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<td>UC-85</td>
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<td>Chain Link Cable Barrier Sheet 1 of 4</td>
<td>UC-61</td>
<td>Pipe Support Across Trenches</td>
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<td>UC-25</td>
<td>Chain Link Cable Barrier Sheet 2 of 4</td>
<td>UC-61</td>
<td>Pipe Support Across Trenches</td>
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<td>UC-61</td>
<td>Alternate to Pipe Support</td>
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<td>Chain Link Cable Barrier Sheet 4 of 4</td>
<td>UC-62</td>
<td>Sewer Manhole and Cover Frame Adjustment</td>
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<td>UC-28</td>
<td>Chain Link Cable Barrier</td>
<td>UC-63</td>
<td>24&quot; and 30&quot; Manhole Frame and Cover</td>
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<td>24&quot; and 30&quot; Manhole</td>
<td>UC-64</td>
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<td>Special Curb and Gutter Transition Type &quot;A&quot;</td>
<td>UC-65</td>
<td>Pre-Cast Concrete Sewer Manhole</td>
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<td>UC-31</td>
<td>Barrier Transition - Tangent Sheet 1 of 2</td>
<td>UC-80</td>
<td>Thrust Blocks for Water Lines</td>
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<td>UC-32</td>
<td>Barrier Transition - Tangent Sheet 2 of 2</td>
<td>UC-81</td>
<td>Blocking for Water Valves Gate and Butterfly</td>
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<td>UC-33</td>
<td>Barrier Transition - Curve</td>
<td>UC-82</td>
<td>Anchor Block for Vertical Bends</td>
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<td>UC-34</td>
<td>Mainline Construction Joints Sheet 1 of 2</td>
<td>UC-83</td>
<td>Vertical Realignment for Water Mains</td>
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</table>

Reduced Size Drawings
Do Not Scale
GENERAL NOTES:
1. For dimensions, sizes and details not shown for installation of special catch basin and half barrier, see detail UC-01.
2. For dimensions, sizes and details not shown for installation of slotted drain, see detail UC-02.
3. Unless otherwise noted, reinforcement steel in half barrier for installation with special catch basin and slotted drain shall conform to sizes and number specified.
4. The installation and inspection of steel studs welded to steel acting as a connection device to the concrete shall conform to AWS D1.1 and Specifications A-214-27.
5. Where applicable, see standard C-10.09 for weep hole placement.
6. For additional general notes, see detail UC-49.
A.C. PAVEMENT: MATCH EXISTING PAVEMENT AND COURSE BY TYPE AND THICKNESS

A.B., GRANULAR BACKFILL, OR NATIVE BACKFILL PER SECT. 303-2 AND 501

TYPE A

A.B., GRANULAR BACKFILL, OR EXISTING SUBGRADE WHICHEVER IS GREATER
A.B. PER SECT. 303-2 AND 501

TYPE B

Existing Portland cement concrete
Class 's' Concrete
f'c = 3000 p.s.i.

8" MIN.

TYPE C

NOTES
1. Bedding per Section 501
2. Asphalt Concrete shall be in accordance with the requirements of Sect 406
3. 12" lip is required on the sides of a trench that are not parallel to the center line of the street.
4. Types D & E require 9" of A.B. at top of trench when there is an existing base.
5. See standard drawing C-13.15 for typical pipe installation.

A.C. SURFACE COURSE

A.C. BASE COURSE

VARES

TOTAL THICKNESS TO MATCH EXISTING

12" TRENCH WIDTH

A.B. OR EXISTING SUBGRADE WHICHEVER IS GREATER

A.B. PER SECT. 303-2 AND 501

"T" TOP (SEE NOTE 3)

TYPE D

COMPACTED BACKFILL DENSITY PER SECT. 501

TYPE E

SURFACE OUTSIDE OF TRENCH LINES DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL THICKNESS AND CONDITION.

TYPE F

COMPACTED BACKFILL DENSITY PER SECT. 501

A.B. OR DECOMPOSED GRANITE PER SECT. 303
Strain, End & Corner Posts: 2" I.D. Nominal size pipe
Line Posts: 1 1/2" I.D. Nominal size pipe
"H" req. 1 7/8" x 1 5/8" Nominal size
Braces: 1 1/2" I.D. Nominal size pipe
Gate: 1 3/4" I.D. Nominal size pipe
Fencing: 9 ga., 2" mesh fabricated wire

7 GA. STRAIN WIRE TOP AND BOTTOM
11 GA. HOG RING FASTENERS OR 9 GA. WIRE TIES TOP AND BOTTOM 1 - 6" C TO C.

BRACE - SEE NOTE 1
KNUCKLED SELVAGE UP
ALL PIPE POSTS TO BE CAPPED WITH DOME TYPE CAP.

STRETCHER BAR BAND
STRETCHER BAR 1/4" x 3/4"
CORNER OR END POST
3/8" TRUSS ROD SEE NOTE 1

GENERAL NOTES:
1) HORIZONTAL BRACE AND TRUSS ROD IN CORNER OR END PANEL SHALL BE LOCATED A MINIMUM OF 30 FEET AWAY FROM TRAVELED LANES ON RAMPS OR MAINLINE.
2) DIAGONAL BRACE SHALL BE USED IN CORNER OR END PANELS LESS THAN 30 FEET FROM TRAVELED LANES ON RAMPS OR MAINLINE.

