HARRIS COUNTY

ENGINEERING DEPARTMENT

1001 Preston, 7th Floor Houston, Texas 77002 (713) 755-5370

June 17, 2019

American Council of Engineering Companies, Houston 2180 North Loop West, Suite 320 Houston, TX

SUBJECT: SUBMITTAL OF HARRIS COUNTY GEOMETRIC DESIGN GUIDELINES-2019

Dear ACEC Council Members,

Harris County has reviewed the current "City of Houston/Harris County Geometric Design Guidelines for Subdivision Streets" and have made revisions to the Guidelines. The revisions were made in accordance with the following publications:

- A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials (AASHTO)
- Texas Manual on Uniform Traffic Control Devices (TMUTCD), Texas Department of Transportation (TxDOT)
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Texas Department of Licensing and Regulation (TDLR)
- Infrastructure Design Manual, City of Houston
- Recommended Guidelines for Subdivision Streets, Institute of Transportation Engineers (ITE)
- Guidelines for Urban Major Streets Design, ITE

Harris County is submitting a draft set of drawings for ACEC's review. The draft set of Geometric Design Guidelines will have the following drawings:

- 1. Roadway Geometric Design Criteria for Harris County
- 2. Undivided Street Typical Cross Section
- 3. Divided Street Typical Cross Section
- 4. Intersection Geometry Curb Radius and Corner Cutback
- 5. Intersection Geometry Sight Distance Triangle
- 6. Median Design Median Length and Opening (1 of 2)
- 7. Median Design Median Length and Opening (2 of 2)
- 8. Median Design Median Nose and Left Turn Bay
- 9. Median Design Roadway Tapers for Median Design (Local Streets)
- 10. Street Termination Cul-de-sac
- 11. Non-residential Driveway Placement Criteria

12. Residential Driveway Placements on Local Streets

Please review the above, and contact us if you have any further questions or require additional information.

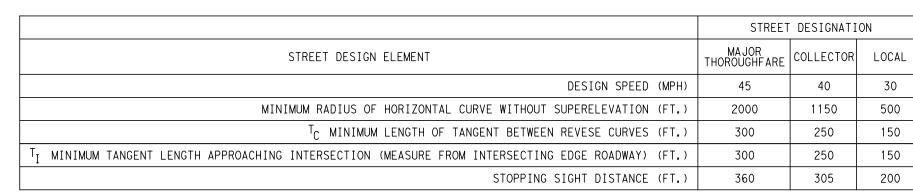
Thank you,

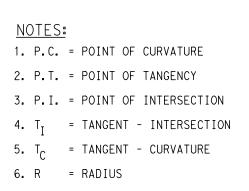
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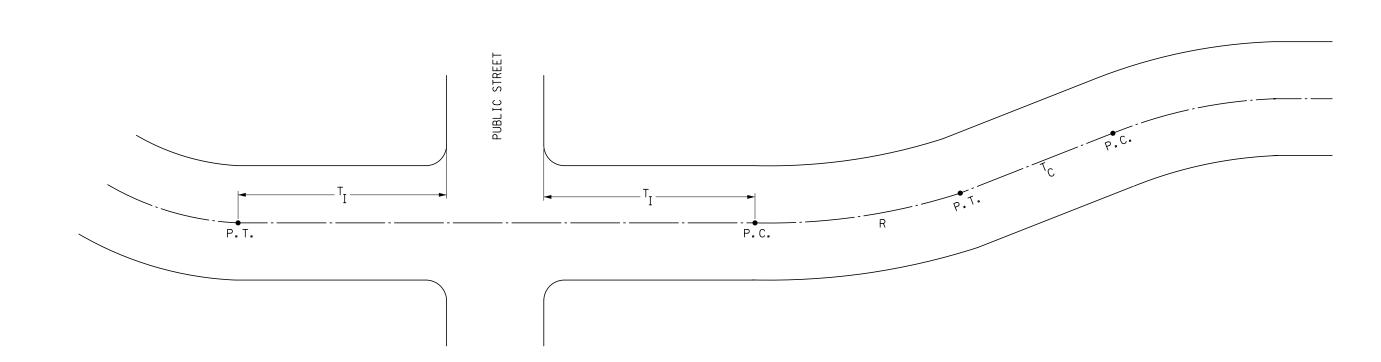
Brannan Hicks, P.E. Harris County Engineering Department Transportation and Planning Division Manager

Attachments

		DESIGN	SFEED (WIFH)	43	40	50		
		MINIMUM RADIUS OF HORIZONTAL CURVE WITHOUT SUPERELE	2000	1150	500			
		^T C MINIMUM LENGTH OF TANGENT BETWEEN REVESE	300	250	150			
	T _I Mi	T _I MINIMUM TANGENT LENGTH APPROACHING INTERSECTION (MEASURE FROM INTERSECTING EDGE ROADWAY) (FT.						
6		STOPPING SIGHT DI	TANCE (FT.)	360	305	200		
elines_01.d								
	REVISIONS DATE APP Image: Constraint of the second	HARRIS COUNTY ENGINEERING DEPARTMENT						

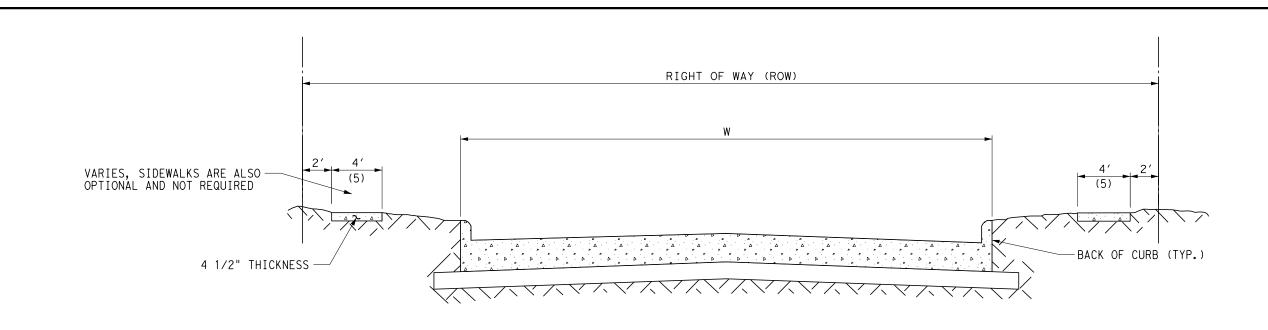






PROJECT TITLE:		
DRAWN BY:	ROADWAY GEOMETRIC	HCED STANDARD
CK'D BY:	DESIGN CRITERIA	_ GG-01
SCALE:		SHEET NO:
DATE:	APPROVED BY:	





