

LANDSCAPE PLAN

RESPONDING TO THE DEVELOPMENT MASTER PLAN (ZONING CASE #Z96-23), THE LANDSCAPE APPROACH WILL CONVEY A DESERT/HOSPITALITY CHARACTER THAT SUPPORTS THE OVERALL MESA GATEWAY STRATEGIC DEVELOPMENT PLAN AND THE PHOENIX-MESA GATEWAY LANDSCAPE GUIDELINES. THE LANDSCAPE PALETTE WILL ADDRESS MAINTENANCE AND WATER CONSERVATION BY INCORPORATING LOW WATER USE TREES, SHRUBS, CACTI ACCENTS, AND GROUNDCOVER. ALL PLANT MATERIAL WILL MEET THE MINIMUM SIZE AND QUANTITY REQUIREMENTS WITHIN THE CITY OF MESA ZONING ORDINANCE FOR LIGHT INDUSTRIAL (LI) WITH PLANNED AREA DEVELOPMENT (PAD) OVERLAY.

0 20 40 60 feet
SCALE: 1"=20'



REFERENCE NOTES

- SEE CIVIL SHEETS FOR ALL DEMOLITION
- SEE ELECTRICAL SHEETS FOR ALL SITE ELECTRICAL
- SEE CIVIL AND ARCHITECTURAL SHEETS FOR ALL HARDCAPE IMPROVEMENTS, INCLUDING FLATWORK, SITE WALLS, AND SIGNS.

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LANDSCAPE SCHEDULE

TREES	QTY	BOTANICAL / COMMON NAME	CONT
35		ACACIA ANEURA MULGA	36" BOX (SINGLE-TRUNK)
8		CERODIUM X 'SONORAN EMERALD' SONORAN EMERALD PALO VERDE	36" BOX (MULTI-TRUNK)
3		PROSOPIS X THORNLESS 'AZT' THORNLESS AZT MESQUITE	24" BOX (MULTI-TRUNK)
4		QUERCUS FUSIFORMIS 'JOAN LIONETTI' JOAN LIONETTI LIVE OAK	36" BOX (SINGLE-TRUNK)
ACCENTS	QTY	BOTANICAL / COMMON NAME	CONT
36		DASYLLIRION WHEELERI GREY DESERT SPOON	5 GAL.
80		ECHINOCACTUS GRUSONII GOLDEN BARREL CACTUS	5 GAL.
8		FOURQUERIA SPLENDENS OCTILLO	12 CANES MIN.
33		PACHYCEREUS MARGINATUS MEXICAN FENCE POST	15 GAL
12		SANSEVIERIA ZEYLANICA MOTHER-IN-LAW TONGUE	5 GAL
GROUNDCOVERS	QTY	BOTANICAL / COMMON NAME	CONT
29		ACACIA REDOLENS BANK CATCLAW	5 GAL
32		EREMOPHILA MACULATA 'OUTBACK SUNRISE' OUTBACK SUNRISE EMU BUSH	5 GAL
SHRUBS/VINES	QTY	BOTANICAL / COMMON NAME	CONT
30		CAESALPINIA PULCHERRIMA RED BIRD OF PARADISE	5 GAL
14		DODONAEA VISCOSA HOPSEED BUSH	5 GAL
35		EREMOPHILA MACULATA VALENTINE EMU BUSH	5 GAL
108		HESPERALOE PARVIFLORA 'YELLOW' YELLOW YUCCA	5 GAL
26		LEUCOPHYLLUM FRUTESCENS 'GREEN CLOUD' GREEN CLOUD TEXAS SAGE	5 GAL
47		MUHLENBERGIA CAPILLARIS 'REGAL MIST' TM REGAL MIST DEER GRASS	5 GAL
69		RUELLIA BRITTONIANA PURPLE RUELLIA	5 GAL
11		TECOMA CAPENSIS CAPE HONEYSUCKLE	5 GAL
INERT MATERIAL	QTY	DESCRIPTION	TYPE/COLOR
9		LARGE SIZE BOULDER SURFACE SELECT BOULDER	3-TON (4' X 6' X 4')
17		MEDIUM SIZE BOULDER SURFACE SELECT BOULDER	2 TON (3' X 4' X 3')
4.731	SQ. FT.	ANGULAR ROCK 'APACHE GOLD' RIP-RAP	3/8" SCREENED
40,000	SQ. FT.	DECOMPOSED GRANITE 'APACHE GOLD'	1/2" SCREENED

VICINITY MAP (NTS)



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architecture.
design.
management.

adm group
adm

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SKYBRIDGE
ARIZONA

REVISION	DATE

Project Number	7032-118A
Date	6/15/2023
Drawn By	JMW/S
Checked By	JMW/C

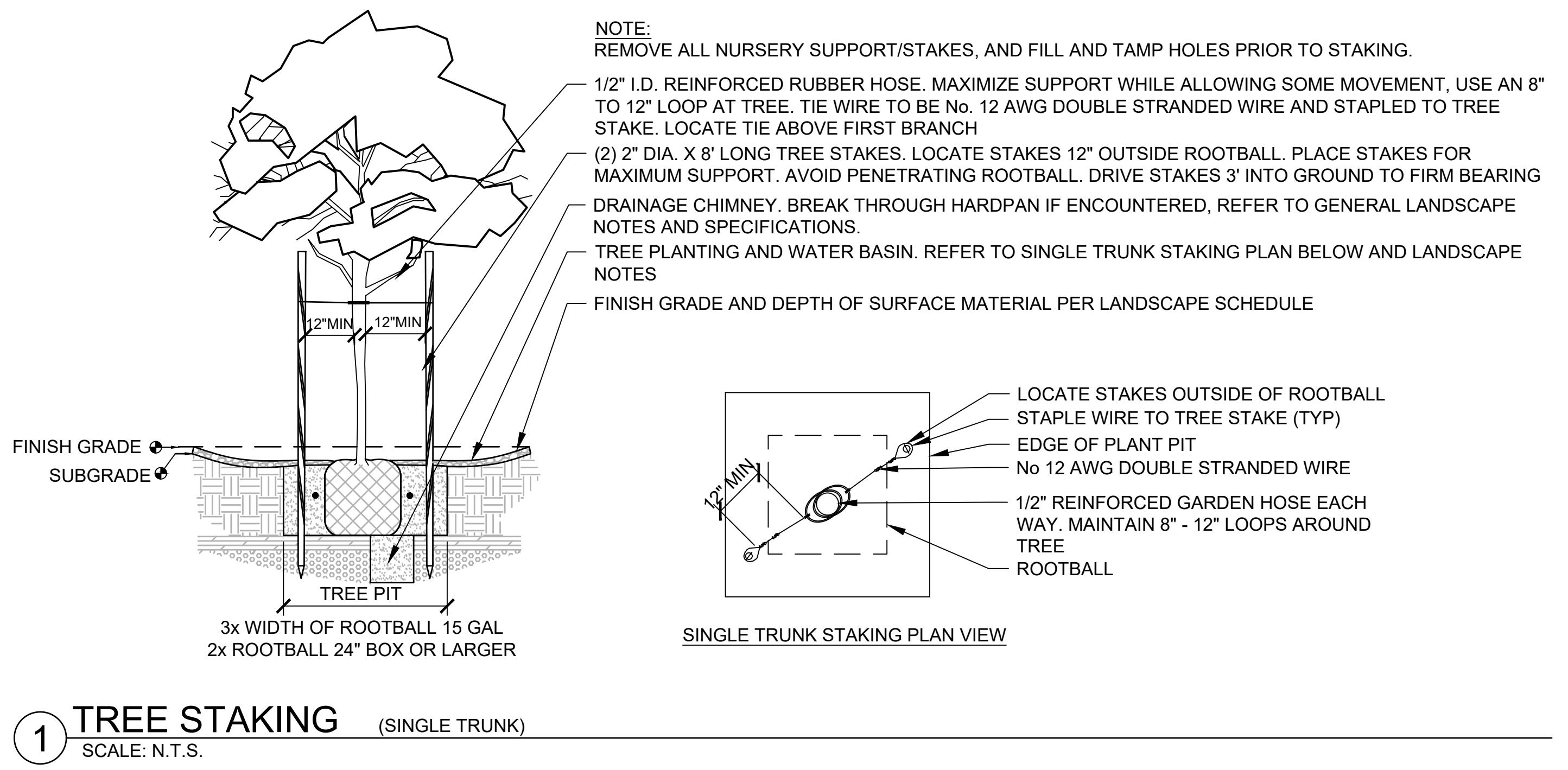
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LANDSCAPE PLAN
LL1.1

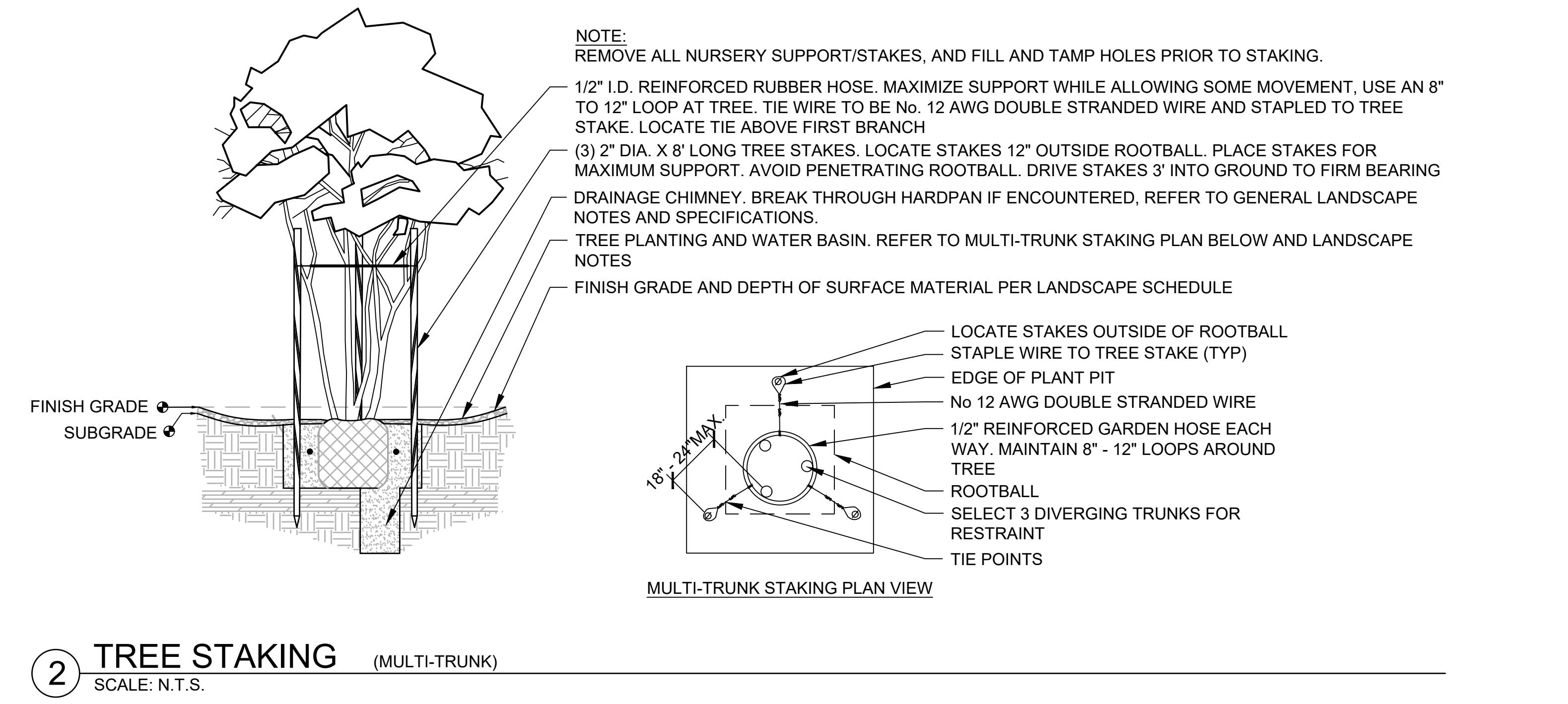


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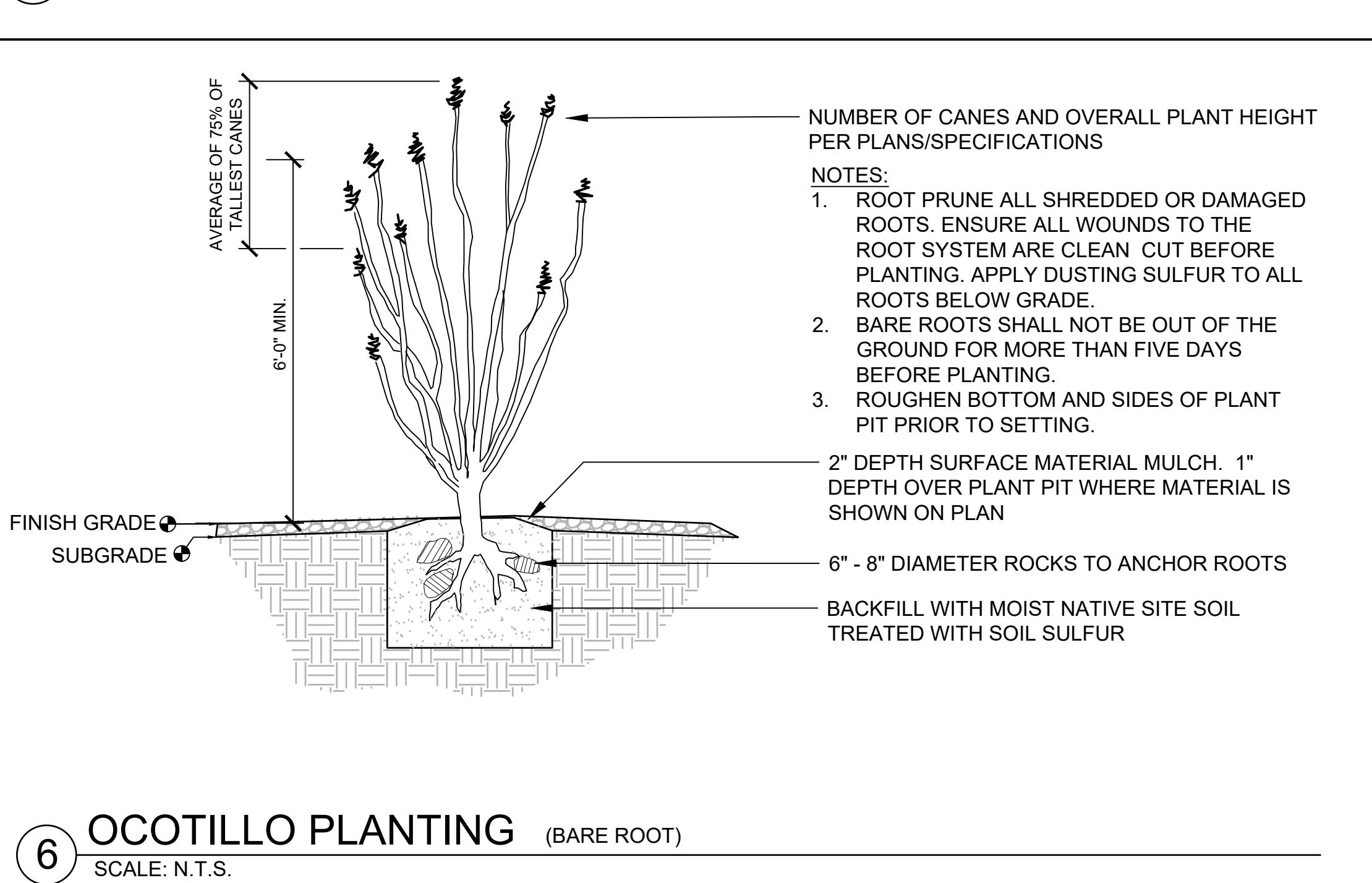
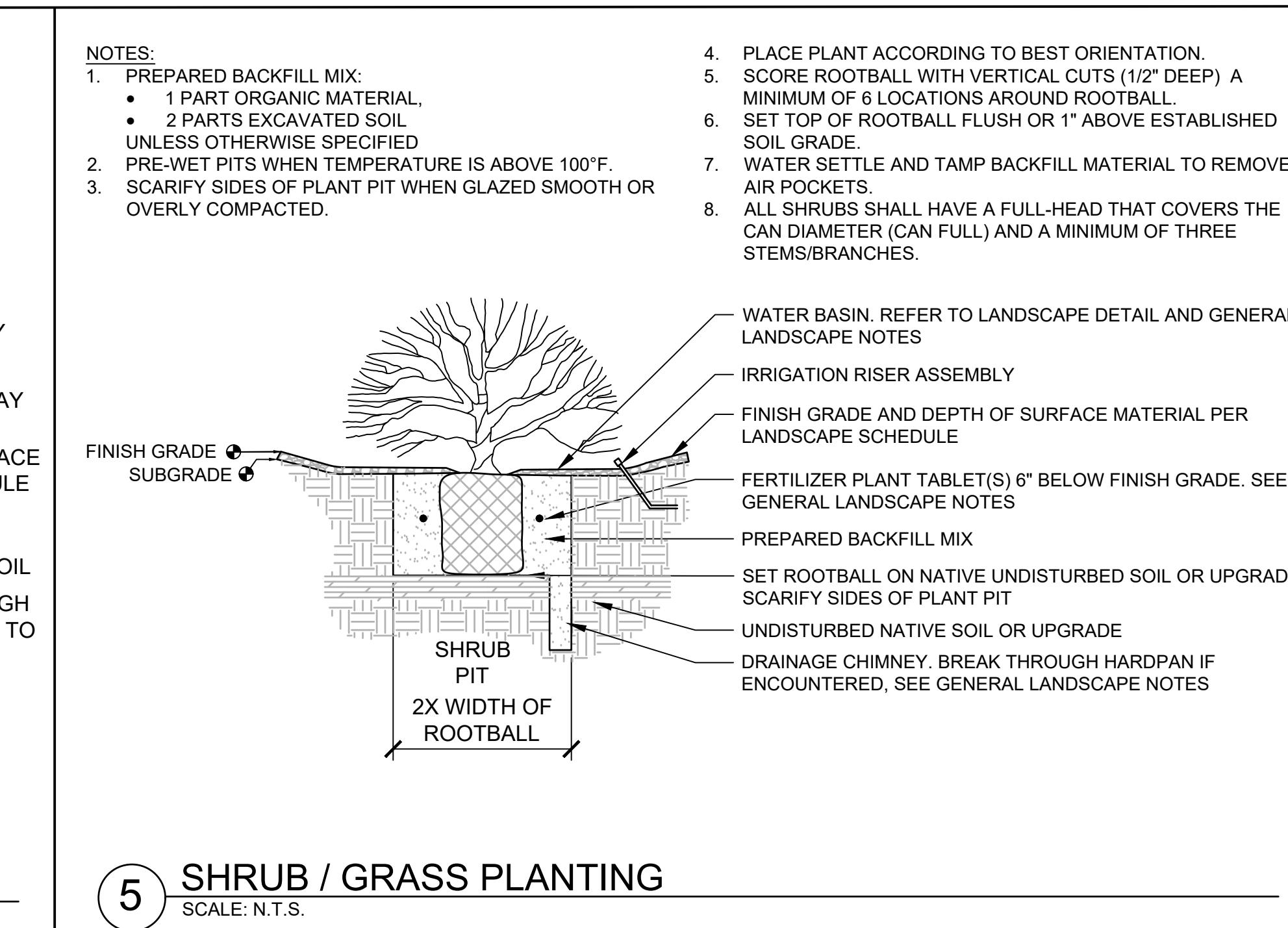
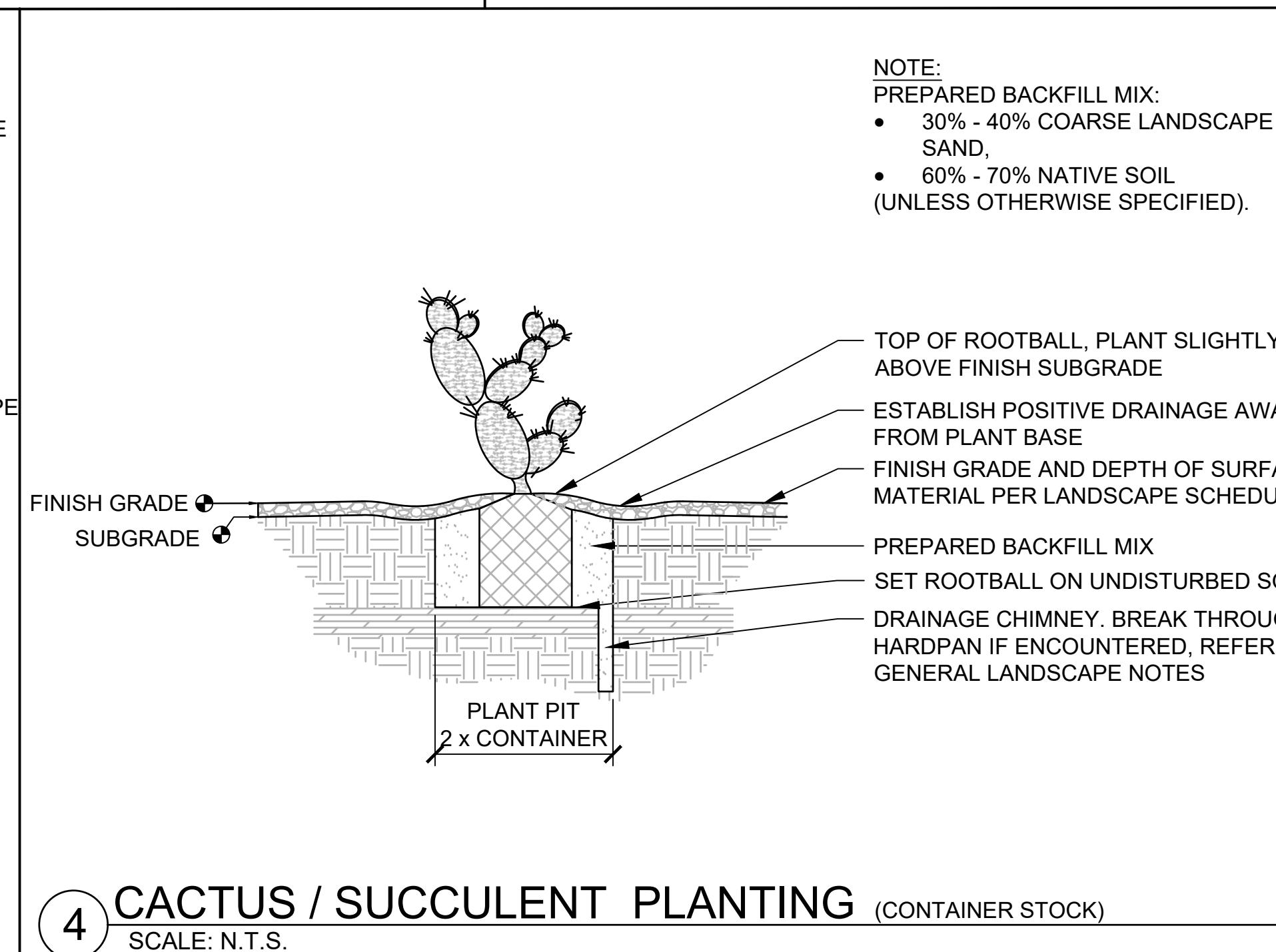
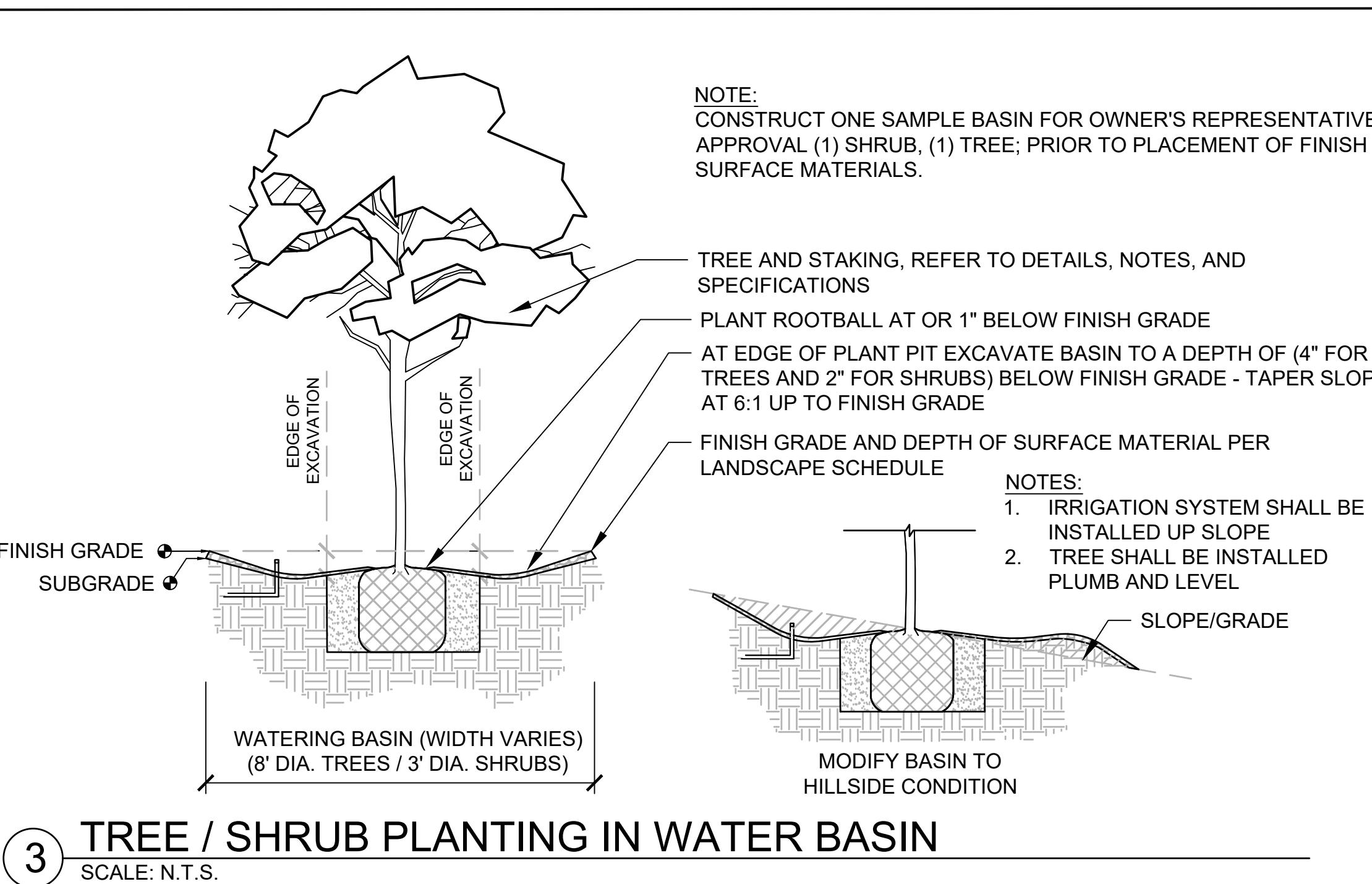
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1 TREE STAKING (SINGLE TRUNK)
SCALE: N.T.S.



