.081)
20-day	**0.010** (0.009-0.011)	**0.013** (0.011-0.014)	**0.016** (0.015-0.018)	**0.019** (0.017-0.022)	**0.023** (0.020-0.027)	**0.026** (0.022-0.031)	**0.029** (0.024-0.035)	**0.031** (0.025-0.039)	**0.035** (0.027-0.045)	**0.037** (0.028-0.050)
30-day	**0.007** (0.007-0.008)	**0.010** (0.009-0.011)	**0.013** (0.012-0.014)	**0.015** (0.014-0.017)	**0.018** (0.016-0.021)	**0.020** (0.017-0.024)	**0.022** (0.019-0.027)	**0.024** (0.020-0.030)	**0.026** (0.021-0.035)	**0.028** (0.021-0.038)
45-day	**0.006** (0.005-0.007)	**0.008** (0.007-0.009)	**0.010** (0.009-0.012)	**0.012** (0.011-0.014)	**0.014** (0.012-0.017)	**0.016** (0.014-0.019)	**0.017** (0.015-0.021)	**0.019** (0.015-0.024)	**0.021** (0.016-0.027)	**0.022** (0.016-0.029)
60-day	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.012)	**0.013** (0.011-0.015)	**0.014** (0.012-0.017)	**0.015** (0.013-0.019)	**0.016** (0.013-0.021)	**0.018** (0.014-0.023)	**0.019** (0.014-0.025)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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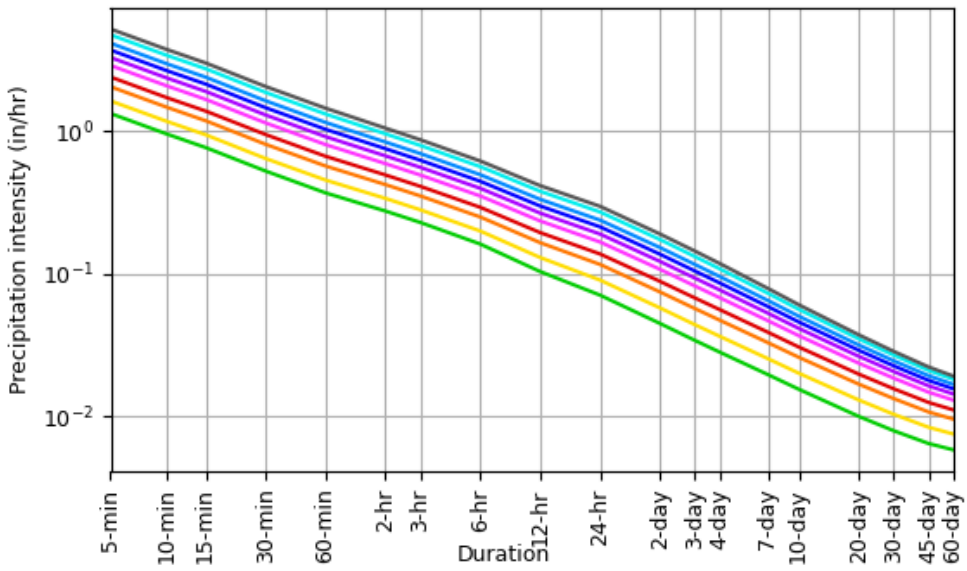
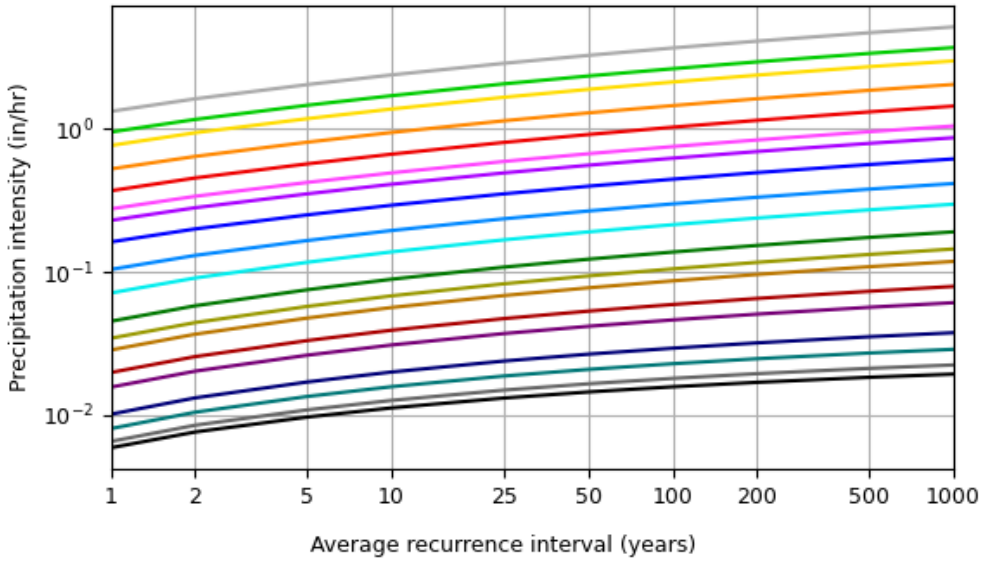
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 37.9241°, Longitude: -121.9970°





NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Fri Oct 28 20:16:52 2022

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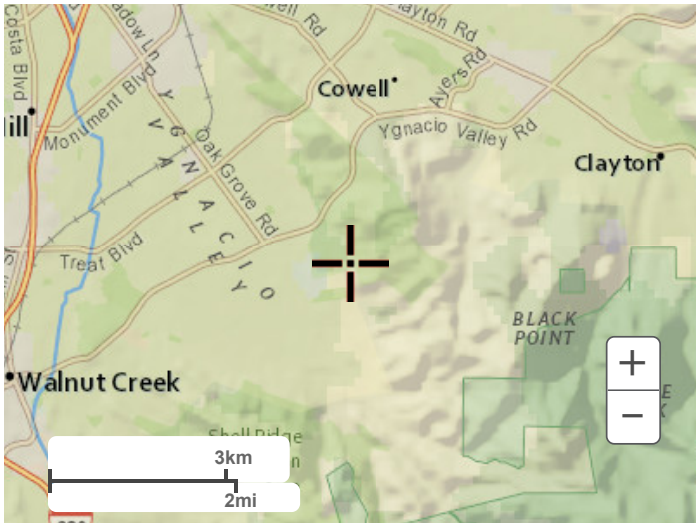
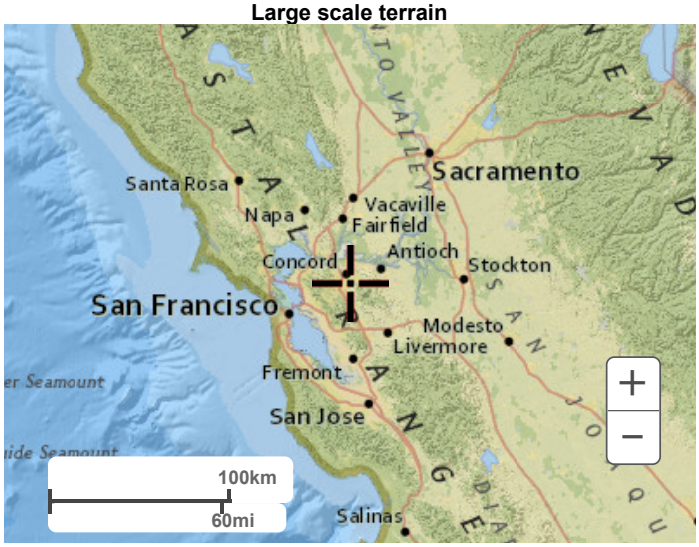
Maps & aerials