ROADWAY CLASSIFICATION (W)		DOUBLE PAVING SECTION (W)	SINGLE PAVING SECTION WITH ROADSIDE DITCHES (W)	DOUBLE PAVING SECTION WITH ROADSIDE DITCHES (W)			
LOCAL	28 FT. (B-B)	2/25 FT. (B-B)	22 FT. (E-E) WITH 6 FT. SHOULDERS	2/24 FT. (E-E) WITH 6 FT. SHOUL			
COLLECTOR	41 FT. (B-B)	2/25 FT. (B-B)	41 FT. (E-E) WITH 6 FT. SHOULDERS	2/24 FT. (E-E) WITH 6 FT. SHOUL			
B-B: BACK TO BACK							

E-E: EDGE TO EDGE

NOTES:

- 1. ABUTTING LAND USE: AS DETERMINED BY PLAT
- 2. WIDTH (W) DOES NOT INCLUDE WIDTH FOR BICYCLE LANES. BICYCLE LANES REQUIRE APPROVAL OF COUNTY ENGINEER.
- 3. REQUESTS FOR ALTERNATIVE STREET CROSS SECTION SHALL BE SUBMITTED TO COUNTY ENGINEER FOR REVIEW.
- 4. 4 FT. MINIMUM WIDTH IS STANDARD FOR NON-TRANSIT CORRIDOR STREETS WITH 5 FT. X 5 FT. LANDING SPACE AT INTERVALS OF 200 FT. MINIMUM WIDTH FOR TRANSIT CORRIDOR STREETS IS 6 FT.
- 5. REFER TO THE LATEST VERSION OF "REGULATIONS OF HARRIS COUNTY, TEXAS, FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" FOR SUBDIVISION REGULATIONS AND OTHER DESIGN DETAILS.

1:50 MAX CROSS SLOPE

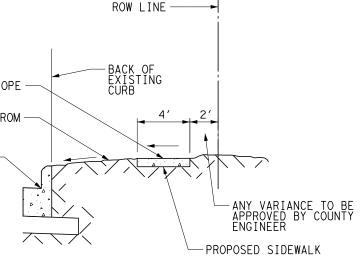
3/8" PER FT. (MIN.) SLOPE FROM SIDEWALK TO BACK OF CURB

EXISTING CURB AND GUTTER LINE -

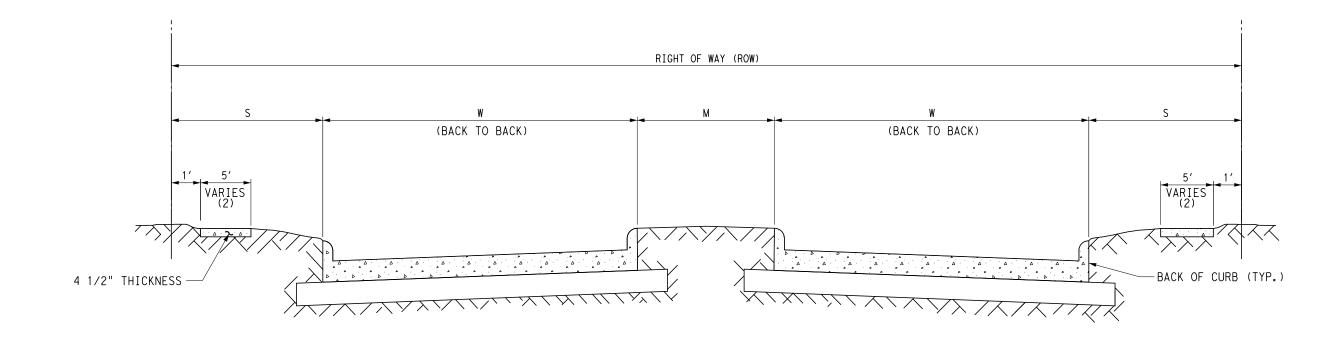
USE WHEN SIDEWALK TO BE BUILT OTHER THAN DRIVEWAY

NO. REVISIONS DATE APP HARRIS COUNTY ENGINEERING DEPARTMENT	
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PROJECT 1	π.ε.	
DRAWN BY: CK'D BY:	UNDIVIDED STREET	standard
SCALE: N DATE:	TYPICAL CROSS SECTION	SHEET NO:







		4 LANES	4 LANES	4 LANES	6 LANES	
ROADWAY CLASSIFICATION	ROW(1)	80 FT.	90 FT.	100 FT.	100 FT.	>100 FT.
	W	25 FT.(B-B)	25 FT.(B-B)	25 FT.(B-B)	34 FT.(B-B)	NTY ER
COLLECTOR OR MAJOR THOROUGHFARE	м	13 FT.	21 FT.	31 FT.	12 FT.	SEE COUNTY ENGINEER
	S	8.5 FT.	9.5 FT.	9.5 FT.	9.5 FT.	

