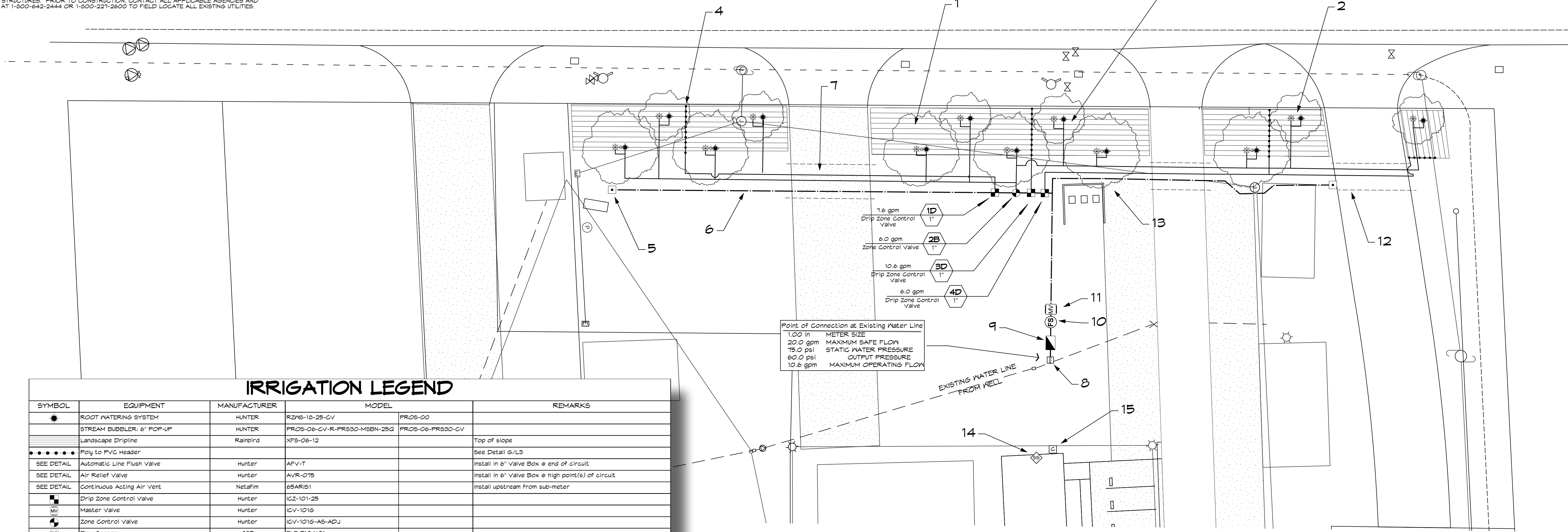


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THESE DRAWINGS COMPLY WITH THE CRITERIA OF THE ORDINANCE. ORDINANCE REQUIREMENTS HAVE BEEN APPLIED FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN AND THE LANDSCAPE DESIGN PLAN.

SANTA ROSA AVENUE



IRRIGATION LEGEND

SYMBOL	EQUIPMENT	MANUFACTURER	MODEL	REMARKS
●	ROOT WATERING SYSTEM	HUNTER	RZNS-10-25-CV	FR05-00
○	STREAM BUBBLER: 6" POP-UP	HUNTER	FR05-06-CV-R-PRS30-M5BN-25Q	FR05-06-PRS30-CV
—	Landscape Dripline	Rainbird	XFS-06-12	Top of slope
—	Poly to PVC Header			See Detail 6/L3
SEE DETAIL	Automatic Line Flush Valve	Hunter	AFV-T	Install in 6" Valve Box @ end of circuit
SEE DETAIL	Air Relief Valve	Hunter	AVR-075	Install in 6" Valve Box @ high point(s) of circuit
SEE DETAIL	Continuous Acting Air Vent	Netafim	68ARIS1	Install upstream from sub-meter
□	Drip Zone Control Valve	Hunter	IGZ-101-25	
□	Master Valve	Hunter	GV-101G	
□	Zone Control Valve	Hunter	GV-101G-AS-ADJ	
FS	Flow Sensor	CST	ELF-T10-NO1	
•	Rainbird 1" Quick Coupling Valve	Rainbird	44-NP	For non-potable water
▲	Reduced Pressure Backflow Preventer	Febco	86-QT-1	
□	Irrigation Controller - 6 Station	Hunter	IC-600-M	Wall Mount at eye level, Provide 20 Amp GFT Protected Circuit
□	Solar Sync Weather Sensor	Hunter	WS5-SN	Roof mount with clear view of sky
—	Mainline	PVC	Sch 40	
—	Lateral	PVC	Sch 40	
—	Irrigation Sleeve	PVC	Schedule 40	Size by pipe load; 2" PVC minimum
—	Valve Station and Sequence			
—	Valve Size			
—	Gallons Per Minute			

IRRIGATION PLAN
 Scale: 1" = 20'-0"

IRRIGATION NOTES

- ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE NOTED ON THE PLANS.
- THE SPRINKLER SYSTEM DESIGN IS BASED ON THE MINIMUM STATIC PRESSURE OF 35 PSI AT THE VALVES AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT THE POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION OF THE IRRIGATION SYSTEM. IF THE WATER PRESSURE SHOWN ON THE DRAWINGS DIFFERS FROM THE ACTUAL PRESSURE READINGS AT THE IRRIGATION POINT OF CONNECTION, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IMMEDIATELY. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO THE START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
- THE LOCATION OF THE CONTROLLER TO BE VERIFIED BY OWNER. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING ALL PROPOSED STATIONS TO THE CONTROLLER. CONTROLLER TO BE CONFIGURED TO OPERATE IN STATION AND ZONE MODE. SHALL BE HUNTER IC-600-M.
- ALL CONSTRUCTION IS TO BE PER THE LATEST EDITION OF THE UNIFORM BUILDING CODE.
- THIS DESIGN IS DIAGNOSTIC. ALL PIPING, VALVES, ROOT BARRIERS, ETC. SHOWN WITHIN PAVED AREAS ARE FOR DESIGN CLARIFICATION ONLY. INSTALL PIPING AND VALVES IN PLANTING AREAS WHERE POSSIBLE, AND LOCATE ELECTRIC CONTROL AND QUICK COUPLING VALVES IN GROUND COVER/SHRUB AREAS, 6" TO 12" AWAY FROM HARDSCAPE OR TURF AREA FOR EASY ACCESS.
- THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVER SPRAY ONTO WALLS, ROADWAYS, AND/OR BUILDINGS. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT THE EXISTING SITE CONDITIONS AND THROTTLING THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM.
- IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE THEMSELVES WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, STRUCTURES, AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL EXERCISE EXTREME CARE AND BE RESPONSIBLE FOR ANY DAMAGE IN EXCAVATING AND WORKING NEAR UTILITIES. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND OTHER SUB-CONTRACTORS FOR THE LOCATION OF UTILITIES AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, AND NEAR STRUCTURES. PRIOR TO CONSTRUCTION, CONTACT ALL APPLICABLE AGENCIES AND U.S.A. AT 1-800-642-2444 TO FIELD LOCATE ALL EXISTING UTILITIES.
- FIELD ADJUSTMENTS MAY BE REQUIRED TO PROVIDE OPTIMUM OPERATING EFFICIENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LANDSCAPE ARCHITECT TO REVIEW FIELD ADJUSTMENTS PRIOR TO INSTALLATION. IN THE EVENT THAT NO CONTACT IS MADE WITH THE LANDSCAPE ARCHITECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS.
- SLEEVE ALL IRRIGATION PIPE AND CONTROL WIRES UNDER STREETS AND CONCRETE WALKWAYS WITH THE PROPER SIZE GLASS FIBER REINFORCED POLYESTER (FRP) SLEEVES. SLEEVES SHALL BE INSTALLED 6" ABOVE THE IRRIGATION MAIN.
- FOR ADDITIONAL INFORMATION, SEE PROJECT DETAILS AND SPECIFICATIONS.
- ALL WORK SHALL CONFORM TO ALL APPLICABLE SONOMA COUNTY CONSTRUCTION STANDARDS.
- NO GALVANIZED IRON PIPE OR FITTINGS SHALL BE ALLOWED.
- A BALL VALVE IN A SEPARATE ROUND VALVE BOX IS TO BE INSTALLED IMMEDIATELY UPSTREAM FROM EACH REMOTE CONTROL VALVE OR GROUP OF VALVES. VALVE SHALL BE SIZED TO MAINLINE SUPPLY AT THE RC VALVE. SEE DETAIL.
- INSTALL 3" WIDE DETECTABLE TAPE (3" DTP, AS MANUFACTURED BY T. CHRISTY). TAPE SHALL BE INSTALLED 6" ABOVE THE IRRIGATION MAIN.
- INSTALL ALL LANDSCAPE DRIPLINE BENEATH MULCH. INSTALL ALL TUBING 3" BELOW GRADE, PARALLEL AT SPACING INDICATED. USE LANDSCAPE STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO SECURE TUBING TO GROUND.
- A SIGNED CERTIFICATE OF COMPLETION IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE COUNTY OF SONOMA. IF THE INSTALLATION OF THE LANDSCAPE DOES MEET OR SUBSTANTIALLY COMPLY WITH THE APPROVED LANDSCAPE CONSTRUCTION DOCUMENTS, THE CERTIFICATE OF COMPLETION WILL NOT BE SIGNED OR APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD.

