Exhibit L

Conditions of Approval

City of Fresno
Planning and Development Department

Conditions of Approval
December 2, 2020

Conditional Use Permit Application No. P20-01643

Planner: Thomas Veatch

PROJECT DESCRIPTION

Conditional Use Permit Application No. P20-01643 proposes to develop (12) residential duplex buildings consisting of 23 residential units with a manager's office on a vacant 1.92 acre parcel located at 2056 S. Maple.

APN: 471-302-28 ADDRESS: 2056 S MAPLE AVE ZONING: RS-5 Residential Single-Family, Medium Density

PART A - ITEMS TO BE COMPLETED

The following items are required prior to plan check submittal:

Planner to check when completed	
☐	Development shall take place in accordance with Plan Exhibits A, E, F, L-1 to L-13 dated 7-17-2020 and CP1 A dated 8/6/2020. Transfer all comments and conditions on Exhibits to the corrected exhibit(s) and **submit to planner *at least* 15 days prior to plan check submittal.**.
☐	All exterior mechanical and electrical equipment shall be screened or incorporated into the design of buildings so as not to be visible from major streets, highways, passenger railways, or abutting Residential Districts. Please revise site plan to depict this requirement.
☐	Complete an address plan for the proposed units.
	Revise site plan and elevations to depict compliance with open space requirement (15-1004-D) and Pedestrian Access requirement (15-1004-E).
☐	Revise site plan to show patio areas depicted on floor plan.
☐	Revise site plan to show any proposed fencing. Ensure fencing complies with Sec 15-2006.

PART B - OTHER AGENCY COMMENTS AND CONDITIONS

To be checked when completed where applicable		
☐	1.	Air Pollution Control District: See Attached District Comment letter dated 8/18/2020.
☐	2.	Airports: No Comment
☐	3.	Council District Committee: See attached CD5 PRC Voting Record for additional information dated 8/10/2020.
☐	4.	County PW and Planning: No Comment
☐	5.	DPU Planning and Engineering: Sewer See attached DPU conditions memo dated 8/7/2020.

☐	6.	DPU Water Division: Water See attached DPU conditions memo dated 8/7/2020.
☐	7.	Fire Review: Approved as submitted. No appointment or initial required. Approval of this plan does not authorize or approve any omission or deviation from applicable adopted codes and adopted standards. Final approval is subject to field inspection. This project was reviewed by the Fire Department only for requirements related to water supply, fire hydrants, and fire apparatus access to the building(s) on site. Review for compliance with fire and life safety requirements for the building interior and its intended use are reviewed by both the Fire Department and the Building and Safety Section of DARM when a submittal for building plan review is made as required by the California Building Code by the architect or engineer of record for the building.
☐	8.	Flood Control District: See attached FMFCD Notice of Requirements (NOR) dated 8/13/2020. NOR review and Grading plan review fees due. Drainage fees due.
☐	9.	Fresno Area Express: No Comment
☐	10.	Fresno County Environmental Health: Recommended Conditions of Approval: • Construction permits for the development should be subject to assurance that the City of Fresno community water system has the capacity and quality to serve this project. Concurrence should be obtained from the State Water Resources Control Board, Division of Drinking Water-Southern Branch. For more information call (559) 447-3300. • Construction permits for development should be subject to assurance of sewer capacity of the Regional Wastewater Treatment Facility. Concurrence should be obtained from the California Regional Water Quality Control Board (RWQCB). For more information, contact staff at (559) 445-5116. • The proposed construction project has the potential to expose nearby residents to elevated noise levels. Consideration should be given to the City's municipal code. • As a measure to protect ground water, all water wells and/or septic systems that exist or have been abandoned within the project area should be properly destroyed by an appropriately licensed contractor. • Should any underground storage tank(s) be found during the project, the applicant shall apply for and secure an Underground Storage Tank Removal Permit from the Fresno County Department of Public Health, Environmental Health Division. Contact the Fresno County Hazmat Compliance Program at (559) 600-3271 for more information.
☐	11.	Police Review: Please consider combating crimes through the implementations of Crime Prevention through Environmental Design (CPTED) concept. Examples: Sufficient lightings helps deter crime and allows officers to properly evaluate the area of any potential criminal activities. Surveillance cameras should be installed at all entry/exit points, points of sales locations, locations where groups of people would congregate and parking lots. Surveillance systems should be digital HD format; hold a minimum of fourteen days (14) of recordings has the ability to play back and is downloadable.

☐	12.	Public Works (CFD): No Comment
☐	13.	Public Works ROW Landscaping: Please see redline comments under Documents File dated 7/22/2020.
☐	14.	Public Works Traffic Planning: See the Public Works Traffic Planning conditions of approval and redlined CP1 exhibit dated 8/6/2020. . For questions, contact Andreina Aguilar at andreina.aguilar@fresno.gov.
☐	15.	School District: Fresno Unified School District See attached district comment letter dated 7/20/2020. .

Operational Requirements

PART C - PLANNING - OTHER REQUIREMENTS

Development shall take place in accordance with the policies of the Fresno General plan, Roosevelt Community Plan, Specific Plan and with the Residential - Medium Density planned land use designation

2. Development shall take place in accordance with the RS-5 Residential Single-Family, Medium Density z one district and all other applicable sections of the Fresno Municipal Code, specifically but not limited to section 15-906 (.Duplex and Multi-Unit Residential Standards).
3. Comply with the operational statement submitted for the proposed project dated 7/17/2020
5. Development shall comply with all prior special permits on the property and any applicable conditions of zoning.
6. Parking stalls and circulation shall comply with City of Fresno Parking Manual requirements.

PART D - MISCELLANEOUS AND GENERAL NOTES AND REQUIREMENTS

Not all notes and requirements listed below are applicable to all projects.

1. Approval of this special permit may become null and void in the event that development is not completed in accordance with all the conditions and requirements imposed on this special permit, the Zoning Ordinance, and all Public Works Standards and Specifications. *This special permit is granted, and the conditions imposed, based upon the Operation Statement provided by the applicant. The Operation Statement is material to the issuance of this special permit. Unless the conditions of approval specifically require operation inconsistent with the Operation Statement, a new or revised special permit is required if the operation of this establishment changes or becomes inconsistent with the Operation Statement.* Failure to operate in accordance with the conditions and requirements imposed may result in revocation of the special permit or any other enforcement remedy available under the law. The Planning and Development Department shall not assume responsibility for any deletions or omissions resulting from the special permit review process or for additions or alterations to construction plans not specifically submitted and reviewed and approved pursuant to this special permit or subsequent amendments or revisions.
2. Approval of this special permit shall be considered null and void in the event of failure by the applicant and/or the authorized representative, architect, engineer, or designer to disclose and delineate all facts and information relating to the subject property and the proposed development including, but not limited to, the following:

a) All existing and proposed improvements including but not limited to buildings and structures, signs and their uses, trees, walls, driveways, outdoor storage, and open land use areas on the subject property and all of the preceding which are located on adjoining property and may encroach on the subject property;

b) All public and private easements, rights-of-way and any actual or potential prescriptive easements or uses of the subject property; and,

c) Existing and proposed grade differentials between the subject property and adjoining property zoned or planned for residential use.

3. No land shall be used, and no structure shall be constructed, occupied, enlarged, altered, demolished, or moved in any zoning district, except in accordance with the provisions of this Code. Specific uses of land, buildings, and structures listed as prohibited in any zoning district are hereby declared to be detrimental to the public health, safety, and welfare.
4. Development shall take place in accordance with the Standards, Specifications, and Standard Drawings of the City of Fresno Public Works Department; Click Here
5. Development shall take place in accordance with all city, county, state and federal laws and regulations.
6. Owners and persons having ownership interest in businesses operating in the City of Fresno (including leasing out any commercial or industrial property, or renting out four or more dwelling units) are required by the Fresno Municipal Code to obtain a Business Tax Certificate. Contact the City of Fresno Finance Department's Business Tax Division at (559) 621-6880 for more information. Information and an application form is available at the following website: Click Here
7. All proposed building(s) or structure(s) constructed on the property must comply with the prevailing California Building Code Standards.
8. Any building modifications and/or additions not included with this application are not approved with this special permit and would be subject to a new special permit.
9. A permit granted under the Fresno Municipal Code shall automatically expire if it is not exercised or extended within three years of its issuance. Refer to section 15-5013, Expiration of Planning Entitlements, for more information about the exercise of rights.

FENCES/WALLS, LANDSCAPING, PARKING

10. Nothing in the Development Code shall be deemed to prohibit the erection of temporary fencing around construction sites in compliance with the Building Code and other applicable provisions of the Fresno Municipal Code.
11. Future fences shall be reviewed and approved by the Planning and Development Department prior to installation.
12. Fences, hedges, and walls shall be maintained in good repair, including painting, if required, and shall be kept free of litter or advertising. Where hedges are used as screening, trimming or pruning shall be employed as necessary to maintain the maximum allowed height. Fences shall be maintained and shall stand upright and shall not lean.
13. All planting and other landscape elements shall be permanently maintained in good growing condition. Such maintenance shall include, where appropriate, pruning, mowing, weeding, cleaning, fertilizing, and regular watering. Wherever necessary, plantings shall be replaced with other plant materials to insure continued compliance with applicable landscaping requirements. Yards shall be maintained free of refuse, debris, rubbish, or other accumulated matter and/or materials, and shall be maintained clean. Grass shall not exceed six inches in height.
14. New landscaping shall have an automatic irrigation system designed to provide adequate and efficient coverage of all plant material. Irrigation systems shall comply with the requirements of the

California Green Building Standards Code and/or the California Model Water Efficient Landscape Ordinance and/or the California Plumbing Code as may be amended.

15. Trees shall be maintained by property owners to be free from physical damage or injury arising from lack of water, chemical damage, accidents, vandalism, insects, and disease. Any tree showing such damage shall be replaced with another tree.
16. No tree for which a Tree Removal Permit is required shall be removed until all conditions of the permit have been satisfied and the decision has become final. In addition, tree(s) approved for removal in conjunction with a development application shall not be removed before the issuance of a Building Permit or unless all of the conditions of approval of the development applications are satisfied.
17. The review authority shall issue a Tree Removal Permit if any of the following general criteria is met:

    a) The tree(s) is irreparably diseased or presents a danger of falling that cannot be controlled or remedied through reasonable preservation and/or preventative procedures and practices so that the public health or safety requires its removal.

    b) The tree(s) can potentially cause substantial damage to existing or proposed main structure(s) (e.g. dwellings, other main structures, or public infrastructure) or interfere with utility services and cannot be controlled or remedied through reasonable relocation or modification of the structure or utility services.

    c) The retention of the tree(s) restricts the economic enjoyment of the property or creates an unusual hardship for the property owner by severely limiting the use of the property in a manner not typically experienced by owners of similarly zoned and situated properties, and the applicant has demonstrated to the satisfaction of the Review Authority that there are no reasonable alternatives to preserve the tree(s).
18. Landscaping must be in place before issuance of the certificate of occupancy. A Hold on Occupancy shall be placed on the proposed development until such time that landscaping has been approved and verified for proper installation by the Current Planning Division. **(Include this note on the landscape plan.)**
19. Future tenant improvements shall be reviewed and approved by the Planning and Development Department to ensure that adequate off-street parking is provided.
20. Trees required for parking lots are in addition to trees required elsewhere on the site as prescribed in other sections of the Fresno Municipal Code.
21. Parking lots, including landscaped areas, driveways, and loading areas, shall be maintained free of refuse, debris, or other accumulated matter and shall be kept in good repair at all times.
22. A minimum number of accessible parking stalls are required for the proposed project per State of California Building Code.
23. All accessible stalls shall be marked with the international symbol of spaces and a warning that vehicles in violation of Section 10-1017 of the Fresno Municipal Code shall be towed away. The international symbol and tow-away warning shall be posted conspicuously on seven-foot poles. **(Include this note on the site plan.)**
24. Applicants are encouraged to provide shared vehicle and pedestrian access between adjacent properties for convenience, safety, and efficient circulation. A joint access covenant shall be required. **(Include this note on the site plan.)**
25. All general standards of Section 15-2015 of the Fresno Municipal Code shall apply when lighting is provided to illuminate parking, sales or display areas. **Depict all proposed lights on the site plan.**
26. Bicycle parking spaces shall be supplied according to Table 15-2429-D: Required On-Site Bicycle Parking Spaces of the Fresno Municipal Code. Each bicycle parking space shall be a minimum of 30 inches in width and eight feet in length and shall be accessible without moving another bicycle.

At least 30 inches of clearance shall be provided between bicycle parking spaces and adjacent walls, poles, landscaping, street furniture, drive aisles, and pedestrian ways and at least five feet from vehicle parking spaces to allow for the maneuvering of bikes. Overhead clearance shall be a minimum of seven feet. A minimum five foot aisle between each row of bicycle parking shall be provided for bicycle maneuvering beside or between each row, when multiple rows are proposed. Bicycle parking spaces shall not encroach into pedestrian ways, landscaped areas, or other required open spaces, and shall be located proximal to structures.

27. All general provisions of Section 15-2403 of the Fresno Municipal Code shall apply to all parking areas.
28. The parking lot is required to meet the *City of Fresno's Parking Manual, Public Works Standards (P-21, P-22, and P-23) and Specifications*. Parking must also comply with the California Building Code's accessibility requirements and the Fire and Solid Waste Department's minimum turning templates. Contact the Planning and Development Department for Parking Manual questions.

SIGNAGE

29. All future signs shall be architecturally compatible with the proposed building(s). Provide a set of drawings, with descriptive information, including, materials, design and colors to allow for a preliminary assessment of the future signage. It is recommended that you provide a copy of the signage early in the project process to allow for staff comment.
30. Signs, *other than directional signs, if applicable*, are not approved for installation as part of this special permit. **(Include this note on the site plan.)**
31. All proposed signs shall conform to the current sign ordinance. The submittal checklist for signs is available online at: Click Here
32. Window signs limited to the hours of operation, address, occupancy, and emergency information, subject to the following standards:

    a) Operational windows signs shall not be mounted or placed on windows higher than the second story.

    b) The maximum area of exempt window signage shall not exceed three square feet in area.
33. Banners, streamers, moving signs, and inflatables (including air dancers, balloons, and similar objects) are allowed subject to Temporary Use Permit approval for establishments within Non-Residential Districts. Signs of this type do not count toward total maximum sign area. No sign per this section shall be displayed for more than 30 days, and a period of 30 must lapse before displaying another sign. Signs shall not be displayed for more than 60 total days during a calendar year.
34. Every sign displayed within the city, including exempt signs, shall be maintained in good physical condition and shall comply with adopted regulations. All defective or broken parts shall be replaced. Exposed surfaces shall be kept clean, in good repair, and painted where paint is required.

MISCELLANEOUS

35. Noise levels shall not exceed the decibel levels described in Section 15-2506 of the Fresno Municipal Code at any time, measured at the nearest subject property line.
36. No vibration shall be produced that is transmitted through the ground and is discernible without the aid of instruments by a reasonable person at the lot lines of the site. Vibrations from temporary construction, demolition, and vehicles that enter and leave the subject parcel (e.g., construction equipment, trains, trucks, etc.) are exempt from this standard.
37. Lights shall be placed to deflect light away from adjacent properties and public streets, and to prevent adverse interference with the normal operation or enjoyment of surrounding properties.

Direct or sky-reflected glare from floodlights shall not be directed into any other property or street. Except for public street lights and stadium lights, no light, combination of lights, or activity shall cast light onto a residentially zoned property, or any property containing residential uses, exceeding one-half foot-candle.

38. No use shall be operated such that significant, direct glare, incidental to the operation of the use is visible beyond the boundaries of the lot where the use is located. Windows shall not cause glare that may disrupt adjoining properties, traffic on adjacent streets, etc. Glare or heat reflected from building materials shall be mitigated so as to not disrupt surrounding properties.

39. The address listed in the conditions of approval is the 'Official Address' given to the building. If you would like separate suite or unit numbers for a building, provide a floor plan and contact the City of Fresno Planning and Development Department for 'Official Addresses'. **Only those addresses assigned by the City of Fresno will be recognized as 'Official Addresses'**. The United States Post Office will only recognize addresses assigned by the City of Fresno. If a non-official address is given to a building and or/separate suites, the City of Fresno has the authority to charge a fee and have those addresses corrected. In addition, the United States Post Office will cease mail delivery to those addresses that are not 'Official Addresses'.

40. All projects, including projects that involve less than one acre of property, are required to comply with the City of Fresno's Urban Storm Water Quality Management and Discharge Control Ordinance, Fresno Municipal Code Chapter 6, Article 7 (Sections 6-701 *et seq*.)

    When a project involves one acre or more of construction activity (including, but not limited to, grading) the developer is required to obtain a stormwater discharge permit for construction, with a Notice of Intent (NOI) filed **prior to** commencement of any grading construction activity. Contact the Fresno office of the California Regional Water Quality Control Board at (559) 445-6281 regarding the required NOI and stormwater discharge permit. Additional information on California's construction stormwater regulation may be obtained from the Water Board via the internet:

    www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

    Helpful information for preparing and implementing stormwater pollution prevention plans may also be obtained from the California Stormwater Quality Association via its website, *www.casqa.org*

    When a project involves specified nonresidential activities (certain commercial and industrial activities), an ongoing industrial stormwater discharge permit is also required. Contact the Fresno office of the California Regional Water Quality Control Board at (559) 445-6281 to find out whether your project/business requires an industrial stormwater discharge permit, and to obtain details on securing this permit. Additional information on industrial stormwater regulations may be obtained from the following website:
    www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.shtml,

    The California Stormwater Quality Association has additional information on preparing stormwater pollution prevention plans for industrial activities (*www.casqa.org*).

41. Screen all roof-mounted equipment from the view of public rights-of-way. **Depict all mechanical equipment on site plan and elevations.**

42. If archaeological and/or animal fossil material is encountered during project surveying, grading, excavating, or construction, work shall stop immediately. **(Include this note on the site plan.)**

43. If there are suspected human remains, the Fresno County Coroner shall be immediately contacted. If the remains or other archaeological material is possibly Native American in origin, the Native American Heritage Commission (Phone: (916) 653-4082) shall be immediately contacted, and the California Archaeological Inventory/Southern San Joaquin Valley Information Center (Phone: (805) 644-2289) shall be contacted to obtain a referral list of recognized archaeologists. An archeological

assessment shall be conducted for the project, the site shall be formally recorded, and recommendations made to the City as to any further site investigation or site avoidance/preservation. **(Include this note on the site plan.)**

44. If animal fossils are uncovered, the Museum of Paleontology, U.C. Berkeley shall be contacted to obtain a referral list of recognized paleontologists. An assessment shall be conducted by a paleontologist and, if the paleontologist determines the material to be significant, it shall be preserved. **(Include this note on the site plan.)**
45. Connection to a municipal water system is required unless approved measures are included in the project conditions of approval for an alternative water supply.
46. Connection to a municipal City of Fresno sewer system is required unless approved measures are included in the project conditions for alternative wastewater treatment facilities.
47. City of Fresno water and sewer connection charge obligations applicable to this project will be computed during the building construction plan check process and shall be payable at time of issuance of building permit unless other arrangements have been approved to defer such payments to a later date. For information relating to water and sewer service requirements and connection charges, contact Frank Saburit at (559) 621-8797.
48. Open street cuts are not permitted; all utility connections must be bored.
49. CROSS-CONNECTION CONTROL. A backflow prevention device may be required on the water service. Contact the Department of Public Utilities, Water Division (559) 621-5300 for requirements relating to approved devices, locations, testing and acceptance. This requirement must be satisfied prior to final occupancy.
50. This project was reviewed by the Fire Department only for requirements related to water supply, fire hydrants, and fire apparatus access to the building(s) on site. Review for compliance with fire and life safety requirements for the building interior and its intended use are reviewed by both the Fire Department and the Building and Safety Section of the Planning and Development when a submittal for building plan review is made as required by the California Building Code by the architect or engineer of record for the building.
51. Open storage (outside an enclosed building) shall be limited to vehicles, boats, recreational vehicles, and trailers. Outdoor storages areas shall be screened from public view by building façades or solid fences. At the discretion of the Review Authority, the treatment of the ground surface of the open storage area may be gravel or other materials as prescribed by the San Joaquin Valley Air Pollution Control District, the Public Works Department, the Fire Department, and the Fresno Metropolitan Flood Control District. All open storage must be depicted on the site plan and described in operational statement. If it is not, it is not allowed on the site.
52. If video surveillance cameras are required or installed, provide signs under the surveillance cameras which notify the public that the subject property is monitored by video surveillance.

FEES

(Not all fees will be applicable to all projects.
Please reach out to Frank Saburit at (559) 621-8797 for fee questions.)

53. NOTICE TO PROJECT APPLICANT: In accordance with the provisions of Government Code Section 66020(d)(1), the imposition of fees, dedication, reservations or exactions for this project are subject to protest by the project applicant at the time of approval or conditional approval of the development or within 90 days after the date of imposition of fees, dedications, reservation, or exactions imposed on the development project. This notice does not apply to those fees, dedications, reservations, or exactions which were previously imposed and duly noticed; or, where no notice was previously required under the provisions of Government Code Section 66020(d)(1) in effect before January 1, 1997.

54. CITYWIDE DEVELOPMENT IMPACT FEES

    a) Traffic Signal Charge (Fresno Municipal Code Section 12-4.1101 to 12-4.1103) This project shall pay its Traffic Signal Mitigation Impact Fee at the time of building permit based on the trip generation rate(s) as set forth in the latest Master Fee Schedule. Refer to the adopted Master Fee Schedule for fee rate. This fee shall be paid at time of building permit.

    b) Fire Facilities Fee (Fresno Municipal Code Section 12-4.901 to 12-4.906) (based on building square footage, or residential units)

    c) Police Facilities Fee (Fresno Municipal Code Section 12-4.801 to 12-4.806) (based on building square footage, or residential units)

    d) Parks Facilities Fee (Fresno Municipal Code Section 12-4.701 to 12-4.706) (based on the number of residential units)

55. CITYWIDE REGIONAL AND NEW GROWTH MAJOR STREET IMPACT FEES (Fresno Municipal Code Section 12-4.1006)

    a) Street Impact Fees shall be due and payable at the time of building permit issuance unless otherwise required by State law.

    b) Street Impact Fees will be a condition on all development entitlements granted.

56. FRESNO COUNTY FACILITY IMPACT FEE
    Fresno County adopted a Facilities Impact Fee, but the requirement to pay this fee was subsequently suspended by Fresno County. If the fee has been reinstated at the time of issuance of building permits for this project, or an alternative fee system has been adopted by Fresno County, proof of payment or payment of this fee will be required for issuance of building permits.

57. REGIONAL TRANSPORTATION MITIGATION FEE (RTMF)
    Pay the RTMF fee to the Joint Powers Agency located at 2035 Tulare Street, Suite 201, Fresno, CA 93721; (559) 233-4148, ext. 200; www.fresnocog.org. Provide proof of payment or exemption prior to issuance of certificate of occupancy.

58. SCHOOL FEES
    School fees must be paid, if required, prior to the issuance of building permits. Contact the applicable school district to obtain fee amount. Provide proof of payment (or no fee required) prior to the issuance of building permits.

59. FRESNO METROPOLITAN FLOOD CONTROL DISTRICT (FMFCD) FEES

    a) A FMFCD Development Fee is required for review of proposed development projects, including applications for plan amendments, rezones, special permits, subdivisions, and grading plans. This fee is based on project acreage and must be paid directly to FMFCD in order for that agency to review projects and provide a Notice of Requirements. For more information, contact the FMFCD at (559) 456-3292.

    b) FMFCD drainage fees are due, if required, prior to issuance of building permits and are payable at the rate in place at the time of building permit issuance. Unpaid drainage fee obligations that were unpaid for a prior project at the site of a new project must be satisfied by the developer of the new project. Drainage fees may be paid at the Planning and Development Department prior to, or at the time of building permit issuance. They may also be paid directly to FMFCD, and proof of payment provided to the City, in order to obtain construction permits.

60. SEWER CONNECTION CHARGES (Fresno Municipal Code Section 6-304(a)). The following sewer connection charges may be required and will be payable at the fee rate listed in the Master Fee Schedule at the time payment is due. New sewer connection charges adopted by the Council prior to the issuance of building permits may also be applied.

    a) Lateral Sewer Charge (based on property frontage to a depth of 100’)

    b) Oversize Sewer Charge (based on property frontage to a depth of 100’)

c) Wastewater Facilities Charge

d) Trunk Sewer Charge

Effective January 9, 1999, Ordinance No. 98-97 also amended certain sewer connection charges. Fresno Municipal Code Article 15, Section 12 provides property owners the incentives and deletes certain sewer connection charges pursuant to the Simple Tiered Equity Program (STEP) and the Employment Development Program (EDP). For additional information on the STEP and EDP, contact the Department of Public Utilities, Administration Division at (559) 621-8600.

61. WATER CONNECTION CHARGES: (Fresno Municipal Code Sections 6-507 to 6-513). The following water connection charges may be required and will be payable at the fee rate listed in the Master Fee Schedule at the time payment is due. New water connection charges adopted by the Council **prior to** issuance of building permits may also be applied.

    a) Frontage Charge (based on property frontage)

    b) Service Charges (based on service size required by applicant)

    c) Meter Charges (based on service need)

    d) Water Capacity fee (based on size of meter)

62. Deferment of the payment of Citywide development impact fees for Fire, Police, Parks, Streets, and Traffic Signals is available for projects located within the Downtown Priority Areas in accordance with the provisions of City of Fresno Resolutions Nos. 2009-265 and 2010-19.

PUBLIC WORKS DEPARTMENT GENERAL NOTES
(to be added to the site plan)

63. Any survey monuments within the area of construction shall be preserved or reset by a person licensed to practice land surveying in the State of California.
64. Repair all damaged and/or off-grade concrete street improvements as determined by the Construction Management Engineer, prior to occupancy.
65. Two working days before commencing excavation operations within the street right-of-way and/or utility easements, all existing under-ground facilities shall have been located by underground services.
66. The performance of any work within the public street right-of-way requires a street work permit prior to commencement of work. All required street improvements must be completed and accepted by the City prior to occupancy.
67. Contact the Public Works Department, Traffic Engineering at (559) 621-8800, 10 working days prior to any offsite concrete construction.
68. For Standard Drawings Click Here
69. For Traffic Planning's website with useful links, additional notes, sample of legend, Parking Manual and Traffic Study Checklist Click Here.
70. Traffic Planning Checklist Click Here.
71. For Traffic Study questions please contact Jill Gormley at (559) 621-8792 or via email at Jill.Gormley@fresno.gov.

File No. 210.413

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
NOTICE OF REQUIREMENTS

PUBLIC AGENCY

THOMAS VEATCH
DEVELOPMENT SERVICES/PLANNING
CITY OF FRESNO
2600 FRESNO STREET, THIRD FLOOR
FRESNO, CA 93721-3604

DEVELOPER

TOMMY PHELEN, MAPLE LUXURY LIVING LLC
1004 RENO AVE.
MODESTO, CA 95351

PROJECT NO: **2020-01643**

ADDRESS: **2056 S. MAPLE AVE.**

APN: **471-302-28**

SENT: **August 13, 2020**

Drainage Area(s)	Preliminary Fee(s)	Development Review Service Charge(s)	Fee(s)	
GG	$9,404.00	NOR Review	$72.00	To be paid prior to release of District comments to Public Agency and Developer.
		Grading Plan Review	$367.00	Amount to be submitted with first grading plan submittal.
	Total Drainage Fee: $9,404.00	**Total Service Charge: $439.00**		

The proposed development will generate storm runoff which produces potentially significant environmental impacts and which must be properly discharged and mitigated pursuant to the California Environmental Quality Act and the National Environmental Policy Act. The District in cooperation with the City and County has developed and adopted the Storm Drainage and Flood Control Master Plan. Compliance with and implementation of this Master Plan by this development project will satisfy the drainage related CEQA/NEPA impact of the project mitigation requirements.

Pursuant to the District's Development Review Fee Policy, the subject project shall pay review fees for issuance of this Notice of Requirements (NOR) and any plan submittals requiring the District's reviews. The NOR fee shall be paid to the District by Developer before the Notice of Requirement will be submitted to the City. The Grading Plan fee shall be paid upon first submittal. The Storm Drain Plan fee shall be paid prior to return/pick up of first submittal.

The proposed development shall pay drainage fees pursuant to the Drainage Fee Ordinance prior to issuance of a building permit at the rates in effect at the time of such issuance. The fee indicated above is valid through 2/28/21 based on the site plan submitted to the District on 7/17/20 Contact FMFCD for a revised fee in cases where changes are made in the proposed site plan which materially alter the proposed impervious area.

Considerations which may affect the fee obligation(s) or the timing or form of fee payment:

a.) Fees related to undeveloped or phased portions of the project may be deferrable.

b.) Fees may be calculated based on the actual percentage of runoff if different than that typical for the zone district under which the development is being undertaken and if permanent provisions are made to assure that the site remains in that configuration.

c.) Master Plan storm drainage facilities may be constructed, or required to be constructed in lieu of paying fees.

d.) The actual cost incurred in constructing Master Plan drainage system facilities is credited against the drainage fee obligation.

e.) When the actual costs incurred in constructing Master Plan facilities exceeds the drainage fee obligation, reimbursement will be made for the excess costs from future fees collected by the District from other development.

f.) Any request for a drainage fee refund requires the entitlement cancellation and a written request addressed to the General Manager of the District within 60 days from payment of the fee. A non refundable $300 Administration fee or 5% of the refund whichever is less will be retained without fee credit.

FR CUP No. 2020-01643

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
NOTICE OF REQUIREMENTS

Approval of this development shall be conditioned upon compliance with these District Requirements.

1. X **a.** Drainage from the site shall BE DIRECTED TO MAPLE AVENUE.

___ **b.** Grading and drainage patterns shall be as identified on Exhibit No.

___ **c.** The grading and drainage patterns shown on the site plan conform to the adopted Storm Drainage and Flood Control Master Plan.

2. The proposed development shall construct and/or dedicate Storm Drainage and Flood Control Master Plan facilities located within the development or necessitated by any off-site improvements required by the approving agency:

___ Developer shall construct facilities as shown on Exhibit No. 1 as

X None required.

3. The following final improvement plans and information shall be submitted to the District for review prior to final development approval:

X Grading Plan

___ Street Plan

___ Storm Drain Plan

___ Water & Sewer Plan

___ Final Map

___ Drainage Report (to be submitted with tentative map)

___ Other

___ None Required

4. Availability of drainage facilities:

___ **a.** Permanent drainage service is available provided the developer can verify to the satisfaction of the City that runoff can be safely conveyed to the Master Plan inlet(s).

___ **b.** The construction of facilities required by Paragraph No. 2 hereof will provide permanent drainage service.

X **c.** Permanent drainage service will not be available. The District recommends temporary facilities until permanent service is available.

___ **d.** See Exhibit No. 2.

5. The proposed development:

___ Appears to be located within a 100 year flood prone area as designated on the latest Flood Insurance Rate Maps available to the District, necessitating appropriate floodplain management action. (See attached Floodplain Policy.)

X Does not appear to be located within a flood prone area.

6. ___ The subject site contains a portion of a canal or pipeline that is used to manage recharge, storm water, and/or flood flows. The existing capacity must be preserved as part of site development. Additionally, site development may not interfere with the ability to operate and maintain the canal or pipeline.

FR CUP No. 2020-01643

5469 E. OLIVE - FRESNO, CA 93727 - (559) 456-3292 - FAX (559) 456-3194

7. The Federal Clean Water Act and the State General Permits for Storm Water Discharges Associated with Construction and Industrial Activities (State General Permits) require developers of construction projects disturbing one or more acres, and discharges associated with industrial activity not otherwise exempt from National Pollutant Discharge Elimination System (NPDES) permitting, to implement controls to reduce pollutants, prohibit the discharge of waters other than storm water to the municipal storm drain system, and meet water quality standards. These requirements apply both to pollutants generated during construction, and to those which may be generated by operations at the development after construction.

a. State General Permit for Storm Water Discharges Associated with Construction Activities, effective July 1, 2010, as amended. A State General Construction Permit is required for all clearing, grading, and disturbances to the ground that result in soil disturbance of at least one acre (or less than one acre) if part of a larger common plan of development or sale). Permittees are required to: submit a Notice of Intent and Permit Registration Documents to be covered and must pay a permit fee to the State Water Resources Control Board (State Board), develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, and complete an annual certification of compliance.

b. State General Permit for Storm Water Discharges Associated with Industrial Activities, April, 2014 (available at the District Office). A State General Industrial Permit is required for specific types of industries described in the NPDES regulations or by Standard Industrial Classification (SIC) code. The following categories of industries are generally required to secure an industrial permit: manufacturing; trucking; recycling; and waste and hazardous waste management. Specific exemptions exist for manufacturing activities which occur entirely indoors. Permittees are required to: submit a Notice of Intent to be covered and must pay a permit fee to the State Water Resources Control Board, develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, sample storm water runoff and test it for pollutant indicators, and annually submit a report to the State Board.

c. The proposed development is encouraged to select and implement storm water quality controls recommended in the Fresno-Clovis Storm Water Quality Management Construction and Post-Construction Guidelines (available at the District Office) to meet the requirements of the State General Permits, eliminate the potential for non-storm water to enter the municipal storm drain system, and where possible minimize contact with materials which may contaminate storm water runoff.

8. A requirement of the District may be appealed by filing a written notice of appeal with the Secretary of the District within ten days of the date of this Notice of Requirements.

9. The District reserves the right to modify, reduce or add to these requirements, or revise fees, as necessary to accommodate changes made in the proposed development by the developer or requirements made by other agencies.

10. **X** See Exhibit No. 2 for additional comments, recommendations and requirements.

Debbie Campbell
Digitally signed by Debbie Campbell Date: 8/13/2020 8:59:18 AM
Debbie Campbell
Design Engineer, RCE

Rick Lyons
Digitally signed by Rick Lyons Date: 8/6/2020 1:31:40 PM
Rick Lyons
Engineering Tech III

CC:

JERRY HOWELL, GATEWAY ENGINEERING

405 PARK CREEK DR.

CLOVIS, CA 93611

FR CUP No. 2020-01643

OTHER REQUIREMENTS

EXHIBIT NO. 2

In an effort to improve storm runoff quality, outdoor storage areas shall be constructed and maintained such that material that may generate contaminants will be prevented from contact with rainfall and runoff and thereby prevent the conveyance of contaminants in runoff into the storm drain system.

The District encourages, but does not require that roof drains from non-residential development be constructed such that they are directed onto and through a landscaped grassy swale area to filter out pollutants from roof runoff.

City of FRESNO

COUNCIL DISTRICT 5 PROJECT REVIEW COMMITTEE
PROJECT REVIEW
August 10, 2020
Project Record

ITEM 4B Conditional Use Permit No. P20-01643

PROJECT INFORMATION

Conditional Use Permit No. P20-01643 was filed by Tommy Phelen of Maple Luxury Living LLC and pertains to the 1.92 acres located at 2056 S. Maple. The applicant proposes to develop (12) residential duplex buildings consisting of 23 residential units with a manager's office. The parcel is zoned RS-5. DRC Application: P20-01253.

COMMITTEE RECOMMENDATION

APPROVE APPROVE WITH CONDITION(S) DENY NO ACTION

	Rabara (Chair)	Kiran	Hansen-Smith	Singh
Approve	X		X	X
Deny				
Abstain				
Absent		X		

COMMITTEE CONDITIONS / COMMENTS

The applicant presented the proposed project.

Committee members inquired about the amount of parking that each unit would have.

The applicant explained that each unit would have a two-car garage and a separate guest parking spot adjacent to the unit.

Committee members inquired as to what made the proposed project “luxury”.

The applicant explained that the building finishes and square footage made the apartments “luxury” apartments.

Committee member Singh requested that speed bumps be incorporated within the complex to enhance safety.

The applicant stated that they would not be opposed to adding speed bumps to the project.

Committee member Singh moved and committee member Rabara seconded the motion to approve Conditional Use Permit No. P20-01643 with the condition that speed bumps be added to the site to enhance safety. The motion carried three votes to zero.