2 TREE STAKING (MULTI-TRUNK)
SCALE: N.T.S.



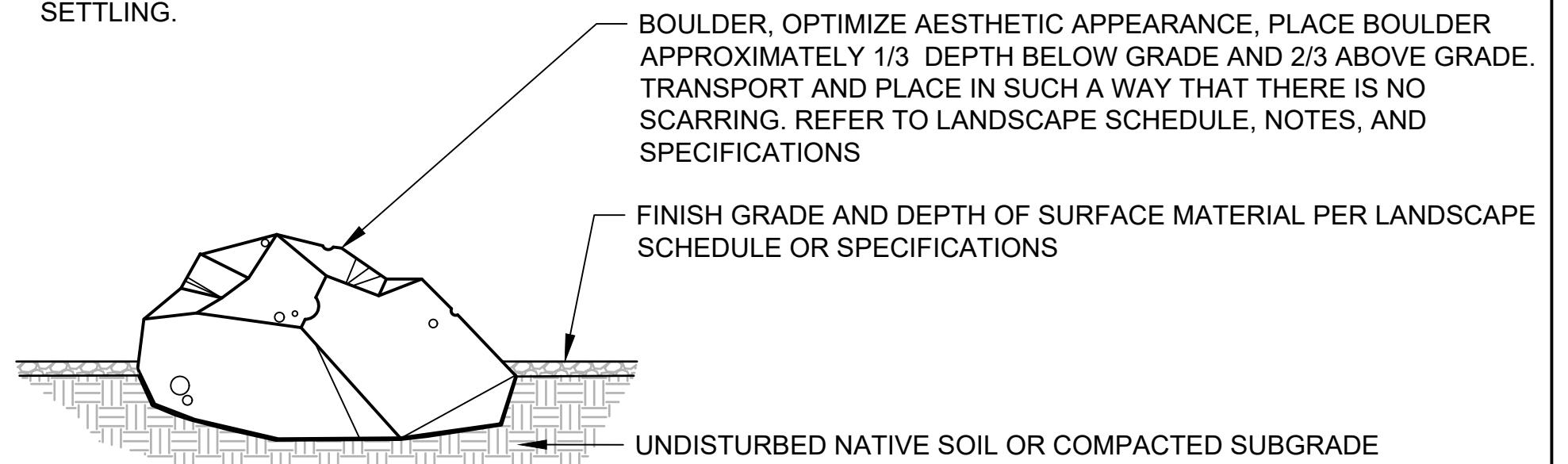
REVISION	DATE
Project Number 7032-118A	
Date 6/05/2023	Drawn By JMW/JJS
	Checked By JMW/JJC

LANDSCAPE DETAILS	
LL2.1	

NOTES:

1. WASH FINES FROM BOULDER PRIOR TO INSTALLATION.
2. REMOVE SURFACE MATERIAL IN AREA OF INSTALLATION.
3. IF LICHEN IS FOUND ON BOULDER, ORIENT THE BOULDER ACCORDINGLY TO BEST DISPLAY LICHEN.
4. BOULDER SHOULD BE SET TO ENSURE THE BEST SIDE OF THE BOULDER FACES WALKWAYS, SIDEWALKS.
5. ENSURE FINAL PLACEMENT OF BOULDERS DOES NOT IMPACT DRAINAGE.
6. COMPACT SOIL AROUND BOULDER TO LIMIT SETTLING.

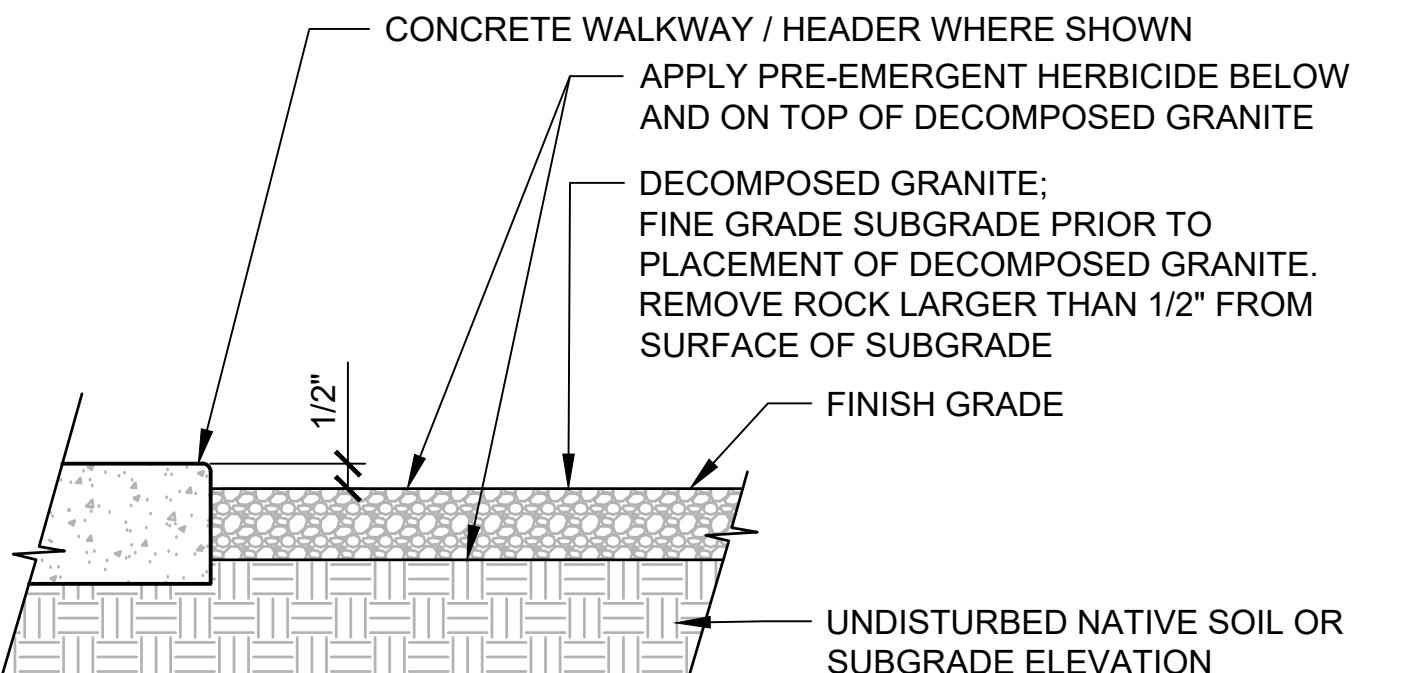
SIZE	DIMENSIONS	WEIGHT
MEDIUM	3' X 4' X 3'	1 1/2 TON - 2 TONS
LARGE	4' X 6' X 4'	2+ TONS



1 BOULDER
SCALE: N.T.S.

NOTES:

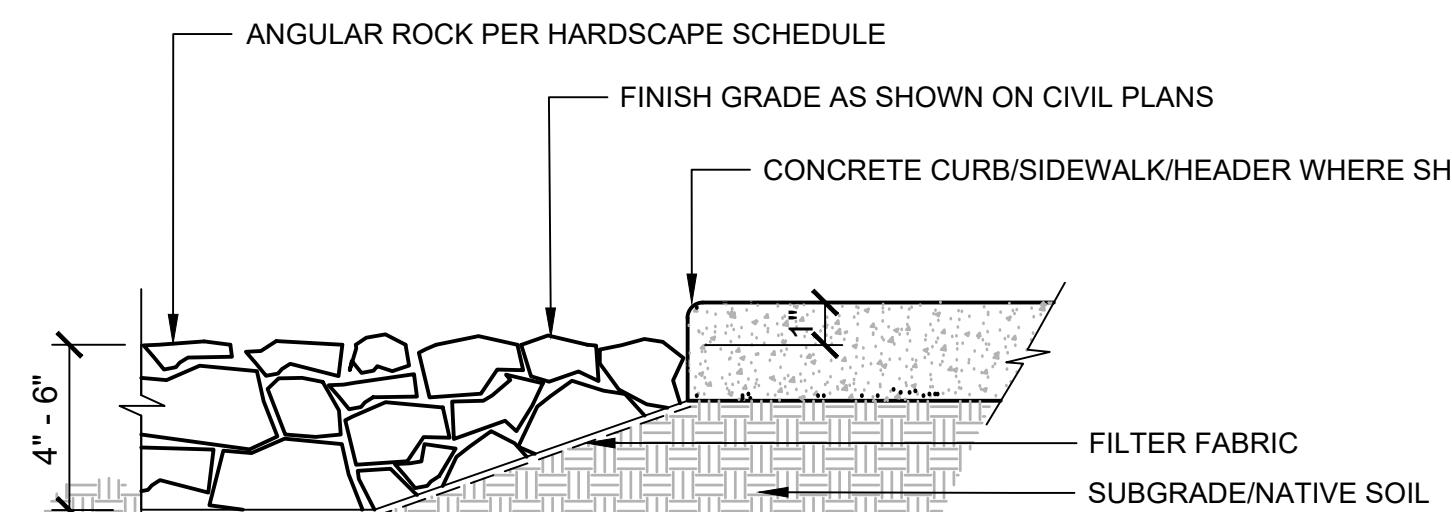
1. FINISH GRADE SHALL BE RAKED SMOOTH WITH NO CONTAMINANTS OF CONSTRUCTION AND/OR UNDULATION CREATED BY CONSTRUCTION.
2. APPLY PRE-EMERGENT HERBICIDE PRIOR TO INSTALLATION AND ONE WEEK AFTER INSTALLATION OF DECOMPOSED GRANITE. EACH APPLICATION OF PRE-EMERGENT HERBICIDE SHALL BE WATERED PER MANUFACTURER'S RECOMMENDATIONS.
3. FINE GRADE SUBGRADE PRIOR TO PLACEMENT OF DECOMPOSED GRANITE. REMOVE ROCK LARGER THAN 1/2" FROM SURFACE OF SUBGRADE.
4. WATER AND SETTLE DECOMPOSED GRANITE POST INSTALLATION AND LEVELING.
5. ENSURE DECOMPOSED GRANITE CREATS LEVEL AND SMOOTH CONNECTIONS AT STRUCTURES, WALLS, BUILDINGS AND OTHER SITE FEATURES.



2 DECOMPOSED GRANITE
SCALE: N.T.S.

NOTES:

1. PRIOR TO INSTALLATION, CONTRACTOR SHALL PROVIDE A 5 GALLON BUCKET SAMPLE OF ANGULAR ROCK FOR OWNER AND/OR LANDSCAPE ARCHITECT REVIEW AS PART OF THE PROJECT SHOP DRAWING PROCESS.
2. THE PLAN SHOWS DELINEATION OF ROCK ONLY. THE EDGE OF THE ROCK SHALL BE NATURAL AND BLEND WITH D.G. AFTER INSTALLATION AND APPROVAL OF ROCK, CONTRACTOR SPRAY ROCK WITH PRE-EMERGENT (SURFLAN OR APPROVED EQUAL).
3. OWNER AND/OR LANDSCAPE ARCHITECT SHALL ACCEPT SUBGRADE OF SWALES PRIOR TO PLACEMENT OF ROCK. ROCK SHALL BE WETTED PRIOR TO PLACEMENT TO ELIMINATE POWDERING. AFTER PLACING THE ANGULAR ROCK, THE CONTRACTOR SHALL WATER SETTLE THE ROCK WITH A LIGHT SPRAY TO REMOVE FINES.



3 ANGULAR ROCK / SWALE
SCALE: N.T.S.

GENERAL LANDSCAPE NOTES

GENERAL INFORMATION:

1. ALL PLANT MATERIAL SHALL HAVE A ONE YEAR WARRANTY FROM OWNER'S ACCEPTANCE DATE OF SUBSTANTIAL COMPLETION.
2. PLANT ESTABLISHMENT BY THE CONTRACTOR SHALL BE FOR 90 DAYS, BEGINNING ON START ON DATE OF SUBSTANTIAL COMPLETION OF LANDSCAPING. MAINTENANCE SHALL CONSIST OF MAINTAINING ALL WORK INSTALLED UNDER CONTRACT AND MONITORING THE WATERING SYSTEM (INCLUDING IF INSTALLED BY OTHERS). AFTER 90 DAYS THE CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE FOR A SITE INSPECTION. UPON ACCEPTANCE OF PLANTS AND MAINTENANCE, THE OWNER ASSUMES MAINTENANCE RESPONSIBILITIES. PROJECT WARRANTY REMAINS IN EFFECT FOR 1 YEAR FROM DATE OF SUBSTANTIAL COMPLETION ACCEPTANCE.
3. PRIOR TO COMMENCEMENT OF ANY WORK, DETERMINE LOCATION OF ALL UNDERGROUND UTILITIES THROUGH 'BLUE STAKE' OR OTHER METHOD AND PERFORM WORK IN A MANNER WHICH WILL AVOID POSSIBLE DAMAGE. HAND EXCAVATE, AS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES CAUSED AS A RESULT OF HIS WORK.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED TO ITS ORIGINAL CONDITION WHEN NO LANDSCAPE IMPROVEMENTS ARE SHOWN ON THE PLANS. VERIFY TREATMENT WITH THE OWNER'S REPRESENTATIVE PRIOR TO IMPLEMENTATION.

FINISH GRADE / LANDSCAPE PREPARATION

5. SITE GRADING NECESSITATED BY THE WORK AS IT PROGRESSES AND NOT SPECIFICALLY CALLED OUT ON THE PLANS WILL BE CONSIDERED INCIDENTAL WORK.
6. CONTRACTOR SHALL INSPECT SUBGRADES PREPARED BY OTHERS PRIOR TO COMMENCING WITH CONTRACTED LANDSCAPING OR IRRIGATION ACTIVITIES. ADVISE OWNER'S REPRESENTATIVE OF DISCREPANCIES WITH DRAWINGS OR TECHNICAL SPECIFICATIONS. ALL PLANTING AREAS SHALL BE LEFT FREE OF CONSTRUCTION DEBRIS AND/OR TOXIC MATERIAL AND SUBGRADED TO A LEVEL TO PERMIT LANDSCAPE CONSTRUCTION. TRENCHES OR OTHER FILLED EXCAVATIONS SHALL BE COMPAKTED PRIOR TO LANDSCAPE INSTALLATION.
7. ALL TEMPORARY CONSTRUCTION ROADS AND COMPAKTED AREAS DEVELOPED THAT ARE WITHIN THE LANDSCAPE AREAS SHALL BE SCARIFIED AND LOOSENED THEN WATER-SETTLED TO A DEPTH OF 12" PRIOR TO BEGINNING LANDSCAPE AND IRRIGATION WORK.
8. ALL SUBGRADE SURFACES SHALL BE RAKED OR GROOMED UNIFORMLY TO CONFORM TO THE TYPICAL SECTIONS OF PROPOSED GRADES PRIOR TO THE PLACEMENT OF INERT MATERIALS. SUBGRADE SURFACES SHALL BE REASONABLY SMOOTH, COMPAKTED, AND FREE OF IRREGULAR DRAINAGE INCONISISTENCIES (SUBGRADE FORM SHALL MATCH FINISH GRADE FORMS). THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINISH GRADE AND SHALL BEAR FINAL RESPONSIBILITY FOR PROPER SURFACE DRAINAGE OF PLANTED AREAS. FINISH GRADES SHALL MATCH ENGINEERS PLANS AND SPECIFICATIONS.

