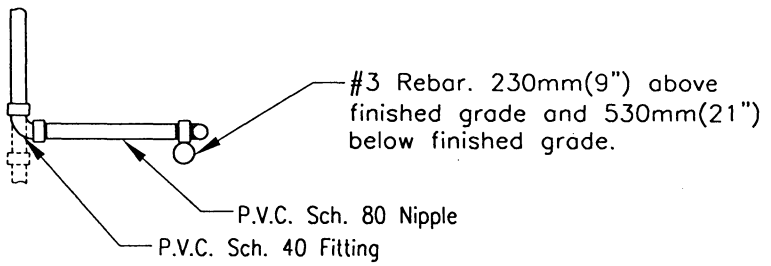
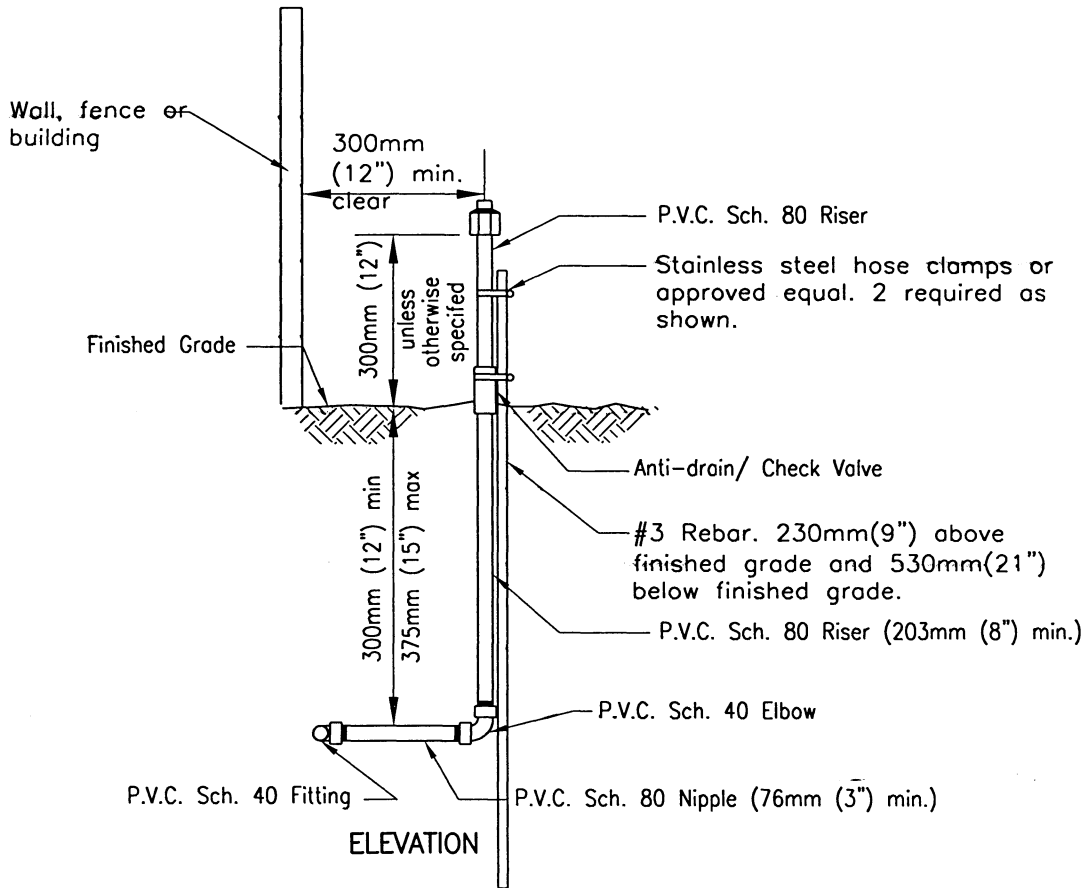


SPRINKLER IRRIGATION SYSTEMS



PLAN VIEW



ELEVATION

NOTES

1. Teflon tape, 19mm (3/4") wide, shall be used on all threaded connections.
2. Close nipples shall not be used.
3. No fixed risers allowed in public right-of-ways or adjacent to vehicular or pedestrian traffic, unless otherwise approved by agency.

LEGEND ON PLANS

Show a number to indicate type head

Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	03/04

SAN DIEGO REGIONAL STANDARD DRAWING

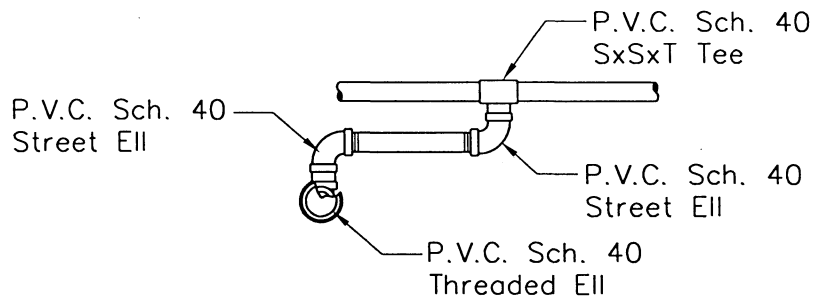
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 03-25-2004
Chairperson R.C.E. 19246 Date

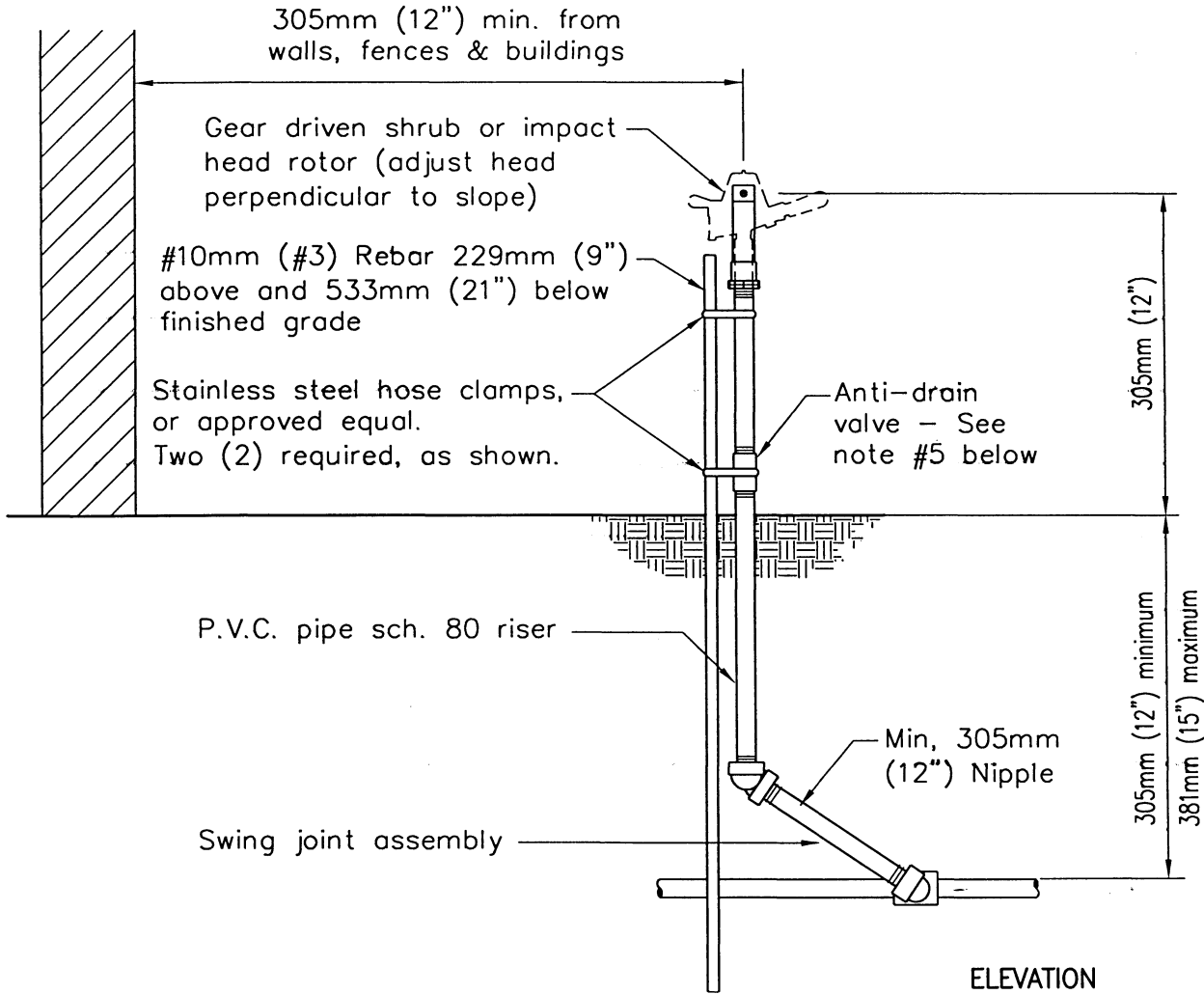
**SHRUB SPRAY HEAD
ON FIXED RISER**

DRAWING
NUMBER

1-1



PLAN




ELEVATION

NOTES

1. All fittings shall be P.V.C. Sch. 40 (except as noted).
2. All nipples shall be P.V.C. Sch. 80 (except as noted).
3. Teflon tape shall be used on all threaded connections.
4. Close nipples shall not be used.
5. Anti-drain valves shall be installed under all heads unless otherwise specified.
6. No fixed risers allowed in right-of-way or adjacent to vehicular or pedestrian traffic unless otherwise approved by agency.

LEGEND ON PLANS

Show a number to  indicate head type Or approved agency symbol.

Revision	By	Approved	Date
ORIGINAL		Parkinson	5/92
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	06/04

SAN DIEGO REGIONAL STANDARD DRAWING

ROTOR OR IMPACT HEAD
ON FIXED RISER

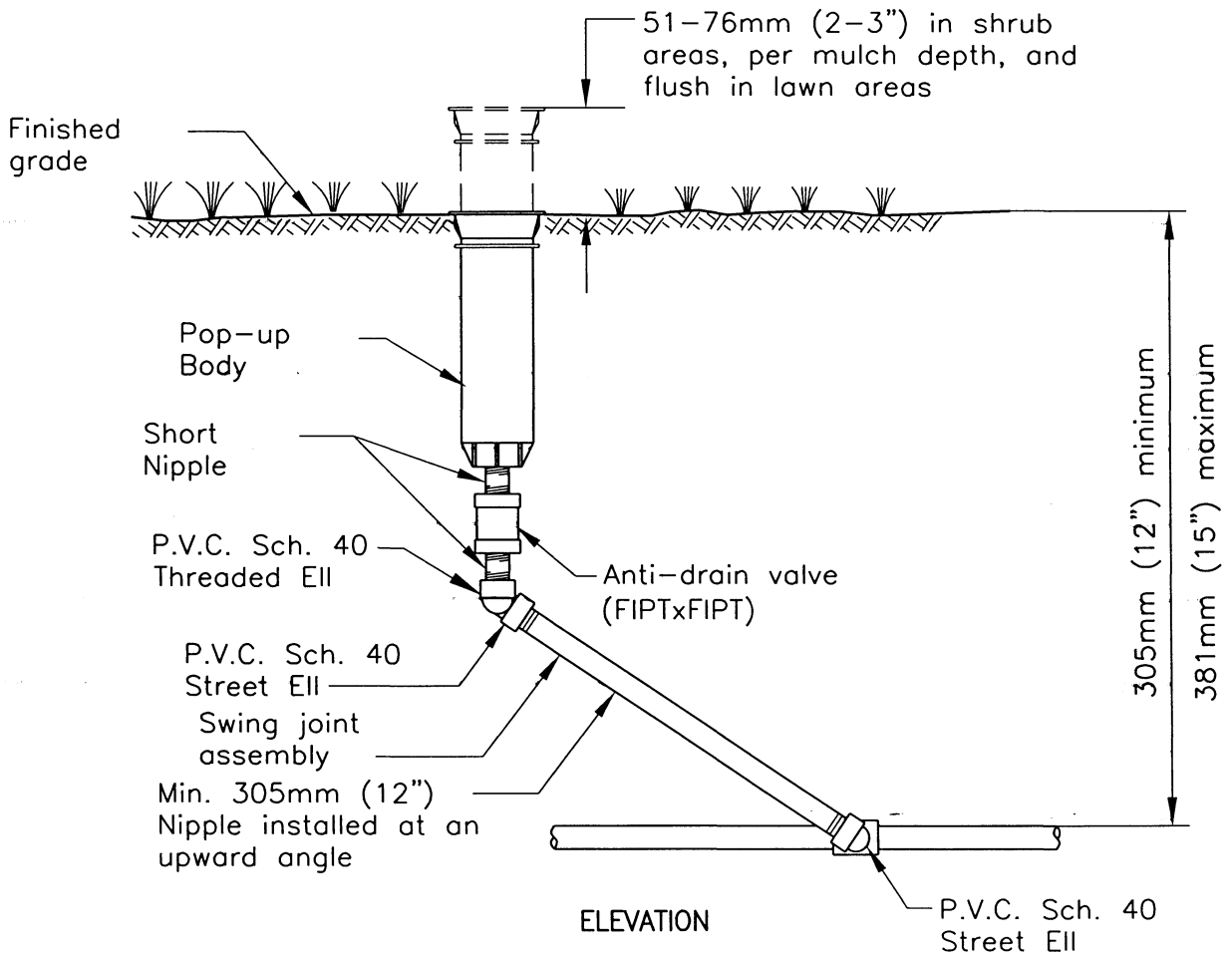
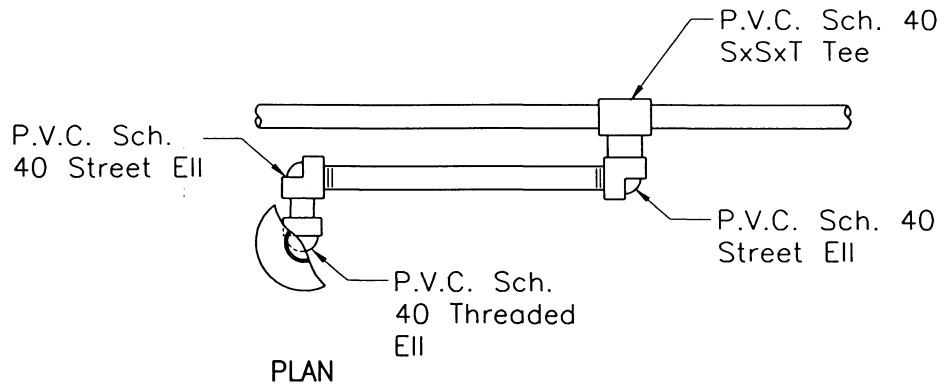
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

 06/24/2004

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

I-2



NOTES

1. All fittings shall be P.V.C. Schedule 40.
2. All nipples shall be P.V.C. Schedule 80.
3. Teflon tape shall be used on all threaded connections.
4. Close nipples shall not be used.
5. Lateral depth shall be 457mm (18") when 305mm (12") pop-up bodies are used.

