HISTORIC AND DESIGN REVIEW COMMISSION

September 02, 2015 Agenda Item No: 1

HDRC CASE NO: 2015-346

COMMON NAME: N San Saba from Houston to W Travis

CITY COUNCIL DIST.:

APPLICANT: Carmen Valera-Rivas/City of San Antonio OWNER: Carmen Valera-Rivas/City of San Antonio

TYPE OF WORK: Capital improvements, site work and landscaping

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to:

- 1. Construct curbs, ramps, sidewalks and driveway approaches along the first four hundred feet of the east side of N San Saba from W Houston to W Martin.
- 2. Mill and overlay from W Houston to W Martin and replace asphalt bus pads from W Commerce to W Houston and from W Houston to W Martin.
- 3. Remove and replace the existing inlet on the northeast corner of W Houston and N San Saba.
- 4. Landscape the area between the new curb and sidewalk to be installed.

APPLICABLE CITATIONS:

Sec. 35-646. - Construction in Public Rights-of-Way.

- (a) General Provisions. All construction in the public right-of-way shall conform to all city codes. In considering an application, the historic and design review commission shall be guided by the following:
- (1) Sidewalk Zones. Pedestrian movement should be pleasant, allowing for store browsing, comfortable transit waiting and easy accessibility for disabled people. Where possible, sidewalks should at least five (5) feet in width. Existing sidewalks should not be narrowed when replaced.
- (2) Sidewalk Paving and Surfaces. Materials should complement stylistic differences of individual buildings, particularly when related to historic buildings.
- A. Materials. Materials should be chosen for beauty, strength, longevity, easy maintenance and traction when dry or wet.
- B. Color and Texture. To ensure the safety of pedestrians, all changes in surfaces should be defined by contrasting color, texture or materials.

FINDINGS:

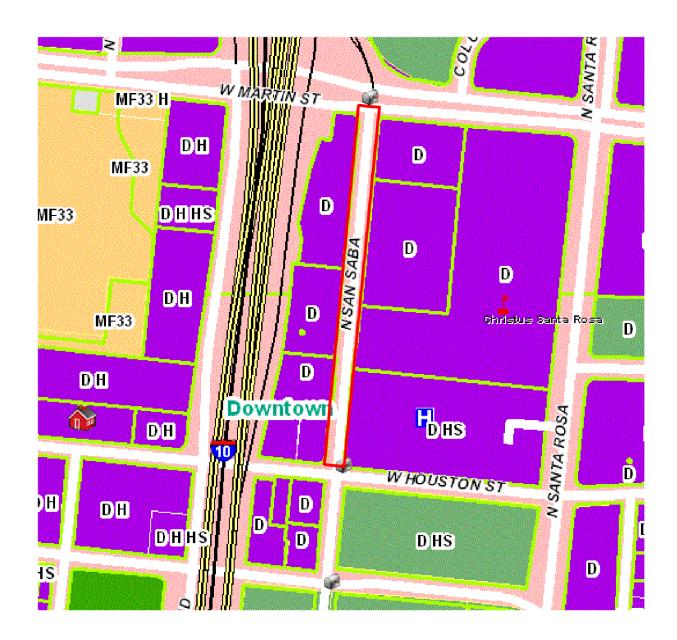
- a. The applicant has proposed various capital improvements to N San Saba from W Houston to W Martin which will improve pedestrian traffic and improve access to public transportation. This is consistent with the UDC Section 35-646.
- b. The applicant has proposed to install landscaping as a buffer between the new curb and new sidewalk installations. The applicant has noted that this installation will only include shrubbery to be no taller than two and one half feet in height. This is consistent with the UDC.

RECOMMENDATION:

Staff recommends approval as submitted based on findings a and b.

CASE MANAGER:

Edward Hall





Flex Viewer

Powered by ArcGIS Server

Printed:Aug 25, 2015

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N. San Saba from W. Houston to W. Martin



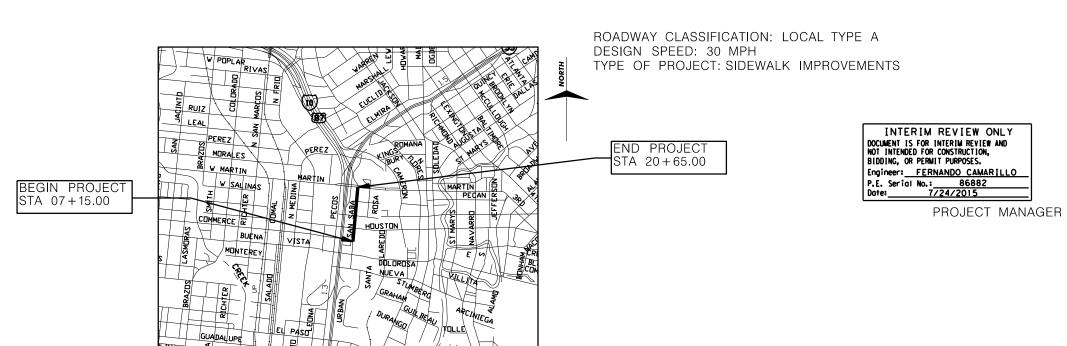






CITY OF SAN ANTONIO

TRANSPORTATION & CAPITAL IMPROVEMENTS N. SAN SABA SIDEWALK IMPROVEMENTS (W. HOUSTON TO W. MARTIN)

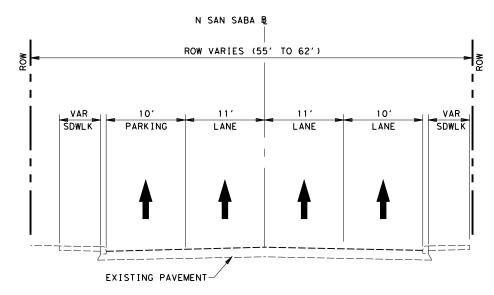




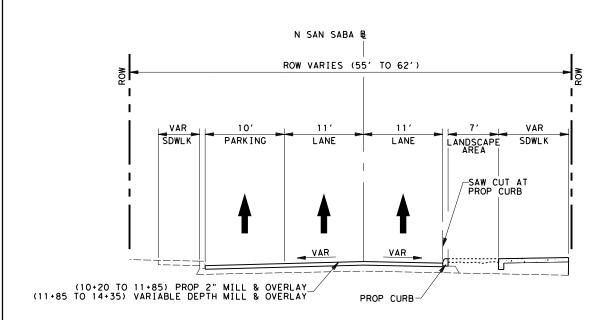
5835 CALLAGHAN RD. SUITE 200 SAN ANTONIO, TEXAS, 78228 (210) 349–4395 (FAX) (210) 349–3273 (FN) http://www.pozcam.com/ TBPE REGISTRATION NO. F–483



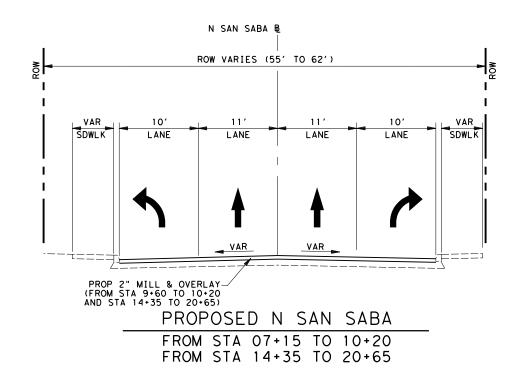
CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS



EXISTING N SAN SABA FROM STA 07+15 TO 20+65



PROPOSED N SAN SABA FROM STA 10+20 TO STA 14+35



INTERIM REVIEW ONLY DOCUMENT IS FOR INTERIM REVIEW AND NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES. Engineer: <u>FERNANDO CAMARILLO</u>
P.E. Serial No.: <u>86882</u>
Date: <u>7/24/2015</u>



