

Engineering Department
Manual Of
Practice



Life. Well Crafted.

400 Curb & Gutter, Sidewalks &
Driveways

DIVISION 400 CURB & GUTTER, SIDEWALKS, & DRIVEWAYS

A. GENERAL NOTES

1. Sidewalks shall be constructed of not less than 3000 P.S.I. concrete and shall be four (4) inches thick, constructed on an adequately graded and compacted base, except where a sidewalk crosses a driveway it shall be six (6) inches thick. Subgrade shall be compacted to 95% of the maximum density as measured by Standard. The surface of the sidewalk shall be steel trowel and light broom finished and cured with an acceptable curing compound. Tooled joints shall be provided at intervals of not less than five (5) feet and expansion joints at intervals of not more than thirty (30) feet. The sidewalk shall have a lateral slope of one-quarter (1/4) inch per foot from outside edge of sidewalk to the top of curb.

2. Accessible ramps are required where sidewalks intersect curbing.

3. No driveway shall be installed within thirty (30) feet of an intersection without express written approval by City Traffic Engineer and/or City Engineer.

REFERENCES

1. North Carolina Department of Transportation, Standard Specifications for Roads and Structures, Latest Edition

2. North Carolina Department of Transportation, Roadway Design Manual, Latest Edition

3. American Association of State Highway and Transportation Officials, Latest Edition, A Policy on Geometric Design of Highways and Streets



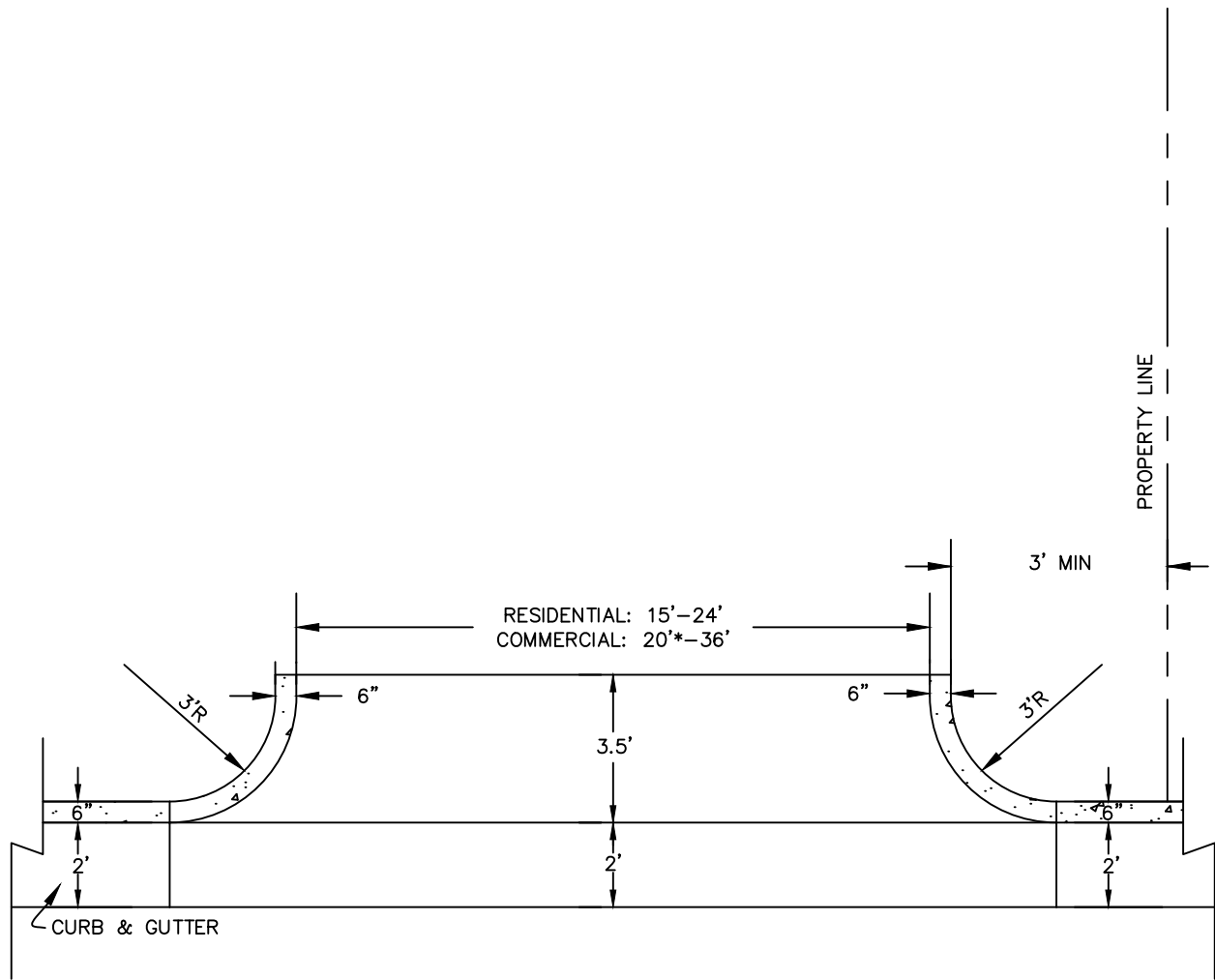
CITY OF HICKORY

GENERAL NOTES FOR CURB & GUTTER,
SIDEWALKS, & DRIVEWAYS

SHEET 1 OF 1

DATE:
12-06-21

STD. NO.
401



* COMMERCIAL: TWO-WAY MINIMUM 20'

NOTE:
 ALL DRIVEWAY LOCATIONS, GRADES, AND CUTS SHALL BE AT A MINIMUM IN ACCORDANCE WITH THE LATEST EDITION OF THE "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS," PUBLISHED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC ENGINEERING BRANCH.