DIAGONAL BRACE SEE NOTE 2
10' MAX.

CORNER OR END PANEL
(TYPE 1 SHOWN, TYPE 2 SIMILAR)
LEAVE CONC COLLAR LOW AND SEAL WITH 1/2" A.C.S.C

EXISTING BITUMINOUS PAVEMENT

40" DIA

1/4" MAX

1/2" MIN, 1" MAX

5" MIN

BASE COURSE

SUBGRADE

8" FRAME & COVER

COMPACT TO CONFORM TO

SECT. 203 OR 501

SUBGRADE PREP AS REQUIRED

TOP OF SURVEY MONUMENT (BRASS CAP),
WATER VALVE BOX (8" CONCRETE PIPE),
SEWER PIPE (SIZE VARIES)

WATER VALVE, SURVEY MONUMENT, OR SEWER
CLEAN OUT FRAME & GRADE ADJUSTMENT

1/2" ROUNDHEAD BOLT
2" LONG

1/8"

1/2"

1/4" X 1/8"

SPACERS, AS REQ'D
LOCK WASHER
FLATTEN BOLT END

3/8" CHAIN

CHAIN ATTACHMENT
(AS REQUIRED)

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.

CASTING TO CONFORM TO SECT. 1004.
MINIMUM WEIGHT 16 LBS. FOR COVER

DETAIL TYPICAL FOR BOTH FRAME AND COVER

8" C.I. FRAME AND COVER

1/8" R.

1/32" R.

1/8" FILLETS

COVER ONLY

1/2" MIN.

7-1/2" DIA.

10" DIA.

10 1/4" DIA.

10 1/8" DIA

1/2" 1/16"

1 1/16"

1 1/16"

1/4" R

1/4" R

1/4" R

1/4" R

1 1/4"

3/4"

3/4"

15" DIA

16" DIA

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
URBAN HIGHWAY DETAILS

FRAME AND COVER WITH GRADE ADJUSTMENT

DETAIL NO.

UC-23
GENERAL NOTES

1. All concrete shall be class 5, 4000 psi.

2. All bolts, nuts, washers and fittings shall meet the dimensional requirements of the American National Standards Institute, unless otherwise designated and galvanized in accordance with ASTM A153.

3. All structural steel shapes and products fabricated from such shapes, bars, wire, etc., shall meet the dimensional requirements of the American Institute of Steel Construction, shall conform to the requirements of ASTM A36, and shall be galvanized in accordance with the requirements of ASTM A125.

4. Galvanized swaged fitting and U-bolt shall conform to ASTM A449.

5. The $\frac{1}{8}$-gallvanized wire mesh shall conform to AASHTO M30 Class B, Type II.

6. The wire fabric, ties, bands, stretcher bars, and other fittings and hardware shall conform to AASHTO M86.

7. The wire fabric fence shall follow the contour of the finished grade.

8. The excavation for the concrete anchor blocks shall be to near lines. Max. excess is 3".

9. Perforated posts shall be square tube formed from 0.125 U.S. gauge A554 cold rolled carbon steel. The square tubes shall be welded directly in the corner by high frequency resistance welding or equal. The posts to be externally treated to agree with standard corner radii of $\frac{1}{8}$".

10. Perforated posts shall be galvanized to conform to the requirements of ASTM A525. Gauging designation G-90.

11. The cable shall have sufficient tension to prevent sagging.

12. Height of bottom cable shall not exceed 10" above ground.

13. Two interior U-bolts & clamps to be spaced at least 30% of the distance between posts.

14. See plans for locations.

15. See detail UC-25 and C-12.20 for 72" fence details.
**DETAIL C**
U-BOLT & CLAMP BAR

**DETAIL D**
CABLE CLAMP ASSEMBLY

**DETAIL E**
SIDE VIEW
ANCHOR PLATE

**DETAIL F**
STRETCHER BAR BAND ASSEMBLY

**DETAIL G**
SWAGED CABLE ASSEMBLY
NOTES:

1) FASTEN WITH 1/2" x 8" LAG SCREWS WITH 2 FLAT WASHERS OR (2) 5/8" BOLTS, WITH 4 FLAT WASHERS.
2) 3" x 10" DOUGLAS FIR PLANK (LENGTH TO BE DETERMINED ON PLANS.)
3) ALL EXTERIOR PAINT SHALL BE REFLECTORIZED.