NO DATE N SAN SABA SIDEWALK **IMPROVEMENTS** FROM W HOUSTON TO W MARTIN

EXISTING & PROPOSED TYPICAL SECTIONS

N. T. S.

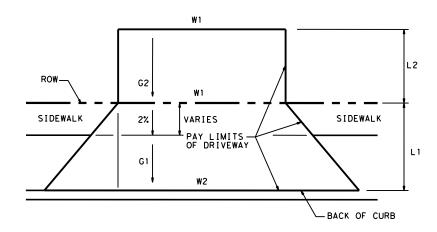


5835 CALLAGHAN RD. SUITE 200 SAN ANTONIO, TEXAS, 78228 (210) 349-4395 (FAX)

GN:				
HK GN:	СВ			
WG2		STATE	COUNTY	SHEET NO.
HK WG:	СВ	TEXAS	BEXAR	2 OF 25

DW#	DRIVEWAY CENTERLINE STATION TO BASELINE	AREA (SY) COMMERCIAL	AREA (SY) RESIDENTIAL	LT	RT	PENETRATION (L2) (FT)	G1 (%)	G2 (%)	W1 @ ROW (FT)	W2 @Curb (FT)	CONCRETE RETAINING WALL (CY)	EXIST GATE AND TYPE TO BE ADJUSTED	EXISTING FENCE TYPE
1	12+14.09	50			Х	0.00	1.59		18.80	41.80		TO REMAIN	TO REMAIN
2	13+58.43	113			Х	0.00	1.85		46.50	69.20			
TOTAL		163.00	0.00								0.00	0.00	

NOTE: CONTRACTOR TO ADJUST GATE OF TYPE AS NOTED AND AS PER SPECIFICATION 523. EXISTING FENCE TO BE ADJUSTED AS NECESSARY TO MAINTAIN THE INTEGRITY OF THE FENCE. (N.S.P.I.)



CONCRETE DRIVEWAY

SEE DRIVEWAY DETAILS AND PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION

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Date: <u>7/24/2015</u>



CITY OF SAN ANTONIO TRANSPORTATION & CAPITAL IMPROVEMENTS

DWG CHK N SAN SABA SIDEWALK IMPROVEMENTS FROM W HOUSTON TO W MARTIN

MISCELLANEOUS DETAILS AND SUMMARY

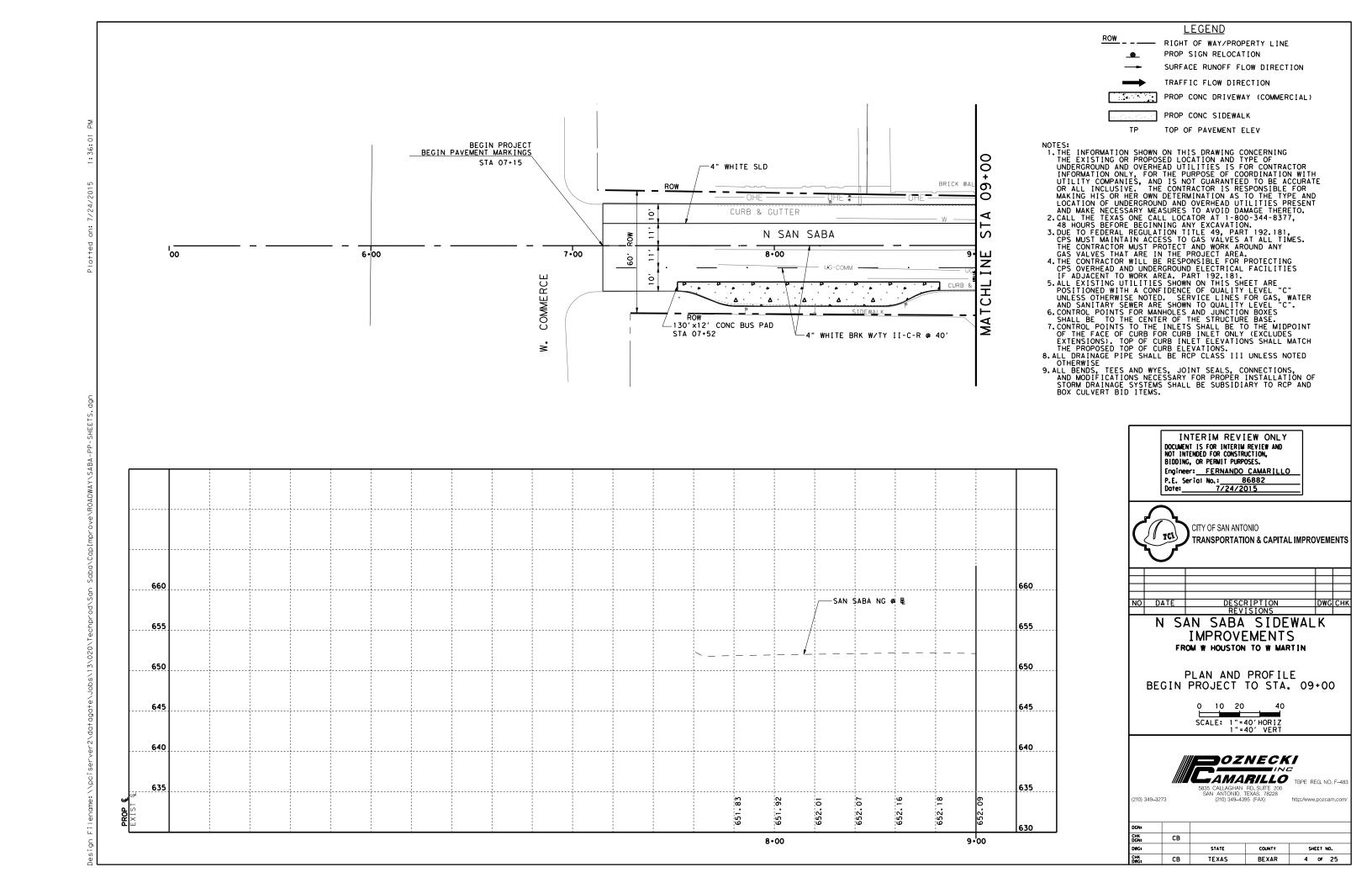
N. T. S.

