



City of Phoenix

PARKS AND RECREATION DEPARTMENT

Building healthy communities through parks, programs, and partnerships



Street Landscape Standards



Developed 2006

PHOENIX PARKS AND RECREATION DEPARTMENT

STREET LANDSCAPE STANDARDS

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Introduction

The City of Phoenix Parks and Recreation Street Landscape Standards Manual is designed for Department staff in three departments: Parks and Recreation, Street Transportation and Development Services to use in the design, construction and maintenance of street landscaping throughout the City of Phoenix.

The collaboration all three departments in the development of this standards manual will help to increase consistency and understanding of acceptable standards in street landscaping. This process also facilitated greater communication and buy-in from the representative departments. The details of the plan support the City of Phoenix's sustainability efforts and water conservation measures.

In the development of this manual the Park Supervisors worked with Street Transportation Landscape design staff and Development Services plan review staff to take the existing procedures and improve consistency and appropriateness for medians and back up areas. Gardeners from all areas in the Parks and Recreation Department met in focus groups to gain insight on daily maintenance impacts.

This document provides standards for street landscape in the following areas:

- Plant Material
- Irrigation Systems
- Staffing levels and required equipment
- ADA Requirements
- Safety Considerations
- Close out of projects and warranty
- Design review expectations
- Street tree retrofit

Through these efforts the City of Phoenix has created a written plan to guide staff in the design, approval and maintenance criteria. The end result is improved plan design and review process that is consistent and involves all affected departments. The standard for maintenance levels has been established and provides solid information to gain additional resources to meet the High Level outlined.

Plant Species for Street Landscaping

Quality street landscaping is a valuable component of a thriving and vibrant city. Properly designed, installed, and maintained, streetscaping adds identity, character, and value to neighborhoods and communities. In the Sonoran Desert, environmentally sound landscape and water efficient designs are not only a priority; it is required by city code. Landscape plant species selection is critical to achieve both goals. Plant species selection in our street landscape areas is a very important consideration for design aesthetics, pedestrian and employee safety, as well as the long term maintainability of the area. Improper selection for design or replacement material can have serious effects on the areas including maintenance levels, utility conflicts, visual obscurements, and ultimately employee safety and liability for the city. The approved list for tree and shrub selection should be broad enough to allow landscape architects and customers to select plant material to achieve design intent as well as provide a low maintenance streetscape for the long term sustainability of the project.

Tree selection should be a priority as the trees are often identified as a signature for the area. Proper selection, installation, and maintenance of trees are a major consideration for street landscape projects. It is important to be familiar with tree species including its characteristics, irrigation requirements, mature size, rooting habits, and maintenance requirements. Shrub and groundcover selection is important as well. Shrub and groundcover plantings can add dimension, seasonal color, and soften hardscapes in street median areas. As with trees, it is important to know the cultural requirements of both. Improper selection or maintenance can lead to excessive pruning cycles and an unattractive landscape. The addition of accent plantings often give landscape projects the finished look. Proper species selection is important to avoid conflicts with pedestrians, landscape maintenance staff, sidewalks and hardscape. Plant species selection is an important aspect of all street landscape projects, with thoughtful planning, correct installation, and proper maintenance practices, street landscape projects will continue to add beauty and value to our communities.

Tree, Shrub, and Accent Species for Parks and Recreation Maintained Streetscapes

Trees

Acacia species - acacias
Caesalpinia species – mexican birds, yellow, cascolate
Chilopsis linearis – desert willow
Chitalpa tashkentensis - chitalpa
Dalbergia sisso – indian rosewood
Ebenopsis species – tex/mex ebonies
Fraxinus greggii – little leaf ash
Leucaena retusa – golden leadball
Lysiloma species – desert fern
Olneya tesota - Ironwood
Pine species – pines
Parkinsonia species – Palo Verdes
Prosopis species - mesquites
Pistacia species - pistache
Quercus species - oak
Sophora species – mountain laurel
Ulmus species - elm

Palms (limited use)

Phoenix dactylifera - date
Washingtonia species - fan
Brahea species – mex. blue

Shrubs

Ambrosia deltoidea - bursage
Ambrosia dumosa - white bursage
Asclepias subulata – desert milkweed
Caesalpinia species – Mexican birds assorted species
Calliandra species – fairy duster
Cordia species – little leaf, big leaf cordia
Convolvulus species – morning glory bush
Dalea species - dalea
Dodonea species - hopseed
Encelia species – brittle bush
Ephedra species – mormon tea
Eremophila species – valentine bush
Ericameria species – terpine bush

shrubs (continued)

Hyptis emoryi – desert lavender
Justicia species – desert honeysuckle
Lantana species - lantana
Larrea tridentata - creosote
Leucophyllum species - sage
Lycium pallidum - wolfberry
Ruellia species - ruellia
Simmondsia chinensis - jojoba
Sophora arizonica – mountain laurel
Tecoma species – yellow bells
Vauquelinia species – Arizona rosewood
Ziziphus obtusifolia - greythorn

Ground Covers

Lantana species - lantana
Verbena species - verbena
Rosmarinus prostrates – rosemary trailing
Zauschneria species – California fuschia

Accent Plants

Agave species - agave
Yucca species - yucca
Ocotillo - ocotillo
Dasilyrion species – desert spoon

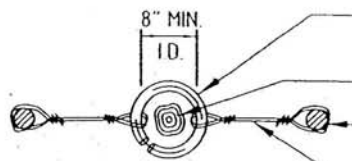
Cacti

Sahuaro
Barrel species
Hedgehog species
Opuntia species – lots of different types, paddle, cholla, etc.

References

Sunset Western Garden Book
Plant for Dry Climates
Phoenix AMA Low Water Use/ Drought Tolerant Plants

Note: All sizes and calipers of plant material to comply with Arizona Nurseryman Standards.



WIRE & HOSE TIES

1/2" I.D. BLACK RUBBER HOSE WITH WIRE, MAINTAIN 12" LOOP

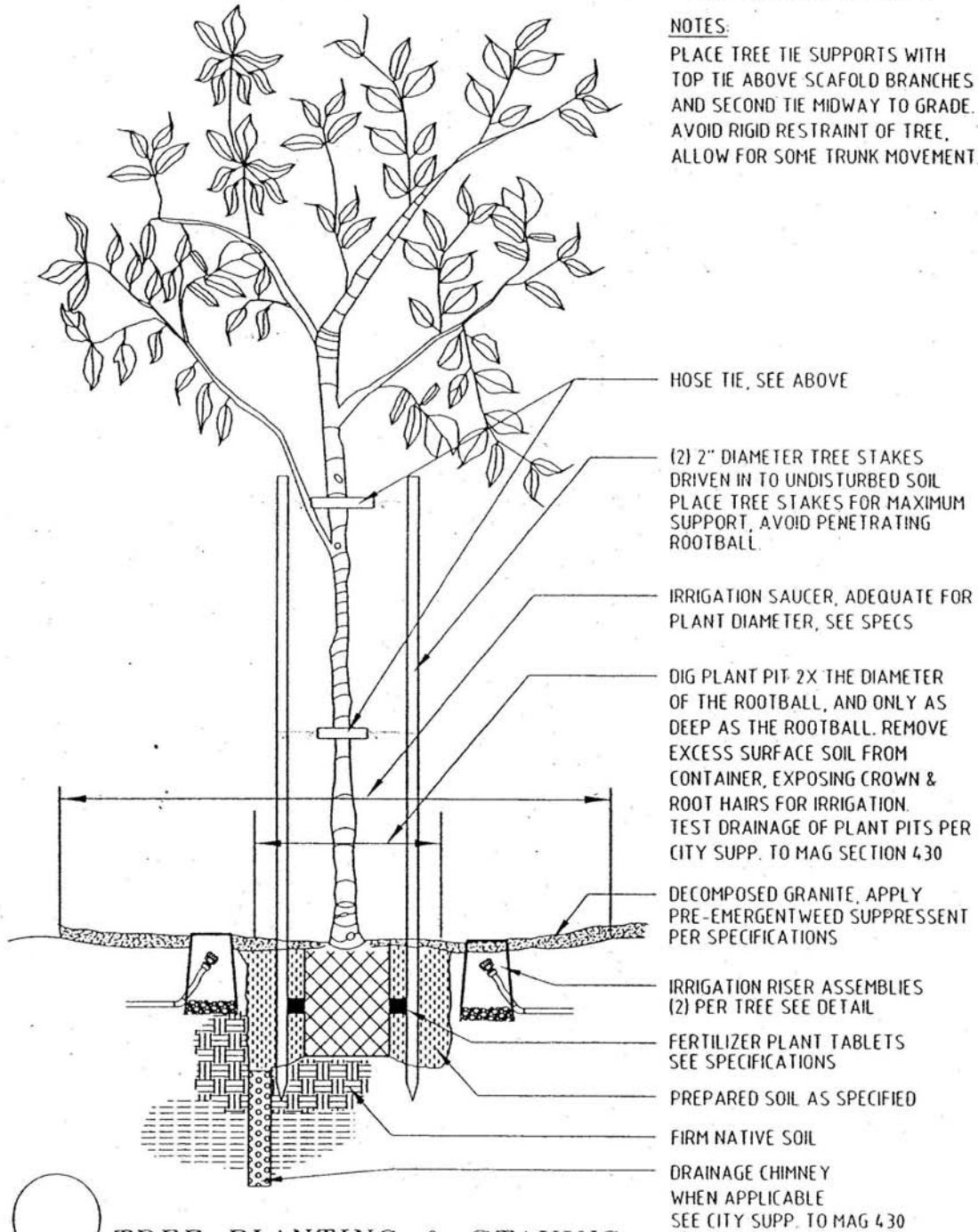
TREE TRUNK

(2)-2" DIA. WOOD STAKE

14 GAUGE GALV. OR ANNEALED WIRE (DOUBLE WIRE). SECURE WIRE TO STAKE WITH 12 GAUGE STAPLE

NOTES:

PLACE TREE TIE SUPPORTS WITH TOP TIE ABOVE SCAFFOLD BRANCHES AND SECOND TIE MIDWAY TO GRADE. AVOID RIGID RESTRAINT OF TREE, ALLOW FOR SOME TRUNK MOVEMENT.



HOSE TIE, SEE ABOVE

(2) 2" DIAMETER TREE STAKES DRIVEN IN TO UNDISTURBED SOIL. PLACE TREE STAKES FOR MAXIMUM SUPPORT, AVOID PENETRATING ROOTBALL.

IRRIGATION SAUCER, ADEQUATE FOR PLANT DIAMETER, SEE SPECS

DIG PLANT PIT: 2X THE DIAMETER OF THE ROOTBALL, AND ONLY AS DEEP AS THE ROOTBALL. REMOVE EXCESS SURFACE SOIL FROM CONTAINER, EXPOSING CROWN & ROOT HAIRS FOR IRRIGATION. TEST DRAINAGE OF PLANT PITS PER CITY SUPP. TO MAG SECTION 430

DECOMPOSED GRANITE, APPLY PRE-EMERGENT WEED SUPPRESSANT PER SPECIFICATIONS

IRRIGATION RISER ASSEMBLIES (2) PER TREE SEE DETAIL

FERTILIZER PLANT TABLETS SEE SPECIFICATIONS

PREPARED SOIL AS SPECIFIED

FIRM NATIVE SOIL

DRAINAGE CHIMNEY WHEN APPLICABLE SEE CITY SUPP. TO MAG 430

TREE PLANTING & STAKING

NOT TO SCALE

PLT-TRE-03

NOTES:

CONSTRUCT AN EXAMPLE IRRIGATION SAUCER FOR LANDSCAPE ARCHITECT APPROVAL PRIOR PLACING DG.

TEST PLANT PITS FOR DRAINAGE.

ROOT BALL TO BE 1" ABOVE GRADE SCORE BEFORE PLANTING

DECOMPOSED GRANITE, APPLY PRE-EMERGENT WEED SUPPRESSENT PER SPECIFICATIONS

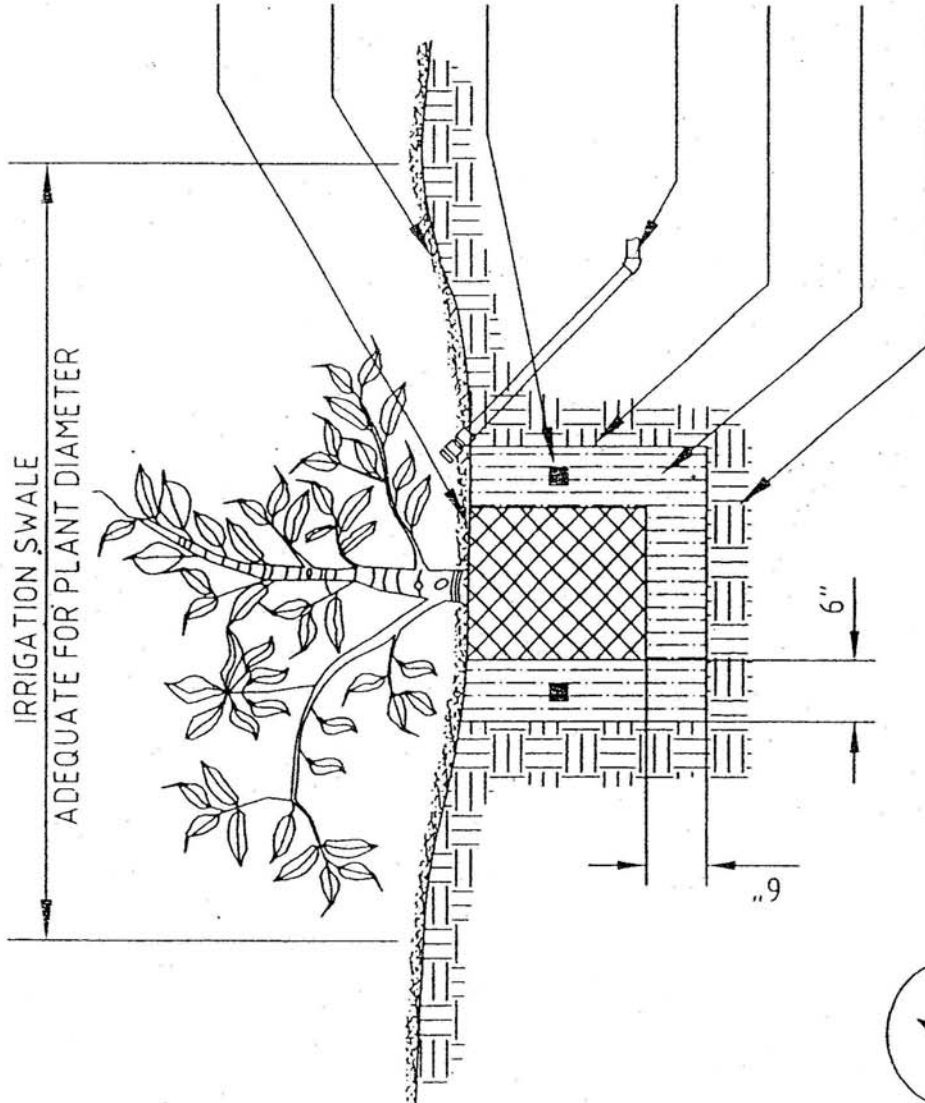
FERTILIZER TABLETS PER SPECIFICATIONS

IRRIGATION RISER ASSEMBLY SEE DETAIL

SCARIFY GLAZED PERIMETER OF PLANT PITS

PREPARED SOIL AS SPECIFIED.

FIRM NATIVE SOIL



1 SHRUB PLANTING

NOT TO SCALE

PLT-SRB-02

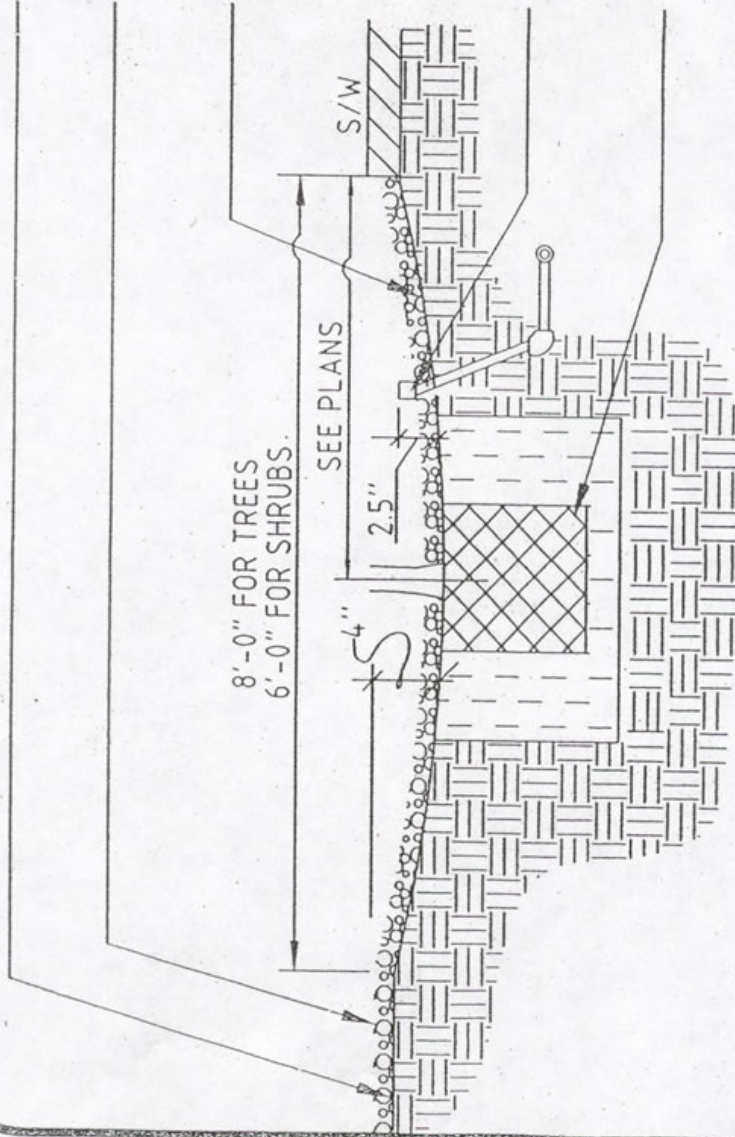
FINISH GRADE

2" DEEP LAYER OF DECOMPOSED GRANITE SEE SPECIFICATIONS

SWALE SHALL BE GENTLE AND NO OBTRUSIVE EDGES. DIM. MAY VARY PER PLANTING CONDITION.

