

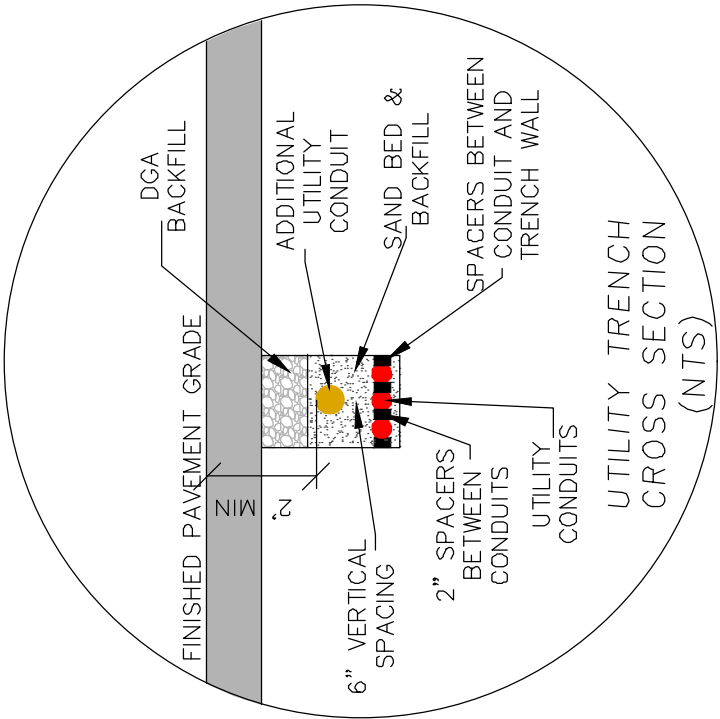
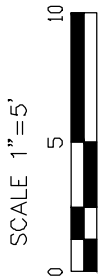
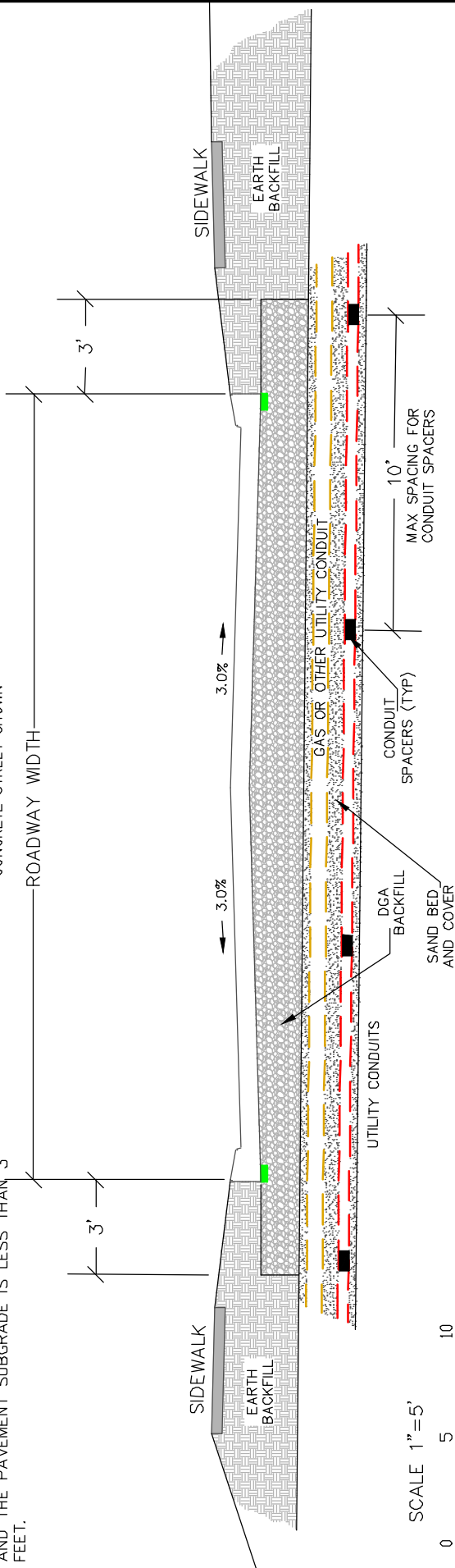
APPENDIX C

**STANDARD CONSTRUCTION REQUIREMENTS AND DETAILS FOR STREETS,
SIDEWALKS, DRIVEWAYS**

THIS DETAIL SHALL APPLY TO ALL SHALLOW UTILITY CROSSINGS UNDER THE STREET. SHALLOW IS DEFINED AS WHEN THE DISTANCE BETWEEN THE TOP OF THE INITIAL GRANULAR COVER & BEDDING AND THE PAVEMENT SUBGRADE IS LESS THAN 3 FEET.

STREET CROSS SECTION AT SHALLOW UTILITY CROSS OVER

CONCRETE STREET SHOWN

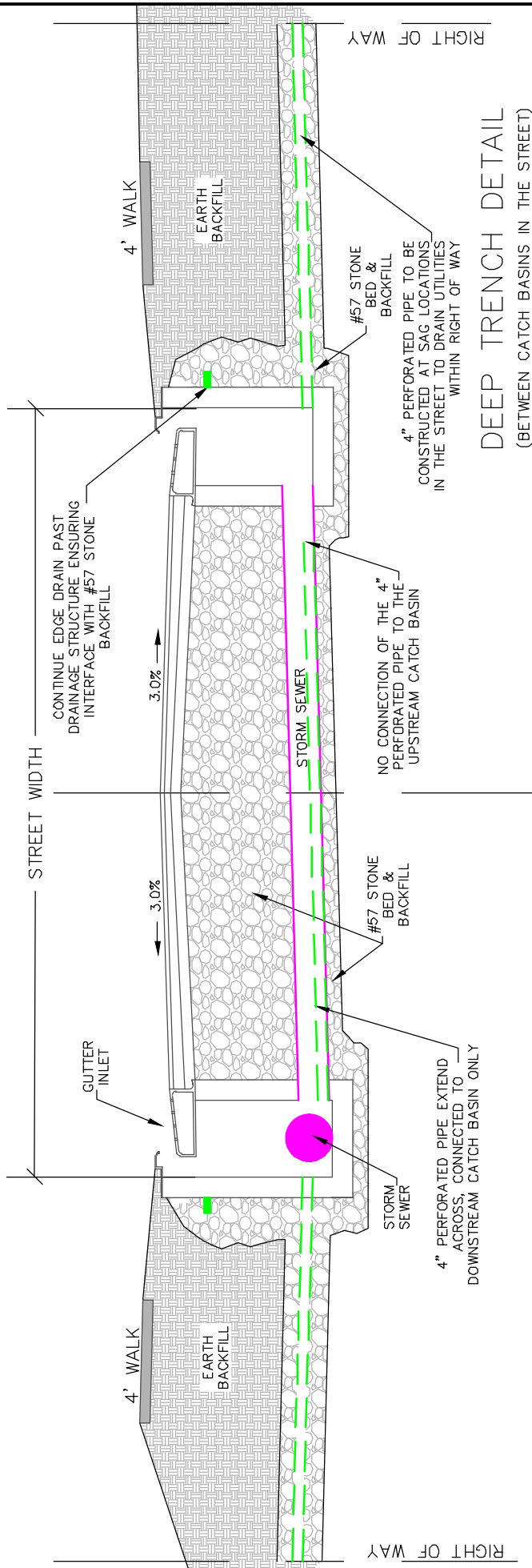


SHALLOW UTILITY CROSSOVER INSTALLATION PROCEDURE

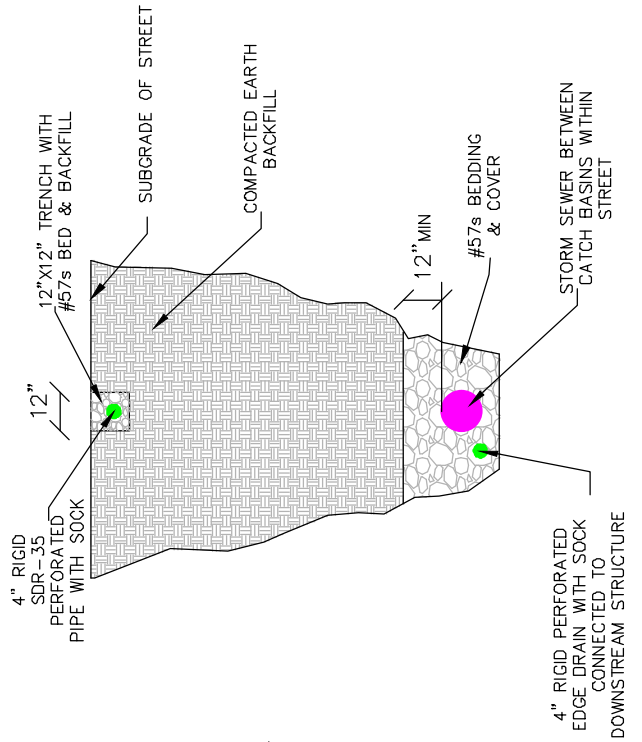
1. ALL UTILITY CONDUITS SHALL BE SDR-35 OR EQUAL.
2. A MINIMUM OF 4" BETWEEN EACH OUTSIDE CONDUIT AND THE WALL OF THE TRENCH. (EACH CONDUIT MUST HAVE A MINIMUM SPACING OF 2" BETWEEN THE OUTSIDE EDGE OF EACH CONDUIT)
3. INSTALL A MINIMUM SAND BEDDING OF 3" IN THE BOTTOM OF THE TRENCH.
4. INSTALL UTILITY CONDUITS IN ONE SINGLE ROW (DO NOT STACK CONDUITS DIRECTLY ON TOP OF EACH OTHER) WITH A MINIMUM SPACING OF 2" BETWEEN THE OUTSIDE EDGE OF EACH CONDUIT AND A MINIMUM OF 4" BETWEEN THE LAST CONDUIT AND THE TRENCH WALL. THE MINIMUM 2" SPACING BETWEEN CONDUITS MUST BE ACCOMPLISHED USING SPACERS SUCH AS MANUFACTURED SPACERS, BRICKS, BLOCKS, ETC. THERE SHALL BE BLOCKS / SPACERS BETWEEN THE TRENCH WALL AND EACH OUTSIDE CONDUIT. SPACERS SHALL BE INSTALLED AT THE BEGINNING AND THE END OF EACH UTILITY TRENCH AND AT MINIMUM OF EVERY 10 FEET ALONG THE CONDUIT IN THE TRENCH.
5. BACKFILL CONDUITS WITH SAND TO A MINIMUM COVER OF 6" AND COMPACT WITH VIBRATORY PLATE COMPACTOR MAKING A MINIMUM OF 2 PASSES.
6. INSTALL NEXT ROW OF CONDUITS (IF NECESSARY) A MINIMUM OF 6" VERTICAL ABOVE THE FIRST ROW OF CONDUITS (MEASURED FROM THE TOP OF THE LOWER CONDUIT TO THE BOTTOM OF THE UPPER CONDUIT)
7. BACKFILL CONDUITS WITH SAND TO A MINIMUM COVER OF 6" AND COMPACT WITH VIBRATORY PLATE COMPACTOR MAKING A MINIMUM OF 2 PASSES.
8. INSTALL DGA BACKFILL (PUG MILLED) UP TO SUBGRADE OF STREET USING MAXIMUM LIFTS OF 8" AND COMPACTING WITH A VIBRATORY PLATE COMPACTOR MAKING A MINIMUM OF 2 PASSES.
9. THIS METHOD SHALL APPLY TO ALL SHALLOW UTILITY CROSSINGS (WATER MAIN, WATER SERVICES, ELECTRIC, TELEPHONE, CABLE, ETC.).

STREET CROSS SECTION AT PAIRED CATCH BASIN CROSSING

(FULL-DEPTH ASPHALT STREET SHOWN)

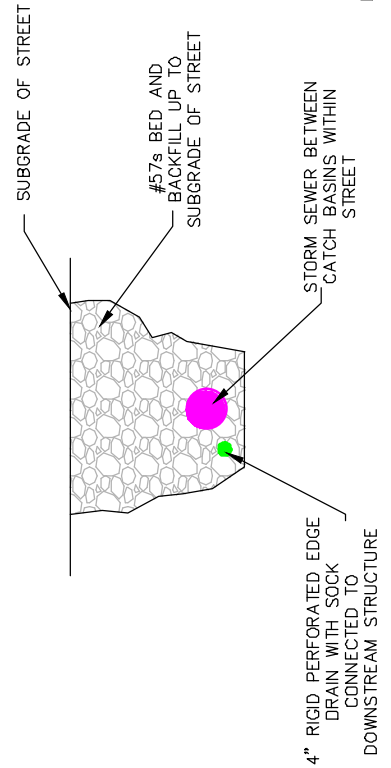


DEEP TRENCH DETAIL (BETWEEN CATCH BASINS IN THE STREET)

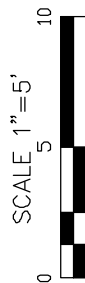
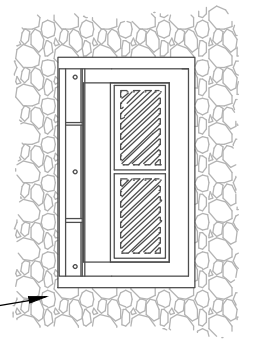


NOTE: DEEP TRENCH DETAIL CAN BE USED WHEN THE DISTANCE BETWEEN THE TOP OF THE GRANULAR COVER & BEDDING AND THE SUBGRADE OF THE STREET IS 3 FEET OR GREATER.