IRRIGATION KEYNOTES

- INSTALL DRIPLINE 3" BELOW GRADE IN ALL RAISED PLANTERS AT 24" OC TYPICAL; ALL DRIPLINE SHALL BE INSTALLED PARALLEL AND HELD BACK FROM EDGE 1/2 THE ROW SPACING.
- TREE BUBBLERS, TWO PER TREE, TYPICAL. ONE ABOVE GRADE STREAM BUBBLER AND ONE SUB-SURFACE BUBBLER.
- TREE AREA IS CALCULATED AT A WETTED DIAMETER OF 6 FT. OR EQUIVALENT AREA. THE SAME AREA IS REMOVED FROM THE HYDROZONE BELOW THE TREE AND THE HIGHER WATER USE IS APPLIED IN THE ETWU CALCULATION.
- POLY TUBING TO PVC CONNECTION, TYPICAL.
- QUICK COUPLER, TYPICAL.
- IRRIGATION MAIN.
- IRRIGATION LATERAL.
- POINT OF CONNECTION AT EXISTING PRIVATE WELL SYSTEM; REFER TO SCHEMATIC POC LAYOUT, THIS SHEET.
- 1" REDUCED PRESSURE BACKFLOW PREVENTER.
- 1" FLOW SENSOR.
- 1" MASTER VALVE.
- TYPICAL IRRIGATION SLEEVE BENEATH PAVEMENT; SIZE SLEEVE TO CONTAIN PIPE AND WIRE PER DETAIL; MINIMUM SIZE NO LESS THAN 3" DIAMETER.
- IRRIGATION LAYOUT IS DIAGNOSTIC. INSTALL ALL MAIN LINE, LATERALS AND CONTROL WIRE IN LANDSCAPE AREAS. DO NOT INSTALL IN PUBLIC RIGHT OF WAY. WHEN LAYOUT REQUIRES INSTALLATION UNDER PAVING, USE IRRIGATION SLEEVES PER DETAIL SHEET L-3.
- SOLAR SYNC SENSOR, ROOF MOUNT WITH CLEAR ACCESS TO SKY.
- CONTROLLER LOCATION: MOUNT AT EYE LEVEL; SUBJECT TO OWNER APPROVAL.

MAWA AND ETWU CALCULATIONS

1) Maximum Applied Water Allowance (MAWA)
 MAWA = (ET0) (0.62) [(0.95 X LA) + (0.45 X SLA)]

Where:
 ET0 = Annual Net Reference Evapotranspiration (inches)
 0.45 = ET Adjustment Factor (Commercial)
 0.95 = ET Adjustment Factor (Residential)
 LA = Landscaped Area (square feet)
 SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
 0.62 = Conversion factor (to gallons per square foot)
 0.45 = the additional ET adjustment factor for Special Landscape Area (1.0 - 0.95 + 0.45) (Commercial)
 0.95 = the additional ET adjustment factor for Special Landscape Area (1.0 - 0.45 + 0.95) (Residential)

Commercial (C) or Residential (R) C

A) Net Evapotranspiration Calculation
 Local Reference ET0 = 46.51
 25.36"/yr X .25 = 6.34 (Effective Rainfall)
 Net Evapotranspiration Calculation = Annual ET0 - Effective Rainfall = 40.17

B) Adjusted Landscape Area Calculation
 5,251 sf X 0.45 Adjustment Factor = 2,365.76 sf
 0.00 sf X 0.95 Adjustment Factor = 0.00 sf
 Sum of Adjusted Landscape Area = 2,365.76 sf

MAWA = 40.17 X .62 X 2,366 sf = 58,920 gal/yr

2) Estimated Total Water Use (ETWU)
 A) Net Evapotranspiration Calculation = 40.17 sf
 Net Evapotranspiration Calculation = Annual ET0 - Effective Rainfall = 40.17 sf
 B) Adjusted Landscape Area Calculation
 0.00 sf X 0.01 = 0.00 sf
 Very Low Water Use = 5,251 sf X 0.03 = 1,577.17 sf
 Low Water Use = 0 sf X 0.06 = 0.00 sf
 Moderate Water Use = 0.00 sf X 0 = 0.00 sf
 High Water Use = 0.00 sf X 0 = 0.00 sf
 Sum of Adjusted Landscape Area = 1,577.17 sf

ETWU = 40.17 X .62 X 1,577 sf / 0.81 = 49,100 gal/yr

Irrigation Efficiency Factor
 Square Footage of Landscape on Drip = 5,251.25 sf
 Square Footage of Landscape on Spray = 0.00 sf
 Total Square Footage of Landscape = 5,251.25 sf
 Adjusted Irrigation Efficiency Factor = 0.81

DETAIL HYDROZONE TABLE

Name	Method	Water Use	Water Use Value	Hydrozone Area in SF	% of Landscape
1D	Sub-Surface Dripline	Low	0.3	1,609.48 sf	30.6%
2B	Root Watering System	Low	0.3	339.26 sf	6.5%
3D	Sub-Surface Dripline	Low	0.3	2,051.07 sf	39.0%
4D	Sub-Surface Dripline	Low	0.3	1,251.44 sf	23.9%
				5,251.25 sf	100%

SUMMARY HYDROZONE TABLE

Plant Type	Water Use By Area	% of Landscape
Very Low	0.00	0%
Low	5,251.25	100%
Moderate	0.00	0%
High	0.00	0%
Total	5,251.25	100%

PRECIPITATION RATES BY VALVE

Valve ID	Hydrozone Area	Flow in GPM	Precipitation Rates in Inches Per Hour
1D	1,609.48	7.6 GPM	0.46
2B	339.26	6.0 GPM	1.70
3D	2,051.07	10.0 GPM	0.50
4D	1,251.44	6.0 GPM	0.46

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IRRIGATION PLAN

STORAGE YARD
 4020, 4028, 4034, 4040, 4060
 SANTA ROSA AVENUE
 SANTA ROSA, CA
 APN #134-192-005, -006, -007, -016

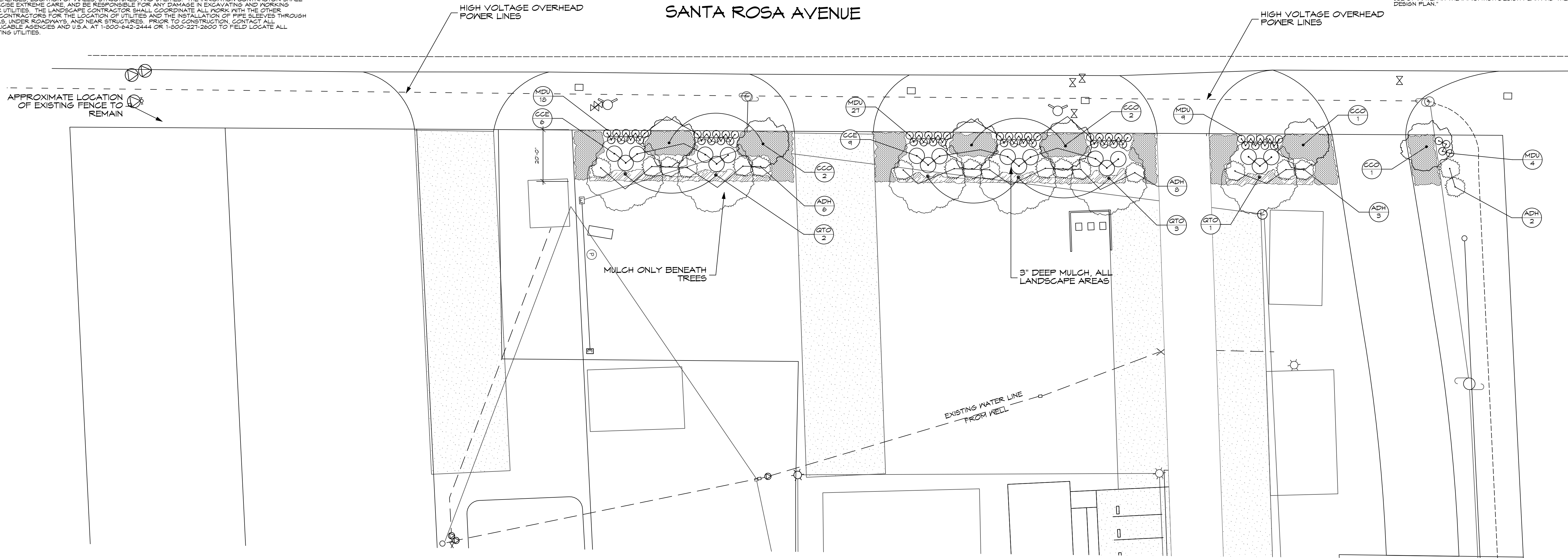
DATE: 4/10/23
 MLA JOB #: 2020-28
 SCALE: 1" = 20'
 DRAWN: DM

REV NO.	DATE	DESCRIPTION
1	4/10/23	Revise Irrigation & Planting

L1

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PLANTING PLAN 
 Scale: 1" = 20'-0"

PLANTING NOTES

1. ALL GROUND COVER TO BE SPACED IN A TRIANGULAR PATTERN. CONTRACTOR RESPONSIBLE FOR COMPLETE COVERAGE.
2. SUPPLY ADSIFORM 21 GRAM TABLETS AS FOLLOWS: 9-15 GAL., 9-9 GAL., 1-1 GAL.
3. DIG PLANTING PITS 2 TIMES THE DIAMETER AND EQUAL THE HEIGHT OF ROOTBALL.
4. BACKFILL PITS WITH 2/3 EXISTING SOIL, 1/3 ORGANIC AMENDMENT.
5. ALL PLANTS TO BE SPOTTED IN THE FIELD BY LANDSCAPE ARCHITECT PRIOR TO PLANTING.
6. WHEN LANDSCAPING IN EXISTING PLANTED AREAS, CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE OR DESTROY ANY EXISTING PLANT MATERIAL OR IRRIGATION. EXISTING PLANT MATERIAL AND IRRIGATION THAT IS DAMAGED SHALL BE REPLACED WITH LIKE, SIZE, QUALITY, ETC. BY THE CONTRACTOR AT HIS EXPENSE.
7. SPECIAL ATTENTION IS TO BE PAID TO THE PLANTING AREAS SURROUNDING THE BUILDINGS. COMPACTED SOIL IS TO BE SUFFICIENTLY EXCAVATED TO ALLOW FOR PROPER ROOT GROWTH AND DRAINAGE OF ALL AREAS. CHECK SOIL FOR PROPER DRAINAGE PRIOR TO PLANTING. AUGER THROUGH COMPACTED SOIL WHERE NECESSARY. DO NOT PLANT IN THE DRAINAGE SWALES.
8. ALL CONSTRUCTION IS TO BE PER ALL APPLICABLE AND PREVAILING SONOMA COUNTY CONSTRUCTION STANDARDS.
9. A SIGNED CERTIFICATE OF COMPLETION IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE COUNTY OF SONOMA. IF THE INSTALLATION OF THE LANDSCAPE DOES MEET OR SUBSTANTIALLY COMPLY WITH THE APPROVED LANDSCAPE CONSTRUCTION DOCUMENTS, THE CERTIFICATE OF COMPLETION WILL NOT BE SIGNED OR APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD.

