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On mains sixteen (16) inches in diameter and larger where plans specify welding joints and where ductile iron pipe is furnished, joints shall be restrained by an approved joint restraint method for the distance specified.

Except as otherwise required in this specification, the special provisions, or by the Engineer, trench excavation, backfilling and compaction shall be in accordance with the requirements of Section 601. Backfilling may be accomplished as soon as the pipe line has been installed to the satisfaction of the Engineer, subject to the requirements for testing, as contained below.

Hydrostatic testing shall be in accordance with this specification.

All corporation stops used for testing and chlorination shall be left in the pipe line with the stop closed and all connecting pipe removed.

Curb stops with flushing pipes or fire hydrants shall be installed at the ends of dead-end mains according to standard details.

Thrust blocks shall be installed in accordance with this specification.

Valve boxes and covers shall be according to standard details.

Asbestos-cement pipe shall be installed in accordance with AWWA C-603, except pipe and fittings shall be in accordance with Section 752.

Cast iron pipe shall be installed in accordance with AWWA C-600, except pipe and fittings shall be in accordance with Section 750.

Ductile iron pipe shall be installed in accordance with this specification and pipe and fittings shall be in accordance with Section 750.

610.5 SEPARATION:

610.5.1 General:

Water lines and sewer lines shall be separated to protect water lines from contamination by sewer lines.

The smallest angle of a water line and sewer line crossing shall be limited to between (45) forty-five degrees and (90) ninety degrees.

Correct? Separation distances are measured from the outside diameter of the water or sewer line, or the centerline of a manhole.

When water and sewer lines can not meet separation requirements, extra protection is required as described in 610.5.5 and shown in Standard Detail 404.

Extra protection (horizontal distances) required for line crossings are measured from the closest outside diameter of the sewer or water line.

Water line service connections to individual building supply and distribution plumbing shall not be placed below sewer lines, and shall otherwise comply with the separation requirements of the applicable plumbing code as applied by the Agency (Administrative Authority). Methods described for extra protection do not apply to these service lines.

Water and sewer lines shall not be constructed parallel within a common trench. Is this new?

610.5.2 Water Line Separation from Gravity Sewer Lines:

Water lines shall not be placed within two (2) feet horizontal and one (1) foot vertical above and two (2) feet vertical below gravity sewer lines.

Extra protection is required where a water line is placed within six (6) feet horizontal and two (2) feet vertical above a gravity sewer line.

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Extra protection is required where a water line is placed within six (6) feet horizontal and any distance below a gravity sewer line.

610.5.3 Water Line Separation from Pressurized Sewer Lines:

Water lines shall not be placed within six (6) feet horizontal and two (2) feet vertical below and above a pressurized sewer line.

OR

Extra protection is required where a water line is placed within six (6) feet horizontal and six (6) feet vertical above a pressurized sewer line.

Is this being increased to 6 ft.?

Extra protection is required where a water line is placed within (6) feet horizontal and any distance below a pressurized sewer line.

610.5.4 Water Line Separation from Manholes:

Water lines shall not pass through or come into contact with any part of a sewer manhole and shall be separated six (6) feet horizontal from the center of a sewer manhole.

Concrete encasement?

610.5.5 Extra Protection:

What about Concrete encasement.

New water lines that require extra protection from new sewer lines, shall have extra protection provided by using ductile iron pipe for both lines. Lines of standard pipe length shall be centered at the point of crossing so that no joints exist within six (feet) horizontal and only restrained or mechanical joints exist within ten (10) feet horizontal.

Not Consistent

New water lines that require extra protection from sewer lines shall have identification wrap and/or tape installed on the water and sewer lines for the horizontal length of each line for that requires extra protection.

What does this say?