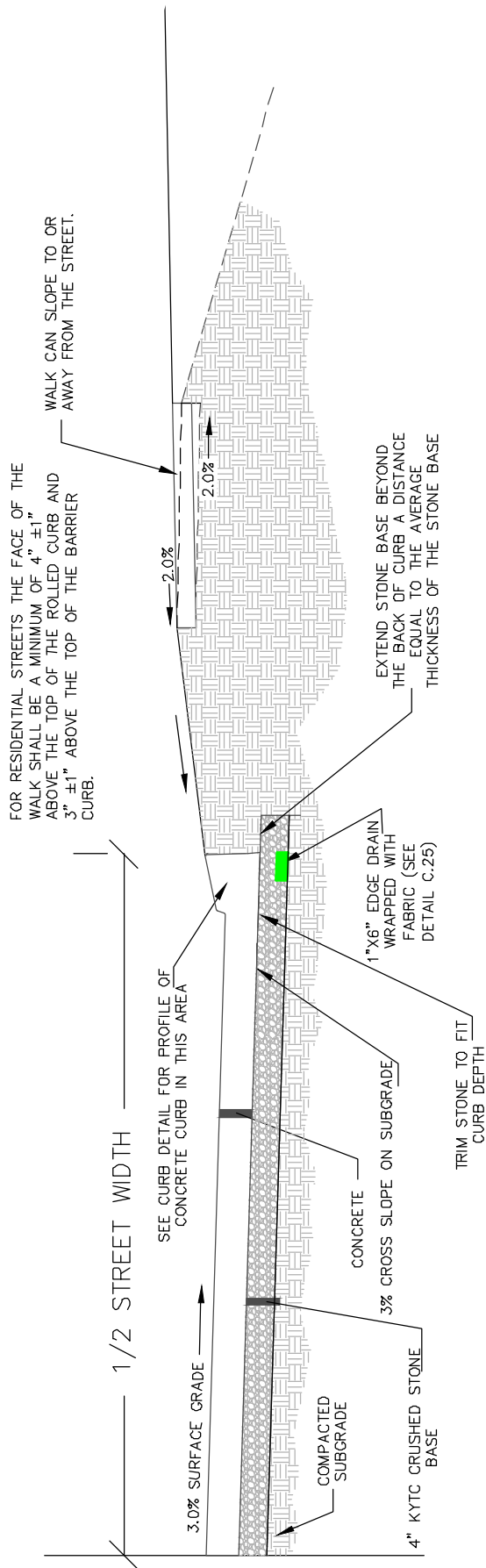
SHALLOW TRENCH DETAIL (BETWEEN CATCH BASINS IN THE STREET)



BACKFILL ALL SIDES OF CATCH BASIN FROM BOTTOM TO SUBGRADE WITH #57 STONE FOR BOTH SHALLOW AND DEEP TRENCH APPLICATIONS



SUBURBAN & URBAN PAVEMENT SECTIONS

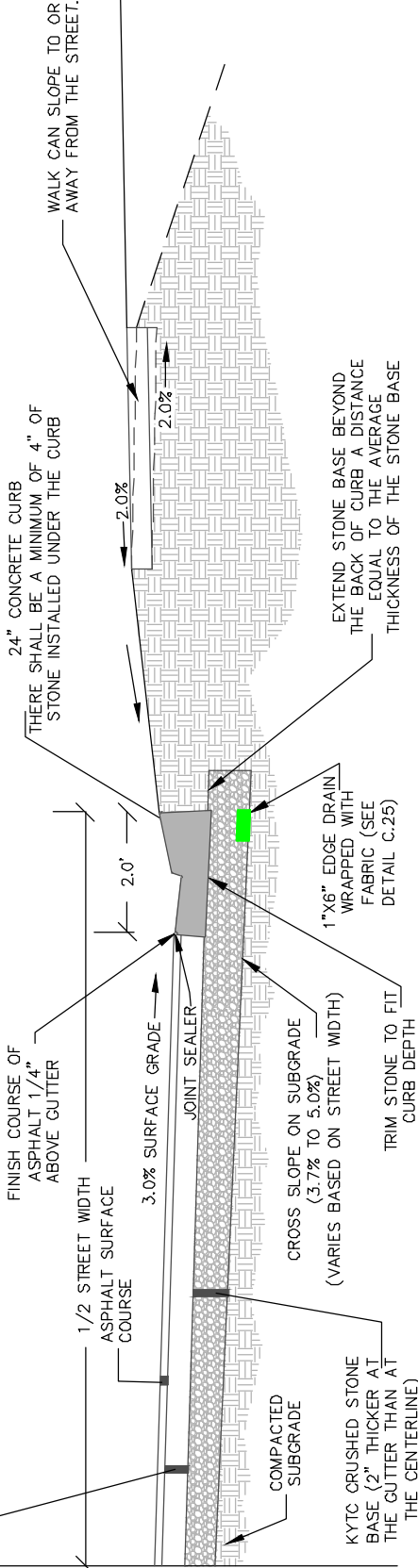


SEE TABLE A-2 FOR ALL PAVEMENT THICKNESSES

CONCRETE

SUBURBAN & URBAN PAVEMENT SECTIONS

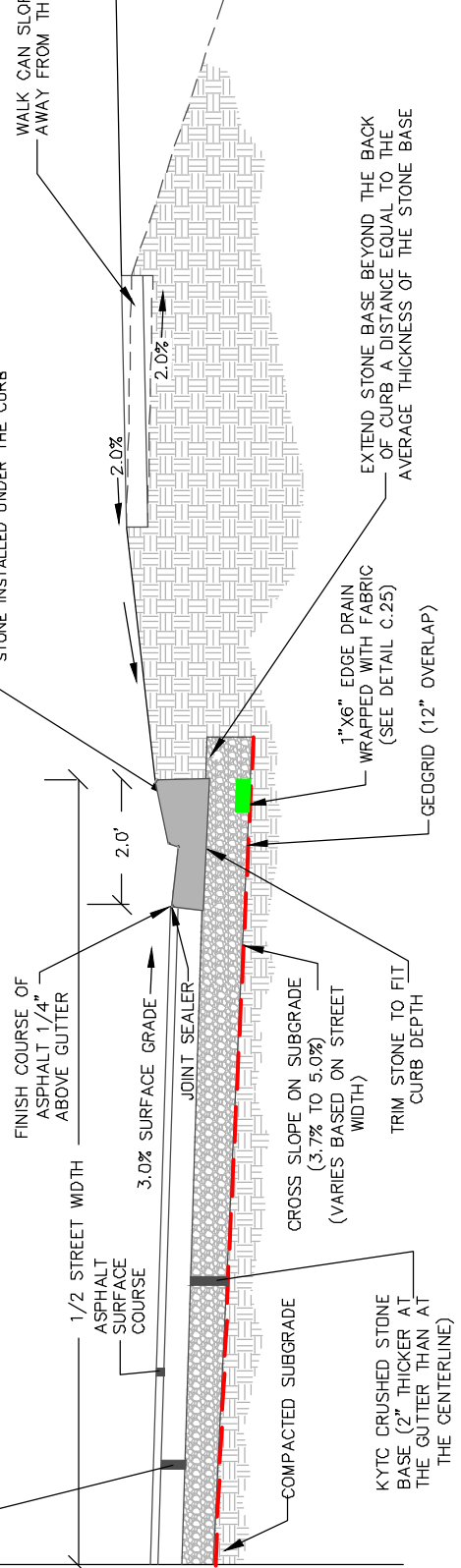
- ASPHALT INTERMEDIATE COURSE
1. IF SURFACE IS INSTALLED IMMEDIATELY THIS COURSE CAN BE INSTALLED AS AN ASPHALT BASE COURSE
 2. IF SURFACE IS NOT INSTALLED IMMEDIATELY THIS COURSE SHALL BE INSTALLED USING AN INTERMEDIATE ASPHALT COURSE. IF THIS COURSE IS INSTALLED IN TWO LIFTS THEN ONLY THE SECOND LIFT SHALL BE REQUIRED TO BE AN INTERMEDIATE ASPHALT COURSE.



FOR RESIDENTIAL STREETS THE FACE OF THE WALK SHALL BE A MINIMUM OF 4" ±1" ABOVE THE TOP OF THE ROLLED CURB AND 3" ±1" ABOVE THE TOP OF THE BARRIER CURB.

SEE TABLE A-2 FOR ALL PAVEMENT THICKNESSES

- ASPHALT INTERMEDIATE COURSE
1. IF SURFACE IS INSTALLED IMMEDIATELY THIS COURSE CAN BE INSTALLED AS AN ASPHALT BASE COURSE
 2. IF SURFACE IS NOT INSTALLED IMMEDIATELY THIS COURSE SHALL BE INSTALLED USING AN INTERMEDIATE ASPHALT COURSE. IF THIS COURSE IS INSTALLED IN TWO LIFTS THEN ONLY THE SECOND LIFT SHALL BE REQUIRED TO BE AN INTERMEDIATE ASPHALT COURSE.



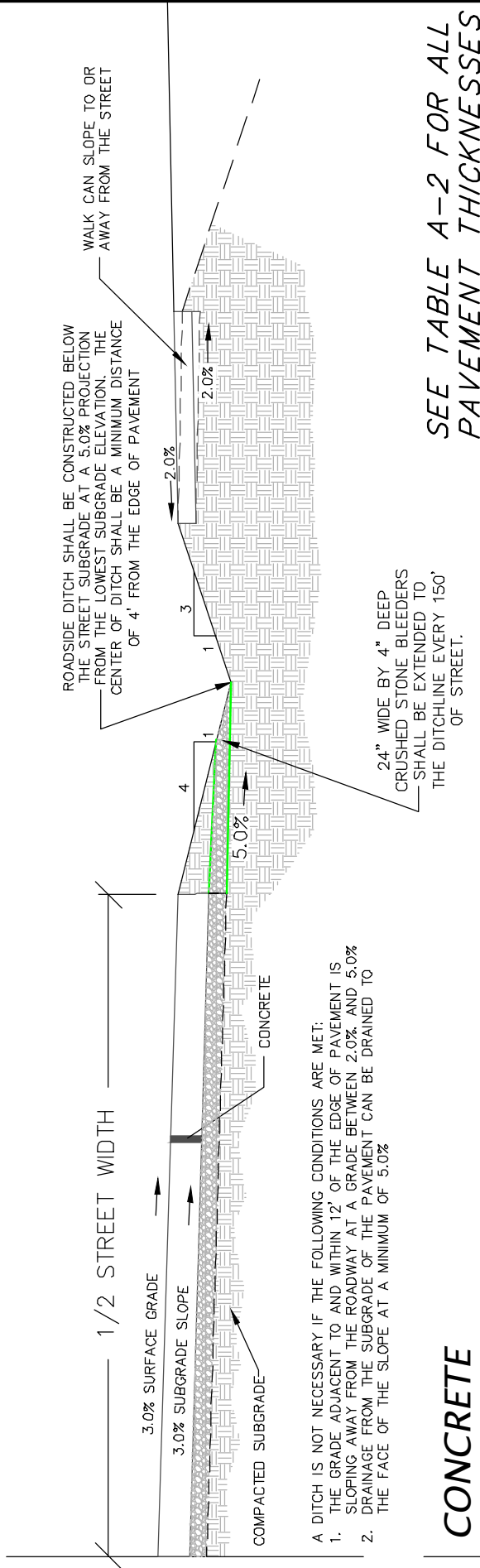
FOR RESIDENTIAL STREETS THE FACE OF THE WALK SHALL BE A MINIMUM OF 4" ±1" ABOVE THE TOP OF THE ROLLED CURB AND 3" ±1" ABOVE THE TOP OF THE BARRIER CURB.

WALK CAN SLOPE TO OR AWAY FROM THE STREET.

ASPHALT WITH STONE BASE & GEOGRID

ASPHALT WITH STONE BASE

RURAL PAVEMENT SECTIONS

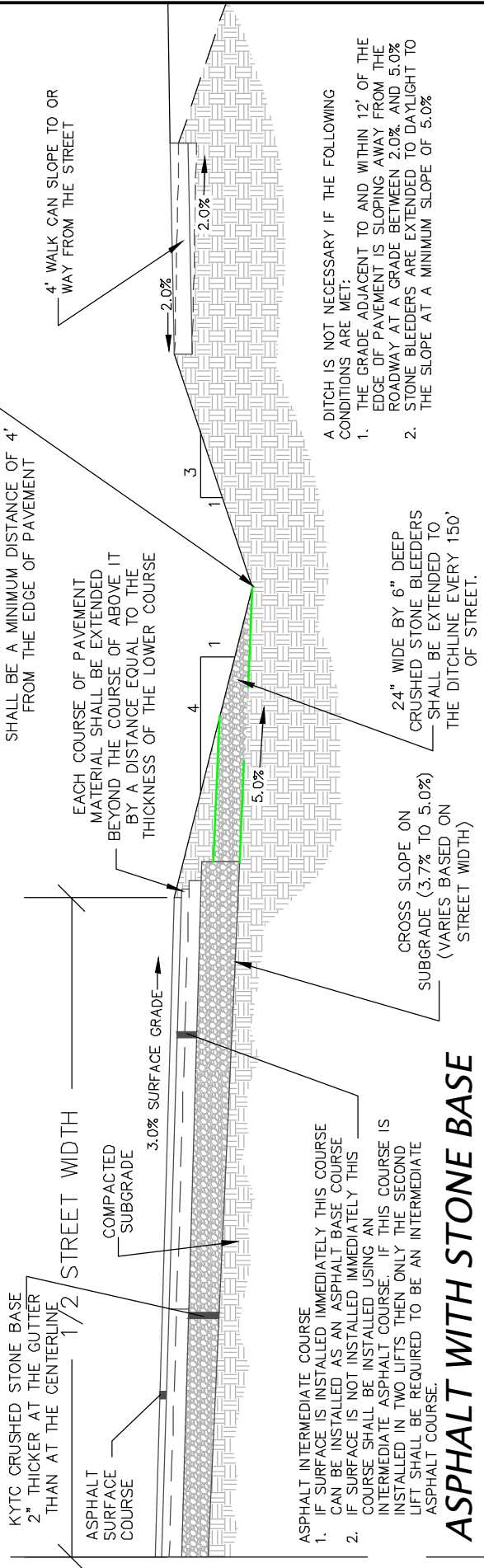


SEE TABLE A-2 FOR ALL PAVEMENT THICKNESSES

CONCRETE

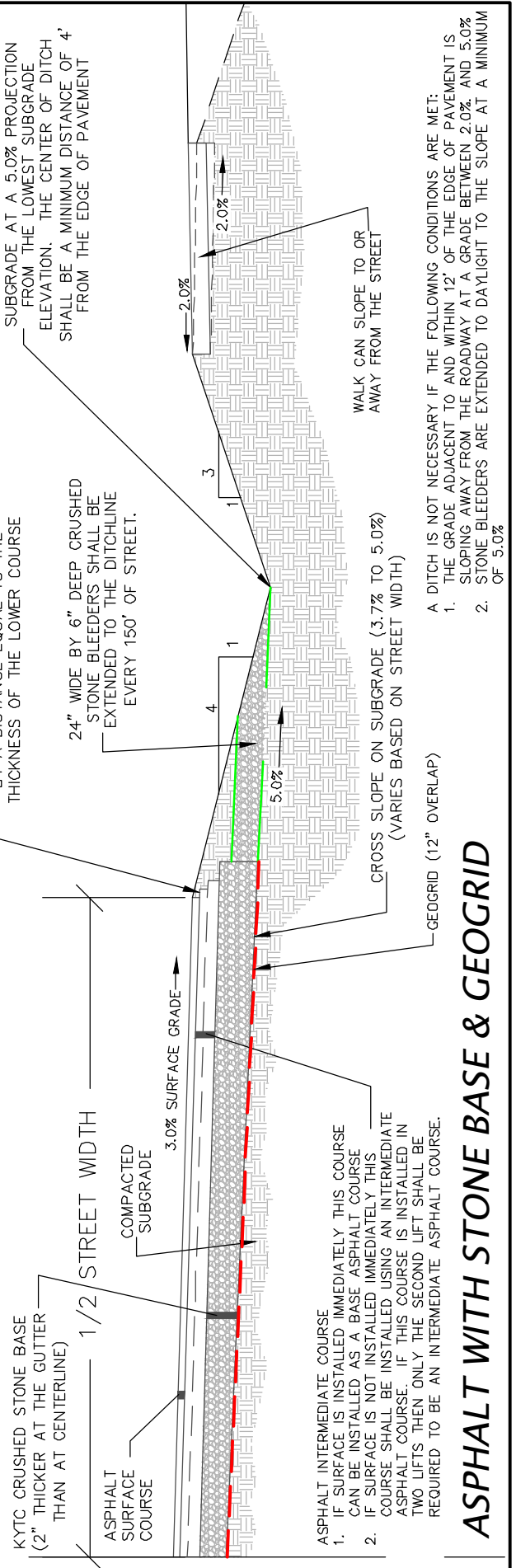
- A DITCH IS NOT NECESSARY IF THE FOLLOWING CONDITIONS ARE MET:
1. THE GRADE ADJACENT TO AND WITHIN 12' OF THE EDGE OF PAVEMENT IS SLOPING AWAY FROM THE ROADWAY AT A GRADE BETWEEN 2.0% AND 5.0%
 2. DRAINAGE FROM THE SUBGRADE OF THE PAVEMENT CAN BE DRAINED TO THE FACE OF THE SLOPE AT A MINIMUM OF 5.0%