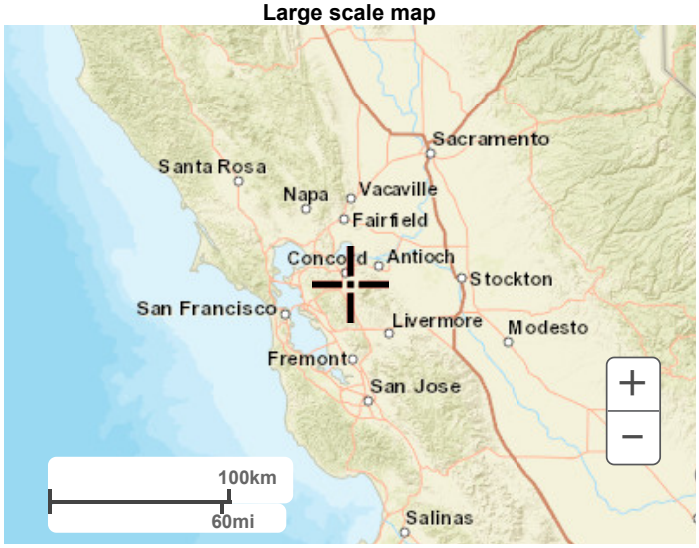
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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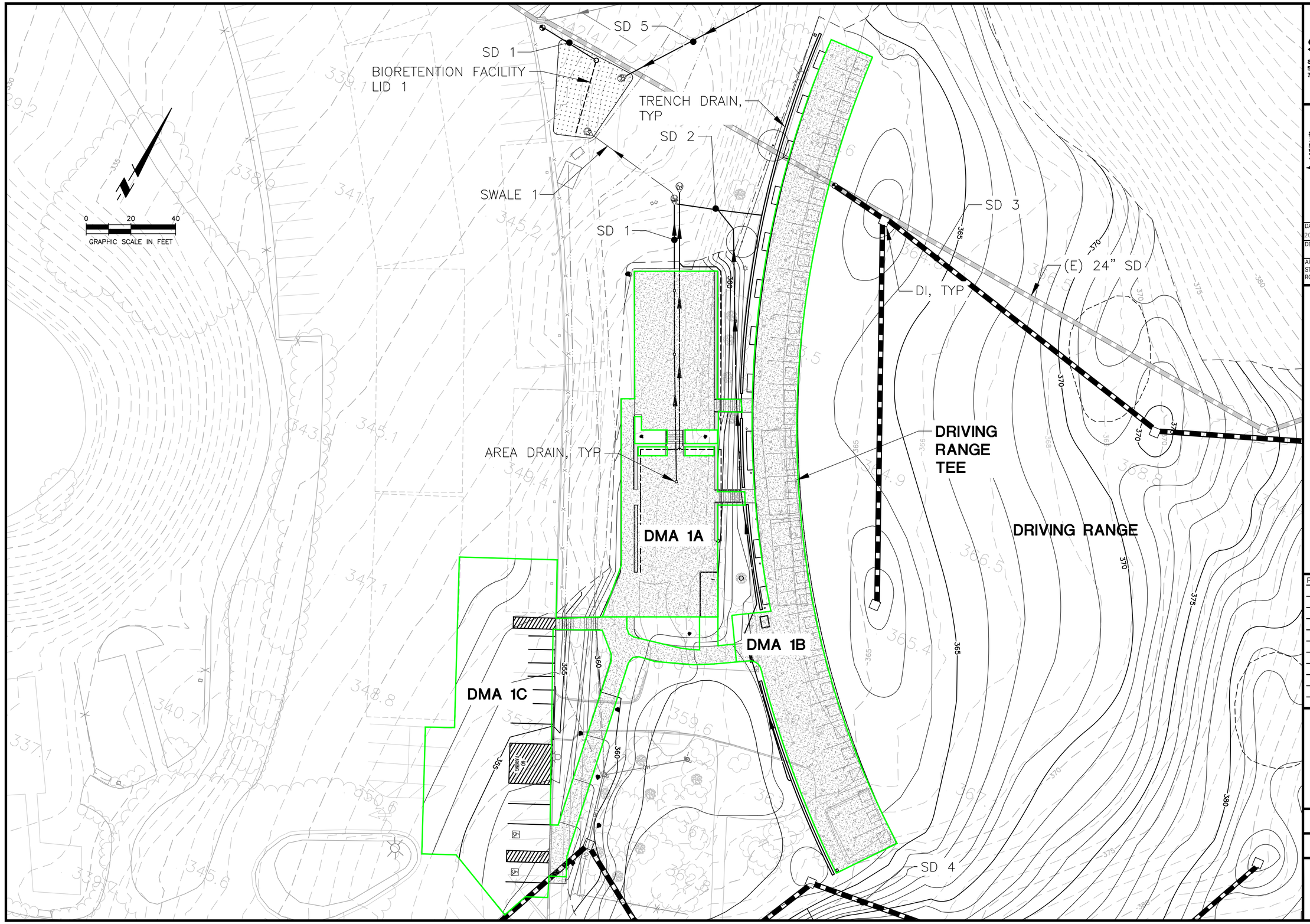
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX C: DRAINAGE MAP