IRRIGATION HEAD
SEE DETAIL

TREE OR SHRUB PLANTING
SEE DETAIL



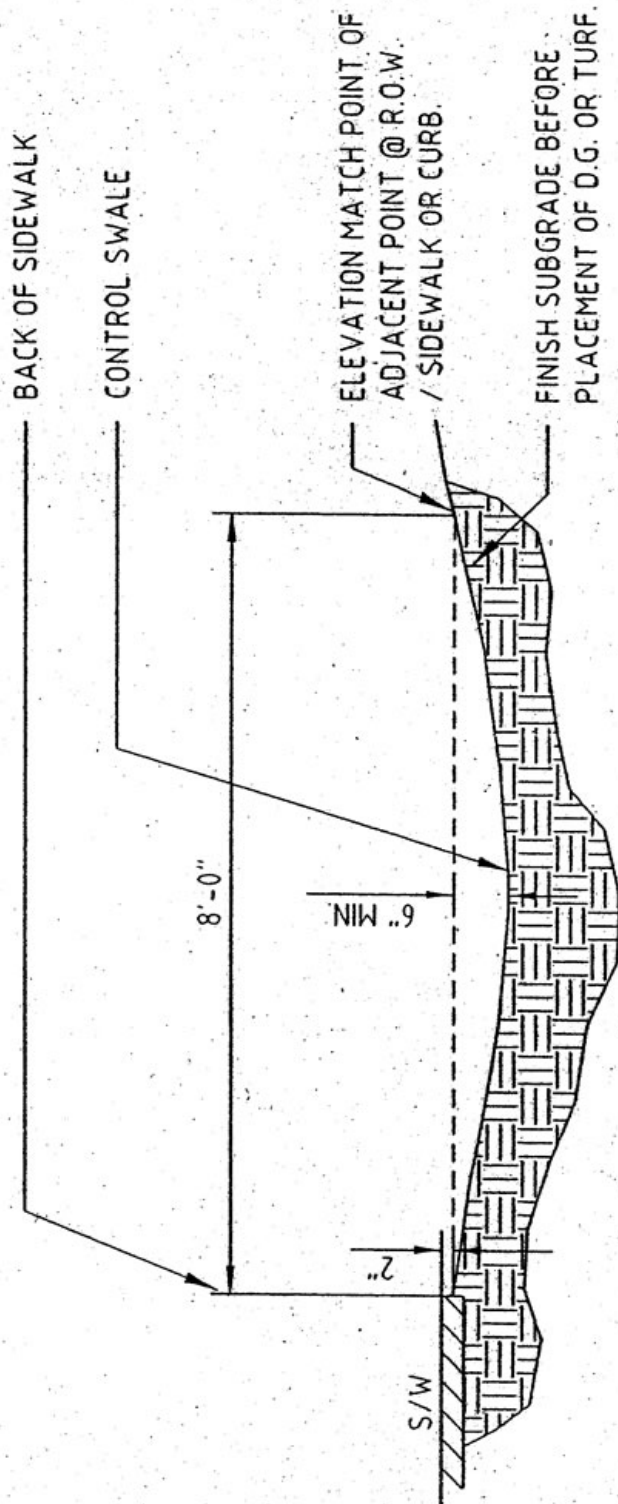
NOTE: CITY LANDSCAPE ARCHITECT TO FIELD APPROVE PLANT LOCATIONS PRIOR TO PLANTING

4

PLANTING SWALE

NOT TO SCALE

PLT-SWL-01



NOTE:

IRRIGATION SWALE MUST BE APPROVED PRIOR TO PLACEMENT OF PLANTS, TURF, OR D.G.

NUISANCE WATER CONTROL SWALE

NOT TO SCALE

PLT-SWL-02

Street Landscape Irrigation Installation Standards

These standards will insure consistency of our irrigation system components installed on Street Landscape Projects. Consistency not only in equipment, but how the equipment is installed. All equipment shall be installed as per detail.

Controller: Location of irrigation controllers should be in the median in stainless steel enclosures.

New Projects - Calsense ET2000e series controller
GPRS radio communications
Handheld remote ability
Stainless Steel Enclosure (non-secure locations)
Antennas where appropriate
All surge, lightning protection, and grounding

Backflow Prevention: Reduced Pressure Backflow preventer installed in backflow prevention cage on concrete pad. Location shall be near water meter in landscape area.

Master Valve: Griswold #2160 Normally open valve, 24 volts. Locate near backflow prevention device.

Flow Sensor: Calsense flow sensors
Flow sensor cable should be Paige P-7117D (14/2 wire) in conduit. Locate flow sensor immediately after master valve.

Remote Control Valve: Rain Bird EFB-CP (Dirty Water Valve)
Rain Bird GB (Drip valves require Wilkins 500YSBR filter and regulator)
Location shall be in an area that is safe yet easily assessable.

Quick Coupler: Rain Bird 33LVC or Rain Bird 44LVC. Locate all quick couplers within 24" of irrigation valve. Each quick coupler shall be installed in a box labeled "QC"

Bubbler: Rain Bird 1400 – Installed on the high side of plant material, ½" above finish grade.

Drip: Bowsmith SL200 and ML200 – Installed on the high side of plant material, ½" above finish grade.
No spaghetti tubing
Two ML200 emitters per tree

Lateral Pipe:	Schedule 40 PVC solvent weld – Installed 12-14” depth. Parallel pipes should have a minimum of 2” horizontal separation.
Main Line Pipe:	¾” – 2.5” Scheduled 40 PVC Solvent Weld 3” and larger Class 200 “O”-Ring pipe Installed 18-20” depth. Parallel pipes should have a minimum of 2” horizontal separation.
Lateral Fittings:	Schedule 40 PVC (use appropriate solvents)
Main Line Fittings:	¾” – 2.5” Schedule 80 PVC Solvent Weld (use appropriate solvents) 3” and larger Harco Ductile Iron (use proper lubrication and thrust blocks)
Isolation Valves:	¾” – 2.5” Nibco T-580-70 Full port ball valve with wing handle 3” and larger - Nibco P-619-RW Resilient seat push on gate valve w/ 2” operating nut
24-Volt wire:	14 ga minimum control wire - direct burial (orange or red) 12 ga minimum common wire – direct burial (white) Installed a minimum of 18”, typically below and to the side of the irrigation main line.
Solvents:	All pipe and fittings shall use purple primer in preparation of solvent cement. PVC schedule 40 and schedule 80 connections shall use heavy duty gray cement. Flexible PVC pipe will require flexible PVC cement.

Complete set of submittals prior to commencement of work

Installation Inspections

Main Line Routing and depth

Lateral Line Depths

Remote Control Valve Location and Installation

Sprinkler Head Location and Installation

Controller Location and Installation (including radio, antenna, etc)

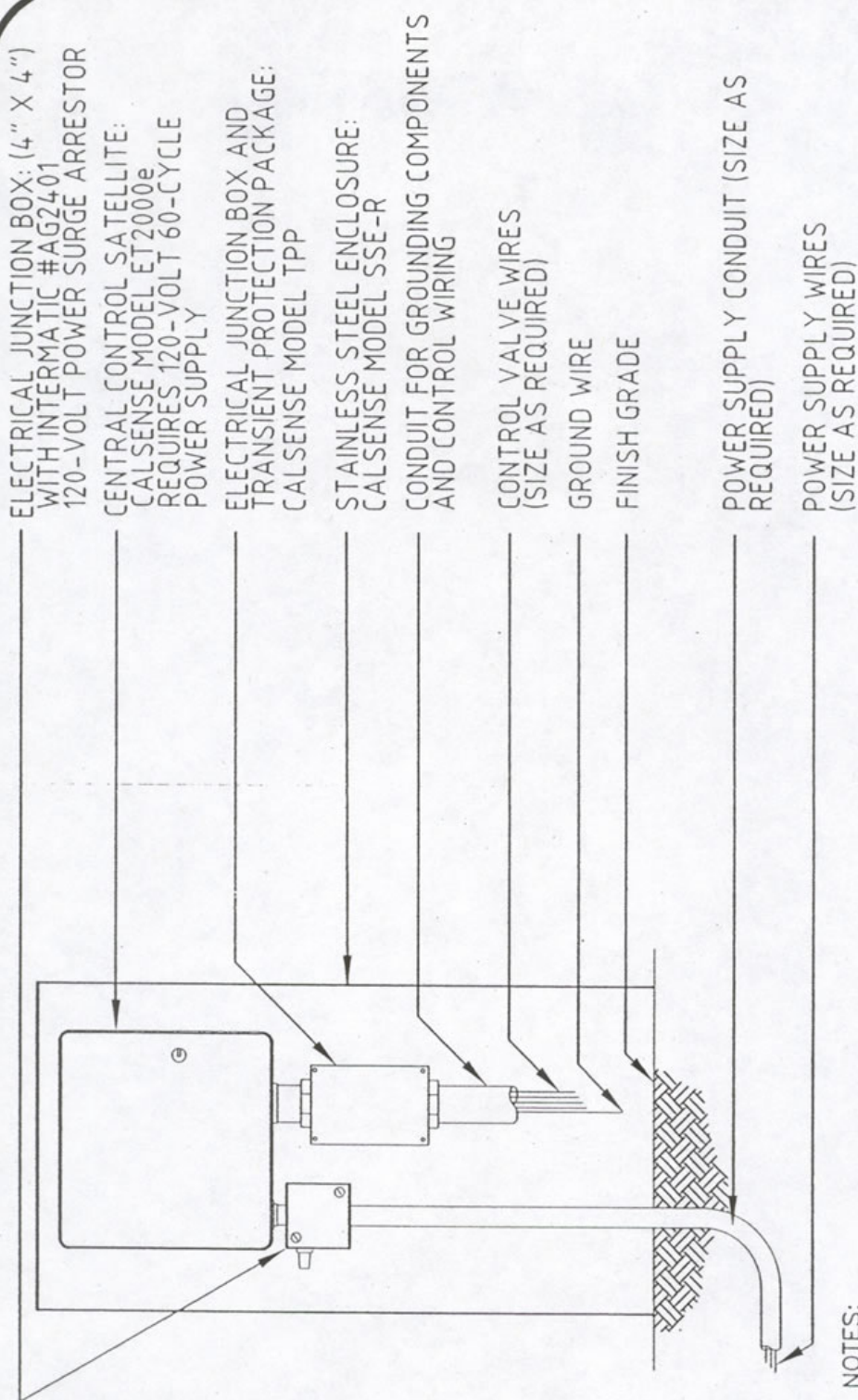
Setting of Valve Boxes

Wire Splices

Pressure Tests

Master Valve Depth and Installation

Flow Sensor Depth and Installation



NOTES:
1. PROVIDE GPRS COMMUNICATION COMPONENTS AND TRANSIENT
PROTECTION COMPONENTS PER MANUFACTURER RECOMMENDATIONS
FOR EACH CONTROLLER.

IRRIGATION CONTROLLER ASSEMBLY

NOT TO SCALE

IRR-CTL-02

120 VOLT WIRING IN R.G.S. CONDUIT TO POWER SOURCE
ALL WIRING TO BE INSTALLED PER CITY CODE.

SEE PLANS FOR TYPE AND SIZE OF IRRIGATION CONTROLLER.

ANALOG TRANSMITTER COORDINATE LOCATION WITH CONTROLLER

SIZE AND NUMBER OF R.G.S. CONDUITS SHALL BE SUFFICIENTLY SIZED
TO ACCOMMODATE ALL CONTROL AND COMMON WIRES INTO CABINET.

FLOW SENSOR WITH DIRECT BURIAL, SHEILDDED 2 CONDUCTOR 14 AWG
WIRE TO ANALOG TRANSMITTER / CONTROLLER AS REQUIRED

MASTER CONTROL VALVE

IRRIGATION WIRES SHALL BE UF DIRECT BURIAL TYPE.

PILOT WIRES SHALL BE MIN 14 GA.

COMMON WIRES SHALL BE MIN 12 GA

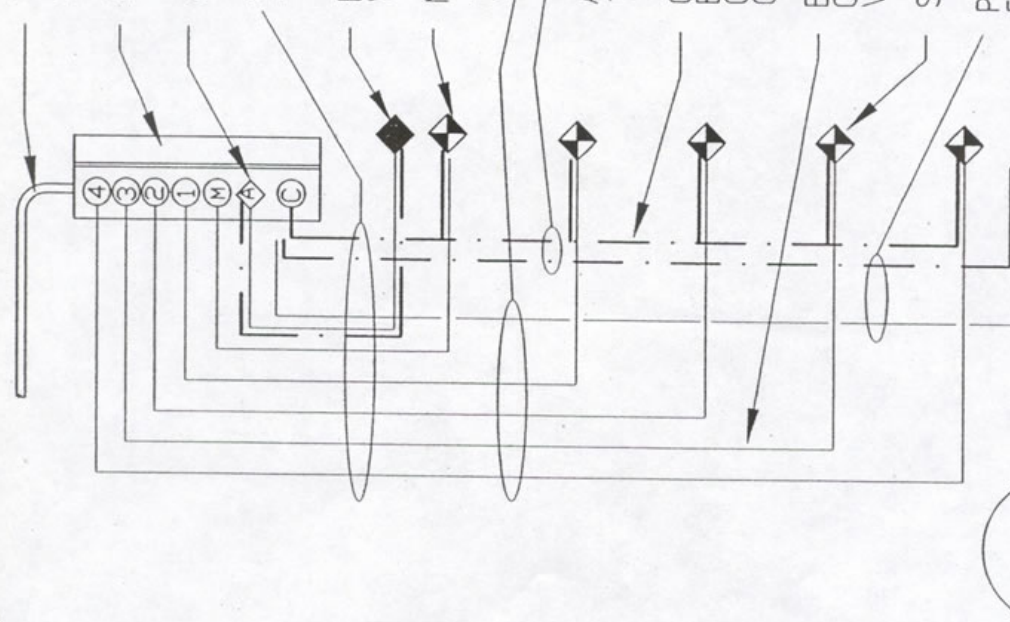
ALL WIRE SPLICES SHALL USE EPOXY FILLED CYLINDER
TYPE CONNECTORS AND BE LOCATED IN A JUNCTION BOX.

ONE COMMON WIRE SHALL BE USED FOR ALL VALVES CONTROLLED
BY THE SAME IRRIGATION CONTROLLER. IF MORE THAN ONE
CONTROLLER, COMMON WIRES SHALL BE DIFFERENT COLORS. EXTRA
COMMON WIRE SHALL ALSO BE OF AN ALTERNATE COLOR.

EACH VALVE SHALL HAVE A SEPARATE PILOT WIRE GOING INTO THE
CABINET. LABEL EACH PILOT WIRE TO MATCH TO CORRESPONDING
VALVE NUMBER AT THE CONTROLLER.

SEE PLANS FOR TYPE AND SIZE OF VALVE

PROVIDE 1 EXTRA CONTROL AND COMMON WIRE TO FURTHEST VALVE
FROM CONTROLLER. CONTROL WIRE SHALL BE ALTERNATE COLOR.



CONTROLLER WIRING

NOT TO SCALE

IRR-CTL-03

2-INCH CONDUIT WITH SWEEP ELLS
FROM CONTROLLER

#6 AWG BARE COPPER WIRE
FROM CONTROLLER OR CCU

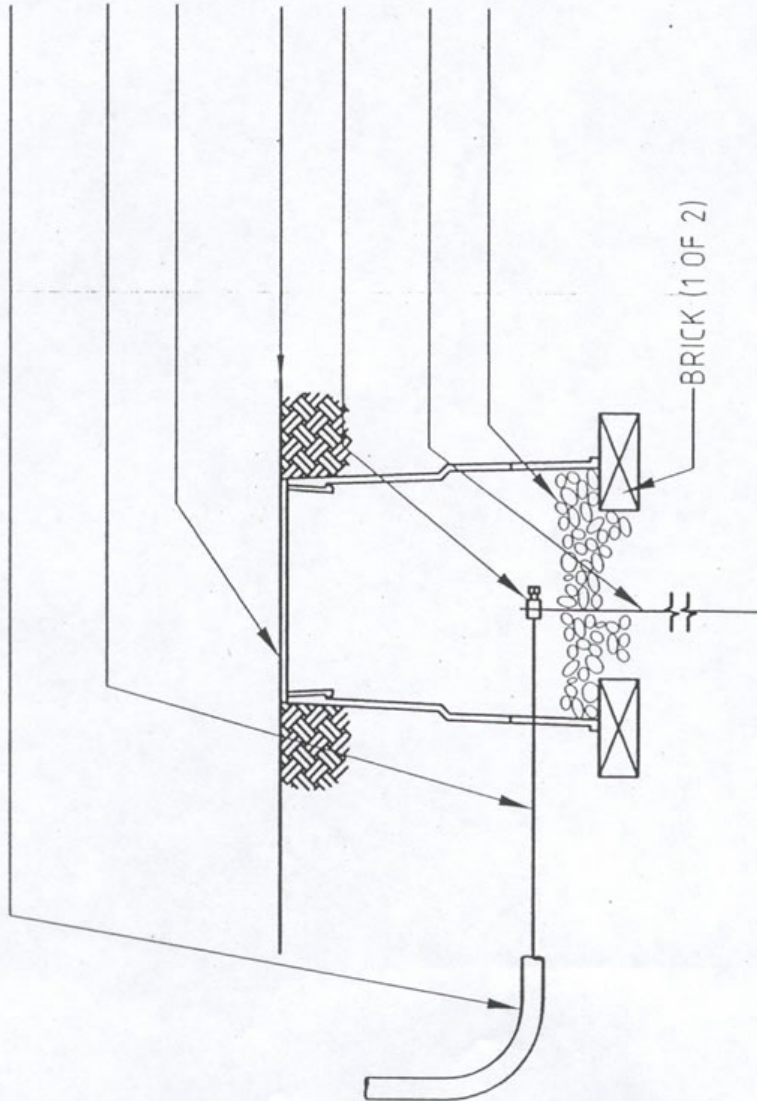
10-INCH ROUND VALVE BOX
WITH LOCKING T-COVER

