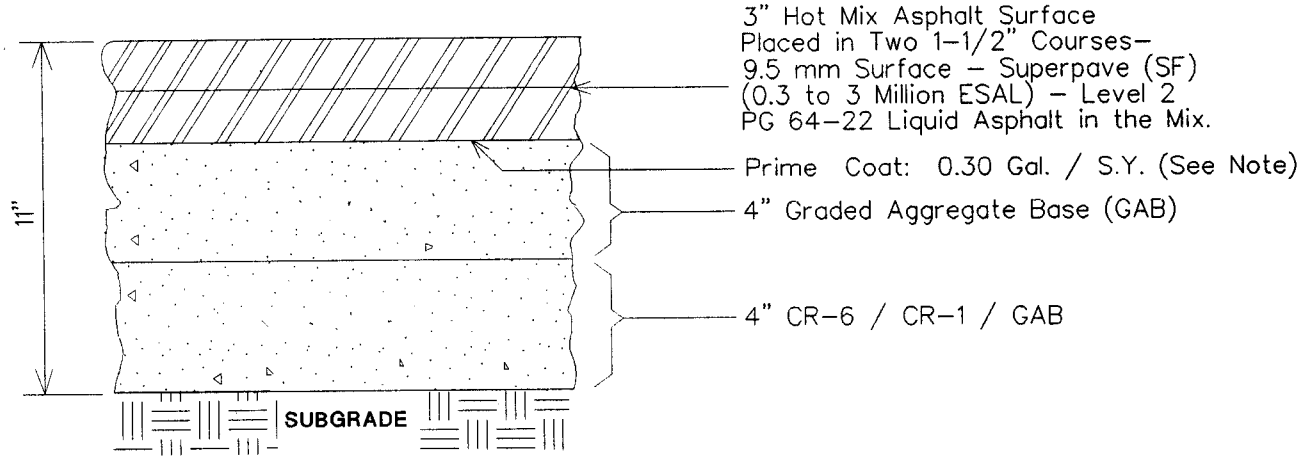
Roads and Streets Standard Details

PLATE #	TITLE	SIGNATURE DATE	STD. SPECS. REFERENCE	COMMODITY CODE
R-1	Pri.Rd.Paving Sections	11/21/2000	501, 504	-
R-2A	Subdiv.Paving Sect.(CBR≥5)	3/10/2005	501, 504	-
R-2B	Subdiv.Paving Sect.(CBR<5)	3/10/2005	501, 504	-
R-10	20'St.(40'R/W)-No Pkg.	10/23/1997	-	-
R-11	22'St.(40'R/W)-No Pkg.	10/23/1997	-	-
R-12	28'St.(50'R/W)-Pkg.1 Side	11/24/1999	-	-
R-13	30'St.(50'R/W)-Pkg.1 Side	11/24/1999	-	-
R-14	Concrete Alleys	2/22/2006	520	561100
R-14A	Concrete Alleys	11/24/1999	520	387404, 387120, 390500
R-15	Drive Entr.-No Curb	10/23/1997	501, 504	520114, 530300
R-15A	Drive Entr-Sdwk/Curb Var	2/22/2006	520	561100
R-15B	Drive Entr-SdwkAbutsCurb	2/22/2006	520	561100
R-17	Concrete Alley Joints	11/24/1999	520	561100
R-18	Alley Entrance	2/22/2006	520	561100
R-19	Std.4'Sidewalk	2/22/2006	610	655000
R-20A	H.M.A. Mountable Curb	11/24/1999	609.03.02	615581
R-20B	Extr.Conc.Mount.Curb	10/23/1997	609	615591, 2
R-21	7"Comb.Curb & Gutter	2/22/2006	609	630000, 616000
R-22	Underdrain-Paved Streets	12/4/2001	306	387000, 390500
R-23	Conc.Ditch to Curb & Gtr	2/22/2006	609, 307	631000, 630000
R-24	Concrete Curb	12/20/2002		
R-27	Barricades	10/23/1997	612, 918	659000
R-28	Svce.Station Entr.Chnliz	2/22/2006	520	-
R-29	Svce.Sta.Entr.@Intersect	2/22/2006	520	-
R-30	Commercial Entr.Chnlztn	2/22/2006	520	-
R-31	Comm.Entr.@Intersection	2/22/2006	520	-
R-32	Single Commercial Entr	1/2/2007	520	-
R-32A	Rural Commercial Entr	10/23/1997	501, 504, 303	-
R-33	Valley Gutter-90DegInter.	1/2/2007	520	631010
R-35	Accel.Lane(Min.Widening)	10/23/1997	-	-
R-35A	Accel.Lane(Widened to PL)	10/23/1997	-	-
R-36A	Ped.Ramp/Median/Depressed	12/20/2002	-	-
R-36B	Truncated Pedestrian Ramp	12/20/2002	-	-
R-36C	Detectable Warnings	12/20/2002	-	-
R-36D	Median/Island Ped.Passage	12/20/2002	-	-
R-36E	Pedestrian Bump-Out	12/20/2002	-	-
R-37	7"Valley Gutter/Perp.Pkg	2/22/2006	520	631010
R-38	Flexible Pvg.of Trenches	3/18/2002	505	120550, 61, 63
R-39	Adjusting Utility Frame	10/23/1997	305, 508	590110, 20
R-41	Pavement Failure Repairs	11/24/1999	505	590600, 5
R-42	Hot-Mix Asphalt Paving	10/23/1997	504	556380



NOTES

Grade and alignment to conform with Baltimore County minimum Design Standards

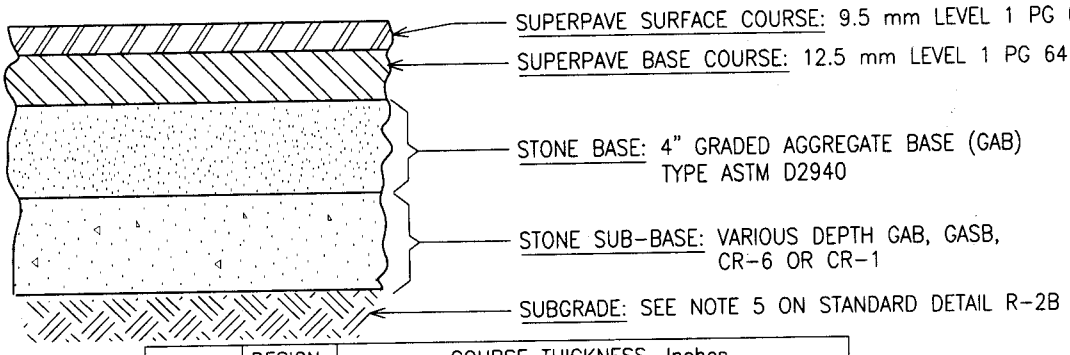
Paving width to conform with Bill #100 *Manual* and Baltimore County's *Standard Specifications & Details for Construction.*

Baltimore County reserves the right to enter the property for the purpose of taking "core borings".

Prime Coat as shown on Plans or as Directed by Engineer.

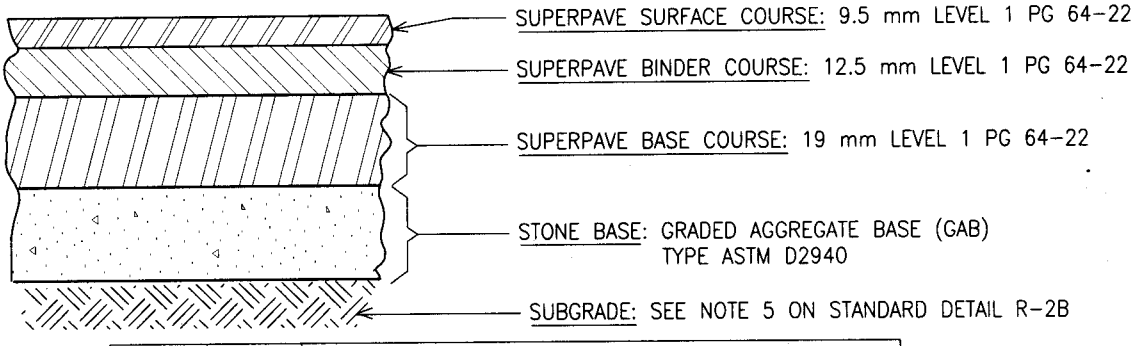
BALTIMORE COUNTY MARYLAND	APPROVAL DIRECTOR BUR. OF ENGINEERING/CONSTRUCTION 11/21/05 DATE	DEPARTMENT OF PUBLIC WORKS ROAD & STREET DETAILS **TYPICAL DEVELOPMENT** **PAVING SECTIONS** **(PRIVATE ROADS)**	ISSUED: OCTOBER, 1977 REVISED: FEBRUARY, 1981 REVISED: NOVEMBER, 2000 PLATE **R-1**

PAVING SECTION WITH STONE BASE



SECTION	DESIGN CBR VALUE	COURSE THICKNESS, Inches		
		Surface Course	Base Course	Stone Base & Sub-Base
A	5	1.5"	3.0"	12.0"
B	6	1.5"	3.0"	10.0"
C	7	1.5"	2.5"	9.0"
D	8	1.5"	2.5"	8.0"
E	≥9	1.5"	2.5"	7.0"

PAVING SECTION WITH 4" STONE BASE



SECTION	DESIGN CBR VALUE	COURSE THICKNESS, Inches			
		Surface Course	Binder Course	Base Course	Stone Base
A	5	1.5"	2.5"	4"*	4"
B	6	1.5"	2"	4"*	4"
C	7	1.5"	2"	3"	4"
D	8	1.5"	2"	2.5"	4"
E	≥9	1.5"	2"	2"	4"

* 2 – 2" Lifts of 19 mm Superpave

REFER TO NOTES ON STANDARD DETAIL R-2B.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

3/10/05

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

TYPICAL SUBDIVISION

PAVING SECTION (WIDTH ≤ 30') (CBR ≥ 5)

ISSUED: OCTOBER, 1977

REVISED: MARCH, 2002

REVISED: FEBRUARY, 2005

PLATE

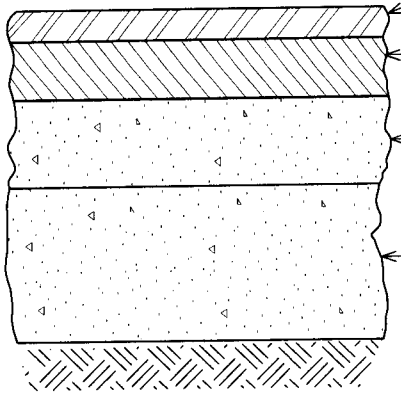
R-2A

3/9/2005 4:56 PM

R-02A.DWG

MODIFIED SUBGRADE

WITH PORTLAND CEMENT OR LIME



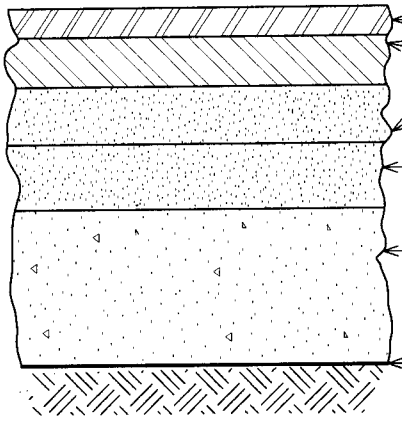
SUPERPAVE SURFACE COURSE: 1.5" – 9.5 mm LEVEL 1 PG 64–22

SUPERPAVE BASE COURSE: 2.5" – 12.5 mm LEVEL 1 PG 64–22

STONE BASE: 4" GRADED AGGREGATE BASE (GAB) TYPE ASTM D2940

SUBGRADE – 12" MINIMUM MODIFIED SUBGRADE

UNDERCUT SUBGRADE



SUPERPAVE SURFACE COURSE: 1.5" – 9.5 mm LEVEL 1 PG 64–22

SUPERPAVE BASE COURSE: 2.5" – 12.5 mm LEVEL 1 PG 64–22

STONE BASE: 3" – GRADED AGGREGATE BASE (GAB) TYPE ASTM D2940.

STONE SUB–BASE: 4" GAB, GASB, CR–6 OR CR–1

UNDERCUT: CR–1 REFILL ON APPROVED SOIL REINFORCING GEOTEXTILE OR GEOGRID. DEPTH TO BE DETERMINED BY DEVELOPMENT ENGINEER; 12" MINIMUM.

REINFORCEMENT: APPROVED SOIL REINFORCING GEOTEXTILE OR GEOGRID.

NOTES:

1. DEVELOPER IS RESPONSIBLE FOR CBR TESTING.
2. CBR'S WILL BE TAKEN EVERY 1,000 FEET (2 MINIMUM) AND FOR EVERY CHANGE IN SOIL COMPOSITION. CBR TESTING PER AASHTO T–193, LATEST EDITION.
3. THE LOWEST CBR VALUE WILL BE USED FOR ROAD SECTION DETERMINATION.
4. CBR LAB WORK AND RESULTS WILL BE SENT TO BALTIMORE COUNTY'S DIVISION OF CONSTRUCTION CONTRACTS ADMINISTRATION FOR REVIEW AND APPROVAL OF PAVING SECTION DURING THE REVIEW AND APPROVAL PROCESS PERFORMED BY BALTIMORE COUNTY'S DEPARTMENT OF PERMITS AND DEVELOPMENT MANAGEMENT.
5. SUBGRADES MUST BE STABLE AND APPROVED WITH PROOF ROLL BY BALTIMORE COUNTY INSPECTOR PRIOR TO PLACEMENT OF STONE BASE AND CURB & GUTTER POUR.
6. FOR SUBGRADES FAILING PROOF ROLL OR HAVING CBR'S LESS THAN 5 (FIVE), REFER TO MODIFIED AND/OR UNDERCUT SUBGRADE DETAILS ON THIS STANDARD DETAIL.
7. MODIFIED SUBGRADE MUST ATTAIN A MINIMUM CBR OF 20 (TWENTY).
8. UNDERDRAIN IS REQUIRED FOR ALL PAVING SECTIONS.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

3/10/05

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

TYPICAL SUBDIVISION

PAVING SECTION (WIDTH ≤ 30')

(CBR<5)

ISSUED: OCTOBER, 1977

REVISED: MARCH, 2002

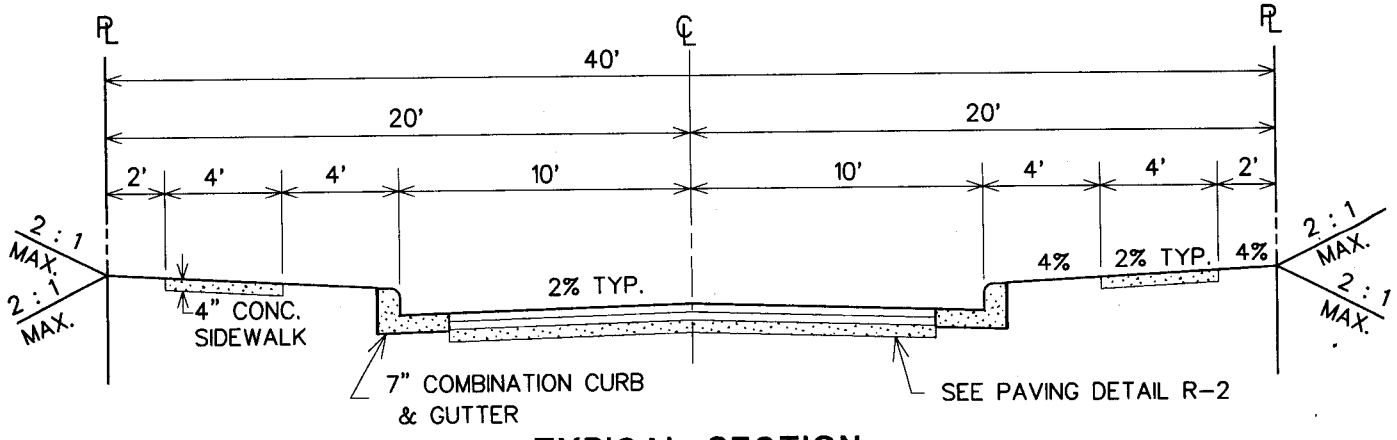
REVISED: FEBRUARY, 2005

PLATE

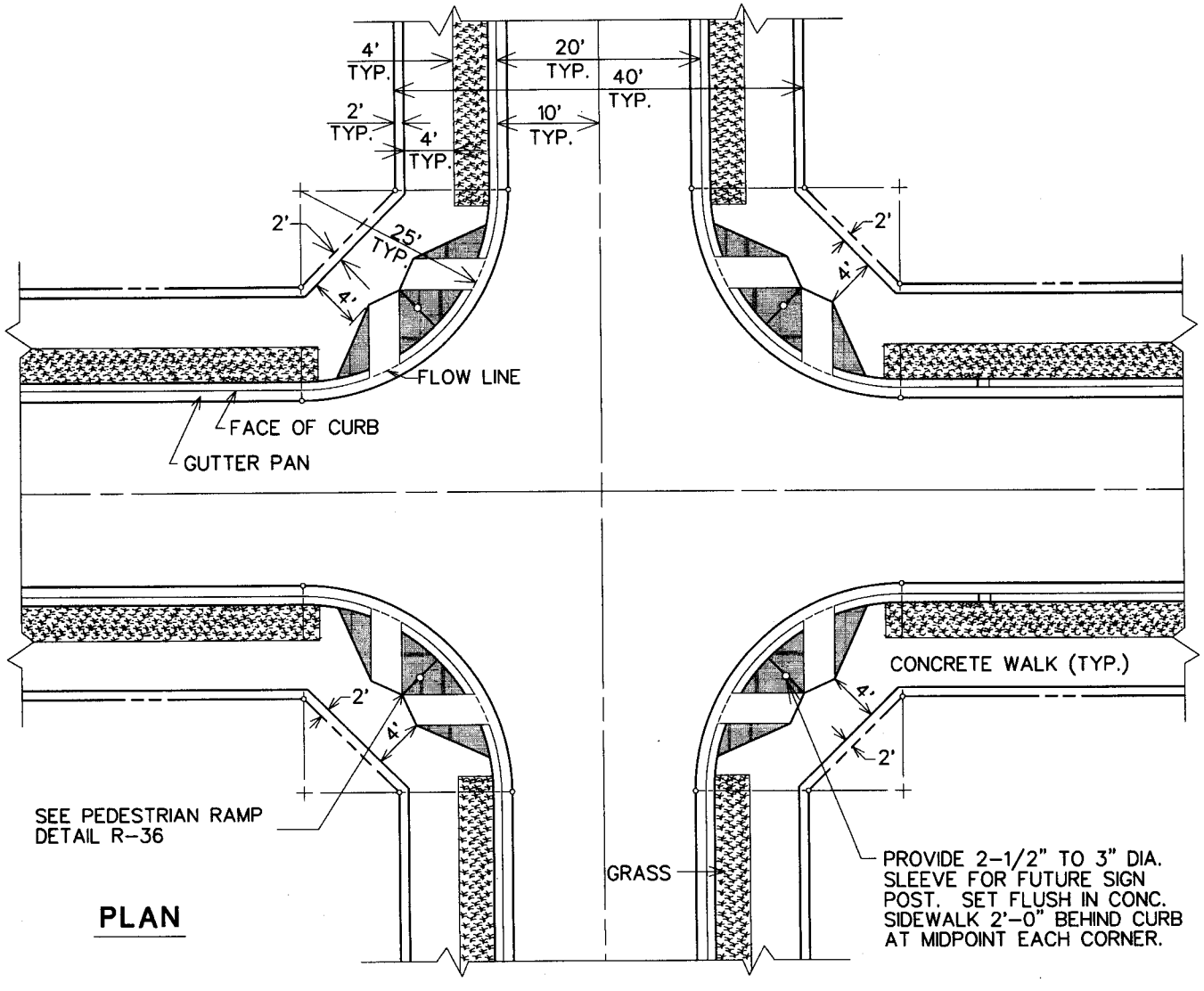
R–2B

3/9/2005 5:10 PM

R-02B.DWG



TYPICAL SECTION



PLAN

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

William Bonsman

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

20' STREET ON 40' R/W

PARKING BANNED

AVERAGE DAILY TRAFFIC = 0 TO 200

ISSUED: OCTOBER, 1977

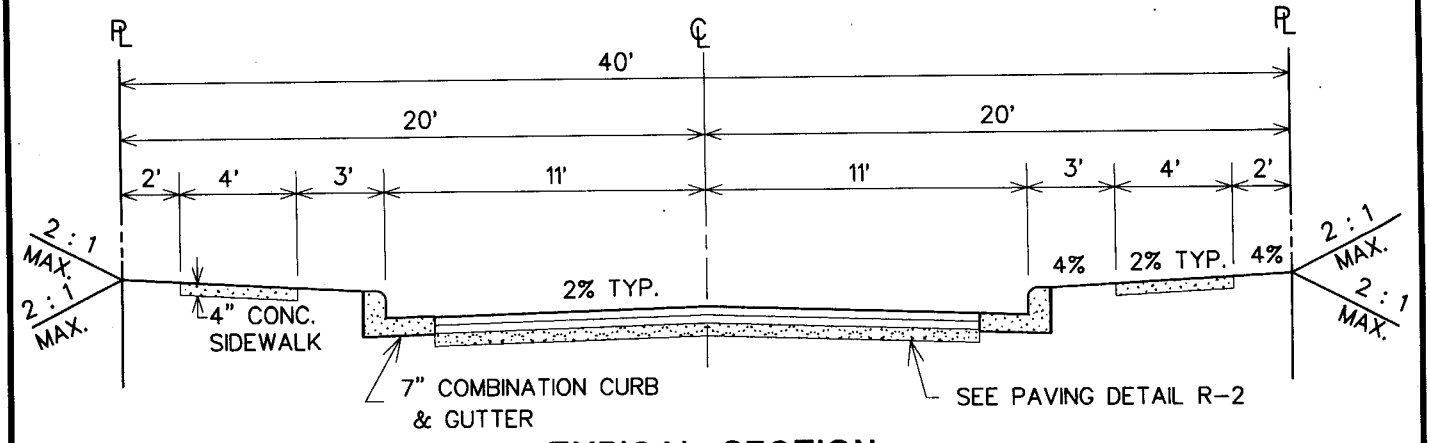
REVISED: MARCH, 1983

REVISED: AUGUST, 1997

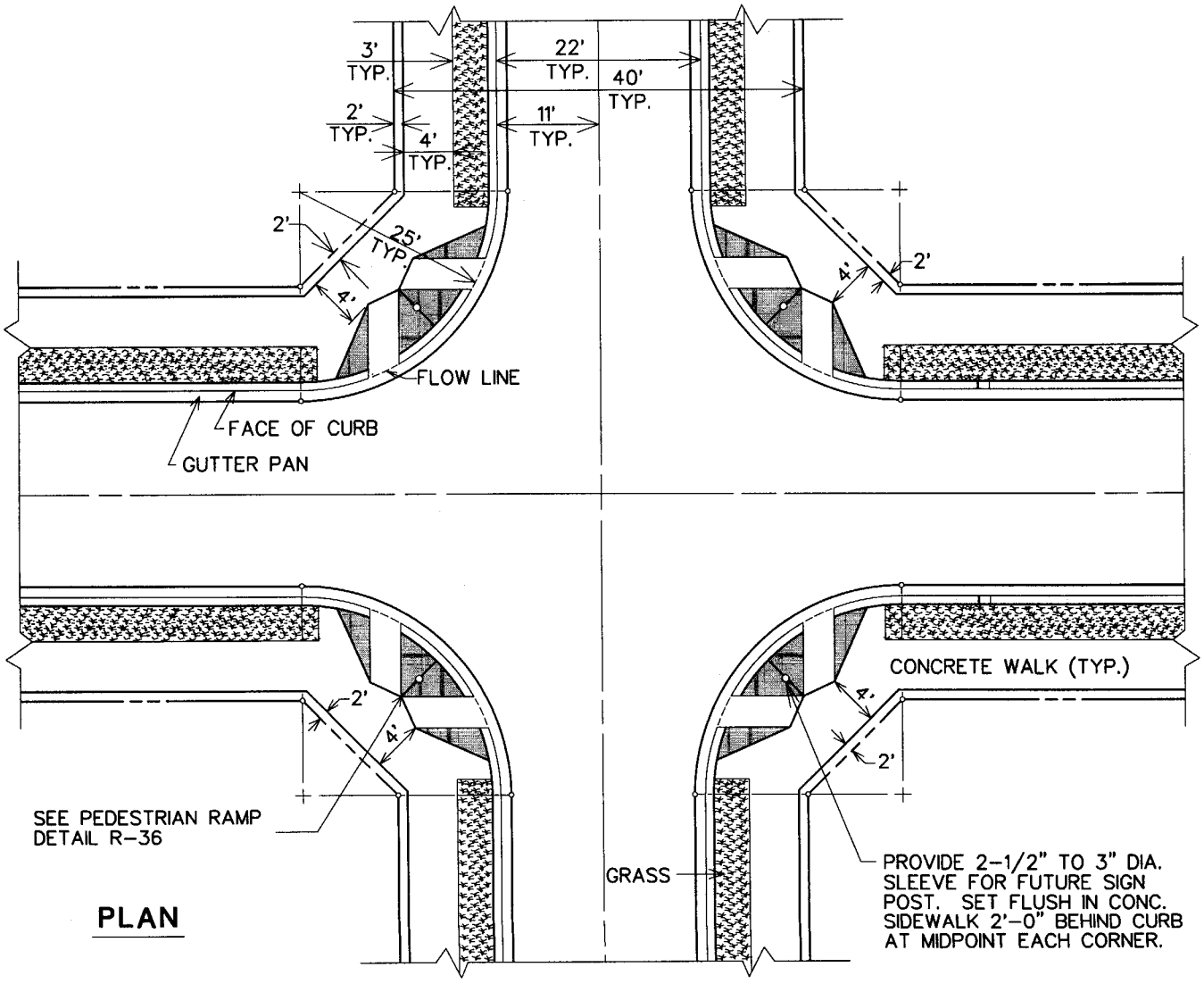
PLATE

R-10

REVISED FEB JAY/DAS



TYPICAL SECTION



PLAN

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR
BUR. OF ENGINEERING & CONSTRUCTION