REVISIONS

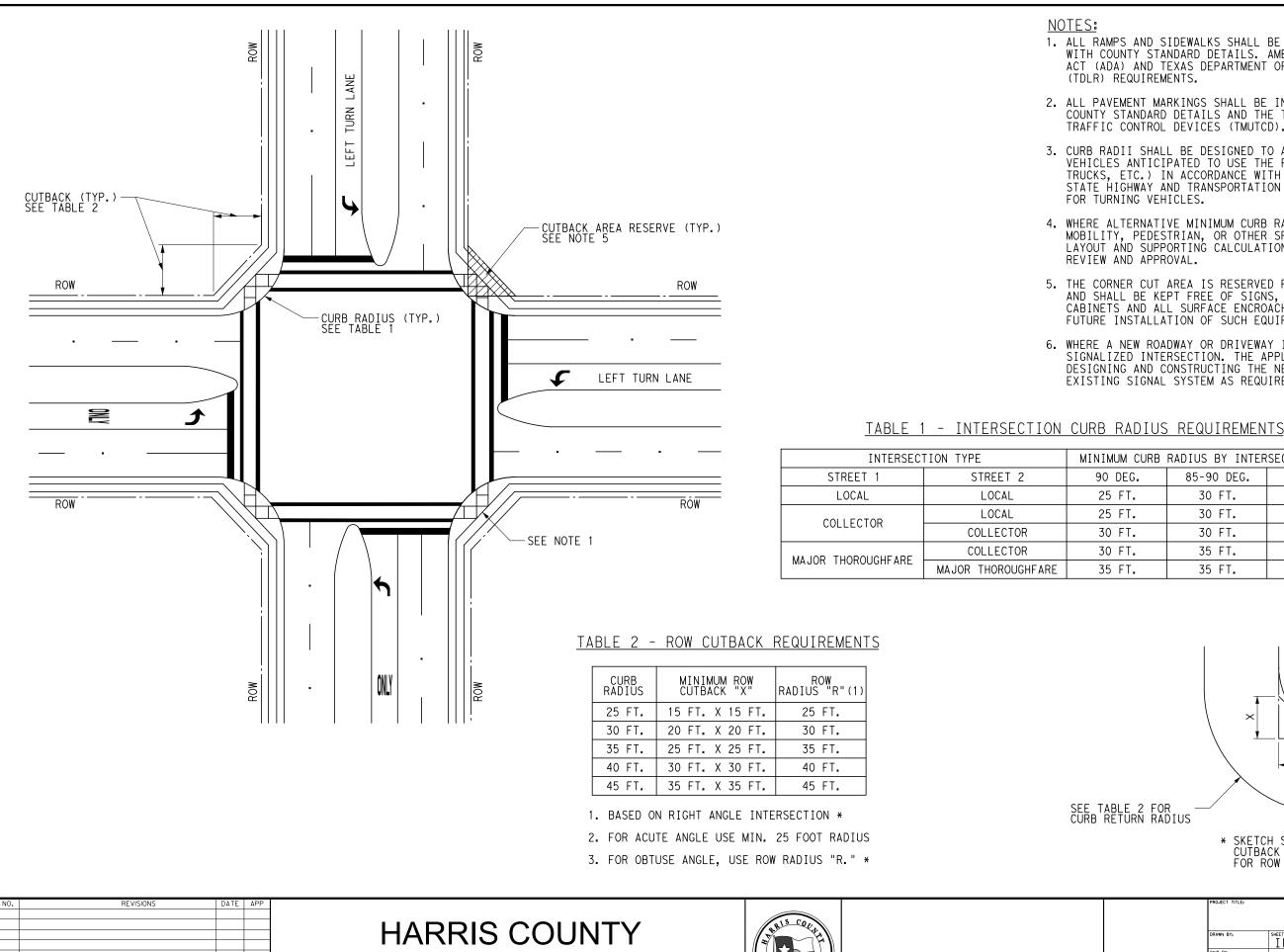
DATE APP

NOTES:

- 1. ANY RIGHT OF WAY (ROW) DIMENSIONS DIFFERENT FROM THOSE SHOWN SHALL REQUIRE SPECIAL GEOMETRIC DESIGN AS DETERMINED BY COUNTY ENGINEER.
- 2. 4 FT. MINIMUM WIDTH IS STANDARD FOR NON-TRANSIT CORRIDOR STREETS WITH 5 FT. X 5 FT. LANDING SPACE AT INTERVALS OF 200 FT. MINIMUM WIDTH FOR TRANSIT CORRIDOR STREETS IS 6 FT.
- 3. ALL SIDEWALKS AND DRIVEWAYS SHALL CONFORM TO THE LATEST REVISION OF THE "REGULATIONS OF HARRIS COUNTY FOR THE CONSTRUCTION OF DRIVEWAYS AND CULVERTS ON COUNTY EASEMENTS AND RIGHT-OF-WAY" AND ON ACCORDANCE WITH THE REQUIREMENTS OF THE TEXAS DEPARTMENT OF LICENSING AND REGULATIONS (TDLR).



PROJECT TITLE:		
DRAWN BY:	SHEET DESCRIPTION: DIVIDED STREET	HCED STANDARD
CK'D BY:	TYPICAL CROSS SECTION	GG-03
SCALE: NTS		SHEET NO:
DATE:	APPROVED BY:	



ENGINEERING DEPARTMENT

SEE TABLE 2 FOR CURB RETURN RADIUS

1. ALL RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH COUNTY STANDARD DETAILS. AMERICANS WITH DISABILITIES ACT (ADA) AND TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR) REQUIREMENTS.

2. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH COUNTY STANDARD DETAILS AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

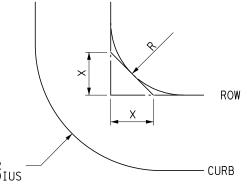
3. CURB RADII SHALL BE DESIGNED TO ACCOMMODATE THE TYPE OF VEHICLES ANTICIPATED TO USE THE FACILITY, (I.E. BUSES, TRUCKS, ETC.) IN ACCORDANCE WITH AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) CRITERIA FOR TURNING VEHICLES.

4. WHERE ALTERNATIVE MINIMUM CURB RADIUS IS REQUIRED TO SERVE MOBILITY, PEDESTRIAN, OR OTHER SPECIAL NEEDS, SUBMIT DESIGN LAYOUT AND SUPPORTING CALCULATIONS TO COUNTY ENGINEER FOR REVIEW AND APPROVAL.

5. THE CORNER CUT AREA IS RESERVED FOR TRAFFIC SIGNAL EQUIPMENT AND SHALL BE KEPT FREE OF SIGNS, POLES, PRIVATE UTILITY, CONTROL CABINETS AND ALL SURFACE ENCROACHMENTS, WHICH COULD PREVENT THE FUTURE INSTALLATION OF SUCH EQUIPMENT WITHIN THE AREA.