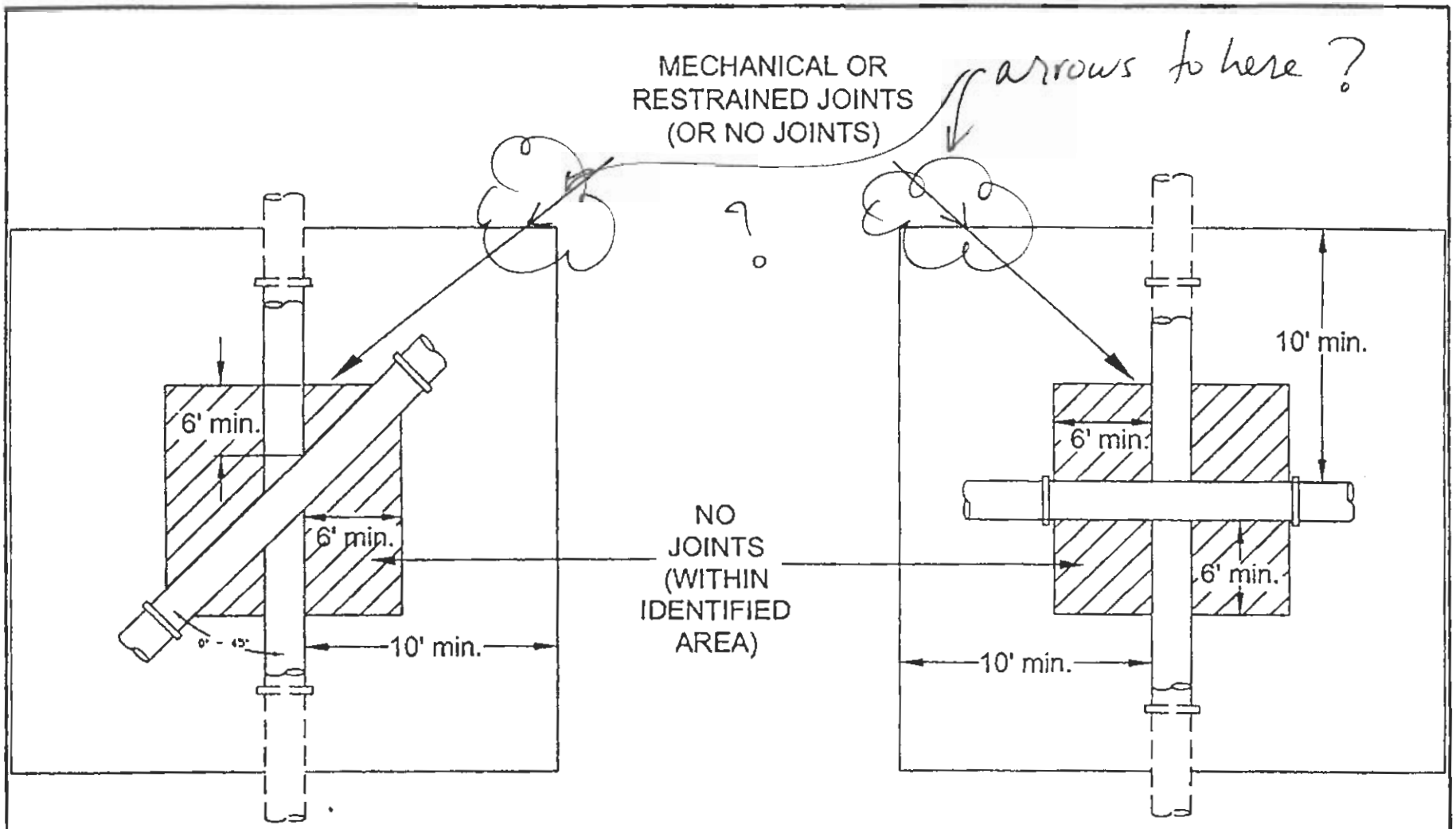
New water lines that require extra protection from existing sewer lines shall be constructed using the extra protection specified for new water lines, and the existing sewer line:

1. shall be reconstructed using a standard length of ductile iron pipe centered at the point of crossing so that no joints exist within six (feet) horizontal and only restrained or mechanical joints exist within ten (10) feet horizontal, or
2. shall be encased in 6 inches of concrete for the horizontal distance of the line that requires extra protection but for a distance no less than ten (10) feet horizontal.