10/23/97
DATE

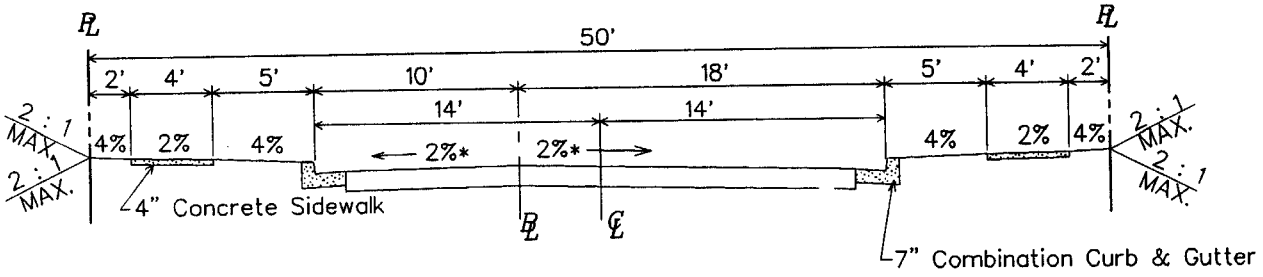
DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

22' STREET ON 40' R/W
PARKING BANNED
AVERAGE DAILY TRAFFIC = 200 TO 1000

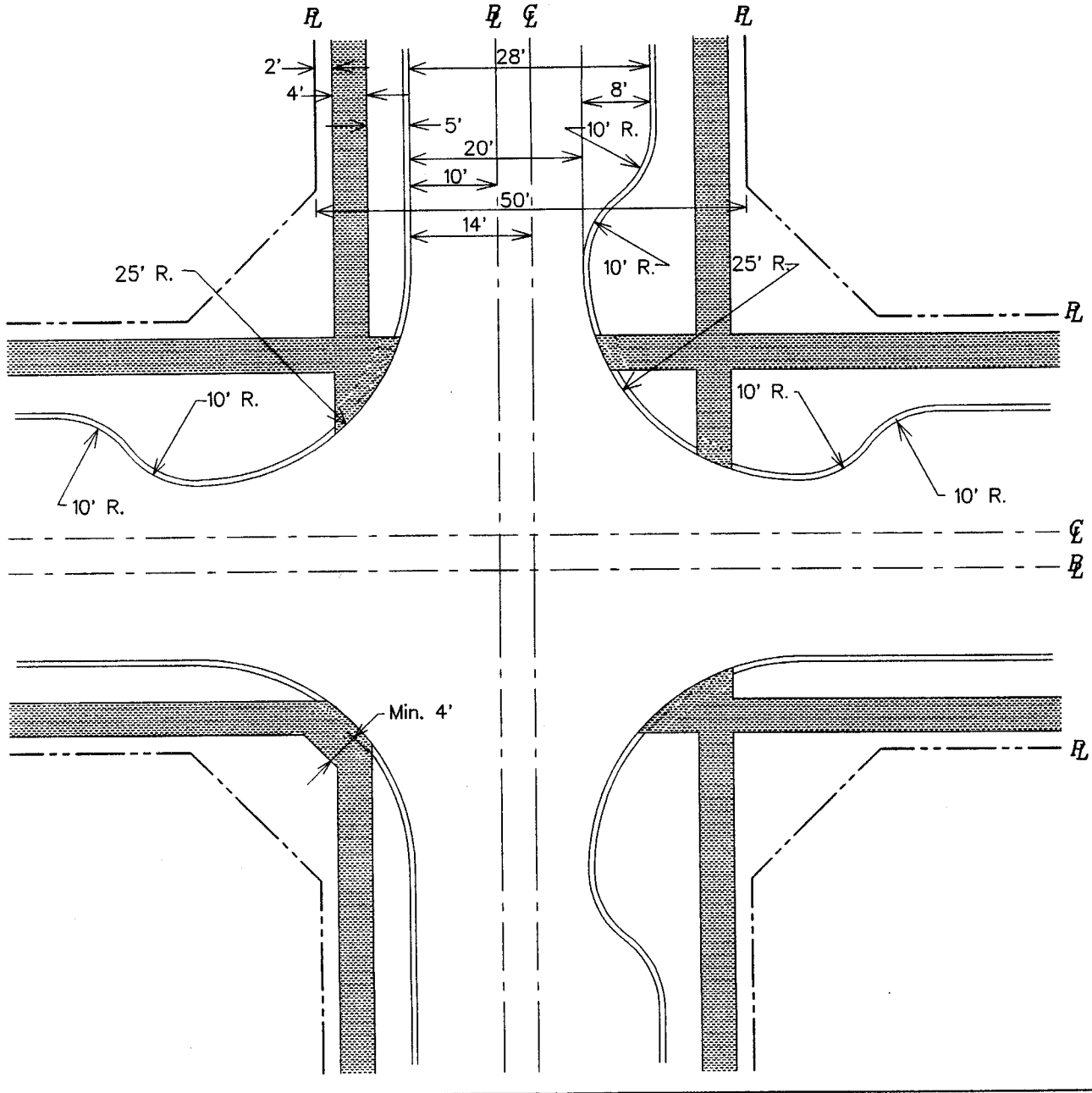
ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: AUGUST, 1997

PLATE
R-11

NOVEMBER 1968 JAY/DAS



* 2% Slope from ℄ for Hot Mix Asphalt Paving



APPROVAL

DIRECTOR

BUR. OF ENGINEERING & CONSTRUCTION

11/24/99

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

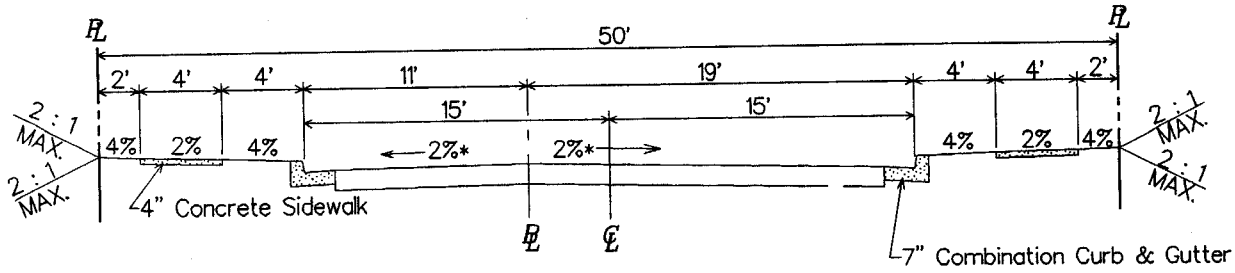
28' STREET ON 50' R/W

PARKING ALLOWED - ONE SIDE
AVERAGE DAILY TRAFFIC = 0 TO 200

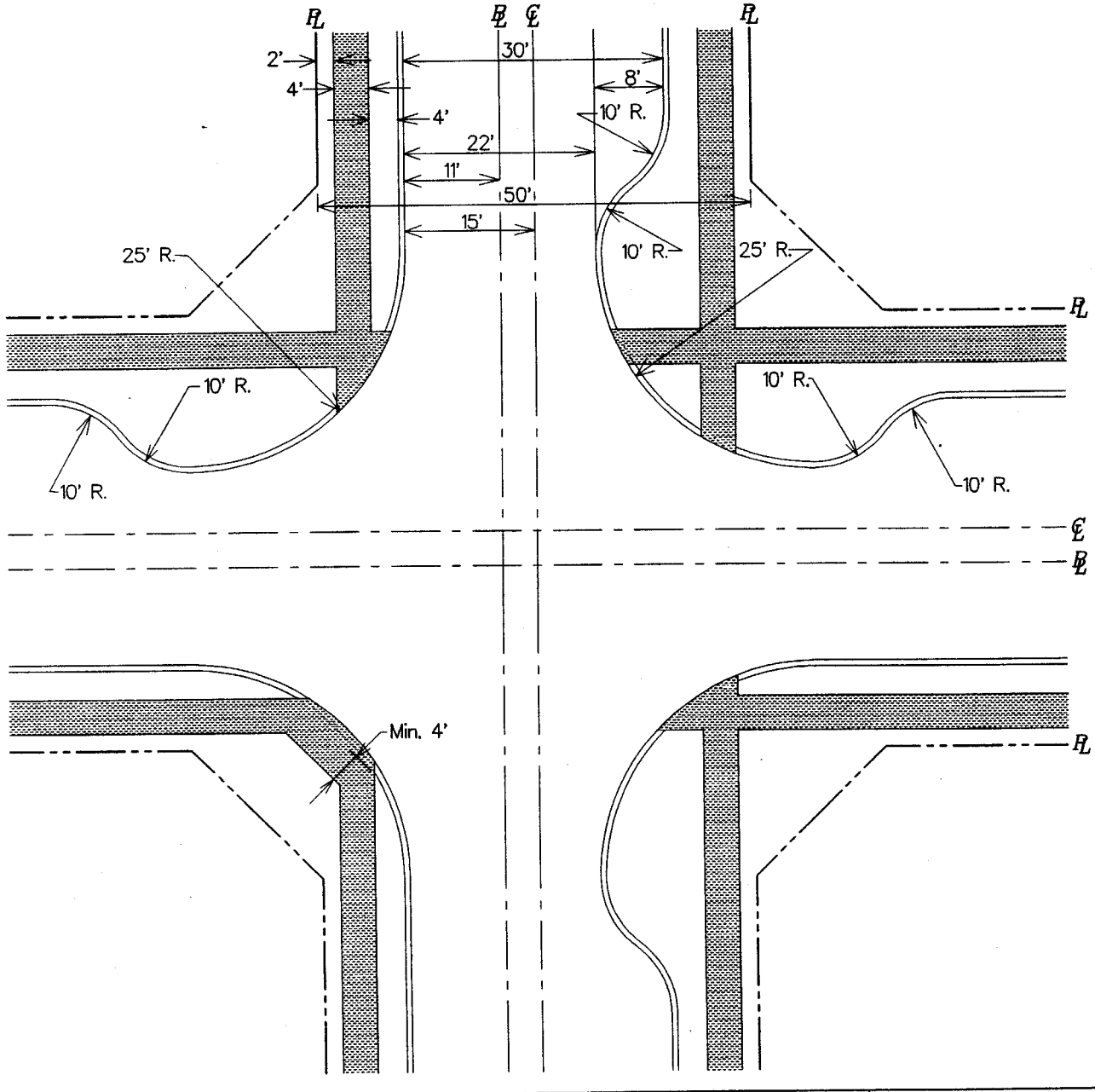
ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

R-12



* 2% Slope from ℄ for Hot Mix Asphalt Paving



APPROVAL

DIRECTOR

BUR. OF ENGINEERING & CONSTRUCTION

11/24/99

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

30' STREET ON 50' R/W

PARKING ALLOWED - ONE SIDE
AVERAGE DAILY TRAFFIC = 200 TO 1000

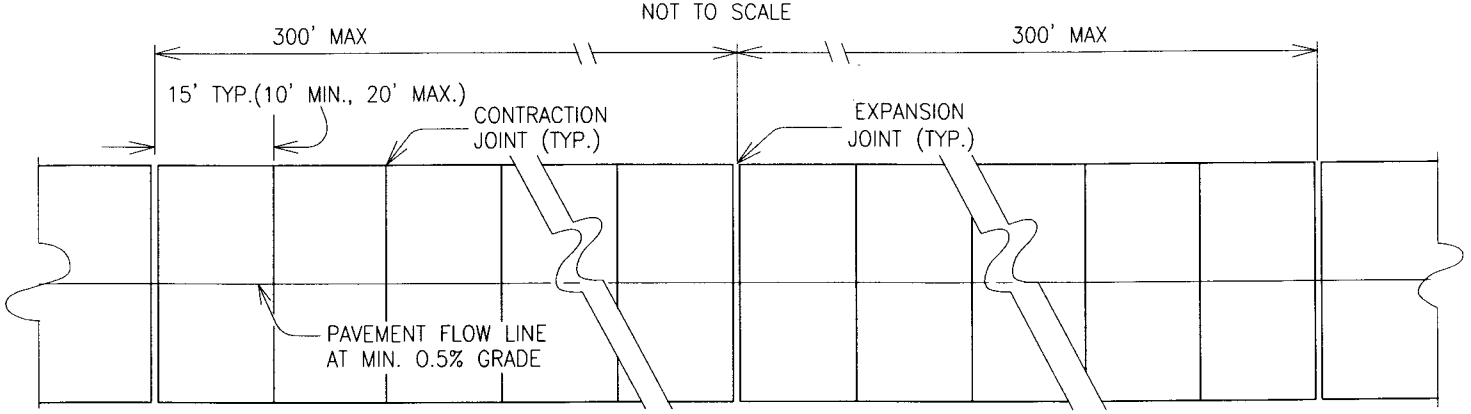
ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

R-13

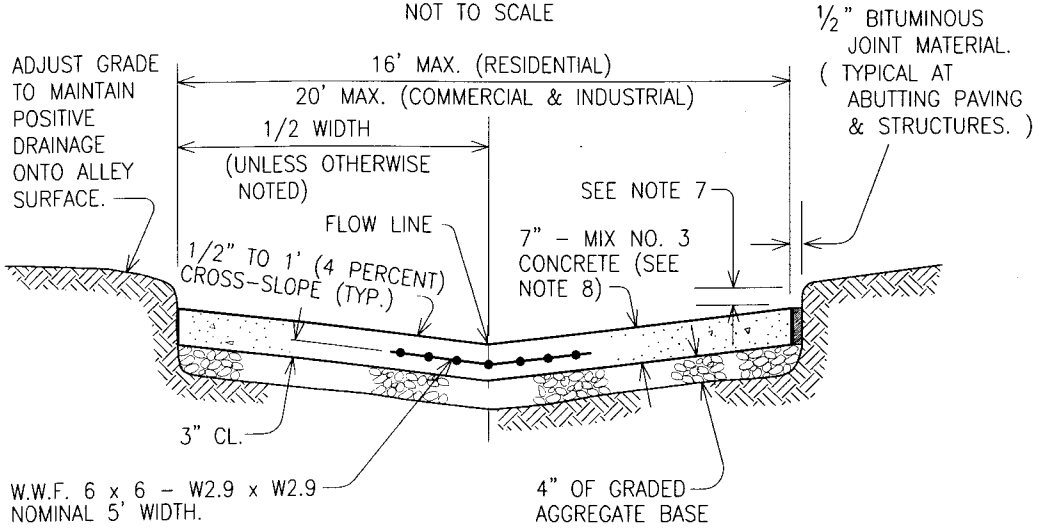
TYPICAL PAVING

NOT TO SCALE



TYPICAL SECTION

NOT TO SCALE



NOTES :

1. SUBGRADE SHALL BE APPROVED BY THE ENGINEER BEFORE STONE BASE COURSE IS PLACED.
2. EXPOSED CONCRETE EDGES, INCLUDING THOSE AT EXPANSION JOINTS, SHALL BE FINISHED TO A 1/4 " RADIUS.
3. ALL CONTRACTION JOINTS ARE SAWED WITHIN 24 HOURS. EVERY OTHER CONTRACTION JOINT MUST BE SAWED THE SAME DAY OF POUR.
4. REINFORCING WIRE MESH SHALL CONFORM TO AASHTO M55. CURING COMPOUND MUST BE WHITE PIGMENTED COMPOUND.
5. THE PAVEMENT'S FINISHED SURFACE TEXTURE SHALL BE A BROOMED FINISH. THE BROOM STROKES SHALL BE BROOMED FROM CENTERLINE OUT PERPENDICULAR TO THE ALLEY CENTERLINE AND SHALL EXTEND TO THE EDGES OF THE ALLEY.
6. REFER TO PLATES R-17 & R-18 FOR JOINT CONSTRUCTION DETAILS AND ALLEY ENTRANCE DETAILS.
7. 2" TYPICAL FOR FUTURE WEARING SURFACE (1" MAX. AT DRIVES).
8. LIMIT GROUND IRON BLAST FURNACE SLAG TO 35% MAXIMUM IN MIX NO. 3 CONCRETE.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06
DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

CONCRETE ALLEYS

ISSUED: OCTOBER 1977
REVISED: JUNE 1989
REVISED: NOVEMBER 2005

PLATE

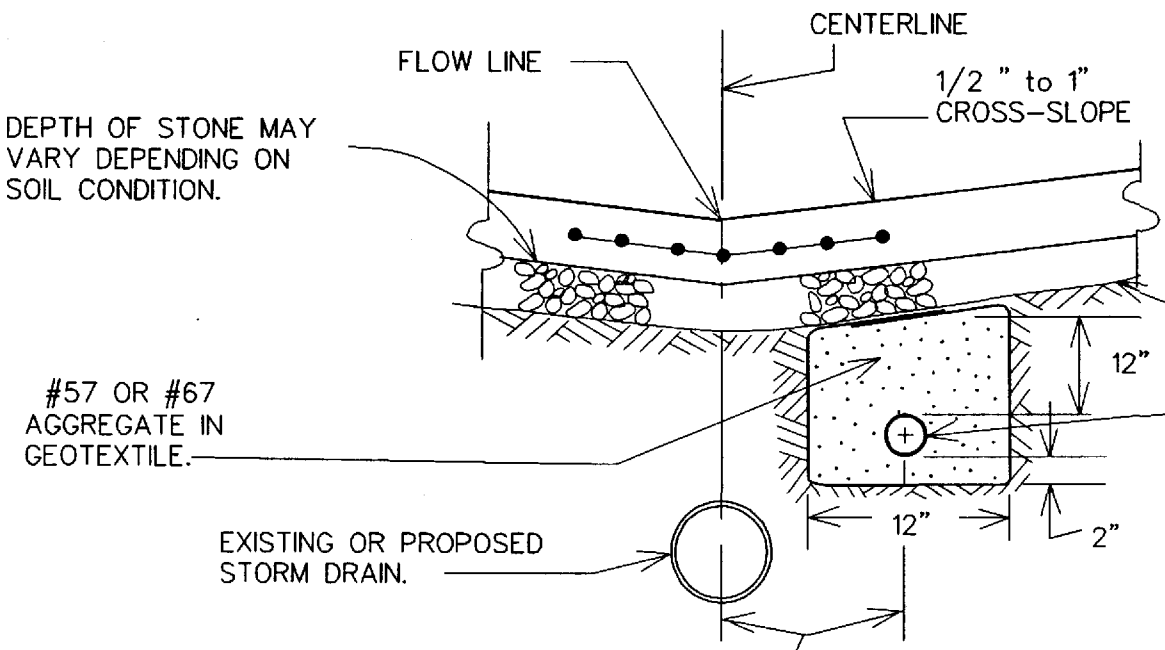
R-14

11/29/2005 3:44 PM

R-14.DWG

UNDERDRAIN DETAIL

NOT TO SCALE



PAYMENT PER L.F. OF UNDERDRAIN SHALL INCLUDE COSTS OF LABOR, EXCAVATION, BACKFILL, CONNECTION, EQUIPMENT & MATERIALS NECESSARY TO COMPLETE WORK AS SHOWN. PAYMENT FOR EXTRA DEPTH OF UNDERDRAIN IN EXCESS OF 12" BELOW LIMIT OF EXCAVATION TO BE CLASS 3 EXCAVATION.

NOTE :

A 4" UNDERDRAIN SHALL BE PLACED AT LOCATIONS AS DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS. UNDERDRAIN SHALL BE CONNECTED TO ALLEY INLET(S) AND BE MORTARED IN PLACE. MAINTAIN POSITIVE FLOW IN UNDERDRAIN. ENGINEER MAY DIRECT PLACEMENT OF UNDERDRAIN AT A GREATER DEPTH THAN SHOWN.

OFFSET= 0' IF NO STORM DRAIN AT CENTER LINE OF ALLEY.
OFFSET= 2' IF EXISTING OR PROPOSED STORM DRAIN AT CENTERLINE OF ALLEY, AS SHOWN ON PLAN OR AS DIRECTED BY ENGINEER IN THE FIELD.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING / CONSTRUCTION

11/24/99
DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

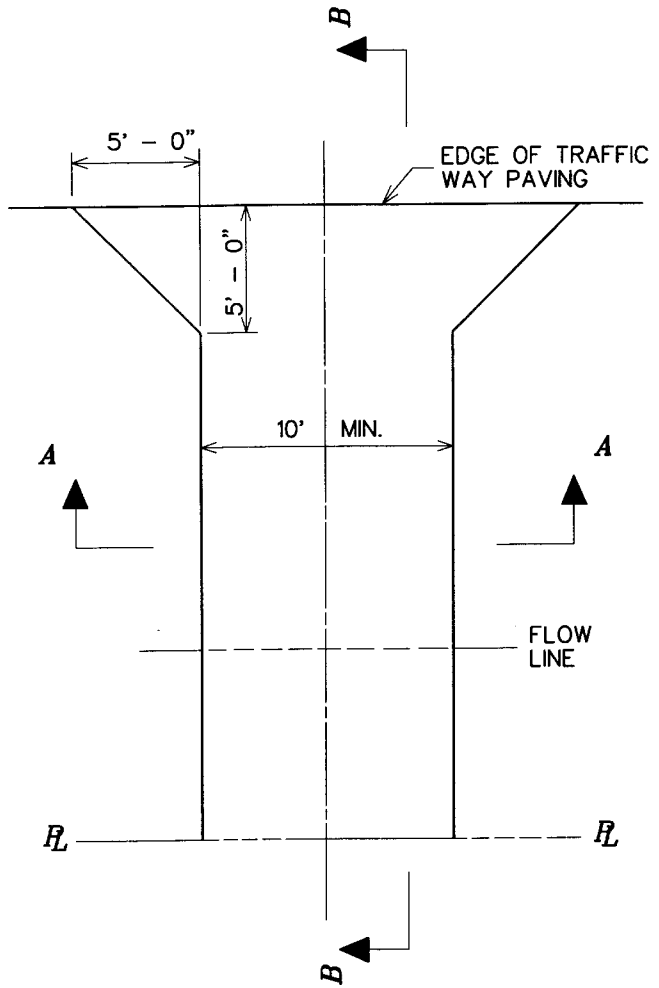
CONCRETE ALLEY DETAIL

ISSUED: AUGUST, 1997
REVISED:
REVISED:

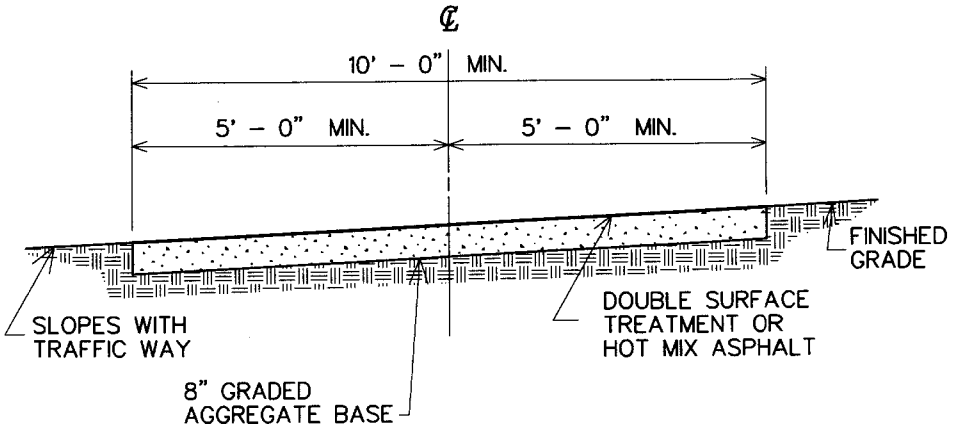
PLATE

R-14A

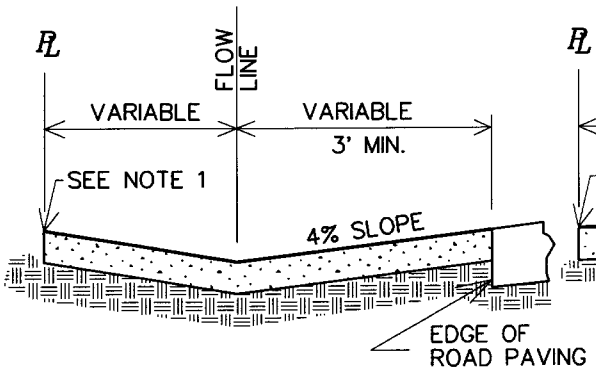
APRIL 1996 AAT / DAS



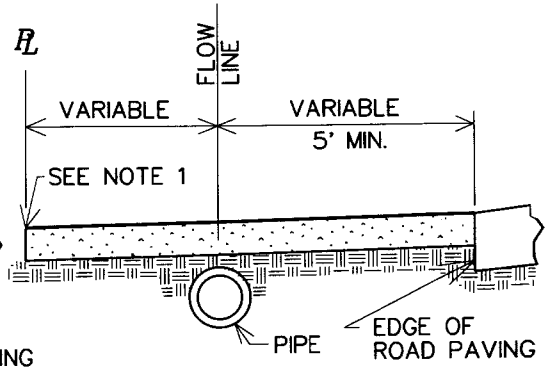
PLAN



SECTION A-A



SECTION B-B
WITH SWALE



SECTION B-B
WITH PIPE

NOTE 1: MATCH PROPOSED ROAD TYPICAL SECTION AT PROPERTY LINE. (SEE PLANS OR DESIGN MANUAL TYPICAL SECTION).