ΔTYPE 'A' MARKINGS SHALL BE ALTERNATE RED AND WHITE REFLECTIVE STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS)

ΔTYPE 'B' MARKINGS SHALL BE ALTERNATE RED AND WHITE STRIPES, PAINT ALL EXPOSED SURFACES 1 WHITE PRIME COAT AND 1 COAT OF WHITE EXTERIOR ENAMEL RED ENAMEL 1 COAT OF EXTERIOR RED ENAMEL.
PLAN VIEW

ELEVATION

SECTION "D-D"

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY

BARRIER TRANSITION
TANGENT
Sheet 2 of 2

UC-41
GENERAL NOTES
1. Transverse construction joints shall be located within the allowable limits shown. (2000)

2. *A* shall equal 4 ft. minimum (typical).
   *B* shall equal 3 ft. minimum (typical).
GENERAL NOTES:

1. Transverse construction joints shall be located within the allowable limits shown.

2. "X" shall equal 4 ft. minimum (typical).
   "Y" shall equal 3 ft. minimum (typical).
TYPE 'A' ENCASEMENT - FOR SEWER LATERALS OR HOUSE CONNECTIONS BELOW WATERLINES.

TYPE 'B' ENCASEMENT - FOR SEWER LATERALS OR HOUSE CONNECTIONS ABOVE WATERLINES.

NOTES

1. THE ENCASEMENT SHALL EXTEND AT LEAST 6' ON EACH SIDE OF THE WATER LINE AND MUST INCLUDE THE NEAREST JOINT.

2. PROTECTION FOR TYPE 'A' REQUIRED WHEN DISTANCE FROM BOTTOM OF WATER TO TOP OF SEWER LINE IS 24" OR LESS EXCEPT WHEN SEWER IS 4" OR 6" HOUSE CONNECTION NO PROTECTION IS REQUIRED IF DISTANCE IS MORE THAN 12".

3. FOR TYPE A CROSSINGS, CLASS 150 C.L.P OF DUCTILE PIPE MAY BE USED AS AN ALTERNATE. FOR TYPE B CROSSING REINFORCED ENCASEMENT IS ALWAYS REQUIRED.

4. REINFORCED ENCASEMENT FOR TYPE 'B' IS REQUIRED IN ALL CASES WHERE A SANITARY SEWER Crosses ABOVE THE WATER LINE.

DO NOT ALLOW CONCRETE MORTAR TO LOCK JOINT (TYP)
NOTES

1. TYPE "A" PIPE SUPPORT MAY BE USED FOR ANY TYPE CROSSING CONDITION.
2. TYPE "C" PIPE SUPPORT MAY BE USED FOR CROSSING PIPES WITH A BELL DIAMETER OF 18" OR LESS IF SUFFICIENT CLEARANCE OVER STORM SEWER IS AVAILABLE AND TOTAL SPAN IS LESS THAN 34'.
3. INTERMEDIATE PIPE SUPPORT SHALL BE USED IN CONJUNCTION WITH TYPE "C" PIPE SUPPORT IF TOTAL SPAN EXCEEDS MAX. 'W' IN TABLE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL SUPPORTS BOTH PERMANENT AND TEMPORARY. TEMPORARY SUPPORTS SHALL NOT BE A SEPARATE PAY ITEM.
5. PERMANENT PIPE SUPPORTS MAY BE DECREASED FROM PLAN QUANTITIES OR EXTENDED TO INCLUDE SOME LISTED BELOW AS TEMPORARY SUPPORTS IF CONDITIONS WARRANT THESE CHANGES AT THE TIME OF CONSTRUCTION. DECISION SHALL BE MADE BY THE ENGINEER.
7. USE TYPE "B" PIPE SUPPORT INSTEAD OF TYPE "C" WHEN CLEARANCE IS LESS THAN 'Y' IN TABLE, BETWEEN PIPES.

SCHEDULE OF REQUIRED SUPPORTS

<table>
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<tr>
<th>PERMANENT</th>
<th>TEMPORARY</th>
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<tr>
<td>SEWER LINES</td>
<td>CAST IRON PIPE</td>
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<tr>
<td></td>
<td>CONC. STORM DRAIN</td>
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<td></td>
<td>CONC. IRRIG. PIPE</td>
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<td></td>
<td>CONC. BOX CULVERT</td>
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<tr>
<td></td>
<td>BURIED TELCO. TRAFFIC CONTROL CONDUIT</td>
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<tr>
<td></td>
<td>GAS PIPES</td>
</tr>
<tr>
<td></td>
<td>WATER &amp; SEWER LINES</td>
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</tbody>
</table>

NOTE: OTHER UTILITIES AS NOTED ON THE PLANS OR AS REQUIRED BY THE ENGINEER AT TIME OF CONSTRUCTION.
EXISTING CROSSING PIPE

NEW DUCTILE IRON PIPE
CLASS 52 SIZE TO MATCH EXISTING PIPE

JOINT METHOD WILL VARY DEPENDING ON EXISTING PIPE MATERIAL

NOT TO EXCEED ONE PIPE LENGTH

VARIES

BACKFILL & COMPACT PER SECTION

VARIES

VARIES

5' min.

5' min.

5' min.
M.H. FRAME AND COVER PER SECT. 505

FOUR STEEL SPACERS, 4\(\frac{1}{2}\) IN. THICKNESS AS REQUIRED FROM 1/2 TO 2'. WHEN THICKNESS IS LESS THAN 1/2" USE MORTAR, WHEN GREATER THAN 2" USE BRICK.

NOTE: LOCATION & ELEVATION SHOWN ON PLANS.

