2015

CITY OF PHOENIX
SUPPLEMENTAL
STANDARD DETAILS
FOR
PUBLIC WORKS
CONSTRUCTION

All public works construction contracts advertised and all permits issued on or after July 1, 2015 shall be governed by the 2015 edition.

A copy of the 2015 edition is available for review and download on the City of Phoenix Website at the following address:

https://www.phoenix.gov/streets/reference-material/2015maguniformstd

For more information, or a copy of this publication in an alternate format, contact Street Transportation Department at 602-262-6284 (Voice) and 602-256-4286 (TTY).
**New Supplemental Standard Details:**

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This Page Reserved for Future Use
### 1000 SERIES
**TRAFFIC ENGINEERING**

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NOTES:

1. LANE WIDTHS AND CONFIGURATION ARE CONCEPTUAL ONLY. FINAL LANE WIDTHS AND CONFIGURATION TO BE APPROVED BY THE STREET TRANSPORTATION DEPT.
2. ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED FOR DRAINAGE, UTILITIES, SLOPE RIGHTS, TRAFFIC SIGNALS, IRRIGATION FACILITIES OR TRAILS.**
3. CROSS SECTION "C" HAS A 14' TWO WAY LEFT TURN LANE.
   CROSS SECTION "C-M" HAS A 14' RAISED MEDIAN.
4. ALL DIMENSIONS ARE TO THE FACE OF CURB.

** ACCORDING TO THE TRAILS PLAN, A 10 FOOT SIDEWALK MAY BE REQUIRED ON CROSS SECTIONS A, B, C, D, E, F, & G.
NOTES:

1. LANE WIDTHS AND CONFIGURATION ARE CONCEPTUAL ONLY. FINAL LANE WIDTHS AND CONFIGURATION TO BE APPROVED BY THE STREET TRANSPORTATION DEPT.

2. ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED FOR DRAINAGE, UTILITIES, SLOPE RIGHTS, TRAFFIC SIGNALS, IRRIGATION FACILITIES OR TRAILS.

3. ALL DIMENSIONS ARE TO THE FACE OF CURB.

*C ROUTE COLLECTIONS WITH RESIDENTIAL BACKUP TREATMENT MAY BE 18'.
CROSS SECTION F
INDUSTRIAL LAND USE
VERTICAL CURB AND ADJACENT SIDEWALK

CROSS SECTION G
COMMERCIAL & MULTI FAMILY
RESIDENTIAL LAND USE
VERTICAL CURB AND ADJACENT SIDEWALK

CROSS SECTION H
SINGLE FAMILY RESIDENTIAL LAND USE
OPTION A:
ROLL CURB AND ADJACENT SIDEWALK

CROSS SECTION I
SINGLE FAMILY RESIDENTIAL LAND USE
OPTION B:
VERTICAL CURB AND SET BACK SIDEWALK

NOTES:
LANE WIDTHS AND CONFIGURATION ARE CONCEPTUAL ONLY. FINAL LANE WIDTHS AND CONFIGURATION TO BE APPROVED BY THE STREET TRANSPORTATION DEPT.

ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED FOR DRAINAGE, UTILITIES, SLOPE RIGHTS, IRRIGATION FACILITIES, OR TRAILS.

ALL DIMENSIONS ARE TO THE FACE OF CURB.

ALL CURBS ARE VERTICAL UNLESS NOTED.
NOTE:
DIMENSIONS SHOWN ARE TO THE FACE OF CURB
NOTE:
SUFFICIENT RIGHT-OF-WAY MUST BE AVAILABLE TO CONSTRUCT ACCESS ROAD TERMINATION

SINGLE FAMILY ALLEY

COMMERCIAL OR MULTI-FAMILY ALLEY

NOTE:
1. COMMERCIAL AND MULTI-FAMILY ALLEYS MAY NOT PROVIDE ACCESS TO SINGLE FAMILY ACCESS ROADS.
2. ONLY ALLOWED FOR LOCATIONS WHERE REFUSE COLLECTION IS NOT PROVIDED ALONG THE ACCESS ROAD.
A private accessway is intended to apply to private streets within developments such as PRO's Pad's, mobile-home parks, and hill side developments where lot sales are proposed.  
1. Private access ways will be allowed in new developments where their use is logically consistent with a desire for neighborhood identification and control of access, and where special overall design concepts may be involved.  
2. Private access ways will be permitted only where a satisfactory means of providing for their maintenance and operation is demonstrated.  
3. The use of private access ways as a device for permitting inadequate design will not be allowed.  
4. The use of private access ways is ordinarily limited to cul-de-sacs and to local streets not carrying through traffic. Normally collector streets will be public. Further, there will be an adequate internal circulation system and no property will be landlocked by a private road system.  
5. The design of all private access ways shall be reviewed and approved by D.S.D. The construction shall be inspected by D.S.D., with a standard inspection fee to be paid.  
6. Note to be placed on plat "Private access way, not dedicated for public use."  
7. The homeowner's association constitution and by-laws shall include acknowledgement of the ownership and maintenance responsibility of these private facilities, including responsibility for enforcement of traffic control.  
8. Gated entries are allowed if turnaround areas are provided per DSD Gated Entry Details.

I. GENERAL  
1. Private access ways, and/or refuse collection easements may be used in PAD's, mobile-home developments and PRO's and shall be known as "Private Access Ways". Utilities may be placed in a private access way if they are at least 28' wide.  
2. Major drainage ways shall be dedicated.  
3. Sidewalks are normally required adjacent to all collector streets and in all multifamily developments and developments with lots less than 18,000 sq. ft. or in the said easement right of way unless other means of accommodating pedestrian traffic are provided in the development.  
4. Private access ways shall be adequately designed to city specifications to provide for lane delineation, street sweeping, and drainage control. Normally, a crown section with concrete curb or concrete curb and gutter on both sides will be required; however, other means of providing similar functional characteristics may be considered if approved by the city planner.  
5. Return-type driveway entrance may be used on private access ways. If the street is 28' or greater, depressed driveway approaches shall be used where there is only direct access to a parking area or where the street is less than 28' wide.  

II. MINIMUM PAVEMENT WIDTHS  
The entire width of the private access way shall be designated by plat as a "Private Access Way".  

<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>CURB TO CURB</th>
<th>CURB RETURNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector</td>
<td>36'-40'</td>
<td>36'</td>
</tr>
<tr>
<td>Local Streets</td>
<td>29'-36'</td>
<td>20'</td>
</tr>
<tr>
<td>With parking planned on both sides</td>
<td>24'-28'</td>
<td>24'-28'</td>
</tr>
<tr>
<td>Without planned parking</td>
<td>22'-24'</td>
<td>25'</td>
</tr>
</tbody>
</table>

III. GRADES  
1. Desirable maximum - 10%  
2. Maximum - 15%  
3. Minimum - 0.30% - Grades less than 0.30% shall require concrete valley gutters, absolute minimum grade 0.15%.  

IV. ALIGNMENT  
1. Street shall normally intersect at right angles and no greater deflection than 15' from a right angle will be allowed and shall have at least 20' tangent adjacent to intersections. The tangent length shall be increased where short radius curves are used near the intersections.  
2. Cul-de-sacs shall not ordinarily exceed 400' in length. Curved radius to face of curb at the turnaround shall be 45' radius minimum.  
3. In special situations where city refuse collection and/or city maintenance is not required, dead-ended private access ways may be used and should not exceed 300 linear feet. Adequate turnaround facilities may be required at the end of each dead-ended private access way for emergency vehicle turnaround.  
4. Centerline radius shall be 100' minimum for loop streets and local streets over 800' in length. Where right-angle bends are used in the street pattern in lieu of the minimum radius required above, widening sufficient to accommodate truck-turning movements shall be provided by use of knuckles or other appropriate means.  

V. STRUCTURAL SECTION  
The minimum structural design of paving, curb, gutter, and sidewalk shall be in accordance with city standards and specifications.  

VI. UTILITIES  
1. Adequate provisions for public utilities shall be made.  
2. Fire hydrants shall be located on the public street at the entrance to the private access ways and along private access ways as required by the City of Phoenix water and water services department standards.  
3. Standards of construction and inspections on private access ways shall be to City of Phoenix standards and specifications.  
4. Costs of maintenance and repairs of private access ways, lights, and non-publicly-owned utilities are to be the responsibility of the homeowner's association.  
5. Curb and sewer lines are acceptable within 28' wide or greater private access ways with an exclusive easement for public water & or sewer.  
6. Some type of private street lights are to be provided.  

VII. SIGNS  
1. All new curb shall be imprinted with the words, "PRIVATE STREET - NO CITY MAINTENANCE" in 2" high letters at every curb return and at every entrance into a new private property subdivision.  
2. A stop sign shall be posted at all intersections of private access ways with public streets. Signs shall be in accordance with the manual of uniform traffic control devices and shall be maintained by the homeowner's association.
NOTES:

1. DRIVEWAY ENTRANCE RETURNS – VERTICAL CURB FACE
   A. COLLECTOR STREET – 35’ RADIUS TO FACE OF CURB
   B. LOCAL STREET (36’ OR 32’ WIDE) – 20’ RADIUS TO FACE OF CURB
   C. LOCAL STREET (24’ OR 28’ WIDE) – 25’ RADIUS TO FACE OF CURB

2. SIDEWALK–STD. DET. P1230. THE SITE DEVELOPMENT MANAGER MAY WAIVE THE REQUIREMENT FOR SIDEWALKS, IF SIDEWALKS PROVIDED ELSEWHERE IN THE DEVELOPMENT WILL SATISFACTOIRLY SERVE THE SAME PURPOSE.

3. CURBS
   A. COLLECTOR STREET & MULTIFAMILY DENSITY – STD. DET. 220–1 TYPE "A" (VERTICAL CURB AND GUTTER)
   B. LOCAL STREET–STD. DET. 220–1 TYPE "C" (ROLL CURB AND GUTTER) OR STD. DET. 221 WHEN SIDEWALK IS ADJACENT, RIBBON CURBS WILL BE PERMITTED WHERE DRAINAGE WILL BE RETAINED OR ADEQUATE DRAINAGE CHANNELS ARE PROVIDED THROUGH ADJACENT PROPERTY. RIBBON CURB MAY NOT BE USED ADJACENT TO SIDEWALK.

4. ASPHALT CONCRETE—2” THICKNESS, CONFORM TO M.A.G. SECT. 321. OTHER TYPES OF SURFACE TREATMENT MAY BE PERMITTED BY AUTHORITY OF THE PAVING PLAN REVIEW SUPERVISOR AFTER DEMONSTRATION THAT STRUCTURAL STRENGTH IS EQUAL TO OR GREATER THAN THAT OF THE EXISTING CITY STANDARDS.

5. AGGREGATE BASE COURSE–THICKNESS TO CONFORM WITH P1103. INSTALL TO CONFORM WITH M.A.G. SECT. 310.

6. STREET FURNITURE, FIRE HYDRANTS AND MAJOR PLANTINGS SHALL BE SET BACK A MINIMUM OF 5’ FROM THE BACK OF CURB AND BUILDINGS SHALL BE SET BACK A MINIMUM OF 10’ FROM THE BACK OF CURB.

7. GARAGES ARE TO BE SETBACK 18’ FROM BACK OF SIDEWALK.
NOTES:
1. 24’ MIN. WIDTH MAY BE APPROVED FOR SHORT DEAD-END OR CUL-DE-SAC DRIVeways OR DRIVeways IN APART-MENT TYPE DEVELOPMENT. A 3’ UTILITY EASEMENT TO BE DEDICATED ADJACENT.
2. GRADES
   (A) MAX.-15%, STREET GRADES EXCEEDING 12% SHOULD HAVE MAX. LENGTH OF 600’.
   (B) DESIRABLE MIN. GRADE-0.25%.
   (C) WHEN THE LONGITUDINAL GRADE OF INVERTED CROWN IS LESS THAN 0.30%, CONC. VALLEY GUTTER SHALL BE INSTALLED.
3. CROWN
   (A) 5” TO 6” WHERE STREET GRADE IS LESS THAN 0.25%.
   (B) 4” TO 5” WHERE STREET GRADE EXCEEDS 0.25%.
   (C) INVERTED CROWN 4” TO 6”, NOTE: FOR 24’ WIDTH DRIVeways DEDUCT 1” FROM ABOVE CROWNS.
4. WITH INVERTED CROWN STREETS, ROLL CURB, WITH DEPRESSED LIP, MAY BE SUBSTITUTED FOR RIBBON TYPE CURB.
5. RIBBON TYPE CURB IS NOT TO BE INSTALLED IF S/W ARE PROPOSED.
6. CONCRETE PER MAG SEC. 725 & 505.
"T" SLEEVE OPTION

NOTES:
1. 1'-6" MAX. OVERHANG
2. MAX. OVERALL LENGTH IS 33'
3. CENTER POST REQUIRED IF CLEAR SPAN EXCEEDS 15'.
4. CENTER POST SHALL BE 2" DIA. WITH A 2-1/2" DIA. SLEEVE IN THE FOOTING.
5. ALL PIPE IS SCHEDULE 40, GALVANIZED STEEL. (ASTM A 53)

CENTER POST

1/2" BOLT WITH IRON WASHER & NUT (TYP.)

4" DIA. STEEL PIPE CUT TO LENGTH AS NEEDED WITH CUTOUT IN ONE WALL TO ALLOW 3" STEEL PIPE TO BE INSERTED

3" DIA. STEEL PIPE FOR BARRIER POST

2" DIA. STEEL PIPE

PAVEMENT

2-1/2" STEEL PIPE SLEEVE

CLASS "B" CONCRETE M.A.G. 725 & 905

MIN. MIN.
BASE THICKNESS CHART

NOTES:
1. TOP 4" OF BASE SHALL BE A.B.C. BALANCE SHALL BE A.B.C. OR SELECT MATERIAL.
2. MINIMUM-DEPTH OF FLEXIBLE BASE COURSE REQUIRED UNDER 2" (MIN.) BITUMINOUS SURFACE.
3. CHART TO BE USED ONLY WHEN "R" VALUES ARE NOT AVAILABLE.
BASE THICKNESS CHART

NOTES:

1. TOP 4" OF BASE SHALL BE A.B.C. BALANCE SHALL BE A.B.C. OR SELECT MATERIAL.

2. MINIMUM DEPTH OF FLEXIBLE BASE COURSE REQUIRED UNDER 2" (MIN.) BITUMINOUS SURFACE.

3. CHART TO BE USED ONLY WHEN "R" VALUES ARE NOT AVAILABLE.
BASE THICKNESS CHART

\[ \Delta \text{ DESIGN WILL BE ACCOMPLISHED ON AN INDIVIDUAL BASIS USING "R" VALUES. THE CURRENT TRAFFIC COUNT MAY BE OBTAINED FROM THE CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT—OPERATIONS DIVISION.} \]

NOTES:

1. TOP 4" OF BASE SHALL BE A.B.C. BALANCE SHALL BE A.B.C. OR SELECT MATERIAL.
2. MINIMUM—DEPTH OF FLEXIBLE BASE COURSE REQUIRED UNDER 5" (MIN.) BITUMINOUS SURFACE.
3. CHART TO BE USED ONLY WHEN "R" VALUES ARE NOT AVAILABLE.
SMOOTH EDGES ON ALL SIDES.

