

UNDERGROUND SPRINKLER SYSTEM

- 1.01 WORK INCLUDED
A. The work included under these specifications shall consist of the furnishing of all labor, materials, permits, tools, and equipment necessary for the complete installation of a sprinkler irrigation system in accordance with the following specifications and accompanying drawings.
B. It is the intent of these drawings and specifications to form a guide for a complete installation, and although some items may not be specifically noted, but are reasonably necessary for a complete installation, they shall be furnished under inspection.
C. It is the responsibility of the Irrigation Contractor to provide 100% coverage to all landscape areas.
1.02 CONTRACTOR'S QUALIFICATIONS
A. Installers shall be licensed irrigation contractors with experience in the installation of automatic underground lawn sprinkling systems.
1.03 VERIFICATION OF DRAWINGS AND SPECIFICATIONS
A. It shall be the Contractor's responsibility to carefully examine the drawings and specifications, and to visit the site in order to check existing conditions prior to bidding.
1.04 WORKING CONDITIONS
A. The Contractor shall confine his operations to the areas allotted to him by the Owner, for his work for material and equipment storage.
2.01 PIPING
A. All pressure main piping, on the supply side of the zone valves, shall be class 200 PVC with integrally formed bell-tite joint couplers.
2.02 SPRINKLER HEADS
A. Emitter heads shall be on PVC laterals, or prior approved equivalent.
2.03 AUTOMATIC CONTROLLER
A. Unit features shall include mechanical time control design, adjustable time setting up to 60 minutes per station, 24-hour clock, 14-day calendar, and automatic rapid advance.
2.04 QUICKCOUPLING VALVES
A. Furnish and install where shown on the drawings quick-coupler with swivel and hose bib, 3/4" size or prior approved equivalent.
2.05 ELECTRICAL CONTROL CABLE
A. All electrical control and ground wire shall be irrigation control cable of size as required.
3.01 PROTECTION OF UTILITIES, IRRIGATION SYSTEM, ETC.
A. The Contractor shall verify the location of all utilities and note location of utilities, irrigation piping and underground obstructions.
3.02 EXCAVATION
A. The Contractor shall do all necessary excavation for the proper installation of his work.
3.03 PIPE INSTALLATION
A. All pipe lines shall be installed in the locations and of the sizes indicated, and of the materials specified.
3.04 BACKFILLING
A. As soon as the work has been installed, inspected and accepted, all excavations and trenches shall be filled and water settled with fine earth materials, free from clods, rocks, or other unsuitable substances.
73.05 SPRINKLER HEADS
A. Sprinklers shall be set plumb and level with the turf at locations shown on the drawings.
3.06 AUTOMATIC VALVES
A. Each sprinkler zone shall be operated by automatic electric valves in the sizes indicated on the drawings.
3.07 WATER SUPPLY
A. Connection shall be made to the sprinkler outside the building as shown on the drawings.
3.08 ELECTRICAL WORK
A. The Electrical Contractor will provide a single source of electrical power for the irrigation system as shown on the drawings.