NOT TO SCALE



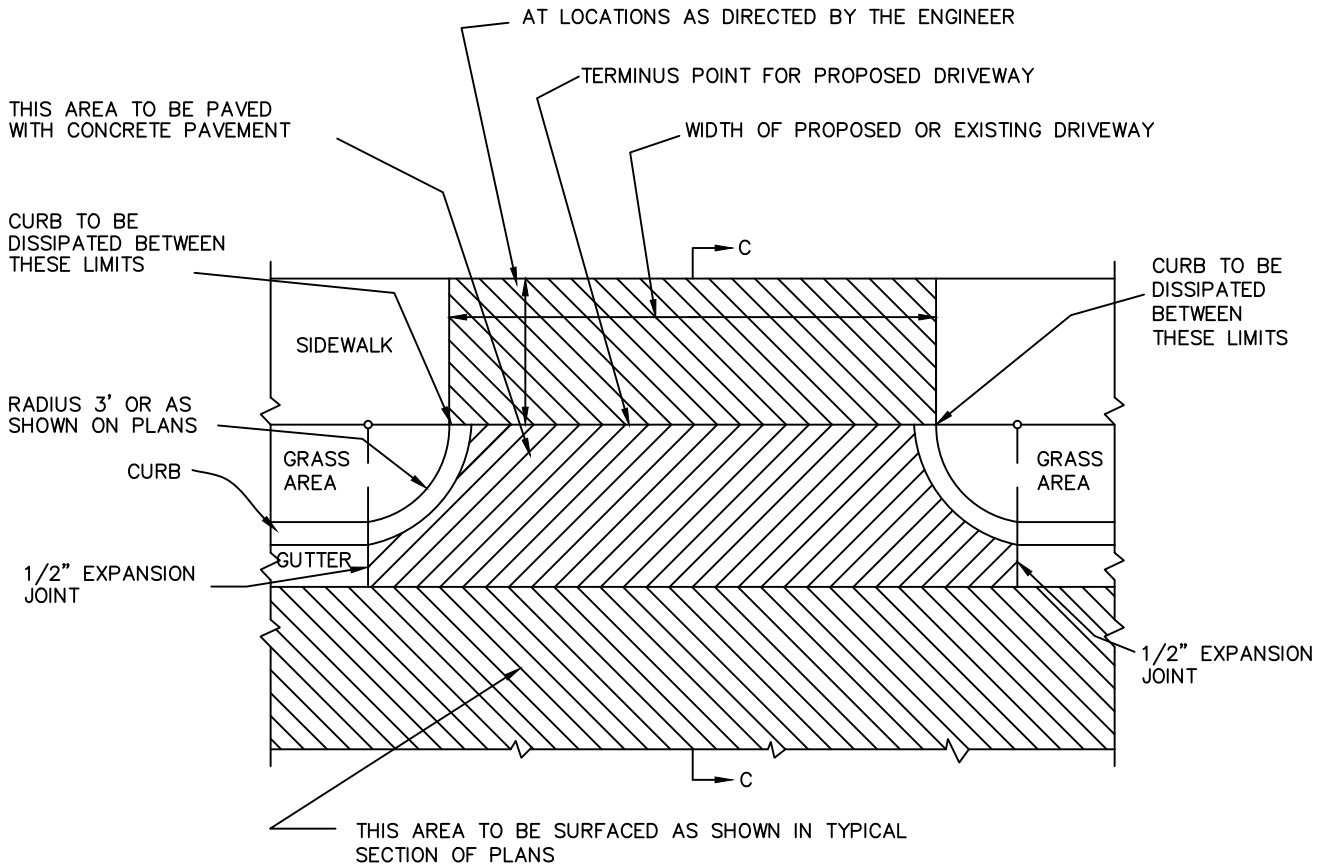
CITY OF HICKORY

TYPICAL DRIVEWAY CUT

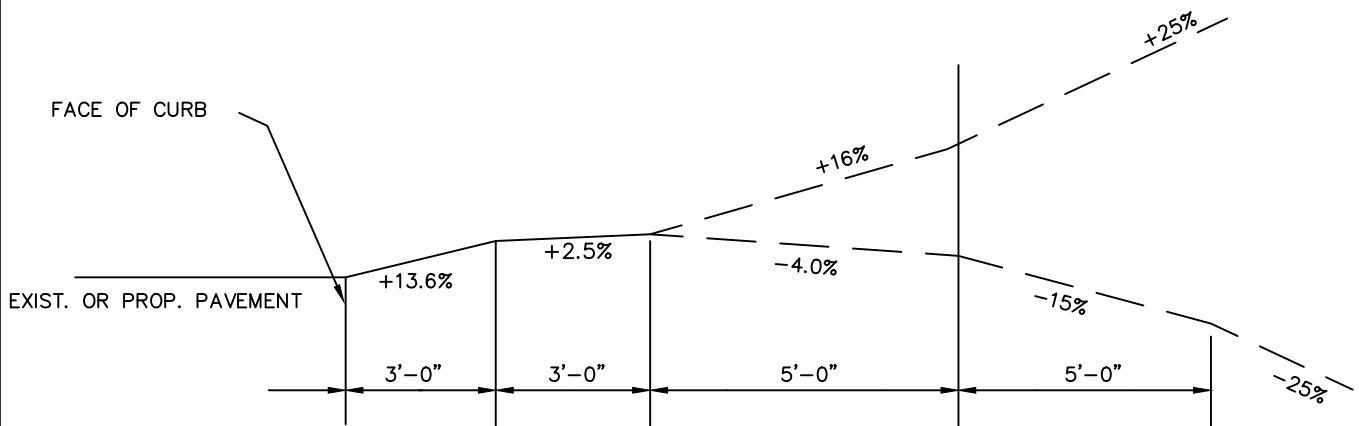
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2-1-07

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402



PART PLAN PAVED DRIVEWAY TURNOUT



DRIVEWAY TURNOUT GRADES

NOT TO SCALE



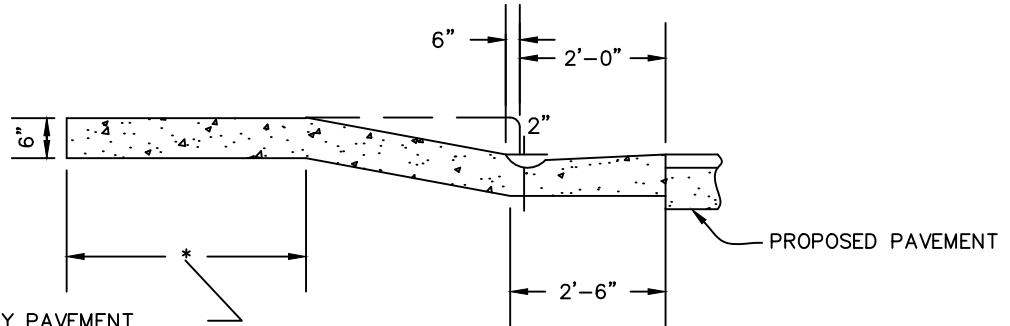
CITY OF HICKORY

DRIVEWAY TURNOUT RADIUS TYPE

SHEET 1 OF 2

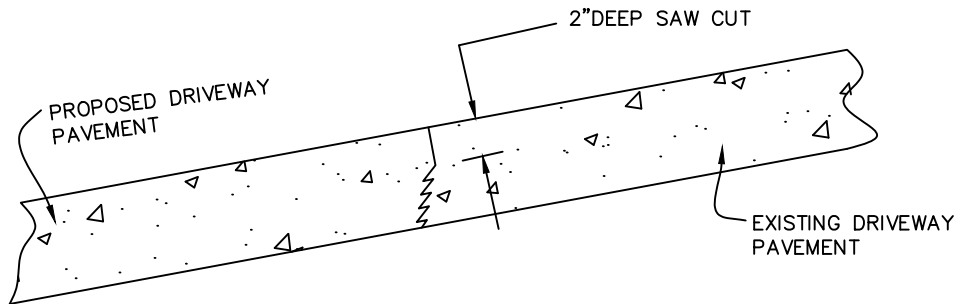
DATE:
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THIS PORTION OF DRIVEWAY PAVEMENT TO BE BUILT ONLY AT LOCATIONS AS DIRECTED BY THE ENGINEER

SECTION-CC



METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, A SAW CUT 2" DEEP SHALL BE REQUIRED AT THE POINT OF TIE IN WITH EXISTING DRIVEWAY GRADE. SAW JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

NOT TO SCALE



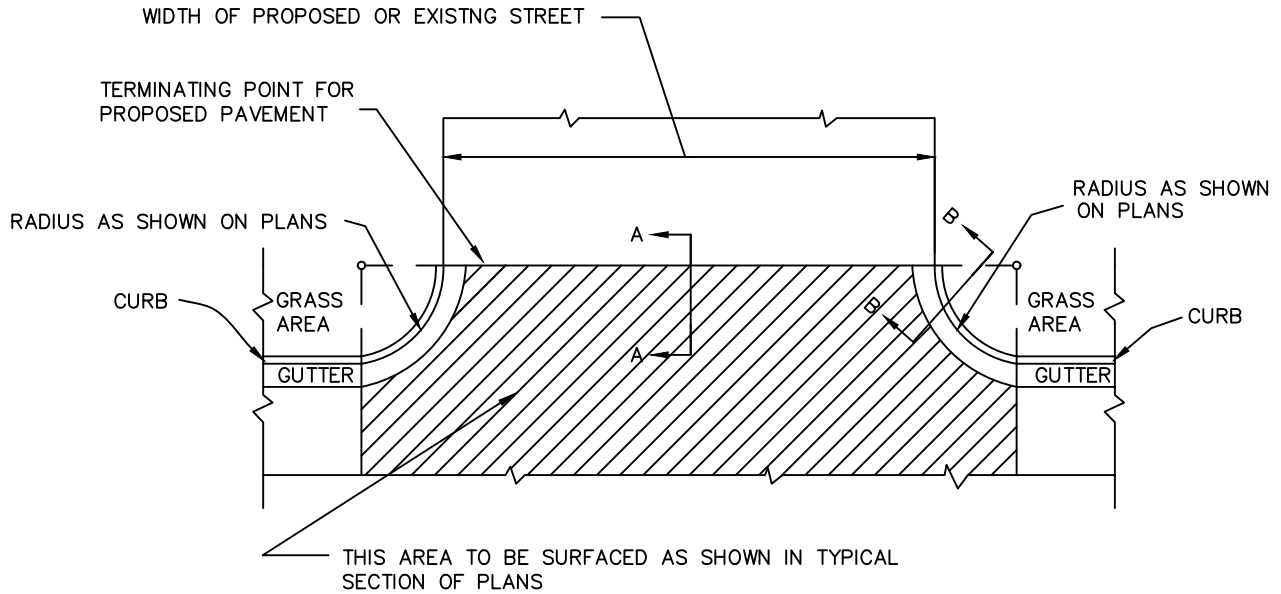
CITY OF HICKORY

DRIVEWAY TURNOUT RADIUS TYPE

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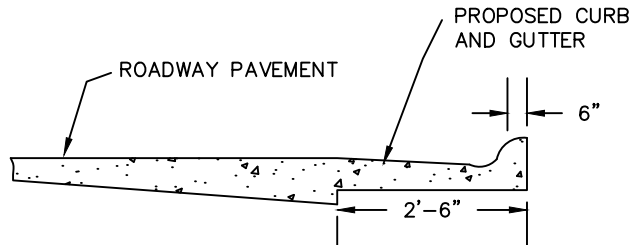
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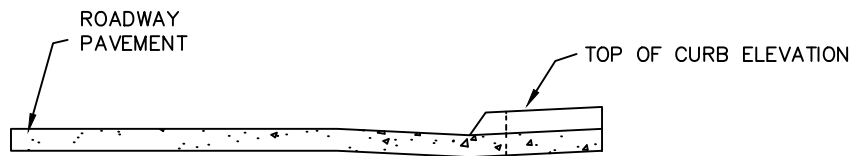