LEAVE CONC. COLLAR LOW AND SEAL WITH 3/8" FINE DENSE GRADED PLANT MIX MATERIAL MIN THICKNESS 1/2" MAX 1".

CLASS 'S' CONCRETE 
\(f'c = 2500\) p.s.i.

EXISTING PAVEMENT

SUBGRADE PREP AS REQUIRED

SUBGRADE THICKNESS AND MATERIAL VARIES

COMPACITION TO CONFORM TO SECT. 303-2 OR 501.

BASE COURSE

MANHOLE FRAME & COVER DETAIL UC-63

M.H. STEP IN 48" M.H. ONLY

PIPE SIZES AND ELEVATIONS AS SHOWN ON PLANS

48" ID. PIPE 15" 80" ID. PIPE 7 1/2"

1 3 CEMENT PLASTER COAT OUTSIDE WITH MEMBRANE-TYPE CURING COMPOUND AFTER PLASTER HAS BEEN PLACED & FINISHED, "HUNT PROCESS" OR EQUAL.

ROWLOCK RADIAL COURSE

CLASS 'S' CONCRETE 
\(f'c = 3000\) p.s.i.

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
URBAN HIGHWAY DETAILS

SEWER MANHOLE AND COVER FRAME ADJUSTMENT

DETAIL NO. UC-62
### 24" MANHOLE FRAME & COVER

**Bottom View & Top View**
- **Frame**: 3/16" Batter
- **Cover**: 7/8" Drill, 11" Dia. O.C., 2 holes as necessary for machining.
- **Approx. Weight**: 205 lbs.

**Section of Frame**
- **Batter**: 5/6" R
- **Height**: 23-1/8" to 31-1/8"

**Section 'A-B-C' of Cover**
- **Batter**: 3/16"
- **Height**: 1-1/8" to 1-3/8"

### 30" MANHOLE FRAME & COVER

**Bottom View & Top View**
- **Frame**: 1/8" Batter
- **Cover**: 7/8" Drill, 11" Dia. O.C., 2 holes as necessary for machining.
- **Approx. Weight**: 324 lbs.

**Section of Frame**
- **Batter**: 5/8"
- **Height**: 5-1/4" to 31-1/8"

**Section 'D-D' of Cover**
- **Batter**: 1/8"
- **Height**: 1-1/2" to 3-1/2"

---

**Note**: Lettering on manhole cover to contain name of agency and utility for which manhole is needed, i.e. "Phoenix Sanitary Sewer", or as directed. The total width of individual letters to be such that letters and words are equally spaced and balanced to form a complete circle with spacers before and after the word identifying the agency involved. Letters to be 2" in height and raised 1/8" above level of cover. Type of letters to be submitted for approval. Weight of castings shall be no more than 2% less than the approximate weight specified. Castings shall conform to sections 1004-6 and 505-2.05. Castings shall be painted or dipped in commercial-quality asphaltum paint, unless otherwise specified.
CAST IRON MANHOLE STEP

POLYPROPYLENE MANHOLE STEP

NOTES:
1. ALL DIMENSIONS ARE MINIMUM EXCEPT WHERE NOTED.
2. CASTING AS PER SECTIONS 1004 - 6 AND 505 - 2.05.
3. CASTING SHALL BE PAINTED OR DIPPED IN COMMERCIAL-QUALITY ASPHALTUM PAINT, UNLESS OTHERWISE SPECIFIED.

NOTES:
1. STEPS SHALL BE PLACED INTO WET CONCRETE WALL DURING MANUFACTURE OR MORTARED INTO HOLES AFTER CONCRETE HAS SET.
2. POLYPROPYLENE MUST MEET REQUIREMENTS OF A.S.T.M. 2146, TYPE II, GRADE 16906.
TYPICAL LOCATIONS OF THRUST BLOCKS

NOTE: THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS ‘S’, $f'_c = 2500$ p.s.i.

<table>
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<tr>
<th>PIPE SIZE</th>
<th>WATER PIPE</th>
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<tr>
<td></td>
<td>TEE, DEAD END, 90° BEND</td>
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<tr>
<td>4&quot; &amp; LESS</td>
<td>3 SQ FEET</td>
</tr>
<tr>
<td>6&quot;</td>
<td>4 &quot; &quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>6 &quot; &quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>9 &quot; &quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>13 &quot; &quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>23 &quot; &quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. TABLE IS BASED ON 3000# / SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED FOR EACH PROJECT.
3. FORM ALL NON-BEARING VERTICAL SURFACES.
**NOTE**

This detail covers water gate valves, 4" to 16" inclusive, regardless of type of pipe used. Larger lines to be detailed on plans.