FINISH GRADE

CADWELD CONNECTION MOD.
GT1161G OR APPROVED EQUAL

5/8" x 8'-0" GROUND ROD

3-INCH MINIMUM DEPTH OF
3/4-INCH WASHED GRAVEL



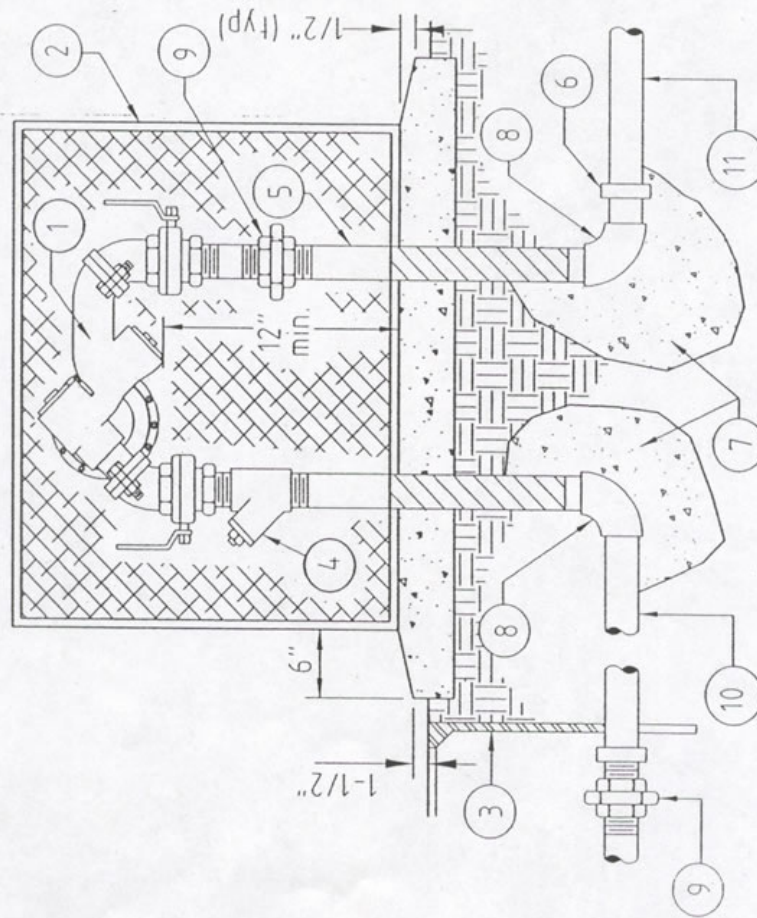
NOTES:

1. INSTALL GROUND ROD OR GROUNDING PLATE IN DRIP LINE AREA.
2. INSTALL GROUND PLATE AT A MINIMUM DEPTH OF 30-INCHES. ATTACH GROUND WIRE TO GROUND PLATE USING APPROVED WELDING PROCESS.

CONTROLLER GROUNDING ASSEMBLY

NOT TO SCALE

IRR-CTL-04



- 1 Reduced Pressure Backflow Prevention Unit. (Brass)
- 2 Security Enclosure, (See Detail)
- 3 Conc. Meter Box Installed By City Of Phoenix.
- 4 Provide CMB Model 3131 Bronz " Y" Strainer W/100 Mesh Screen. (Wrap Below Fin. Grade Per M.A.G. Sec. 753.2).
- 5 Copper Risers (Length As Req'd) (For Corrosion Protection Wrap Below Finish Grade Per M.A.G. Sec. 753.2).
- 6 Sched. 80 P.V.C. Toe Nipple.
- 7 1/2 Cubic Foot (Min.) Conc. Thrust Block.
- 8 Brass 90 Deg. Elbow.
- 9 Bronze Union.
- 10 Type "K" Hard Copper
- 11 P.V.C. Mainline



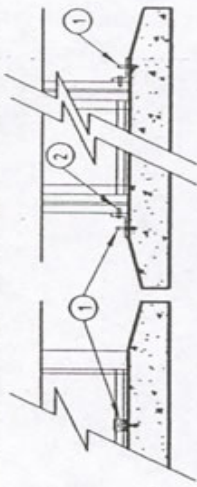
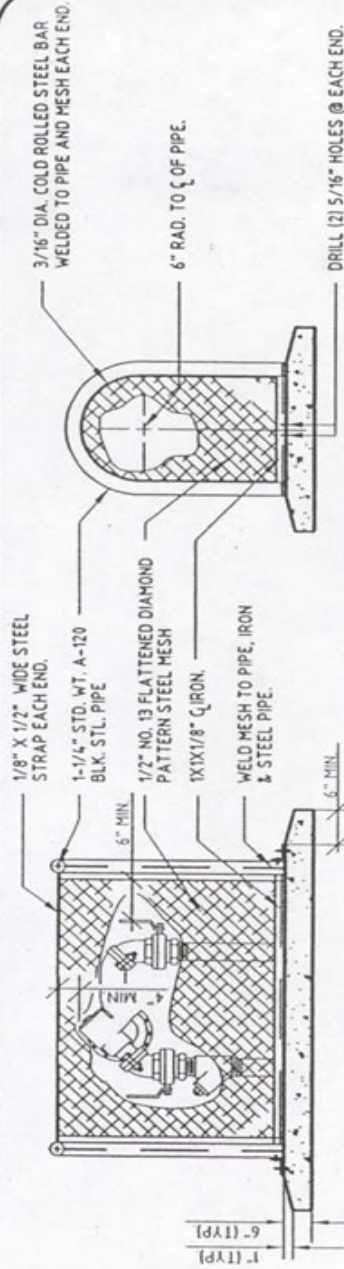
REDUCED PRESSURE BACKFLOW PREVENTION

NOT TO SCALE

IRR-BFP-01

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO CONSTRUCTION OF ENCLOSURE, AND EXACT LOCATION.
2. THE ENCLOSURE SHALL BE BUILT WITH 1" X 1" X 1/8" IRON. ALL BOLTS & HASPS SHALL BE ZINC PLATED AND TAMPER PROOF.
3. FABRIC SHALL BE 1/2" No. 13 FLATTEN DIAMOND PATTERN STEEL MESH. WELD 1/8" X 1/2" WIDE STEEL STRAPS. (ALL WELDED AREAS SHALL BE A MIN. OF 1/4" BEAD EVERY 4").
4. THE ENCLOSURE SHALL SIT ON A CLASS "B" CONCRETE SLAB. THE SLAB SHALL HAVE 6" CONCRETE STRIP ON ALL 4 SIDES. TOP OF SLAB SHALL BE 1" ABOVE FIN. GRADE.
5. AFTER WELDING, GRIND ALL WELD SPOTS SMOOTH AND SANDBLAST ENTIRE UNIT, THEN PROCESSED WITH IRON PHOSPHATE PRETREATMENT.
6. PAINT SPEC: ELECTRO-STATIC APPLICATION OF POWDER (PER A.S.T.M. D3451) SHALL BE FUSION BONDED EPOXY-MORTON PU9475 (DESERT TAN) (5-MILS THICK) OR APPROVED EQUAL.
7. OBTAIN TWO PADLOCKS (ONE EACH SIDE), PROVIDED BY THE PARKS DEPARTMENT.



BRACKET DETAIL

1. SET EYE BOLT WITH BOTTOM OF CIRCLE FLUSH WITH CONCRETE BASE, THEN EYE BOLT CANNOT BE TURNED WHEN IN BRACKET.
2. BOLT BRACKET TO ENCLOSURE ON END. USE 1/4" X 1/4" TAMPER PROOF BOLTS WITH HEX NUTS AND WASHERS.

B.F.P.U. SECURITY ENCLOSURE ASSEMBLY

NOT TO SCALE

IRR-BFP-04

CITY TO INSTALL TAP, WATER METER AND APPURTENANCES, AFTER PAYMENT OF PREVAILING FEES BY THE CONTRACTOR. CONTRACTOR IS REQUIRED TO CONSTRUCT WATER METER VAULT FOR ALL 3" 4" 6" AND 8" METERS AFTER WATER SERVICES DEPARTMENT COORDINATES INSTALLATION OF SERVICES.

GREATER THAN 2" LINE USE CL 50 DUCTILE IRON MAINLINE AND 2" AND SMALLER USE TYPE "K" HARD COPPER LINE FROM METER TO BACKFLOW PREVENTER.

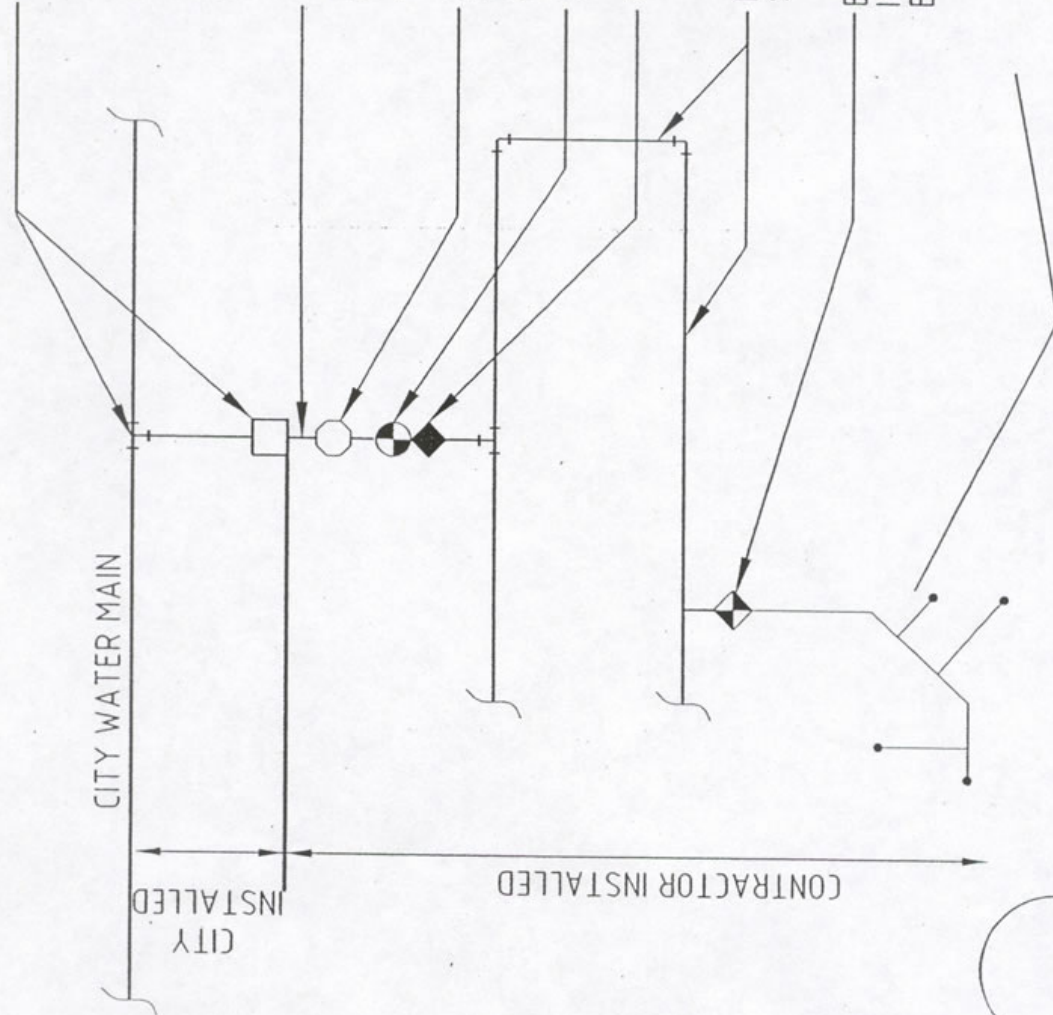
REDUCE PRESSURE BACKFLOW PREVENTION UNIT, WITH WYE STRAINER. LOCATE UNIT IN LOCKABLE SECURITY ENCLOSURE.

MASTER VALVE

FLOW SENSOR

IRRIGATION MAINLINE CLASS AND SIZE PER PLANS AND SPECIFICATIONS

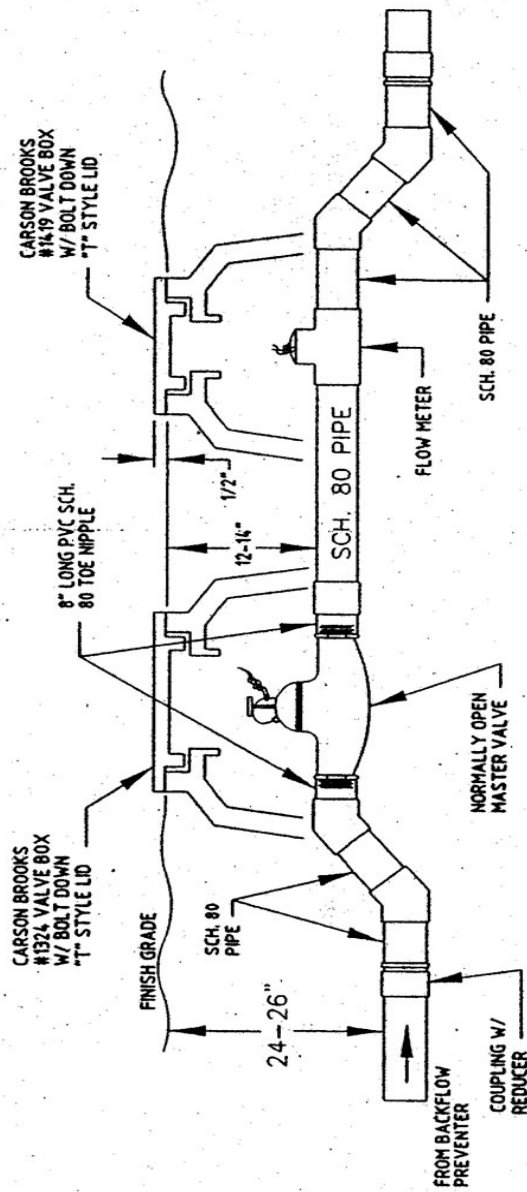
EMITTER CONTROL VALVE ASSEMBLY SET IN JUMBO VALVE BOX W/ LOCKING BOLT COVER.



WATER SYSTEM SCHEMATIC

NOT TO SCALE

IRR-SCH-02

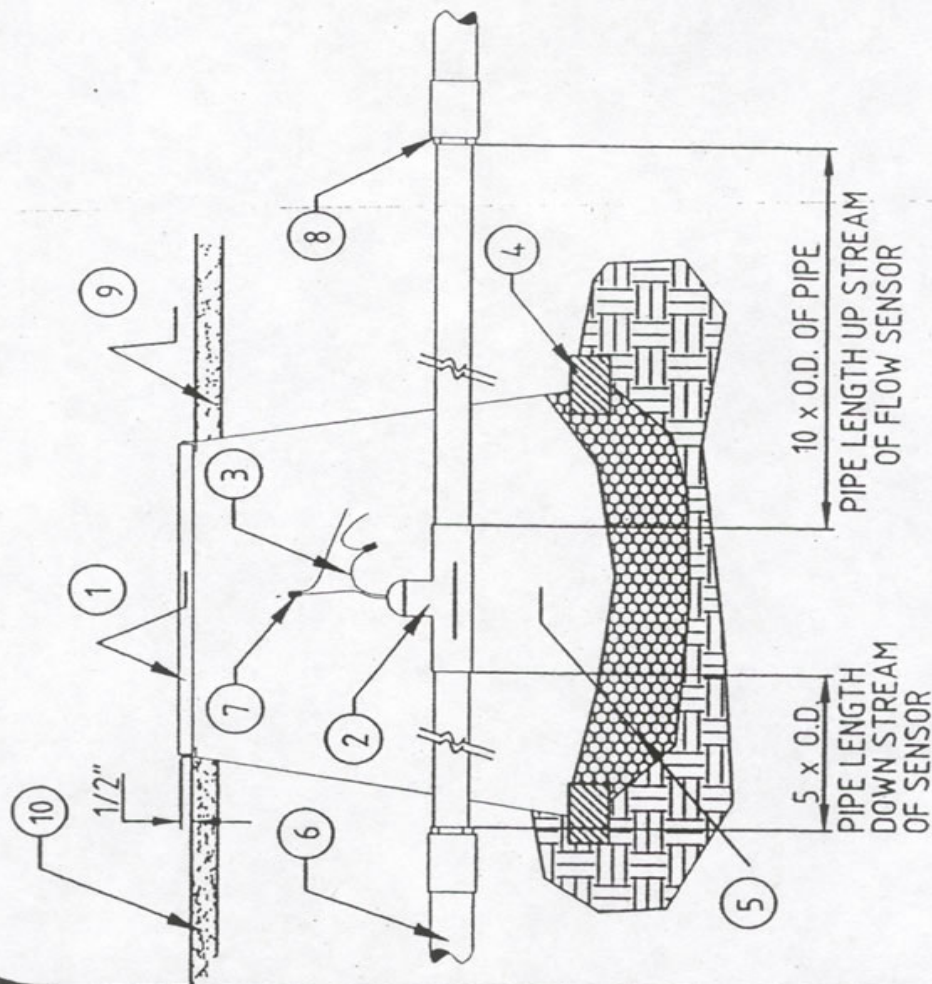


MASTER VALVE/FLOW SENSOR ASSEMBLY

NOT TO SCALE

IRR-MAS-01

- ① PLASTIC IRR. VALVE BOX
W/LOCKING BOLT COVER (SEE NOTE)
- ② FLOW SENSOR, MODEL PER
IRRIGATION LEGEND
- ③ INSTALL 2 CONDUCTOR 14 AWG WIRE
FROM FLOW SENSOR TO ANOLOG
TRANSMITTER LOCATED AT CENTRAL
CONTROLLER, 1 BLACK WIRE &
1 RED WIRE.
- ④ BRICK 1 OF 4
- ⑤ 6" LAYER OF PEA GRAVEL
MIN. 1 CU. FT. MATERIAL.
- ⑥ PVC MAIN LINE, FLOW TOWARDS
LATERAL CONTROL VALVES
- ⑦ WATERPROOF WIRE CONNECTORS
- ⑧ PVC REDUCER BUSHING
- ⑨ FINISH GRADE
- ⑩ DECOMPOSED GRANITE



NOTE:

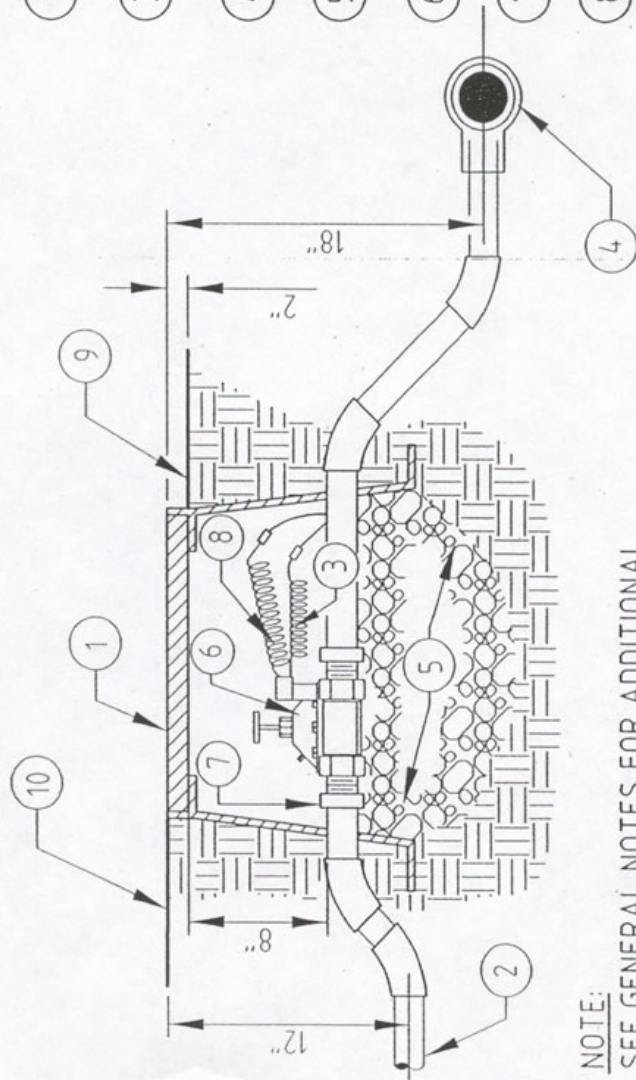
SEE GENERAL NOTES FOR ADDITIONAL
INFORMATION AND REQUIREMENTS.