PART PLAN PAVED DRIVEWAY TURNOUT

TO BE USED ON PROPOSED AND EXISTING STREET INTERSECTIONS
OR MAJOR TYPE COMMERCIAL ENTRANCES



SECTION-BB



SECTION-AA

NOT TO SCALE



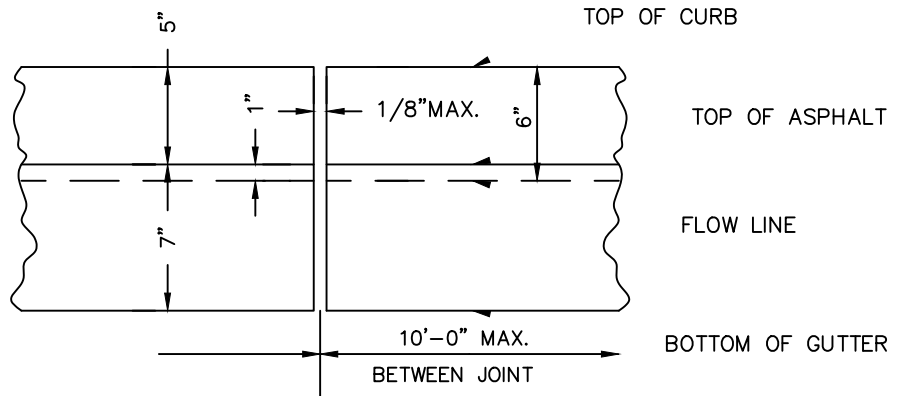
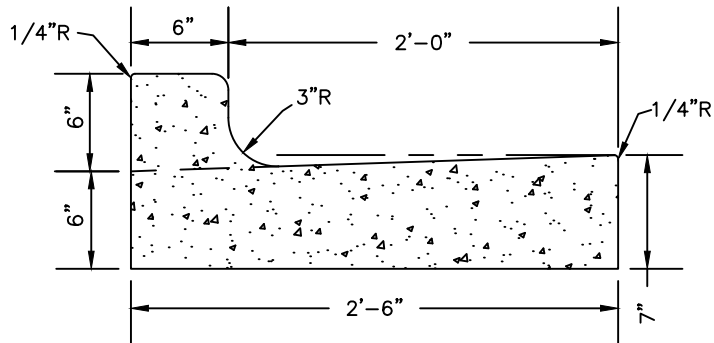
CITY OF HICKORY

DESIGN STANDARDS FOR
STREET TURNOUTS

SHEET 1 OF 1

DATE:
2-1-07

STD. NO.
405



NOTES:

1. CONCRETE SHALL BE CLASS B, 3000 PSI COMPRESSIVE STRENGTH IN 28 DAYS.
2. CONTRACTION JOINTS SHALL BE SPACED AT 10 FOOT INTERVALS. A 15' SPACING MAY BE USED WHEN A MACHINE IS USED. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
3. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS.
WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM SCORE DEPTH OF 1 1/2" SHALL BE OBTAINED.
4. ALL EXPANSION JOINTS SHALL BE SPACED AT 90 FOOT MAXIMUM INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP OF 6" SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.
7. ALL GUTTERS SHALL BE SLOPED AS NECESSARY TO PREVENT PONDING.

NOT TO SCALE



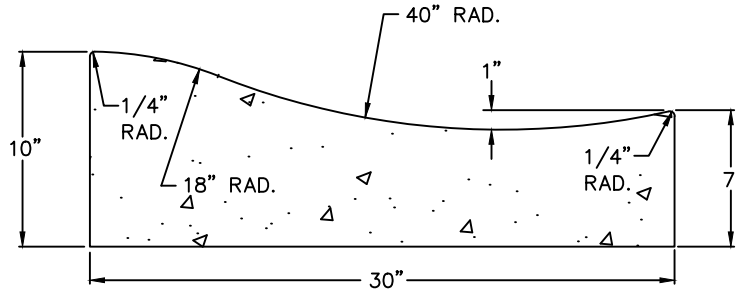
CITY OF HICKORY

STANDARD 30" CURB AND GUTTER

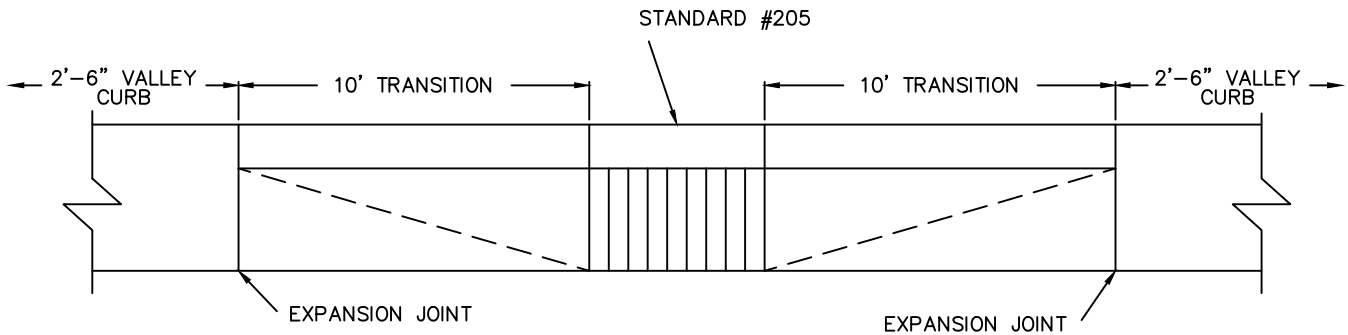
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VALLEY GUTTER CROSS-SECTION



CATCH BASIN TRANSITION
PLAN VIEW

NOTES:

1. CONCRETE SHALL BE CLASS B, 3000 PSI COMPRESSIVE STRENGTH IN 28 DAYS.
2. CONTRACTION JOINTS SHALL BE SPACED AT 10 FOOT INTERVALS. A 15' SPACING MAY BE USED WHEN A MACHINE IS USED. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
3. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED.
4. ALL EXPANSION JOINTS SHALL BE SPACED AT 90 FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP OF 6" SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.
7. ALL GUTTERS SHALL BE SLOPED AS NECESSARY TO PREVENT PONDING.