Staff Facilitator: *Marisela Martinez* Date: **8/10/2020**

Marisela Martínez, Planner I

City of FRESNO

SUBJECT: Conditions of Approval for **P20-01643**

DATE: August 6, 2020

TO: Thomas Veatch, Planner II
Planning and Development Department

FROM: Andreina Aguilar, Engineer II
Public Works Department, Traffic Planning Section

ADDRESS: **2056 South Maple Avenue**

APN: **471-302-28**

ATTENTION:
The items below require a separate process with additional fees and timelines, in addition to the development permit process. Submit the following items early to avoid delaying approval of building permits. Final approval of the site plan is contingent on receipt of all items checked below.

To be completed:	Point of Contact	Department and Contact Information
Deeds (up to 2 month processing time) Deeds are required to provide easements to the City for required public improvements. They shall be prepared by the owner / developer's engineer. Contact Jeff Beck for fees and processing requirements. Provide a copy of the recorded dedications to Traffic Planning **prior** to the issuance of building permits.	Jeff Beck	Public Works Department (559) 621-8560 Jeff.Beck@fresno.gov

ATTENTION:

Prior to resubmitting the corrected exhibit, provide the following information and conditions of approval on the site plan:

A. GENERAL REQUIREMENTS

☐ 1. **Easements:** Identify and dimension the required pedestrian easement.

☐ 2. **Required Notes:** Revise General Notes to include the required Public Works Department notes.

- ☐ Any survey monuments within the area of construction shall be preserved or reset by a person licensed to practice land surveying in the State of California.
- ☐ Repair all damaged and/or off-grade concrete street improvements as determined by the Construction Management Engineer, prior to occupancy.
- ☐ Two working days before commencing excavation operations within the street right-of-way and/or utility easements, all existing under-ground facilities shall have been located by underground services.
- ☐ The performance of any work within the public street right-of-way requires a street work permit prior to commencement of work. All required street improvements must be completed and accepted by the City prior to occupancy.
- ☐ Deeds are required to provide easements to the city for required public improvements. They shall be prepared by the owner / developer's engineer. Executed copies shall be submitted to the city with verification of ownership prior to the issuance of building permits.
- ☐ All existing driveway approaches which no longer provide access to approved vehicle parking areas shall be removed unless otherwise approved by the City Engineer. Such areas shall be reconstructed with curb, gutter and sidewalk to match existing adjacent street improvements. This works shall be completed and accepted <u>before</u> a Permit of Occupancy is issued or the building is occupied per FMC 13-211.
- ☐ Underground all existing off-site overhead utilities within the limits of this application as per Fresno Municipal Code Section 15-2017 and Public Works Policy No. 260.01.
- ☐ Submit street construction plans to the Public Works Department.
- ☐ Provide and maintain a 4' minimum path of travel along the public sidewalk directly in front of property, to meet current accessibility regulations. A pedestrian easement may be required if requirements are not met.
- ☐ Contact the Public Works Department, Traffic Engineering at 559-621-8800, 10 working days prior to any offsite concrete construction.
- ☐ All existing sidewalks in excess of 2% maximum cross slope must be brought into compliance prior to acceptance by Public Works.

B. OFFSITE INFORMATION:

☐ 1. **Section Line:** Identify the section line.

☐ 2. **Dedications:** Identify and dimension pedestrian dedication.

☐ 3. **Public Street Improvements:**

- ☐ a. **Sidewalk drains:** Identify the sidewalk drain locations; not to be within 3' from the drive approach wings.
- ☐ b. **Drive approach:** The proposed drive approach needs to be wider per City standards with 5' wings. The wider drive approach may affect the location of the units nearest to the street.
- ☐ c. **Street-type approaches:** The proposed street type approach is not permitted; revise to meet City of Fresno Standards P-2 and P-6.

☐ 4. **Accessibility:** Identify and dimension the required 4' minimum path of travel along the public sidewalk adjacent to the property. Provide pinch point dimensions. A pedestrian easement may be required if Title 24 requirements cannot be met.

C. <u>ONSITE INFORMATION:</u>

☐ 1. **State standard "STOP":** Identify and install a **30"** state standard "STOP" sign at the location shown. Signs shall be mounted on a **2"** galvanized post with the bottom of the lowest sign **7'** above ground, located behind curb and immediately behind a major street sidewalk.

☐ 2. **Parking lot paving:** Paving shall be per Public Works Standards P-21, P-22, and P-23.

PUBLIC IMPROVEMENT REQUIREMENTS

The following requirements are based on city records and the accuracy of the existing and proposed on-site and off-site conditions depicted on the exhibits submitted. Requirements not addressed due to omission or misrepresentation of information, on which this review process is dependent, will be imposed whenever such conditions are disclosed. Construct additional offsite improvements, including but not limited to, concrete curb, gutter, sidewalk, approaches, ramps, pavement, utility relocations, etc. in accordance with *City of Fresno's Public Works Standards, Specifications* and the approved street plans.

Repair all damaged and/or off grade off-site concrete street improvements as determined by the City of Fresno Public Works Department, Construction Management Division, (559) 621-5600. Pedestrian paths of travel must also meet current accessibility regulations.

All existing sidewalks and trails in excess of 2% maximum cross slope must be brought into compliance **prior** to acceptance by Public Works.

The construction of any overhead, surface or sub-surface structures and appurtenances in the public right of way is prohibited unless an **Encroachment Covenant** is approved by the City of Fresno Public Works Department, Traffic and Engineering Services Division, (559) 621-8693. **Encroachment Covenant** must be approved **prior** to issuance of building permits.

Maple Avenue: Collector
(Provide the following as notes on the site plan.)

1. Dedication Requirements:
   a. Dedicate **4'** of property for pedestrian purposes behind the driveway approach.

2. Construction Requirements:
   a. Remove existing driveway approaches not identified for utilization as noted on **Exhibit "A"**, and install sidewalk, curb, gutter and paving per City of Fresno Public Works Standard Drawings **P-5 and P-48** to match existing or proposed street improvement line and grade per Fresno Municipal Code (FMC) 13-211.
   b. Construct a 30' to 35' drive approach to Public Works Standards **P-2 and P-6,** as approved on the site plan. Construct permanent paving as needed per Public Works Standard **P-48.** Construct a concrete pedestrian walkway behind all driveway approaches as identified on **Exhibit "A"**.
   c. Provide a **12**' visibility triangle at all driveways, per Fresno Municipal Code (FMC) 15-2018B.

Street Construction Plans are required and shall be approved by the City Engineer. All improvements shall be constructed in accordance with the *City of Fresno, Public Works Department Standard Drawings and Specifications*. The performance of any work within the public street right of way (including pedestrian and utility easements) requires a

STREET WORK PERMIT **prior** to commencement of work. When preparing Street Plans and/or Traffic Control Plans, contact Harmanjit Dhaliwal at (559) 621-8694, **10 working days** in advance, to make sure that sidewalks or an approved accessible path remain open during construction. Submit construction plans for all required work, in a single package, to the City of Fresno's, Traffic and Engineering Services Division. All work shall be reviewed, approved, completed, and accepted **prior** to obtaining a certificate of occupancy. Utility poles, street lights, signals, etc. shall be relocated as determined by the City Engineer.

Two working days before commencing excavation operations within the street right of way and/or utility easements, all existing underground facilities shall have been located by Underground Services Alert (USA) Call 811.

Any survey monuments within the area of construction shall be preserved or reset by a person licensed to practice Land Surveying in the State of California.

PRIVATE IMPROVEMENT REQUIREMENTS

Off-Street Parking Facilities and Geometrics:

The parking lot is required to meet the *City of Fresno's Parking Manual, Public Works Standards (P-21, P-22 and P-23) and Specifications*. Parking must also comply with the *California Building Code's* accessibility requirements and the Fire and Solid Waste Department's minimum turning templates. Contact the Planning and Development Department for Parking Manual questions.

Provide corrections as noted on **Exhibit "A".**

Traffic Signal Mitigation Impact (TSMI) Fee: This project shall pay all applicable TSMI Fees **at the time of building permit.** Contact the Public Works Department, Frank Saburit at (559)621-8797. The fees are based on the Master fee schedule.

Fresno Major Street Impact (FMSI) Fees: This entitlement is in the **Infill Area**; therefore pay all applicable City-wide regional street impact fees. Contact the Public Works Department, Frank Saburit at (559) 621-8797.

Regional Transportation Mitigation Fee (RTMF): Pay all applicable **RTMF** fees to the Joint Powers Agency located at 2035 Tulare Street, Suite 201, Fresno, CA 93721; (559) 233-4148 ext. 200; www.fresnocog.org . Provide proof of payment or exemption **prior** to issuance of certificate of occupancy.

Questions relative to these conditions may be directed to Andreina Aguilar (559) 621-8674 or Andreina.Aguilar@fresno.gov in the Public Works Department, Traffic Planning Section.

City of FRESNO

DEPARTMENT OF PUBLIC UTILITIES
MEMORANDUM

DATE: August 7, 2020

TO: MINDI MARIBOHO – Development Services Coordinator
Planning & Development Dept/Current Planning

FROM: KEVIN GRAY, Supervising Engineering Technician
Department of Public Utilities – Utilities Planning & Engineering

THRU: ROBERT A. DIAZ, Supervising Engineering Technician
Department of Public Utilities – Utilities Planning & Engineering

SUBJECT: **P20-01643 MAPLE LUXURY APARTMENTS DPU CONDITIONS**

Water Requirements

City of Fresno Water Division approves of the proposed project, subject to the following conditions listed below:

1. To provide a reliable and redundant water supply for the project, the project shall require two points of connection to the City's water system.
2. On-site water facilities shall be private.
3. Installation of a master water service with meter & meter box shall be required.
4. The project applicant shall be required to pay all water-related fees and charges in accordance with the City's Master Fee Schedule and Municipal Code.
5. The water supply requirements for this project are as follows:
   a. The project applicant shall be required to pay Water Capacity Fee charges for the installation of new water services and meters to serve the property.
      - The Water Capacity Fee charge assessed to the applicant shall be based on the number and size of service connections and water meters required to serve the property.
      - The applicant shall provide a forecast for the Total Annual Water Demand (gallons) at full build out for the project, including domestic, irrigation, and industrial demands.
      - The Water Capacity Fee charges by meter size are defined in the City's Master Fee Schedule.
      - The City reserves the right to require an applicant to increase or decrease the size of a water meter for a project or a property to ensure that the

meter is properly sized to accommodate fire protection requirements, and to allow for accurate volumetric flow measurements at low- and high-flow conditions.

- The Water Capacity Fee Charge for any new or expanded service connection shall be payable prior to the issuance of a building permit at the fee level in effect on the date such permit is issued.

Sewer Requirements

The nearest sanitary sewer main to serve the proposed project is an 8-inch sewer main located in South Maple Avenue. Sanitary sewer facilities are available to provide service to the site subject to the following requirements:

1. All underground utilities shall be installed prior to permanent street paving.
2. All sanitary sewer mains shall be extended within the proposed tract to provide service to each lot.
3. All public sanitary sewer facilities shall be constructed in accordance with City Standards, specifications, and policies.
4. Installation of sewer house branch(s) shall be required.
5. Separate sewer house branches are required for each lot.
6. Street work permit is required for any work in the Right-of-Way.
7. On-site sanitary sewer facilities shall be private.
8. Abandon any existing on-site private septic systems.
9. The Project Developer shall contact Wastewater Management Division/Environmental Services at (559) 621-5100 prior to pulling building permits regarding conditions of service for special users.

Sanitary Sewer Fees

The following Sewer Connection Charges are due and shall be paid for the Project:

1. Sewer Lateral Charge.
2. Sewer Oversize Area.
3. Sewer Facility Charge (Multi-Residential)

4. Upon connection of this Project to the City Sewer System the owner shall be subject to payment of Sewer Facility charges per Fresno Municipal Code Sections 6-304 and 6-305. Sewer Facility Charges consist of two components, a Wastewater Facilities Charge and Trunk Sewer Charge where applicable.

5. Sewer Facility Charges are collected after occupancy on a monthly basis over time based on metered (water or sewer effluent) usage. The developer may contact the Department of Public Utilities/Wastewater-Environmental Control at (559) 621-5153 to receive an estimated cost of the Sewer Facility Charges applicable to the project (based on a constant sewer discharge and loading (Biochemical Oxygen Demand [BOD] and Total Suspended Solids [TSS] levels anticipated) at the current rates in effect, at that time, per Fresno's Master Fee Resolution. The developer shall provide data regarding estimated sewer discharge rates [flow] and loading [BOD/TSS levels] required for calculating the estimated charges.

Multi-Family Service Requirements
For the purpose of establishing city solid waste service policies, multi-family complexes are defined as complexes composed of three (3) dwelling units or more per parcel. These service requirements apply to all multi-family complexes within the City of Fresno.

1. All trash bins provided to multi-family complexes must be serviced with a frequency of at least twice per week. This standard does not apply to frequency of service for recycling bins. Solid Waste bin service will be provided by the City of Fresno, per FMC 9-405.

2. All multi-family complexes are required to subscribe for recycling services, per FMC 9-405.1. Recycling services may be provided by the City of Fresno or any private recycling service provider. Recycling services must include at the minimum cardboard, newspaper, paper, glass, plastics, beverage containers, and metal recycling.

3. All trash and recyclable material must be placed in approved containers, per FMC 9-404. At no time may trash and recyclable material be placed on the ground or pavement.

4. Bin enclosures, if provided on site, must be used exclusively for the storage of trash and recycling bins, per public works standard specifications P-33 & P-34.

5. All Solid Waste and Recycling service collectively must equal or exceed a 2:1 ratio of 2 units per one cubic yard of service per week. This minimum service applies to all multi-family complexes. (i.e. 24 unit complex must have a minimum of 12 cubic yards of solid waste and recycling service per week.)

6. Service Route Permits and Location Permits are required for all private trash company service within the City of Fresno, per FMC 9-408. All private company trash service arrangements must be pre-approved through Solid Waste Management Division.

7. Developer will need to provide a 44' (centerline) turning radius at all corners and a T-turnaround (or hammerhead) area where the solid waste vehicle is to turn around.

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8. ADA requirement for multifamily residential

9. Developer shall install (or construct) a trash enclosure for the project that complies with the City's ADA requirements as defined in the City's standard drawings, details and specifications. The certificate of occupancy for the project shall be withheld until developer installs (constructs) the trash enclosure in accordance with the City's ADA requirements.

Fresno Unified School District

Preparing Career Ready Graduates

Facilities Management & Planning

BOARD OF EDUCATION
Keshia Thomas, President
Valerie F. Davis, Clerk
Claudia Cazares
Genoveva Islas
Elizabeth Jonasson Rosas
Carol Mills, J.D.
Major Terry Slatic USMC (Retired)

SUPERINTENDENT
Robert G. Nelson, Ed.D.

July 20, 2020

Thomas Veatch
Development and Resource Management
City of Fresno
2600 Fresno Street, Third Floor
Fresno, CA 93721-3604

SUBJECT: **APPLICATION NO. P20-01643**
PROPOSED 24-UNIT RESIDENTIAL DUPLEX DEVELOPMENT
2056 S. MAPLE AVE.

Dear Mr. Veatch,

Fresno Unified School District submits the following response to your request for review and comment on the above referenced planning application. The applicant proposes the construction of a 12-duplex, 24-unit residential complex to be located at 2056 South Maple Avenue.

Any urban residential development occurring as a result of project approval will have an impact on the District's student housing capacity. The District, through local funding, is in a position to partially mitigate its shortage of classrooms to accommodate planned population growth for the foreseeable future. However, the District recognizes that the legislature, as a matter of law, has deemed, under Government Code Section 65996, that all school facilities impacts are mitigated as a consequence of SB 50's Level 1, 2 and 3 developer fee legislative provisions.

New development on the above referenced property is subject to development fee rates in effect at the time of payment, and are currently $3.79 per square foot for residential development. Fees will be calculated pursuant to rates effective at the time of payment and new development on the property will be subject to the development fee prior to issuance of a building permit. **Please note that fees for residential development will increase <u>to $4.08 per square foot on August 17, 2020.</u>**

The project is presently within the attendance areas of the schools identified below.

Elementary School:	Balderas
Middle School:	Sequoia
High School:	Roosevelt

The district appreciates the opportunity to comment on the proposed project. Please contact our office at 457-3066 if you have any questions or require additional information regarding our comments.

Sincerely,

Alex Belanger, Assistant Superintendent
Facilities Management and Planning

AB:hl

DWC

August 18, 2020

City of Fresno
Planning and Development Department
2600 Fresno Street, Third Floor
Fresno, CA 93721-3604

Project: Planning Application-P20-01643

District CEQA Reference No: 20200637

To Whom It May Concern:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above from the City of Fresno (City) consisting of the construction of 12 residential duplex buildings (Project). The Project is located at 3080 East Olive Avenue in Fresno, CA (APN 471-302-28). The District offers the following comments:

Project Scope

The Project consist of the construction of 12 residential duplex units for a total of 23 single family apartment units and one managers unit on 1.92 acres zoned for residential use.

According to the City of Fresno, the Project at full buildout will result in an increase in single occupancy vehicles trips, and on average will generate up to 16 trips from solid waste and recycling vehicles.

Based on information provided to the District in the operational statement, Project specific annual emissions from construction and operation (permitted and non-permitted) emissions of criteria pollutants are not expected to exceed any of the following District significance thresholds: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5).

Other potential significant air quality impacts related to Toxic Air Contaminants (see information below under Health Risk Assessment), Ambient Air Quality Standards, Hazards and Odors, may require assessments and mitigation. More information can be found in the District's Guidance for Assessing and Mitigating Air Quality Impacts at: https://www.valleyair.org/transportation/GAMAQI_12-26-19.pdf

The District offers the following comments:

1) Project Construction Related Criteria Pollutant Emissions

Based on the information provided, the construction related criteria pollutant emissions are not expected to exceed District significance thresholds. Although the construction-related emissions are expected to have a less than significant impact, the District suggests that the City advise project proponents with construction-related exhaust emissions and activities resulting in less than significant impact on air quality to utilize the cleanest reasonably available off-road construction fleets and practices (i.e. eliminating unnecessary idling).

2) District Rule 9510 (Indirect Source Review)

The District has reviewed the information provided and has determined the project size is below the District Rule 9510, section 2.1 applicability threshold of 50 dwelling units for a residential development. Therefore, District Rule 9510 requirements and related fees do not apply to the project.

3) Other District Rules and Regulations

The proposed Project may be subject to other District Rules and Regulations, including, but not limited to: District Rule 2010 (Permits Required), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations), and Rule 4307 (Boilers, Steam Generators, and Process Heaters-2.0 MMBTU/HR to 5.0 MMBTU/HR (Certified Water Heaters). In the event an existing building will be renovated, partially demolished or removed, the Project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

The list of rules above is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to this Project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (559) 230-5888.

Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm.

4) Assembly Bill 617

Assembly Bill (AB) 617 (2017, Garcia) requires the California Air Resources Board (CARB) and air districts to develop and implement Community Emission Reduction Programs (CERPs) in an effort to reduce air pollution exposure in impacted disadvantaged communities. The South Central Fresno AB 617 area is one of the Valley communities selected by CARB for investment of additional air quality resources and attention under AB 617.

The CERP for the South Central Fresno was developed through an extensive community engagement process, which included input from Community Steering Committee members, and was adopted by the District Governing Board in September 2019 and by the CARB Board in February 2020. The CERP identifies a wide range of measures designed to reduce air pollution and exposure, including a number of strategies to be implemented in partnership between agencies and local organizations. For more information regarding the CERP approved for South Central Fresno, please visit the District website at: http://community.valleyair.org/selected-communities/south-central-fresno. The following emission reduction measures and strategies described below apply to the proposed project:

Incorporation of Clean Air Measure: Vegetative Barriers and Urban Greening

The Project is located in a densely populated area. There are residential units located south, east, southeast, north, and northwest from the Project on South Maple Avenue and East Woodward Avenue. The Project is located 427 feet north of an industrial development, with additional industrial/business facilities located 1,800 feet west, and 1,180 feet south. The District suggests the City consider the feasibility of incorporating vegetative barriers and urban greening as a measure to further reduce air pollution exposure on sensitive receptors (i.e. residential units). While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population's exposure to air pollution through the interception of airborne particles and the update of gaseous pollutants. Examples of vegetative barriers include, but not limited to the following: trees, bushes, shrubs, or a mix of these. Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In the same manner, urban greening is also a way to help improve air quality and public health in addition to enhancing the overall beautification of a community with drought resistant low maintenance greenery.

Incorporation of Clean Air Measure: Solar Deployment in the Community

It is the policy of the State of California that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use

customers by December 31, 2045. While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, the production of solar energy is contributing to improving air quality and public health. The District suggests that the City consider the feasibility of incorporating solar power systems, as an emission reduction strategy for this Project.

Incorporation of Clean Air Measure: Clean Lawn and Garden Equipment in the Community

Since the Project consists of residential development, gas-powered residential lawn and garden equipment have the potential to result in an increase of NOx and PM2.5 emissions. Utilizing electric lawn care equipment can provide residents with immediate economic, environmental, and health benefits. The District recommends the project proponent consider The District's Clean Green Yard Machines (CGYM) program which provides incentive funding for replacement of existing gas powered lawn and garden equipment. More information on the District CGYM program and funding can be found at: http://www.valleyair.org/grants/cgym.htm and http://valleyair.org/grants/cgym-commercial.htm.

Incorporation of Clean Air Measure: Charge Up! Electric Vehicle Charger

To support further installation of electric vehicle charging equipment and development of such infrastructure, the District offers incentives to public agencies, businesses, and property owners of multi-unit dwellings to install electric charging infrastructure (Level 2 and 3 chargers). The purpose of this incentive program is to promote clean air alternative-fuel technologies and the use of low or zero-emission vehicles. The District suggests that the project proponent consider the feasibility of installing electric vehicle chargers for this Project.

The District recommends that a copy of the District's comments be provided to the Project proponent. If you have any questions or require further information, please contact Cherie Clark by e-mail at Cherie.Clark@valleyair.org or by phone at (559) 230-5940.

Sincerely,

Jacob Whitson
Program Manager

JW: cc

SITE PLAN

IN THE CITY OF FRESNO, FRESNO COUNTY, CALIFORNIA
PREPARED AND PLATTED IN MARCH, 2020

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH 138 FEET OF THE SOUTH HALF OF LOT 24 OF GORDONDALE, IN THE CITY OF FRESNO, COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 45 OF PLATS, RECORDS OF SAID COUNTY:

EXCEPTING THEREFROM THAT PORTION OF SAID LAND AS GRANTED TO RICHARD C. MEYER, A WIDOWER, BY DEED RECORDED MAY 5, 1958 IN BOOK 4063 PAGE 698 OF OFFICIAL RECORDS, FRESNO COUNTY, CALIFORNIA, AND QUOTED IN FULL AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTH 138 FEET OF THE SOUTH HALF OF SAID LOT 24, MARKED BY A 3/4" IRON PIPE MONUMENT MARKED "LS2737"; THENCE RUNNING ALONG THE EAST LINE OF SAID LOT 24, NORTH 3.75 FEET; THENCE WEST 1 FOOT TO FENCE CORNER; THENCE WESTERLY ALONG FENCE LINE 632.20 FEET TO FENCE CORNER; THENCE WEST 2 FEET TO WEST LINE OF SAID LOT 24; THENCE SOUTH, ALONG SAID WEST LINE, 5 FEET TO 3/4" IRON PIPE MONUMENT MARKED "LS2737" SET AT THE SOUTHWEST CORNER OF THE NORTH 138 FEET OF THE SOUTH HALF OF THE SAID LOT 24; THENCE ALONG THE SOUTH LINE OF SAID NORTH 138 FEET TO THE SOUTH HALF OF SAID LOT 24, EAST 635.20 FEET TO THE POINT OF BEGINNING; EXCEPTING THEREFROM THE WEST 282.16 FEET THEREOF.

ALSO EXCEPTING THEREFROM THE EAST 10 FEET OF SAID LAND AS DEEDED TO THE COUNTY OF FRESNO, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA IN DEED RECORDED FEBRUARY 9, 1968 IN BOOK 5532 OF OFFICIAL RECORDS AT PAGE 237, FRESNO COUNTY RECORDS.

FEMA INFORMATION:

THE SUBJECT PROPERTY IS SITUATED IN FLOOD ZONE "X" (SHADED) AND IS DESIGNATED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD. AS DELINEATED ON THE FEMA MAP NO. 06019C2130H, DATED FEBRUARY 18, 2009.

SITE NOTES:

ADD MISSING SITE PLAN NOTES AS LISTED ON THE CONDITIONS OF APPROVAL.

1. SITE ADDRESS: 2056 S. MAPLE AVE., FRESNO, CA 93702
2. APN: 471-302-28
3. ZONING: EXISTING/PROPOSED – RS-5 RESIDENTIAL SINGLE-FAMILY, MEDIUM DENSITY.
4. USE: EXISTING USE: VACANT; PROPOSED USE: MEDIUM DENSITY RESIDENTIAL.
5. PARCEL SIZE: GROSS/NET: 84,990 S.F., 1.95 ACRES
6. ALL EXISTING WELLS, SEPTIC TANKS (IF ANY), STRUCTURES AND TREES ON THIS SITE WILL BE REMOVED PRIOR TO CONSTRUCTION.
7. ALL IMPROVEMENTS SHALL BE AS REQUIRED BY THE CITY OF FRESNO, AND SHALL INCLUDE SANITARY SEWER, DOMESTIC WATER, UNDERGROUND POWER, TELEPHONE, GAS, CONCRETE CURBS, GUTTERS, SIDEWALKS, PERMANENT STREET PAVEMENT, STREET LIGHTS, ETC.
8. ALL STREETS ADJACENT TO THE BOUNDARIES OF THIS SUBDIVISION HAVE BEEN PREVIOUSLY DEDICATED FOR PUBLIC STREET PURPOSES AND ALL ARE TO REMAIN. (UNLESS OTHERWISE NOTED).
9. PROPOSED IMPROVEMENTS, INCLUDING SEWER, WATER, STORM SEWER, STREETLIGHTS, GUTTER, CURB, SIDEWALK, AND PERMANENT PAVEMENT SHALL BE INSTALLED PER CITY OF FRESNO STANDARD DRAWINGS.
10. THERE ARE NO EXISTING CANALS OR DITCHES LOCATED WITHIN THE PROPOSED SUBDIVISION.
11. THERE SHALL BE NO GRADE DIFFERENTIALS GREATER THAN 6 INCHES OR MORE BETWEEN THE SUBJECT PROPERTY AND ADJACENT PROPERTIES.
15. PUBLIC UTILITY EASEMENTS TO BE DEDICATED WITH THE FINAL MAP IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANIES. (THE PROPOSED EASEMENTS WILL INCLUDE 10' ON ALL LOT FRONTAGES AND 8' SIDE YARD ON CORNER LOTS).
16. PLANTING EASEMENTS TO BE DEDICATED WITH THE FINAL MAP IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY PARKS DIVISION.
17. THIS SITE PLAN HAS BEEN DESIGNED TO TAKE ADVANTAGE OF NATURAL HEATING AND COOLING OPPORTUNITIES BY PROVIDING THAT 100% OF BUILDINGS IN THIS DEVELOPMENT WILL HAVE A NORTHERN OR SOUTHERN ORIENTATION.
18. THE PRIVATE HYDRANT SHALL BE INSTALLED AND ALL WEATHER ACCESS WITH TURNAROUND SHALL BE PROVIDED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION BEFORE DELIVERY OF COMBUSTIBLE MATERIAL TO THE JOBSITE.
19. RESIDENTIAL DUPLEX UNITS WILL BE CONSTRUCTED IN ACCORDANCE WITH THE CALIFORNIA BUILDING AND RESIDENTIAL CODES. THE REQUIRED FIRE SPRINKLER SYSTEM DESIGN STANDARD IS NFPA 13D AND WILL BE SUPPLIED FROM THE DOMESTIC WATER SERVICE TO EACH UNIT.

RECORDS DO NOT INDICATE A MAP TO BE PROCESSED OR FINALIZED. ALL EASEMENTS ARE TO BE APPROVED AND RECORDED PRIOR TO ISSUANCE OF BUILDING PERMITS.

LEGEND

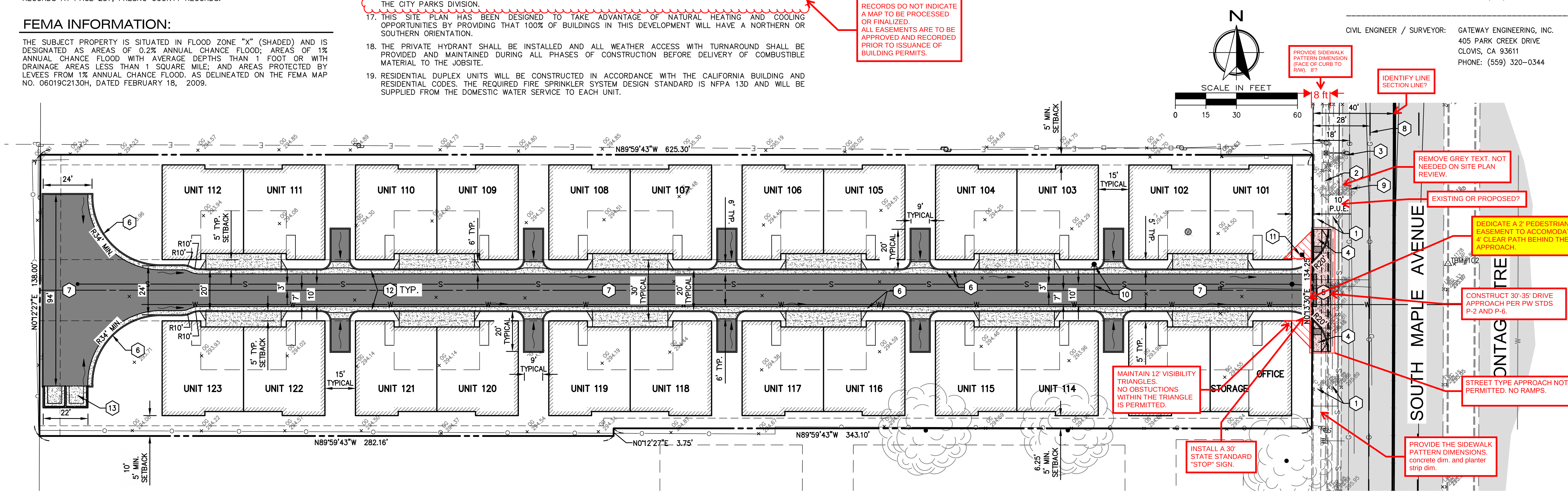
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE AND SIZE
- EXISTING POWER LINE
- PROPOSED 8" SANITARY SEWER LINE
- PROPOSED 8" WATER LINE
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED SETBACK LINES
- PROPERTY BOUNDARY
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED FIRE HYDRANT
- PROPOSED A.C. PAVEMENT
- PROPOSED CONCRETE
- EXISTING A.C. PAVEMENT
- EXISTING CONCRETE
- PROPOSED SURFACE DRAINAGE

PROJECT INFO:

RECORD OWNER:	MAPLE LUXURY LIVING, LLC A CALIFORNIA LIMITED LIABILITY COMPANY 1004 RENO AVENUE MODESTO, CA 95351 PHONE: (___) ___-____
APPLICANT/DEVELOPER:	CEN CAL BUILDERS & DEVELOPERS 3497 E. INTERNATIONAL AVE. CLOVIS, CA 93619 PHONE: (559) 225-6697
CIVIL ENGINEER / SURVEYOR:	GATEWAY ENGINEERING, INC. 405 PARK CREEK DRIVE CLOVIS, CA 93611 PHONE: (559) 320-0344

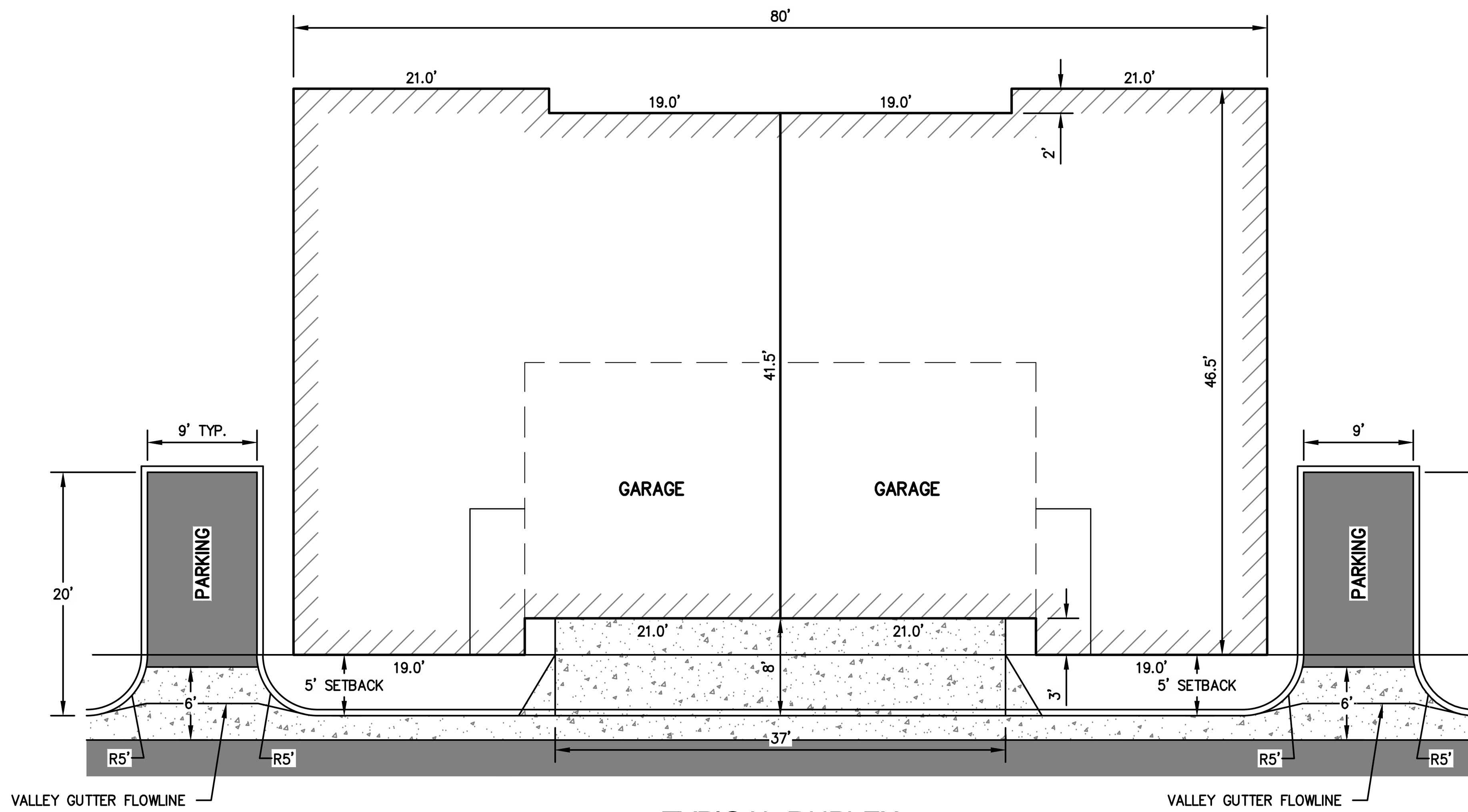
UTILITY INFO:

SOLID WASTE & RECYCLING:	CITY OF FRESNO 2600 FRESNO STREET FRESNO, CA 93721 PHONE: (559) 621-8600
SEWER AND WATER:	CITY OF FRESNO 2600 FRESNO STREET FRESNO, CA 93721 PHONE: (559) 621-8650
GAS AND ELECTRICITY:	PACIFIC GAS AND ELECTRIC 650 O STREET, 3RD FLOOR FRESNO, CA 93760 PHONE: (559) 463-5636
CABLE:	COMCAST 2441 NORTH GROVE INDUSTRIAL DR., FRESNO, CA 93727 PHONE: (559) 252-8210 X 4222
STORM DRAIN:	FRESNO METROPOLITAN FLOOD CONTROL DISTRICT 5469 E. HEDGES AVE., FRESNO, CA 93727 PHONE: (559) 456-3292
TELEPHONE:	AT&T 5555 E, OLIVE AVE. FRESNO, CA 93727 PHONE: (559) 454-3778