Existing water lines that require extra protection from new sewer lines shall provide for extra protection by:

1. constructing the new sewer line and reconstructing the existing water line using ductile iron pipe for both lines with standard pipe lengths centered at the point of crossing so that no joints exist within six (feet) horizontal and restrained or mechanical joints exist within ten (10) feet horizontal, or
2. encasement of both the existing water line and the new sewer line in six (6) inches of concrete for the horizontal distance of the lines that require extra protection but for a distance no less than ten (10) feet horizontal.
3. Extra protection for existing ductile iron water lines can be met by the installation of restrained or mechanical joints on the existing water line within (10) feet horizontal of the crossing and either
   (A) construction of new sewer line using a standard pipe length of ductile iron pipe centered at the point of crossing so that

Mesa Comments 9-1-05

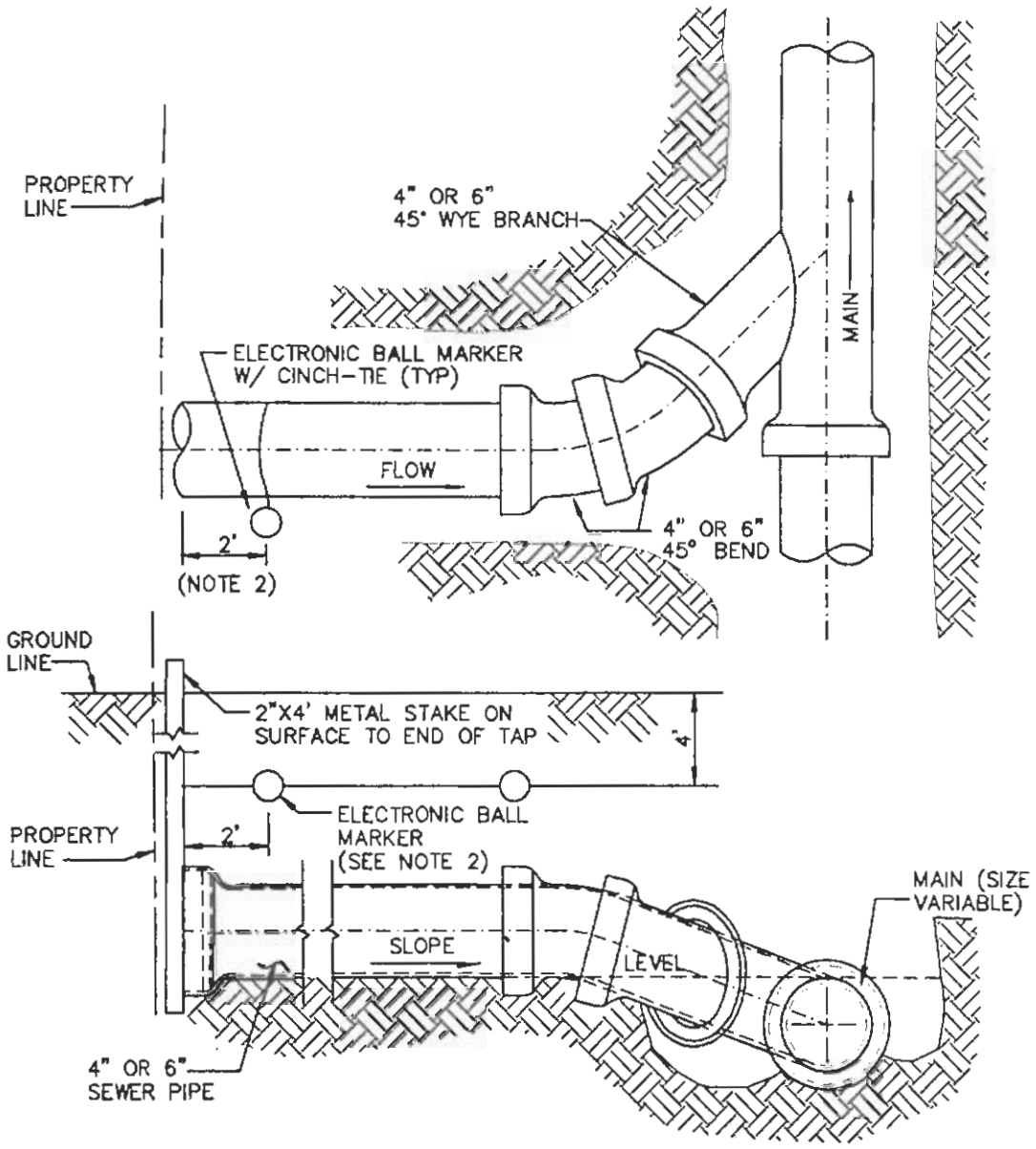


EXTRA PROTECTION DUCTILE IRON PIPE
(GRAVITY OR PRESSURIZED) SEWER LINE

Case 04-07
August 3, 2005

DETAIL NO.			REVISED	DETAIL NO.
404–3	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	WATER AND SANITARY SEWER SEPARATION/PROTECTION		404–3