4 HOLES – 3/4" DRILL

1/2" STEEL PLATE
CUT & DRESS

6'-0"

6" - 8.2#
WELD

1/2" 1-7/8"
WELD

2'-0" 2'-0" 2'-0"

3/8" FILLET WELDS APPROXIMATELY AS SHOWN, BOTH SIDES OF CHANNELS.
TYPE "A" MARKINGS SHALL BE ALTERNATE BLACK AND WHITE REFLECTIVE STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS.)

TYPE "B" MARKINGS SHALL BE ALTERNATE BLACK AND WHITE STRIPES. PAINT ALL EXPOSED SURFACES 1 WHITE PRIME COAT AND 1 COAT OF WHITE EXTERIOR ENAMEL BLACK STRIPING, 1 COAT OF EXTERIOR BLACK ENAMEL.

NOTES:
1. FASTEN WITH 1/2"X8" LAG SCREWS WITH 2 FLAT WASHERS OR (2) 5/8" BOLTS, WITH 4 FLAT WASHERS.
2. 3"X10" DOUGLAS FIR PLANK (LENGTH TO BE DETERMINED ON PLANS).
3. WHEN BARRICADE (TYPE "A") IS CONSTRUCTED ON BASED INSTEAD OF POSTS SET INTO THE GROUND, IT MAY BE DESIRABLE TO BALLAST THE BASES WITH SAND BAGS OR BY STAKING TO PROVIDE RESISTANCE TO OVERTURNING DURING PERIODS OF HIGH WINDS.
ALLOWABLE V.C.P. TRENCH LOADING

<table>
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<tr>
<th>PIPE SIZE (INCHES)</th>
<th>V.C.P. THREE EDGE BEARING STRENGTH MIN.</th>
<th>ALLOWABLE TRENCH LOAD PER CLASS OF BEDDING</th>
<th>SOIL WT. = 130#/CU.FT.</th>
<th>SAFETY FACTOR = 1.5</th>
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<td>CLASS A L.F. = 2.8</td>
<td>*CLASS B-1 L.F. = 2.2</td>
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NOTE:
SECTION 601 APPLIES FOR FOUNDATION, BEDDING, BACKFILL, MATERIALS AND COMPACTION.
# 8” V.C.P. 3 EDGE BEARING STRENGTH=2200#/L.F.

<table>
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<tr>
<th>FILL OVER TOP OF PIPE (FT.)</th>
<th>TRENCH WIDTH AT TOP OF PIPE</th>
<th>FILL OVER TOP OF PIPE (FT.)</th>
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# 10” V.C.P. 3 EDGE BEARING STRENGTH=2400#/L.F.

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SEE DETAIL P1120 FOR BEDDING DETAILS
12” V.C.P. 3 EDGE BEARING STRENGTH=2600#/L.F.

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<td>CLASS OF BEDDING</td>
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15” V.C.P. 3 EDGE BEARING STRENGTH=2900#/L.F.

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SEE DETAIL P1120 FOR BEDDING DETAILS
### 18" V.C.P. 3 Edge Bearing Strength=3300#/L.F.

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- Requires design action

### 21" V.C.P. 3 Edge Bearing Strength=3850#/L.F.

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- See detail P1120 for bedding details

**Detail No.:** P1123

**City of Phoenix:**

**18” & 21” V.C.P. Trench Loading**
24” V.C.P. 3 EDGE BEARING STRENGTH=4400#/L.F.

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<th>FILL OVER TOP OF PIPE (FT.)</th>
<th>TRENCH WIDTH AT TOP OF PIPE (WIDER THAN 66&quot;)</th>
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<tbody>
<tr>
<td>6</td>
<td>42” 48” 54” 60” 66” 68”</td>
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<tr>
<td>8</td>
<td>B-1</td>
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<tr>
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</tbody>
</table>

REQUIRES DESIGN ACTION

27” V.C.P. 3 EDGE BEARING STRENGTH=4700#/L.F.

<table>
<thead>
<tr>
<th>FILL OVER TOP OF PIPE (FT.)</th>
<th>TRENCH WIDTH AT TOP OF PIPE (WIDER THAN 72&quot;)</th>
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<tbody>
<tr>
<td>6</td>
<td>42” 48” 54” 60” 72”</td>
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<tr>
<td>8</td>
<td>B-1</td>
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<td>18</td>
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<tr>
<td>20</td>
<td>A-1</td>
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</tr>
</tbody>
</table>

SEE DETAIL P1120 FOR BEDDING DETAILS

DETAIL NO. P1124

City of Phoenix
STANDARD DETAIL

24” & 27” V.C.P. TRENCH LOADING

APPROVED
Kemery Whitman
CITY ENGINEER
7/9/92
DETAIL NO. P1124
### 30" V.C.P. 3 Edge Bearing Strength = 5000#/L.F.

<table>
<thead>
<tr>
<th>Fill Over Top of Pipe (FT.)</th>
<th>Trench Width at Top of Pipe</th>
<th>Fill Over Top of Pipe (FT.)</th>
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</thead>
<tbody>
<tr>
<td>48&quot;</td>
<td>54&quot;</td>
<td>60&quot;</td>
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<tr>
<td>60&quot;</td>
<td>72&quot;</td>
<td>84&quot;</td>
</tr>
<tr>
<td>Class of Bedding</td>
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<td>Wider Than 84&quot;</td>
</tr>
</tbody>
</table>

- B-1
- A
- A-1

### 33" V.C.P. 3 Edge Bearing Strength = 5500#/L.F.

<table>
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<tr>
<td>48&quot;</td>
<td>54&quot;</td>
<td>60&quot;</td>
</tr>
<tr>
<td>60&quot;</td>
<td>72&quot;</td>
<td>84&quot;</td>
</tr>
<tr>
<td>Class of Bedding</td>
<td></td>
<td>Wider Than 84&quot;</td>
</tr>
</tbody>
</table>

- B-1
- A
- A-1

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REQUIRES DESIGN ACTION

SEE DETAIL P1120 FOR BEDDING DETAILS
### 36" V.C.P. 3 Edge Bearing Strength = 6000#/L.F.

<table>
<thead>
<tr>
<th>Fill Over Top of Pipe (FT.)</th>
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<tbody>
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<tr>
<td>Class of Bedding</td>
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<tr>
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<td>Class of Bedding</td>
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<tr>
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<td></td>
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<td>A-1</td>
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</table>

### 39" V.C.P. 3 Edge Bearing Strength = 6600#/L.F.

<table>
<thead>
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<th>Fill Over Top of Pipe (FT.)</th>
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<td>A</td>
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<tr>
<td>A-1</td>
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</table>
ALLOWABLE V.C.P. TRENCH LOADING

<table>
<thead>
<tr>
<th>PIPE SIZE (INCHES)</th>
<th>V.C.P. THREE EDGE BEARING STRENGTH MIN.</th>
<th>ALLOWABLE TRENCH WIDTH PER CLASS OF BEDDING</th>
<th>SOIL WT. = 130#/CU.FT. SAFETY FACTOR = 1.5</th>
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</thead>
<tbody>
<tr>
<td>42</td>
<td>7000</td>
<td>15867</td>
<td>13067</td>
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42" V.C.P. 3 EDGE BEARING STRENGTH = 7000#/L.F.

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<th>TRENCH WIDTH AT TOP OF PIPE</th>
<th>FILL OVER TOP OF PIPE (FT.)</th>
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<tr>
<td>60&quot;</td>
<td>72&quot;</td>
<td>84&quot;</td>
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<tr>
<td>CLASS A</td>
<td>CLASS B-1</td>
<td>CLASS A</td>
</tr>
<tr>
<td>L.F. = 3.4</td>
<td>L.F. = 2.2</td>
<td>L.F. = 2.8</td>
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<tr>
<td>B-1</td>
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<tr>
<td>14</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

SEE DETAIL P1120 FOR BEDDING DETAILS

**REQUIRES DESIGN ACTION**
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 5-9% NOT TO EXCEED 30' DISTANCE WITHOUT 5' 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.
8' MIN. CLEARANCE
SHOULDER TO BE KEPT CLEAR OF VEGETATION

KEEP CLEAR OF SIGNS, UTILITIES, WALLS, ETC.

10' MIN. CLEARANCE
SHOULDER TO BE KEPT CLEAR OF VEGETATION

KEEP CLEAR OF SIGNS, UTILITIES, WALLS, ETC.

SHARED-USE PATHS - OBSTRUCTION CLEARANCES

MULTI-USE TRAILS - OBSTRUCTION CLEARANCES

10' MINIMUM

UNDERPASS DIMENSIONS

10' MINIMUM

VERTICAL CLEARANCE, MULTI-USE, SHARED-USE, AND UNDERPASS/BRIDGE CLEARANCE
NOTES

1. IF THE SUM OF THE STREET CROWN SLOPE, NORMALLY A NEGATIVE SLOPE OF 1.72' (0.03), AND THE POSITIVE SLOPE IF THE DRIVEWAY IS EQUAL TO OR EXCEEDS THE ANGLE OF DEPARTURE, 8.3' (0.146), THE DRIVEWAY MUST BE REDESIGNED TO A POSITIVE SLOPE OF NOT MORE THAN 6' (0.105). 

2. ADDITIONAL INCREASES IN THE POSITIVE SLOPE MAY BE MADE AT TEN (10) FOOT INTERVALS. EACH CHANGE CANNOT EQUAL OR EXCEED THE ANGLE OF DEPARTURE, 8.3' (0.146). 

3. CHANGES FROM A POSITIVE SLOPE TO A NEGATIVE SLOPE CANNOT EQUAL OR EXCEED THE BREAKOVER ANGLE OF 5.5' (0.097).

4. WHEN MAKING CHANGE FROM A NEGATIVE SLOPE TO A POSITIVE SLOPE, THE SUM OF THE TWO SLOPES CANNOT EQUAL OR EXCEED THE ANGLE OF DEPARTURE, 8.3' (0.146).

GROUND CLEARANCE DIMENSIONS

H-106 = ANGLE OF APPROACH = 8.6 DEGREES
H-107 = ANGLE OF DEPARTURE = 8.3 DEGREES
H-147 = RAMP BREAKOVER ANGLE = 5.53 DEGREES
H-153 = REAR AXLE TO GROUND = 5.5 INCHES
H-156 = MINIMUM GROUND CLEARANCE = 3.1 INCHES
L-101 = WHEELBASE = 9.88 FEET
L-103 = VEHICLE LENGTH = 18.42 FEET

These dimensions are from the 1982 Motor Vehicle Manufacturers Association Publication. Copies may be obtained from Technical Affairs Division, Motor Vehicle Manufacturers Association, 300 New Center Building, Detroit, Michigan 48202.

* 0.03% MAXIMUM TRANSVERSE SLOPE ALLOWABLE
NOTES

1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.

2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.

3. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR APPROVED EQUAL.

4. THE DEBRIS CAP SHALL BE COMPRISED OF A HOLLOW MEMBER HAVING A CYLINDRICAL OUTER SURFACE, A CLOSURE FOR ONE END AND THREE POINT RESILIENT CONTACT PADS PROJECTING FROM THE OUTER SURFACE. THE CAP SHALL HAVE A FLEXIBLE SKIRT PROVIDING AN OUTWARD SEAL PREVENTING DEBRIS FROM GETTING PAST THE CAP. THE CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 POUNDS, AT A LOADING RATE OF 1.0 IN/MINUTE. THE CAP SHALL BE MOLDED USING GENERAL ELECTRIC ABS #HIM 4500. THE CAP SHALL HAVE RETAINING PRONGS TO RETAIN A STANDARD LOCATING COIL, SCOTCHMARK 4" DISC MARKER 141.7kHz BY 3M, OR APPROVED EQUAL.

5. DEBRIS CAPS WITH LOCATOR COILS ARE TO BE INSTALLED ON ANY NEW WATER SERVICES DEPARTMENT CIP PROJECTS, STREET TRANSPORTATION DEPARTMENT CIP PAVING PROJECTS (NEW, REPLACEMENT, AND OVERLAYS) AND PRIVATE DEVELOPMENT PROJECTS IN THE FOLLOWING VALVE BOX LOCATIONS:
   ALL MAJOR (ARTERIAL) STREETS
   ANY UNPAVED AREAS
   ALL EASEMENTS
   GUTTER LOCATIONS
   STREETS WITHOUT CURB & GUTTER
   COUNTY ROADS
   GATE VALVE LOCATIONS ON WATERLINES GREATER THAN 12" IN DIAMETER
   ANY OTHER LOCATION INDICATED ON THE PLANS PER THE DESIGNER.
NOTES:

1. PROVIDE 2' MIN. OVERLAP OF PLATE ON ASPHALT TO ASSURE NO SLIP PAGE OF PLATE AND NO COLLAPSING OF TRENCH.
2. "POSTED SPEED" DOES NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING.
3. METHOD OF ASPHALT REMOVAL OTHER THAN MILLING AT INSPECTOR'S DISCRETION ONLY.

SAWCUT TO EDGE OF MILLING. REPLACE FULL DEPTH

STEEL PLATE FLUSH WITH ADJACENT PAVMT.

MILL THICKNESS OF PROPOSED STEEL PLATE, PACK JOINT WITH COLD MIX IF JOINT WIDTH IS GREATER THAN 1".

COLD MIX

SEE NOTE 1

COLD MIX

SEE NOTE 1

STEEL PLATE

COLD MIX

TYPE "A" PLATING
CITY POSTED SPEEDS OF 35 MPH AND GREATER OR BUS OR TRUCK ROUTE

IF TRENCH LENGTH IS LESS THAN 5-FEET AND STEEL PLATES WILL BE IN PLACE LESS THAN 48 HOURS, STEEL PLATES MAY BE PLACED DIRECTLY ON EXISTING ASPHALT WITHOUT MILLING. PROVIDE TEMPORARY ASPHALT TRANSITIONS EXTENDING 3-FEET BEYOND EDGE OF STEEL PLATES.
CONSTRUCTION NOTES

1. PIPE 2 STD (ASTM A53 Grade B) GALVANIZED PER SECTION 771.

2. PAINT PER SECTION 530 WHERE REQUIRED BY ORDINANCE OR PLANS. COLOR PER PLANS.

3. VERTICAL POSTS TO BE EVENLY SPACED.

4. SAFETY RAILING TO BE PLACED ON ALL HEADWALLS AND AT THE BACK OF SCUPPERS.

5. ANCHORAGE AT SCUPPERS SHALL BE PER MAG STD DETAIL 206-2.

6. EXPANSION JOINT SPACING SHALL NOT EXCEED 40FT AND SHALL BE LOCATED AT STRUCTURE EXPANSION JOINTS, WHICHER IS LESS.

NOTES:

1. FOR GROUND INSTALLATION REFER TO MAG STD DETAIL 145.

2. NOT TO BE USED AS A PEDESTRIAN BRIDGE RAIL.
CONDITIONS WHERE SAFETY RAILINGS (DETAIL P1173) ARE REQUIRED
(REFER TO SAFETY RAILING MAG DETAIL 145, TYPE 4 FOR ATTACHMENT TO THE GROUND)

NOTE:
1) SAFETY RAILS ARE REQUIRED WHERE THE CONDITIONS WILL EXCEED THE ABOVE DEPICTED LIMITS

NOT TO SCALE
NOTES:
1. INITIAL BACKFILL PER SECTION 601 FOR ALL TRENCH TYPES.
2. REFER TO SECTION 336.3 FOR FINAL BACKFILL & SURFACE REPLACEMENT TYPES REG'D BASED ON TRENCH ORIENTATION IN STREETS.
3. TRENCH WIDTH PER SECTION 336 & 601.
4. EXPOSED WATER SERVICE PIPES THAT CROSS TRENCHES TO BE BACKFILLED WITH CLSM SHALL BE WRAPPED WITH MIN. 3/4" THICK CLOSED CELL FOAM INSULATION PRIOR TO PLACEMENT OF CLSM.
5. FOR TRENCHES UP TO 24" WIDE, CLSM MAY BE USED UP TO THE REPLACEMENT PAVEMENT SUBGRADE LEVELS. FOR TRENCHES BETWEEN 24" AND 6' WIDE, CLSM SHALL ONLY BE PLACED IN THE TOP 24" OF TRENCH. FOR TRENCHES WIDER THAN 6’, CLSM FINAL BACKFILL SHALL NOT BE USED, UNLESS APPROVED BY THE ENGINEER.
NOTES:

1. SIDEWALK CONSTRUCTION SHALL CONFORM TO SECTION 340.

2. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER, A.S.T.M. D-1751.