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING / CONSTRUCTION

10/23/97
DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

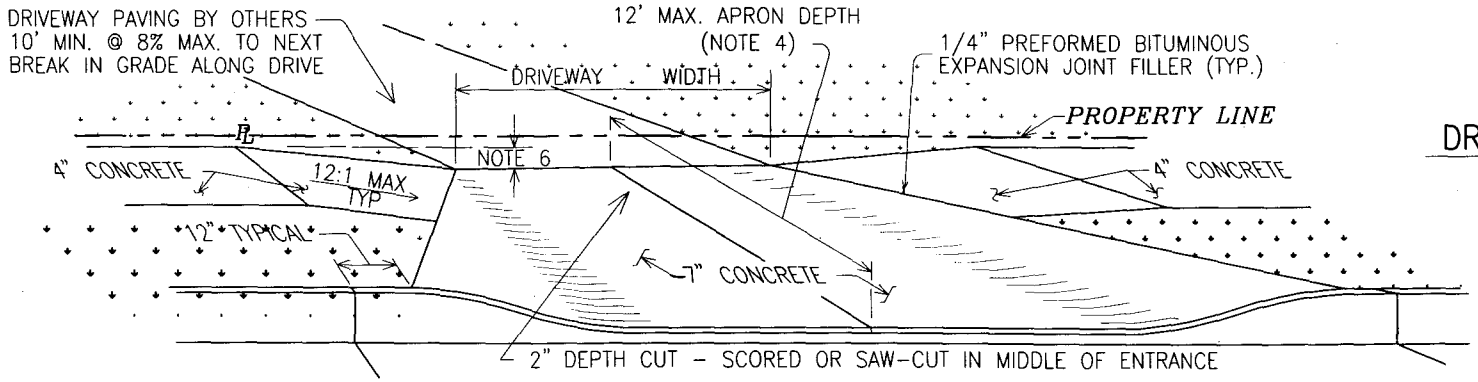
TYPICAL DRIVEWAY ENTRANCE
NO CURB AND GUTTER ALONG ROAD

ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

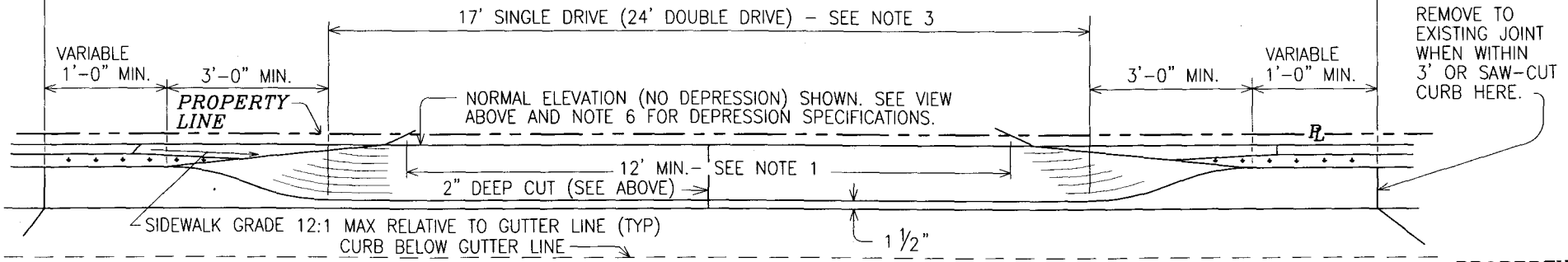
R-15

NOVEMBER 1980 DAB



DRIVEWAY ENTRANCE

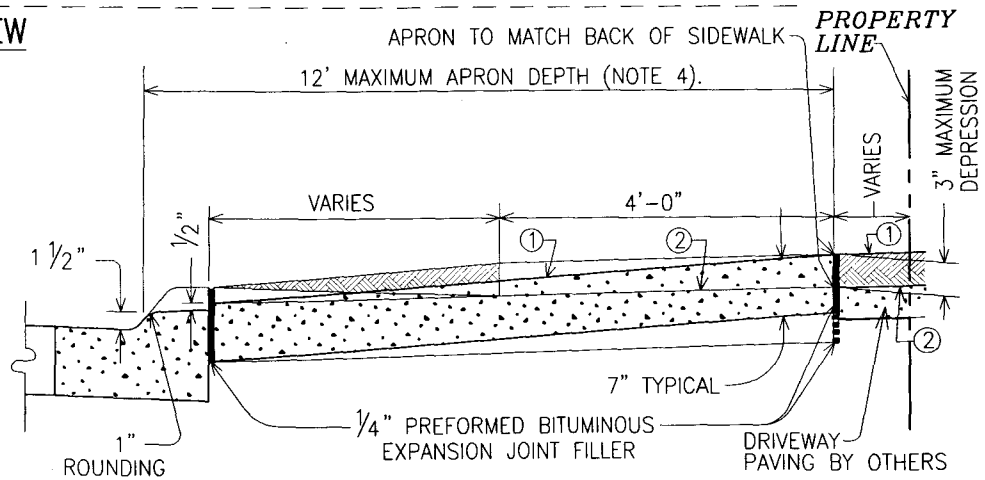
WHERE CURB & GUTTER EXIST- REMOVE & RECONSTRUCT CURB & GUTTER TO THE FIRST JOINT ON EITHER SIDE OR AS NOTED.



FRONT VIEW

NOTES

1. DOUBLE WIDTH OF DRIVEWAY PERMITTED AT REAR EDGE OF SIDEWALK WHERE SIDE BY SIDE PARKING SPACES ARE REQUIRED BY ZONING REGULATIONS. DOUBLE WIDTH OF DRIVEWAY: 20' MIN. , 24' MAX. AT PROPERTY LINE.
2. WHERE SIDEWALKS ARE NOT REQUIRED THE DRIVEWAY APRONS CAN BE 11" HOT MIX ASPHALT PAVING SECTION IN ACCORDANCE WITH PLATE R-1. USE CONCRETE MIX #2 OR #6 AS SHOWN ON PLANS. LIMIT GROUND IRON BLAST FURNACE SLAG TO 25% MAXIMUM FOR MIX #2 CONCRETE.
3. DEPRESSED CURB WIDTH FOR SINGLE DRIVE WIDTH MAY BE REDUCED TO 14' ALONG LOCAL RESIDENTIAL STREETS WHERE CURB LANE ISN'T USED (OR TO BE USED) AS A TRAFFIC LANE.
4. WHERE BACK-OF-SIDEWALK TO FACE OF CURB IS MORE THAN 12', THE CONCRETE APRON SHALL MEET DRIVEWAY WIDTH AT FRONT EDGE OF SIDEWALK.
5. APRON SLOPE MAY BE REDUCED TO 4% OR INCREASED TO 8% BASED ON GRADE BEYOND PROPERTY LINE WITH APPROVAL OF ENGINEER.
6. 3" MAXIMUM DEPRESSION TO BE USED WHEN GROUND SLOPES AWAY FROM ℄ OR WHEN BACK OF SIDEWALK IS LESS THAN 8' FROM FACE OF CURB.



SECTION- DRIVEWAY

① TOP, UNDEPRESSED DRIVE & APRON

② TOP, DEPRESSED DRIVE & APRON

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

TYPICAL DRIVEWAY ENTRANCE APRON

SIDEWALK TO CURB DISTANCE VARIES

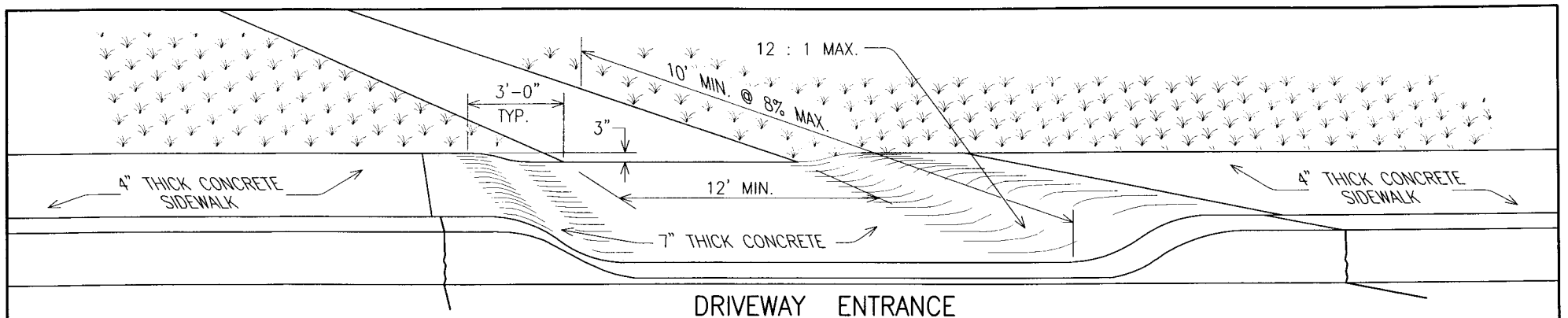
ISSUED: JANUARY 3, 1989
REVISED: JUNE 25, 1990
REVISED: NOVEMBER 2005

PLATE

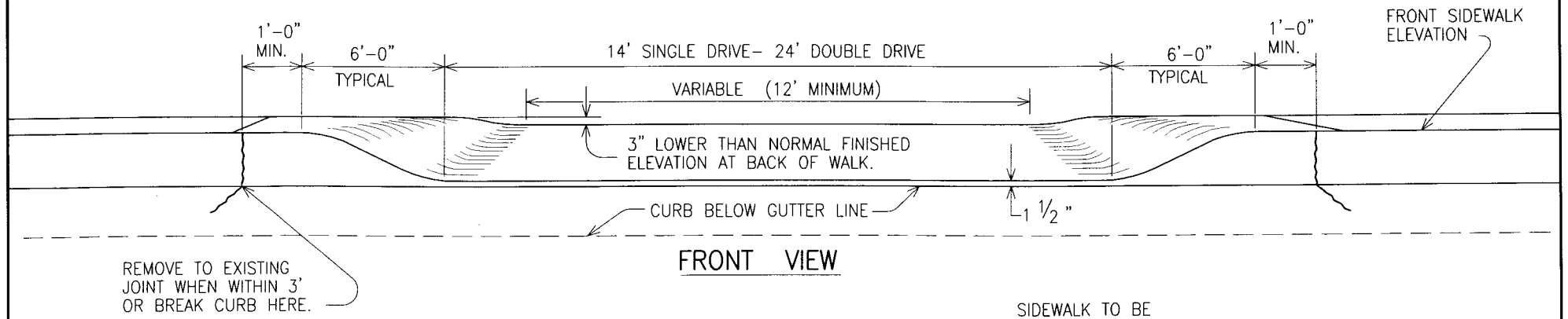
R-15A

11/29/2005 10:43 AM

R-15A.DWG



DRIVEWAY ENTRANCE

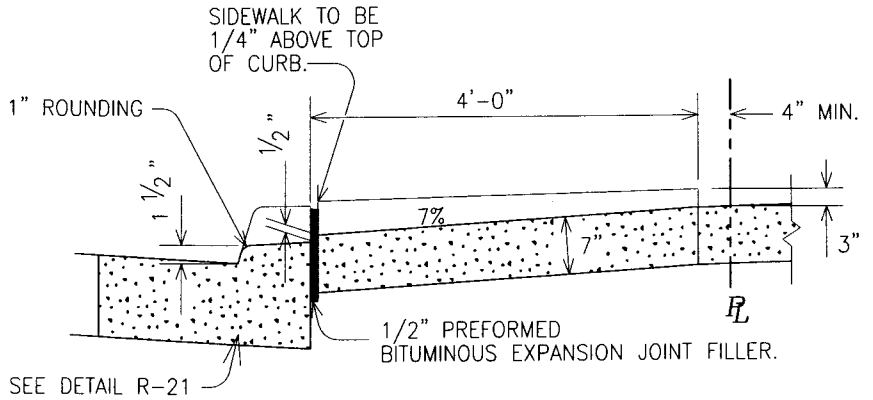


FRONT VIEW

NOTES:

1. CONCRETE TO BE MIX #2 OR MIX #6 AS SHOWN ON PLANS. LIMIT GROUND IRON BLAST FURNACE SLAG TO 25% MAXIMUM FOR MIX #2 CONCRETE.

2. WHERE SIDEWALKS ARE NOT REQUIRED, DRIVEWAY APRONS CAN BE AN 11" HOT MIX ASPHALT PAVING SECTION IN ACCORDANCE WITH PLATE R-1.



SECTION- DRIVEWAY

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06
DATE

DEPARTMENT OF PUBLIC WORKS

STANDARD ROAD & STREET DETAILS

TYPICAL DRIVEWAY ENTRANCE

SIDEWALK ADJACENT TO CURB

ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: DECEMBER, 2005

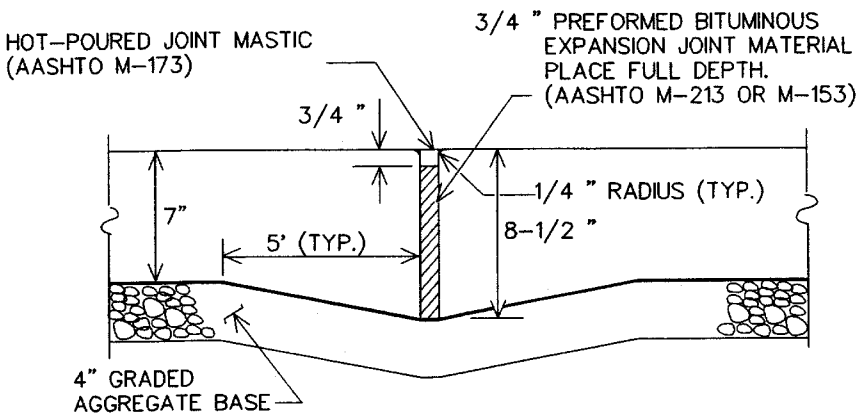
PLATE

R-15B

12/6/2005 2:36 PM

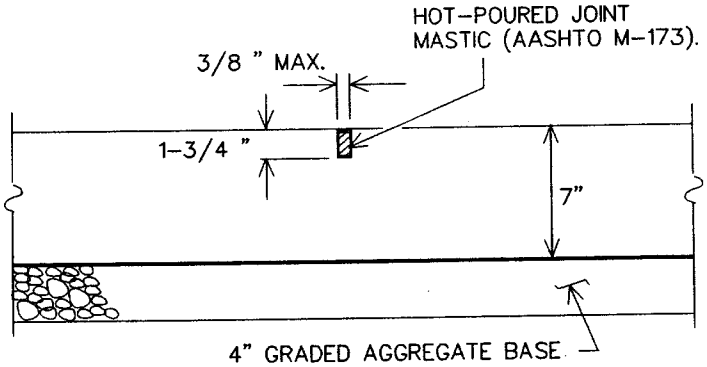
R-15B.DWG

EXPANSION JOINT (THICKENED END)

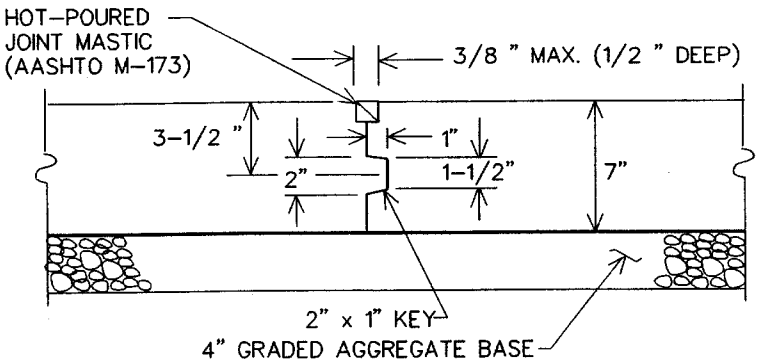


EXPANSION JOINTS SHALL BE PROVIDED AT ALL OVERVERTICALS, AT ALL ANGLE BREAKS > 10 °AND AT REAR OF ALLEY ENTRANCE.

CONTRACTION JOINT

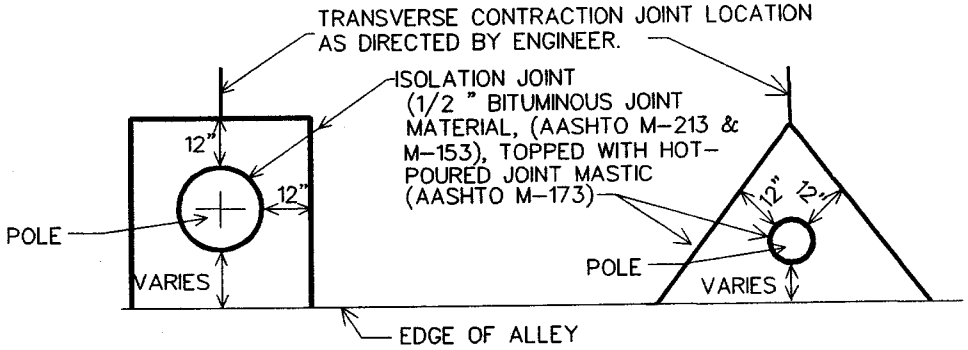


1. CONTRACTION JOINTS MAY NOT INTERSECT.
2. SPACE JOINTS AT APPROXIMATELY EVEN INTERVALS.



CONSTRUCTION JOINTS SHALL BE LOCATED AT CONTRACTION OR EXPANSION JOINT LOCATIONS; SHALL NOT BE CLOSER THAN 10' TO ANY OTHER JOINTS AND SHALL NOT BE PLACED LONGITUDINALLY.

CONSTRUCTION JOINT



MANHOLES & OTHER OBSTRUCTIONS SHOULD BE TREATED SIMILARLY. IF POSSIBLE, SPACE CONTRACTION JOINTS TO COINCIDE WITH OBSTRUCTIONS IN PAVING. SAW JOINTS AT OBSTRUCTIONS ON THE SAME DAY AS POUR.

OBSTRUCTION ISOLATION DETAIL

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

1/24/1979

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

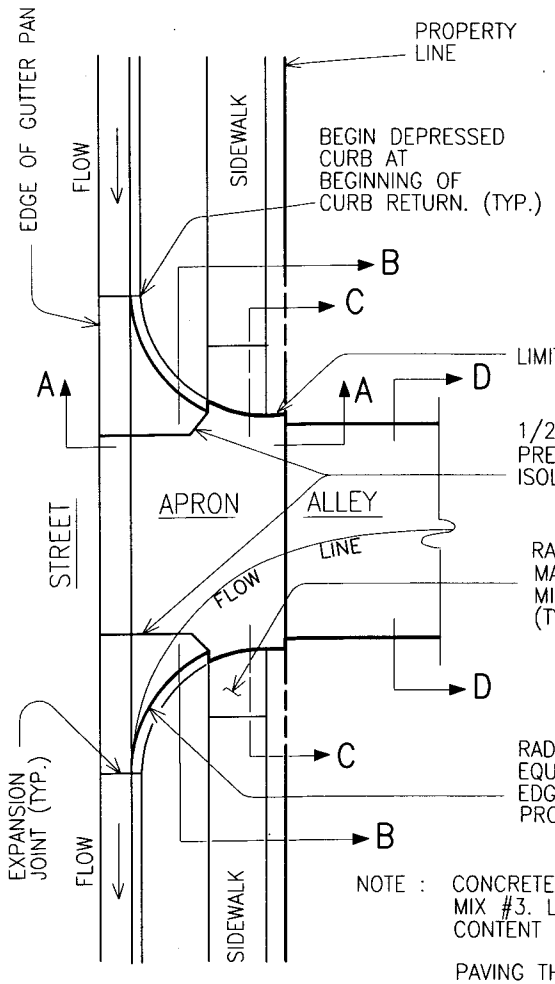
CONCRETE ALLEY JOINTS

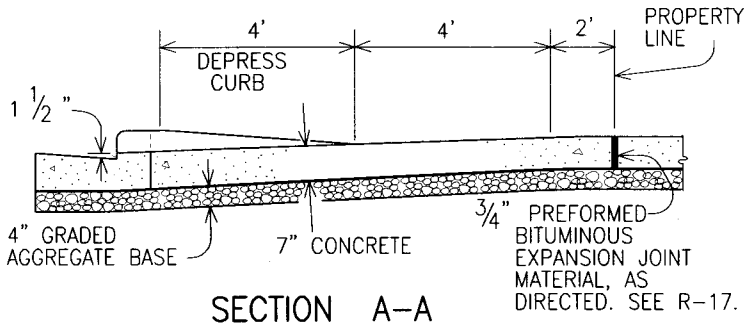
ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

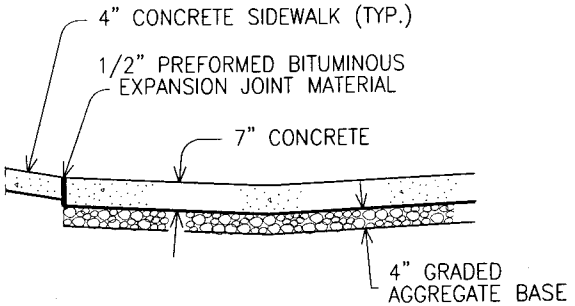
R-17

APRIL 1986 1AY / 3A3





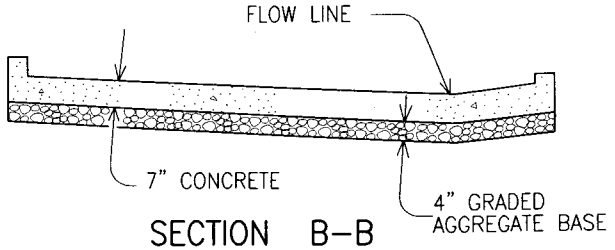
SECTION A–A



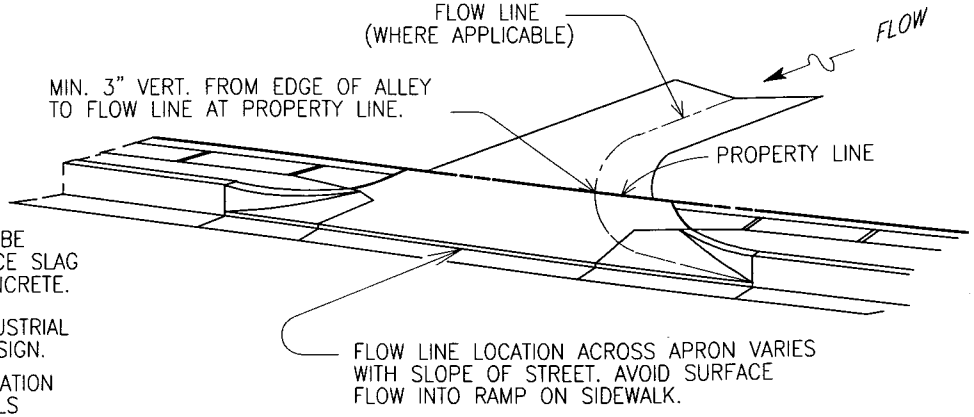
SECTION C–C

SECTION D–D

SEE NORMAL ALLEY SECTION AS SHOWN ON STANDARD DETAIL R-14.



SECTION B–B



NOTE : CONCRETE FOR ALLEY APRON & CURB TO BE MIX #3. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM IN MIX #3 CONCRETE.

PAVING THICKNESS OF COMMERCIAL & INDUSTRIAL ALLEYS SUBJECT TO SPECIFIC PROJECT DESIGN.

FOR REHABILITATION PROJECTS, MATCH LOCATION OF SIDEWALK IN FIELD. SEE SPECIAL DETAILS ON REHABILITATION PROJECTS.

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

DATE 2-22-06

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

ALLEY ENTRANCE

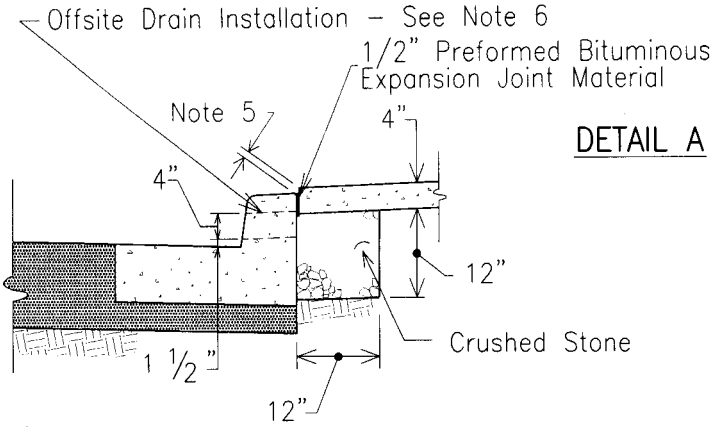
ISSUED: OCTOBER 1977
REVISED: MARCH 1983
REVISED: NOVEMBER, 2005

PLATE

R–18

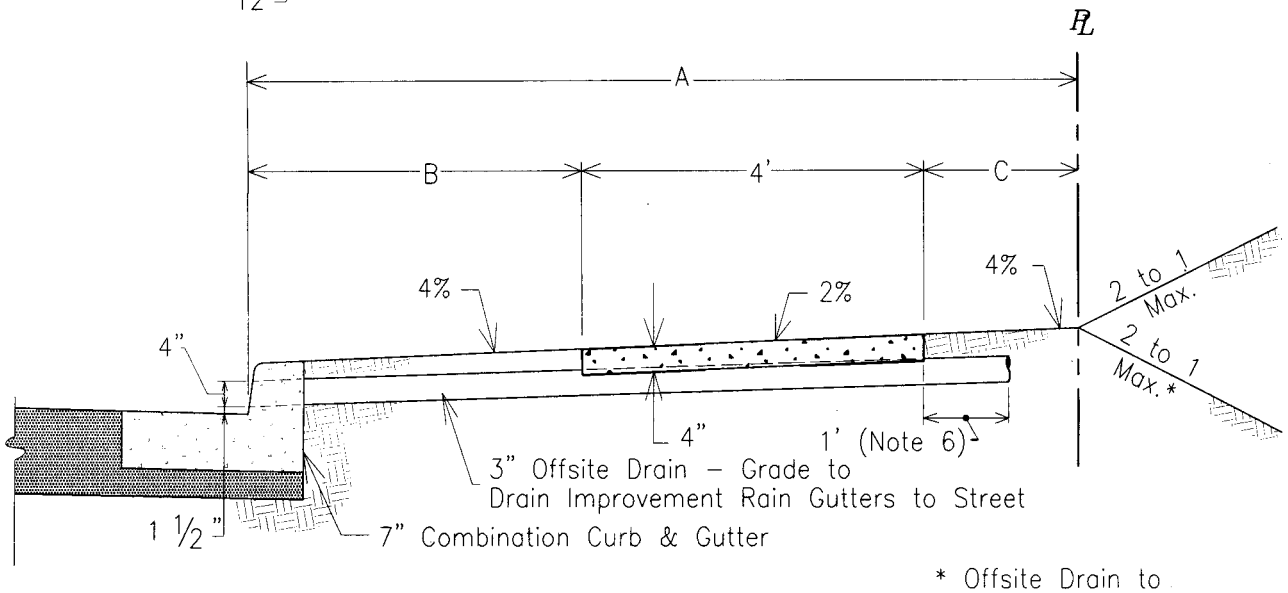
11/29/2005 4:06 PM

R-18.DWG



DETAIL A

A	B	C
9' & Over	Varies	2'
8'	See Detail A	3'–4"
7'	See Detail A	2'–4"
6'	See Detail A	1'–4"
5'	See Detail A	0'–4"



* Offsite Drain to Street not Used. (Improvements Drained Elsewhere)

NOTES

1. Sidewalk to be scribed in 4 foot squares.
2. Expansion joints across sidewalk shall be not more than 16 feet apart.
3. Top of 1/2" Preformed bituminous expansion joint material to be 1/4" below sidewalk surface.
4. Mix #2 Concrete with 25% or less Ground Iron Blast Furnace Slag to be used for sidewalks, unless otherwise specified on plans.
5. When sidewalk abuts curb, sidewalk shall be 1/4" above curb with 1/2" prefabricated bituminous expansion joint or 1/4" felt between curb & sidewalk & resting on a compacted crushed stone base. See Detail A this sheet.
6. Offsite drain to be 3" diameter plastic pipe to 1 foot behind sidewalk.
7. Obstructions in sidewalk area such as meter frames, utility poles, hydrants, etc. shall be isolated with a 1/2" thick bituminous isolation joint about their periphery or as shown on Detail R–17. Isolation joint shall extend through 4" sidewalk.