NOT TO SCALE



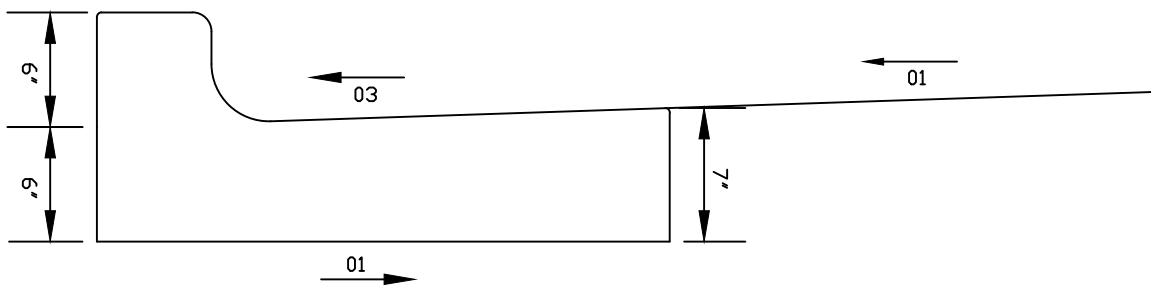
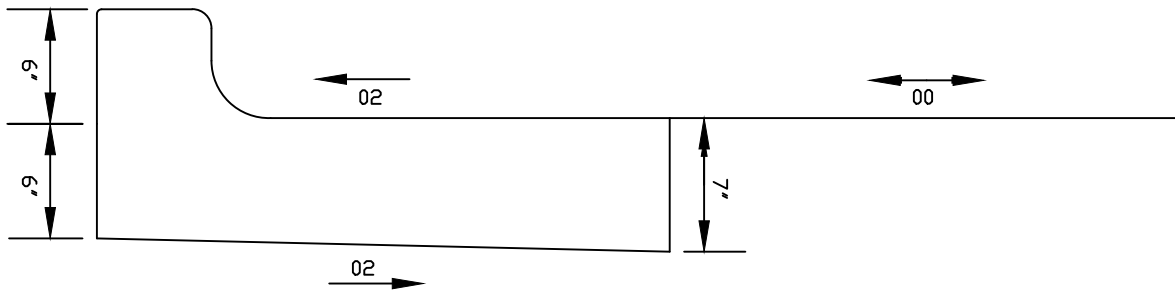
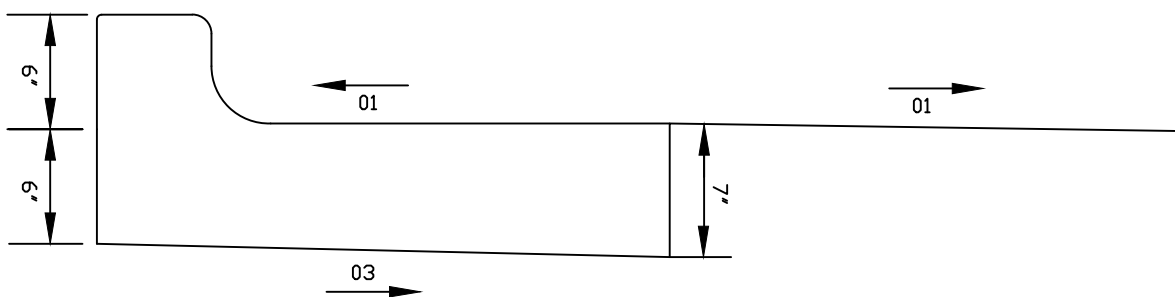
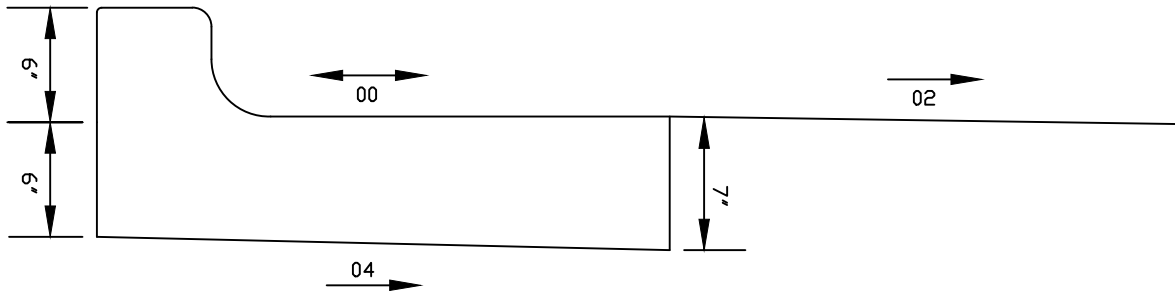
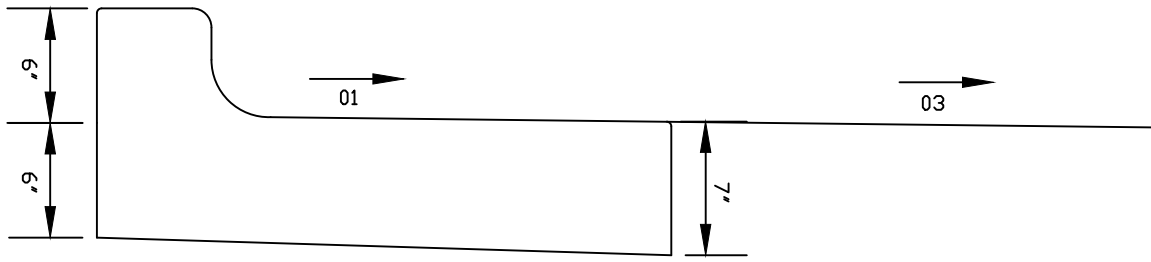
CITY OF HICKORY

30" VALLEY GUTTER

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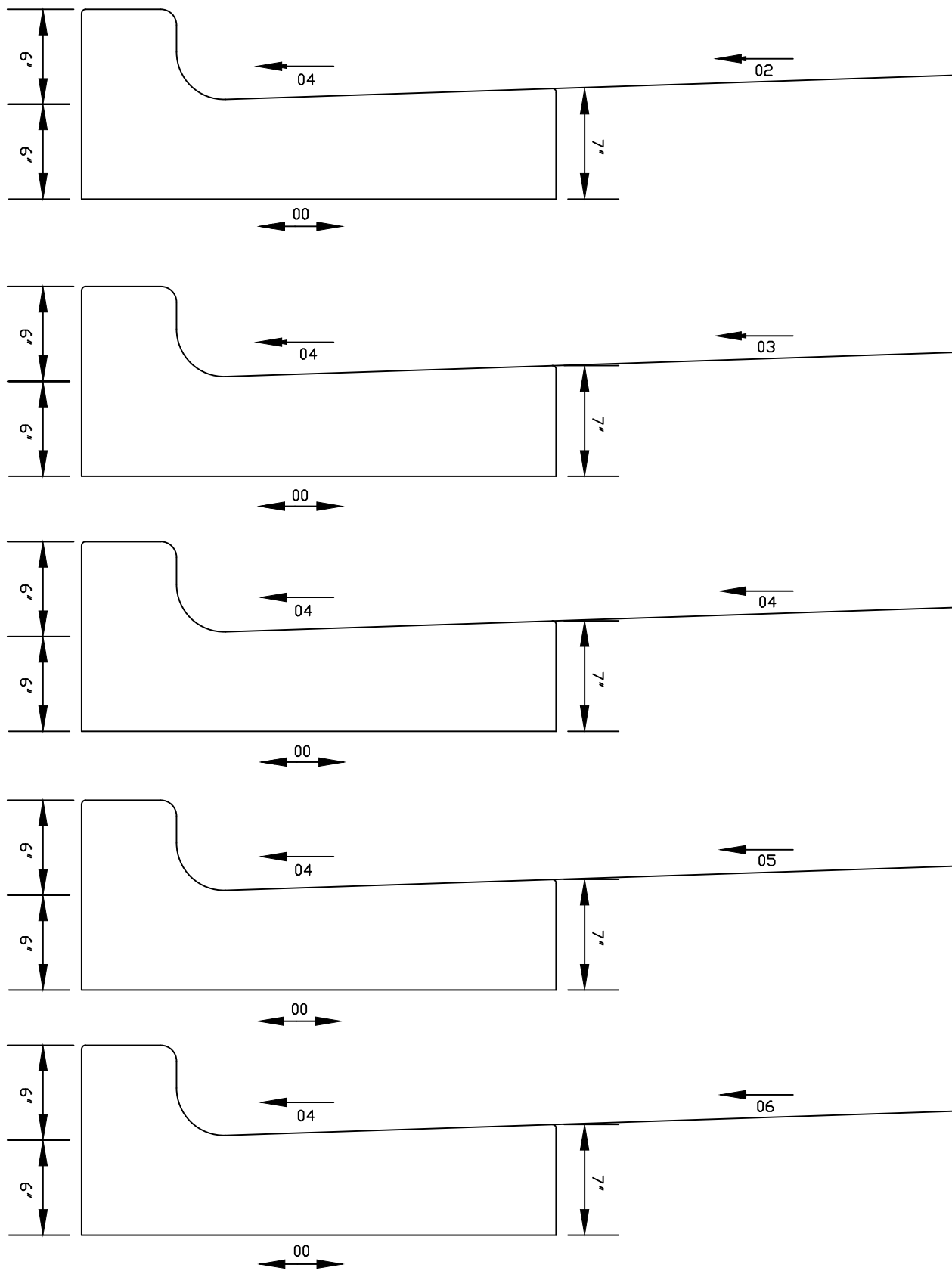
CITY OF HICKORY