RURAL PAVEMENT SECTIONS



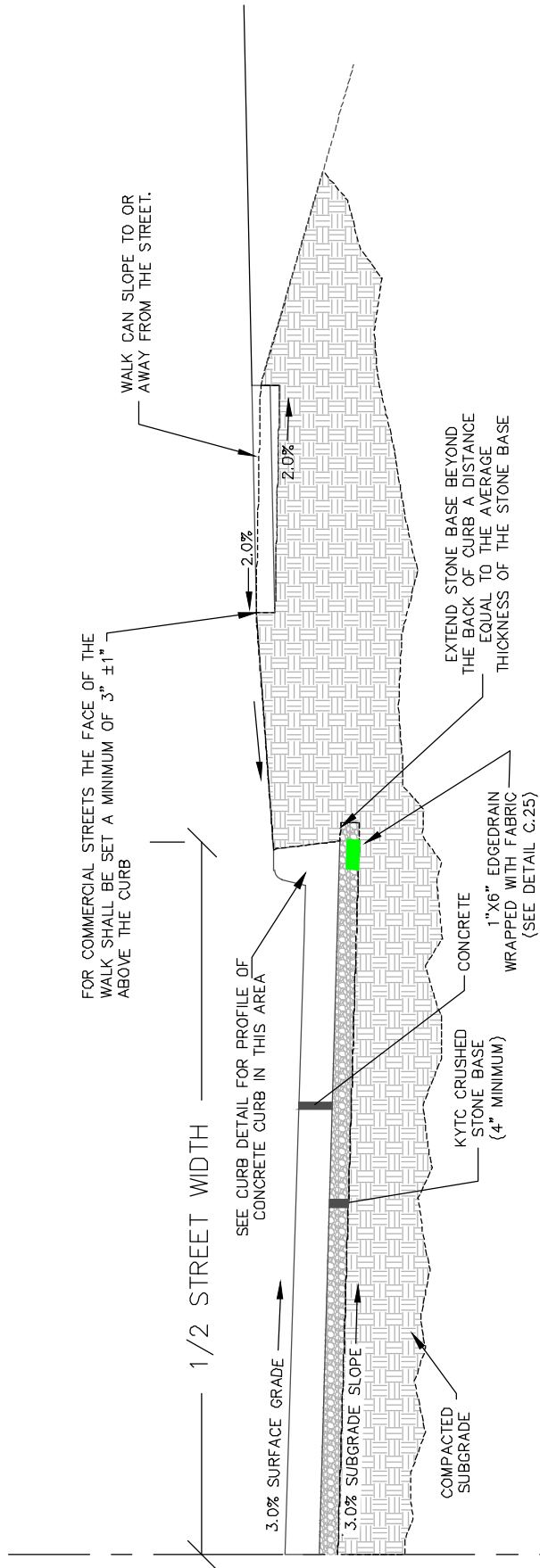
ASPHALT WITH STONE BASE

SEE TABLE A-2 FOR ALL PAVEMENT THICKNESSES



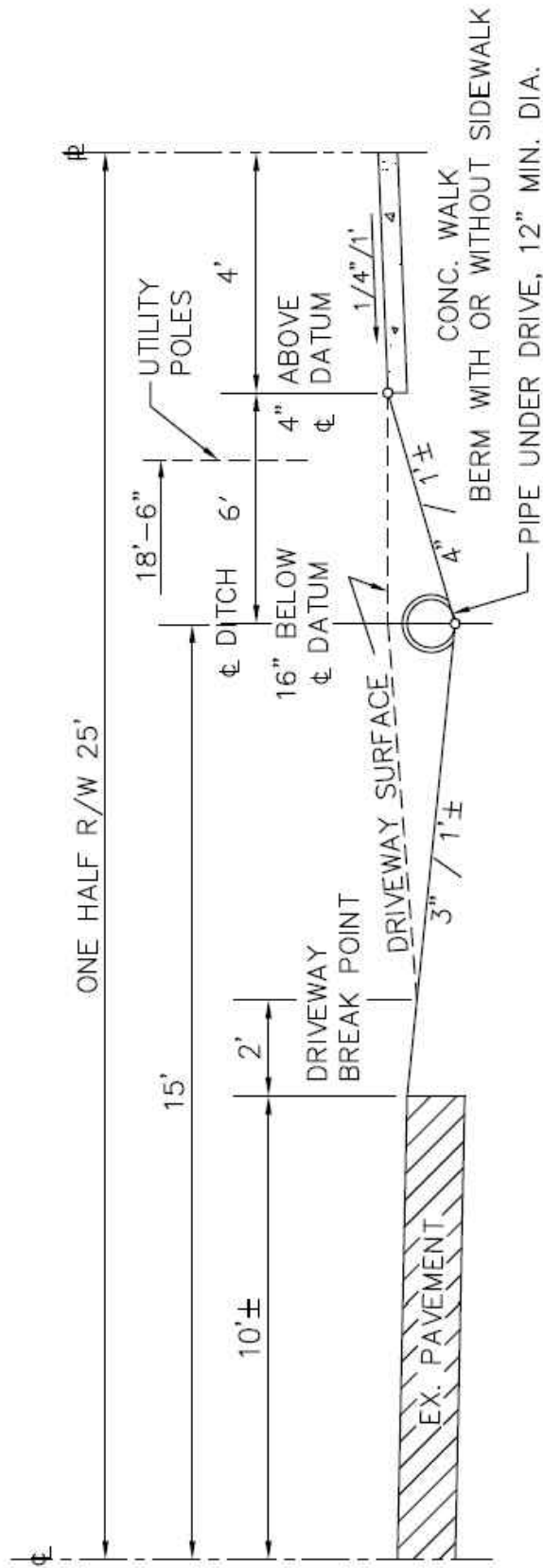
ASPHALT WITH STONE BASE & GEOGRID

COMMERCIAL/INDUSTRIAL PAVEMENT SECTION

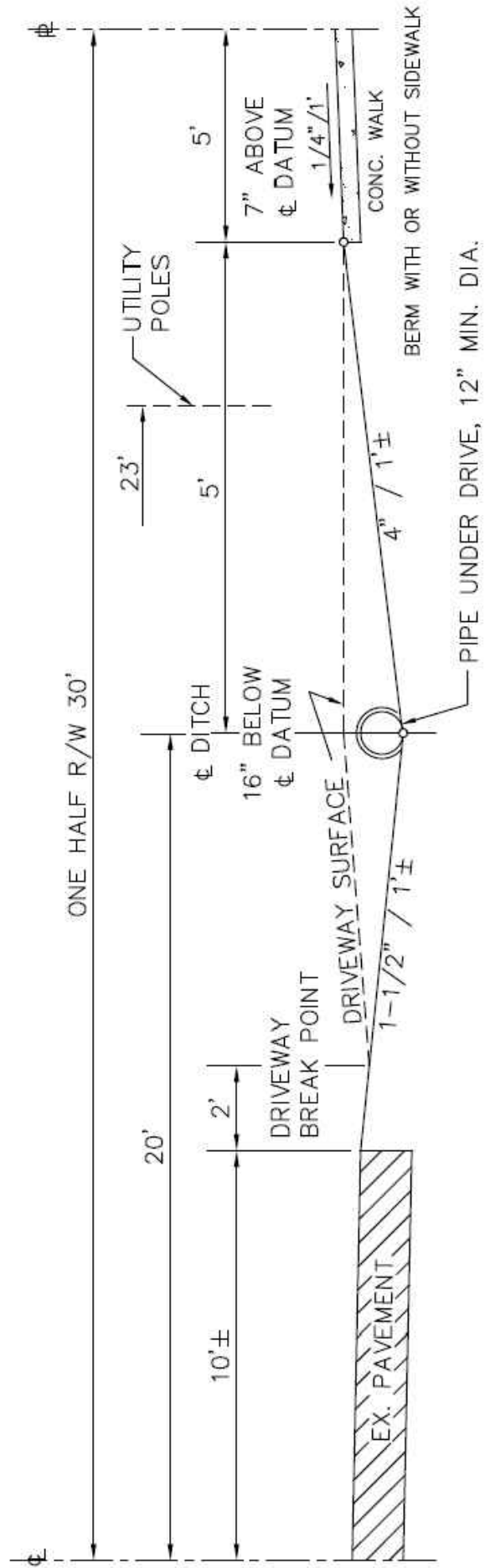


SEE TABLE A-2 FOR ALL PAVEMENT THICKNESSES

TYPICAL SECTION - SIDE DITCH DRAINAGE AT DRIVEWAY

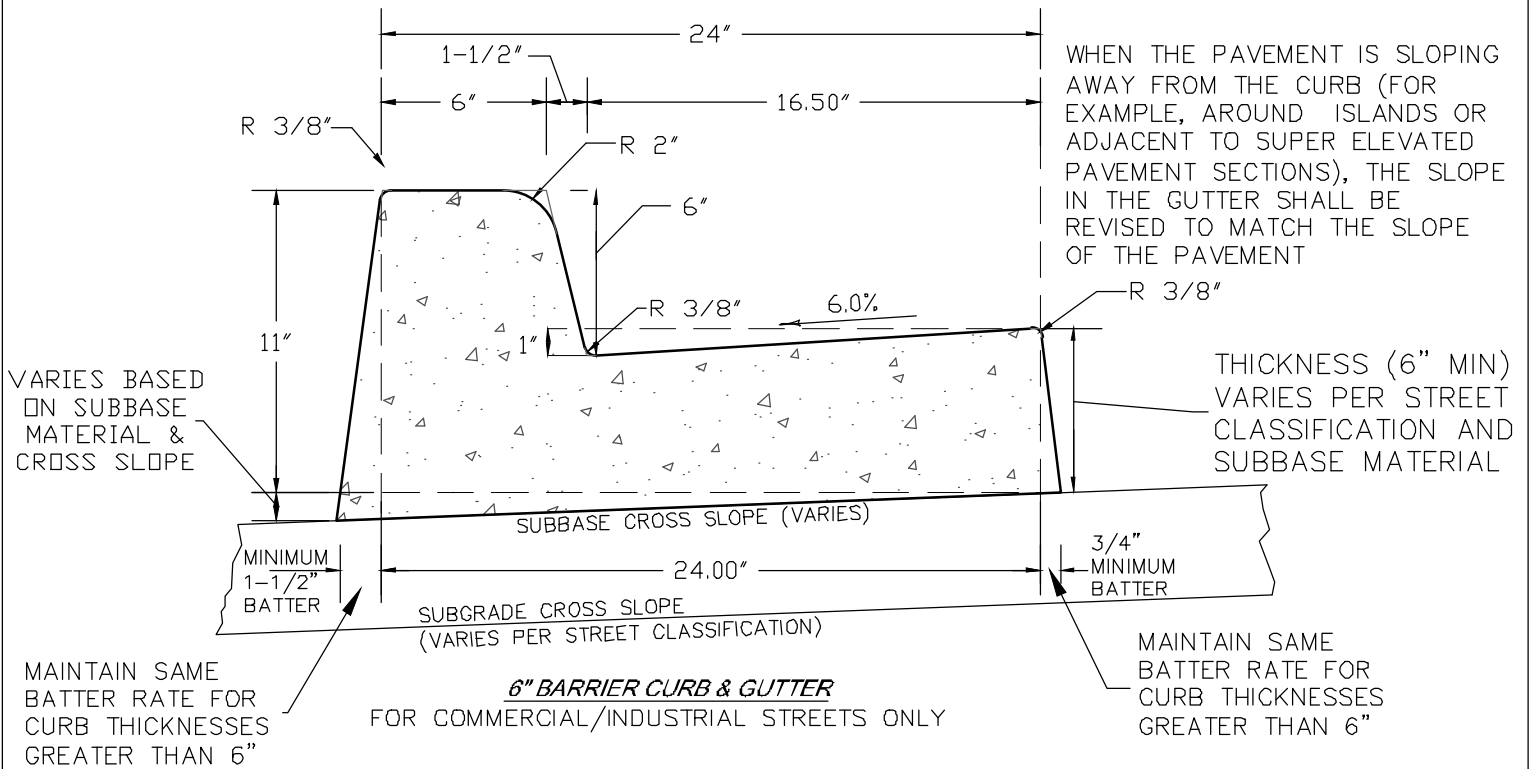


50 FOOT RIGHT-OF-WAYS

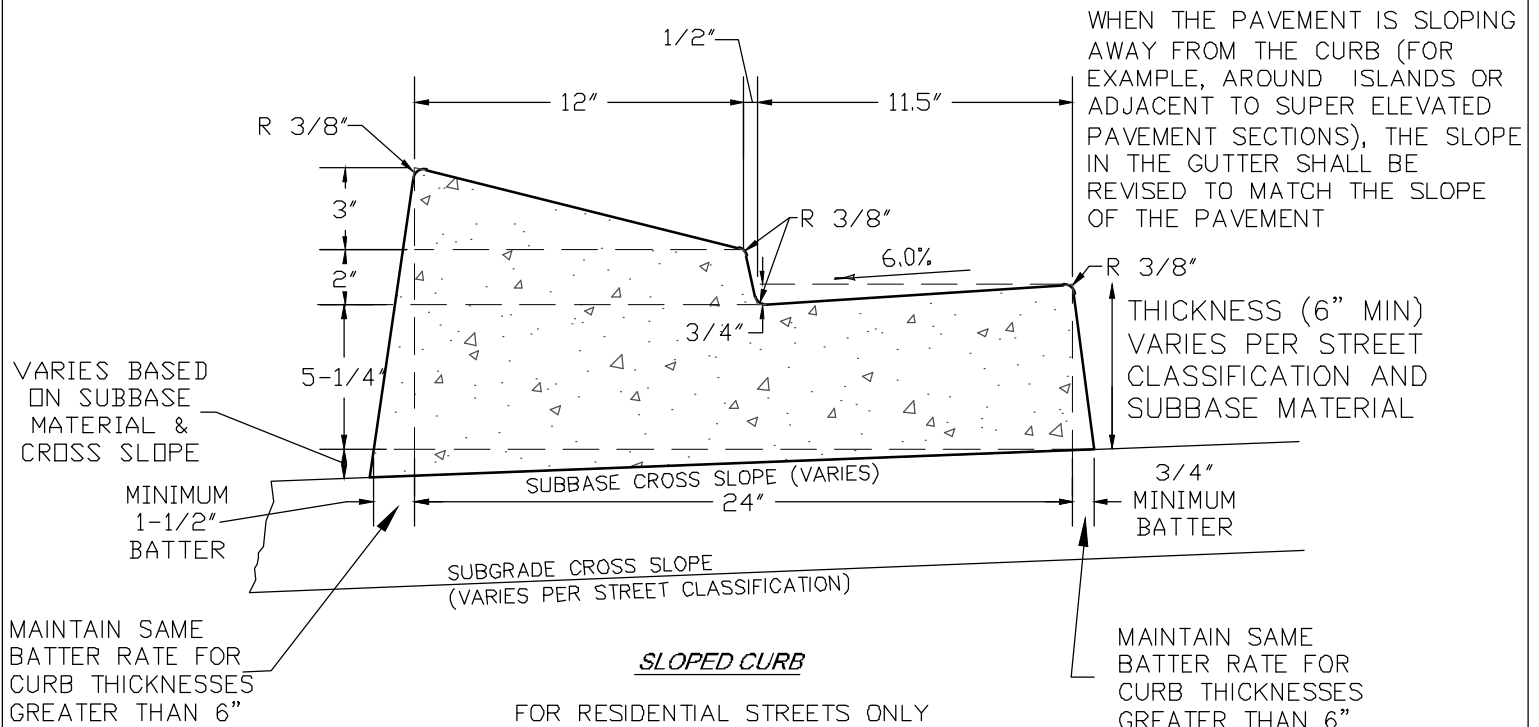


60 FOOT RIGHT-OF-WAYS

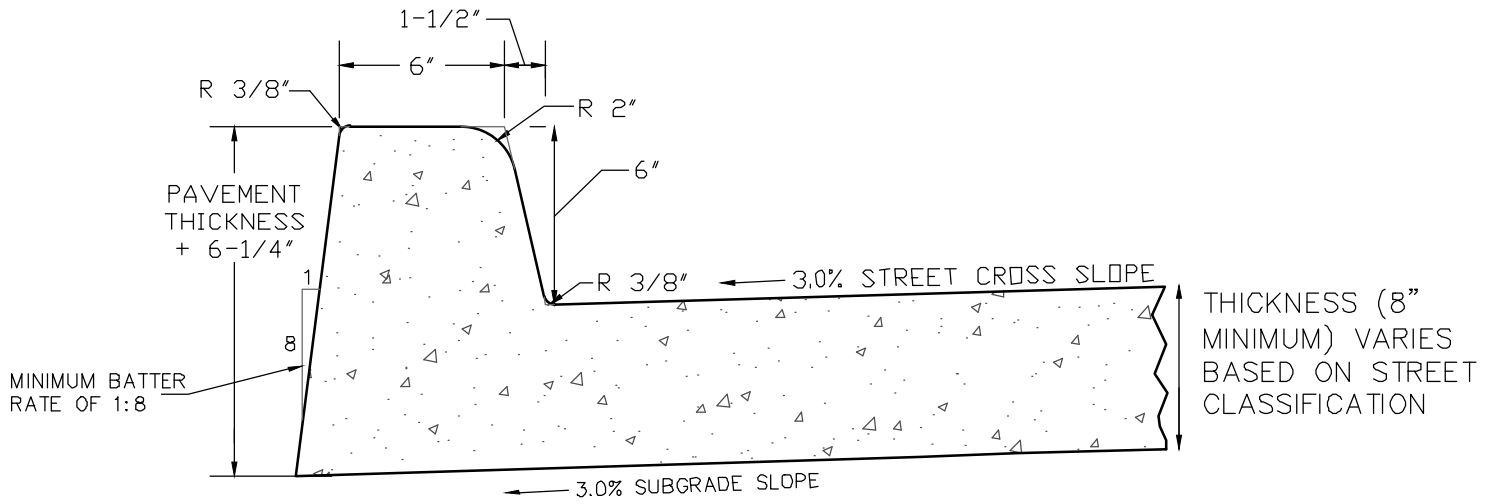
MACHINE PLACED CURB DETAILS ASPHALT STREETS