SOIL ANALYSIS REPORT

IN ORDER TO REDUCE RUNOFF AND ENCOURAGE HEALTHY PLANT GROWTH, A SOIL ANALYSIS REPORT SHALL BE COMPLETED BY THE PROJECT APPLICANT, OR THEIR DESIGNEE, AS FOLLOWS:

- (1) SUBMIT SOIL SAMPLES TO A LABORATORY FOR ANALYSIS AND RECOMMENDATIONS.
 - (A) SOIL TEXTURE.
 - (B) INFILTRATION RATE DETERMINED BY LABORATORY TEST OR SOIL TEXTURE INFILTRATION RATE TABLE.
 - (C) PH.
 - (D) TOTAL SOLUBLE SALTS.
 - (E) SODIUM.
 - (F) PERCENT ORGANIC MATTER; AND
 - (G) RECOMMENDATIONS.
- (2) THE SOIL ANALYSIS SHALL INCLUDE:
 - (A) SOIL TEXTURE.
 - (B) INFILTRATION RATE DETERMINED BY LABORATORY TEST OR SOIL TEXTURE INFILTRATION RATE TABLE.
 - (C) PH.
 - (D) TOTAL SOLUBLE SALTS.
 - (E) SODIUM.
 - (F) PERCENT ORGANIC MATTER; AND
 - (G) RECOMMENDATIONS.
- (3) THE SOIL ANALYSIS REPORT SHALL BE MADE AVAILABLE, IN A TIMELY MANNER, TO THE PROFESSIONALS PREPARING THE LANDSCAPE DESIGN PLANS AND IRRIGATION DESIGN PLANS TO MAKE ANY NECESSARY ADJUSTMENTS TO THE DESIGN PLANS.
- (4) IF A GRADING PERMIT IS REQUIRED, THE SOIL ANALYSIS REPORT SHALL BE SUBMITTED TO THE COUNTY WITH THE CERTIFICATE OF COMPLETION. IF A GRADING PERMIT IS NOT REQUIRED, THE SOIL ANALYSIS REPORT SHALL BE SUBMITTED TO THE COUNTY WITH THE LANDSCAPE DOCUMENTATION PACKAGE.
- (5) THE PROJECT APPLICANT, OR HIS/HER DESIGNEE, SHALL SUBMIT DOCUMENTATION VERIFYING IMPLEMENTATION OF SOIL ANALYSIS REPORT RECOMMENDATIONS TO THE COUNTY WITH CERTIFICATE OF COMPLETION.

PLANT LEGEND

SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	WATER USE PER INCHES ² Y	QUANTITY	COMMENTS
Trees						
ECC	#24	<i>Cercis canadensis</i> 'reniformis' 'Oklahoma'	Oklahoma Redbud	.3	6	
QTO	#24	<i>Quercus tomentella</i>	Island Oak	.3	6	California Native
Shrubs						
ADH	#5	<i>Arctostaphylos densiflora</i> 'Howard McMinn'	Vine Hill Manzanita	.3	17	California Native
CCE	#5	<i>Ceanothus</i> 'Centennial'	Centennial Ceanothus	.3	18	California Native
Groundcover						
	#1	<i>Cotoneaster dammeri</i> 'Coral Beauty'	Coral Beauty Coral Beauty	0.3	51	6' OC, Triangular Spacing
Grass						
MDU	#5	<i>Muhlenbergia dubia</i>	Pine Muhly	.3	54	
Bioretention Areas						
Other						
See Detail		Mulch: Fir Bark 1-1/2" Minus	Medium Walk-On Bark			3" Depth, All Landscape Areas
See Detail		Linear Root Barrier	Root Solutions, or Equal			24" Depth, Continuous

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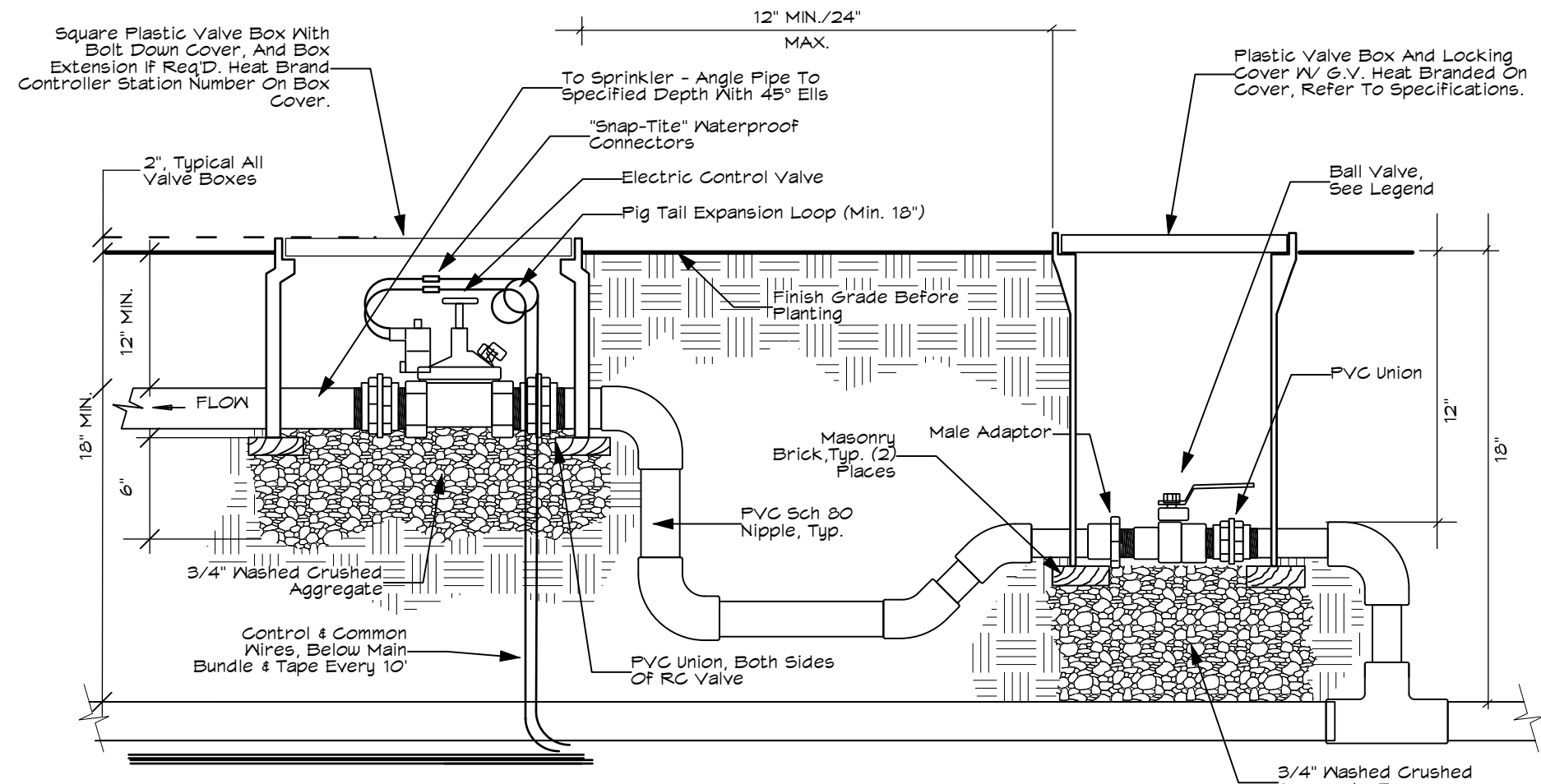
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PLANTING PLAN