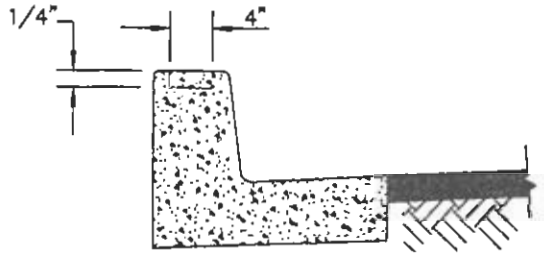
Mesa Comments 9-1-05



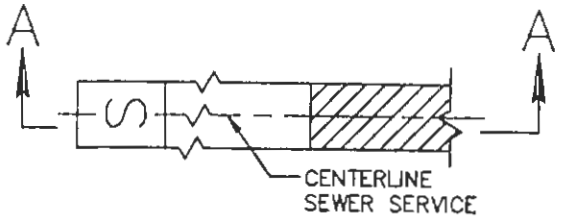
ELECTRONIC MARKER PLACEMENT

NOTES:

1. ELECTRONIC BALL MARKER SHALL BE A 3-M "MID RANGE" GREEN IN COLOR OR 4" DIA. MARKER BALL AS REQUIRED BY LOCAL AGENCY. or approved equal?
2. MARKER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, 2' BACK FROM THE END OF THE SEWER SERVICE STUB AND AS REQUIRED BY LOCAL AGENCY.
3. MARKER SHALL BE LEFT UNDISTRUBED ONCE THE HOUSE SERVICE IS CONNECTED.
4. MARKER SHALL BE USED IN ADDITION TO A 2"x4" STAKE.
5. STAMP TOP OF CURB WITH 4" TALL BY 1/4" DEEP "S" TO DESIGNATE SEWER SERVICE LINE CROSSING LOCATION.

