SHEET SIZE: 24" X 36"

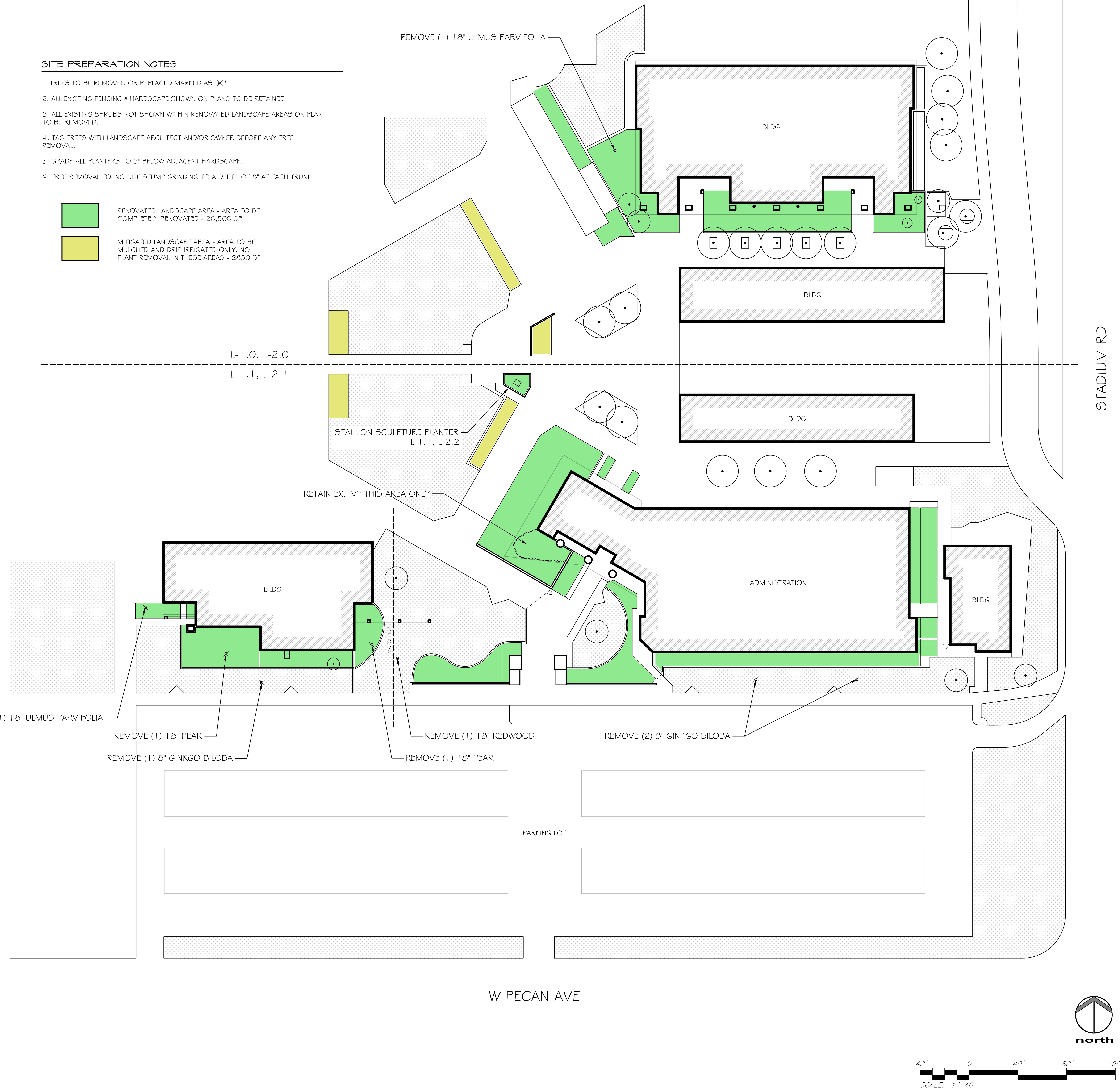
Bid No.011625-MSHS Landscape Project

SITE PREPARATION NOTES

1. TREES TO BE REMOVED OR REPLACED MARKED AS '⌘'
2. ALL EXISTING FENCING & HARDSCAPE SHOWN ON PLANS TO BE RETAINED.
3. ALL EXISTING SHRUBS NOT SHOWN WITHIN RENOVATED LANDSCAPE AREAS ON PLAN TO BE REMOVED.
4. TAG TREES WITH LANDSCAPE ARCHITECT AND/OR OWNER BEFORE ANY TREE REMOVAL.
5. GRADE ALL PLANTERS TO 3" BELOW ADJACENT HARDSCAPE.
6. TREE REMOVAL TO INCLUDE STUMP GRINDING TO A DEPTH OF 8" AT EACH TRUNK.

RENOVATED LANDSCAPE AREA - AREA TO BE COMPLETELY RENOVATED - 26,500 SF

MITIGATED LANDSCAPE AREA - AREA TO BE MULCHED AND DRIP IRRIGATED ONLY, NO PLANT REMOVAL IN THESE AREAS - 2850 SF



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SHEET TITLE
LANDSCAPE SITE & DEMOLITION PLAN

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB

OWNER APPROVAL

STAMP
LICENSED LANDSCAPE ARCHITECT
STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-0.0

SHEET SIZE: 24" X 36"

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SHEET TITLE
LANDSCAPE RENDERINGS

PROJECT NAME & ADDRESS
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705 W PECAN AVE
MADERA, CA, 93637

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LICENSED LANDSCAPE ARCHITECT
Daniel Mazawa LA 6835
Signature
3/31/2020
Raymond Daria
6/27/24
Daria
STATE OF CALIFORNIA

PROJECT NUMBER
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FILE NAME
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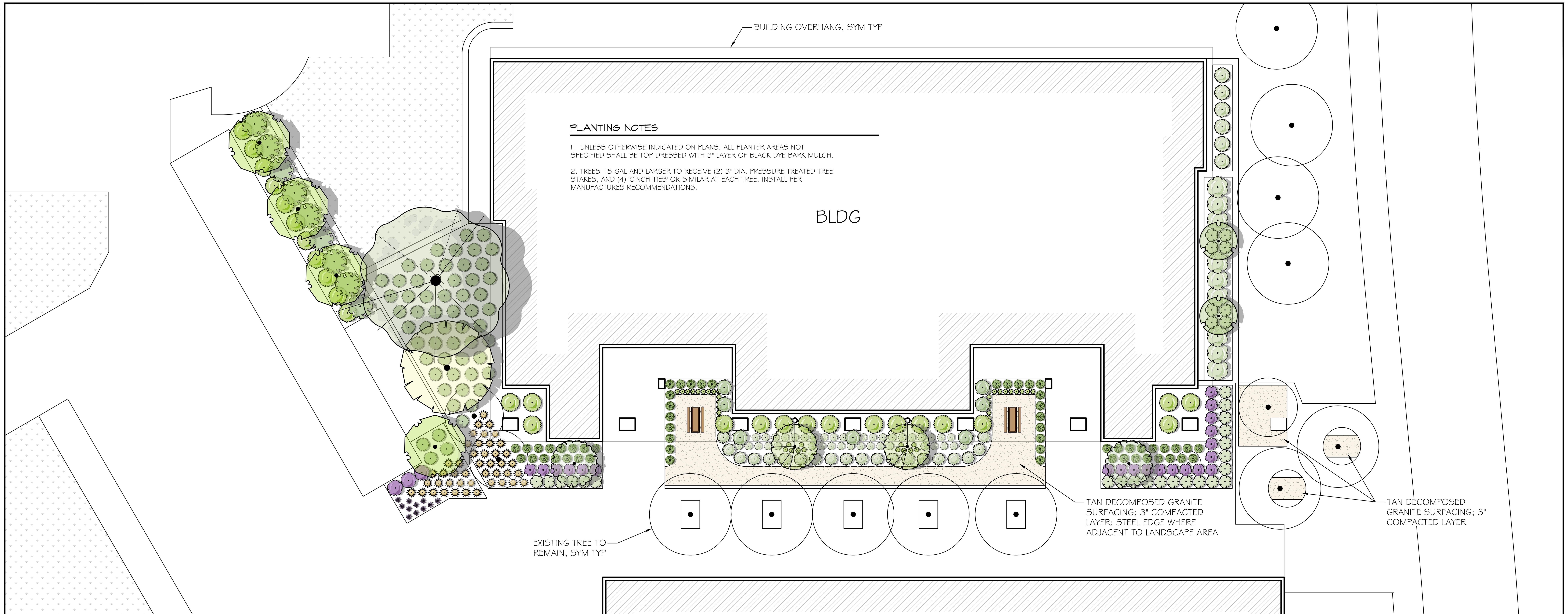

PLANTING NOTES

1. UNLESS OTHERWISE INDICATED ON PLANS, ALL PLANTER AREAS NOT SPECIFIED SHALL BE TOP DRESSED WITH 3" LAYER OF BLACK DYE BARK MULCH.