BALTIMORE COUNTY MARYLAND

APPROVAL
DIRECTOR
BUR. OF ENGINEERING/CONSTRUCTION
3-22-06
DATE

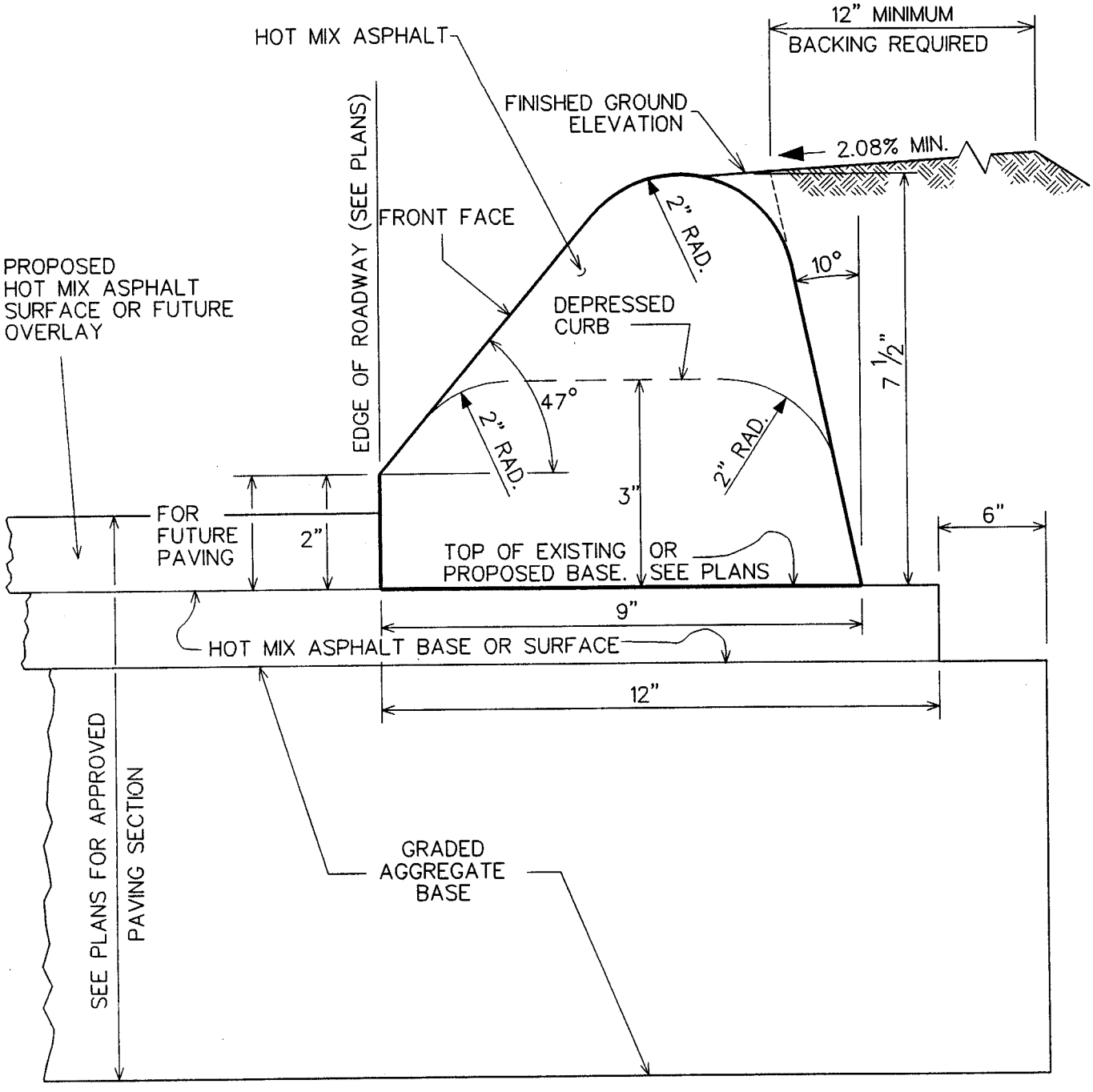
DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

STANDARD 4 FOOT SIDEWALK

ISSUED: OCTOBER, 1977
REVISED: AUGUST, 1997
REVISED: JUNE, 2005

PLATE
R–19

R-19.DWG



BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

11/24/1997

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

HOT MIX ASPHALT (HMA) MOUNTABLE CURB

ISSUED: OCTOBER 1977

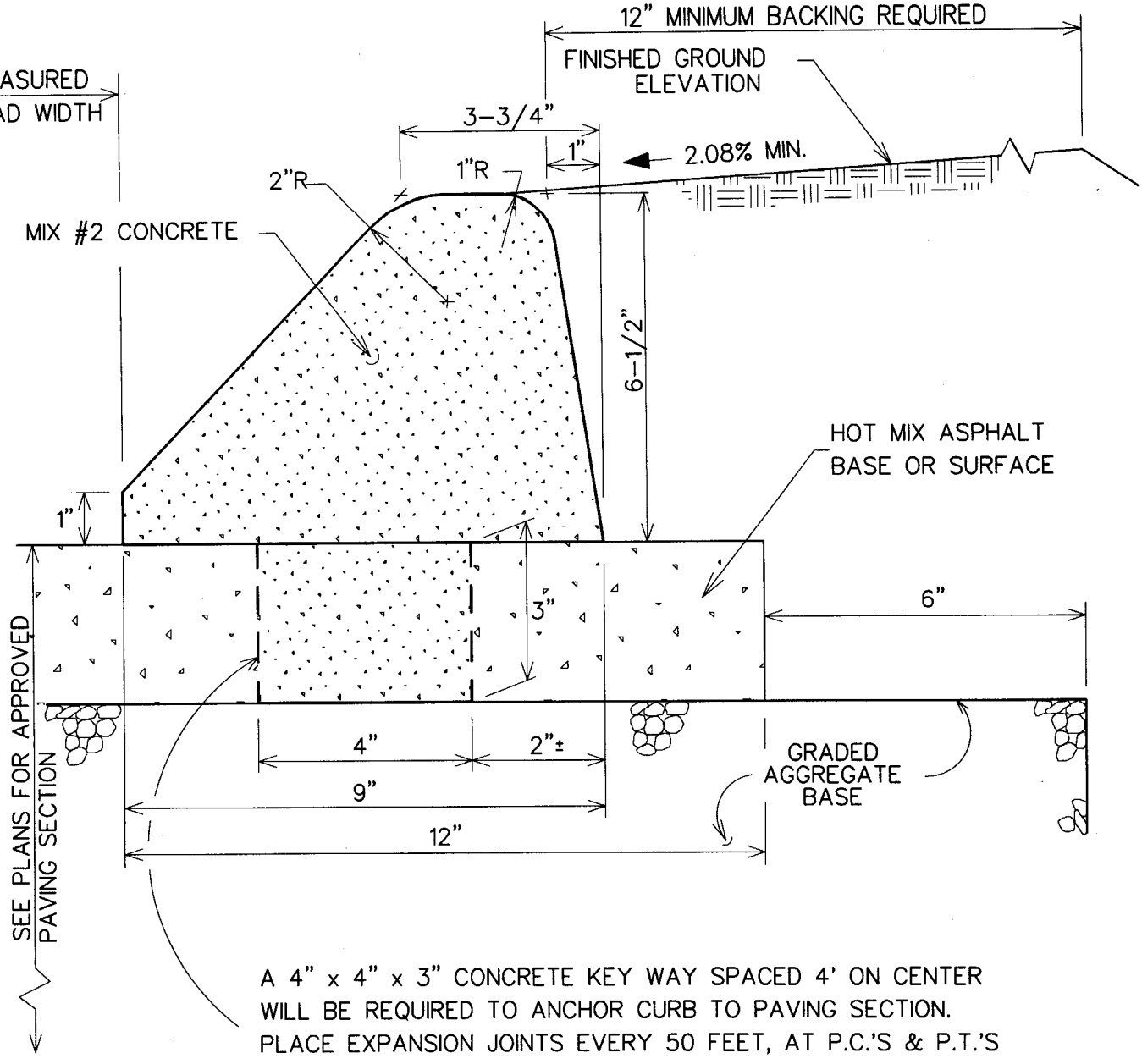
REVISED: AUGUST 1997

REVISED:

PLATE

R-20A

REV. FEBRUARY 1998 J.A.V.



A 4" x 4" x 3" CONCRETE KEY WAY SPACED 4' ON CENTER WILL BE REQUIRED TO ANCHOR CURB TO PAVING SECTION. PLACE EXPANSION JOINTS EVERY 50 FEET, AT P.C.'S & P.T.'S OF ALL CURVES AND 5' FROM INLET HEADPIECES. TRANSITION CURB SECTION TO MATCH HEADPIECE WITHIN THIS 5' DISTANCE.

NOTES

FOR USE ALONG OPEN SECTION ROADS AS AN ALTERNATE TO HOT MIX ASPHALT MOUNTABLE CURB (DETAIL R-20A).

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

EXTRUDED CONCRETE MOUNTABLE CURB

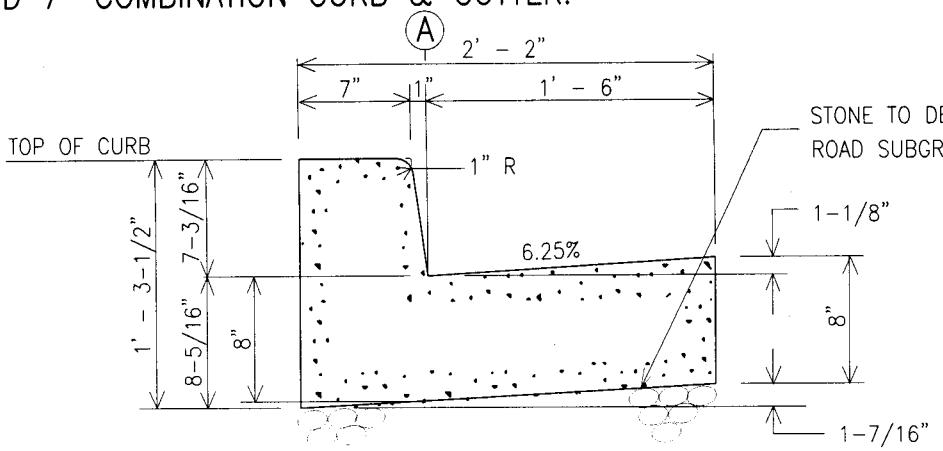
ISSUED: AUGUST 1997
REVISED:
REVISED:

PLATE

R-20B

JANUARY 1997 DAS

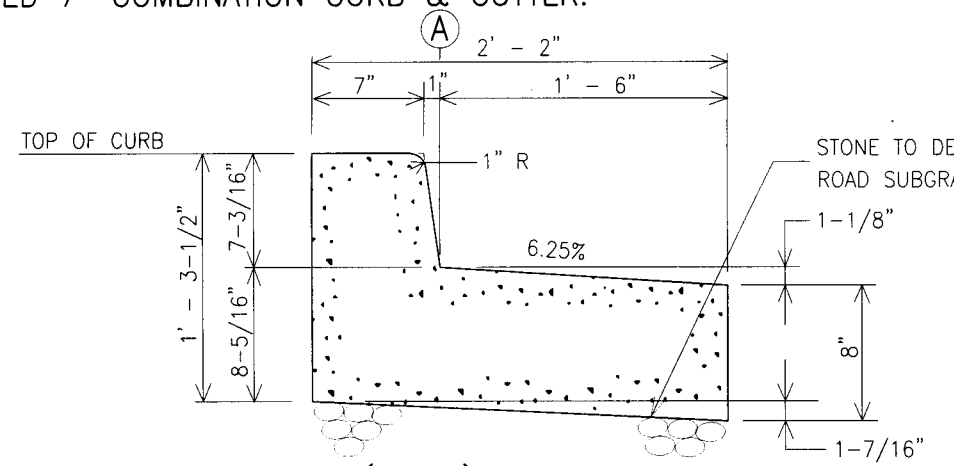
STANDARD 7" COMBINATION CURB & GUTTER:



AREA = 0.20 S.Y.

15.0± L.F./C.Y.

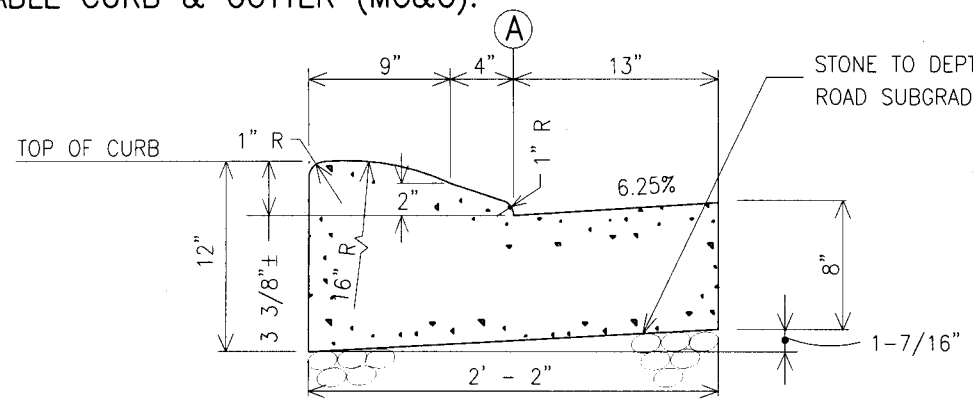
REVERSED 7" COMBINATION CURB & GUTTER:



AREA = 0.20 S.Y.

15.0± L.F./C.Y.

MOUNTABLE CURB & GUTTER (MC&G):



AREA = 0.19 S.Y.

16.0± L.F./C.Y.

NOTES:

1. TRANSITION MC&G TO STANDARD 7" COMBINATION CURB & GUTTER OR TO STANDARD COMBINATION INLET CURB PIECE THROUGH 4 LINEAR FEET. VARY INLET HEADPIECE TOP ELEVATION AS REQUIRED TO MAINTAIN FLOW LINE.
2. MIX #2 CONCRETE WITH 25% OR LESS GROUND IRON BLAST FURNACE SLAG UNLESS OTHERWISE SPECIFIED ON PLANS.
3. THIS DETAIL INCORPORATES FORMER DETAILS R-21 AND R-21A.
4. MC&G SHALL NOT BE USED WHERE SIDEWALK IS TO BE PLACED ADJACENT TO THE CURB.

(A) FACE OF CURB & FACE OF INLET CURB PIECE

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

CONCRETE COMBINATION CURB AND GUTTER

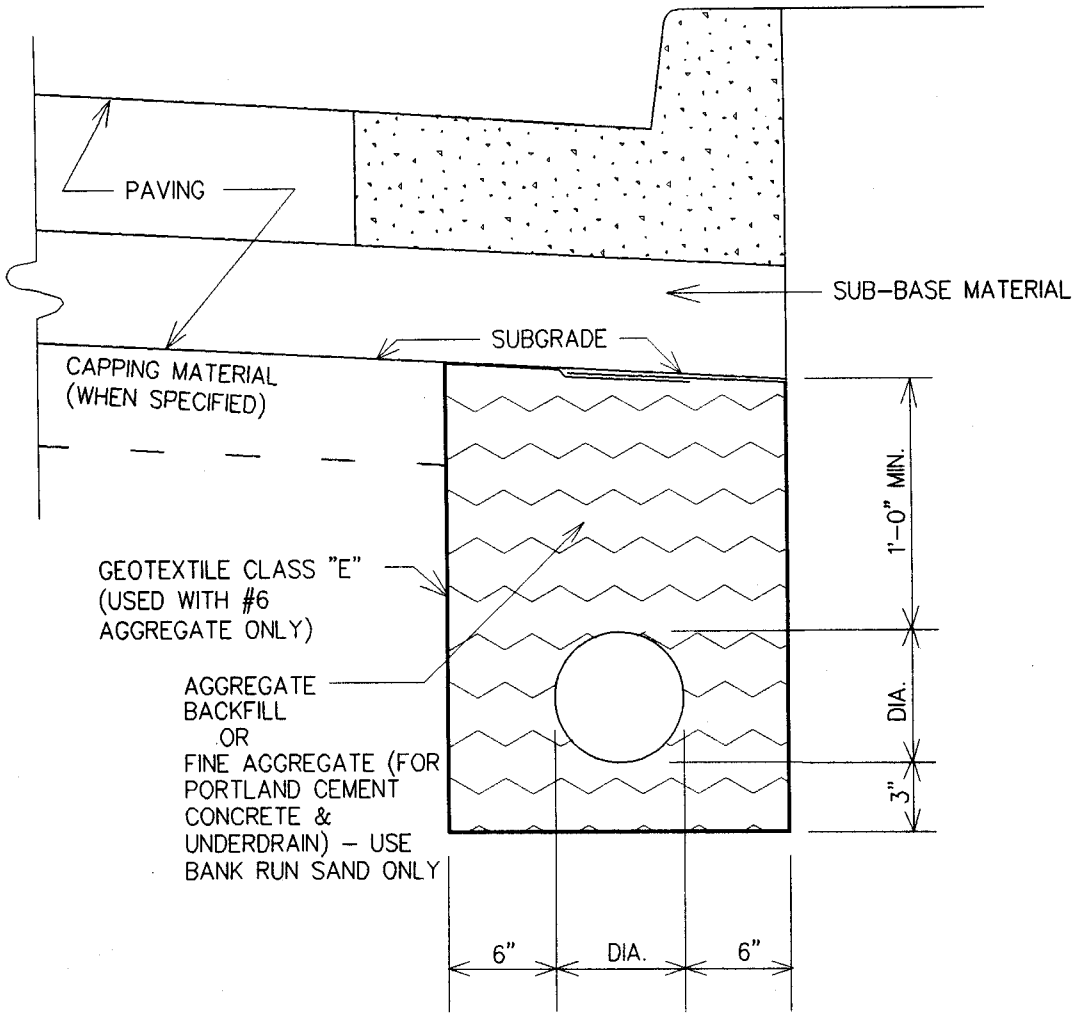
ISSUED: OCTOBER 1977
REVISED: MAY 1985
REVISED: JUNE 2005

PLATE

R-21

6/22/2005 3:52 PM

P_21.DWG



1. AGGREGATE BACKFILL SHALL BE FINE AGGREGATE (FOR PORTLAND CEMENT CONCRETE AND UNDERDRAIN) OR NO. 6 AGGREGATE, COMPLETELY WRAPPED WITHIN FILTER FABRIC (GEOTEXTILE CLASS "E").
2. MINIMUM GRADE OF UNDERDRAIN SHALL BE 0.5%.
3. "STANDARD DEPTH" UNDERDRAIN SHALL BE ONE FOOT FROM TOP OF PIPE TO SUB-GRADE.
4. THE CROWN OF UNDERDRAIN PIPE SHALL BE AT, OR LOWER THAN THE LOWER LIMIT OF CAPPING MATERIAL WHEN SPECIFIED.

BALTIMORE COUNTY MARYLAND

APPROVED
DIRECTOR
BUR. OF ENGINEERING/CONSTRUCTION
12/4/01
DATE

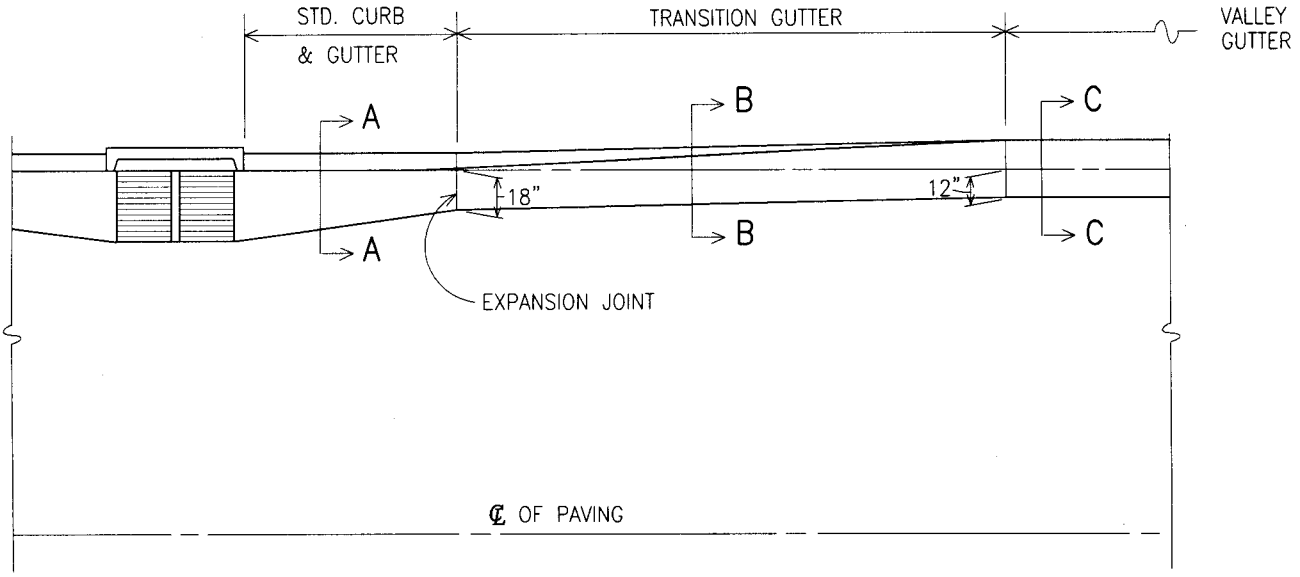
DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

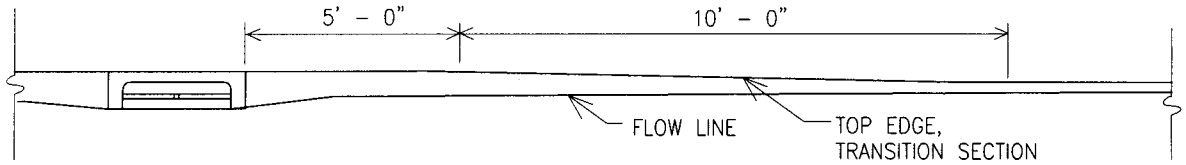
TYPICAL UNDERDRAIN
FOR PAVED STREETS

ISSUED: OCTOBER, 1977
REVISED: OCTOBER, 2001
REVISED:

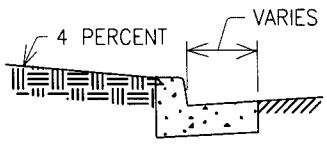
PLATE
R-22



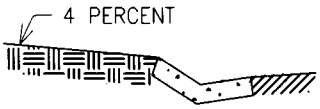
PLAN



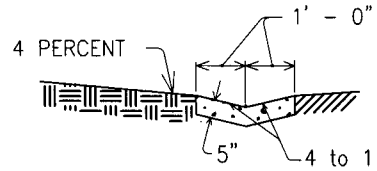
ELEVATION



SECTION A – A



SECTION B – B



SECTION C – C

NOTES

1. WHEN TYPE "S" INLETS ARE USED, AN ADDITIONAL FILLET WILL BE REQUIRED TO TIE WITH EDGE OF GRATE.
2. SECTION B – B IS VARIABLE.
3. USE MIX #2 OR MIX #6 CONCRETE. LIMIT GROUND IRON BLAST FURNACE SLAG TO 25% MAXIMUM FOR MIX #2 CONCRETE.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

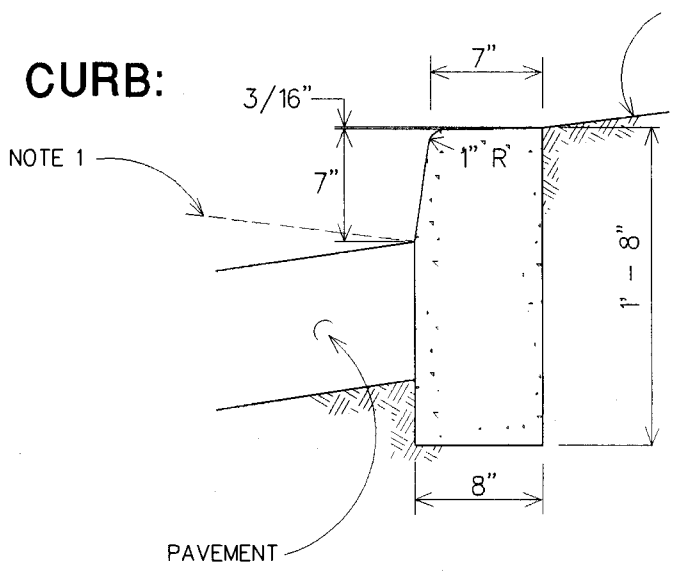
CONCRETE VALLEY GUTTER TRANSITION TO CURB & GUTTER

ISSUED: OCTOBER, 1977
REVISED: AUGUST, 1997
REVISED: NOVEMBER, 2005

PLATE
R-23

11/29/2005 10:45 AM
R-23.DWG

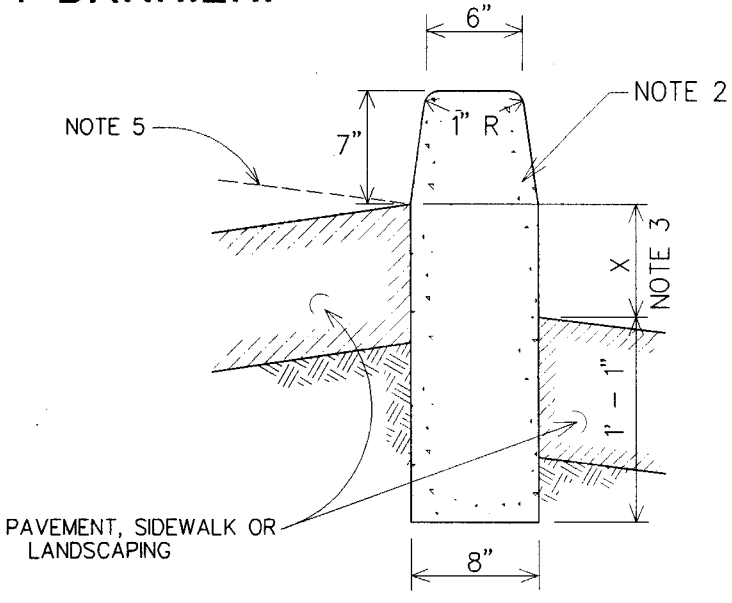
TYPE A CURB:



AREA = 0.12 S.Y.