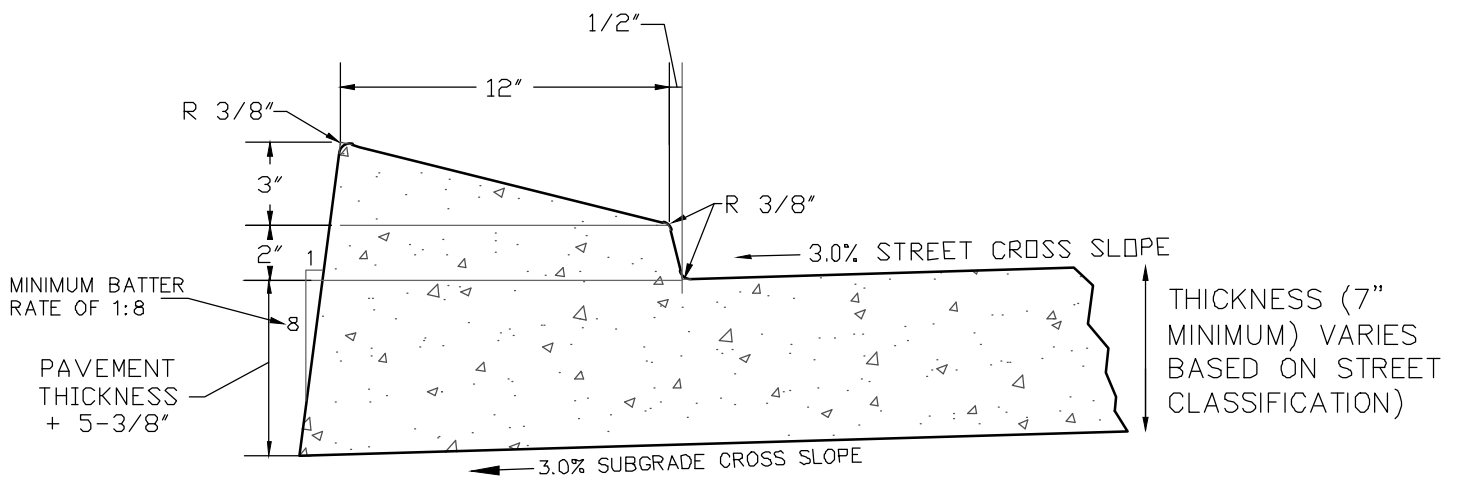
BATTER SHOWN ON THESE DETAILS ARE THE MINIMUM FOR MACHINE FORMED CURBS. HAND FORMED AND PLACED CURBS DO NOT REQUIRE THE BATTER SHOWN



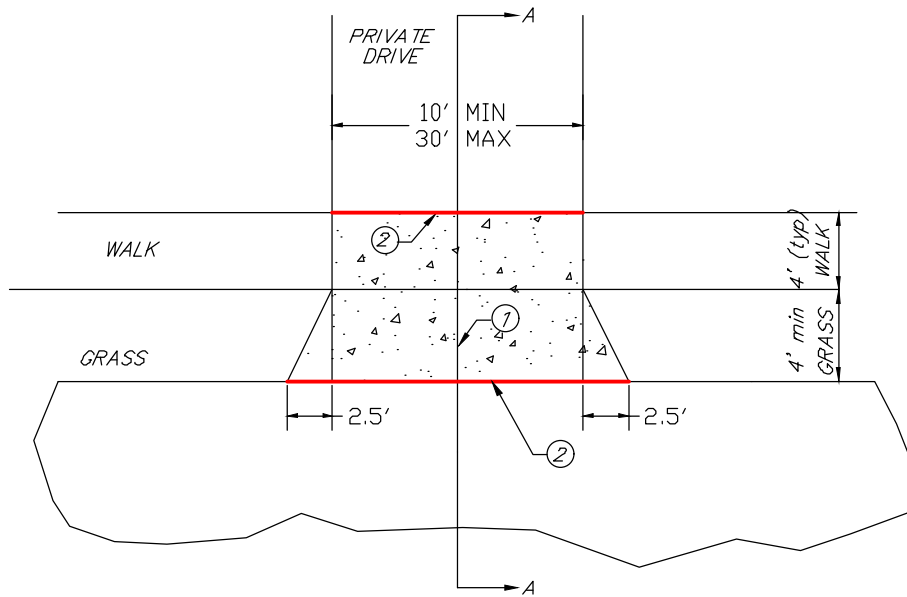
MACHINE PLACED CURB DETAILS CONCRETE STREETS



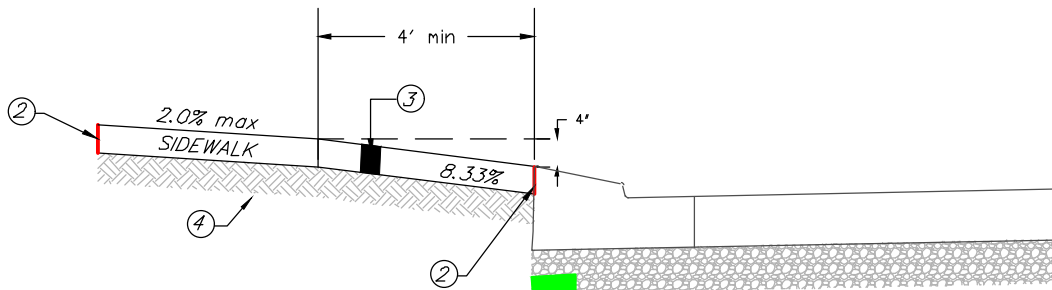
BATTER SHOWN ON THESE DETAILS ARE THE MINIMUM FOR MACHINE FORMED CURBS. HAND FORMED AND PLACED CURBS DO NOT REQUIRE THE BATTER SHOWN



RESIDENTIAL DRIVEWAY APRON SLOPED CURB



PLAN

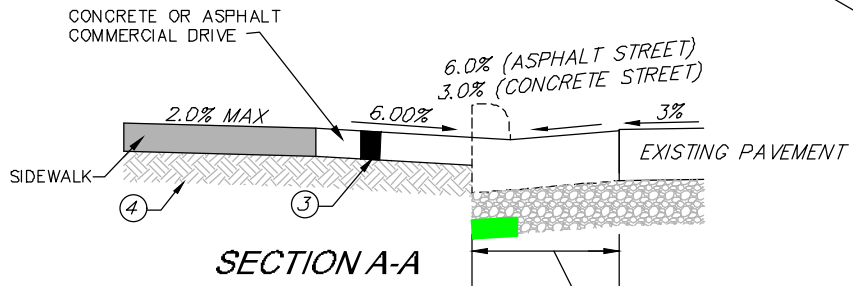
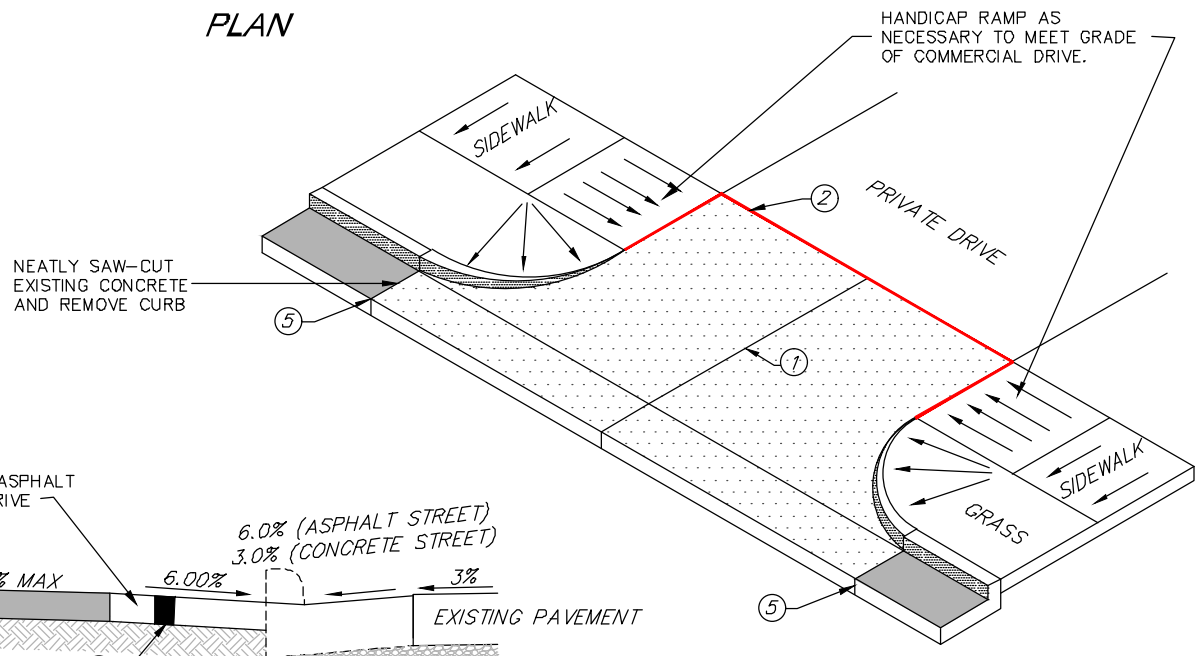
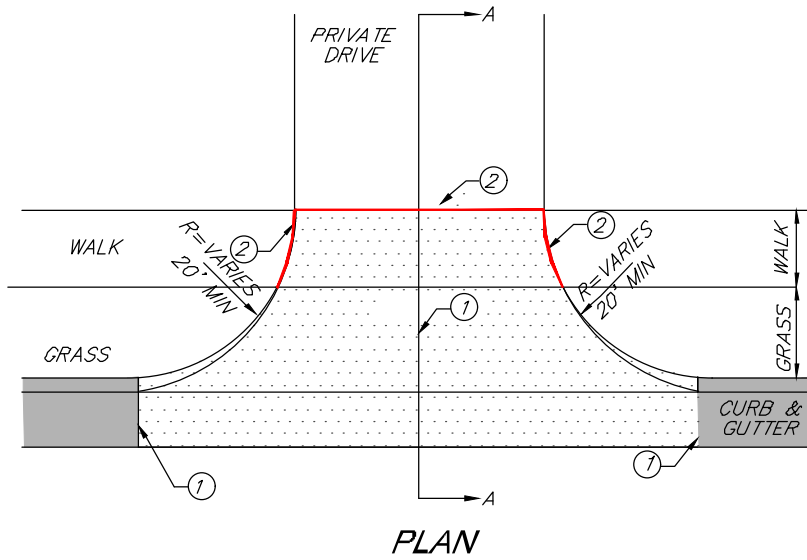