PLANTING

9. DO NOT MAKE SUBSTITUTIONS, IF SPECIFIED LANDSCAPE MATERIAL IS NON-OBTAINABLE, SUBMIT WHEN MULTIPLE QUANTITIES OF TABLETS ARE REQUIRED THEY SHALL BE EQUALLY SPACED AT THE SPECIFIED DEPTH.

PROOF OF NON-AVAILABILITY FROM AT LEAST FIVE SUPPLIERS TO OWNER'S REPRESENTATIVE, TOGETHER WITH A PROPOSAL FOR SUBSTITUTION OF EQUIVALENT MATERIAL FOR ACCEPTANCE.

10. LAYOUT INDIVIDUAL TREE AND PLANT LOCATIONS AND AREAS FOR MULTIPLE PLANTINGS, STAKE LOCATIONS AND OUTLINE AREAS AND SECURE OWNER'S REPRESENTATIVE ACCEPTANCE BEFORE START OF PLANTING WORK. MAKE MINOR ADJUSTMENTS AS MAY BE DIRECTED.
11. PLANT QUANTITIES LISTED IN THE LANDSCAPE SCHEDULE ARE FOR THE CONVENIENCE OF THE CONTRACTOR. IN THE CASE OF ANY DISCREPANCIES, PLANS SHALL OVERRIDE THE LANDSCAPE AND BID SCHEDULE QUANTITIES. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON THE PLANS AND BASE THEIR BID ACCORDINGLY.

12. EXCAVATE PLANTING PITS, AS SHOWN ON THE DRAWINGS AND SCHEDULES. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION. TEST DRAINAGE OF TREE, SHRUB AND PLANT PITS BY FILLING WITH WATER TWICE IN SUCCESSION. CONDITIONS PERMITTING THE RETENTION OF WATER IN PLANTING PITS FOR MORE THAN TWENTY-FOUR (24) HOURS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE DRAINAGE CHIMNEY WHEN AUTHORIZED, IF PLANT PIT DOES NOT DRAIN WITHIN 24 HOURS, THEN DRILL ONE (1) 6" DIAMETER X 24" DEEP HOLE, AT EDGE OF EXCAVATED PIT, RE-TEST PERCOLATION PER SPECIFICATIONS, CERTIFY PERCOLATION AND FILL HOLE WITH PEA GRAVEL. COORDINATE LOCATION WITH TREE STAKES.
13. IF ROCK, UNDERGROUND CONSTRUCTION, ADVERSE DRAINAGE CONDITIONS, OR OTHER OBSTRUCTIONS ARE ENCOUNTERED IN EXCAVATION FOR PLANTING OF TREES, SHRUBS, OR PLANTS NOTIFY OWNER'S REPRESENTATIVE. NEW LOCATIONS MAY BE DETERMINED, OR INSTRUCTIONS MAY BE ISSUED TO DIRECT REMOVAL OF OBSTRUCTION. PROCEED WITH WORK ONLY AFTER APPROVAL OF OWNER'S REPRESENTATIVE.

14. ALL PLANT BACKFILL MIXES SHALL BE AMENDED AS DESCRIBED ON THE LANDSCAPE DRAWING DETAILS, UNLESS SUPERCEDED BY SPECIFIC SOIL TESTING AND OR LANDSCAPE SPECIFICATIONS. BACKFILL MIX SHALL BE PLACED IN 6" LIFTS AND TAMPED INTO PLACE TO OBTAIN COMPACTION. NO TRANSPLANTING SHALL BE DONE WHEN SOIL IS EXCESSIVELY WET. DO NOT COUNTERSINK AROUND CACTI OR SUCCULENTS. PROVIDE POSITIVE DRAINAGE AWAY FROM PLANT.
15. ALL SHRUBS SHALL HAVE A FULL HEAD THAT COVERS THE CAN DIAMETER (CAN FULL) AND A MINIMUM OF THREE STEMS/BRANCHES.
16. PLANT BACKFILL MIX SHALL CONFORM TO LANDSCAPE DETAIL NOTES, UNLESS OTHERWISE SPECIFIED.

17. FERTILIZER TABLETS SHALL BE AGRIFORM (21 GRAM 20-10-5) OR EQUAL. QUANTITY OF TABLETS SHALL BE PLACED 1/2 THE DEPTH OF THE ROOTBALL AT THE FOLLOWING RATE:
 - 2 TABLETS PER 5 GALLON CONTAINER
 - 6 TABLETS PER 36" BOX
 - AT A RATE OF 1 TABLET PER EACH ADDITIONAL 6" BOX SIZE.

WHEN MULTIPLE QUANTITIES OF TABLETS ARE REQUIRED THEY SHALL BE EQUALLY SPACED AT THE SPECIFIED DEPTH.

architecture. design. management.

adm group

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CROSS FLOW TEST FACILITY

SkyBridge
ARIZONA

Project Number	7032-118A
Revision	
Date	6/05/2023
Drawn By	JMJS
Checked By	JMWC

LANDSCAPE DETAILS
LL2.2

PLANTING SPECIFICATIONS

LOGAN SIMPSON - SECTION 32.80.00 (2 OF 2)

PART 2 PRODUCTS

2.01 TREES, SHRUBS, GROUNDCOVERS, CACTI, AND ACCENTS

A. TREES, SHRUBS, GROUNDCOVERS, AND CACTI AND ACCENTS: SHALL BE NURSERY-GROWN, PLANTATION-GROWN, OR COLLECTED STOCK FROM ON/OFF-SITE, AS NOTED ON THE PLANS, CONFORMING TO ANSI Z60.1 AND SHALL BE OF THE VARIETIES SPECIFIED IN THE PLANT LIST BEARING BOTANICAL NAMES LISTED IN THE AJCHN-SPN PUBLICATION. PLANTING STOCK SHALL BE WELL-BRANCHED, WELL-FORMED, SOUND, VIGOROUS, HEALTHY, AND FREE FROM DISEASE, SUNSCALD, WINDBURN, ABRASION, AND HARMFUL INSECTS OR INSECT EGGS. IT SHALL HAVE HEALTHY, NORMAL, AND UNBROKEN ROOT SYSTEMS AND BEAR EVIDENCE OF CONFORMANCE WITH THE ARIZONA NATIVE PLANT LAW. TREES SHALL BE SYMMETRICALLY DEVELOPED, OF UNIFORM GROWTH HABIT, WITH STRAIGHT POLES OR STEM, AND FREE FROM OBJECTIONABLE DISFIGUREMENTS. TREES SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS LIKE THOSE IN THE PROJECT'S LOCALITY.

B. THE MINIMUM ACCEPTABLE SIZES OF ALL PLANTS, MEASURED BEFORE PRUNING AND WITH BRANCHES IN NORMAL POSITION, SHALL CONFORM TO THE MEASUREMENTS INDICATED IN THE PLANS OR NOTED REFERENCES. PLANTS LARGER IN SIZE THAN SPECIFIED MAY BE USED AS APPROVED. IF LARGER PLANTS ARE USED, THE SPREAD OF ROOTS SHALL BE INCREASED IN ACCORDANCE WITH ANSI Z60.1.

C. PLANTS SHALL BE DUG AND PREPARED FOR SHIPMENT IN A MANNER THAT WILL NOT CAUSE DAMAGE TO BRANCHES, SHAPE, OR FUTURE GROWTH AFTER PLANTING.

D. CONTAINER-GROWN PLANTS SHALL HAVE SUFFICIENT ROOT GROWTH TO KEEP THE EARTH INTACT WHEN REMOVED FROM THE CONTAINERS BUT SHALL NOT BE BOUND.

2.02 SOIL AMENDMENT MATERIALS

A. FOREST MULCH: SHALL BE WELL-COMPOSTED, NITROGEN-STABILIZED WOOD FIBER MULCH WITH A CARBON-TO NITROGEN RATIO OF 30:1 AVAILABLE FROM WESTERN AGRICULTURAL PRODUCTS, PHOENIX, ARIZONA, OR APPROVED EQUIVALENT.

B. PLANT TABLETS: THESE SHALL BE AGRIFORM 21-GRAM, 20-10-5 FERTILIZER TABLETS, OR APPROVED EQUIVALENT.

C. SOIL SULFUR: THIS SHALL BE A COMMERCIAL-GRADE PRODUCT PRODUCED FOR THE INTENDED USE. SULFUR SHALL BE APPROVED PRIOR TO USE ON THE PROJECT.

D. BACTERICIDE: SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

E. HERBICIDES AND PESTICIDES: CONTACT HERBICIDES AND PESTICIDES MUST COMPLY WITH ALL APPLICABLE STATE AND FEDERAL LAWS AND BE REGISTERED WITH THE U.S. ENVIRONMENTAL PROTECTION AGENCY. CONTACT HERBICIDES SHALL BE QUICK-ACTING AND PERMIT PLANTING WITHIN 7-10 DAYS OF THEIR USE.

F. SAND: SHALL BE COMMERCIAL GRADE MORTAR SAND.

2.03 INERT MATERIALS

A. THE INERT MATERIAL(S) PLACEMENT, I.E., DECOMPOSED GRANITE, ANGULAR ROCK, AND BOULDERS, SHALL BE THE TYPE AND SIZE SPECIFIED ON LANDSCAPE PLANS.

B. THE DECOMPOSED GRANITE SHALL MEET MAG SECTION 795 AND SHALL NOT CONTAIN LUMPS OR BALLS OF CLAY, CALICHE, ORGANIC MATTER, OR CALCAREOUS COATING. DECOMPOSED GRANITE SHALL BE PLACED IN ALL PLANTING AREAS SHOWN ON THE PLANS. PROVIDE DOCUMENTATION THAT ENOUGH (FOR EACH TYPE OF DECOMPOSED GRANITE SHOWN ON THE PLANS) IS AVAILABLE TO COMPLETE THE PROJECT FROM A SINGLE SOURCE.

2.06 ACCESSORIES

A. STAKES AND RUBBER HOSE STRAP TIE: PROVIDE STAKES OF SOUND NEW 2" DIAMETER BY 8' OR 10' (SEE PLANT DETAILS) CEDAR, REDWOOD, OR LODGE POLE PINE, FREE OF KNOTHOLES AND OTHER DEFECTS. PROVIDE 1/2" REINFORCED GARDEN HOSE WITH 12 AWG DOUBLE STRANDED WIRE, MANUFACTURED FOR THE PURPOSE OF TYING THE TREE TO STAKES.

PART 3 EXECUTION

3.01 EXAMINATION

A. SITE INSPECTION AND REVIEW: THE CONTRACTOR MUST VERIFY SITE CONDITIONS AND NOTE ANY IRREGULARITIES AFFECTING HIS/HER WORK IN THIS SECTION. THE CONTRACTOR IS TO REPORT ANY IRREGULARITIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL VERIFY THAT GRADING OR OTHER SITE WORK IS COMPLETE ENOUGH PRIOR TO EXECUTION OF WORK UNDER THIS SECTION. BEGINNING WORK OF THIS SECTION IMPLIES ACCEPTANCE OF CURRENT EXISTING CONDITIONS.

B. CONTRACTOR IS TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES. COORDINATE WITH OWNER'S REPRESENTATIVE, AND CONTACT BLUE STAKE AS NEEDED. THE PLACEMENT OF ELECTRICAL, IRRIGATION, AND OTHER UNDERGROUND UTILITIES WILL BE REVIEWED WITH THE GENERAL CONTRACTOR AND LANDSCAPE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK. CONFLICTS WILL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR RESOLUTION.

3.02 TREE, SHRUB, AND GROUNDCOVER PLANTING

A. CLEARING AND GRADING: ALL PLANTING AREAS SHALL BE FREE OF CONSTRUCTION MATERIAL AND SUBGRADE ELEVATIONS ESTABLISHED TO PERMIT LANDSCAPE CONSTRUCTION. NO PLANTING SHALL BE DONE WHEN THE SOIL IS EXCESSIVELY WET, IN THE OPINION OF THE OWNER'S REPRESENTATIVE.

B. LAYOUT: LAYOUT INDIVIDUAL TREE LOCATIONS AND SECURE THE OWNER'S REPRESENTATIVE'S ACCEPTANCE BEFORE THE START OF PLANTING WORK. MAKE MINOR ADJUSTMENTS AS MAY BE REQUESTED.

C. EXCAVATION: PLANT PITS SHALL BE DUG TO PRODUCE VERTICAL SIDES WITH A FLAT BOTTOM. THE SIDES AND BOTTOM SHALL BE SCARIFIED OR AS SHOWN IN THE DRAWINGS. IF PITS ARE DUG WITH AN AUGER AND THE SIDES OF THE PITS BECOME GLAZED IN THE OPINION OF THE OWNER'S REPRESENTATIVE, THE GLAZED SURFACE SHALL BE SCARIFIED. LOOSEN HARD SUBSOIL AT THE BOTTOM OF THE EXCAVATION.

D. TEST DRAINAGE OF THE PLANTING PIT BY FILLING IT WITH WATER TWICE. PLANT PITS RETAINING WATER FOR MORE THAN 24 HOURS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. SUBMIT, IN WRITING, A PROPOSAL FOR CORRECTION BEFORE PROCEEDING WITH ANY PLANTING OPERATIONS.

E. IF A CALICHE IS ENCOUNTERED, THE CONTRACTOR IS TO BREAK THROUGH THE CALICHE TO PROVIDE DRAINAGE AND/OR BRING IT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR RESOLUTION.

F. PLANT TABLET SCHEDULES FOR TREES SHALL BE PER THE MANUFACTURER'S RECOMMENDATION.

G. BACKFILL MIX: REFER TO THE BACKFILL MIX REQUIREMENTS HEREIN. TO BE ACCEPTABLE, THE BACKFILL SHALL HAVE ALL STONES GREATER THAN 1 INCH IN DIAMETER REMOVED WITHOUT DIRT BALLS, CLUMPS, OR LAYERS OF INDIVIDUAL MATERIALS. PRIOR TO THE BACKFILLING OF HOLES, THE CONTRACTOR SHALL PROVIDE A SAMPLE OF THE BACKFILL FOR THE OWNER'S REPRESENTATIVE TO REVIEW. AS THE PROJECT PROCEEDS, THIS SAMPLE SHALL BE USED AS REFERENCE MATERIAL FOR THE BACKFILL.

H. SETTING AND BACKFILLING FOR TREES: SET PLANT STOCK ON UNDISTURBED SOIL, PLUMB, AND IN THE CENTER OF THE PIT WITH THE TOP OF THE BALL AT ELEVATION SET TO FINISHED LANDSCAPE GRADES. REMOVE BOXES, INCLUDING THE BOTTOM OR CONTAINERS, BEFORE SETTING. DO NOT USE STOCK IF THE ROOT BALL IS CRACKED OR BROKEN PRIOR TO OR DURING PLANTING OPERATIONS. WHEN SET, PLACE ADDITIONAL BACKFILL AROUND THE BASE AND SIDES OF BALL AND PLACE PLANT TABLETS. WORK EACH LAYER TO SETTLE BACKFILL AND ELIMINATE VOIDS AND AIR POCKETS. WHEN THE PLANTING PIT IS APPROXIMATELY 2/3-FULL, WATER THOROUGHLY BEFORE PLACING THE REMAINDER OF THE BACKFILL. REPEAT WATERING UNTIL NO MORE IS ABSORBED. WATER THE SOIL AGAIN AFTER PLACING THE FINAL LAYER OF BACKFILL. CUT PLASTIC OR METAL CONTAINERS ON TWO SIDES WITH A METAL CUTTER. DO NOT USE A SPADE TO CUT CANS. DO NOT HANDLE CONTAINER PLANTS BY FOLIAGE, BRANCHES, OR TRUNKS. AFTER REMOVING THE PLANT FROM THE CONTAINER, SCARIFY THE SIDE OF THE ROOTBALL TO ELIMINATE THE ROOT-BOUND CONDITION. REMOVE ALL NURSERY-TYPE PLANT STAKES AND LABELS FROM PLANTS. INSTALL TREE STAKING PER DRAWINGS.

I. STAKING OF TREES: STAKE AND TIE TREES PER PROJECT DETAILS.

J. WATERING: ALL WATERING SHALL BE DONE IN A MANNER THAT WILL PROVIDE UNIFORM COVERAGE BUT WILL NOT CAUSE EROSION OR DAMAGE TO THE FINISHED SURFACE.

K. PRUNING: PRUNE, THIN OUT, AND SHAPE TREES IN ACCORDANCE WITH ASNS. PRUNE TREES TO RETAIN THE REQUIRED HEIGHT AND SPREAD. DO NOT CUT TREE LEADERS; REMOVE ONLY INJURED OR DEAD BRANCHES FROM FLOWERING TREES, IF ANY. PRUNE TREES TO RETAIN THEIR NATURAL CHARACTER. PLANTS SHOULD CONFORM TO THE REQUIREMENTS OF ANA AFTER PRUNING.

L. HERBICIDE AND PESTICIDE APPLICATION: HERBICIDES, INSECTICIDES, AND FUNGICIDES SHALL BE APPLIED AS NEEDED AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPLIED BY A LICENSED PROFESSIONAL.

3.03 ACCENTS

A. INSTALLATION OF ACCENTS: LAY OUT INDIVIDUAL ACCENTS LOCATIONS, STAKE LOCATIONS, OUTLINE AREAS, AND SECURE THE OWNER'S REPRESENTATIVE ACCEPTANCE BEFORE THE START OF PLANTING WORK. MAKE MINOR ADJUSTMENTS AS MAY BE REQUESTED BY OWNER'S REPRESENTATIVE.

B. EXCAVATION: EXCAVATE PITS, AS SHOWN ON DRAWINGS AND SCHEDULES. LOOSEN HARD SUBSOIL AT THE BOTTOM OF THE EXCAVATION. IF CALICHE IS ENCOUNTERED, THE CONTRACTOR IS TO BREAK THROUGH THE CALICHE TO PROVIDE DRAINAGE AND/OR BRING TO THE ATTENTION OF THE OWNER FOR RESOLUTION.

C. PREPARATION OF ACCENTS BACKFILL MIX: SOIL REMOVED FROM THE PLANT PIT SHALL BE MIXED WITH SAND AT 30% - 40% SAND AND 60% - 70% EXCAVATED ON-SITE NATIVE SOIL.

D. MARKING AND CALIBRATION FOR ACCENTS: THE CONTRACTOR SHALL MARK THE ORIGINAL NORTH-APPEARING SURFACE AND ESTABLISH CALIBRATION POINTS BEFORE DELIVERY TO THE SITE AND PLANTING. RECORD THE DISTANCE BETWEEN CALIBRATION MARKS OF ALL CACTI USING A METHOD ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. THE MARK OR ITS INSTALLATION PROCESS SHALL NOT DAMAGE OR DEFACE THE CACTI. THE MARK MUST BE CAPABLE OF WITHSTANDING POOR WEATHER AND EXPECTED WORKING CONDITIONS WITHOUT THE POSSIBILITY OF ERASURE OR DETACHMENT THROUGHOUT THE DURATION OF THE CONTRACT. ALL WOUNDS AND/OR CUTS MADE TO THE ACCENTS SHALL BE TREATED WITH BACTERICIDE AS APPROVED ON THE SAME DAY THE CUT AND/OR WOUND WAS MADE. ALL CUT AND/OR DAMAGED ROOTS SHALL BE TREATED WITH DUSTING SULFUR AS APPROVED ON THE SAME DAY THAT THE CUT AND/OR WOUND WAS MADE.

3.04 INERT MATERIALS INSTALLATION

A. THE AREAS IN WHICH INERT MATERIALS ARE TO BE PLACED SHALL BE GRADED ACCORDING TO THE DRAWINGS PRIOR TO PLACEMENT. THE GROUND SHALL BE REASONABLY SMOOTH AND FIRM AND ALL DELETERIOUS MATERIAL AND ROCKS LARGER THAN 1" IN DIAMETER SHALL BE REMOVED AND DISPOSED OF OFF-SITE.

B. THE CONTRACTOR SHALL FIELD IDENTIFY PLACEMENT AREA BY OUTLINING THE PERIMETER OF EACH TYPE OF INERT MATERIAL IDENTIFIED ON THE PLANS BY FLAGGING, STAKING, OR SURFACE SPRAY PAINT. IN ADDITION, LANDSCAPE MASS PLANTING AREAS AND GROUPINGS SHALL ALSO HAVE AN IDENTIFIED PERIMETER.