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CITY OF WALNUT CREEK
1666 N. MAIN STREET
WALNUT CREEK, CA 94596
Ph: 925-943-5839
www.walnut-creek.org

DATE:	SCALE:	WORK ORDER:
2023-10-03	AS SHOWN	2022036
DESIGN:	DRAWN:	CHECKED:
	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
DRAINAGE MAP
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
WALNUT CREEK, CA 94598
APN 135-021-004 & 008

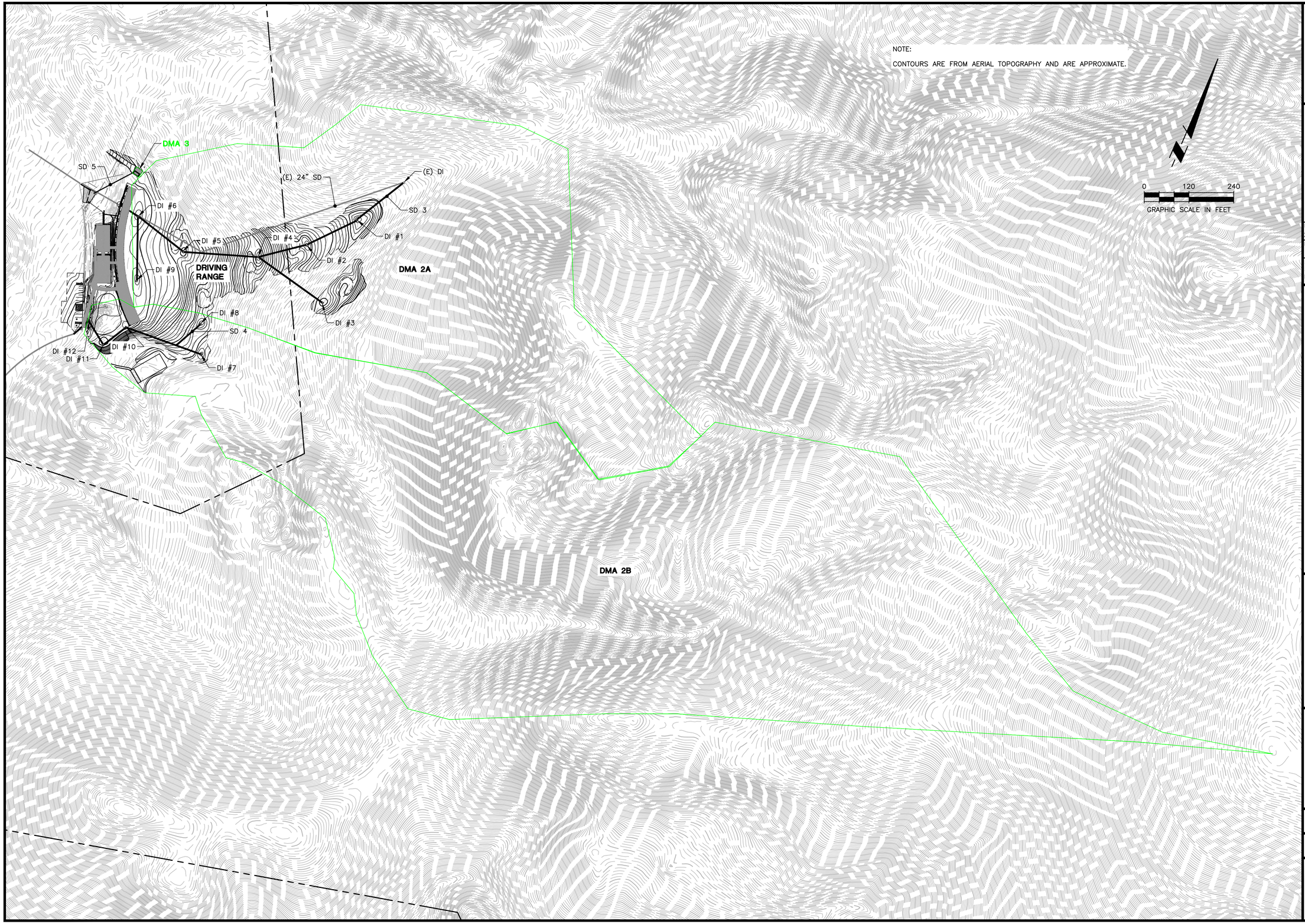
REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23

PREPARED UNDER
THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER
JASPER GERRING
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

SHEET NUMBER
H1
1 OF: 2



NOTE:

CONTOURS ARE FROM AERIAL TOPOGRAPHY AND ARE APPROXIMATE.