25± L.F./C.Y.

TYPE A-1 BARRIER:



NOTES:

1. CURB & GUTTER TO BE USED WHERE STORM WATER WILL COLLECT AT FACE OF CURB EXCEPT AS DIRECTED BY THE ENGINEER.
2. MIX #2 OR MIX #6 CONCRETE AS DIRECTED ON PLANS.
3. SPECIAL DESIGN AS RETAINING WALL WHERE THIS DIMENSION EXCEEDS 18 INCHES. THIS BARRIER IS FOR USE ONLY IN OFF-STREET AREAS WHERE VEHICLE SPEEDS ARE MINIMAL.
4. MdSHA TYPE A CURB (MD620.02) TO BE USED WITHIN MdSHA RIGHT OF WAY.
5. WHERE GRADING IS TOWARD WALL, PROVIDE UNDERDRAINAGE & STONE BACKFILL ALONG WALL PER DETAIL D-1.00 WITH SUITABLE OUTFALL. TENAX TENDRAIN® OR EQUIVALENT MAY BE USED IN THIS APPLICATION.

APPROVAL

DIRECTOR

William Kopman

BUR. OF ENGINEERING/CONSTRUCTION

12/20/02

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

CONCRETE CURB

ISSUED: JANUARY 1999

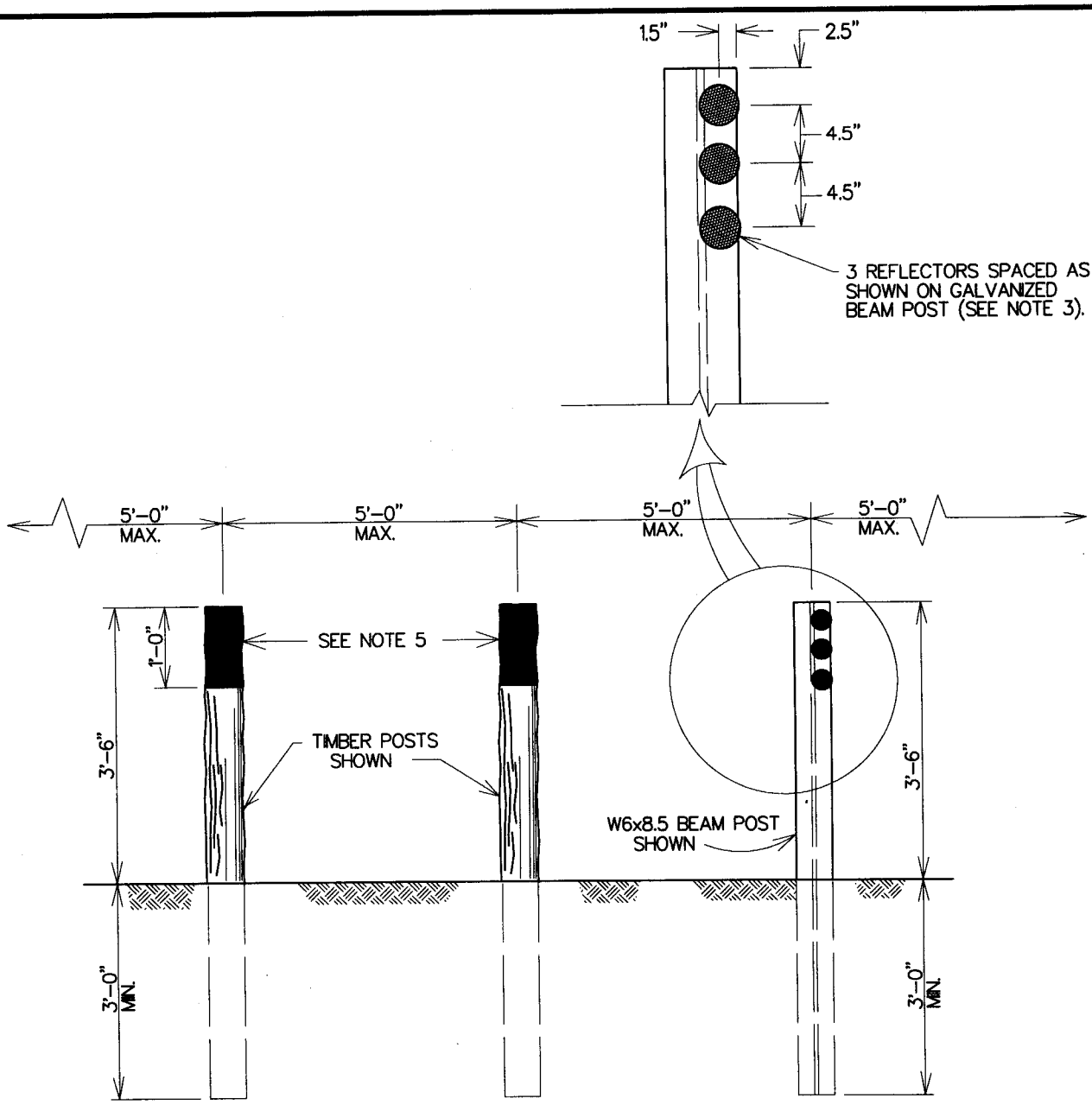
REVISED:

REVISED:

PLATE

R-24

MAY 1995 DYK



NOTES:

1. TIMBER POSTS SHALL BE PRESSURE-TREATED (AASHTO M-133) 7" MINIMUM DIAMETER, OR
2. WF BEAMS SHALL BE USED AS ALTERNATE IF SPECIFIED OR IF SELECTED BY THE CONTRACTOR. USE A 6'-6" LONG HOT-DIP GALVANIZED (ASTM A-123) W6x8.5 BEAM AS ALTERNATE.
3. REFLECTORS SHALL BE CENTER-MOUNT ACRYLIC REFLECTORS IN AN ALUMINUM HOUSING; RED #310 MICRO-FLEX OR APPROVED EQUIVALENT.
4. TIMBER POSTS AND ALTERNATE BEAM POSTS SHALL NOT BE USED ON THE SAME SITE.
5. PLACE EITHER REFLECTOR BUTTONS OR APPLY TRAFFIC PAINT GLASS BEADS TO THE TOP 12 INCHES OF WOODEN POSTS.
6. REFLECTORS SHALL BE INSTALLED USING TAMPER-RESISTANT HARDWARE.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

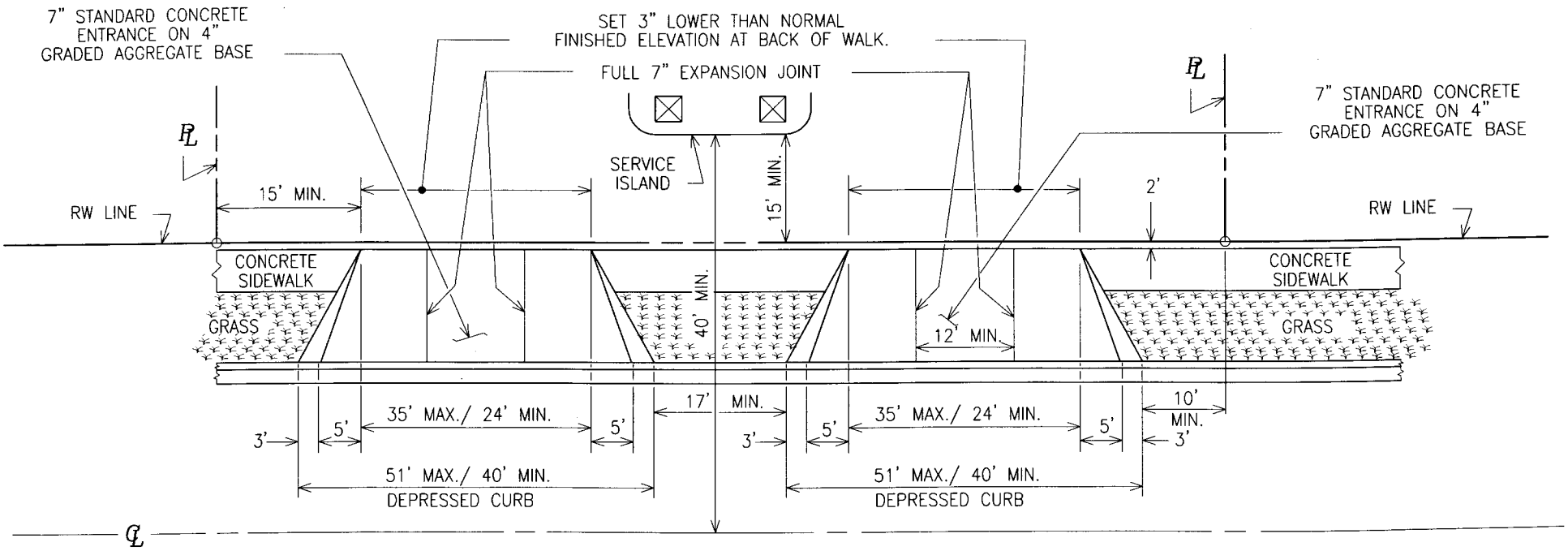
TEMPORARY DEAD-END BARRICADES

ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

R-27

JANUARY, 1996 DAB



SERVICE STATION ENTRANCE STANDARD

1. SKEWED ENTRANCES WILL BE PERMITTED ONLY ON DIVIDED HIGHWAYS.
2. NO ENTRANCES WILL BE PERMITTED BETWEEN P.C. AND P.T. OF CURB RETURN AT ANY INTERSECTION.
3. ALL PERMANENT SIGN AND LIGHT FIXTURES SHALL BE OUTSIDE THE COUNTY RIGHT OF WAY.
4. WHERE THE DISTANCE FROM THE FACE OF CURB TO THE PROPERTY LINE IS LESS THAN 10' SLOPE FINISHED GRADE OF ENTRANCE PAVING AT 8% MAXIMUM FOR A MINIMUM OF 10 FT.
5. PLACE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL ALONG REAR OF DEPRESSED CURB AT EDGE OF 7" STANDARD CONCRETE ENTRANCE. CONSTRUCT DEPRESSED CURB WITH 1-1/2" LIP AT GUTTER.
6. CONCRETE TO BE MIX NO. 3 OR MIX NO. 6 AS DIRECTED BY THE ENGINEER. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM WHEN MIX #3 IS USED.
7. ONLY ONE ENTRANCE ALLOWED WHEN FRONTAGE IS LESS THAN 108 FT. , MINIMUM FRONTAGE IS 90 FT.
8. WHERE CURB & GUTTER EXIST, REMOVE COMPLETELY TO THE FIRST CONSTRUCTION JOINT EACH SIDE OF THE PROPOSED ENTRANCE. USE EXISTING EDGE OF ROAD FOR GRADE GUIDANCE AS DIRECTED. JOINT WHERE GUTTER MEETS PAVEMENT TO BE FINISHED WITH A STANDARD EDGING TOOL.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

SERVICE STATION

ENTRANCE CHANNELIZATION

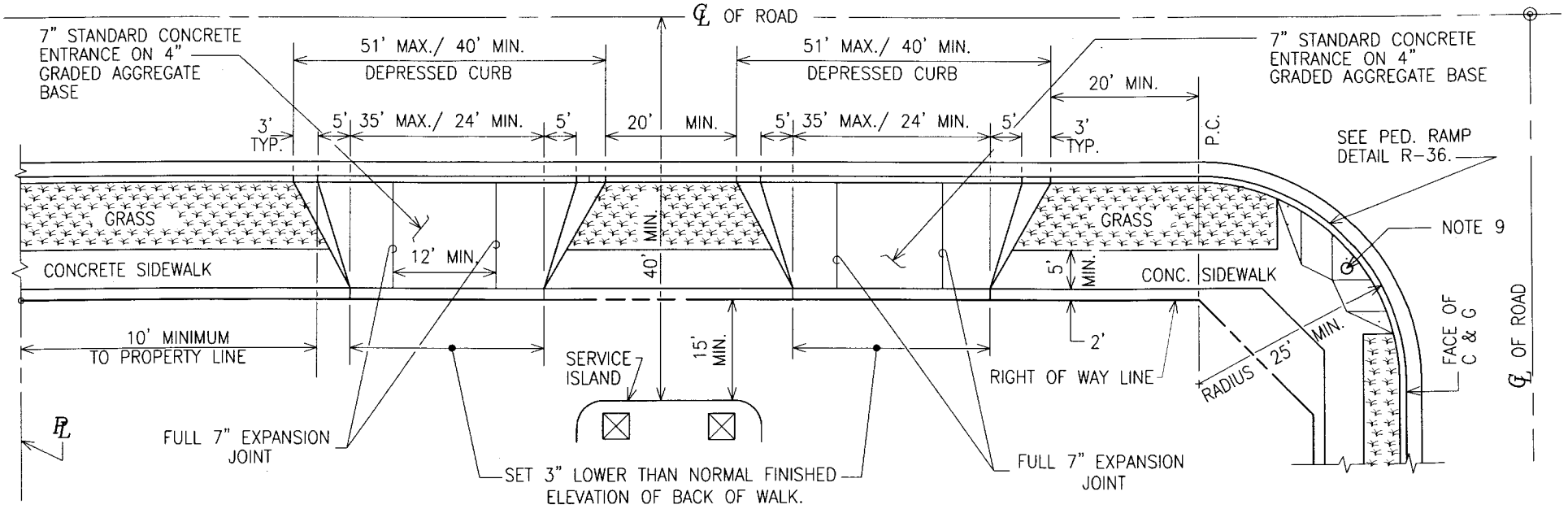
ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: NOVEMBER, 2005

PLATE

R-28

11/29/2005 10:45 AM

R-28.DWG



NOTES :

1. SKEWED ENTRANCES WILL BE PERMITTED ONLY ON DIVIDED HIGHWAYS.
2. NO ENTRANCES WILL BE PERMITTED BETWEEN P.C. AND P.T. OF CURB RETURN AT ANY INTERSECTION.
3. AT AN INTERSECTION OF TRAFFIC WAYS, OTHER THAN ALLEYS, THE CUTBACK OF THE PROPERTY LINE NORMALLY SHALL BE A CHORD CONNECTING THE POINTS ON THE PROPERTY LINE DIRECTLY OPPOSITE THE P.C. AND P.T. OF CURB RETURNS OR EDGE OF PAVEMENT RETURN 10' MINIMUM. ALL PERMANENT SIGNS AND LIGHT FIXTURES SHALL BE OUTSIDE OF THE COUNTY RIGHT OF WAY.
4. PLACE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL ALONG REAR OF DEPRESSED CURB AT EDGE OF 7" STANDARD CONCRETE ENTRANCE. CONSTRUCT DEPRESSED CURB WITH 1-1/2" LIP AT GUTTER.
5. CONCRETE TO BE MIX NO. 3 OR MIX NO. 6 AS DIRECTED BY THE ENGINEER. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM WHEN MIX #3 IS USED.
6. ONLY ONE ENTRANCE ALLOWED WHEN FRONTAGE IS LESS THAN 108 FT., MINIMUM FRONTAGE IS 90 FT.
7. WHERE CURB AND GUTTER EXIST REMOVE COMPLETELY TO THE FIRST CONSTRUCTION JOINT EACH SIDE OF THE PROPOSED ENTRANCE. USE EXISTING EDGE OF ROAD FOR GRADE GUIDANCE AS DIRECTED. JOINT WHERE GUTTER MEETS PAVEMENT TO BE FINISHED WITH A STANDARD EDGING TOOL.
8. WHERE THE DISTANCE FROM THE FACE OF CURB TO THE PROPERTY LINE IS LESS THAN 10 FT. SLOPE FINISHED GRADE OF ENTRANCE PAVING AT 8% MAXIMUM FOR A MINIMUM OF 10 FT. TO NEXT BREAK IN GRADE.
9. PROVIDE 2-1/2" DIAMETER TO 3" DIAMETER SLEEVE FOR FUTURE SIGN POST AT STREET INTERSECTION SET FLUSH IN CONCRETE WALK 2'-0" BEHIND CURB AT MID-POINT OF CURB RETURN.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

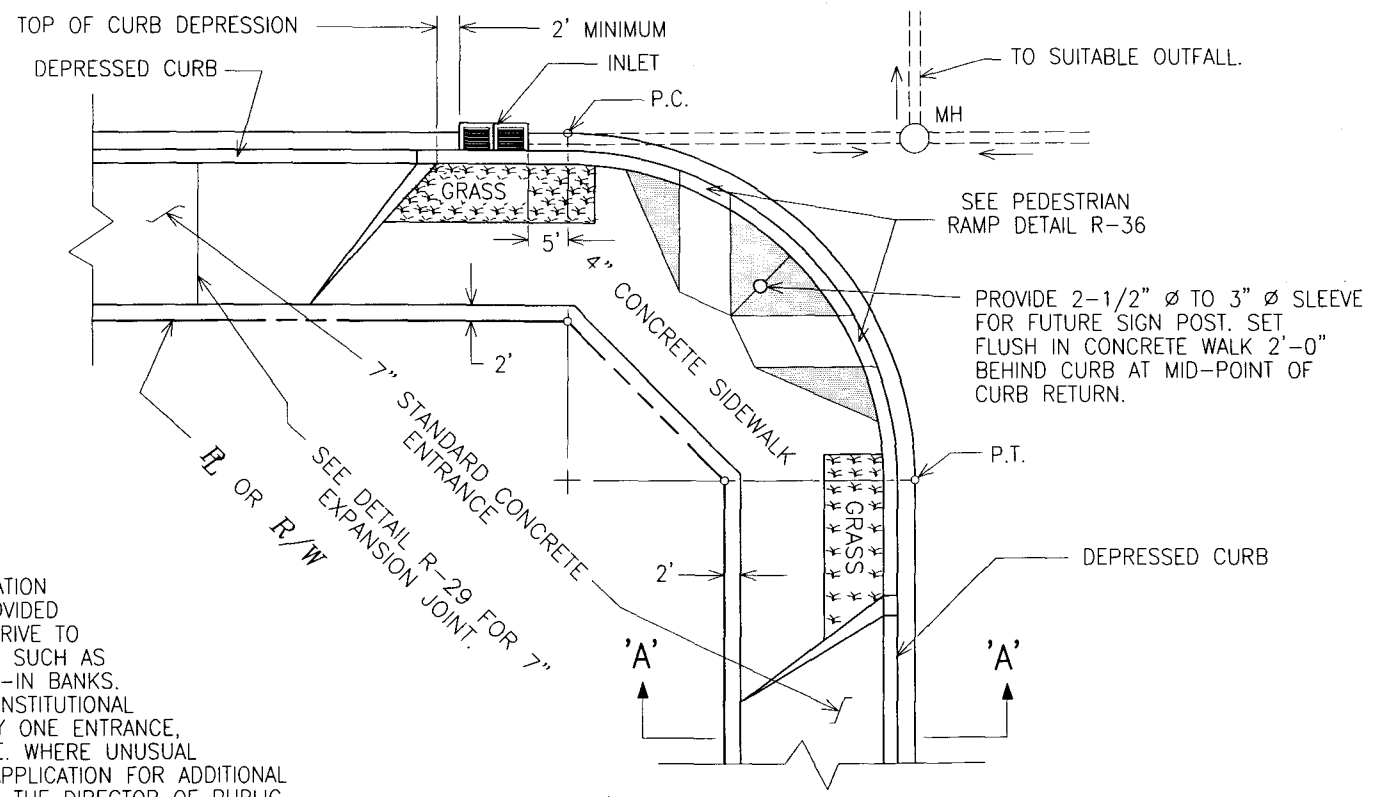
SERVICE STATION ENTRANCE
CHANNELIZATION AT ROAD INTERSECTION

ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: NOVEMBER, 2005

PLATE

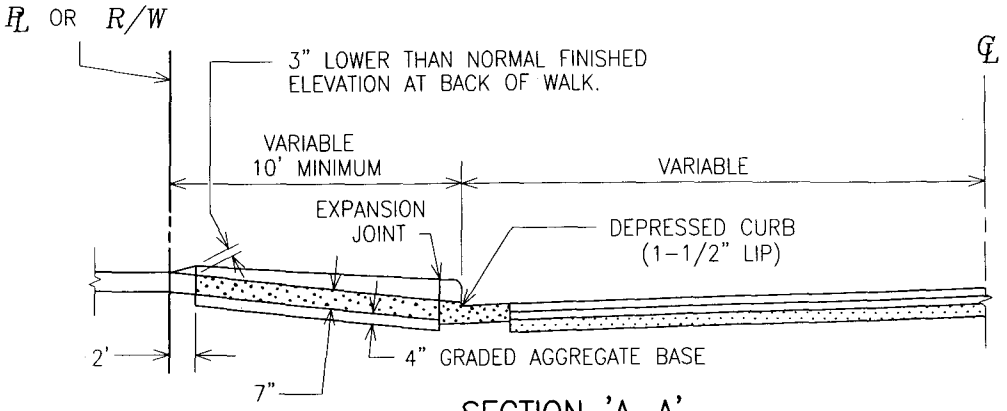
R-29

11/29/2005 10:46 AM R-29.DWG



NOTES :

1. COMMERCIAL SITE CHANNELIZATION WITH TWO ENTRANCES IS PROVIDED WHERE AUTOMOBILES MUST DRIVE TO FIXED OBJECTS FOR SERVICE, SUCH AS SERVICE STATIONS AND DRIVE-IN BANKS. ALL OTHER COMMERCIAL OR INSTITUTIONAL SITES WILL BE ALLOWED ONLY ONE ENTRANCE, OR A MONUMENTAL ENTRANCE. WHERE UNUSUAL TRAFFIC PROBLEMS OCCUR, APPLICATION FOR ADDITIONAL ENTRANCES MAY BE MADE TO THE DIRECTOR OF PUBLIC WORKS, WITH CONSIDERATION OF REQUEST BASED ON STATED NEED AND THE EFFECTS ON PUBLIC SAFETY AND WELFARE. IN ANY INSTANCE, ENTRANCE ARRANGEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS.
2. WHERE THE COMMERCIAL SITE IS ADJACENT TO A STATE ROAD, THE COUNTY AND THE STATE STANDARDS SHALL APPLY.
3. CONCRETE TO BE MIX NO. 3 OR MIX NO. 6 AS DIRECTED BY THE ENGINEER. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM WHEN MIX #3 IS USED.



SECTION 'A-A'

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

COMMERCIAL ENTRANCE CHANNELIZATION

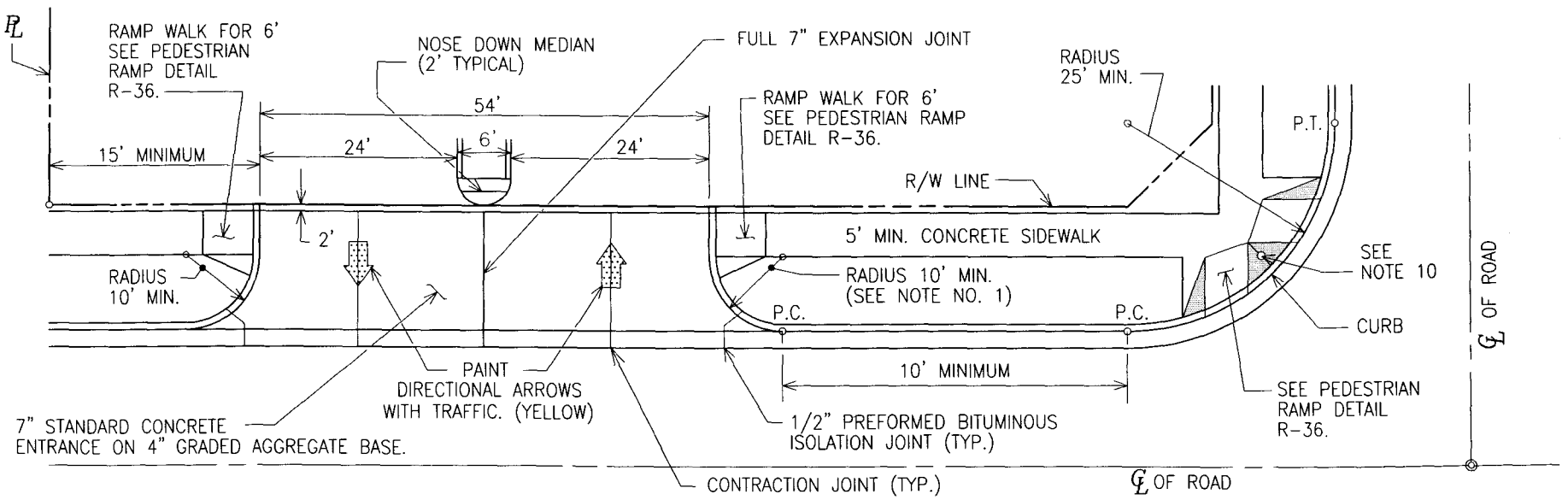
ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: NOVEMBER, 2005

PLATE

R-30

11/29/2005 10:46 AM

R-30.DWG



NOTES :

1. WHERE 10 FT. MINIMUM RADIUS IS SHOWN, THE MAXIMUM RADIUS SHALL BE EQUAL TO THE DISTANCE FROM THE CURB TO THE PROPERTY LINE, EXCEPT WHERE BALTIMORE COUNTY POLICY ALLOWS LARGER RADII.
2. SKEWED ENTRANCES WILL BE PERMITTED ONLY ON DIVIDED HIGHWAYS.
3. NO ENTRANCES WILL BE PERMITTED BETWEEN P.C. AND P.T. OF CURB RETURN AT ANY INTERSECTION.
4. AT AN INTERSECTION OF TRAFFIC WAYS, OTHER THAN ALLEYS, THE CUTBACK OF THE PROPERTY LINE NORMALLY SHALL BE A CHORD CONNECTING THE POINTS ON THE PROPERTY LINE DIRECTLY OPPOSITE THE P.C. AND P.T. OF CURB RETURNS OR EDGE OF PAVEMENT RETURN.
5. ALL PERMANENT SIGNS AND LIGHT FIXTURES SHALL BE OUTSIDE OF THE COUNTY RIGHT OF WAY, (10 FT. MIN. TANGENT DISTANCE).
6. CURB FACE AT PROPERTY LINE SHALL HAVE STANDARD 7-3/16" REVEAL TO MATCH CURB FACE OF 6 FT. MEDIAN.
7. CONCRETE TO BE MIX NO. 3 OR MIX NO. 6 AS DIRECTED BY THE ENGINEER AND PLACED ON A 4" GRADED AGGREGATE BASE. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM WHEN MIX #3 IS USED.
8. WHERE CURB AND GUTTER EXIST REMOVE COMPLETELY TO THE FIRST CONSTRUCTION JOINT EACH SIDE OF THE PROPERTY ENTRANCE. USE EXISTING EDGE OF ROAD FOR GRADE GUIDANCE AS DIRECTED. JOINT WHERE GUTTER MEETS PAVEMENT TO BE FINISHED WITH A STANDARD EDGING TOOL.
9. CONSTRUCT ENTRANCE WITH 1-1/2" LIP ABOVE GUTTER ALONG FACE OF CURB LINE EXTENDED ACROSS ENTRANCE.
10. PROVIDE 2-1/2"Ø TO 3"Ø SLEEVE FOR FUTURE SIGN POST AT STREET INTERSECTION. SET FLUSH IN CONCRETE WALK 2'-0" BEHIND CURB AT MID-POINT OF CURB RETURN.