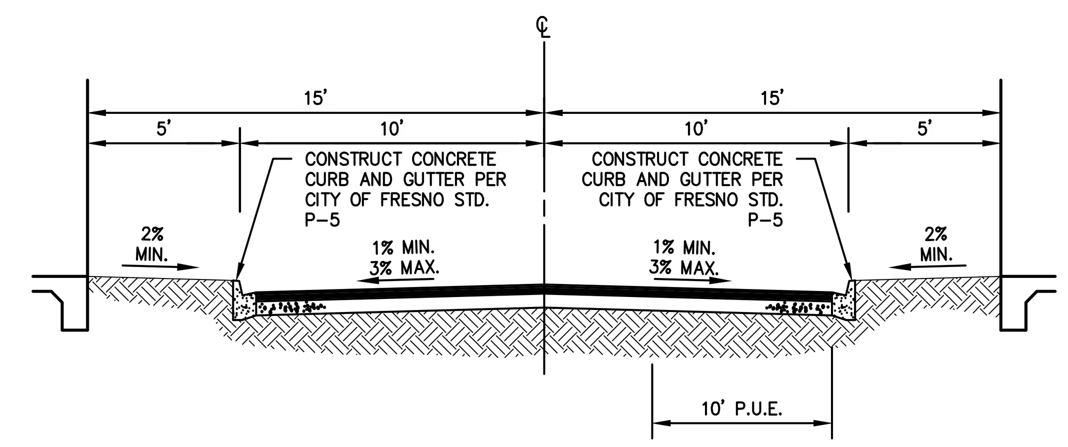


KEY NOTES:

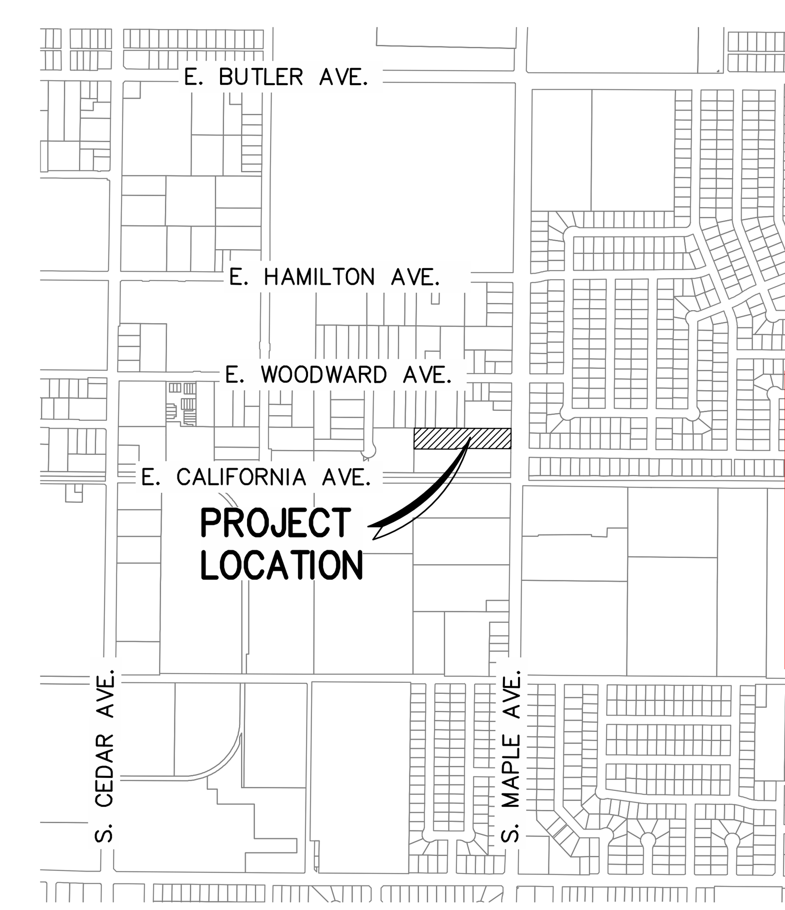
1. EXISTING SIDEWALK, CURB AND GUTTER TO REMAIN IN PLACE
2. DEMOLISH EXISTING CONCRETE DRIVE APPROACH AND REPLACE WITH SIDEWALK AND CURB PER CITY OF FRESNO STD. P-5 — CURB AND GUTTER
3. EXISTING STREET LIGHT TO REMAIN IN PLACE
4. CONSTRUCT MODIFIED CURB RAMP PER CITY OF FRESNO STD. P-29
5. REMOVE EXISTING SIDEWALK AND CURB AND CONSTRUCT ~~CONCRETE VALLEY GUTTER PER CITY OF FRESNO STD. P-10~~ — CONSTRUCT A 30'-35' DRIVE APPROACH PER PW STDS P-2 AND P-6.
6. CONSTRUCT PROPOSED CURB AND GUTTER PER CITY OF FRESNO STD. P-5
7. CONSTRUCT PERMANENT PAVING PER CITY OF FRESNO STD. ~~P-50~~ — P-21, P-22, AND P-23.
8. EXISTING 4" GAS LINE TO REMAIN IN PLACE
9. EXISTING 16" GAS LINE TO REMAIN IN PLACE
10. PROPOSED PRIVATE FIRE HYDRANT WITH 8" MIN. SERVICE
11. SIGNAGE: PROVIDE A GRAPHIC ADDRESS DIRECTORY AT THE ENTRANCE. ALSO, PROVIDE A CVC 22658 FIRE LANE TOW-AWAY WARNING SIGN ADJACENT TO THE DRIVEWAY.
12. ALL CURBS ALONG THE DRIVEWAY AND TURN AROUND ARE TO BE DESIGNATED WITH RED CURB AND STENCILED "FIRE LANE NO PARKING" 3 INCH STENCIL EVERY 50 FEET.
13. TYPICAL BIN ENCLOSURE PER CITY OF FRESNO STD. DETAILS ON P-33 & TYPICAL DETAILS AND NOTES ON P-34



TYPICAL DUPLEX
SCALE: 1" – 10'



TYPICAL 20' PRIVATE STREET SECTION
NOT TO SCALE



VICINITY MAP
SCALE: 1" = 1000'

APPL. NO. P20-01643	EXHIBIT A DATE 07/17/2020
PLANNING REVIEW BY ______	DATE ______
TRAFFIC ENG. ______	DATE ______
APPROVED BY ______	DATE ______

CITY OF FRESNO DARM DEPT

REVIEWED
By PUBLIC WORKS - ANDREINA AGUILAR at 5:20 pm, Aug 06, 2020

GATEWAY ENGINEERING, INC.
CIVIL ENGINEERS I LAND SURVEYORS
P. 559-320-0344 I F. 559-320-0345 I WWW.GATEWAYENG.COM
405 PARK CREEK DRIVE, CLOVIS, CA 93611-4435

DATE: 05/18/2020

MAPLE LUXURY LIVING DUPLEX
CEN CAL BUILDERS & DEVELOPERS
2056 S. MAPLE AVE.
SITE PLAN
PROPOSED IMPROVEMENTS

REV No.	DESCRIPTION	DATE

ENGINEER:	JOSEPH D. DAGGETT
LICENSE NO:	71873
DRAWN BY:	VM
CHECKED BY:	JDD
SCALE:	AS SHOWN
PROJECT NO:	20-023
SHEET	1 of 1

5/18/2020 6:19:56 PM K:\GATEWAY PROJECTS\RUBIK BUILT\20-023 MAPLE LUXURY LIVING\DRAWINGS\SHEET\20-023 SITE PLAN.DWG-VLADIMIR MIKULESKU

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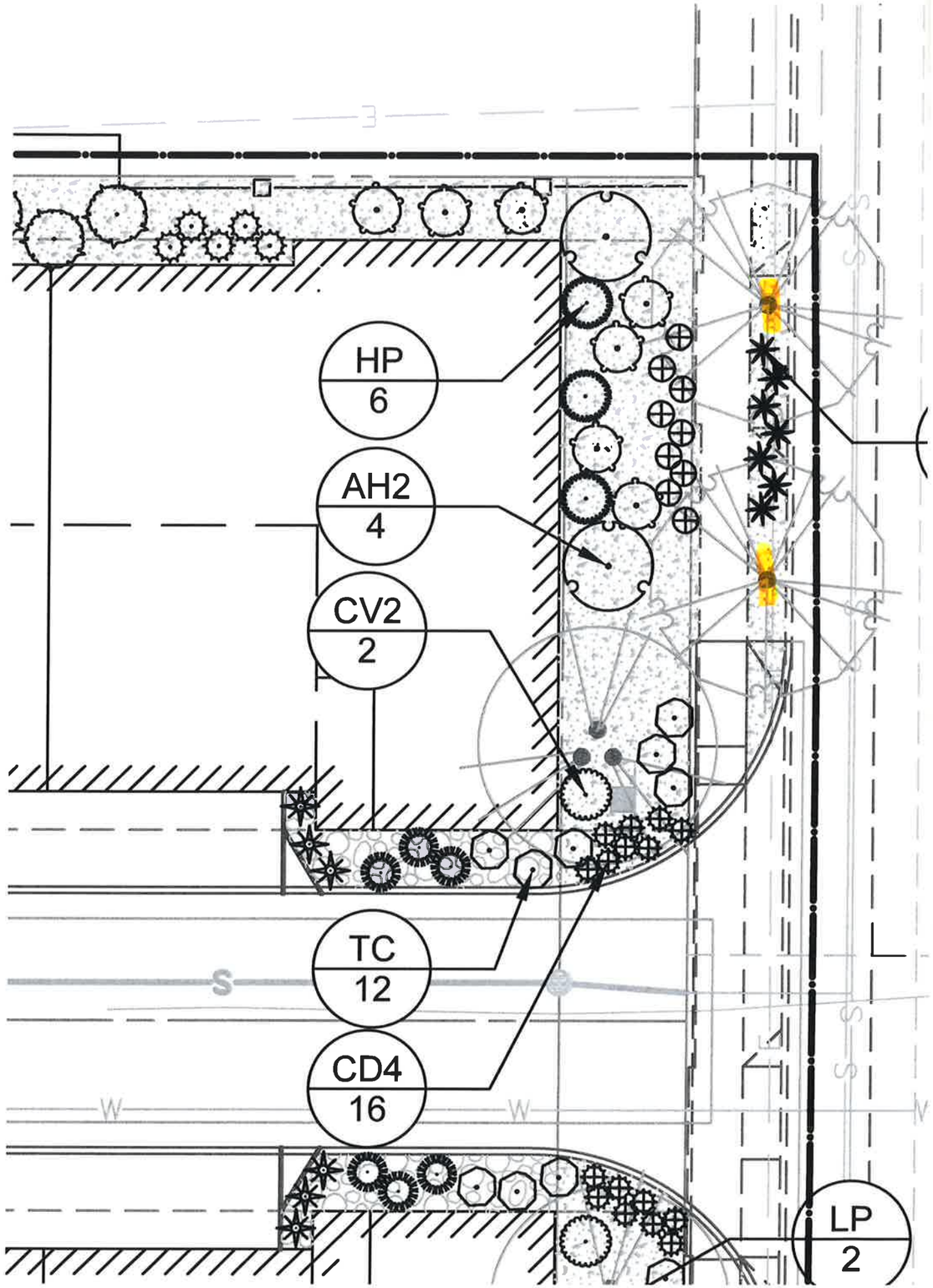
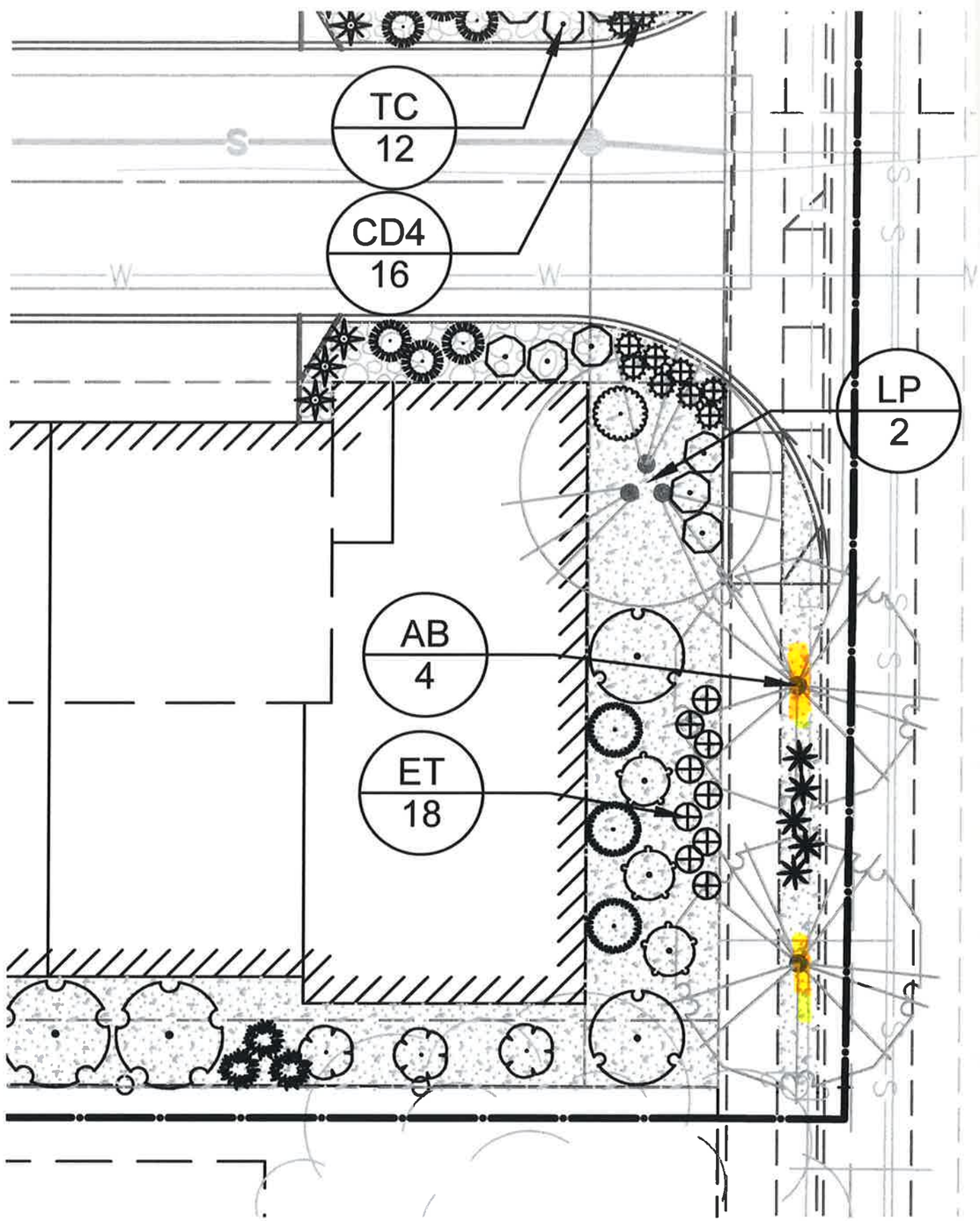
Plant Legend

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	TYP
	AB	Acer buergerianum Trident Maple NOT AN APPROVED STREET TREE	15 gal	Deci
	CD	Cercidium x `Desert Museum` Thornless Palo Verde	15 gal	Deci
	CW	Cercis occidentalis Western Redbud Multi-trunk	15 gal	Deci
	LP	Lagerstroemia indica `Purple Tower` Purple Tower Crape Myrtle	24"box	Deci
	QW	Quercus wislizenii Interior Live Oak	15 gal	Ever

SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	TYP
	AB2	Agave x `Blue Glow`	2 gal	Ever


HP
6
AH2
4
CV2
2
TC
12
CD4
16
LP
2


TC
12
CD4
16
LP
2
AB
4
ET
18

P20-01643

SITE PLAN

IN THE CITY OF FRESNO, FRESNO COUNTY, CALIFORNIA
PREPARED AND PLATTED IN MARCH, 2020

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH 138 FEET OF THE SOUTH HALF OF LOT 24 OF GORDONDALE, IN THE CITY OF FRESNO, COUNTY OF FRESNO, STATE OF CALIFORNIA, ACCORDING TO THE MAP THEREOF RECORDED IN BOOK 8, PAGE 45 OF PLATS, RECORDS OF SAID COUNTY:

EXCEPTING THEREFROM THAT PORTION OF SAID LAND AS GRANTED TO RICHARD C. MEYER, A WIDOWER, BY DEED RECORDED MAY 5, 1958 IN BOOK 4063 PAGE 698 OF OFFICIAL RECORDS, FRESNO COUNTY, CALIFORNIA, AND QUOTED IN FULL AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTH 138 FEET OF THE SOUTH HALF OF SAID LOT 24, MARKED BY A 3/4" IRON PIPE MONUMENT MARKED "LS2737"; THENCE RUNNING ALONG THE EAST LINE OF SAID LOT 24, NORTH 3.75 FEET; THENCE WEST 1 FOOT TO FENCE CORNER; THENCE WESTERLY ALONG FENCE LINE 632.20 FEET TO FENCE CORNER; THENCE WEST 2 FEET TO WEST LINE OF SAID LOT 24; THENCE SOUTH, ALONG SAID WEST LINE, 5 FEET TO 3/4" IRON PIPE MONUMENT MARKED "LS2737" SET AT THE SOUTHWEST CORNER OF THE NORTH 138 FEET OF THE SOUTH HALF OF THE SAID LOT 24; THENCE ALONG THE SOUTH LINE OF SAID NORTH 138 FEET TO THE SOUTH HALF OF SAID LOT 24, EAST 635.20 FEET TO THE POINT OF BEGINNING; EXCEPTING THEREFROM THE WEST 282.16 FEET THEREOF.

ALSO EXCEPTING THEREFROM THE EAST 10 FEET OF SAID LAND AS DEEDED TO THE COUNTY OF FRESNO, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA IN DEED RECORDED FEBRUARY 9, 1968 IN BOOK 5532 OF OFFICIAL RECORDS AT PAGE 237, FRESNO COUNTY RECORDS.

FEMA INFORMATION:

THE SUBJECT PROPERTY IS SITUATED IN FLOOD ZONE "X" (SHADED) AND IS DESIGNATED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD, AS DELINEATED ON THE FEMA MAP NO. 06019C2130H, DATED FEBRUARY 18, 2009.

SITE NOTES:

1. SITE ADDRESS: 2056 S. MAPLE AVE., FRESNO, CA 93702
2. APN: 471-302-28
3. ZONING: EXISTING/PROPOSED – RS-5 RESIDENTIAL SINGLE-FAMILY, MEDIUM DENSITY.
4. USE: EXISTING USE: VACANT; PROPOSED USE: MEDIUM DENSITY RESIDENTIAL.
5. PARCEL SIZE: GROSS/NET: 84,990 S.F., 1.95 ACRES
6. ALL EXISTING WELLS, SEPTIC TANKS (IF ANY), STRUCTURES AND TREES ON THIS SITE WILL BE REMOVED PRIOR TO CONSTRUCTION.
7. ALL IMPROVEMENTS SHALL BE AS REQUIRED BY THE CITY OF FRESNO, AND SHALL INCLUDE SANITARY SEWER, DOMESTIC WATER, UNDERGROUND POWER, TELEPHONE, GAS, CONCRETE CURBS, GUTTERS, SIDEWALKS, PERMANENT STREET PAVEMENT, STREET LIGHTS, ETC.
8. ALL STREETS ADJACENT TO THE BOUNDARIES OF THIS SUBDIVISION HAVE BEEN PREVIOUSLY DEDICATED FOR PUBLIC STREET PURPOSES AND ALL ARE TO REMAIN. (UNLESS OTHERWISE NOTED).
9. PROPOSED IMPROVEMENTS, INCLUDING SEWER, WATER, STORM SEWER, STREETLIGHTS, GUTTER, CURB, SIDEWALK, AND PERMANENT PAVEMENT SHALL BE INSTALLED PER CITY OF FRESNO STANDARD DRAWINGS.
10. THERE ARE NO EXISTING CANALS OR DITCHES LOCATED WITHIN THE PROPOSED SUBDIVISION.
11. THERE SHALL BE NO GRADE DIFFERENTIALS GREATER THAN 6 INCHES OR MORE BETWEEN THE SUBJECT PROPERTY AND ADJACENT PROPERTIES.
15. PUBLIC UTILITY EASEMENTS TO BE DEDICATED WITH THE FINAL MAP IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANIES. (THE PROPOSED EASEMENTS WILL INCLUDE 10' ON ALL LOT FRONTAGES AND 8' SIDE YARD ON CORNER LOTS).
16. PLANTING EASEMENTS TO BE DEDICATED WITH THE FINAL MAP IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY PARKS DIVISION.
17. THIS SITE PLAN HAS BEEN DESIGNED TO TAKE ADVANTAGE OF NATURAL HEATING AND COOLING OPPORTUNITIES BY PROVIDING THAT 100% OF BUILDINGS IN THIS DEVELOPMENT WILL HAVE A NORTHERN OR SOUTHERN ORIENTATION.
18. THE PRIVATE HYDRANT SHALL BE INSTALLED AND ALL WEATHER ACCESS WITH TURNAROUND SHALL BE PROVIDED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION BEFORE DELIVERY OF COMBUSTIBLE MATERIAL TO THE JOBSITE.
19. RESIDENTIAL DUPLEX UNITS WILL BE CONSTRUCTED IN ACCORDANCE WITH THE CALIFORNIA BUILDING AND RESIDENTIAL CODES. THE REQUIRED FIRE SPRINKLER SYSTEM DESIGN STANDARD IS NFPA 13D AND WILL BE SUPPLIED FROM THE DOMESTIC WATER SERVICE TO EACH UNIT.

LEGEND

- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE AND SIZE
- EXISTING POWER LINE
- PROPOSED 8" SANITARY SEWER LINE
- PROPOSED 8" WATER LINE
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED SETBACK LINES
- PROPERTY BOUNDARY
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED FIRE HYDRANT
- PROPOSED A.C. PAVEMENT
- PROPOSED CONCRETE
- EXISTING A.C. PAVEMENT
- EXISTING CONCRETE
- PROPOSED SURFACE DRAINAGE

PROJECT INFO:

RECORD OWNER: MAPLE LUXURY LIVING, LLC
A CALIFORNIA LIMITED LIABILITY COMPANY
1004 RENO AVENUE
MODESTO, CA 95351
PHONE: (____) ___-____

APPLICANT/DEVELOPER: CEN CAL BUILDERS & DEVELOPERS
3497 E. INTERNATIONAL AVE.
CLOVIS, CA 93619
PHONE: (559) 225-6697

CIVIL ENGINEER / SURVEYOR: GATEWAY ENGINEERING, INC.
405 PARK CREEK DRIVE
CLOVIS, CA 93611
PHONE: (559) 320-0344

UTILITY INFO:

SOLID WASTE & RECYCLING: CITY OF FRESNO
2600 FRESNO STREET
FRESNO, CA 93721
PHONE: (559) 621-8600

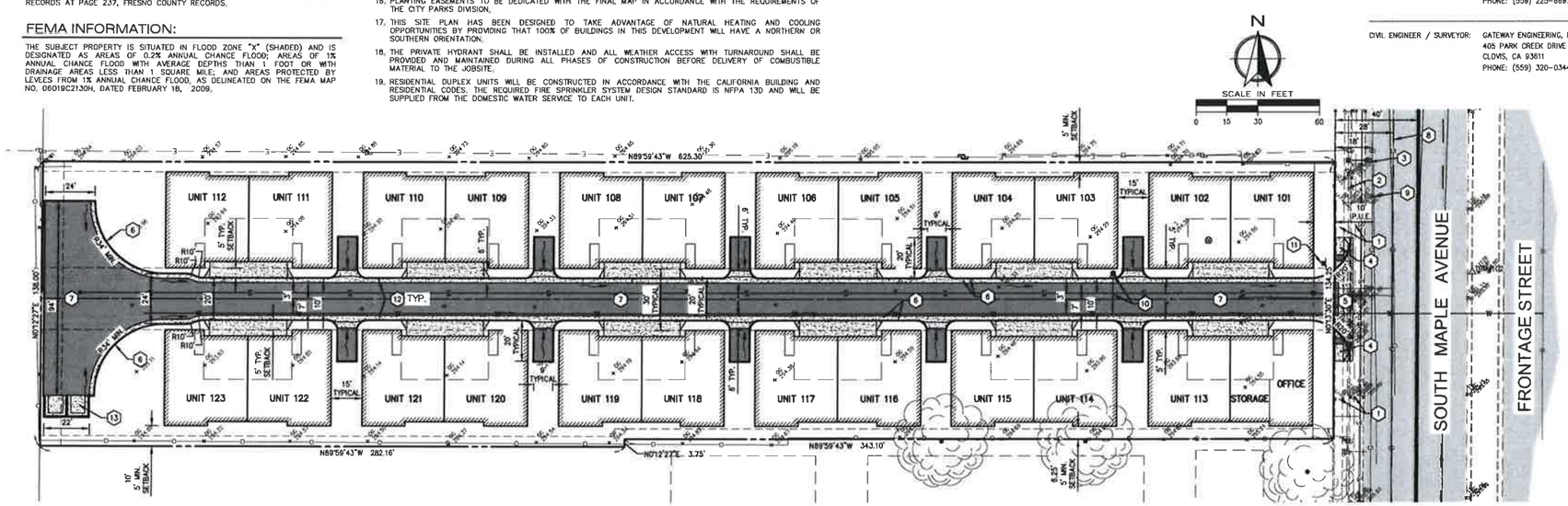
SEWER AND WATER: CITY OF FRESNO
2600 FRESNO STREET
FRESNO, CA 93721
PHONE: (559) 621-8650

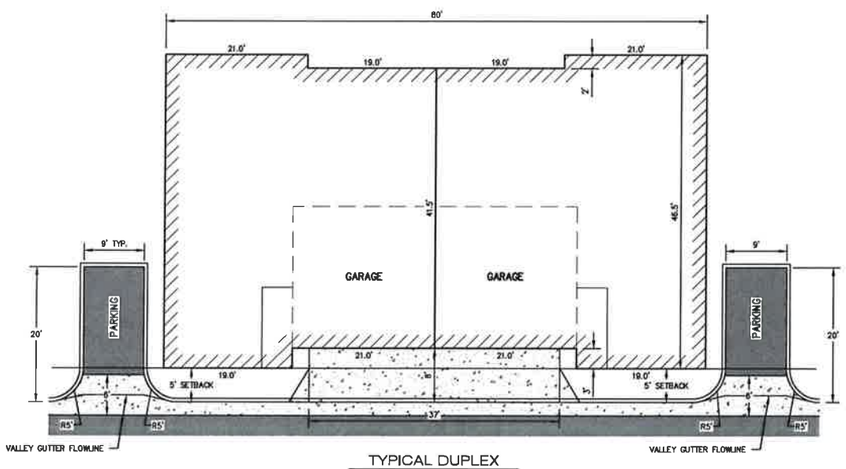
GAS AND ELECTRICITY: PACIFIC GAS AND ELECTRIC
650 O STREET, 3RD FLOOR
FRESNO, CA 93760
PHONE: (559) 463-5636

CABLE: COMCAST
2441 NORTH GROVE INDUSTRIAL DR.,
FRESNO, CA 93727
PHONE: (559) 252-8210 X 4222

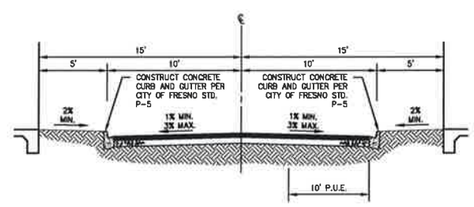
STORM DRAIN: FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
5469 E. HEDGES AVE.,
FRESNO, CA 93727
PHONE: (559) 456-3292

TELEPHONE: AT&T
5555 E. OLIVE AVE.
FRESNO, CA 93727
PHONE: (559) 454-3778

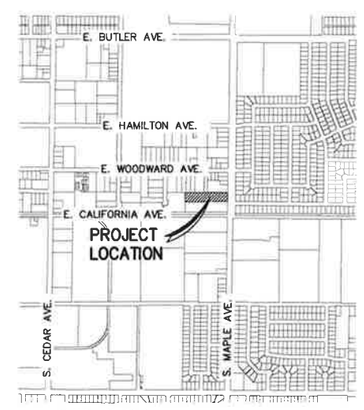




TYPICAL DUPLEX
SCALE: 1" = 10'



TYPICAL 20' PRIVATE STREET SECTION
NOT TO SCALE



VICINITY MAP
SCALE: 1" = 1000'

KEY NOTES:

1. EXISTING SIDEWALK, CURB AND GUTTER TO REMAIN IN PLACE
2. DEMOLISH EXISTING CONCRETE DRIVE APPROACH AND REPLACE WITH SIDEWALK AND CURB PER CITY OF FRESNO STD. P-5
3. EXISTING STREET LIGHT TO REMAIN IN PLACE
4. CONSTRUCT MODIFIED CURB RAMP PER CITY OF FRESNO STD. P-29
5. REMOVE EXISTING SIDEWALK AND CURB AND CONSTRUCT CONCRETE VALLEY GUTTER PER CITY OF FRESNO STD. P-10
6. CONSTRUCT PROPOSED CURB AND GUTTER PER CITY OF FRESNO STD. P-5
7. CONSTRUCT PERMANENT PAVING PER CITY OF FRESNO STD. P-50
8. EXISTING 4" GAS LINE TO REMAIN IN PLACE
9. EXISTING 16" GAS LINE TO REMAIN IN PLACE
10. PROPOSED PRIVATE FIRE HYDRANT WITH 8" MIN. SERVICE
11. SIGNAGE: PROVIDE A GRAPHIC ADDRESS DIRECTORY AT THE ENTRANCE. ALSO, PROVIDE A CVC 22658 FIRE LANE TOW-AWAY WARNING SIGN ADJACENT TO THE DRIVEWAY.
12. ALL CURBS ALONG THE DRIVEWAY AND TURN AROUND ARE TO BE DESIGNATED WITH RED CURB AND STENCILED "FIRE LANE NO PARKING" 3 INCH STENCIL EVERY 50 FEET.
13. TYPICAL BIN ENCLOSURE PER CITY OF FRESNO STD. DETAILS ON P-33 & TYPICAL DETAILS AND NOTES ON P-34

GATEWAY ENGINEERING, INC.
CIVIL ENGINEERS I LAND SURVEYORS
P. 559-320-0344 I F. 559-320-0345 I WWW.GATEWAYENG.COM
405 PARK CREEK DRIVE, CLOVIS, CA 93611-4435

DATE: 05/18/2020

MAPLE LUXURY LIVING DUPLEX
CEN CAL BUILDERS & DEVELOPERS
2056 S. MAPLE AVE.
SITE PLAN
PROPOSED IMPROVEMENTS

REV No.	DESCRIPTION	DATE

ENGINEER: JOSEPH D. DAGGETT
LICENSE NO: 71873
DRAWN BY: VM
CHECKED BY: JDD
SCALE: AS SHOWN
PROJECT NO: 20-023
SHEET 1 1

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Maple St. Luxury Duplexes

Fresno, Ca

PROJECT APPLICANT: WOOD ARCHITECTURE,INC.

PROJECT TYPE: PRIVATE

WATER SUPPLY: POTABLE

WATER SUPPLIER: CITY OF FRESNO PUBLIC WORKS DEPARTMENT

TOTAL LANDSCAPED AREA: 21,165 SF

"I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE."

Signature

Landscape Document Package checklist:

X (1.) Project information	X (4.) Landscape Design Plan
X (2.) Water Efficient Landscape Worksheet	X (5.) Irrigation Design Plan
____ (3.) *Soil Management Report	____ (6.) *Grading Design Plan

*When a project involves mass grading of a site, the Contractor shall submit the soil management report with the Certificate of Completion package.

*See Civil Engineer's plans for the Grading Design.

** It is the responsibility of the Contractor to submit a Certficifate of Completion package and all the associated information to the governing jurisdiction prior to the end of the maintenance (warranty) period. Copies of that submittal package shall be provided by the Contractor to the Owner and Owner's Representative for their records.

SITE VICINITY MAP N.T.S.

SHEET INDEX

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L-1 PLANTING SOIL PLAN
L-2 IRRIGATION PLAN
L-3 IRRIGATION DETAILS & NOTES
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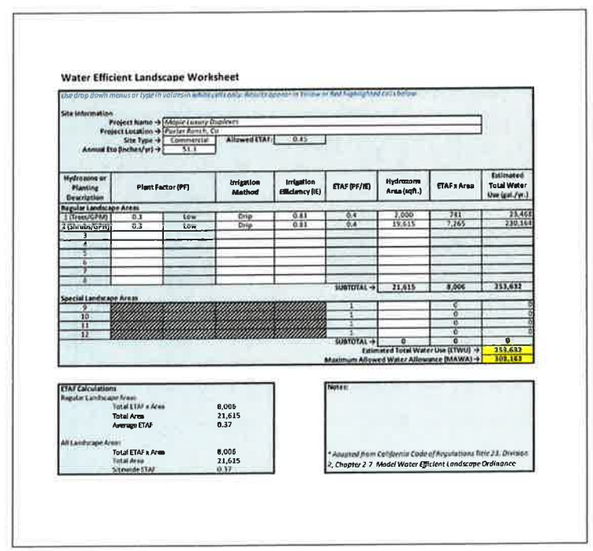
L-10 SPECIFICATIONS
L-11 SPECIFICATIONS
L-12 SPECIFICATIONS



Water Efficient Landscape Worksheet

Use drop down menus or type in values in white cells only. Results appear in Yellow or Red highlighted cells below

Site Information

Project Name → Maple Luxury Duplexes
Project Location → Porter Ranch, Ca
Site Type → Commercial Allowed ETAF: 0.45
Annual Eto (inches/yr) → 51.3

Hydrozone or Planting Description	Plant Factor (PF)		Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sq.ft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landscape Areas								
1 (Trees/GPM)	0.3	Low	Drip	0.81	0.4	7,000	741	23,463
2 (Shrubs/GPH)	0.3	Low	Drip	0.81	0.4	19,615	7,265	230,169
3								
4								
5								
6								
7								
8								
					SUBTOTAL →	21,615	8,006	253,632
Special Landscape Areas								
9					1		0	0
10					1		0	0
11					1		0	0
12					1		0	0
					SUBTOTAL →	0	0	0
					Estimated Total Water Use (ETWU) →			253,632
					Maximum Allowed Water Allowance (MAWA) →			309,163

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	8,006
Total Area	21,615
Average ETAF	0.37

All Landscape Areas

Total ETAF x Area	8,006
Total Area	21,615
Sitewide ETAF	0.37

Notes:

* Assumed from California Code of Regulations Title 23, Division 2, Chapter 2.7 Model Water Efficient Landscape Ordinance

CITY SIGNATURES	DATE

"I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the landscape design and irrigation plan."