C. IN AREAS TO RECEIVE INERT MULCH APPLY TWO APPLICATIONS OF PRE-EMERGENT WEED CONTROL, SUCH AS SURFLAN OR EQUAL. THE FIRST APPLICATION SHALL BE PRIOR TO THE PLACEMENT OF INERT MATERIAL. THE 2ND APPLICATION SHALL BE APPLIED TO THE FINISHED SURFACE OF THESE AREAS AS DESCRIBED BELOW.

D. DECOMPOSED GRANITE HALLS BE WETTED PRIOR TO PLACEMENT OVER ACCEPTED SUBGRADE TO ELIMINATE POWDERING AND DRY PLACEMENT. THE DECOMPOSED GRANITE SHALL NOT BE MIXED WITH AND SHALL BE PROTECTED FROM CONTAMINATION WITH ON-SITE SOIL MATERIALS OR OTHER UNDESIRABLE MATERIALS PRIOR TO PLACEMENT. DECOMPOSED GRANITE THAT, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, HAS UNDESIRABLE CONTAMINANTS AND SHALL BE REMOVED FROM THE PROJECT.

E. DECOMPOSED GRANITE SHALL BE PLACED WHERE DESIGNATED, PER THE DRAWINGS, INCLUDING PLANT IRRIGATION SAUCERS.

F. AFTER PLACING AND RAKING THE DECOMPOSED GRANITE, THE CONTRACTOR SHALL LIGHTLY SPRAY TO REMOVE FINES FROM THE SURFACE, AND WATER SETTLES THE MATERIAL.

G. A SECOND APPLICATION OF PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO DECOMPOSED GRANITE AREAS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. FOLLOWING THIS APPLICATION, THE CONTRACTOR SHALL WATER IN THE PRE-EMERGENT HERBICIDE PER THE MANUFACTURER'S RECOMMENDATION SO THAT IT SATURATES INTO INERT MATERIAL AND SOIL.

3.05 CLEAN-UP AND PROTECTION

DURING LANDSCAPE WORK, KEEP PAVEMENTS AND WORK AREAS CLEAN, NEAT, AND ORDERLY. BROOM, SCRUB, OR HOSE AFFECTED AREAS AS DIRECTED BY OWNER'S REPRESENTATIVE. SOIL DEPOSITS OR COMPACTED MUD WILL NOT BE ALLOWED TO REMAIN ON THE ROADS, PARKING LOTS, OR CONCRETE SURFACES AND SHALL BE REMOVED DAILY OR MORE FREQUENTLY AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

PROTECT LANDSCAPE WORK AND EXISTING IMPROVEMENTS FROM DAMAGE DUE TO LANDSCAPE INSTALLATION OR THE OPERATIONS OF OTHER CONTRACTORS AND TRESPASSERS. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THE PORTION OR PORTIONS OF THE SITE UNDER CONSTRUCTION AND SHALL PROVIDE AND MAINTAIN SAFETY DEVICES AND PROTECTIVE EQUIPMENT AS REQUIRED BY STATE AND LOCAL LAWS, CODES, AND ORDINANCES. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS AS REQUIRED. TREAT, REPAIR OR REPLACE CONTRACTOR DAMAGED WORK AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO COST TO THE OWNER'S REPRESENTATIVE. REMOVE ALL DEBRIS, TRASH AND EXCESS MATERIALS GENERATED BY THE LANDSCAPE INSTALLATION AND PROPERLY DISPOSE OF IT.

END OF SECTION

architecture.
design.
management.

adm group
adm

Landscape
Installations
21401
1000 N. COLLEBANK
AZ 85020
U.S.A.
08/30/2023

SKYBRIDGE ARIZONA AT
PHOENIX-MESA GATEWAY
7801 E. SKYBRIDGE BLVD.
MESA, ARIZONA 85212
CROSS FLOW TEST FACILITY

SkyBridge
Arizona

REVISION	DATE
7032-118A	6/05/2023
	Drawn By JMJ/S
	Checked By JMW/C

LANDSCAPE
SPECIFICATIONS
LL3.2

PLANTING SPECIFICATIONS

LOGAN SIMPSON - SECTION 32.80.00 (1 OF 2)

PART 1 GENERAL

THE EXTENT OF LANDSCAPE DEVELOPMENT WORK IS SHOWN IN THE DRAWINGS AND SCHEDULES. THIS SECTION INCLUDES PROVISIONS FOR THE FOLLOWING ITEMS.
 SUPPLYING AND INSTALLING TREES, SHRUBS, ACCENTS
 SOIL AMENDMENTS
 INERT MATERIALS - DECOMPOSED GRANITE, ANGULAR ROCK, AND BOULDERS
 LANDSCAPE MAINTENANCE
 WARRANTY OF LANDSCAPE

1.01 REFERENCES

A. ANSI Z60.1 - AMERICAN STANDARD FOR NURSERY STOCK; 1996
 B. ANSI A300 - AMERICAN NATIONAL STANDARD FOR TREE CARE OPERATIONS - TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE - STANDARD PRACTICES; 2001
 C. AAN-ASNS: AMERICAN ASSOCIATION OF NURSERYMEN, INC. "AMERICAN STANDARD FOR NURSERY STOCK" - 1986 EDITION.
 D. AJCHN-SPN: AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE "STANDARDIZED PLANT NAMES," SECOND EDITION, 1942.
 E. ANA: ARIZONA NURSERY ASSOCIATION GROWERS COMMITTEE "RECOMMENDED TREE SPECIFICATIONS," LATEST EDITION.
 F. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS.
 G. MAG SPECIFICATIONS LATEST EDITION.

1.02 RELATED WORK

A. SECTION 02 41 00 DEMOLITION CONTAINS REQUIREMENTS FOR WORK THAT MAY AFFECT THIS WORK.
 B. SECTION 31 00 00 EARTHWORK CONTAINS REQUIREMENTS FOR WORK THAT MAY AFFECT THIS WORK.
 C. SECTION 32 80 00 IRRIGATION CONTAINS REQUIREMENTS THAT MAY AFFECT THE WORK OF THIS SECTION.

1.03 SUBMITTALS

ALL ITEMS LISTED BELOW SHALL BE FORWARDED IN A SINGLE PACKAGE TO THE OWNER'S REPRESENTATIVE WITHIN 45 DAYS BEFORE PLANTING WORK BEGINS.
 A. CERTIFICATION: SUBMIT CERTIFICATES OF INSPECTION AS REQUIRED BY GOVERNMENTAL AUTHORITIES OR AS REQUESTED HEREIN. SUBMIT MANUFACTURERS' OR VENDORS' CERTIFIED ANALYSIS FOR MATERIALS IN PART 2. SUBMIT DATA SUBSTANTIATING THAT MATERIALS COMPLY WITH SPECIFIED REQUIREMENTS. FILE COPIES OF CERTIFICATES WITH THE OWNER'S REPRESENTATIVE AFTER ACCEPTANCE OF MATERIAL.
 B. SCHEDULE: SUBMIT LANDSCAPE SCHEDULE; INDICATE BEGINNING AND END DATES FOR EACH WORK EFFORT (EXAMPLES, FINE GRADE, PLANTING, PRE-EMERGENT PLACEMENT, PLACEMENT OF INERT MATERIALS, ETC.). IF LANDSCAPE CONSTRUCTION IS PHASED, INCLUDE A PHASING PLAN AND SCHEDULE FOR EACH AREA.
 C. LIST OF NURSERIES: SUBMIT A LIST OF NURSERIES SUPPLYING PLANT MATERIAL FOR THE PROJECT.
 D. MAINTENANCE INSTRUCTIONS: SUBMIT TYPEWRITTEN INSTRUCTIONS RECOMMENDING THE OWNER'S MAINTENANCE EFFORTS AFTER LANDSCAPE CONTRACTORS' 90-DAY PLANT ESTABLISHMENT PERIOD
 AND FOR THE ONE-YEAR PLANT WARRANTY PERIOD AND THE YEAR THEREAFTER.
 E. DECOMPOSED GRANITE: CONTRACTOR TO SUBMIT A FIVE-POUND SAMPLE OF DECOMPOSED GRANITE SHOWING EACH GRADATION AND COLOR. VERIFY IN WRITING TO OWNER'S REPRESENTATIVE THAT THERE IS SUFFICIENT SUPPLY FROM A SINGLE SOURCE TO SUPPLY THE PROJECT. THE CONTRACTOR MUST SUBMIT A MATERIAL CERTIFICATE SIGNED BY THE MATERIAL PRODUCER AND CONTRACTOR, CERTIFYING THAT DECOMPOSED GRANITE COMPLIES WITH OR EXCEEDS SPECIFIED REQUIREMENTS.

1.04 QUALITY ASSURANCE

A. NURSERY QUALIFICATIONS: COMPANY SPECIALIZING IN GROWING AND CULTIVATING PLANTS WITH FIVE (5) CONSECUTIVE YEARS OF DOCUMENTED EXPERIENCE.
 B. INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN INSTALLING AND PLANTING PLANTS WITH FIVE (5) CONSECUTIVE YEARS OF EXPERIENCE.
 C. OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO TAKE AND ANALYZE SAMPLES OF MATERIALS FOR CONFORMITY TO SPECIFICATIONS AT ANY TIME. THE CONTRACTOR SHALL FURNISH SAMPLES UPON REQUEST OF THE OWNER'S REPRESENTATIVE. REJECTED MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PAY THE COST OF TESTING OF MATERIALS NOT MEETING SPECIFICATIONS.
 D. PLANT MATERIAL: PROVIDE TREES OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY SHOWN AND AS SCHEDULED FOR LANDSCAPE WORK; AND COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF PART 1 "REFERENCES." PROVIDE HEALTHY, VIGOROUS STOCK GROWN AT A RECOGNIZED NURSERY IN ACCORDANCE WITH THE GOOD HORTICULTURAL PRACTICE AND FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUNSCALDS, INJURIES, ABRASIONS, OR DISFIGUREMENT. MEASURE PLANT MATERIALS WITH BRANCHES OR TRUNKS IN THEIR NORMAL POSITION AND CONFORMANCE WITH REQUIREMENTS WITH THE ABOVE 1.01 REFERENCES. DO NOT PRUNE TO OBTAIN THE REQUIRED SIZES. MEASURE THE MAIN BODY OF THE TREE FOR HEIGHT AND SPREAD DIMENSIONS. PLANTS SHALL BE SOUND, HEALTHY, WELL-BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL HAVE HEALTHY, WELL-DEVELOPED ROOT SYSTEMS AND SHALL BE FREE FROM EVIDENCE OF PHYSICAL DAMAGE OR ADVERSE CONDITIONS THAT WOULD PREVENT THRIVING GROWTH. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. UNLESS SPECIFIED, TREES THAT HAVE DAMAGED OR CROOKED LEADERS OR MULTIPLE LEADERS WILL BE REJECTED. TREES WITH ABRASIONS OF THE BARK, SUNSCALD, DISFIGURING KNOTS, OR FRESH CUTS OF LIMBS OVER 3/4" THAT HAVE NOT BEEN COMPLETELY CALLUSED, WILL BE REJECTED.
 E. INSPECTION: OWNER'S REPRESENTATIVE MAY INSPECT PLANT MATERIAL EITHER AT THE PLACE OF GROWTH OR AT THE SITE BEFORE PLANTING FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE OWNER'S REPRESENTATIVE RETAINS THE RIGHT TO INSPECT FURTHER PLANT MATERIAL FOR SIZE AND CONDITION OF THE ROOTS AND ROOTBALL, INSECTS, INJURIES, AND LATENT DEFECTS AND MAY REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING THE PROGRESS OF WORK. REMOVE REJECTED PLANT MATERIAL IMMEDIATELY FROM THE PROJECT SITE.

1.05 REGULATORY REQUIREMENTS

A. PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK.

PROVIDE FOR ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE, AND LOCAL AUTHORITIES IN FURNISHING, TRANSPORTING, AND INSTALLING MATERIALS AS SHOWN OR FOR COMPLETING THE WORK IDENTIFIED HEREIN.
 B. ALL PLANT MATERIALS SHALL BE CERTIFIED FREE OF DISEASE AND HAZARDOUS INSECTS.
 C. AN INDIVIDUAL LICENSED TO PERFORM THIS WORK SHALL APPLY ALL PESTICIDES AND HERBICIDES.

1.06 DELIVERY, STORAGE, AND HANDLING

A. AS APPROVED BY THE GENERAL CONTRACTOR, A TEMPORARY STORAGE YARD FOR PLANTS OR EQUIPMENT USED ON THE PROJECT MAY BE PLACED AT AN ON-SITE STORAGE LOCATION SHOULD THE LANDSCAPE SUBCONTRACTOR ELECT TO STORE PLANTS AND EQUIPMENT ON THE SITE, HE/SHE SHALL BE RESPONSIBLE FOR ENCLOSING THE YARD WITH A 6-FOOT CHAIN LINK FENCE AND MEET ALL REQUIREMENTS FOR THE PROTECTION OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY BY AGENCIES HAVING JURISDICTION OVER SUCH MATTERS. THE STORAGE AREA SHALL HAVE A LOCKABLE GATE FOR WHICH THE GENERAL CONTRACTOR WILL BE PROVIDED WITH A WORKABLE KEY FOR THE DURATION OF THE STORAGE YARD'S EXISTENCE. NO FLAMMABLE FUELS OR EXPLOSIVES ARE PERMITTED IN THE YARD. THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERING WATER TO THE PLANTS STORED IN THE YARD. THE GENERAL CONTRACTOR SHALL APPROVE THE WATERING METHODS USED FOR THE STORAGE AREA. THE CONTRACTOR SHALL HOLD THE OWNER'S REPRESENTATIVE HARMLESS FROM POTENTIAL CLAIMS ARISING FROM USING THE LAND, ACTS OF VANDALISM, OR DELAYS RESULTING FROM THEFT OR UNAUTHORIZED REMOVAL OF MATERIALS AND EQUIPMENT FROM THE STORAGE YARD.
 B. PACKAGED MATERIALS: DELIVER PACKAGED MATERIALS IN CONTAINERS SHALL SHOW THE MANUFACTURER'S WEIGHT, ANALYSIS, AND NAME. PROTECT MATERIALS FROM DETERIORATION DURING DELIVERY AND WHILE STORED AT THE SITE. PROTECT PRODUCTS/MATERIALS FROM WEATHER OR OTHER CONDITIONS THAT WOULD DAMAGE OR IMPAIR THE EFFECTIVENESS OF THE PRODUCT MATERIAL.
 C. TREES AND SHRUBS: DO NOT PRUNE PRIOR TO DELIVERY UNLESS APPROVED BY OWNER'S REPRESENTATIVE. DO NOT BEND OR BIND-TIE PLANT MATERIAL IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING DELIVERY. PROVIDE ADEQUATE PROTECTION FOR ROOT SYSTEMS AND BALLS FROM DRYING WINDS AND SUN. DELIVER PLANT MATERIAL AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN SIX HOURS AFTER DELIVERY, SET TREES IN THE SHADE, PROTECT THEM FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST BY AN ACCEPTABLE MEANS OF RETAINING MOISTURE. WATER AS OFTEN AS NECESSARY TO MAINTAIN THE ROOT SYSTEM IN A MOIST CONDITION.
 D. DO NOT REMOVE CONTAINER-GROWN STOCK FROM THE CONTAINER UNTIL PLANTING TIME.

1.07 SOURCE QUALITY CONTROL

A. SHIP MATERIALS WITH CERTIFICATES OF INSPECTION REQUIRED BY GOVERNMENTAL AUTHORITIES. COMPLY WITH REGULATIONS APPLICABLE TO MATERIALS HEREIN.
 B. DO NOT MAKE SUBSTITUTIONS. IF SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON AVAILABILITY FROM FIVE SOURCES TO OWNER'S REPRESENTATIVE, TOGETHER WITH A PROPOSAL FOR USING EQUIVALENT MATERIAL WITH A CORRESPONDING CONTRACT PRICE ADJUSTMENT.

1.08 SITE CONDITIONS

A. WATER: WATER WILL BE PROVIDED BY THE CONTRACTOR THROUGH AN ACCEPTED BACKFLOW PREVENTER FOR THE IRRIGATION SYSTEM (CONSTRUCTED AS PART OF THIS PROJECT) FOR USE IN THE LANDSCAPE INSTALLATION AT NO CHARGE TO THE LANDSCAPE SUBCONTRACTOR. WATER WILL NOT BE AVAILABLE ON-SITE UNTIL THE TAP IS MADE FOR THE IRRIGATION SYSTEM AND THE BACKFLOW PREVENTER IS INSTALLED, INSPECTED, AND APPROVED.
 B. SITE EXAMINATION: THE PROSPECTIVE CONTRACTORS ARE ENCOURAGED TO EXAMINE THE PLANS AND VISIT THE JOB SITE PRIOR TO BIDDING ON THIS PROJECT TO SATISFY THEIR CONCERN AS TO THE MAGNITUDE OF THE WORK INVOLVED, TO BECOME AWARE OF THE EXISTING CONDITIONS, AND TO UNDERSTAND ANY RESTRICTIONS TO THE COMPLETION OF THE PROPOSED WORK. FAILURE TO VISIT THE SITE AND ACQUAINT HIMSELF WITH THE EXISTING CONDITIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM ANY OBLIGATION WITH RESPECT TO HIS PROPOSAL.
 C. FINAL GRADE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINISHED GRADES ON THE PLANS.
 D. UTILITIES: DETERMINE THE LOCATION OF UNDERGROUND UTILITIES THROUGH BLUE STAKE AND PERFORM WORK TO AVOID POSSIBLE DAMAGE. HAND EXCAVATES, AS REQUIRED. REPAIR OR REPLACEMENT OF DAMAGED UTILITIES SHALL BE MADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE. THE COSTS OF REPAIRS OR REPLACEMENT OF UTILITIES DAMAGED BY THE ACTIONS OF THE CONTRACTOR SHALL BE BORNE BY THE CONTRACTOR.
 E. OBSTRUCTION: IF ROCK, UNDERGROUND CONSTRUCTION, OR OTHER OBSTRUCTIONS ARE ENCOUNTERED IN PREPARING LANDSCAPE AREAS OR DURING PLANT PIT EXCAVATION, THE CONTRACTOR IS TO NOTIFY OWNER'S REPRESENTATIVE. INSTRUCTIONS MAY BE ISSUED TO DIRECT REMOVAL OF OBSTRUCTION TO A DEPTH OF NOT LESS THAN 6" BELOW THE REQUIRED PLANTING DEPTH. PROCEED WITH WORK ONLY AFTER APPROVAL OF THE OWNER'S REPRESENTATIVE.

1.09 SAMPLES AND TEST

A. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO TAKE AND ANALYZE SAMPLES OF MATERIALS FOR CONFORMITY TO SPECIFICATIONS AT ANY TIME. THE CONTRACTOR SHALL FURNISH SAMPLES AS IDENTIFIED IN THIS SECTION AND UPON REQUEST BY THE OWNER'S REPRESENTATIVE. REJECTED MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PAY THE COST OF TESTING OF MATERIALS NOT MEETING SPECIFICATIONS.

B. LABEL EACH TYPE OF PLANT WITH A SECURELY ATTACHED WATERPROOF TAG BEARING THE LEGIBLE DESIGNATION OF THE BOTANICAL AND COMMON NAME.

1.10 ENVIRONMENTAL REQUIREMENTS

A. PLANTING SEASONS AND CONDITIONS: PLANTING SHALL NOT BE DONE WHEN THE SOIL IS MUDDY OR CONDITIONS ARE OTHERWISE UNSUITABLE FOR PLANTING. THE OWNER'S REPRESENTATIVE WILL SOLELY JUDGE THE SITE'S SOIL'S ACCEPTABILITY AND PLANTING CONDITIONS.

1.11 WARRANTY

A. WARRANTY OF ALL PLANT MATERIALS AGAINST DEFECTS DUE TO ANY CAUSE FOR

ONE (1) YEAR FROM THE DATE OF LANDSCAPE SUBSTANTIAL COMPLETION AND COMMENCEMENT OF THE FORMAL LANDSCAPE ESTABLISHMENT PERIOD.

B. THIS WARRANTY WILL NOT BE ENFORCED SHOULD PLANT MATERIAL DIE DUE TO VANDALISM, IMPROPER MAINTENANCE PROCEDURES (INCLUDING OVER- OR UNDER-WATERING), OVER-FERTILIZATION, NON-REMOVAL OF BRACES/GUY WIRES CAUSING GIRDLING OF TRUNKS, FIRE, FLOOD OR HAIL, OR OTHER SIMILAR CIRCUMSTANCES BEYOND THE CONTROL OF THE CONTRACTOR.