LEGEND ON PLANS

Show a number to indicate type head or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Coro	06/04

SAN DIEGO REGIONAL STANDARD DRAWING

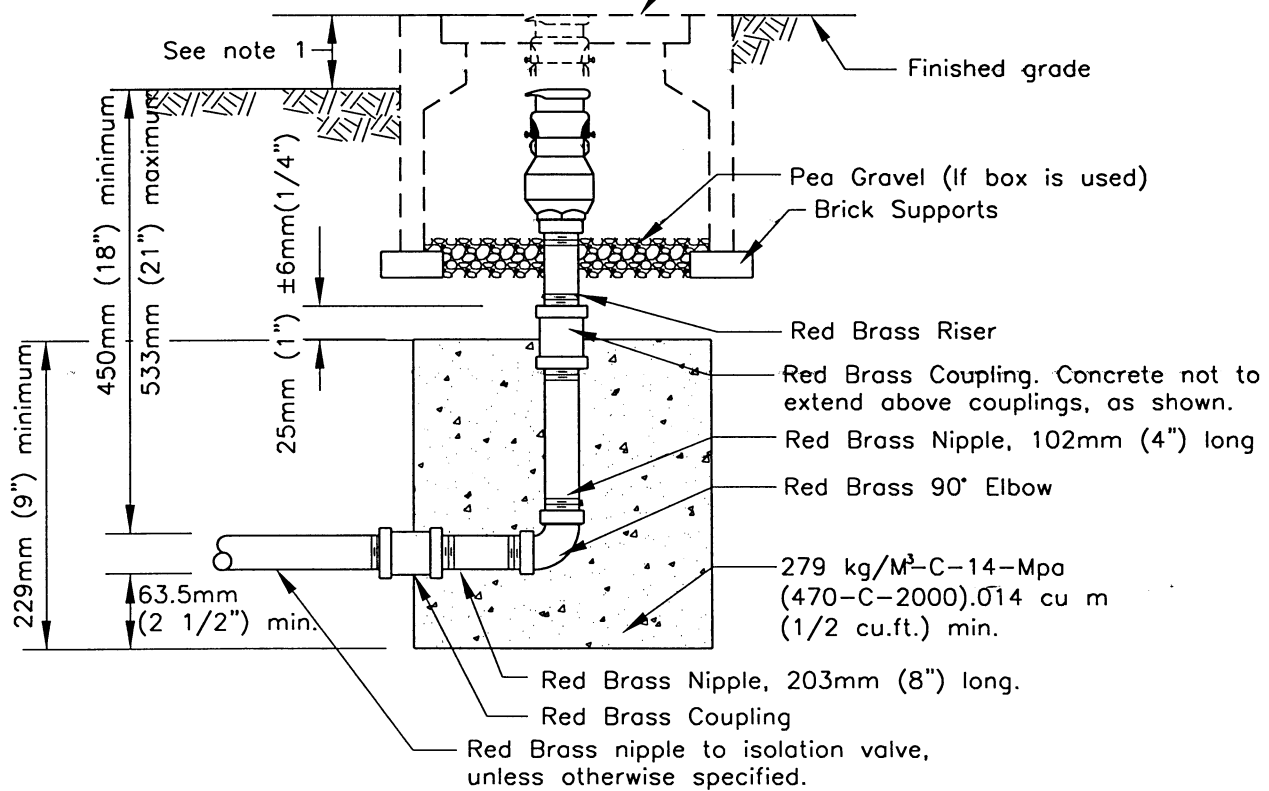
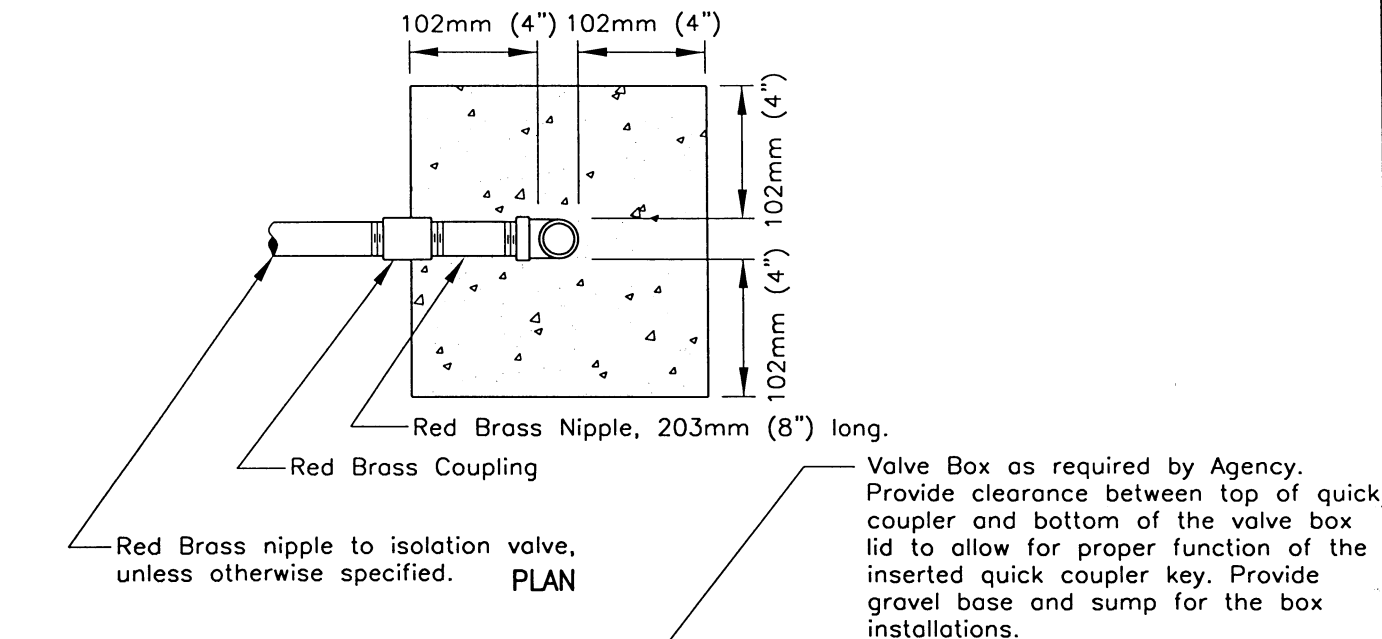
ROTOR OR SPRAY POP-UP HEAD

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 06/24/2004

Chairperson R.C.E. 19246 Date

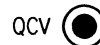
DRAWING NUMBER **I-3**



NOTES

1. Quick coupling valves or boxes shall be set flush in lawn and 51-76mm (2-3") above finish grade in shrub/ groundcover areas, per mulch depth
2. Dimensions of concrete anchors are minimum.
3. Close nipples shall not be used.
4. Provide appropriate key and swivel adapter as specified on plans.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	05/04

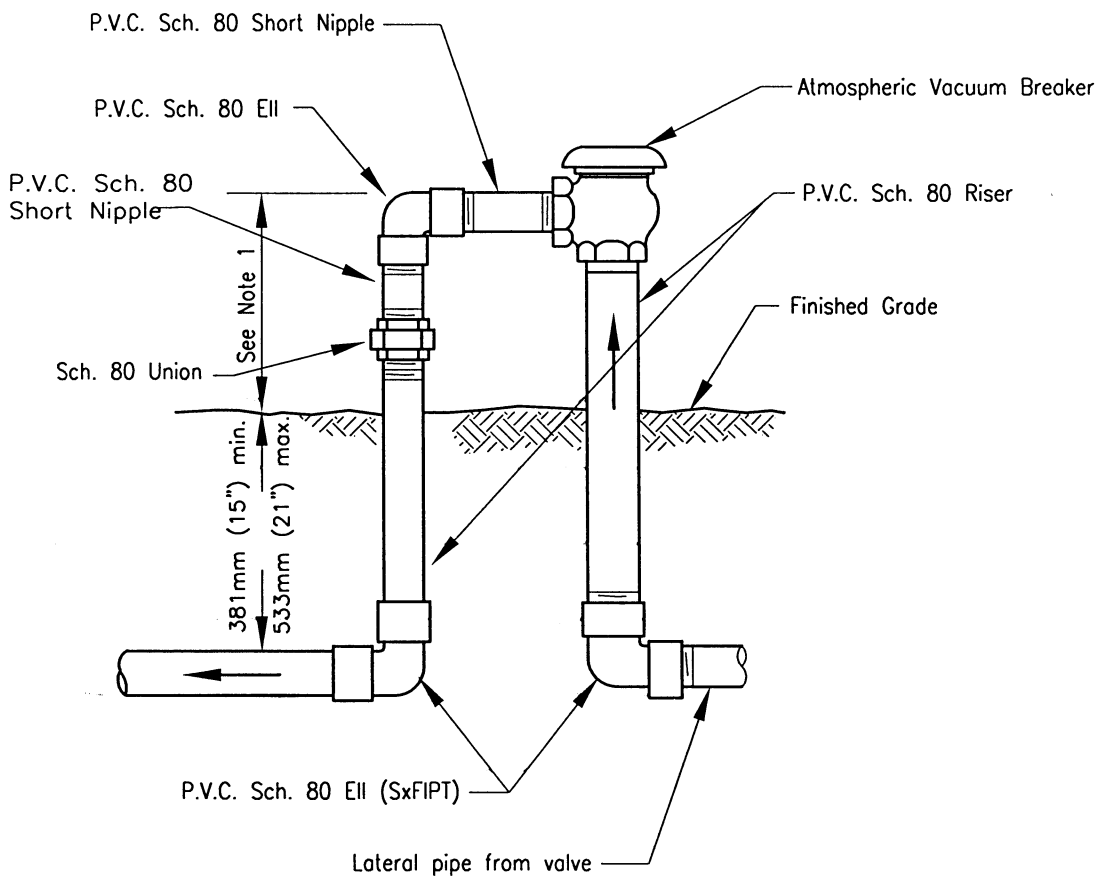
SAN DIEGO REGIONAL STANDARD DRAWING

QUICK COUPLING VALVE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 05-27-2004
Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-5**



NOTES

1. Atmospheric vacuum breakers shall be installed a minimum of 305mm (12") above the highest sprinkler head so that at no time will it be subjected to
2. back pressure or drainage.
3. Close nipples shall not be used.
4. Teflon tape shall be used on all threaded connections.
For use on lines 51mm (2") inches and smaller.