2. TREES 15 GAL AND LARGER TO RECEIVE (2) 3" DIA. PRESSURE TREATED TREE STAKES, AND (4) 'CINCH-TIES' OR SIMILAR AT EACH TREE. INSTALL PER MANUFACTURES RECOMMENDATIONS.

PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL / COMMON NAME	CONT	H X W
TREES				
	2	ACER PALMATUM 'SANGU KAKU' / JAPANESE MAPLE, NATURAL BRANCHING	EXISTING	15-25`H X 15-20`W
	8	CERCIS CANADENSIS / EASTERN REDBUD	24" BOX	20-30`W X 20-30`H
	8	CINNAMOMUM CAMPHORA / CAMPHOR TREE	24" BOX	30-50`H X 30-50`W
	5	GINKGO BILOBA / MAIDENHAIR TREE	24" BOX	30-50`H X 30-50`W
	14	LAGERSTROEMIA INDICA X FAURIEI 'NATCHEZ' / NATCHEZ CRAPE MYRTLE, STANDARD	24" BOX	15-25`H X 15-20`W
	8	LAURUS NOBILIS / SWEET BAY	24" BOX	20-30`H X 10-20`W
	2	QUERCUS LOBATA / VALLEY OAK	48" BOX	50-70`H X 40-50`W

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	H X W
SHRUBS				
	27	ABELIA X GRANDIFLORA 'CONFETTI' / VARIEGATED GLOSSY ABELIA	1 GAL	2-3`H X 3-5`W
	18	AGAPANTHUS X 'MP003' / EVER AMETHYST™ AFRICAN LILY	1 GAL	2-3`H X 1-2`W
	13	BUDDLEJA X 'BLUE KNIGHT' / BLUE KNIGHT BUTTERFLY BUSH	5 GAL	4-6`H X 4-6`W
	26	CISTUS PULVERULENTUS `SUNSET` / ROCKROSE	1 GAL	2-3`H X 6-8`W
	49	CISTUS X HYBRIDUS / WHITE ROCKROSE	1 GAL	2-3`H X 4-6`W
	34	CLIVIA MINIATA 'BELGIAN HYBRID YELLOW' / BELGIAN HYBRID YELLOW BUSH LILY	1 GAL	2-3`H X 2-3`W
	95	COTONEASTER DAMMERI 'LOWFAST' / LOWFAST BEARBERRY COTONEASTER	1 GAL	<1` X SPREADING
	7	FATSIA JAPONICA / JAPANESE FATSIA	5 GAL	3-6`H X 3-6`W
	44	HEUCHERA MAXIMA / ISLAND ALUM ROOT	1 GAL	1-2`H X 1-2`W
	4	LAGERSTROEMIA INDICA 'BUBBLE TEA' / BUBBLE TEA CRAPE MYRTLE	5 GAL	3-4`H X 3-4`W
	43	LANTANA MONTEVIDENSIS / TRAILING LANTANA	1 GAL	1-2`H X 4-6`W
	45	LOROPETALUM CHINENSE / CHINESE FRINGE FLOWER	5 GAL	4-6`H X 6-8`W
	39	PITTOSPORUM TOBIRA `CREME DE MINT` / DWARF VARIEGATED PITTOSPORUM	5 GAL	2-3`H X 2-3`W
	12	ROSA FLORIBUNDA `ICEBERG` / ICEBERG ROSE	5 GAL	4-6`H X 3-5`W
	73	ROSA X 'NOASCHNEE' / FLOWER CARPET® WHITE GROUNDCOVER ROSE	5 GAL	2-3`H X 3-5`W
	108	SALVIA LEUCANTHA `MIDNIGHT` / MIDNIGHT MEXICAN SAGE	5 GAL	3-4`H X 4-5`W
	66	WESTRINGIA FRUTICOSA 'NFL25' / MUNDI™ COAST ROSEMARY	5 GAL	1-3`H X 4-5`W
GRASSES				
	100	LOMANDRA HYSTRIX 'KATIE BELLES' / KATIE BELLES LOMANDRA GRASS	1 GAL	3-5`H X 3-5`W
	129	LOMANDRA LONGIFOLIA 'KATRINUS DELUXE' / KATRINUS DELUXE MAT RUSH	1 GAL	2-3`H X 2-3`W
	17	MISCANTHUS TRANSMORRISONENSIS / EVERGREEN EULALIA	1 GAL	3-5`H X 3-5`W
	131	PENNISETUM ORIENTALE / ORIENTAL FOUNTAIN GRASS	1 GAL	2-3`H X 2-3`W

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north

16' 0 16' 32' 48'
SCALE: 1"=16'

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SHEET TITLE
LANDSCAPE PLANTING PLAN

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
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REVISION 2	

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TE/JB

OWNER APPROVAL

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STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-1.0

SHEET SIZE: 24" X 36"

BLDG

BUILDING OVERHANG, SYM TYP

REMOVE EXISTING LAWN THIS AREA

EXISTING LAWN TO REMAIN, TYP

EXISTING IVY THIS AREA TO REMAIN

EXISTING TREE TO REMAIN, SYM TYP

EXISTING OVERHEAD SCHOOL SIGN

MATCHLINE

ADMINISTRATION

BLD

PLANTING NOTES

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2. TREES 15 GAL AND LARGER TO RECEIVE (2) 3" DIA. PRESSURE TREATED TREE STAKES, AND (4) 'CINCH-TIES' OR SIMILAR AT EACH TREE. INSTALL PER MANUFACTURES RECOMMENDATIONS.

BLDG

MATCHLINE

STALLION SCULPTURE PLANTER

north

16' 0 16' 32' 48'

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LICENSED LANDSCAPE ARCHITECT
JOHN H. MAZANEC LA 6835
Signature
8/31/2025
Renewal Date
OF CALIFORNIA

PROJECT NUMBER
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Abelia x grandiflora 'Confetti'
Variegated Glossy Abelia

Agapanthus 'Ever Amethyst™'
Ever Amethyst Lily of the Nile

Buddleia 'Blue Knight'
Blue Knight Butterfly Bush

Cercis canadensis
Eastern Redbud

Cinnamomum camphora
Camphor Tree

Cistus 'Sunset'
Sunset Rockrose

Cistus x hybridus
White Rockrose

Clivia miniata 'Belgian Yellow'
Belgian Yellow Natal Lily

Cotoneaster dammeri 'Lowfast'
Bearberry Cotoneaster

Fatsia japonica
Japanese Aralia

Ginkgo biloba
Maidenhair Tree

Heuchera maxima
Island Alum Root

Lagerstroemia 'Natchez'
Natchez Crape Myrtle

Lagerstroemia indica 'Bubble Tea'
Bubble Tea Crape Myrtle

Lantana montevidensis
Trailing Lantana

Laurus nobilis 'Saratoga'
Saratoga Sweet Bay

Lomandra hystrix 'Katie Belles'
Katie Belles Lomandra Grass

Lomandra longifolia 'Katrinus Deluxe'
Katrinus Deluxe Mat Rush

Loropetalum chinense
Fringe Flower

Miscanthus transmorrisonensis
Evergreen Eulalia

Pennisetum orientale
Oriental Fountain Grass

Pittosporum tobira 'Creme de Mint'
Creme de Mint Dwarf Mock Orange

Quercus lobata
Valley Oak

Rosa 'Iceberg'
Iceberg Floribunda Rose

Rosa Flower Carpet White
White Flower Carpet Rose

Salvia leucantha 'Midnight'
Midnight Sage

Westringia fruticosa 'Mundi'
Mundi Rosemary

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SHEET TITLE
PLANT PALETTE IMAGERY

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LICENSED LANDSCAPE ARCHITECT
Daniel Mazuca LA 6825
Signature
7/31/2025
Renewal Date
7/27/24
Date
STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