CURB AND GUTTER FOR VARIABLE
SUPER ELEVATIONS RATES

SHEET 1 OF 2

DATE:
2-1-07

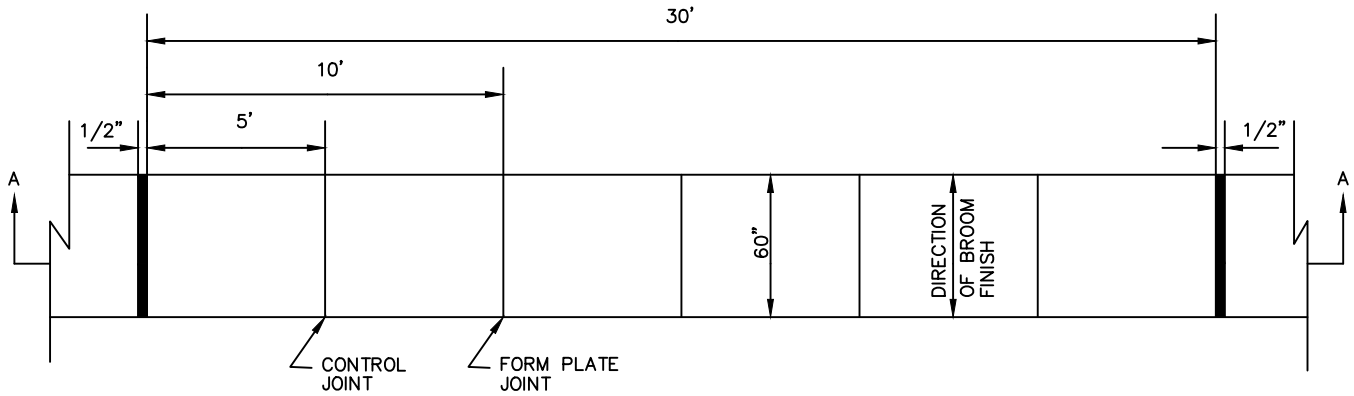
STD. NO.
408



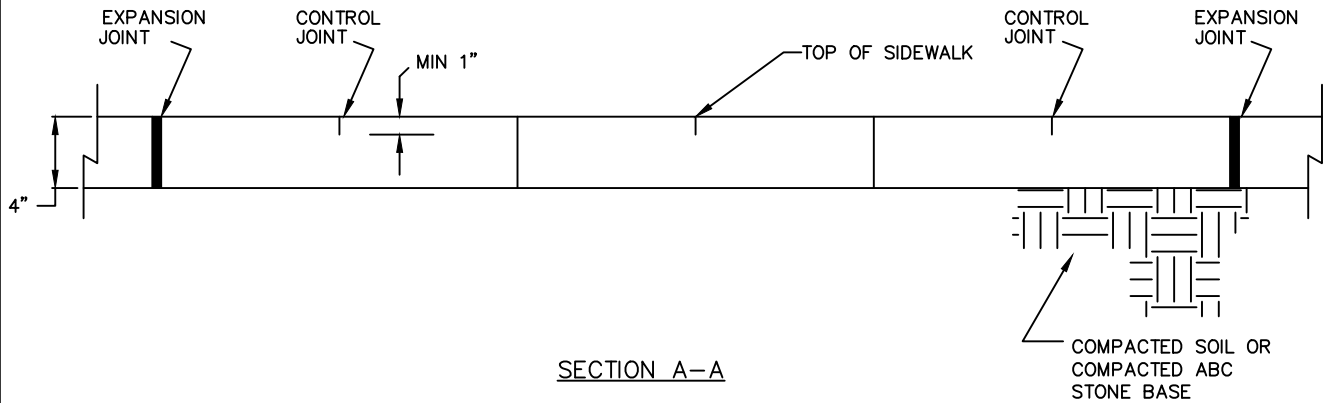
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CITY OF HICKORY		SHEET 2 OF 2	
CURB AND GUTTER FOR VARIABLE SUPER ELEVATIONS RATES		DATE: 2-1-07	STD. NO. 408



PLAN VIEW



SECTION A-A

- NOTE:
1. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS
 2. SURFACE SHALL BE ROUGH NON-SKID TYPE
 3. ALL SIDEWALKS SHALL HAVE CROSS-SLOPE OF 1/4" PER FOOT TO DRAIN TOWARD STREET.

NOT TO SCALE

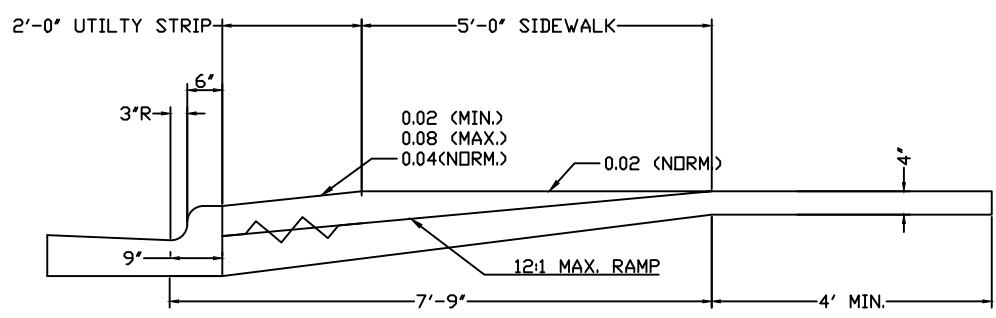
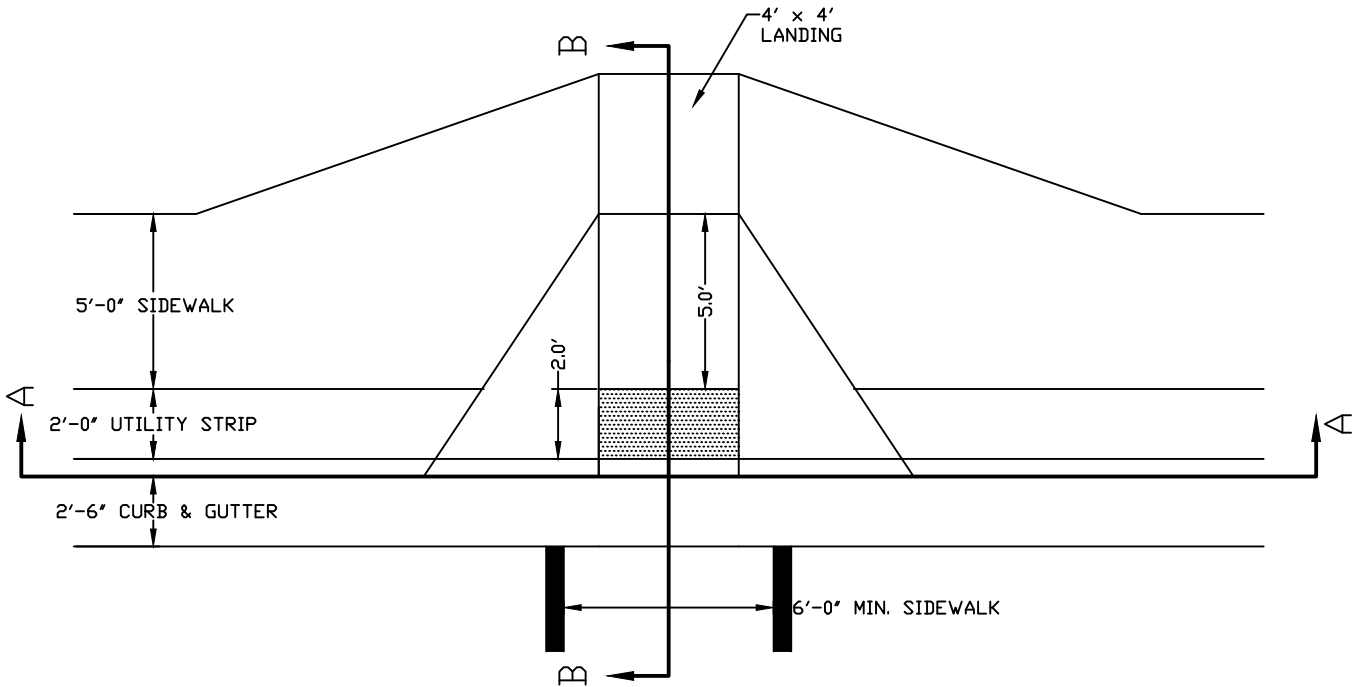


CITY OF HICKORY
SIDEWALKS

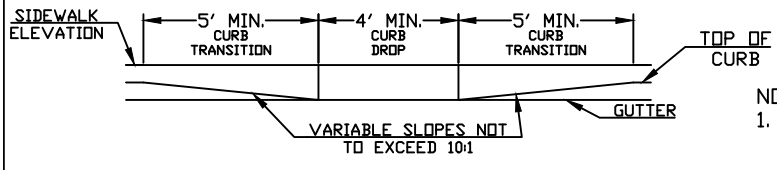
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409