- operating system.
B. All electrical work shall be done in accordance with the National Electrical Code and local ordinances.
C. All wire connections, at remote control valves (either direct buried or in control boxes) and at all wire splices, shall be left with sufficient "slack" so that in case of repair the valve bonnet or splice may be brought to the surface without disconnecting the wires.
D. Each remote control valve or group of remote control valves, which are to be connected to one station of a controller, shall have wire sizes as shown in the wiring diagrams on the drawings or as specified.
3.09 TESTING
A. After all supports, anchors, and thrust blocks are in place, the line shall be tested at a pressure of 150 psi for 30 minutes.
3.10 DRAWINGS OF RECORD
A. The Contractor shall provide and keep up to date a complete "as-built" record set of mylar sepals which shall be corrected to show any changes from the original drawings.
3.11 GUARANTEE
A. Within ten (10) days after the Contractor's notification that the sprinkler installation is complete, the Landscape Architect will inspect the system and, if necessary, submit a "punch list" to the Contractor.
LANDSCAPING
PART 1 - GENERAL
1.01 WORK INCLUDED
A. The work included under these specifications shall consist of the furnishing of all labor, material, permits, tools, and equipment necessary for the complete installation of the landscaping materials as shown on the drawings and as described in the following specifications.
1.02 QUALITY ASSURANCE
A. For standardized products, the manufacturer's analysis will be acceptable.
D. All plants furnished under this specification shall be from nursery grown stock, and they shall meet the ARIZONA NURSERY ASSOCIATION of the American Association of Nurserymen, Inc. requirements as to sizing, grading, and quality.
E. Plants of the species specified shall be furnished in the variety, size, grade and quality indicated.
F. By submitting a proposal and accepting award of the Contract, the Contractor acknowledges that he has investigated the supply of planting stock available and has obtained firm commitments from his suppliers assuring delivery of the specific plant materials as required for completion of the project.
G. All plant materials shall be grown in accordance with good horticulture practices and shall bear evidence of proper nursery care during growth under climatic conditions similar to those in the locality of the project for at least two years.
H. All plants shall be freshly dug.
I. Planting, sodding and seeding shall be performed by personnel familiar with planting procedures and under the supervision of a qualified planting foreman.
1.03 SUBMITTALS
A. Submit a soil fertility test of the planting soil for approval by the Landscape Architect prior to delivery of soil to the project site.
PART 2 - PRODUCTS
2.01 SOIL
A. Approved nursery grade cultivated grass sod; species and cultivar as indicated on the drawings with strong, fibrous root system, free from stones and burned or bare spots.
2.02 PLANTING SOIL FOR PLANT PITS AND BEDS
A. Fertile, friable, natural loam containing a liberal amount of humus, capable of sustaining vigorous plant growth.
2.03 PEAT
A. Acceptable peat moss consisting of at least 73% organic content of natural occurrence.
2.04 FERTILIZER
A. Commercial Fertilizer: A complete fertilizer, conforming to FS 0-1-241, Type I, Grade A, part of the elements of which are derived from organic sources containing the following percentages by weight:
B. Organic Fertilizer: An organic activated fertilizer containing a minimum of five percent nitrogen, three percent phosphoric acid and other basic elements by weight.
C. Deliver fertilizer mixed as specified in standard size bags, showing weights, analysis and name of manufacturer.
D. The Landscape Architect reserves the right to vary the percentages of the components of the fertilizers subject to the results of the soil fertility tests.
2.05 WATER
A. Shall be furnished by the Owner.
B. Plant Material
A. All old abrasions and cuts shall be completely calloused over.
C. Evergreen trees not fully branched from top to bottom will be rejected, and those with terminal leaders exceeding twelve (12) inches in length will also be rejected.
D. Plants shall not be pruned before delivery.
E. Plants shall be true to species and variety, and shall conform to measurements specified on the drawings.
F. Substitutions of plant materials will not be permitted unless authorized in writing by the Landscape Architect.
G. It shall be the responsibility of the Contractor to determine required quantities of plants, as no compensation will be made for error in plant quantities. If plant counts occur on plant legend, it is for the convenience of the contractor

- only. Verify plant counts with plan. In case of discrepancy, plan shall govern.
H. Each plant shall be properly identified with legible waterproof tags securely fastened. Tags shall remain on the plants until after final acceptance and then be promptly removed by the Contractor.
PART 3 - INSTALLATION
3.01 INSPECTION OF PLANT MATERIAL
A. Plants shall be subject to inspection and approval by Landscape Architect at place of growth and upon delivery.
B. Certificates of inspection of plant materials as may be required by Federal, State or other authorities to accompany shipments and be furnished to Owner upon completion of project.
3.02 DIGGING AND HANDLING
A. Digging shall be done the same season of planting and shall be done by hand as to not injure plants and to meet size requirements.
B. Dig balled and burlapped (BB) plants with firm, unbroken natural balls of earth, of sufficient diameter and depth to include the fibrous and feeding roots.
C. Roots or balls of all plants shall be adequately protected at all times from excessive exposure to wind, sun, rain, hail, etc.
D. All plant material shall be handled carefully to prevent injury to roots, trunks, or branches.
3.03 TIME OF PLANTING
A. The contractor shall notify the Landscape Architect in writing when other divisions of the work have progressed sufficiently to commence landscaping work, including paving of topsoil finish grade.
B. Any plant material installed during typical off seasons (hot summer months or freezing winter months) shall be done at the Contractor's own risk and the Contractor shall be held responsible for replacement of any plant material damaged due to these adverse conditions.
3.04 PLANTING OPERATIONS
A. General
1. The Contractor shall coordinate all aspects of the landscape operations with all aspects of the site construction.
2. The Contractor shall be responsible for any damage to utilities construction, sitework construction, and underground sprinkler systems and shall bear the full cost to repair the damage.
3. Maintain all trench or grade stakes for work under other Sections until their removal is approved by the Landscape Architect.
4. The Contractor shall stake plant location, shrub pits and other planting areas and secure the Landscape Architect's approval before starting excavation of same, making adjustments as necessary.
B. Plant Pits and Beds
1. Plant pits shall be excavated with vertical sides, large enough to allow twelve (12) inches of space around the ball in all directions.
2. Planting pit backfill for all trees and shrub shall be as follows:
3. Planting pits shall be backfilled with prepared backfill and be water settled to a grade sufficient that in the setting of the plant, the finish grade level after settlement will be the same as that which plants were grown.
C. Installations
1. Set plants in center of pits, plumb and straight and at such a level that after settlement the crown of the plant shall be two (2) inches below the finish grade and forming a shallow trough directly over the ball of earth and slightly smaller than the pit to facilitate watering.
2. Set balled and burlapped plants upon a well tamped layer of planting soil.
3. Plants supplied in containers shall be installed immediately upon being removed from their containers.
4. Before install bare root plants, planting soil shall be placed and compacted to a depth of twelve (12) inches in the bottom of the plant pit.
D. Pruning, Mulching, Staking and Spraying
1. Pruning
a. Plants shall not be pruned prior to delivery unless Landscape Architect gives written permission.
b. Pruning shall occur only at time of planting and according to standard horticultural practice and at the direction of the Landscape Architect.
c. Remove all dead wood, suckers, and broken or badly bruised branches.
d. Cuts over 1/2 inch diameter shall be pointed over with approved tree paint.
2. Staking and Guying
a. Stake or guy all trees per detail.
3. Spraying
a. All ground cover and non-lawn areas shall be treated with pre-emergent.
b. Decomposed granite
c. Workmanship - Decomposed Granite
d. Workmanship - Berms
e. Cleaning Up
4. Obstructions Below Ground
A. In the event that rock or underground construction work or obstructions are encountered in the excavation of plants pits, alternate locations may be selected by the Landscape Architect.
B. Proper drainage of plant pits is necessary.
C. The Contractor is responsible for any damage to underground utilities resulting from landscape operations and bear the full cost to repair the damage.
D. Maintenance
A. Protect and maintain plant material (trees, shrubs, groundcover, lawn and vines) immediately after planting.
E. The Contractor is responsible for any damage to underground utilities resulting from landscape operations and bear the full cost to repair the damage.