4

FLOW SENSOR ASSEMBLY

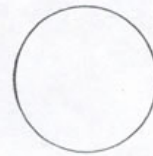
NOT TO SCALE

IRR-FLO-01



NOTE:
SEE GENERAL NOTES FOR ADDITIONAL
INFORMATION AND REQUIREMENTS.

- ① PLASTIC IRR. VALVE BOX
W/LOCKING BOLT COVER (SEE NOTE)
- ② SUPPLY LINE TO IRRIGATION SYSTEM
- ③ NO.12 COMMON WIRE TO OTHER
VALVES ON SAME CONTRL. (WHITE)
- ④ MAIN LINE LATERAL FROM
PRESSURE B.F.P.U. OF METER
- ⑤ 6" LAYER OF PEA GRAVEL
MIN. 1 CU. FT. MATERIAL.
- ⑥ ELECTRIC REMOTE CONTROL
VALVE (BRASS)
- ⑦ P.V.C. SCH. 80 TOE NIPPLE
- ⑧ NO. 14 CONTROL WIRE (ORANGE).
- ⑨ FINISH GRADE
- ⑩ DECOMPOSED GRANITE



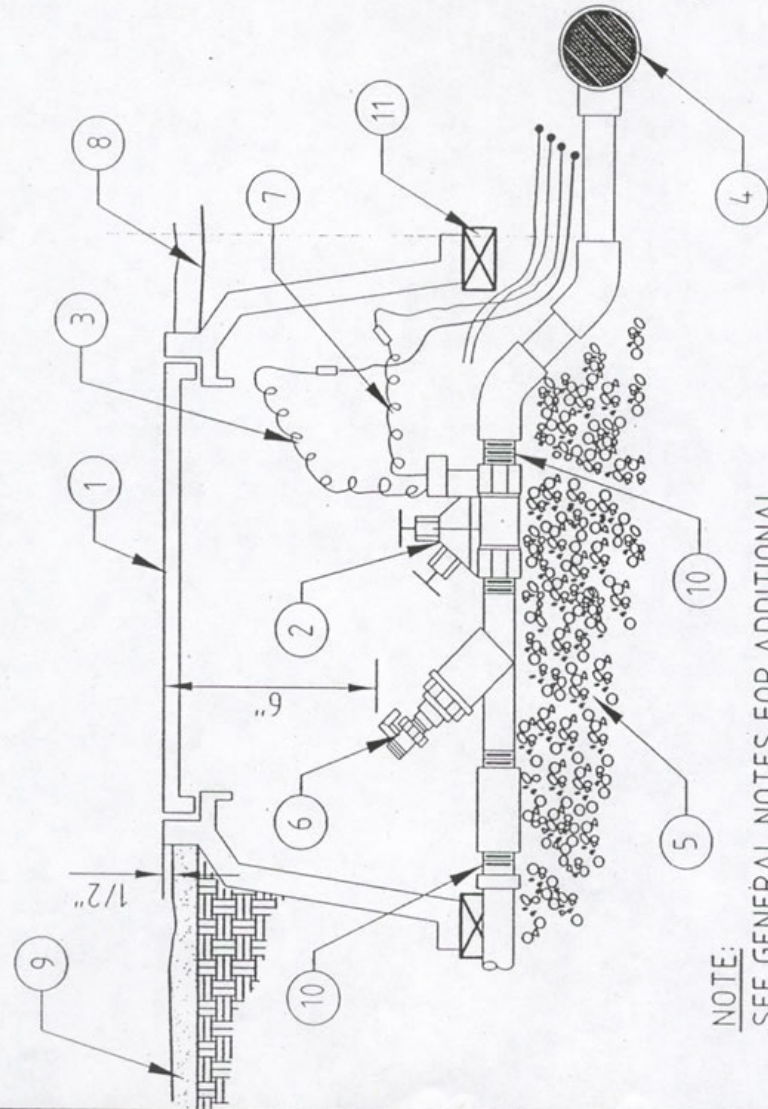
SOLENOID VALVE ASSEMBLY

NOT TO SCALE

IRR-VAL-01



- 1 JUMBO VALVE BOX W/
BOLT LOCKING COVER
- 2 ELECT. REMOTE CONTROL VALVE
(BRASS)
- 3 NO. 12 COMMON WIRE TO VALVES
ON SAME CONTROLLER. (WHITE)
- 4 MAIN LINE LATERAL FROM
PRESSURE B.F.P.U. OFF METER
- 5 6" LAYER OF PEA GRAVEL
MIN. 1 CU. FT. MATERIAL.
- 6 WILKINS #500 YSBR 'Y' STRAINER
FILTRATION DEVICE
- 7 NO. 14 CONTROL WIRE (ORANGE).
- 8 FINISH GRADE
- 9 DECOMPOSED GRANITE
- 10 PVC SCH. 80 TOE NIPPLE
- 11 BRICK (1 OF 4)



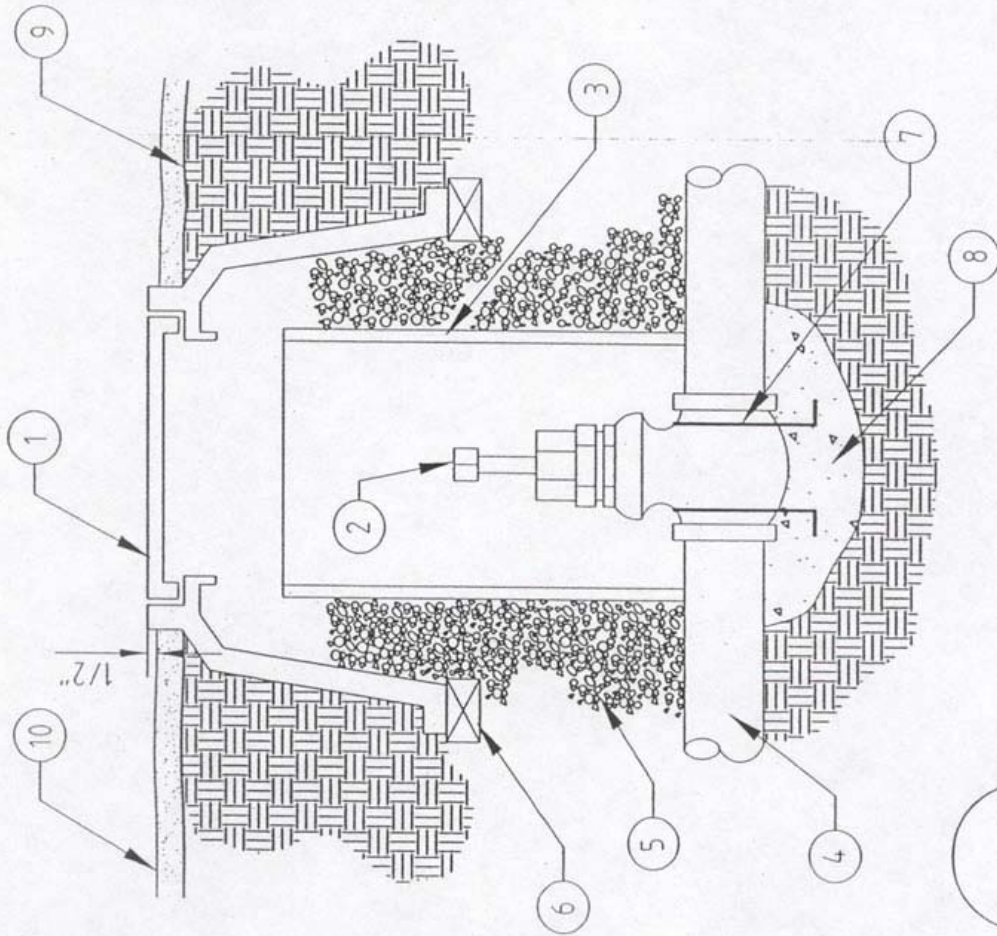
NOTE:
SEE GENERAL NOTES FOR ADDITIONAL
INFORMATION AND REQUIREMENTS.



EMITTER CONTROL VALVE ASSEMBLY

NOT TO SCALE

IRR-VAL-02



- ① VALVE BOX WITH BOLT LOCKING COVER
- ② GATE VALVE W/OPERATING NUT AMERICAN FIG. 27-MA.
- ③ 6 INCH PVC SEWER PIPE (LENGTH AS REQUIRED)
- ④ PVC MAIN LINE LATERAL FROM PRESSURE B.F.P.U. OFF METER
- ⑤ BACKFILL TO DEPTH OF SEWER PIPE W/3" OF 3/4 INCH WASHED GRAVEL
- ⑥ BRICK (1 OF 4)
- ⑦ NO. 4 REBAR WITH MASTIC COATING (1 OF 2)
- ⑧ 6 INCH THICK CONCRETE BASE
- ⑨ FINISH GRADE
- ⑩ DECOMPOSED GRANITE

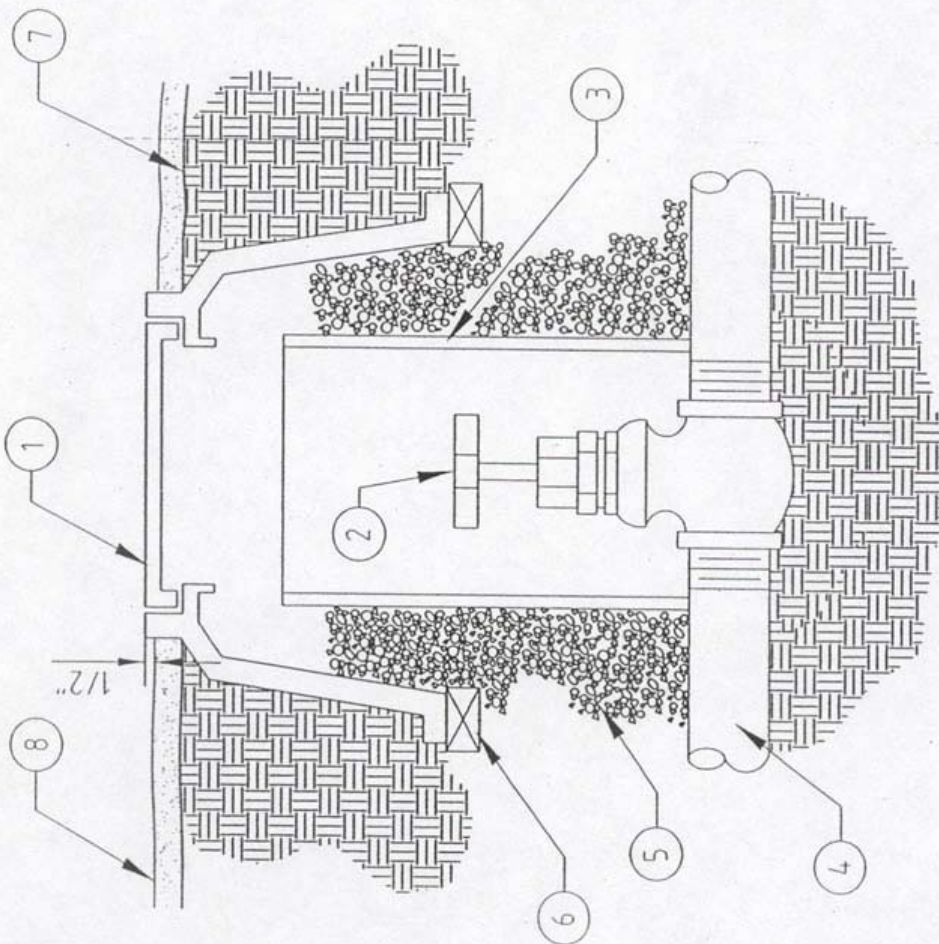
NOTE:

NOMINAL SIZE OF GATE VALVE TO MATCH NOMINAL SIZE OF MAINLINE PIPE

ISOLATION VALVE-3" & LARGER

NOT TO SCALE

IRR-VAL-03



- ① VALVE BOX WITH BOLT LOCKING COVER
- ② NIBCO T-113 GATE VALVE
- ③ 6 INCH PVC SEWER PIPE (LENGTH AS REQUIRED)
- ④ PVC MAIN LINE LATERAL FROM PRESSURE B.F.P.U. OFF METER
- ⑤ BACKFILL TO DEPTH OF SEWER PIPE W/ 3/4" OF 3/4 INCH WASHED GRAVEL
- ⑥ BRICK (1 OF 4)
- ⑦ FINISH GRADE
- ⑧ DECOMPOSED GRANITE

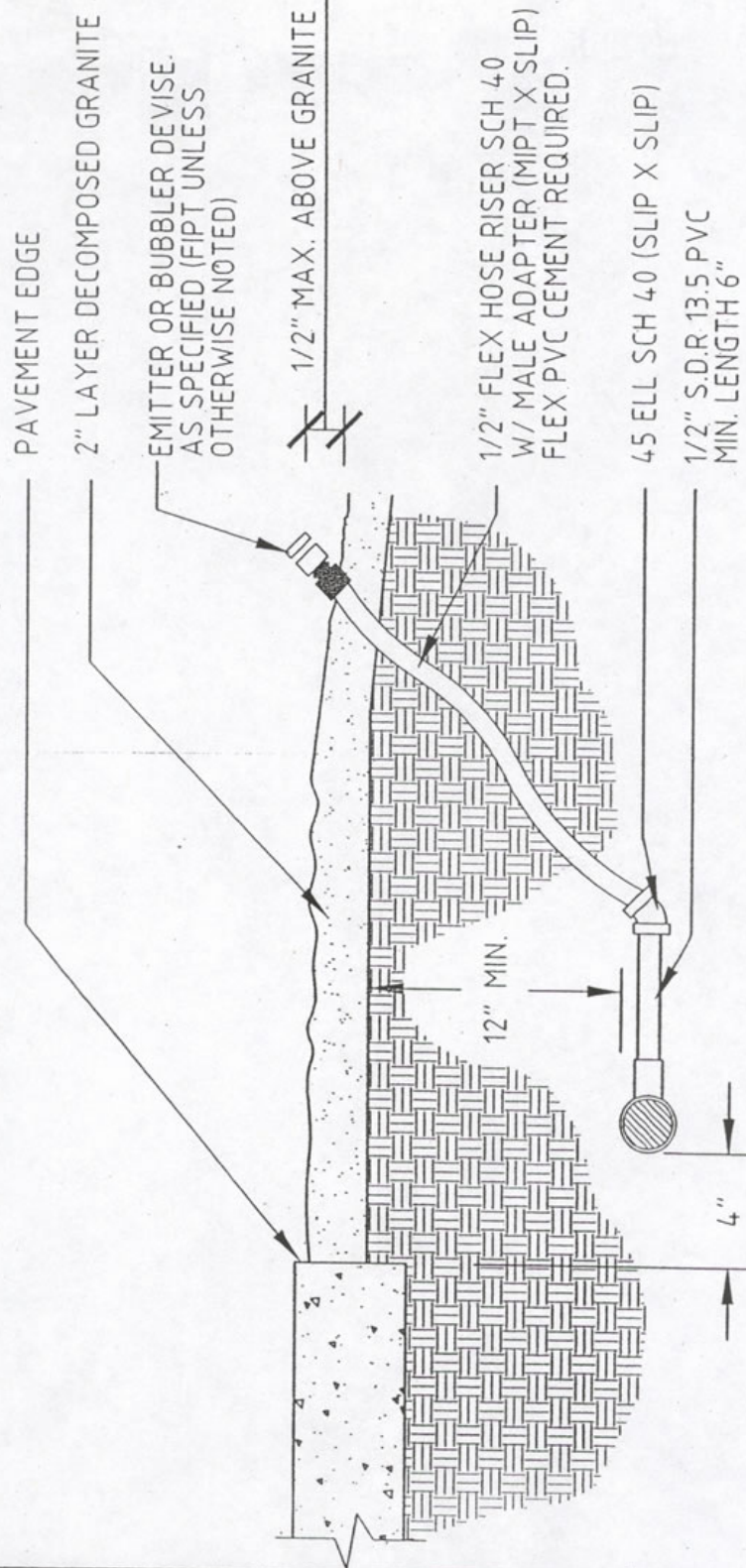
NOTE:

NOMINAL SIZE OF GATE VALVE TO MATCH NOMINAL SIZE OF MAINLINE PIPE

ISOLATION VALVE-2.5" & SMALLER

NOT TO SCALE

IRR-VAL-04

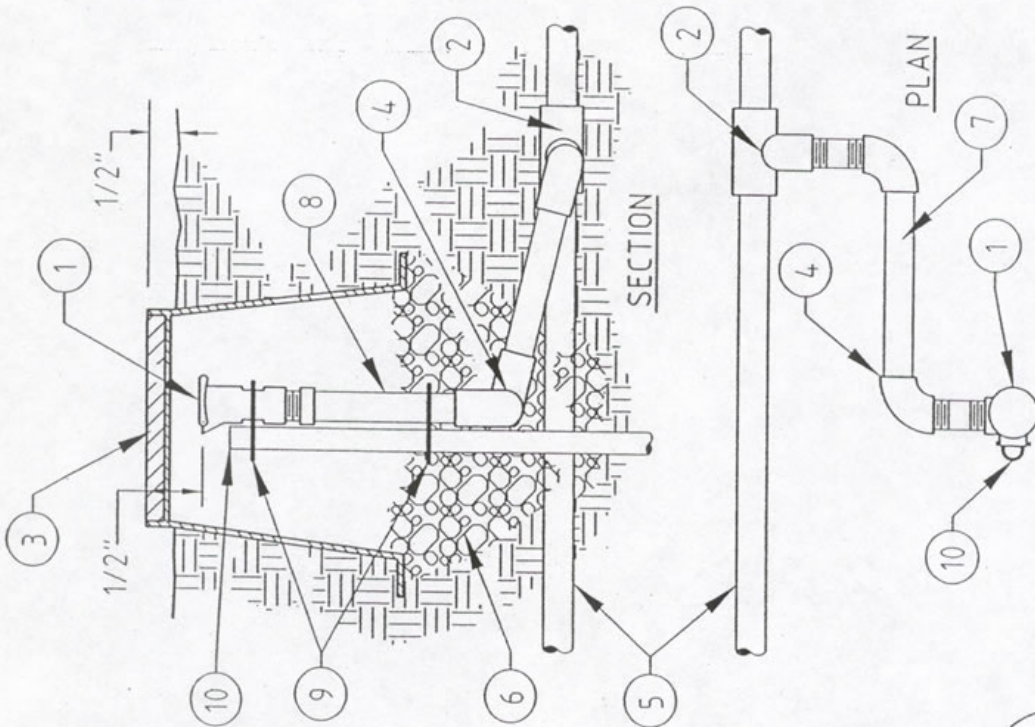


NOTE:
SEE PLAN SHEET LEGEND FOR DEVICE
FLOW RATES AND NUMBER OF
DEVICES PER PLANT.

EMITTER / BUBBLER ASSEMBLY

NOT TO SCALE

IRR-BUB-02



- ① 1" BRASS QUICK COUPLER VALVE.
- ② TEE OR ELL (SLIP)
- ③ 10" CIRCULAR PLASTIC VALVE BOX W/STAINLESS STEEL BOLT DOWN LOCKING COVER.
- ④ LASCO SWING JOINT
- ⑤ IRRIGATION MAINLINE.
- ⑥ 6" LAYER OF PEA GRAVEL MIN. 1 CU. FT. MATERIAL.
- ⑦ 12" MIN. LENGTH NIPPLE.
- ⑧ 6" MIN. LENGTH NIPPLE.
- ⑨ STAINLESS STEEL STRAPS (2)
- ⑩ 3/4" GALV. PIPE SECTION. 18" LONG

NOTE:

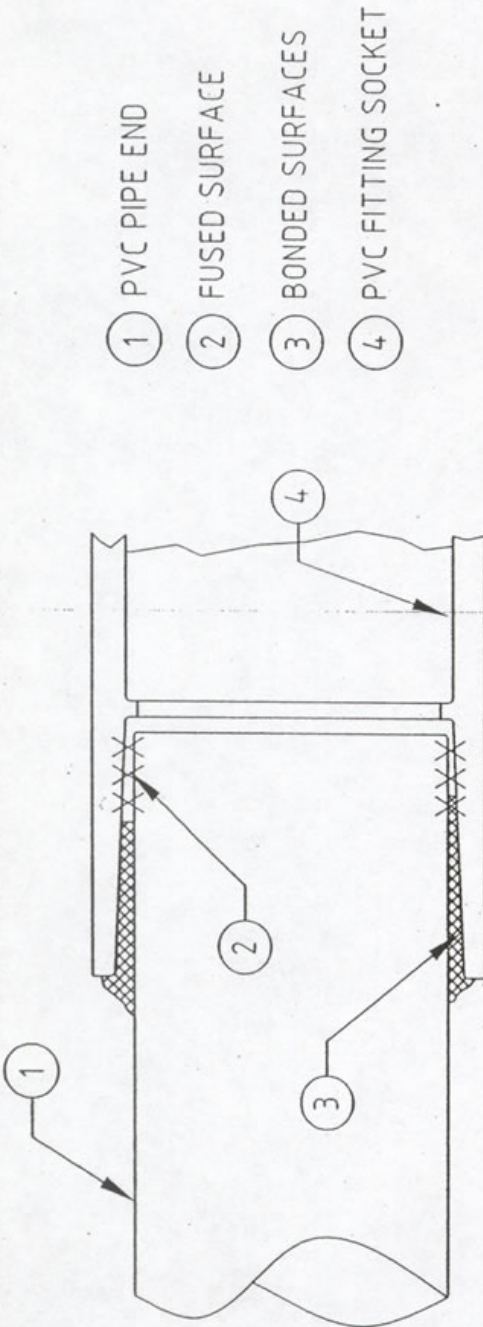
SEE GENERAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

QUICK COUPLER ASSEMBLY

NOT TO SCALE

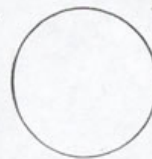
IRR-QWK-01





NOTES:

1. SOLVENT WELDED JOINTS SHALL BE MADE IN ACCORDANCE TO ASTM D-2855, AND TYPE OF SOLVENT AND PRIMER RECOMMENDED BY PIPE MANUFACTURER SHALL BE USED.
2. APPLICATOR DAUBER SHALL BE 1/2 THE DIAMETER OF THE PIPE BEING JOINED. 2" PIPE = 1" DAUBER.
3. FOLLOW THE FOLLOWING SEQUENCE OF APPLYING PRIMER AND CEMENT.
 - A. PRIME BOTH PIPE AND FITTING SOCKET TO BE JOINED.
 - B. IMMEDIATELY APPLY A COAT OF CEMENT TO THE PIPE END.
 - C. APPLY A LIGHT COAT OF CEMENT TO THE FITTING SOCKET.
 - D. ADD A SECOND COAT OF CEMENT TO THE PIPE.
 - E. PUSH THE PARTS TOGETHER, ROTATING ONE-EIGHTH TO ONE-QUARTER TURN, AND HOLD FOR 30 SECONDS.
4. THE CONTRACTOR SUPERINTENDANT SHALL CONDUCT A FIELD CLASS INSTRUCTING HIS EMPLOYEES ON THE PROPER METHOD. THE SEMINAR SHALL BE HELD ON SITE WITH CITY'S REPRESENTATIVE PRESENT.

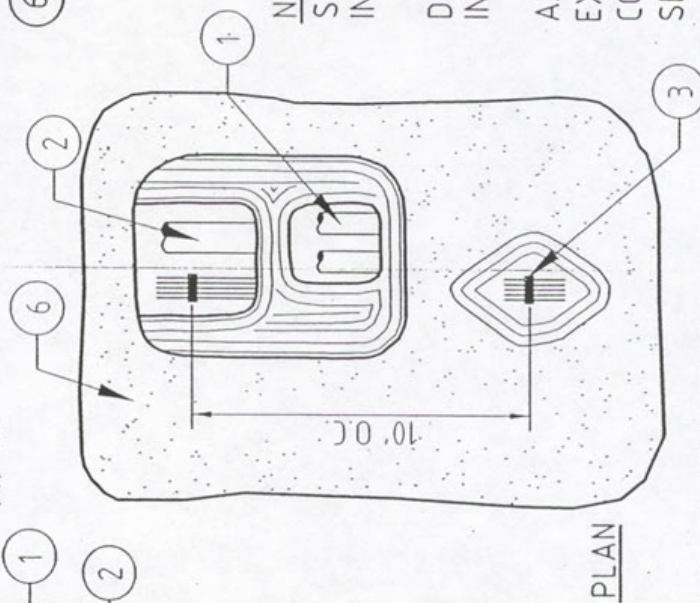
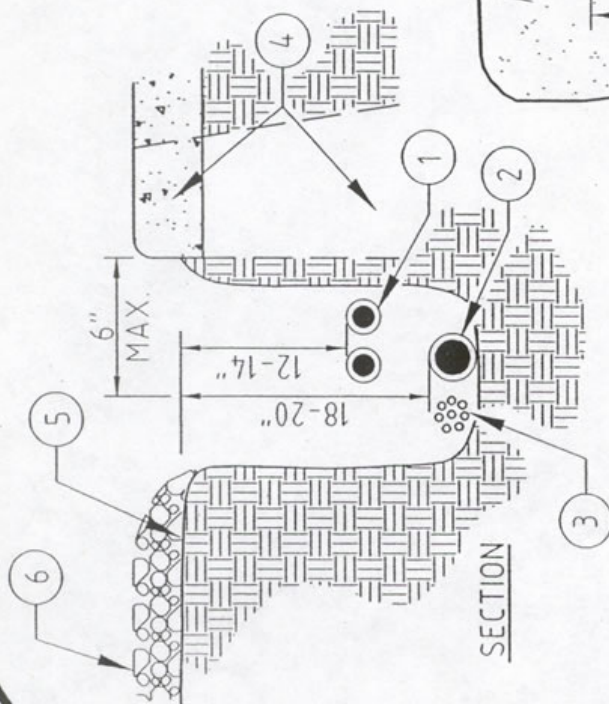


SOLVENT WELDED PVC JOINTS

NOT TO SCALE

IRR-PIP-01

- ① IRRIGATION LATERAL LINE
(TREE & SHRUB)
- ② IRRIGATION MAIN LINE
- ③ TUBING OR WIRING, BUNDLE AND
TAPE AT 10' O.C.
- ④ SIDEWALK OR CURB
- ⑤ FINISH GRADE
- ⑥ DECOMPOSED GRANITE SEE SPECS



NOTE:
SEE GENERAL NOTES FOR ADDITIONAL
INFORMATION AND REQUIREMENTS.

DEPTH DIMENSION MAY VARY WHERE
INDICATED ON IRRIGATION PLANS.

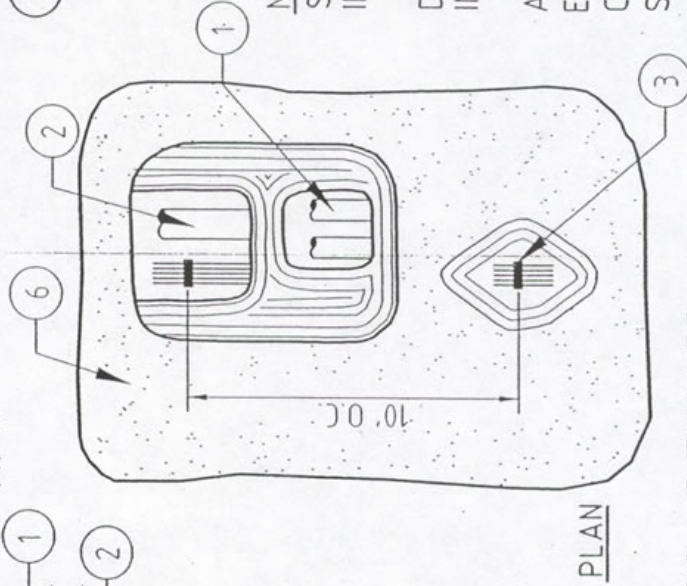
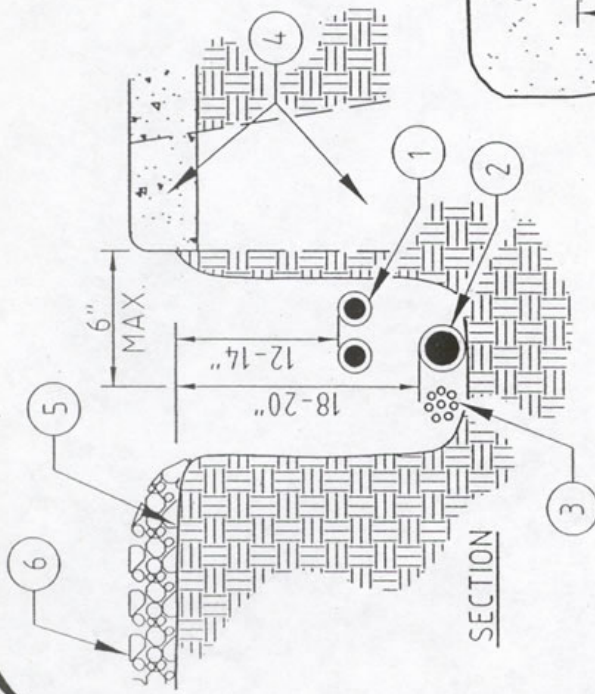
ALL PIPE INSTALLATION, TRENCH
EXCAVATION, BACK FILLING AND
COMPACTION SHALL CONFORM WITH MAG.
SECTION 401.3 AND 601.

TRENCHING DETAIL

NOT TO SCALE

IRR-TRH-01

- 1 IRRIGATION LATERAL LINE
(TREE & SHRUB)
- 2 IRRIGATION MAIN LINE
- 3 TUBING OR WIRING, BUNDLE AND
TAPE AT 10' O.C.
- 4 SIDEWALK OR CURB
- 5 FINISH GRADE
- 6 DECOMPOSED GRANITE SEE SPECS



NOTE:
SEE GENERAL NOTES FOR ADDITIONAL
INFORMATION AND REQUIREMENTS.

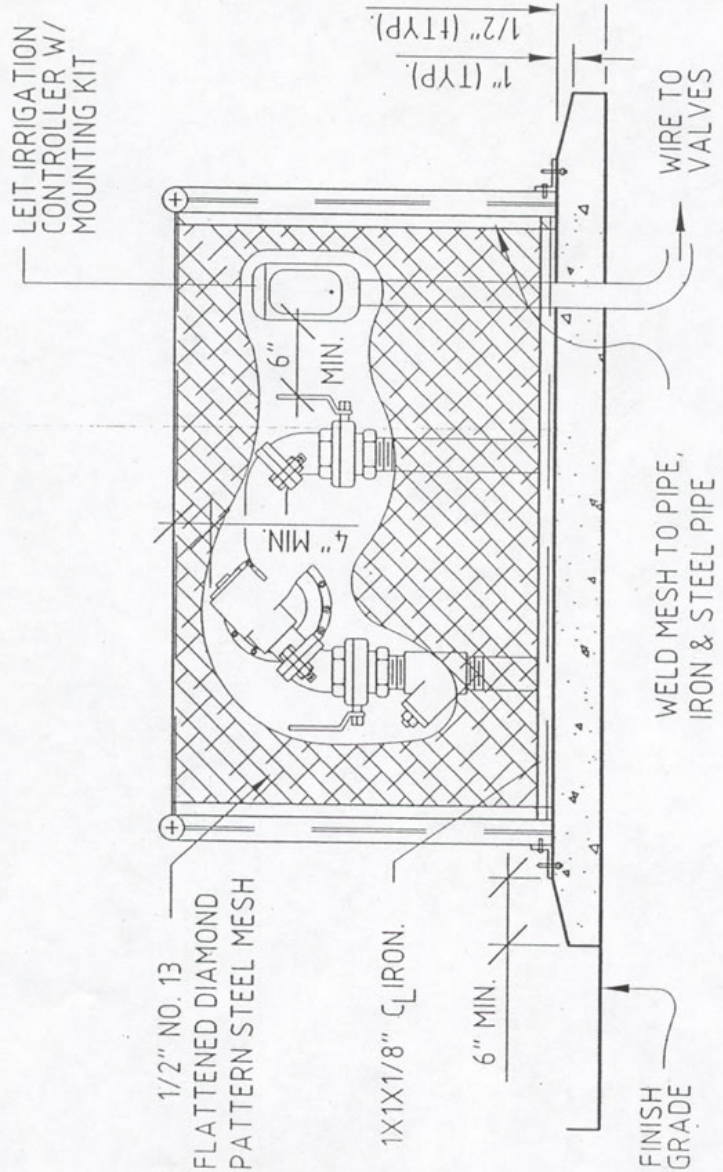
DEPTH DIMENSION MAY VARY WHERE
INDICATED ON IRRIGATION PLANS.

ALL PIPE INSTALLATION, TRENCH
EXCAVATION, BACK FILLING AND
COMPACTION SHALL CONFORM WITH MAG.
SECTION 401.3 AND 601.

TRENCHING DETAIL

NOT TO SCALE

IRR-TRH-01



NOTES:

1. SEE R.P.B.U. ASSEMBLY FOR ADDITIONAL ENCLOSURE INFORMATION

SOLAR CONTROLLER SECURITY ENCLOSURE

NOT TO SCALE

IRR-CTL-06

Safety Considerations for Maintenance Activities as Part of the Street Landscape Design Process

OVERVIEW

Street Landscape is planned, designed and installed to provide a community with a safe and aesthetic transportation corridor. While the benefits of a maturing landscape are well-known and appreciated, future maintenance provisions and costs are often not considered with the same importance. The City of Phoenix Parks and Recreation Department is often the responsible party for the maintenance of these landscaped areas which include center medians and right of way plantings. Maintenance of these areas is an evolving process that should be planned as an integral component of the landscaping project.