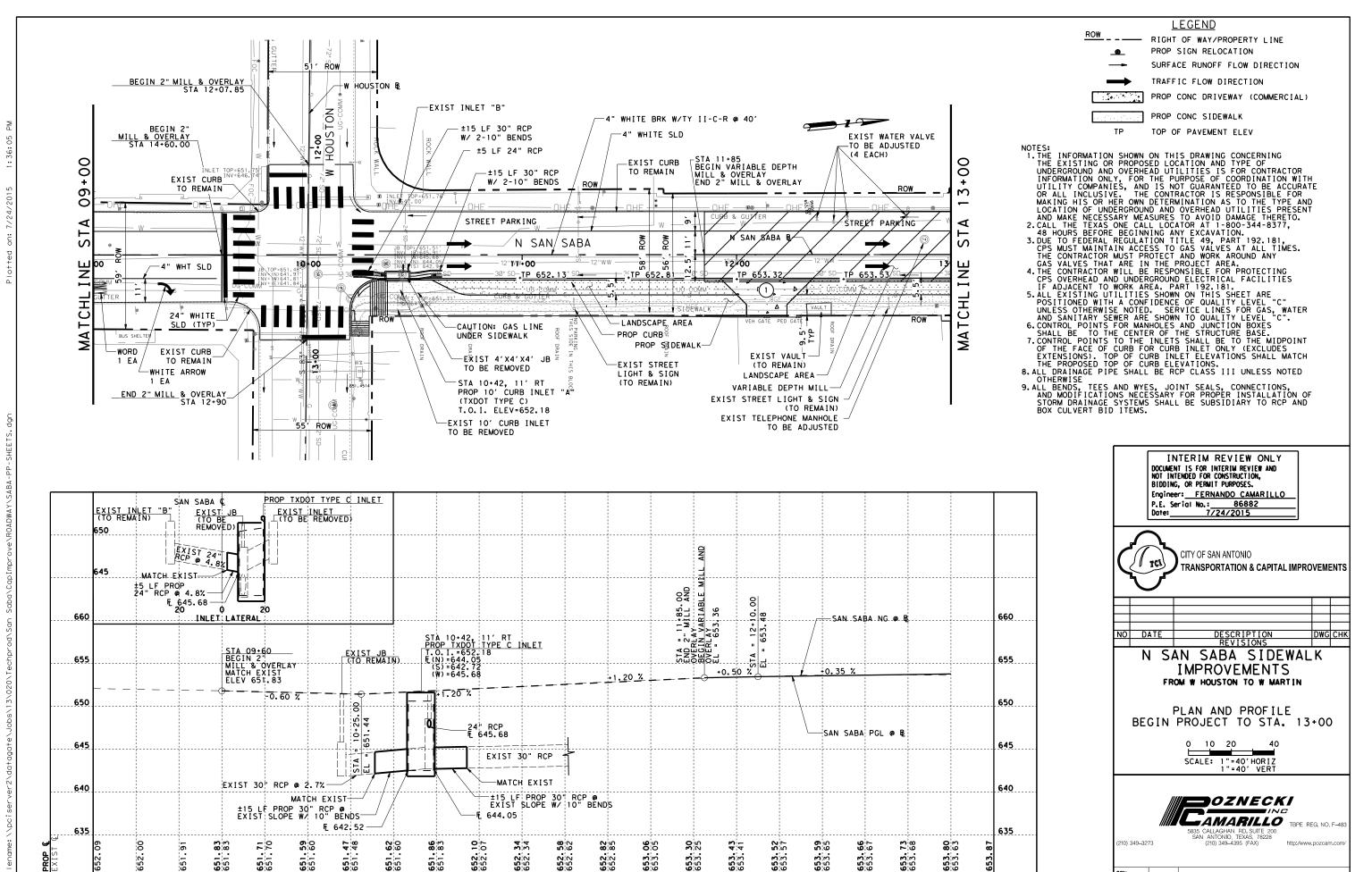


(210) 349-3273

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DGN:				
CHK DGN:	СВ			
DWG:		STATE	COUNTY	SHEET NO.
CHK DWG:	СВ	TEXAS	BEXAR	3 of 25





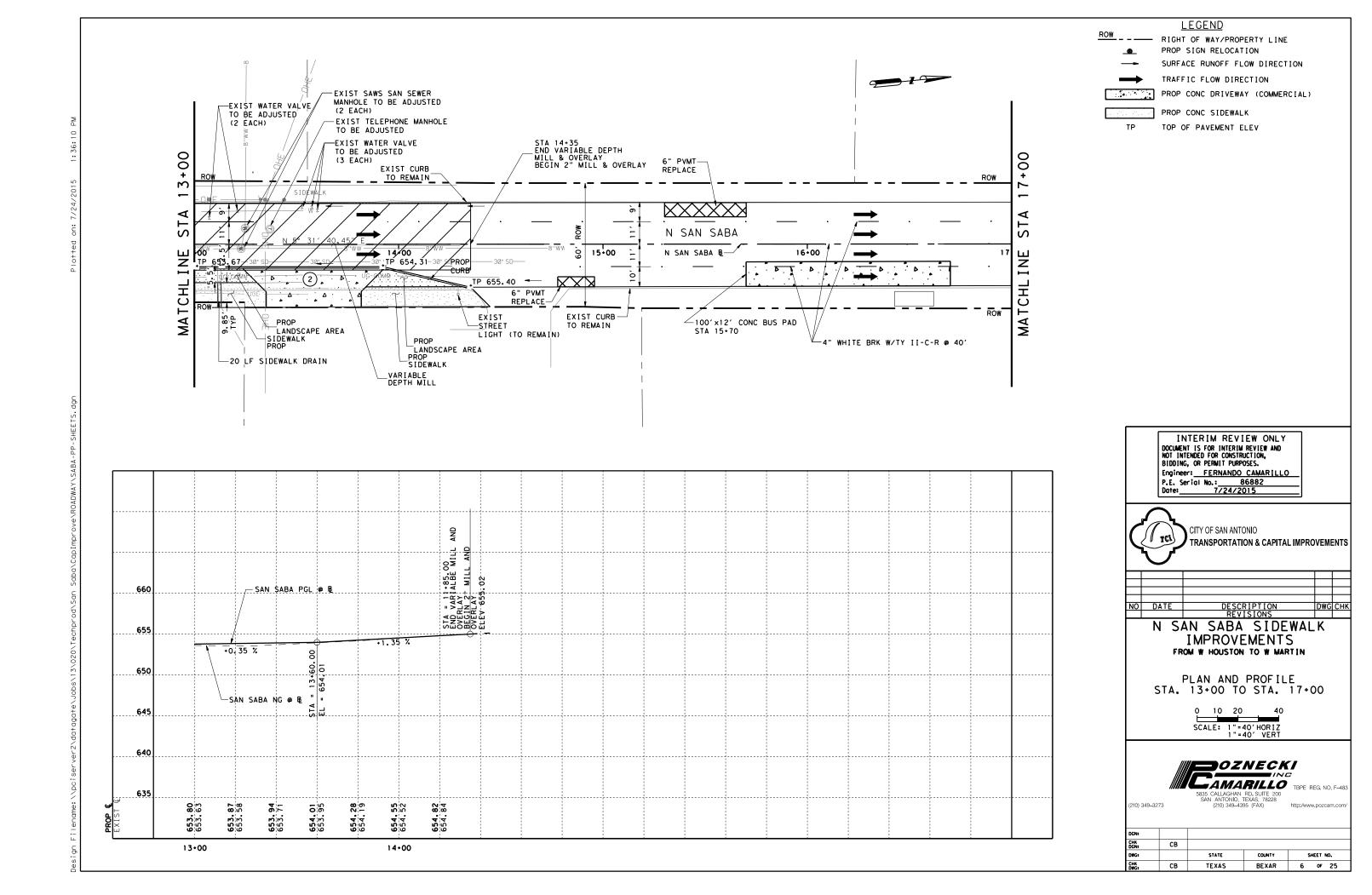
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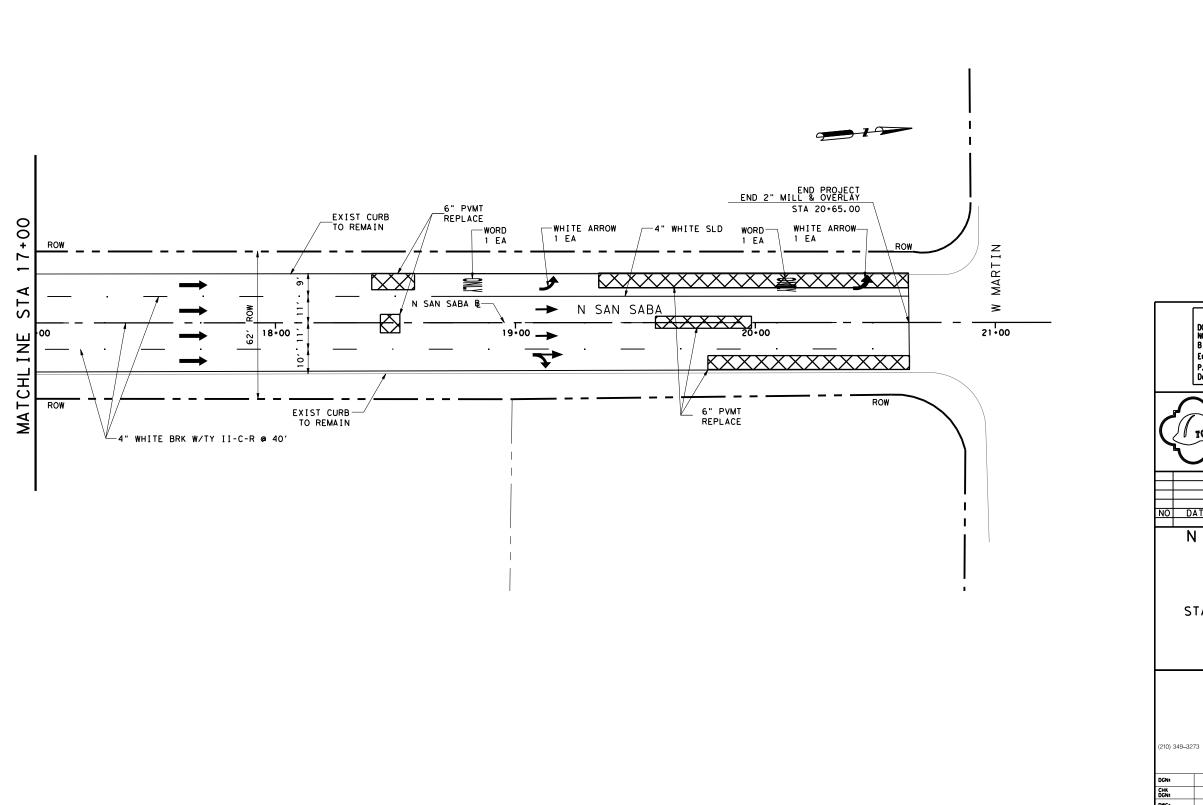
13+00