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SHEET NUMBER
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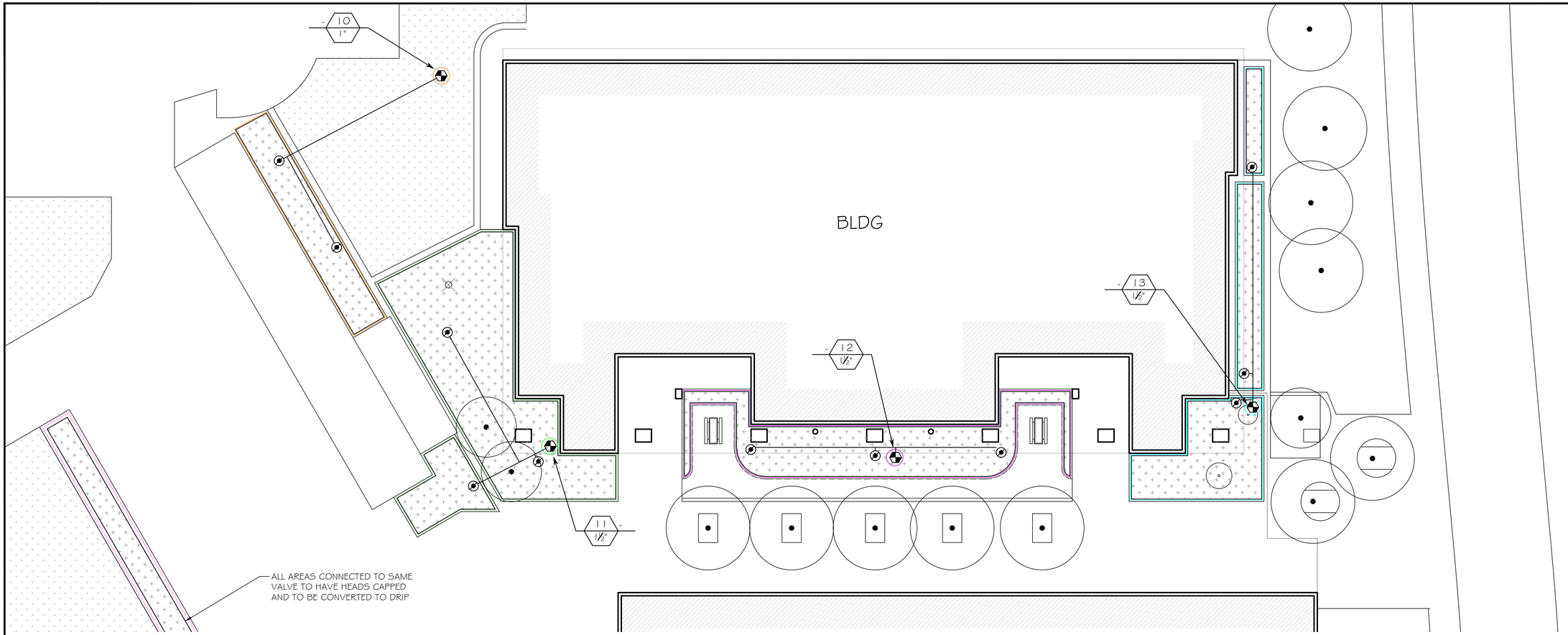
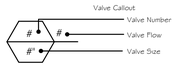
SHEET SIZE: 24" X 36"



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	PIPE TRANSITION POINT ABOVE GRADE PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER TO ABOVE GRADE INSTALLATION.	41
	AREA TO RECEIVE DRIP EMITTERS TORO T-DPC-DC SINGLE OUTLET EMITTER. SELF-FLUSHING, PRESSURE COMPENSATING, WITH COLOR-CODED DUST CAP. 0.5 GPH=BLUE; 1.0 GPH=BLACK; 2.0 GPH=RED.	26,588 S.F.
	DPC02 emitters (6 assigned to each 48" box plant)	12
	DPC02 emitters (4 assigned to each 24"box plant)	
	DPC02 emitters (4 assigned to each 24" box plant)	152
	DPC02 emitters (3 assigned to each 15 gal plant)	
	DPC02 emitters (2 assigned to each 5 gal plant)	720
	DPC02 emitters (1 assigned to each 1 gal plant)	701
	DPC02 emitters (6 assigned to each Existing plant)	12

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	BUCKNER-SUPERIOR 950 3/4IN., 1IN., 1-1/4IN., 1-1/2IN., 2IN., 2-1/2IN., AND 3IN. BRASS AUTOMATIC IRRIGATION ELECTRIC DIAPHRAGM VALVE WITH FORWARD FLOW DESIGN. INSTALL HUNTER LOW FLOW VOLUME CONTROL ZONE KITS: HFR-075-40 FOR 1" VALVES AND HY151 FILTER + PRU40 2" PRESSURE REGULATOR FOR 1.5" VALVES	13
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40 NEW AND EXISTING LATERAL SHOWN ON PLAN; INSTALL ALL NEW LATERAL WITHIN AREAS OF NEW PLANTING; UTILIZE EXISTING LATERAL AND SLEEVING UNDER HARDSCAPE AND IN UNPLANTED LANDSCAPE AREAS UNLESS OTHERWISE NOTED	1,429 L.F.
	PIPE SLEEVE: 4" PVC SCHEDULE 40	17.3 L.F.



SITE SPECIFIC IRRIGATION NOTES

1. NEW VALVES TO REPLACE EXISTING IN APPROXIMATE LOCATIONS SHOWN; UTILIZE EXISTING VALVE WIRE.

2. ABANDONED VALVES TO BE REMOVED AND CAPPED OFF; EXISTING VALVES WATERING AREAS OUTSIDE OF RE-PLATING AREAS TO BE PROTECTED.

3. REPROGRAM EXISTING CONTROLLER TO PROVIDE SUFFICIENT IRRIGATION FOR NEW PLANTING.

4. CONTRACTOR TO CONFIRM EXISTING IRRIGATION ROUTING AND PLANTER ACCESSIBILITY; CONTRACTOR MAY REUSE EXISTING LATERAL PIPING UNDER PAVING OR UNAFFECTED LANDSCAPE AREAS IF DEEMED FUNCTIONAL AND NECESSARY.

north

16' 0 16' 32' 48'
SCALE: 1"=16'

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SHEET TITLE
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PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

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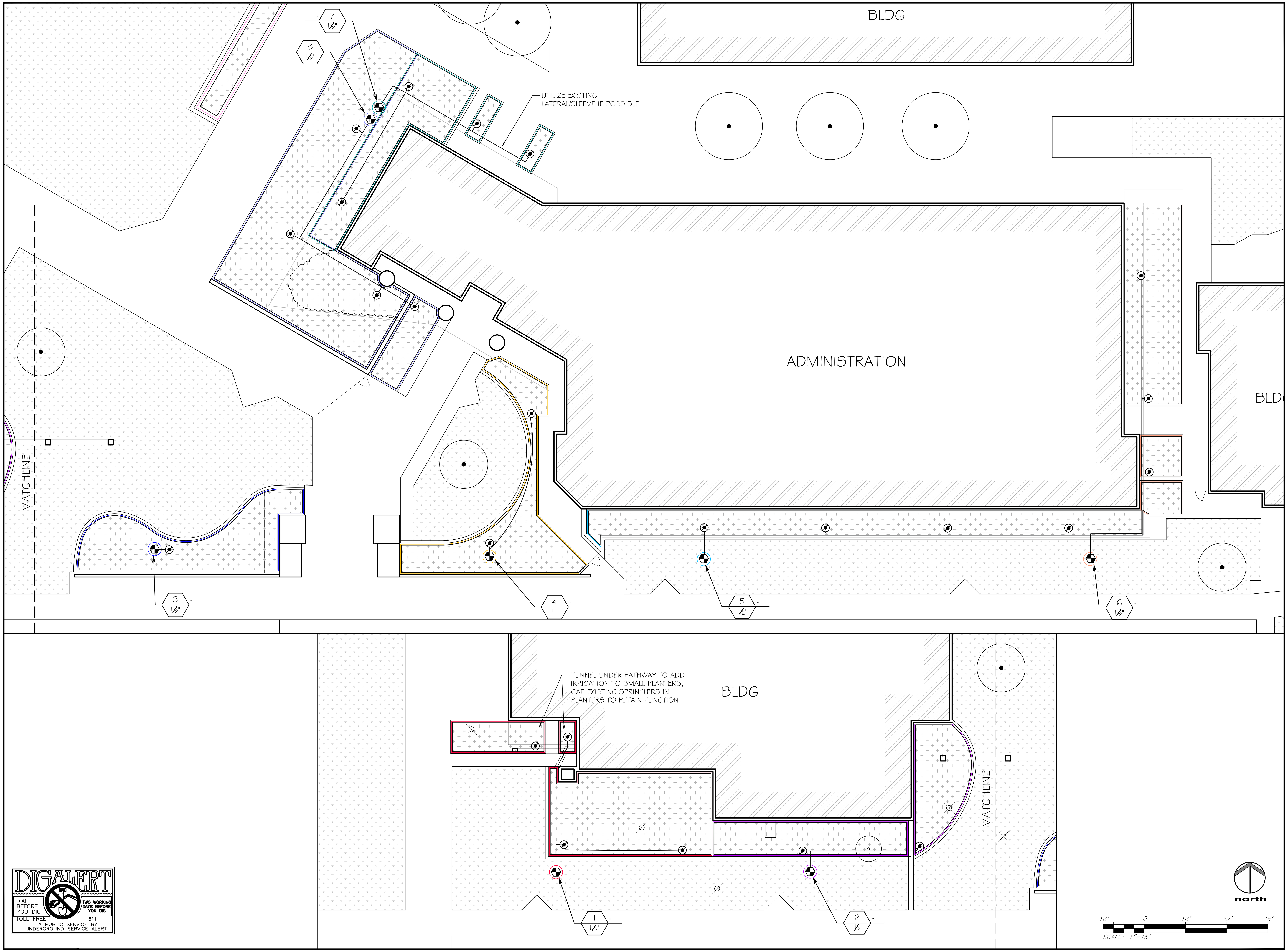

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GENERAL IRRIGATION NOTES:

1. IRRIGATION EQUIPMENT LAYOUT IS SCHEMATIC AND SHALL BE ADJUSTED AS NECESSARY TO ACCOMMODATE ACTUAL FIELD CONDITIONS. MAIN LINES, LATERAL LINES, VALVES AND SPRINKLER HEAD LOCATIONS ARE TO BE ADJUSTED TO ACCOMMODATE PAVEMENTS, CURBS, UTILITIES, LIGHT POLES, ELECTRICAL VAULTS, AND OTHER SITE STRUCTURES AND FURNISHINGS. ANY DISCREPANCIES, OMISSIONS, ERRORS, ETC. ON THESE DRAWINGS OR ON SITE CHANGES, SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PROVIDE A COMPLETE IRRIGATION SYSTEM.