LEGEND ON PLANS



Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	02/05

SAN DIEGO REGIONAL STANDARD DRAWING

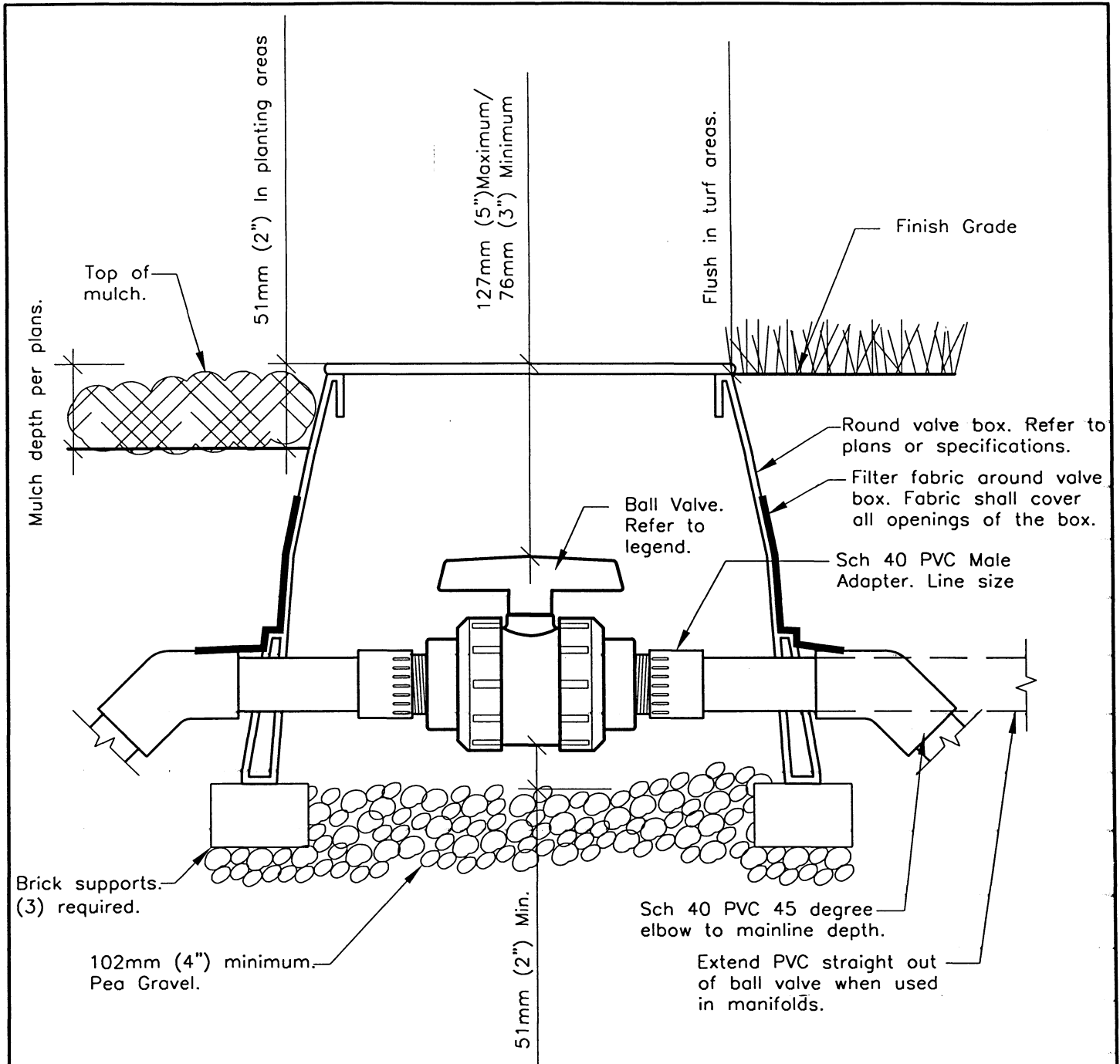
**ATMOSPHERIC VACUUM BREAKER
(50mm (2") & SMALLER)**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 02/24/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **1-7**



NOTES

1. Teflon tape, 19mm (3/4") wide, shall be used on all threaded connections.
2. Close nipples shall not be used.
3. All PVC Pipe used in manifold assemblies shall of the same class as specified for the mainline.
4. All plastic valve boxes shall be heat branded with the appropriate identification. Refer to plans and specifications.
5. Do not cut additional holes in valves boxes.
6. Add single unions on each side of valve when True Union ball valves are not used.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Coro	02/05

SAN DIEGO REGIONAL STANDARD DRAWING

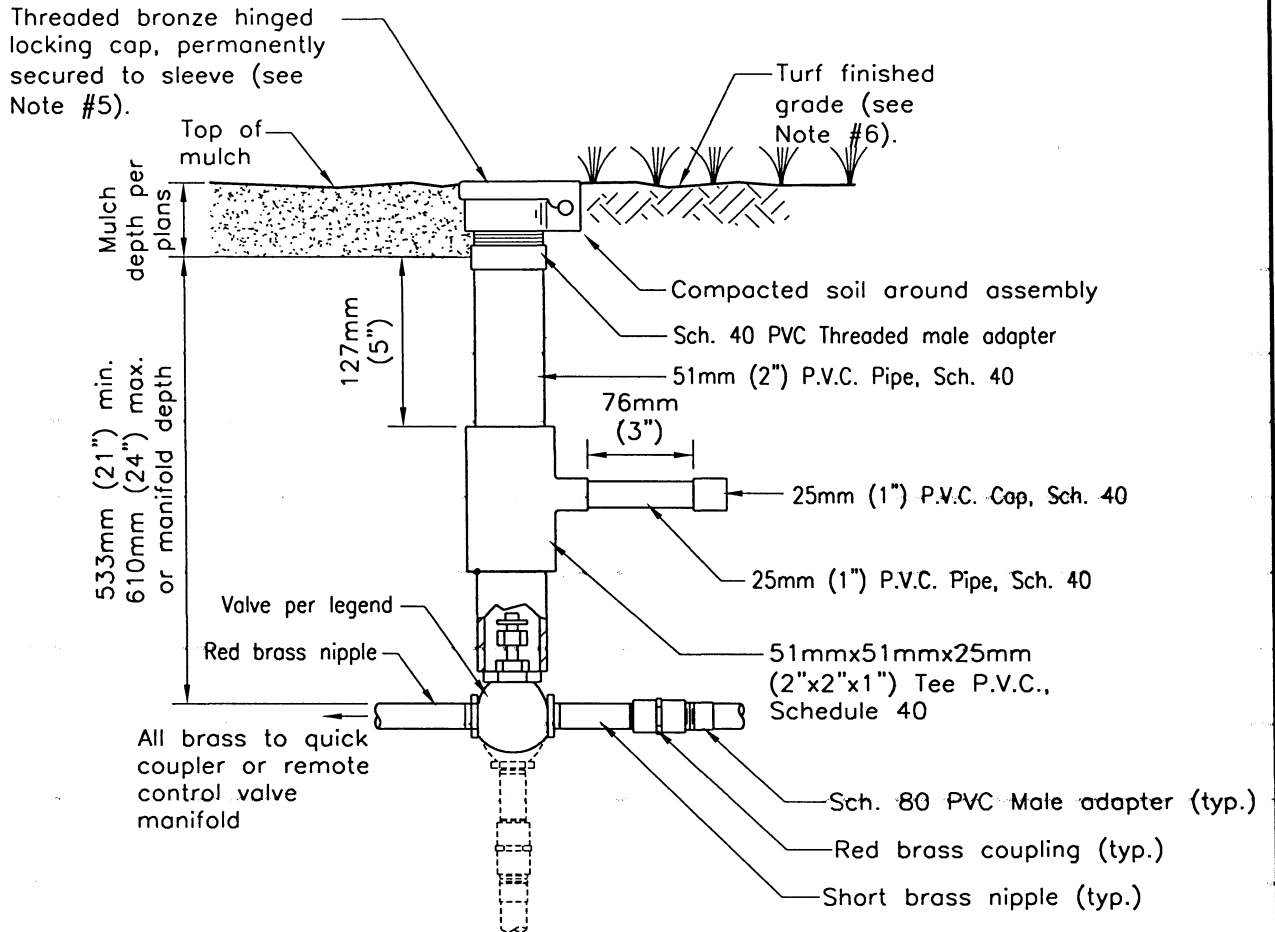
**ISOLATION BALL VALVE
50mm (2") AND SMALLER**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 02/24/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-11**



NOTES

1. All Globe Valves shall be furnished with a standard manual control valve bronze cross handle, centered in pipe sleeve.
2. All valves shall be installed within 305mm (12") of hardscape, unless otherwise shown on the plans.
3. All Globe Valves shall be furnished with a removable bonnet and packing gland nut.
4. Close Nipples shall not be used.
5. Locking cap shall be mounted flush with finish grade in turf areas and 51-76mm (2-3") above finish grade in shrub areas, per depth of mulch.
6. Locate outside of turf when possible.

LEGEND ON PLANS



GV

Revision	By	Approved	Date
ORIGINAL		A. Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Coro	02/05

SAN DIEGO REGIONAL STANDARD DRAWING

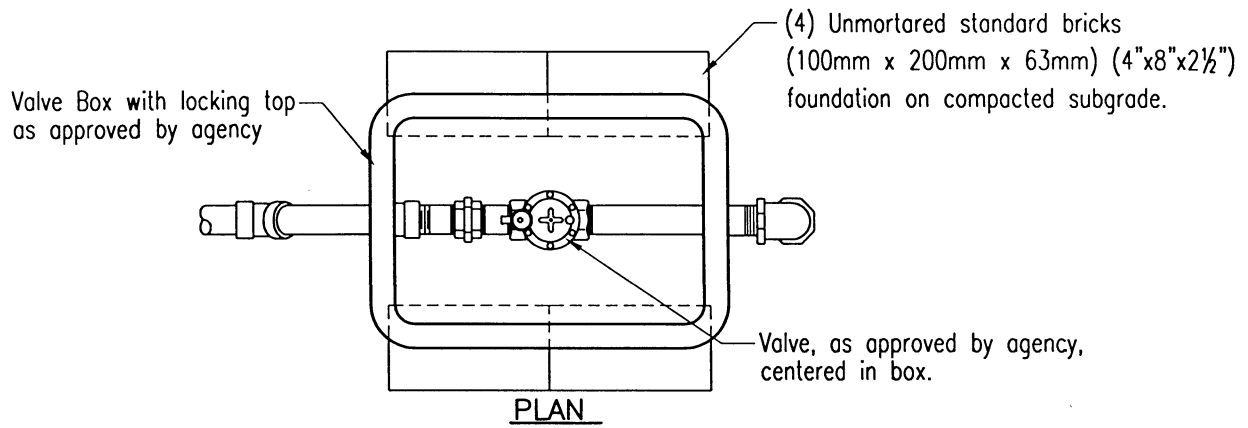
**ISOLATION GLOBE VALVE
50mm (2") AND SMALLER**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

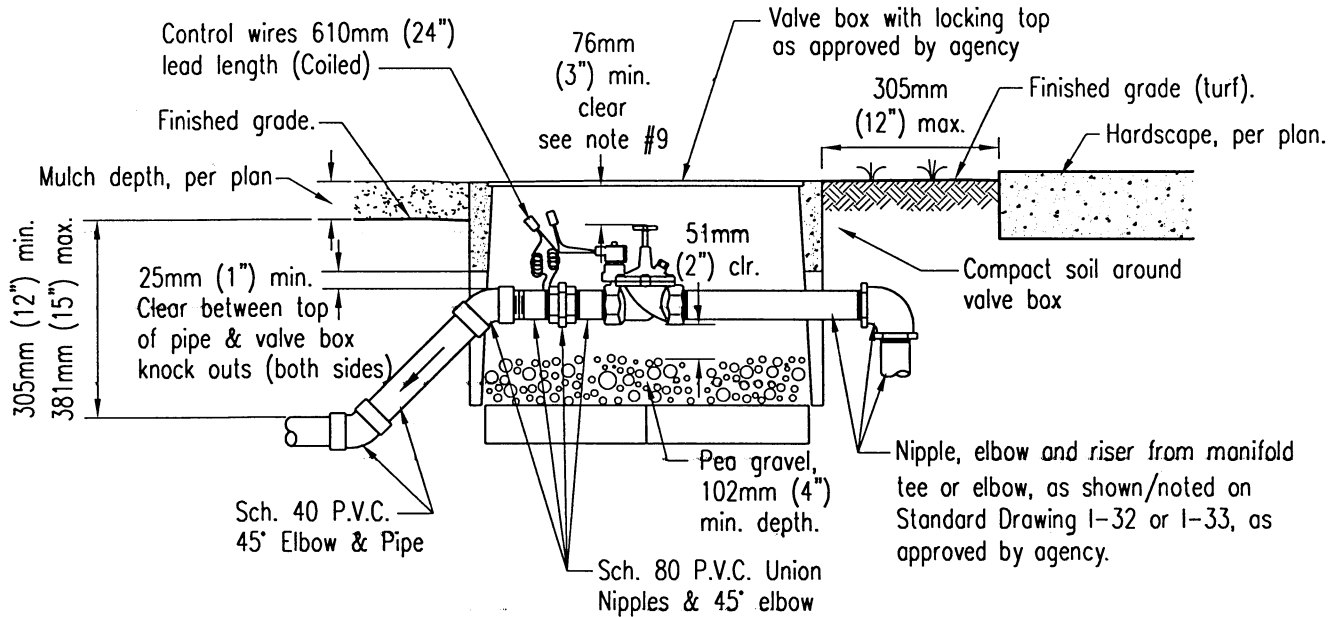
T. Stanton 02/24/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-13**



PLAN



ELEVATION

NOTES:

1. Splicing shall be made in valve boxes and pull boxes only. See Standard Drawing I-15 for splice/soldering notes.
2. All splices shall be made with a properly set mechanical splice connector entirely enclosed in self-curing resin and shall be completely water-proof.
3. Spare wires terminating in valve boxes shall have their ends insulated, the same as for a splice.
4. When two or more valves are installed in the same location, see Standard Drawing I-32 or I-33, per agency standards.
5. All valves shall be installed with a union on the downstream side of the valve. The union shall be Sch. 80 P.V.C.
6. Valve/controller identification shall be labeled on the valve box and tagged on the valve per agency requirements.
7. Knock outs shall not be enlarged unless approved by agency.
8. Install only one valve per box.
9. 76mm (3") min. clear from bottom of box lid to highest point of valve assembly.
10. Valve boxes shall be set perpendicular to hardscape, a max. 305mm (12") from edge of hardscape, 51-76mm (2-3") above finished grade in shrub/groundcover areas, per mulch depth. If necessary to be set in turf, valve boxes shall be set flush with finished grade.
11. Close nipples shall not be used.

LEGEND ON PLANS

▼ R.C.V

Or approved agency symbol.