STORAGE YARD
 4020, 4028, 4034, 4040, 4060
 SANTA ROSA AVENUE
 SANTA ROSA, CA
 APN #134-192-005, -006, -007, -016

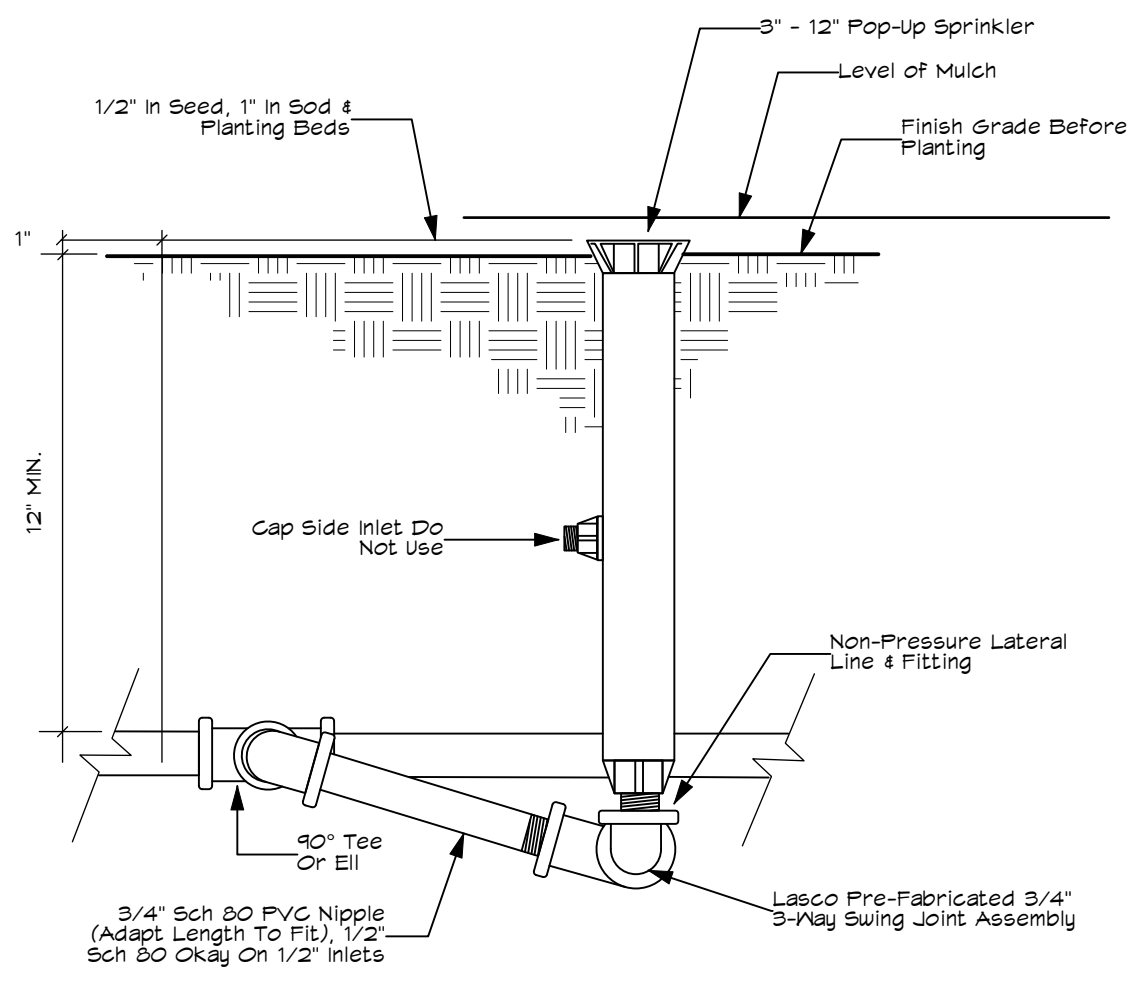
DATE: 4/10/23
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REV NO.	DATE	DESCRIPTION
1	4/10/23	Revised Irrigation & Planting



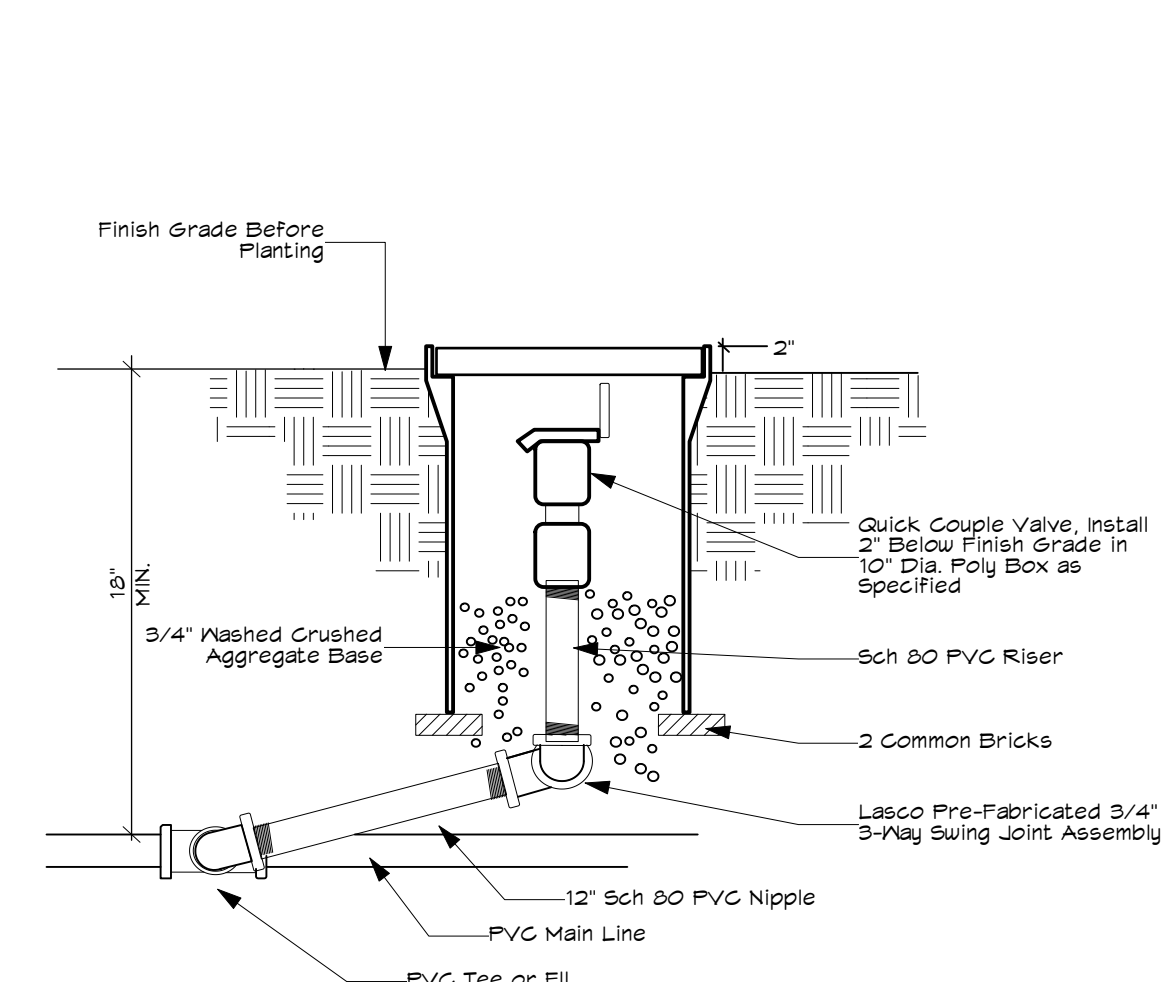
- NOTES:
- 1) INSTALL CONTROL VALVES A MINIMUM OF 18" FROM STRUCTURES OR HARDSCAPING.
 - 2) INSTALL VALVES IN PLANT BEDS WHEREVER POSSIBLE.
 - 3) PLACE VALVE BOX AT RIGHT ANGLES TO STRUCTURES OR HARDSCAPING.
 - 4) INSTALL VALVE BOX SO THAT TOP OF BOX IS FLUSH WITH ADJACENT HARDSCAPING.
 - 5) PLACE AGGREGATE PRIOR TO INSTALLATION OF VALVE BOX.
 - 6) INSTALL VALVE BOXES SO THAT TOP OF BOX IS FLUSH WITH ADJACENT HARDSCAPING.
 - 7) INSTALL ONE BALL VALVE IN BOX IMMEDIATELY UPSTREAM FROM EACH REMOTE CONTROL VALVE.

A ELECTRIC CONTROL VALVE WITH SHUT OFF
NTS



- NOTES:
- 1) LOCATE HEAD 6" FROM ALL EDGES IN LAWN AREAS. LOCATE HEAD 12" FROM ALL EDGES IN SHRUB AREAS.
 - 2) LOCATE STREAM SPRAY AND BUBBLERS HEADS 6" FROM ALL EDGES.
 - 3) USE TEFLON PASTE ON ALL MALE THREADS.