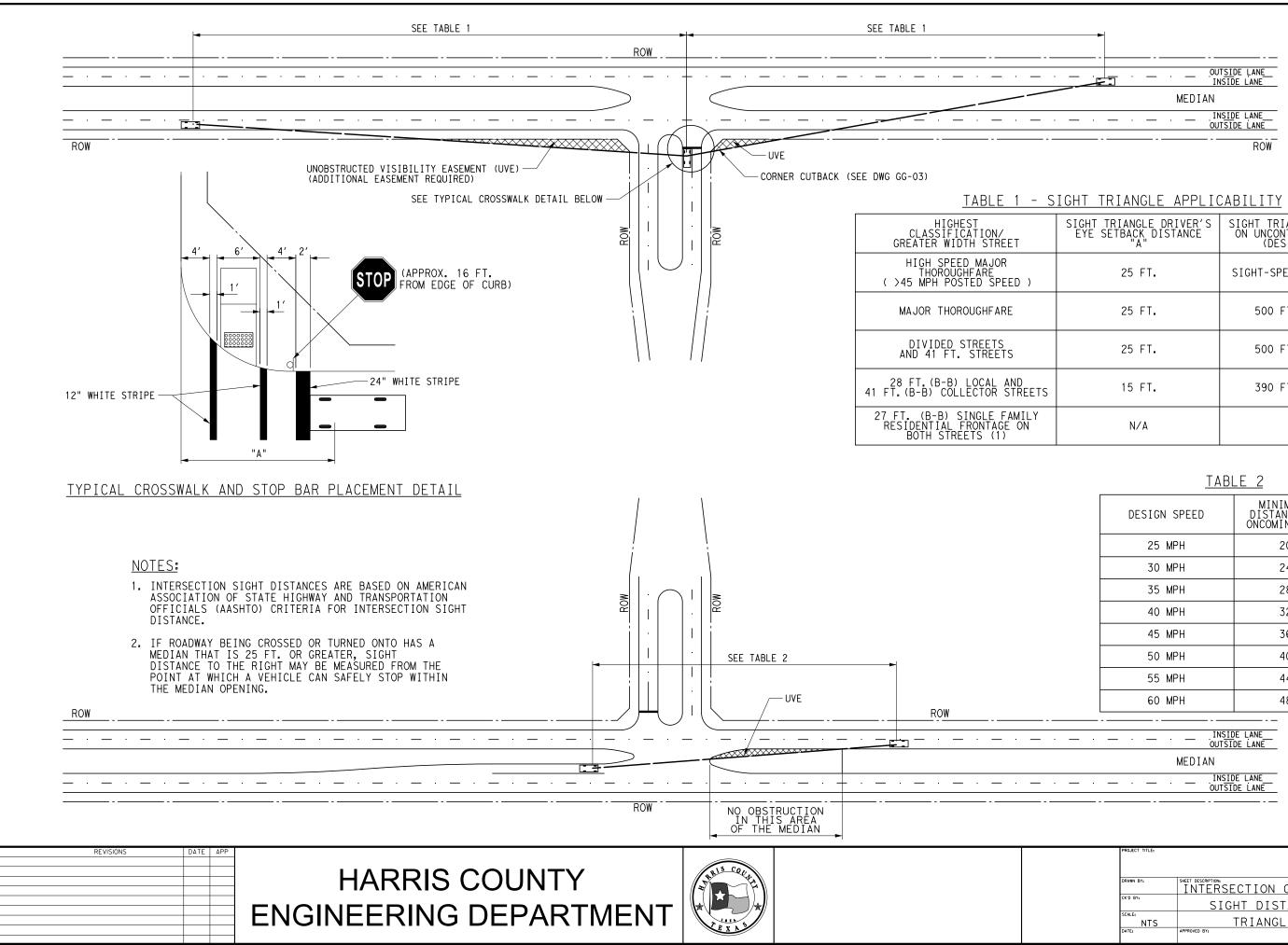
6. WHERE A NEW ROADWAY OR DRIVEWAY IS CONNECTING TO AN EXISTING SIGNALIZED INTERSECTION. THE APPLICANT SHALL BE RESPONSIBLE FOR DESIGNING AND CONSTRUCTING THE NECESSARY MODIFICATIONS TO THE EXISTING SIGNAL SYSTEM AS REQUIRED BY COUNTY ENGINEER.

INIMUM CURB	RADIUS BY INTER	SECTION ANGLE
90 DEG.	85-90 DEG.	80-85 DEG.
25 FT.	30 FT.	30 FT.
25 FT.	30 FT.	30 FT.
30 FT.	30 FT.	35 FT.
30 FT.	35 FT.	35 FT.
35 FT.	35 FT.	40 FT.



* SKETCH SHOWS ACCEPTABLE PROPERTY CUTBACK DISTANCE "X" AS SUBSTITUTE FOR ROW RADIUS "R." FOR ROW RADIUS

PROJECT TITLE:		
DRAWN BY:	INTERSECTION GEOMETRY	STANDARD
CK'D BY:	CURB RADIUS AND	GG-04
SCALE: NTS	CORNER CUTBACK	SHEET NO:
DATE:	APPROVED BY:	

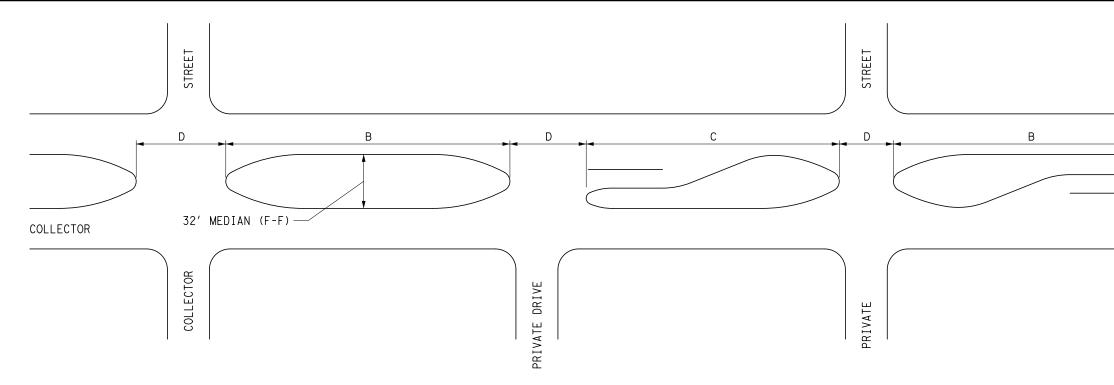


	SIGHT TRIANGLE DRIVER'S EYE SETBACK DISTANCE "A"	SIGHT TRIANGLE DIMENSION ON UNCONTROLLED STREET (DESIGN SPEED)
)	25 FT.	SIGHT-SPECIFIC ANALYSIS
	25 FT.	500 FT. (45 MPH)
	25 FT.	500 FT. (45 MPH)
EETS	15 FT.	390 FT. (35 MPH)
ILY N	NZA	N/A

DESIGN SPEED	MINIMUM SIGHT DISTANCE (SD) TO ONCOMING VEHICLES
25 MPH	200 FT.
30 MPH	240 FT.
35 MPH	280 FT.
40 MPH	320 FT.
45 MPH	360 FT.
50 MPH	400 FT.
55 MPH	440 FT.
60 MPH	480 FT.

		_	•		•		•	_	INSIDE LANE OUTSIDE LANE
								MEDI	AN
—	•	—	٠	—	•	—	÷	—	INSIDE LANE OUTSIDE LANE

PROJEC	OT TITLE:		
DRAWN	BY.	SHEET DESCRIPTION:	HCED
UNA IN	0.	INTERSECTION GEOMETRY	STANDARD
CK'D E		INTERSECTION GEOMETRI	
CKID E	·*:	SIGHT DISTANCE	GG-05
		SIGHT DISTANCE	
SCALE			SHEET NO:
	NTS	TRIANGLE	
DATE		APPROVED BY:	



MINIMUM MEDIAN LENGTH - A & B

	IF INTERSECTING CROSS STREET IS:				
IF ROADWAY IS:	MA JOR THOROUGHFARE (A)	COLLECTOR STREET (B)	LOCAL STREET (C)	PRIVATE STREET OR DRIVEWAY (C)	
MA JOR THOROUGHF ARE	500 FT.	350 FT.	300 FT.	300 FT.	
COLLECTOR STREET	350 FT.	350 FT.	300 FT.	300 FT.	
LOCAL STREET	300 FT.	300 FT.	300 FT.	300 FT.	