Revision	By	Approved	Date
ORIGINAL		R.Munoz	3/97
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	04/05

SAN DIEGO REGIONAL STANDARD DRAWING

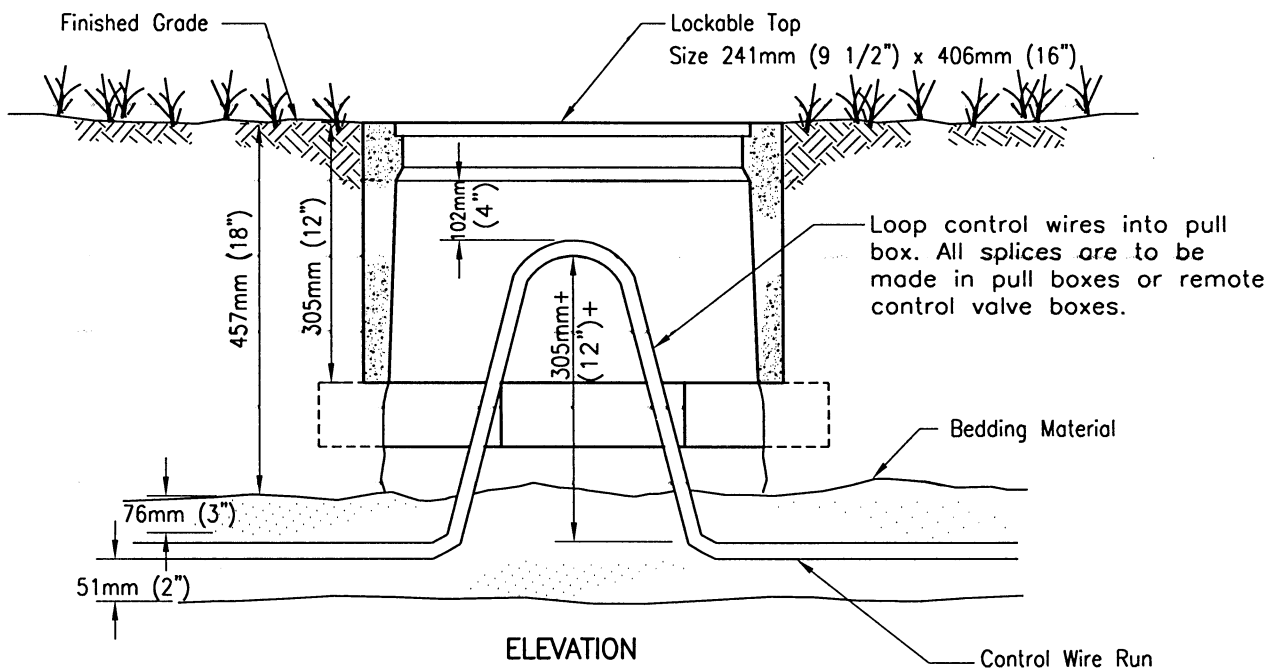
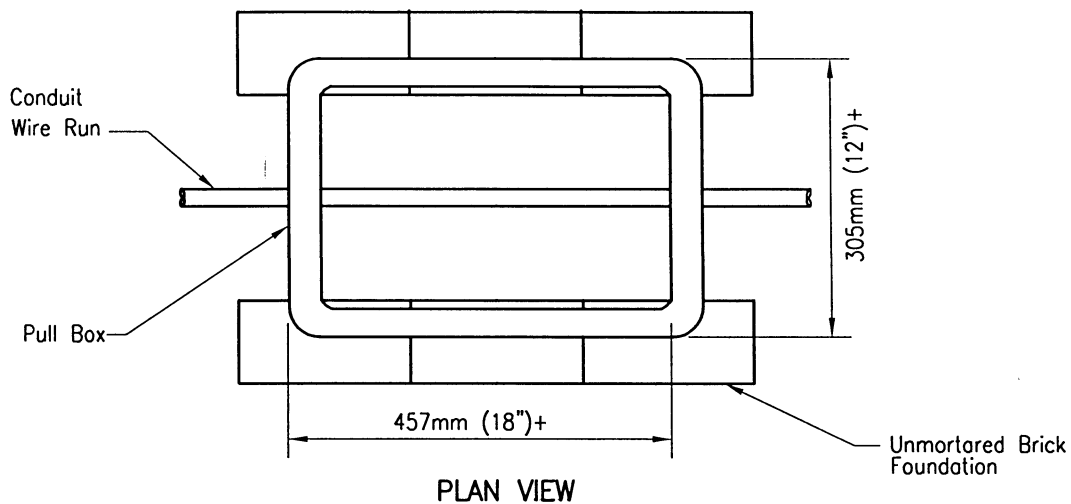
REMOTE CONTROL VALVE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 04/28/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-14**

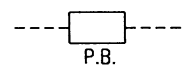


NOTES

1. Install pull boxes as shown on plans.
2. At junctions where runs combine, splice common ground in pull box.
3. Pull box cover shall be permanently marked "ELECTRIC".
4. Conductors for each controller clock shall be harnessed separately and at sufficient intervals to maintain a definite bundle.
5. All splices shall be made with a properly set mechanical splice connector entirely enclosed in self-curing resin and shall be completely water-proof.
6. All spare wire ends shall be insulated in the same manner as wire splices.
7. If specified, all splices shall be soldered with metallic alloy solder prior to
8. installing connectors.

Wire bundles inside pull boxes shall be at least 102mm (4") from the under side of the box cover. Minimum size pull box shall be as shown above. Larger boxes may be necessary to meet 102mm (4") clearance required.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		A. Kercheval	12/75
Add Metric		T. Stanton	03/03

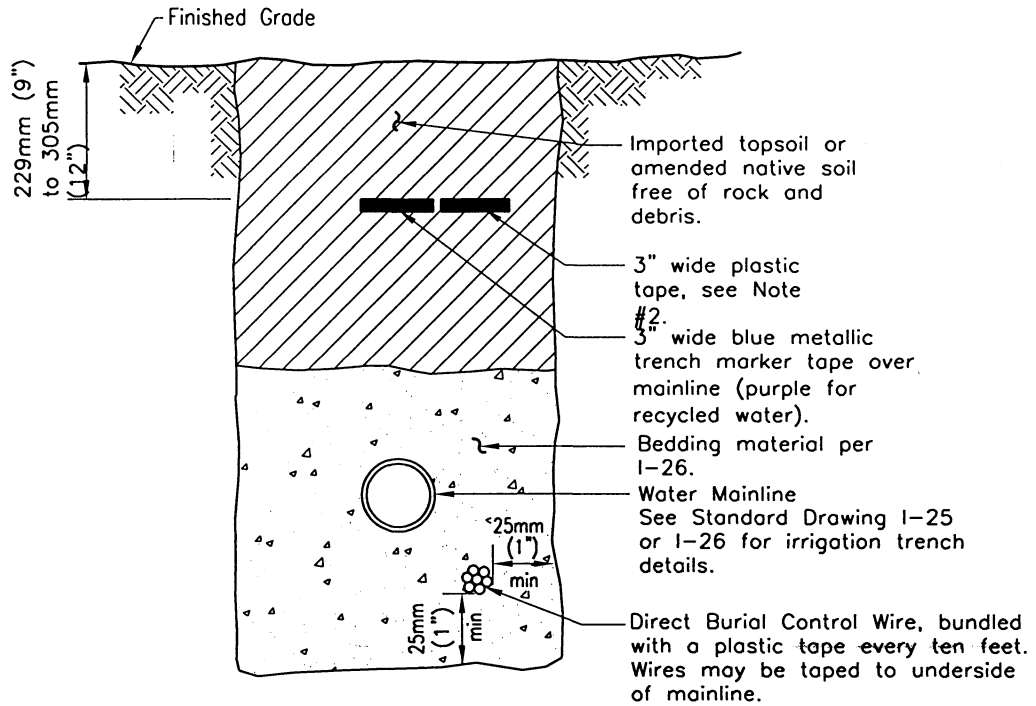
SAN DIEGO REGIONAL STANDARD DRAWING

**ELECTRICAL PULL BOX
FOR DIRECT BURIAL CONTROL WIRES
AND SPLICE DETAILS**

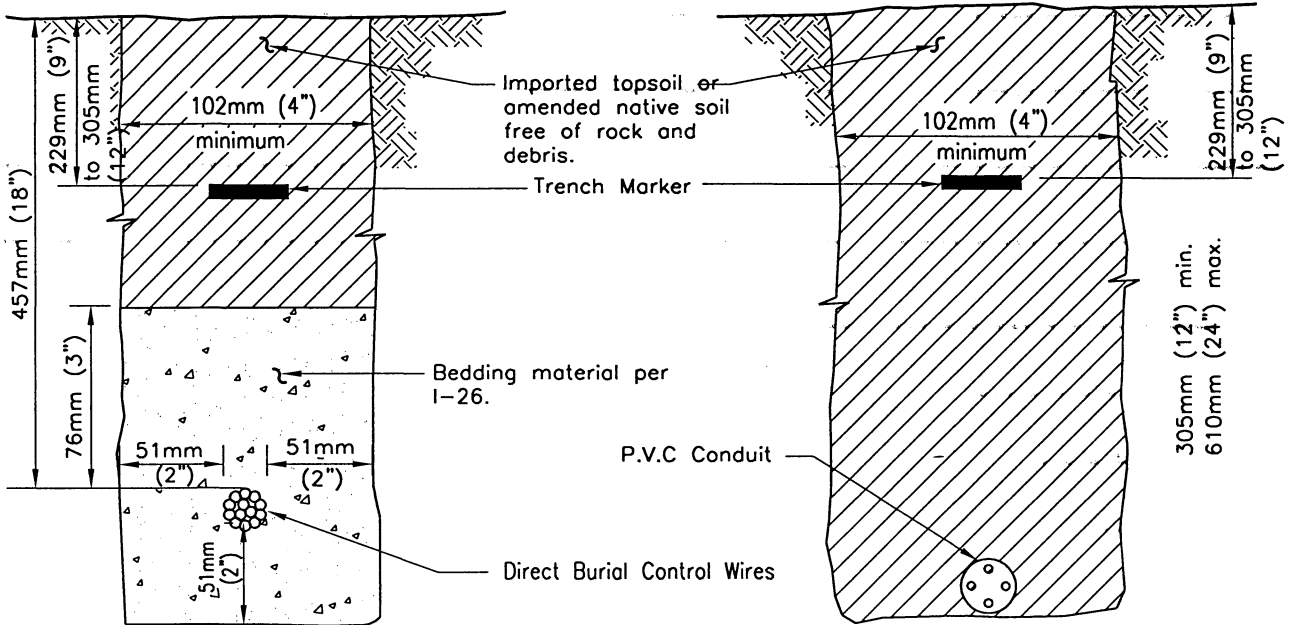
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 3/01/2003
Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-15**