BALTIMORE COUNTY MARYLAND

APPROVAL
DIRECTOR
BUR. OF ENGINEERING/CONSTRUCTION
2-22-06
DATE

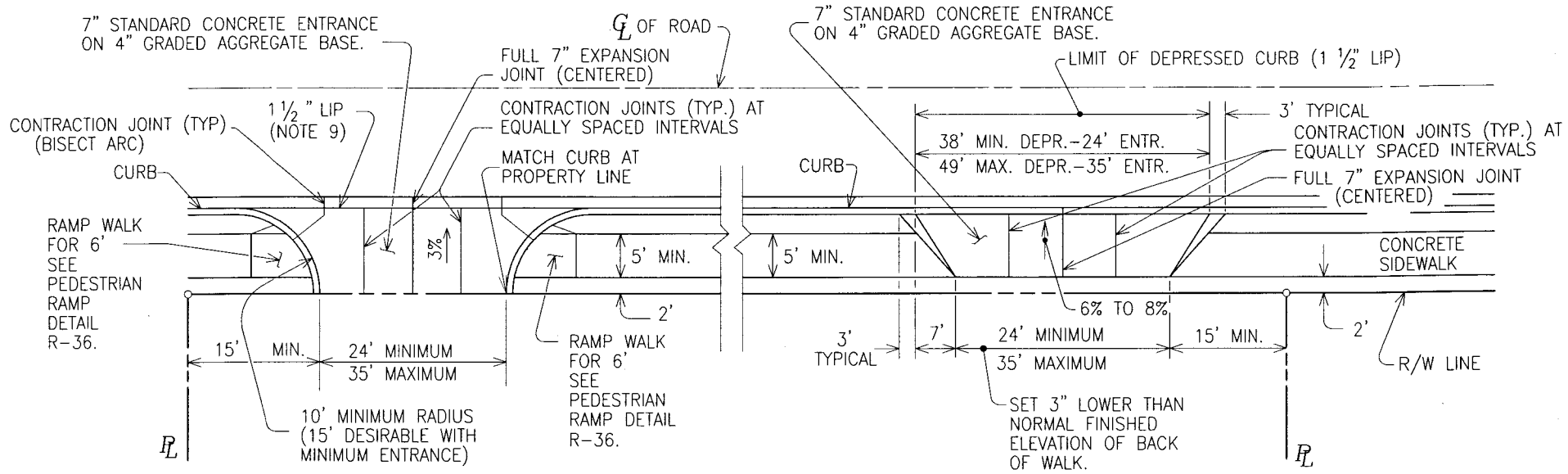
DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

CHANNELIZED COMMERCIAL ENTRANCE AT ROAD INTERSECTION

ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: NOVEMBER, 2005

PLATE
R-31

11/09/2005 10:46 AM
R-31.DWG



ENTRANCE WITH CURB RETURNS

ENTRANCE WITH DEPRESSED CURB

NOTES :

1. WHERE 10 FT. MINIMUM RADIUS IS SHOWN, THE MAXIMUM RADIUS SHALL BE EQUAL TO THE DISTANCE FROM THE CURB TO THE PROPERTY LINE, EXCEPT WHERE BALTIMORE COUNTY POLICY ALLOWS LARGER RADII.
2. SKEWED ENTRANCES WILL BE PERMITTED ONLY ON DIVIDED HIGHWAYS.
3. NO ENTRANCES WILL BE PERMITTED BETWEEN P.C. AND P.T. OF CURB RETURN AT ANY INTERSECTION.
4. WHERE THE DISTANCE FROM THE FACE OF CURB TO THE PROPERTY LINE IS LESS THAN 10 FT., SLOPE FINISHED GRADE OF ENTRANCE PAVING AT 8% MAXIMUM FOR A MINIMUM OF 10 FT. TO NEXT BREAK IN GRADE.
5. ALL PERMANENT SIGNS AND LIGHT FIXTURES SHALL BE OUTSIDE OF THE COUNTY RIGHT OF WAY.
6. PLACE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL ALONG REAR OF DEPRESSED CURB AT EDGE OF 7" STANDARD CONCRETE ENTRANCE. CONSTRUCT DEPRESSED CURB WITH 1-1/2" LIP AT GUTTER.
7. CONCRETE TO BE MIX NO. 3 OR MIX NO. 6 AS DIRECTED BY THE ENGINEER AND PLACED ON A 4" GRADED AGGREGATE BASE. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 35% MAXIMUM WHEN MIX NO. 3 IS USED.
8. WHERE CURB AND GUTTER EXIST REMOVE COMPLETELY TO THE FIRST EXISTING CONSTRUCTION JOINT EACH SIDE OF THE PROPERTY ENTRANCE. USE EXISTING EDGE OF ROAD FOR GRADE GUIDANCE AS DIRECTED. JOINT WHERE GUTTER MEETS PAVEMENT TO BE FINISHED WITH A STANDARD EDGING TOOL.
9. ENTRANCE WITH CURB RETURNS SHALL BE CONSTRUCTED WITH 1-1/2" LIP ABOVE GUTTER ALONG FACE OF CURB LINE EXTENDED ACROSS ENTRANCE. CURB FACE AT PROPERTY LINE SHALL HAVE STANDARD 7-3/16" REVEAL.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

1-2-07
DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAIL

SINGLE COMMERCIAL ENTRANCE

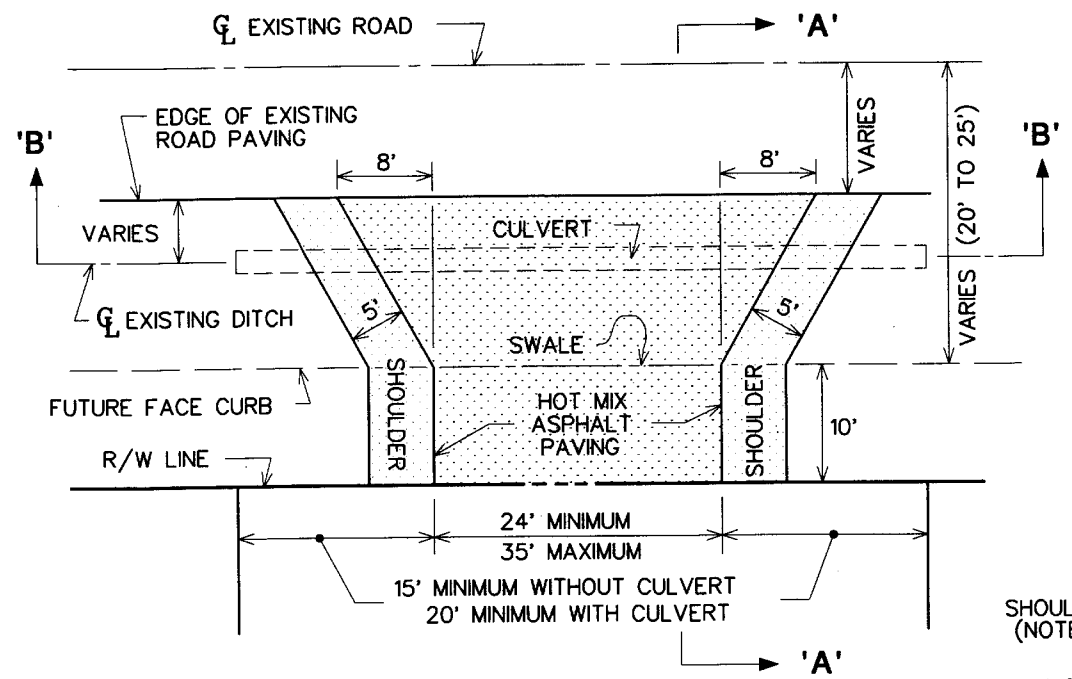
ISSUED: OCTOBER, 1977
REVISED: MARCH, 1983
REVISED: SEPTEMBER, 2006

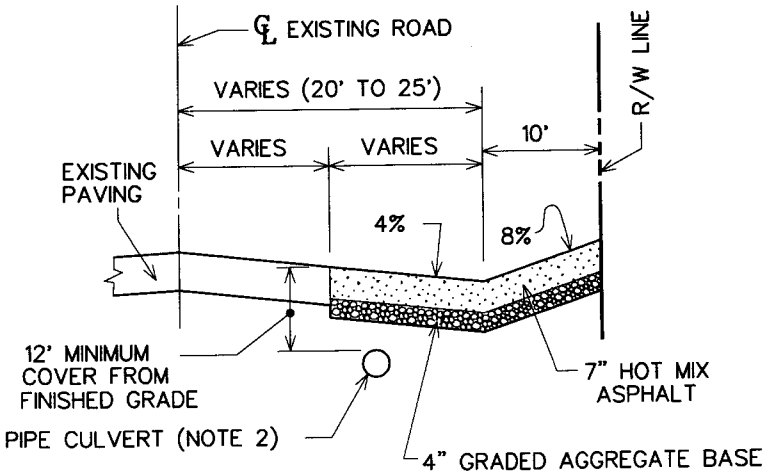
PLATE

R-32

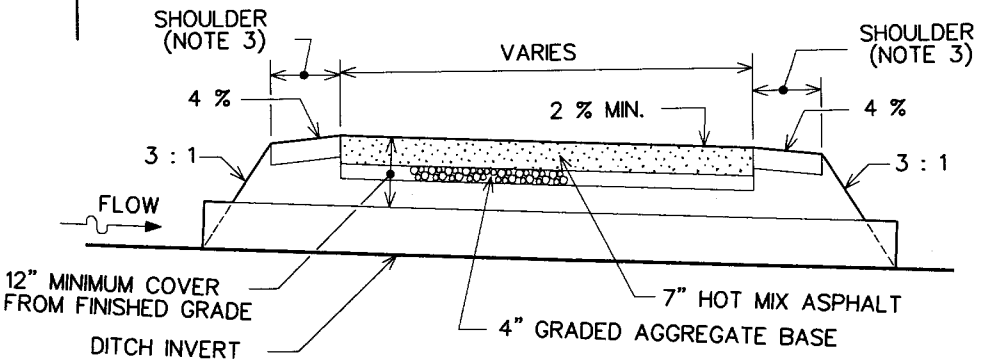
11/28/2006 3:37 PM

R-32.DWG





SECTION 'A-A'



MINIMUM 12" BCCMP – TYPE A – 14 GAGE MINIMUM OR EQUIVALENT. ACTUAL SIZE TO BE DETERMINED BY HYDRAULIC REQUIREMENTS. SET ON LINE OF EXISTING DITCH. LENGTH SET TO FIT TOE OF 3 : 1 SLOPE EACH END. TYPE AND SIZE OF PIPE SUBJECT TO APPROVAL OF DIRECTOR OF PUBLIC WORKS.

SECTION 'B-B'

NOTES :

1. PROVIDE WIDENING OF EXISTING ROAD RIGHT OF WAY AS NECESSARY TO ACCOMMODATE FUTURE 40 FT. CURB ON 60 FT. RIGHT OF WAY OR 50 FT. CURB ON 70 FT. RIGHT OF WAY AS DIRECTED BY THE ENGINEER.
2. PROVIDE PIPE CULVERT IF INVERT OF EXISTING DITCH IS LOWER THAN SWALE ACROSS ENTRANCE. (SEE SECTION 'A–A')
3. THE 5 FT. SHOULDERS SHALL BE STABILIZED EQUIVALENT TO ADJACENT SURFACE. USE SAME MATERIAL AS EXISTING ROAD SHOULDER.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

William Hoffman

BUR. OF ENGINEERING / CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAIL

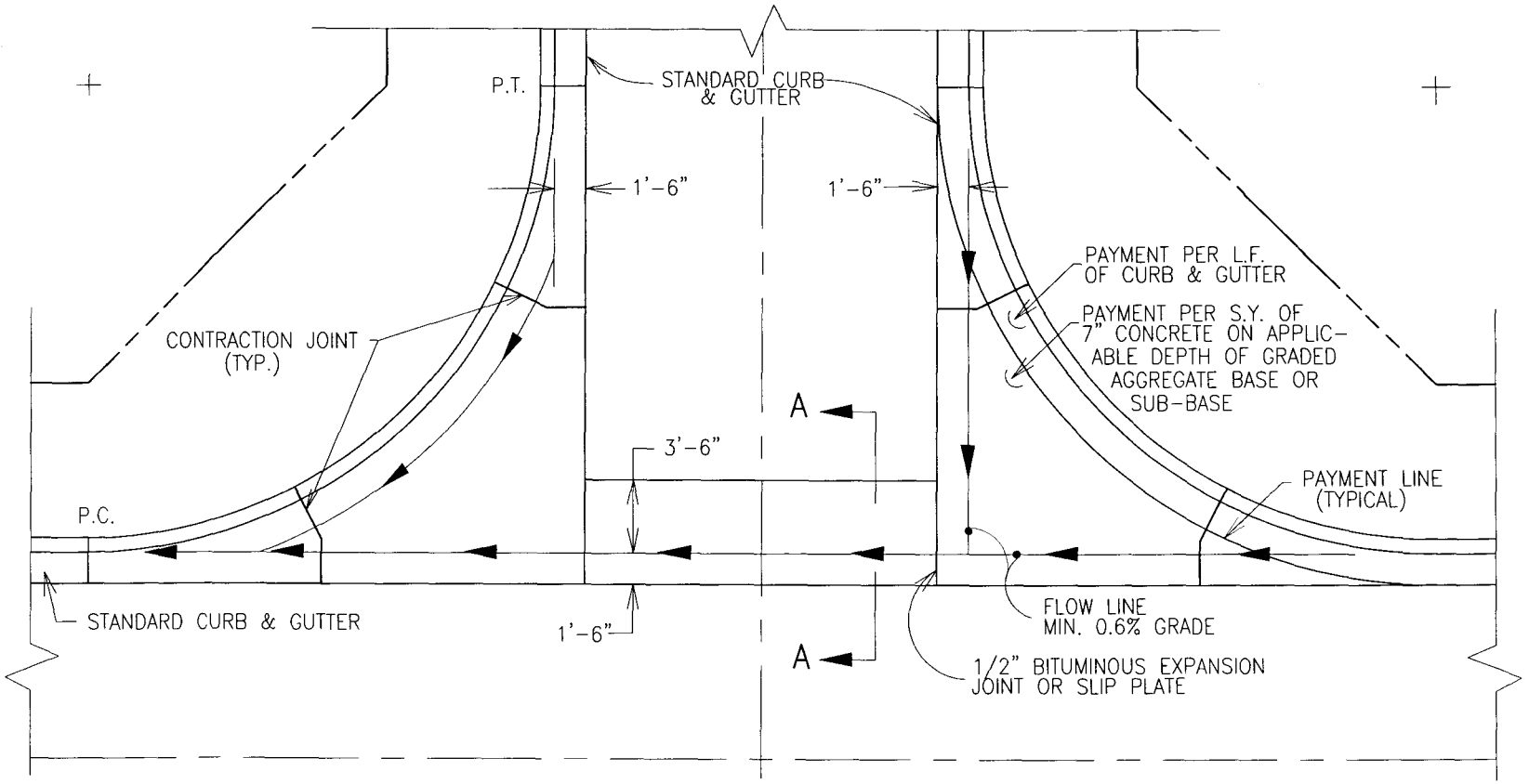
RURAL COMMERCIAL ENTRANCE

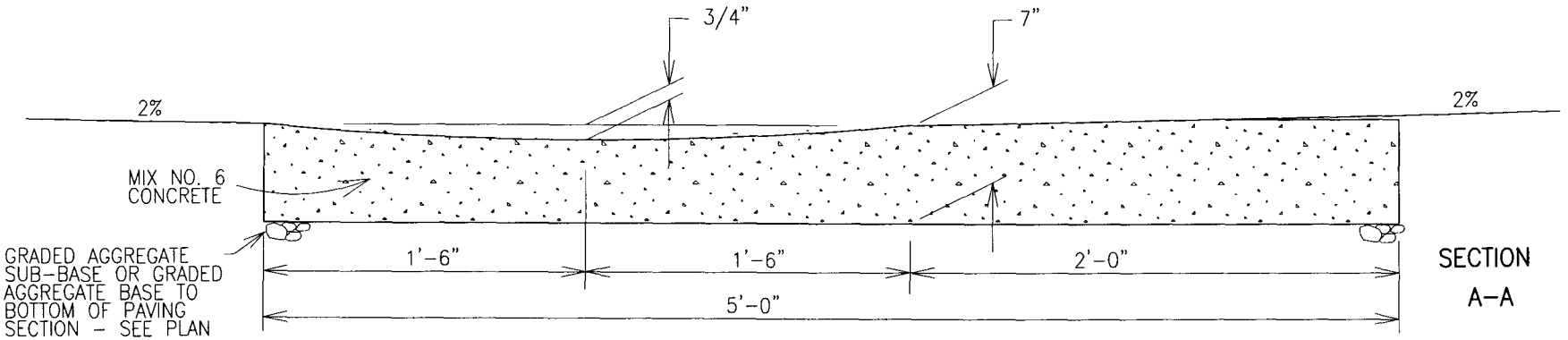
ISSUED: MARCH, 1983
REVISED: AUGUST, 1997
REVISED:

PLATE

R-32A

REV. FEBRUARY 1986 J.A.V.





SECTION A-A

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

1-2-07

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

VALLEY GUTTER

FOR 90° INTERSECTION

ISSUED: OCTOBER, 1977

REVISED: FEBRUARY, 2002

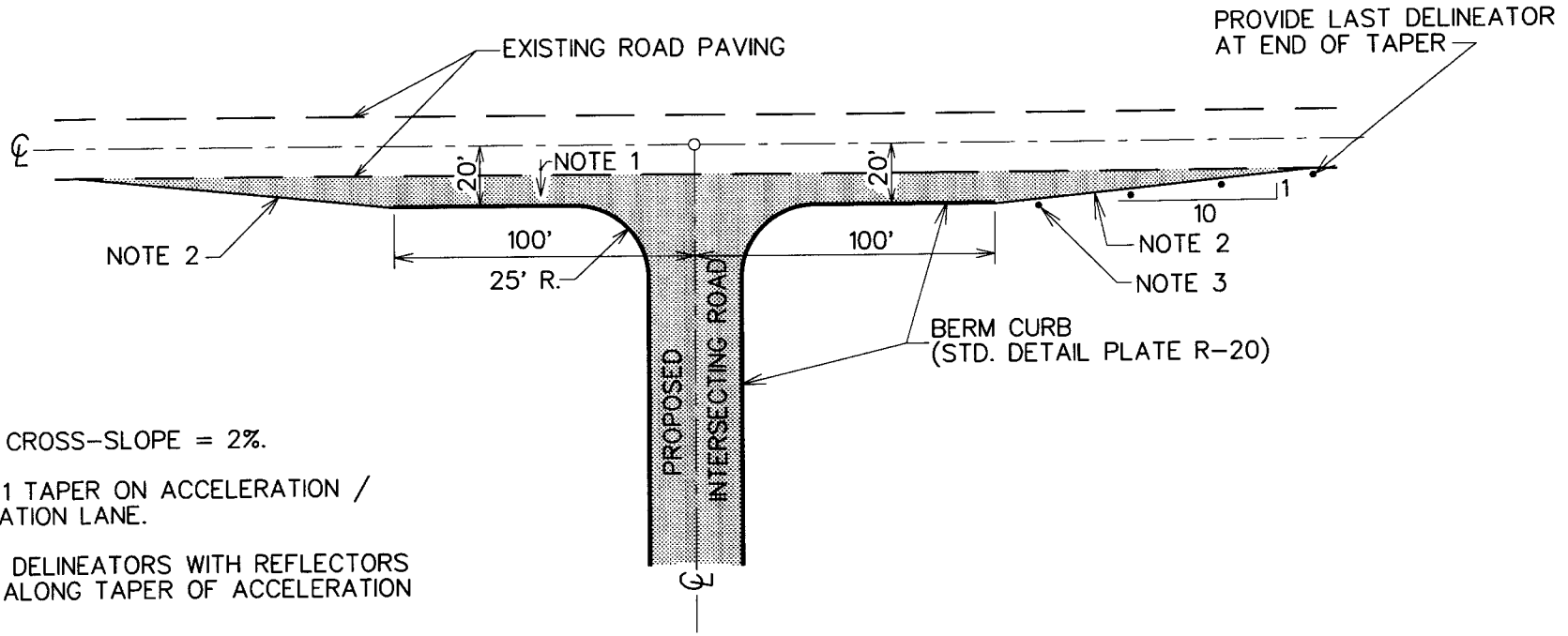
REVISED: SEPTEMBER, 2006

PLATE

R-33

9/29/2006 12:22 PM

R-33.DWG



NOTES:

1. AVERAGE CROSS-SLOPE = 2%.
2. USE 10 : 1 TAPER ON ACCELERATION / DECELERATION LANE.
3. USE STD. DELINEATORS WITH REFLECTORS 30' o/c ALONG TAPER OF ACCELERATION LANE.
4. VARIATIONS ARE ALLOWED AT THE DISCRETION OF THE DIRECTOR OF PUBLIC WORKS.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

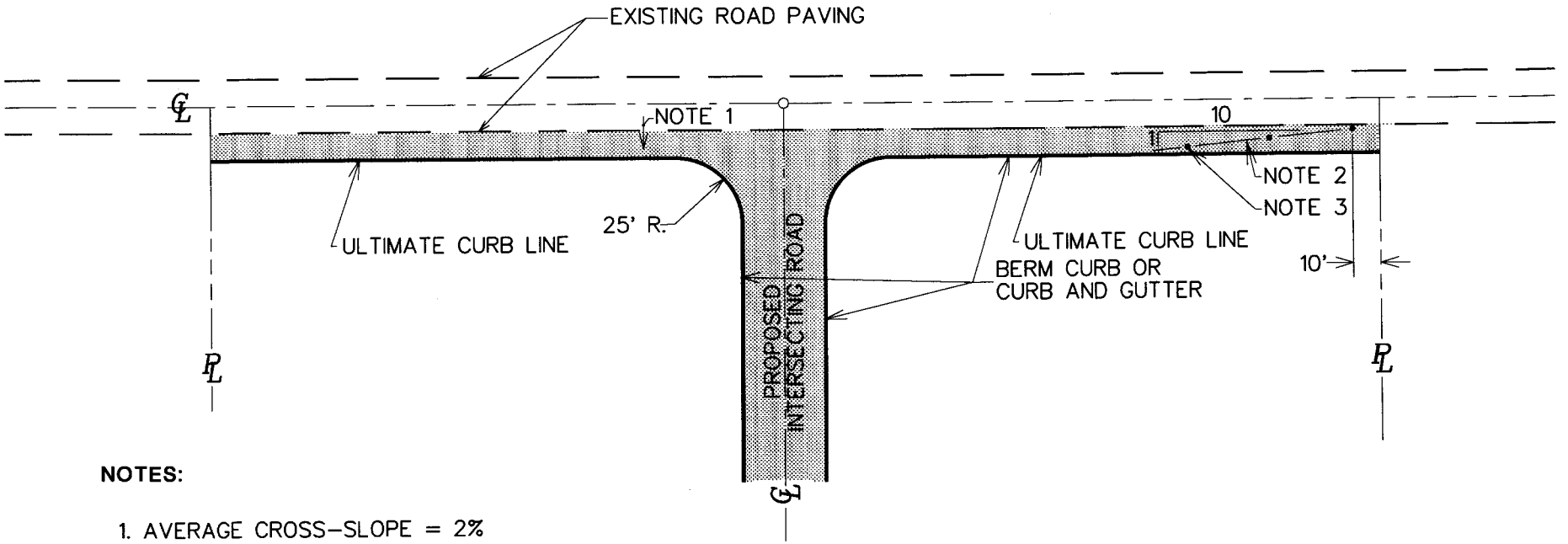
MINIMUM SUBDIVISION REQUIREMENTS FOR ACCELERATION LANES (WIDENING TO PROPERTY LINES NOT REQUIRED)

ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

R-35

JANUARY, 1988 SAS



NOTES:

1. AVERAGE CROSS-SLOPE = 2%
2. USE 10 : 1 TAPER FOR ACCELERATION LANE DELINEATORS.
3. USE STD. FLEX POST DELINEATORS, WITH REFLECTORS, AT 30' o/c. USE ADHESIVE BASE DELINEATORS FOR PLACEMENT ON PAVEMENT, AT 30' o/c.
4. VARIATIONS ARE ALLOWED AT THE DISCRETION OF THE DIRECTOR OF PUBLIC WORKS.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