3. EXPANSION JOINTS SHALL BE INSTALLED PRIOR TO ALL POURS, AT POINTS OF CURVATURE, AT ADJOINING STRUCTURES, AT DRIVEWAYS AND AT A MAXIMUM SPACING OF 50'. THE EXPANSION JOINT MUST PROVIDE FOR COMPLETE SEPARATION OF THE SIDEWALK FROM ADJOINING CONCRETE.

4. THE EXPANSION JOINT MATERIAL SHALL EXTEND FROM 1/4" BELOW THE TOP SURFACE OF THE SIDEWALK TO 1" INTO THE SUBGRADE.

5. WHEN SIDEWALK AND ADJACENT CURB ARE INSTALLED MONOLITHICALLY, THE MID-POINT SCORE LINE MUST EXTEND ACROSS THE CURB & GUTTER.

6. EXCEPTION TO BE APPROVED BY CITY ENGINEER.

7. CONCRETE SHALL BE M.A.G. CLASS "A" IN AREAS WITH CROSSING VEHICULAR TRAFFIC.
NOTES:

1. CONSTRUCT THE CONTRACTION JOINTS AS SHOWN ON CONCRETE APRON FOR THE RADIUS REQUIRED.

2. WHEN PLANS CALL FOR A CLASS "A" CONCRETE VALLEY GUTTER THE CONTRACTION JOINTS SHALL BE SPACED SYMMETRICAL WITH AT LEAST ONE JOINT EVERY 10 FEET.

3. WHEN PLANS CALL FOR A 7’ VALLEY GUTTER, MAKE A 7’ SQUARE INSTEAD OF A 3’ SQUARE.
NOTES:
1. CONSTRUCTION DETAILS FOR ALL SIDEWALK RAMPS ARE PRESENTED IN DETAILS P1233 THROUGH P1241–3.
2. DETECTABLE WARNING STRIP:
   2.1 SHALL BE OF CONCRETE, CONCRETE POLYMER OR APPROVED EQUIVALENT.
   2.2 SHALL HAVE A 5/8" MINIMUM THICKNESS.
   2.3 SHALL BE 8000 PSI MINIMUM RATED.
   2.4 SHALL NOT BE CONSTRUCTED OF ASPHALT PAVEMENT, BRICK PAVERS, STAMPED CONCRETE, OR ANY TYPE OF GLUE-DOWN MATERIAL.
   2.5 DOME AREA SHALL BE OF A CONTRASTING COLOR FROM THE SURROUNDING WALKING AREAS, FOR EXAMPLE, DARK ON LIGHT OR LIGHT ON DARK (MINIMUM OF 70% CONTRAST).

50%–65% OF BASE DIAMETER

0.9” – 1.4” BASE DIAMETER

0.65” MIN

1.6” – 2.4”

5/8”

VARIANCE

SEE NOTE 2 AND DETAIL A (TYP)

Curb and Gutter
Per Mag Detail
No. 220–1, Type A

TRUNCATED DOME ELEVATION

TEXTURE PATTERN DETAIL

DETECTABLE WARNING STRIP

DETAIL A (NTS)

TRUNCATED DOMES DETAIL

ICC / ANSI A117.1–2003
705.5 TRUNCATED DOMES

DETECTABLE WARNING SURFACES SHALL HAVE TRUNCATED DOMES COMPLYING WITH SECTION 705.5 OF THE ICC/ANSI A117.1–2003, PROVIDED BELOW.

705.5.1 SIZE. TRUNCATED DOMES SHALL HAVE A BASE DIAMETER OF 0.9 INCH (23mm) MINIMUM TO 1.4 INCH (35mm) MAXIMUM, AND A TOP DIAMETER OF 50 PERCENT MINIMUM TO 65 PERCENT MAXIMUM OF THE BASE DIAMETER.

705.5.2 HEIGHT. TRUNCATED DOMES SHALL HAVE A HEIGHT OF 0.2 INCH (5.1mm).

705.5.3 SPACING. TRUNCATED DOMES SHALL HAVE A CENTER-TO-CENTER SPACING OF 1.6 INCHES (41mm) MINIMUM TO 2.4 INCHES (61mm) MAXIMUM, AND A BASE-TO-BASE SPACING OF 0.65 INCH (16.5mm) MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID.

705.5.4 ALIGNMENT. TRUNCATED DOMES SHALL BEAligned in a SQUARE GRID PATTERN.
<table>
<thead>
<tr>
<th>A(ft)</th>
<th>B(ft)</th>
<th>C(ft)</th>
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<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
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NOTE: B IS THE DISTANCE FROM THE PT OR PC TO THE EDGE OF RAMP WING.

NOTES:
1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0”.
2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.
3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.
4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.
5. 9’ THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4” THICK LANDING AND RAMPS ON LOCAL STREETS.
6. REDUCE CURB HEIGHT BY 1” MAXIMUM IN ORDER TO ACCOMMODATE A 12” SEPARATION BETWEEN RAMPS.
7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING.
8. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.

INSTALL TRUNCATED DOMES IN ACCORDANCE WITH DETAIL P1232 (TYP.).

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT.

SECTION A-A (TYP.)

4’ MINIMUM
6’ RAMP
2’

T.R.=6”
T.C.=0”

T.R.=6”
T.C.=0”

T.C.=6”
T.R.=6”

1:50 MAXIMUM
1:100 MINIMUM CROSS SLOPE
1:12 MAXIMUM RAMP SLOPE

SEE NOTE 5
SEE NOTE 5
SEE NOTE 7
### Dimension Table

<table>
<thead>
<tr>
<th>A(ft)</th>
<th>B(ft)</th>
<th>C(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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<td>15</td>
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<tr>
<td>30</td>
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<td>25</td>
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</table>

*NOTE: B IS THE DISTANCE FROM THE PT OR PC TO THE EDGE OF RAMP WING.*

#### Notes:
1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0”.
2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.
3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.
4. EXPANSION JOINT FILLER SHALL BE 1/2” BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751
5. 9” THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4” THICK LANDING AND RAMPS ON LOCAL STREETS.
6. REDUCE CURB HEIGHT BY 1” MAXIMUM IN ORDER TO ACCOMMODATE A 12” SEPARATION BETWEEN RAMPS.
7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING.
8. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.

---

**SECTION A-A (TYP.)**

- **4' MINIMUM**
- **6' RAMP**
- **2'**
- **T.R.=6”**
- **T.C.=6”**
- **T.C.=0”**
- **T.R.=0”**
- **T.C.=0”**

**INSTALL TRUNCATED DOMES IN ACCORDANCE WITH DETAIL P1232 (TYP.)**

**ROUGH BROOM FINISH WITH RIPPLE PATTERN. EXPANSION JOINT TO EXPANSION JOINT.**

**SEE NOTE 5**

- **1:50 MAXIMUM**
- **1:100 MINIMUM CROSS SLOPE**
- **1:12 MAXIMUM RAMP SLOPE**

**SEE NOTE 5**

---

**City of Phoenix**

**STANDARD DETAIL**

**CURB RAMP DETAIL - 25', 30', & 35' RADII**

**8' & 5' LANDSCAPE PLANTERS**
**NOTE:** B IS THE DISTANCE FROM THE PT OR PC TO THE EDGE OF RAMP WING.

**SECTION A-A (TYP.)**

**NOTES:**

1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADially. GUTTER ELEVATION = 0''.

2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.

4. EXPANSION JOINT FILLER SHALL BE 1/2'' BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751

5. 9'' THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4'' THICK LANDING AND RAMPS ON LOCAL STREETS.

6. REDUCE CURB HEIGHT BY 1'' MAXIMUM IN ORDER TO ACCOMMODATE A 12'' SEPARATION BETWEEN RAMPS.

7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1') BEYOND THE TOP OF LANDING.

8. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.
**DIMENSION TABLE**

<table>
<thead>
<tr>
<th>A(ft)</th>
<th>B(ft)</th>
<th>C(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>2</td>
<td>*</td>
</tr>
<tr>
<td>30</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>35</td>
<td>8</td>
<td>24</td>
</tr>
</tbody>
</table>

* RAMP IS STRAIGHT ACROSS THE BACK. NOTE: B IS THE DISTANCE FROM THE PT OR PC TO THE EDGE OF RAMP WING.

**NOTES:**

1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0”.
2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.
3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.
4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751
5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.
6. REDUCE CURB HEIGHT BY 1" MAXIMUM IN ORDER TO ACCOMMODATE A 12” SEPARATION BETWEEN RAMPS.
7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (18") BEYOND THE TOP OF LANDING.
8. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.

**SECTION A-A (TYP.)**

INSTALL TRUNCATED DOMES IN ACCORDANCE WITH DETAIL P1232 (TYP.)

ROUGH BROOM FINISH WITH RIPPLE PATTERN. EXPANSION JOINT TO EXPANSION JOINT.
RADI Table

<table>
<thead>
<tr>
<th>A(ft)</th>
<th>B(ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
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<tr>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>30</td>
<td>22.5</td>
</tr>
</tbody>
</table>

CONTRACTION JOINT

ROW LINE

5' SIDEWALK

6" HIGH VERTICAL CURB AND GUTTER

EXPANSION JOINT

* MINIMUM WIDTH

NOTES:
1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0".
2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.
3. RAMPS CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.
4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751
5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.
6. 9" CURB ON MAJOR AND COLLECTOR STREETS AND 6" CURB ON LOCAL STREETS.

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT.

INSTALL TRUNCATED DOMES ON THE BOTTOM 2' OF THE RAMP SURFACE IN ACCORDANCE WITH DETAIL P1232 (TYP.)

SECTION A-A (TYP.)

1.5% MIN SLOPE
2% MAX SLOPE

SEE NOTE 5

SEE NOTE 6

CONTRACTION JOINT 1" DEEP OR FORMED SEPARATELY

6" VERTICAL CURB

DETAIL NO. | P1237
--- | ---

City of Phoenix
STANDARD DETAIL
CURB RAMP DETAIL - ALL RADIUS CURB RETURNS, LIMITED RIGHT OF WAY

APPROVED

ACTING CIVIL ENGINEER

DATE

7/31/08

DETAIL NO. | P1237
NOTES:

1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0'.

2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.

4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751

5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.

6. REDUCE CURB HEIGHT BY 1" MAXIMUM IN ORDER TO ACCOMMODATE A 12" SEPARATION BETWEEN RAMPS.

7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1 ft.) BEYOND THE TOP OF LANDING.

8. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.
CONTRACTION JOINT

CONTRACTION JOINT @ 1/2 DELTA (TYP.) CONTRACTION JOINT

EXPANSION JOINT

ROW LINE

5' SIDEWALK

6" HIGH VERTICAL CURB AND GUTTER

NOTES:
1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0".
2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.
3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.
4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751
5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.
6. REDUCE CURB HEIGHT BY 1" MAXIMUM IN ORDER TO ACCOMMODATE A 12" SEPARATION BETWEEN RAMPS.
7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING

SECTION A-A (TYP.)

4' MINIMUM 6' RAMP 2'

T.R.=6" T.C.=0"

SEE NOTE 5

1:50 MAXIMUM 1:100 MINIMUM CROSS SLOPE

2' 7"

T.C.=0"

SEE NOTE 5

1:12 MAXIMUM RAMP SLOPE

T.R.=6" T.C.=6"

INSTALL TRUNCATED DOMES IN ACCORDANCE WITH DETAIL P1232 (TYP.)

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT.
NOTES:
1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY. GUTTER ELEVATION=0".

2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

3. RAMP CURBS MAY BE POURED MONOLITHIC WITH A CONTRACTION JOINT.

4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751

5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.

6. REDUCE CURB HEIGHT BY 1" MAXIMUM IN ORDER TO ACCOMMODATE A 12" SEPARATION BETWEEN RAMPS.

7. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING.
NOTES:

1. CONTROL ELEVATIONS ARE SHOWN IN RELATION TO THE GUTTER AND ARE LOCATED RADIIALLY. GUTTER ELEVATION = 0".

2. CONCRETE CURB AND GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALKS AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

3. RAMP CURBS MAY BE Poured MONOLITHIC WITH A CONTRACTION JOINT.

4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751

5. 9" THICK LANDING, RAMPS, AND CURBS FROM EXPANSION JOINT TO EXPANSION JOINT ON MAJOR OR COLLECTOR STREETS. 4" THICK LANDING AND RAMPS ON LOCAL STREETS.

6. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING.

7. ADDITIONAL SIDEWALK PER NOTE 2 & 5 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.
SECTION A-A

NOTES:

1) CONCRETE CURB & GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALK AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

2) 9" LANDING AND RAMPS ON MAJOR OR COLLECTOR STREETS AND 4" LANDING AND RAMPS ON LOCAL STREETS.
NOTES:
1. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER. GUTTER ELEVATION = 0".
2. CLASS "A" CONCRETE TO BE USED AS PER SECTION 725.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.

CONTROL ELEVATIONS

CURB RAMP DETAIL (MID BLOCK)
NOTES:

1. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER. GUTTER ELEVATION = 0”.

2. CLASS "A" CONCRETE TO BE USED AS PER SECTION 725.

3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.

4. ADDITIONAL SIDEWALK PER NOTE 2 WHEN SIGNAL POLES ARE LOCATED IN THESE AREAS.
INSTALL TRUNCATED DOMES ON THE BOTTOM 2' OF THE RAMP SURFACE IN ACCORDANCE WITH DETAIL P1232.

TOP OF RAMP=3−3/4"

T.S/W=4−1/2"

SEE NOTE 4

ROW LINE

T.S/W=4−3/4"

4" ROLLED CURB

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT.

T.C.=4"

EXPANSION JOINT

T.C.=4"

TRANSITION

TRANSITION

ROLLED CURB & GUTTER

NOTES:
1. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER.
   GUTTER ELEVATION = 0".
2. CLASS "A" CONCRETE TO BE USED AS PER SECTION 725.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED
   EXPANSION JOINT FILLER A.S.T.M. D−1751.
4. MAINTAIN THE PLANE OF THE LANDING ONE FOOT (1ft.) BEYOND THE TOP OF LANDING

DETAIL NO. P1241−3

CURB RAMP DETAIL (MID BLOCK)
WITH 4" ROLL CURB
INSTALL TRUNCATED DOMES ON THE BOTTOM 2' OF THE RAMP SURFACE IN ACCORDANCE WITH DETAIL P1232

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT

ROUGH BROOM FINISH WITH RIPPLE PATTERN, EXPANSION JOINT TO EXPANSION JOINT

CURB (PAID AS PORTION OF SIDEWALK) 6' - LANDING 1% MIN SLOPE 2% MAX SLOPE

1% DEEP OR FORMED AND Poured SEPARATELY

CONSTRUCTION JOINT

NOTES:
1. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER. GUTTER ELEVATION = 0'.
2. CLASS "A" CONCRETE TO BE USED AS PER SECTION 725.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.