9+00

10+00

11+00





LEGEND

ROW - - RIGHT OF WAY/PROPERTY LINE PROP SIGN RELOCATION

SURFACE RUNOFF FLOW DIRECTION

TRAFFIC FLOW DIRECTION

PROP CONC DRIVEWAY (COMMERCIAL)

PROP CONC SIDEWALK

TOP OF PAVEMENT ELEV

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P.E. Serial No.: 86882
Date: 7/24/2015



TRANSPORTATION & CAPITAL IMPROVEMENTS

N SAN SABA SIDEWALK **IMPROVEMENTS**

PLAN AND PROFILE STA. 17+00 TO END PROJECT

FROM W HOUSTON TO W MARTIN

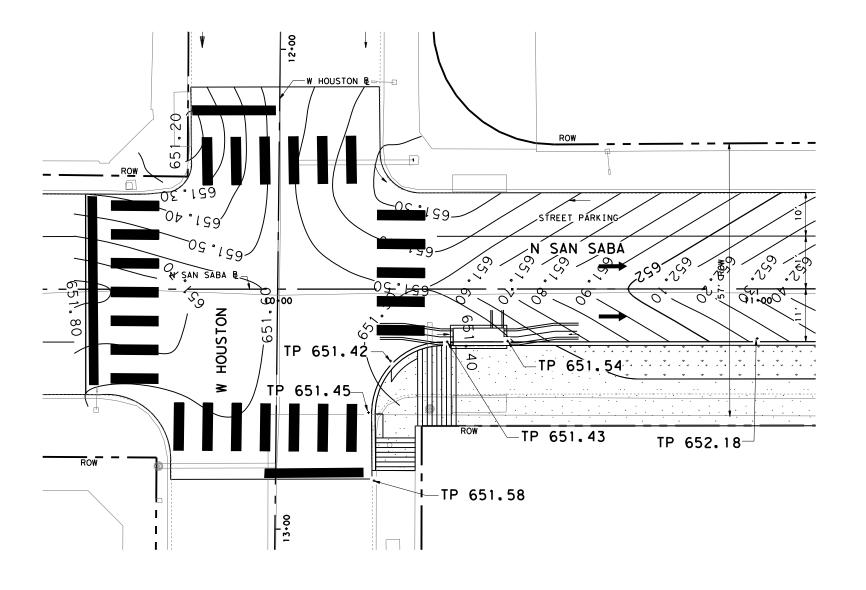
0 10 20 40 SCALE: 1"=40'HORIZ 1"=40' VERT



5835 CALLAGHAN RD. SUITE 200 SAN ANTONIO, TEXAS, 78228 (210) 349–4395 (FAX)

DWG CHK

DGN:				
CHK DGN:	СВ			
DWG=		STATE	COUNTY	SHEET NO.
CHK DWG2	СВ	TEXAS	BEXAR	7 OF 25



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Date: <u>7/24/2015</u>



DWG CHK N SAN SABA SIDEWALK IMPROVEMENTS FROM W HOUSTON TO W MARTIN

> INTERSECTION LAYOUT SAN SABA & W HOUSTON

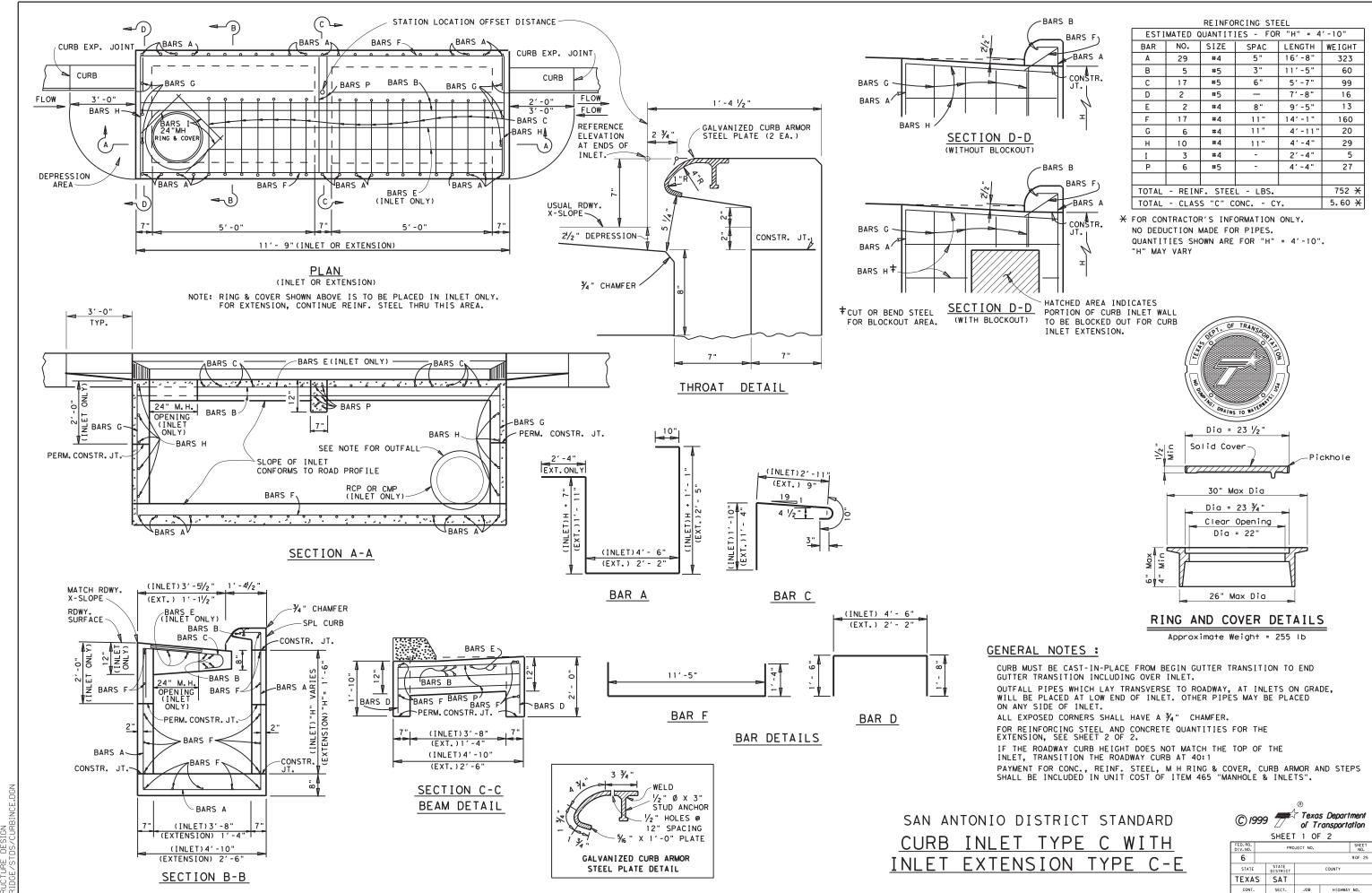
> > 0 5 10 20 SCALE: 1"=20'HORIZ 1"=20' VERT



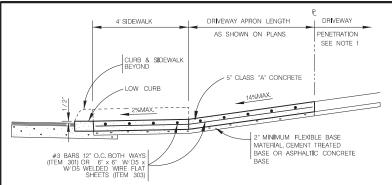
DGN: CHK DGN: DWG: CHK DWG:

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СВ			
	STATE	COUNTY	SHEET NO.
СВ	TEXAS	BEXAR	8 OF 25



/01



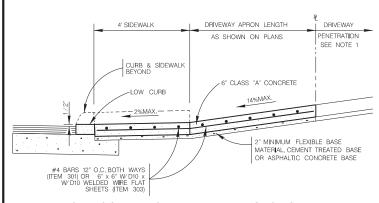
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB ITEM 503.1

4' SIDEWALK DRIVEWAY APRON LENGTH DRIVEWAY PENETRATION SEE NOTE 1 CURB & SIDEWALK BEYOND 5" CLASS "A" CONCRETE (G2) ② 2" MINIMUM FLEXIBLE BASE MATER**I**AL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB ITEM 503.2

CONCRETE DRIVEWAY NOTES

- . DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY
- WITH A MAXIMUM DRIVEWAY SLOPE, THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
- A) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO.503.10 B 503.2.