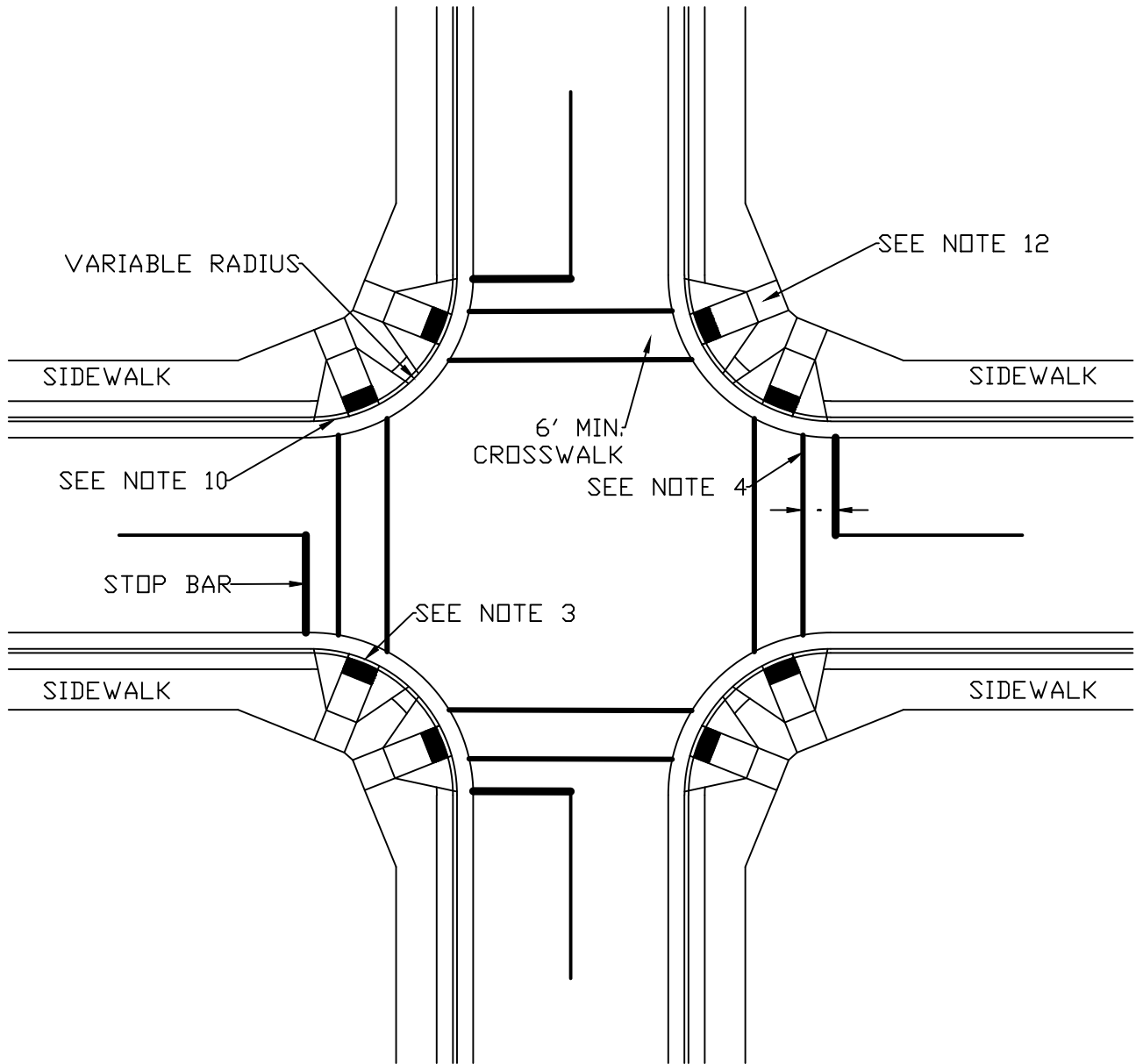
SECTION
B-B



- NOTES:
1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN.
 2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

NOT TO SCALE





DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP BARS

NOT TO SCALE



CITY OF HICKORY

STANDARD WHEELCHAIR RAMP

SHEET 2 OF 3

DATE:
11-28-17

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NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGH THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'x5' LANDING AT THE TOP OF A RAMP WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB.
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS WILL BE HANDLED BY SPECIAL DETAILS AND DESIGN BY THE ENGINEER.

NOT TO SCALE



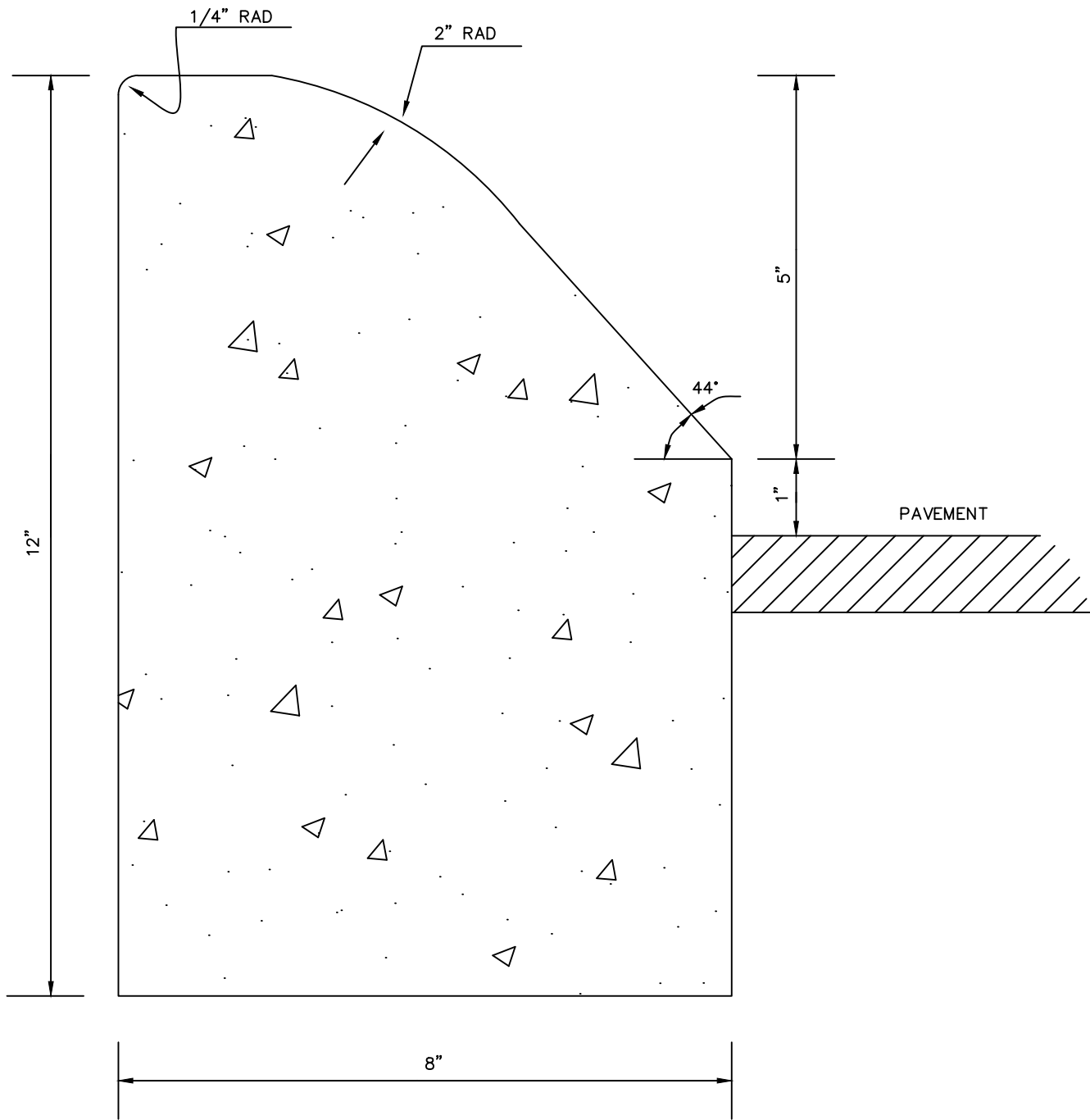
CITY OF HICKORY

STANDARD WHEELCHAIR RAMP

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NOTE- *EXPANSION JOINT EVERY 40' & CONST. JOINT EVERY 10'