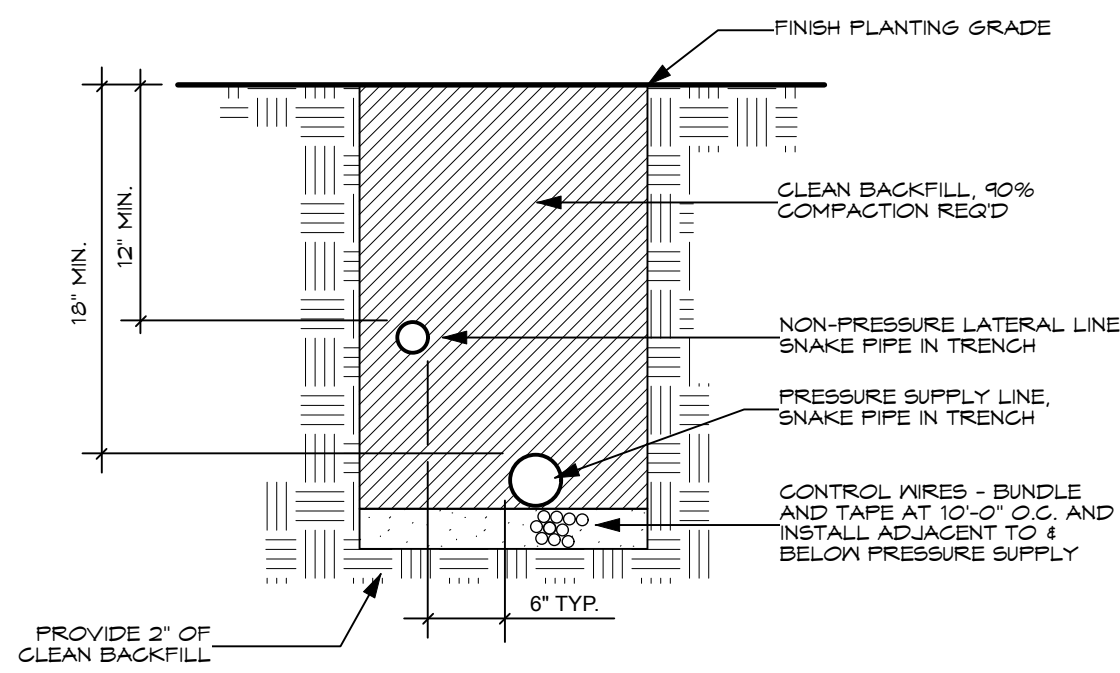
B POP-UP SPRINKLER DETAIL
INCLUDES 4", 6" AND 12"
NTS



- NOTES:
- 1) CENTER VALVE BOX OVER VALVE ASSEMBLY.
 - 2) LOCATE VALVE BOXES IN GROUND COVER/SHRUB AREAS WHEN POSSIBLE.
 - 3) SET VALVE BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.

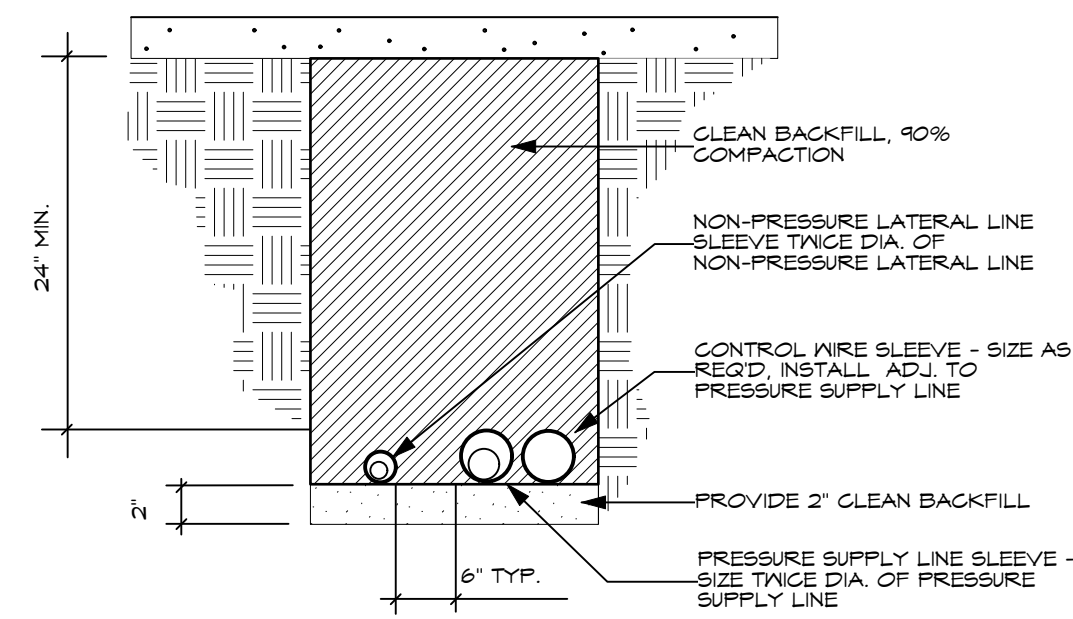
C QUICK COUPLER DETAIL
NTS

D VALVE BOX LAYOUT
NTS



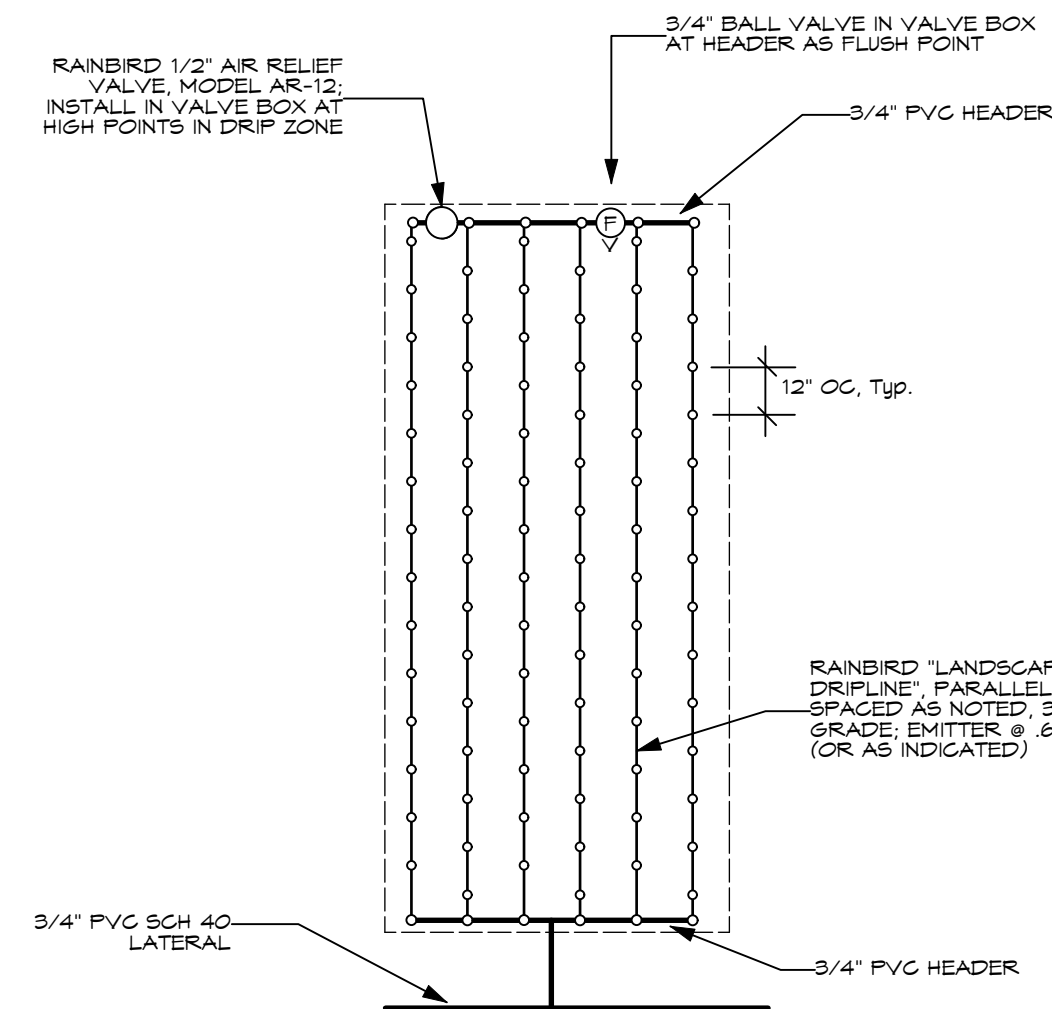
- NOTE:
- 1) PIGTAIL AND LOOP CONTROL WIRE AT ALL CHANGES IN DIRECTION.
 - 2) PROVIDE 18" EXPANSION LOOP AT ALL 90° ANGLES, AND EVERY 100' OF STRAIGHT CURVE RUN.

E PIPE INSTALLATION
IN PLANTED AREA
NTS

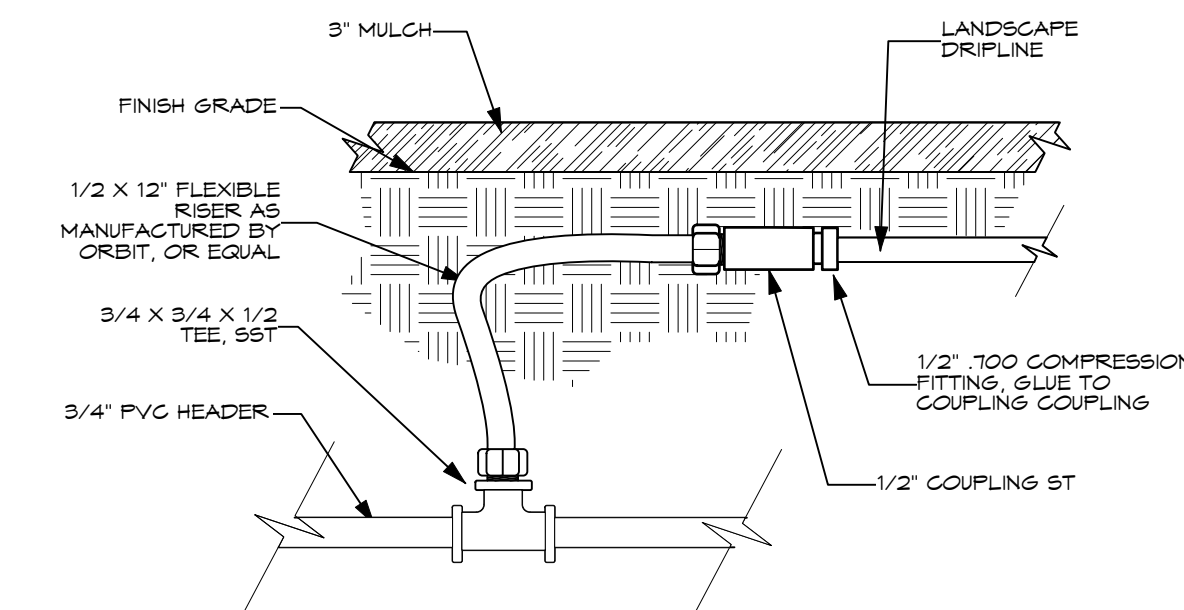


- NOTES:
- 1) ALL SLEEVES TO BE SCH 40 PVC.
 - 2) EXTEND ALL SLEEVES 12" BEYOND EDGE OF HARDSCAPING AT BOTH ENDS.