2. EXISTING IRRIGATION INFRASTRUCTURE TO REMAIN IS ASSUMED TO BE IN GOOD CONDITION AND TO BE USED IN PLACE. MINOR ALTERATIONS MAY BE PERFORMED BY CONTRACTOR IF SYSTEM FUNCTIONS AS DESIGNED. NOTIFY DESIGNER IF INTENDED FUNCTIONS CANNOT BE PERFORMED WITH EXISTING INFRASTRUCTURE.

3. THE CONTRACTOR SHALL VERIFY THE ON-SITE STATIC WATER PRESSURES IN RELATION TO THE STATED AVAILABLE WATER PRESSURE ON THE PLANS PRIOR TO CONSTRUCTION. NOTIFY DESIGNER IF THE ACTUAL ON-SITE WATER PRESSURE IS DIFFERENT THAN NOTED ON THE PLANS AND/OR PROBLEMATIC FOR SYSTEM OPERATION.

4. ACTUAL FIELD CONDITIONS AND LAYOUT OF PAVING, CURBS, WALLS, UTILITIES, TREES, OR ANY SITE FEATURES MAY VARY/DIFFER FROM THE PLANS. NOTIFY DESIGNER OF SIGNIFICANT DISCREPANCIES BETWEEN EXISTING SITE CONDITIONS AND PROPOSED DESIGN PRIOR TO CONSTRUCTION.

5. ALL WORK SHALL MEET THE REQUIREMENTS OF APPLICABLE STATE AND LOCAL CODES.

6. UNDER MATURE TREES OR IN PLANTER LOCATIONS WHERE SPACE IS LIMITED AND TREE ROOTS ARE VISIBLE, HAND TRENCH TO LAY IRRIGATION LINES. AVOID TRENCHING PERPENDICULAR TO MAJOR TREE ROOTS RADIATING FROM TRUNK. UNLESS OTHERWISE SPECIFIED DO NOT CUT ANY ROOTS THICKER THAN 4" ON EXISTING TREES TO REMAIN AND RUN PIPING UNDERNEATH OR AROUND.

7. IF ACTUAL INSTALLATION DEVIATES FROM IRRIGATION PLAN, CONTRACTOR SHALL PROVIDE IRRIGATION AS-BUILTS IN A 11"x17", REDUCTION COPY FORMAT AND DELIVERY TO OWNER OR OWNER'S REPRESENTATIVE.

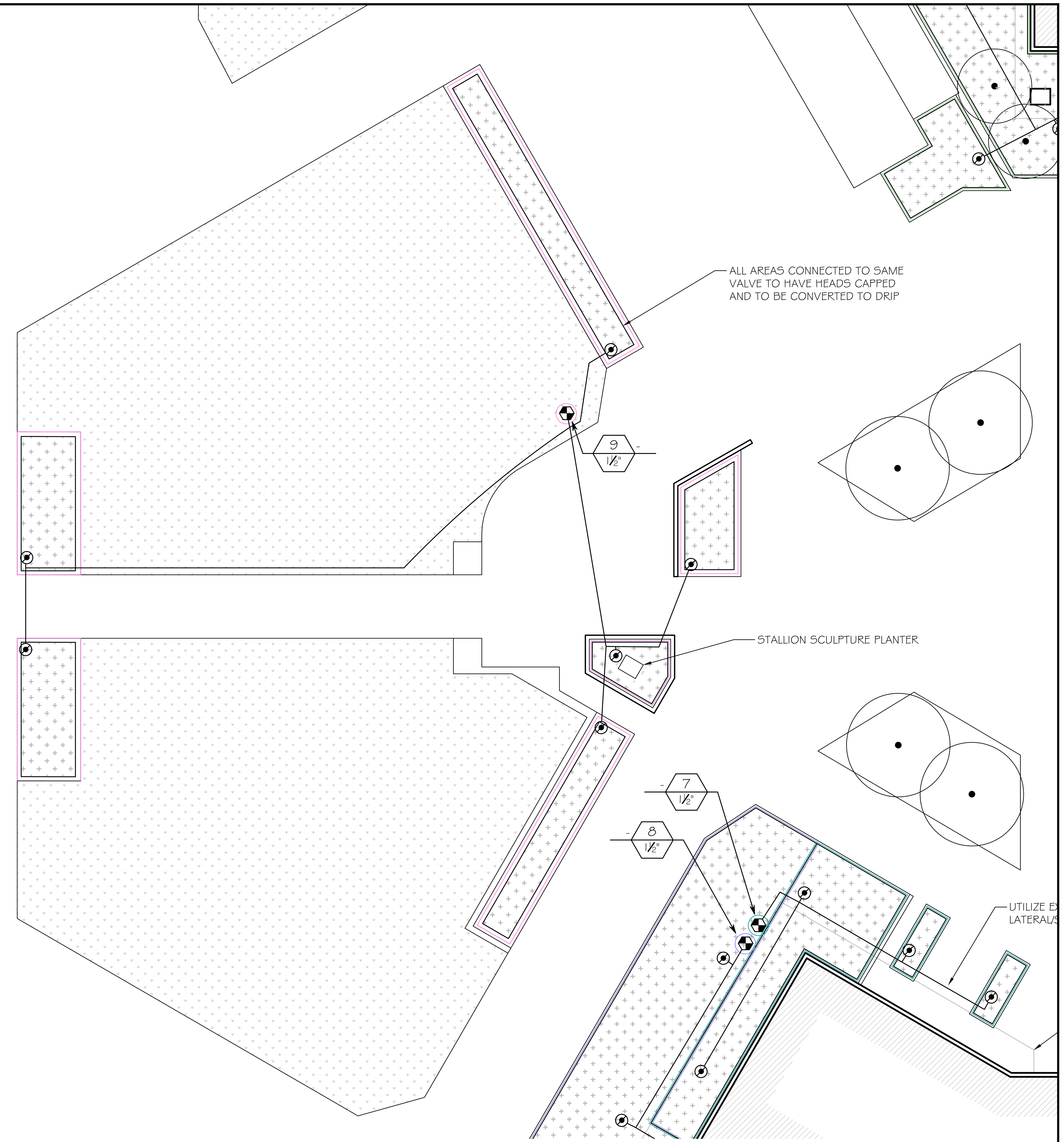
8. IRRIGATION CONTROL WIRE SHALL BE DIRECT BURIAL RATED 14 GAUGE WIRE SUFFICIENT TO POWER ALL VALVES WITH (1) EXTRA CONTROL WIRE PROVIDED AT EACH VALVE MANIFOLD. ALL CONTROLLER AND VALVE WIRE SPLICES SHALL BE MADE USING APPROVED WATERTIGHT CONNECTORS.

9. CONTRACTOR SHALL PROVIDE SLEEVES FOR MAINLINE, LATERAL LINE & CONTROL WIRES UNDER ALL PAVING. EXTEND ALL SLEEVES 12" BEYOND EDGE OF PAVING. IF SLEEVE SIZE IS NOT SPECIFIED, CONTRACTOR SHALL PROVIDE SCH 40 SLEEVES A MINIMUM OF 2X THE DIAMETER OF THE PIPE BEING SLEEVED OR 2X THE SUM OF THE DIAMETERS OF MULTIPLE PIPES BEING SLEEVED. MULTIPLE SLEEVES MAY BE USED IN THE SAME LOCATION IF NEEDED. CONTROL WIRE MAY SHARE SLEEVE WITH PIPES WITHOUT AFFECTING SIZE OF SLEEVE NEEDED UNLESS WIRE BUNDLE EXCEEDS THE DIAMETER OF THE SMALLEST PIPE BEING SLEEVED IN WHICH CASE ITS DIAMETER WILL BE CONSIDERED IN SLEEVE SIZE.

10. EACH IRRIGATION CIRCUIT SHALL BE INSTALLED AND TESTED PRIOR TO PLANTING OF EACH RESPECTIVE IRRIGATION CIRCUIT/PLANTING ZONE.