This section details specific design criteria and suggested recommendations to provide for the safety of maintenance personnel servicing street landscape areas. These considerations should be viewed as minimums to be observed during the initial planning and design of any new or retrofit street landscape project. The goal is twofold: reduce the inherent dangers of working in and around traffic, both vehicular and pedestrian; and extend and average life and function of a street landscape area.

Safety Considerations for Maintenance Activities as Part of the Street Landscape Design Process

ISSUE

To provide adequate width and space for planting strips and street medians to ensure public safety, promote safe working conditions, provide a low maintenance and high performing landscape consistent with the local neighborhood and appropriate for the climate.

The landscaping should be planned as an integral component of the project. Landscaping should be designed in keeping with the character of the street/neighborhood and its environment, providing for aesthetics, storm water drainage, noise abatement and erosion control. The landscaping needs to be arranged to permit a sufficiently wide, clear and safe pedestrian walkway, considering individuals with disabilities, bicyclists, and pedestrians. The areas should also be developed to serve traveling motorist with considerations to ensure sight distances and clearance to obstructions. Projects should demonstrate that future maintenance activities have been considered in the design.

DESIGN CRITERIA

- Landscape designs must coordinate with placement of all site utility elements.
 - consideration of above and below ground utilities and irrigation delivery systems will mitigate impact and reduce future maintenance conflicts; review species listing for appropriate use/placement.
- Plant material to be a mixture of drought tolerant deciduous and evergreen trees, shrubs, and ground cover selected from the approved list covering no greater than 40% of the landscaped area.
 - landscape material consistent with the environment and surrounding area provide greater survival rates, sustainability, and contribute to the character of the community.
- Elimination of turf in all median and roadside landscape areas.
 - reduced turf areas are more consistent with desert landscaping patterns, conserve water resources, and reduce equipment, material and labor inputs.
- Landscape plans to be reviewed by Parks and Recreation horticulturalist, arborist, and water resources sections prior to acceptance and implementation.
 - ensures compliance with design criteria and acceptable maintenance practices.

Planting Recommendations (minimums)

- Large maturing trees may not be planted in conflict with overhead distribution or transmission lines.
- Adjust planting locations to maintain a planting distance of 15 feet from all underground utilities.
- Sidewalks to be setback from curb a minimum of 10 feet for tree and shrub installations.
- A minimum of 274 square feet of landscape area per tree.
- Planting distances for trees are dependent upon species; consider 2.25 x ½ mature crown spread for O.C. planting distance.
- Street median islands 4 feet or less in width to be pavers or other hardscape.
- No plant material within 10 feet of the end of street median islands.
- No trees planted within 80 feet of the end of street median islands.
- Street median islands to be a minimum of 10 feet in width for single row tree planting; minimum of 20 feet in width for double row tree planting in a triangular pattern.
- No multi-trunk or low-breaking trunk trees to be planted in area less than 10 feet in width and/or at the end of the street median island.
- No plant material within 3 feet of curb or sidewalk.
- No vines or spreading ground cover plant material within 5 feet of curb or sidewalk.
- No shrubs with a mature height of 3 feet to be installed on street median islands or within 10 feet of curb on ROW.
- Plant material to be placed in groupings with adequate open space for service vehicle parking.
 - Street median islands 0 to 800 feet in length must maintain an open area equal to 30 feet in length at either end or have a turning lane (non-signalized) to provide for parking a service vehicle.
 - Street median islands greater than 800 feet in length must maintain an open area equal to 75 feet in length at the mid-point AND either end or have a turning lane (non-signalized) to provide for parking a service vehicle and trailer. A mid-point open area should be provided for each additional 1000 feet of street median island.
- A low curb, no greater than 4 inches in height, should be provided for service vehicles to safely enter/exit landscaped areas.

Design Document Submittals

The City of Phoenix's Parks and Recreation Department recognized the importance in creating a standard or uniformity with the irrigation and the landscape designs. The goal is to provide documentation or a checklist to assist those involved in either reviewing, drafting or approving landscape and irrigation design for street landscape.

The Street Landscape Plans and Specifications Checklist provide several guidelines to help the staff reading a blueprint a comprehensive process. The checklist is comprised of three sections.

- irrigation system details
- landscape details
- construction document review process

The checklist provides specific details and identifies various components and items that are crucial to each part of the design. The reviewer has the ability to adjust the project plans to meet the specific needs related to the scope of work.

PARKS AND RECREATION DEPARTMENT
STREET LANDSCAPE PLANS AND SPECIFICATIONS CHECKLIST

AREA DESCRIPTION: _____ REVIEW DATE: _____

IRRIGATION SYSTEM DETAILS:

<u>ITEM:</u>	<u>APPROVED</u>	<u>CHANGED TO</u>
1. Backflow Prevention Units		
• Reduced Pressure Type	_____	_____
• Documentation of RPBP testing	_____	_____
• Meter Size	_____	_____
• B.F.P.U. Security Enclosure Assembly	_____	_____
2. Solenoid Valves		
• Brass	_____	_____
• Brass Y-Strainer	_____	_____
• Valve Box with Bolt Down Cover	_____	_____
• Control Wire - # 12	_____	_____
• Common Wire - # 12	_____	_____
• Six (6) Inches of Pea Gravel Base	_____	_____
• Christy ID Tag with Valve Station Number	_____	_____
• Stamp Station Number onto Valve Box Lid	_____	_____
• Brass Adjustable Pressure Regulator for Drip	_____	_____
3. Risers and Heads		
• 1 / 2 inch Schedule 80 Flex Hose Risers	_____	_____
• Pressure Compensation Heads	_____	_____
• Maximum Height – Two (2) Inches Above Grade Prior to Decomposed Granite	_____	_____
• Schedule 80 PVC Fittings and Nipples	_____	_____
4. Piping		
• Schedule 80 PVC Between Meter and Backflow Prevention Unit	_____	_____
• Schedule 80 PVC Between Valves and Backflow Prevention Unit	_____	_____
• Schedule 40 Sleeves for Irrigation Pipe and Control Wires under Streets and Driveways	_____	_____

- Schedule 40 or Class 200 Downstream of Valves _____
 - Installation Depth
 - Mainline - 18" _____
 - Lateral - 12" _____
5. Quick Coupler Valves
- Brass _____
 - Valve Box with Bolt Down Cover _____
 - Schedule 80 PVC Fittings and Nipples _____
 - Six (6) Inches of Pea Gravel Base or One Cubic Feet of Pea Gravel _____
 - #5 Rebar 30 inches length or _____
 - Copper Pipe with Horseshoe Design _____
6. Controllers location for Parks Projects should be in secure area or installed in stainless steel enclosure. Location for Street Projects should be in the median in stainless steel enclosure.
- **New Projects**
 - Calsence ET2000e _____
 - Hand Held Remote _____
 - GPRS Communications to Central _____
 - Paige P-7171D Communication Cable in Conduit _____
 - Stainless Steel Pedestal in Non-secure Locations _____
 - **In-House Projects**
 - Calsence ET2000e or _____
 - RainMaster Eagle Controller _____
 - RainMaster iCentral Communication Card _____
 - Stainless Steel Pedestal in Non-secure Locations _____
 - **Airport Projects**
 - RainMaster Central Control Evolution 2000 _____
 - RainMaster Wireless Remote _____
 - Stainless Steel Pedestal in Non-secure Locations _____

- Cabinets Set on Concrete Base _____
 - Cabinets Equipped with Circuit Breaker and
Three (3) Prong 110 Volt Outlet _____
7. Isolation Valves
- Ball Type Brass _____
 - Valve Box with Bolt Down Cover _____
 - Boxes to have Stainless Steel Hardware and Bolts _____
 - Schedule 80 PVC Fittings and Nipples _____
 - Six (6) Inches of Pea Gravel Base _____

LANDSCAPE DETAILS:

No spaghetti tubing to be used for district parks. Specialized areas (Sky Harbor International Airport) have the option to use spaghetti tubing.

1. Plant Materials
- Compatibility to Area _____
 - Trees _____
 - Shrubs _____
 - Groundcovers _____
 - Planting Depth _____
 - Soil Preparation _____
 - Planting Distance From Curbs and Walks _____
2. Tree Staking
- Type and Size of Stake – 8' or 10'
 - Douglas Fir/Redwood _____
 - Number of Stake Per Tree
 - Two for Single Trunk _____
 - Three or Four for Multi-Trunk _____
 - Two Ties Per Tree with 1 / 2 Inch Rubber Hose
and Annealed Double Strand 14 Gauge Wire _____
3. Tree Wells
- Bubblers Per Tree
 - Rainbird 1400 Pressure Compensated _____

- Additional bubbler(s) 5 feet from the original bubbler(s) to be use in the future. In accordance with the drip line of the tree _____
 - Drip Emitters _____
 - Bowsmith SL200 and ML _____
 - Two ML200 Per Tree _____
 - Decomposed Granite – Color, Size and Depth _____
4. Planting Swales
- Bubbler Location Per Shrubs and Trees at the outer edge of swale _____
 - Grade Per Shrubs or Trees _____
5. Top Dress Materials
- Decomposed Granite – Color, Size and Depth _____
 - River Run – Size and Depth _____

CONSTRUCTION DOCUMENT REVIEW PROCESS:

This process insures that the sprinklers are designed to maximize sprinkler efficiency and using the products we typically keep in our warehouses. The design process should not have one review with the entire system designed. There are typically 30%, 60%, 90%, and final review documents. Each of these phases should have a progression that will eventually lead to a complete design. Skipping steps will add time to the design.

- | | |
|------------|--|
| 30% Review | Main line routing, size of pipe
Sprinkler head locations (no piping in case of changes)
Water source location and size
Peak water demand calculations (Maximum GPM requirements)
Legend of products
Identify existing water source pressure (PSI) |
| 60% Review | Include all of the above
Remote control valve locations
Lateral line routing, pipe sizing |

Controller locations

Installation details

90% Review

Include all of the above

Remote control valve station numbering

Monthly schedule for controller programming (April – September)

If booster pump is required, include all information

100 % Review

All of the above for final approval

ADDITIONAL COMMENTS:

TRAILS

A functional network of urban trails is planned throughout the city that is multi-purpose, easily accessible and convenient, and connects parks, major open spaces, and village cores. There are two types of trails as described below:

Multi-Use Trails

- Decomposed granite trails intended to serve equestrians, pedestrians, and cyclists and are ADA accessible. They are generally 10' wide though there are some exceptions in older developments and/or in newer developments where space is limited. The trails are generally located within a 30' multi-use trail easement on privately owned land. Therefore maintenance is usually the responsibility of the land owners. City maintained trails of this type are generally located along canal banks and in some instances along major arterials (see Baseline Road from 40th St to 24th St).

Shared-Use Paths

- 8-10' wide concrete paths intended for pedestrians, bicyclists and are also ADA accessible. They are usually located within a public sidewalk easement on privately owned land. Many arterial streets throughout the city have 8' or wider sidewalks and this expanded width, by definition, makes them shared-use paths.

TRAILS

429.1 DEFINITION OF TERMS

- a. **Multi-Use Trail:** The City of Phoenix Trails Master Plan shows the planned locations for the citywide trail network. The Multi-Use Trail (MUT) needs to be constructed within a 30 foot public trail easement and is a Barrier Free Trail. This easement is exclusive from the PUE, trail and Landscaping. The MUT can occur in gentle topography or hilly locations where use is anticipated to be relatively heavy. Grades are generally easy to negotiate with a maximum sustained longitudinal slope of 5% (20:1) and a maximum cross slope of 2%. Tread width shall be a minimum of 10 feet with 2 foot shoulders, allowing pedestrian, bicycle and equestrian use along with the occasional maintenance vehicle. The MUT tread surface shall be compacted stabilized decomposed granite. All Multi-Use Trails shall meet or exceed the Americans with Disabilities Act (ADA) requirements.
- b. **Shared-Use Path:** The Shared-Use Path (SUP) is a non-equestrian pathway providing recreation and educational experiences. The path will generally occur in areas with easy to moderate topography up to 5% (20:1) slope for short distances. Tread width of 10 feet will allow side by side travel and the cross slope shall not exceed 2%. The tread conditions shall be concrete. All Shared-Use Paths shall meet or exceed the Americans with Disabilities Act (ADA) requirements.
- c. **Private Trails:** The Trails Master Plan does not regulate the locations of Private Trails (PT). Construction and maintenance of PT is the responsibility of the private development. Construction of PT should follow the MUT or SUP guidelines set forth in these specifications.

429.2 SPECIFICATIONS

A. MULTI-USE TRAIL

1. Trails shall be located within an exclusive 30 foot minimum public trail easement. This easement is exclusive for the PUE, trail and Landscaping unless modified by Development Services. Trails along an open space or wash corridors will be a minimum 25 foot public trail easement.
2. **Users:** Users are hikers, joggers, bicyclist, equestrians and the disabled.
3. **Grade:** Maximum sustained longitudinal grade 5% (20:1). The cross slope shall be 2% maximum.
4. The tread surface shall be a minimum of 10 feet wide with a 2-foot shoulder on each side. No shoulder will be required for the MUT in turf area. Trail shall allow for side-by-side travel and ease of passing by horses and bicycles. Tread conditions must provide an adequate walking or riding surface free of obstacles or hazards.
5. **Vegetation Clearance and Removal:**
 - a. **Horizontal width:** 2-feet measured from the edge of the tread surface.
 - b. **Vertical Height Clearance:** 10-foot minimum as measured from the tread surface.
 - c. Dead vegetation will remain in place unless considered a hazard or obstruction. Cut and remove all downed limbs including saguaro cactus. Tree and brush cuttings, broken limbs and other vegetative debris, exclusive of leaves, shall be

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removed from the trail easement, right of way or landscape setback and disposed of.

6. Spiny and Poisonous Plants:

- a. Spiny plants such as cacti, cats claw, desert spoon etc., shall not be planted or allowed to grow within 10 feet of the MUT.
- b. Poisonous plants like Nerium oleander or Sophora secundiflora etc., shall not be planted or allowed to grow within 10 feet of the MUT.

7. Surface Treatment:

- a. The SUP surface shall be ¼" minus decomposed granite, 3" depth, compacted and stabilized the full 3 inch depth. The sub-grade shall be 90% compacted. The decomposed granite shall be a contrasting color from the surrounding surface.
- b. MUT shall have 6"x8" concrete headers on each side when located in turf.
- c. When concrete headers are used at the trail edge the concrete shall meet or exceed MAG Standards.

8. Path Locations:

- a. Public MUT/SUP shall not be placed in retention basins, drainage ways, and channels or in naturally occurring or man made washes, unless otherwise approved by the City.
- b. There shall be a minimum 5-foot horizontal clearance between sidewalks and trails and other obstacles i.e., fences, walls, utility boxes and other fixed objects. Safety Rails or ADA railing are the exception to this requirement.
- c. Where the trail surface ties into another hardscape surface material i.e., sidewalk or curb, the trail shall meet and match the grade of the other surface.
- d. Trails shall feed directly into ADA ramps at all roads or driveway crossings.

9. Switchbacks:

- a. The inside radius of a trail switchback shall be a minimum of 5 feet. Longitudinal slopes shall not exceed 5% (20:1) and cross slopes shall be 2%. Any exceptions to be approved by the Parks and Recreation Dept.

B. SHARED-USE PATHWAY

- 1. Trails shall be located within 20 foot public trail/sidewalk easements.
- 2. Users: Users are hikers, joggers, bicyclist and the disabled.
- 3. Grade: Maximum sustained longitudinal grade 5% (20:1). The cross slope shall be 2% maximum.

March 3, 2004

4. The tread surface shall be a minimum of 10 feet wide. Pathway shall allow for side-by-side travel and ease of passing by pedestrians and bicycles. The tread conditions must provide an adequate walking surface free of obstacles or hazards.

5. Vegetation Clearance and Removal:

- a. Horizontal width: 2-feet measured from the edge of the tread surface.
- b. Vertical Height Clearance: 10 foot as measured from the tread surface.
- c. Dead vegetation will remain in place unless considered a hazard or obstruction. Cut and remove all downed limbs including saguaro cactus. Tree and brush cuttings, broken limbs and other vegetative debris shall be removed from the trail easement, right of way or landscape setback and disposed of.

6. Spiny and Poisonous Plants:

- a. Spiny plants such as cacti, cats claw, desert spoon etc., shall not be planted or allowed to grow within 10 feet of the SUP.

7. Surface Treatment:

- a. The SUP surface shall be concrete. The sub-grade shall be 90% compacted. Concrete shall meet or exceed MAG Standards.

8. Path Locations:

- a. SUP shall not be placed in retention basins, drainage ways, and channels or in naturally occurring or man made washes, unless otherwise approved.
- b. There shall be a minimum 5-foot horizontal clearance between sidewalks and trails and other obstacles i.e., fences, walls, utility boxes and other fixed objects.
- c. Where the pathway surface ties into another hardscape surface material i.e., sidewalk or curb, the trail shall meet and match the grade of the other surface.

9. Switchbacks:

- a. The inside radius of a pathway switchback shall be a minimum of 5 feet. Longitudinal slopes shall not exceed 5% (20:1) and cross slopes shall be 2%.

C. Grade Separated Crossing (Underpass for Pedestrian/Equestrian Usage)

- 1. When major trails cross under streets or roads, a pedestrian and/or equestrian cell (a barrel within a culvert) shall be provided for user safety.
- 2. The underpass/bridge shall have a minimum 10-foot vertical and 10-foot horizontal clearance.
- 3. Unobstructed sight lines shall be maintained.
- 4. Underpasses /bridges more than 50-foot in length shall be artificially lit to an average of 2 footcandles minimum.

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5. The underpass shall be connected to the MUT/SUP with a concrete tread surface, rough broom finished. The MUT shall receive a heavy broom finish to improve equestrian footing. The concrete shall meet or exceed MAG Standards.

SECTION 430

LANDSCAPING AND PLANTING

Section 430 LANDSCAPING AND PLANTING: Delete this section in its entirety and substitute the following:

430.1 DESCRIPTION:

This section shall govern the preparation and planting of landscape areas required in the Plans or Specifications. Materials shall be in accordance with Section 795.