SECTION A-A

- ① CONTRACTION JOINT
- ② 1" EXPANSION JOINT
- ③ 5" CONCRETE RESIDENTIAL DRIVE
- ④ PREPARED SUBGRADE

EXPANSION JOINTS MUST EXCEED THE DEPTH OF THE DRIVEWAY PAVEMENT

COMMERCIAL DRIVEWAY APRON VERTICAL CURB & GUTTER



ISOMETRIC VIEW

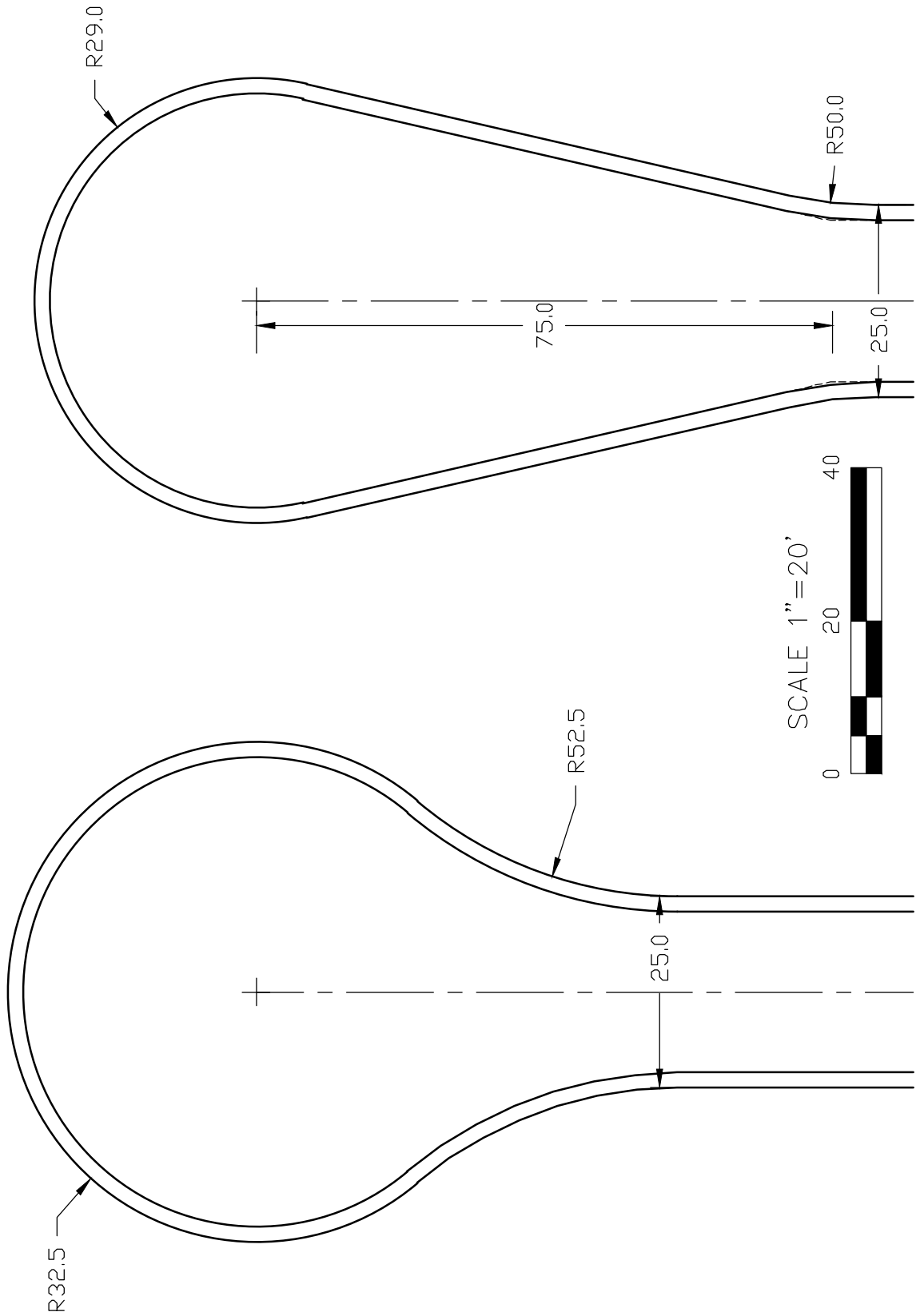
COMMERCIAL ASPHALT DRIVE IN THIS AREA TO MATCH THE DEPTH OF THE ASPHALT STREET. COMMERCIAL CONCRETE DRIVE SHALL MATCH CURB THICKNESS

CONCRETE COMMERCIAL DRIVE NOTES

- ① CONTRACTION JOINT
- ② 1" EXPANSION JOINT
- ③ 7" COMMERCIAL DRIVE
- ④ PREPARED SUBGRADE
- ⑤ CONSTRUCTION JOINT

EXPANSION JOINTS MUST EXCEED THE DEPTH OF THE DRIVEWAY PAVEMENT

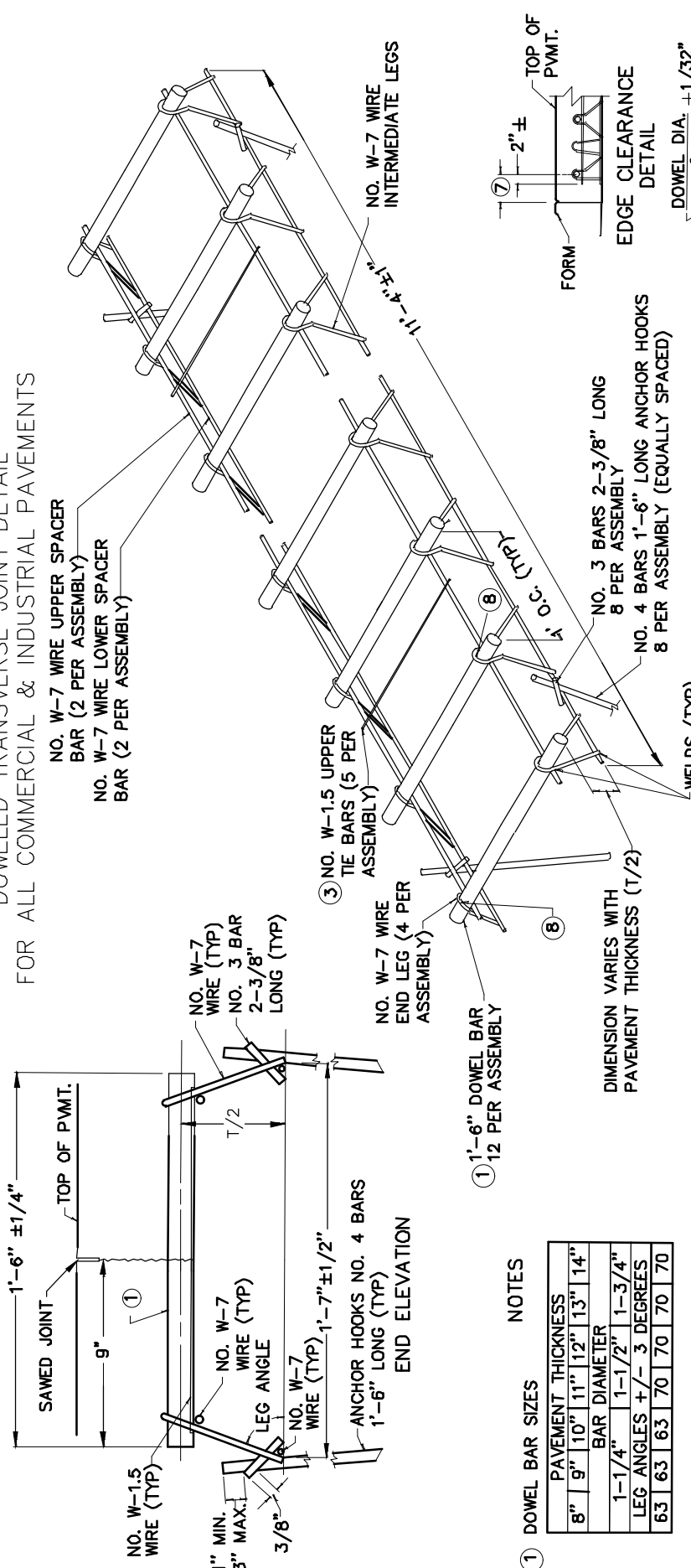
CUL-DE-SAC DETAILS



STANDARD CUL-DE-SAC

OPTIONAL TEAR DROP CUL-DE-SAC

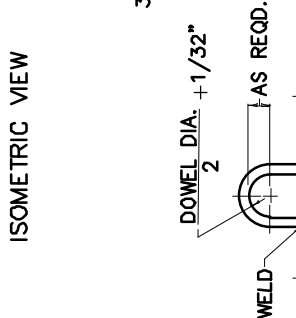
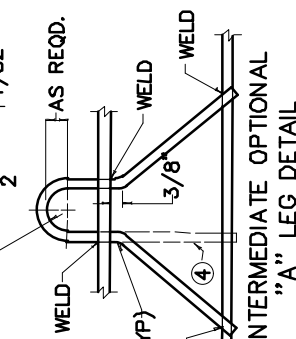
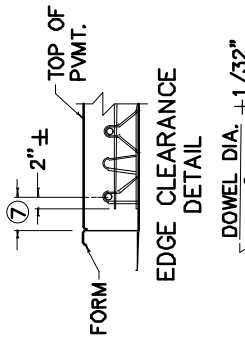
DOWELED TRANSVERSE JOINT DETAIL
FOR ALL COMMERCIAL & INDUSTRIAL PAVEMENTS



NOTES

DOWEL BAR SIZES	
PAVEMENT THICKNESS	BAR DIAMETER
8" 9" 10" 11" 12" 13" 14"	1-1/4"
63 63 63 70 70 70 70 70	1-1/2" 1-3/4"
	LEG ANGLES + / - 3 DEGREES

- ① NOT USED
- ② NOT USED
- ③ NO. W-1.5 UPPER TIE BARS WELDED TO UPPER SPACER BARS CUT AFTER FIRST CONCRETE PLACEMENT.
- ④ FOR END LEGS, BEND WIRE AS SHOWN BY PHANTOM LINES IN INTERMEDIATE LEG DETAIL.
- ⑤ REFERENCE POINTS SHALL BE REQUIRED ON EACH SIDE OF THE LOAD TRANSFER ASSEMBLY, IN ORDER TO LOCATE THE INTENDED SAWED JOINT AFTER PAVING. ALL SAWING SHALL BE ACCURATELY CONTROLLED TO THE CENTERLINE OF THE LOAD TRANSFER ASSEMBLIES. LONGITUDINAL ORIENTATION OF DOWEL BARS SHALL BE SUCH THAT ALL DOWEL BARS ARE PARALLEL WITH THE CENTERLINE OF EACH PAVING LANE.
- ⑥ NOT USED
- ⑦ 4-1/2" MIN. AND 10-1/2" MAX. FOR VARIABLE SLAB WIDTH. 6" FOR UNIFORM OR STD. SLAB WIDTH. LOCATION AND SPACING SEE APPLICABLE PAVEMENT STANDARD DRAWINGS.
- ⑧ WELD EITHER NO. W-7 UPPER SPACER BAR OR LEG SUPPORT TO ALTERNATE ENDS OF DOWEL BARS AS TYPICALLY SHOWN.
- ⑨ DOWEL ENDS SHALL NOT VARY MORE THAN 1/4" FROM A STRAIGHT LINE.
- ⑩ DOWELS SHALL BE PARALLEL WITH BASE, WITH A TOLERANCE OF 1/4".
- ⑪ EPOXY SHALL BE CLEANED OFF TO BARE METAL BEFORE WELDING DOWEL TO WIRE.
- ⑫ "U" LEG OR "A" LEG ARE ACCEPTABLE ALTERNATES PROVIDING MATCHED LEGS ARE SUPPLIED.



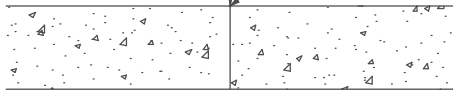
ISOMETRIC VIEW

KENTUCKY
DEPARTMENT OF HIGHWAYS
CONTRACTION JOINT
LOAD TRANSFER ASSEMBLIES
FOR COMMERCIAL &
INDUSTRIAL STREETS
STANDARD DRAWING NO. RPS-020-13

SUBMITTED _____ DIRECTOR DIVISION OF DESIGN _____ DATE _____
APPROVED _____ STATE HIGHWAY ENGINEER _____ DATE _____

CONCRETE JOINT DETAILS

FILL WITH JOINT SEALER PER APPENDIX A SAWED AND/OR TOOLED JOINT PER APPENDIX A



TRANSVERSE CONTRACTION
JOINT
(SAWED OR TOOLED JOINT)

NOTE: TRAVERSE JOINTS FOR COMMERCIAL AND INDUSTRIAL PAVEMENTS SHALL USE LOAD TRANSFER ASSEMBLIES PER DETAIL C.16.

FILL WITH JOINT SEALER PER APPENDIX A TOOLED JOINT PER APPENDIX A



TRANSVERSE CONSTRUCTION
JOINT
(PLANNED OR EMERGENCY)
COINCIDE WITH CONTRACTION JOINT

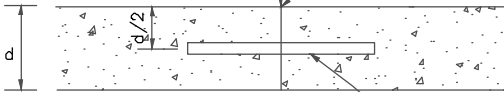
FILL WITH JOINT SEALER PER APPENDIX A SAWED OR TOOLED JOINT PER APPENDIX A



LONGITUDINAL SAWED OR
TOOLED JOINT
(PLANNED)
COINCIDE WITH CONTRACTION JOINT

1/2" DIAMETER REBAR
18" LONG @ 5' O.C.
HELD IN PLACE WITH
METAL CHAIRS

FILL WITH JOINT SEALER PER APPENDIX A EDGED JOINT PER APPENDIX A



1/2" DIAMETER REBAR 18"
LONG @ 4' O.C., 9" DEEP
DRILLED AT 30 DEGREE
ANGLE OR INJECTED INTO
FRESH CONCRETE

LONGITUDINAL CONSTRUCTION
JOINT
(DRILLED OR INJECTED)

CONCRETE PAVEMENT JOINT PLAN

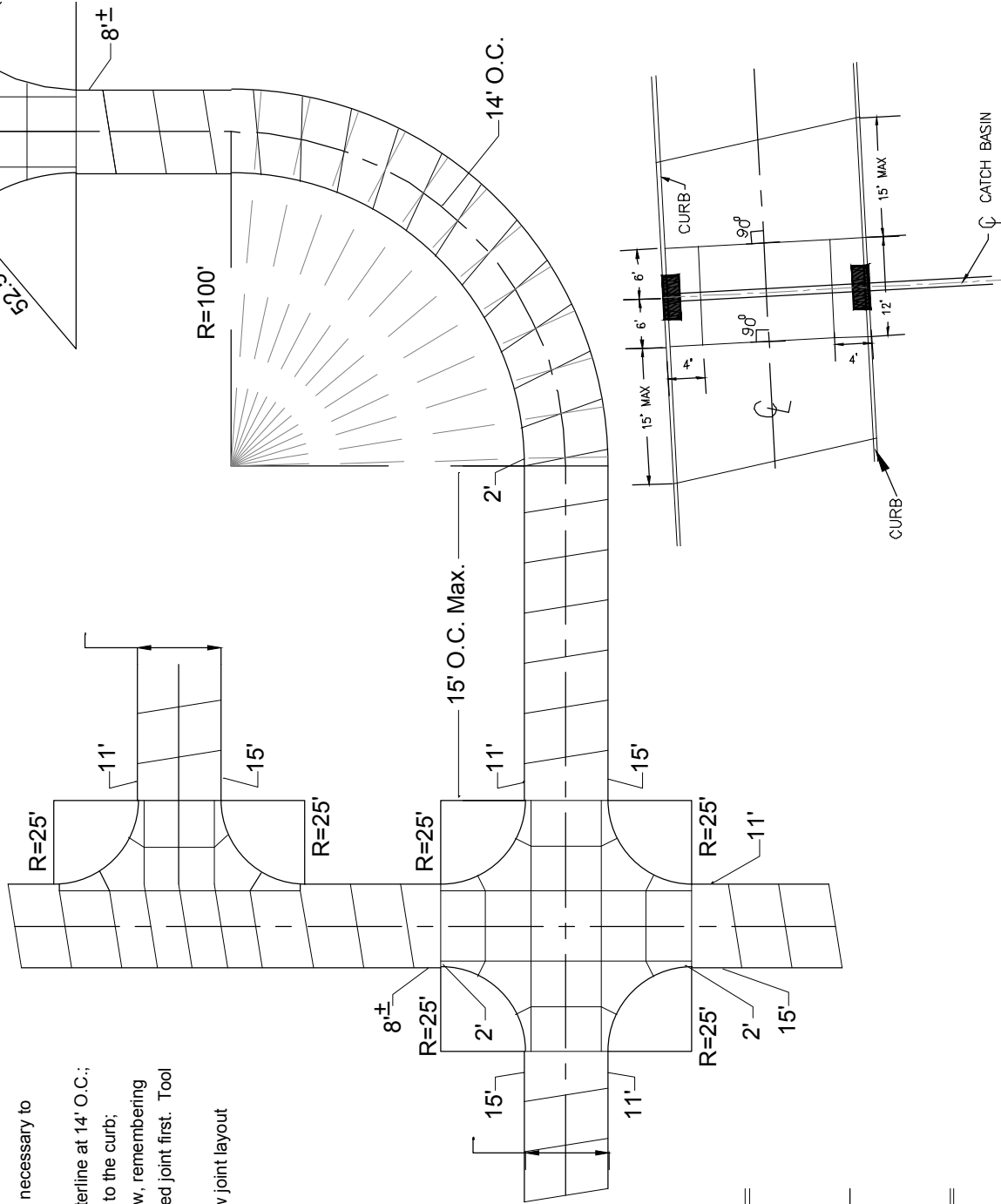
GENERAL RULES OF TOOLED CONTRACTION

JOINT LAYOUT

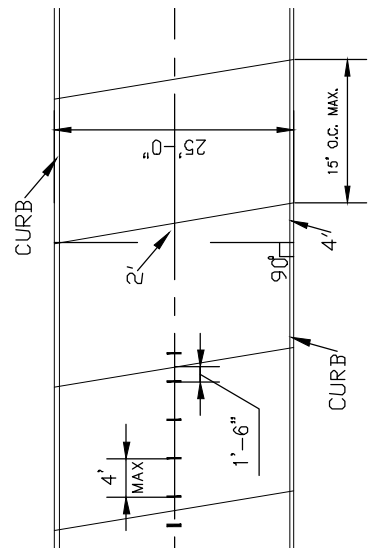
- 1.) Skew joints 2' in each 12.5' lane; 2'-4" skew in each 14' lane.
- 2.) Always have the driver's side front wheel of the vehicle hit the skewed joint first.
- 3.) Maximum joint spacing = 15'; adjust joint spacing as necessary to keep spacing above a 8' minimum.
- 4.) On horizontal curves, layout joint spacing along centerline at 14' O.C.; visually determine a radial line from the centerline back to the curb; measure back (forward) from that point 2' to set the skew, remembering the driver's side front wheel of the vehicle hits the skewed joint first. Tool the joint at the skewed line.
- 5.) At intersections, catch basins and cul-de-sacs, follow joint layout shown.