Signature

CONTACT INFO

TYSON CARROLL
WOOD ARCHITECTURE
LANDSCAPE ARCHITECT
1512 W MINERAL KING AVE
VISALIA, CA 993291
559. 786. 9600
tyson@iwoodarchitecture.com

RUSS TAYLOR
TAYLOR GROUP ARCHITECTS
ARCHITECT
410 PARK CREEK DR.,
CLOVIS, CA 93611
559. 708. 4046
Russ.T@ttgarchitects.com

7-17-20

APPL. NO. P20-01643 EXHIBIT L-1 DATE 07/17/2020

PLANNING REVIEW BY ____ DATE ____

TRAFFIC ENG. ____ DATE ____

APPROVED BY ____ DATE ____

CITY OF FRESNO DARM DEPT

WOOD ARCHITECTURE

1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 9600 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No. 5063 STATE OF CALIFORNIA
Signature
4-30-22
Renewal Date
Date

Date	Drawing Description

Title Sheet

Maple St. Luxury Duplexes

Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

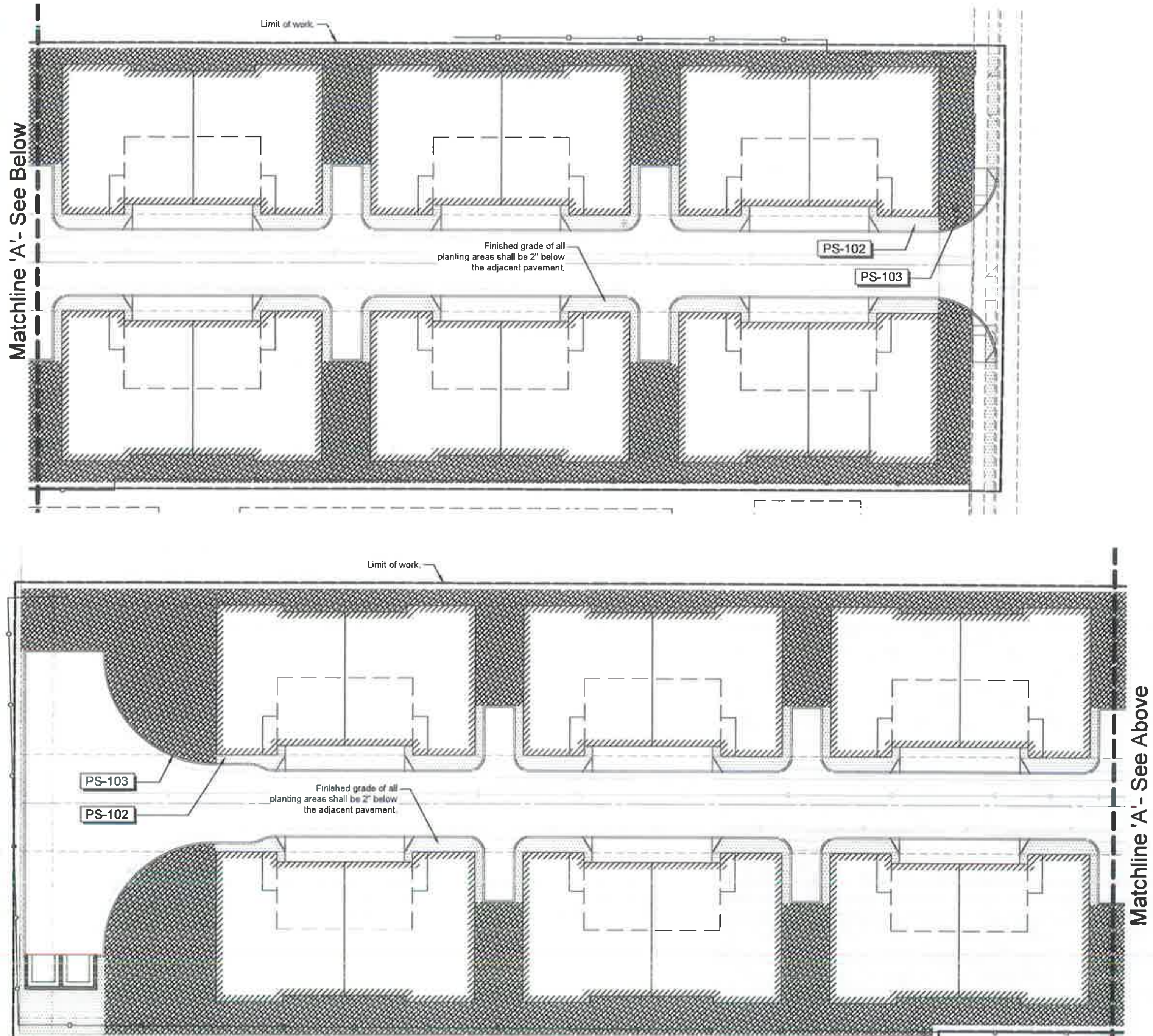
NORTH

T-1

Sheet 1 of 13

NOT FOR CONSTRUCTION

W:\20\20056_WA-Maple Apartments\TGA\Land\CD's\CD_01\20056_WA-TS_24x36.dwg\22.07.2020\dylancarroll



GENERAL PLANTING SOIL NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. 811, DIG ALERT.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.5 soil management report.
a. Where the requirements of specification section Planting Soil are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the soil preparation operations.

11. Top soil, existing site soil and Planting Soil Mix testing; Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil testing laboratory.

12. Submit all testing required by California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model efficient landscape ordinance, 492.5 soil management report.

13. Soil testing shall be at the expense of the Contractor. Copies of the soil test analysis along with receipts and delivery slips of recommended amendments shall be provided to the Owner's Representative.

14. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

15. Imported top soil shall be fertile, friable soil containing less than 5% total volume of the combination of subsoil, refuse, roots larger than 1" diameter, heavy or stiff clay, stones larger than 2 inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to planter growth. The % of the above objects shall be controlled by source selection not by screening the soil. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth. Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestation in the final planting beds.

16. Compost shall be organic blended material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic and non-organic matter. Source material shall be yard waste trimmings blended with other organic material designed to produce Compost high in fungal material.
a. Organic matter shall be commercially prepared compost and meet US Composting Council STA/TMECC.

17. The Owner's Representative shall approve all rough grading prior to the installation of organic matter, fine grading, and mulching

18. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owners Representative to make field observations shall not relieve the Contractor from meeting all the requirements in the plans, details and specifications.
a. Pre - Construction meeting
b. Existing soil conditions review
c. Completion of site preparation review
d. Completion of finished grading and surface soil modification review.

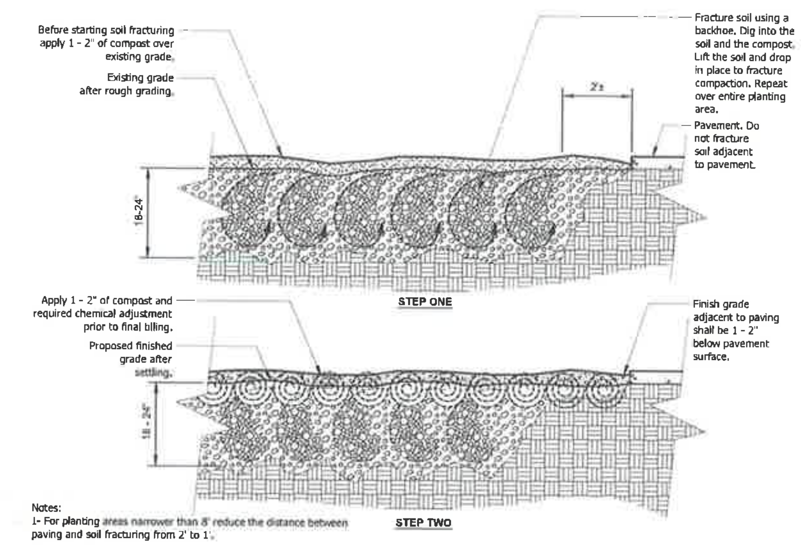
19. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the Inspector.

20. Contractor shall include in the bid continued maintenance (warranty) period of 180 days after completion of construction and acceptance of the project by the Owner's Representative.

Planting Soils Legend

SYMBOL	DESCRIPTION	QTY
PS-101	Certified Compost. 2" thick layer of compost shall be applied in all planting areas. Compost shall be certified by the U.S. Composting Council's STA Program. See specifications for further information.	132.99 cy
PS-102	Modified Existing Soil - Compacted sub soil: Fracturing For planting areas less than eight feet with soil compaction greater than 85% of Standard Proctor Method. See detail and specifications for further information.	3,989 sf
PS-103	Modified Existing Soil - Compacted sub soil: Trenching For planting areas greater than eight feet with soil compaction greater than 85% of Standard Proctor Method. See detail and specifications for further information.	17,626 sf

Notes:
1 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the contractor's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.



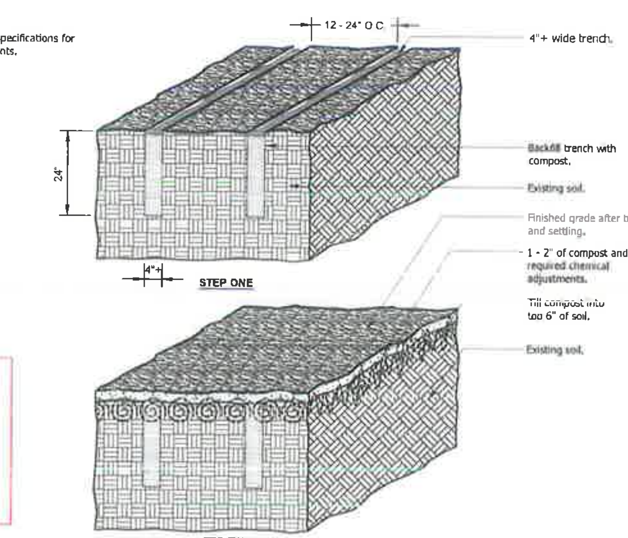
Notes:
1- For planting areas narrower than 8' reduce the distance between paving and soil fracturing from 2' to 1'.
2- See planting soil specification for additional requirements.

URBAN TREE FOUNDATION ©2014 OPEN SOURCE FREE TO USE

1 SOIL MODIFICATION - FRACTURING

P-RE-MUL-03

Notes:
1- See planting soil specifications for additional requirements.



2 SOIL MODIFICATION - TRENCHING

APPL. NO. P20-01643 EXHIBIT L-2 DATE
PLANNING REVIEW BY ______ DATE ______
TRAFFIC ENG. ______ DATE ______
APPROVED BY ______ DATE ______
CITY OF FRESNO DARM DEPT

NORTH

0 20 40 60 80 feet
1" = 20'

811 Know what's below. Call before you dig.

NOT FOR CONSTRUCTION

WOOD ARCHITECTURE

1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 9800 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No. 5903 Signature 6-30-22 Renewal Date STATE OF CALIFORNIA

Date | Drawing Description

Planting Soils Plan

Maple St. Luxury Duplexes

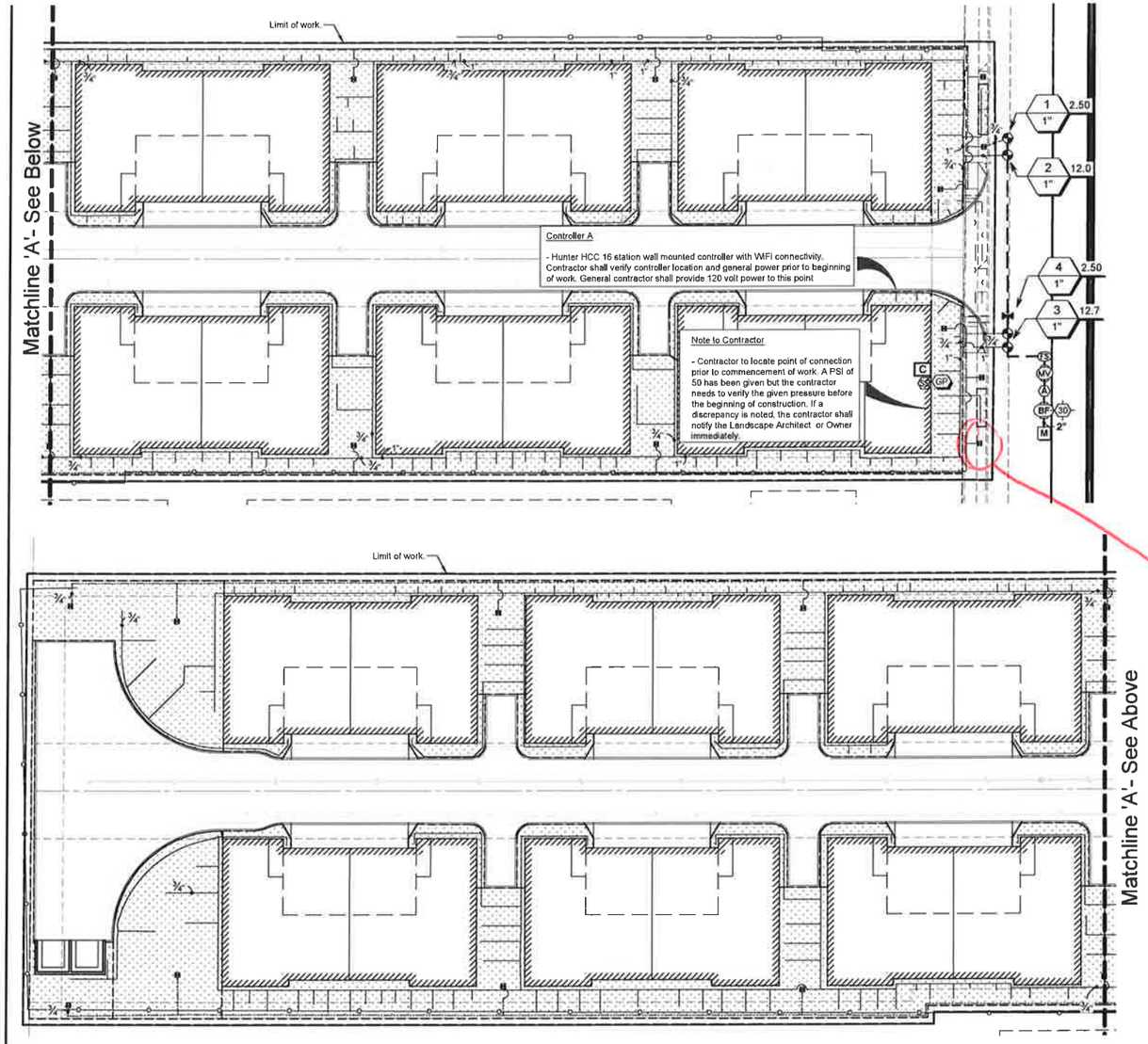
Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-1

Sheet 2 of 13

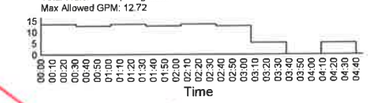


Pressure Loss Calculations

Generated:	2020-07-03 12:13
P.O.C. NUMBER: 01	
Water Source Information:	Static water pressure provided by the City of Fresno Public Works Department.
FLOW AVAILABLE	
Water Meter Size:	1"
Flow Available:	37.50 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	50.00 psi
Elevation Change:	5.00 ft
Service Line Size:	3"
Length of Service Line:	20.00 ft
Pressure Available:	48.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	12.72 gpm
Flow Available at POC:	37.50 gpm
Residual Flow Available:	24.78 gpm
Pressure Req. at Critical Station:	21.92 psi
Loss for Fittings:	0.01 psi
Loss for Main Line:	0.06 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	14.00 psi
Loss for Master Valve:	3.00 psi
Loss for Water Meter:	0.97 psi
Critical Station Pressure at POC:	39.86 psi
Pressure Available:	48.00 psi
Residual Pressure Available:	8.04 psi

RUNTIME SUMMARY

Program: (1) Establishment Programming
Total Time: 04:30
Total Water Use: 2,521 gallons
Max Allowed GPM: 12.72



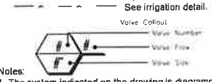
2 BV BOXES PER TREE

Irrigation Legend

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
P 25, A 50, B 10, D 20	Hunter PCB Flood Bubbler, 1/2" FIPT. See irrigation detail.	20	15

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Area to Receive Drip Emitters Salco Drip Emitter by Area Threaded pressure compensating drip emitter with 1/2" (1.27cm) FIPT inlet and Diffuser Cap Outlet. Model # SLV-PST-CV-2. See irrigation detail. Emitter Notes:	21,428 s.f.
	2.0 GPH emitters (1 assigned to each 1 gal plant)	517
	2.0 GPH emitters (1 assigned to each 2 gal plant)	72
	2.0 GPH emitters (1 assigned to each 5 gal plant)	155

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter ICV-G 1" 1", 1-1/2", 2", and 3" Plastic Electric Remote Control Valves, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. Install each remote control irrigation valve with a Rainbird PRB-QKCHK-100. 1" Basket Filter with built-in Pressure Regulator (40 psi) and 200 mesh (75 micron) stainless steel screen. See irrigation detail.	4
	2" Malco-Norca 200WNW 2" cast iron gate isolation valve. Flanged Gasket Ends. Resilient wedge, Non-Rising Stem, with Epoxy Coating. With Optional Nut. Same size as mainline pipe.	1
MV	Hunter IBV 1" 1", 1-1/2", 2", and 3" Brass Electric Master Valve, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. See irrigation detail.	1
A	Watts Surge Arrestor Watts 1" lead free water hammer arrestor model # LF15M2-F Install per manufacturer's specifications and recommendations. See irrigation detail.	1
BF	Zurn 375 XLB 1" Reduced Pressure Principle Assembly. Sizes 1/2", 3/4", 1", 1-1/4", 1-1/2", 2&6". Install per manufacturer's specifications and recommendations. See irrigation detail.	1
C	Hunter HCC-1600-M 16 Station Outdoor Wi-Fi enabled, full-functioning controller with touchscreen & one ICM-800 Module. Commercial Use. Metal Cabinet.	1
SS	Hunter Solar-Sync-Sen Solar, rain freeze sensor with outdoor interface, connects to Hunter X-Core and ACC Controllers, install as noted. Includes gutter mount bracket. Wired. Module not included.	1
FS	Creative Sensor Technology ELF-T10-N01 Enhanced Low Flow Sensor with 1" male NPT threaded connection, flow range between 0.20 to 20 gpm.	1
30	V.I.T. Products SBBC-30SS Low profile, tube and wire construction smooth touch surface, stainless steel backflow enclosure. 31.5"L, 28"H, 17.75"W (80.01cm L, 71.12cm H, 45.085cm W). See irrigation detail.	1
GP	Grounding Plate Paige Electric 4" x 36" copper grounding plate. Install per controller manufacturer's specifications and recommendations. See irrigation detail.	1
M	Water Meter 1" Static water pressure provided by the City of Fresno Public Works Department.	1
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Shrubs) 3/4" See irrigation detail.	3,482 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Shrubs) 1" See irrigation detail.	445.4 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Trees) 3/4" See irrigation detail.	1,503 l.f.
	Irrigation Mainline: PVC Schedule 40 (Mainline) 2" See irrigation detail.	104.7 l.f.
	Pipe Sleeve: PVC Schedule 40 (Lateral Line) See irrigation detail.	11.6 l.f.
	Pipe Sleeve: PVC Schedule 40 (Mainline) See irrigation detail.	31.8 l.f.



Valve Legend

NUMBER	MODEL	SIZE	TYPE	GPM	HEADS	PIPE 3/4"	PIPE 1"	WIRE	DESIGN PSI	FRICTION LOSS	VALVE LOSS	PSI	PSI @ POC	PRECIP
1	Hunter ICV-G	1"	Bubbler	2.50	10	751.9		86.0	15	0.65	2.19	17.84	34.24	1.05 in/h
2	Hunter ICV-G	1"	Area for Drip Emitters	11.95		1,674	203.3	90.6	10	7.84	3	20.85	38.86	0.31 in/h
3	Hunter ICV-G	1"	Area for Drip Emitters	12.72		1,808	242.1	30.0	10	8.92	3	21.92	39.86	0.32 in/h
4	Hunter ICV-G	1"	Bubbler	2.50	10	751.4		34.3	15	0.69	2.19	17.88	34.27	1.05 in/h
	Common Wire						104.7							

Irrigation Schedule

NUMBER	MODEL	TYPE	PRECIP	SUN	MON	TUE	WED	THU	FRI	SAT	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY
1	Hunter ICV-G	Bubbler	1.05 in/h		58 min		58 min		58 min		3	172	430	143.3
2	Hunter ICV-G	Area for Drip Emitters	0.31 in/h		128 min		128 min		128 min		2	384	4,591	1,530
3	Hunter ICV-G	Area for Drip Emitters	0.32 in/h		124 min		124 min		124 min		2	371	4,720	1,573
4	Hunter ICV-G	Bubbler	1.05 in/h		58 min		58 min		58 min		3	172	430	143.3
		TOTALS:			368		368		368			1,099	10,171	3,390

Notes:
1- The following irrigation schedule is intended to be used as a reference only. Site specific conditions should be considered that will require the reference irrigation schedule to be adjusted by the Contractor. Such conditions may include, but is not limited to, microclimates, soil conditions, irrigation system types, slopes, varying maturity of plant material and month of installation. The irrigation schedule is for the benefit of the Contractor based upon state historical evapotranspiration, manufacturer standards, along with the Landscape Architects qualifications and experience. Landscape Architect makes no warranty, expressed or implied, as to the accuracy of these schedules.

Notes:
1- The system indicated on the drawing is diagrammatic. All equipment shown in paved areas is diagrammatic. All equipmer shall be located in planting areas. Avoid any conflicts between the irrigation system, planting, or architectural features.

2- All quantities and amounts shown on the plans are best estimates for the benefit of the Contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

3- Contractor shall verify point of connection and minimum static pressure prior to commencing of work. Any discrepancies shall be brought to the attention of the Owner and Landscape Architect prior to starting work.

4- All irrigation wire shall be installed in a minimum 1.5" Sch. 40 electrical conduit.

5- Certificate of Installation (Certified Start Up) shall be required for the irrigation controller system. It is the responsibility of t Contractor to coordinate the certification and inspections with Ewing Irrigation.Contractor is responsible for any and all fees necessary to receive a Certificate of Installation. Copies of the Certificate of Installation shall be provided to the Owner's Representative and the Owner.

6- Irrigation plans were designed in accordance with CA AB 1881; the Model Water Efficient Landscape Ordinance. It is the responsibility of the Irrigation Contractor to adhere to that ordinance. Any portion of the irrigation systems installation that comes into conflict with the state ordinance shall be immediately brought to the attention of the Owner and Landscape Architect. In the event that notification does not occur, the Irrigation Contractor assumes any and all responsibility for chang to the work which must be done in order to meet compliance.

APPL. NO. P20-01643 EXHIBIT L-3 DATE 8/17/2020
PLANNING REVIEW BY _____ DATE _____
TRAFFIC ENG. _____ DATE _____
APPROVED BY _____ DATE _____
CITY OF FRESNO DARM DEPT

NORTH
0 20 40 60 80 feet
1" = 20'

811
Know what's below.
Call before you dig.

NOT FOR CONSTRUCTION

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Visalia, Ca 93291
559. 786. 9600 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No. 5263
Signature
6-30-22
Renewal Date
Date
STATE OF CALIFORNIA

Date	Drawing Description

Irrigation Plan
Maple St. Luxury Duplexes
Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-2

Sheet 3 of 13

W:\20\20056_WA-Maple Apartments\TDA\Land\CD_01\20056_WA-Land\Dwg\03.07.2020\hydromap.dwg

GENERAL IRRIGATION NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. 811, DIG ALERT.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted
- Gas Company
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- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sites and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.3 water efficient landscape worksheet, 492.7 irrigation design plan and irrigation scheduling
   a. Where the requirements of specification section Irrigation are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the irrigation installation operations.

11. It is the responsibility of the Contractor to be aware of all surface and sub - surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

12. Before final acceptance of work, the Contractor shall provide a record set of drawing showing the irrigation system works as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawing shall include all of the information on the original document and revised to reflect all changes in the work. See specification section Irrigation for further information.

13. Contractor shall prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3 - ring binders, of Operation & Maintenance manuals. See specification section Irrigation for further information.

14. Existing trees shall be protected and cared for as required in the details and specifications.

15. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
   a. Pre - Construction meeting.
   b. Trenching and sleeving review.
   c. Pressure mainline test.
   d. Adjustment and coverage test.
   e. Pre - maintenance observation.
   f. Final site observation and acceptance.

16. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

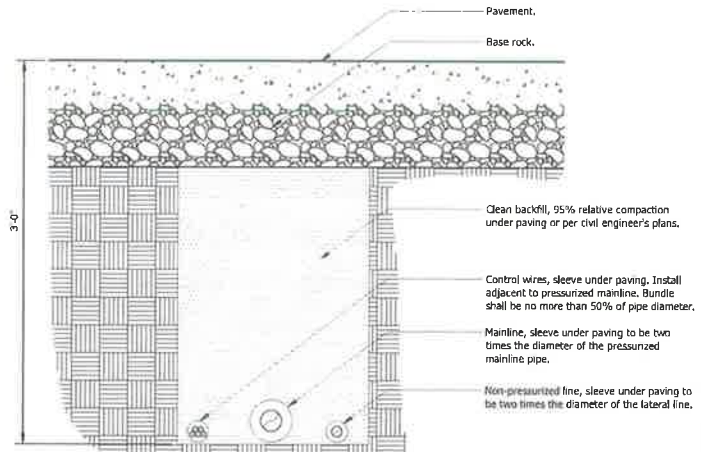
17. Contractor shall include in the bid continued maintenance (warranty) period of 180 days after completion of construction and acceptance of the project by the Owner's Representative.

20. The irrigation design is based on a minimum operating pressure of 50 PSI and a maximum demand of 12.7 GPM on valve # 3 for the point of connection on Maples St. and California St. The Contractor shall verify water pressure prior to installation. Any difference between the pressure indicated on the plans and that at the actual point of connection shall be brought to the attention of the Owner's Representative immediately.

21. A 120 volt electrical power outlet at the irrigation controller location shall be provided by the Contractor. It shall be the responsibility of the Contractor to make the final hook up from the electrical outlet to the irrigation controller.

22. Irrigation between the hours of 10:00 pm and 6:00 am only. Watering outside this time frame must be done manually with qualified supervisory personnel on-site. No system shall be left unattended during use outside the normal schedule.

23. The irrigation plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the irrigation design plans, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the event that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.



Notes:
1- See irrigation legend for mainline size and type.

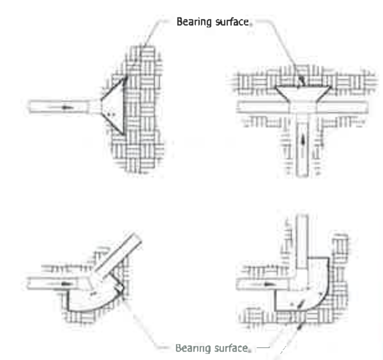
2- All sleeves shall be Sch. 40 PVC pipe.

3- All sleeves shall extend 12" beyond the edge of pavement.

4- End of sleeves shall be located with a wooden stake or PVC pipe. Locators shall run continuously from the end of the sleeve to finished grade.

4 PIPE AT PAVEMENT

P-RE-MUL-10



MINIMUM BEARING SURFACE AREA

PIPE SIZE	TEE AND PLUG	90° BEND	45° BEND
1-1/2"	0.45 FEET ²	0.63 FEET ²	0.34 FEET ²
2"	0.69 FEET ²	0.97 FEET ²	0.53 FEET ²
2-1/2"	1.0 FEET ²	1.41 FEET ²	0.77 FEET ²
3"	1.48 FEET ²	2.10 FEET ²	1.14 FEET ²
4"	2.43 FEET ²	3.45 FEET ²	1.87 FEET ²
6"	5.25 FEET ²	7.41 FEET ²	4.02 FEET ²
8"	9.08 FEET ²	12.83 FEET ²	6.96 FEET ²
10"	14.93 FEET ²	21.07 FEET ²	11.44 FEET ²

Notes:
1- Size thrust blocks shall be specified as show in the table above.

2- Control wires shall not be encased in concrete.

3- All fittings shall be wrapped with polyethylene to prevent concrete from adhering to pipe, fittings or bolts.

4- Joints and bolts shall be accessible for repairs.

5- Thrust blocks shall be a minimum of 6" thick.

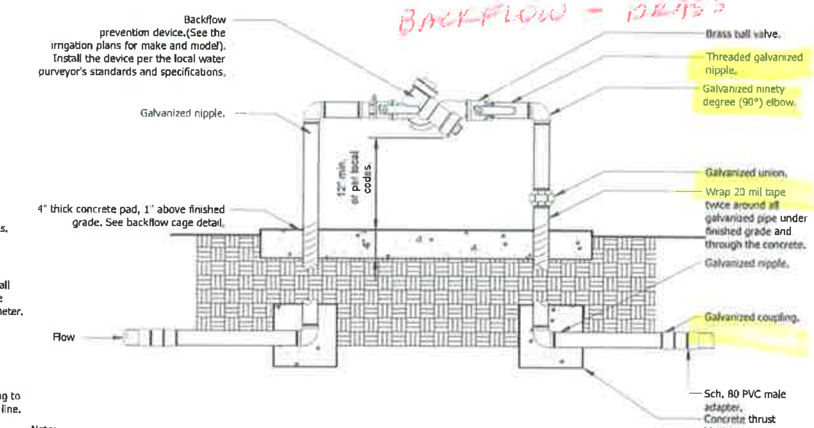
6- One 80 lbs. sack of concrete shall cover .6 ft.³

5 THRUST BLOCKS

P-RE-MUL-11

APPL. NO. P20-01643 EXHIBIT L-4 DATE 07/17/2020
PLANNING REVIEW BY ________ DATE ________
TRAFFIC ENG. ________ DATE ________
APPROVED BY ________ DATE ________
CITY OF FRESNO DARM DEPT

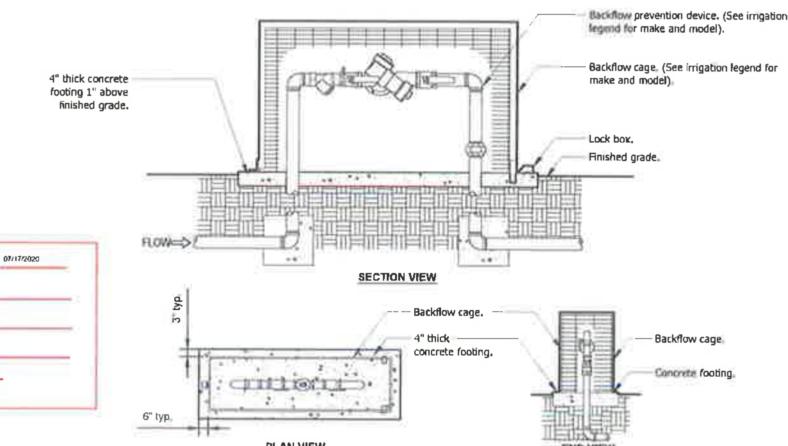
NO GALVANIZED FOR ONSITE
BACKFLOW - BRASS



Note:
1- Install per the City of Fresno standard details and specifications.
2- All assembly parts (threaded nipples, fittings, etc.) shall be galvanized or brass per local codes and requirements.
3- Galvanized nipple shall extend 12" past the edge of the concrete footing.
4- Sch. 80 PVC male adapter shall be used in connection from galvanize to the mainline.
5- Backflow prevention device shall be located as close as possible to the landscape meter.
6- Backflow prevention device shall be located in planting area unless approved by Owner's Representative.
7- See detail for backflow cage installation.
8- All backflow prevention devices shall have freeze blanket included upon installation.
9- All galvanized connections shall to be made using pipe thread sealant. All Sch. 80 PVC to galvanized connections to be made using teflon tape.

1 BACKFLOW PREVENTION DEVICE

P-RE-MUL-01



Notes:
1- Install backflow cage per manufacturer's specifications and recommendations.

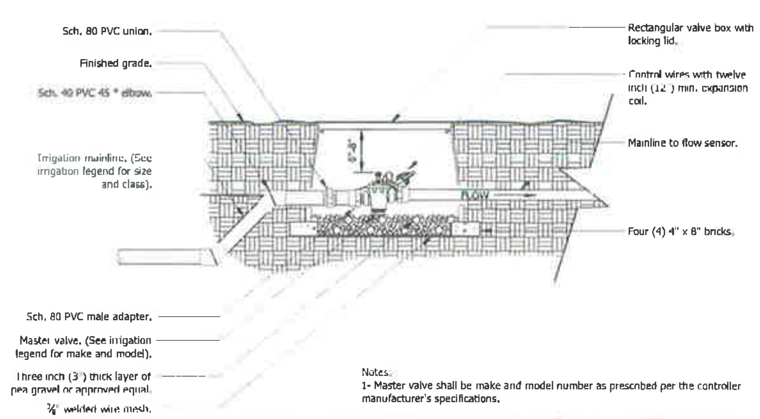
2- See backflow prevention device detail for reference.

2- Lock box shall be located above concrete footing

3- Contractor shall provide a lock as approved by the Owner's Representative.

2 BACKFLOW CAGE

P-RE-MUL-04



Notes:
1- Master valve shall be make and model number as prescribed per the controller manufacturer's specifications.

2- Install master valve per manufacturer's specifications and recommendations.

3- Master valve wire shall be 14 AWG or larger. Color: black.

4- All wire runs shall be continuous without any splices. Wire connections shall be made using DBR-Y/6 connectors or approved equal.

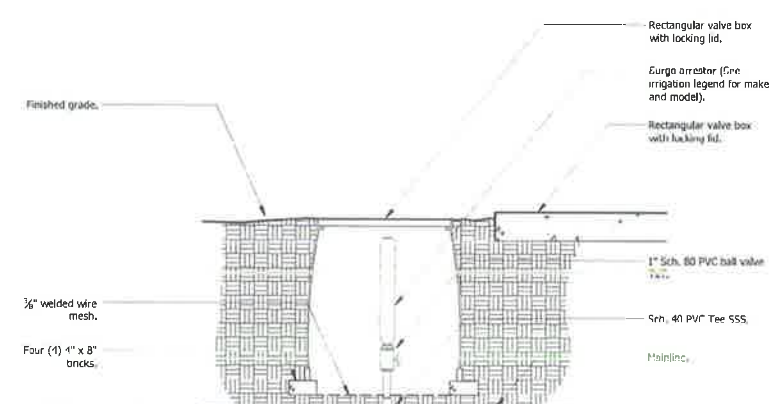
5- Wrap valve box with min. 3 mil. thick plastic and secure it to the valve box using duct tape or electrical tape.

6- See master valve/ flow sensor detail for linear dimensions.

7- Valve boxes shall be located in planting areas.

7 MASTER VALVE

P-RE-MUL-13



Notes:

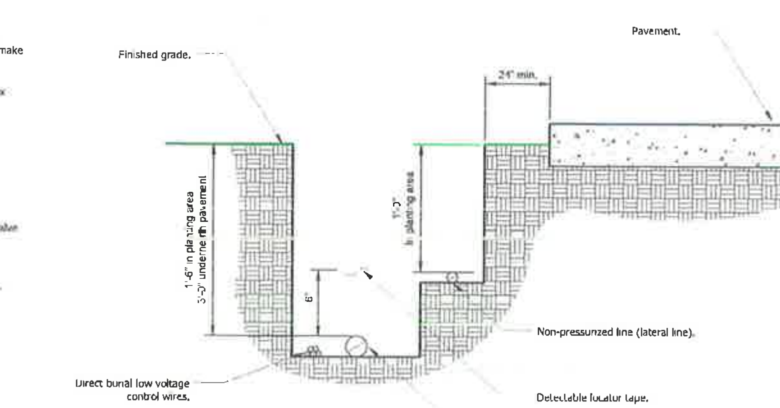
1- Locate valve boxes in planting areas.

2- Wrap valve box with a minimum of 3 mil thick plastic and secure it using duct tape or electrical tape.

3- All threaded connection to be made using teflon tape or pipe dope.

6 SURGE ARRESTOR

I-MI-07



NOTES:
1- See irrigation legend for mainline and lateral line pipe size and type.

2- Direct burial control wires shall be installed in Sch. 40 PVC electrical conduit if required.

3- 2-wire irrigation wire shall be installed in 1-1/2" Sch. 40 PVC electrical conduit.

4- Detectable locator tape shall be located six inches (6") above the entire mainline run.