NOT TO SCALE



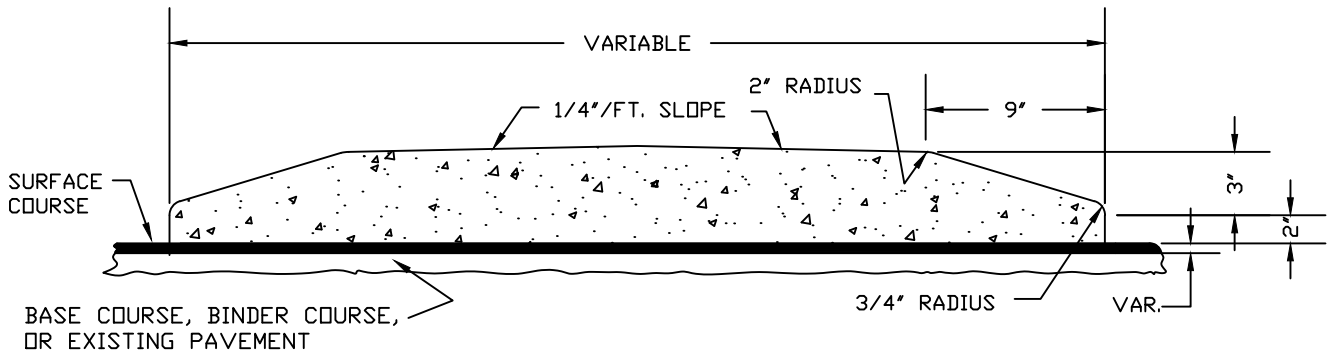
CITY OF HICKORY

8" X 12" MEDIAN CURB

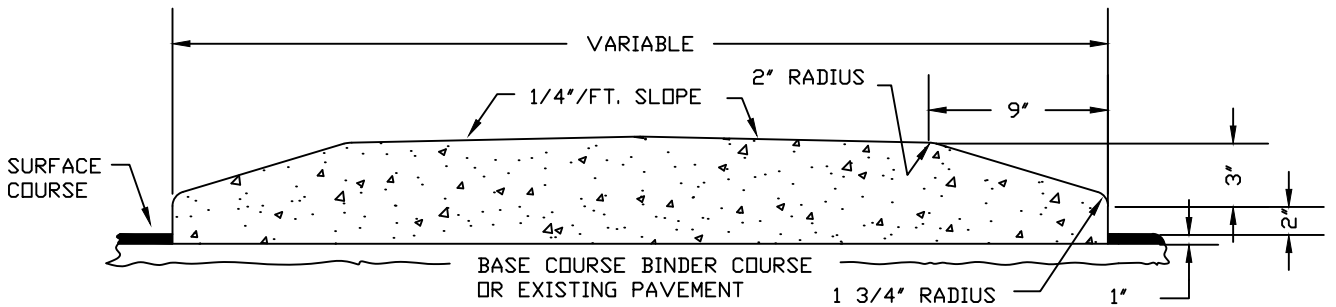
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5" MONOLITHIC CONCRETE ISLAND ON BITUMINOUS PAVEMENT
 (USE ON ISLAND 4' WIDE OR GREATER)



MONOLITHIC CONCRETE ISLAND ON BITUMINOUS PAVEMENT
 (USE ON ISLAND LESS THAN 4' WIDE)

NOT TO SCALE

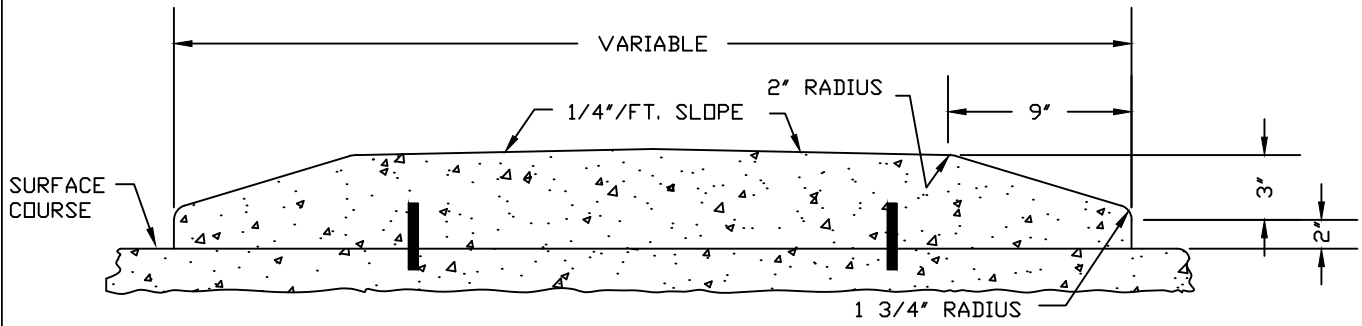


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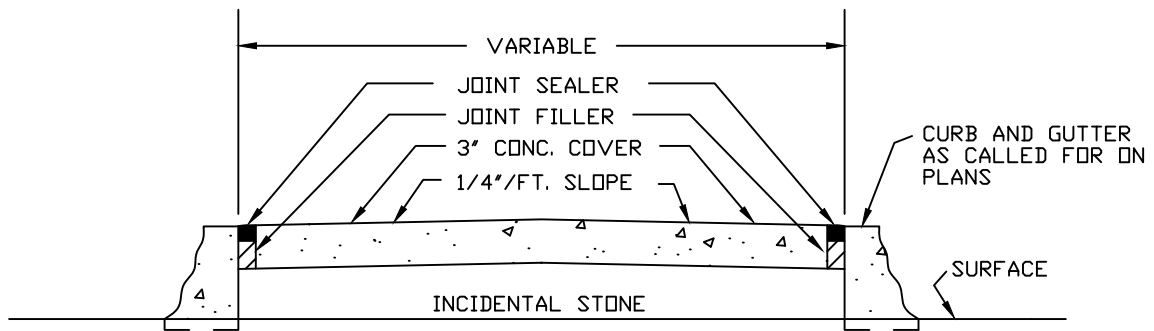
CONCRETE ISLANDS

DATE:
2-1-07

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412



5" MONOLITHIC CONCRETE ISLAND ON PORTLAND CEMENT CONCRETE PAVEMENT
 (USE ON ISLAND 4' WIDE OR GREATER)



PAVED CONCRETE ISLAND

NOT TO SCALE



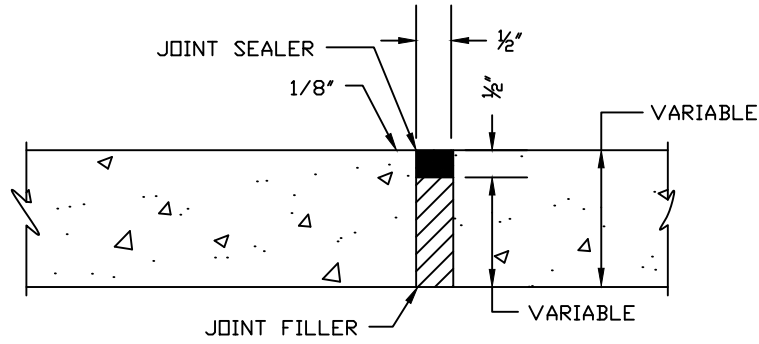
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CONCRETE ISLANDS

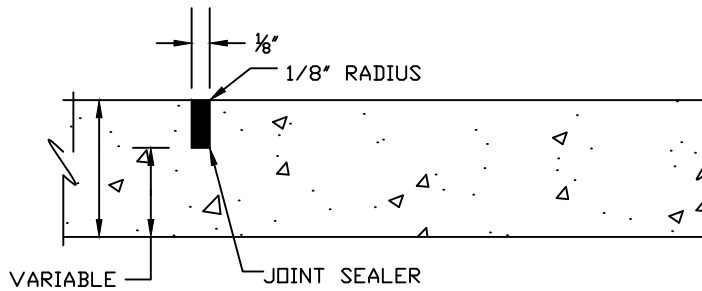
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SHOWING EXPANSION JOINT



SHOWING GROOVED JOINT

PART LONGITUDINAL SECTION
OF PAVED ISLANDS

NOTE:
 WHEN MONOLITHIC CONCRETE ISLAND IS ON TOP OF SURFACE COURSE 40D SPIKES SHALL BE DRIVEN INTO SURFACE UNDER MONOLITHIC CONCRETE ISLANDS. SPIKES SHALL BE STAGGERED ON 2' CENTERS EACH WAY.
 IN THE CONCRETE PAVEMENT (ISLAND) AND CONCRETE ISLAND (MONOLITHIC) PLACE 1/2" EXPANSION JOINTS AT 30' INTERVALS AND GROOVED JOINTS 1" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS.
 THE JOINTS IN THE CONCRETE PAVEMENT (ISLAND) SHALL LINE UP WITH THE JOINTS IN THE CURB OR CURB AND GUTTER. THE TOP 1/2' OF THE EXPANSION JOINTS AND THE ENTIRE DEPTH OF GROOVED JOINTS SHALL BE FILLED AND SEALED WITH JOINT SEALER.