C. REPLACEMENTS: REPLACE PLANT MATERIALS WHEN THEY ARE NO LONGER IN SATISFACTORY CONDITION AS DETERMINED BY THE OWNER'S REPRESENTATIVE DURING THE WARRANTY PERIOD. MAKE REPLACEMENTS WITHIN FOURTEEN (14) DAYS OF NOTIFICATION BY THE OWNER'S REPRESENTATIVE. PLANT REPLACEMENT MATERIALS OF THE SAME SIZE AND SPECIES AS ORIGINALLY SPECIFIED, WITH A NEW WARRANTY COMMENCING ON THE REPLACEMENT DATE. REMOVE DEAD PLANTS WITHIN SEVEN (7) DAYS OF NOTIFICATION. REPLACEMENTS SHALL BE MADE AT NO EXPENSE TO THE OWNER.

1.12 PLANT ESTABLISHMENT PERIOD

A. FROM THE TIME ANY PLANTS AND TURF ARE PLANTED UNTIL COMPLETION OF THE NINETY (90) DAY PLANT ESTABLISHMENT PERIOD, THE CONTRACTOR SHALL ENSURE THAT ALL PLANTS ARE WATERED, TRASH AND DEBRIS ARE REMOVED WEEKLY, WEEDS ARE CONTROLLED, PLANT REPLACEMENTS ARE MADE, PLANTS PRUNED, AND/OR SPRAYING FOR INSECTS OR DISEASE COMPLETED. TRAFFIC CONTROL, IF REQUIRED DURING THE MAINTENANCE PERIOD, SHALL BE INCLUDED IN THE COST OF CONTRACT ITEMS.

B. SPRAY OR DUST APPROPRIATE INSECTICIDES, MITICIDES, AND FUNGICIDES AS NECESSARY TO MAINTAIN PLANTS IN HEALTHY AND VIGOROUS GROWING CONDITIONS UNTIL ACCEPTED BY THE OWNER'S REPRESENTATIVE. APPLY PEST AND DISEASE CONTROL CHEMICALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR WILL COMPLETELY REMOVE WEEDS AND GRASSES SUCH AS DALLAS, BERMUDA, JOHNSON, AND NUT FROM THE PROJECT SITE.

C. MAKE REPLACEMENTS OF DEAD OR UNHEALTHY PLANTS DURING THE NINETY (90) DAY PLANT ESTABLISHMENT PERIOD EXCEPT FOR REPLACEMENTS RESULTING FROM THE EXCLUSIONS IDENTIFIED IN PROJECT WARRANTY ABOVE. PLANTS DAMAGED BY FROST SHALL BE REPLACED DURING THE MAINTENANCE PERIOD AS DIRECTED BY THE OWNER'S REPRESENTATIVE; THERE SHALL BE NO LIMIT TO THE REPLACEMENTS DUE TO FROST. THE OWNER'S REPRESENTATIVE SHALL APPROVE REPLACEMENT PLANTS PRIOR TO PLANTING.

D. PROVIDE A SCHEDULE OF MAINTENANCE ACTIVITIES TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING THE 90-DAY ESTABLISHMENT PERIOD. PROVIDE THE OWNER'S REPRESENTATIVE WITH WEEKLY REPORTS SUMMARIZING MAINTENANCE ACTIVITIES COMPLETED BY THE CONTRACTOR, INCLUDING PERSON-HOURS EXPENDED TO COMPLETE THE TASKS.

E. LACK OF CARE OR PLANT NEGLECT DURING THE 90-DAY ESTABLISHMENT PERIOD: EACH DAY DURING WHICH THE OWNER'S REPRESENTATIVE DETERMINES THAT WORK UNDER THE PLANT ESTABLISHMENT PERIOD IS REQUIRED, THE CONTRACTOR IS SO ADVISED, AND IF THE CONTRACTOR FAILS TO ACCOMPLISH THE REQUIRED WORK, THE SUBJECT DAYS WILL EXTEND THE 90-DAY MAINTENANCE AND THE WARRANTY PERIOD.

F. FINAL MAINTENANCE INSPECTION: AT THE END OF THE NINETY (90) DAY PLANT ESTABLISHMENT, A FINAL MAINTENANCE INSPECTION WILL BE PERFORMED TO ACCEPT THE LANDSCAPE INSTALLATION FOR THE REMAINING WARRANTY PERIOD. AT THE TIME, THE CONTRACTOR SHALL HAVE ALL PLANTING AREAS UNDER THIS CONTRACT FREE OF WEEDS AND NEATLY CULTIVATED. ALL PLANTS SHALL BE ALIVE AND HEALTHY WITHOUT SIGNS OF STRESS.

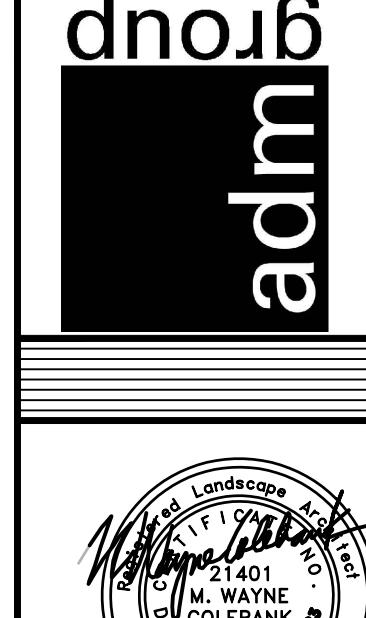
IF, AFTER THE INSPECTION, THE OWNER'S REPRESENTATIVE IS OF THE OPINION THAT ALL WORK HAS BEEN PERFORMED AS PER THE DRAWINGS AND SPECIFICATIONS AND THAT ALL PLANT MATERIALS ARE IN SATISFACTORY GROWING CONDITION, HE WILL GIVE THE CONTRACTOR WRITTEN NOTICE OF FINAL ACCEPTANCE OF THE LANDSCAPE INSTALLATION AND COMMENCEMENT OF THE ONE (1) YEAR WARRANTY PERIOD.

WORK REQUIRING CORRECTIVE ACTION OR REPLACEMENT IN THE JUDGMENT OF THE OWNER'S REPRESENTATIVE SHALL BE PERFORMED WITHIN TEN (10) DAYS AFTER INSPECTION. CORRECTIVE WORK AND MATERIALS REPLACEMENT SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND MADE BY THE CONTRACTOR AT NO COST TO THE PROJECT. MAINTAIN CORRECTED WORK UNTIL RE-INSPECTED BY OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLANTING, WEEDING, AND MAINTAINING THE LANDSCAPING UNTIL THE (90) DAY PLANT ESTABLISHMENT PERIOD IS ACCEPTED. THE OWNER'S REPRESENTATIVE SHALL BE THE SOLE JUDGE OF ACCEPTANCE OF THE 90-DAY PLANT ESTABLISHMENT PERIOD.

G. THE REMAINDER OF THE YEAR PLANT WARRANTY WILL EXTEND 275 DAYS BEYOND ACCEPTANCE OF THE 90-DAY PLANT ESTABLISHMENT PERIOD, DURING WHICH THE OWNER IS RESPONSIBLE FOR LANDSCAPE MAINTENANCE. HOWEVER, PLANT REPLACEMENT MAY STILL BE ENFORCED, PENDING CIRCUMSTANCES BEYOND OWNER MAINTENANCE.

PART 2 ON NEXT SHEET

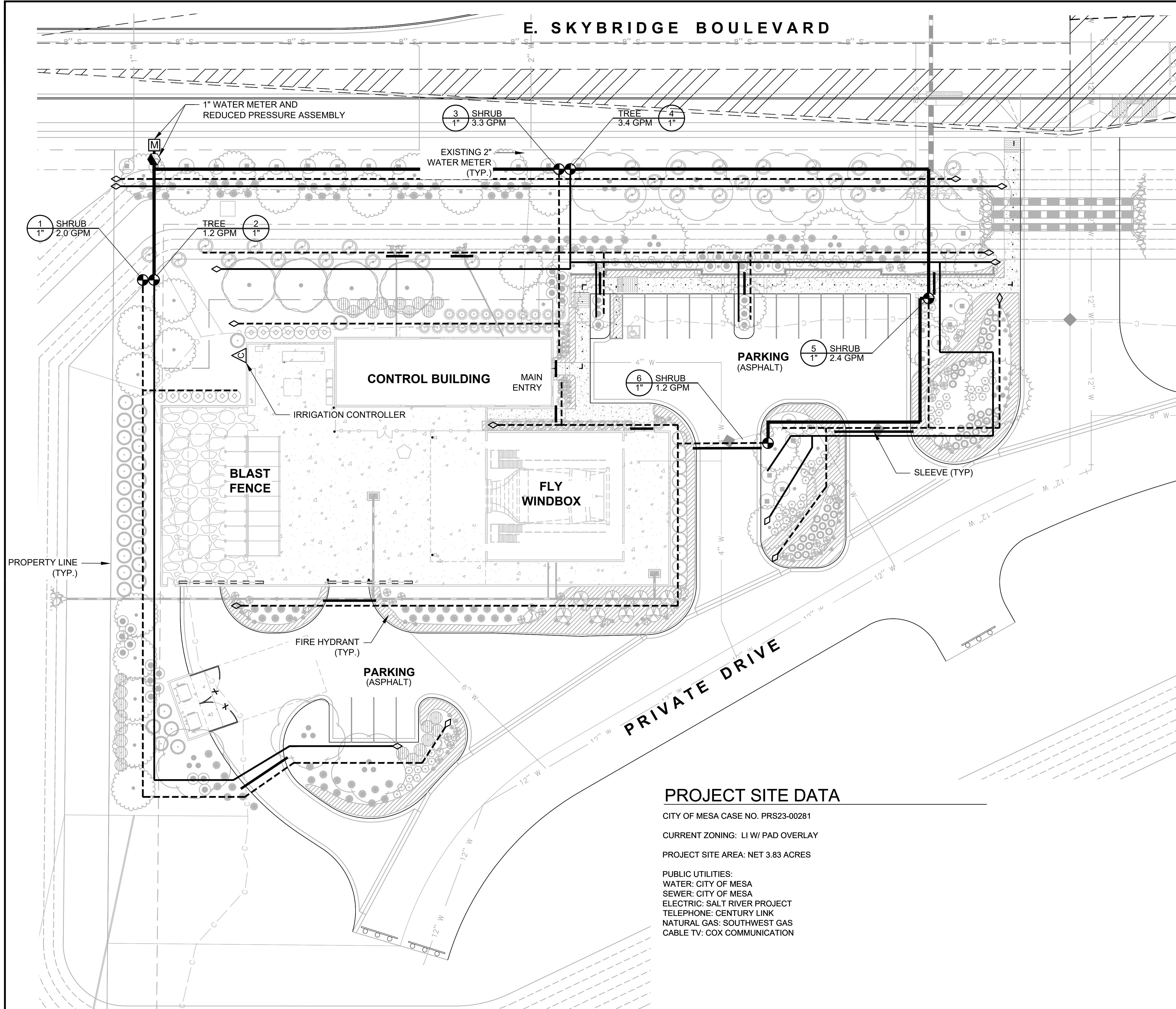
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REVISION	DATE
7032-118A	6/05/2023
Drawn By JWJS	
Checked By JWWC	
Project Number 7032-118A	
LANDSCAPE SPECIFICATIONS LL3.1	



0 30 60 90
feet
SCALE: 1"=30'



REFERENCE NOTES

- SEE CIVIL SHEETS FOR ALL DEMOLITION
- SEE ELECTRICAL SHEETS FOR ALL SITE ELECTRICAL
- SEE CIVIL AND ARCHITECTURAL SHEETS FOR ALL HARDCAPE IMPROVEMENTS, INCLUDING FLATWORK, SITE WALLS, AND SIGNS.

IRRIGATION SCHEDULE

SYMBOL	BRAND	MODEL	DESCRIPTION
	EXISTING		WATER METER
	FEBCO	825YA	REDUCED PRESSURE ASSEMBLY
	RAINBIRD	ESP8LXME	IRRIGATION CONTROLLER
	RAINBIRD	100-PEB PRF-075-25	REMOTE CONTROL VALVE
N/S	BOWSMITH	ML206	PRESSURE REGULATING FILTER
N/S	BOWSMITH	ML210	MULTI OUTLET Emitter (0.6 GPH)
	SPEARS	AP-100	MULTI OUTLET Emitter (1.0 GPH)
			END CAP

3/4" SCHEDULE 40 PVC PIPE LATERAL (TREE)
 3/4" SCHEDULE 40 PVC PIPE LATERAL (SHRUB)
 1" SCHEDULE 40 PVC MAINLINE
 SCHEDULE 40 PVC SLEEVE

IRRIGATION SLEEVES

- USE SCHEDULE 40 PIPE, 2 TIMES THE DIAMETER OF THE PIPE(S) BEING SLEEVED, MINIMUM 2".
- CONTROL WIRES INSTALLED THROUGH IRRIGATION SLEEVES SHALL BE ENCASED IN A PVC ELECTRICAL CONDUIT SIZED TO CONTAIN THE REQUIRED NUMBER OF CONDUCTORS. WIRE SLEEVES CROSSING STREET PAVING SHALL HAVE A 10" PULL BOX AT EACH END.

VALVE CALLOUT

VALVE # TREE # 1" 0.0 GPM
 VALVE SIZE VALVE TYPE
 TOTAL GPM

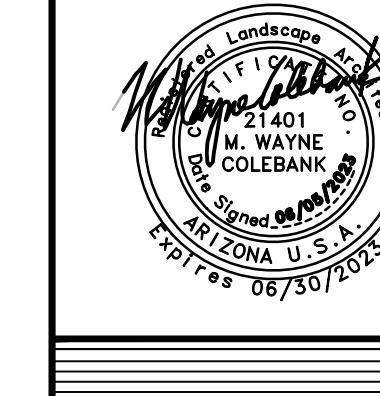
EMITTER SCHEDULE

COMMON NAME	FLOW PER OUTLET	MANIFOLD OUTLET	OPEN OUTLETS	GPH PER PLANT
TREE				
MULGA	1.0 GPH	MULTI-OUTLET	6	6.0
PALO VERDE	1.0 GPH	MULTI-OUTLET	6	6.0
MESQUITE	1.0 GPH	MULTI-OUTLET	6	6.0
OAK	1.0 GPH	MULTI-OUTLET	6	6.0
SHRUBS				
RED BIRD OF PARADISE	0.6 GPH	MULTI-OUTLET	3	1.8
HOPSEED BUSH	0.6 GPH	MULTI-OUTLET	2	1.2
VALENTINE EMU BUSH	0.6 GPH	MULTI-OUTLET	2	1.2
YELLOW YUCCA	0.6 GPH	MULTI-OUTLET	1	0.6
SAGE	0.6 GPH	MULTI-OUTLET	2	1.2
DEER GRASS	0.6 GPH	MULTI-OUTLET	2	1.2
RUELLIA	0.6 GPH	MULTI-OUTLET	2	1.2
CAPE HONEYSUCKLE	0.6 GPH	MULTI-OUTLET	2	1.2
ACCENTS/GROUNDCOVERS				
DESERT SPOON	0.6 GPH	MULTI-OUTLET	1	0.6
BARREL CACTUS	0.6 GPH	MULTI-OUTLET	1	0.6
OCTILLO	0.6 GPH	MULTI-OUTLET	1	0.6
MEXICAN FENCE POST	0.6 GPH	MULTI-OUTLET	1	0.6
MOTHER IN LAW TONGUE	0.6 GPH	MULTI-OUTLET	1	0.6
BANK CATCLAW	0.6 GPH	MULTI-OUTLET	2	1.2
OUTBACK EMU BUSH	0.6 GPH	MULTI-OUTLET	2	1.2

EMITTER NOTES

- REFER TO Emitter DETAILS FOR Emitter SPECIFICATIONS AND LAYOUT
- ADJUST IRRIGATION OPERATING TIMES TO ACCOMMODATE PLANT MATURITY, SOIL TYPE, PLANT EXPOSURE AND SEASONAL REQUIREMENTS.

adm group
architecture. design. management.