0 120 240

GRAPHIC SCALE IN FEET

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CITY OF WALNUT CREEK
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DATE:	SCALE:	WORK ORDER:
2023-10-03	AS SHOWN	2022036
DESIGN:	DRAWN:	CHECKED:
	BG	JG

APPROVED BY CITY ENGINEER:
STEVEN R. WAYMIRE
RCE: C60409

BOUNDARY OAK GOLF COURSE
DRAINAGE MAP
CITY OF WALNUT CREEK
3800 VALLEY VISTA ROAD
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REV	DESCRIPTION	DATE
	PROGRESS SET	02.14.23
	PROGRESS SET	05.18.23
	75% PROGRESS SET	06.20.23
	95% PROGRESS SET	08.24.23
	100% CD SET	09.29.23

PREPARED UNDER
THE DIRECTION OF

REGISTERED PROFESSIONAL ENGINEER
JASPER GERRING
No. C 67232
CIVIL
STATE OF CALIFORNIA

CONTRACT NO.
23-10

SHEET NUMBER
H2

2 OF: 2

APPENDIX D: HYDRAULIC SUPPORT CALCULATIONS

SUMMIT	Boundary Oak Golf	HYDROLOGY & HYDRAULIC CALCULATION PACKAGE			
	Contract No. 23-10	PROJECT NO:	2022036	BY: BG	CHK:JG
		DATE:	9/29/2023	SHT: 1	OF: 3

STORMWATER CONVEYANCE HYDROLOGY

EQUATIONS

Intensity Equation

Rainfall intensity (inches/hr) was determined using the precipitation data source, NOAA Atlas 14, refer to Appendix B.

Rational Method Equation

$$Q_p = CiA$$

Where:

Q_p = Peak Flowate (cfs)
C = Runoff Coefficient
i = Intensity (in/hr)
A = Watershed Area (ac)

PARAMETERS

Time of Concentration

t_c = 15 min

Intensity

i = 1.38 *(10 yr, T_C = 15 min), NOAA Atlas 14*
i = 2.14 in/hr *(100 yr, T_C = 15 min), NOAA Atlas 14*

Runoff Coefficient

$C_{impervious}$ = 0.950 *CCCFD Standard*
$C_{pervious}$ = 0.400 *CCCFD Standard*

FLOW CALCULATION

Region (DMA)	Pervious Area (ac)	Impervious Area (ac)	Total Area (ac)	Weighted C	Q_{10yr} (cfs)	Q_{100yr} (cfs)
1A		0.14	0.143	0.95	0.19	0.29
1B		0.20	0.199	0.95	0.26	0.40
1C		0.09	0.087	0.95	0.11	0.18
2A	19.30		19.299	0.40	10.65	16.52
2B	34.47		34.471	0.40	19.03	29.51

SUMMIT	Boundary Oak Golf	HYDROLOGY & HYDRAULIC CALCULATION PACKAGE		
	Contract No. 23-10	PROJECT NO: 2022036	BY: BG	CHK: JG
		DATE: 9/29/2023	SHT: 2	OF: 3

STORM DRAIN PIPE SIZING

EQUATIONS

Manning's Equation

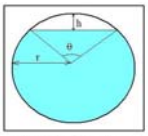
$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2} \qquad R = \frac{A}{P}$$

P = π*(D/2)-((D/2)*Θ)

A = (π*(D/2)2)-[((D/2)2 *(Θ-SIN Θ))/2]

Where:

Q = Flow (cfs)
A = Flow Area (ft^2)
P = Wetted Perimeter (ft)
n = Manning's Roughness Coefficient
S = Longitudinal Slope (ft/ft)
D = Pipe Diameter (ft)
d = Depth of Flow (must have d ≥ D/2)
Θ = Central Angle 4arccos*((d/D)^0.5)



Partially Full Pipe Flow Parameters (More Than Half Full)