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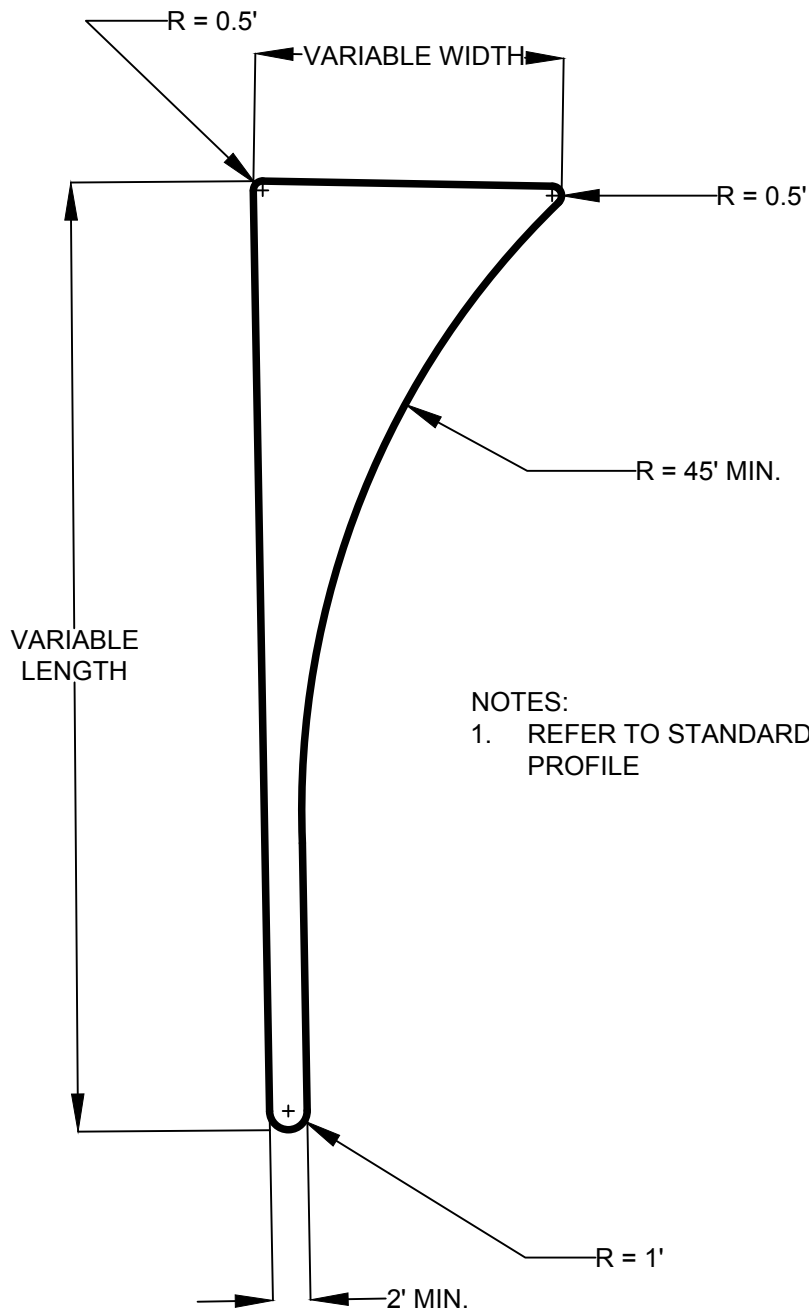
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CONCRETE ISLANDS
JOINT DETAILS

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412



NOTES:

1. REFER TO STANDARD 412 FOR ISLAND PROFILE

NOT TO SCALE



CITY OF HICKORY
 CHANNELIZED RIGHT TURN
 CONCRETE ISLAND

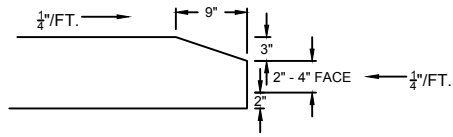
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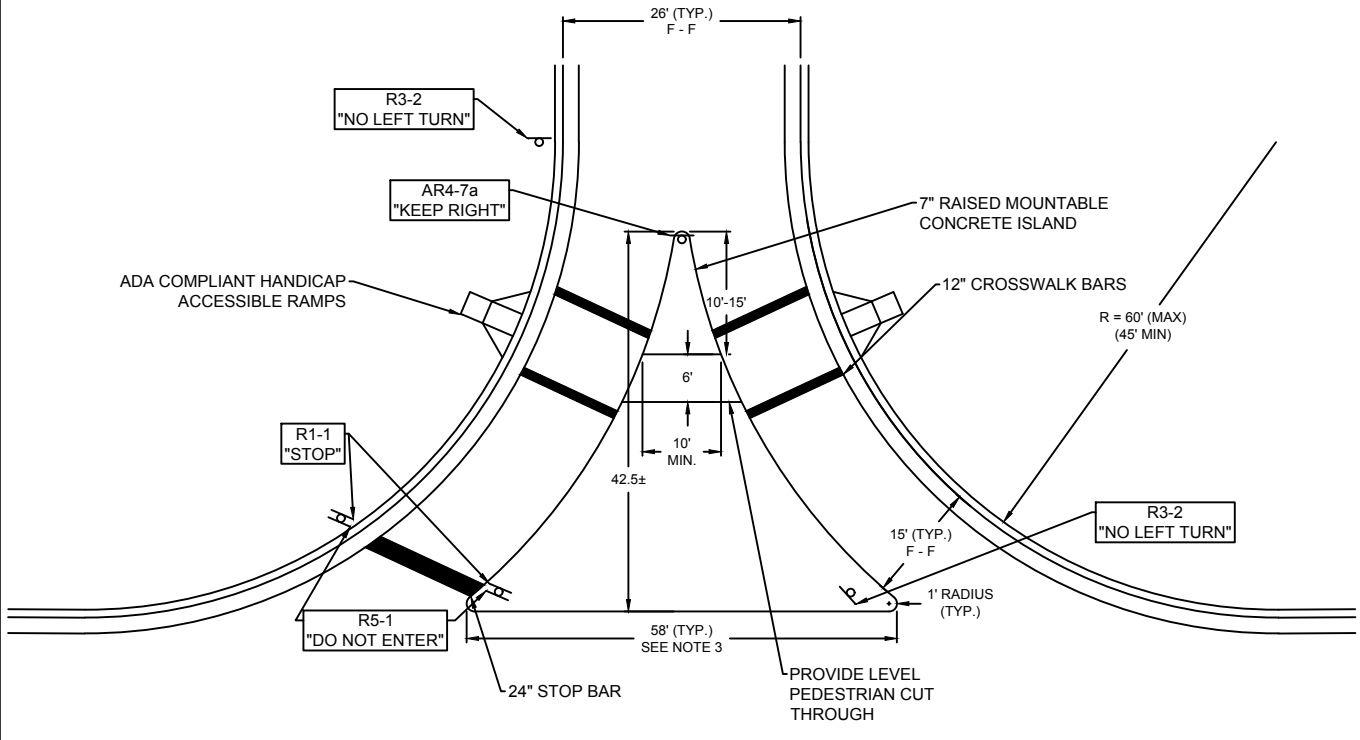
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ISLAND NOTES:

1. 7" TOTAL THICKNESS IF DOWELLED INTO ASPHALT PER NCDOT STD. 852.01
2. 9" TOTAL THICKNESS IF KEYED INTO ASPHALT PER NCDOT STD. 852.01
3. ISLAND WIDTH VARIES DIRECTLY WITH APPROACH ROAD WIDTH



ISLAND SECTION



RIGHT-IN/RIGHT-OUT STANDARD

NOT TO SCALE



CITY OF HICKORY

RIGHT-IN/RIGHT-OUT
DRIVEWAY STANDARD

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