CONTROL ELEVATIONS

A

S/W=3/4"

T.C.& S/W=6-3/4"

T.C.=6"

T.C.=6"

T.C.=0"

T.C.=0"

T.C.=6"
NOTES:
1. CONTROL ELEVATIONS ARE IN RELATION TO THE GUTTER AND ARE LOCATED RADIALY.
   GUTTER ELEVATION = 0 FT.

2. CONCRETE CURB & GUTTER AT CURB RETURNS WITH RAMPS SHALL BE M.A.G. CLASS A. CONCRETE SIDEWALK AND RAMPS AT CURB RETURNS SHALL BE M.A.G. CLASS A.

3. RAMP CURBS MAY BE Poured MONOLITHIC WITH A CONSTRUCTION JOINT.

4. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751

5. MEASUREMENT AND PAYMENT FOR CONCRETE DRIVEWAY SHALL BE BY THE SQUARE FOOT OF 9" CLASS "A" CONCRETE PLACED. MEASUREMENT AND PAYMENT FOR THE CURB RETURNS AND THE SIDEWALK AT THE RETURNS SHALL BE MADE UNDER THEIR SEPARATE PAY ITEMS.
Minimum acceptable with Street Transportation and Fire Departments approval
Accommodates passenger vehicles and AASHTO SU30

Maximum acceptable Accommodates up to AASHTO WB50

COP R3-2
Installed and Maintained by Property Owner

WITHOUT DECELERATION LANE PREVENTS LEFT TURN IN 35° RETURN

WITHOUT DECELERATION LANE PREVENTS LEFT TURN IN 60° RETURN

DETAIL NO. P1243-1
City of Phoenix
STANDARD DETAIL

LIMITED ACCESS DRIVEWAY WITH NO LT-IN AND WITHOUT DECELERATION LANE

APPROVED
07/01/2015
CITY ENGINEER
DATE

DETAIL NO. P1243-1
Minimum acceptable with Street Transportation and Fire Departments approval
Accommodates passenger vehicles and AASHTO SU30

Maximum acceptable
Accommodates up to AASHTO WB50

COP R3-2
Installed and Maintained by Property Owner

WITHOUT DECELERATION LANE
PREVENTS LEFT TURN IN/OUT
35° RETURN

WITHOUT DECELERATION LANE
PREVENTS LEFT TURN IN/OUT
60° RETURN
Minimum acceptable with Street Transportation and Fire Departments approval
Accommodates passenger vehicles and AASHTO SU30

Maximum acceptable Accommodates up to AASHTO WB50

COP R3-2
Installed and Maintained by Property Owner

WITH DECELERATION LANE PREVENTS LEFT TURN IN 35° RETURN

WITH DECELERATION LANE PREVENTS LEFT TURN IN 60° RETURN
Minimum acceptable with Street Transportation and Fire Departments approval
Accommodates passenger vehicles and AASHTO SU30

Maximum acceptable Accommodates up to AASHTO WB50

WITH DECELERATION LANE PREVENTS LEFT TURN INOUT 35' RETURN

WITH DECELERATION LANE PREVENTS LEFT TURN INOUT 60' RETURN

COP R3-2 Installed and Maintained by Property Owner
FULL DEPTH EXPANSION JOINT THROUGH DRIVEWAY, CURB & GUTTER. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.

WHEN WIDTH EXCEEDS 22’ PROVIDE A CONTRACTION JOINT ON D/W CENTER-LINE.

SEE DETAIL "A" FOR DRIVES, AS PER SECT. 725.

SECTION A-A

NOTES:
1. THIS DETAIL IS ONLY TO BE USED WHEN APPROVED BY THE CITY.
2. DEPRESSED CURB SHALL BE PAID FOR AS COMBINED CURB AND GUTTER.
3. CONCRETE CURB & GUTTER SHALL BE M.A.G. CLASS A;
   TOP OF CURB TO TOP OF WING.
4. PAYMENT FOR DRIVEWAY SHALL BE ON A SQUARE FOOT BASIS.
5. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE TO THE SUBGRADE.
6. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO GUTTER.

FLOWLINE

DETAIL "A"

Refer to P1255-4 for Driveway Widths Policy
PROVIDE CONSTRUCTION JOINTS TO MATCH CURB JOINTS.
(10' SPACING)

WHEN WIDTH EXCEEDS 22'
PROVIDE A CONTRACTION
JOINT ON D/W CENTER-LINE.

D/W WIDTH
SEE TABLE

CONTRACTION JOINT

PED. PATH
TO MATCH S/W. FINISH
PER ST. DET. P1230

SIDEWALK,
DET. P1230

FLOW LINE OF GUTTER

DEPRESSED CURB

BACK OF CURB—CONSTRUCTION JOINT OR
SCORE MARK.

DETAIL "A"

FULL DEPTH EXPANSION JOINT THROUGH DRIVEWAY,
CURB & GUTTER. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE
PREFORMED EXPANSION JOINT FILLER
A.S.T.M. D-1751.

SLOPE (SEE DETAIL P1164)
1.5% MIN. CROSS SLOPE
2% MAX. CROSS SLOPE

COMPACTED SUBGRADE
AS PER SECT. 301.

SECTION A–A

NOTES
1. DEPRESSED CURB SHALL BE PAID FOR AS COMBINED CURB AND GUTTER.
2. CONCRETE CURB & GUTTER SHALL BE M.A.G. CLASS A;
   TOP OF WING TO TOP OF WING.
3. PAYMENT FOR DRIVEWAY SHALL BE A SQUARE FOOT BASIS.
4. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO
   POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY
   SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE
   TO THE SUBGRADE.
5. WHEN DRIVEWAY IS CONSTRUCTED AT A "T" INTERSECTION AND IS USED AS
   A RAMP, USE DETAIL P1244.
6. 9" CLASS "A" CONCRETE FOR COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND
   6" CLASS "A" CONCRETE FOR RESIDENTIAL DRIVEWAYS, AS PER SECT. 725.

Refer to P1255–4 for
Driveway Widths Policy
PROVIDE CONSTRUCTION JOINTS TO MATCH CURB JOINTS. (10’ SPACING)
WHEN WIDTH EXCEEDS 22’ PROVIDE A CONTRACTION JOINT ON D/W CENTER-LINE.
SIDEWALK, PER PLANS SIZE AS PER PLANS
CONTRACTION JOINT
FLOW LINE OF GUTTER
DEPRESSED CURB
EXPANSION JOINT THROUGH SIDEWALK AND CURB & GUTTER. EXPANSION JOINT FILLER SHALL BE 1/2” BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.
NOTE 6
DETAIL "A"

SECTION A-A

NOTES
1. DEPRESSED CURB SHALL BE PAID FOR AS COMBINED CURB AND GUTTER.
2. CONCRETE CURB & GUTTER SHALL BE M.A.G. CLASS A; TOP OF WING TO TOP OF WING.
3. PAYMENT FOR DRIVEWAY SHALL BE ON A SQUARE FOOT BASIS.
4. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE TO THE SUBGRADE.
5. WHEN DRIVEWAY IS CONSTRUCTED AT A "T" INTERSECTION AND IS USED AS A RAMP, THE SLOPE OF THE DRIVEWAY SHALL BE A MAX OF 12:1, AND WILL HAVE TRUNCATED DOMES INSTALLED AT THE BACK OF CURB IN A 2-FT DEEP BY 5-FT WIDE AREA LOCATED AT EITHER THE RIGHT OR LEFT END OF THE DRIVEWAY ENTRANCE, WHICHERVER WILL PROVIDE THE MOST DIRECT ALIGNMENT WITH THE RECEIVER CURB RAMP ON THE OPPOSITE CURB. TRUNCATED DOMES TO BE IN ACCORDANCE WITH DETAIL P1232.
6. 9" CLASS "A" CONCRETE FOR COMMERCIAL AND INDUSTRIAL DRIVEWAYS AND 6" CLASS "A" CONCRETE FOR RESIDENTIAL DRIVEWAYS, AS PER SECT. 725.

Refer to P1255-4 for Driveway Widths Policy
NOTES

1. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER, A.S.T.M. D-1751.
2. CONTROL & EXPANSION JOINTS SHALL ALIGN WITH EXISTING JOINTS IN DRIVEWAY.
3. CONCRETE SHALL BE CLASS "A", SECT. 725.
4. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE TO THE SUBGRADE.
5. EXPANSION JOINT MATERIAL SHALL BE USED WHEN NEW POURING IS ADJACENT TO EXISTING DRIVEWAY AREA.
6. □□□□□ INDICATES AREA WHICH MAY REMAIN ASPHALT IF THE CROSS SLOPE & PAVING CONDITIONS MEET ADA STANDARDS.
## Driveway Widths Policy

<table>
<thead>
<tr>
<th>Street Classification</th>
<th>Single Family</th>
<th>MultiFamily/Commercial &lt;30 spaces</th>
<th>MultiFamily/Commercial &gt;30 spaces</th>
<th>Gas Station</th>
<th>Truck Facilities</th>
<th>Gates</th>
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</thead>
<tbody>
<tr>
<td>Alley</td>
<td>16' Minimum</td>
<td>20'</td>
<td>20'</td>
<td></td>
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<td>**</td>
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<tr>
<td>Local Residential</td>
<td>12' One Car - Recommended</td>
<td>24' - 30'</td>
<td>30'</td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>Local Commercial/Industrial</td>
<td></td>
<td>30' - 40' ***</td>
<td>30' - 40' ***</td>
<td>40' **</td>
<td>40' - 50' ***</td>
<td>**</td>
</tr>
<tr>
<td>Collector Residential</td>
<td>16' Minimum</td>
<td>30' ***</td>
<td>30' ***</td>
<td></td>
<td>40' ***</td>
<td>**</td>
</tr>
<tr>
<td>Collector Commercial/Industrial</td>
<td></td>
<td>30' - 40' ***</td>
<td>30' - 50' ***</td>
<td>40' - 50' ***</td>
<td>40' - 50' ***</td>
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<tr>
<td>Arterial</td>
<td>Discouraged except for large lot-circular drives *</td>
<td>30' ***</td>
<td>40' ***</td>
<td></td>
<td>40' - 50' ***</td>
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</tbody>
</table>

* Minimum 82' property width
** See gate access turnaround handout - DSD
*** Median -30' maximum unless there is significant truck access - then 40'

<table>
<thead>
<tr>
<th>Local/Collector One Way</th>
<th>Arterial One Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>24'</td>
<td>24'</td>
</tr>
<tr>
<td>16'</td>
<td>16'</td>
</tr>
</tbody>
</table>

Notes:

1) Driveways greater than 50' are not permitted by City code unless a waiver of the ordinance is obtained from the Driveway Hearing Officer or his designee.
2) Deviation from this policy can be determined by the City of Phoenix traffic engineer.
NOTES:

1. 1/2" BITUMINOUS PREFORMED EXPANSION JOINT FILLER, A.S.T.M. D-1751

2. CONCRETE BUS BAY PAVEMENT SHALL BE BROOM FINISHED, EXCEPT WHERE OTHERWISE NOTED.

3. MAY BE REDUCED TO 10' MINIMUM IF APPROVED BY CITY.

4. SUBGRADE PREPARATION PER SPECIFICATIONS.

5. CONCRETE PAD TO BE Poured SEPARATELY FROM CONCRETE BUS BAY PAVEMENT.
   (SEE SECTION C-C)

6. CONTRACTION JOINTS IN THE BUS BAY PAVEMENT SHALL MATCH THOSE IN THE CURB.

7. CONCRETE SHALL BE CLASS "A" PER M.A.G. SPECS. OR CLASS "S", F'c = 3000 PSI PER A.D.O.T. SPECS.

8. BUS SHELTER PAD, SEE DETAIL P1261

9. DRIVEWAYS SHALL NOT BE LOCATED WITHIN THE SHELTER PAD AREA.

10. CAN BE USED AT INTERSECTIONS WITH TOTAL ROADWAY WIDTHS OF 74' OR LARGER.
NOTES:

1. 1/2" BITUMINOUS PREFORMED EXPANSION JOINT FILLER, A.S.T.M. D-1751

2. CONCRETE BUS BAY PAVEMENT SHALL BE BROOM FINISHED.

3. MAY BE REDUCED TO 10’ MINIMUM IF APPROVED BY CITY.

4. SUBGRADE PREPARATION PER SPECIFICATIONS.

5. CONCRETE PAD TO BE POURED SEPARATELY FROM CONCRETE BUS BAY PAVEMENT. (SEE SECTION C–C)

6. CONTRACTION JOINTS IN THE BUS BAY PAVEMENT SHALL MATCH THOSE IN THE CURB.

7. CONCRETE SHALL BE CLASS "A" PER M.A.G. SPECS. OR CLASS "S", F'c = 3000 PSI PER A.D.O.T SPECS.

8. CURB & GUTTER−TO−BUS BAY PAVEMENT−TRANSITION (LENGTH VARIES)

9. DRIVEWAYS SHALL NOT BE LOCATED WITHIN THE SHELTER PAD AREA.

10. BUS SHELTER PAD, SEE DETAIL P1261

11. CAN BE USED AT INTERSECTIONS WITH TOTAL ROADWAY WIDTHS OF 74’ OR LARGER.
1. BUS SHELTER PAD.  
SEE DETAIL P1260 OR P1262

2. DRIVEWAYS SHALL NOT BE  
LOCATED WITHIN THE SHELTER  
PAD AREA.

3. SIDEWALK DETAIL P1230

4. CURB & GUTTER DETAIL 220-1  
TYPE "A".

5. REDUCE TO 30' IN  
SINGLE FAMILY RESIDENTIAL  
AREAS.

6. REDUCE TO 20' IN  
SINGLE-FAMILY RESIDENTIAL  
AREAS.
INSTALL 3/4" CONDUIT FROM JUNCTION BOX TO JUNCTION BOX PRIOR TO PLACEMENT OF CONCRETE.

SET #3 1/2 JUNCTION BOX ADJACENT TO CONCRETE CURB.

3/4" CONDUIT SWEEP FROM JUNC. BOX TO POWER LEG.