William Kirkpatrick

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

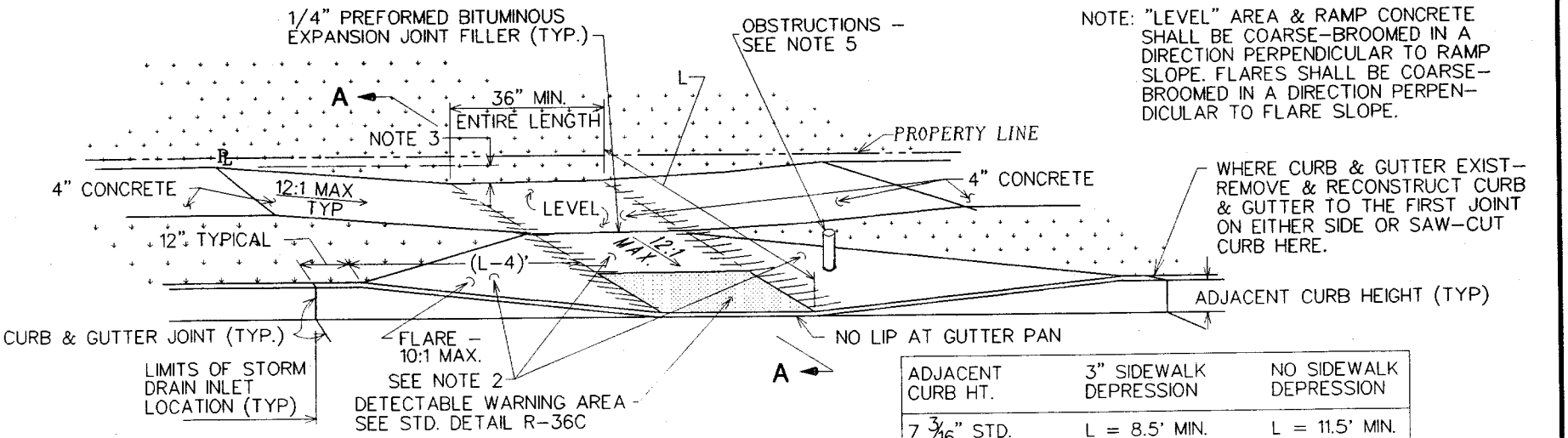
MINIMUM SUBDIVISION REQUIREMENTS FOR ACCELERATION LANES (WIDENING TO PROPERTY LINES REQUIRED)

ISSUED: OCTOBER 1977
REVISED: AUGUST 1997
REVISED:

PLATE

R-35A

JANUARY, 1980 DAS



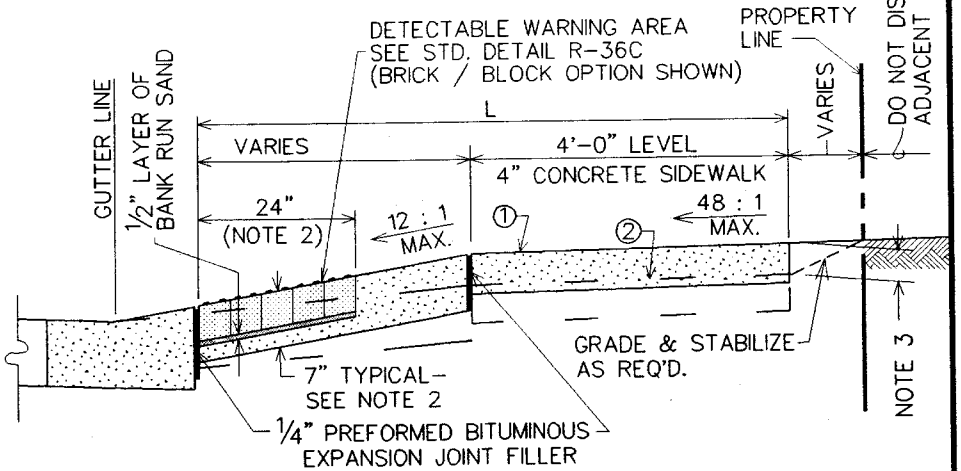
ADJACENT CURB HT.	3" SIDEWALK DEPRESSION	NO SIDEWALK DEPRESSION
7 3/16" STD.	L = 8.5' MIN.	L = 11.5' MIN.
8" MdSHA	L = 9' MIN.	L = 12' MIN.
OTHER (NOTE 6)	FORMULA "A"	FORMULA "B"

NOTES

1. AREAS LABELED "LEVEL" SHALL HAVE A GRADE OF 48:1 MAX. FOR PURPOSES OF DRAINAGE.
2. WHERE DETECTABLE WARNING AREA IS TO BE CONSTRUCTED OF BRICK OR BLOCK, RAMP AND FLARES SHALL BE OF 7" CONCRETE, WITH BRICK OR BLOCK INSET FLUSH WITH SURROUNDING CONCRETE. USE BANK RUN SAND TO LEVEL BRICKS/BLOCKS. WHERE DETECTABLE WARNING AREA WILL BE ENTIRELY CONCRETE, 7" CONCRETE SHALL BE USED.
3. A SIDEWALK DEPRESSION OF UP TO 3" MAXIMUM TO BE USED AS DIRECTED ON PLANS OR BY THE ENGINEER.
4. RAMPS MAY BE CONSTRUCTED ALONG TANGENT OR RETURN SECTIONS OF CONCRETE CURB AS NOTED ON PLANS.
5. OBSTRUCTIONS TO BE RELOCATED IF WITHIN RAMP OR SIDEWALK AREA. OBSTRUCTION MAY REMAIN IN FLARE WHERE 36" MINIMUM CLEAR WIDTH EXISTS ALONG BOTH SIDEWALK & RAMP AREA. PLACE 1/4" BITUMINOUS EXPANSION JOINT MATERIAL DIRECTLY AROUND OBSTRUCTIONS LESS THAN 3" IN DIAMETER. CONSTRUCT ISOLATION JOINTS PER STD. DETAIL R-17 FOR LARGER OBSTRUCTIONS.
6. FORMULA A: L (IN FT) = 4 + (HT. CURB IN INCHES – 3)

   FORMULA B: L (IN FT) = 4 + (HT. CURB IN INCHES)

   IF ADJACENT CURB HEIGHTS ARE DIFFERENT ON EACH SIDE OF RAMP, ADJUST FLARE LENGTHS AS REQ'D. TO MAINTAIN SLOPES SHOWN ON THIS DETAIL.



SECTION A-A

① TOP, UNDEPRESSED SIDEWALK

② TOP, DEPRESSED SIDEWALK

APPROVAL

DIRECTOR

BUR. OF ENGINEERING & CONSTRUCTION

12/20/02

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

PEDESTRIAN RAMP WITH DEPRESSED SIDEWALK (MEDIAN AREA BETWEEN SIDEWALK AND CURB)

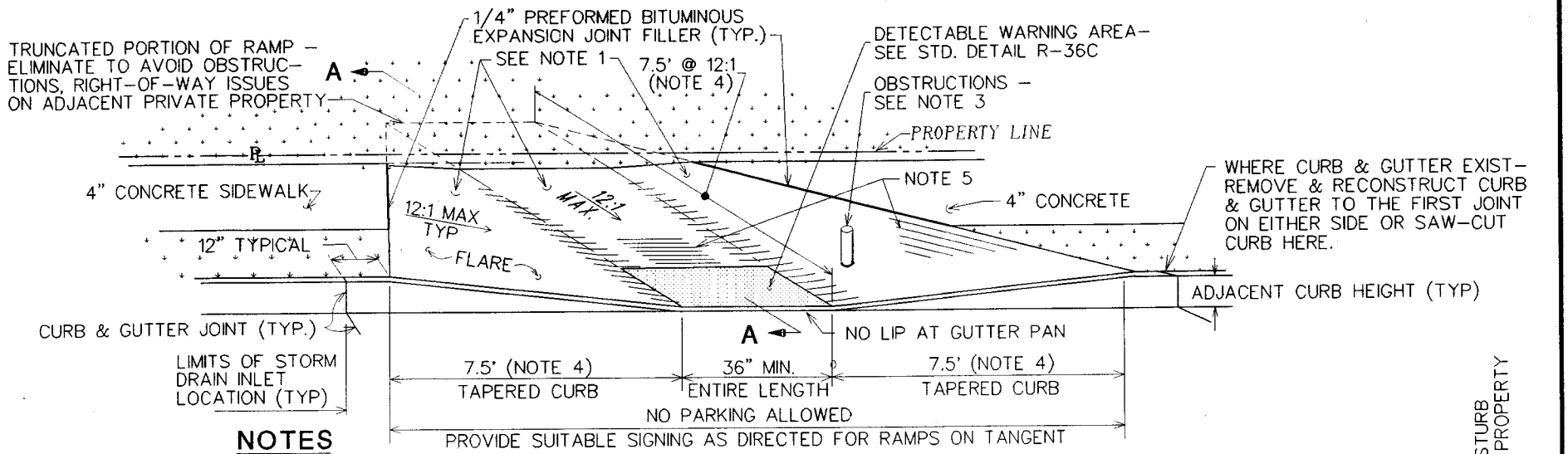
ISSUED: OCTOBER, 1977

REVISED: OCTOBER, 2002

REVISED:

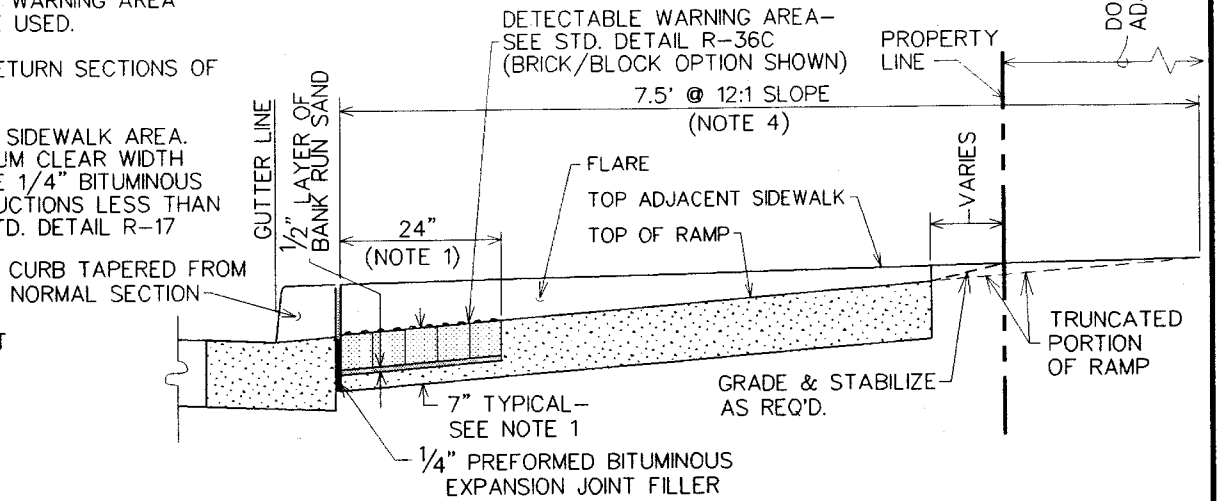
PLATE

R-36A



NOTES

1. WHERE DETECTABLE WARNING AREA IS TO BE CONSTRUCTED OF BRICK OR BLOCK, RAMP AND FLARES SHALL BE OF 7" CONCRETE, WITH BRICK OR BLOCK INSET FLUSH WITH SURROUNDING CONCRETE. USE BANK RUN SAND TO LEVEL BRICKS/BLOCKS. WHERE DETECTABLE WARNING AREA WILL BE ENTIRELY CONCRETE, 7" CONCRETE SHALL BE USED.
2. RAMPS MAY BE CONSTRUCTED ALONG TANGENT OR RETURN SECTIONS OF CONCRETE CURB AS NOTED ON PLANS.
3. OBSTRUCTIONS TO BE RELOCATED IF WITHIN RAMP OR SIDEWALK AREA. OBSTRUCTION MAY REMAIN IN FLARE WHERE 36" MINIMUM CLEAR WIDTH EXISTS ALONG BOTH SIDEWALK & RAMP AREA. PLACE 1/4" BITUMINOUS EXPANSION JOINT MATERIAL DIRECTLY AROUND OBSTRUCTIONS LESS THAN 3" IN DIAMETER. CONSTRUCT ISOLATION JOINTS PER STD. DETAIL R-17 FOR LARGER OBSTRUCTIONS.
4. DIMENSIONS GIVEN ARE FOR STD. 7 3/16" ADJACENT CURB HEIGHTS. INCREASE TO 8' FOR MdSHA 8" CURB. DIMENSIONS FOR RAMPS ALONG REDUCED HEIGHT CURBS MAY BE REDUCED PROPORTIONALLY. MAINTAIN SLOPES SHOWN IN ALL CASES.
5. CONCRETE PORTIONS OF RAMPS & FLARES SHALL BE COARSE-BROOMED IN A DIRECTION PERPENDICULAR TO SLOPE OF RAMP OR FLARE. SEE PLAN VIEW.



SECTION A-A

APPROVAL
DIRECTOR
BUR. OF ENGINEERING/CONSTRUCTION
12/20/02
DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

TRUNCATED PEDESTRIAN RAMP
ALTERNATE

ISSUED: OCTOBER, 2002
REVISED:
REVISED:

PLATE
R-36B

1. A DETECTABLE WARNING IS A STANDARDIZED SURFACE FEATURE BUILT IN OR APPLIED TO WALKING SURFACES (OR OTHER ELEMENTS) TO WARN VISUALLY IMPAIRED PEOPLE OF HAZARDS ON A CIRCULATION PATH.

2. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH NOMINAL DIMENSIONS AS SHOWN AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT – DARK OR DARK – LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE INTEGRAL WITH THE WALKING SURFACE.

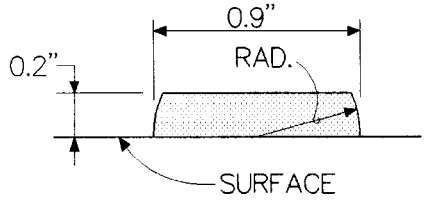
3. DETECTABLE WARNING AREAS SHALL EXTEND 24" BACK FROM THE REAR OF CURB WITHIN THE RAMP ITSELF. THEY SHALL NOT BE USED ELSEWHERE ON A PEDESTRIAN RAMP.

4. DETECTABLE WARNINGS MAY BE APPLIED USING BRICK OR BLOCK PAVERS OR EXTRUDED TINTED CONCRETE.

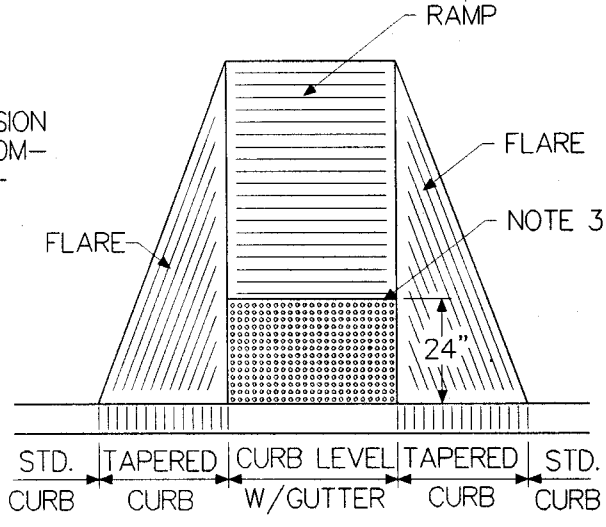
5. PAVERS MAY BE SPLAYED AS REQUIRED TO MATCH A CURVED CURB RADIUS.

6. COMMERCIAL PRODUCTS MAY VARY IN SPACING, DIMENSION AND CONFIGURATION OF DOMES. CERTIFICATION OF COMPLIANCE WITH CURRENT ADAAG (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINE REQUIREMENTS SHALL BE REQUIRED OF ALL PRODUCTS BEFORE INSTALLATION.

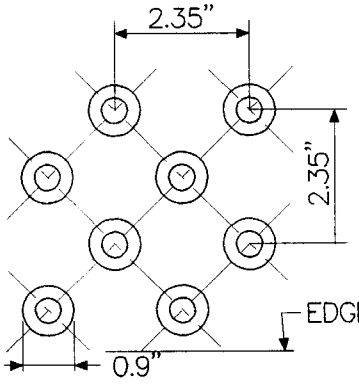
7. MANUFACTURED PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



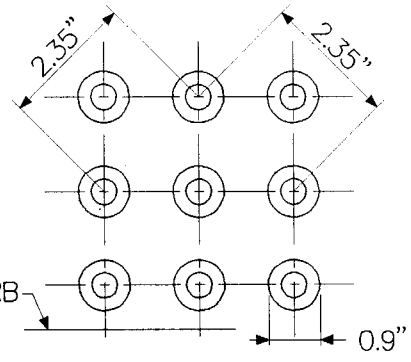
PROFILE VIEW SINGLE TRUNCATED DOME



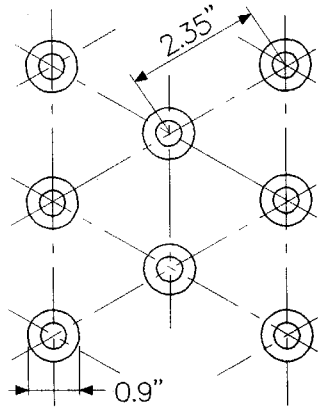
LOCATION OF DETECTABLE WARNINGS



SQUARE PATTERN DIAGONAL ALIGNMENT



SQUARE PATTERN PARALLEL ALIGNMENT (PREFERRED)



TRIANGULAR PATTERN

APPROVAL
DIRECTOR
William Ropman
BUR. OF ENGINEERING & CONSTRUCTION
12/20/02
DATE

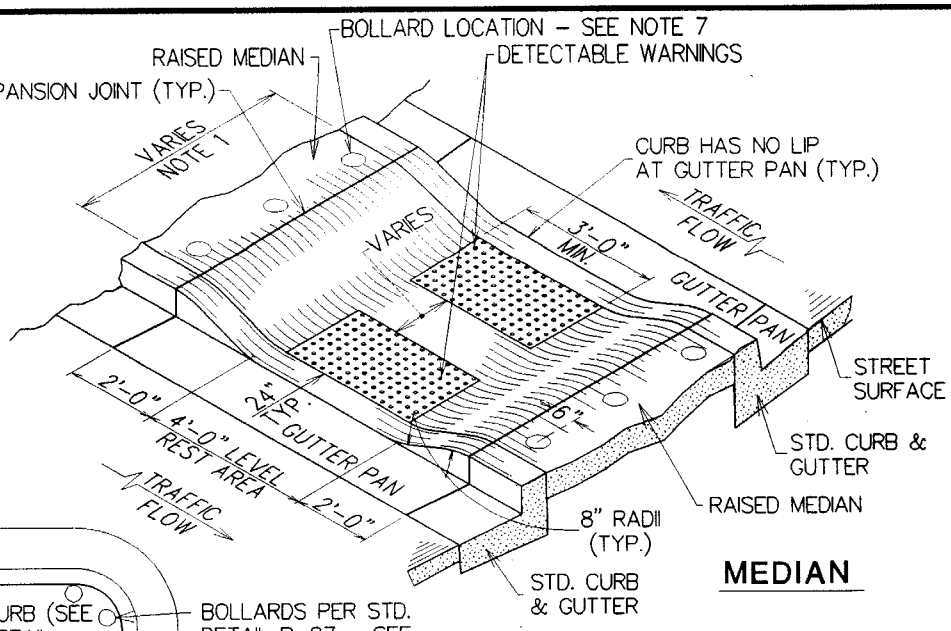
DEPARTMENT OF PUBLIC WORKS
STANDARD ROAD & STREET DETAILS

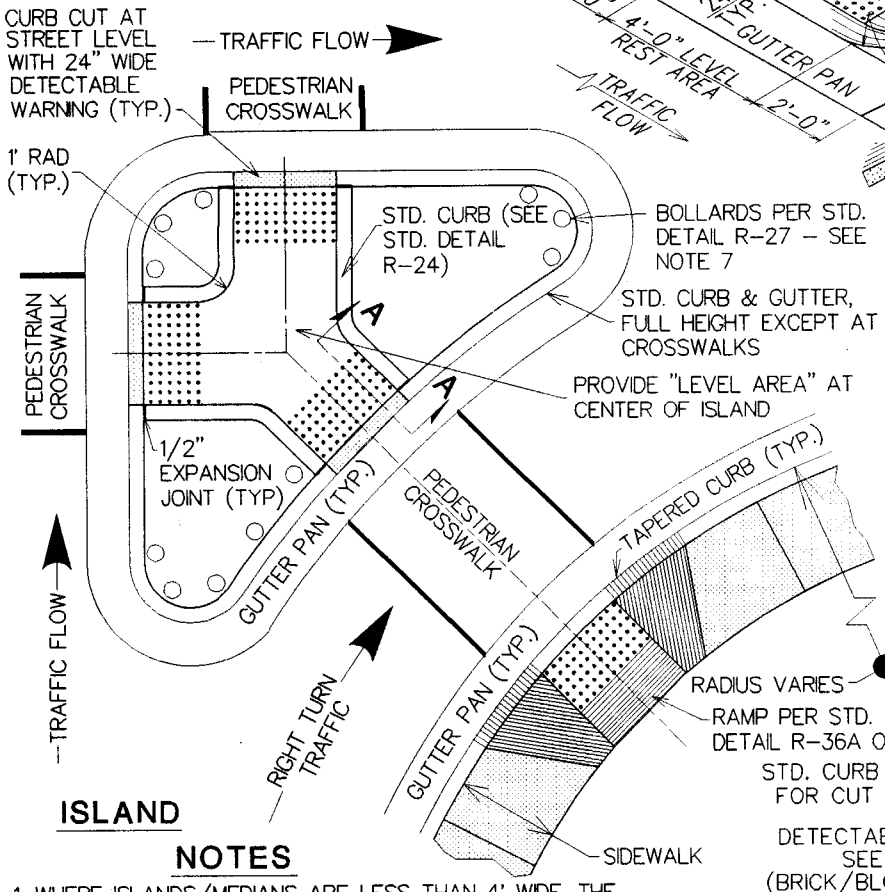
DETECTABLE WARNINGS FOR USE ON PEDESTRIAN RAMPS

ISSUED: OCTOBER, 2002
REVISED:
REVISED:

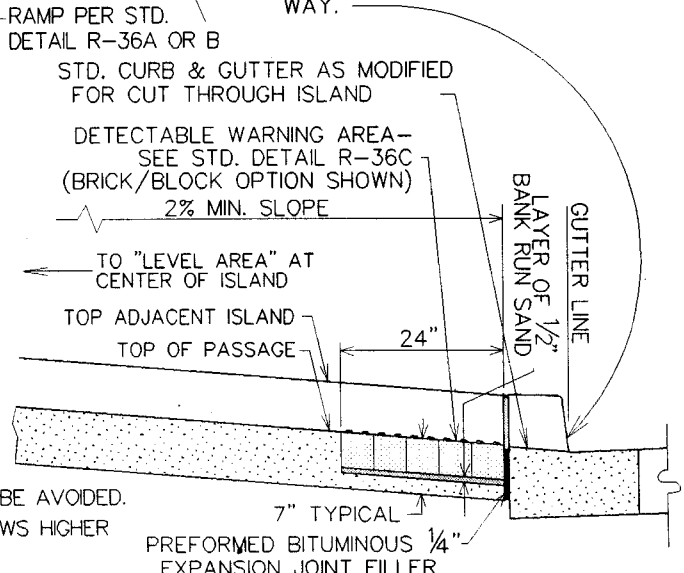
PLATE
R-36C

OCTOBER, 2002 DAS





STD. CURB & GUTTER – SEE STD. DETAIL R-21 FOR USE IN COUNTY RIGHT-OF-WAY. SUBSTITUTE MdSHA TYPE A CURB AND CURB & GUTTER WHEN WORKING IN MDOT RIGHT-OF-WAY.