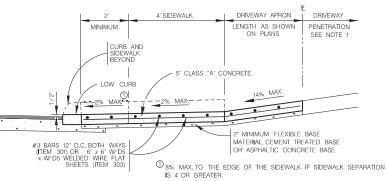
 B) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO.503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO.503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE

2 THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

- 7° MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE, IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
- 3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

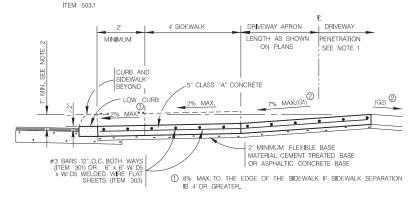
TYPE	MIN I MUM	MAXIMUN
RESIDENTIAL .	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

- 4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A
- 5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4'AND SEPARATED A MINIMUM OF 2'FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6'WHEN LOCATED AT THE BACK OF CURB.
- 6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY, DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- 7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3 /8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT
- 8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- 9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



TYPICAL RESIDENTIAL DRIVEWAY SECTION

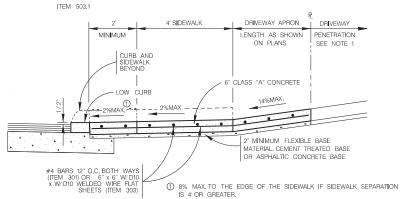
WITH SIDEWALK SEPARATED FROM CURB



② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION

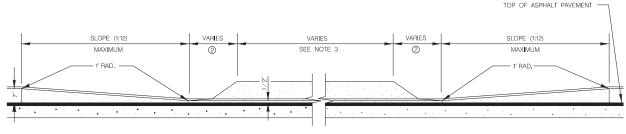
WITH SIDEWALK SEPARATED FROM CURB

- 3 /4" CHAMFER 6" MINIMUM - 12" MAXIMUM ASPHALT OF GRAVEL DRIVEWAY -2 - #4 BARS CONTINUOUS - #4 BARS CONTINUOUS

- 1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
- 2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

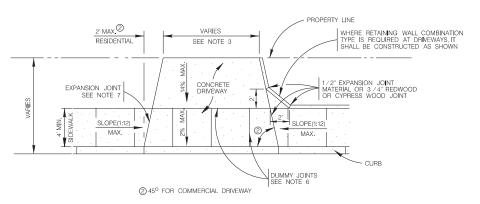
DRIVEWAY - CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE ITEM 307.1



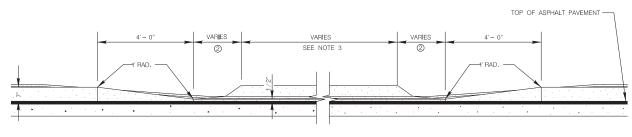
② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURE



CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB

RESIDENTIAL SEE NOTE 3 CONCRETE SLOPE (1:12)

① 8% MAX.TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4'OR GREATER.