3 IRRIGATION TRENCHING

P-RE-MUL-09

NOT FOR CONSTRUCTION

WOOD ARCHITECTURE

1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 9600 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No 5893 Signature Renewal Date 4-30-22 Date STATE OF CALIFORNIA

Date | Drawing Description

Maple St. Luxury Duplexes

Irrigation Details & Notes

Fresno, Ca

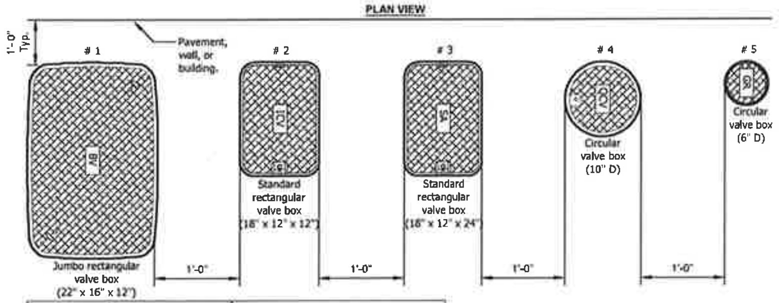
Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-3

Sheet 4 of 13

Irrigation Details & Notes — Sheet L-4



Water type	Controller	Designation	Box size	Lid Color	Identification Guide
PW	A	MV	# 2	Green	Master valve
PW	A	FS	# 2	Green	Flow sensor
PW	A	HM	# 2	Green	Hydrometer
PW	A	BV	# 2	Green	Ball valve 3" or less
PW	A	BV	# 1	Green	Ball valve 4" or more
PW	A	GV	# 2	Green	Gate valve
PW	A	ARV	# 2	Green	Air release valve
PW	A	QCV	# 4	Green	Quick coupler valve
PW	A	RCV	# 2	Green	Remote control valve
PW	A	MS	# 2	Green	Moisture sensor
PW	A	GR	# 5	Green	Grounding rod
PW	A	SB	# 4	Green	Splice box
PW	A	FC	# 2	Green	Future connection
PW	A	SA	# 3	Green	Surge Arrestor

EXAMPLE

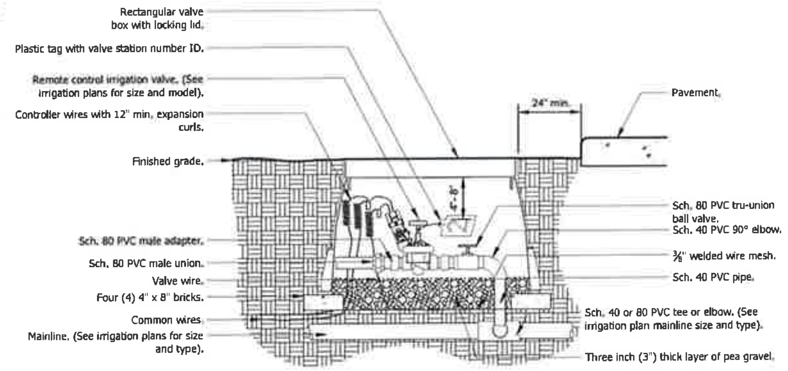
Potable water system on Controller 'A', Remote control valve station # 3.

Notes:

1- Valve box # 1 thru # 4 shall have stainless steel locking hardware.
2- Valve boxes shall be labeled by hot iron branding or aluminum asphaltic base water proof paint.
3- Locate valve assemblies in planting area.
4- Valve locations shall be approved by the Owner's Representative prior to installation.
5- Valve boxes shall be centered above valve assemblies to facilitate access and maintenance.
6- Valve boxes shall be flush with finished grade.
7- Valve boxes shall be set parallel to each other and perpendicular to the edge of pavement.
8- See other Irrigation details for further information.

7 VALVE BOX LAYOUT

P-RE-MUL-12



Note:
1- Common wire and controller wire shall be direct burial 14 AWG or larger. Color: Common (white), controller wire for turf (blue), and controller wire for shrubs (red).

2- All wire runs shall be continuous without any splices unless approved by the Owner's Representative. See splice box detail. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

3-Valve box shall be wrapped with min. 3 mil thick plastic and secured using duct tape or electrical tape.

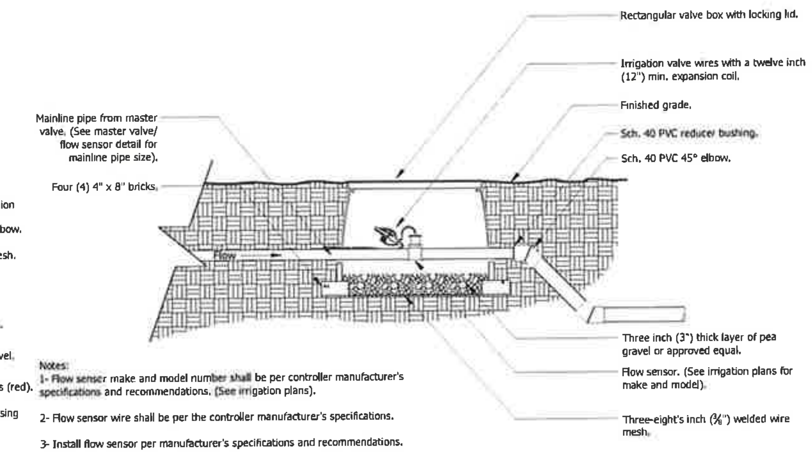
4- Mainlines 4" or larger shall use saddles at the connection points to the irrigation valve. (See specifications for irrigations saddles).

5- All Sch. 80 PVC to Sch. 40 PVC threaded connections shall be made using teflon tape.

6- Valve boxes shall be located in planting areas.

4 REMOTE CONTROL VALVE

P-RE-MUL-14



Notes:
1- Flow sensor make and model number shall be per controller manufacturer's specifications and recommendations. (See irrigation plans).

2- Flow sensor wire shall be per the controller manufacturer's specifications.

3- Install flow sensor per manufacturer's specifications and recommendations.

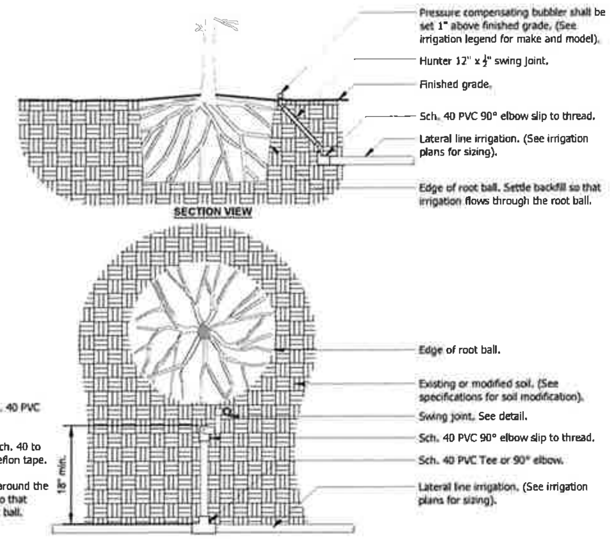
4- All wire runs shall be continuous without any splices. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

5- Valve box shall be wrapped with a min. of three (3) mil thick plastic and secure it to the valve box using duct tape or electrical tape.

6- See master valve/flow sensor detail for linear dimensions.

1 FLOW SENSOR

P-RE-MUL-16



2 BUBBLERS PER STREET TREE

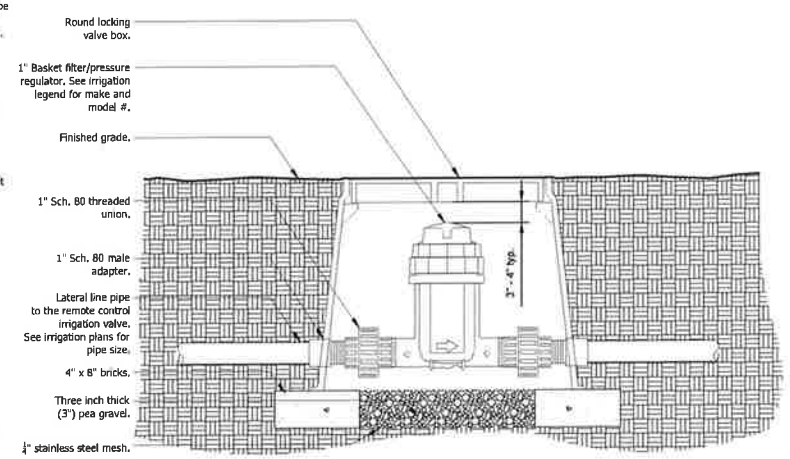
Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connections from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle the area around the bubbler and edge of the root ball so that all irrigation flows through the root ball.

8 BUBBLER ON ROOT BALL LAYOUT

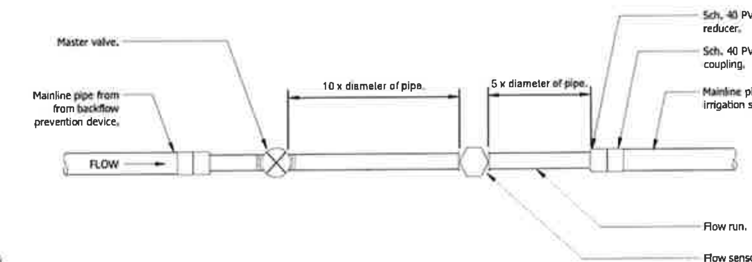
P-RE-MUL-08



Notes:
1- Contractor shall threaded fittings with no more than two (2) wraps of teflon tape or monster tape.
2- Prior to the installation of the drip filter/pressure regulator, the Contractor shall flush the lines a minimum of two (2) times to remove all glue, tape and/or debris from the mainline and lateral lines.
3- After the installation of the drip filter/pressure regulator, the Contractor shall cap all lateral lines downstream of the filter and pressurize the irrigation system and verify there are no leaks or breaks.

5 1" BASKET DRIP FILTER/PRESSURE REGULATOR

P-RE-MUL-06



Notes:
1- Flow sensor shall be of make and model as recommended by the controller manufacturer.

2- Flow sensor wire shall be per manufacturer's specifications.

3- Master valve wire shall be direct burial 14 AWG wire (or larger). Color: black.

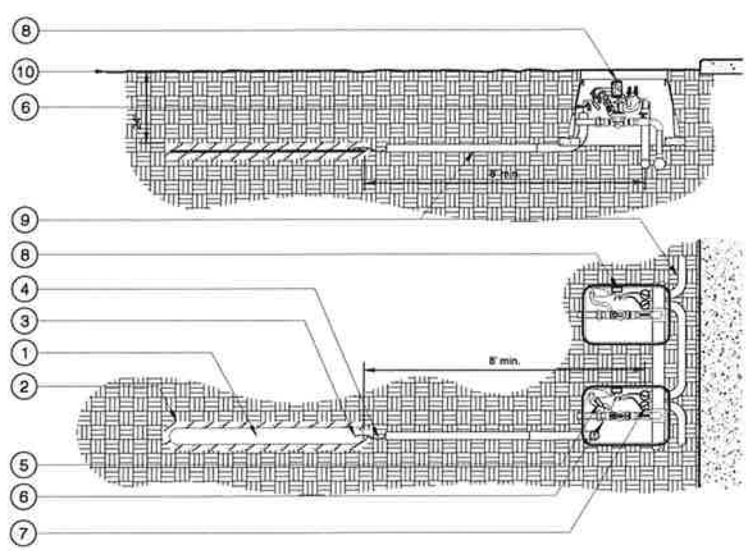
4- All wire runs shall be continuous without any splices.

5- See master valve detail and flow sensor detail for further information.

6- Flow run pipe shall be reduced down one (1) pipe size as indicated.
Example
3" mainline = 2-1/2" flow run
2-1/2" mainline = 2" flow run
2" mainline = 1-1/2" flow run

2 MASTER VALVE & FLOW SENSOR LAYOUT

P-RE-MUL-15



1. Paige Electric 4" x 36" copper grounding plate, pre-connected to ten feet (10') of #6 AWG bare copper wire. Install grounding plate perpindicular to the wire run and a minimum of eight (8') from the wire path.
2. Paige electric 'Power Set' contact enhancement material. Apply fifty pounds (50 lbs.) to the immediate area surrounding all sides of the grounding plate.
3. Groundwire pre-connected to the grounding plate or use CAD WELD to connect to the plate.
4. #6 AWG bare copper wire.
5. Lightning arrestor.
6. DBR/Y-6 waterproof greas packs.
7. 2-wire irrigation path.
8. Controller decoder.
9. 1-1/2" Sch. 40 electrical conduit.
10. Finished grade.

Notes:
- Decoder system grounding shall be per the controller manufacturer's specifications and recommendations or at a minimum of every five hundred feet (500') of the irrigation 2-wire path run and irrigation 2-wire path spurs of fifty feet (50') or greater.

- All Sch. 40 electrical conduit openings shall be filled with a foam sealant after grounding installation prior to backfilling.

- Acceptable earth ground shall not exceed 10 ohms.

- Grounding testing shall be performed by a certified 3rd party and documentation of grounding certification shall be provided to the Owner and Owner's Representative prior to project acceptance and beginning of the maintenance period.

- See 2-wire irrigation connection detail for further information.

- See 2-wire remote control irrigation valve detail for further information.

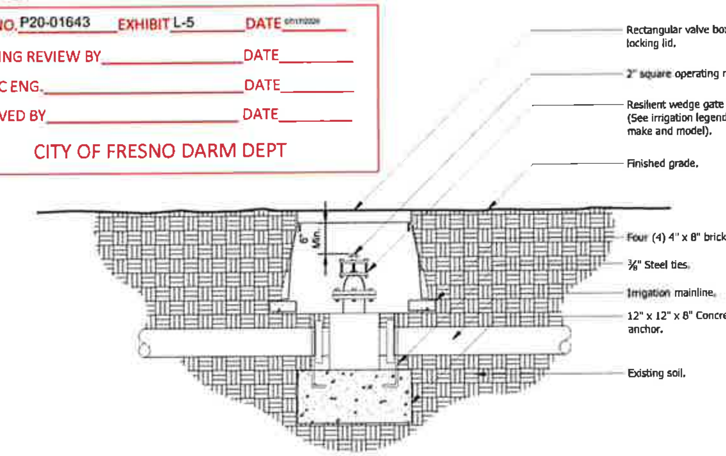
- Contractor shall include in their bid the addition of one (1) copper grounding plate and #6 AWG bare copper wire for controller grounding as necessary.

6 GROUNDING PLATE AND LIGHTNING ARRESTOR

3/4" = 1'-0"

P-RE-MUL-07

APPL. NO. P20-01643 EXHIBIT L-5 DATE ______
PLANNING REVIEW BY______________ DATE______
TRAFFIC ENG.______________ DATE______
APPROVED BY______________ DATE______
CITY OF FRESNO DARM DEPT



Notes:
1- Install gate valve per manufacturer's specifications and recommendations.

2- Valve box shall be wrapped with minimum 3 mil. thick plastic and secure it to valve box using duct tape or electrical tape.

3- Valve box shall be located in planting area.

3 GATEVALVE AND ANCHOR

WOOD ARCHITECTURE
1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 8600 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No 5803 Signature 4-30-22 Renewal Date Date STATE OF CALIFORNIA

Drawing Description
Date

Irrigatoin Details & Notes
Maple St. Luxury Duplexes
Fresno, Ca

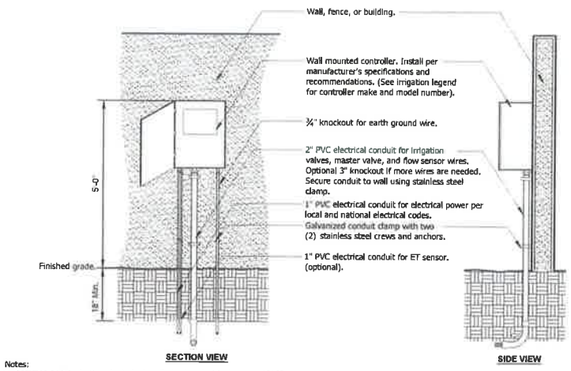
Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

NOT FOR CONSTRUCTION

L-4

W:\20\20056_WA-Maple Apartments\TGA\LandCD\CD_01\20056_WA-ld.dwg03.07.2020bytysoncarroll



Notes:

1- Common and controller wire to be bundled using electrical tape at 10'-0" on center.

2- Grounding rods shall be located between 8'- 0" to 12'- 0" away from the controller. Grounding rods shall be ¾" in diameter x 8' in length. Connect the grounding rod to the controller using 6 gauge bare copper wire or per the manufacturer's specifications.See grounding rod detail.

3- Grounding rod shall not be located within the same trench as the irrigation wire.

4- ET Station shall be installed no further than 90' away from the controller and a minimum of 15' off of the ground, out from under any overhead obstructions such as, but not limited to, building overhangs, trees, or utilities.

1 WALL MOUNTED CONTROLLER

P-RE-MUL-02

APPL. NO. P20-01643 EXHIBIT L-6 DATE 07/13/2020

PLANNING REVIEW BY _____ DATE _____

TRAFFIC ENG. _____ DATE _____

APPROVED BY _____ DATE _____

CITY OF FRESNO DARM DEPT

NOT FOR CONSTRUCTION

WOOD ARCHITECTURE

1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 9800 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL NO. 5603
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

Date:	Drawing Description

Irrigation Details & Notes

Maple St. Luxury Duplexes

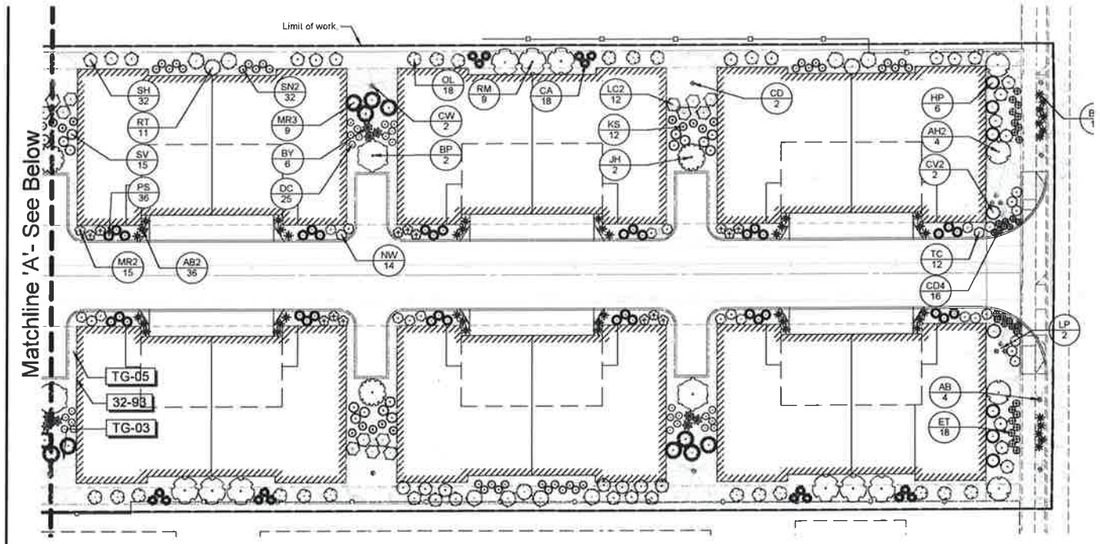
Fresno, Ca

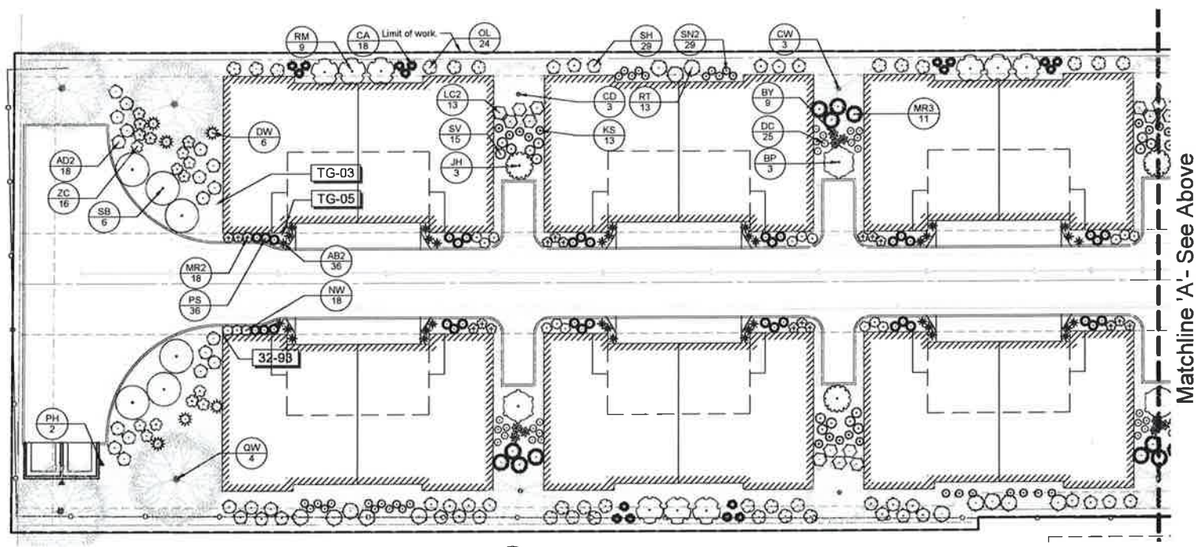
Date: 7.3.2020
Scale: 1" 20'
Project: 20056_WA

NORTH

L-5

Sheet 6 of 13





Notes:
1 - Graphic quantities take precedence over written quantities
2 - All trees shall be of quality as prescribed in the details and specifications.
Any tree not meeting such requirements shall be removed from the site and replaced at no cost to the owner.
3 - Trees shall not be planted within:
a. 6'-0" of drive approaches
b. 6'-0" of sewer lines
c. 6'-0" of water lines
d. 10'-0" of fire hydrants
e. 10'-0" of light standards
4 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

	CODE	BOTANICAL / COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE	QTY
	SB	Salvia x 'Bee's Bliss' Sage	1 gal	Evergreen	Low	Yes			6
	SN2	Santolina neapolitana 'Lemon Queen' Lavender Cotton	1 gal	Evergreen	Low	No			61
	SV	Santolina virens Green Lavender Cotton	1 gal	Evergreen	Low	No			30
	TC	Teucrium cossonii Creeping Germander	1 gal	Evergreen	Low	No			12
	ZC	Zauschneria californica 'Catalina' California Fuchsia	5 gal	Evergreen	Very Low	Yes			16

Groundcover Legend

SYMBOL	PLANTING DESCRIPTION	QTY
32-9B	Permaloc aluminum landscape edgning. 1/8" x 4" ProSlide; color- black. Install per manufacturer's specifications and recommendations. See planting detail.	70 lf

SYMBOL	BARK MULCH DESCRIPTION	QTY
TG-03	5" Thick layer of Screened Orchard Mulch.Contact West Coast Sand & Gravel. r at 559. 802.1150 see specifications for further information.	18,403 sf
TG-05	3" thick layer of 'California Gold' rock mulch. Contact West Coast Sand & Gravel at 559. 801.1150 for further information. Contractor shall provide a sample to the Owner/Owner's Represntative for approval prior to ordering. See specifications for further information.	3,212 sf

Plant Legend

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE	QTY
	AB	Acer buergerianum Trident Maple	15 gal	Deciduous	Street Tree	Medium	Standard	No	4
	CD	Cercidium x 'Desert Museum' Thornless Palo Verde	15 gal	Deciduous	Accent Tree	Low	Multi	No	5
	CW	Cercis occidentalis Western Redbud Multi-trunk	15 gal	Deciduous	Screen Tree	Low	Multi	Yes	5
	LP	Lagerstroemia indica 'Purple Tower' Purple Tower Crape Myrtle	24"box	Deciduous	Accent Tree	Low	Standard	No	2
	QW	Quercus wislizenii Interior Live Oak	15 gal	Evergreen	Specimen Tree	Low	Standard	Yes	4

SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE	QTY
	AB2	Agave x 'Blue Glow' Blue Glow Agave	2 gal	Evergreen	Very Low	No	72
	AH2	Arctostaphylos densiflora 'Howard McMinn' Howard McMinn Manzanita	5 gal	Evergreen	Very Low	Yes	4
	AD2	Arctostaphylos x 'John Dourley' John Dourley Manzanita	1 gal	Evergreen	Low	Yes	18
	BP	Baccharis pilularis 'Pigeon Point' Coyote Brush	5 gal	Evergreen	Very Low	Yes	5
	BG	Bouteloua gracilis Blue Grama Grass	1 gal	Evergreen	Low	No	12
	BY	Bulbine frutescens 'Yellow African' Yellow African Bulbine	1 gal	Evergreen	Low	No	15
	CA	Calamagrostis x acutiflora 'Karl Foerster' Feather Reed Grass	1 gal	Evergreen	Medium	No	36
	CD4	Carex divulsa Berkeley Sedge	1 gal	Evergreen	Low	Yes	16
	CV2	Ceanothus maritimus 'Valley Violet' Maritime Ceanothus	5 gal	Evergreen	Low	Yes	2
	DW	Dasylirion wheeleri Grey Desert Spoon	5 gal	Evergreen	Very Low	No	6
	DC	Dianella caerulea 'Cassa Blue' Cassa Blue Flax Lily	1 gal	Evergreen	Very Low	No	50
	ET	Euphorbia x martinii 'Tiny Tim' Euphorbia	1 gal	Evergreen	Low	No	18
	HP	Hesperaloe parviflora Red Yucca	5 gal	Evergreen	Very Low	Yes	6
	JH	Juniperus horizontalis 'Blue Chip' Blue Chip Juniper	5 gal	Evergreen	Low	No	5
	KS	Kniphofia uvaria 'Shining Sceptre' Poker Plant	1 gal	Evergreen	Low	No	25
	LC2	Leucophyllum frutescens 'Compacta' Compact Texas Ranger	5 gal	Evergreen	Low	No	25
	MR2	Mahonia repens Creeping Barberry	1 gal	Evergreen	Low	Yes	33
	MR3	Muhlenbergia rigens Deer Grass	1 gal	Evergreen	Low	Yes	20
	NW	Nepeta x faassenii 'Walkers Low' Walkers Low Catmint	1 gal	Evergreen	Low	No	32
	OL	Olea europaea 'Little Ollie' TM Little Ollie Olive	5 gal	Evergreen	Low	No	42
	PH	Parthenocissus quinquefolia 'Hacienda Creeper' Hacienda Creeper	5 gal	Evergreen	Low	No	2
	PS	Pennisetum spathiolatum Rye Puffs	1 gal	Deciduous	Low	No	72
	RM	Rhamnus californica 'Mound San Bruno' California Coffeeberry	5 gal	Evergreen	Low	Yes	18
	RT	Rosmarinus officinalis 'Tuscan Blue' Tuscan Blue Rosemary	5 gal	Evergreen	Low	No	24
	SH	Salvia greggii 'Hot Lips' Autumn Sage	1 gal	Evergreen	Low	No	61

APPL. NO. P20-01643 EXHIBIT L-7 DATE 6/12/2020
PLANNING REVIEW BY _____ DATE _____
TRAFFIC ENG. _____ DATE _____
APPROVED BY _____ DATE _____
CITY OF FRESNO DARM DEPT

NORTH
0 20 40 60 80 feet
1" = 20'

ALL ONSITE
N.K.
7.20.20

811
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www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No. 5933
Signature
6-30-20
Renewal Date
Date
STATE OF CALIFORNIA

Drawing Description
Date:

Planting Plan
Maple St. Luxury Duplexes
Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20055_WA

NORTH

L-6

Sheet 7 of 13

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GENERAL PLANTING NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. DIG ALERT, 811.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

9. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the planting operations.

10. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
   a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

11. Irrigation and site preparation work shall be completed and accepted prior to the installation of any plants.
   a. Planting operations shall not begin until such time that the irrigation system is completely operational for the areas to be planted, and the irrigation system for that area has been preliminarily inspected and approved by the Owner's Representative.

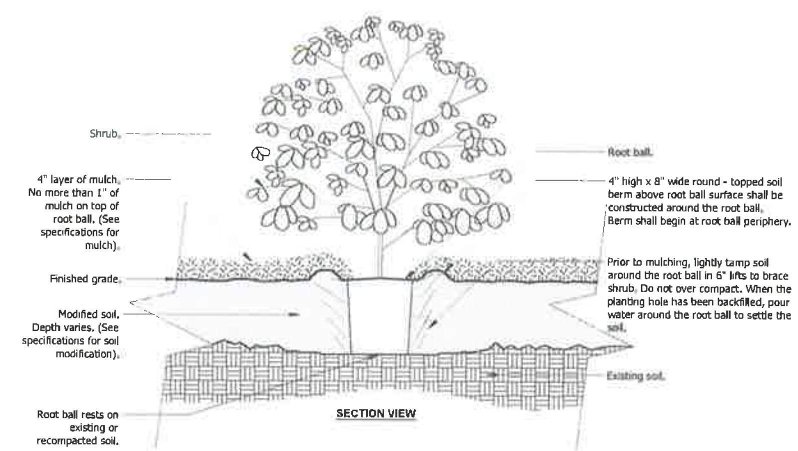
12. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
   a. Pre - Construction meeting.
   b. Site conditions prior to the start of planting.
   c. Plant quality.
   d. Completion of planting.

13. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

14. Contractor shall include in the bid continued maintenance (warranty) period of 180 days after completion of construction and acceptance of the project by the Owner's Representative.

15. Submit to the Owner's representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Inspect all nursery materials to determine that the materials meet the requirements of the specification.

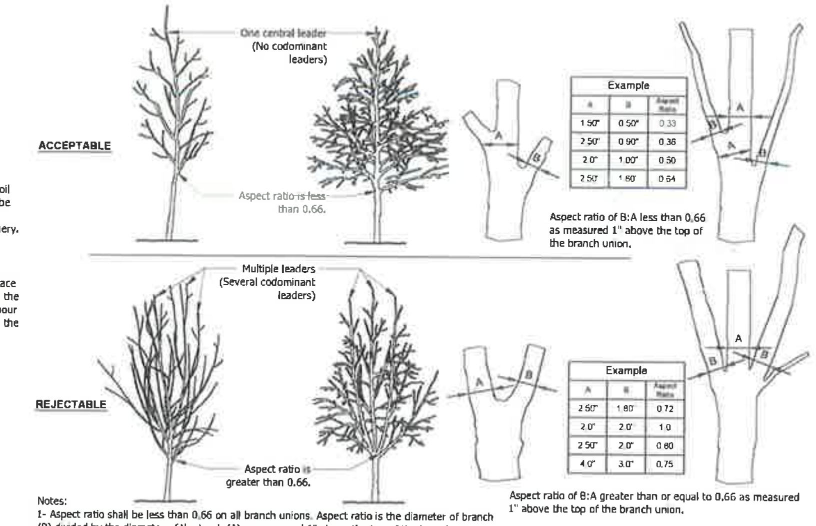
16. The landscape plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the landscape design plan, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the even that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.



Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

4 SHRUB - MODIFIED SOIL

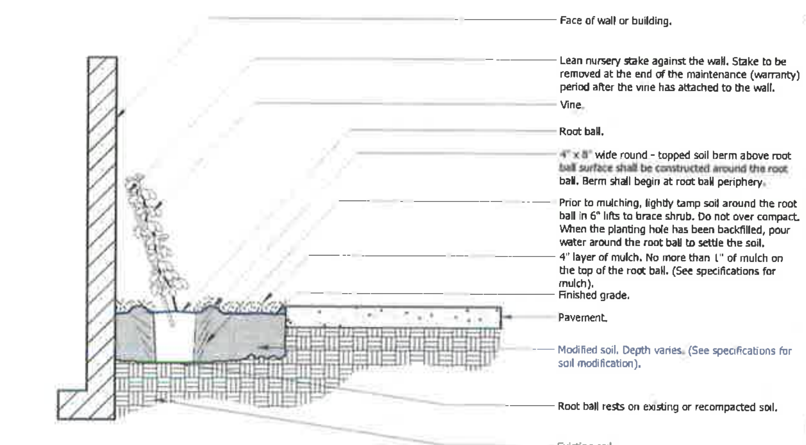
P-RE-MUL-21



Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.
2- Any tree not meeting the crown observations detail may be rejected.

1 CROWN OBSERVATION DETAIL - HIGH BRANCHED

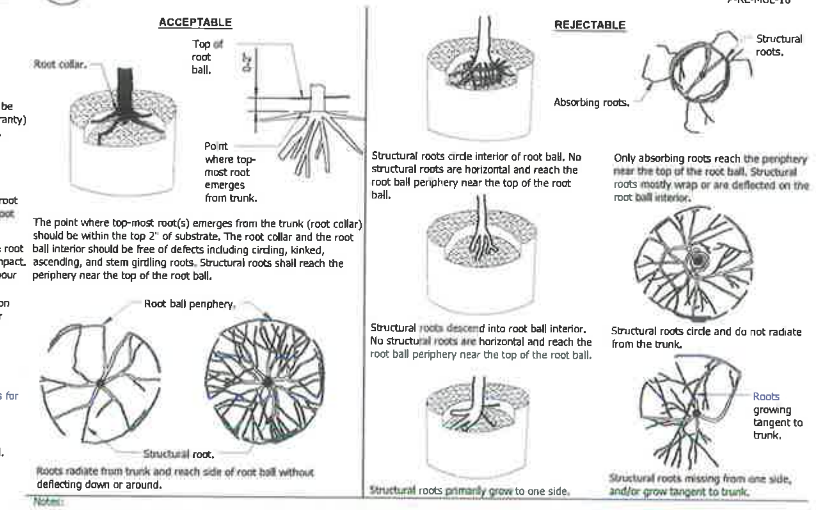
P-RE-MUL-18



Notes:
1- Vines shall be of quality as prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

5 VINE - MODIFIED SOIL

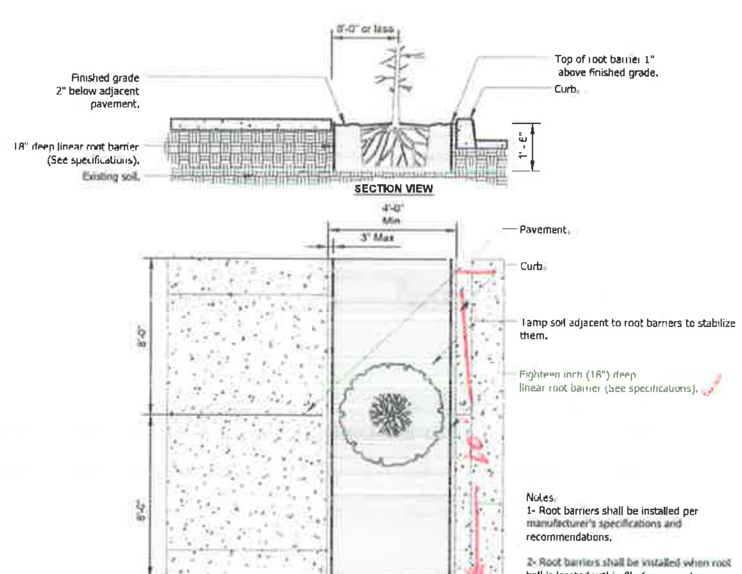
P-RE-MUL-22



Notes:
1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
2- Small roots (¼" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periphery can be removed at the time of planting. (See root ball shaving container detail).
3- See specifications for observation process and requirements.

2 ROOT OBSERVATION DETAIL - CONTAINER

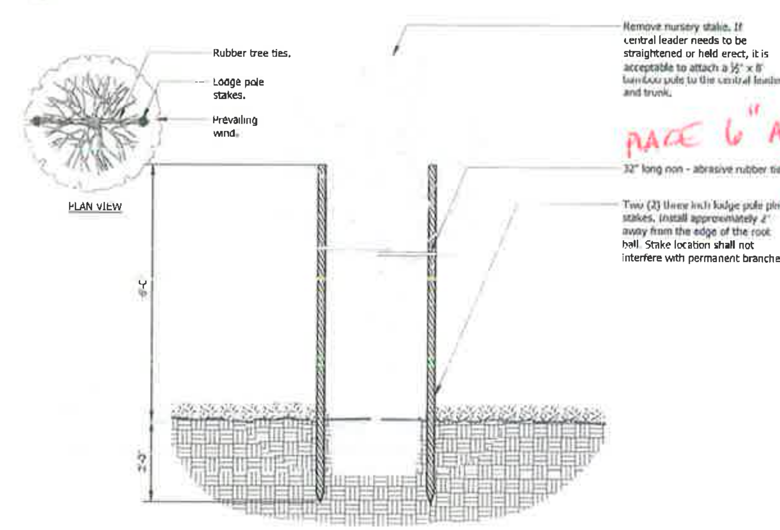
P-RE-MUL-19



Notes:
1- Root barriers shall be installed per manufacturer's specifications and recommendations.
2- Root barriers shall be installed when root ball is located within 8' of pavement.