**GATE VALVE**

**CONCRETE FOOTING**
CLASS 'S' CONCRETE $f'c = 2500$ p.s.i.
FORM AS REQUIRED TO KEEP CLEAR OF JOINTS.

**SIMULATION**

**SIDE OPERATOR**

**BRICK PIER**
AS REQUIRED

**CEMENT GROUTING UNDER VALVE**
(NON-SHRINKING)

**NOTES**

1. This detail covers butterfly valve installation, 3" to 12" inclusive, regardless of type of pipe or joint used. Larger lines to be detailed on plans.
2. Valve box and cover required per detail UC-84.
NOTE
BARS TO CONCRETE THRUST BLOCK TO BE COATED WITH 2 COATS COAL TAR, EPOXY OR BY OTHER APPROVED METHOD. BARS TO HAVE 90° HOOK ON LOWER END, AS PER TABLE.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>MIN. BAR SIZE</th>
<th>&quot;A&quot;-DIMENSION (HOOK)</th>
<th>MIN. BLOCK DIM.</th>
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<tbody>
<tr>
<td>6&quot;</td>
<td># 6</td>
<td>6&quot;</td>
<td>3'x 3'x 3'</td>
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<tr>
<td>8&quot;</td>
<td># 6</td>
<td>9&quot;</td>
<td>4'x 4'x 2.5'</td>
</tr>
<tr>
<td>12&quot;</td>
<td># 8</td>
<td>9&quot;</td>
<td>4'x 5'x 5'</td>
</tr>
</tbody>
</table>

* FOR 125 PSI WORKING PRESSURE

NOTES
1. EITHER THIS DETAIL OR RESTRAINT RODS CAN BE USED WHEN IT IS ALLOWED TO RELOCATE A WATER LINE UPWARD TO CROSS OVER A CONFLICT.
2. DUCTILE IRON PIPE MAY BE USED.
CAST IRON

45° CAST IRON BENDS MAY BE USED IN PLACE OF CAST IRON OFFSETS, AS SHOWN

CAST IRON MECHANICAL JOINT

NOTES:
1. THIS DETAIL COVERS MOVING OF WATER MAINS, 2" TO 12" ONLY.
2. THRUST BLOCKING AS PER DETAIL NO. UC-80 AND UC-82.
3. IF OFFSET IS TO GO OVER OBSTRUCTION, JOINT RESTRAINTS MUST BE USED
4. PIPE IS TO BE CAST IRON OR DUCTILE IRON.
NOTES

1. EXTENSION STEM: WITH SQUARE SOCKET ON BOTTOM TO FIT 2" SQUARE VALVE NUT. EXTENSION TO VALVE STEMS REQUIRED ON ALL VALVES INSTALLED WHERE OPERATING NUT IS OVER 5' BELOW SURFACE. LENGTH TO FIT EACH INSTALLATION. OPERATING NUT TO BE HELD ON TOP OF EXTENSION WITH STOP NUT.

2. IF TWO OR MORE JOINTS OF A.C.P. ARE USED TO MAKE RISER USE STANDARD A.C.P. PIPE RUBBER GASKET COUPLING TO JOIN PIPE. WHERE RISER LENGTH EXCEEDS 10' USE 12" A.C.P. PIPE.

3. STEM PAINTING: ALL STEEL TO HAVE PRIME COAT OF PAINT NO. 4 AND ONE HEAVY APPLICATION (FINISH COAT) OF PAINT NO. 1002 - 4.06 AS PER Sect. 1002.
ASPHALTIC CONC. PAVEMENT (MAX.) 1/4"
CLASS 'S' CONC. f'c = 2500 p.s.i.
CONCRETE TO BE ON UNDISTURBED OR COMPACTED SOIL.

TYPE 'A'
(TO BE USED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.)
FINISH GRADE
COVER ONLY
CLASS 'S' CONC. AS f'c = 2500 p.s.i.

SEE NOTE 3.

TYPE 'B'
(ALTERNATE BRICKS)
(NOT SUBJECT TO VEHICULAR TRAFFIC.)

TYPE 'C'
(TO BE USED WHEN VALVE BOX IS LOCATED WITHIN P.C.C. PAVEMENT)

NOTES
4. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACING OF THE ASPHALTIC CONCRETE SURFACE.
5. USE PARKSON TYLER, APCO, OR EQUAL DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX. C.I. MIN. T.S. 30,000 P.S.I.
6. GROUND BELOW CONCRETE PAD OR 3 BRICKS TO BE COMPACTED 95% OF MAX. DENSITY.
NOTES

1. BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND.
2. ALL TAPS SHALL BE MADE BY CITY CREWS AT PREVAILING RATES.
3. INSTALL PERMANENT BLOCKING UNDER VALVE BEFORE TAP IS MADE. ALL FLANGE BOLTS SHALL BE CLEAR OF FOOTING.
4. ALL TAPPING SLEEVES MUST BE PRESSURE TESTED PRIOR TO REQUESTS FOR TAP BY CITY.
5. CONTRACTOR SHALL EXCAVATE AS SHOWN AND SHALL SET TAPPING SLEEVE AND VALVE AND TIGHTEN ALL BOLTS PRIOR TO REQUESTING CITY TO MAKE TAP.
6. TAPPING SLEEVE TO BE PLACED A MINIMUM OF 18" FROM ANY BELL, COUPLING, VALVE, OR OTHER OBSTRUCTION.