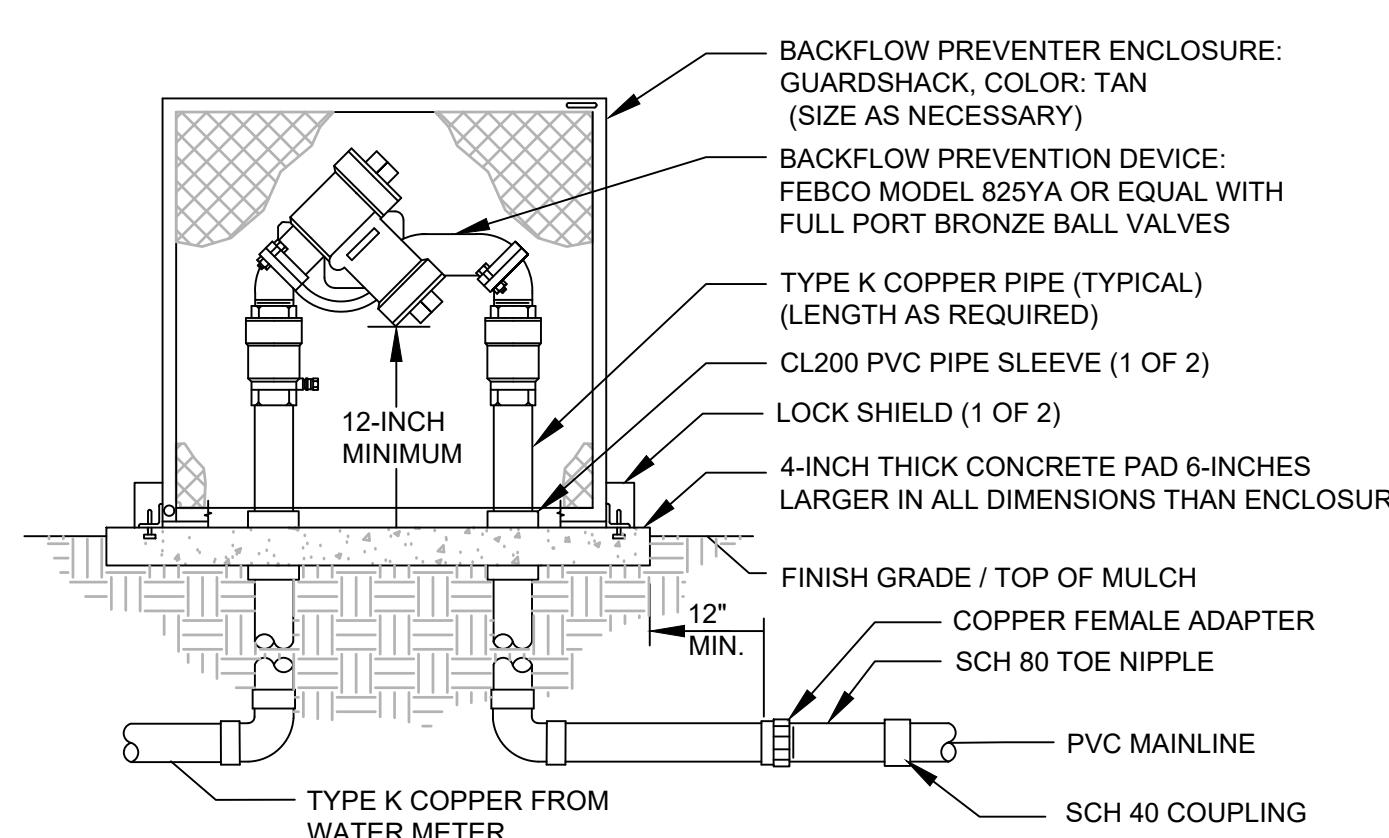


SKYBRIDGE ARIZONA AT
PHOENIX-MESA GATEWAY
7801 E. SKYBRIDGE BLVD.
MESA, ARIZONA 85212
CROSS FLOW TEST FACILITY

SKYBRIDGE
ARIZONA

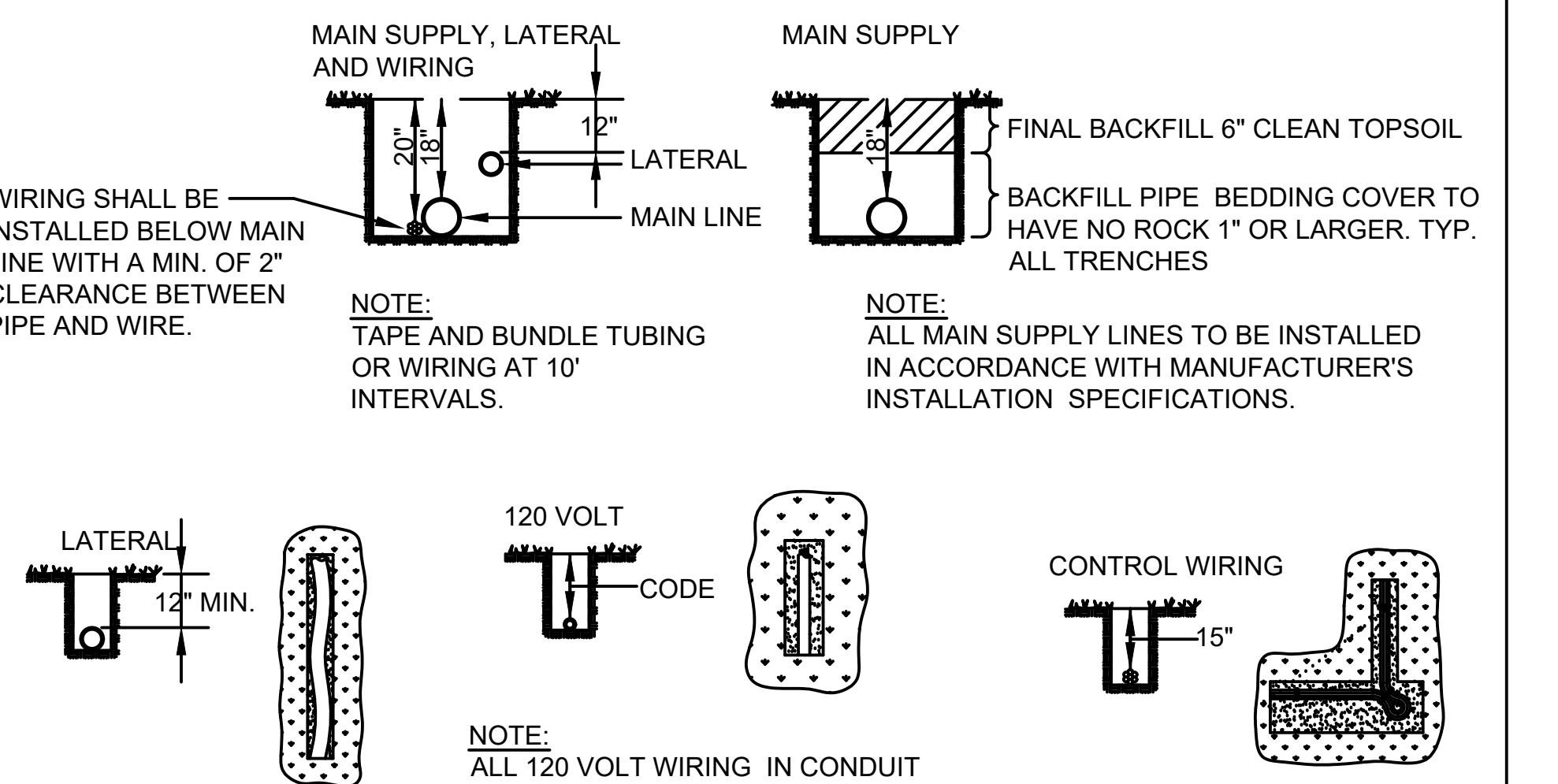
Project Number	7032-118A
Revision	
Date	6/05/2023
Drawn By	JM/JIS
Checked By	JM/JIC
Call at least two full working days before you begin excavating.	
ARIZONA 811 Call 8-1-1 or 1-800-872-6264 for Maricopa County: (480) 967-1193	
LOGANSIMPSON 51 WEST THIRD STREET, SUITE 450 TEMPE, AZ 85281 P (480) 967-1343	
IRRIGATION PLAN IR1.1	

REVISION	DATE
Project Number	7032-118A
Date	6/05/2023
Drawn By	JMJS
Checked By	JMWC



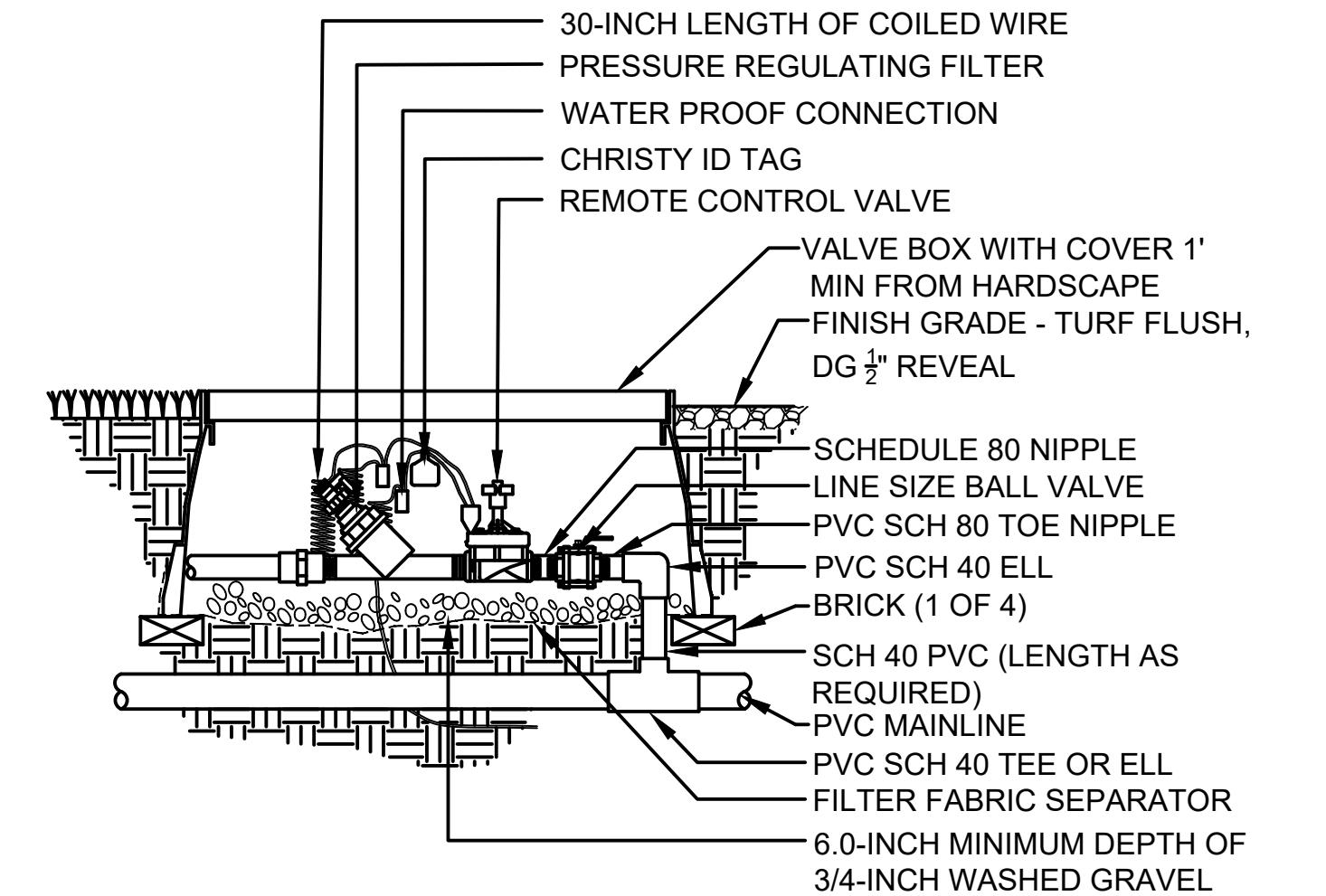
1 REDUCED PRESSURE ASSEMBLY

SCALE: N.T.S.



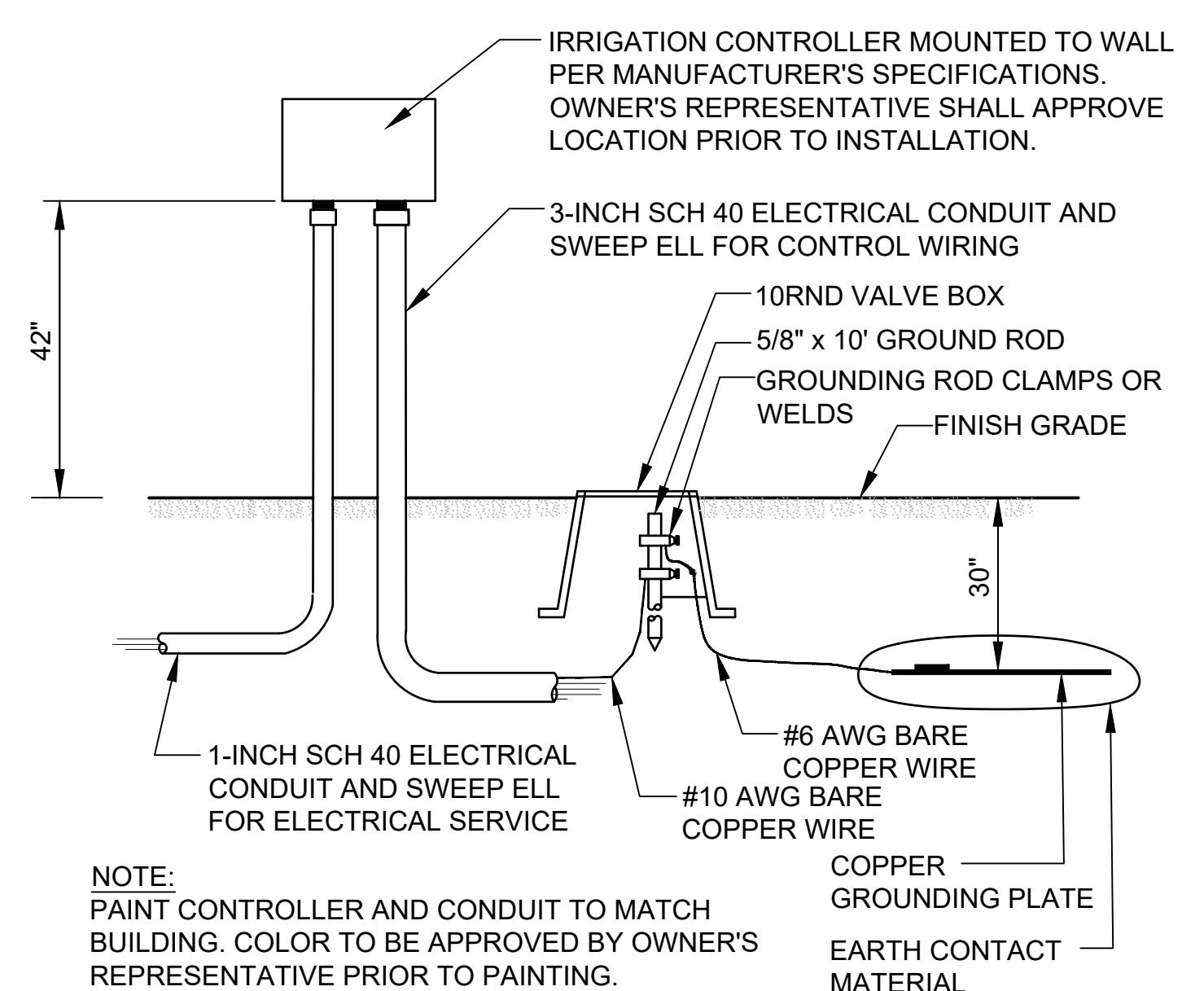
2 TYPICAL TRENCHING

SCALE: N.T.S.



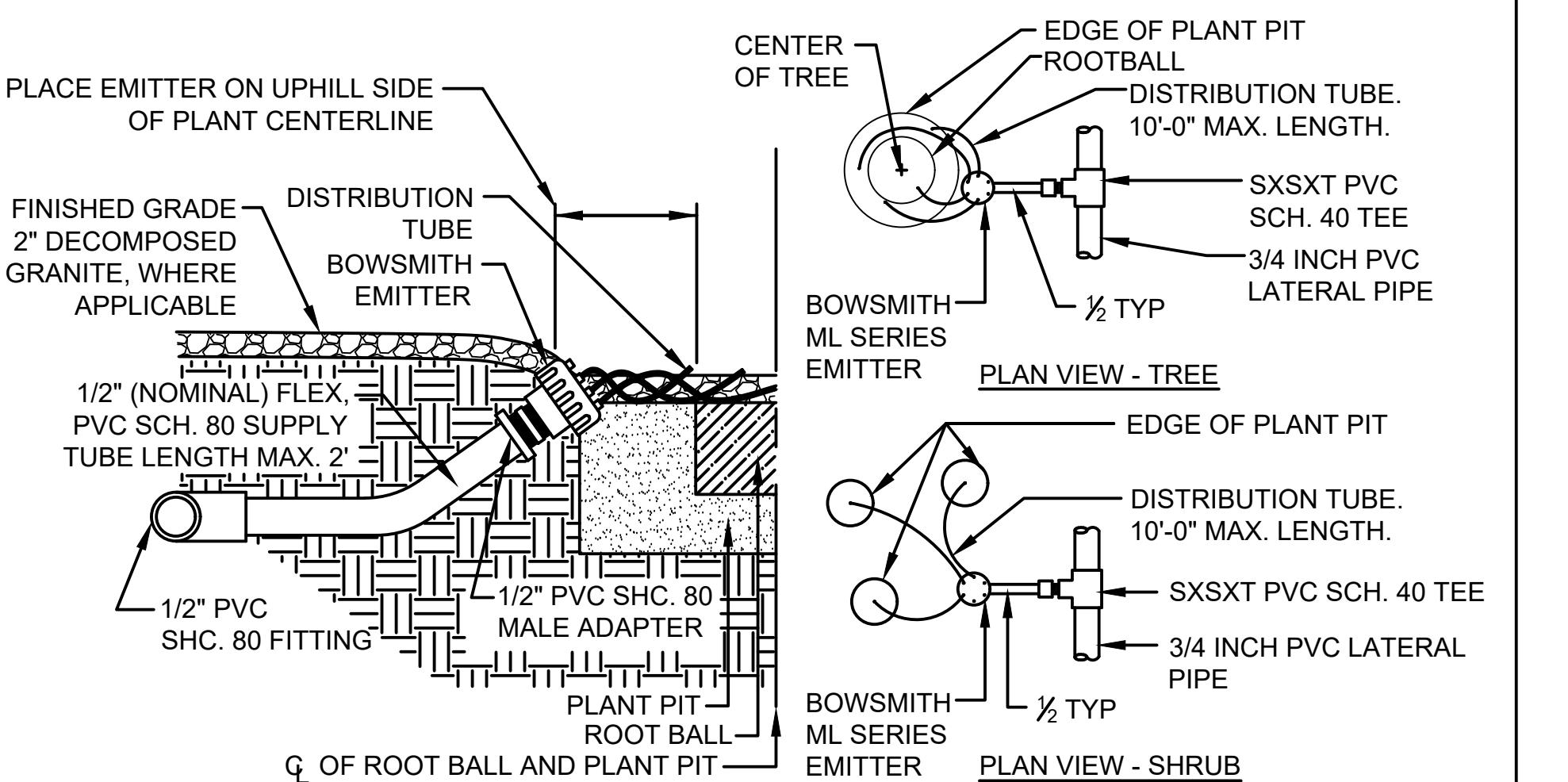
3 DRIP REMOTE CONTROL VALVE ASSEMBLY

SCALE: N.T.S.



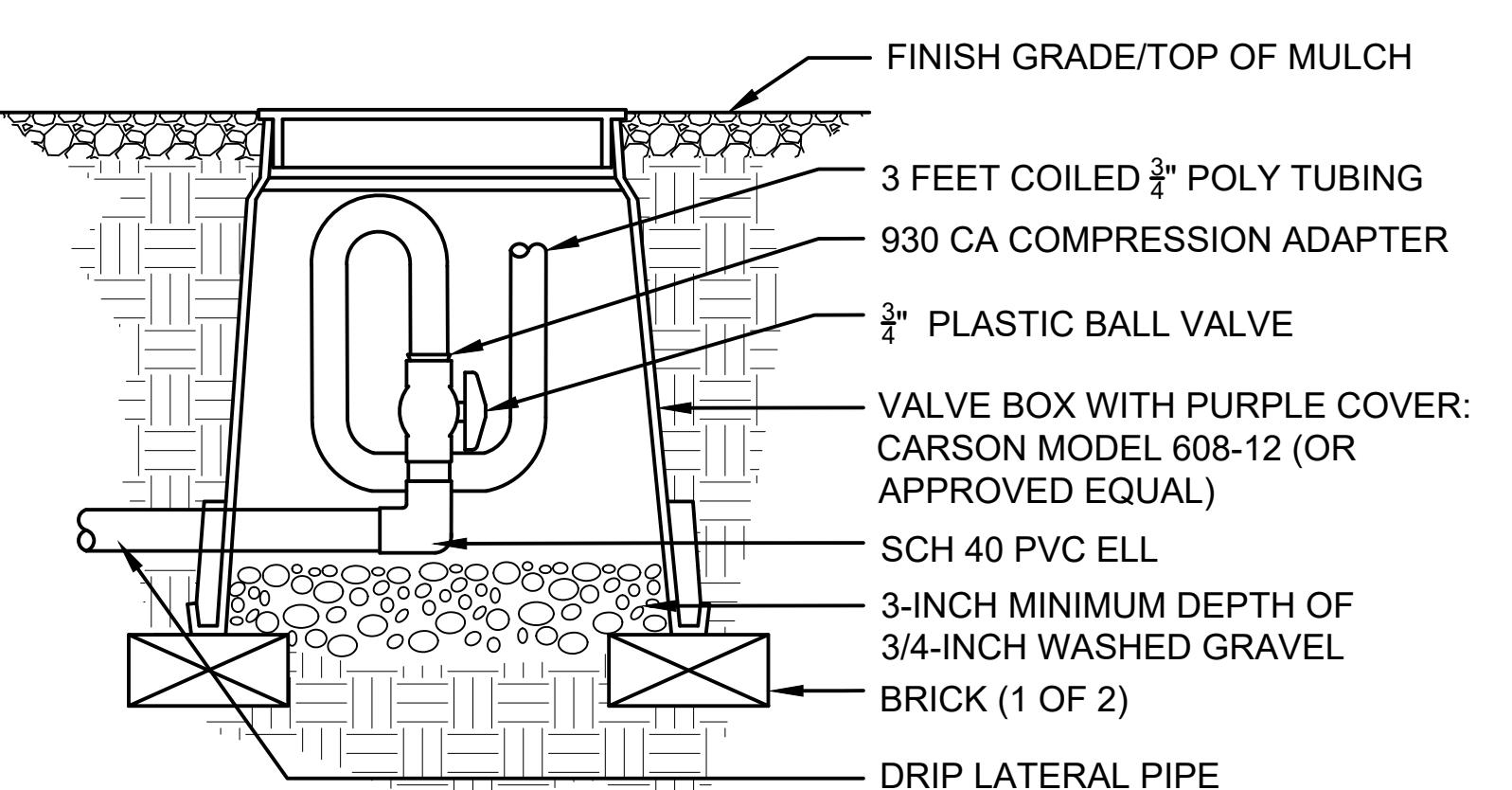
4 EXTERIOR MOUNTED CONTROLLER

SCALE: N.T.S.



5 DRIP EMITTERS

SCALE: N.T.S.



6 FLUSH CAP ASSEMBLY

SCALE: N.T.S.

IRRIGATION NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR FAULTY MATERIAL OR FAULTY WORKMANSHIP FOR THE PERIOD OF 1-YEAR FROM SUBSTANTIAL COMPLETION OF LANDSCAPE WORK.
2. THE CONTRACTOR WILL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS, CODES, AND REGULATIONS APPLICABLE TO THE IRRIGATION SYSTEM COVERED BY THESE PLANS.
3. ALL PERMITS, REQUIRED TO COMPLETE THE IRRIGATION WORK SHOWN ON THE PLANS SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO START OF WORK.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR 100% IRRIGATION COVERAGE TO PLANT MATERIAL SHOWN ON THE PLANS.
5. ALL PIPES SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATION AND ASTM STANDARD D-2774 AT THE DEPTHS SHOWN IN THE IRRIGATION DETAILS.
6. ALL THREADED JOINTS SHALL BE COATED WITH TEFON TAPE UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. USE LIQUID TEFON ON METAL PIPE THREADS ONLY.
7. CONTRACTOR SHALL FLUSH ALL LINES

- PRIOR TO INSTALLATION OF SPRAY HEADS, EMMITTERS, END CAPS OR ANY OTHER DEVICE THAT IMPACTS THE OUTWARD FLOW OF SYSTEM WATER.
8. ALL ELECTRICAL CONNECTIONS WILL BE MADE WITHIN REMOTE CONTROL VALVE BOXES, CONTROLLER ENCLOSURES AND VALVE BOXES DESIGNATED SPECIFICALLY FOR ELECTRICAL CONNECTIONS. NO SPLICES OUTSIDE OF BOXES OR ENCLOSURES WILL BE ACCEPTED.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THE AUTOMATIC CONTROLLER. ALL ELECTRICAL WORK SHALL BE INSTALLED PER LOCAL CODE.
10. INSTALL ALL VALVE WIRING IN MAINLINE TRENCH AS DETAILED.
11. INSTALL ALL REMOTE CONTROL VALVES AT HEIGHTS INDICATED ON DETAILS, AS HIGH AS POSSIBLE BUT ALLOWING CLEARANCE BETWEEN VALVE BOX LID AND FLOW CONTROL HANDLE ON REMOTE CONTROL VALVE.
12. INSTALL ALL MAINLINE ISOLATION VALVES IN A PLASTIC VALVE BOX PER DETAILS.
13. THE MAINLINE, LATENT PIPE, AND VALVES ARE SHOWN
- DIAGRAMMATICALLY AND SHALL BE INSTALLED WITHIN THE LANDSCAPE AREA.
14. AT THE COMPLETION OF THE PROJECT, SUPPLY THE FOLLOWING MATERIAL TO THE OWNER'S REPRESENTATIVE: TWO (2) WRENCHES FOR DISASSEMBLY AND ADJUSTING OF EACH TYPE OF VALVE SUPPLIED. TWO (2) KEYS FOR EACH TYPE OF CONTROLLER. TWO (2) ISOLATION VALVE OPERATING HANDLES. THREE (3) VALVE BOX KEYS OR WRENCHES.
15. ALL PVC SOLVENT WELD FITTINGS SHALL BE 'SPEARS' OR APPROVED EQUAL.
16. PROVIDE TWO (2) SPARE WIRES ALONG THE ENTIRE LENGTH OF MAINLINE AND LOOPED INTO EACH ELECTRIC REMOTE CONTROL VALVE BOX.
17. TREES AND SHRUBS SHALL BE IRRIGATED ON SEPARATE REMOTE CONTROL VALVES.
18. AS-BUILT DRAWINGS, CONTROLLER CHARTS, MAINTENANCE MANUALS AND SPECIALTY TOOLS SHALL BE TURNED OVER TO THE OWNER'S REPRESENTATIVE AT THE COMPLETION OF CONSTRUCTION.