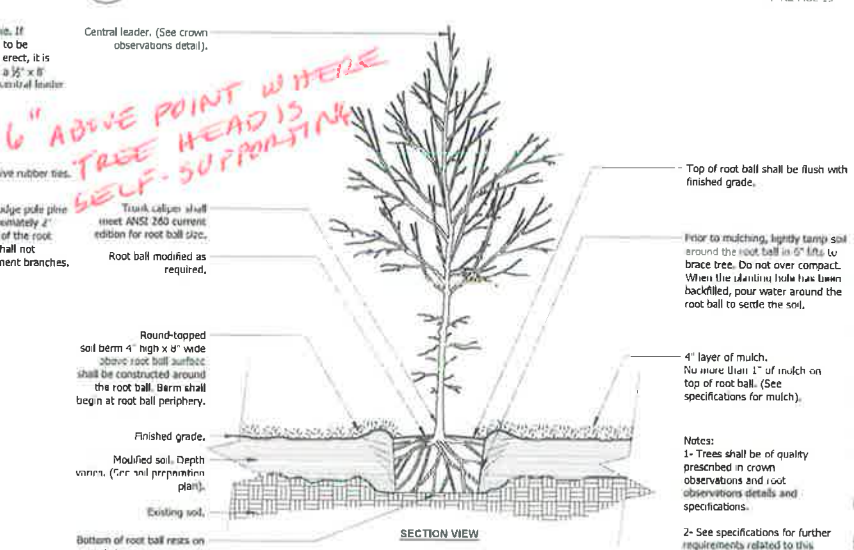
7 LINEAR ROOT BARRIERS

P-RE-MUL-24



6 TREE STAKING - LODGEPOLES (2)

P-RE-MUL-23



Notes:
1- Trees shall be of quality prescribed in crown observations and root observations details and specifications.
2- See specifications for further requirements related to this detail.

3 TREE W/ BERM - MODIFIED SOIL

P RE MUL 20

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LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No 5903 STATE OF CALIFORNIA — Signature — 4-30-22 Renewal Date

Drawing Description | Date

Planting Details & Notes

Maple St. Luxury Duplexes

Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

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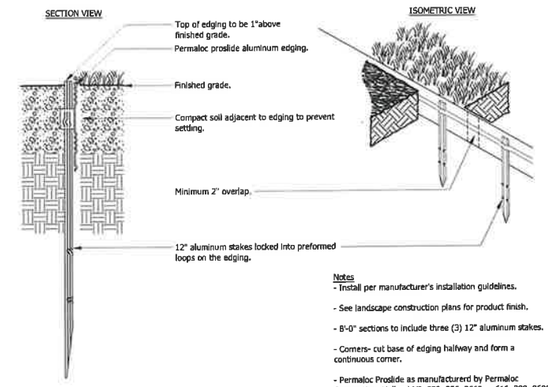
L-7

Sheet 8 of 13



Notes
- Install per manufacturer's installation guidelines.
- See landscape construction plans for product finish.
- 8'-0" sections to include three (3) 12" aluminum stakes.
- Corners- cut base of edging halfway and form a continuous corner.
- Permaloc Proslide as manufacturerd by Permaloc Corporation, Holland MI. 800. 356. 9660 or 616. 399. 9600
- Contractor's note: For product and purchasing information visit www.permaloc.com

1 PERMALOC PROSLIDE EDGING

P-RE-MUL-25

APPL. NO. P20-01643 EXHIBIT L-9 DATE 07/17/2020
PLANNING REVIEW BY _____ DATE _____
TRAFFIC ENG. _____ DATE _____
APPROVED BY _____ DATE _____
CITY OF FRESNO DARM DEPT

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Visalia, Ca 93291
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www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL No. 5803
Signature
6-30-22
Renewal Date
Date
STATE OF CALIFORNIA

Date	Drawing Description

Planting Details & Notes

Maple St. Luxury Duplexes

Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-8

Sheet 9 of 13

NOT FOR CONSTRUCTION

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GENERAL CONDITIONS

A. CONTRACT DOCUMENTS: Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

B. VERIFICATION: The Contractor shall verify measurements on the drawings before beginning work. In case of error or discrepancy in the drawings or specifications or in the work of others affecting his/her work, he/she shall notify the Owner's Representative immediately. The Contractor shall be held responsible for any damages or loss due to his/her failure to observe these instructions.

C. MATERIALS, MACHINERY, EMPLOYEES: Except as otherwise noted, the Contractor shall provide and pay for all materials, labor, tools, and other items necessary and incidental to the completion of his/her work.

D. SURVEYS, PERMITS, REGULATIONS: The Owner shall furnish an adequate survey of the property. The Contractor shall obtain and pay for all permits and comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a variance exists therewith he/she shall promptly notify the Owner's Representative in writing and any necessary changes shall be adjusted as provided in the contract for changes in the work.

E. PROTECTION OF WORK, PROPERTY AND PERSON: The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

F. CHANGES IN THE WORK: The owner may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extras must be made in writing before executing the work involved.

G. CORRECTION OF WORK: The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative for a period of ninety (90) days from the date of completion of the contract.

H. Owner's Authorized Representative: The Owner's authorized representative acts as the authorized representative of the Owner in conjunction with the project manager, and has authority to accept or reject materials or workmanship and to make minor changes in the work not involving extra cost. He will also interpret the meaning of the contract documents and may stop the work if necessary to ensure its proper execution.

I. CLARIFICATION OF DRAWINGS BEFORE BIDDING: After reviewing the drawings thoroughly it is the Contractor's responsibility to clarify with the Owner's Representative any questions the Contractor may have regarding the method of construction, quantities, or quality of materials included or called out. If the Contractor cannot contact the Owner's Representative, the Contractor must qualify his/her bid or accept the interpretation of the Owner's Representative on the questionable areas as they develop during construction.

J. SAMPLES: The Owner's Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. The Contractor shall furnish samples upon request by the Owner's Representative. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

K. PRE-CONSTRUCTION CONFERENCE: Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work. The purpose of this conference is to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

SECTION 32 91 00
PLANTING SOIL

PART 1 GENERAL

1.1 SUMMARY

A. The scope of work includes all labor, materials, tools, supplies, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of Planting Soil and for the modification of existing site soil for use as Planting Soil, complete as shown on the drawings and as specified herein.

B. The scope of work in this section includes, but is not limited to, the following:

1. Locate, purchase, deliver and install Imported Planting Soil and soil amendments.
2. Harvest and stockpile existing site soils suitable for Planting Soil.
3. Modify existing stockpiled site soil.
   a. Modify existing site soil in place for use as Planting Soil.
   b. Install existing or modified existing soil for use as Planting Soil.
4. Locate, purchase, deliver and install subsurface Drain Lines.
5. Fine grade Planting Beds.
6. Install Compost into Planting Soil.
7. Clean up and disposal of all excess and surplus material.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications, general conditions, and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents

1. Drawings and general provisions of contract, including general and supplementary conditions and Division 1 specifications, apply to work of this section.
2. Related Specification Section
   a. Section - Planting
   b. Section - Irrigation

B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the Specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail.

1. ASTM: American Society of Testing Materials cited sections number.
2. U.S. Department of Agriculture, Natural Resources Conservation Service, 2003. National Soil Survey Handbook, title 430-VI. Available Online.
3. US Composting Council www.compostingcouncil.org http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/1914/Landscape/Arch_Specs.pdf.
4. Methods of Soil Analysis, as presented by the Soil Science Society of America (http://www.soils.org/)
5. Up by Roots: healthy soils and trees in the built environment, 2008. J. Urban, International Society of Arboriculture, Champaign, IL.

1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously included under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or among any referenced standards and codes and this specification, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

D. Comply with the requirements of the California code of regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.5 soil management report.

1. Where requirements of specification section Planting Soil are more stringent than the California code the more stringent requirements shall prevail.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

1.7 CHANGES IN WORK

A. The Owner's Representative may order changes in the work, and the contract sum adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the sooner of possible time that can be coordinated with other work and seasonal weather demands, but not more than 180 (one hundred and eighty) days after notification.

1.9 DEFINITIONS

A. Acceptable drainage: Drainage rate is sufficient for the plants to grow. Not too fast and not too slow. Typical rates for installed Planting Soil are between 1 - 5 inches per hour. Turf soils are often higher, but drainage rates above 2 - 3 inches per hour will dry out very fast. In natural undisturbed soil a much lower drainage rate, as low as $1/8^{th}$ inch per hour can still support healthy plant growth. Wetland plants can grow on top of perched water layers or even within seasonal perched water layers, but could become unstable in high wind events.

B. Amendment: material added to Topsoil to produce Planting Soil Mix. Amendments are classified as general soil amendments, fertilizers, biological, and pH amendments.

C. Compacted soil: soil where the density of the soil is greater that the threshold for root limiting, and further defined in this specification.

D. Compost: well decomposed stable organic material as defined by the US Composting Council and further defined in this specification.

E. Drainage: The rate at which soil water moves through the soil maintaining the soil from saturated condition to field capacity. Most often expressed as saturated hydraulic conductivity (Ksat, units are inches per hour).

F. End of Warranty Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is standard that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation (if applicable) work run concurrent with each other, and further defined in this specification.

G. Existing Soil: Mineral soil existing at the locations of proposed planting after the majority of the construction within and around the planting site is completed and just prior to the start of work to prepare the planting area for soil modification and/or planting, and further defined in this specification.

H. Fine grading: The final grading of the soil to achieve exact contours and positive drainage, often accomplished by hand rakes or drag rakes other suitable devices, and further defined in this specification, and further defined in this specification.

I. Finished grade: surface or elevation of Planting Soil after final grading and 12 months of settlement of this soil, and further defined in this specification.

J. Graded soil: Soil where the A Horizon has been stripped and relocated or re-spread, cuts and fills deeper than 12 inches, and further defined in this specification.

K. Installed soil: Planting soil and existing site soil that is spread and or graded to form a planting soil, and further defined in this specification.

L. Minor disturbance: Minor grading as part of agricultural work that only adjusts the A horizon soil, minor surface compaction in the top 6 inches of the soil, applications of fertilizers, installation of utility pipes smaller than 18 inches in diameter thru the soil zone.

M. Owner's Representative: The person or entity, appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contact person for the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

N. Ped: a clump or clod of soil held together by a combination of clay, organic matter, and fungal hyphae, retaining the original structure of the harvested soil.

O. Planting Soil: Topsoil, or Planting Soil Mixes which are imported or existing at the site, or made from components that exist at the site, or are imported to the site, and further defined in this specification.

P. Poor drainage: Soil drainage that is slower than that to which the plants can adapt. This is a wide range of metrics, but generally if the soil is turning gray in color it is reasonable preference for other to plant indicator wetlands plants of smaller sizes that are young in age with shallow root balls or look at options to improve the drainage.

Q. Scarify: Loosening and roughening the surface of soil and sub soil prior to adding additional soil on top, and further defined in this specification.

R. Soil Fracturing: Deep loosening the soil to the depths specified by using a back hoe, and further defined in this specification.

S. Soil Horizons: as defined in the USDA National Soil Survey Handbook
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientific/nsh/nsh/?cid=nrcs142p2_054242

T. Soil Tilling: Loosening the surface of the soil to the depths specified with a **rotary tine tilling machine, rototiller, (or spade tiller)**, and further defined in this specification.

U. Soil tracking: Cutting narrow trenches thru the soil at the depths and spacing specified to loosen the soil profile, and further defined in this specification.

V. Subgrade: surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing Planting Soil.

W. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation (if applicable) where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project, and further defined in this specification.

X. Topsoil: naturally produced and harvested soil from the A horizon or upper layers or the soil as further defined in this specification.

BB. Undisturbed soil: Soils with the original A horizon intact that have not been graded or compacted. Soils that have been farmed, subjected to fire or logged but not graded, and natural forested land will be considered as undisturbed.

1.10 SUBMITTALS

A. See the contract General Conditions for policy and procedures related to submittals.

B. Submit all product submittals eight weeks prior to the start of the soil work.

C. Product data and certificates: For each type of manufactured product, submit data and certificates that the product meets the specification requirements, signed by the product manufacturer, and complying with the following:

1. Submit manufacturers or suppliers product data and literature certified analysis for standard products and soil materials complying with testing requirements and referenced standards and specific requirements.
   a. For each Compost product submit the following analysis by a recognized laboratory:
      1. pH
2. Salt concentration (electrical conductivity)
3. Moisture content %, wet weight basis
4. Particle size distribution (percent passing the following sieve sizes)
5. Stability carbon dioxide evolution rate mg CO2-C per g OM per day
6. Solids maturity test
7. Physical contaminants (rocks) %, dry weight basis
8. US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels Chemical Contaminants mg/kg (ppm)
   b. For Clarna Sand product submit the following analysis by a recognized laboratory:
      1. pH
2. Particle size distribution (percent passing the following sieve sizes)
   3/8 inch (9.5 mm)
   No 4 (4.75 mm)
   No 8 (2.36 mm)
   No 16(1.18 mm)
   No 30 (.60 mm)
   No 50 (.30 mm)
   No 100 (.15 mm)
   No 200 (.075 mm)

APPL NO P20-01643 ZONING L-10 DATE
PLANNING REVIEW BY DATE
DRAWING DATE
APPROVED BY DATE
CITY OF FRESNO DARM HRD

D. Samples: Submit samples of each product and material, where required by Part 2 of the specification, to the Owner's Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only.

1. Submit samples a minimum of 8 weeks prior to the anticipated date of the start of soil installation.

E. Samples of all Topsoil, Compost Sand, Compost and Planting Soil shall be submitted at the same time as the particle size and physical analysis of the material.

1. Soil testing for Imported and Existing Topsoil: existing site soil to be modified as Planting Soil and Planting Soil Mixes.

1. Topsoil, existing site soil and Planting Soil Mix testing: Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil testing laboratory and where indicated in Part 2 of the specification as follows:
   a. Submit Topsoil, Planting Soil, Compost, and Coarse Sand for testing at least 8 weeks before scheduled installation of Planting Soil Mixes. Submit Planting Soil Mix test no more than 2 weeks after the approval of the Topsoil, Compost and Coarse Sand. Do not submit to the testing laboratory, Planting Soil Mixes, for testing until all Topsoil, Compost and Coarse Sand have been approved.
   b. If tests fail to meet the specifications, obtain other sources of material, retest and resubmit until accepted by the Owner's Representative.
   c. All soil testing will be at the expense of the Contractor.

2. Submit all testing required by California Code of regulation Title 23 waters, Division 2 Department of Water resources Chapter 2.7 Model Water Efficient Landscape Ordinance, 492.5 Soil Management Report.

3. Provide a particle size analysis (% dry weight) and USDA soil texture analysis. Soil testing of Planting Soil Mixes shall also include USDA gradation (percentage) of gravel, coarse sand, medium sand, and fine sand in addition to silt and clay.

4. Provide the following other soil properties:
   a. pH and buffer pH
   b. Percent organic content by oven dried weight.
   c. Nutrient levels by parts per million including: phosphorus, potassium, magnesium, manganese, iron, zinc and calcium. Nutrient level shall include the testing laboratory recommendations for supplemental additions to the soil for optimum growth of the plantings specified.
   d. Soluble salt by electrical conductivity of a 1:2 soil water sample measured in Millohm per cm.
   e. Cation Exchange Capacity (CEC).

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

1. The Owner's Representative may utilize the Contractor's penetrometer and moisture meter at any time to check soil compaction and moisture.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. SOIL MOCKUP REVIEW: At the time of construction of all soil mockups.

2. EXISTING SOIL CONDITIONS REVIEW: Prior to the start of any soil modification that will utilize or modify the existing soil.

3. EXCAVATION REVIEW: Observe each area of excavation prior to the installation of any Planting Soil.

4. COMPLETION OF SOIL MODIFICATIONS REVIEW: Upon completion of all soil modification and installation of planting soil.

5. COMPLETION OF FINE GRADING AND SURFACE SOIL MODIFICATIONS REVIEW: Upon completion of all surface soil modifications and fine grading prior to the installation of shrubs, ground covers, or lawns.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. Installer Qualifications: The installer shall be a firm having at least 5 years of experience of a scope similar to that required for the work, including the preparation, mixing and installation of soil mixes to support planting. The installer of the work in Section Planting, shall be the same firm installing the work in this section.

1. The bidders list for work under this section shall be approved by the Owner's Representative.

2. Installer Field Supervision: When any Planting Soil work is in progress, installer shall maintain, on site, an experienced full-time supervisor who can communicate in English with the Owner's Representative.

3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing soil, shall be trained and proficient in the use of field surveying equipment to establish grades and can communicate in English with the Owner's Representative.

4. The installer's crew shall be experienced in the installation of Planting Soil, plantings, and irrigation (where applicable) and interpretation of planting plans, soil modification plans, and irrigation plans (where applicable).

5. Submit references of past projects and employee training certifications that support that the Contractors meet all of the above installer qualifications and applicable licensures.

B. Soil testing laboratory qualifications: an independent laboratory, with the experience and capability to conduct the testing indicated that specializes in USDA agricultural soil testing, Planting Soil Mixes, and the types of tests to be performed. Geotechnical engineering testing labs shall not be used.

C. All delivered and installed Planting Soil shall conform to the approved submittals sample color, texture and approved test analysis.

1. The Owner's Representative may request samples of the delivered or installed soil be tested for analysis to confirm the Planting Soil conforms to the approved material.

2. All testing shall be performed by the same soil lab that performed the original Planting Soil testing.

3. Testing results shall be within 10% plus or minus of the values measured in the approved Planting Soil Mixes.

4. Any Planting Soil that fails to meet the above criteria, if requested by the Owner's Representative, shall be removed and new soil installed.

D. Soil compaction testing: following installation or modification of soil, test soil compaction with a penetrometer.

1. Maintain at the site at all times a soil cone penetrometer with pressure dial and a soil moisture meter to check soil compaction and soil moisture.
   a. Penetrometer shall be AgraTronix Soil Compaction Meter distributed by Ben Meadows, www.benmeadows.com or approved equal.
   b. Moisture meter shall be "general digital soil moisture meter" distributed by Ben Meadows, www.benmeadows.com or approved equal.

2. Prior to testing the soil with the penetrometer check the soil moisture and penetrometer readings in the mockup soils. Penetrometer readings are impacted by soil moisture and excessively wet or dry soils will read significantly lower or higher than soils at optimum moisture.

3. The penetrometer readings shall be within 20% plus or minus of the readings in the approved mockup when at similar moisture levels.

1.14 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Owner's Representative of such conditions, they shall remain responsible for plant material under the warranties clause of the specifications.

2. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.

1.15 SOIL COMPACTION - GENERAL REQUIREMENTS

A. Except where more stringent requirements are defined in this specification. The following parameters shall define the general description of the threshold points of soil compaction in existing, modified or installed soil and subsoil.

B. The following are threshold levels of compaction as determined by each method.

1. Acceptable Compaction: Good rooting anticipated, but increasing settlement expected as compaction is reduced and/or in soil with a high organic matter content.
   a. Rule Penetrometer - Varies by soil type see Chart on page 32 in Up by Roots.
   b. Standard Proctor Method - 75-85% soil below 75% is unstable and will settle excessively.
   c. Penetration Resistance Method - about 75-250 psi, below 75 psi soil becomes increasingly unstable and will settle excessively.

2. Root limiting Compaction: Root growth is limited with fewer, shorter and slower growing roots.
   a. Bulk Density Methods - varies by soil type see Chart on page 32 in Up by Roots.
   b. Standard Proctor Method - above approximately 85%.
   c. Penetration Resistance Method - about 300 psi.

3. Excessive Compaction: Roots not likely to grow but can penetrate soil when soil is above field capacity.
   a. Bulk Density Method - Varies by soil type see Chart on page 32 in Up by Roots.
   b. Standard Proctor Method - Above 90%.
   c. Penetration Resistance Method - Approximately above 400 psi.

1.17 DELIVERY, STORAGE, AND HANDLING

A. Weather: Do not mix, deliver, place or grade soils when frozen or with moisture above field capacity.

B. Protect soil and soil stockpiles, including the stockpiles at the soil blender's yard, from wind, rain and washing that can erode soil or transport fines and coarse material and contamination by chemicals, dust and debris that may be determental to plants or soil drainage. Cover stockpiles with plastic sheeting or fabric at the end of each workday.

C. All manufactured packaged products and material shall be delivered to the site in unopened containers and stored in a dry enclosed space suitable for the material and meeting all environmental regulations. Biological additives shall be protected from extreme cold and heat. All products shall be freshly manufactured and dated for the year in which the products are to be used.

D. Deliver all chemical amendments in original, unopened containers with original labels intact and legible, which state the guaranteed chemical analysis. Store all chemicals in a weather protected enclosure.

E. Bulk material: Coordinate delivery and storage with Owner's Representative and confine materials to neat piles in areas acceptable to Owner's Representative.

1.18 EXISTING UTILITIES AND STRUCTURES

A. Contractor shall carefully examine the site, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid damage. Hand excavate as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.

C. Notification of the 811 DIG ALERT is required for all planting areas. The Contractor is responsible for locating the location and avoiding utilities that are not covered by the DIG ALERT.

PART 2 PRODUCTS

2.1 IMPORTED TOPSOIL

A. Imported Topsoil definition: Fertile, friable soil containing less than 5% total volume of the combination of subsoil, rubble, rocks larger than 1 inch diameter, heavy, sticky or stiff clay, stones larger than 2 inches in diameter, noxious seeds, rocks, brush, litter, or any substances deleterious to plant growth. The percent (%) of the above objects shall be controlled by sieve selection not by screening the soil. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth. Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestations in the final planting beds. Imported Topsoil shall meet the following physical and chemical criteria.

1. Soil texture: USDA loam, sandy clay loam or sandy loam with clay content between 15 and 25%. And a combined clay & silt content of no more than 50%.
2. pH value shall be between 5.5 and 7.0.
3. Percent organic matter (OM): 2.0-5.0%, by dry weight.
4. Soluble salt level: Less than 2 mmho/cm.
5. Soil chemistry suitable for growing the plants specified.

B. Imported Topsoil shall be a harvested soil from fields or development sites. The organic content and particle size distribution shall be the result of natural soil formation. Manufactured soils where coarse sand, Composted organic material or chemical additives has been added to the soil to meet the requirements of this specification section shall not be acceptable. Retained soil peds shall be the same color on the inside as is visible on the outside.

C. Imported Topsoil for Planting Soil shall NOT have been screened and shall contain gravel or clods larger than 2 inches in diameter throughout the stockpile after harvesting.

D. Stockpiled Existing Topsoil at the site meeting the above criteria may be acceptable.

E. Provide a two gallon sample from each Imported Topsoil source with required soil testing results. The sample shall be a mixture of the random samples taken around the source stockpile or field. The soil sample shall be delivered with soil peds intact that represent the size and quantity of expected peds in the final delivered soil.

2.2 COMPOST

A. Compost: Blended and ground feed, wood and other plant based material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic materials and free of any harmful pathogens for humans. Source material shall be yard waste trimmings blended with other plant or manure based material designed to produce Compost high in fungal material.

1. Compost shall be commercially prepared Compost and meet US Compost Council STATMECO criteria or as modified in this specification for "Compost as a Landscape Backfill Mix Component".
   http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/1914/Landscape/Arch_Specs.pdf

2. Compost shall comply with the following parameters:
   a. pH: 5.5 - 8.0.
   b. Soil salt (electrical conductivity): maximum 5 dS/m (mmhos/cm).
   c. Moisture content %, wet weight basis: 35 - 50.
   d. Particle size, dry weight basis: 98% pass through 3/4 inch screen or smaller.
   e. Stability carbon dioxide evolution rate: mg CO_2/C/g OM/day < 2.
   f. Solids maturity test: > 8.
   g. Physical contaminants (rocks), % dry weight basis: <1%.
   h. Chemical contaminants, mg/kg (ppm): meet or exceed US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels.
   i. Biological contaminants: select pathogens fecal coliform bacteria, or salmonella, meet or exceed US EPA Class A standard, 40 CFR § 503.32(a) level requirements.

B. Provide a two gallon sample with manufacturer's literature and material certification that the product meets the requirements.

2.4 MODIFIED EXISTING SOIL (SOIL SUITABLE FOR PLANTING WITH INDICATED MODIFICATION)

A. General definition: Surface soil in the areas designated on the soils plan as Modified Existing Soil has been altered and or graded before or during the construction process but is still considered acceptable for planting and long term health of the plants specified with the proposed modifications. Modifications respond to the soil problems expected in construction. The Owner's Representative shall verify that soils in the designated areas is suitable for modification at the beginning of planting bed preparation work in that area.

1. The Owner's Representative shall verify that the soil in the designated areas is suitable for the specified modification at the beginning of planting bed preparation work in that area. In the event that the work of this project construction has damaged the existing soil in areas designated for modification to the point where the soil is no longer suitable to support the plants specified with the specified modification, the Owner's Representative may require further modification of the damaged soil up to an including removal and replacement with soil of equal quality to the soil that would have resulted from the modification. Damage may include further compaction, contamination, grading, creation of hard pan or drainage problem, and loss of the O, and or A horizon.

2. General requirements for all soil modifications:
   a. Take soil samples, test for chemical properties, and make appropriate adjustments.
   b. Unless otherwise instructed, remove all existing plants, root thatch, and non-soil debris from the surface of the soil using equipment that does not add to the compaction in the soil.
   c. All soil grading, tilling and loosening must be completed at times when the soil moisture is below field capacity. Allow soils to drain for at least two days after any rain event more than 1 inch in 24 hours, or long enough so that the soil does not make the hand muddy when squeezed.
   d. Provide pre-emergent weed control after the soil work is complete and plants planted but prior to adding mulch to the surface, if indicated by weed type and degree of threat.

B. Modified existing soil - compacted subsoil

1. Description of condition to be modified: Deep soil compaction the result of previous grading, filling and dynamic or static compaction forces. Original A horizon likely removed or buried. The soil organic matter, pH and chemistry in the A horizon is likely not suitable for the proposed plants and should be modified as required.

2. Soil Fracturing:
   a. Step one: After grading and removing all plants and debris from the surface, spread 2 - 3 inches of Compost over the surface of the soil. Loosen the soil to a depth of 18 - 24 inches, using a backhoe to dig into the soil through the Compost. Lift and then drop the loosened soil immediately back into the hole. The bucket then moves to the adjacent soil and repeats the process until the entire area indicated has been loosened.
   b. Step 2: Spread 3-4 inches of Compost over the ripped area and till into the top 6 inches of the soil surface.

4. Trenching
   a. Step one: After grading and removing all plants and debris from the surface using a chain trenching machine, dig 24 inch deep trenches, 24 inches apart across the entire area. Maintain an 18-inch standoff from the edges of all curbs, paving and structures. Backfill the trenches with Compost.
   b. Step 2: Spread 3-4 inches of Compost over the trenched area and till into the top 6 inches of the soil surface. Compost tilling treatment shall extend to the edges of curbs, paving and structures.

5. Following soil ripping or fracturing the average penetration resistance should be less than 250 psi to the depth of the ripping or fracturing.

6. Do not start planting into ripped or fractured soil until soil has been settled or leave grades sufficiently high to anticipate settlement of 10 - 15% of ripped soil depth.

F. Modified existing soil - low organic matter

1. Description of condition to be modified: Low soil organic matter and/or missing A horizon but soil is not compacted except from surface compaction. The soil organic matter, pH and/or chemistry are likely not suitable for the proposed plants and should be modified as required.

2. Modifications
   a. Spread 3 - 4 inches of Compost over the surface of the soil and make chemical adjustment as recommended by the soil test.
   b. Till Compost into the top 6 inches of the soil.

2.3 PLANTING SOIL MIXES

A. General definition: Mixes of Existing Soil or Imported Topsoil, Coarse Sand, and or Compost to make a new soil that meets the project goals for the indicated planting area. These may be mixed off site or onsite, and will vary in Mix components and proportions as indicated.

B. Planting Mix - moderately slow draining soil for trees and shrub beds

1. A Mix of Imported Topsoil, Coarse Sand and Compost. The approximate Mix ratio shall be:

Mix component	% by most volume
Imported Topsoil (screened, 4%OM)	45-50%
Coarse sand	45-40%
Compost	10%

2. Total sand organic matter between 7.5% and 4% (by dry weight)

3. Mix the Coarse Sand and Compost together first and then add to the Topsoil. Mix with a loader bucket to loosely incorporate the Topsoil into the Coarse Sand/Compost Mix. DO NOT OVER MIX! Do not mix with a soil blending machine. Do not screen the soil. Clumps of Soil, Compost and Coarse Sand will be permitted in the overall Mix.

4. At the time of final grading, soil fertilizer if required to the Planting Soil at rates recommended by the testing results for the plants to be grown.

5. Provide a two gallon sample with testing data that includes recommendations for chemical additives for the types of plants to be grown. Samples and testing data shall be submitted at the same time.

PART 3 EXECUTION

3.1 SITE EXAMINATION

A. Prior to installation of Planting Soil, examine site to confirm that existing conditions are satisfactory for the work of this section to proceed.

1. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope toward the under drain lines as shown on the drawings.

2. Confirm that surface all areas to be filled with Planting Soil are free of construction debris, refuse, compostable or biodegradable materials, stones greater than 2 inches diameter, soil crusting films of silt or clay that reduces or stops drainage from the Planting Soil into the subsoil, and/or standing water. Remove unsuitable material from the site.

3. Confirm that no adverse drainage conditions are present.

4. Confirm that no conditions are present which are determental to plant growth.

5. Confirm that utility work has been completed per the drawings.

6. Confirm that irrigation work, which is shown to be installed below prepared soil levels, has been completed.

B. If unsatisfactory conditions are encountered, notify the Owner's Representative immediately to determine corrective action before proceeding.

3.2 COORDINATION WITH PRODUCT WORK

A. The Contractor shall coordinate work with other work that may impact the completion of the work.

1. Work on site even in winter, prepare a weather and times schedule of the work for examination with other trades.

C. Coordinate the relocation of any irrigation lines, heads, or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around trees. Notify the Owner's Representative of any conflicts encountered.

3.3 DRAINAGE AND EROSION CONTROL

A. Provide grade and elevation control during installation of Planting Soil. Utilize grade stakes, surveying equipment, and other means and methods to assure that grades and contours conform to the grades indicated on the plans.

3.4 SITE PREPARATION

A. Excavate to the proposed subgrade. Maintain all required angles of repose of the adjacent materials as shown on the drawings or as required by the specification. Do not over excavate compacted subgrades of adjacent pavement or structures. Maintain a supporting 1:1 side slope of compacted subgrade material along the edges of all paving and structures where the bottom of the paving or structure is above the bottom elevation of the excavated planting area.

B. Remove all construction debris and material including any construction materials from the subgrade.

C. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope approximately parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.

D. In areas where Planting Soil is to be spread, confirm subgrade has been scarified.

E. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use 1/2 inch plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.

1. At the end of each working day, clean up any soil or dirt spilled on any paved surface.

2. Any damage to the paving or site features or work shall be repaired at the Contractor's expense.

3.5 SOIL MOISTURE

A. Volumetric soil moisture level, in both the Planting Soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilt point and below field capacity for each type of soil texture within the following ranges.

Soil texture	Permanent wilting point	Field capacity
Sand, Loamy sand, Sandy loam	5 - 8%	12 - 18%
Loam, Sandy clay, Sandy clay loam	14 - 25%	27 - 35%
Clay loam, Silt loam	11 - 22%	31 - 38%
Silty clay, Silty clay loam	22 - 27%	36 - 41%

B. The Contractor shall confirm the soil moisture levels with a moisture meter (Digital Soil Moisture Meter DSMM500 by General Specialty Tools and Instruments, or approved equivalent). If moisture is found to be too low, the planting holes shall be filled with water and allowed to drain before starting any planting operations. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

3.6 PLANTING SOIL AND PLANTING SOIL MIX INSTALLATION

A. Prior to installing any Planting Soil from stockpiles or Planting Soil Mixes blended off site, the Owner's Representative shall approve the condition of the subgrade and the previously installed subgrade preparation and the installation of subsurface drainage.

B. All equipment utilized to install or grade Planting Soils shall be wide track or balloon tire machines rated with a ground pressure of 4 psi or less. All grading and soil delivery equipment shall have buckets equipped with 8 inch long teeth to scarify any soil that becomes compacted.

C. In areas of soil installation above existing subsoil, scarify the subgrade material prior to installing Planting Soil.

1. Scarify the subsoil of the subgrade to a depth of 3 - 6 inches with the teeth of the back hoe or loader bucket, tiller or other suitable device.

2. Immediately install the Planting Soil. Protect the loosened area from traffic. DO NOT allow the loosened subgrade to become compacted.

3. In the event that the loosened area becomes overly compacted, loosen the area again prior to installing the Planting Soil.

D. Install the Planting Soil in 12 - 18 inch lifts to the required depths. Apply compacting forces to each lift as required to attain the required compaction. Scarify the top of each lift prior to adding more Planting Soil by dragging the teeth of a loader bucket or backhoe across the soil surface to roughen the surface.

E. Phase work such that equipment to deliver or grade soil does not have to operate over previously installed Planting Soil. Work in rows of lifts the width of the extension of the bucket on the loader. Install all lifts in one row before proceeding to the next. Work out from the furthest part of each bed from the soil delivery point to the edge of the each bed area.

F. Where possible place large trees first and fill Planting Soil around the root ball.

G. Installing soil with sod or mulch blowers or soil slingers shall not be permitted due to the over mixing and soil bed breakdown cause by this type of equipment.

H. Where travel over installed soil is unavoidable, limit paths of traffic to reduce the impact of compaction in Planting Soil. Each time equipment passes over the installed soil it shall reverse out of the area along the same path with the teeth of the bucket dropped to scarify the soil. Comply with the paragraph "Compaction Reduction" (section 3.8) in the event that soil becomes over compacted.

I. The depths and grades shown on the drawings are the final grades after settlement and shrinkage of the compost material. The Contractor shall install the Planting Soil at a higher level to anticipate this reduction of Planting Soil volume. A minimum settlement of approximately 10 - 15% of the soil depth is expected. All grade increases are assumed to be as measured prior to addition of surface Compost 18 layer, mulch, or sod.

3.7 COMPACTION REQUIREMENTS FOR INSTALLED OR MODIFIED PLANTING SOIL

A. Compact installed Planting Soil to the compaction rates indicated and using the methods approved for the soil mockup. Compact each soil lift as the soil is installed.

B. Existing soil that is modified by tilling, ripping or fracturing shall have a density to the depth of the modification after completion of the loosening, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the midpoint between wilting point and field capacity. This will be approximately between 75 and 82% of maximum dry density standard proctor.

C. Installed Planting Soil Mix and re-spread existing soil shall have a soil density through the required depth of the installed layers of soil, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the midpoint between wilt point and field capacity. This will be approximately between 73 and 82% of maximum dry density standard proctor.

D. Planting Soil compaction shall be tested at each lift using a penetrometer calibrated to the mockup soil and its moisture level. The same penetrometer and moisture meter used for the testing of the mockup shall be used to test installed soil throughout the work.

E. Maintain mo

3.14 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers.

1. Maintain protection during installation until the date of plant acceptance (see specifications section - Planting). Treat, repair or replace damaged work immediately.

2. Provide temporary erosion control as needed to stop soil erosion until the site is stabilized with mulch, plantings or turf.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory. Damage to existing trees shall be assessed by a certified arborist.

3.15 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

B. The date of substantial completion of the planting soil shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.16 FINAL ACCEPTANCE / SOIL SETTLEMENT

A. At the end of the plant warrantee and maintenance period, (see Specification section - Planting) the Owner's Representative shall observe the soil installation work and establish that all provisions of the contract are complete and the work is satisfactory.

1. Restore any soil settlement and or erosion areas to the grades shown on the drawings. When restoring soil grades remove plants and mulch and add soil before restoring the planting. Do not add soil over the root balls of plants or on top of mulch.

B. Failure to pass acceptance. If the work fails to pass final acceptance, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owner's Representative.

END OF SECTION 32 91 00

SECTION 32 84 00

IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

A. Irrigation system required for this work includes but is not limited to the furnishing of all labor, tools materials, appliances, tests, permits, taxes, etc., necessary for the installation of a landscape irrigation system as herein specified and shown on the drawings, and the removal of all debris from the site.

1. Locate, purchase, deliver and install piping, conduit, sleeves, 120 volt and low voltage electrical and water connections, valves, backflow preventer devices, controllers, rain sensors, spray and bubbler heads, drip irrigation lines, and associated accessories for a fully operational automatic irrigation system.
2. Trenching and water settling of backfill material.
3. Testing and startup of the irrigation system.
4. Prepare an as built record set of drawings.
5. Training of the Owner's maintenance personnel in the operational requirements of the Irrigation system.
6. Clean up and disposal of all excess and surplus material.
7. Maintenance of the irrigation system during the proscribed maintenance period.

B. The system shall efficiently and evenly irrigate all areas and be complete in every respect and shall be left ready for operation to the satisfaction of the Owner's Representative.