NOTES

1. WHERE ISLANDS/MEDIANS ARE LESS THAN 4' WIDE, THE DETECTABLE WARNING SHALL EXTEND ACROSS THE FULL LENGTH OF THE CUT THROUGH THE ISLAND OR MEDIAN.
2. CROSSWALKS SHALL BE MARKED IN COMPLIANCE WITH DEPARTMENT OF PUBLIC WORKS POLICY.
3. RAMP PLACEMENT SHALL BE DONE TO ALLOW THE SHORTEST POSSIBLE CROSSWALKS.
4. CROSSWALK MAY BE RAISED FOR TRAFFIC-CALMING ONLY WITHIN PAVED AREAS. GUTTER GRADES MUST BE MAINTAINED.
5. MEDIAN & ISLAND CUTS MUST BE GRADED TO DRAIN TO ADJACENT GUTTER(S). STORMWATER PONDING IN CUTS SHALL BE AVOIDED.
6. AVOID USE OF VEGETATION IN ISLANDS OR MEDIANS THAT GROWS HIGHER THAN 12" OR REQUIRES REGULAR MAINTENANCE.
7. PROTECTIVE BOLLARDS SHALL BE PLACED WHERE VALLEY GUTTER OR MOUNTABLE CURB & GUTTER SUBSTITUTED FOR STD. CURB & GUTTER.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING & CONSTRUCTION

12/20/02
DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

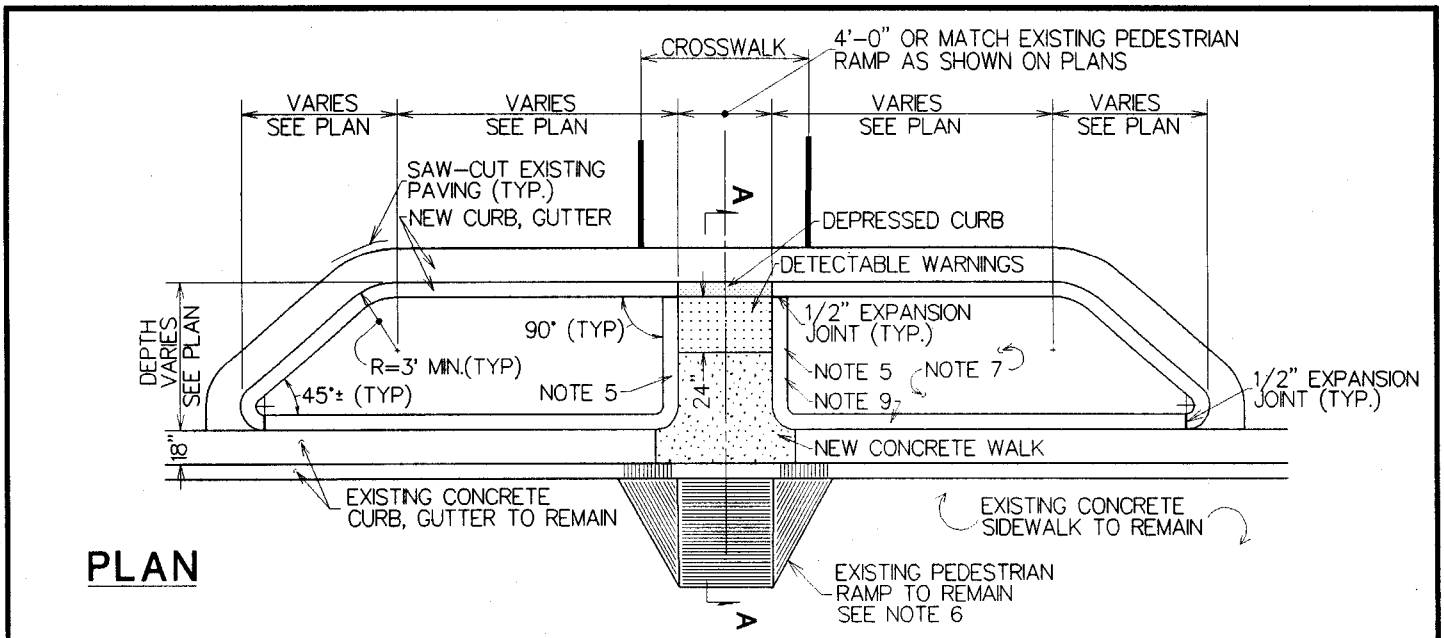
MEDIAN & ISLAND PEDESTRIAN PASSAGES

ISSUED: OCTOBER, 2002
REVISED:
REVISED:

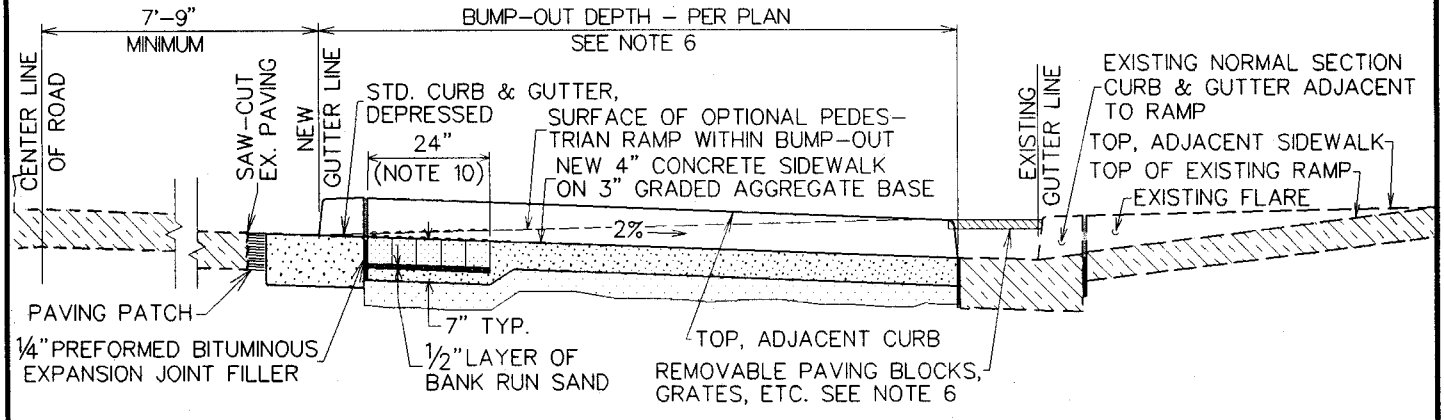
PLATE

R-36D

JUNE 1999 DAS



PLAN



SECTION A-A

NOTES

1. ALL CURB RADII ARE 1'–0" EXCEPT AS OTHERWISE NOTED.
2. CROSSWALKS SHALL BE MARKED IN COMPLIANCE WITH DEPARTMENT OF PUBLIC WORKS POLICY. CROSSWALK SHALL BE CENTERED ON CENTER OF PEDESTRIAN RAMP.
3. ALIGN & PLACE RAMP TO PROVIDE THE SHORTEST POSSIBLE CROSSWALK LENGTH.
4. STORM WATER FLOW IN EXISTING GUTTERS SHALL BE MAINTAINED, OR AN APPROPRIATELY SIZED INLET DEVICE SHALL BE PLACED UPSTREAM. EXISTING GUTTER MAY BE MODIFIED OR ELIMINATED ONLY WITH APPROVAL OF STORM DRAIN DESIGN, BUREAU OF ENGINEERING & CONSTRUCTION.
5. CURB TO BE PARALLEL TO CENTER LINE OF EXISTING PEDESTRIAN RAMP.
6. IF THERE IS NO EXISTING PEDESTRIAN RAMP, A RAMP MAY BE CONSTRUCTED WITHIN THE BUMP–OUT, RATHER THAN WITHIN THE EXISTING SIDEWALK AREA. IN THIS CASE, DEPTH IS 7'–3" MINIMUM, AND GUTTER MUST BE SPANNED ALONG ENTIRE LENGTH OF BUMP–OUT WITH REMOVABLE PAVING BLOCKS, GRATES OR ANOTHER EQUIVALENT STRUCTURE. SUPPORTS FOR THESE GUTTER COVERS SHALL BE IN ACCORDANCE WITH PLANS.
7. CONCRETE PAVERS OR VEGETATION MAY BE PLACED WITHIN RAISED AREAS OF BUMP–OUT. VEGETATION USED SHALL BE LOW MAINTENANCE AND SHALL BE LIMITED TO A HEIGHT OF 12 INCHES OR LESS.
8. PROTECTIVE BOLLARDS, WARNING SIGNS AND REFLECTORS SHALL BE INSTALLED IN ACCORDANCE WITH PLANS APPROVED BY THE BUREAU OF TRAFFIC ENGINEERING.
9. USE TYPE A CURB (SEE STD. DETAIL R–24) ALONG EDGE OF EXISTING GUTTER AND NEXT TO NEW CONCRETE WALK.
10. DETECTABLE WARNING AREA–SEE STANDARD DETAIL R–36C (BRICK/BLOCK OPTION SHOWN).

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

William F. Ingman

BUR. OF ENGINEERING/CONSTRUCTION

12/20/02

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

PEDESTRIAN BUMP-OUT

ISSUED: OCTOBER, 2002

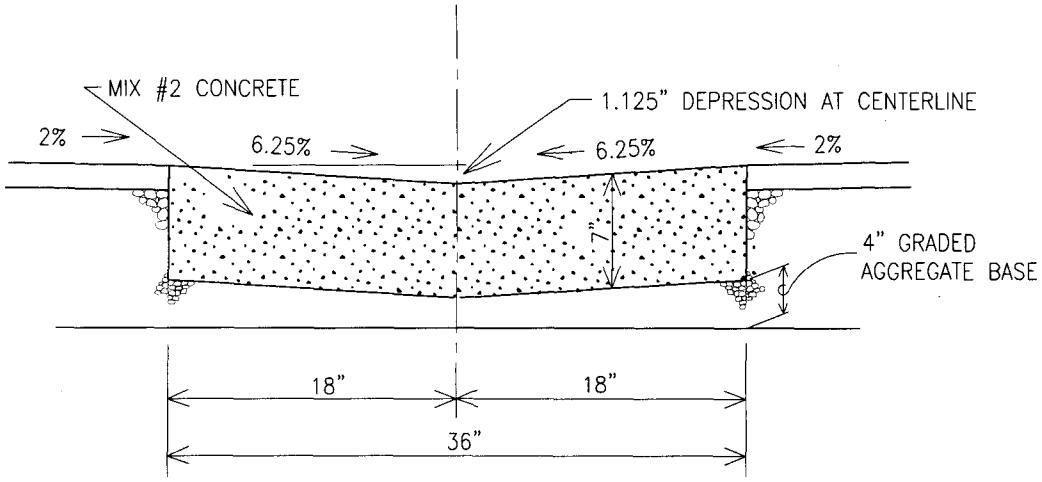
REVISED:

REVISED:

PLATE

R-36E

OCTOBER 2002 DAS



NOTES

1. LIMIT GROUND IRON BLAST FURNACE SLAG CONTENT TO 25% MAXIMUM IN MIX #2 CONCRETE.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

2-22-06

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

7" VALLEY GUTTER FOR PERPENDICULAR PARKING

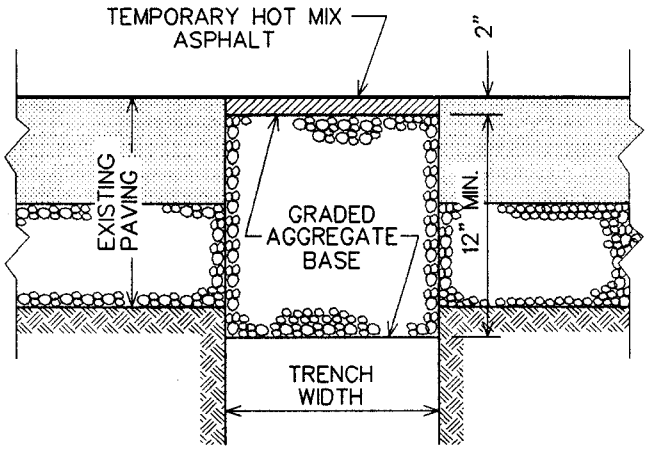
ISSUED: MAY, 1979
REVISED: MARCH, 1983
REVISED: NOVEMBER, 2005

PLATE

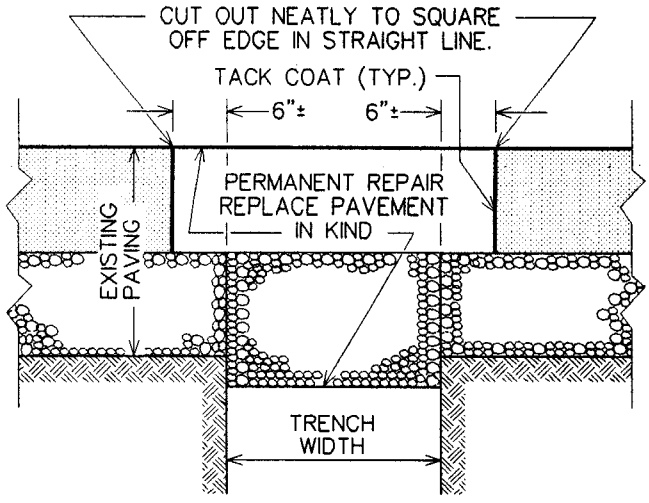
R-37

11/29/2005 10:47 AM

R-37.DWG



STAGE I - TEMPORARY



1. CLEAN THOROUGHLY BEFORE PAVING.
2. DEPTH OF PERMANENT REPAIR TO MATCH DEPTH OF EXISTING PAVING. HOT MIX ASPHALT BASE TO BE PLACED IN COURSES NOT TO EXCEED 4". SURFACE COURSE SHALL BE 1-1/2 ".

STAGE II - PERMANENT

NOTES :

1. REPLACE PAVING MATERIALS IN KIND AT SAME RELATIVE ELEVATION (PERMANENT).
2. MINIMUM ALLOWABLE SECTION = 3" HOT MIX ASPHALT / 11" GRADED AGGREGATE BASE.
3. PORTLAND CEMENT CONCRETE BASE AND SOIL CEMENT BASE MAY BE REPLACED WITH HOT MIX ASPHALT OF THE SAME DEPTH.
4. HOT MIX ASPHALT MAY BE USED IN PLACE OF PENETRATION MACADAM.
5. GRADED AGGREGATE BASE MAY BE USED IN PLACE OF WATER BOUND MACADAM.
6. GRADED AGGREGATE BASE NOT REQUIRED IF FLOWABLE FILL USED FOR BACKFILL.
7. STAGE II SHALL START 90 DAYS AFTER COMPLETION OF STAGE I.
8. TIME CHARGES IF IN SUSPENSION WILL RESUME 90 DAYS AFTER COMPLETION OF STAGE I.
9. TRENCH WIDTHS AND PAVEMENTS TO BE PER PLATES G-6 AND G-7.
10. FOR S.H.A. ROADS, TRENCH REPAIRS ARE TO CONFORM TO S.H.A. PERMIT REQUIREMENTS.
11. TACK COAT EDGES BETWEEN EXISTING BOUND PAVING AND HOT MIX ASPHALT PERMANENT REPAIR.
12. TEMPORARY HOT MIX ASPHALT SHALL BE 9.5mm (LEVEL 1) (PG 64-22).
13. PERMANENT HOT MIX ASPHALT SHALL BE 9.5mm (LEVEL 1) (PG 64-22). ON HIGHER CAPACITY NON-RESIDENTIAL ROADS, HMA LEVEL SHALL BE DETERMINED DURING DESIGN.

BALTIMORE COUNTY MARYLAND

APPROVAL
DIRECTOR
BUR. OF ENGINEERING/CONSTRUCTION
3/18/02
DATE

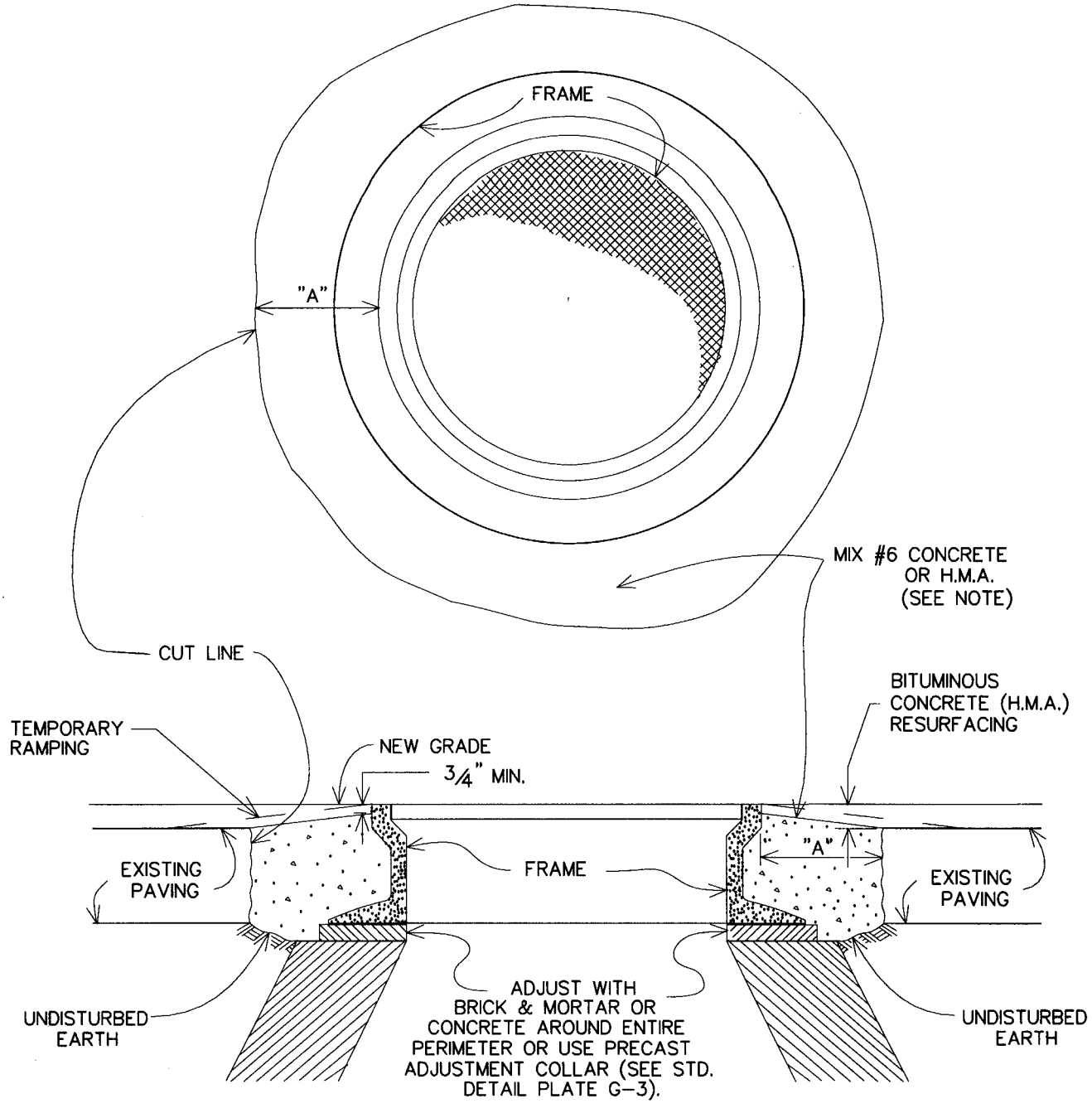
DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS

REPAVING TRENCH OPENINGS FLEXIBLE PAVING

ISSUED: MAY 1981
REVISED: FEBRUARY 1987
REVISED: MARCH 2002

PLATE
R-38

FEBRUARY 1987 A.A.V.



NOTES:

3" MAX. LIFTS OF HOT MIX ASPHALT (H.M.A.) BASE COURSE MIX MAY BE USED IN PLACE OF MIX #6 CONCRETE.

MIX #6 CONCRETE MUST REMAIN UNDISTURBED FOR 24 HOURS FOLLOWING PLACEMENT.

DIMENSION "A" IS 9" MIN. FOR MIX #6 CONCRETE; 24" MIN. FOR HOT MIX ASPHALT (H.M.A.)

IF AREA IS OPEN TO TRAFFIC BEFORE RESURFACING IS INSTALLED, THE CONTRACTOR MUST PROVIDE TEMPORARY RAMPING. MAXIMUM SLOPE = 1 INCH PER FOOT.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97

DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAIL

TYPICAL DETAIL FOR ADJUSTING UTILITY FRAME

ISSUED: MARCH 1983

REVISED: AUGUST 1997

REVISED:

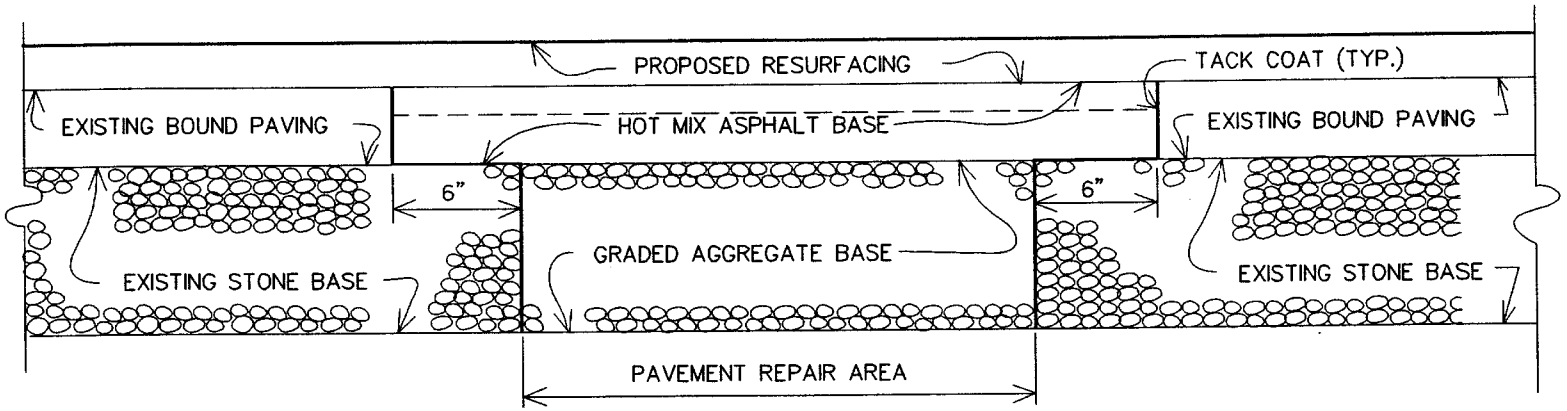
PLATE

R-39

APRIL 1995 / AVF / DAS

REPAIR OF PAVEMENT FAILURE AREAS

NOT TO SCALE



GENERAL NOTES

1. CUT OUT REPAIR AREA NEATLY TO SQUARE OFF EDGE IN STRAIGHT LINE. CLEAN THROUGHLY BEFORE PAVING.
2. REPLACE PAVING MATERIALS IN KIND AT SAME RELATIVE ELEVATION.
   a.) PORTLAND CEMENT CONCRETE BASE AND SOIL CEMENT BASE MAY BE REPLACED WITH HOT MIX ASPHALT OF THE SAME DEPTH.
   b.) HOT MIX ASPHALT MAY BE USED IN PLACE OF PENETRATION MACADAM.
   c.) GRADED AGGREGATE BASE MAY BE USED IN PLACE OF WATERBOUND MACADAM.
3. MINIMUM ALLOWABLE PAVING REPAIR SECTION: 3" HOT MIX ASPHALT SURFACE, 8" GRADED AGGREGATE BASE. HOWEVER, IF THE ENGINEER DETERMINES THAT NO FAILURE HAS OCCURRED IN EXISTING STONE BASE ONLY THE BITUMINOUS BOUND SECTION WILL BE REPLACED.
4. HOT MIX ASPHALT BASE TO BE PLACED IN A MINIMUM OF 2 COURSES. THE TOP COURSE IS TO BE NO GREATER THAN 1.5" WITH NO COURSE TO EXCEED 4" THICKNESS.
5. TACK COAT EDGES BETWEEN EXISTING BOUND PAVING AND HOT MIX ASPHALT BASE.

BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

11/24/99

DATE

DEPARTMENT OF PUBLIC WORKS
ROAD AND STREET DETAILS

PAVEMENT FAILURE REPAIRS

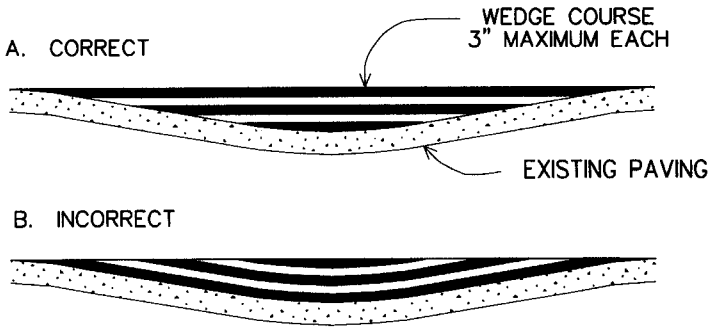
ISSUED: AUGUST, 1997
REVISED:
REVISED:

PLATE

R-41

REV. FEBRUARY 1985 J.A.V.

LEVELING WEDGES

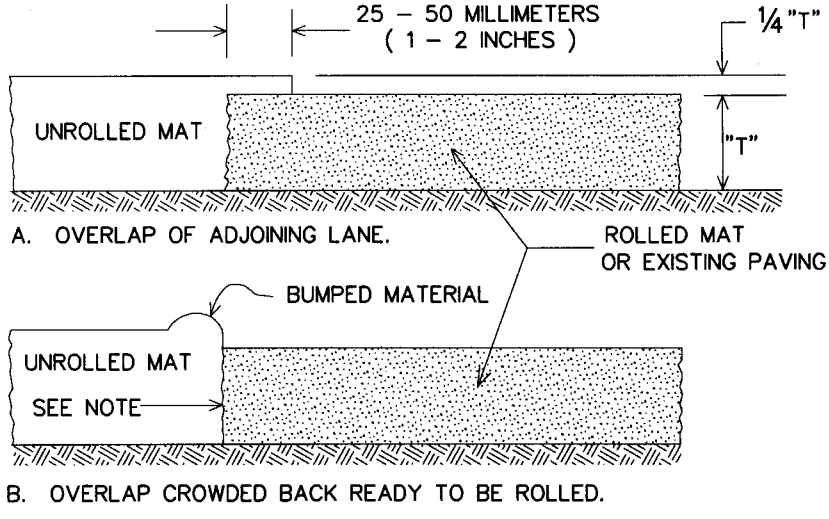


PREPARING LONGITUDINAL JOINTS

NOTE :

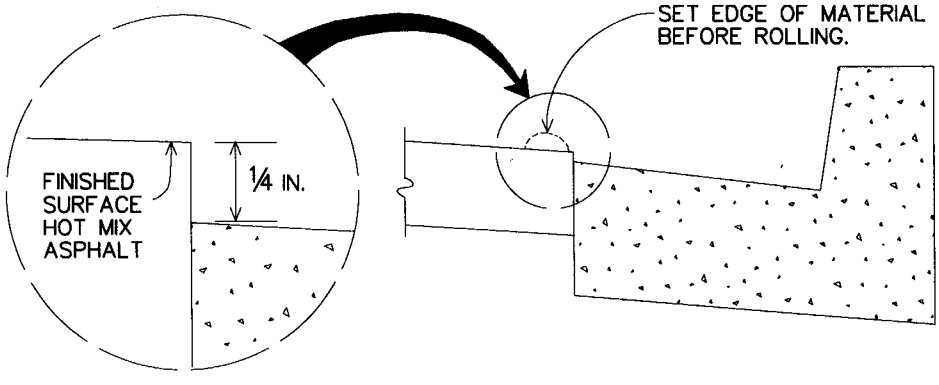
RECUT EDGE IF DIRTY, UNRAVELED OR ROLLED DOWN OR IF JOINT LINE IS NOT STRAIGHT.

TACK VERTICAL EDGE OF EXISTING PAVING OR ROLLED MAT IF IT IS NOT HOT.

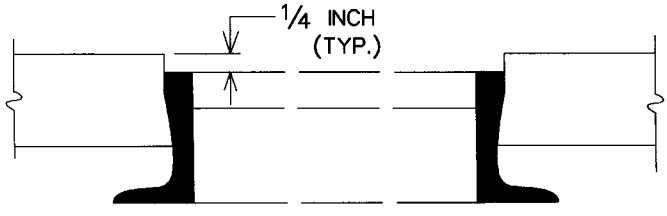


PAVING EDGES

AT GUTTER PAN NORMAL CURB AND GUTTER (WET GUTTER)



AT MANHOLE FRAMES AND FRAMES OF GRATES.



BALTIMORE COUNTY MARYLAND

APPROVAL

DIRECTOR

BUR. OF ENGINEERING/CONSTRUCTION

10/23/97
DATE

DEPARTMENT OF PUBLIC WORKS

ROAD & STREET DETAILS

HOT MIX ASPHALT PAVING CONSTRUCTION PRACTICES

ISSUED: AUGUST, 1997
REVISED:
REVISED:

PLATE

R-42

REV. FEBRUARY 1998 J.A.V.