IRRIGATION SPECIFICATIONS

LOGAN SIMPSON - SECTION 32.80.00 (1 OF 2)

PART 1 GENERAL

WORK FOR THIS SECTION INCLUDES THE PROVISION OF AN UNDERGROUND DRIP IRRIGATION SYSTEM, INCLUDING THE FOLLOWING:

- TRENCHING, STOCKPILING EXCAVATION MATERIALS, AND REFILLING TRENCHES.
- COMPLETE SYSTEM INCLUDING BUT NOT LIMITED TO BACKFLOW PREVENTER, PIPING, VALVES, FITTINGS, EMMITTERS, CONTROLLERS AND WIRING, AND FINAL ADJUSTMENTS TO ENSURE COMPLETE COVERAGE.
- WATER CONNECTIONS.
- REPLACEMENT OF UNSATISFACTORY MATERIALS.
- CLEAN UP, INSPECTION, AND APPROVAL.
- TESTS.

1.01 REFERENCES

PERFORM WORK PER REQUIREMENTS OF CONDITIONS OF THE CONTRACT AND DIVISION 1 - GENERAL REQUIREMENTS AS WELL AS PROVISIONS OF ALL APPLICABLE LAWS, CODES, ORDINANCES, RULES, AND REGULATIONS. CONFORM TO REQUIREMENTS OF REFERENCE INFORMATION LISTED BELOW EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED IN CONTRACT DOCUMENTS.

- AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) - SPECIFICATIONS AND TEST METHODS SPECIFICALLY REFERENCED IN THIS SECTION.
- UNDERWRITERS LABORATORIES (U.L.) - U.L. WIRES AND CABLES.

1.02 RELATED SECTIONS

- SECTION 02 41 00, DEMOLITION, CONTAINS REQUIREMENTS FOR WORK THAT MAY AFFECT THIS WORK.
- SECTION 31 00 00, EARTHWORK, CONTAINS REQUIREMENTS FOR WORK THAT MAY AFFECT THIS WORK.
- SECTION 32 90 00, PLANTING, MAY CONTAIN REQUIREMENTS FOR IRRIGATION.

1.03 SUBMITTALS

- PREPARE AND MAKE SUBMITTALS PER THE CONDITIONS OF THE CONTRACT.
- OPERATION INSTRUCTIONS - SUBMIT THREE WRITTEN OPERATING INSTRUCTIONS, INCLUDING START-UP WITH CUT SHEETS OF PRODUCTS, AND COORDINATE CONTROLLER/WATERING OPERATION WITH OWNER'S MAINTENANCE PERSONNEL.
- DO NOT PREPARE CHARTS UNTIL THE OWNER'S REPRESENTATIVE HAS REVIEWED THE RECORD (AS-BUILT) DRAWINGS.
- PROVIDE ONE CONTROLLER CHART FOR EACH AUTOMATIC CONTROLLER INSTALLED.
- THE CHART MAY REPRODUCE THE RECORD DRAWING IF SCALE PERMITS ATTACH THE CHART TO THE INSIDE OF THE CONTROLLER DOOR. IF PHOTO REDUCTION PRINTS ARE REQUIRED, KEEP THE REDUCTION TO THE MAXIMUM SIZE POSSIBLE TO RETAIN FULL LEGIBILITY.
- THE CHART SHALL BE A BLUELINE PRINT OF THE ACTUAL "AS-BUILT" SYSTEM, SHOWING THE AREA COVERED BY THAT CONTROLLER.
- IDENTIFY EACH REMOTE-CONTROL VALVE'S COVERAGE AREA, USING A DISTINCTLY DIFFERENT PASTEL COLOR, DRAWING OVER THE ENTIRE COVERAGE AREA.
- THEY SHALL BE HERMETICALLY SEALED BETWEEN TWO LAYERS OF 20 MM THICK PLASTIC SHEET FOLLOWING A REVIEW OF CHARTS BY THE OWNER'S REPRESENTATIVE.
- CHARTS SHALL BE COMPLETED AND REVIEWED BEFORE THE FINAL REVIEW OF THE IRRIGATION SYSTEM.
- RECORD DRAWINGS (AS-BUILTS): AT THE ONSET OF IRRIGATION INSTALLATION, SECURE REPRODUCIBLE COPIES OF THE ORIGINAL IRRIGATION DESIGN FROM THE OWNER'S REPRESENTATIVE. MAKE BLUELINE OR BLACKLINE PRINTS AS REQUIRED. AS-BUILT BLUEPRINTS SHALL BE BROUGHT UP TO DATE AT THE CLOSE OF THE WORKING DAY EVERY FRIDAY BY A QUALIFIED DRAFTSPERSON. A PRINT OF THE RECORD PLAN(S) SHALL BE AVAILABLE AT THE PROJECT SITE. INDICATE ZONING CHANGES ON WEEKLY AS-BUILT DRAWINGS. INDICATE NON-PRESSURE PIPING CHANGES ON AS-BUILTS. UPON COMPLETION OF THE PROJECT, SUBMIT FOR REVIEW BEFORE FINAL ACCEPTANCE OF THE FINAL SET OF AS-BUILT BLUEPRINTS.

DIMENSION, FROM TWO PERMANENT POINTS OF REFERENCE (BUILDING CORNERS, SIDEWALKS, ROAD INTERSECTIONS, OR PERMANENT STRUCTURES), THE LOCATION OF THE FOLLOWING ITEMS:

- POINT OF CONNECTION, BACKFLOW PREVENTION ASSEMBLY
- ROUTING OF IRRIGATION PRESSURE LINES (DIMENSION MAXIMUM 100 FEET ALONG WITH ROUTING)
- REMOTE CONTROL VALVES
- DRIPLINE BLOW-OUT STUBS
- ALL GATE VALVES
- CONTROLLERS
- CONTROL WIRE ROUTING IF NOT IN THE MAINLINE TRENCH
- OTHER RELATED EQUIPMENT AS DIRECTED

THE OWNER'S REPRESENTATIVE WILL NOT CERTIFY ANY PAYMENT REQUEST SUBMITTED BY THE CONTRACTOR IF THE RECORD DRAWINGS ARE NOT CURRENT, AND PROCESSING OF PAY REQUESTS WILL NOT OCCUR UNTIL RECORD DRAWINGS ARE UPDATED AND CURRENT.

1.04 QUALITY ASSURANCE

- INSTALLER QUALIFICATIONS - INSTALLER SHALL HAVE HAD CONSIDERABLE EXPERIENCE AND DEMONSTRATE ABILITY IN THE INSTALLATION OF THE IRRIGATION SYSTEM(S) OF THE SPECIFIED TYPE(S) IN A NEAT, ORDERLY, AND RESPONSIBLE MANNER PER RECOGNIZED STANDARDS OF QUALITY WITH FIVE (5) CONSECUTIVE YEARS OF DOCUMENTED SERVICE.
- SPECIAL REQUIREMENTS

 - LICENSED AND BONDED PLUMBER(S) SHALL EXECUTE WORK INVOLVING SUBSTANTIAL PLUMBING FOR INSTALLING COPPER PIPING, BACKFLOW PREVENTER(S), AND RELATED WORK. SECURE A PERMIT AT LEAST 48 HOURS BEFORE THE START OF INSTALLATION.
 - TOLERANCES - SPECIFIED DEPTHS OF MAINS AND LATERALS AND PITCH OF PIPES ARE MINIMUMS. SETTLEMENT OF TRENCHES IS THE CAUSE FOR REMOVAL OF FINISH GRADE TREATMENT, REFILLING, COMPACTION, AND REPAIR OF FINISH GRADE TREATMENT.
 - COORDINATION WITH OTHER CONTRACTS - PROTECT, MAINTAIN, AND COORDINATE WORK WITH WORK UNDER OTHER SECTIONS.
 - DAMAGE TO OTHER IMPROVEMENTS - THE CONTRACTOR SHALL REPLACE OR REPAIR DAMAGE TO GRADING, SOIL PREPARATION, SEEDING, OR PLANTING DONE UNDER

OTHER SECTIONS DURING WORK ASSOCIATED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM AT NO ADDITIONAL COST TO THE OWNER.

C. PRE-CONSTRUCTION CONFERENCE - CONTRACTOR SHALL SCHEDULE AND CONDUCT A CONFERENCE TO REVIEW IN DETAIL QUALITY CONTROL AND CONSTRUCTION REQUIREMENTS FOR EQUIPMENT, MATERIALS, AND SYSTEMS USED TO PERFORM WORK. THE CONFERENCE SHALL BE SCHEDULED NOT LESS THAN TEN (10) DAYS BEFORE THE COMMENCEMENT OF WORK. ALL PARTIES REQUIRED TO ATTEND SHALL BE NOTIFIED NO LATER THAN SEVEN (7) DAYS BEFORE THE CONFERENCE DATE. THE CONTRACTOR SHALL NOTIFY QUALIFIED REPRESENTATIVES OF EACH PARTY CONCERNED WITH THAT PORTION OF WORK TO ATTEND THE CONFERENCE, INCLUDING BUT NOT LIMITED TO THE OWNER'S REPRESENTATIVE AND INSTALLER. MINUTES OF THE CONFERENCE SHALL BE RECORDED AND DISTRIBUTED BY THE CONTRACTOR TO ALL PARTIES IN ATTENDANCE WITHIN FIVE DAYS OF THE CONFERENCE. AS PART OF THE PRE-CONSTRUCTION CONFERENCE, THE CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE TO IDENTIFY THE PROCESS AND SCHEDULE FOR COMPLETING THE WORK. A FIELD REVIEW OF THE AREAS OF WORK AND EQUIPMENT WILL BE CONDUCTED AS PART OF THE CONFERENCE. THE CONTRACTOR SHALL IDENTIFY IN THE FIELD REVIEW HIS PROPOSED APPROACH TO COMPLETING THE WORK AND INDICATE COORDINATION WITH OTHER WORK ON THE PROJECT. THE CONTRACTOR WILL ACCEPT COMMENTS FROM THE OTHERS ON THE PROPOSED ACTIVITIES. WITHIN THREE DAYS OF THE MEETING, THE CONTRACTOR SHALL PROVIDE A WRITTEN SCHEDULE OF THE PROPOSED WORK FOR THE OWNER'S REPRESENTATIVE TO REVIEW. ONCE A STRATEGY AND SCHEDULE ARE AGREED UPON, AMEND THE SCHEDULE ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE.

1.05 DELIVERY, STORAGE, AND HANDLING

DELIVER, UNLOAD, STORE, AND HANDLE MATERIALS, PACKAGING, BUNDLING, AND PRODUCTS IN A DRY, WEATHERPROOF, WATERPROOF CONDITION TO PREVENT DAMAGE, BREAKAGE, DETERIORATION, INTRUSION, IGNITION, AND VANDALISM. DELIVER IN ORIGINAL UNOPENED PACKAGING CONTAINERS, DISPLAYING MANUFACTURER NAME, VOLUME, QUANTITY, CONTENTS, INSTRUCTIONS, AND CONFORMANCE TO LOCAL, STATE, AND FEDERAL LAW. REMOVE AND REPLACE CRACKED, BROKEN, OR CONTAMINATED ITEMS OR ELEMENTS PREMATURELY EXPOSED TO MOISTURE, INCLEMENT WEATHER, TEMPERATURE EXTREMES, FIRE, AND JOB SITE DAMAGE.

A. HANDLING OF P.V.C. PIPE - EXERCISE CARE IN HANDLING, LOADING, AND STORING P.V.C. PIPE. ALL P.V.C. PIPE SHALL BE TRANSPORTED IN A VEHICLE THAT ALLOWS THE LENGTH OF THE PIPE TO LIE FLAT SO AS NOT TO SUBJECT IT TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOADS. ALL PIPE SECTIONS DENTED OR DAMAGED SHALL BE DISCARDED AND, IF INSTALLED, REPLACED WITH NEW PIPING.

1.06 JOB SITE CONDITIONS

A. PROTECTION OF PROPERTY: PRESERVE AND PROTECT ALL MONUMENTS, STRUCTURES, AND PAVED AREAS FROM DAMAGE DUE TO WORK OF THIS SECTION AND AS NOTED IN SECTION 31 10 00 SITE CLEARING. IF DAMAGE OCCURS, ALL DAMAGE TO INANIMATE ITEMS SHALL BE COMPLETELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE. ALL COSTS OF SUCH REPAIR SHALL BE CHARGED TO AND PAID BY THE CONTRACTOR. PROTECT BUILDINGS, WALKS, WALLS, AND OTHER PROPERTY FROM DAMAGE. FLARE AND BARRICADE OPEN DITCHES. DAMAGE CAUSED TO ASPHALT, CONCRETE, OR OTHER BUILDING MATERIAL SURFACES SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONDITION.

B. PROTECTION AND REPAIR OF UNDERGROUND LINES REQUEST THE PROPER UTILITY COMPANY TO STAKE THE EXACT LOCATION (INCLUDING DEPTH) OF ALL UNDERGROUND ELECTRIC, GAS, OR TELEPHONE LINES. TAKE WHATEVER PRECAUTIONS ARE NECESSARY TO PROTECT THESE UNDERGROUND LINES FROM DAMAGE, AND IF DAMAGE OCCURS, THE CONTRACTOR SHALL REPAIR ALL DAMAGES. THE CONTRACTOR SHALL PAY ALL COSTS OF SUCH REPAIRS UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE. IN WRITING, THE CONTRACTOR REQUESTS THE OWNER TO LOCATE ALL PRIVATE UTILITIES (I.E., ELECTRICAL SERVICE TO OUTSIDE LIGHTING) BEFORE PROCEEDING WITH EXCAVATION. IF, AFTER SUCH REQUEST AND NECESSARY STAKING, PRIVATE UTILITIES THAT WERE NOT STAKED ARE ENCOUNTERED AND DAMAGED BY INSTALLER, OWNER SHALL REPAIR THEM AT NO COST TO INSTALLER. IF THE CONTRACTOR DAMAGES STAKED OR LOCATED UTILITIES, THE CONTRACTOR SHALL REPAIR THEM UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE.

C. REPLACEMENT OF PAVING AND CURBS WHERE TRENCHES AND LINES CROSS EXISTING ROADWAYS, PATHS, CURBING, ETC., DAMAGE TO THESE SHALL BE KEPT TO A MINIMUM AND RESTORED TO THEIR ORIGINAL CONDITION.

1.07 WARRANTY

A. THE MANUFACTURER SHALL PROVIDE WARRANTY MATERIALS AGAINST DEFECTS FOR ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. INSTALLER(S) SHALL GUARANTEE WORKMANSHIP THROUGH THE ONE (1) YEAR PLANT ESTABLISHMENT AND MAINTENANCE PERIOD.

B. SETTLING OF BACKFILLED TRENCHES DURING THE WARRANTY PERIOD SHALL BE REPAIRED AT NO EXPENSE TO THE OWNER, INCLUDING COMPLETE RESTORATION OF THE DAMAGED PROPERTY.

C. THE CONTRACTOR SHALL BEAR EXPENSES DUE TO VANDALISM BEFORE SUBSTANTIAL COMPLETION.

D. THE OWNER WILL NOT MAINTAIN PLANTING AREAS UNTIL AFTER THE ONE (1) YEAR PLANT ESTABLISHMENT AND MAINTENANCE PERIOD.

1.08 MAINTENANCE

A. FURNISH THE FOLLOWING MAINTENANCE ITEMS TO OWNER'S REPRESENTATIVE BEFORE FINAL ACCEPTANCE:

- TWO SETS OF SPECIAL TOOLS ARE REQUIRED FOR REMOVING, DISASSEMBLING, AND ADJUSTING EACH TYPE OF VALVE SUPPLIED IN THIS PROJECT.
- TWO KEYS FOR EACH AUTOMATIC CONTROLLER.

PART 2: PRODUCTS

2.01 MATERIALS

A. GENERAL PIPING: USED PIPE SHALL NOT BE REUSED ON THE PROJECT. ALL COMPONENTS AND PRACTICES MUST MEET THE REQUIREMENTS AND STANDARDS STIPULATED BY PINAL COUNTY AND THESE SPECIAL.

- THE PRESSURE SUPPLY LINE (FROM THE POINT OF CONNECTION THROUGH THE BACKFLOW PREVENTION UNIT) IS TYPE 'K' HARD COPPER.
- PRESSURE SUPPLY LINES (DOWNSTREAM OF BACKFLOW PREVENTION UNITS) - PER PLAN.

3. NON-PRESSURE LINES - PER PLANS.

4. EMMITTER TUBING - AS RECOMMENDED BY THE EMMITTER MANUFACTURER.

B. COPPER PIPE AND FITTINGS:

1. COPPER PIPE - TYPE K, HARD TEMPERED

2. FITTINGS - WROUGHT COPPER, SOLDER JOINT TYPE

3. JOINTS - SOLDERED WITH SOLDER, 45% SILVER, 15% COPPER, 15% ZINC, AND 24% CADMIUM AND SOLIDS AT 1125°F AND LIQUIDS AT 1145°F.

C. BRASS PIPE AND FITTINGS:

1. BRASS PIPE - 85% RED BRASS, ANSI SCHEDULE 40 SCREWED PIPE.

2. FITTINGS - MEDIUM BRASS, SCREWED 125-POUND CLASS.

D. PLASTIC PIPE AND FITTINGS:

IDENTIFICATION MARKINGS:

1. IDENTIFY ALL PIPES WITH THE FOLLOWING INDELIBLE MARKINGS:

A. MANUFACTURER'S NAME

B. NOMINAL PIPE SIZE

C. SCHEDULE OF CLASS

D. PRESSURE RATING PSI

E. N.S.F. (NATIONAL SANITATION FOUNDATION) SEAL OF APPROVAL

F. DATE OF EXTRUSION

2. SOLVENT WELD PIPE - MANUFACTURED FROM VIRGIN POLYVINYL CHLORIDE (P.V.C.) COMPOUND PER ASTM D2241 AND ASTM D1784; CELL CLASSIFICATION 12454-B, TYPE 1, GRADE 1.

A. FITTINGS - STANDARD WEIGHT, SCHEDULE 40, INJECTION-MOLDED P.V.C.; COMPLYING WITH ASTM D1784 AND D2466, CELL CLASSIFICATION 12454-B.

I. THREADS - INJECTION-MOLDED TYPE (WHERE REQUIRED)

II. TEES AND ELLS - SIDE GATED

B. THREADED NIPPLES - ASTM D2464, SCHEDULE 40 WITH MOLDED THREADS.

C. JOINT CEMENT AND PRIMER - TYPE AS RECOMMENDED BY THE PIPE AND FITTINGS MANUFACTURER.

E. LOW PRESSURE/VOLUME SYSTEMS:

F. DRIP TUBING - MANUFACTURED OF FLEXIBLE POLYVINYL CHLORIDE COMPOUND CONFORMING TO ASTM D1248, TYPE 1, CLASS C, CATEGORY 4, P14, AND ASTM D3350 FOR P.E. 122111C.