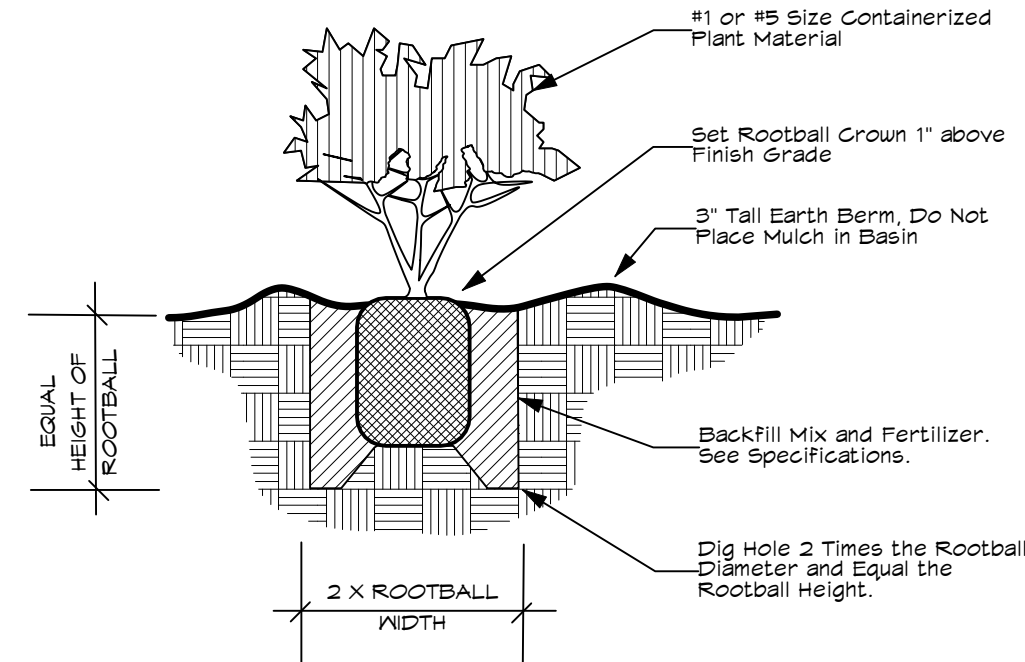
F PIPE INSTALLATION
UNDER PAVING
NTS



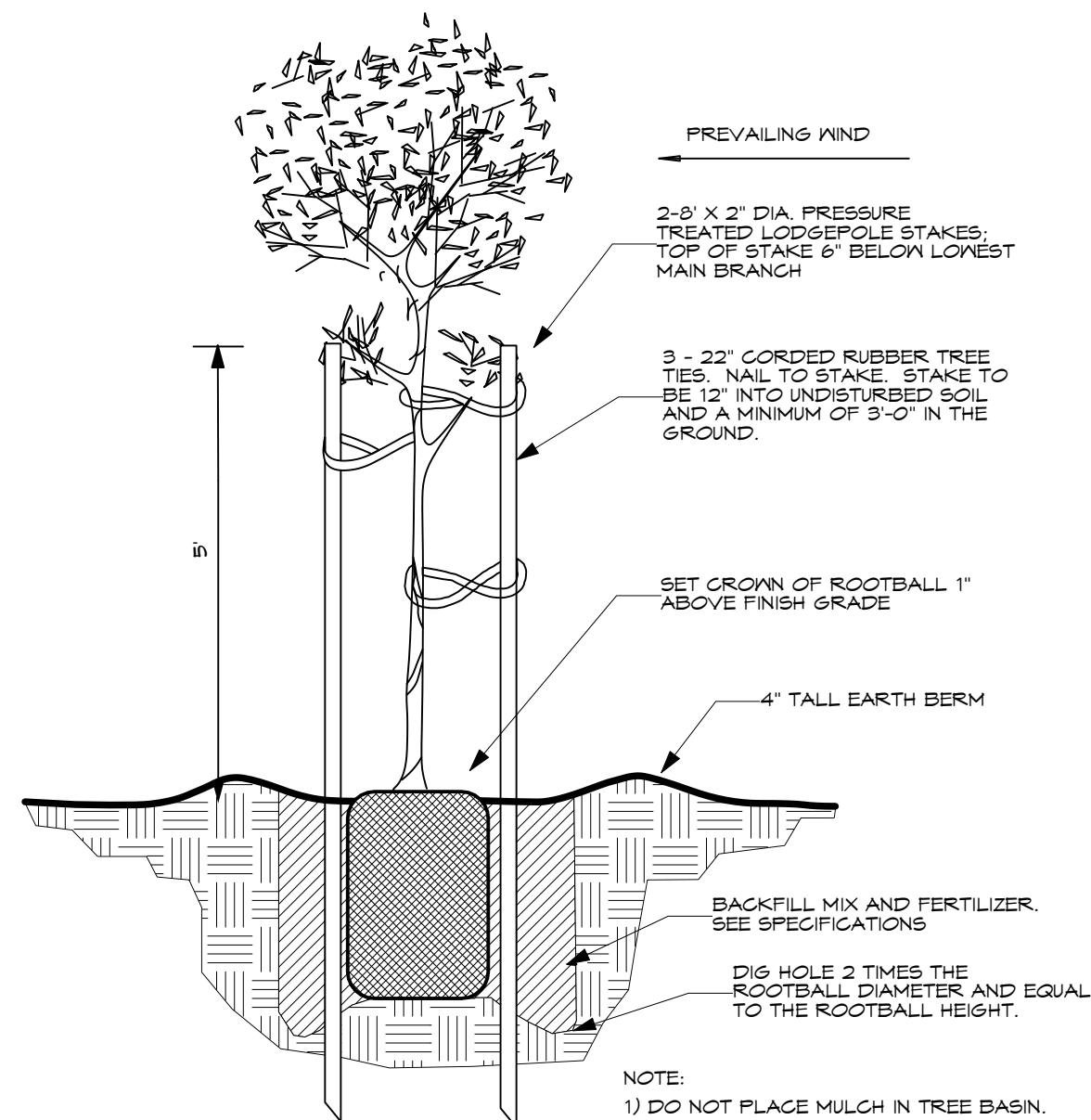
G DRIP CIRCUIT LAYOUT
NTS



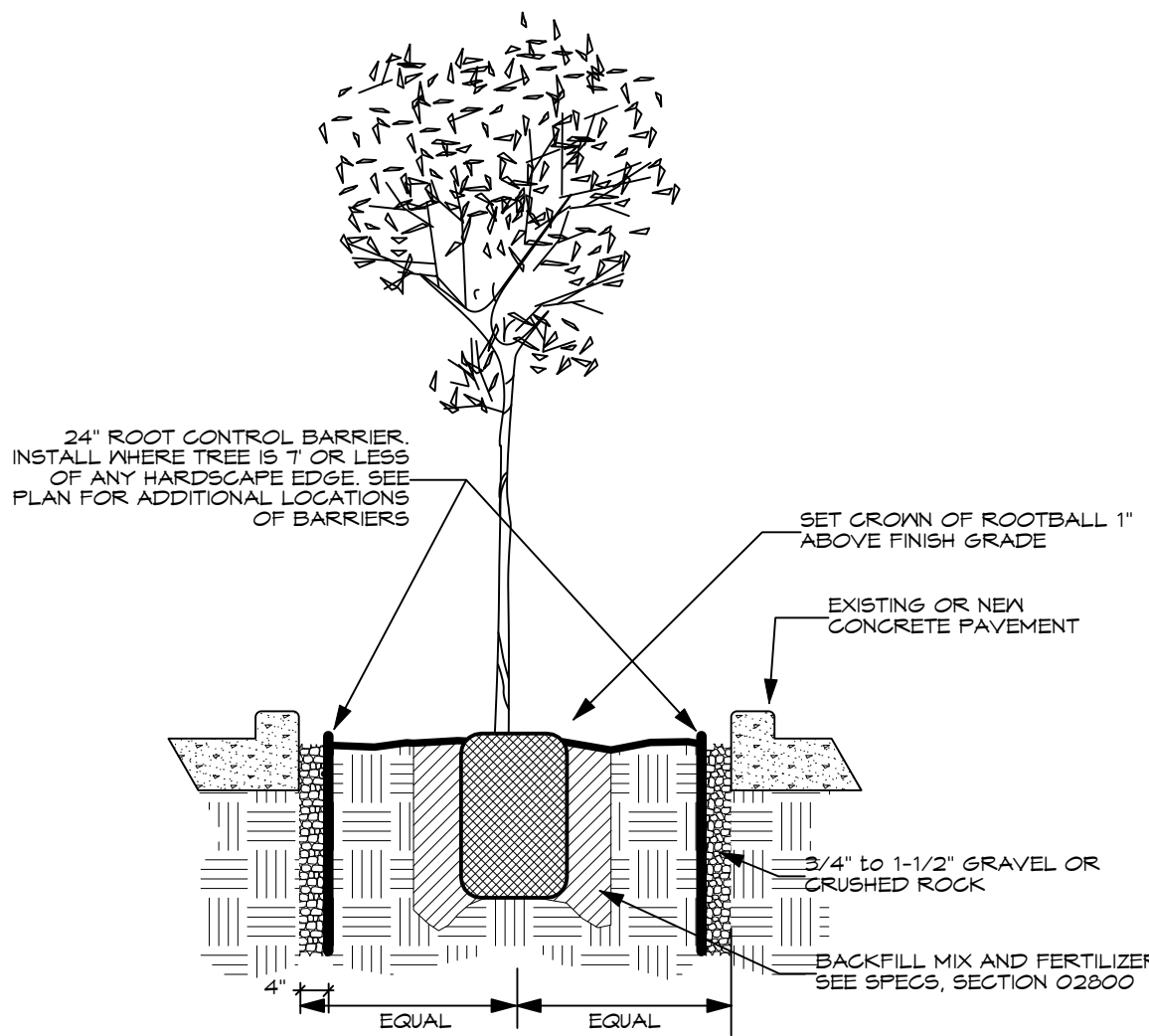
H POLY TO PVC COMPRESSION
FITTING DETAIL
NTS