TYPICAL MEDIAN OPENING - C

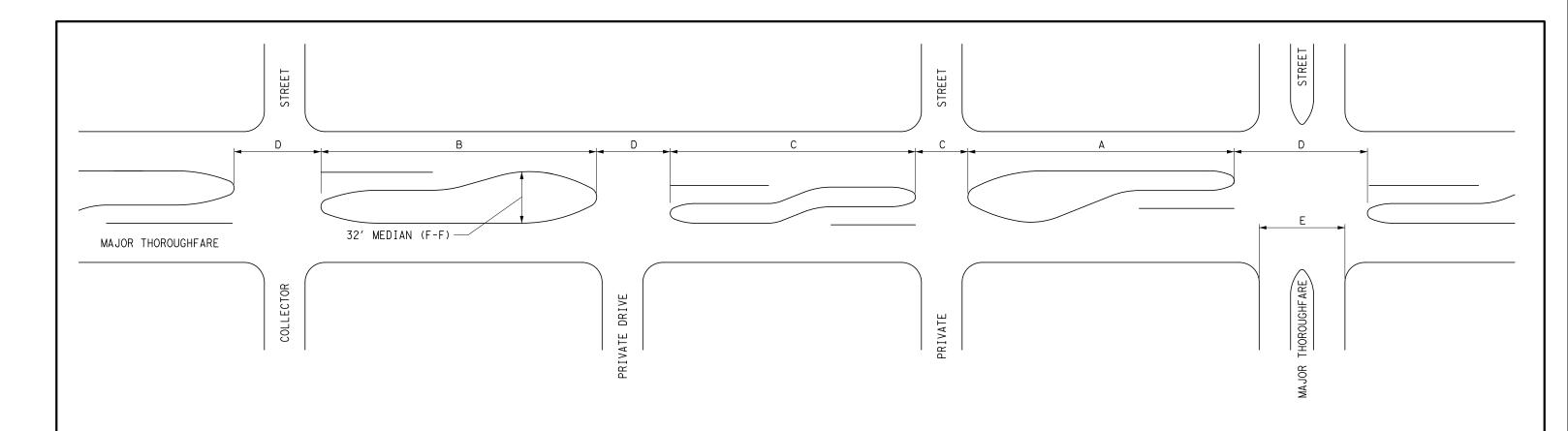
MEDIAN INTERRUPTION FOR	NO LTB ⁽¹⁾	1 LTB ⁽¹⁾	2 LTB ⁽¹⁾
PRIVATE DRIVE	45 FT.	52.5 FT.	60 FT.
UNDIVIDED STREET <40 FT. 44 FT.	45 FT. 50 FT.	52.5 FT.(2) 55 FT.(2)	60 FT. 60 FT.
DIVIDED STREET ALL	E+24 FT.	E+24 FT.	E+24 FT.

<u>NOTES:</u> 1. ltb - left turn bay.

- 2. DISTANCE FROM CENTERLINE OF OPENING TO MEDIAN NOSE WITH LEFT TURN LANE IS 30 FT. FOR RIGHT ANGLE INTERSECTIONS. FOR INTERSECTIONS OTHER THAN 90 DEGREES, APPLY DESIGN VEHICLE TURNING TEMPLATE TO DETERMINE DIMENSION TO MEDIAN NOSE CUT-OFF.
- 3. DIMENSIONS A, B, C AND D ARE MEASURED FACE TO FACE (F-F).

22/2019 Geometric Design Guidell	NO.	REVISIONS	DATE	APP	HARRIS COUNTY ENGINEERING DEPARTMENT	TEX 15	
5/2							

	12' MIN.	MAJOR THOROUGHFARE MAJOR THOROUGHFARE	12′ MIN.	
	Row	MAJOR TH	L ROW	
ROW		D		>>>
			Section	
	<u>c</u> 5	RAWN BY: (D BY: CALE: NTS TE:	SHEET DESCRIPTION MEDIAN DESIGN MEDIAN LENGTH AND OPENING APPROVED BY:	STANDARD GG-06 SHEET NOL



MINIMUM MEDIAN LENGTH - A & B

	IF INTERSECTING CROSS STREET IS:				
IF ROADWAY IS:	MA JOR THOROUGHFARE (A)	COLLECTOR STREET (B)	LOCAL STREET (C)	PRIVATE STREET OR DRIVEWAY (C)	
MA JOR THOROUGHFARE	500 FT.	350 FT.	350 FT.	300 FT.	
COLLECTOR STREET	350 FT.	350 FT.	350 FT.	300 FT.	
LOCAL STREET	300 FT.	300 FT.	350 FT.	300 FT.	

* TYPICAL MEDIAN OPENING - D

MEDIAN INTERRUPTION FOR	NO LTB ⁽¹⁾	1 LTB ⁽¹⁾	2 LTB ⁽¹⁾		
PRIVATE DRIVE	45 FT.	52.5 FT.	60 FT.		
UNDIVIDED STREET <40 FT. 44 FT.	45 FT. 50 FT.	52.5 FT.(2) 55 FT.(2)	60 FT. 60 FT.		
DIVIDED STREET ALL	E+28 FT.	E+28 FT.	E+28 FT.		
* MEDIAN NOSE PLACEMENT CONTINGENT ON CROSSWALK AND					

STOP BAR PLACEMENT

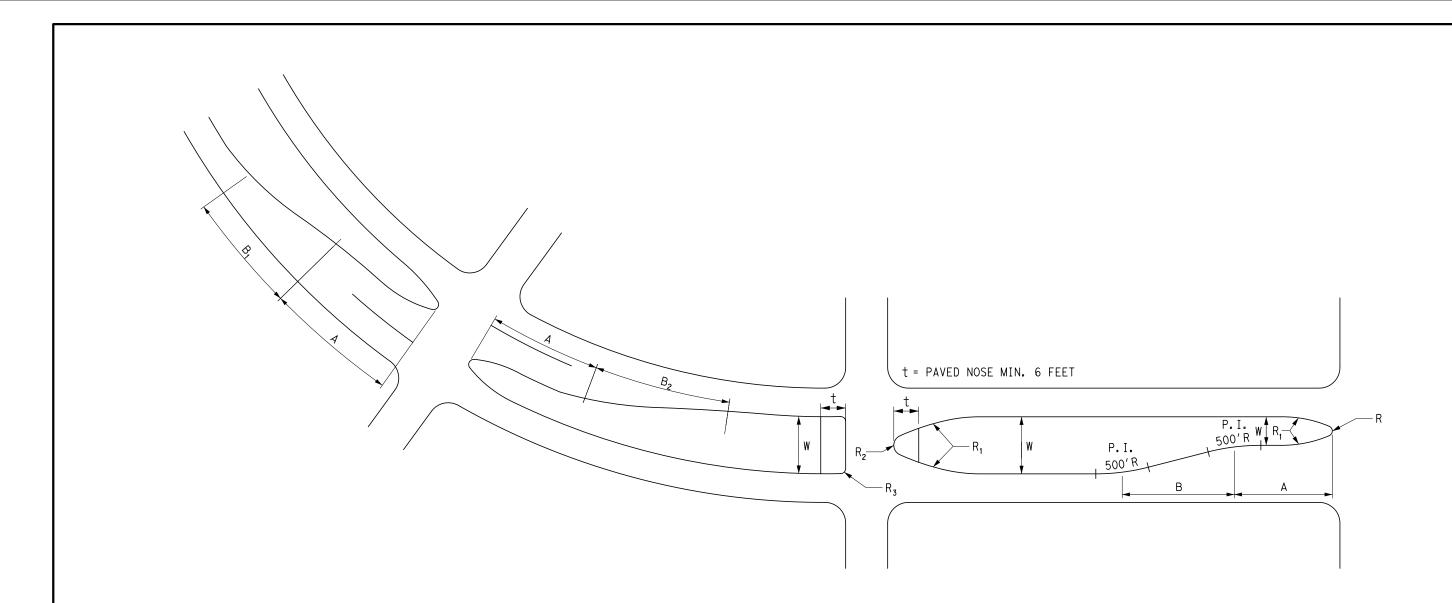
NOTES:

1. LTB - LEFT TURN BAY.

- 2. DISTANCE FROM CENTERLINE OF OPENING TO MEDIAN NOSE WITH LEFT TURN LANE IS 30 FT. FOR RIGHT ANGLE INTERSECTIONS. FOR INTERSECTIONS OTHER THAN 90 DEGREES, APPLY DESIGN VEHICLE TURNING TEMPLATE TO DETERMINE DIMENSION TO MEDIAN NOSE CUT-OFF.
- 3. DIMENSIONS A, B, C, D AND E ARE MEASURED FACE TO FACE (F-F).

/2019 sometric Design Guide	NO.	REVISIONS	DATE	HARRIS COUNTY ENGINEERING DEPARTMENT	ALS COURT	
5/22/3					E X A S	

PROJECT TITLE:		
DRAWN BY:	SHEET DESCRIPTION: MEDIAN DESIGN	HCED STANDARD
CK'D BY:	MEDIAN LENGTH AND	GG-07
SCALE: NTS	OPENING	SHEET NO:
DATE:	APPROVED BY:	

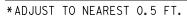


MEDIAN	DIMENSIONS

W (F-F)	R_1^*	R_2^*	R_3^*
<u>≺</u> 10 FT.	NONE	<u>₩</u> 2	NONE
>10 FT. <u>≺</u> 44 FT.	90 FT.	<u>₩</u> 5	NONE
>44 FT.	NONE	NONE	15 FT.

NOTES:

- 1. DIMENSIONS MAY BE ADJUSTED AS DETERMINED BY COUNTY ENGINEER.
- 2. P.I. = POINT OF INTERSECTION.
- 3. F-F = FACE TO FACE.



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HARRIS COUNTY ENGINEERING DEPARTMENT	AND S COUPTIE	
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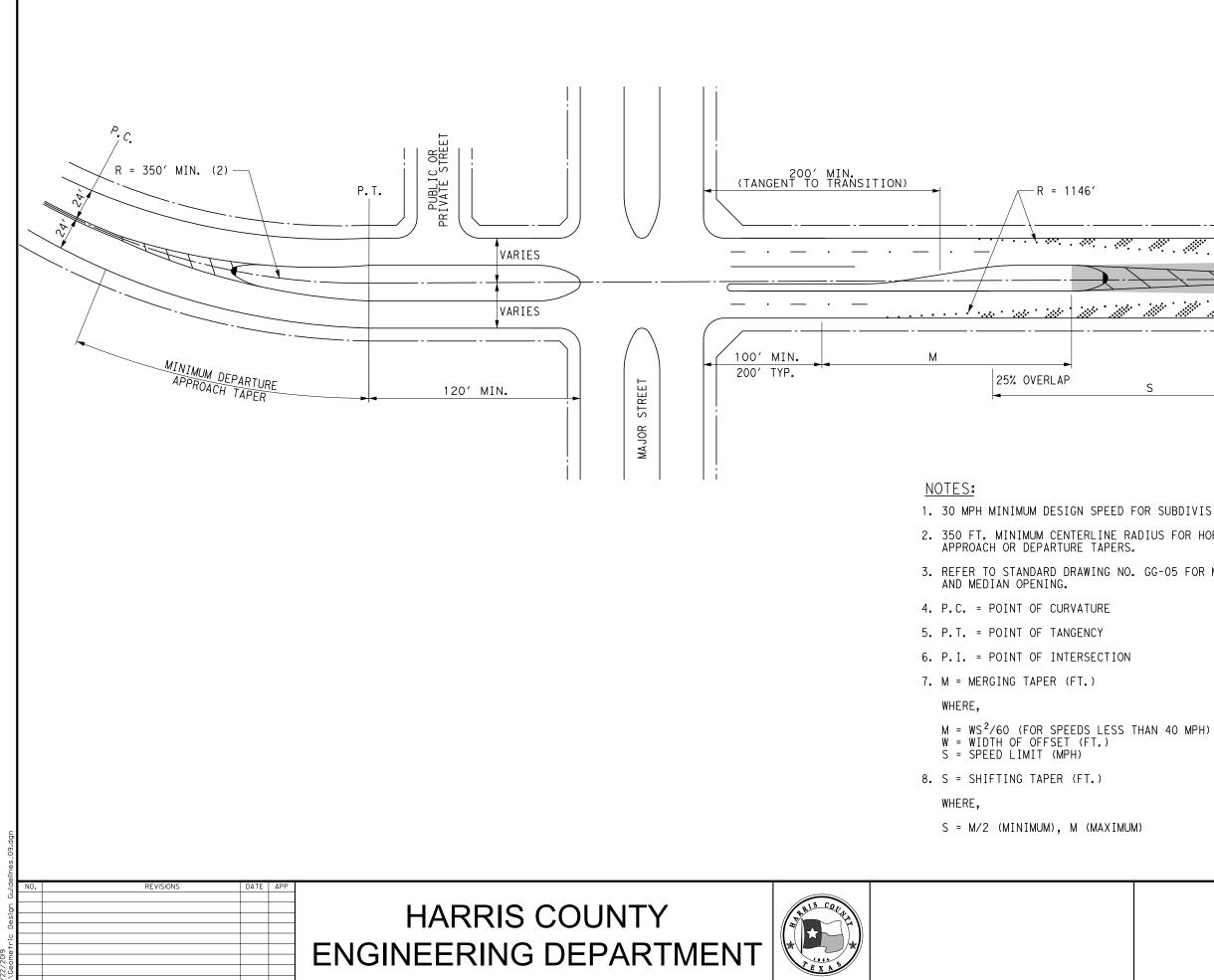
LEFT TURN BAY DIMENSIONS

A = 250 FT. MINIMUM AT INTERSECTION OF TWO MAJOR STREETS. 100 FT. MINIMUM AT ALL OTHER INTERSECTIONS.