40" (SEE PLANS)

POWER LEG OF SHELTER

ROW LINE

SIDEWALK

CURB & GUTTER

PLAN VIEW

SECTION A – A

NOTES:
1. ACTUAL PLAN LAYOUT MAY VARY. ALL OTHER DETAIL INFORMATION REMAINS THE SAME. SEE PLANS FOR SPECIFIC LOCATIONS AND DIMENSIONS OF BUS SHELTER PAD.
2. ANY SHELTER OR BUS STOP FURNITURE PLACEMENT SHALL BE LOCATED TO PROVIDE A MIN. 5 FT. WIDE CLEAR SIDEWALK.
3. DECORATIVE PAVEMENT OPTIONS MAY INCLUDE EXPOSED AGGREGATE 1/4" (NO LARGER) WITH DESIGN STRENGTH OF 4000 PSI MINIMUM. OTHER OPTIONS INCLUDING COLOR (TO MATCH SURROUNDINGS) AND STAMPING WILL BE CONSIDERED. CONCRETE MIX DESIGN THROUGH THE CITY OF PHOENIX MATERIALS LAB. DECORATIVE OPTIONS TO BE APPROVED BY THE CITY OF PHOENIX. PAVERS ARE NOT TO BE USED.
4. ELECTRICAL CONDUITS AND JUNCTION BOXES SHALL NOT BE REQUIRED UNLESS REQUESTED.
5. ALL CONDUIT SHALL BE P.V.C. SCHEDULE 40, U.L. LISTED.
6. ALL COSTS ASSOCIATED WITH ELECTRICAL AND RELATED ITEMS SHOWN ON THESE DETAILS (CONDUITS, JUNCTION BOXES, GROUND ROD, ETC.) SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR CONCRETE BUS SHELTER PAD.
7. BUS BAY PAVEMENT, CONCRETE PAD, CONCRETE CURB, SINGLE CURB, CURB & GUTTER, SIDEWALKS, & DRIVEWAYS ARE SEPARATE PAY ITEMS.
8. SHELTER PADS AND DRIVEWAYS SHALL BE LOCATED TO PROVIDE MINIMUM INTERSECTION SIGHT DISTANCE IN ACCORDANCE WITH CURRENT AASHTO STANDARDS (CASE IIIA).

INSTALL 5/8" X 8" COPPER CLAD STEEL GROUND ROD IN JUNCTION BOX.

NO. 3 1/2 JUNCTION BOX W/"ELECTRIC" ON LID (W/LOCKING COVER), ADOT DETAIL T.S. 1-1

TEMPORARILY PLUG CONDUIT ENDS UNTIL USED FOR POWER.

COMPACTED SOIL @ 95%

6" THICK MINIMUM CONCRETE (MAG CLASS B)

SLEEVE SWEEP & JUNCTION BOX DETAIL

FINISH GRADE

1/2"

12" LAYER OF SEA GRAVEL

MIN. 1 CU FT. MATERIAL

STANDARD RADIUS SWEEPS

2 - 3/4" CONDUITS—ONE TO POWER LEG, AND ONE TO OPPOSITE END OF SHELTER PAD.

1500 W. MESH (10 GA.)

RIGHT OF WAY LINE

SET POWER LEG CONDUIT W/COUPLING FLUSH WITH CONCRETE SURFACE. INSTALL TEMPORARY PLUG.
NOTES:

1. ACTUAL PLAN LAYOUT MAY VARY. ALL OTHER DETAIL INFORMATION REMAINS THE SAME. SEE PLANS FOR SPECIFIC LOCATIONS AND DIMENSIONS OF BUS SHELTER PAD.
2. ANY SHELTER OR BUS STOP FURNITURE PLACEMENT SHALL BE LOCATED TO PROVIDE A MIN. 5 ft. WIDE CLEAR SIDEWALK.
3. DECORATIVE PAVEMENT OPTIONS MAY INCLUDE EXPOSED AGGREGATE 1/4" (NO LARGER) WITH DESIGN STRENGTH OF 4000 PSI MINIMUM. OTHER OPTIONS INCLUDING COLOR (TO MATCH SURROUNDINGS) AND STAMPING WILL BE CONSIDERED. CONCRETE MIX DESIGN THROUGH THE CITY OF PHOENIX MATERIALS LAB. DECORATIVE OPTIONS TO BE APPROVED BY THE CITY OF PHOENIX. PAVERS ARE NOT TO BE USED.
4. ELECTRICAL CONDUITS AND JUNCTION BOXES SHALL NOT BE REQUIRED UNLESS REQUESTED.
5. ALL CONDUIT SHALL BE P.V.C. SCHEDULE 40, U.L. LISTED.
6. ALL COSTS ASSOCIATED WITH ELECTRICAL AND RELATED ITEMS SHOWN ON THESE DETAILS (CONDUITS, JUNCTION BOXES, GROUND ROD, ETC.) SHALL BE CONSIDERED INCLUDED IN THE COST OF THE PAY ITEM FOR CONCRETE BUS SHELTER PAD.
7. BUS BAY PAVEMENT, CONCRETE PAD, CONCRETE CURB, SINGLE CURB, CURB & GUTTER, SIDEWALKS, & DRIVEWAYS ARE SEPARATE PAY ITEMS.
8. SHELTER PADS AND DRIVEWAYS SHALL BE LOCATED TO PROVIDE MINIMUM INTERSECTION SIGHT DISTANCE IN ACCORDANCE WITH CURRENT AASHTO STANDARDS (CASE IIIA).
CONCRETE PAD TO MATCH S/W GRADE (TYP)

SET JUNCTION BOX ADJACENT TO SHELTER PAD

3/4" CONDUIT SWEEP FROM JUNCTION BOX TO POWER LEG

40' SHELTER AREA

NO. 3-1/2 JUNCTION BOX AT EACH END (TYP)

INSTALL 3/4" CONDUIT FROM JUNCTION BOX TO JUNCTION BOX PRIOR TO PLACEMENT OF CONCRETE

ROW LINE SIDEWALK

LANDSCAPED PARKWAY AREA

3/4" POWER LEG

CURB & GUTTER

REINFORCED CONCRETE PAD. SEE DETAILS.

PLAN VIEW

NOTES:
1. ACTUAL PLAN LAYOUT MAY VARY. ALL OTHER DETAIL INFORMATION REMAINS THE SAME. SEE PLANS FOR SPECIFIC LOCATIONS AND DIMENSIONS OF BUS SHELTER PAD.
2. ANY SHELTER OR BUS STOP FURNITURE PLACEMENT SHALL BE LOCATED TO PROVIDE A MIN. 5 ft. WIDE CLEAR SIDEWALK.
3. DECORATIVE PAVEMENT OPTIONS MAY INCLUDE EXPOSED AGGREGATE 1/4" (NO LARGER) WITH DESIGN STRENGTH OF 4000 PSI MINIMUM. OTHER OPTIONS INCLUDING COLOR (TO MATCH SURROUNDINGS) AND STAMPING WILL BE CONSIDERED. CONCRETE MIX DESIGN THROUGH THE CITY OF PHOENIX MATERIALS LAB. DECORATIVE OPTIONS TO BE APPROVED BY THE CITY OF PHOENIX. PAVERS ARE NOT TO BE USED.
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7. BUS BAY PAVEMENT, CONCRETE PAD, CONCRETE CURB, SINGLE CURB, CURB & GUTTER, SIDEWALKS, & DRIVEWAYS ARE SEPARATE PAY ITEMS.
8. SHELTER PADS AND DRIVEWAYS SHALL BE LOCATED TO PROVIDE MINIMUM INTERSECTION SIGHT DISTANCE IN ACCORDANCE WITH CURRENT AASHTO STANDARDS (CASE IIIA).

SECTION A - A

INSTALL 5/8" X 8" COPPER CLAD STEEL GROUND ROD IN JUNCTION BOX.

NO. 3 1/2 JUNCTION BOX W/ELECTRIC ON LID (W/LOCKING COVER), ADOT T.S. 1-1

TEMPORARILY PLUG CONDUIT ENDS UNTIL USED FOR POWER.

SLEEVE SWEEP & JUNCTION BOX DETAIL

COMPACTED SUBGRADE

12" LAYER OF PEA GRAVEL MIN. 1 CU FT. MATERIAL

STANDARD RADIUS SWEEPS

2-3/4" CONDUITS—ONE TO POWER LEG, AND ONE TO OPPOSITE END OF SHELTER PAD.
NOTE:

1. ALL DIMENSIONS ARE TO FACE OF CURB.
2. WHEEL CHAIR RAMP AND WING SLOPES SHALL NOT EXCEED 12:1.
3. COORDINATE REMOVAL OF LANDSCAPING WITH STREET TRANSPORTATION DEPARTMENT'S LANDSCAPE ARCHITECT.
4. EXISTING LANDSCAPE IRRIGATION LINES SHALL BE SLEEVED UNDER BUS SHELTER/ACCESSORY PAD & DECO PAVEMENT. SLEEVE SHALL EXTEND 12" BEYOND EACH SIDE OF PAVEMENT.
5. NOTIFY PARKS DEPARTMENT MAINTENANCE DISTRICT IF LANDSCAPE IRRIGATION SYSTEM WILL BE INTERRUPTED FOR MORE THAN 24 HOURS.
6. ALL CONCRETE AND ASPHALT REMOVALS SHALL BE SAW CUT, MIN. 2" ASPHALT REPLACEMENT ADJACENT TO NEW CURBS.
7. DECORATIVE PAVEMENT OPTIONS MAY INCLUDE EXPOSED AGGREGATE 1/4" (NO LARGER) WITH DESIGN STRENGTH 4000 PSI. OTHER OPTIONS INCLUDING COLOR (TO MATCH SURROUNDINGS) AND STAMPING WILL BE CONSIDERED.

ACON T Format

6" MINIMUM THICKNESS CONCRETE PAD (MAG CLASS B) WITH 6x6 W.W. MESH (10 GA.) 2" FROM BOTTOM

NEW A.C. PAVEMENT 4" AC ON COMPACTED NATIVE OR MATCH EXISTING WHICH EVER IS GREATER.

6" MINIMUM THICKNESS CONCRETE PAD (MAG CLASS B) WITH 6x6 W.W. MESH (10 GA.) 2" FROM BOTTOM

SLOPE LIMITS FOR ALTERNATES 1A & 1B

#3 REBAR CONTINUOUS

SECTION B-B

DETAIL 222-B(MOD)

SECTION A-A

NOTES:

1. USE CLASS 'B' CONCRETE PER SECTION 725.
2. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER. GUTTER ELEVATION = 0.
NOTES:
1. ALL DIMENSIONS ARE TO FACE OF CURB.
2. WHEEL CHAIR RAMP AND WING SLOPES SHALL NOT EXCEED 12:1.
3. COORDINATE REMOVAL OF LANDSCAPING WITH STREET TRANSPORTATION DEPARTMENT’S LANDSCAPE ARCHITECT.
4. EXISTING LANDSCAPE IRRIGATION LINES SHALL BE SLEEVED UNDER BUS SHELTER/ACCESSORY PAD. SLEEVE SHALL EXTEND 12” BEYOND EACH SIDE OF PAD.
5. NOTIFY PARKS DEPARTMENT MAINTENANCE DISTRICT IF LANDSCAPE IRRIGATION SYSTEM WILL BE INTERRUPTED FOR MORE THAN 24 HOURS.
6. ALL CONCRETE AND ASPHALT REMOVALS SHALL BE SAW CUT, MIN. 2” ASPHALT REPLACEMENT ADJACENT TO NEW CURBS.
7. SEE DETAIL P1263-1 FOR CROSS SLOPE LIMITS.
8. DECORATIVE PAVEMENT OPTIONS MAY INCLUDE EXPOSED AGGREGATE 1/4” (NO LARGER) WITH DESIGN STRENGTH OF 4000 PSI MINIMUM. OTHER OPTIONS INCLUDING COLOR (TO MATCH SURROUNDINGS) AND STAMPING WILL BE CONSIDERED. CONCRETE MIX DESIGN THROUGH THE CITY OF PHOENIX MATERIALS LAB. DECORATIVE OPTIONS TO BE APPROVED BY THE CITY OF PHOENIX. PAVERS ARE NOT TO BE USED.

ALTERNATE 2A
NEW CONSTRUCTION FOR HIGH VOLUME BUS STOPS

ALTERNATE 2B
RETROFIT OR NEW CONSTRUCTION FOR LOW VOLUME BUS STOPS.
1) IN PAVED MAJOR ARTERIAL STREETS, CONCRETE COLLARS SHALL BE SCORED RADIAILY AT QUARTER–CIRCLE POINTS AND SCORES SHALL BE 1/4" WIDE.
BY 1/2" DEEP. CONCRETE SURFACE SHALL BE ROUGH BROOM FINISHED, NO TRAFFIC SHALL BE ALLOWED ON COLLARS UNTIL CONCRETE REACHES MINIMUM 2500 PSI ON ALL STREETS.

2) LETTERS ON COVER TO BE AS FOLLOWS: "SEWER", "WATER", OR "SURVEY" AS DIRECTED. TOTAL WIDTH OF WORD "SEWER" OR "WATER" 3–3/4". TOTAL WIDTH OF WORD "SURVEY" 4–1/2". LETTER SIZE 5/8" X 3/4", RAISED 1/16" ABOVE LEVEL OF COVER. TYPE OF LETTERS TO BE SUBMITTED FOR APPROVAL. CASTINGS TO CONFORM TO SECT. 787.

3) COMPACTION TO CONFORM TO SECT. 301 OR 601.
1. BODY OF THE SECURE VALVE BOX LID SHALL BE MOLDED USING AN ABS/POLYCARBONATE ALLOY, AND DISPLAY THE CITY OF PHOENIX LOGO, THE WORDS "CITY OF PHOENIX", AND "WATER".

2. WITH AN ELASTOMERIC SEAL WHICH WHEN PRESSED INTO PLACE BENEATH THE LID-SEAT, EXPANDS TO A DIAMETER GREATER THAN THE OPENING THROUGH WHICH IT WAS PASSED, BUT CAPABLE OF FOLDING BACK DURING LID EXTRACTION.

3. A HOLLOW ENCLOSURE MOLDED USING AN ABS/POLYCARBONATE ALLOY. CAPABLE OF BEING FILLED WITH A GRANULAR MATERIAL. FOR ADDITIONAL WEIGHT IF DESIRED, MUST BE AFFIXED BENEATH THE SURFACE PLATE OF LID, WITH SERIES 3400 STAINLESS STEEL 5/16"-18 BOLT INSERTED INTO THREADED BRASS INSERT MOLDED IN LID.

4. HOLLOW ENCLOSURE TO EXTEND A MINIMUM OF 4" BENEATH THE LID-SEAT, AND BE SECURED BY A STAINLESS STEEL BOLT EXTENDING THROUGH THE ENCLOSURE INTO THREADED BRASS INSERT IN LID.

5. HOLLOW ENCLOSURE MUST HAVE AN ACCESSIBLE OPENING OF AT LEAST 1" DIAMETER FOR FILLING, WHEN REQUIRED.

6. SECURE VALVE BOX LID TO BE AS MANUFACTURED BY SW SERVICES OR EQUAL.

7. SEE DETAIL P1391 FOR ADDITIONAL INFORMATION ON VALVE BOX INSTALLATIONS.
NOTE: ALL STEEL PER MAG. SPEC. 770.1

*OPTIONAL 3/16" WELD IN LIEU OF IRON PIPE

SPECIFICATIONS

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<th>NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<td>12 GAGE</td>
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<td>DETAIL 2</td>
<td>33 LBS.</td>
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DETAIL NO. P1315
City of Phoenix
STANDARD DETAIL

STEEL WATER METER BOX COVER

APPROVED
Kempski W. Harms
CITY ENGINEER
7/9/92
DATE

DETAIL NO. P1315
NOTES:

1. NEW WATER SERVICE TAPS SHALL BE INSTALLED USING AN ALL-BRONZE DOUBLE-STRAP TAPPING SADDLE OR A TAPPED COUPLING.

2. 30" MINIMUM COVER IS REQUIRED FOR SERVICE LINES.