2 45° FOR COMMERCIAL DRIVEWAY

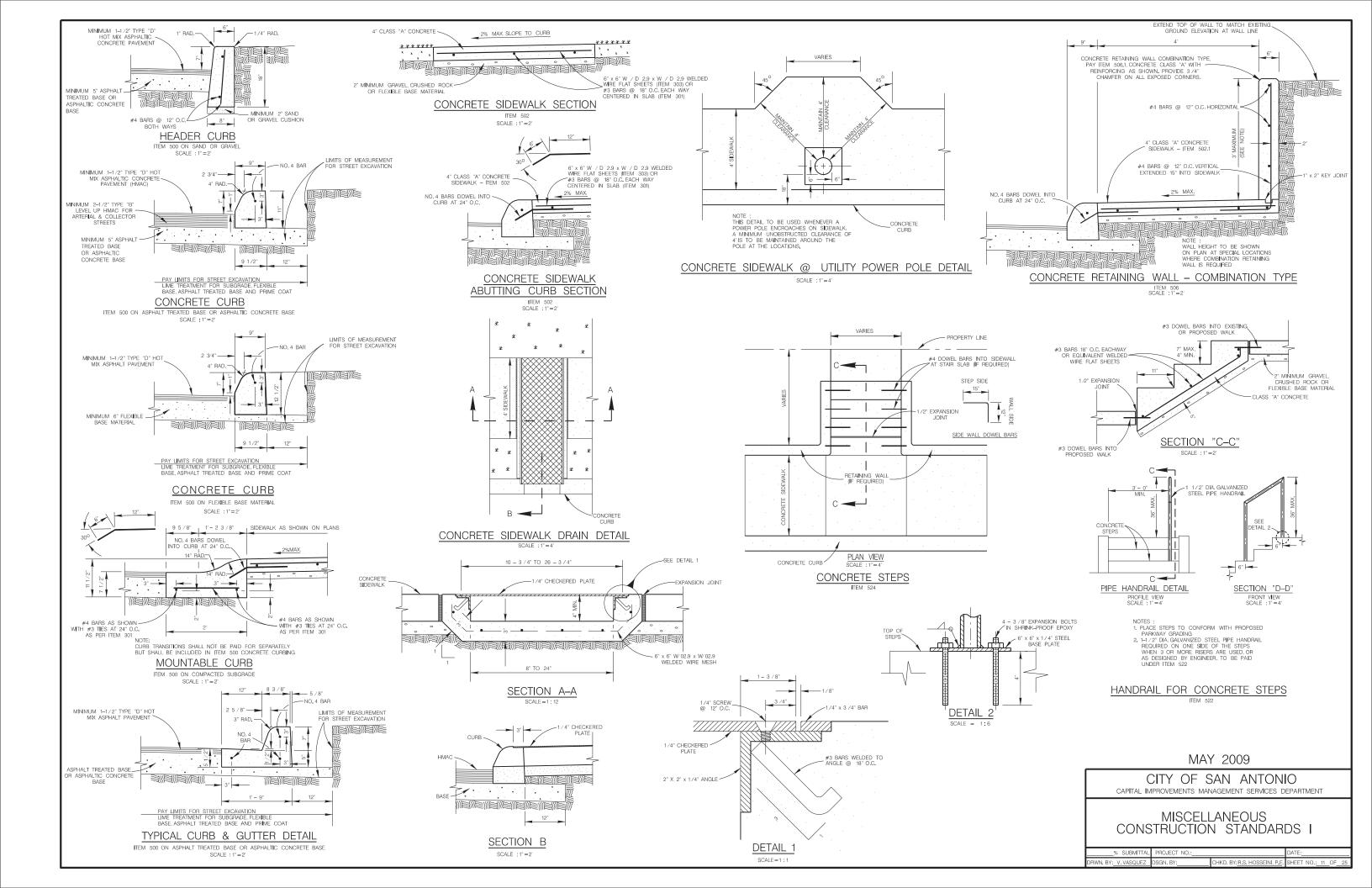
TYPICAL DRIVEWAY PLAN VIEW

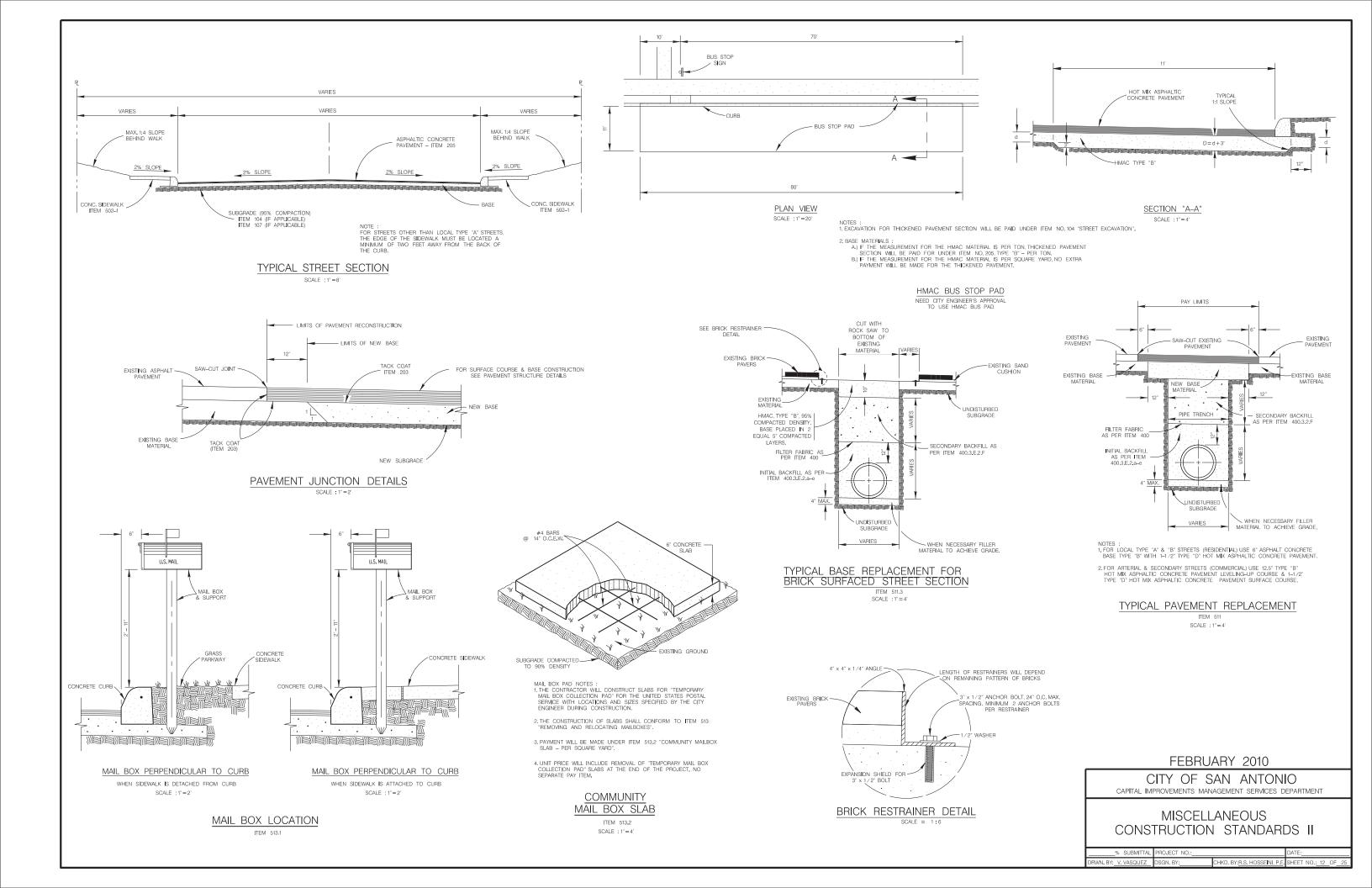
WITH SIDEWALK SEPARATED FROM CURB

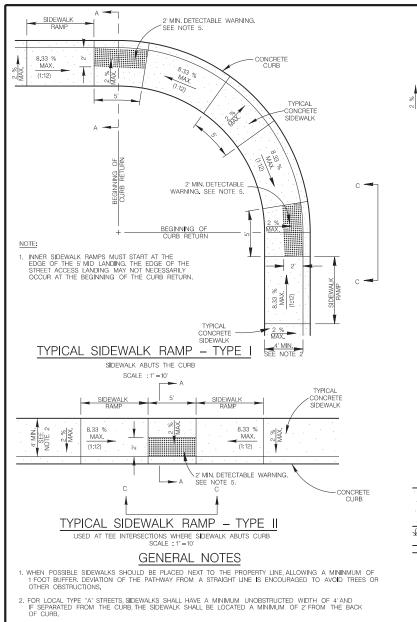
MAY 2009

CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

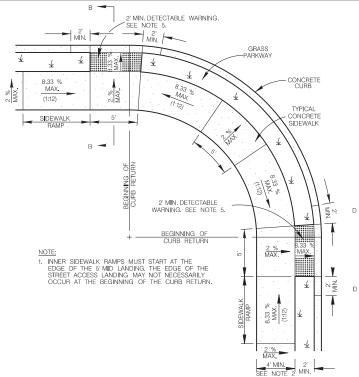
CONCRETE DRIVEWAY STANDARDS





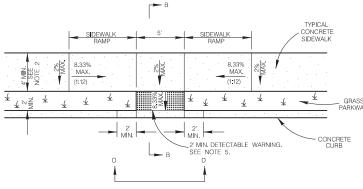


- 3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
- 4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY, SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
- 5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNDATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (6 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE A CAST-IN-PLACE TILE CONFORMING TO THE CITY OF SAN ANYONIO STANDARD SPECIFICATIONS OR PAYERS CONFORMING TO TXDOT STANDARD PED-05, PEDESTRIAN FACILITIES.
- DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT_ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
- 7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
- 8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND /OR "502 CONCRETE SIDEWALKS", RAMP SURFACE SHALL BE BRUSH FINISHED.
- 9. THESE DETAILS ARE FOR REFERENCE ONLY, ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS, CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEAPANCE.
- 10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
- 11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
- 12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" W2.9 x W2.9 WIRE MESH
- 13, SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
- 14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%, LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
- 15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 267% (I.E. 8.33-(-2.67) =11), IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
- 16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
- 17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.



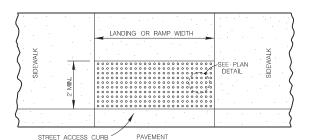
TYPICAL SIDEWALK RAMP - TYPE III

SIDEWALK SEPARATED FROM CURB SCALE : 1" = 10"



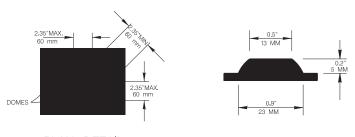
TYPICAL SIDEWALK RAMP - TYPE IV

USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB SCALE : 1"=10'



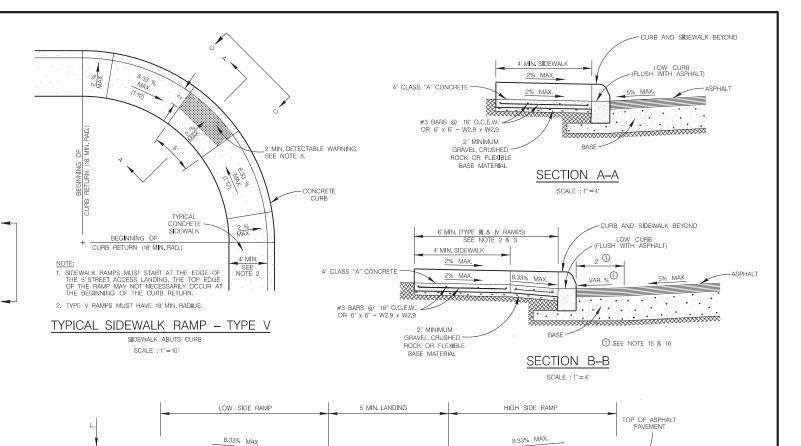
DETECTABLE WARNING SURFACE

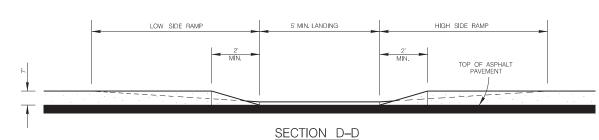
SCALE : 1" = 4



PLAN DETAIL NO SCALE

NOTE DOME SECTION





SECTION C-C

CURB PROFILE WHERE SIDEWALK ABUTS CURB

SCALE : 1" = 4"

CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB

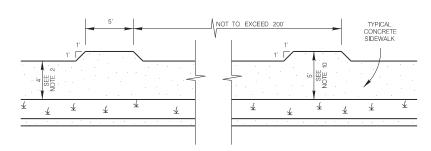


	TABLE 1 (SEE NOTE 4)		
GUTTER	SIDEWALK RAMP LENGTH (1:12)		
SLOPE	LOW SIDE	HIGH SIDE	
1%	5'-6"	7'-2"	
2%	5'-0"	8'-4"	
3%	4'-6"	10'-0"	
4%	4'-2"	12'-6"	
5%	3'-10"	16'-8"	

SIDEWALK PASSING SPACE

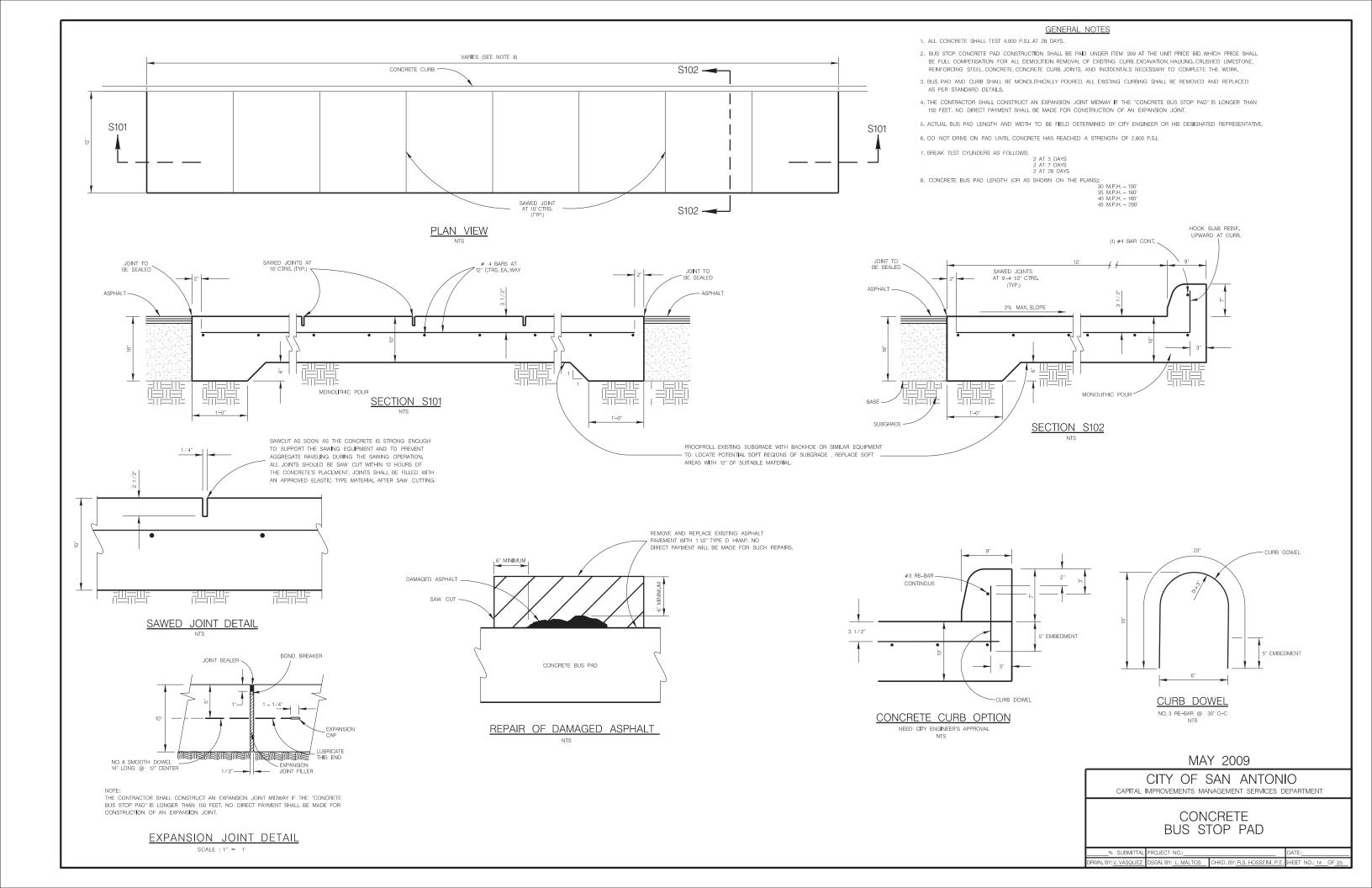
SCALE : 1"=10"