NOTE:

ALL CONSTRUCTION JOINTS ARE DOWELED JOINTS.

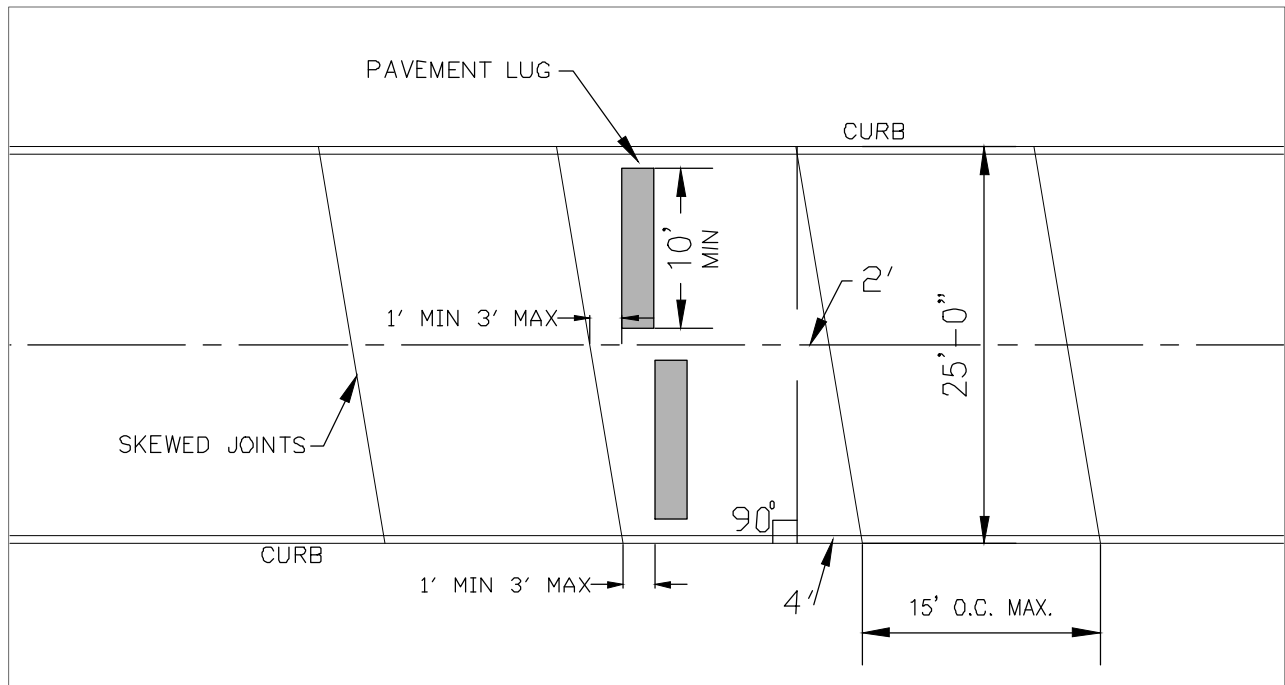
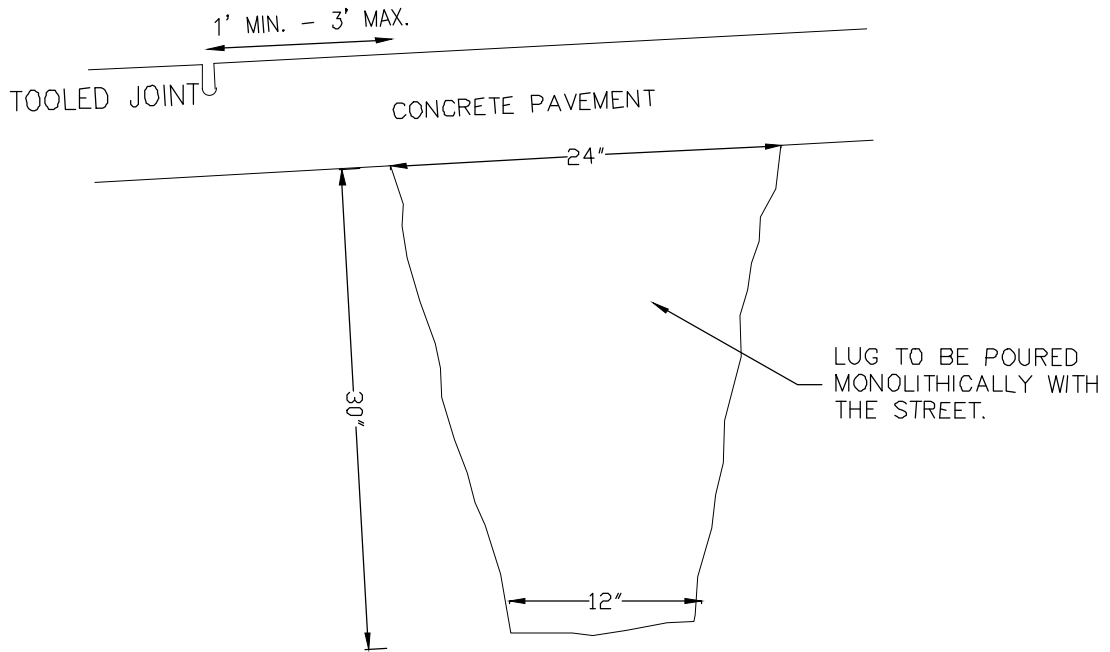


TYPICAL SKEWED JOINT AND ϕ BENT BAR LAYOUT
SCALE: N.T.S.

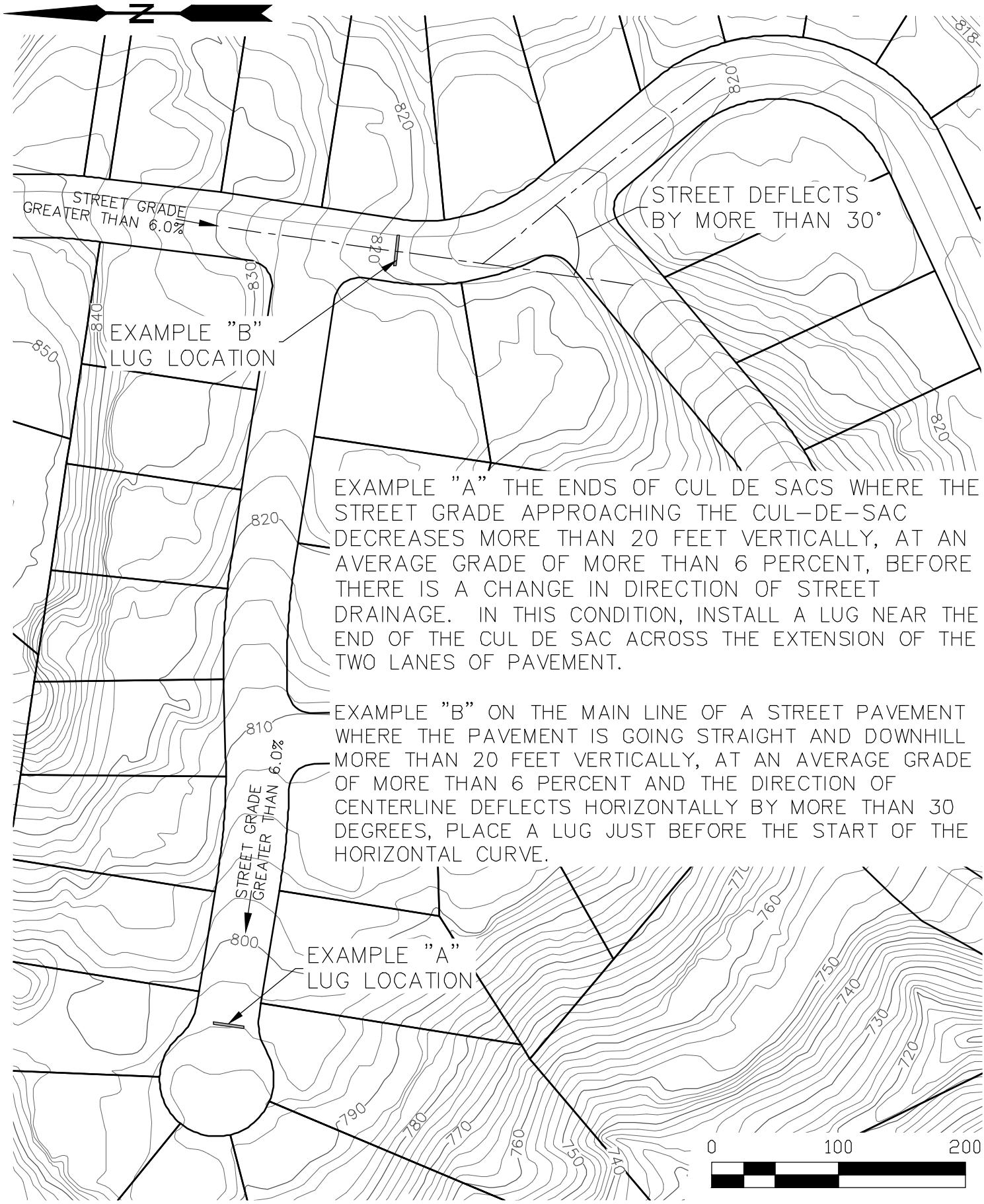


JOINT LAYOUT FOR PAIRED CATCH BASINS

PAVEMENT LUG DETAIL



EXAMPLE PAVEMENT LUG LOCATION

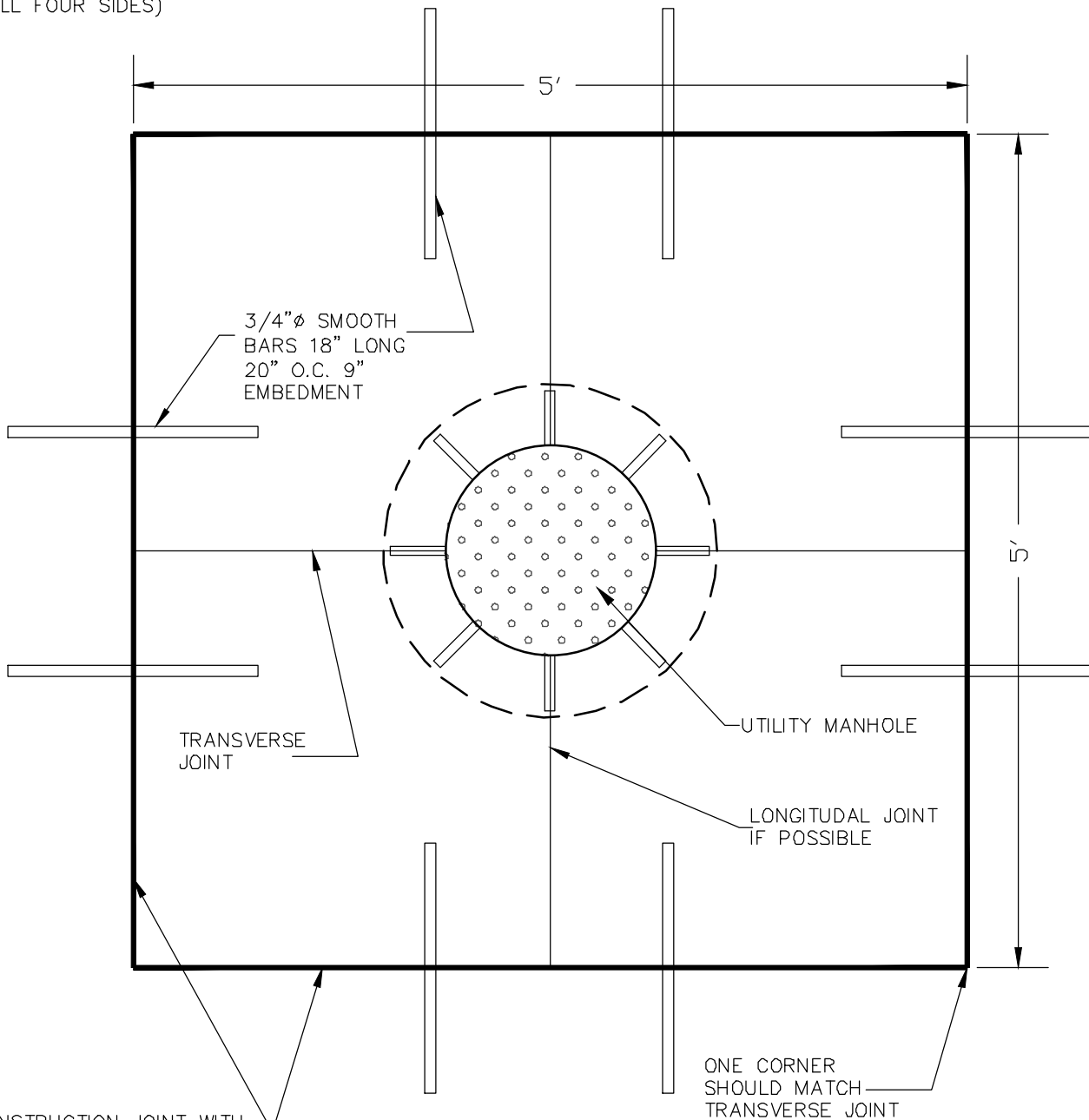


EXAMPLE "A" THE ENDS OF CUL DE SACS WHERE THE STREET GRADE APPROACHING THE CUL-DE-SAC DECREASES MORE THAN 20 FEET VERTICALLY, AT AN AVERAGE GRADE OF MORE THAN 6 PERCENT, BEFORE THERE IS A CHANGE IN DIRECTION OF STREET DRAINAGE. IN THIS CONDITION, INSTALL A LUG NEAR THE END OF THE CUL DE SAC ACROSS THE EXTENSION OF THE TWO LANES OF PAVEMENT.