C. Coordinate with other trades, as needed to complete work, including but not limited to Water Meter, Point of Connection (POC) and Backflow Preventer Device (BFPD) location and electrical hookups.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any part shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

1. Drawings and general provisions of contract, including general and supplementary conditions and Division I specifications, apply to work of this section.
2. Related Specification Sections
   a. Section - Planting
   b. Section - Planting Soil
   c. Sections - Mechanical/Plumbing
   d. Sections - Electrical

B. References

1. American Society of Testing Materials (ASTM): cited section numbers.
2. National Sanitation Foundation (NSF): rating system.
3. Irrigation Association: Turf & Landscape Irrigation Best Management Practices.

1.4 VERIFICATION

A. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sizes and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

B. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstruction, grade difference or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstruction or differences should be brought to the attention of the Owner's Representative as soon as detected. In the event that notification to the Owner and Owner's Representative does not occur, the Contractor shall assume full responsibility for any revision necessary.

C. Piping and equipment is to be located within the designated planting areas wherever possible unless specifically defined or dimensioned otherwise.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

1.7 CHANGES IN THE WORK

A. The Owner's Representative may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and Contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest as possible time that can be coordinated with other work, and seasonal weather demands, but not more than 90 (ninety) days after notification.

1.9 DEFINITIONS

A. Owner's Representative: The person appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

B. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different that the date of substantial completion for the other sections of the project.

C. Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of specification. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrently.

1.10 SUBMITTALS

A. See the contract General Conditions for policy and procedures related to submittals.

B. Product data

1. Submit a minimum of (3) complete lists of all irrigation equipment to be used, manufacturer's brochures, maintenance manuals, warrantees and operating instructions, within 15 days after the notice to proceed.
   a. This submission may be done digitally and all documents shall be submitted in one PDF document.
2. The submittals shall be packaged and presented in an organized manner, in the quantity described in Division 1 of the specifications. Provide a table of contents of all submitted items.
3. Clearly identify on each submitted sheet by underlining or highlighting (on each copy) the specific product being submitted for approval. Failure to clearly identify the specific product being submitted will result in a rejection for the entire submittal. No substitutions of material or procedures shall be made concerning these documents without the written consent of an accepted equivalent by the Owner's Representative.
4. Equipment or materials installed or furnished without prior approval of the Owner's Representative, may be rejected by the Owner's Representative and the Contractor shall be required to remove such materials from the site at their own expense.
5. Approval of substitution of material and/or products, other than those specified shall not relieve the Contractor from complying with the requirements of the contract documents and specifications. The Contractor shall be responsible, at their own expense, for all changes that may result from the approved substitutions, which affect the installation or operations other items of their own work and/or the work of other Contractors.

C. Samples: Samples of the equipment may be required at the request of the Owner's Representative if the equipment is other than that specified.

D. Other Submittals: Submit for approval

1. Documentation of the installer's qualifications.
   a. Contractor's License
2. As built record set of drawings.
3. Wiring diagram.
4. Controller charts.
5. Colored zoning charts: Show each irrigation zone and the valve it is controlled by.
6. Controller irrigation schedule: Indicate zone run times, zones for each program, program run times, times and days of operation, flow management information and soil moisture sensor settings, if applicable.
7. Testing data from all required pressure testing.
8. Backflow prevention device certification: Certification from the manufacturer or their representative that the back flow prevention device has been installed correctly according to the manufactures requirements.
9. Irrigation controller certification: Certification from the manufacturer or an authorized distributor that the Controller has been installed correctly according to the manufactures requirements.

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may inspect the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. Trenching, directional boring, and sleeving review.
2. Hydrostatic pressure testing.
3. Valve manifolds, lateral lines and emitters.
4. Sensor installation and controller operation.
5. Adjustment and coverage test.
6. Pre-maintenance observation.
7. Final acceptance / system malfunction corrections.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. It is the intention of this specification to accomplish the work of installing an automatic irrigation system which will operate in an efficient and satisfactory manner. The irrigation system shall be installed and made operational according to the workmanlike standards established for landscape installation and sprinkler irrigation operation as set forth by the most recent Best Management Practices (BMP) of the Irrigation Association.

B. The specification can only indicate the intent of the work to be performed rather than a detailed description of the performance of the work. It shall be the responsibility of the Contractor to install said materials and equipment in such a manner that they shall operate efficiently and evenly and support optimum plant growth and health.

C. The Owner's Representative shall be the sole judge of the true intent of the drawings and specifications and of the quality of all materials furnished in performance of the contract.

D. The Contractor shall keep one copy of all drawings and specifications on the work site, in good order. The Contractor shall make these documents available to the Owner's Representative when requested.

E. In the event of any discrepancies between the drawings and the specification, the final decision as to which shall be followed, shall be made by the Owner's Representative.

F. In the event the installation is contradictory to the direction of the Owner's Representative, the installation shall be rectified by the Contractor at no additional cost to the Owner. The Contractor shall immediately bring any such discrepancies to the attention of the Owner's Representative.

G. It shall be distinctly understood that no oral statement of any person shall be allowed in any manner to modify any of the contract provisions. Changes shall be made only on written authorization of the Owner's Representative.

H. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work.

a. Installer Field Supervision: The installer shall maintain on site an experienced full-time supervisor who can communicate in English with the Owner's Representative.
b. Submit the installer's qualifications for approval.

1.14 IRRIGATION SYSTEM WARRANTY

A. The Contractor shall Warrantee all workmanship and materials for a period of 1 year (s) following the acceptance of the work.

1. Any parts of the irrigation work that fails or is defective shall be replaced or reconstructed at no expense to the Owner including but not limited to: restoring grades that have settled in trenches and excavations related to the work. Reconstruction shall include any plantings, soil, mulch or other parts of the constructed landscape that may be damaged during the repair or that results from soil settlement.

B. The date of acceptance of the work and start of the Guarantee period shall be determined by the Owner's Representative, upon the finding that the entire irrigation system is installed as designed and specified, and found to be operating correctly, supplying water evenly to all planting and/or lawn areas.

C. The system controller shall be warranted by the equipment manufacturer against equipment malfunction and defects for a period of 5 years, following the acceptance of the work.

D. Neither the final acceptance nor any provision in the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall remedy any defects within a period of 7 days (s) from the date of notification of a defect.

1.15 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

1.16 DELIVERY, STORAGE, AND HANDLING

A. All materials and equipment shall be stored properly and protected as required by the Contractor. The Contractor shall be entirely responsible for damages or loss by weather or other cause to work under the contract. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the work.

B. Deliver the products to the job site in their original unopened container with labels intact and legible at time of use.

C. Store in accordance with the manufacturers' recommendations.

1.17 PROTECTION

A. The Contractor shall continuously maintain adequate protection of all their work from damage, destruction, or loss, and shall protect the owner's property from damage arising in connection with this contract. Contractor shall make good any such damage, destruction, loss or injury. Contractor shall adequately protect adjacent property as provided by law and the contract documents.

B. The Contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights, etc., against the occurrence of accidents, injuries or damage to any person or property resulting from their work, and shall alone be responsible for the same if such occurs.

C. All existing paving, structures, equipment or plant material shall be protected at all times, including the irrigation system related to plants, from damage by workers and equipment. The Contractor shall follow all protection requirements including plant protection provision of the general contract documents. All damages shall be repaired or replaced at the Contractor's expense. Repairs and or replacement shall be to the satisfaction of the Owner's Representative, including the selection of a Contractor to undertake the repair or maintenance. Repairs shall be at no cost to the owner.

1. For trees damaged to the point where they will not be expected to survive or which are severely disfigured and that are too large to replace, the cost of damages shall be as determined by the Owner's arborist using accepted tree value evaluation methods.

D. The Contractor shall refrain from trenching within the drip line of any existing tree to remain. The Owner's Representative may require the Contractor to relocate proposed irrigation work, bore lines beneath roots or use air spade technology to dig trenches through and under the root system to avoid damage to existing tree root areas.

1.18 EXCAVATING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

1. Do not begin any excavation until all underground utilities have been located and marked.

Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain stakes and or markings set by others until parties concerned mutually agree to their removal.

B. Notification of *DIG ALERT, 811*, is required for all excavation around utilities. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *DIG ALERT*.

C. Section 4216/4217 of the government code requires a dig-alert identification number be issued before a "permit to excavate" will be valid. For your dig-alert identification number call underground service alert toll free 1-800-422-4133 two working days before beginning construction.

1.19 POINT OF CONNECTION

A. The point of connection of the irrigation system to its electrical power sources shall be provided by the General Contractor's licensed electrical Contractor per governing codes at the location shown on the drawings. The irrigation Contractor will connect the power to provided junction box or grounded plug receptacle.

B. The point of connection of the irrigation system to its potable and or non-potable water sources, including the main shutoff valve and backflow preventer shall be provided by the General Contractor's licensed plumbing Contractor per governing codes at the location shown on the drawings. The minimum size and water pressure of the pressurized line will be as noted on the irrigation drawing.

1.20 TEMPORARY UTILITIES

A. All temporary piping, wiring, meters, panels and other related appurtenances required between source of supply and point of use shall be provided by the Contractor and coordinated with the Owner's Representative. Existing utilities may be used with the written permission of the owner.

1.21 CUTTING, PATCHING, TRENCHING AND DIGGING

A. The Contractor shall do all cutting, fitting, trenching or patching of their work that may be required to make its several parts come together as shown upon, or implied by, the drawings and specifications for the completed project.

B. Digging and trenching operations shall be suspended when the soil moisture is above field capacity.

1.22 USE OF PREMISES

A. The Contractor shall confine their apparatus; the storage of materials, and the operations of their workers to limits indicated by the law, ordinances, or permits and shall not unreasonably encumber the premises with their materials.

B. Contractor parking, and material and equipment storage shall in areas approved by the Owner's Representative.

1.23 AS BUILT RECORD SET OF DRAWINGS

A. Immediately upon the installation of any buried pipe or equipment, the Contractor shall indicate on the progress record drawings the locations of said pipe or equipment. The progress record drawings shall be made available at any time for review by the Owner's Representative.

B. Before final acceptance of work, the Contractor shall provide an as built record set of drawings showing the irrigation system work as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawings shall include all information shown on the original contract document and revised to reflect all changes in the work. The drawings shall include the following additional information.

1. All valves shall be numbered by station and corresponding numbers shall be shown on the as built record set of drawings.

2. All main line pipe or irrigation equipment including sleeves, valves, controllers, irrigation wire runs which deviate from the mainline location, backflow preventers, remote control valves, grounding rods, shut-off valves, rain sensors, wire splice locations, and quick coupling valves shall be located by two (2) measured dimensions, to the nearest one-half foot. Dimensions shall be given from permanent objects such as buildings, sidewalks, curbs, walls, structures and driveways. All changes in direction and depth of main line pipe shall be noted exactly as installed. Dimensions for pipes shall be shown at no greater than a 50 ft. maximum interval.

3. As built record set of drawings shall be signed and dated by the Contractor attesting to and certifying the accuracy of the as built record set of drawings. As built record set of drawings shall have "As Built Record Set of Drawings", company name, address, phone number and the name of the person who created the drawing and the contact name (if different).

C. The Owner shall make the original contract drawing files available to the Contractor.

1.24 CONTROLLER CHARTS

A. Provide one controller chart for each automatic controller installed.

1. On the inside surface of the cover of each automatic controller, prepare and mount a color-coded chart showing the valves, main line, and systems serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads and walls. The plan, reduced as necessary and legible in all details, shall be made to a size that will fit into the controller cover. This print shall be approved by the Owner's Representative and shall be protected in laminated in a plastic cover and be secured to the inside back of the controller cabinet door.

2. Programming chart shall be 8.5" x 11" letter size and laminated. Programming chart shall include but is not limited to,
   a. Valve numbers and brief description of the valve use along with program associated to each valve.
   b. Program numbers and brief description of its use.
   c. Moisture sensor associated to each valve and program, if applicable.
   d. Decoder model numbers associated with each valve, pump relay, and hydrometers, if applicable.
   e. Utility numbers such as the irrigation and electrical meter.
   f. Model numbers for cell phone module or WiFi module, if applicable.
   g. Controller model number, if applicable.
   h. Booster pump make and model number, if applicable.

3. The controller chart shall be completed and approved prior to acceptance of the work.

1.25 TESTING

A. Provide all required system testing with written reports as described in part 3.

1.26 OPERATION AND MAINTENANCE MANUALS AND GUARANTEES

A. Prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3-ring hard cover binders containing the following information.

1. Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturers' representatives.
2. Catalog and parts sheets on all material and equipment.
3. Guarantee statement. The start of the guarantee period shall be the date the irrigation system is accepted by the Owner.
4. Complete operating and maintenance instruction for all major equipment.
5. Irrigation product manufacturers warrantees.

B. In addition to the above-mentioned maintenance manuals, provide the Owner's maintenance personnel with instructions for maintaining major equipment and show evidence in writing to the Owner's Representative at the conclusion of the project that this has been rendered.

PART 2 PRODUCTS

2.1 MATERIALS GENERAL

A. All materials shall be of standard, approved and first grade quality and shall be new and in perfect condition when installed and accepted.

B. See the parts schedule on the drawings for specific components and manufacturers.

C. Approval of any items or substitutions indicates only that the product(s) apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted. The Contractor shall be responsible for the performance of substituted items. If the substitution proves to be unsatisfactory or not compatible with other parts of the system, the Contractor shall replace said items with the originally specified items, including all necessary work and modifications to replace the items, at no cost to the owner.

2.2 PIPING MATERIAL

A. Individual types of pipe and fittings supplied are to be of compatible manufacturer unless otherwise approved. Pipe sizes shown are nominal inside diameter unless otherwise noted.

B. Plastic pipe

1. All pipe shall be free of blisters, internal striations, cracks, or any other defects or imperfections. The pipe shall be continuously and permanently marked with the following information: manufacturer's name or trade mark, size, class and type of pipe pressure rating, quality control identifications, date of extrusion, and National Sanitation Foundation (NSF) rating.

2. Pressure main line for piping upstream of remote control valves and quick coupling valves
   a. Pipe smaller than 2 inch diameter shall be plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride (PVC) 1220 Type 1, Grade 2 conforming to ASTM D 1785, designated as Schedule 40.
   b. Pipe 2 - 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC) Type 1, Grade 2 conforming to ASTM D 1785, designated as bell gasket Class 315

3. Non - pressure lateral line for piping downstream of remote control valves, plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride PVC 1220 (type 1, grade 2) conforming to ASTM d 1785, designated as Class 200, 3/4 minimum size.

4. Sleeve carrying pipes and conduits under paving 2 inches in diameter and larger shall be Sch. 40 solvent weld PVC conforming to ASTM D 1785.

5. Low voltage irrigation control wire conduit, direct burial, 1.5" in diameter and larger shall be Sch. 40 PVC solvent weld, grey in color and confirming to NEMA-TC2

C. Galvanized pipe shall be used for above ground connections to, backflow prevention device assemblies, hose bibs, and booster pumps and as shown on the plans and details.

1. Pipe shall be hot dip galvanized continuous welded seamless, Schedule 40 conforming to applicable current ASTM standards.

2.4 FITTINGS AND CONNECTIONS

A. Polyvinyl chloride pipe fittings and connections: Type II, Grade 1, Schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping lapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information nominal pipe size, type and schedule of material, and National Sanitation Foundation (NSF) seal of approval. PVC fittings shall conform to ASTM D2464 and D2466.

B. Brass pipe fittings, unions and connections: standard 125 pound class 85% red brass fittings and connections, IPS threaded.

C. PVC Schedule 80 threaded risers and nipples: Type I, grade 1, Schedule 80, high impact molded manufactured from virgin compounds as specified for piping and conforming to ASTM D-2464. Threaded ends shall be molded threads only. Machined threads are not acceptable.

D. Galvanized pipe fittings shall be galvanized malleable iron ground joint Schedule 40 conforming to applicable current ASTM standards.

2.5 SOLVENT CEMENTS AND THREAD LUBRICANT

A. Solvent cements shall comply with ASTM D2564. Socket joints shall be made per recommended procedures for joining PVC plastic pipe and fittings with PVC solvent cement and primer by the pipe and fitting manufacturer and procedures outlined in the appendix of ASTM D2564. Color of PVC solvent cement shall be light blue.

B. Thread lubricant shall be Teflon ribbon-type, or approved equal, suitable for threaded installations as per manufacturer's recommendations.

C. Pipe Joint Compound (Pipe dope) shall be used on all galvanized threaded connections. Pipe Joint Compound is a white colored, non-separating thread sealant compound designed to seal threaded connections against leakage due to internal pressure. It shall contain PTFE (Polytetrafluoroethylene) to permit a lighter assembly with lower torque, secure permanent sealing of all threaded connections and allow for easy disassembly without stripping or damaging threads.

2.6 BACKFLOW PREVENTION DEVICES

A. The backflow prevention device shall be certified to NSF/ANSI 372 shall be ASSE Listed 1013, rated to 180 degree F, and supplied with full port ball valves.

B. The main body and access covers shall be low lead bronze (ASTM B 584)

C. The seat ring and all internal polymers shall be NSF Listed Noryl and the seat disc elastomers shall be silicone.

D. Backflow Preventer shall be as indicated on the drawings.

2.7 PRESSURE REGULATOR

A. Pressure regulator shall certified to NSF/ANSI 372, consisting of low lead bronze body bell housing, a separate access cap shall be threaded to the body and shall not require the use of ferrous screws.

B. The main valve body shall be cast bronze (ASTM B 584).

C. The access covers shall be bronze (ASTM B 584 or Brass ASTM B 16)

D. The assembly shall be of the balanced piston design and shall reduce the pressure in both flow and no flow conditions.

E. Pressure regulator shall be as indicated on the drawings.

2.8 BACKFLOW PREVENTER CAGE

A. A heavy-duty steel mesh cage with rust proof finish. The caging shall be sized to allow space for the entire piping assembly associated with the Backflow Preventer unit, and all associated equipment.

B. The cage shall include the manufacturers' standard tamper proof locking mechanism.

C. Provide a concrete base as detailed on the drawings.

D. Backflow Preventer Cage type, manufacturer and color shall be as indicated on the plans.

2.9 WATER HAMMER ARRESTOR

A. Water hammer arrestor shall be a single copper piece with a one - inch (1") threaded lead free brass connection.

B. Water hammer arrestor shall have a polypropylene piston, EDPM o-ring seal and brass NPT threaded connection.

C. Water Hammer arrestor shall be designed to operate on all domestic and commercial lines with a minimum 150 PSI working pressure.

D. Water hammer arrestor shall be the manufacturer, model and size as indicated on the drawings.

2.10 BALL VALVES

A. Ball valves for 3/4 inch through 2 - 1/2 inch shall be of Sch. 80 PVC, block, tru-union design with EDPDM seals and o-ring.

B. Ball valves for 2 inch and larger shall be gate design and shall be iron body, brass or bronze mounted AWWA gate valves, and shall have a clear waterway equal to the full nominal diameter of the valve, and shall be rubber gasket, flanged or mechanical joint only, and shall be able to withstand a continuous working pressure of 150 PSI. Valve shall be equipped with a square-operating nut.

C. All ball valves located in a valve manifold shall be the same size as the main line (1-1/2 inch size minimum). Provide pipe - reducing adapters down stream of valves, as required. All ball valves in line shall be the same size as the pipe.

D. Ball valves shall be as indicated on the drawings.

2.11 REMOTE CONTROL VALVES

A. Remote control valves shall be electrically operated, single seat, normally closed configuration, equipped with flow control adjustment and capability for manual operation.

B. Valves shall be actuated by a normally closed low wattage solenoid using 24 volts, 50/60 cycle solenoid power requirement. Solenoid shall be epoxy encased. A union shall be installed on the discharge end.

C. Remote control valves shall be wired to controller in same numerical sequence as indicated on drawings.

D. Remote control valves shall be as indicated on the drawings.

2.12 PRESSURE REGULATOR & BASKET FILTER

A. Pressure regulating basket filter shall have an operating range of 5.0 to 20.0 gallons per minute.

B. Pressure regulating basket filter shall regulate pressure to 40 psi and have an inlet pressure between 15 - 150 psi.

C. Pressure regulating basket filter shall have a 200 mesh stainless steel filtration mesh.

D. A Sch. 80 male adapter and threaded union shall be installed upstream and downstream of the pressure regulating basket filter.

E. Pressure regulator and basket shall come with a filter replacement indicator.

2.13 MASTER CONTROL VALVES

A. Master Control Valve shall be compatible with the irrigation controller.

B. Master control valves shall be as indicated on the drawings.

2.14 FLOW SENSOR

A. Flow sensor shall be compatible with the irrigation controller.

B. Flow sensor shall be as indicated on the drawings.

2.15 SWING JOINTS

A. Pop-up spray bodies or bubblers

1. Swing joint shall be low density poly tubing 0.49" in diameter.
4. Swing joints shall be pressure rated to 150 PSI
5. Swing joints shall be either ½" or ¾" in size.
6. See irrigation details for size and diameter of swing joints.

2.16 BUBBLERS

A. Fixed bubbler emitters with emission rates between ½ gallon per hour up to 2 gallons per minute.

1. Description
   j. Nozzle: ABS
   k. Internal Parts: Corrosion resistant.
   l. Pattern: Fixed
   m. Check Valve: Yes
   n. Inlet: ½" FIPT threads
   o. Pressure range: 5 - 65 psi
   p. Filtration: 100 - 150 mesh.
   q. Color: See drawings

B. All bubblers shall be as indicated on the drawings.

2.16 AUTOMATIC CONTROLLER

A. Controller shall be housed in a sturdy, locking, weather resistant case, furnished for maximum exterior protection.

B. Controller shall be equipped with evapo-transpiration (ET) sensor, which adjusts the controller programming based on local climatic conditions. The sensor shall also have a rain sensing shut-off switch, wind sensing shut off switch, and freeze sensing shut-off of switch.

C. Automatic controller shall be as indicated on the drawings.

2.17 GROUNDING RODS OR PLATES

A. All grounding rods shall be 8' x ⅝" and made of copper.

B. Grounding plates shall be a minimum of five (5') square feet and conform to ASIC earth grounding electronic equipment in irrigation systems guidelines.

C. Grounding rod wire shall be #6 AWG direct burial copper wire.

D. All connections to grounding rods or plates shall conform to ASIC Earth Grounding Electric Equipment in Irrigation Systems Guidelines.

1. Connections can be either a CADWELD® or screw clamp type of connection.
2. All clamps must be suitable for direct burial or exothermic weld.
3. The resistance reading for this connection should be less than 1 milohm.

2.18 ELECTRICAL CONTROL WIRING

A. Low voltage

1. The electrical control wire shall be direct burial type UF, no. 14 AWG, solid, single conductor, copper wire UL approved or larger, if required to operate system as designed.
3. Color code wires to each valve. Common wire shall be white.
4. If multiple controllers are being utilized, and wire paths of different controllers cross each other, both common and control wires from each controller to be of different colors.
5. Control wire splices: Splices are when required shall be placed in splice boxes.
6. Wire connections shall be per the controller manufacturer's specifications and recommendations.

B. High voltage

1. Shall be of type as required by local codes and ordinances.
2. Shall be of proper size to accommodate needs of equipment it is to serve.

2.19 VALVE BOXES AND MATERIALS

A. Valve boxes: valve boxes shall be constructed of ABS (acrylonitrile butadiene styrene) plastic, green in color, with rigid base and sides and shall be supplied with bolt lock cover secured with stainless steel bolts. Cover shall be identified as shown on drawings. Provide box extensions as required.

1. Water hammer arrestor, hydrometers 2" and smaller, master valves, flow sensors, remote control irrigation valves, gate valves, and ball valves 3 inch or less in size shall use a 14 inch x 19 inch x 12 inch rectangular box.
2. Hydrometers 3" and larger, master valves 3" and larger, and ball valves 4" and larger shall use a 33 inch x 24 inch x 15" rectangular valve box.
3. Quick coupler valves, wire splices, and grounding rods shall use a 10 inch circular box.
4. Grounding rods shall be in a 8 inch circular box.

2.20 CONCRETE THRUST BLOCKS

A. Concrete thrust blocks shall be sized per the pipe manufactures requirement or as indicated on the drawings.

2.21 VALVE IDENTIFICATION TAGS

A. Valve Identification Tags shall be 2.25 inch x 2.65 inch polyurethane. Color: potable water, yellow / Non-potable water, purple. Tags shall be permanently attached to each remote control valve with tamper proof seals as indicated on the drawings.

2.22 EQUIPMENT TO BE FURNISHED TO OWNER

A. Two (2) sets of keys for each automatic controller.

B. Two (2) 48 inch tee wrenches for operating the gate valves.

2.23 INCIDENTAL MATERIALS AND EQUIPMENT

A. Furnish all materials and equipment not specified above, but which are necessary for completion of the work as intended.

2.24 MAIN LINE LOCATOR TAPE

A. 3 - inch wide plastic detectable locator tape.

2.25 DRIP IRRIGATION

A. Drip irrigation equipment shall be of the manufacturer, model, size and flow rate as indicated on the drawings.

B. Single outlet drip emitters shall be pressure compensating, ½" threaded inlet.

1. Body material: PVC or vinyl
2. Flow rate: 1 gallon per hour.
3. Pressure regulator: Yes, at the remote control irrigation valve.
4. Cap Color: Green
5. Drip emitters shall be of the manufacturer, model, size and type indicated on the drawings.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith, but exceeding the code requirements, shall govern unless written permission to the contrary is granted by the Owner's Representative.

B. Extreme care shall be exercised at all times by the Contractor in excavating and working in the project area due to existing utilities and irrigation systems to remain. Contractor shall be fully responsible for expenses incurred in the repair of damages caused by their operation.

1. The Contractor is responsible for identifying and maintaining existing irrigation main lines that supply water to areas on the site as noted on the drawings and outside of the proposed limit of work. The Contractor shall relocate or replace existing irrigation main line piping as required to provide a continuous supply of water to all areas of existing irrigation on site.
   a. Providing continuous water supply shall include hand watering and or the use of watering trucks to provide adequate water.

C. Plan locations of backflow preventers, valves, controllers, irrigation lines, sleeves, spray heads and other equipment are diagrammatic and indicate the spacing and relative locations of all installations. Final site conditions and existing and proposed plantings shall determine final locations and adjusted as necessary and as directed to meet existing and proposed conditions and obtain complete water coverage. Minor changes in locations of the above from locations shown shall be made as necessary to avoid existing and proposed trees, piping, utilities, structures, etc. at the Contractor's expense or when directed by the Owner's Representative.

1. The Contractor shall be held responsible for relocation of any items without first obtaining the Owner's Representative's approval. The Contractor shall remove and relocate such items at their expense if so directed by the Owner's Representative.

D. Prior to any work the Contractor shall stake out locations of all pipe, valves, equipment and irrigation heads and emitters using an approved staking method and maintain the staking of the approved layout in accordance with the drawings and any required modifications. Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacing shown on drawings for any given area. If such modified spacing demand additional or less material than shown on the drawings, notify the Owner's Representative before beginning any work in the adjacent area.

E. Stub out main line at all end runs and as shown on drawings. Stub out wires for future connection where indicated on plan and as directed.

F. Point of connection shall be approximately as shown on drawings. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.

G. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the Owner. The Contractor shall receive instructions from the Owner's Representative as to the exact length of time of each shut-off.

H. No fittings shall be installed on pipe underneath pavement or walls.

I. Prior to starting any work, Contractor shall obtain a reading of existing static water pressure (no flow condition) at the designated point of connection and immediately submit written verification of pressure with date and time of recording to Owner's Representative.

APPL. NO. P20-01643 EXHIBIT L-11 DATE ________
PLANNING REVIEW BY ________ DATE ________
TRAFFIC ENG. ________ DATE ________
APPROVED BY ________ DATE ________
CITY OF FRESNO DARM DEPT

WOOD
ARCHITECTURE

1512 W. Mineral King Ave.
Visalia, Ca 93291
559.786.9600 (c)
559.636.3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
TYSON CARROLL
No 5803
Signature
4-30-22
Renewal Date
Date
STATE OF CALIFORNIA

Drawing Description
Date

NOT FOR CONSTRUCTION

Specifications
Maple St. Luxury Duplexes
Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-10

Sheet 11 of 13

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3.2 TRENCHING, DIRECTIONAL BORING AND SLEEVING

A. Perform all trenching, directional boring, sleeving and excavations as required for the installation of the work included under this section, including shoring or bracing as to prevent cave-ins.

B. The Contractor may directional bore lines where it is practical or where required on the plans.

1. Extend the bore 1' past the edge of pavement unless noted differently on the plans
2. Cap ends of each bore and locate ends at finished grade using metal stakes.
3. All boring and sleeving shall have detectable locator tape placed at the ends of the pipe.

C. Make trenches for mains, laterals and control wiring straight and true to grade and free of protruding stones, roots or other material that would prevent proper bedding of pipe or wire.

D. Excavate trenches wide enough to allow a minimum of 4-inch between parallel pipelines and 6-inch from lines of other trades. Maintain 3-inch vertical clearance between irrigation lines. Minimum transverse angle is 45 degrees. All pipes shall be able to be serviced or replaced without disturbing the other pipes.

E. Trenches for pipelines shall be made of sufficient depth to provide the minimum cover from finished grade as follows:

1. Pressure main line: 18 inches below finish grade and 24 - 30 inches below paved areas in Schedule 40 PVC sleeves.
2. Reclaimed water constant pressure main lines shall cross at least twelve (12) inches below potable water lines.
   a. If a constant pressure reclaimed water main line must be installed above a potable water line or less than twelve (12) inches below a potable water line, then reclaimed water line shall be installed within an approved protective sleeve. The sleeve shall extend ten (10) feet from each side of the center of the potable line, for a total of twenty (20) feet. The sleeve shall be color-coded (purple) for use with reclaimed water.
3. Lateral lines: 12 inches below finish grade and 18 inches below paved areas in Schedule 40 PVC sleeves.
4. Control wiring: to the side of pressure main line and 24 inches below paved areas in Schedule 40 PVC sleeves.

F. On new on-site systems (post-meter), the required horizontal separation between potable water lines, reclaimed water constant pressure main lines and sewer lines shall be a minimum of four (4) feet apart as directed by the project engineer and/or regulatory agency. Measurements shall be between facing surfaces, not pipe centerlines.

G. When trenching through areas of imported or modified soil, deposit imported or modified soils on one side of trench and subsoil on opposite side.

H. Backfill the trench per the requirements in paragraph "Backfilling and Compacting" below.

3.3 PIPE INSTALLATION

A. General Pipe Installation

1. Exercise caution in handling, loading and storing, of plastic pipe and fittings to avoid damage.
   a. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.
   b. All pipe that has been dented or damaged shall be discarded unless such dent or damaged section is cut out and pipe rejoined with a coupling.
2. Trench depth shall be as specified above from the finish grade to the top of the pipe.
3. Install a detectable pipe locator tape 6 to 8 inches above all main line pipes.

B. Polyvinyl Chloride Pipe (PVC) Installation

1. Under no circumstances is pipe to rest on concrete, rock, wood blocks, construction debris or similar items.
2. No water shall be permitted in the pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.
3. Install assemblies and pipe to conform to respective details and where shown diagrammatically on drawings, using first class workmanship and best standard practices as approved. All fittings that are necessary for proper connections such as swing joints, offsets, and reducing bushings that are not shown on details shall be installed as necessary and directed as part of the work.
4. Dielectric bushings shall be used in any connections of dissimilar metals.
5. Gasketed plastic pipe: pipe-to-pipe joints or pipe to fittings shall be made in accordance with manufacturer's specifications.
6. Solvent weld or threaded plastic pipe:
   a. Installation of all pipe and fittings shall be in strict accordance with manufacturer's specifications.
   b. Pipe shall be cut using approved PVC pipe cutters only. Sawed joints are disallowed. All field cuts shall be beveled to remove burrs and excess before gluing.
   c. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly.
   d. Plastic to metal connections shall be made with plastic adapters and if necessary, short (not close) brass threaded nipples. Connection shall be made with two (2) wraps of Teflon tape and hand tightened plus one turn with a strap wrench.
   e. Snake pipe horizontally in trench to allow one (1) foot of expansion and contraction per 100 feet of straight run.
   f. Threaded pipe joints shall be made using Teflon tape. Solvent shall not be used with threaded joints. Pipe shall be protected from tool damage during assembly. All damaged pipe shall be removed and replaced. Take up threaded joints with light wrench pressure.
   g. No close nipples or risers are allowed. Cross connections in piping is disallowed.
   h. Center load pipe at 10 feet on center intervals with small amount of backfill to prevent arching and sloping under pressure. Other than this preliminary backfill all pipe joints, fittings and connections are to remain uncovered until successful completion of hydrostatic testing and written approval of the testing report.
   i. Concrete thrust blocks shall be constructed behind all pipe fittings 1-1/2 inch diameter and larger at all changes of direction of 45 degrees or more.

C. Galvanized Pipe Installation

1. All joints shall be threaded with pipe joint compound used on all threads.
2. Dielectric bushings shall be used in any connections of dissimilar metals.

3.4 TRENCHING, DIRECTIONAL BORING, AND SLEEVING REVIEW

A. Upon completion and installation of all trenching, directional boring, and sleeving, all installed irrigation control wiring, lines and fittings shall be visually observed by the Owner's Representative unless otherwise authorized. Do not cover any wires, lines or fittings until they have been tested and observed by the Owner's Representative.

3.5 FLUSHING

A. Openings in piping system during installation are to be capped or plugged to prevent dirt and debris from entering pipe and equipment. Remove plugs when necessary to flush or complete system.

B. After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove dirt, debris or other material.

3.6 HYDROSTATIC PRESSURE TESTING

A. After flushing, and the installation of valves the following tests shall be conducted in the sequence listed below. The Contractor shall furnish all equipment, materials and labor necessary to perform the tests and all tests shall be conducted in the presence of the Owner's Representative.

B. Water pressure tests shall be performed on all pressure main lines before any couplings, fittings, valves and the like are concealed.

C. Immediately prior to testing, all irrigation lines shall be purged of all entrapped air or debris by adjusting control valves and installing temporary caps forcing water and debris to be discharged from a single outlet.

D. Test all pressure main line at 150 PSI. For a minimum of four (4) hours with an allowable loss of 5 PSI. Pressure and gauges shall be rated in PSI, and calibrated such that accurate determination of potential pressure loss can be ascertained.

E. Repeat as required until the system meets the requirements. Any leaks, which occur during test period, will be repaired immediately following the test. All pipe shall be re-tested until final written acceptance.

F. The Contractor is responsible for proving documentation stating the weather conditions, date, the start time and initial water pressure readings, the finish time and final water pressure readings and the type of equipment used to perform the test. The documentation must be signed by a witness accessible to the Owner, verifying all of the above-mentioned conditions.

G. Submit a written report of the pressure testing results with the other above required information to the Owner's Representative for approval.

3.7 BACKFLOW PREVENTER TESTING

A. The backflow preventer shall be tested according to procedures and results per the requirements of the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California or American Water Works Association whichever is more stringent.

B. Testing shall be performed by a Backflow Prevention Assembly Tester with a current certification from the Irrigation Backflow Prevention Association.

3.8 CONTROLLER CERTIFICATION

A. Controller shall be certified by Ewing Irrigation

1. Certification shall include the following:
   a. Programming by plant type, emitter type or both
      1.) Program starts shall be enabled before the moisture level in tank and reaches maximum allowed depletion (MAD).
      2.) Program stops are enabled before the moisture within the soil reaches field capacity.
   b. All flows for remote control irrigation valves have been learned.
   c. All lightning arrestors and grounding rods have been tested and meet the controller manufacturer's specification for conventional or 2-wire systems.
   d. K factor and offset are entered based upon the flow sensor model type and size
   e. Flow management has been enabled so in the event of a mainline or lateral line break the system will shut off and notify the Owner, Owner's representative and Contractor of the issue.
   f. Controller shall simulate a high flow of an irrigation valve and an unexpected flow and verify the system shuts down
      1.) A high flow flow of an irrigation valve shall be created by removing one nozzle, bubbler or drip connection.
      2.) An unexpected flow shall be created by manually turning on a remote control irrigation valve.