<table>
<thead>
<tr>
<th>SIZE OF PIPE BEING CONNECTED</th>
<th>MINIMUM THRUST AREA REQUIRED (AxB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; &amp; LESS</td>
<td>3 SQUARE FEET</td>
</tr>
<tr>
<td>6&quot;</td>
<td>4 &quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>6 &quot;</td>
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<tr>
<td>10&quot;</td>
<td>9 &quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>13 &quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>23 &quot;</td>
</tr>
</tbody>
</table>
RODS ARE ATTACHED TO LUGS CAST ON BELL OF HYDRANT. IF HYDRANT IS NOT FITTED WITH LUGS, RODS ARE ATTACHED AS SHOWN BY THE DOTTED LINES.
THIS DETAIL IS FOR USE ONLY ON UNDERGROUND INSTALLATIONS WHERE THE USE OF CONCRETE THRUST BLOCKING PER DETAIL NO. UC-80 CANNOT BE USED BECAUSE OF OBSTRUCTIONS, OR REQUIREMENTS OF THE SPECIFICATIONS...

CLAMPS SHALL BE 1/2 BY 2 INCHES FOR PIPE 4 AND 6 INCHES IN DIAMETER; 5/8 BY 2 1/2 INCHES FOR PIPE 8 AND 10 INCHES; 5/8 BY 3 INCHES FOR PIPE 12 INCHES. BOLT HOLES SHALL BE 1/16 INCH IN DIAMETER LARGER THAN BOLTS.

RODS SHALL BE 3/4 INCHES IN DIAMETER FOR PIPES 4, 6 AND 8 INCHES IN DIAMETER; 7/8 INCHES FOR PIPE 10 INCHES AND 1 INCH IN DIAMETER FOR PIPE 12 INCHES.

BOLTS SHALL BE 5/8 INCHES IN DIAMETER FOR PIPE 4, 6 AND 8 INCHES IN DIAMETER; 3/4 INCHES FOR PIPE 10 INCHES AND 7/8 INCHES IN DIAMETER FOR PIPE 12 INCHES.

WASHERS MAY BE CAST IRON OR STEEL, ROUND OR SQUARE. DIMENSIONS FOR CAST IRON WASHERS ARE 5/8 BY 3 INCHES FOR PIPE 4, 6, 8 AND 10 INCHES IN DIAMETER AND 3/4 BY 3 1/2 INCHES FOR PIPE 12 INCHES. DIMENSIONS FOR STEEL WASHERS ARE 1/2 BY 3 INCHES FOR PIPE 4, 6, 8 AND 10 INCHES IN DIAMETER AND 1/2 BY 3 1/2 INCHES FOR PIPE 12" IN DIAM.; HOLES SHALL BE 1/8 INCH LARGER THAN THE RODS.

FOR PIPE LARGER THAN 12" IN DIAM., RESTRAINT DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION.


2. HIGH STRENGTH, HEAT TREATED CAST IRON TEE-HEAD BOLTS WITH HEXAGON NUTS, ALL IN ACCORDANCE WITH THE STRENGTH REQUIREMENTS OF A.W.W.A. C-111, MAY BE USED IN LIEU OF THE CADMIUM PLATED BOLTS AND NUTS.

3. THE SKETCHES IN THIS SERIES OF FIGURES SHOW ACCEPTABLE METHODS OF PROVIDING ANCHORAGE. THERE IS NO PARTICULAR SIGNIFICANCE TO BE ATTACHED TO WHETHER THE SKETCH SHOWS A BELL AND SPIGOT JOINT OR A STANDARD MECHANICAL JOINT. THE ANCHORING PROCEDURE ILLUSTRATED APPLIES IN MOST CASES TO EITHER TYPE OF JOINT. IN SOME CASES, DIMENSIONS OF THE PARTICULAR PIPE OR HUB AND SPACE AVAILABLE FOR WORKING AROUND THE PARTICULAR JOINT WILL INFLUENCE THE CHOICE OF METHODS USED.


5. COATING TYPE: A.H.D ASPHALTIC PRIMER 907-2.02 - ALL EXPOSED METAL.
CAST IRON WATER METER BOX LID FITTING BOX NO. 1, 2, 3, OR 4 AS REQUIRED

PLAN VIEW

SECTION A-A

BREAK OUT IF NECESSARY TO SET BOX TO PROPER GRADE

SECTION B-B

METER BOX DIMENSIONS

<table>
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<tr>
<th>DIM.</th>
<th>BOX NUMBER</th>
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<tbody>
<tr>
<td>A</td>
<td>19&quot;</td>
</tr>
<tr>
<td>B</td>
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<tr>
<td>C</td>
<td>11&quot;</td>
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<td>I</td>
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</tr>
<tr>
<td>M</td>
<td>16&quot;</td>
</tr>
<tr>
<td>N</td>
<td>2 1/2&quot;</td>
</tr>
<tr>
<td>5/8&quot; OR 3/4&quot; METER</td>
<td>1&quot; METER</td>
</tr>
</tbody>
</table>

NOTES

1. THE METER BOXES SHALL CONFORM TO THE DIMENSIONS AS SHOWN AND SHALL BE MADE OF PORTLAND CEMENT CONCRETE POURED AND TAMPERED (OR VIBRATED) IN TRUE FORMS.