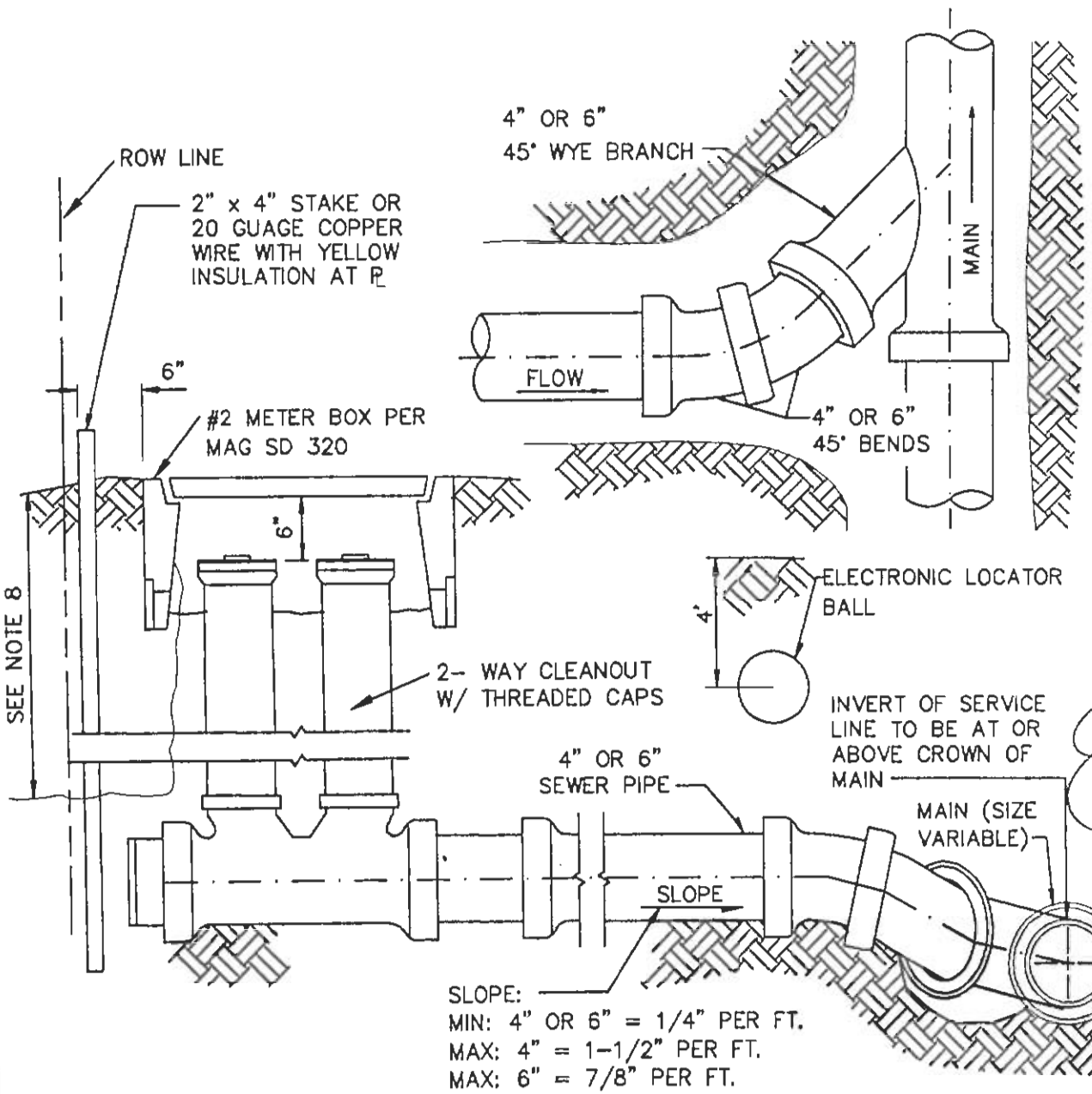


SECTION A-A



CURB STAMP

DETAIL NO.			REVISED	DETAIL NO.
440-1	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	TYPE I - SEWER BUILDING CONNECTION ELECTRONIC BALL MARKERS (STANDARD)	01/02/2006	440-1



NOTES:

1. CONSTRUCTION DETAIL APPLIES WHERE CONTRACTOR BUILDS HOUSE CONNECTION. TAP EXTENDS TO PROPERTY LINE IN ALLEYS OR STREETS OR TO EASEMENT LINE.
2. SIZE OF TAP SHALL BE DESIGNATED ON PLANS.
3. CONSTRUCT TAP AT MINIMUM SLOPE IF COVER WILL BE LESS THAN 5' AT PROPERTY LINE.
4. IF DEPTH REQUIRES, MINIMUM SLOPE CAN BE REDUCED TO 1/8" PER FOOT PROVIDED STUB IS STAKED TO GRADE.
5. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321. THE CONTRACTOR MAY VARY FROM THE DRAWING TO USE THE APPROPRIATE WYES, TEE-WYES AND BENDS TO ENSURE NO MISALIGNMENT OF THE PIPE AND FITTINGS. BLOCK OR BRACE FITTING JOINTS TO ENSURE ZERO DEGREES ANGULAR JOINT DEFLECTION.
6. ~~END OF TAP TO BE SEALED AND~~ MARKED AS NOTED.
7. THE ELECTRONIC BALL MARKER SHALL BE 3M 4" Ø SELF LEVELING (OR APPROVED ~~MARKER BALL OR~~ EQUAL,) and GREEN IN COLOR.
8. ~~#~~ 14 ~~BARE~~ COPPER LOCATOR WIRE ACCESSIBLE AT ~~ROW~~ AND AT PROPERTY OWNER CLEANOUT BOX NO GREATER THAN 4' DEEP.