3. WATER SERVICE INCLUDES THE CORP. STOP, SERVICE PIPE, APPURTENANT FITTINGS, CURB STOP, METER BOX & COVER. APPROVED WATER SERVICE COMPONENTS ARE LISTED IN CITY OF PHOENIX SUPPLEMENTS.

4. ONLY AUTHORIZED PERSONNEL OF THE WATER & WASTEWATER DEPT. SHALL INSTALL THE SERVICE CONNECTION FOR ANY EXISTING CITY WATER MAIN SERVING ALL OR PART OF A NEW SUBDIVISION.

5. WATER METER WILL BE INSTALLED BY CITY FORCES.

6. FOR 3/4" THROUGH 2" SERVICE USE COPPER PIPE.

7. FOR WATER METER LOCATION SEE CITY OF PHOENIX DETAIL P1363.
NOTES:

1. CUT AND PLUGS MUST BE ADEQUATELY "DRY BLOCKED".
2. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C-139)
3. THE QUANTITY AND ARRANGEMENT OF THE BLOCKING MUST WITHSTAND LINE PRESSURE
   BY HOLDING THE CAP OR PLUG IN POSITION.
4. DRY BLOCKING SHALL BE PROPERLY SHIMMED TIGHT AND SECURE AGAINST THE CAP
   BEFORE LINE PRESSURE IS RESTORED.
5. CONCRETE THRUST BLOCKS SHALL NOT BE POURED UNTIL LINE PRESSURE IS RESTORED
   AND THE CAP OR PLUG IS INSPECTED FOR LEAKAGE.
6. CONCRETE SHALL NOT BE POURED OVER ANY PORTION OF THE ABANDONED PIPE.
7. MINIMUM THRUST BLOCK AREA PER M.A.G. DETAIL 380.
8. WHERE A 4" OR LARGER LINE IS SPECIFIED TO BE ABANDONED, THE CUT AND PLUG
   SHOULD OCCUR AT THE SUPPLY MAIN TO AVOID CREATING AN UNUSED DEAD END LINE.
NOTES:

1. REPLACEMENT PIPE MATERIAL SHALL BE IN KIND OR DUCTILE IRON.
2. WHERE POSSIBLE, ONE END OF THE REPLACEMENT PIPE SECTION SHALL CONNECT TO AN EXISTING BELL OR SPIGOT.
3. FLEXIBLE COUPLING SHALL BE THE CAST IRON TYPE AND SPECIFICALLY DESIGNED FOR USE ON THE PIPE SIZE AND MATERIAL(S) BEING CONNECTED. USE OF FULL CIRCLE REPAIR CLAMPS IS PROHIBITED.
4. THE NEW REPLACEMENT PIPE SECTION SHALL BE ADEQUATELY DRY BLOCKED PRIOR TO BACKFILLING.
5. BACKFILLING SHALL NOT BEGIN UNTIL LINE PRESSURE IS RESTORED AND CONNECTIONS INSPECTED FOR LEAKAGE BY WATER DEPARTMENT PERSONNEL.
6. DRY BLOCKS SHALL BE STANDARD SIZE SOLID MASONRY CONCRETE BLOCKS. (ASTM C-139)
7. REPLACEMENT PIPE SHALL BE CLEANED IN ACCORDANCE WITH SECTION 611.1.
GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.
2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.
4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD–FREE SOLDER JOINTS.
5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACATION.
6. ASSEMBLY MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON–SITE STRUCTURES.
7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.
8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18” ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24” FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.
9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY P–1359, HYDRANT GUARDS, PHOENIX SUPPLEMENT TO MAG).

LIST OF MATERIALS

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE.
3. 90° ELL (FLANGED D.I.P. 3” THROUGH 12”).
4. TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.
5. ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4” AND LARGER ASSEMBLY ONLY).
6. CONCRETE SUPPORT PAD 4” THICK BY 18” WIDE MINIMUM BENEATH 4” AND LARGER ASSEMBLIES. (CLASS “A” CONCRETE)
7. 3”X3”X1/4” STEEL ANGLE BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4” AND LARGER ASSEMBLIES.
8. PIPE SPOOL (FLANGED D.I.P. 3” THRU 12”).
9. FLANGED ADAPTER (WHEN REQUIRED).
10. TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).
11. ELECTRICAL CONDUIT FOR TAMPER SWITCH.
DOUBLE CHECK VALVE ASSEMBLY

GENERAL NOTES

1. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH.

2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.

3. FOUR (4) TEST COCKS TO BE INSTALLED PER U.S.C.

4. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

5. FINISHED GRADE BELOW BACKFLOW PREVENTER SHALL BE 95% COMPACTION.

6. ASSEMBLY MAY BE PAINTED TO BLEND WITH LANDSCAPE SURFACE TREATMENT OR ON-SITE STRUCTURES.

7. THE ASSEMBLY MAY ALSO BE SCREENED WITH SHRUBBERY OR BE ENCLOSED WITHIN A WALL TYPE STRUCTURE. ADEQUATE DRAINAGE FOR SURFACE WATER IS REQUIRED.

8. ANY SCREENING/ENCLOSURE MUST PROVIDE A MINIMUM 18” ACCESS OPENING (UNSECURED GATES ARE ACCEPTABLE) AND SIDE WALLS OR SHRUBBERY MUST BE A MINIMUM OF 24” FROM THE OUTSIDE FACE OF ANY PORTION OF THE BACKFLOW PREVENTION DEVICE.

9. ASSEMBLY MAY BE PROTECTED BY GUARD POSTS (MODIFY P-1359, HYDRANT GUARDS, PHOENIX SUPPLEMENT TO MAG).

LIST OF MATERIALS

1. APPROVED DOUBLE CHECK VALVE ASSEMBLY.

2. GATE VALVE, RESILIENT SEATED (NON-RISING STEM) (OS&Y. REQUIRED ON FIRELINE).

3. 90° ELL (FLANGED D.I.P. 3” THROUGH 12”).

4. TEST COCK, RESILIENT SEATED (4 REQUIRED) FIT WITH BRASS PLUG.

5. ADJUSTABLE PIPE SUPPORT PERMANENTLY ATTACHED TO BASE (4” AND LARGER ASSEMBLY ONLY).

6. FLANGE ADAPTER (WHEN REQUIRED).

7. CONCRETE SUPPORT PAD 4” THICK BY 18” WIDE MINIMUM BELOW 4” AND LARGER ASSEMBLIES. (CLASS "A" CONC).

8. 3”X3”X1/4” STEEL ANGLE. BOLT TO FLANGE, EACH END WITH ONE BOLT. COAT WITH COAL TAR EPOXY (16 MILS) REQUIRED ON 4” AND LARGER ASSEMBLIES.

9. PIPE SPOOL (FLANGED D.I.P. 3” THRU 12”).

10. TAMPER SWITCH (ON FIRELINE ONLY, OPTIONAL).

11. ELECTRICAL CONDUIT FOR TAMPER SWITCH.

DETAIL NO. P1352

City of Phoenix
STANDARD DETAIL

DOUBLE CHECK VALVE BACKFLOW PREVENTION
ASSEMBLY INSTALLATION - 3” AND OVER

APPROVED

CITY ENGINEER 6/27/01

DETAIL NO. P1352
NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.

2. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.

3. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM ASSEMBLY BODY TO FINAL GRADE.

4. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TEFLOM TAPE.

5. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.

6. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.

7. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.

8. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.

9. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.

10. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

11. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIALS SHALL BE IN THE HORIZONTAL PIPING A MINIMUM OF 12" BELOW GRADE.
NOTES:

1. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.

2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.

3. INSTALL BACKFLOW PREVENTION ASSEMBLY WITH RELIEF PORT FACING TOWARD THE GROUND.

4. BACKFLOW PREVENTION ASSEMBLY MUST BE LEVEL AND INSTALLED A MINIMUM AND A MAXIMUM OF 12 INCHES FROM RELIEF PORT TO FINAL GRADE.

5. PAVER CONCRETE BLOCK UNDER RELIEF PORT, SET AT FINAL GRADE.

6. TEST COCKS, (4) SHALL BE FITTED WITH BRASS PLUGS AND INSTALLED WITH TEFLOM TAPE.

7. SHUTOFF VALVES TO BE RESILIENT BALL TYPE WITH REMOVABLE HANDLES.

8. COMPRESSION TYPE FITTINGS ARE NOT ALLOWED.

9. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.

10. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.

11. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.

12. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD-FREE SOLDER JOINT.

13. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIAL SHALL BE IN THE HORIZONTAL PIPING A MINIMUM OF 12" BELOW GRADE.
NOTES:

1. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS-CONNECTION CONTROL FOR A LIST OF APPROVED PRESSURE VACUUM BREAKER ASSEMBLIES.

2. ASSEMBLY SHALL BE APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.

3. TWO (2) TEST COCKS SHALL BE FITTED WITH BRASS PLUGS INSTALLED WITH TERFLON TAPE.

4. SHUTOFF BALL VALVES MUST BE RESILIENT SEATED VALVES AS PER U.S.C.

5. ASSEMBLY MUST BE INSTALLED 12 INCHES ABOVE THE HIGHEST OUTLET ON THE SYSTEM. IF THE DISTANCE EXCEEDS 24 INCHES A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY MUST BE USED.

6. ALL PIPE/FITTINGS TO BE TYPE "K" COPPER.

7. A COPPER/BRASS UNION MUST BE INSTALLED IN THE MIDDLE OF THE DOWNSTREAM RISER.

8. INSTALL THE BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY DOWNSTREAM OF THE CITY WATER METER.

9. COPPER FITTINGS TO BE CONNECTED WITH LEAD-FREE SOLDER JOINTS.

10. TRANSITION FROM "K" COPPER TO OTHER APPROVED PIPING MATERIALS SHALL BE IN THE HORIZONTAL PIPING A MINIMUM OF 12" BELOW GRADE.
SEE DETAIL A

COURSES OF BLOCK MAY VARY

FIN. GRADE

#4 REBAR SHALL EXTEND A MIN. OF 12” BELOW GRADE

Detail A

NOTES:

1. SECURE BACKFLOW ASSEMBLY WITH APPROVED ANCHORS TO 8”X8”X16” TYPE "B" CONCRETE FILLED BLOCK WITH 2 #4 REBARS. ASSEMBLY SHALL BE TESTED BY CERTIFIED BACKFLOW TESTER.

2. 2–PIECE CLAMP WITH APPROVED ANCHORS.

3. BACKFLOW ASSEMBLY FOR USE WITH DETAIL P1354.

4. CONTACT CITY OF PHOENIX DEVELOPMENT SERVICES DEPARTMENT, CROSS–CONNECTION CONTROL FOR A LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
4" GALVANIZED STEEL PIPE (FILLED WITH CONCRETE) MIN.

4" G.S.P. MIN.

2-1/2" NOZZLE

2-1/2" NOZZLE

PUMPER NOZZLE

CLASS "B" CONCRETE AS PER SECTION 725

3'-0" MIN.

3'-6"

15" MIN.

1) AS PER LATEST EDITION CITY OF PHOENIX FIRE PREVENTION CODE – ORDINANCE NO. G-4160, 8001.11.3

HYDRANT GUARDS
2-1/2" HYDRANT NOZZLE

2.925" (+0.008) (-0.000)
3.152" (+0.008) (-0.000)

2-1/2" CAP

4" HYDRANT NOZZLE

4.547" (+0.000) (-0.008)
4.320" (+0.000) (-0.008)
4.195"
3.875" MIN.

4" CAP

6 THREADS PER INCH

1.25"

4.410" (+0.008) (-0.000)
4.637" (+0.008) (-0.000)
NOTES:

1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC., MUST NOT BE PLACED BETWEEN CURB AND HYDRANT.

2. DIMENSIONS SHOWN ON CONSTRUCTION DRAWINGS SUPERSEDE LOCATIONS SHOWN HERE.

3. ON LOCATIONS IN MIDBLOCK, THE FIRE HYDRANT WILL BE ALIGNED WITH A PROPERTY LINE.

LANDSCAPE AREA WITH PARKWAY OR NO SIDEWALK ADJACENT TO CURB

AREA WITH SIDEWALK ADJACENT TO CURB
PLAN VIEW WITH SIDEWALK
ADJACENT TO CURB

PLAN VIEW WITH PARKWAY
OR NO SIDEWALK

SECTION A–A

SECTION B–B

WATER METER LOCATION
NOTES:

1. VALVE OPERATION NUT EXTENSION: SEE DETAIL P1391-1
   EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES WHERE OPERATING NUT IS OVER 5" BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION.

2. IF TWO OR MORE JOINTS OF C900 PVC "WATER" PIPE RISER ARE NEEDED, THEY SHALL BE COUPLED AND GLUED WITH APPROPRIATE PVC GLUE TO FORM A DEBRIS-TIGHT JOINT.

3. VALVE BOX SHALL BE ADJUSTED TO THE FINISH GRADE AFTER PLACING THE ASPHALTIC CONCRETE SURFACE.

4. USE PARKSON TYLER, APCO, OR EQUAL DEEP SKIRTED COVER LID (4" DEEP OR MORE) C.I. MIN. T.S. 30,000 P.S.I. USE SECURE POLYMER VALVE BOX LID WITH LID-RETENTION ELASTOMERIC SEAL PER DETAIL P1270-1 WHERE "SECURE" LIDS ARE SPECIFIED.

5. GROUND BELOW CONCRETE PAD TO BE COMPACTED TO MIN. 95% OF MAX DENSITY.

6. INSTALL DEBRIS CAP PER DETAIL P1165.
#604812 DUCTILE IRON OPERATING NUT
SW SERVICES
PT# ES-1 OR APPROVED EQUAL

STEM EXTENDS FULLY INTO NUT

EXTENSION STEM LENGTH AS SPECIFIED BETWEEN
1'0" AND 20'0"
± 1/4"

CIRCULAR STEEL ALIGNMENT WASHER
(NOT REQUIRED IN MANHOLE INSTALLATIONS)

02" SCHEDULE 80
ASTM A53
STEEL PIPE

02" DUCTILE IRON OPERATING NUT
SW SERVICES
PT# ES-1 OR APPROVED EQUAL

DRILL & TAP HOLES FOR 3/16 STEEL
SQ. HEAD SCREWS 2-REQUIRED

VALVE OPERATING NUT

TYPE I
FOR USE WITH GATE VALVES UNDER 12"
AND ALL BUTTERFLY VALVES

NOTE:
STEM PAINTING:
ALL STEEL TO HAVE PRIME COAT
OF PAINT NO. 1-D AND ONE HEAVY
APPLICATION "FINISH COAT" OF
PAINT NO. 9 AS PER SECT. 790

TWO 3/8" X 7/8"
SQUARE HEAD SET SCREWS,
CASE HARDENED

3 1/4" SQ.

2 1/8"

2"

8 1/4"

3/16"

7" DIA.

3/16"
NOTES:

1. VALVE SHALL BE IRON BODY, CLASS 125, FLANGED ENDS, HYDRAULICALLY OPERATED, PILOT CONTROLLED, DIAPHRAGM TYPE CLOVE PATTERNED VALVE. IT SHALL BE TREATED AT 175 P.S.I. MINIMUM PRESSURE.