G. FITTINGS - TYPE AND MAKE RECOMMENDED BY THE TUBING MANUFACTURER.

H. DRIP VALVE ASSEMBLY-TYPE AND SIZE ARE SHOWN ON DRAWINGS.

1. WYE STRAINER - PER PLANS.

2. CONTROL VALVE - 2-WAY, SOLENOID PILOT-OPERATED TYPE MADE OF SYNTHETIC, NON-CORROSIVE MATERIAL; DIAPHRAGM ACTIVATED AND SLOW CLOSING, INCLUDE A FREELY PIVOTED SEAT SEAL, RETAINED (MOUNTED) WITHOUT ATTACHMENT TO THE DIAPHRAGM.

3. PRESSURE REDUCING VALVE - PER PLANS.

4. EMMITTER - PER PLANS.

I. GATE VALVES - BRASS CONSTRUCTION; SOLID WEDGE, I.P.S. THREADS, AND NON-RISING STEM WITH BRASS CROSS HANDLE.

J. VALVE BOXES:

1. GATE VALVES, DRIP LINE BLOW-OUT STUBS, AND WIRE STUB BOX - CARSON #910-12.

2. 3/4 INCH THROUGH 2 INCH CONTROL VALVES - PER PLAN.

3. DRIP VALVE ASSEMBLIES - PER PLANS.

4. CONTROL WIRING SPLICES - CARSON #910-12, OR AS SHOWN ON THE PLANS.

K. ELECTRICAL CONTROL WIRING:

1. LOW VOLTAGE:

A. ELECTRICAL CONTROL WIRE - SHALL BE SINGLE CONDUCTORS, TYPE U.F. SOLID COPPER CONDUCTOR, AND P.V.C. INSULATION. THE WIRES SHALL BE LISTED FOR DIRECT BURIAL IN IRRIGATION SYSTEMS.

B. CONTROL WIRE CONNECTIONS AND SPLICES SHALL BE MADE WITH 3M DIRECT BURY SPLICE, RAINBIRD PETITE CONNECTORS, OR A SIMILAR DRY SPLICE METHOD.

2. HIGH VOLTAGE - TYPE REQUIRED BY LOCAL CODES AND ORDINANCES OF THE PROPER SIZE TO ACCOMMODATE THE NEEDS OF EQUIPMENT SERVICES.

L. AUTOMATIC CONTROLLER - SIZE AND TYPE ARE SHOWN ON DRAWINGS; INSTALLED PER MANUFACTURER.

M. BACKFLOW PREVENTER - SIZE AND TYPE AS SHOWN ON PLANS; INSTALLED PER MANUFACTURER.

PART 3 ON NEXT SHEET

IRRIGATION SPECIFICATIONS

LOGAN SIMPSON - SECTION 32.80.00 (2 OF 2)

PART 3 EXECUTION

3.01 INSPECTION

A. STAKING SHALL OCCUR AS FOLLOWS:

1. MARK, WITH POWDERED LIME, THE PRESSURE SUPPLY LINE ROUTING AND FLAG HEADS FOR THE FIRST FEW ZONES. CONTACT THE OWNER'S REPRESENTATIVE 48 HOURS IN ADVANCE AND REQUEST A REVIEW OF STAKING. THE OWNER'S REPRESENTATIVE WILL ADVISE THE INSTALLER ON HOW MUCH STAKING SHOULD BE PREPARED. THE OWNER'S REPRESENTATIVE WILL REVIEW STAKING AND DIRECT CHANGES IF REQUIRED. REVIEW DOES NOT RELIEVE INSTALLER FROM COVERAGE PROBLEMS DUE TO IMPROPER PLACEMENT OF HEADS AFTER STAKING.

2. IF PROJECT HAS SIGNIFICANT TOPOGRAPHY, FREE-FORM PLANTING BEDS, OR OTHER AMENITIES THAT COULD REQUIRE ALTERATION OF IRRIGATION EQUIPMENT LAYOUT AS DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE, DO NOT INSTALL IRRIGATION EQUIPMENT IN THESE AREAS UNTIL OWNER'S REPRESENTATIVE HAS REVIEWED EQUIPMENT STAKING.

3. INSTALL SLEEVING UNDER ASPHALT PAVING AND CONCRETE WALKS BEFORE CONCRETING AND PAVING OPERATIONS TO ACCOMMODATE PIPING AND WIRING. COMPACT BACKFILL AROUND SLEEVES TO 95% MODIFIED PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT PER ASTM D1557.

4. TRENCHING - TRENCH EXCAVATION SHALL FOLLOW, AS MUCH AS POSSIBLE, THE LAYOUT SHOWN ON THE DRAWING. DIG TRENCHES STRAIGHT AND SUPPORT PIPE CONTINUOUSLY ON THE BOTTOM OF THE TRENCH. THE TRENCH BOTTOM SHALL BE CLEAN AND SMOOTH, WITH ALL ROCK AND ORGANIC DEBRIS REMOVED.

A. CLEARANCES:

I. PIPING SMALLER THAN 3 INCHES - TRENCHES SHALL HAVE A MINIMUM WIDTH OF 7 INCHES.

II. LINE CLEARANCE - PROVIDE NOT LESS THAN 6 INCHES OF CLEARANCE BETWEEN EACH LINE AND NOT LESS THAN 12 INCHES BETWEEN LINES OF OTHER TRADES.

B. PIPE AND WIRE DEPTH

I. PRESSURE SUPPLY PIPING - 18 INCHES FROM THE TOP OF THE PIPE.

II. CONTROL WIRING - SIDE OF PRESSURE MAIN

3.02 INSTALLATION

A. LOCATE OTHER EQUIPMENT AS NEAR AS POSSIBLE TO LOCATIONS DESIGNATED. THE OWNER'S REPRESENTATIVE SHALL REVIEW ANY DEVIATIONS TO PLANS BEFORE INSTALLATION.

B. P.V.C. PIPING - SNAKE PIPE IN THE TRENCH AS MUCH AS POSSIBLE TO ALLOW FOR EXPANSION AND CONTRACTION. DO NOT INSTALL THE PIPE WHEN THE AIR TEMPERATURE IS BELOW 40°F. WHEN PIPE LAYING IS NOT IN PROGRESS, OR AT THE END OF EACH DAY, CLOSE THE PIPE ENDS WITH A TIGHT PLUG OR CAP. PERFORM WORK PER GOOD PRACTICES PREVAILING IN PIPING TRADES.

C. SOLVENT WELD P.V.C. PIPE - LAY PIPE AND MAKE ALL PLASTIC-TO-PLASTIC JOINTS PER MANUFACTURER'S RECOMMENDATIONS.

D. DRIP TUBING:

1. INSTALL ALL DRIP TUBING PER THE PLANS BEFORE THE INSTALLATION OF MULCH.

2. INSTALL DRIP LINE END CAPS AT ALL DEAD ENDS OF Emitter LATERALS.

E. CONTROL WIRING:

1. LOW VOLTAGE WIRING:

A. BURY WIRES BETWEEN THE CONTROLLER AND ELECTRIC VALVES IN PRESSURE SUPPLY LINE TRENCHES ARE INSTALLED AS CLOSE AS POSSIBLE TO MAINLINE WIRES TO BE CONSISTENTLY LOCATED BELOW AND TO ONE SIDE OF THE PIPE OR IN SEPARATE TRENCHES.

B. PROVIDE AN EXPANSION LOOP AT EVERY PRESSURE PIPE ANGLE FITTING, EVERY ELECTRIC CONTROL VALVE LOCATION (IN VALVE BOX), AND EVERY 500 FEET. FORM AN EXPANSION LOOP BY WRAPPING WIRE AT LEAST EIGHT TIMES AROUND A 3/4-INCH PIPE AND WITHDRAWING THE PIPE.

C. MAKE ALL SPLICES AND E.V.C. CONNECTIONS USING 3M DIRECT BURY SPLICE, RAINBIRD PETITE CONNECTORS, OR A SIMILAR DRY SPLICE METHOD.

D. INSTALL ALL CONTROL WIRE SPLICES NOT OCCURRING AT THE CONTROL VALVE IN A SEPARATE SPLICE VALVE BOX.

F. HIGH VOLTAGE WIRING FOR AUTOMATIC CONTROLLER:

1. PROVIDE A 120-VOLT POWER CONNECTION TO THE AUTOMATIC CONTROLLER.

2. ALL-ELECTRIC WORK SHALL CONFORM TO LOCAL CODES, ORDINANCES, AND AUTHORITIES HAVING JURISDICTION. A LICENSED ELECTRICIAN SHALL PERFORM ALL HIGH-VOLTAGE ELECTRICAL WORK.

G. AUTOMATIC CONTROLLER

1. INSTALL CONTROLLER PER MANUFACTURER'S INSTRUCTION AS DETAILED AND SHOWN ON DRAWINGS.

2. CONNECT REMOTE CONTROL VALVES TO THE CONTROLLER IN NUMERICAL SEQUENCE, AS SHOWN ON DRAWINGS.

3. THE OWNER'S REPRESENTATIVE SHALL APPROVE THE FINAL LOCATION OF THE CONTROLLER.

4. A SEPARATE GROUND WIRE SHALL BE INSTALLED FOR EACH CONTROLLER IF MULTIPLE CONTROLLERS ARE UTILIZED.

5. ALL ABOVE-GROUND CONDUITS SHALL BE RIGID GALVANIZED WITH APPROPRIATE FITTINGS.

H. ELECTRIC CONTROL VALVES - INSTALL 3 INCHES BELOW THE FINISHED GRADE SHOWN ON THE DRAWINGS AND AS DETAILED. WHEN GROUPED, ALLOW AT LEAST 12 INCHES BETWEEN VALVE BOXES. INSTALL EACH REMOTE CONTROL VALVE IN A SEPARATE VALVE BOX. INSTALL INDIVIDUAL VALVE BOX FLUSH WITH THE GROUND. PLACE GRAVEL IN THE BOTTOM OF EACH BOX BELOW THE VALVE WITH AT LEAST TWO CUBIC FEET OF 3/4 INCH CRUSHED GRAVEL.

I. DRIP VALVE ASSEMBLIES - INSTALL DRIP VALVE ASSEMBLY AS DETAILED.

J. DRIP EMISSIONS - INSTALL ALL SURFACE EMISSIONS AS DETAILED AND STAKE THEM WITH ACCEPTABLE TUBING STAKES.

K. VALVE BOXES:

1. INSTALL ONE VALVE BOX FOR EACH TYPE INSTALLED AS DETAILED. VALVE BOX EXTENSIONS ARE NOT ACCEPTABLE EXCEPT FOR MASTER VALVES. INSTALL GRAVEL SUMP AFTER COMPACTING ALL TRENCHES. PLACE THE FINAL PORTION OF GRAVEL INSIDE THE VALVE BOX AFTER THE VALVE BOX IS BACKFILLED AND COMPACTED.

2. BRAND CONTROLLER LETTER AND STATION NUMBER OF THE LID ON EACH VALVE BOX. LETTER AND NUMBER SIZE SHALL BE NO SMALLER THAN 1 INCH AND NO GREATER IN SIZE THAN 1-1/2 INCHES. THE DEPTH OF BRANDING SHALL BE NO MORE THAN 1/8 INCH INTO THE VALVE BOX LID.

L. GATE VALVES - INSTALL WHERE SHOWN ON DRAWINGS AS DETAILED.

M. BACKFLOW PREVENTER - INSTALL AS DETAILED AT THE LOCATION SHOWN ON THE DRAWINGS OR ADJUSTED BY THE OWNER'S REPRESENTATIVE. THE FINAL LOCATION OF THE BACKFLOW PREVENTER IS TO BE APPROVED BY THE OWNER'S REPRESENTATIVE.

N. BACKFILLING - DO NOT BEGIN BACKFILLING OPERATIONS UNTIL THE REQUIRED

SYSTEM TESTS HAVE BEEN COMPLETED. LEAVE TRENCHES SLIGHTLY MOUNDED TO ALLOW FOR SETTLEMENT AFTER BACKFILLING IS COMPLETED. TRENCHES SHALL BE FINISHED AND GRADED BEFORE THE WALKTHROUGH OF THE SYSTEM BY THE OWNER'S REPRESENTATIVE.

1. MATERIALS - EXCAVATED MATERIAL IS GENERALLY CONSIDERED SATISFACTORY FOR BACKFILL PURPOSES. BACKFILL MATERIAL SHALL BE FREE OF RUBBISH, VEGETABLE MATTER, AND A STONE LARGER THAN 1 INCH IN MAXIMUM DIMENSION. DO NOT MIX SUBSOIL WITH TOPSOIL. MATERIAL NOT SUITABLE FOR BACKFILL SHALL BE HAULED AWAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUITABLE BACKFILL IF EXCAVATED MATERIAL IS UNACCEPTABLE OR INSUFFICIENT TO MEET BACKFILL, COMPACTION, AND FINAL GRADE REQUIREMENTS.

2. OPEN EXCAVATIONS SHALL BE PROTECTED PER OSHA REGULATIONS.

3. COMPACT BACKFILL TO 90% MAXIMUM DENSITY, DETERMINED PER ASTM D155-7, UTILIZING THE FOLLOWING METHODS:

A. MECHANICAL TAMPING.

B. PUDDLING OR PONDING. PUDDLING, PONDING, AND JETTING ARE PROHIBITED WITHIN 20'-0" OF BUILDING OR FOUNDATION WALLS.

C. PIPING UNDER PAVING:

1. PROVIDE A MINIMUM COVER OF 18 INCHES BETWEEN THE TOP OF THE PIPE AND THE BOTTOM OF THE AGGREGATE BASE FOR ALL PRESSURE AND NON-PRESSURE PIPING INSTALLED UNDER ASPHALTIC CONCRETE OR CONCRETE PAVING.

2. PIPING LOCATED UNDER AREAS WHERE ASPHALT OR CONCRETE PAVING WILL BE INSTALLED SHALL BE BEDDED WITH SAND (A LAYER 6 INCHES BELOW THE PIPE AND 3 INCHES ABOVE THE PIPE).

3. COMPACT BACKFILL MATERIAL IN 6-INCH LIFTS AT 90% MAXIMUM DENSITY DETERMINED PER ASTM D155-7 USING MANUAL OR MECHANICAL TAMPING DEVICES.

4. SET IN PLACE, CAP, AND PRESSURE TEST ALL PIPING UNDER PAVING IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE BEFORE BACKFILLING AND PAVING OPERATIONS.

P. WATER SUPPLY AND POINT OF CONNECTION - WATER SUPPLY SHALL BE AS SHOWN IN THE DRAWINGS.

3.03 FIELD QUALITY CONTROL

A. FLUSHING - AFTER PIPING, RISERS, AND VALVES ARE IN PLACE AND CONNECTED, BUT BEFORE INSTALLING SPRINKLER HEADS, THOROUGHLY FLUSH THE PIPING SYSTEM UNDER A FULL HEAD OF WATER PRESSURE FROM DEAD-END FITTINGS. MAINTAIN FLUSHING FOR 5 MINUTES THROUGH FURTHERMOST VALVES—CAP RISERS AFTER FLUSHING.

B. TESTING - NOTIFY CONSTRUCTION MANAGER IN ADVANCE OF ALL TESTING. CONDUCT TESTS IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE FOR THE PROJECT SITE. ARRANGE FOR THE PRESENCE OF THE OWNER'S REPRESENTATIVE 48 HOURS IN ADVANCE OF TESTING. SUPPLY FORCE PUMP AND ALL OTHER TEST EQUIPMENT.

1. AFTER BACKFILLING AND INSTALLING ALL CONTROL VALVES, FILL THE PRESSURE SUPPLY LINE WITH WATER AND PRESSURIZE TO 40 P.S.I. OVER THE DESIGNATED STATIC PRESSURE OR 120 PSI, WHICHEVER IS GREATER, FOR TWO HOURS.

2. LEAKAGE, PRESSURE LOSS - THE TEST IS ACCEPTABLE IF NO LEAKAGE OR LOSS OF PRESSURE IS EVIDENT DURING THE TEST PERIOD.

3. LEAKS - DETECT AND REPAIR LEAKS.

4. THE RETEST SYSTEM UNTIL TEST PRESSURE CAN BE MAINTAINED FOR THE DURATION OF TESTS.

5. BEFORE FINAL ACCEPTANCE, THE PRESSURE SUPPLY LINE SHALL REMAIN UNDER PRESSURE FOR 48 HOURS.

C. PRE-MAINTENANCE INSPECTION

1. ARRANGE FOR THE OWNER'S REPRESENTATIVE'S PRESENCE 48 HOURS BEFORE THE WALKTHROUGH.

2. THE ENTIRE SYSTEM SHALL BE COMPLETELY INSTALLED AND OPERATIONAL BEFORE THE SCHEDULING OF THE WALKTHROUGH.

3. OPERATE EACH ZONE FOR THE OWNER'S REPRESENTATIVE AT THE TIME OF THE WALKTHROUGH AND, ADDITIONALLY, OPEN ALL VALVE BOXES IF DIRECTED.

4. GENERATE A LIST OF ITEMS TO BE CORRECTED BEFORE FINAL COMPLETION.

5. FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ALL INADEQUACIES OF COVERAGE DUE TO DEVIATIONS FROM CONTRACT DOCUMENTS.

6. DURING THE WALKTHROUGH, EXPOSE ALL DRIP EMISSIONS UNDER OPERATIONS FOR OBSERVATION BY OWNER'S REPRESENTATIVE TO DEMONSTRATE THAT THEY ARE PERFORMING AND INSTALLED AS DESIGNED; BEFORE PLACING ALL MULCH MATERIAL, SCHEDULE A SEPARATE WALKTHROUGH IF NECESSARY.

D. FINAL MAINTENANCE INSPECTION:

1. ARRANGE FOR THE OWNER'S REPRESENTATIVE'S PRESENCE 48 HOURS BEFORE THE WALKTHROUGH.

2. SHOW EVIDENCE TO OWNER'S REPRESENTATIVE THAT OWNER HAS RECEIVED ALL ACCESSORIES, CHARTS, RECORD DRAWINGS, AND EQUIPMENT AS REQUIRED BEFORE THE FINAL COMPLETION.

WALKTHROUGH IS SCHEDULED.

3. OPERATE EACH ZONE FOR THE OWNER'S REPRESENTATIVE AT THE TIME OF THE WALKTHROUGH TO ENSURE THE CORRECTION OF ALL INCOMPLETE ITEMS.

4. ITEMS DEEMED UNACCEPTABLE BY THE OWNER'S REPRESENTATIVE SHALL BE REWORKED TO THE COMPLETE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

5. IF AFTER THE REQUEST TO THE OWNER'S REPRESENTATIVE FOR THE WALKTHROUGH FOR THE FINAL COMPLETION OF THE IRRIGATION SYSTEM, OWNER'S REPRESENTATIVE FINDS ITEMS DURING THE WALKTHROUGH THAT HAVE NOT BEEN PROPERLY ADJUSTED, REWORKED, OR REPLACED AS INDICATED ON THE LIST OF INCOMPLETE ITEMS FROM THE PREVIOUS WALKTHROUGH, CONTRACTOR SHALL BE CHARGED FOR ALL SUBSEQUENT WALK-THROUGHS. FUNDS WILL BE WITHHELD FROM FINAL PAYMENT AND RETAINAGE TO CONTRACTOR, EQUAL TO ADDITIONAL TIME AND EXPENSES REQUIRED BY OWNER'S REPRESENTATIVE TO CONDUCT AND DOCUMENT FURTHER WALK-THROUGHS AS DEEMED NECESSARY TO ENSURE COMPLIANCE WITH CONTRACT DOCUMENTS.

3.04 ADJUSTING

A. UPON COMPLETION OF THE INSTALLATION, "FINE-TUNE" THE ENTIRE SYSTEM BY REGULATING VALVES, ADJUSTING PATTERNS AND BREAK-UP ARMS, AND SETTING PRESSURE-REDUCING VALVES AT A PROPER AND SIMILAR PRESSURE TO PROVIDE OPTIMUM AND EFFICIENT COVERAGE.

B. IF IT IS DETERMINED THAT IRRIGATION ADJUSTMENTS WILL PROVIDE PROPER AND

MORE ADEQUATE COVERAGE, MAKE SUCH ADJUSTMENTS BEFORE FINAL ACCEPTANCE, AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER. ADJUSTMENTS MAY ALSO INCLUDE CHANGES IN CONTROL VALVE THROTTLING.

C. DUE TO UNAUTHORIZED CHANGES OR POOR INSTALLATION PRACTICES, AREAS THAT DO NOT CONFORM TO DESIGNATED OPERATION REQUIREMENTS SHALL BE IMMEDIATELY CORRECTED AT NO ADDITIONAL COST TO THE OWNER.

3.05 CLEANING
MAINTAIN CONTINUOUS CLEANING OPERATION THROUGHOUT WORK. DISPOSE OF, OFF-SITE AT NO ADDITIONAL COST TO THE OWNER, ALL TRASH OR DEBRIS GENERATED BY THE INSTALLATION OF IRRIGATION SYSTEM.

END OF SECTION

architecture.
design.
management.
group
adm

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IRRIGATION
SPECIFICATIONS
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