B = 100 FT. MINIMUM ON STRAIGHT ROADWAY.

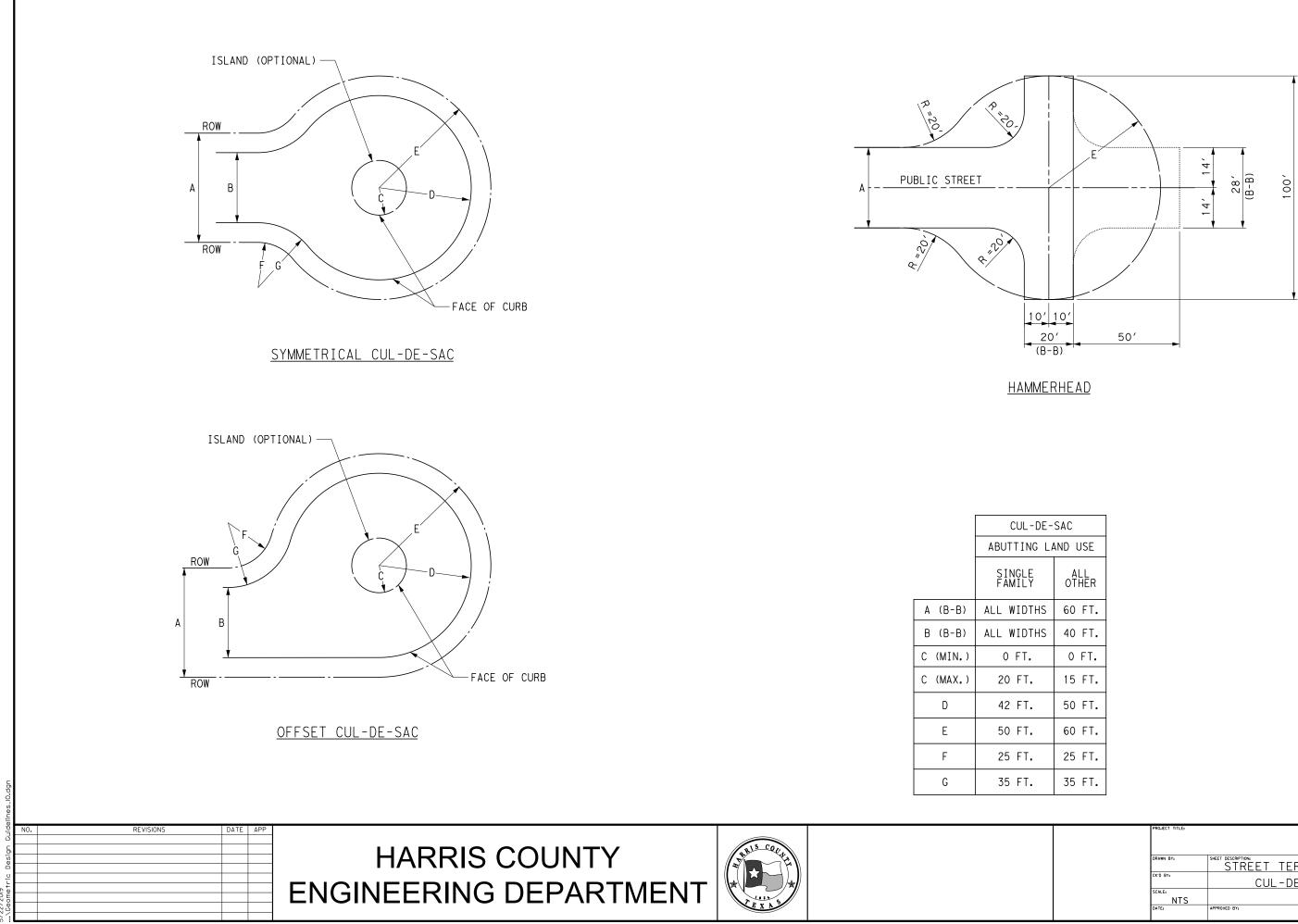
B, = TAPER LENGTH MAY BE SHORTER IF IT IS ON A HORIZONTAL CURVE TO THE LEFT. B_2 = TAPER LENGTH MAY BE LONGER IF THE CURVE IS TO THE RIGHT.

PROJECT TITLE:		
DRAWN BY:	MEDIAN DESIGN	HCED STANDARD
CK'D BY:	MEDIAN NOSE AND	GG-08
SCALE: NTS	LEFT TURN BAY	SHEET NO:
DATES		