3.9 BACKFILLING AND COMPACTING

A. Irrigation trenches shall be carefully backfilled with material approved for backfilling and free of rocks and debris one (1) inch in diameter and larger. When back filling trenches in areas of imported or modified planting soil, replace any excavated subsoil at the bottom and the imported soil or modified planting soil at the top of the trench

B. Subsoil shall be compacted with approved equipment to the following densities

1. Backfill under pavement and within 2 feet of the edge of pavement: Compact to 95% or greater of maximum dry density standard proctor.
2. Backfill of subsoil under improved planting areas or modified existing planting soil: Between 85 and 90% of maximum dry density standard proctor.
3. Backfill of imported planting areas or modified existing planting soil: Compact to the requirements of the adjacent planting area or planting soil as specified in section "Planting Soil".

C. Finish grade of all trenches shall conform to adjacent grades without dips or other irregularities. Dispose of excess soil or debris off site at Contractor's expense.

D. Any settling of backfill material during the maintenance or warranty period shall be repaired at the Contractor's expense, including any replacement or repair of soil, lawn, and plant material or paving surface.

3.10 RESURFACING PAVING OVER TRENCHES

A. Restore all surfaces and repair existing underground installations damaged or cut as a result of the excavation to their original condition, satisfactory to the Owner's Representative.

B. Trenches through paved areas shall be resurfaced with same materials quality and thickness as existing material. Paving restoration shall be performed by the project paving Sub-contractor or an approved Contractor skilled in paving work.

C. The cost of all paving restoration work shall be the responsibility of the irrigation Contractor unless the trenching thru the paving was, by previous agreement, part of the general project related construction.

3.11 INSTALLATION OF EQUIPMENT

A. General

1. All equipment shall be installed to meet all installation requirements of the product manufacturer. In the event that the manufacturers requirements cannot be implemented due to particular condition at the site or with other parts of the design, obtain the Owner's Representative's written authorization and approval for any modifications.
2. Install all equipment at the approximately at the location(s) and as designated and detailed on the drawings. Verify all locations with the Owner's Representative.
3. Install all valves within a valve box of sufficient size to accommodate the installation and servicing of the equipment. Group valves together where practical and locate in shrub planting areas.
4. All sprinkler irrigation systems that are using water from potable water systems shall require backflow prevention. All backflow prevention devices shall meet and be installed in accordance with requirements set forth by local codes and the health department.

B. Water Hammer Arrestor.

1. Arrestor shall be located halfway between the master valve/hydrometer and the backflow prevention device in a planting area. The minimum distance between arrestor can be located between both pieces of equipment is two feet (2) on either side.
2. All threaded connections shall be made with Monster Tape.
3. All connections to and from the arrestor and pipe shall be Sch. 80.
4. Lines shall be flushed thoroughly prior to the installation of the arrestor.
5. Arrestor may be installed either parallel or perpendicular to the mainline pipe.

C. Remote control valves:

6. Install one remote control valve per valve box.
7. A Sch. 80 true union ball valves shall be installed upstream of the remote control irrigation valve.
8. A Sch. 80 union shall be installed downstream of the remote control irrigation valve.
9. Solenoid wires shall be connected to the valve wire and common wire using the controller manufacturer approved connectors.
   a. For 2-wire systems solenoid wires shall be connected to the 2-wire path and controller decoder.
5. Prior to the installation of the controller approved grease packs, irrigation connectors shall be tested at the controller for each valve.
6. Remote control valve manifolds and quick coupler valves shall be separate allowing use of a quick coupler with all remote control valves shut off.
7. Install boxes no farther than 12 inches from edge of paving and perpendicular to edge of paving and parallel to each other. Allow 12 inches clearance between adjacent valve boxes.

D. Pressure regulator & basket filter:

1. Install one (1) pressure regulator/filter per valve box.
2. A Sch. 80 male adapter and sch. 80 unions shall be installed upstream and downstream of the pressure regulator & basket filter as indicating in the drawings.
3. The pressure regulator shall be install a minimum of one foot (1) and a maximum of three feet (3) away from the remote control irrigation valve.
4. The Contractor shall remove the top of the pressure regulator & basket filter after all remote control irrigation valves, mainline and equipment have been installed and glue joints cured and flush any debris from the basket filter & pressure regulator.

E. Bubblers:

1. All main lines and lateral lines, including swing joints, shall be flushed and pressure tested before installing bubbler heads.
2. Install bubblers as shown in details at locations shown on the drawings.
3. All bubblers shall be set perpendicular to finish grade unless otherwise designated on the drawings or details.
4. All bubblers installed on slopes shall have a check valve installed between the riser and emitter.
5. Seal around the bubbler and swing joint shall be water settled to remove air pockets so that irrigation water runs through the plant root ball.

F. Grounding Rod or Plates:

1. Grounding devices shall be installed as shown in the details at locations shown on the drawings.
2. Grounding devices shall be located eight feet (8) to ten feet (10) away from the lightning arrestor.
3. Grounding devices cannot be located in the same trench as the irrigation mainline.
4. For bidding purposes, at every lightning arrester shall have two grounding devices installed. Grounding rods shall be secured to one another using #8 bare copper wire and grounding rod clamps.
5. After the grounding rods have been installed and buried in ground around the grounding rods tamped with the end of a spade shovel followed by pouring a five gallon bucket of water around the grounding rod to increase settling

G. Irrigation controllers.

1. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.
2. Controller shall be tested with complete electrical connections. The Contractor shall be responsible for temporary power to controller for operation and testing purposes.
3. Connections to control wiring shall be made within the pedestal of the controller. All wire shall follow the pressure main insofar as possible.
4. Electrical wiring shall be in a rigid gray PVC plastic conduit from controller to electrical outlet. The electrical Contractor shall be responsible for installing all wiring to the controller, in order to complete this installation. A disconnect switch shall be installed.

H. Wiring

1. Low Voltage
   a. Control wiring between controller and electrical valves shall be installed in the same trench as the main line where practical. The wire shall be bundled and secured to the lower quadrant of the trench at 10 foot intervals with plastic electrical tape.
      1.) 2 - wire controller wiring shall be installed in Sch 40 electrical conduit. Conduit shall be a minimum 1" inch in size.
   b. When the control wiring cannot be installed in the same main line trench it shall be installed a minimum of 18 inches below finish grade and a highly colored plastic ribbon with sprinkler markings shall be installed in the trench 6 inches below grade directly over the wire.
   c. An expansion loop shall be provided inside each valve box. Expansion loop shall be formed by coiling five feet (5) of wire and making it into a eighteen inch (18") circle and placing it underneath the irrigation valve and securing it with black zip ties.
   d. Provide one control wire to service each valve in system
   e. Provide 2 common wire(s) per controller.
   f. Run two (2) spare #14-1 wires from controller along entire main line to last electric remote control valve on each and every leg of main line. Label spare wires at controller and wire stub to be located in a box.
   g. All control wire splices not occurring at control valve shall be installed in a separate splice valve box.
   h. Wire markers (tested, 1 inch to 3 inch square) are to identify control wires at valves and at terminal strips of controller. At the terminal strip mark each wire clearly indicating valve circuit number.
2. High Voltage
   a. All electrical work shall conform to local codes, ordinances and any authorities having jurisdiction. All high voltage electrical work to be performed by licensed electrician.
   b. The Contractor shall provide 120-volt power connection to the automatic controller unless noted otherwise on drawings.

I. Valve boxes

1. Install one valve box for each type of valve installed as per the details.
2. Gravel sump shall be installed after completion of all trenches. Final portion of gravel shall be placed inside valve box after valve is backfilled and compacted.
3. Permanently label valve number and or controller letter on top of valve box lid using a method approved by the Owners Representative.

J. Tracer wire

1. Tracer wire shall be installed with non-metallic plastic irrigation main lines where controller wires are not buried in the same trench as the main line.
2. The tracer wire shall be placed on the bottom of the trench under the vertical projection of the pipe with spliced joints soldered and covered with insulation type tape.
3. Tracer wire shall be of a color not used for valve wiring. Terminate wire in a valve box. Provide enough length of wire to make a loop and attach wire marker with the designation "tracer wire".

3.12 ADJUSTMENT AND COVERAGE TEST

A. Adjustment

1. The Contractor shall flush and adjust all sprinkler heads, valves and all other equipment to ascertain that they function according to the manufacturer's data.
2. Adjust all sprinkler heads not to overspray onto walks, roadways and buildings when under maximum operating pressure and during times of normal prevailing winds.

B. Coverage test

1. The Contractor shall perform the coverage test in the presence of the Owner's Representative after all sprinkler heads have been installed, flushed and adjusted. Each section is tested to demonstrate uniform and adequate coverage in the planting areas serviced.
2. Any systems that require adjustments for full and even coverage shall be done by the Contractor prior to final acceptance at the direction of the Owner's Representative at no additional cost. Adjustments may also include realignment of pipes, addition of extra heads, and changes in nozzle type or size.
3. The Contractor at no additional cost shall immediately correct all unauthorized changes or improper installation practices.
4. The entire irrigation system shall be operating properly with written approval of the installation by the Owner's representative prior to beginning any planting operations.

C. Controller Programming

1. Prior to the beginning of the maintenance period the controller shall be programmed by the Contractor and approved by the Owner's Representative.
2. Assign correct date and time to the controller.
3. Connect hydrometer or flow sensor and master valve wires to the controller to the assigned ports.
   a. If the irrigation system is 2-wire, assign the respective decoders for the hydrometer or flow sensor/master valve to the water source.
4. Connect remote control irrigation valve wires to the assigned valve ports in the controller.
   a. If the irrigation system is 2-wire, assign the respective decoders for each valve to the zone number you want the valve to operate under.
5. Group similar valves to the same program.
   a. For instance all of the line valves are assigned to one program, all of the shrubs are assigned to a second program, and all of the turf valves are assigned to a 3rd program.
   b. Label each valve and give a brief description and location.
   c. Label each program and give a brief description of what it operates.

D. Learn the flow for each valve in the controller.

1. Contractor shall verify the K factor for each flow meter/hydrometer based upon the make and model of the flow equipment and controller along with the flow meter/hydrometer size.

7. Establish system parameters for how the controller is to operate when detecting an error, such parameters shall include but are not limited to:
   a. High flow alerts
   b. Low flow alerts
   c. Unexpected flows.
   d. Flow variance.

9. Contractor and Owner's Representative shall observe the site one day after controller operation through programing to verify system operation and no water runoff has occurred or breaks were present.

3.13 REPAIR OF PLANTING SOIL

A. Any areas of planting soil including imported or existing soils or modified planting soil which become compacted or disturbed or degraded as a result of the installation of the irrigation system shall be restored to the specified quality and compaction prior to beginning planting operations at no additional expense to the Owner. Restoration methods and depth of compaction remediation shall be approved by the Owner's Representative.

3.14 CLEANUP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition. At the end of each day, Remove trash and debris in containers from the site no less than once a week.

a. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures.

1. Make all repairs to grades ruts, and damage to the work or other work at the site.
2. Remove and dispose of all excess soil, packaging, and other material brought to the site by the Contractor.

3.15 PROTECTION

A. The Contractor shall protect installed irrigation work from damage due to operations by other Contractors or trespassers.

1. Maintain protection during installation until Acceptance. Treat, repair or replace damaged work immediately. The Owner's Representative shall determine when such treatment, replacement or repair is satisfactory.

3.16 PRE - MAINTENANCE OBSERVATION

A. Once the entire system shall be completely installed and operational and all planting is installed, the Owner's Representative shall observe the system and prepare a written punch list indicating all items to be corrected and the beginning date of the maintenance period.

B. This is not final acceptance and does not relieve the Contractor from any of the responsibilities in the contract documents.

3.17 GENERAL MAINTENANCE AND THE MAINTENANCE PERIOD

A. General maintenance shall begin immediately after installation of irrigation system. The general maintenance and the maintenance period shall include the following:

1. On a weekly basis the Contractor shall keep the irrigation system in good running order and make observations on the entire system for proper operation and coverage. Repair and cleaning shall be done to keep the system in full operation.
2. Records of all timing changes to control valves from initial installation to time of final acceptance shall be kept and turned over to the Owner's Representative at the time of final acceptance.
3. During the last week of the maintenance period, provide equipment familiarization and instruction on the total operations of the system to the personnel who will assume responsibility for running the irrigation system.
4. At the end of the maintenance period, turn over all operations logs, manuals, instructions, schedules, keys and any other equipment necessary for operation of the irrigation system to the Owner's Representative who will assume responsibility for the operations and maintenance of the irrigation system.

B. The maintenance period for the irrigation system shall coincide with the maintenance period for the Planting. (See specification section "Planting"

3.18 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owner's Representative shall review this work and make a determination if the work is substantially complete.

B. The date of substantial completion of the irrigation shall be the date when the Owner's Representative accepts that all work in Planting, Soil and Irrigation installation sections is complete.

3.19 FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS

A. At the end of the Plant Warranties and Maintenance period, (See specification section "Planting") the Owner's Representative shall inspect the irrigation system and establish that all provisions of the irrigation system are complete and the system is working correctly.

1. Replace any soil settlement over trenches and other parts of the irrigation system.
2. Replace, repair or reset any malfunctioning parts of the irrigation system.

B. The Contractor shall show all corrections made from punch list. Any items deemed not acceptable shall be rejected and the maintenance period will be extended.

C. The Contractor shall show evidence that the Owner's Representative has received all charts, records, drawings and extra materials as required in the specification.

D. Failure to pass review: If the work fails to pass final review, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the reviewer.

END OF SECTION 32 84 00

SECTION 32 93 00
PLANTING

PART 1 GENERAL

1.1 SUMMARY

A. The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plant materials, including but not limited to, soil preparation, amendments, and fertilizers, plant materials, and other miscellaneous items as specified herein.

B. The scope of work in this section includes, but is not limited to, the following:

1. Locate, purchase, deliver and install all specified plants.
2. Water all specified plants.
3. Mulch, fertilize, stake, and prune all specified plants.
4. Maintenance of all specified plants until the beginning of the warranty period.
5. Plant warranty.
6. Clean up and disposal of all excess and surplus material.
7. Maintenance of all specified plants during the warranty period.

1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications and general provisions contained in contract drawings. The order of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

1. Drawings and general provisions of contract including general and supplementary conditions and Division 1 specifications apply to work of this section.
2. Related Specification Sections
   a. Section - Planting Soil
   b. Section - Irrigation

B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail or as determined by the Owner's Representative.

1. State of California, Department of Food and Agriculture, Regulations for Nursery Inspections, Rules and Grading.
2. ANSI Z60.1 American Standard for Nursery Stock, most current edition
3. ANSI A 300 - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
4. Florida Grades and Standards for Nursery Stock, current edition (Florida Department of Agriculture, Tallahassee FL).
5. Interpretation of plant names and descriptions shall reference the following documents. Where the names or plant descriptions disagree between the several documents, the most current document shall prevail.
   a. USDA - The Germplasm Resources Information Network (GRIN) http://www.ars-grin.gov/npgs/searchgrin.html
   b. Manual of Woody Landscape Plants, Michael Dirr; Stipes Publishing, Champaign, Illinois; Most Current Edition
   c. The New Sunset Western Garden Book; Oxmoor House, most current edition
6. Pruning practices shall conform to recommendations "Structural Pruning: A Guide For The Green Industry" most current edition, published by Urban Tree Foundation, Visalia, California.
7. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition

1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

B. In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, list or plant schedule, the number of plants or square footage of the planting bed actually drawn on the plan drawings shall be deemed correct and prevail.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provisions of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

1.7 CHANGES IN THE WORK

A. The Owner's Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor, at their own cost, shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest as possible time that can be coordinated with other work and seasonal weather demands.

1.9 DEFINITIONS

All terms in this specification shall be as defined in the "Glossary of Arboricultural Terms" or as modified below.

A. Boxed trees: A container root ball package made of wood in the shape of a four-sided box.

B. Container plant: Plants that are grown in and/or are currently in a container including boxed trees.

C. Defective plant: Any plant that fails to meet the plant quality requirement of this specification.

D. End of Warranty Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each other.

E. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color, and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site soil, drainage and weather conditions.

F. Kinked root: A root within the root package that bends more than 90 degrees.

G. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

H. Maintenance period: The time period as defined in this specification, which the Contractor is to provide maintenance.

I. Normal: the prevailing protocol of industry standard(s).

J. Owner's Representative: The person appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work.

K. Reasonable and reasonably: When used in this specification relative to plant quality, it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.

When reasonable or reasonably is used in relation to other issues such as weeds, diseases, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Pest Management practices.

This specification recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Owner's Representative's expert shall determine when conditions are judged as reasonable.

L. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.

M. Root ball package: The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.

N. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.

O. Shrub: Woody plants with mature height approximately less than 15 feet.

P. Stem: The trunk of the tree.

Q. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different from the date of substantial completion for the other sections of the project.

R. Stem girdling root: Any root more than 1/3 inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.

S. Structural root: One of the largest roots emerging from the root collar.

T. Tree: Single and multi-stemmed plants with mature height approximately greater than 15 feet.

1.10 SUBMITTALS

A. See contract general conditions for policy and procedure related to submittals.

B. Submit all product submittals 8 weeks prior to installation of plantings.

C. Product data: Course manufacturer product data and literature describing all products required by this section to the Owner's Representative for approval. Provide submittal eight weeks before the installation of plants.

D. Samples: Submit samples of each product and material where required by the specification to the Owner's Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

E. Plant sources: Submit sources of all plants as required by Article - "Selection of Plants" to the Owner's Representative for approval.

F. Close out submittals: Submit to the Owner's Representative for approval.

1. Plant maintenance data and requirements

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: Review the soil and drainage conditions.
2. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.
3. PLANT QUALITY: Review of plant quality at nursery and prior to installation. Review tree quality prior to unboxing where possible, but in all cases prior to planting.
4. COMPLETION OF THE PLANTING: Review the completed planting.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period

1. Once the Contractor completes the installation of all items in this section, the Owner's Representative will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation.
2. Substantial Completion Acceptance by the Owner's Representative shall be for general conformance to specifications, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
3. Any plants that are deemed defective as defined under the previous below shall not be accepted.

B. The Owner's Representative will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included).

C. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.

D. Installer Qualifications: The Installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for this work, including the handling and planting of large specimen trees in urban areas. The same firm shall install planting soil (where applicable) and plant material.

1. The bidders list for work under this section shall be approved by the Owner's Representative.
2. Installer Field Supervision: When any planting work is in progress, installer shall maintain, on site, a full-time supervisor who can communicate in English with the Owner's Representative.
3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing plants and trees of the quality and scale of the proposed project, and can communicate in English with the Owner's Representative.
4. The Installer's crew shall have a minimum of 3 years experience in the installation of Planting Soil, Plantings, and Irrigation (where applicable) and interpretation of soil plans, planting plans and irrigation plans.
5. Submit references of past projects, employee training certifications that support that the Contractors meets all of the above installer qualifications and applicable licenses.

1.14 PLANT WARRANTY

A. Plant Warranty:

1. The Contractor agrees to replace defective work and defective plants. The Owner's Representative shall make the final determination if plants meet these specifications or that plants are defective.

   Plants warranty shall begin on the date of Substantial Completion Acceptance and continue for the following periods, classed by plant type:

   a. Trees - 180 day(s)
   b. Shrubs - 180 day(s)

2. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.
3. All plants shall be warranted to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. The Owner's representative shall make the final determination that plants are defective.
4. Plants determined to be defective shall be removed immediately upon notification by the Owner's Representative and replaced without cost to the Owner, as soon as weather conditions permit and within the specified planting period.
5. Any work required by this specification or the Owner's Representative during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.
6. The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism or any natural disaster.
7. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Owner.
8. The warranty of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended warranty period, the Owner's Representative may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.
9. During and by the end of the warranty period, remove all tree wrap, ties, and guying unless agreed to by the Contractor's Representative to remain in place. All trees that do not have sufficient caliper to remain upright, or those requiring additional anchorage in windy locations, shall be staked or remain staked, if required by the Owner's Representative.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

1. At the end of the warranty period, the Owner's Representative shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.
2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

1.15 SELECTION AND OBSERVATION OF PLANTS

A. The Owner's Representative may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.

B. Plant Selection: The Owner's Representative reserves the right to select and observe all plants at the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular cultivar or substandard element can be extracted at the nursery, as determined by the Owner's Representative, the agreed upon cost will be adjusted by the nursery or the Contractor provided that the remaining stock allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.

1. The Owner's Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.
2. Corrections are to be undertaken at the nursery prior to shipping.

C. The Contractor shall keep all rejected plant corrections.

D. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Owner.

E. Submit to the Owner's Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. This plant list shall contain the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.

F. Trees shall be purchased from the growing nursery. Re-wholesale plant suppliers shall not be used as sources unless the Contractor can verify that the required trees are not directly available from a growing nursery. When re-wholesale plants are used, the Contractor shall provide the Owner's Representative with a letter from the growing nursery from where the trees were originally the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.

G. The Contractor shall require the grower or re

A.

1.17 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.

B. It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Owner's Representative.

C. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.

1. Planting operations shall not begin until such time that the irrigation system is completely operational for the area(s) to be planted, and the irrigation system for that area has been preliminarily observed and approved by the Owner's Representative.

D. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.

1. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as rain or snow or during extremely hot, cold or windy conditions.

1.18 PLANTING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.

C. Notification of 811, *DIG ALERT*, is required for all planting areas. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *DIG ALERT*.

PART 2 PRODUCTS

2.1 PLANTS GENERAL

A. Standards and measurement. Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.

1. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 "American Standard for Nursery Stock" latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.

2. Plants larger than specified may be used if acceptable to the Owner's Representative. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.

3. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum and maximum size acceptable and are the measurements after pruning, where pruning is required.

B. Proper Identification. All trees shall be true to name as ordered or shown on planting plans and shall be labeled individually or in groups by genus, species, variety and cultivar.

C. Compliance. All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pests, and weeds. Observation certificates required by law shall accompany each shipment of plants.

1. Clearance from the local county agricultural commissioner, if required, shall be obtained before planting trees originating outside the county in which they are to be planted.

D. Plant Quality:

2. **General.** Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth stability and health for the expected life of the plant.

3. **Plant quality above the soil line:**

a. Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with the project Crown Acceptance details (or Florida Grades and Standards, tree grade Florida Fancy or Florida #1) and the following:

1.) Crown: The form and density of the crown shall be typical for a young specimen of the species or cultivar pruned to a central and dominant leader.

a.) Crown specifications do not apply to plants that have been specifically trained in the nursery as topiary, espalier, multi-stem, clump, or unique selections such as contorted or weeping cultivars.

2.) Leaves: The size, color, and appearance of leaves shall be typical for the time of year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.

3.) Branches: Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches.

a.) Main branches shall be distributed along the central leader not clustered together. They shall form a balanced crown appropriate for the cultivar/species.

b.) Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union.

c.) The attachment of the largest branches (scaffold branches) shall be free of included bark.

4.) Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).

5.) Temporary branches, unless otherwise specified, can be present along the lower trunk below the lowest main (scaffold) branch, particularly for trees less than 1 inch in caliper. These branches should be no greater than 3/8-inch diameter. Clear trunk should be no more than 40% of the total height of the tree.

a. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.

1.) All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.

b. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.

c. Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

3. **Plant quality at or below the soil line:**

a. Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the project Root Acceptance details and the following:

1.) The roots shall be reasonably free of scrapes, broken or split wood.

2.) The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.

3.) A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in each plant. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.

a.) Plants with structural roots on only one side of the trunk (J roots) shall be rejected.

4.) The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball.

5.) The root system shall be reasonably free of stem girdling roots over the root collar or kinked roots from nursery production practices.

a.) Plant Grower Certification. The final plant grower shall be responsible to have determined that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots, or that the previous production system used practices that produce a root system throughout the root ball that meets these specifications. Regardless of the work of previous growers, the plant's root system shall be modified at the final production stage, if needed, to produce the required plant root quality. The final grower shall certify in writing that all plants are reasonably free of stem girdling and kinked roots as defined in this specification, and that the tree has been grown and harvested to produce a plant that meets these specifications.

6.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

E. Submittals. Submit for approval the required plant quality certifications from the grower where plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements.

1. The grower's certification of plant quality does not prohibit the Owner's Representative from observing any plant or rejecting the plant if it is found to not meet the specification requirements.

2.2 ROOT BALL PACKAGE OPTIONS. The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.

A. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS

1. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.

2. Provide plants shall be established and well rooted in removable containers.

3. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.

2.2 PLANTING SOIL

A. Planting Soil as used in this specification means the soil at the planting site, or imported as modified and defined in specification Section Planting Soil. If there is no Planting Soil specification, the term Planting Soil shall mean the soil at the planting site within the planting hole.

2.6 MULCH

A. Mulch shall be "Screened Orchard Mulch" grade, coarse, ground, from tree and woody brush sources. The size range shall be a minimum (less than 20% or less of volume) fine particles 3/8 inch or less in size, and a maximum size of individual pieces (largest 20% or less of volume) shall be approximately 1 to 1-1/2 inch in diameter and maximum length approximately 4 to 8". Pieces larger than 8 inch long that are visible on the surface of the mulch after installation shall be removed.

1. It is understood that mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Owner's Representative.

B. Submit supplier's product specification data sheet and a one gallon sample for approval.

2.7 TREE STAKING AND GUYING MATERIAL

A. Tree guying to be flat woven polypropylene material, 3/4 inch wide, and 900 lb. break strength. Color to be Green. Product to be ArborTie manufactured by Deep Root Partners, L.P. or approved equal.

B. Stakes shall be lodge pole stakes free of knots and of diameters and lengths appropriate to the size of plant as required to adequately support the plant.

C. Below ground anchorage systems to be constructed of 2 x 2 dimensional untreated wood securing (using 3 inch long screws) horizontal portions to 4 feet long vertical stakes driven straight into the ground outside the root ball.

D. Submit manufacturer's product data for approval.

PART 3 EXECUTION

3.1 SITE EXAMINATION

A. Examine the surface grades and soil conditions to confirm that the requirements of the Specification Section - Planting Soil - and the soil and drainage modifications indicated on the Planting Soil Plan and Details (if applicable) have been completed. Notify the Owner's Representative in writing of any unsatisfactory conditions.

3.2 DELIVERY, STORAGE AND HANDLING

A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.

1. All plant materials must be available for observation prior to planting.

2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.

B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.

1. The Owner's Representative or Contractor shall approve the duration, method and location of storage of plants.

C. Provide protective covering over all plants during transporting.

3.3 PLANTING SEASON

A. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice. Install plants during the planting time as described below unless otherwise approved in writing by the Owner's Representative. In the event that the Contractor request planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.

1. Deciduous trees and shrubs: January to May.
2. Evergreen trees and shrubs: August to December.

3.4 ADVERSE WEATHER CONDITIONS

A. No planting shall take place during extremely hot, dry, windy or freezing weather.

3.5 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.

C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.

3.6 LAYOUT AND PLANTING SEQUENCE

A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.

B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with paint for the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.

C. When applicable, plant trees before other plants are installed.

D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.

3.7 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION

A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.

1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.

2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.

3.8 SOIL MOISTURE

A. Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.

Soil type	Permanent wilting point	Field capacity
Sand, Loamy sand, Sandy loam	5 - 8%	12 - 18%
Loam, Sandy clay, Sandy clay loam	14 - 25%	27 - 36%
Clay loam, Silt loam	11 - 22%	31 - 36%
Silty clay, Silty clay loam	22 - 27%	38 - 41%

1. Volumetric soil moisture shall be measured with a digital moisture meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent.

B. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

3.9 INSTALLATION OF PLANTS: GENERAL

A. Installation plan shall be submitted a minimum of 14 days prior to the scheduled installation. Plan should describe the methods, activities, materials and schedule to achieve installation of plants.

B. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the Owner's Representative of any condition observed.

C. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.

D. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality in Part 2 Products: Plants General Plant Quality. The Contractor shall undertake at the time of planting all modifications to the root system required by the Owner's Representative to meet these quality standards.

1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the Owner's Representative may choose to reject the plant rather than permitting the modification.

2. Any modifications required by the Owner's Representative to make the root system conform to the plant quality standards outlined in Part 2 Products: Plants General Quality, or other requirements related to the permitted root ball package shall not be considered as grounds to modify or void the plant warranty.

3. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.

4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.

E. Container and Boxed Root Ball Shaving. The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.

F. Exposed Stem Tissue after Modification. The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. DO NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.

G. Excavation of the Planting Space. Using hand tools or tracked mini-excavator, excavate the planting hole into the Planting Soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.

1. For trees and shrubs planted in soil areas that are NOT tilled or otherwise modified to a depth of at least 12 inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.

a. The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping to 2 times the diameter of the root ball at the depth of the root ball.

b. Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.

2. If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are NOT tilled or otherwise modified.

3. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.

4. If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6 inches.

H. For trees to be planted in prepared Planting Soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12 inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12 inches.

I. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.

J. The Owner's Representative may request that plants orientation be rotated when planted based on the form of the plant.

K. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space. See Specification Section Planting Soil, for requirements to modify the soil within the planting bed.

L. Brace root ball by tamping Planting Soil around the lower portion of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.

1. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.

M. Where indicated on the drawings, build a 4 inch high, level berm of Planting Soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.

N. Thoroughly water the Planting Soil and root ball immediately after planting.

O. Remove all nursery plant identification tags and ribbons as per Owner's Representative instructions. The Owner's Representative's seals are to remain on plants until the end of the warranty period.

P. Remove corrugated cardboard trunk protection after planting.

Q. Follow additional requirements for the permitted root ball packages.

3.10 PERMITTED ROOT BALL PACKAGES AND SPECIAL PLANTING REQUIREMENTS

A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.

B. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS

1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.

2. Remove the container.

3. Perform root ball shaving as defined in Installation of Plants: General above.

4. Remove all roots and substrate above the root collar and the main structural roots according to root correction details so root system conforms to root observations detail.

5. Remove all substrate at the bottom of the root ball that does not contain roots.

6. Using a hose, power washer or air excavation device, wash out the substrate from around the trunk and top of the remaining root ball and find and remove all stem girdling roots within the root ball above the top of the structural roots.

3.11 PERENNIAL PLANTS

A. Assure that soil moisture is within the required levels prior to planting. Irrigation, if required, shall be applied at least 12 hours prior to planting to avoid planting in muddy soils.

B. Assure that soil grades in the beds are smooth and as shown on the plans.

C. Plants shall be planted in even, triangularly spaced rows, at the intervals called out for on the drawings, unless otherwise noted. The first row of Annual flower plants shall be 6 inches from the bed edge unless otherwise directed.

D. Dig planting holes sufficiently large enough to insert the root system without deforming the roots. Set the top of the root system at the grade of the soil.

E. Schedule the planting to occur prior to application of the mulch. If the bed is already mulched, pull the mulch from around the hole and plant into the soil. Do not plant the root system in the mulch. Pull mulch back so it is not on the root ball surface.

F. Press soil to bring the root system in contact with the soil.

G. Spread any excess soil around in the spaces between plants.

H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.

I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.

3.13 STAKING AND GUYING

A. Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.

5. The Owner's Representative shall have the authority to require that trees are staked or to reject staking as an alternative way to stabilize the tree.

6. Trees that required heavily modified root balls to meet the root quality standards may become unstable. The Owner's Representative may choose to reject these trees rather than utilize staking to temporarily support the tree.

B. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the Owner's Representative.

C. Tree guying shall utilize the tree staking and guying materials specified. Guying to be tied in such a manner as to create a minimum 12-inch loop to prevent girdling. Refer to manufacturer's recommendations and the planting detail for installation.

1. Plants shall stand plumb after staking or guying.

2. Stakes shall be driven to sufficient depth to hold the tree rigid.

D. For trees planted in planting mix over waterproofed membrane, use dead men buried 24 inches to the top of the dead man, in the soil. Tie the guy to the dead man with a double wrap of line around the dead man followed by a double half hitch. When guys are removed, leave the dead men in place and cut the guy tape 12 inches above the ground leaving the tape end covered in mulch.

3.15 STRAIGHTENING PLANTS

A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position and then re-backfilled.

B. Do not straighten plants by pulling the trunk with guys.

3.16 INSTALLATION OF FERTILIZER AND OTHER CHEMICAL ADDITIVES

A. Do not apply any soluble fertilizer to plantings during the first year after transplanting unless soil test determines that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Owner's Representative.

B. Controlled release fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices.

3.17 PRUNING OF TREES AND SHRUBS

A. Prune plants as directed by the Owner's Representative. Pruning trees shall be limited to addressing structural defects as shown in details, follow recommendations in "Structural Pruning: A Guide For The Green Industry" published by Urban Tree Foundation, Visalia CA.

B. All pruning shall be performed by a person experienced in structural tree pruning.

C. Except for plants specified as multi-stemmed or as otherwise instructed by the Owner's Representative, preserve or create a central leader.

D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Do not climb in newly planted trees. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.

E. Remove and replace excessively pruned or malformed stock resulting from improper pruning that occurred in the nursery or after.

F. Pruning shall be done with clean, sharp tools.

G. No tree paint or sealants shall be used.

3.18 MULCHING OF PLANTS

A. Apply 5 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.

B. For trees planted in lawn areas the mulch shall extend to a 5 foot radius around the tree or to the extent indicated on the plans.

C. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

3.19 PLANTING BED FINISHING

A. After planting, smooth out all grades between plants before mulching.

B. Separate the edges of planting beds and lawn areas with a smooth, formed edge cut into the turf with the bed mulch level slightly lower, 1 and 2 inches, than the adjacent turf sod or as directed by the Owner's Representative. Bed edge lines shall be a depicted on the drawings.

3.20 WATERING

A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Substantial Completion Acceptance. The Contractor shall adjust the automatic irrigation system, if available, and apply additional or adjust for less water using hoses as required.

B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.

3.21 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative's seals are to remain on the trees and removed at the end of the warranty period.

C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.

D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.22 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory.

3.23 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.

B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.

3.24 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.

B. The date of substantial completion of the planting shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

C. The Plant Warranty period begins at date of written notification of substantial completion from the Owner's Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

3.25 MAINTENANCE DURING THE WARRANTY PERIOD BY THE PLANT INSTALLER

A. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.

B. General requirements

1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years experience supervising commercial plant maintenance crews.

2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.

3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.

4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.

5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Owner's Representative.

6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Owner's Representative's written permission.

7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Owner's Representative, and submit a copy of the logs at the end of each year of the maintenance agreement.

8. Meet with the Owner's Representative a minimum of three times a year to review the progress and discuss any changes that are needed in the maintenance program. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner's Representative. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs and soil test data. Make the Contractor's supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.

C. Provide the following maintenance tasks.

1. Watering. Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.

a. Maintain all watering systems and equipment and keep them operational.

b. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.

2. Soil nutrient levels. Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.

a. Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.

3. Plant pruning. Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Owner's Representative, do not shear plants or make heading cuts.

4. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.

5. Guying and staking. Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Owner's Representative.

6. Weed control. Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the Owner's Representative. Schedule weeding as needed but not less *4 times per month*.

7. Trash removal. Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance. The number of trash and debris removal visits shall be no less than 4 times per month and may coincide with other maintenance visits.

8. Plant pest control. Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.

a. The Owner's Representative must approve in advance the use of all chemical pesticide applications.

9. Plant replacement. Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.

10. Mulch. Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater that 5 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.

11. Bed edging. Check and maintain edges between mulch and lawn areas in smooth neat lines as originally shown on the drawings.

12. Leaf, fruit and other plant debris removal. Remove fall leaf, spent flowers, fruit and plant part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

13. Damage from site use. Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The Owner's Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Owner's Representative.

3.26 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the Owner's Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the final observation.

2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the Owner's Representative.

B. FAILURE TO PASS OBSERVATION. If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners Representative.

END OF SECTION 32 93 00

APPL. NO. P20-01643 EXHIBIT L-13 DATE
PLANNING REVIEW BY ______ DATE ______
TRAFFIC ENG. ______ DATE ______
APPROVED BY ______ DATE ______
CITY OF FRESNO DARM DEPT

NOT FOR CONSTRUCTION

WOOD ARCHITECTURE
1512 W. Mineral King Ave.
Visalia, Ca 93291
559. 786. 9600 (c)
559. 636. 3277 (f)
www.lwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT TYSON CARROLL No 5803 Signature 4-30-22 Renewal Date Date STATE OF CALIFORNIA

Drawing Description | Date

Specifications
Maple St. Luxury Duplexes
Fresno, Ca

Date: 7.3.2020
Scale: 1" = 20'
Project: 20056_WA

NORTH

L-12

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