PARAMETERS & STANDARD CALCULATIONS

Central Angle	90% full	**Θ=**	1.29	radians
Manning's Roughness		**n =**	0.012	
Slope		S =	0.02	ft/ft

D (in)	D (ft)	d (ft)	A (ft^2)	P	RE	Q (cfs) 90%full
4	0.33	0.30	0.08	0.83	0.10	0.31
6	0.50	0.45	0.19	1.25	0.15	0.92
8	0.67	0.60	0.33	1.67	0.20	1.98
10	0.83	0.75	0.52	2.08	0.25	3.59
12	1.00	0.90	0.74	2.50	0.30	5.83
15	1.25	1.13	1.16	3.12	0.37	10.58
18	1.50	1.35	1.68	3.75	0.45	17.20
24	2.00	1.80	2.98	5.00	0.60	37.04
36	3.00	2.70	6.70	7.49	0.89	109.20
48	4.00	3.60	11.91	9.99	1.19	235.18

The following table uses the rational method Q=CiA to back calculate the Maximum contributing area for a given pipe size using the flow rate (Q) calculated in the table above.

Where:

i=	2.14	in/hr
C=	0.9	

d (in)	Q (cfs) 90% full	Max area (acres)	Max area (sf)
4	0.31	0.16	7,047
6	0.92	0.48	20,778
8	1.98	1.03	44,747
10	3.59	1.86	81,132
12	5.83	3.03	131,930
15	10.58	5.49	239,205
18	17.20	8.93	388,973
24	37.04	19.23	837,702
36	109.20	56.70	2,469,825
48	235.18	122.11	5,319,075

STORM DRAIN PIPE SIZING CALCULATIONS -100yr (cfs)

Pipe	Contributing Areas	Q Contributing Area (cfs)	Upstream Pipe	Q Upstream Pipe (cfs)	$Q_{Contributing}$+ $Q_{Upstream}$ (cfs)	d (in)	d (in) selected	Min Slope (ft/ft)
SD #1	1A	0.29			0.29	6	8	0.02
SD #2	1B	0.40			0.40	6	12	0.02
SD #3	2A	16.5			16.52	18	24	0.02
SD #4	2B	29.5			29.51	24	24	0.02

SUMMIT	Boundary Oak Golf	HYDROLOGY & HYDRAULIC CALCULATION PACKAGE	
	Contract No. 23-10	PROJECT NO: 2022036	BY: BG CHK: JG
		DATE: 9/29/2023	SHT: 3 OF: 3

DROP INLET SIZING

EQUATIONS

Rectangular Weir Equation

$$Q = C_W P h^{3/2}$$

Where:

Q = Flow (cfs)
C_W = Weir Coefficient
P = Weir Length (ft)
h = Depth (ft)

Orifice Equation

$$Q = A C_O \sqrt{2gh}$$

Where:

Q = Flow (cfs)
C_O = Orifice Coefficient
g = Gravitational Constant (ft/s$^{2)}$
h = Depth (ft)

PARAMETERS, ASSUMPTIONS, AND STANDARD SIZES

C_W =	3.33	
h =	12	inches*
P =	Half of Perimeter	

C_O =	0.67	
h =	12	inches*
g =	32.2	ft/s^2
A =	Half of Area	

** Adjust allowable depth based on site conditions (average range = 1 - 4 inches)*

Typical Grate Sizes and Flow Capacity*

Grate	P (ft)	Flow (cfs)
12x12	2	6.66
18x18	3	9.99
18x24	3.5	11.66
24x24	4	13.32
24x30	4.5	14.99
30x30	5	16.65
24x36	5	16.65
36x36	6	19.98
24x48	6	19.98
36x48	7	23.31
48x48	8	26.64

* Calculated using weir equation

DRAIN INLET SIZING CALCULATIONS

Drain Inlets in Sag Configuration*

Drain Inlet	Manufacturer	Model Number	P (ft)**	A (ft^2)	Q_{demand} (cfs)	Q_{weir} (cfs)	$Q_{orifice}$ (cfs)	Controlling Equation***
DI #1-6	Central Precast	CB4848	8	8	29.51	26.64	43.01	Weir
DI #7-12	Central Precast	CB4848	8	8	16.52	26.64	43.01	Weir