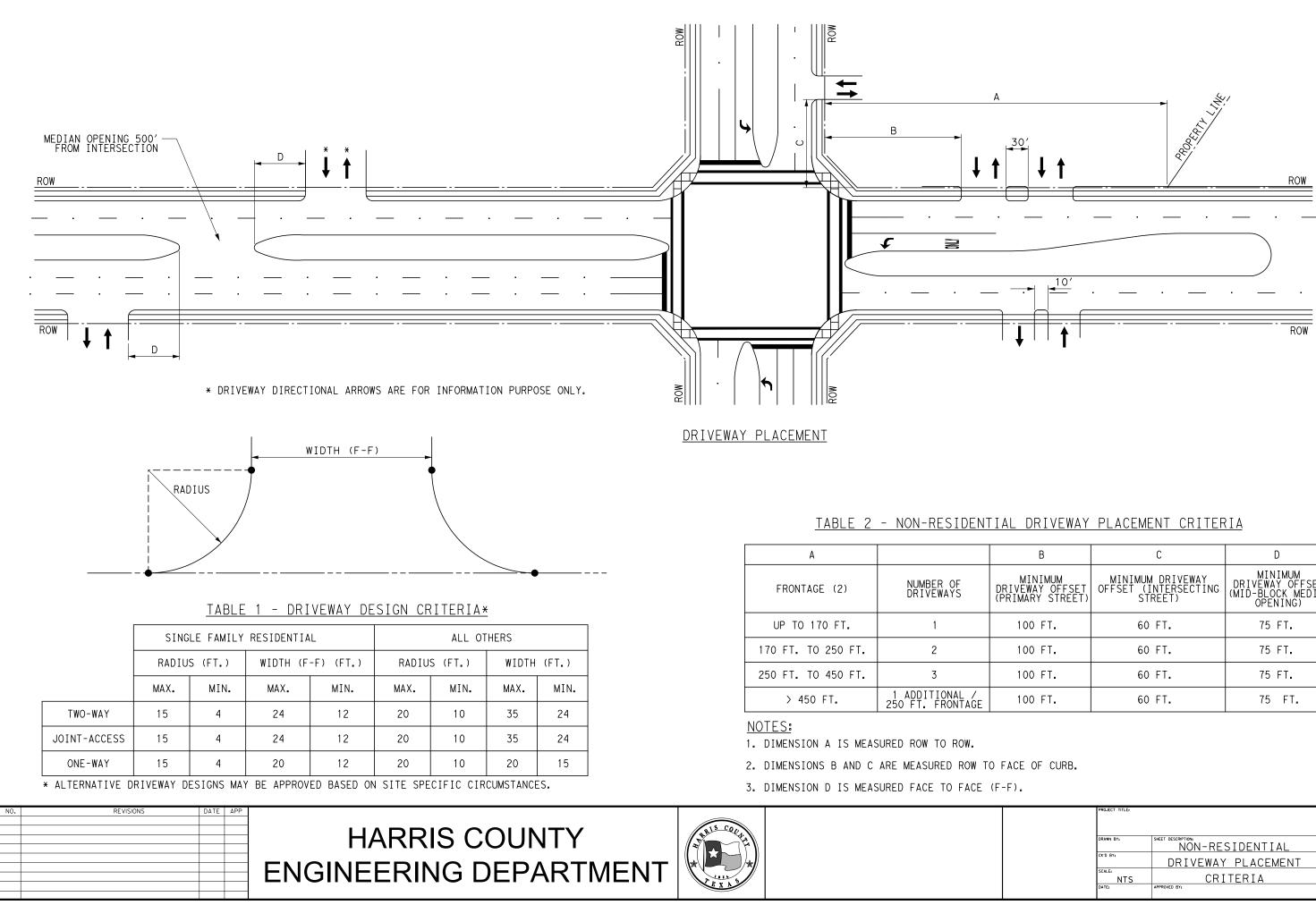
R = 1146′ROW
2' SEPARATION
<u>12' TYP.</u> 12' TYP.
······································
S
 ₽. I.
FOR SUBDIVISION STREETS.
RADIUS FOR HORIZONTAL CURVE WITH
. GG-05 FOR MEDIAN LENGTHS

PROJECT TITLE:		
DRAWN BY:	SHEET DESCRIPTION	HCED STANDARD
CK'D BY:	ROADWAY TAPERS FOR MEDIAN	GG-09
	DESIGN (LOCAL STREETS)	SHEET NO:
DATES		



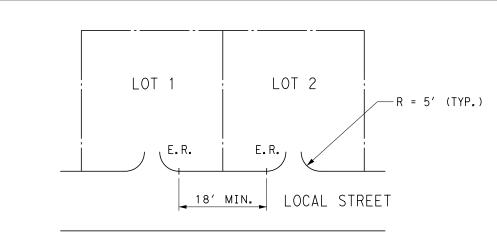
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ND USE	-
ALL OTHE	R
60 F	г.
40 F	r.
0 F1	
15 F	Γ.
50 F	г.
60 F	٢.
25 FT	Γ.
35 F	٢.

PROJECT TITLE:		
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SCALE: NTS DATE:		SHEET NO:

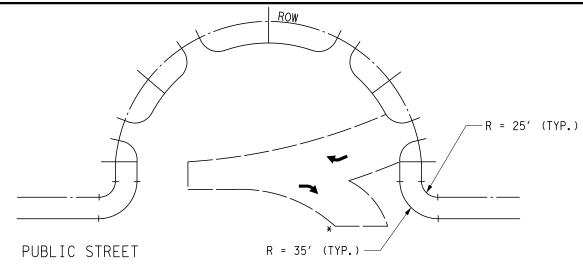


С	D
MINIMUM DRIVEWAY OFFSET (INTERSECTING STREET)	MINIMUM DRIVEWAY OFFSET (MID-BLOCK MEDIAN OPENING)
60 FT.	75 FT.
	MINIMUM DRIVEWAY OFFSET (INTERSECTING STREET) 60 FT. 60 FT. 60 FT.

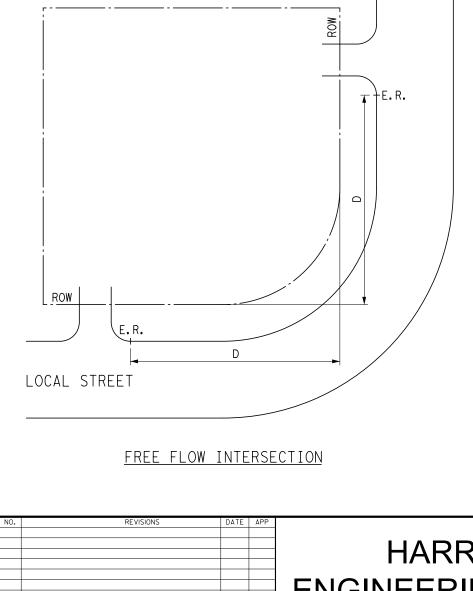
PROJECT TITLE:		
DRAWN BY: CK'D BY:	SWEET DESCRIPTION NON-RESIDENTIAL DRIVEWAY PLACEMENT	standard GG – 11
SCALE: NTS DATE:		SHEET NO:

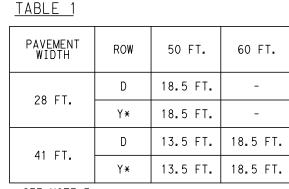


MINIMUM DRIVEWAY DISTANCE FOR RESIDENTIAL LOTS E.R. - END OF RADIUS



KNUCKLE, BULB, AND OFFSET BULB *TURNING TEMPLATE MAY BE REQUIRED TO ENSURE A VEHICLE CAN BACK OUT OF THE DRIVEWAY WITHOUT IMPACTING THRU-TRAFFIC.





* SEE NOTE 3.

NOTES:

- 1. REFER TO INTERSECTION GEOMETRY CURB RADIUS AND CORNER CUTBACK SHEET.
- 2. DRIVEWAYS SHALL NOT BE LOCATED WITHIN THE SIGHT TRIANGLE. REFER TO INTERSECTION GEOMETRY SIGHT TRIANGLE SHEET.
- 3. DISTANCE BASED ON 25 FT. CURB RADIUS (15 FT. X 15 FT. CORNER CUTBACK) AND 30 FT. CURB RADIUS (20 FT. X 20 FT. CORNER CUTBACK). FOR ALL OTHER CURB RADIUS AND CORNER CUTBACKS, APPROVAL WILL BE REQUIRED BY COUNTY ENGINEER.
- DRIVEWAYS SHALL NOT BE LOCATED WHERE IT MAY IMPACT FUTURE PLACEMENT OF ONE ADA-COMPATIABLE CURB RAMP.