NOTE

1. IN ALL PLANTER AREAS WITH RENOVATED DRIP IRRIGATION, TOP DRESS WITH 3" LAYER OF BLACK DYE BARK MULCH.



north

16' 0 16' 32' 48'
SCALE: 1"=16'

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SHEET NUMBER
L-2.2

SHEET SIZE: 24" X 36"

32 84 00-27
Irrigation

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, equipment, 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, sleeves, water connections, valves, 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. Programming of the irrigation controller.
5. Prepare an as built record set of drawings (if applicable).
6. Training of the Owner's maintenance personnel in the operational requirements of the irrigation system.
7. Clean up and disposal of all excess and surplus material.

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 Owner's Representative as needed to complete work.

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 Section
   a. Section - Planting

B. References:

1. American Society of Testing Materials (ASTM): cited section numbers.
2. National Electrical Manufacturers Association (NEMA) Electrical Polyvinyl Chloride (PVC) Conduit.
3. National Sanitation Foundation (NSF): rating system.
4. Irrigation Association: Turf & Landscape Irrigation Best Management Practices
5. American Society of Irrigation Consultants (ASIC): Earth Grounding Electronic Equipment in Irrigation Systems Guidelines.
6. Plastic Pipe Institute (PPI): Handbook of PE Pipe 2008 2nd Edition. www.plasticpipe.org
7. American Water Works Association (AWWA): A non-profit that has standards and specifications for equipment and materials used in the treatment and distribution of drinking water.
8. American Public Works Association (AWPA) most recent version of the Uniform Color Code for Marking Underground Facilities. www.apwa.net.
9. Copper Development Association Inc. (CDA): Copper Tube Handbook most recent edition. www.copper.org.

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. ASTM: American Society of Testing & Materials Is a technical organization formed for the development of standards on characteristics and performance of materials, products, systems and services and the promotion of related knowledge.

B. 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.

C. 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.

D. 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.

E. Non-pressurized lateral line pipe: Piping that is downstream from the remote control irrigation valves that connects to sprinklers, bubblers or drip emitters. Piping is only under pressure when the remote control irrigation valve is open.

F. Pressurized mainline pipe: Piping that is downstream from the point of connection that distributes water, but not limited to, remote control irrigation valve and quick coupler valves. Piping is constantly under pressure

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. 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. Controller charts.
4. Colored zoning map: Show each irrigation zone and the valve it is controlled by.
5. 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.
6. Testing data from all required pressure testing.

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. Valve manifolds, lateral lines and emitters.
2. Sensor installation and controller operation.
3. Adjustment and coverage test.
4. Pre_maintenance observation.
5. 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 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. 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 14 days 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 *Underground Service Alert:* 811 or 800-642-2444 is required for all excavation around utilities. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *Underground Service 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 1-800-642-2444 two working days before beginning construction.

1.19 POINT OF CONNECTION

A. 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 Owner per governing codes at the location shown on the drawings.

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 COLORED ZONING MAPS

A. Provide a 11" x 17" sized colored zoning map outlining each valve and area it covers;

1. Overhead irrigation shall be shades of red.
2. Point source irrigation shall be shades of green.

B. The controller chart shall be printed out on the reverse side of the first sheet for reference.

1.26 TESTING

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

1.27 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. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and configuration desired only. Other manufacturer's equipment may be submitted for approval with written approval by the Owner's Representative. Substituted equipment shall not substantially alter the operations of the system.

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 RECLAIMED WATER SYSTEM DESIGNATION

A. Where irrigation systems use reclaimed water, all products including valve boxes, lateral and main line pipe, etc. where applicable and/or required by local code shall have the reclaimed water purple color designation.

2.3 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 or equal to 3 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 larger than 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 200 PVC 'Ring Tight'.
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 Schedule 40, 1 minimum size.
4. Sleeves carrying pipes and conduits under paving shall be Sch. 40 solvent weld PVC conforming to ASTM D 1785.
5. Low voltage irrigation control wire conduit, direct burial, 1" 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.

D. Piping within structure or building footprint shall be Copper Tube ASTM B88, Type L, water tube, annealed temper

1. Copper Pressure Fittings: ASME B16.18, cast-copper alloy or ASME B16.22, wrought=coppe3r solder-joint fittings. Furnish wrought copper fittings if indicated on the drawings.
2. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

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 tapered socket or molded thread type, suitable for either solvent weld or screwed connections confirming to ASTM. 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.

E. Ductile iron push on fittings shall be manufactured for ASTM A536, Grade 65-45-12 ductile iron with a tensile strength of 65,000 psi. Fittings shall conform to or exceed AWWA C-11 for joints, ASTM F-477 for gaskets and AWWA C-153 for coatings. Fittings shall be pressure rated to 350 psi.

F. Joint restraints shall consist of two (2) clamps, bolt sets and two (2) restraint rod with nuts. Restraints shall conform to the ASTM A-536 for materials, UNI-B-13-94 for the rings, ASTM A-536 or AWWA/ANSI C111/A21.11 for the rods, bolts and nuts and AWWA C-153 for the coatings.

G. All fittings shall have a pressure rating equal or greater than the pipe.

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 tighter 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. Backflow Preventer shall be assumed existing prior to irrigation points of connection and in good working order unless otherwise communicated by Owner's Representative.

2.7 PRESSURE REGULATOR

A. Lateral lines

1. Pressure regulator(s) shall be high strength ABS, chemical resistant with stainless steel springs and EPDM diaphragm.
2. Pressure regulator(s) shall have an inlet operating pressure range from 10 to 150 psi.
3. Pressure regulator(s) shall have an operating range of .5 to 35 gpm.
4. Connections shall be 1" FPT x 1" FPT.
5. Pressure regulators shall be located downstream of the remote control irrigation valve.

B. Pressure regulator(s) shall be as indicated on the drawings.

2.8 WYE STRAINER

A. Strainer shall conform to MIL -S-16293, and be ANSI 3rd party certified to comply with the states lead plumbing law 0.25% maximum weighted average lead content.

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

C. The access covers shall be yellow brass or cast bronze (ASTM B 16 or AST.M B 584)

D. Strainer screen shall be 300 series stainless steel available in 20, 40, 60, 80, or 100 mesh.

E. Wye strainer shall be as indicated on the plans.

2.9 FILTER(S)

C. Remote control irrigation valve filters/pressure regulators.

1. 1" basket filter.
   a. Stainless steel screen filter.
      1.) 100 mesh/150 micron(s).
2. Operating pressure: 15-150 psi.
3. Built in 40 psi pressure regulator.
4. Glass filled polypropylene body.
5. UV resistant polyurethane indicator.

2.10 MAINLINE AIR RELIEF VALVES

A. Air release valve shall have a bronze body and brass and stainless steel internal components.

B. Air release valve shall have MIPT inlet and outlet connections.

C. Air release valve shall be the manufacturer, model and sizes indicated on the drawings.

2.11 .SHUT-OFF VALVES

A. Main lines

1. Shut off valves for mainlines 2" 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.
2. Shut off valve for mainlines smaller than 2" shall be Sch. 80 PVC, block, tru-union design with EDPDM seals and o-ring ball valves.
3. All shut-off valves located in a valve manifold shall be the same size as the remote control irrigation valve. Provide pipe - reducing adapters upstream of the shut off valve, as required.
4. Main line shut off valves shall be as indicated on the drawings.

MADRONE LANDSCAPE

Design Prepared by Madrone Landscape
A Briner & Son Family Company
www.brinerandson.com
www.madronelandscape.com
Lic. 713969

SHEET TITLE
LANDSCAPE SPECIFICATIONS

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB
OWNER APPROVAL

STAMP

LICENSED LANDSCAPE ARCHITECT
Daniel Malawa LA 6825
Signature
3/31/2025
Registered Date
EXPIRES
Date
STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-3.0

M:\JOB FILES\Madera South HS\CAD\Madera South HS; Rev1.dwg

SHEET SIZE: 24" X 36"

B. Lateral lines

1. Shut off valve for lateral lines smaller than 2" shall be Sch. 80 PVC, block, tru-union design with EDPDM seals and o-ring ball valves.
2. Lateral line shut off valves shall be as indicated on the drawings.

C. Drip lines

6. Shut off valves for drip lines shall be grey Sch. 40 threaded ball valves, socket dimensions that meet ASTM standard D-2467 for PVC, ASTM D-1784 for PVC material and pressure rated up to 150 psi and non shock water at 73 F.
7. Shut off valves for drip lines shall be 17 mm UV resistant, barbed, push on shut off valves.
8. Drip line shut off valves shall be as indicated on the drawings.

2.12 CHECK VALVES

A. Check valves shall be as indicated on the drawings.

2.13 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.

2.14 QUICK COUPLER VALVES

A. Quick coupler valves shall be a one or two piece, heavy-duty brass construction with a working pressure of 150 PSI with a built in flow control and a self_closing valve.
B. Quick coupler shall be equipped with locking red brass cap covered with durable yellow thermo-plastic rubber cover. Key size shall be compatible with quick coupler and of same manufacturer.
C. Quick coupler valves shall be as indicated on the drawings.

2.15 SWING JOINTS

A. Quick Couplers.
1. Swing joints shall be Sch. 80 conforming to ASTM D 1785/D 2464/D 2467
2. Swing joints shall have a pressure rating of 315 psi conforming to ASTM D 3139
3. Swing joints shall have a double O-ring seal.