Existing utilities and improvements not designated for removal shall be protected in place. The Contractor, at no additional cost to the Contracting Agency, will repair any damages.

Unless otherwise provided, walls, curbs, planter boxes, irrigation systems, and other improvements shall be constructed after rough grading has been completed and prior to finish grading.

430.2 GENERAL:

Furnish all labor, materials, equipment, and incidental needs to install the landscape to the drawings, details and specifications shown in the plans.

Applicable publications listed below form a part of this specification to the extent referenced:

Arizona Nursery Association Growers Committee Recommended Tree Specification (latest edition)

American Society for Testing and Materials

(ASTM) C136, Standard method for sieve analysis of fine and coarse grained aggregates;

(ASTM) F1632, Test methods for particle size analysis and sand grading of golf course greens and sports field rootzone mixes;

(ASTM) D2974 Method B, Test moisture, ash, and organic matter of peat and other organic soils;

(ASTM) F1647; Test methods for organic matter content of golf course greens and sports turf root zone mixes.

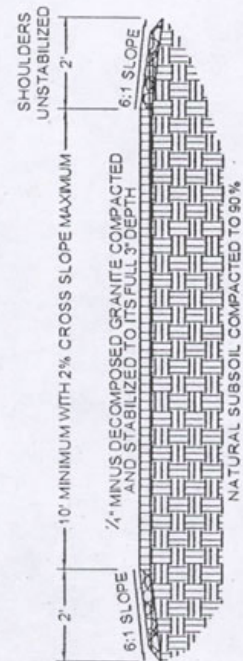
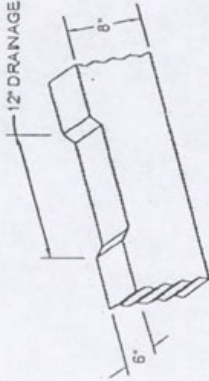
All landscaping and irrigation work shall be installed by a contractor licensed to perform this specialty work.

Perform work in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work and 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.

430.2.1 Source Quality Control: Ship materials with Certificate Of Inspection required by governing authorities.

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NOTCH 1" DEEP WITH 45°
CUT (TYP.) AS NEEDED
TO PROVIDE DRAINAGE



NOT TO SCALE

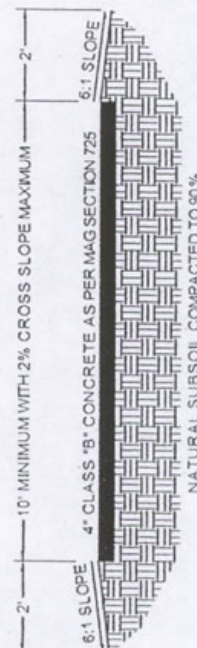
MULTI-USE TRAIL IN DECOMPOSED GRANITE



NOT TO SCALE

MULTI-USE TRAIL IN TURF

- NOTES:
1. NO RUNNING SLOPE SHALL EXCEED 5%. IF RUNNING SLOPE EXCEEDS 5%, TRAIL MUST CONFORM TO AMERICANS WITH DISABILITIES ACT GUIDELINES.
 2. TRAILS WILL NOT EXCEED 8% SLOPES. SLOPES 5-8% NOT TO EXCEED 30' DISTANCE WITHOUT S'LANDING. REFER TO U.S. DEPARTMENT OF JUSTICE WEBSITE FOR MORE INFORMATION.
 3. SHARED-USE PATH WILL FOLLOW P1230 SIDEWALK DETAILS & SPECIFICATIONS FOR CONCRETE SIDEWALK.
 4. MULTI-USE TRAIL TO BE LOCATED WITH AN EXCLUSIVE MINIMUM 30' PUBLIC MULTI-USE TRAIL EASEMENT THAT MAY INCLUDE A PUE.
 5. SHARED-USE PATH TO BE LOCATED WITHIN A 20' PUBLIC SIDEWALK EASEMENT.
 6. MULTI-USE TRAILS AND SHARED-USE PATHS LOCATED WITHIN OR ADJACENT TO OPEN SPACE OR WASH CORRIDORS WILL BE LOCATED WITHIN A MINIMUM 25' PUBLIC TRAIL EASEMENT.



NOT TO SCALE

SHARED USE PATH

DETAIL NO.
P1130

City of Phoenix
STANDARD DETAIL

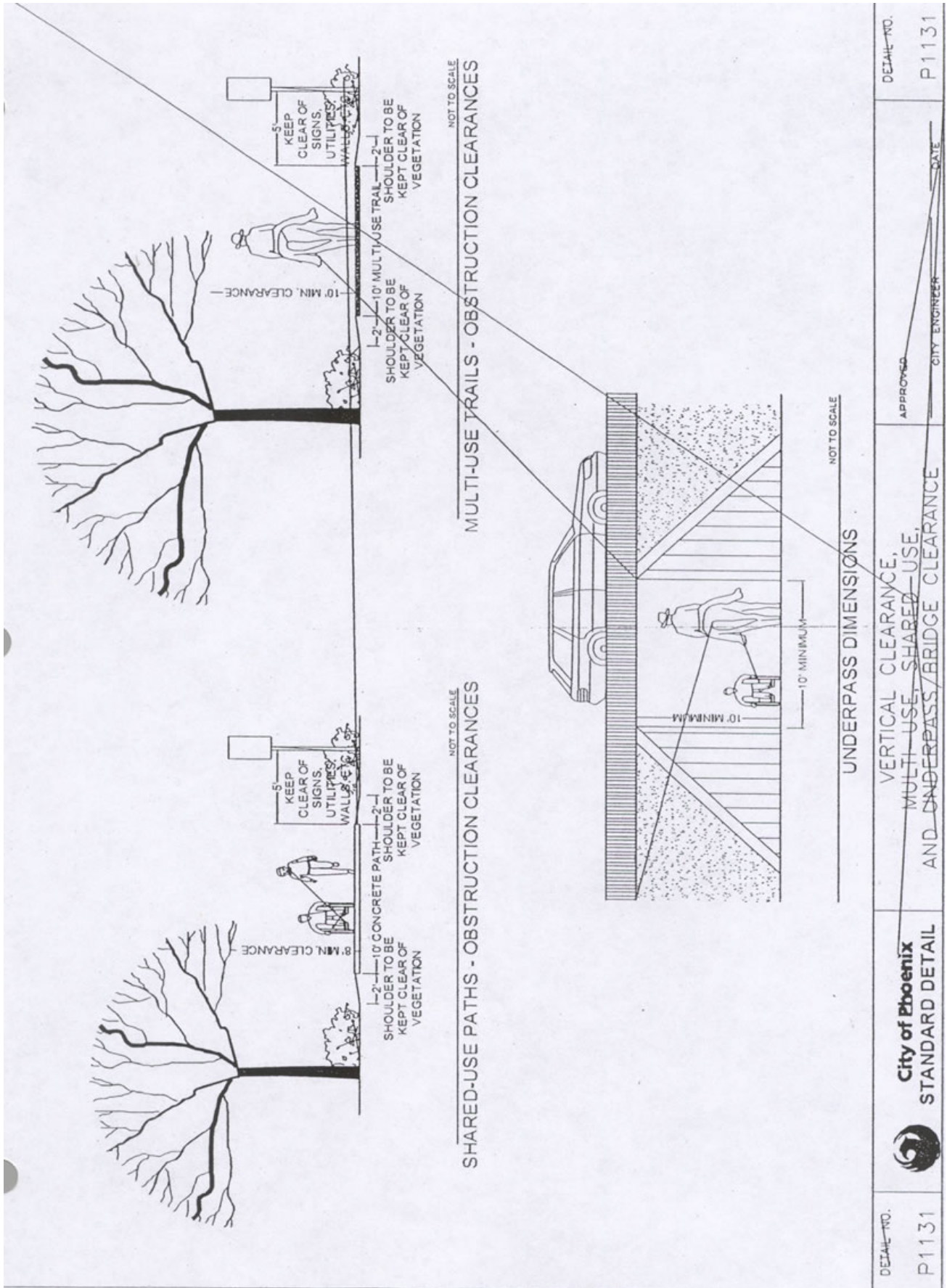
MULTI-USE TRAILS
AND SHARED-USE PATHS


APPROVED

CITY ENGINEER

DATE

DETAIL NO.
P1130



DETAIL NO. P1131	 City of Phoenix STANDARD DETAIL	APPROVED _____ CITY ENGINEER	DATE _____	DETAIL NO. P1131
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STAFFING AND EQUIPMENT

The Purpose of the City of Phoenix Parks and Recreation Department is to deliver a high level of service in regards to Street Landscape care and maintenance. The goals in establishing staffing levels and equipment needs are:

- To protect the public and employee's health and safety
- To maintain and enhance community spirit
- Improve the quality of the overall street landscape maintenance and material.
- To meet citizen expectations
- To recognize the PPRD as the professional organization that it is

The establishment of tasks and frequencies is critical in reaching the established goals. During the process the committee has taken under consideration a number variables and studies to determined the overall staffing level, equipment needs, and standardization of street landscape measurement. Critical findings were also extracted from the **1989 Street Landscaping Identification, Measurement, and Maintenance Manual**.

LEVELS OF SERVICE

The level of service is the amount of time dedicated to maintenance tasks. The following section will detail the various service levels and define "High", "Normal", and "Basic" levels to provide a bench mark for the type of service level achieved.

High Level of Service: This is the desirable standard for the department. However this is not the current level of service. This is pro-active level of service:

- Citizen complaints are infrequent
- Visual obstructions and hazards are non-existent during working hours.
- Areas are free of trash, weeds, and dead or stressed plant material on a daily basis.
- There is no substantial loss of water during working hours.
- Frequency would be weekly, and response time to complaints would be within a 24 hr minimum.
- Visually appealing and "I manicured" in presentation.

Normal Level of Service: This is below the standard for the Parks and Recreation Department. This level of service would sustain plant life:

- Citizen complaints increased
- Visual obstructions are responded to in 2-4 days
- Minor debris would be removed during normal litter removal as scheduled
- Water loss is increased
- Frequency would be beyond 14 days
- Presentation of landscape is not manicured and is less visually pleasing

Basic Level of Service: This is the least desirable standard and unacceptable to the Parks and Recreation Department. This level of service could be defined as a “reactive” mode:

- Citizen complaints will be frequent, and response and prioritization would be based on safety and liability
- Visual obstructions would be responded to as they were received and based on severity. (Obstructions having an adverse impact on pedestrian and vehicular traffic safety).
- Minor debris would be ignored and weed control would be handled as complaints were received
- Frequency would extend beyond 21 days.
- General aesthetics would be poor and plant material health would decline.

DESCRIPTION OF MAINTENANCE TASKS

Litter pick up and disposal: The removal of litter or debris. Performed on foot, this task is manually carried out by means of “park patrol” tool and plastic bag. Litter is hauled off the work site to nearest dumpster or landfill/transfer station. Glass, large pieces of highly visible materials, and trash compilations are the priority.

Irrigation inspection and repairs: Routine inspections of landscaped areas for water leaks, blow outs, or stressed plant material indicating a lack of water delivery. Staff shall inspect the irrigation controller for power and program monitoring on a weekly basis. Repairs to system performed by assigned staff may include but are not limited to; line repair, emitter replacement, valve repair, and electrical troubleshooting.

Rake and dress granite areas: The manual removal of leaves, trimmings, debris and maintaining the over all quality of clean and level granite areas. This would include corrections to wash-out areas, erosion, and the dressing of areas void of appropriate granite coverage

Weed Control-herbicide applications: The application of pre and post-emergent herbicide to landscaped areas to sustain weed control. Typically, pre-emergent application is seasonal, during the rainy seasons. Post emergent herbicide is applied on an as-needed basis depending on climate conditions and existing conditions. All chemical applications must be carried out by certified applicators following label specifications for each product.

Pruning trees: Encourages the proper growth and overall health of the trees in the street landscaped areas. This includes the removal of dead, crossing or unnecessary branches, and suckers, maintaining a minimum height of 8’ for pedestrian clearance. Trees shall be aesthetically pleasing and not present a visual or physical obstruction.

Maintaining shrubs and groundcover: Tasks will vary from selective pruning to hedging, depending on plant variety and location. Shrub height not to exceed 30” within 75’ of an intersecting street or drive and at no time should create a visual or physical obstruction. Groundcover is to be maintained within the confines of an adjacent sidewalk and/or curbing.

Graffiti removal: The removal or reporting of graffiti within a 24 hr period. Assigned staff shall remove or mask graffiti not exceeding 10sq ft in area, and shall report larger graffiti to “Graffiti Busters” for expedient abatement.

Cleaning tree wells: Removal of trash, leaves, debris, or weeds from designated tree wells. Swale integrity shall be sustained and volunteers and suckers removed as needed.

Cleaning sidewalks: Keeping the sidewalks free of glass, granite, and other debris or obstructions to prevent accidents or injury. Damages to sidewalks including cracking and buckling shall be reported to the Foreman immediately for forwarding to Street Transportation division for repairs.

Insect control and insecticide applications: Visual inspection of assigned areas for nuisance insects. As a primary target, ants are often prevalent and require the application of Amdro granuals. Other insects would include but not be limited to; bees, mites, beetle bores and termites.

Trail raking and repairs: Keeping the designated trails free of weeds and debris by manual patrolling, raking, and herbicide application. Caution must be used to compacted granite areas, with emphasis on sustaining the integrity of the sub-grade and granite pathway. This would include repairs to ruts, wash-outs, and erosion areas. Trails must remain clear of physical obstructions at all times.

Storm Damage: Provide clean up measures to areas that have been damaged to include tree removal or restaking, shrub removal, erosion repairs to landscape areas and /or trails, removal of soils and decomposed granite from sidewalks and raking up and disposal of plant material debris from landscaped areas, sidewalks sand trails.

Frequency Based on Level of Service

Task	High	Normal	Basic
Litter pick up and disposal	Daily	Week – 2	Week - 3
Irrigation inspection and repairs	Daily	W – 2	W - 3
Rake and dress granite areas	Daily	W – 2	W - 3
Weed Control-herbicide applications & Manual Removal	Daily	W – 2	W - 3
Pruning trees	Weekly	Monthly	M - 2
Maintaining shrubs and groundcovers	Weekly	Monthly	M - 2
Graffiti removal	As needed	W – 2	W – 3
Cleaning tree wells	Daily	W – 2	W – 3
Cleaning sidewalks	Daily	W – 2	W - 3
Insect control insecticide applications	As Needed	W – 2	W – 3
Trail raking and repairs	Daily	W – 2	W – 3
Storm Damage	As Needed	As Needed	As Needed

STAFFING LEVEL

The Street Landscape Standards committee sets a standard of 1 employee per every 5 acres of street landscaping. Currently there are 1,145.21 acres of street landscaping in the city of Phoenix being maintained by Parks and Recreation Department personnel. Of those acres, 960.21 are located in the 5 districts. Eighty-two FTEs of assigned personnel in the 5 districts are each maintaining an average of 11.71 acres of street landscaping. At Sky Harbor Airport, 19 personnel are maintaining 185 acres of street landscaping for an average of 1 FTE per every 9.74 acres. These ratios, and the current 21 day frequency turn around determined by the Budget and Research Department, reflect a Basic Level of Service. That level of service is totally unacceptable in the future. As the purpose and goals in this section state, the department believes that a High Level of Service is required on street landscaping.

The standard of 1 employee per every 5 acres of street landscaping, designed and constructed as recommended in this manual, will allow the Parks and Recreation Department to significantly improve maintenance and operations services on all new street landscaping and put us in the position to meet the required High Level of Service. The 1 employee per every 5 acres approximates the ratio used by the department budget staff in the preparation of the 2006-07

fiscal year budget. Five acres of street landscaping is typically very linear and will cover several miles. That significant factor, as well as the many maintenance functions that must be performed on a daily basis and the quality of work expected of those assigned employees equates to smaller, more manageable areas to maintain.

POSITION CLASSIFICATION

The standard position classification for one FTE per every 5 acres of street landscaping is the Gardener Sprinkler Assigned (see job descriptions). An employee in the classification is trained and capable of performing all of the maintenance tasks identified in the maintenance of street landscaping. Along with the many skills required to perform quality work in the position, every Gardener Sprinkler Assigned is required to be licensed to apply pesticides by the Arizona Structural Pest Control Commission.

FTE

A **FTE** (full-time equivalent) is 260 working days or 2080 working hours annually (40 hrs a week).

There are two types of loss on work time:

- Vacation,
- Sick leave,
- Holidays,
- Personal days
- Inclement weather

The second is loss of part of the work day

- Meetings,
- Preparation in the yard,
- Travel to work site,
- equipment failures,
- tool and material shortages.

EQUIPMENT REQUIRED

Pick Up Truck, ¾ ton, service body

- Secure chemical storage areas
- Secure tool storage areas
- Storage for sprinkler parts
- arrow board
- radio and outside speaker,
- military/pentel hitch,
- trailer harness wiring,
- emergency lights and
- water cooler frame.
- Pipe racks -

Trailer - two axle

- 3 foot high
- auto cover,
- dump trailer
- electric break system
- manufactured requirements for the weight capacity



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Job Description

GARDENER

JOB CODE 40080

Effective Date:	02/96 A
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DISTINGUISHING FEATURES OF THE CLASS:

The fundamental reason this classification exists is to perform skilled maintenance of parks, gardens, nursery, or other landscaped areas. Some positions exercise lead responsibilities over unskilled or semi-skilled employees. The skill in the application of herbicides and insecticides and the ability to plant, transplant, fertilize, irrigate, cultivate and prune trees, shrubs, and plants differentiate this class from the Groundskeeper. Gardeners work under the general supervision of a Parks Foreman I.

ESSENTIAL FUNCTIONS:

- Plants, irrigates, cultivates, fertilizes and weeds gardens;
- Mixes soils, makes cuttings, transplants seedlings, trims hedges and stakes and prunes trees;
- Performs sprinkler system repair, maintenance and troubleshooting;
- Applies herbicides and insecticides;
- Digs ditches and holes;
- Demonstrates continuous effort to improve operations, decrease turnaround times, streamline work processes, and work cooperatively and jointly to provide quality seamless customer service.