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Sep 26 2023

Swale 1

Triangular

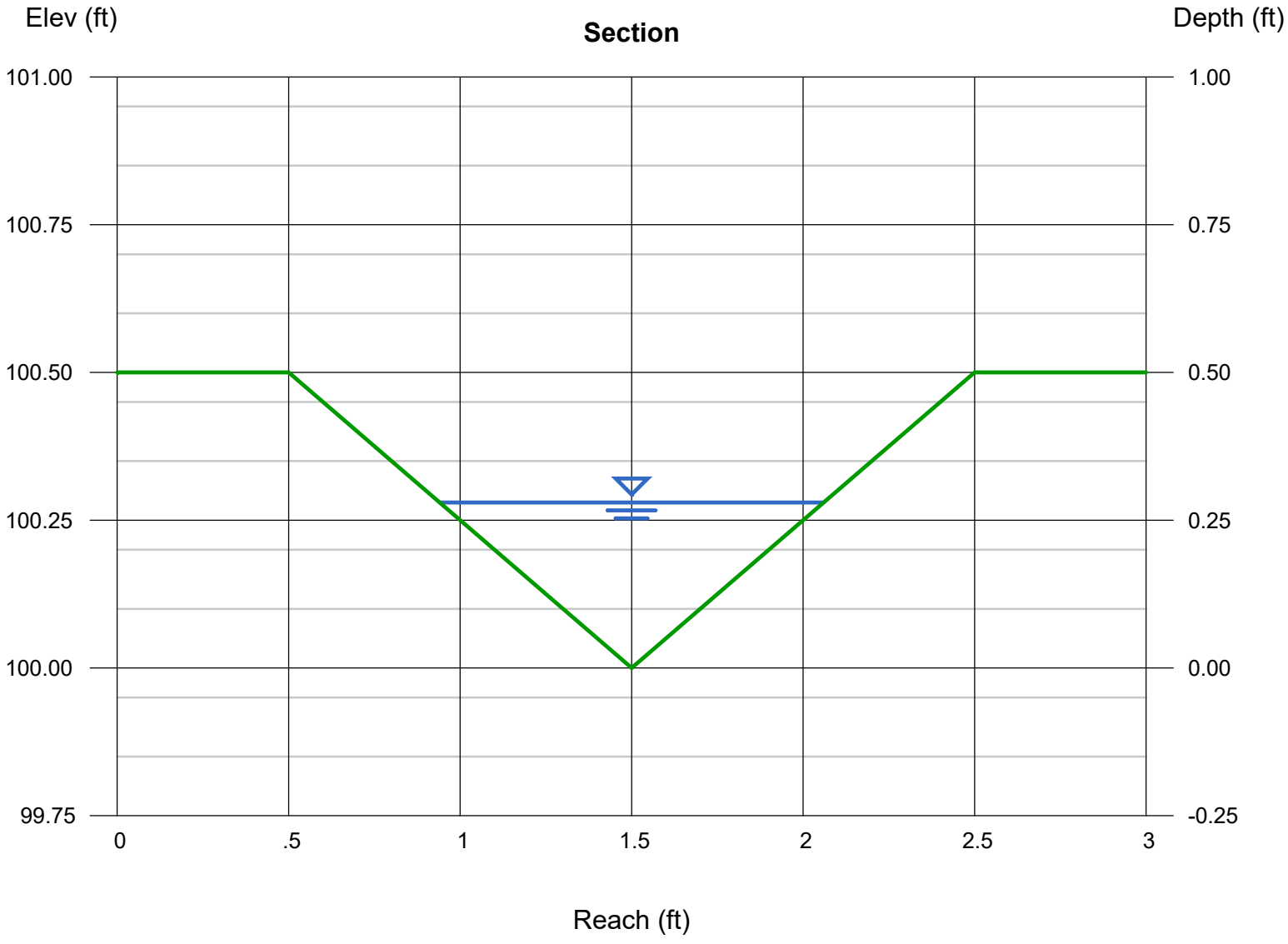
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 100.00
Slope (%)	= 8.00
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.47

Highlighted

Depth (ft)	= 0.28
Q (cfs)	= 0.470
Area (sqft)	= 0.16
Velocity (ft/s)	= 3.00
Wetted Perim (ft)	= 1.25
Crit Depth, Yc (ft)	= 0.33
Top Width (ft)	= 1.12
EGL (ft)	= 0.42



SUMMIT

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