Mesa Comments 9-1-05

DETAIL NO.			REVISED	DETAIL NO.
440-2	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	TYPE II – SEWER BUILDING CONNECTION TWO-WAY CLEANOUT AND METER BOX AT ROW (WHEN SPECIFIED BY LOCAL AGENCY)	01/02/2006	440-2

Case 05-04
Revised July 28, 2005

DETECTABLE WARNINGS

Mesa Comments 9-1-05

340.2 MATERIALS add the following:

340.2.1 Detectable Warnings

Detectable warnings shall consist of raised truncated domes aligned in a square grid pattern in conformity to the Americans with Disabilities Accessibility Guidelines. Truncated domes shall have the following nominal dimensions: base diameter of 0.9 inches, top diameter of 0.4 inches, height of 0.2 inches, and dome spacing center-to-center spacing of 2.35 inches, measured between the most adjacent domes on the square grid. Detectable warnings shall contrast visually with adjoining surfaces. Visual contrast shall be obtained by color, use safety yellow or other approved color. The color shall be an integral part of the material surface. The material is to be durable with a non-slip surface not subject to spalling, chipping, delamination, or separation. All detectable warnings must be approved by the jurisdictional agency prior to installation.

340.3 CONSTRUCTION METHODS add the following:

340.3.1 Detectable Warnings

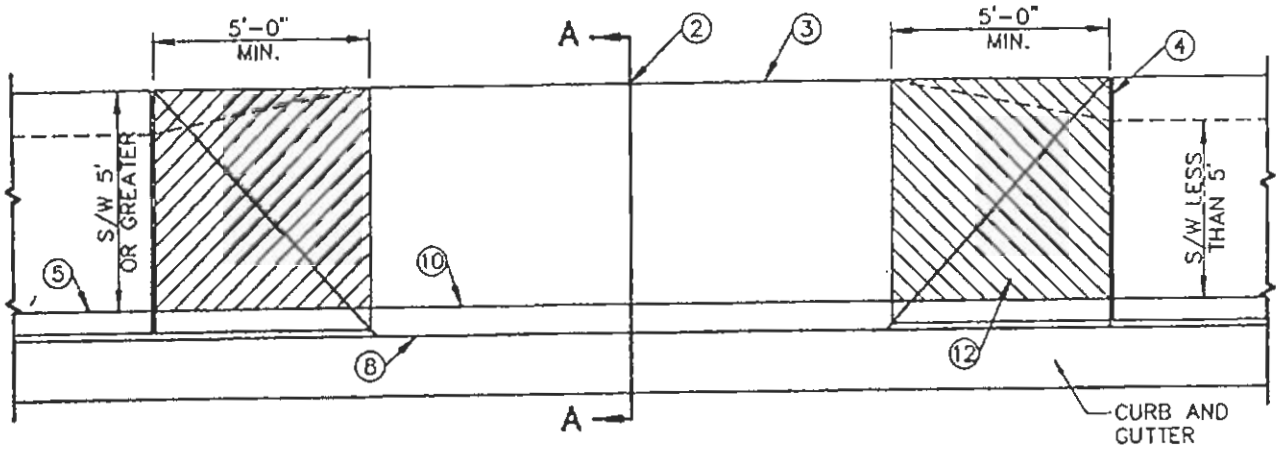
Detectable warnings are to be installed at locations that represent potential hazards for pedestrians with vision impairments ~~such locations include walkways that cross roads or railroad tracks~~. Detectable warnings shall be installed on walkways that adjoin or cross a roadway whenever the walking surface is not separated by curbs, railings or other approved elements. Detectable warnings shall be installed on all sidewalk ramps at street crossings. The detectable warning surface shall be located so that the edge nearest the curb line is 6 inches minimum and 8 inches maximum back from the face of curb. Detectable warning surfaces for railroads shall be located so that the edge nearest the rail crossing is 6 inches minimum and 8 inches maximum from the vehicle dynamic envelope.