NORMAL LOCATIONS OF CONTROL WIRES



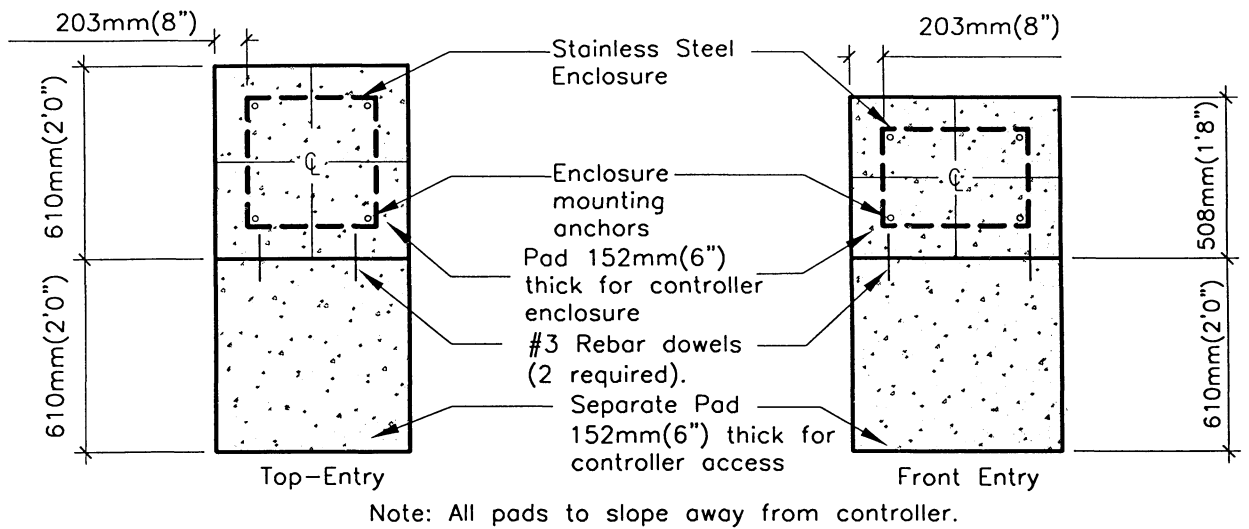
ALTERNATE LOCATION OF CONTROL WIRES

COMMUNICATION CABLE

NOTES

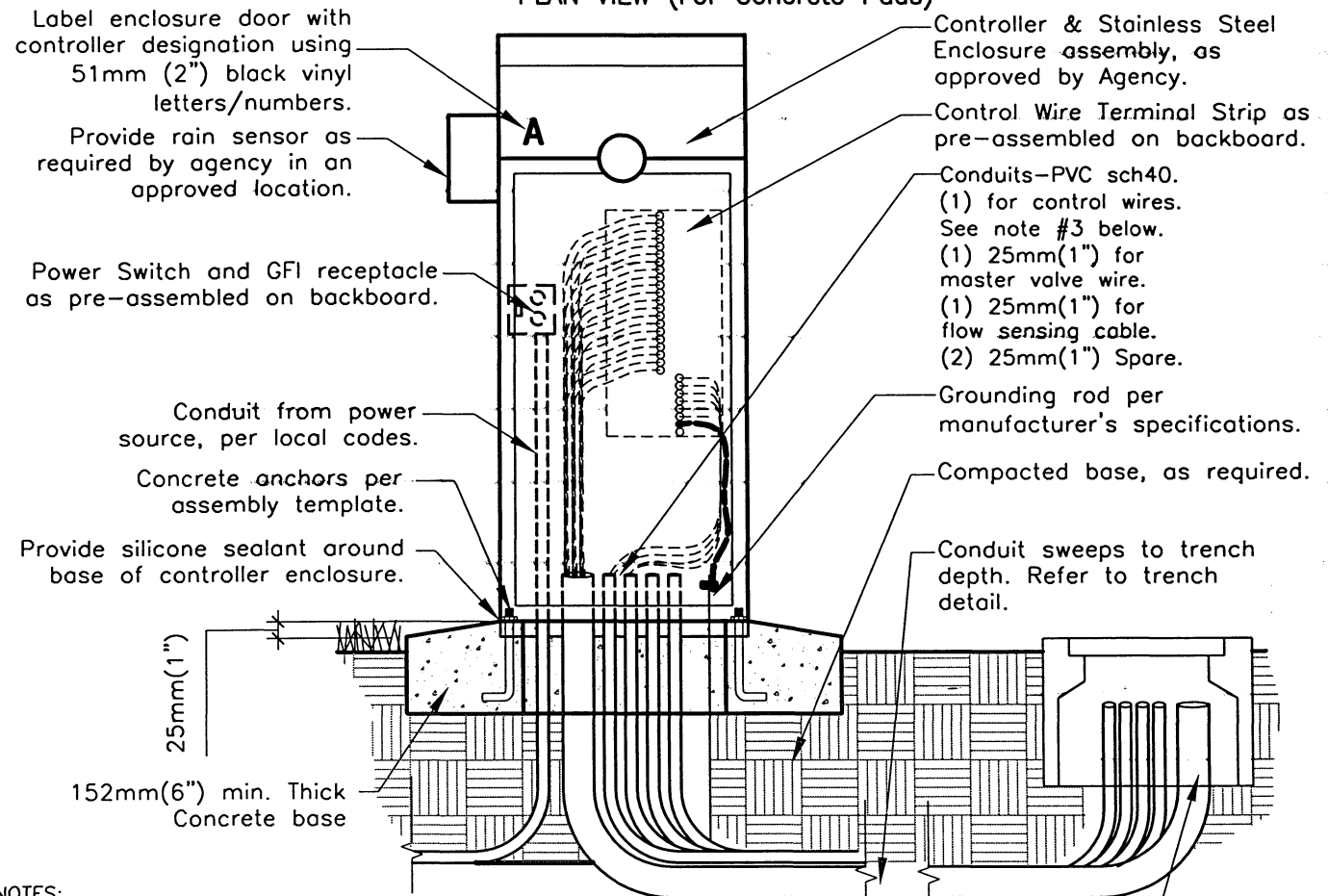
1. Bedding material shall be sand as approved by the agency and trench shall be
 2. free of rocks.
- Place a 76mm (3") wide red continuous plastic tape trench marker, 229mm (9") to 305mm (12") below finish grade, directly above the direct burial control wires.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		CONTROL WIRE / CABLE INSTALLATION
Add Metric		T. Stanton	03/03	Chairperson R.C.E. 19246	
UPDATE		M. Coro	02/05	Date	
				DRAWING NUMBER I-16	



Note: All pads to slope away from controller.

PLAN VIEW (For Concrete Pads)



- NOTES:
1. All controller assemblies and options shall be completely pre-assembled in a stainless steel enclosure.
 2. Pre-assembly shall include 25mm(1") rubber grommets where controller is attached to backboard.
 3. Control wire conduit shall be twice the diameter of the wire bundle, 51mm(2") minimum.
 4. Provide separate circuit breaker for controller(s) at electrical control panel and label.

FRONT VIEW
 Pull box installed within 1.5m (5') of controller enclosure, LEGEND ON PLANS as required by agency.
 Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Coro	05/04

SAN DIEGO REGIONAL STANDARD DRAWING

**AUTOMATIC CONTROLLER
 PEDESTAL MOUNTED**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

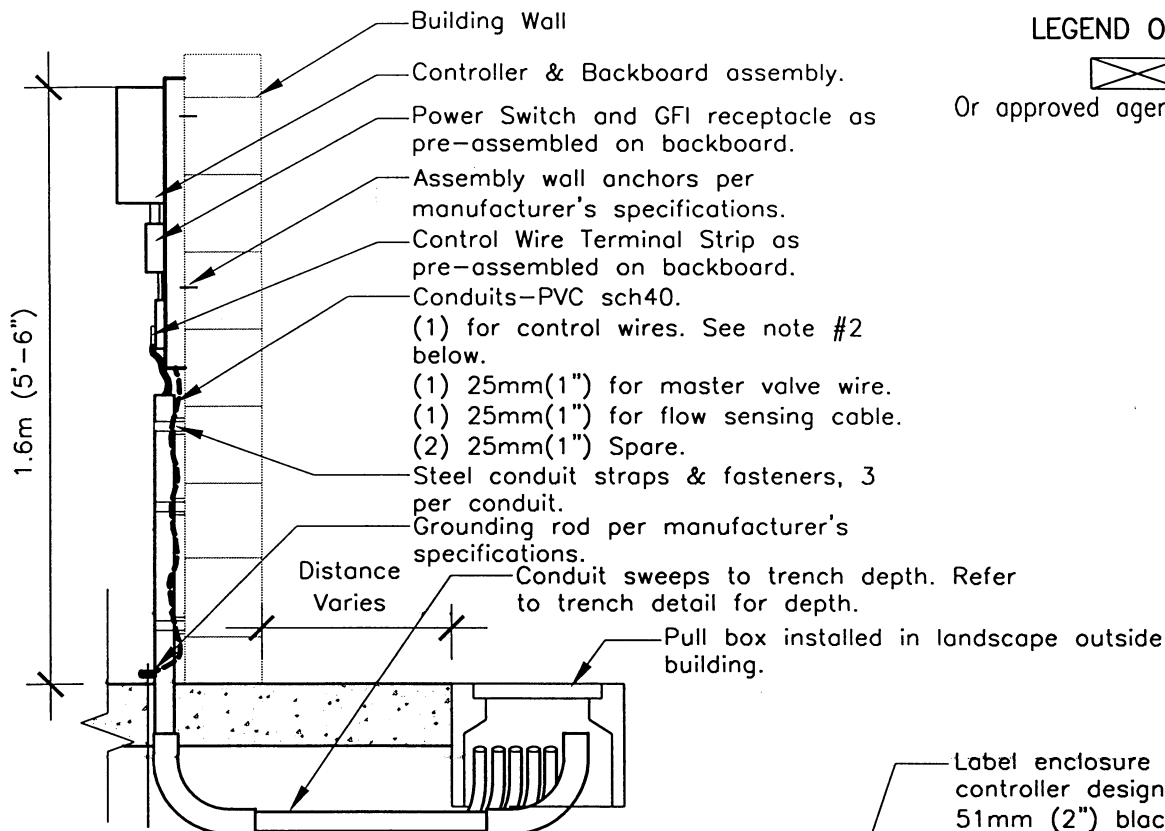
T. Stanton 05-27-2004
 Chairperson R.C.E. 19246 Date

DRAWING NUMBER **1-17**

LEGEND ON PLANS



Or approved agency symbol



SIDE VIEW

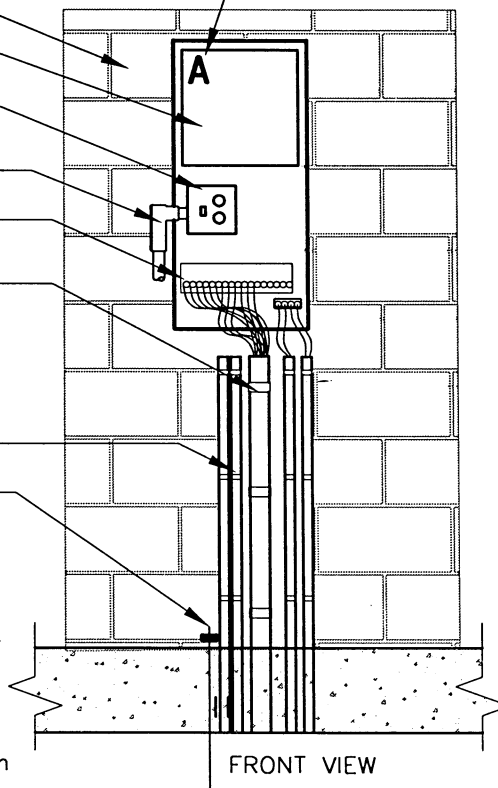
Building Wall

Label enclosure door with controller designation using 51mm (2") black vinyl letters/numbers.

- Controller & Backboard assembly.
- Power Switch and GFI receptacle as pre-assembled on backboard.
- Power source conduit per local codes.
- Control Wire Terminal Strip as pre-assembled on backboard.
- Conduits-PVC sch40.
- (1) for control wires. See note #2 below.
- (1) 25mm(1") for master valve wire.
- (1) 25mm(1") for flow sensing cable.
- (2) 25mm(1") Spare.
- Steel conduit straps & fasteners, 3 per conduit.
- Grounding rod per manufacturer's specifications.

NOTES:

- 1) All controller assemblies and options shall be completely pre-assembled on a stainless steel backboard.
- 2) Control wire conduit shall be twice the diameter of the wire bundle, 50mm(2") minimum.
- 3) Provide separate circuit breaker for controller(s) at electrical control panel and label.
- 4) Provide rain sensor as required by agency in an approved location.



FRONT VIEW

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	05/04

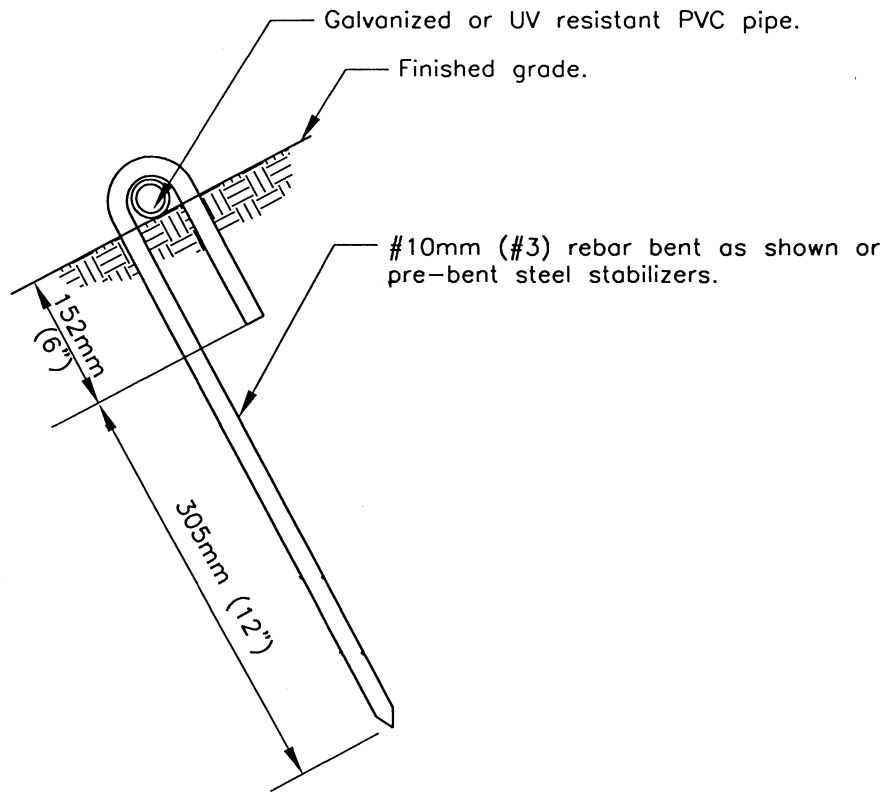
SAN DIEGO REGIONAL STANDARD DRAWING

**AUTOMATIC CONTROLLER
INDOOR WALL MOUNT**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 05-27-2004
Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-18**