I SHRUB PLANTING DETAIL
NTS

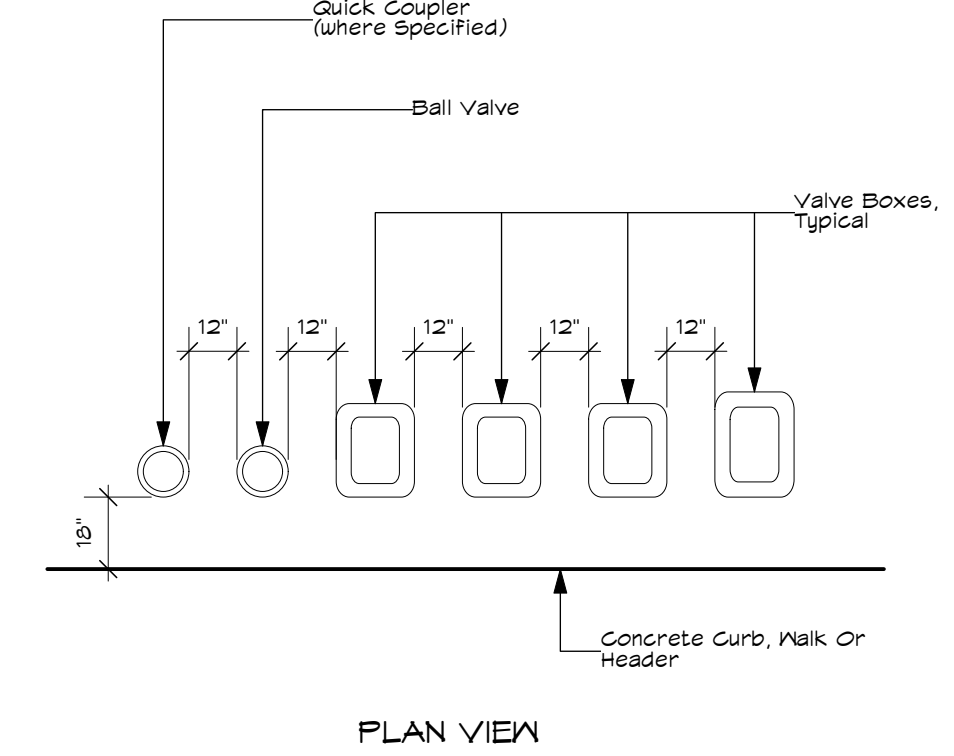


J TREE PLANTING DETAIL
NTS



- NOTE:
- 1) DO NOT PLACE MULCH IN TREE BASIN.
 - 2) PLANTING HOLE TO BE TESTED FOR DRAINAGE PRIOR TO PLANTING. IF HOLES DO NOT DRAIN WITHIN 4 HOURS CONTACT LANDSCAPE ARCHITECT.
 - 3) INSTALL ROOT BARRIER ON ALL FOUR SIDES OF PLANTER.

K TREE WELL WITH
ROOT BARRIER
NTS



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LANDSCAPE DETAILS

STORAGE YARD
4020, 4028, 4034, 4040, 4060
SANTA ROSA AVENUE
SANTA ROSA, CA
APN #134-192-005, -006, -007, -016

REV NO.	DATE	DESCRIPTION
1	4/10/23	Revise Irrigation & Planting

DATE: 4/10/23
MLA JOB #: 2020-28
SCALE: As Shown
DRAWN: DM

SECTION 2 SITE WORK
DIVISION 02750

UNDERGROUND IRRIGATION SYSTEM

PART 1 GENERAL

1.01 SCOPE

A. Work Included: perform all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

1. Furnish and install complete irrigation system.
2. Trenching and backfilling trenches.
3. Sleeves for irrigation piping and remote control valve wiring under pavements and walls as noted.

B. Related Work in Other Sections: The following items of associated work are included in other sections of these specifications:

1. Landscaping, Section 02800

C. By Others: The following items of work will be performed by others and are not included in the contract.

1. Electrical shut-off for irrigation controller.
2. Irrigation water meter.
3. Water stub-outs for irrigation system.

3.02 **INSPECTION OF CONDITIONS:** Examine related work and surfaces before starting work of this section. Report to the landscape architect in writing, conditions which will prevent the proper provision of this work. Beginning the work of this section without reporting unsuitable conditions to the landscape architect constitutes acceptance of conditions by the contractor. Any required removal, repair, or replacement of work caused by unsuitable conditions to be done at no additional cost to the owner.

1.03 CODES, RULES AND SAFETY ORDERS

A. All work and materials to be in full accordance with the latest rules and regulations of safety orders of Division of Industrial Safety, the Uniform Plumbing Code published by the Western Plumbing Officials' Association, and other applicable laws or regulations, including the preceding local plumbing code. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes. Should the construction documents, specifications, or instructions, be at variance with the aforementioned rules and regulations, notify the landscape architect and get instructions before proceeding with the work affected.

B. Furnish and maintain all warning signs, shoring, barricades, red lanterns, etc., as required by the Safety Orders of the Division of Industrial Safety and local ordinances.

C. Contact U.S.A. for location of underground utilities.

1.04 **STANDARDS:** American Society of Testing and Materials (ASTM).

1.05 **PERMITS AND FEES:** Obtain all permits and pay required fees to any governmental agency having jurisdiction over the work. Arrange inspections required by local agencies and ordinances during the course of construction as required.

1.06 **APPROVAL:** Wherever the terms "approve", "approved", or "approved" are used in the specifications, they mean approval of landscape architect in writing.

1.07 **WORK SCHEDULE:** Submit a proposed work schedule to landscape architect at least 5 days prior to start of work under this Section. After approval, no modification shall be made to this schedule without written authorization by the landscape architect.

1.08 **OBSERVATION SCHEDULE:** Coordinate with the landscape architect at least 5 days before beginning work under this Section. All requests for observation must be made 72 hours in advance.

A. Job start meeting

The purpose of this conference is to review questions the contractor may have regarding the work, administrative procedures during construction and project work schedule.

B. Irrigation installation and hydrostatic tests

Observation of installation and hydrostatic test results to be made by the landscape architect prior to backfilling of trenches.

C. Pre-maintenance

When all work has been completed a pre-maintenance walk-through will be conducted. If approved, the 90 calendar day maintenance period will begin.

D. Final Observation

Final observation will be after the 90 calendar day maintenance period and all required work is completed. Please give 1 week notice to this observation meeting.

1.09 **SUBSTITUTIONS**

A. Specific reference to manufacturer's names and products specified in this Section are used as standards, but this implies no right to substitute other material or methods without written approval of the landscape architect.

B. Installation of any approved substitution is contractor's responsibility. Any changes required for installation of any approved substitution must be made to the satisfaction of the landscape architect and without additional cost to the owner.

C. Contractor shall promptly notify landscape architect for instructions as to further action. Failure to do so will make contractor liable for any and all damage thereto arising from their operations subsequent to discovery of such utilities not shown on plans.

1.11 **COORDINATION:** Coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible.

1.12 **PRODUCT HANDLING:** Protect work and materials under this Section from damage during construction and storage. Protect polyvinyl chloride (PVC) pipe and fittings from direct sunlight. Beds on which PVC is stored must be full length of pipe. Do not use any pipe or fitting that has been damaged or dented.

1.13 **SAMPLES:** Landscape architect reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by the landscape architect. Rejected material shall be removed from the site immediately and replaced at the contractor's expense. Cost of testing materials not meeting specifications shall be paid by contractor.

1.14 **HYDROSTATIC TESTS**

A. Make hydrostatic tests when wet laid PVC joints have cured at least 24 hours. Apply continuous static water pressure of 100 psi as follows:

1. All piping on the pressure side of control valves shall be tested for two hours.
2. Point completion of hydrostatic test, mainline shall be opened at farthest most point from the location of the pump to verify continuity of the mainline.
- B. Leaks resulting from tests shall be repaired and tests repeated until system passes tests.

1.15 **"AS-BUILT" IRRIGATION DRAWINGS:** Contractor shall furnish Record Drawings of the complete irrigation system. Procedure from the landscape architect full sized sheets of Contract Drawings. Construction drawings shall be on the construction site at all times while the irrigation system is being installed. Actual location of valves and all irrigation and drainage piping shall be shown on the prints by dimensions from easily identified permanent features, such as buildings, curbs, fences, walks or property lines. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The drawings shall be at scale and all indications shall be neat. All information noted on the print shall be transferred to the prints by contractor and all indications shall be recorded in a neat, orderly way. The record drawings shall be turned over to the landscape architect at or before the Final Acceptance of the project.