2. USE CLASS 'S' CONCRETE, f'c = 4000 p.s.i.
NO SCALE

NOTE: ALL STEEL PER SPEC. 1004-1 & 1004-2

DIAMOND PLATE STEEL

BLACK HOT DIPPED COAL TAR BITUMINOUS COATING

LIFT SLOT

10° TAPER

3/4" HEAVY WALL BLACK IRON PIPE CORNERS SCHED. 40

INSIDE ALL 4 CORNERS BOTH SIDES OF PIPE

OPTIONAL 3/16" WELD IN LIEU OF IRON PIPE

SPECIFICATIONS

<table>
<thead>
<tr>
<th>NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>BRACES</th>
<th>WEIGHT</th>
<th>MATERIAL</th>
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</thead>
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<tr>
<td>1</td>
<td>9&quot;</td>
<td>15 7/8&quot;</td>
<td>1 3/8&quot;</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
<td>5 1/4 LBS.</td>
<td>14 GAGE</td>
</tr>
<tr>
<td>2</td>
<td>14 1/8&quot;</td>
<td>21 3/4&quot;</td>
<td>1 1/2&quot;</td>
<td>6 1/2&quot;</td>
<td>3/16&quot; X 1 1/4&quot; X 13 1/8&quot;</td>
<td>DETAIL 1</td>
<td>12 3/4 LBS.</td>
<td>12 GAGE</td>
</tr>
<tr>
<td>3</td>
<td>15 1/4&quot;</td>
<td>26 1/4&quot;</td>
<td>1 1/2&quot;</td>
<td>8 1/4&quot;</td>
<td>3/16&quot; X 1 1/4&quot; X 14 1/4&quot;</td>
<td>DETAIL 1</td>
<td>19 1/4 LBS.</td>
<td>12 GAGE</td>
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<tr>
<td>4</td>
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<td>30&quot;</td>
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<td>7 1/8&quot;</td>
<td>3/16&quot; X 1 1/4&quot; X 18 3/4&quot;</td>
<td>DETAIL 2</td>
<td>33 LBS.</td>
<td>11 GAGE</td>
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</tbody>
</table>
END BARRIER DETAIL
Scale: 1"=1'-0"

PLAN
Scale: 1"=1'-0"

ELEVATION
Scale: 1"=1'-0"

END BARRIER DETAIL FROM TRAFFIC DIRECTION

SECTION A-A
Scale: 1"=1'-0"

SECTION B-B
Scale: 1"=1'-0"

SECTION C-C
Scale: 1"=1'-0"

DETAIL 'A'
Not to scale

NOTES
1. See Construction Standard Drawings C-0.37 through C-10.41
   for dimensions and details not shown.
2. Terminal Connector Back Plate shown on the Detail H, Construction Standard
   Drawing C-10.41, shall not be used.
3. See plans for type of guard rail post.
NOTES
All Concrete shall be Class "A", f'c = 3,000 psi.
All reinforcing Steel dimensions shall be to center of bars, unless noted otherwise.
All reinforcing Steel shall have 3' clear cover unless noted otherwise.
Reinforcing Steel shall conform to ASTM Spec. A615
Bar size 5 and smaller are designed as Grade 40
and furnished as Grade 40 or Grade 60, f'y = 30,000 psi.
Bar size #8 and larger shall be Grade 60, f'y = 46,000 psi.
Anchor lug to be cast in precompacted roadway embankment or formed and compacted to
embankment requirements prior to the casting of Anchor Slab.

PLAN - NEW APPROACH SLAB

PLAN - EXISTING APPROACH SLAB

SECTION A-A

ALTERNATE END DETAIL

SECTION B-B

DETAIL C'
TYPICAL END POST ELEVATION

9 ga. chain link fence fabric
2' mesh Barbed sewage at
top and knuckle sewage at
bottom.

9 gauge steel ties (8) 3/8"
to all pipes

3/4" std pipe (2.72" Fl)
(10)

2 1/2" std pipe (5.79" Fl)
(10)

Tension bar ends equally spaced (Typ.)

Knuckle edge of
fabric. 14" Cl.

1/2" Hoops
@ 12" Max

DETAIL A

SECTION A-A
(Typical interior post)

9 ga. Curb, Post and
Pipe sleeve

1 1/2" R (Typ.)

10 ga. Hoops
@ 1/2" Max

3 1/2" std pipe
(5.79" Fl)

6 3/4" O.C. centered
at post hole

GENERAL NOTES:
Chain link fence fabric shall conform to AASHTO M618-
Type I or Type II. For Type I, the wire fabric
coating shall be Class A

Posts, fittings and hardware shall conform to ASTM-A120
Schedule 40 pipe standard weights As Shown.

All galvanizing that has been damaged in handling,
transporting or welding shall be repaired by
the application of a paste compound of an approved
zinc powder and flux.

All exposed edges shall be smooth.
All bolt heads shall be to the inside.

TYPICAL INTERIOR PANEL ELEVATION

Front rail clamp

5 1/2" std pipe
(2.72" Fl)

3 1/2" std pipe
(5.79" Fl)

5/8" bolts (Typ.) thru 3/4" pipe

EXPANSION JOINT DETAIL

See DETAIL B

Aperture side of joint.