- 3.09 INSPECTION FOR ACCEPTANCE
A. Inspection of the landscaping work to determine completion of contract work, exclusive of the possible replacement of plants, will be made by the Landscape Architect at the conclusion of the maintenance period.
B. Acceptance: After inspection, the Contractor will be notified in writing by the Landscape Architect of acceptance of all work of this contract, exclusive of the possible replacement of plants subject to reinspection and acceptance, or if there are any deficiencies of the requirements for completion of the work.
C. Upon acceptance made by the Landscape Architect, the Contractor maintenance is terminated and the guarantee period begins.
3.10 PLANT GUARANTEE AND REPLACEMENT/FINAL ACCEPTANCE
A. The tree guarantee is for a period of one year from date of acceptance by the Landscape Architect.
B. The shrub guarantee is for a period of 90 days from date of acceptance by the Landscape Architect.
C. At the end of the guarantee period, the Landscape Architect shall reinspect all guaranteed work for Final Acceptance upon written request of Contractor.
PART 4 - MISCELLANEOUS AND GENERAL NOTES
4.01 FINISH GRADING AND GRADING
A. The General Contractor to provide Landscape Contractor finish grade within + 0.1 of a foot as shown on the civil grading plan and landscape plan.
4.02 GENERAL NOTES
A. The Landscape Contractor at his own expense shall procure all permits, certificates, and licenses required of him by law for the execution of this work.
B. The Contractor shall visit and inspect site to thoroughly inform himself of all existing conditions.
NOTES:
1. Field locate all irrigation equipment in landscape areas - some lines are schematic.
2. Coordinate programs to avoid station overlap.
3. Reduce radius as necessary to prevent overlap on turf and shrub spray.
4. Size and provide Schedule 40 PVC sleeves (approx. twice diameter of pipe) under all walkways, cooldeck, curbs & drives as necessary on all irrigation equipment.
5. Contractor shall install all equipment as per manufacturer's specifications and as per city codes.
6. Any substitutions are to be approved by the Landscape Architect.
7. Length of poly to be no greater than five (5) feet from PVC lateral (typical for all rigid drip systems).
8. Install vacuum breaker twelve (12) inches above highest head or lateral pipe in system.
9. Contractor shall guarantee 100% coverage in all landscape areas.
10. Contour or berm planter areas to achieve adequate coverage from flood basements.
11. All heads to be adjusted so that there is minimum overthrust onto pavements, walls and buildings.
12. All pots and palms to be on a separate valve.
13. Contractor to receive a minimum 48 hour notice prior to steering.
14. Mainline to have a minimum of twenty four (24) inches of cover. Lateral lines to have a minimum twelve (12) inches of cover. Lines under paving shall be Sch. 40 PVC. All trenches to be backfilled, compacted, and water settled.
15. All drawings to be bid per plan. No value engineering or substitutions will be accepted during bidding.
ENLARGED SITE PLAN
SCHEMATIC LAYOUT
NEW COMMERCIAL PAD
PAD AT PASO LINDO SHOPPING CENTER
NEC OF ARIZONA, LAVAN AND COTTOLLO RD.
CHANDLER, AZ
T.J. McQUEEN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE
URBAN DESIGN
SITE PLANNING
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T.J. McQUEEN & ASSOCIATES, INC. LANDSCAPE ARCHITECTURE
design by: RH
drawn by: RL
checked by: RH
project #: 23057

BRICKAAR
CITY OF CHANDLER APPROVED
TERESA RICHARDSON
DATE: 11-30-23
NOTICE OF ALTERNATE BILLING OR PAYMENT OPTION
NEW COMMERCIAL PAD
PAD AT PASO LINDO SHOPPING CENTER
NEC OF ARIZONA, LAVAN AND COTTOLLO RD.
CHANDLER, AZ
TIMOTHY J. McQUEEN
Professional Engineer
No. 27166
Professional Seal
ARIZONA
EXPIRES 06/30/2026