B. Pop-up spray bodies or bubblers.
1. Swing joint shall be low density poly tubing 0.49" in diameter.
1. Swing joints shall be pressure rated to 150 PSI
2. Swing joints shall be either ½" or ¾" in size.
3. 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
a. Nozzle: ABS
b. Internal Parts: Corrosion resistant.
c. Pattern: Fixed.
d. Check Valve: Yes.
e. Inlet: ½" FIPT threads.
f. Pressure range: 5 - 65 psi
g. Filtration: 100 - 150 mesh.
a. Color: See drawings.

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

2.17 DRIP IRRIGATION

A. Drip irrigation equipment shall be of the manufacturer, model, size and flow rate as indicated on the drawings.
B. Drip tubing with internal emitters:
1. Tubing: Flexible PE, 17 mm diameter, brown external color.
2. Emitters: Pressure compensating, turbulent flow, pressure compensating with built in check valve.
3. Flow rate: .33, .53, .77 or 1.16 gallons per hour as indicated on the drawings.
4. Emitter spacing: as noted on plans.
5. Fittings: 17 mm barb type, same manufacturer as tubing.
6. Stakes: Steel wire stakes (9" in length)/jute netting staples.
7. Drip tubing shall be of the manufacturer, model size and type indicated on the drawings.

2.18 DRIP SYSTEM AIR/VACUUM RELIEF VALVES

A. Air/vacuum relief valve shall have a plastic body and poppet.
B. Air/vacuum relief valve shall have MIPT inlet connection.
C. Air/vacuum relief valve shall be the manufacturer, model and sizes as indicated on the drawings or as recommended by manufacturer.

2.19 DRIP SYSTEM FLUSH VALVES

A. Drip system flush valve shall consist of a Sch. 40 PVC ball valve with socket connections and specialized PVC fittings to provide a hose thread adapter and sealing cap on the discharge side.
B. Drip system flush valve and components shall be the manufacturer, model and sizes indicated on the drawings.

2.20 AUTOMATIC CONTROLLER

A. Fully-functioning automatic controller shall be located by Owner's Representative and updated with new system components and programming as indicated on the drawings.

2.21 CONTROLLER DECODERS

A. All decoders shall be per the controller manufacturer's specifications.
B. Decoder model number shall be as shown on the drawings.

2.22 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.
2. For 2-Wire controllers all irrigation wire for the controller, flow sensor, master valve, hydrometer, remote control valves and moisture sensors shall be per the controller manufacturer's specifications and recommendations.
a. Shall have the following operating voltage: 600 V RMS max and temperature rating: 140°F (60°C).
b. The two-wire shall meet one criterion within each of the following categories;
1.) Outer Jacket: High density polyethylene (HDPE) between 0.035" and 0.048" thick, conforming to ICEA S-61-402 and NEMA WC5.

2.) Conductors:
a.) Two of the same gauge, conforming to ASTM B-33, B-3 or B-8.
b.) Bare copper.
c.) Tin coated solid copper.
3.) Acceptable Conductor Arrangement:
a.) Conductors are twisted.
b.) Conductors are laid in parallel.
c.) Conductor insulation.
d.) Low density, high molecular weight polyethylene (PE) with a thickness of 0.045".
e.) PVC conforming to UL-493 or UL-719 for thermoplastic-insulated style UF (underground feeder.
c. Conductor coding;
1.) Black and red (recommended).
2.) Black and white.
3.) Blue and red.
a. Shall have the following operating voltage: 600 V RMS max and temperature rating: 140°F (60°C).
b. If there are multiple controllers each wire path shall be color coded differently.
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 connectors:
a. Moisture sealed spring connector.
b. Connector style: direct burial.
c. Flame retardant: UL-94 V-2
d. UV resistant polypropylene tube.
e. Operating range: -40 F to 221 F.
f. Maximum voltage rating: 600 V.
g. Wire connector type: Spring

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.

2.23 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. 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. Quick coupler valves, wire splices, and grounding rods shall use a 10 inch circular box.

B. Valve box gravel
1. ¾" crushed gravel or stone.
1. Gravel or stone shall be clean and free of any trash, soil or debris.

C. Stainless steel welded wire mesh
1. Mesh shall be 16 gauge and vinyl coated.
2. Mesh size shall be .5" x 1".

2.24 CONCRETE THRUST BLOCKS

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

2.25 VALVE IDENTIFICATION TAGS

A. Valve Identification Tags shall be 2.25 inch x 2.65 inch polyurethane. Tags shall be permanently attached to each remote control valve with tamper proof seals as indicated on the drawings.

2.26 MAIN LINE LOCATOR TAPE

A. Three inch (3") wide plastic detectable locator tape.
B. Color shall be coded per APWA standards and specifications.

2.27 MAIN LINE AND LATERAL LINE BEDDING SAND

A. Sand shall consist of natural or manufactured granular material, free of organic material, mica, loam, clay or other substances not suitable for the intended purpose.
B. Sand shall be masonry sand ASTM C 144 or coarse concrete sand, ASTM C 33.

2.28 EQUIPMENT TO BE FURNISHED TO OWNER

A. Three (3) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.
B. Five (5) Extra sprinkler heads, nozzles, shrub adapters, nozzle filter screens, for each type used on the project.

2.29 INCIDENTAL MATERIALS AND EQUIPMENT

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

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.

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 of earth banks 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 8 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 paragraphs "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. Trench Depth
1. Provide a minimum cover of the top of underground piping in accordance to the following;
a. Pressurized mainlines: 18"
b. Non-pressurized lateral lines: 12"
c. Sleeves: See irrigation detail. 18"
d. Low voltage electrical conduit: 18"

C. Polyvinyl Chloride Pipe (PVC) Installation
1. Under no circumstance 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 slipping 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.

D. 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.

E. Ductile Iron Fittings
1. Ductile iron fittings shall be installed at every change in the mainline direction.
2. Cut the pipe squarely and bevel plain end of the pipe. Bevel should be approximately fifteen (15°) and ¾" long. Remove any burs and ridges on pipe. Measure the bell depth and mark the pipe for reference. In cold weather allow ½" clearance between the end of the pipe and bell stop to allow for lateral pipe expansion.
3. Clean all debris from the bell areas of the fitting. Verify the position of the gasket so it is completely sealed in the groove with no raised areas.
4. Lubricate the gasket and the plain end of the pipe with the lubricant supplied by the pipe manufacturer.
5. Align the pipe with the fitting and push together by hand or with pry bars on the end of the fitting with two (2) pry bars using the lugs on the fitting. Insert the pipe until the reference line mark is even with the edge of the fitting bell.
6. Provide poured concrete thrust blocks at all changes in size and/or direction. Bends, reducers plugs, and the opposite side of tree branches shall all require thrust blocks.

F. Pipe Restraints
1. One (1) pipe restraints shall be installed before and after each ductile iron fitting. Two (2) pipe restraints shall be installed before and after any shut off valve, master valve and/or air relief valve.
2. Assemble plain end PVC pipe into the bell according to the pipe manufacturer's specifications and recommendations.
3. Assemble the grip rings on the spigot pipe approximately two inches (2") behind the insertion mark on the pipe and immediately behind the pipe bell end making sure the restrain rod holes are aligned. Tighten the side clamping bolts to one-hundred (100) foot-pounds torque (pad to pad).
4. Insert the threaded rods and snug the nuts against the grip rings. Do not over tighten the retaining nuts against the grip rings. Tighten nuts evenly to five (5) foot-pounds of torque.

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 read in PSI, and calibrated such that accurate determination of potential pressure loss can be ascertained.
E. Re_test 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 acceptable 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 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. Backfill 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 imported planting mixes or modified existing planting soil: Between 85 and 90% of maximum dry density standard proctor.
3. Backfill of imported planting mixes or modified existing planting soil: Compact to the requirements of the adjacent planting mix 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.

3.8 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 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.

3.9 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 manufactures 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 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. Filter(s):
2. Remote control irrigation valve filter(s)/pressure regulators.
a. Install one (1) pressure regulator/filter per valve box.
b. A Sch. 80 male adapter and sch. 80 unions shall be installed downstream of the pressure regulator & basket filter as indicating in the drawings.
c. The pressure regulator and basket filter shall be threaded directly into the outflow outlet of the remote control irrigation valve.
d. The pressure regulator shall be installed a minimum of one foot (1') and a maximum of three feet (3') away from the remote control irrigation valve only if the pressure regulator/basket filter cannot be installed in the same valve box as the remote control irrigation valve.
e. 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.
f. The top of the filter/pressure regulator shall be a minimum of 3" and a maximum of 6" from the bottom of the valve box lid.