2. MANUFACTURERS NAME, YEAR OF MANUFACTURE, SIZE OF VALVE AND GUARANTEED WORKING PRESSURE SHALL BE ENGRAVED ON THE VALVE OR ON A NAMEPLATE ATTACHED TO THE VALVE.

3. VALVE SHALL BE OPERATED BY A CONTROL SYSTEM WHICH INCLUDES PILOT CONTROLS FOR PRESSURE REDUCING AND FOR PRESSURE SUSTAINING. BOTH PILOT CONTROLS SHALL BE FIELD ADJUSTABLE FOR ANY PRESSURE IN THE RANGE OF 50–120 P.S.I.
NOTES:
1. MINIMUM 2 SUPPORTS PER JOINT OF PIPE.
2. ALL NUTS SHALL BE STAINLESS STEEL SERIES 8-18.
3. ALL BOLTS SHALL HAVE A LOCK WASHER UNDER THE NUT.

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1-1/8" X 12" ANCHOR BOLTS
STAINLESS STEEL, SERIES 8-18

5" X 3" X 12" \angle -18" LONG

3" WASHER

MIN. STRAP SIZE 1/8"X1"
STAINLESS STEEL, SERIES 8-18

STRAP TO BE WELDED TO THREADED
STAINLESS STEEL, SERIES 8-18

4" W.F. LIGHT COLUMN
3/8" FLANGE - 5/16" WEB

BRIDGE OR OVERPASS

SIDE SUSPENSION

BRIDGE OR OVERPASS

3/8"X3"X18" BRACKET

SECTION A-A

BOTTOM SUSPENSION

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CHECK VALVES

NOTES:

1. THE CHECK VALVE SHALL BE LOADED INTERNALLY SO THAT WHEN THE SUPPLY PRESSURE IS 1 P.S.I., AND THE OUTLET PRESSURE IS ATMOSPHERIC, EACH CHECK VALVE WILL BE DRIP-TIGHT IN THE NORMAL DIRECTION OF FLOW.

2. CLAPPER FACING RINGS SHALL BE MOLDED SYNTHETIC RUBBER (SHORE DUROMETER HARDNESS 35–45).

3. ASSEMBLY IS TO MEET A.W.W.A. STANDARD C 506, BACK FLOW PREVENTION DEVICES.

4. PLACEMENT & LOCATION OF DOUBLE CHECK VALVE ASSEMBLY SHALL BE APPROVED BY WATER & WASTEWATER DEPARTMENT.

5. TEST COCKS SHALL HAVE FEMALE ENDS (I.P. THREADS) ON DISCHARGE SIDE.

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<th>NOMINAL SIZE OF ASSEMBLY</th>
<th>MINIMUM SIZE TEST COCK</th>
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<tr>
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<td>6&quot; &amp; OVER</td>
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NOTES:

1. All lids and frames to be furnished with machined horizontal bearing surfaces.

2. Meet H-20 load rating requirements.

3. Watertight covers shall be furnished with T-gasket in frame or cover.

4. Adjust wording to "Phoenix Water," as necessary.

(4) 2" x 2.5" hex-head S.S. bolts & washers. See Mag detail numbers: 423 & 424 for additional requirement.
PLAN VIEW

PHOENIX BIRD LOGO

2" (51mm) LETTERING

(2) CLOSED PICKHOLES

BOTTOM VIEW

SECTION

NOTES:
Surface of Manhole Cover to be machined.

PICKHOLE DETAIL

STORM DRAIN MANHOLE COVER
FLEXIBLE GREEN INTERDUCT CONDUIT RUNNING FROM 45° EL. 20 2' ABOVE FINISHED GROUND. ATTACH TO TAP IN 2 LOCATIONS.

* NOTE:
SEWER TAP DEPTH TO BE KEPT AT 6' FROM FINISH GRADE OR AT MINIMUM SLOPE IF SEWER MAIN HAS LESS THAN 5' - 6' OF COVER ON IT.

#3 REBAR @18"
ATTACH W/DUCT TAPE TO TAP END

SOLVENT WELD 45° EL.

VCP SEWER TAP

SEWER MAIN
NEW SOLVENT WELD CAP

4'

8' PUE

R.O.W.

NEW SOLVENT WELD "LONG TURN 90° "

EXISTING SEWER MAIN

VCP EXISTING SEWER TAP

* NOTE:
HOME SEWER LINE WOULD
TIE INTO NEW VERTICAL 3" ABS PIPE
APPROXIMATELY 2' - 3' BELOW
PAD GRADE, CLEAN OUT CAP WOULD
ALSO BE PROVIDED AT TOP OF
VERTICAL PIPE. (NEW PERMIT REQUIRED)
APPROXIMATELY 2' - 3' BELOW

EXTEND 3" ABS PIPE 4' FROM EXISTING PAD GRADE
NOTE:

1) FOR FUTURE VCP or DUCTILE IRON PIPE INSTALLATION.
2) THE PVC DIAMETER SHALL BE THE NEXT SIZE LARGER (2” MINIMUM) THAN THE PROPOSED FUTURE PIPE CONNECTION.
NOTES:

1. Electronic markers shall be installed at the top, at the property line and at all changes in horizontal direction, if any, over all building connection sewers. Additional markers shall be installed as necessary so that maximum spacing between markers shall not exceed 15 feet.

2. Markers at property line may be installed at up to 2 feet from property line into right-of-way if a fence or other obstruction is anticipated to be constructed on property line.

3. Markers shall be 3M 1253 Full Range (potty seats) capable of detection at up to 8 feet of bury, or equal.

4. Markers shall be installed in a horizontal position centered over the sewer with a 6-inch cushion of soil between pipe and marker when building sewer is 8 feet or less in depth to finish grade.

5. If building connection sewer has over 8 feet of cover, marker shall be positioned over center of sewer and buried at 7 to 8 feet of depth from finish grade.

6. Backfill material within 6-inches of any marker shall sand or well graded material with a maximum aggregate size of 1-inch.

7. Construct building connection sewer at minimum slope if cover will be less than 5 feet at the property line.

8. Aside from wye connection at top, vertical adjustments of the building connection are not allowed in the right-of-way.

9. All fittings shall be installed in accordance with ASTM D-2321. The Contractor may vary from the drawing to use the appropriate wyes and bends to ensure no misalignment of the pipe and fittings. Joints deflections shall not exceed more than one half of manufacturer’s recommendations.

10. End of building connection sewer at property line shall be sealed and marked with 2‘x 4’ stake extending a minimum of 2 feet above finish grade. The top six inches of the stake shall be painted green.

11. A curb stamp shall be provided per MAG Detail 440–4.
NOTES:

1. A CONCRETE COLLAR IS REQUIRED WHERE PIPES OF DIFFERENT DIAMETERS OR MATERIALS ARE JOINED, OR WHERE THE CHANGE IN ALIGNMENT OR GRADE EXCEEDS THAT ALLOWED FOR, ON ORDINARY JOINTS.

2. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHOULD BE THOSE OF THE LARGER PIPE, D−D−1, OR D−2 WHICHEVER IS GREATER.

3. FOR PIPE SIZES NOT LISTED AND LESS THAN 66' USE NEXT SIZE LARGER.

4. THE DIAMETER OF THE CIRCULAR TIES SHALL BE OUTSIDE DIAMETER OF PIPE + T.

5. FIELD CLOSURES OF PIPE OF THE SAME DIAMETER AND WITHOUT CHANGE IN GRADE OR ALIGNMENT SHALL BE MADE WITH A CONCRETE COLLAR.

6. CONCRETE SHALL BE CLASS B PER SECT. 725.

* = ANGLE OF DEFLECTION

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NOTES

1. ALL CONCRETE TO BE CLASS "A" PER SECTION 725.
2. MATCH SPRING LINES OF PIPES ENTERING M.H. UNLESS OTHERWISE NOTED.
3. CUT PIPED TO ALLOW SETTING OF 4' DIA. CYLINDRICAL FORM FROM 6" ABOVE MAIN LINE PIPE TO SPRING LINE. CUT PIPE 2" LARGER THAN FORM TO ALLOW 2" CONC. OVER ENDS OF ALL CUT PIPE.
4. INVERT AND BASE OF M.H. TO BE Poured AND INVERT TO BE SHAPED BY HAND TO MAKE SMOOTH TRANSITION Finish With RUBBER FLOAT.
5. CENTER M.H. ON PIPE JOINT WHERE PIPE CHANGES SIZES.
6. BENCH M.H. BASE TO TOP OF LARGEST PIPE.
NOTES:

1. THICKNESS OF DECK SHALL VARY WHEN NECESSARY TO PROVIDE LEVEL PIPE SEAT BUT SHALL NOT BE LESS THAN ‘F’.

2. FLOOR OF MANHOLE SHALL BE STEEL TROWELLED TO SPRING LINE.

3. BODY OF MANHOLE SHALL BE Poured IN ONE CONTINUOUS OPERATION, EXCEPT THAT A CONSTRUCTION JOINT WITH A LONGITUDINAL KEYWAY MAY BE PLACED AT THE SPRING LINE.

4. ALL REINFORCED STEEL SHALL CLEAR FACE OF CONCRETE BY 1-1/2" UNLESS SHOWN OTHERWISE.

5. CONCRETE SHALL BE CLASS ‘A’.

"F" DIMENSION TABLE

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NOTES

1. COVER SHALL BE NON-LOCKING.

2. FRAME AND COVER SHALL BE CAST IRON OR STRUCTURAL STEEL.

3. CATCH BASIN ACCESS FRAME AND COVER IS FOR USE ON NON VEHICULAR TRAFFIC AREAS ONLY.

4. COVER SHALL BE FILLED WITH CONCRETE AND BROOM FINISHED.

5. SMALL VARIATIONS IN DIMENSIONS OR FEATURES OF A MINOR NATURE THAT ARE PART OF THE FOUNDRY’S STANDARD CASTING ARE PERMISSIBLE.
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<tr>
<th>SIZE OF OUTFALL CONDUIT</th>
<th>FRAME ANGLES</th>
<th>SHEAR PIN CLIP ANGLES</th>
<th>SHEAR PINS</th>
<th>ANCHOR BOLTS</th>
<th>HINGE PINS</th>
<th>HINGE ANGLES</th>
<th>HINGE STD. PIPE</th>
<th>HINGE TO FRAME WELDS</th>
<th>ANGLE TO FRAME WELDS</th>
<th>BARRIER BARS PLAIN</th>
<th>NO. OF EQUAL BARRIER BAR SPACES (HORIZ.)</th>
<th>NO. OF EQUAL BARRIER BAR SPACES (VERT.)</th>
<th>H (OUT TO OUT FRAME ANGLES)</th>
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<td>73&quot;</td>
<td>62&quot;</td>
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<td>78&quot;</td>
<td>4X4X5/8</td>
<td>5X3X1/4</td>
<td>2-3/16#</td>
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**NOTE:**
- **A** and **B** columns represent additional specifications not fully visible in the image.
30" ø PIPE ONLY. SINGLE
HINGE & CLIP ANGLE DETAIL

NOTES:

1. ALL SHEAR PIN ANGLES SHALL FIT SNUGLY AND
   TRULY FACE TO FACE. COVER WITH WATERPROOF
   GREASE PRIOR TO INSTALLATION OF PIN.

2. GALVANIZE ALL FERROUS PARTS AFTER
   FABRICATION.

3. THE SHEAR PIN HOLES IN THE ANGLE SHALL BE
   DRILLED FOR A TIGHT FIT OF THE SHEAR PINS.

4. FRAME AND HINGE ANGLES SHALL HAVE
   THE OUTSTANDING LEGS OUT FOR OUTLETS.

5. ALL ANCHOR BOLTS SHALL BE 5/8" ø ANCHOR
   BOLTS EMBEDDED 4" (MIN.) INTO EPOXY GROUT.

6. ALL SHEAR PINS ARE TO BE PEENED BOTH
   ENDS AFTER INSTALLATION.

7. SHEAR PIN MATERIAL SHALL BE COMMERCIAL
   PURE ALUMINUM WIRE, ALLOY 1100, TEMPER 0,
   FEDERAL SPEC. QQ-A-411.

8. SEE BARRIER SCHEDULE, DET. P1562
   FOR VARIABLE DIMENSIONS.

9. COVER ALL MOVABLE CONTACT SURFACE WITH
   A COAT OF WATERPROOF GREASE PRIOR TO
   INSTALLATION.
NOTES

1. FRAME & FRAME SUPPORT SHALL BE FABRICATED FROM STRUCTURAL STEEL EXCEPT AS NOTED. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH A.S.T.M. A-36.

2. WELDING SHALL BE IN ACCORDANCE WITH M.A.G. WELDING SPECIFICATIONS.

3. FRAME AND GRATE SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS BEFORE DELIVERY.

4. THE COMPLETED ASSEMBLY SHALL BE GIVEN ONE SHOP COAT OF NO. 1 PAINT, AND TWO FIELD COATS OF NO. 10 PAINT AS PER SECTION 790.

5. THE FRAME SHALL BE FABRICATED TO WITHIN ± 1/8" OF SPECIFIED DIMENSIONS.
NOTES:

2. WELDING SHALL BE IN ACCORDANCE WITH A.W.S. SPECIFICATIONS.
3. FRAME AND GRATE SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS BEFORE DELIVERY.
4. THE COMPLETED ASSEMBLY SHALL BE GIVEN ONE SHOP COAT OF NO. 1 PAINT AND TWO FIELD COATS OF NO. 10 PAINT AS PER SECTION 790.
5. THE GRATE SHALL BE FABRICATED TO WITHIN 1/8" OF SPECIFIED DIMENSIONS.
6. TYPE 1 AND TYPE 2 GRATES, INSTALLED IN GRATE FRAMES PER STANDARD DETAIL P1564, ARE BICYCLE FRIENDLY AND MAY BE USED WITHIN BICYCLE FACILITIES WITH BEARING BARS ORIENTED PARALLEL TO THE DIRECTION OF TRAVEL.
7. TYPE 1 AND TYPE 2 GRATES ARE NOT PEDESTRIAN FRIENDLY AND SHALL NOT BE USED IN PEDESTRIAN TRAVELED WAYS.
<table>
<thead>
<tr>
<th>Section A-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section B-B</td>
</tr>
</tbody>
</table>

### NOTES:

1. Dimensions 'Z' shall equal 7' or 14' types are designated as follows: Type J7, (Z=7', Y=24', B=17') Type J14, (Z=14', Y=30', B=24')

2. All concrete shall be class 'A'.

3. All reinforcing steel shall be deformed bars and shall conform to A.S.T.M. Spec. 615.

4. Connector pipes may be placed in any wall beneath the grate as per plans.

5. Floor of basin shall be trowelled to a hard smooth surface and shall slope from all directions to outlet.

6. Construction drains shall be installed when noted. (see det. P1575)

7. Do not specify this detail for use in a major street.

8. The frame shall be det. P1564, type I, and the grate shall be det. P1565, type I.

9. Install one city furnished pollution awareness marker (PAM) at each catch basin, as directed by the engineer.

### CATCH BASIN WALL THICKNESS

- T=6' if V is 4' or less
- T=8' if V is 4' to 8'
- If V exceeds 8', special design is required
- V=4+"D" unless otherwise noted

---

City of Phoenix

STANDARD DETAIL

CATCH BASIN COMBINATION

TYPE "J" WITH CONCRETE APRON

DETAIL NO. P1566

APPROVED

ENGINEER DATE

P1566
NOTES:
1. ALL CONCRETE SHALL BE CLASS 'A'.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS
   AND SHALL CONFORM TO A.S.T.M. SPECIFICATION B15.
3. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER
   PLANS.
4. FLOOR OF BASIN SHALL BE TROWELL TO A HARD, SMOOTH
   SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
5. CONSTRUCTION DRAINS SHALL BE INSTALLED WHEN
   SPECIFIED. (SEE DET. P1575.)
6. ACCESS FRAME AND COVER PER DET. P1561.
7. INSTALL ONE CITY FURNISHED POLLUTION
   AWARENESS MARKER (PAM) AT EACH CATCH
   BASIN, AS DIRECTED BY THE ENGINEER.
   * TO BE 4"-0" IN LOCATIONS WHERE 4" S/W IS REQUIRED.