DETAIl B

THE STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY DETAILS
CURB FENCE DETAILS

DETAIL APPROVED BY:

REV.

STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY DETAILS

DETAIL NO.

UB-05
NOTES:
1) COLOR OF SIGNS SHALL BE AS FOLLOWS:
   a) R8-3a, R3-1, R3-2 & R3-4
      CIRCLE & DIAGONAL - RED (REFLECTORIZED)
      SYMBOL & BORDER LEGEND - BLACK (NON-REFLECTORIZED)
      BACKGROUND - WHITE (REFLECTORIZED)
   b) R1-1, R1-2 & R5-1
      LEGEND - RED (REFLECTORIZED)
      BACKGROUND - WHITE (REFLECTORIZED)
2) DIMENSIONS ARE NOMINAL
3) SIGNS SHALL BE REFERENCED BY SIZE, EXAMPLE - R-11(A/1)
MINIMUM SPEED
00

ONLY

R3-8L

R3-8R

SPEED LIMIT
00

ONLY ONLY

R3-8L (SPECIAL)

*R3-8R (SPECIAL)

NOTES:
1) COLOR OF ALL SIGNS SHALL BE AS FOLLOWS:
   LEGEND & BORDER - BLACK NON-REFLECTORIZED
   BACKGROUND - WHITE REFLECTORIZED
2) DIMENSIONS ARE NOMINAL
3) SIGNS SHALL BE REFERENCED BY SIZE,
   EXAMPLE - R2-1 (4" x 8")
4) *Denotes Opposite Hand Dimensions.
NOTES:

1) COLOR OF SIGNS SHALL BE AS FOLLOWS:
   a) W3-1a
      BORDER & ARROW - BLACK NON-REFLECTORIZED
      SYMBOL - WHITE BORDER ON RED BACKGROUND
      REFLECTORIZED
      BACKGROUND - YELLOW REFLECTORIZED
   b) W3-2a
      BORDER & ARROW - BLACK NON-REFLECTORIZED
      SYMBOL - RED BORDER ON WHITE BACKGROUND
      REFLECTORIZED
      BACKGROUND - YELLOW REFLECTORIZED
   c) W3-3
      SYMBOL & LEGEND - BLACK NON-REFLECTORIZED
      TOP CIRCLE - RED REFLECTORIZED
      BOTTOM CIRCLE - GREEN REFLECTORIZED
      BACKGROUND - YELLOW REFLECTORIZED
   d) W1-7R, W1-8R, W1-6L, W2-8R & W2-8L
      LEGEND - BLACK NON-REFLECTORIZED
      BACKGROUND - YELLOW REFLECTORIZED

2) DIMENSIONS ARE NOMINAL

3) SIGNS SHALL BE REFERENCED BY SIZE,
   EXAMPLE - W3-3 (4')
   W1-6L (4' x 8')

4) * DENOTES OPPOSITE HAND DIMENSIONS.
NOTES:
1) COLOR OF ALL SIGNS SHALL BE AS FOLLOWS:
   LEGEND & BORDER - BLACK (NON-REFLECTORIZED)
   BACKGROUND - YELLOW (REFLECTORIZED)
2) DIMENSIONS ARE NOMINAL
3) SIGNS SHALL BE REFERENCED BY SIZE,
   EXAMPLE - WI-1L (A')
   W-6 (A' x B')
4) *DENOTES OPPOSITE HAND DIMENSIONS.
NOTES:  
1. COLOR OF ALL SIGNS SHALL BE AS FOLLOWS:  
   LEGEND AND BORDER - BLACK (NON-REFLECTORIZED)  
   BACKGROUND - WHITE (REFLECTORIZED)  
   OR AS NOTED IN PLANS  
2. DIMENSIONS ARE NOMINAL  
3. SIGNS SHALL BE REFERENCED BY SIZE,  
   EXAMPLE: M3-4 (6" x 9")
NOTE:

1. COLOR OF ALL SIGNS SHALL BE AS FOLLOWS:
   LEGEND & BORDER - WHITE REFLECTORIZED
   BACKGROUND - BLUE REFLECTORIZED

2. DIMENSIONS ARE NOMINAL

3. SIGNS SHALL BE REFERENCED BY SIZE,
   EXAMPLE - M3-4 (INTERSTATE) [A×B]
NOTE:
All signs shown shall have a reflectorized arrow and border (legend). Sign color shall be as specified in the Manual on Uniform Traffic Control Devices.
### MI-IA SERIES
(for independent mounting)

<table>
<thead>
<tr>
<th>Letters</th>
<th>Digits</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<td>12</td>
<td>5</td>
<td>30</td>
<td>I</td>
</tr>
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**NOTES:**
1. Shop drill 7/32" holes in independent panels; do not drill in letter or numerals.
2. All dimensions in inches.
3. Dimensions are nominal.
4. Signs shall be referenced by size.
   - Example: MI-IC (15°D)
5. Signs colors shall be as specified above; legend and border shall be white.
6. Optically space numerals about center line.