C. Pressure regulator:
1. Set regulator for required PSI per manufacturer's specifications.

D. Check Valve:
1. Install check valves approximately at the locations necessary to prevent low head run off.

E. Service Saddles:
1. Prior to installation verify there is no damage to the saddle including threads, straps, bolts and nuts.
2. Thoroughly clean the pipe surface that will be covered by the saddle. A gasket lubricant approved by the saddle and pipe manufacturer should be used.
3. Remove the nut at the end of the bolt and straps from the saddle body.
4. Position the saddle body on the pipe so that the outlet is in the correct location.
5. Install straps on the saddle body and finger tighten them down. Make sure the gasket has sealed itself onto the face of the pipe.
6. Tighten all nuts evenly in fifteen to twenty (15 - 20) foot-pound increments.

F. Remote control valves:
1. Install one remote control valve per valve box.
2. A Sch. 80 tru-union ball valves shall be installed upstream of the remote control irrigation valve.
3. A Sch. 80 union shall be installed downstream of the remote control irrigation valve.
4. 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 connections 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.

G. Quick coupler valve:
1. Install each quick coupler valve in its own valve box.
2. Install thrust blocks on quick couplers.
3. Place no closer than 12 inches to adjacent paving.
4. Install 18 inches off set from main line.
5. All threaded connections for quick couplers shall be Sch. 80 PVC.
6. All threaded connection to quick couplers shall be made using Monster Tape.

H. Rotors and Spray heads:
1. All main lines and lateral lines, including risers, shall be flushed and pressure tested before installing sprinkler heads.
2. Install specified sprinkler heads as shown in details at locations shown on the drawings. Adjust layout for full coverage, spacing of heads shall not exceed the maximum spacing recommended by the manufacturer.
3. All sprinkler heads shall be set perpendicular to finish grade unless otherwise designated on the drawings and/or details.

I. 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. Soil around the bubbler and swing joint shall be water settled to remove air pockets so that irrigation water runs through the plant root ball.

J. Decoders:
1. Valve decoders shall be installed as shown in the details as shown on the drawings.
2. Valve decoders shall be secured to the valve box with the decoder model number facing up using two (2) stainless steel self tapping screws.
3. Valve decoder tags shall be secured in the controller box and shall indicate valve number in the irrigation sequence, irrigation emitter type and physical location within the project as shown on the plans.
4. Electrical connections from the irrigation valve and decoder shall be made using controller manufacturer approved connectors.
5. Prior to grease packing the irrigation wire connections, the irrigation system shall be tested at the controller.

K. 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 the controller for operation and testing purposes.

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LANDSCAPE

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SHEET TITLE
LANDSCAPE SPECIFICATIONS

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB

OWNER APPROVAL

STAMP

LICENSED LANDSCAPE ARCHITECT
STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-3.1

M:\JOB FILES\Madera South HS\CAD\Madera South HS; Rev1.dwg

SHEET SIZE: 24" X 36"

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 included.

L. 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 bright colored plastic ribbon with suitable 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 coiling it into a eighteen inch (18") circle and placing it underneath the irrigation valve and securing it with black zip ties.
      1.) 2-wire controller wire shall be stripped using a Gorilla UF stripper or approved equal.
   d. Provide one control wire to service each valve in system.
   e. 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.
   f. All control wire splices not occurring at control valve shall be installed in a separate splice valve box.
   g. Wire markers (sealed, 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 indicting 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.

M. Valve Boxes:

1. Install one valve box for each type of valve installed as per the details.
2. Gravel sump shall be installed after compaction 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.

N. 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".

O. Drip Installation:

1. Install drip tubing and drip mat products at the depth below grade or on grade as indicated on the drawings.
2. Install drip tubing products at the spacing indicated on the drawings. Install drip tubing so that the spacing between the first row of drip tubing in a planted areas is six inches (6") away from any curb, roadway or edge of pavement.
3. When drip tubing must be routed around any obstacle such as utility equipment, trees or pavement, the tubing shall be tied into a PVC manifold and sized as not to lose additional pressure or volume at the end of the run.
4. When installing drip tubing, install soil staples as listed below:
   a. Sandy Soil - One staple every three (3') feet and two (2) staples on each change of direction (tee, elbow, or cross).
   b. Loam Soil - One staple every four (4') feet and two (2) staples on each change of direction (tee, elbow, or cross).
   c. Clay Soil - One staple every five (5') feet and two (2) staples on each change of direction (tee, elbow, or cross).
5. Cap or plug all openings as soon as lines have been installed to prevent the intrusion of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
6. Thoroughly flush all water lines before installing valves and other hydrants.
7. Install pressure regulators and filters as shown on the drawings.
8. Install air/vacuum relief valves as indicated on the drawings.
9. Install single outlet emitters onto drip tubing as indicating on the drawings.

3.10 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 of 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. Group similar valves to the same program.
   a. For instance all of the tree 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.
3. 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.

3.11 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.

3.12 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.
   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.

3.13 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.

3.14 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.

3.15 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")

3.16 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 irrigation shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

3.17 FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS

A. At the end of the Plant Warrantee and Maintenance period, (See specification section "Planting") the Owner's Representative shall inspect the irrigation work and establish that all provisions of the irrigation system are complete and the system is working correctly.
   1. Restore 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 reworked 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 equipment as required before final acceptance.

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 IRRIGATION SECTION

SECTION 32 9300
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 (also known as "landscaping") 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 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 conditions and the construction 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 I specifications apply to work of this section
   2. Related Specification Sections
      a. Section - Planting Soil
      b. Section - Irrigation
      c. Section - Tree Protection and Plant Protection

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 Owners 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 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 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. Field grown trees (B&B): Trees growing in field soil for at least 12 months prior to harvest.

F. 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.

G. Kinked root: A root within the root package that bends more than 90 degrees.

H. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

I. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.

J. Normal: the prevailing protocol of industry standard(s).

K. 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.

L. 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, diseased, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Plant 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.

M. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.

N. 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.

O. 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.

P. Shrub: Woody plants with mature height approximately less than 15 feet.

Q. Spade harvested and transplanted: Field grown trees that are mechanically harvested and immediately transplanted to the final growing site without being removed from the digging machine.

R. Stem: The trunk of the tree.

S. 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 than the date of substantial completion for the other sections of the project.

T. Stem girdling root: Any root more than ¼ 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.

U. Structural root: One of the largest roots emerging from the root collar.

V. 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 4 weeks prior to installation of plantings.

C. Product data: Submit 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. Plant growers' certificates: Submit plant growers' certificates for all plants indicating that each meets the requirements of the specification, including the requirements of tree quality, to the Owner's Representative for approval. Provide submittal eight weeks before the installation of plants.

E. 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.

F. Plant sources: Submit sources of all plants as required by Article - "Selection of Plants" to the Owner's Representative for approval.

G. Close out submittals: Submit to the Owner's Representative for approval.
   1. Plant maintenance data and requirements.

H. Warranty period site visit record: If there is no maintenance during the warranty period, after each site visit during the warranty period, by the Contractor, as required by this specification, submit a written record of the visit, including any problems, potential problems, and any recommended corrective action to the Owner's Representative for approval.

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 the time of delivery and prior to installation. Review tree quality prior to unloading 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 specified size, 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 provisions 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 the 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 experienced 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 licensures.

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 - 1 Year.
      b. Shrubs - 1 Year.
      c. Ground cover and perennial flower plants - 1 Year.
      d. Bulbs, annual flower and seasonal color plants - for the period of expected bloom or primary display.
   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 warrantied 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 Owner'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 defect or substandard element can be corrected at the nursery, as determined by the Owner's Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction 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 bear all cost related to 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.

MADRONE LANDSCAPE

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A Briner & Son Family Company
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www.madronelandscape.com
Lic. 713969

SHEET TITLE
LANDSCAPE SPECIFICATIONS

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB
OWNER APPROVAL

STAMP

LICENSED LANDSCAPE ARCHITECT
Daniel Mazuca LA 6825
Signature
3/31/2025
Registration Date
Date
STATE OF CALIFORNIA

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-3.2

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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. The plant list shall include 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 certify that the required trees are not directly available from a growing nursery. When Re-wholesale suppliers are utilized, the Contractor shall submit the name and location of the growing nursery from where the trees were obtained by 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-wholesale supplier to permit the Owner's Representative to observe the root system of all plants at the nursery or job site prior to planting including random removal of soil or substrate around the base of the plant. Observation may be as frequent and as extensive as needed to verify that the plants meet the requirements of the specifications and conform to requirements.

H. Each tree shall have a numbered seal applied by the Contractor. The seal shall be placed on a lateral branch on the north side of the tree. The seal shall be a tamper proof plastic seal bearing the Contractors name and a unique seven-digit number embossed on the seal.

1. Do not place seals on branches that are so large that there is not sufficient room for the branch growth over the period of the warranty.

I. The Owner's Representative may choose to attach their seal to each plant, or a representative sample. Viewing and/or sealing of plants by the Owner's Representative at the nursery does not preclude the Owner's Representative's right to reject material while on site. The Contractor is responsible for paying any up charge for the Owner's Representative to attach their seal to specific plants.

J. Where requested by the Owner's Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by the Owner's Representative via photograph does not preclude the Owner's Representative's right to reject material while on site.