CATCH BASIN WALL THICKNESS

\[ T = \begin{cases} 
6" & \text{if } V = 4" \text{ OR LESS} \\
8" & \text{if } V = 4" \text{ TO 8"} \\
10" & \text{if } V \text{ EXCEEDS 8", SPECIAL DESIGN IS REQUIRED.} \\
12" & \text{V=4"-0" UNLESS} \\
14" & \text{OTHERWISE NOTED.}
\end{cases} \]

CATCH BASIN - TYPE "L"
CURB & PARKWAY OPENING INLET DETAILS

DEPRESSED GUTTER LINE OR A/C INLET APRON

T=6" IF V = 4" OR LESS
T=8" IF V = 4" TO 8"
IF V EXCEEDS 8", SPECIAL DESIGN IS REQUIRED.
V=4"-0" UNLESS
OTHERWISE NOTED.

#3 REINF. STEEL
DOWEL BAR
NOTES

1. TYPES ARE DESIGNATED AS FOLLOWS: 'M': NO WING, 'M-1': ONE WING, 'M-2': TWO WINGS.

2. ALL CONCRETE SHALL BE CLASS 'A'.

3. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO A.S.T.M. SPECIFICATION 615.

4. CONNECTOR PIPES SHALL BE PLACED IN THE APPROPRIATE WALL OF THE MAINTENANCE BASIN.

5. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.

6. CONSTRUCTION DRAINS SHALL BE INSTALLED IN WHEN NOTED.
   (SEE DET. P-1575.)

7. LOCATE WING BASIN ON UPSTREAM SIDE OF MAINTENANCE BASIN FOR TYPE M-1. WING BASINS FOR TYPE M-2 SHALL BE BOTH SIDES OF MAINTENANCE BASIN.

8. ACCESS FRAME AND COVER PER DET. P-1561

9. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS

<table>
<thead>
<tr>
<th>T</th>
<th>L</th>
<th>V</th>
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<tbody>
<tr>
<td>6&quot;</td>
<td>0&quot;</td>
<td>4&quot; or less</td>
</tr>
<tr>
<td>8&quot;</td>
<td>0&quot;</td>
<td>4&quot; to 8&quot;</td>
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(If V exceeds 8" Special Design is required.)

<table>
<thead>
<tr>
<th>L</th>
<th>V</th>
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<tbody>
<tr>
<td>0&quot;</td>
<td>4&quot; or 0&quot; min. unless otherwise noted</td>
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*4" - 0" in locations where 4" sidewalk is req'd.
NOTES:

1. SEE STANDARD DETAILS P-1569-1, P-1561, AND P-1574 FOR CONSTRUCTION NOTES AND ADDITIONAL DETAILS.

2. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.
NOTES:
1. ALL CONCRETE SHALL BE CLASS 'A'.
2. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.
3. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
4. CONSTRUCTION DRAINS SHALL BE INSTALLED WHEN NOTED. (SEE DETAIL P1575).
5. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS Poured.
6. PLANS SHOULD SPECIFY ELEVATION AND INVERT ELEVATION.
7. THE TYPE 'N' CATCH BASIN MAY BE PREFABRICATED PROVIDING A SHOP DRAWING IS APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
9. EXPANSION JOINT (TYP).
10. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS
T=6" IF V = 4' OR LESS
T=8" IF V = 4' TO 8'
(IF V EXCEEDS 8' SPECIAL DESIGN IS REQUIRED)
V=4'-0' UNLESS OTHERWISE NOTED.

DETAIL NO. P1570

CITY OF PHOENIX
STANDARD DETAIL
CATCH BASIN
TYPE "N"

APPROVED
ENGINEER
DATE
DECEMBER 10, 2012
DETAIL NO. P1570
NOTES:
1. ALL CONCRETE SHALL BE CLASS 'A'.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO A.S.T.M. SPECIFICATION 615.
3. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLANS.
4. FLOOR OF BASIN SHALL BE TROWELED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
5. CONSTRUCTION DRAINS SHALL BE INSTALLED IN ALL INLETS BUILT WITH PAVING PROJECTS. (SEE DET. P1575.)
6. ACCESS FRAME AND COVER PER DET. P1561.
7. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS
T=6" IF V = 4' OR LESS
T=8" IF V = 4' TO 8'
IF V EXCEEDS 8", SPECIAL DESIGN IS REQUIRED.
V=4'-0" UNLESS OTHERWISE SPECIFIED.

SECTION A-A
- DEPRESSED GUTTER LINE
- HAND TROWEL CURVED SURFACES (TREAT AS CURB FACING)

SECTION B-B
- SLOPE VARIES
- DOWEL BAR SEE DETAIL (NOT USED IF TOP IS PRECAST).

<table>
<thead>
<tr>
<th>CURB</th>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>4&quot;</td>
<td>3’-3”</td>
<td>15’-6”</td>
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<tr>
<td>5&quot;</td>
<td>2’-6”</td>
<td>14’-0”</td>
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<tr>
<td>6”</td>
<td>1’-9”</td>
<td>12’-6”</td>
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</tbody>
</table>
NOTES:

1. ALL CONCRETE SHALL BE CLASS 'A'.

2. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.

3. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.

4. CONSTRUCTION DRAINS SHALL BE INSTALLED WHEN NOTED. (SEE DETAIL P1575)

5. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS Poured.


7. EXPANSION JOINT (TYP)

8. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.
NOTES:

1. ALL CONCRETE SHALL BE CLASS 'A'.
2. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.
3. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOP FROM ALL DIRECTIONS TO OUTLET.
4. THE CONSTRUCTION DRAINS SHALL BE INSTALLED IN ALL INLETS BUILT WITH PAVING PROJECTS (SEE DET. P1573).
5. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS Poured.
6. LOCATION OF THE TYPE 'R' CATCH BASIN SHALL BE RESTRICTED TO AREAS WHERE 6" VERTICAL CURB & GUTTER IS EXISTING.
7. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO A S.T.M. SPECIFICATION 615.
9. EXPANSION JOINT (TYP).
10. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS
T=6" IF V ≤ 4" OR LESS
T=8" IF V = 4" TO 8"
IF V EXCEEDS 8" SPECIAL DESIGN IS REQUIRED V=4'-0" UNLESS OTHERWISE NOTED.

#3 BARS @ 6" O.C., 1-1/2" CLEAR TO TOP OF NOSE
SECTION & INSIDE OF WALL
SEE DET. NO. 1

INLET CURB OPENING SEE DET. P1574

OUTSIDE OF GRATE FRAME TO BE AT LIP OF GUTTER.

NORMAL CROWN

ASPHALTIC CONCRETE

SECTION A-A

PIPE CONNECTION TO WALL DET. P1574

CURB OR COMBINED CURB AND GUTTER

PLAN VIEW

GUTTER TRANSITION

DETAIl 1

CATCH BASIN WALL THICKNESS

T=6" IF V ≤ 4" OR LESS
T=8" IF V = 4" TO 8"
IF V EXCEEDS 8" SPECIAL DESIGN IS REQUIRED V=4'-0" UNLESS OTHERWISE NOTED.

DETAIl NO. P1573

City of Phoenix
STANDARD DETAIL

CATCH BASIN
TYPE "R"

APPROVED

DATE 12/10/2012
DETAIl NO. P1573
NOTES

1. CURB OPENING HEIGHT ’H’ SHALL BE 5” (MINIMUM) UNLESS OTHERWISE SPECIFIED.

2. WHEN CURB OPENING HEIGHT ’H’ EXCEEDS 6”, INSTALL 1”Ø STEEL PROTECTION BARS. THE PROTECTION BARS SHALL EXTEND THE FULL LENGTH OF THE CURB OPENINGS AND SHALL BE EMBEDDED 3”(MIN.) AT EACH END.

3. INSTALL ADDITIONAL BARS AT 3 1/2” CLEAR SPACING ABOVE FIRST BAR WHEN OPENING EXCEEDS 13”.

4. WHEN CURB OPENING LENGTH EXCEEDS 6’, INSTALL 1”Ø STEEL SUPPORT BOLTS, SPACED AT NO MORE THAN 5’ O.C.

5. ALL EXPOSED METAL HARDWARE SHALL BE GIVEN ONE SHOP COAT OF NO.1 PAINT AND 2 FIELD COATS OF NO.10 PAINT AS PER SECTION 790.

6. ALL METAL UNITS SHALL BE FABRICATED FROM STRUCTURAL STEEL EXCEPT AS NOTED. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH A.S.T.M. A-36.

7. WELDING SHALL BE IN ACCORDANCE WITH M.A.G. WELDING SPECIFICATIONS.

8. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS Poured.

9. WHEN CATCH BASIN IS LOCATED WITHIN A LANDSCAPE PARKWAY SECTION, SEE DETAIL P1569-2 FOR INLET MODIFICATIONS.
NOTES:

1. CONSTRUCTION DRAINS TO BE INSTALLED IN ALL INLETS BUILT WITH PAVING PROJECTS.
2. SEE PROJECT PLANS FOR INLET DETAILS AND DEPTH OF PAVING.
NOTES:

1. "D" SHALL BE 24" OR LESS.
2. PRECAST TEE SHALL BE INSTALLED WHERE THE MAINLINE PIPE IS SMALLER THAN THE MINIMUM OR THE CONNECTING PIPE IS LARGER THAN 24".
3. THE BELL END OF THE PRECAST CONCRETE PIPE SHALL BE INSTALLED AS SHOWN WHILE CONCRETE OF MAINLINE PIPE IS WET.
4. TRENCH WALL TO BE EXCAVATED AS NECESSARY PRIOR TO POURING MAINLINE PIPE TO ACCOMMODATE LATERAL STUB.
5. AXIS OF LATERAL STUB SHALL BE AS PER PLAN AND CROSS-SECTION.
6. THE LATERAL STUB SHALL SATISFY STRENGTH REQUIREMENTS AS SPECIFIED FOR THE LATERAL PIPE.
7. LATERALS FOR FUTURE CONNECTION SHALL BE MARKED. (SEE MAG DETAIL 427)

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<tr>
<th>CONNECTING PIPE SIZE</th>
<th>MINIMUM SIZE MAIN</th>
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<td>15&quot;</td>
<td>24&quot;</td>
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<td>18&quot;</td>
<td>36&quot;</td>
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<tr>
<td>24&quot;</td>
<td>48&quot;</td>
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NOTES:

1. THIS DETAIL SHALL BE USED FOR CONNECTING NEW SMALL STORM DRAIN LATERALS OR CATCH BASIN CONNECTOR PIPES TO EXISTING STORM DRAIN MAINS.
2. THIS DETAIL SHALL ONLY BE USED WHEN OUTSIDE DIAMETER OF NEW LATERAL OR CONNECTOR PIPE SPUR IS LESS THAN OR EQUAL TO 1/2 THE INSIDE DIAMETER OF THE EXISTING STORM DRAIN MAIN.
3. THE CONNECTOR PIPE SPUR LINE SHALL BE CONSTRUCTED RADIAL TO THE MAIN, UNLESS OTHERWISE SHOWN BY ELEVATION 'S' AS SHOWN ON PLANS.
4. THE LENGTH OF THE SPUR STUB SHALL BE A MINIMUM OF 18" TO ALLOW FULL, CLEAN PIPE CONNECTION TO THE SPUR JOINT.
5. CONCRETE SHALL BE MAG CLASS "A".
NOTES:
1. THIS DETAIL SHALL BE USED FOR CONNECTING NEW LARGE STORM DRAIN LATERALS OR CATCH BASIN CONNECTOR PIPES TO EXISTING RCP STORM DRAIN MAINS.
2. THIS DETAIL SHALL ONLY BE USED WHEN OUTSIDE DIAMETER OF NEW STORM DRAIN LATERAL OR CONNECTOR PIPE IS GREATER THAN 1/2, BUT LESS THAN THE FULL INSIDE DIAMETER OF THE EXISTING STORM DRAIN MAIN, AND NO OTHER TYPE CONNECTION (SUCH AS A MANHOLE OR SPECIAL JUNCTION STRUCTURE) IS FEASIBLE OR DESIRABLE.
3. THE EXISTING STORM DRAIN MAIN SHALL BE EXPOSED AT THE PROPOSED LOCATION OF NEW CONNECTION. IF NECESSARY, THE LOCATION MAY BE MOVED DOWNSTREAM SUCH THAT THE OUTSIDE OF THE NEW OPENING WILL BE A MINIMUM OF 2' FROM THE NEAREST JOINT IN THE EXISTING PIPE MAIN.
4. A CIRCULAR OPENING IN THE EXISTING MAINLINE RCP PIPE SHALL BE CUT TO MATCH THE INSIDE DIAMETER OF THE NEW LATERAL, NORMAL TO THE PIPE SURFACE. WITHOUT DAMAGING STEEL. THE EXPOSED STEEL IN THE CIRCULAR OPENING OF THE EXISTING MAIN SHALL BE CUT TO PROVIDE RELATIVELY EQUAL-LENGTH REINFORCING STUBS AND BENT TO A HORIZONTAL POSITION IN PREPARATION FOR CONNECTION.
5. THE LONGITUDINAL STEEL ON THE END OF THE NEW STORM DRAIN LATERAL STUB SHALL BE PREPARED TO EXPOSE A MINIMUM 1"-0" OF CLEAN STEEL REINFORCEMENT FOR LAP-SPlicing AROUND THE PERIPHERY OF THE NEW STUB. THE EXPOSED STEEL OF THE EXISTING MAIN AND THE NEW STUB SHALL BE LAP-SPliced TOGETHER A MINIMUM OF 1"-0" AND REINFORCE-TIED WITH 2-#4 REBAR HOOPS.
SECTION A–A

FOR ADDITIONAL INFORMATION & NOTES
SEE CITY OF PHOENIX DETAIL P1569–1.
1. ALL CONCRETE SHALL BE CLASS "A".
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO A.S.T.M. SPECIFICATION NO. 615.
3. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.
4. FLOOR BASIN SHALL BE TROWELLED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
5. CONSTRUCTION DRAINS SHALL BE INSTALLED IN ALL INLETS BUILT WITH PAVING PROJECTS (SEE DETAIL P1575).
6. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
8. TYPES ARE DESIGNATED AS FOLLOWS:
   "R" MODIFIED -- NO WING;
   "R-1" MODIFIED -- ONE WING;
   "R-2" MODIFIED -- TWO WINGS.
9. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS & DEPTH

\[ T = 6'' \text{ if } V = 8'' \text{ or less.} \]
\[ T = 8'' \text{ if } V = 8'' - 1'' \text{ to } 16''. \]
\[ V = 4'' - 0'' \text{ unless otherwise specified.} \]