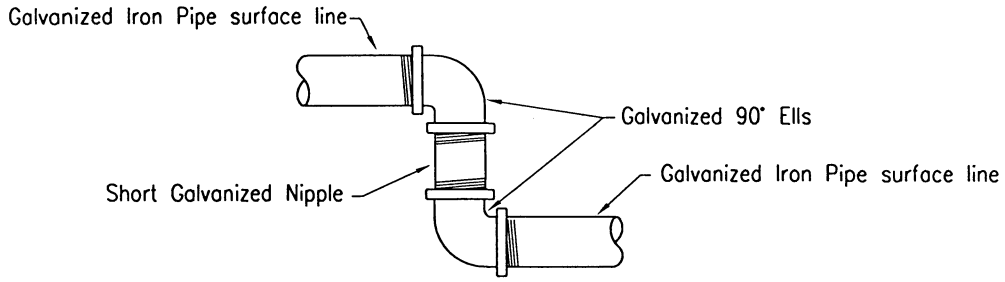


SIDE VIEW

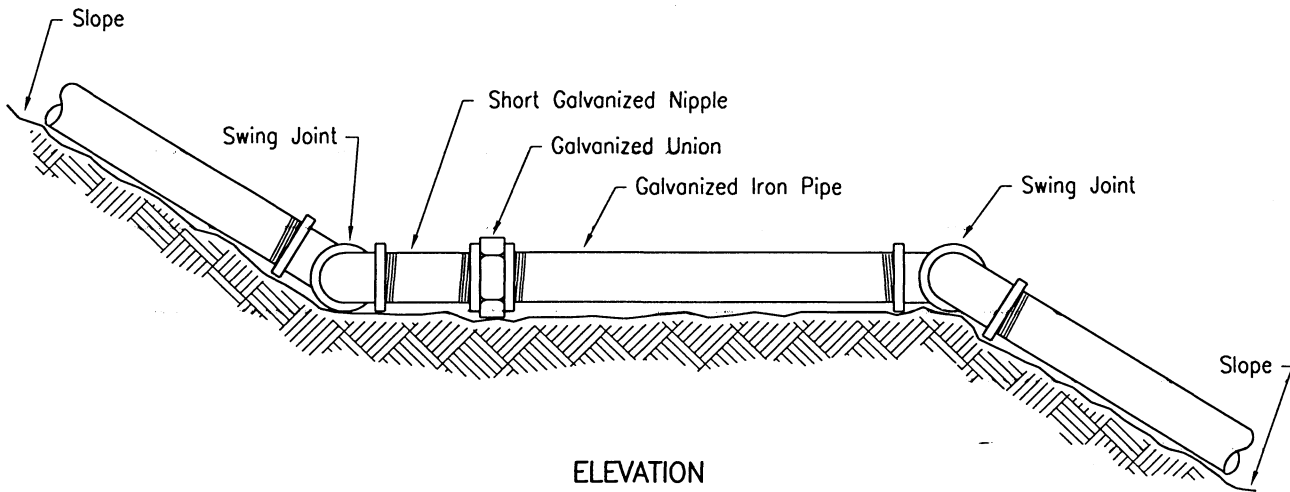
NOTE

Stabilizers shall be placed no greater than 4.50 m (15') apart, at each riser and at all fittings.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		<i>T. Stanton</i> 05-27-2004
Add Metric		T. Stanton	03/03	ON-GRADE PIPE STABILIZATION	Chairperson R.C.E. 19246 Date
UPDATE		M. Caro	05/04		DRAWING NUMBER 1-20



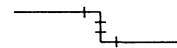
SWING JOINT DETAIL
PLAN



ELEVATION

NOTE
Swing Joints shall be used at each change of grade.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06

SAN DIEGO REGIONAL STANDARD DRAWING

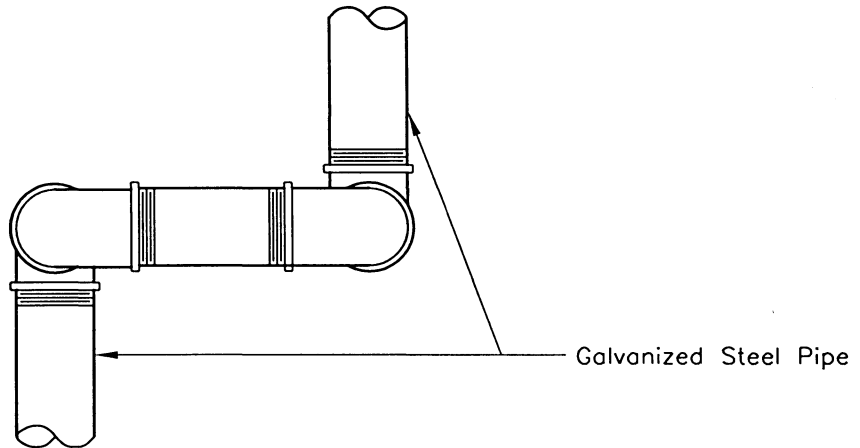
**SWING JOINT AND PIPE INSTALLATION
ON SLOPES
ABOVE GROUND PIPE INSTALLATIONS**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

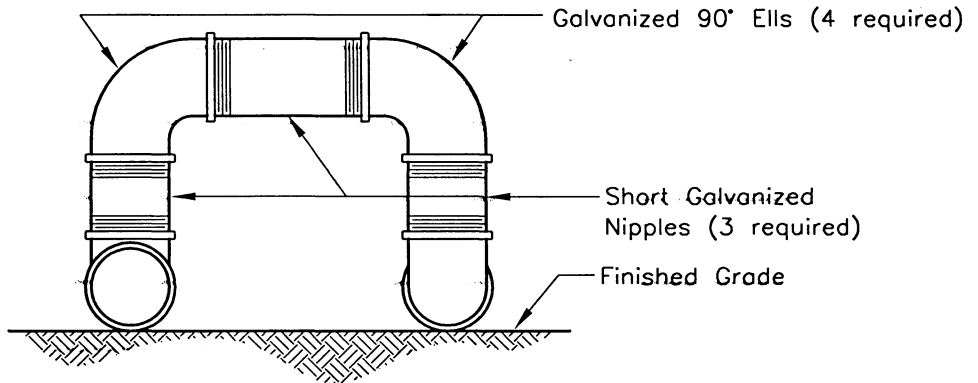
T. Stanton 3/01/2003

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **1-23**



PLAN

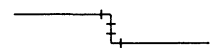


ELEVATION

NOTES

1. Double swing joint shall be used where changes of grade and alignment occur simultaneously.
2. Double swing joint shall be used for expansion joint on long runs of galvanized pipe. (91.44m (300') maximum runs)

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06

SAN DIEGO REGIONAL STANDARD DRAWING

**DOUBLE SWING JOINT
ABOVE GROUND PIPE INSTALLATIONS**

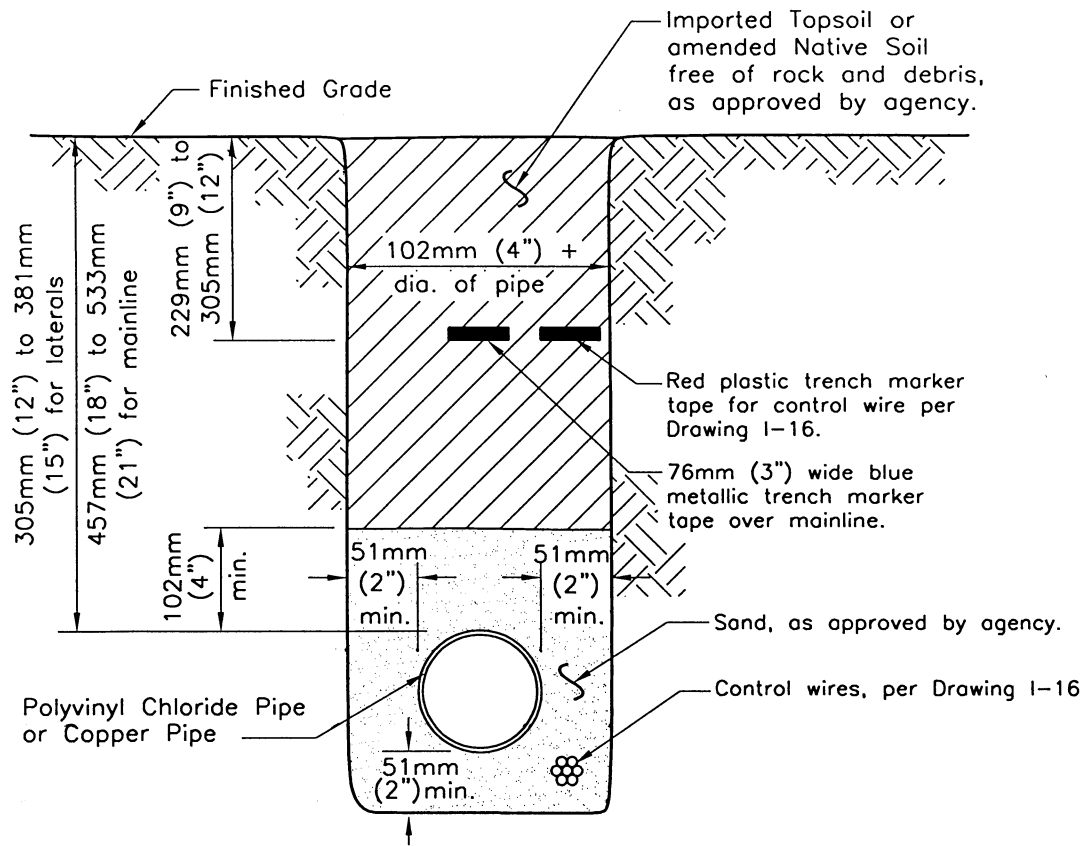
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 3/10/2003

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

1-24



Polyvinyl Chloride Pipe or Copper Pipe

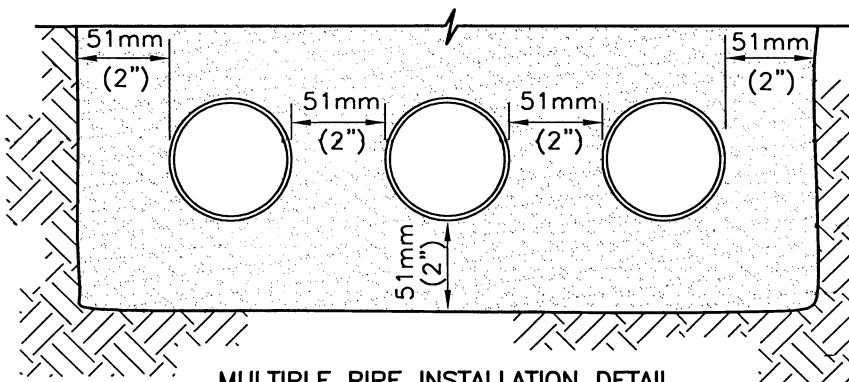
Imported Topsoil or amended Native Soil free of rock and debris, as approved by agency.

Red plastic trench marker tape for control wire per Drawing I-16.

76mm (3") wide blue metallic trench marker tape over mainline.

Sand, as approved by agency.

Control wires, per Drawing I-16



Details not shown are same as above.

MULTIPLE PIPE INSTALLATION DETAIL
(Non-pressure pipe only, see Note 6 for pressure pipe)

NOTES

1. Backfill material shall be compacted to a relative compaction of 90% or more.
2. All P.V.C. pipe shall lay free in the trench with no induced strain and with sufficient allowance for expansion and contraction as recommended by the manufacturer.
3. Teflon tape, 19mm (3/4") wide shall be used on all threaded connections.
4. The letter W shall be stamped or chiseled on the improvement (curb-sidewalk) directly above the pressure pipeline.
5. All plastic pipe under pavement shall be installed in a Sch. 40 P.V.C. sleeve twice the diameter of the pipe.
6. Minimum horizontal clearance between pressure pipes shall be 152mm (6")

Revision	By	Approved	Date
ORIGINAL		Parkinson	02/95
Add Metric		T. Stanton	03/03
UPDATE		M. Coro	06/04

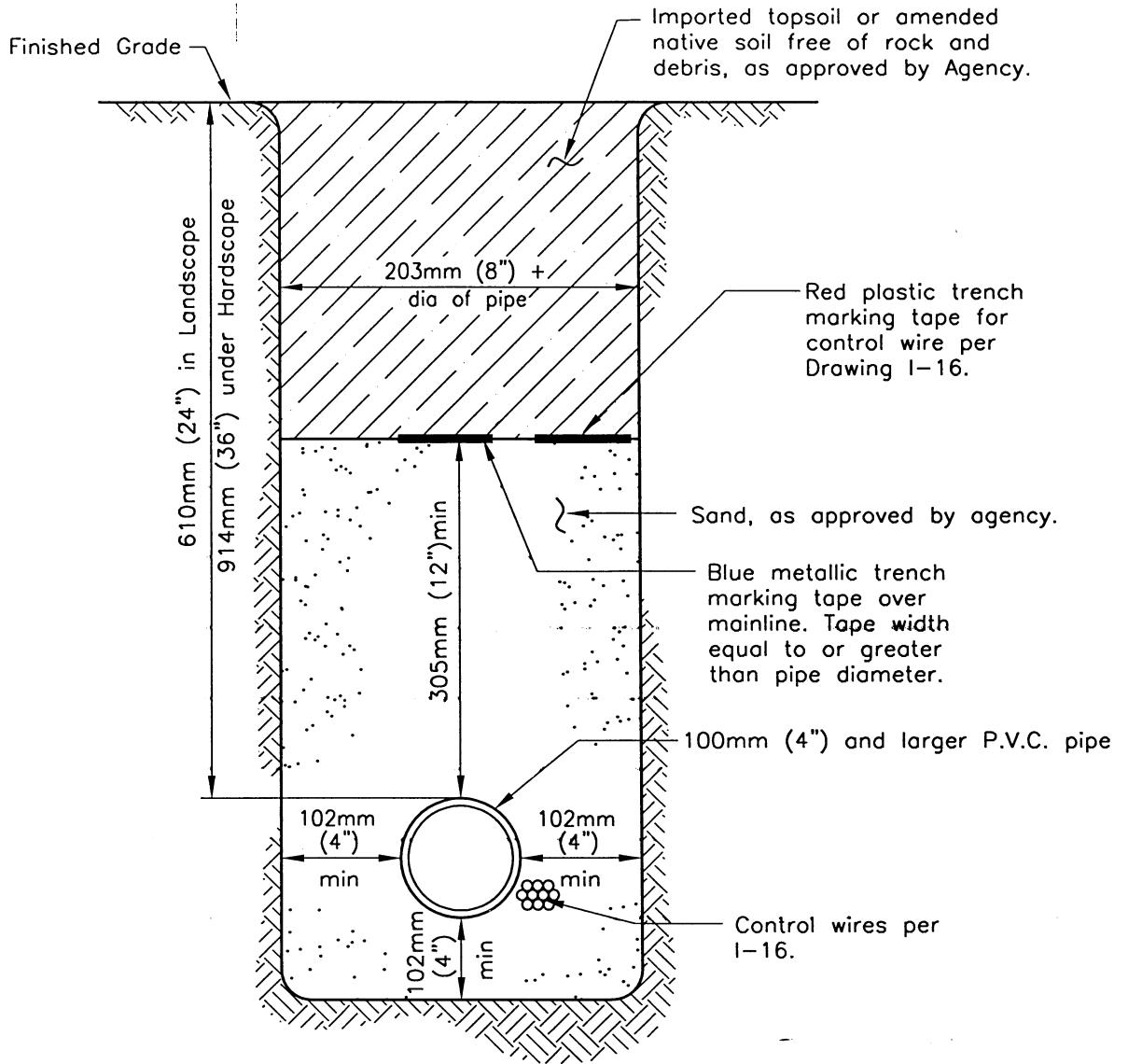
SAN DIEGO REGIONAL STANDARD DRAWING

**IRRIGATION TRENCH P.V.C. AND/OR
COPPER PIPE (76mm (3") AND SMALLER)**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 06/24/2004
Chairperson R.C.E. 19246 Date