EXAMPLE "B" ON THE MAIN LINE OF A STREET PAVEMENT WHERE THE PAVEMENT IS GOING STRAIGHT AND DOWNHILL MORE THAN 20 FEET VERTICALLY, AT AN AVERAGE GRADE OF MORE THAN 6 PERCENT AND THE DIRECTION OF CENTERLINE DEFLECTS HORIZONTALLY BY MORE THAN 30 DEGREES, PLACE A LUG JUST BEFORE THE START OF THE HORIZONTAL CURVE.

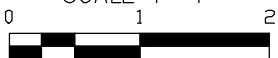
**MANHOLE BLOCK-OUT DETAIL
(CONCRETE PAVEMENT)
THIS DETAIL DOES NOT APPLY FOR UTILITIES
ALREADY BROUGHT TO GRADE**

1" EXPANSION MATERIAL
(ALL FOUR SIDES)

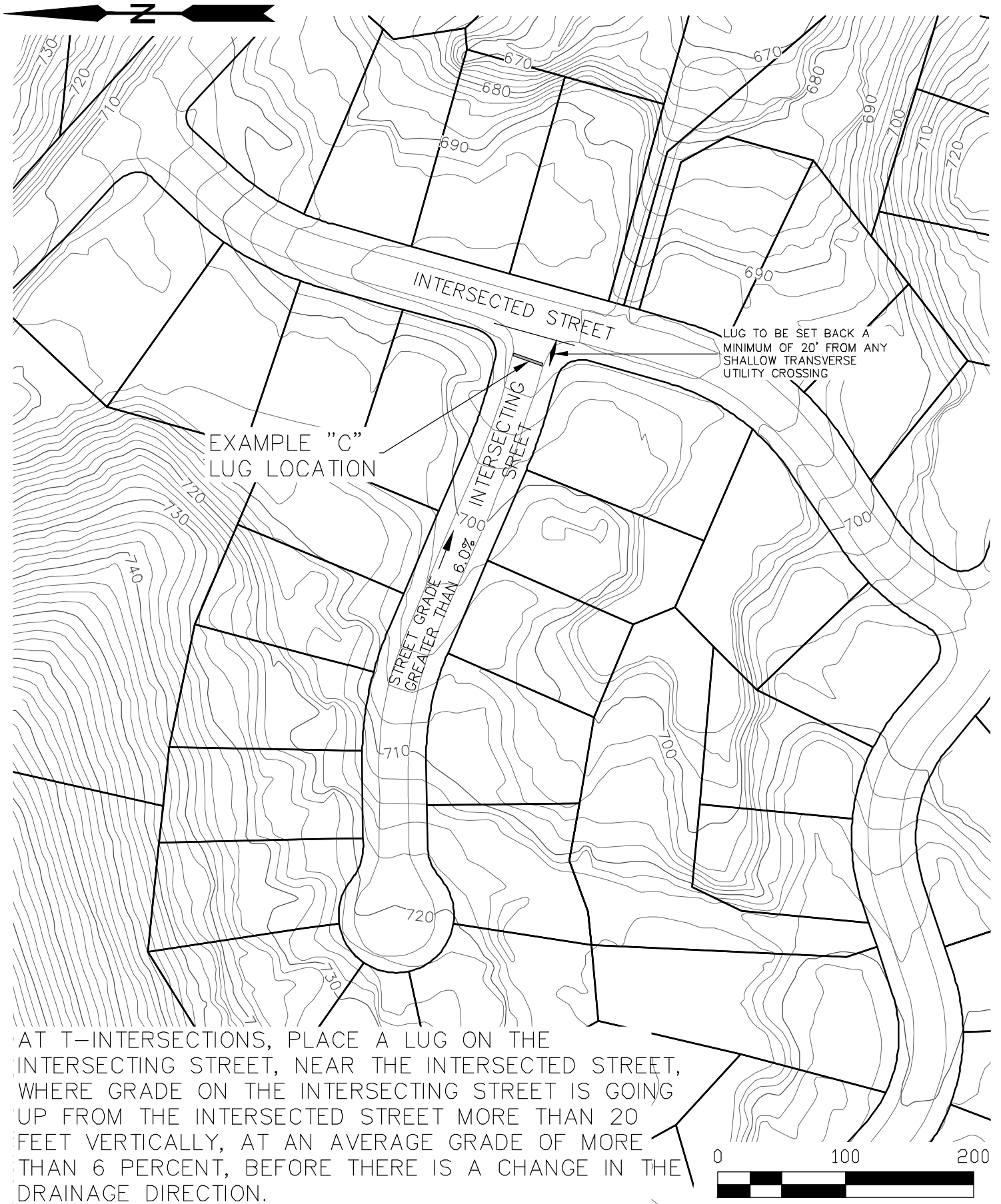


CONSTRUCTION JOINT WITH
1" EXPANSION MATERIAL
(ALL FOUR SIDES)

SCALE 1"=1'

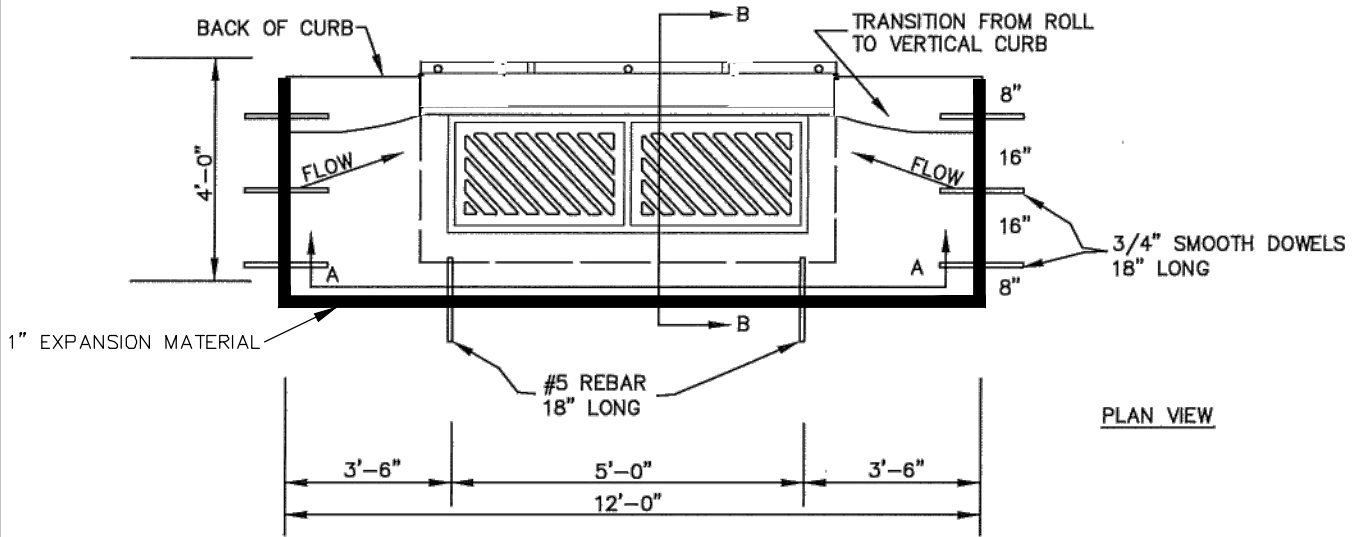


EXAMPLE PAVEMENT LUG LOCATION

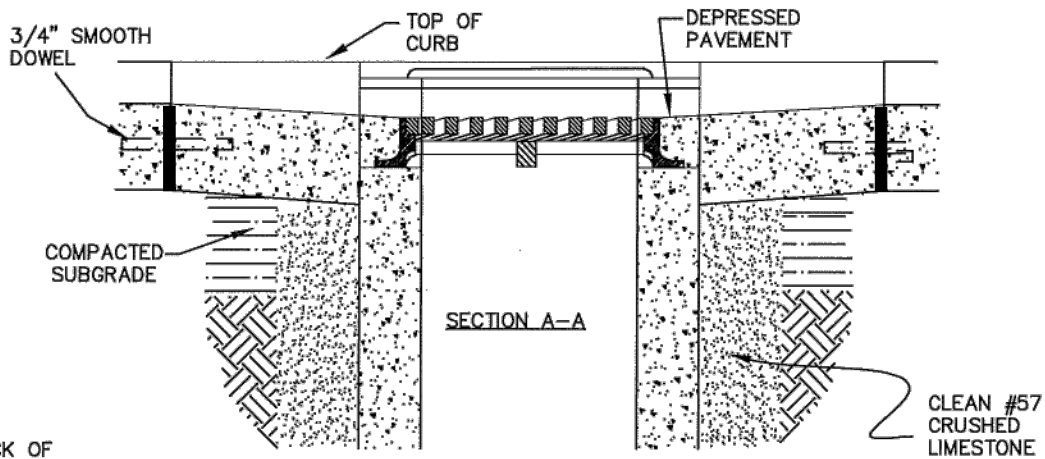


AT T-INTERSECTIONS, PLACE A LUG ON THE INTERSECTING STREET, NEAR THE INTERSECTED STREET, WHERE GRADE ON THE INTERSECTING STREET IS GOING UP FROM THE INTERSECTED STREET MORE THAN 20 FEET VERTICALLY, AT AN AVERAGE GRADE OF MORE THAN 6 PERCENT, BEFORE THERE IS A CHANGE IN THE DRAINAGE DIRECTION.

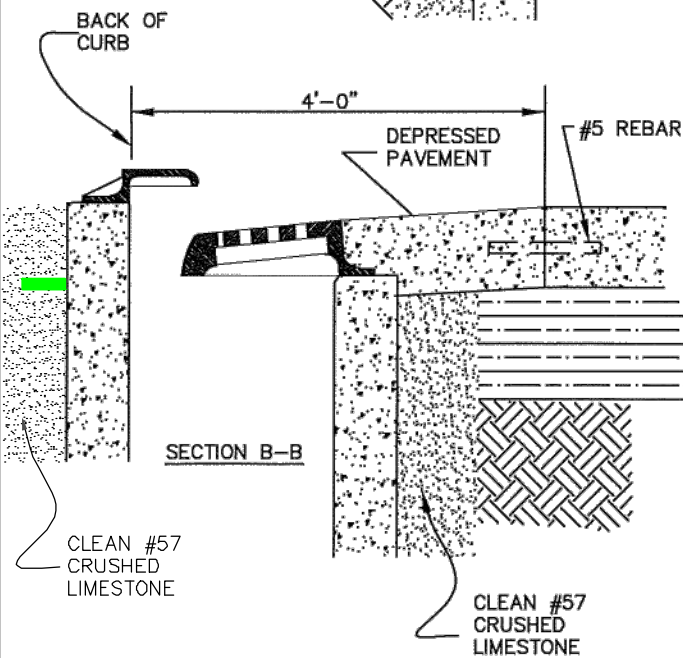
**STANDARD CURB INLET
(CONCRETE PAVEMENT BLOCKOUT DETAIL)**



PLAN VIEW



SECTION A-A



SECTION B-B

NOTES:

CONCRETE PAVEMENT FOR THE BLOCKOUTS SHALL MEET THE SAME REQUIREMENTS AS THE CONCRETE PAVEMENT.

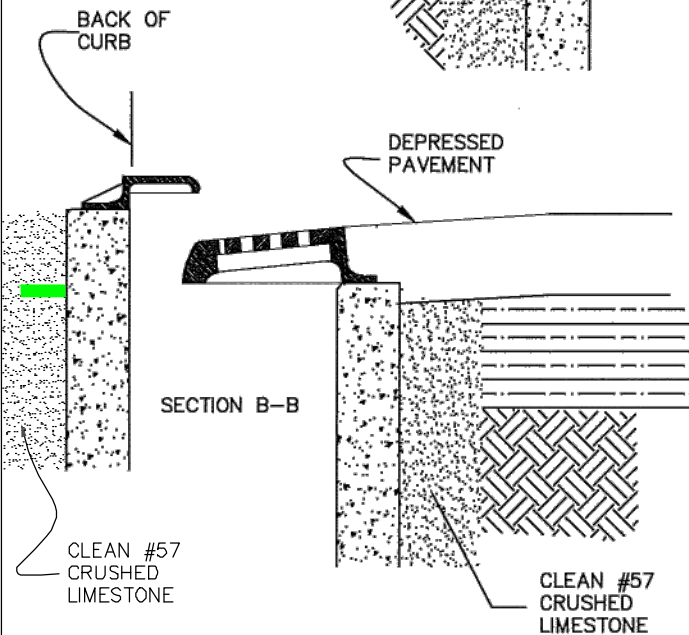
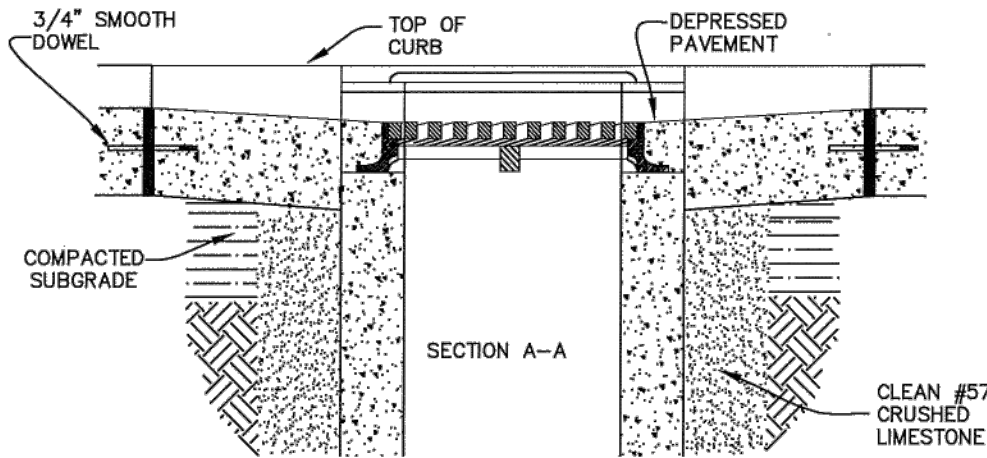
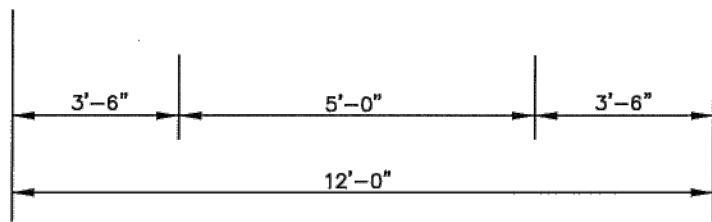
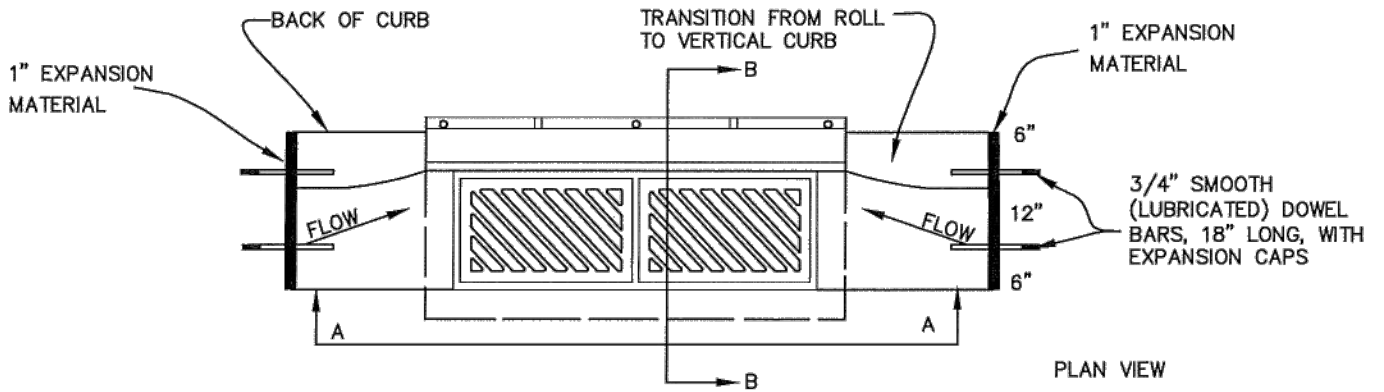
BLOCKOUTS FOR SINGLE INLET CATCH BASINS SHALL BEAR THE SAME DIMENSIONS AS THE DOUBLE INLET CATCH BASIN.