1.16 **CONTROLLER CHARTS**

1. As-built drawings shall be approved by the landscape architect before charts are prepared.
2. Provide one controller chart for each controller supplied.
3. The chart shall show the area controlled by automatic controller and shall be the maximum size controller door will allow.
4. The chart is to be reduced drawing of the actual as-built system. However, in the event the controller sequence is not available when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. Chart shall be black line print and a different color shall be used to show area of coverage for each station.

6. The chart shall be mounted using Velcro, or an approved equal.

7. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils. thick.

8. Three charts shall be completed and approved prior to final inspection of the irrigation system.

1.17 MATERIALS TO BE FURNISHED

A. Prior to final inspection the contractor shall furnish the following materials to the owner:

1. Two wrenches for disassembling and adjusting each type of sprinkler head supplied.
2. Two keys for each automatic controller.
3. Four keys for loose key hose bibs and/or hose bibs.
4. Twelve 12 inch pop-up sprinkler bodies.

1.18 **CLEAN-UP:** Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during installation. Clean up and remove all debris from the entire work area prior to Final Acceptance to satisfaction of landscape architect.

1.19 **FINAL ACCEPTANCE:** Work under this Section will be accepted by landscape architect upon satisfactory completion of all work. Upon Final Acceptance, owner will assume responsibility for maintenance of the work. Said assumption does not relieve contractor of obligations under Warranty.

1.20 **WARRANTY:** In addition to manufacturer's warranties or warranties, all work shall be warranted for one year from the date of Final Acceptance against defects in material, equipment and workmanship by contractor. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the owner.

PART 2 MATERIALS

2.01 **GENERAL:** Materials throughout the system shall be new and in perfect condition. At least 14 days prior to beginning work, submit for approval 2 copies of manufacturer's catalog cuts, specifications, and operating instructions of the complete list of materials and assemblies to be installed. Quantities of materials and equipment need not be included. No deviations from the specifications shall be allowed. The decision of the landscape architect shall be final in the determination of the quality of materials and equipment.

2.02 **WATER METERS:** Shall be provided by others.

2.03 PIPE

A. Mainline piping on pressure side of irrigation control valves:

1. 2" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
2. Up to and including 1-1/2" size to be Polyvinyl Chloride (P.V.C.) 1120-1220, Schedule 40 and shall conform to ASTM D 1785-73.
3. Galvanized Steel, Schedule 40, capable of working pressure up to 600 psi shall run from the point of connection to back flow prevention device.
4. Piping in the point of connection to the back flow prevention device shall be as approved by local code.

B. Lateral line piping on non-pressure side of irrigation control valves:

1. 2" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
2. Up to and including 1-1/2" size to be Polyvinyl Chloride (P.V.C.) 1120-1220, Schedule 40 and shall conform to ASTM D 1785-73.

2.04 FITTINGS

A. PVC Fittings: Schedule 40, Polyvinyl Chloride, high impact weight, as manufactured by Sloane, Lasco, medium or approved equal.

B. Fittings for Galvanized Steel Pipe: Schedule 40, standard weight as manufactured by Grinnell, or approved equal.

C. Connections between main and valves shall be PVC Schedule 80 nipples and fittings.

2.05 SLEEVE MATERIALS

A. For Control Wires: PVC 1120-1220, Class 200 pipe or heavy wall galvanized steel conduit.

B. For Water Lines: PVC 1120-1220, Class 200 pipe or heavy wall galvanized steel conduit.

2.06 IRRIGATION CONTROLLERS

A. Controller to be as shown on plans and to be installed as per detail and manufacturer's specifications.

2.07 IRRIGATION CONTROL VALVES

A. Remote Control Valves: Valves to be as shown on plans and installed per details and manufacturer's specifications.

2.08 CONTROL WIRE

A. Wire: Solid copper wire, U.L. approved for direct burial in ground. Minimum gauge: #14. Common ground wire shall be white.

B. Splicing Materials: Wire connectors shall be Penrite or split connectors. Material or methods without written approval of the landscape architect.

C. All wires shall be labeled with the valve number at the controller and valve.

D. 120 wiring shall be as required by local code and installed by an electrician. It shall not be on a switched circuit.

E. Common wire shall be white. Control wires shall be other than white. Use a different color control wire for each controller.

2.09 VALVE BOXES

A. Remote Control Valves: To be Brooks. Green or approved equal, one per valve.

B. Gate Valves and Control Wire Stub-out Locations: To be Brooks. Green or approved equal, one per valve stub-out location.

2.10 QUICK-COUPLING VALVES

A. Quick coupling valves to be as per plans and details.

B. Furnish 2 valve keys fitted with hose valve assembly.

C. All valve boxes shall be purple in color or clearly labeled by the manufacturer to designate restrained water.

2.11 **LANDSCAPE DRIP-LINE:** Tubing as shown in legend and drawings.

A. Install in parallel and consistent runs at spacing indicated in all specified areas.

B. Backfill for all trenches, regardless of the type of pipe covered, shall be compacted to minimum 95% density under pavements, 85% under planted areas.

2.12 SPRINKLER HEADS

A. Heads as shown in legend and drawings.

2.13 BACK-FLOW PREVENTION ASSEMBLIES

A. Back-flow prevention device as shown in legend and drawings.

PART 3 EXECUTION

3.01 LAYOUT

A. Layout work as accurately as possible to drawings. Drawings are diagrammatic to the extent that swing joints, offsets and all fittings are not shown.

B. Full and complete coverage is required. Contractor shall make any necessary minor adjustments to layout required to achieve full coverage of irrigated areas at no additional cost to owner.

PART 1 GENERAL

1.01 SCOPE

A. Work Included: Perform all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

1. Site preparation including weed and rubble removal.
2. Laboratory soil analysis.
3. Fumishing and spreading topsoil.
4. Finish grading of planted areas.
5. Soil amendment.
6. Planting.

B. Related Work: The following items of associated work are included in other sections of these specifications.

C. Dig trenches wide enough to allow a minimum of 6 in. between parallel pipe lines. Trenches shall be of sufficient depth to provide minimum cover from finish grade as follows:

1. Over PVC pipe on pressure side of irrigation control valve, control wires and quick coupling valves: 18 inches.
2. Over pipe on non-pressure side of irrigation control valve: 12 inches.

3.03 BACK FLOW PREVENTION DEVICE INSTALLATION

A. Install according to local code and manufacturer's instructions.

3.04 SLEEVING

A. Where pipes or wires must be installed under paving place them in sleeves with a 24" minimum depth and sufficient size to accommodate irrigation lines and/or wires.

B. Lack of pipe chase coordination does not relieve the contractor from installing the pipes and control wire shown on the drawing. In the event pipe chases were not installed prior to paving the contractor shall bore under the paving to accommodate pipes and wires.

C. All control wire shall be in Schedule 40 conduit from trench to controller. When valves are grouped together allow 12" between valve boxes, each valve in a separate box, (not to be placed in drainage boxes, but kept in ground cover areas.)

1.20 **WARRANTY:** In addition to manufacturer's warranties or warranties, all work shall be warranted for one year from the date of Final Acceptance against defects in material, equipment and workmanship by contractor. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the owner.

PART 2 MATERIALS

2.01 **GENERAL:** Materials throughout the system shall be new and in perfect condition. At least 14 days prior to beginning work, submit for approval 2 copies of manufacturer's catalog cuts, specifications, and operating instructions of the complete list of materials and assemblies to be installed. Quantities of materials and equipment need not be included. No deviations from the specifications shall be allowed. The decision of the landscape architect shall be final in the determination of the quality of materials and equipment.

2.02 WATER METERS: Shall be provided by others.

2.03 PIPE

A. Mainline piping on pressure side of irrigation control valves:

1. 2" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
2. Up to and including 1-1/2" size to be Polyvinyl Chloride (P.V.C.) 1120-1220, Schedule 40 and shall conform to ASTM D 1785-73.
3. Galvanized Steel, Schedule 40, capable of working pressure up to 600 psi shall run from the point of connection to back flow prevention device.
4. Piping in the point of connection to the back flow prevention device shall be as approved by local code.

B. Lateral line piping on non-pressure side of irrigation control valves:

1. 2" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
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A. PVC Fittings: Schedule 40, Polyvinyl Chloride, high impact weight, as manufactured by Sloane, Lasco, medium or approved equal.

B. Fittings for Galvanized Steel Pipe: Schedule 40, standard weight as manufactured by Grinnell, or approved equal.

C. Connections between main and valves shall be PVC Schedule 80 nipples and fittings.

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A. For Control Wires: PVC 1120-1220, Class 200 pipe or heavy wall galvanized steel conduit.

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A. Remote Control Valves: Valves to be as shown on plans and installed per details and manufacturer's specifications.

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C. All wires shall be labeled with the valve number at the controller and valve.

D. 120 wiring shall be as required by local code and installed by an electrician. It shall not be on a switched circuit.

E. Common wire shall be white. Control wires shall be other than white. Use a different color control wire for each controller.

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2. Laboratory soil analysis.
3. Fumishing and spreading topsoil.
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B. Related Work: The following items of associated work are included in other sections of these specifications.

C. Use Teflon tape on all threaded fittings.

D. Thrust blocks shall be installed where the irrigation main changes direction as at elbows and tees and where the irrigation main terminates. Pressure tests shall not be made for a period of 36-48 hours following the completion of pouring of the thrust blocks. Concrete thrust blocks for supply mains shall be sized and placed in strict accordance with the pipe manufacturer's specifications and shall be of an adequate size and so placed as to take all thrust created by the maximum internal B. Related Work: The following items of associated work are included in other sections of these specifications.

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2.0