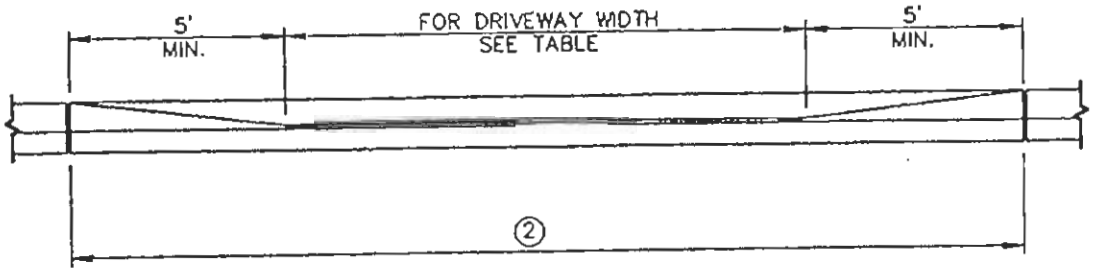
Already stated below

Detectable warnings shall be installed perpendicular to the direction of pedestrian/wheelchair travel and have a minimum width of 24 inches measured perpendicular to the edge of the roadway or rail crossing. The base surface of detectable warnings shall be installed flush with the adjacent walkway surface, the truncated domes shall extend above the walkway surface. The boundary between detectable warnings and the adjacent walkway shall provide a flush uniform surface that will not cause ponding of water nor present a tripping hazard.

Detectable warnings installed on sidewalk ramps shall modify the sidewalk concrete thickness at the detectable warning to provide a minimum thickness of four-inches (4"). When detectable warnings are modules inset into the sidewalk ramp, the bottom surface of the sidewalk shall be lowered a distance equal to or greater than the module thickness to maintain the minimum sidewalk thickness. The sidewalk bottom surface

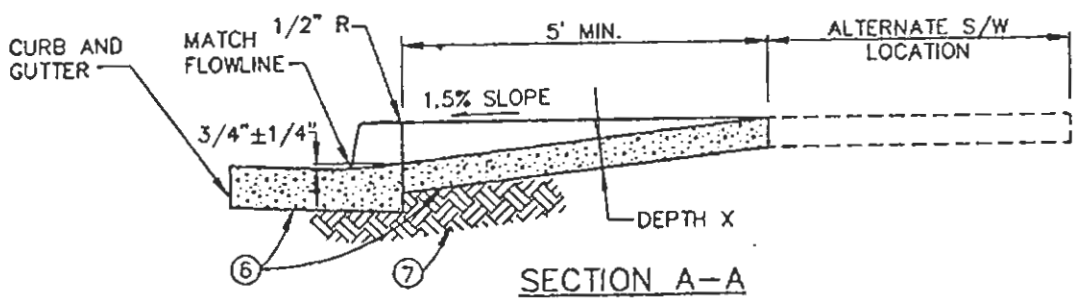
Can Delete Note 11 Per City of Mesa 9-1-05





NOTES:

1. DEPRESSED CURB SHALL BE PAID FOR AT THE UNIT PRICE BID FOR THE TYPE OF CURB USED AT THAT LOCATION.
2. WHEN WIDTH EXCEEDS 22' PROVIDE A CONTRACTION JOINT ON D/W CENTERLINE.
3. BACK OF D/W OR FACE OF FUTURE S/W.
4. EXPANSION JOINTS SHALL COMPLY WITH SECTION 340.
5. BACK OF CURB – CONSTRUCTION JOINT OR SCORE MARK.
6. CLASS 'B' CONCRETE, SECT. 725.
7. SUBGRADE PREPARATION, SECT. 301.
8. FLOW LINE OF GUTTER.
9. DEPRESSED CURB.
10. SECT. A–A AND ELEVATION, D/W VERTICAL CURB AND GUTTER OR ROLL TYPE CURB AND GUTTER.
11. ~~ROLL TYPE CURB AND GUTTER NOT PERMITTED IN THE CITY OF MESA~~ Remove Note Per Com 9-1-05
12. ~~1/4" GROOVES AT 1" O.C.~~ BROOM FINISH FULL WIDTH OF 5' WARP SECTION, EACH SIDE OF DRIVEWAY. ~~SEE DETAIL NO. 1 ON TYPE 'D' RAMP DETAIL NO. 234.~~



SECTION A–A

COMMERCIAL AND INDUSTRIAL				
DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH X
COMMERCIAL	* 16'	40'	B	6"
INDUSTRIAL	* 16'	40'	B	6"
*24' MIN. FOR TWO WAY TRAFFIC				

RESIDENTIAL				
DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH X
MAJOR STREET	16'	30'	B	5"
COLLECTOR STREET	* 12'	30'	B	5"
LOCAL STREET	12'	30'	B	5"
*16' DESIRABLE				

DETAIL NO.			REVISED	DETAIL NO.
250	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	DRIVEWAY ENTRANCES	DRAFT 08-04-2005	250

Case 05-04