DRAWING NUMBER I-25



NOTES

1. Backfill material shall be compacted to a relative compaction of 90% or more.
2. All pipeline fittings shall be epoxy coated ductile iron. All fittings shall have thrust blocks per W-17 or joint restraints.
3. The letter 'W', for pressure pipeline and 'E', for control wires shall be stamped or chiseled on the improvement (curb-sidewalk) directly above the pressure pipeline and wires respectively.
4. No P.V.C. pressure pipeline shall be installed within 914mm (3') of any utility, unless otherwise specified.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	05/04

SAN DIEGO REGIONAL STANDARD DRAWING

**IRRIGATION TRENCH DETAIL
100mm (4") AND LARGER P.V.C. MAINLINE**

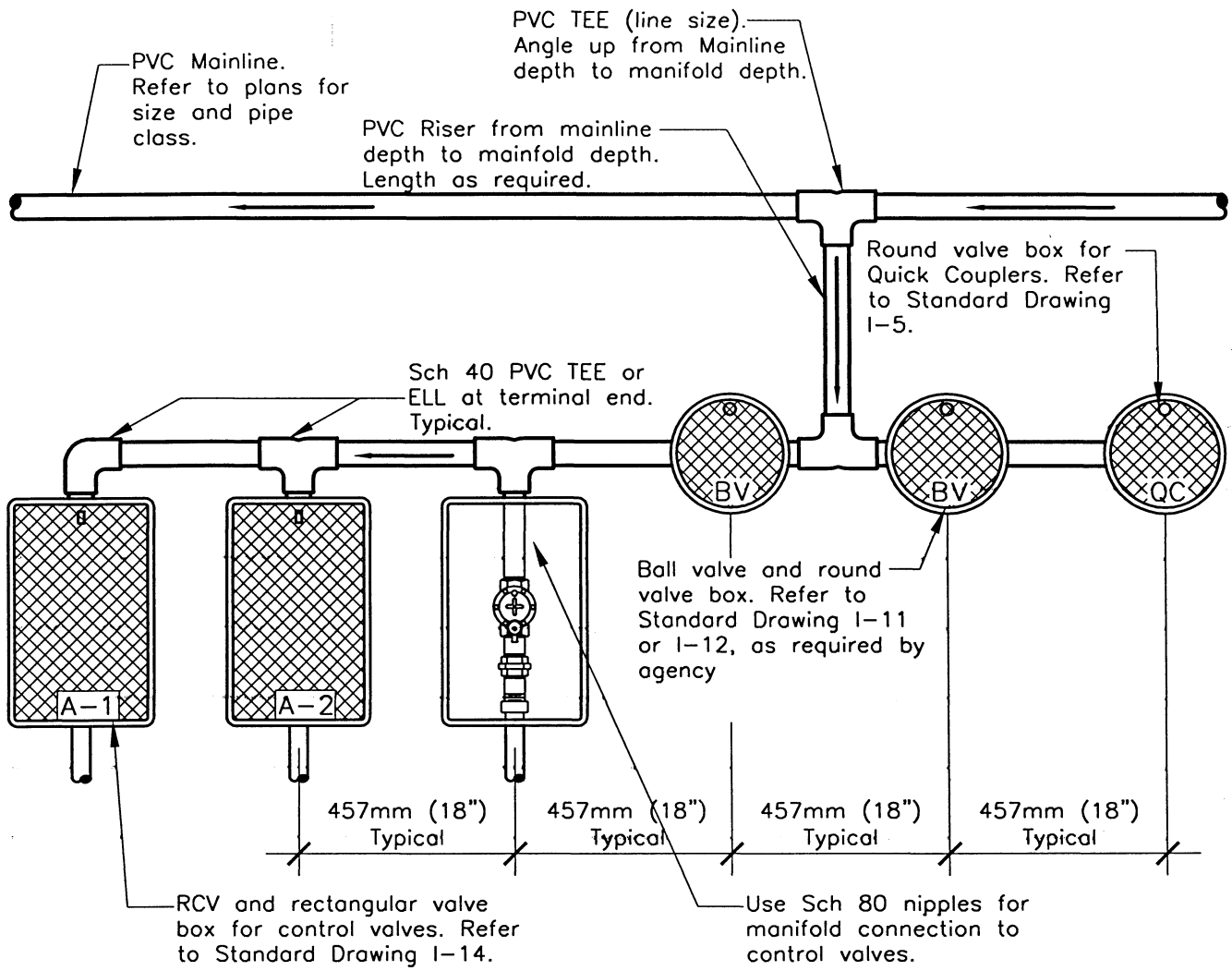
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 05-27-2004

Chairperson R.C.E. 19246 Date

DRAWING NUMBER

I-26



NOTES

1. All PVC Pipe used in manifold assemblies shall of the same class as specified for the mainline, unless otherwise specified.
2. All valve boxes shall be heat branded with the appropriate identification. Refer to plans and specifications.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
UPDATE		M. Caro	04/05

SAN DIEGO REGIONAL STANDARD DRAWING

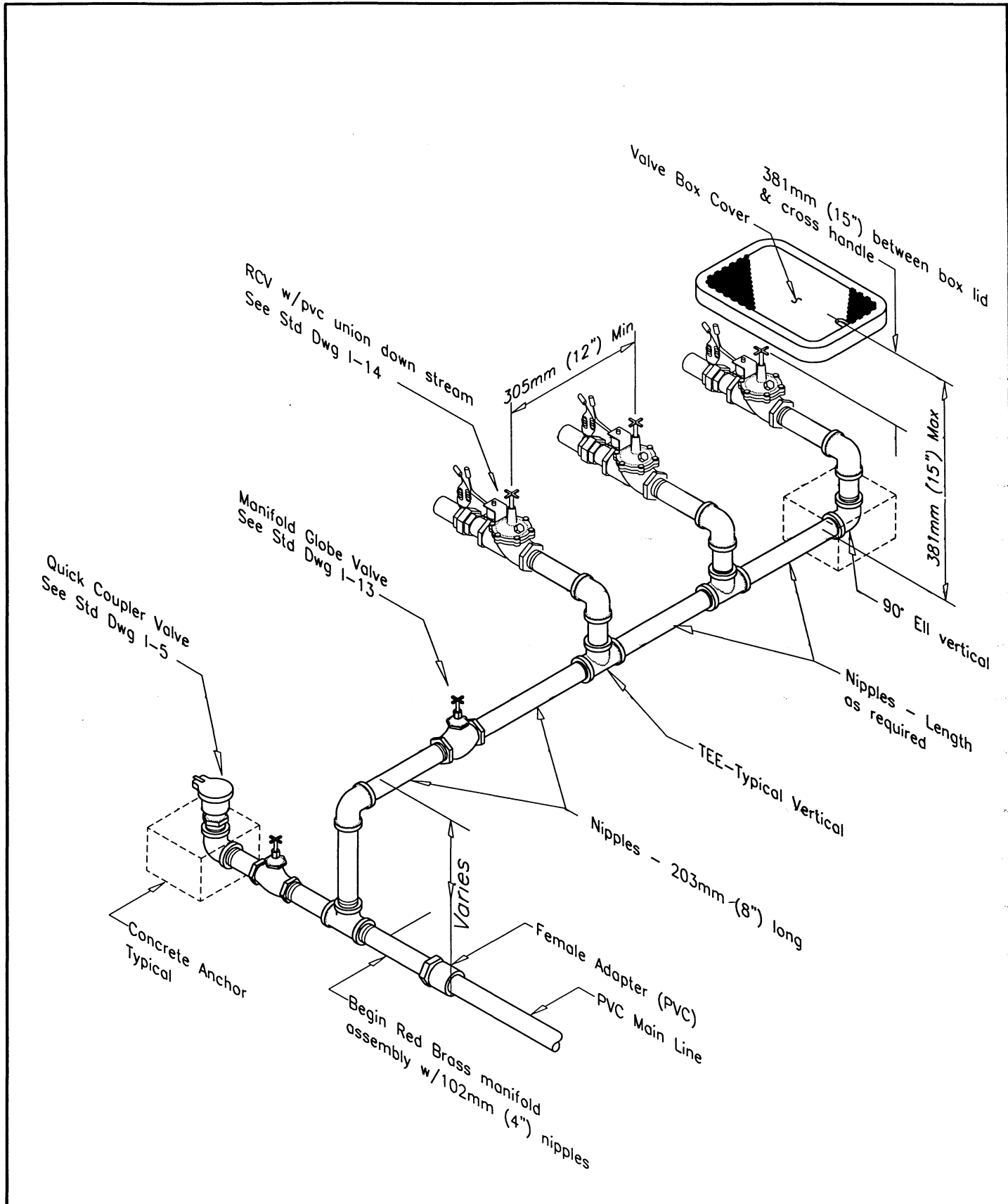
REMOTE CONTROL VALVE MANIFOLD ASSEMBLY WITH P.V.C. PIPE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 04/28/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-32**



Revision	By	Approved	Date
ORIGINAL		Parkinson	05/92
Add Metric		T.Stanton	03/03
Updated		M.Caro	04/05

SAN DIEGO REGIONAL STANDARD DRAWING

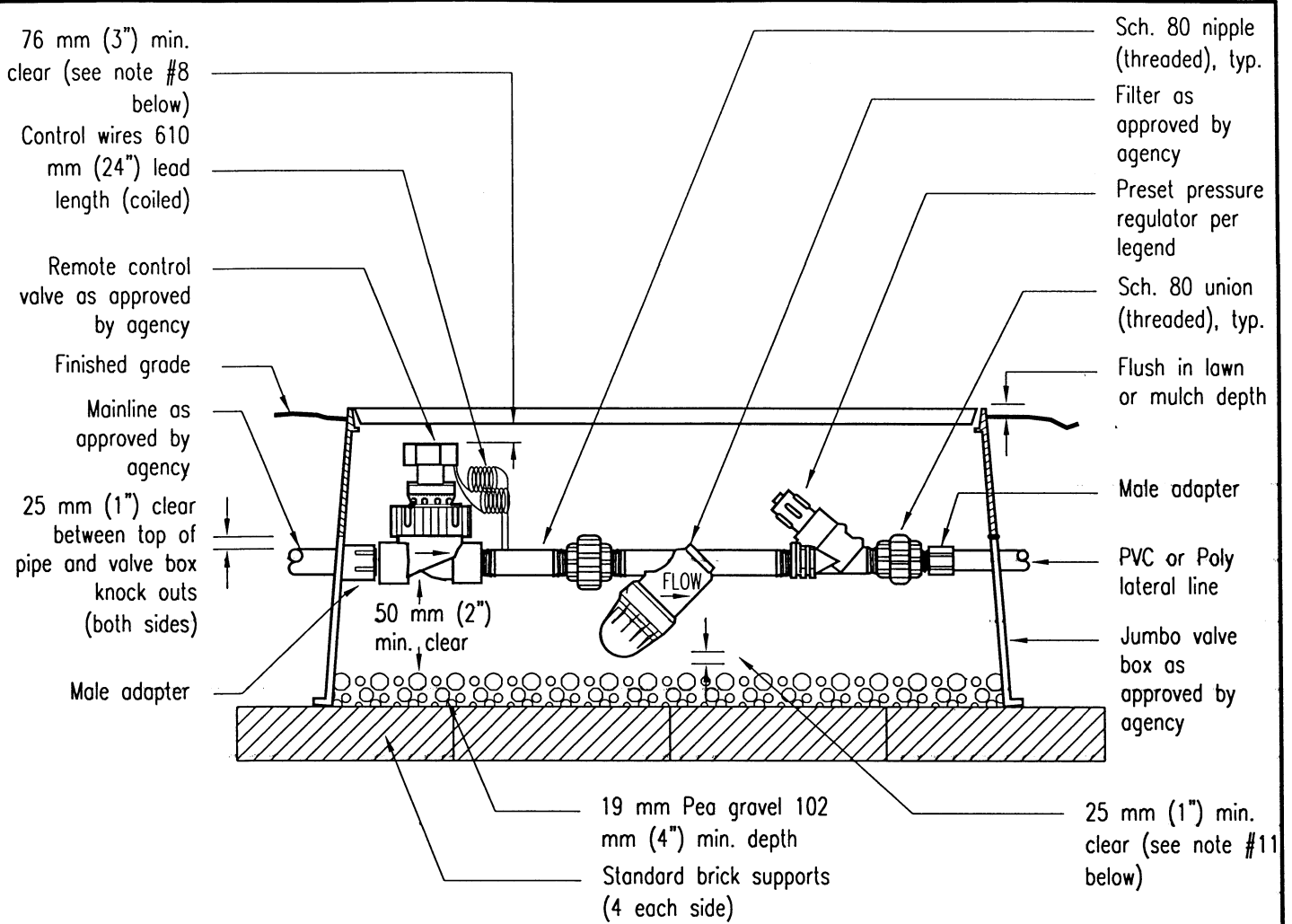
**REMOTE CONTROL VALVE
MANIFOLD ASSEMBLY WITH BRASS PIPE**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 04/28/2005

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **1-33**



ELEVATION

NOTES:

1. Splicing shall be made in valve boxes and pull boxes only. See Standard Drawing I-15 for splice/soldering notes.
2. All splices shall be made with a properly set mechanical splice connector entirely enclosed in self-curing resin and shall be completely water-proof.
3. Spare wires terminating in valve boxes shall have their ends insulated, the same as for a splice.
4. When two or more valves are installed in the same location, see Standard Drawing I-32 or I-33, per agency standards.
5. Valve/controller identification shall be labeled on the valve box and tagged on the valve per agency requirements.
6. Knock outs shall not be enlarged unless approved by agency.
7. Install only one valve assembly per box.
8. 76 mm (3") min. clear from bottom of box lid to highest point of valve assembly.
9. Valve boxes shall be set perpendicular to hardscape, a max. 305 mm (12") from edge of hardscape, 51-76 mm (2-3") above finished grade in shrub/groundcover areas, per mulch depth. If necessary to be set in turf, valve boxes shall be set flush with finished grade.
10. Close nipples shall not be used.
11. Filter shall be installed to allow for maintenance access.