1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

A. Submit all requests for substitutions of plant species, or size to the Owner's Representative, for approval, prior to purchasing the proposed substitution. Request for substitution shall be accompanied with a list of nurseries contacted in the search for the required plant and a record of other attempts to locate the required material. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

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 *Underground Service Alert: 811 or 800-642-2444*, is required for all planting areas: The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *Underground Service 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.

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:

1. **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

2. **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.

b. 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 unless a different form is specified in the plant list or drawings.

c. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.

d. 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.

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.

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.

2.3 PLANTING SOIL

A. The term Planting Soil shall mean the soil at the planting site within the planting hole.

2.4 MULCH

A. Mulch shall be black dye bark mulch. Pieces larger than 4 inch long that are visible on the surface of the mulch after installation shall be removed. Mulch shall be free of all foreign inorganic material.

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.

2.5 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.

PART 3 – EXECUTION

3.1 SITE EXAMINATION

A. Examine the surface grades and soil conditions and 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.

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. 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 locations. 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.

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.

(1) Soil type(2)	Permanent wilting point(3)	Field capacity(4)
Sand, Loamy sand, Sandy loam(5)	5-8%(6)	12-18%(7)
Loam, Sandy clay, Sandy clay loam(8)	14-25%(9)	27-36%(10)
Clay loam, Silt loam(11)	11-22%(12)	31-36%(13)
Silty clay, Silty clay loam(14)	22-27%(15)	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. 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.

B. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.

C. 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.

D. 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.

E. 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.

F. 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.

G. 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.

H. 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.

I. The Owner's Representative may request that plants orientation be rotated when planted based on the form of the plant.

J. 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.

K. 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.

L. 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.

M. Thoroughly water the Planting Soil and root ball immediately after planting.

N. 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.

O. Remove corrugated cardboard trunk protection after planting.

P. Follow additional requirements for the permitted root ball packages.

3.10 GROUND COVER, PERENNIAL AND ANNUAL 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.

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.

3.11 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.

1. 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.

2. 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.

3.12 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.

3.13 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.

3.14 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.

3.15 MULCHING OF PLANTS

A. Apply 3 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.

3.16 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 as depicted on the drawings.

3.17 WATERING

A. The Contractor shall be fully responsible to ensure that adequate water is provid all plants from the point of installation until the date of Substantial Completion Acceptance. The Contractor shall adjust the automatic irrigation system, if availa 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 abc wilt point and below field capacity. Test the moisture content in each root ball an soil outside the root ball to determine the water content.

3.18 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and 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 depo by the Contractor from all surfaces within the project or on public right of ways 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 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, packagin and other material brought to the site by the Contractor.

3.19 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 trespasse 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, incl roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, be cleaned, repaired or replaced by the Contractor at no expense to the Owner. Owner's Representative shall determine when such cleaning, replacement or re satisfactory.

3.20 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, 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 ma repairing and replacing of tree stakes, tightening and repairing of guys, repairing replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to ke plantings reasonably free of damaging insects and disease, and in healthy condi 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.

3.21 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review 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 requesti the review.

B. The date of substantial completion of the planting shall be the date when the Ow 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 completior be different than the date of substantial completion for the other sections of the project.

3.22 MAINTENANCE DURING THE WARRANTY PERIOD BY OTHERS

A. After Substantial Completion Acceptance, the Contractor shall make sufficient si visits to observe the Owner's maintenance and become aware of problems with maintenance in time to request changes, until the date of End of Warranty Final Acceptance.

1. Notify the Owner's Representative in writing if maintenance, including waterin not sufficient to maintain plants in a healthy condition. Such notification must made in a timely period so that the Owner's Representative may take correcti action.

a. Notification must define the maintenance needs and describe any correctiv action required.

2. In the event that the Contractor fails to visit the site and or notify, in writing, th Owner's Representative of maintenance needs, lack of maintenance shall not used as grounds for voiding or modifying the provisions of the warranty.

3.23 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the Owner's Representative observe the work and establish that all provisions of the contract are complete a the work is satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the observation.

2. If the work is deemed unsatisfactory, the maintenance period will continue at additional expense to the Owner until the work has been completed, observe and approved by the Owner's Representative.

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, subsequent observations must be rescheduled as per above. The cost to the Ow for additional observations will be charged to the Contractor at the prevailing hou rate of the Owners Representative.

END OF SECTION 32 9300

MADRONE LANDSCAPE

Design Prepared by Madrone Landscape
A Briner & Son Family Company
www.brinerandson.com
www.madronelandscape.com
Lic. 713969

SHEET TITLE
LANDSCAPE SPECIFICATIONS

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB
OWNER APPROVAL

STAMP

LICENSED LANDSCAPE ARCHITECT — Daniel Mazuca LA 6825 — Signature 7/31/2025 — Registration Date — Date — STATE OF CALIFORNIA

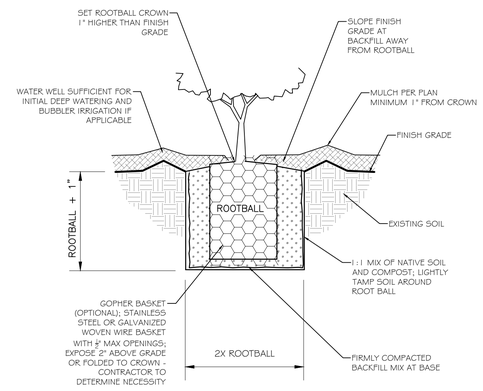
PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

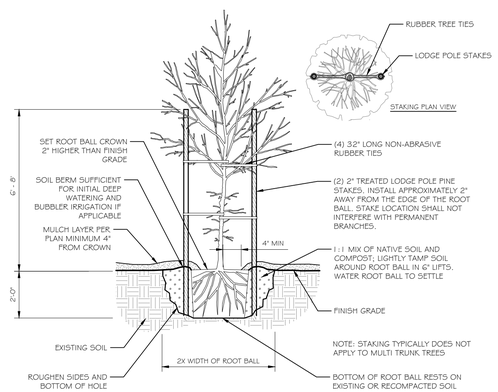
SHEET NUMBER
L-3.3

SHEET SIZE: 24" X 36"



1 SHRUB PLANTING

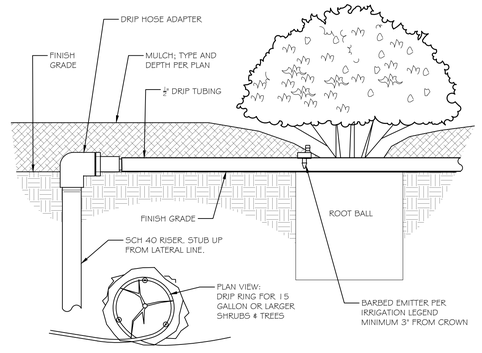
MD-PL-STA-01



2 TREE PLANTING

Not To Scale

MD-PL-STA-02

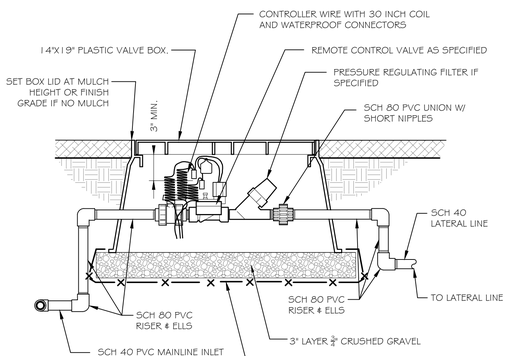


NOTES:
1. LOCATE ALL EMITTERS OVER ROOT BALL ZONE.
2. FOR ALL SHRUBS AND TREES LARGER THAN 5 GALLON, LOOP ½" DRIP TUBE FULLY AROUND ROOT BALL AND DISTRIBUTE EMITTERS FOR EVEN WATER APPLICATION.
3. EMITTER TYPE AND QUANTITY PER IRRIGATION LEGEND AND ACCORDING TO PLANT SIZE AND NEEDS.

3 ON-SURFACE DRIPLINE WITH EMITTERS

Not To Scale

MD-IR-STA-01



NOTE: LOCATE VALVE BOXES IN PLANTING AREAS 12" FROM HARDSCAPE EDGE IF POSSIBLE

4 IN-LINE REMOTE CONTROL VALVE

1 1/2" = 1'-0"

MD-IR-STA-06

MADRONE LANDSCAPE

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SHEET TITLE
CONSTRUCTION DETAILS

PROJECT NAME & ADDRESS
MADERA SOUTH HIGH SCHOOL
705 W PECAN AVE
MADERA, CA, 93637

REVISION	DATE
CONCEPT	3.15.24
REVISION 1	6.27.24
REVISION 2	

DRAWN BY
TE/JB
OWNER APPROVAL

STAMP

PROJECT NUMBER
D24006

FILE NAME
Madera South HS; Rev1

PLOT DATE
JUNE 27, 2024

SHEET NUMBER
L-4.0

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