Required Knowledge, Skills and Abilities:

Knowledge Of:

- Trees, plants, shrubs and lawns indigenous to Arizona and their care requirements.
- Gardening methods and tools.
- Herbicide and insecticide applications.
- Irrigation systems.

Ability To:

- Understand and follow oral and written instructions.

- Read and understand herbicide and insecticide warning labels and mix and apply them in accordance with safety standards.
- Repair damaged trees and shrubs by pruning or chemical application.
- Use hand tools, such as pick, shovel, spade, rake or similar tools and power driven equipment such as hedge trimmers.
- Move debris, dirt, or other material from one place to another.
- Travel over rough, uneven, or rocky surfaces.
- Direct the work of others.
- Work in a variety of weather conditions with exposure to the elements.
- Learn job-related material primarily through oral instruction and observation which takes place mainly in an on-the-job training setting.
- Move objects weighing up to 50 pounds) short distances (20 feet or less).
- Bend or stoop repeatedly over time.
- Work with cleaning fluids, chemicals, pesticides, insecticides, paints, cleaning agents or similar solutions using only normal protective equipment.
- Work cooperatively with other City employees and the general public.
- Work safely without presenting a direct threat to self or others.

Additional Requirements:

- Some positions require the use of personal or City vehicles on City business. Individuals must be physically capable of operating the vehicles safely, possess a valid driver's license and have an acceptable driving record. In addition, individuals may be required to pass an Arizona Department of Transportation physical exam and possess the appropriate commercial driver's license. Use of a personal vehicle for City business will be prohibited if the employee does not have personal insurance coverage.
- Requires State of Arizona Structural Pest Control Commission pesticide application certification at time of hire.
- Some positions will require the performance of other essential functions depending upon work location, assignment, or shift.

ACCEPTABLE EXPERIENCE AND TRAINING:

One year of experience in the care and maintenance of trees, plants, shrubs, and lawns. Other combinations of experience and education that meet the minimum requirements may be substituted.



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Job Description

GARDENER ASSIGN: SPRINKLER SYSTEM

JOB CODE 40082

Effective Date:	08/93X
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DISTINGUISHING FEATURES OF THE ASSIGNMENT:

The gardener on a sprinkler system assignment is responsible for maintaining a timer controlled sprinkler system. Typical duties include repairing or replacing sprinkler heads, valves, automatic timers, and solenoids. Other duties include servicing water pumps and filters; troubleshooting automatic systems; repairing broken sprinkler lines; operating small trenching machines; and tracking down and repairing water leaks and faulty wiring. Some positions require the incumbent to use electronic tracing devices.

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Last Modified on 09/10/2003 16:40:05

Final Acceptance Standards for New Street Landscaping Projects

The final acceptance and close out process is a vital element in establishing standards for street landscaping projects. It provides a reference in which Parks, Streets (or DSD) and the contractor can ensure the proper steps are taken for a smooth transfer of maintenance responsibility and billing of utilities. The process provides a mechanism to identify inconsistencies or deviations from standards or plan design which can be corrected, and outlines the expectations and responsibilities of all involved. It is the intent of this process to establish procedures to avoid miscommunication, loss or future expenses incurred by the City due to failure to follow plans, improper installation or inferior materials.

The following is an outline of standards and procedures for taking the acceptance of new street landscape projects.

Initial “Walk-Thru”

- Upon substantial completion of new street landscaped R.O.W. projects, an initial walk-thru must be performed to identify corrections to be made prior to final acceptance.
- The inspector in charge of overseeing the project shall make contact with the Parks district supervisor to schedule inspections with general and sub-contractors and Parks representative(s).
- Utility services must be active at the time of walk-thru and plans must be on hand for reference. It is deemed acceptable and it is preferred, that the electrical accounts be set up in the Parks Dept’s name.

Maintenance Period

- Upon completion of the initial “walk-thru”, Parks shall provide a punch list of items needing correcting to the project inspector.
- A maintenance period shall begin at the end of the initial walk-thru, with the time frame identified on the project plans.
- The contractor shall continue to maintain the project and make corrections to the punch-list items during this time frame.

Final Walk-Thru/Acceptance

- It shall be the inspector’s responsibility to schedule the final walk-thru for acceptance after the completion of the maintenance period and punch list item corrections.
- A final walk-thru shall be conducted to assure punch-list items have been corrected and that the irrigation system is fully functional throughout. Additionally, the following items must be provided to Parks at the final walk through;
- Completed “As-builds”
- Laminated irrigation schedule identifying valves with corresponding plant material and location.
- Account numbers for Water and Electrical services.
- Transfer of equipment or accessories identified in approved plans, such as irrigation hardware, handheld remotes, etc.
- Any documentation required by Parks to identify areas of responsibilities outside of Parks dept.
- Records of applied pre and post emergent herbicides, and backflow test records.

It should be noted that a project shall not be closed out or accepted until all of the above guidelines are met, upon which time a letter of final acceptance shall be generated and forwarded to the inspector from the Parks representative. Once a project is accepted, a New Maintenance Form shall be completed and forwarded to the Parks Supervisor for distribution to B&R and Parks Accounting division for utility account transfers. Copies of all corresponding documents, including the New Maintenance forms, shall be retained by the district.

Warranty

- The Warranty Period for plant material and workmanship to the irrigation system shall begin on the date of the initial walk-thru or “substantial completion” which is the start of the “Maintenance Period”. Typically, warranty periods are one year, but it should be noted that the minimum duration for the warranty period shall be 6 months. The warranty period should be specified on the blue prints. Parks shall forward all warranty related requests through the assigned inspector for correction before the end of the warranty period to avoid cost to the City.

New Maintenance Areas

- The New Maintenance and Programming Responsibility Form (see example) is the mechanism in which details of each new completed project are documented for staffing considerations, utility account transfers and reference information. The form is used for all categories of new maintenance responsibilities, including street landscaping. It identifies the specific location and billing address(es) for meter accounts, size of the project, tree and shrub counts, and the type of irrigation system. Additionally, it identifies the date the Parks and Recreation Department assumes final acceptance and the corresponding utility account numbers to be transferred from the contractor to Parks Accounting upon final acceptance.

The top page (white copy) of the completed and signed triplicate form shall be retained by the responsible district, along with other documentation such as field notes from inspections and walk-thru’s, and any other memos or agreements relevant to the project. This would include the final “Memo of Acceptance” addressed to Street Transportation or Developmental Services. The attached canary and pink copies are forwarded to Budget and Parks Accounting respectively.

Distribution

WHITE: District Office
CANARY: Budget Analyst
PINK: Parks Accounting

City Of Phoenix
Parks and Recreation Department

New Maintenance and/or Programming Responsibility

District:	_____
Location / Address:	_____ _____

Description, class, mode or programming responsibility.	_____ _____ _____ _____
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Quantity of Trees:	_____
Shrubs:	_____
Palms:	_____
Type of maintenance responsibility: (please check only one)	<input type="checkbox"/> Street Landscaping <input type="checkbox"/> Grounds Maintenance (Flatland Parks) <input type="checkbox"/> Maintenance - Mountain Preserves
(Acres for parks, medians - linear feet for strip landscaping)	Size of area: _____
Type of Irrigation:	_____
Is this irrigation automatic:	<input type="checkbox"/> No <input type="checkbox"/> Yes - Make of system: _____
Date maintenance is to begin:	_____

Utility transfer information	
Electrical Account Numbers:	_____ _____
Water Account Numbers:	_____ _____

Comments:	_____ _____
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Person Completing Form	Date	Division Head	Date
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ACCEPTABLE AND UNACCEPTABLE STREET LANDSCAPING

The pictures in this section provide visuals of street landscaping the committee recognized as either acceptable or unacceptable in reference to the standards established in this manual. Appearance, maintainability and safety for both the public and the department personnel working on the landscaping are paramount considerations in the design and installation of street landscape projects.

In the pictures depicting acceptable street landscaping:

- There is a consistency in the use of a mixture of drought tolerant deciduous and evergreen trees, shrubs and groundcovers.
- Plant material densities do not exceed 40 percent of the landscape areas, therefore allowing for good visibility for vehicular traffic and personnel working in the areas.
- Many of the areas provide safe zones in the landscaped area itself for the parking of maintenance vehicles and equipment.
- Where on-street parking is necessary, good visibility is provided for approaching traffic to see maintenance vehicles from a distance.
- The open aesthetic appearance of these landscaped areas is pleasant to the eye, and can be effectively managed and maintained with the appropriate amount of personnel to do so.

The pictures depicting unacceptable street landscaping present just the opposite;

- Planting densities are far too high
- Consistently, a lack of understanding of plant locations to each other at full growth is evident. If not maintained constantly, the plant material will simply grow together, leading to eventual removal of some trees and shrubs competing for the same space.
- Planting densities are far too high
- Visibility issues abound for both vehicular traffic and personnel attempting to maintain these areas.
- The safety of both was not a consideration during design and construction. High planting densities not only require more water to sustain, but create other problems as well.
- Street trash and debris are constantly trapped around and under closely planted shrubs and groundcovers and is hard to pick up. They are also difficult to work on individual plants as they grow into unrecognizable clumps.
- There are very few safe zones for maintenance vehicles and equipment to park in where they are out of harms way.
- A wall of plant material also does not allow for any depth of view with much lost in aesthetics to the person looking at it.

It is essential that the big three; I. Appearance, II. Maintainability III. Safety are the basic components in the design and installation of street landscape projects. The lack of any of the three will result in a less than desired end product.

Acceptable Street Landscaping



64th Ave. and Pyramid Peak Pkwy.

Ideal construction! Good spacing with a good variety of low growing/low maintenance plant material.



84th Ave. and Thomas Rd.

Good construction.
Plant material is well spaced and low maintenance. Plants are not blocking the view of traffic.



83rd Ave. and Thomas Rd.

Landscape median is well planted.
Median has low maintenance and well spaced plants.



2nd Ave. and Van Buren

This is another area, which the maintenance staff has access to curbside parking, without obtaining any street closure or detours.



7th Ave and Glenrosa

This area has convenient access to the Park maintenance vehicle as wide median to conduct work on.



9th Ave. and Monte Vista

Good area for maintenance vehicles to pull next to for easy access and safe for staff to work on, because of the wide median.



9th Ave. and Jackson

This area has easy access, to maintain the street landscaping. No street closure or barricading necessary. Maintenance vehicles can pull along curbside to conduct work.



Second Ave. and Fillmore

Area staff is able to maintain this area without a lane closure or traffic detours. Staff can pull curbside to conduct work projects.



Monroe and Second Ave.

Area in front of City of Phoenix Personal building. Vehicles have access to landscape areas without any traffic detours.



51st Ave. South of Buckeye Rd.

A better example of new landscaping. It is sparsely planted with low maintenance plant material and none along the multi-use trail



71st Ave. & Baseline Rd.

A better example of low maintenance and easy access. This median has a long left turn lane that can accommodate a truck and trailer and still have room for up to four cars to make a left turn



71st Ave. & Baseline Rd.

Same location showing sparsely planted median with plenty of room for every thing to grow and not obstruct the view from a side street.



99th Ave. & Lower Buckeye

Hopefully this is the new standard for our street landscaping.



99th Ave. & Lower Buckeye

The use of boulders negates the use of additional plant material and still makes the landscaping aesthetically pleasing to the eye.



99th Ave. & Lower Buckeye

This median located on 99th Avenue will be a challenge. This is to become a very busy major intersection and the only place to park a truck and trailer is on the north end of the median. Fortunately the choice of plant material might require 5 to 6 visits a year.



88th Ave. and Indian School Rd

Ideal construction. Well planted low growing and low maintenance and does not interfere with traffic



Chandler, Arizona

Their center median has low maintenance and low growing plant material.



16th St. and Northern

Triangle cacti, small boulders and granite.



3550 E. Stanford Rd.

Small boulders, 1/4 minus granite, and cacti good example on minimal plant material with good clean look.



2300 N. Lincoln Dr.

Good selection of plant material – low growing and well spaced. 3/8" minus granite is easy to maintain. Excellent visibility.



South Central Ave.

This is a recent renovation done by the Parks staff. The use of low growing desert shrubs and desert trees makes this median low maintenance and low water use.

Unacceptable Street Landscaping



61st Ave and Happy Valley Rd.

Two fatalities on this corner over the last two years. Need to refrain from planting large growth/high maintenance type plant material in areas impacting vehicular/pedestrian traffic.



Pyramid Peak and Blue Sky Dr.

Poor spacing and bad choice of plant material. Majority of strip/median landscaping is Brittle Bush, Bursage and Desert Marigolds.



19th Ave (Jomax to Happy Valley Rd.)

Poor selection in plant material. Both sides of sidewalk are lined with Fountain Grass, Bursage and Brittle Bush. Very high maintenance!



Happy Valley Rd and Skunk Creek Bridge

Landscape medians actually over-lap into the bridge area, creating a considerable safety hazard for routine maintenance and spray crews alike.



Bell Road (center and strip medians)

Large groupings of Cassias, Desert Ruellia, Texas Sage and Evergreen Elm trees. High maintenance, presents constant visibility issues.



73rd. Ave and McDowell Rd.

Poor selection in plant material. Both sides of the sidewalk are lined with Sweet Acacia and Palo Brea trees. Very high maintenance.



44th Street and Stanford

New screen wall, check this one out for bad. Its all brand new just took it over and the new trees are already encroaching the street also as trees mature will cause damage to the wall.



2nd Ave – Monroe to Fillmore

This is a newly planted area, that leads into the downtown area. A Calsense Controller has been installed. Being a new area, there were no cut outs for staff to pull off and do the maintenance or load safely. The palm trees will eventually drop their seedlings, leading to usual germination and will result in extensive work. There are plans in the making that will extend this area to Roosevelt.



Encanto Ovals 5th Ave. and 3rd Ave.

This area is in the Willow Neighborhood. The medians divide traffic going northbound on 3rd Ave. and south bound on 5th Ave. It is unacceptable, due to staff having to maintain the oval and not having an acceptable place to park or load the vehicle.



Thomas Rd. From 9th Ave. to 23rd Ave.

North and South sides of the street.
This area is near the Phoenix College campus and other business. There are citizens that express their concerns in this area, concerning visual obstructions. It is unacceptable, due to no pullouts for staff to maintain without a lane closure.



1st Ave. Bridge

This area is very difficult to maintain, due to the three tier design, and the transient population. Has to be maintained by obtaining a street lane closure.



Van Buren from 7th St. to 2nd St.

This areas shrubbery and irrigation is in desperate need of replacement. Highly visible, because of it's proximity to downtown areas and U of A Medical Building on the NWC of 7th St. and Van Buren. Lane closures must be called in, to trim and clean the area.



Grand Ave. from 7th Ave. to I-17

This area is populated with Sisso Trees, which are very vulnerable to wind damage during Monsoon or high wind storms. Shrubbery is also a problem for vehicles exiting at the corners in this area, causing many visual obstructions. There is no place for staff to pull off, so lane closures are necessary.



Baseline Rd. East of 32nd St.

Welcome to the Jungle! You have trees & shrubs on both sides of the sidewalk and both sides of the multi-use trail. This project was over planted and under staffed. Some of the plant material choices will be a nightmare for years to come.



Baseline Rd. East of 32nd St.

This picture was taken from a driveway. There shouldn't have been any trees or tall growing shrubs planted within thirty feet of driveways. This problem exists throughout the project.



Baseline Rd. East of 18th St.

This picture was taken from a left turn lane. As you can see you would need to stick your nose way out into on coming traffic to see if it was clear. The problem could have been eliminated a couple of ways. 1) No Trees. 2) Trees planted down the middle of the median instead of staggered on both sides



Baseline Rd. East of 18th St.

Another example of over planting. This is a short median without much room for a truck and trailer.



Baseline Rd. East of 18th St.

Another over planted short median with a twist. There is no room for a truck and trailer and would require either a lane closure or two fast moving workers.



South Central Ave.

Turf should never be planted in street landscaping. It is high maintenance and high water use. As is very common with older landscape Cassia's and Leucophyllum's were planted in center medians. These types of tall shrubs are high maintenance and create visual obstructions when trying to make left turns from side streets.



Central & Broadway

This is a very busy intersection with ruellia's planted in the center median. This shrub was never meant to be kept this low and if allowed to grow creates a hazardous trimming adventure. A ground cover or succulent would have been a better choice.

Street Landscape Tree Replacement Program

Quality street landscaping is a valuable component of a thriving and vibrant city. Properly designed, installed, and maintained, Street Landscaping adds identity, character, and value to neighborhoods and communities. The intent of streetscape tree replacement program is to develop a sustainable tree management program in the City of Phoenix. Trees require replacement due to various reasons including storm damage, vehicular accidents, disease, old age, and criminal damage. Street landscape tree replacements in combination with an active tree planting initiative will result in a net positive gain in tree inventory and help offset urban heat island issues, pollution, and soften street areas.

The City of Phoenix maintains 1145 acres of Street Landscape throughout the City and Sky Harbor International Airport. As part of the Streetscape sustainability initiative, trees would require replacement within a reasonable timeframe depending on the time of year and weather conditions. Small tree replacement projects can be completed by staff. For the larger planting projects, the most efficient means of tree replacement is to utilize city contracts to replant missing trees on an annual basis in the spring and fall. The contractor would be responsible for all applicable traffic barricading regulations according to the Streets Barricading Manual, any applicable traffic laws, and all utility locating through the Arizona Bluestake Center. City staff would be responsible for maintaining the replacement tree database to insure correct planting locations and accurate tree inventory, insuring the irrigation systems are functioning, and the selected tree species is correct for the site being planted.

References

1. Arizona Department of Water Resources, Low Water Use Drought Tolerant Plant List
2. City of Phoenix Development Services Department , Multi-Family and Non-Residential Landscape Plan Checklist
3. City of Phoenix Parks, Recreation and Library Department, Street Landscaping Identification, Measurement and Maintenance Staffing Determination Manual
4. City of Phoenix Street Transportation Department, Standard Irrigation Details
5. City of Phoenix Trails Master Plan

Acknowledgements

The following team of Phoenix Parks and Recreation Department staff have been instrumental in researching and gathering information and preparing many of the sections of this document. Their efforts have resulted in a Street Landscape Standards Manual that will be the basis for future street landscape design, staffing, operations and maintenance.

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