LEGEND ON PLANS

▽
Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		M. Caro	1/06

SAN DIEGO REGIONAL STANDARD DRAWING

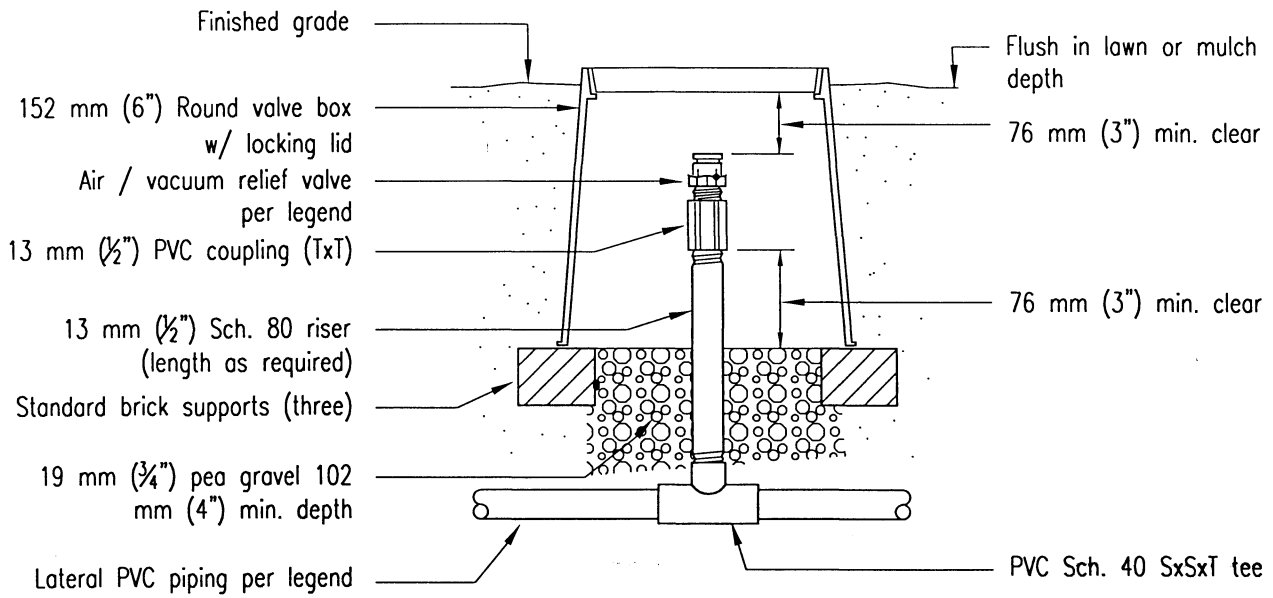
**REMOTE CONTROL VALVE
DRIP IRRIGATION**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

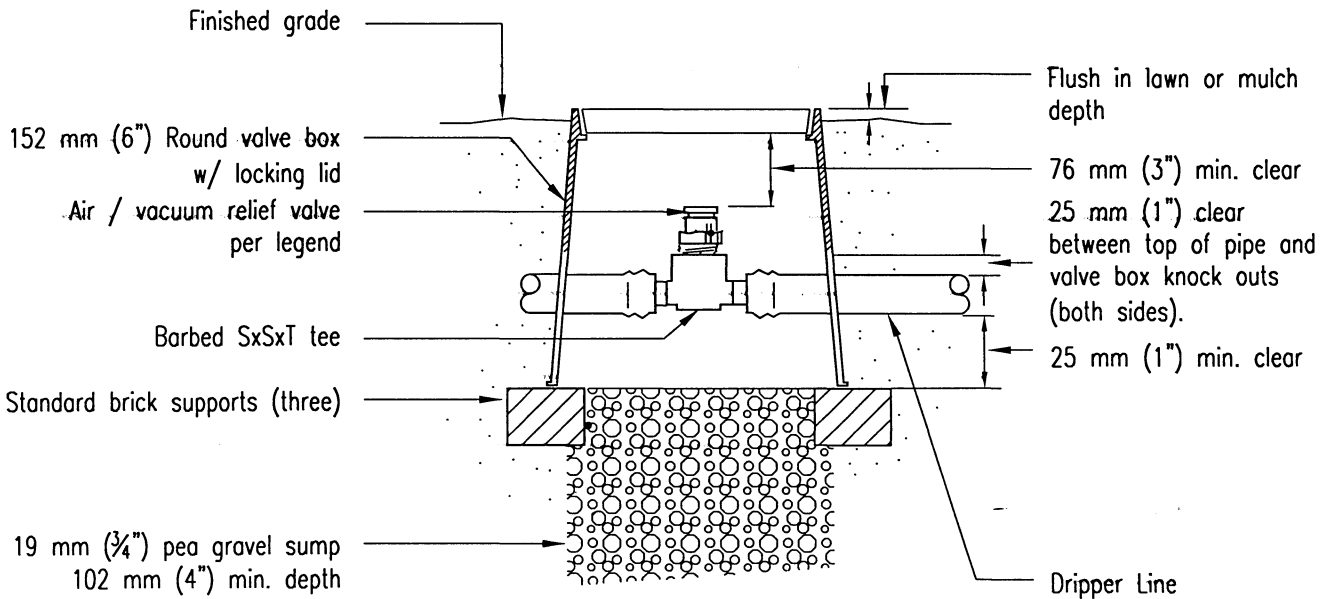
[Signature] 01/26/2006

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-35**



PLUMBED TO PVC



PLUMBED TO DRIPPER LINE

NOTES:

1. Install air/vacuum relief valve at high point(s) in valve circuit.
2. Heat-brand valve box lid "AR" or as per agency requirement.
3. Valve shall be centered in box.

LEGEND ON PLANS

(A)

Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		M. Caro	1/06

SAN DIEGO REGIONAL STANDARD DRAWING

AIR/VACUUM RELIEF VALVE

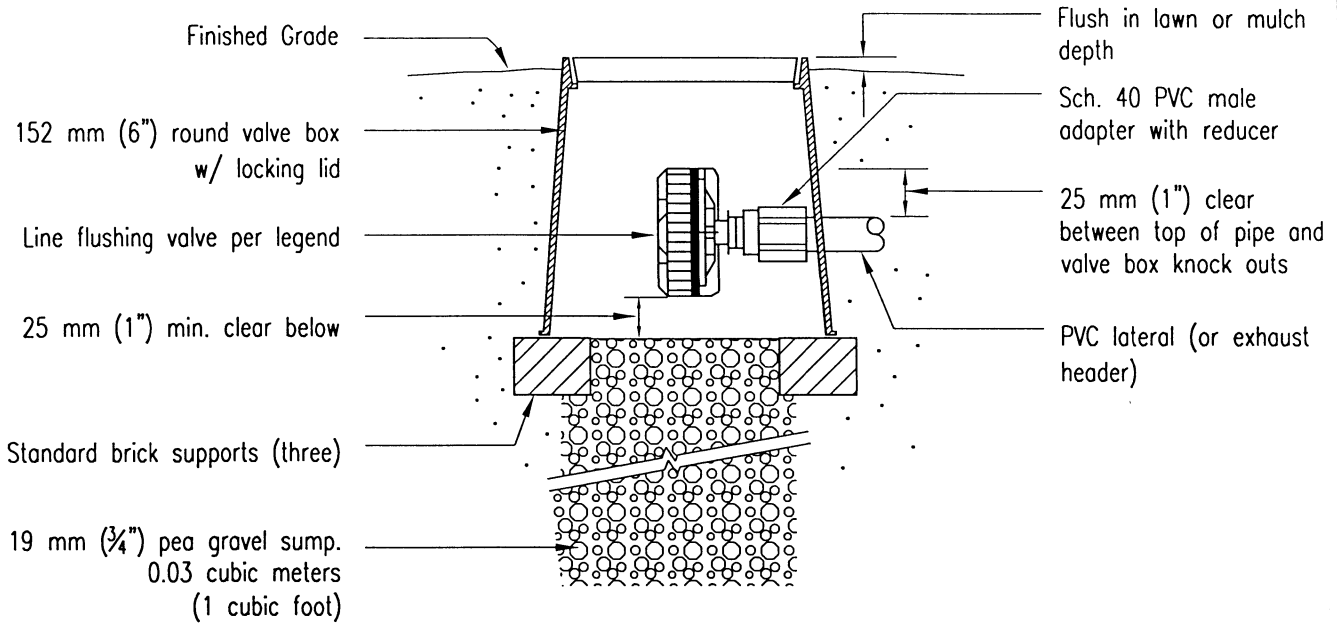
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

M. Steinton 01/26/2006

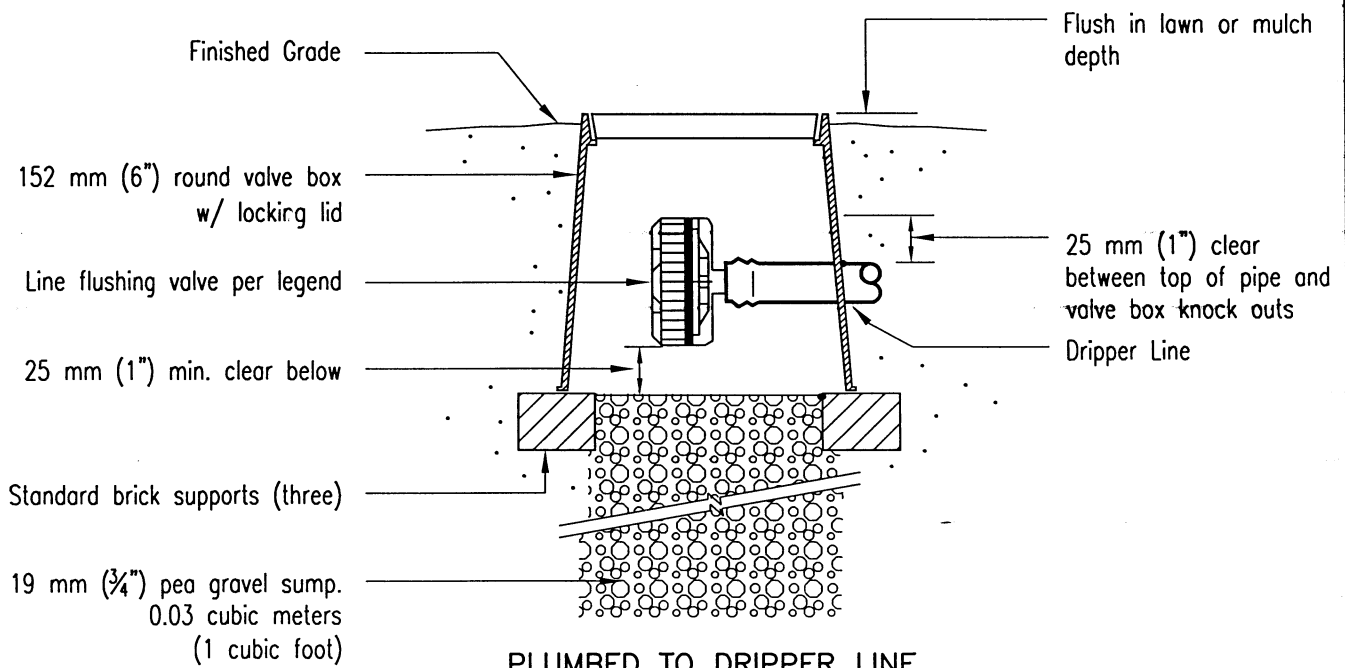
Chairperson R.C.E. 19246 Date

DRAWING NUMBER

I-36



PLUMBED TO PVC



PLUMBED TO DRIPPER LINE

NOTES:

1. Install flush valve(s) at furthest point(s) in system from the control valve and at low points as needed per plans.
2. Heat brand valve box lids "FV" or as per agency requirement.
3. Valve shall be centered in box.

LEGEND ON PLANS



Or approved agency symbol

Revision	By	Approved	Date
ORIGINAL		M. Caro	1/06

SAN DIEGO REGIONAL STANDARD DRAWING

**DRIP IRRIGATION
FLUSH VALVE (AUTOMATIC)**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

J. Stanton 01/26/2006

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **I-37**