3/4"x18" DOWELS ARE REQUIRED FOR CONCRETE PAVEMENT OR GUTTER BLOCKOUT.

TWO #5 BARS, 18" LONG ARE REQUIRED ALONG BUTT JOINT OF ISOLATION AREA.

ALL GRATES SHALL BE VANE GRATES

**STANDARD CURB INLET
(ASPHALT PAVEMENT BLOCKOUT DETAIL)**



NOTES:

CONCRETE PAVEMENT FOR THE BLOCKOUTS SHALL MEET THE SAME REQUIREMENTS AS THE CONCRETE PAVEMENT.

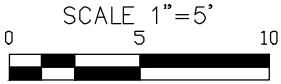
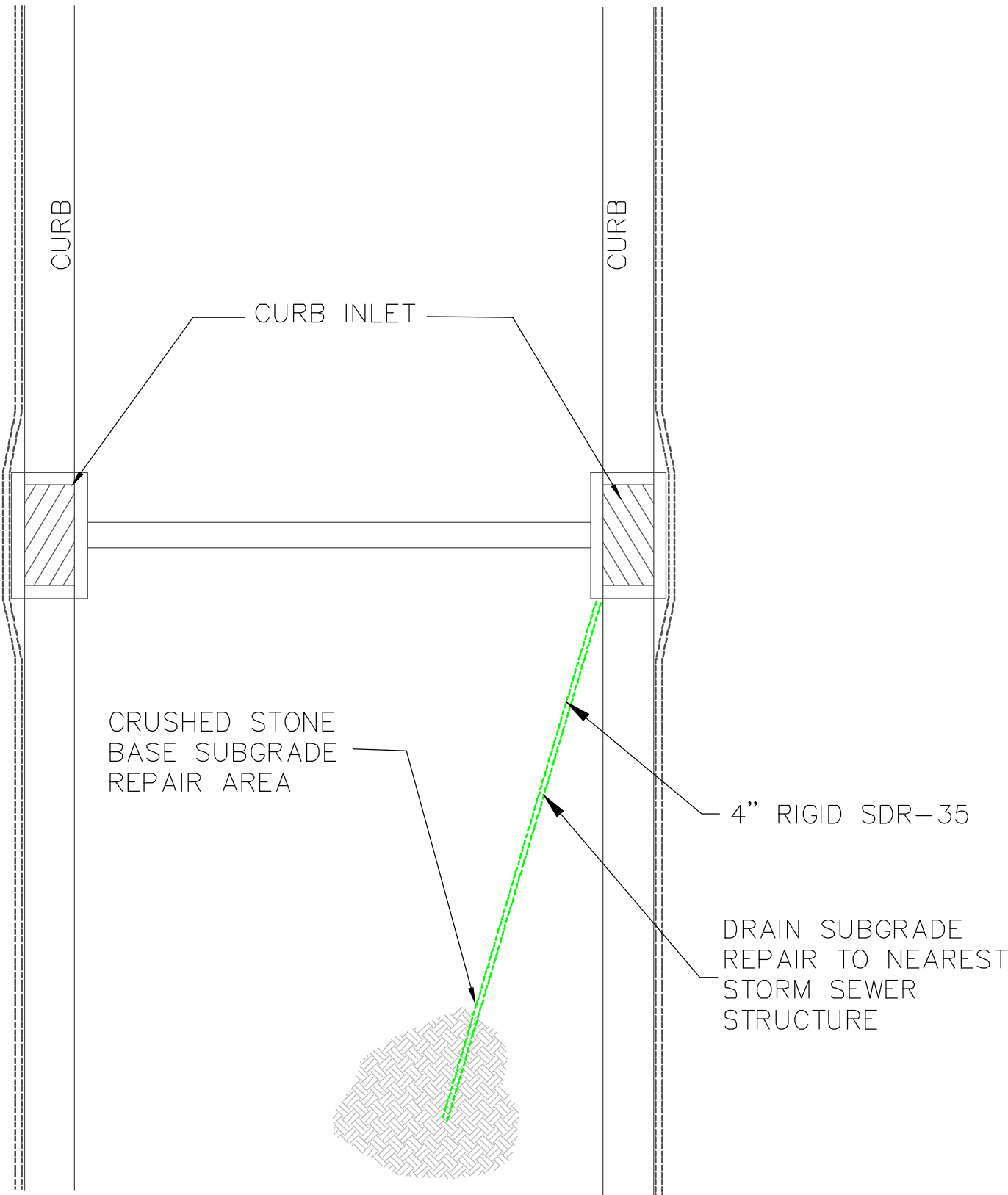
BLOCKOUTS FOR SINGLE INLET CATCH BASINS SHALL BEAR THE SAME DIMENSIONS AS THE DOUBLE INLET CATCH BASIN.

3/4"x18" DOWELS ARE REQUIRED FOR CONCRETE PAVEMENT OR GUTTER BLOCKOUT.

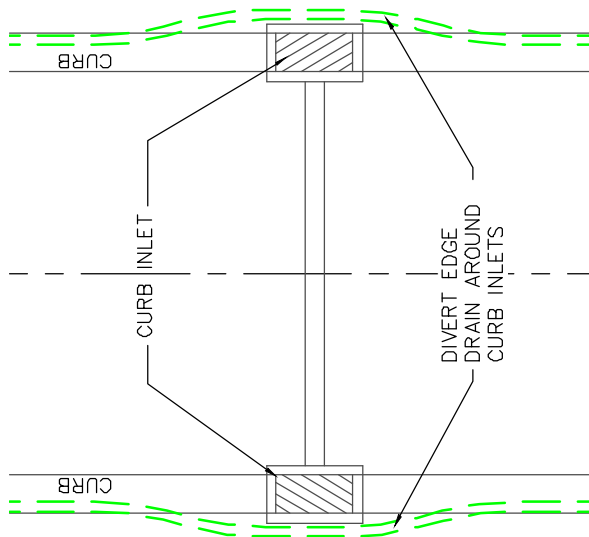
PAVEMENT THICKNESS SHALL CONFORM TO THE RELATED STREET CLASSIFICATION.

ALL GRATES SHALL BE VANE GRATES

DRAINAGE FOR SUBGRADE REPAIR

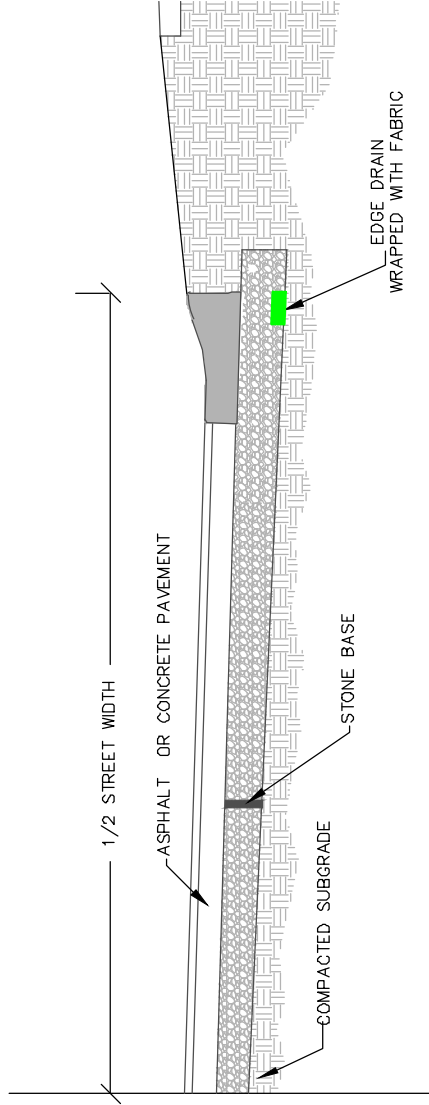


EDGE DRAIN INSTALLATION WITH STONE BASE STREETS



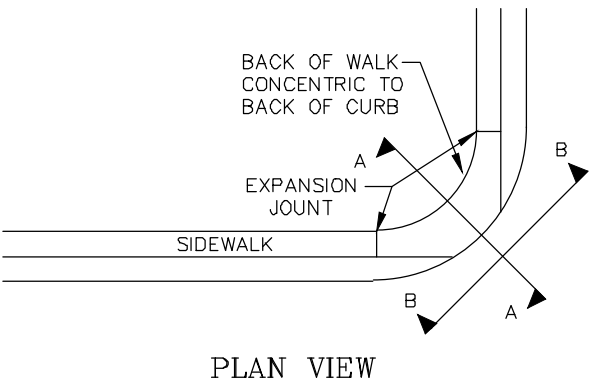
EDGE DRAIN INSTALLATION PROCEDURE FOR STONE BASE STREETS

1. ROLL OUT EDGE DRAIN FLAT (HORIZONTAL) SO THAT OUTSIDE FACE OF EDGE DRAIN ALIGNS WITH THE OUTSIDE EDGE OF CURB.
2. TACK EDGE DRAIN EVERY 5 FEET TO THE SUBGRADE USING 16 PENNY NAILS OR EQUAL.
3. DO NOT DRIVE CONSTRUCTION EQUIPMENT DIRECTLY ON EDGE DRAIN.
4. INSTALL STONE BASE TO A MINIMUM THICKNESS OF 4" OVER EDGE DRAIN.
5. COMPACT STONE BASE AS NECESSARY AND PROCEED WITH REMAINING PAVEMENT INSTALLATION.
6. AT CATCH BASINS CONTINUE EDGE DRAIN ALONG THE BACK SIDE OF CATCH BASIN.
7. EDGE DRAIN SHALL BE CONTINUOUS ALONG BOTH SIDES OF CURB.
8. EDGE DRAIN SHALL BE IN DIRECT CONTACT WITH #57 STONE BACKFILL AT ALL CATCH BASINS.
9. SPLICES IN EDGE DRAIN SHALL BE MADE WITH MANUFACTURER'S COUPLERS OR OTHER APPROVED CONNECTION BY MANUFACTURER.



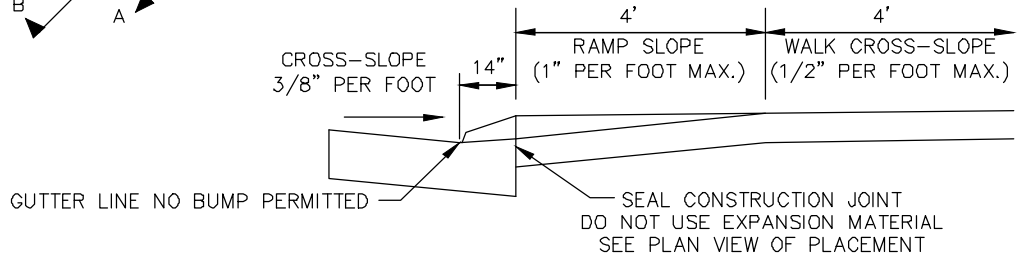
EDGE DRAIN MATERIAL SPECIFICATIONS

- A. CORE
1. MATERIAL: POLYETHYLENE OR POLYPROPYLENE. POLYSTYRENE WILL NOT BE ACCEPTED.
 2. MINIMUM THICKNESS: 1.0"
 3. WIDTH = 6" (MINIMUM)
 4. MINIMUM COMPRESSIVE STRENGTH: ONE-SIDED (OPEN-CORE) NOT ACCEPTED
CLOSED CORE CONDUIT = 6,000 PSF (ASTM D-1621) OR = 4,000 PSF (ASTM D-6364)
- B. GEOTEXTILE FILTER FABRIC:
1. MATERIAL: NON-WOVEN NEEDLE PUNCH GEOTEXTILE FABRIC THAT MEETS AASHTO CLASS 3.
 2. ATTACHMENT: THE GEOTEXTILE FILTER FABRIC SHALL BE WRAPPED AROUND THE DRAINAGE COMPOSITE CORE AND SECURED IN PLACE.
- C. CERTIFICATIONS
1. CONTRACTOR SHALL SUPPLY MANUFACTURER'S CERTIFICATION THAT THE EDGE DRAIN INSTALLED MEETS PERFORMANCE SPECIFICATION AND THE INTENDED USE SHOWN ON THIS DETAIL.
- D. APPROVED PRODUCTS: ADS ADVANEDGE, MULTI-FLOW OR EQUAL

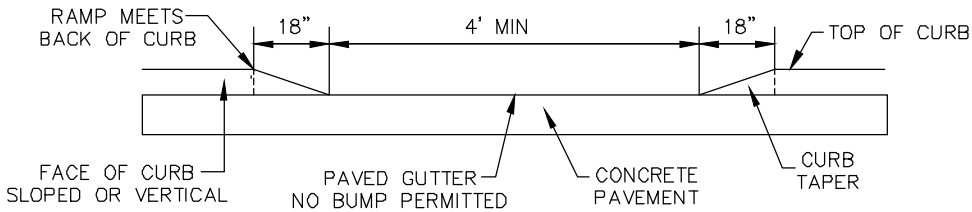


NOTES

1. SIDEWALK RAMP SHALL BE CONSTRUCTED OF MINIMUM 4000 PSI AIR-ENTRAINED CONCRETE. A BROOM FINISH OR EQUAL NON-SKID FINISH IS REQUIRED.
2. NORMAL GUTTER LINE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP FOR DRAINAGE.
3. MINIMUM THICKNESS FOR RAMP, SHALL BE 4 INCHES, SAME AS SIDEWALKS
4. NO FREE DRAINING GRANULAR FILL PERMITTED UNDER RAMP.
5. HANDICAP RAMP SHALL MEET ADA REQUIREMENTS AND CONTAIN DETECTABLE WARNINGS CONSISTING OF RAISED TRUNCATED DOMES. ONLY COMPOSITE INLAYS WILL BE PERMITTED.



SECTION A-A



SECTION B-B

SIDEWALK RAMP AT INTERSECTION

N.T.S.

TEMPORARY TURN-AROUND DETAIL