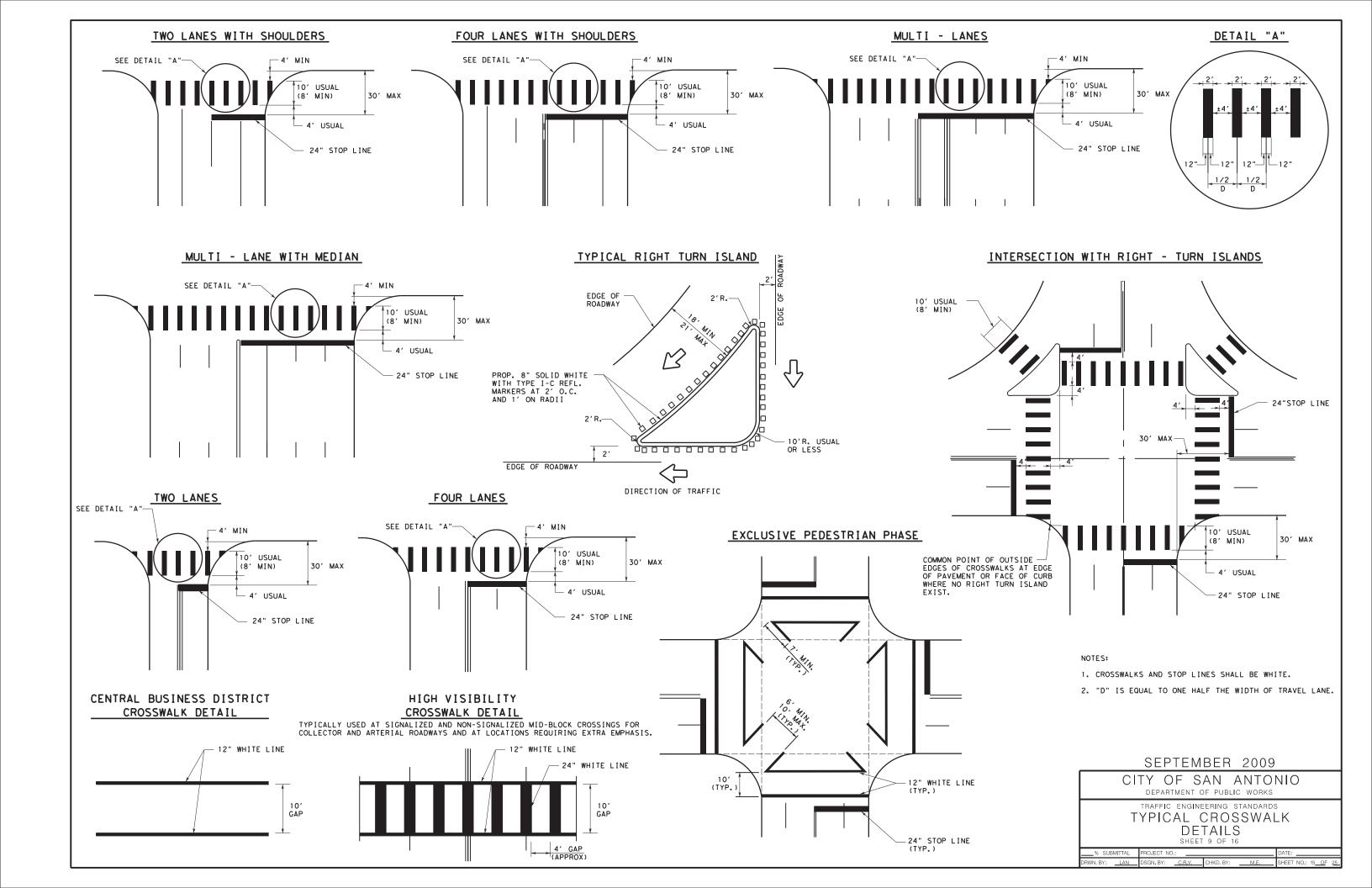
MAY 2009

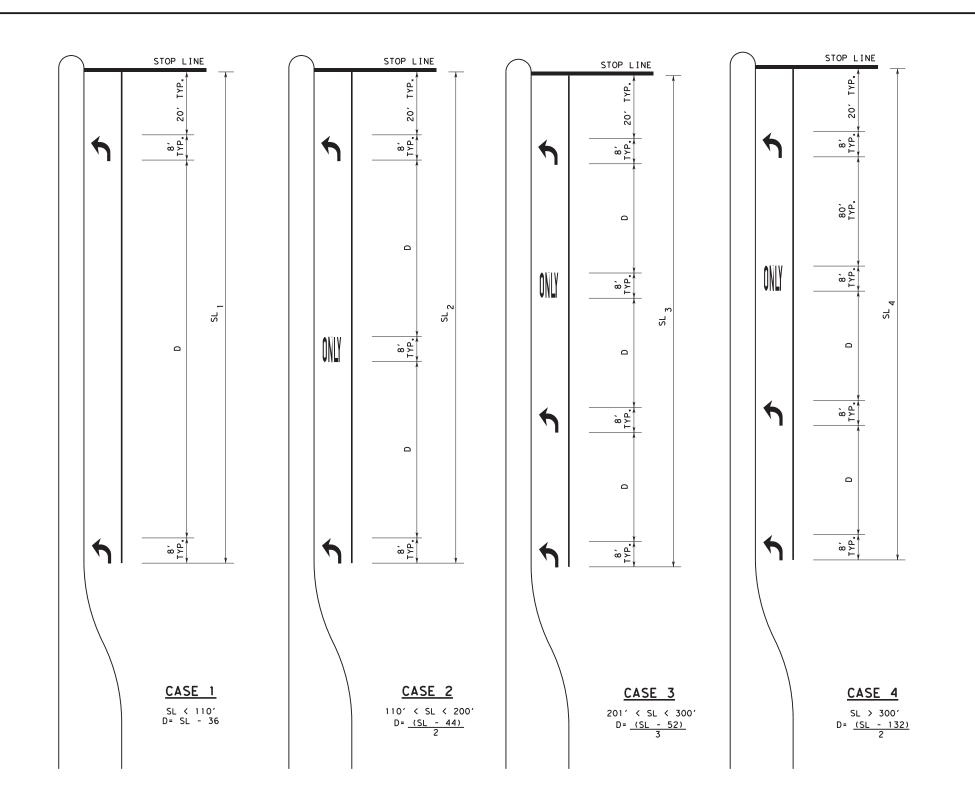
CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

WHEELCHAIR RAMP STANDARDS

NOTE:
STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED
FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT
TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS
TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.







KEY:

- SL STORAGE LENGTH (FEET)
- D DISTANCE BETWEEN ARROWS AND LEGENDS (FEET)

GENERAL NOTES:

- 1. THESE DETAILS ALSO APPLY TO RIGHT-TURN LANES.
- 2. FOR DUAL-TURN LANES, DIMENSIONS SHALL BE THE SAME FOR EACH LANE.
- SL DIMENSION IS FROM STOP LINE TO END OF TURN LANE, WHICH DOES NOT INCLUDE TAPER LENGTH.
- 4. PAVEMENT ARROWS AND "ONLY" LEGEND MARKINGS ARE TYPICALLY USED AT SIGNALIZED INTERSECTIONS AND AT UNSIGNALIZED INTERSECTIONS WHERE A DEMONSTRATED NEED EXISTS.
- 5. MINIMUM SL = 110'. SL MAY BE LESS THAN 110 FEET AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

SEPTEMBER 2009

CITY OF SAN ANTONIO

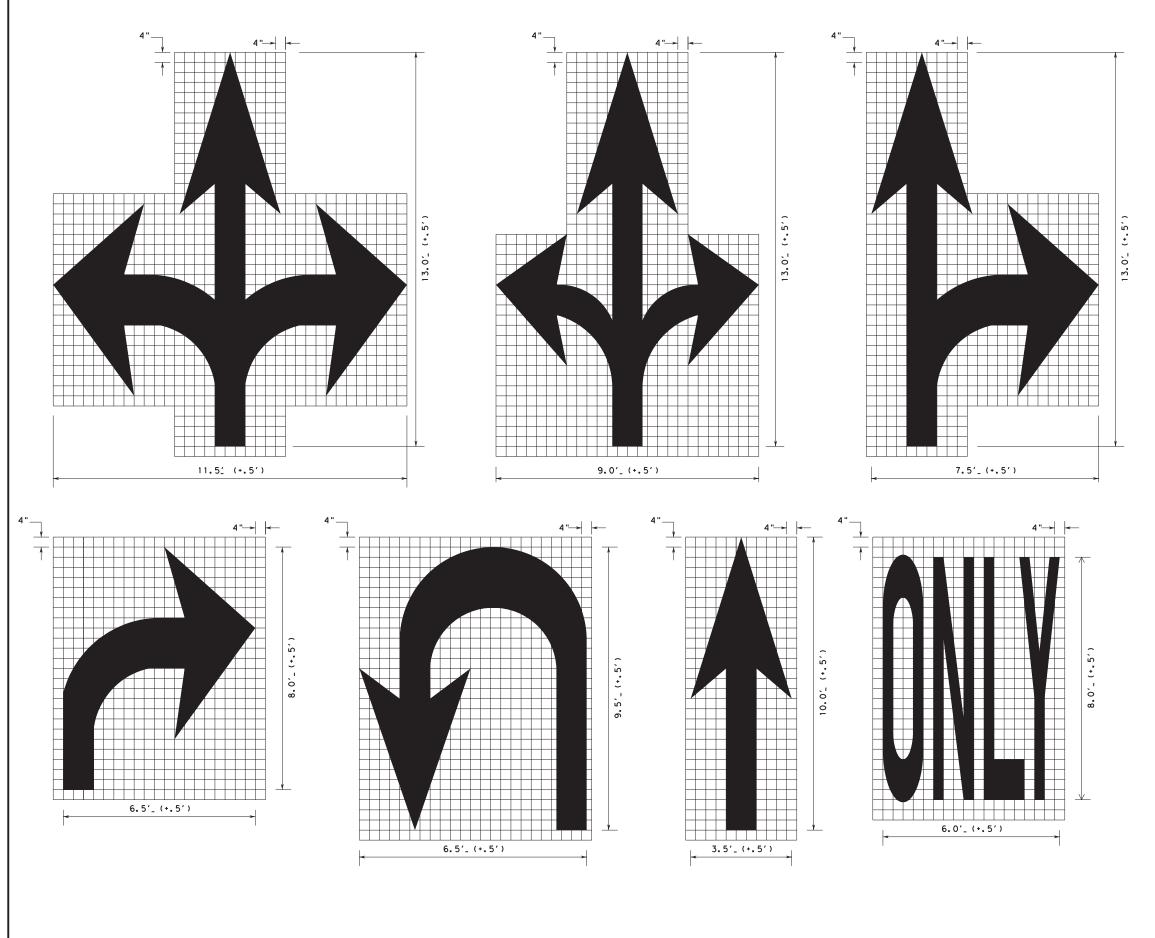
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS

LEFT-TURN "ONLY" AND ARROW SPACING WORKSHEET

% SUBMITTAL PROJECT NO.: DATE:





NOTES:

- MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.
- THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE-THIRD DEPENDING ON CONDITIONS.
- THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET.
- 4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:
 - A. REGULATORY STOP RIGHT (LEFT) TURN ONLY 25 MPH SYMBOL ARROWS
 - SYMBOL ARROWS
 B. WARNING
 STOP AHEAD
 SIGNAL AHEAD
 SCHOOL
 SCHOOL X-ING
 PED X-ING
 PED X-ING
 PED X-ING
 - R X R (SEE RCPM DETAIL)
 OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER
 CERTAIN CONDITIONS
- 5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.
- 6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES.
- 7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION. FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- 8. SPACING BETWEEN LETTERS SHOULD BE APPROXIMATELY 4 INCHES. THE WIDTH OF LETTERS MAY VARY DEPENDING ON THE WIDTH OF THE TRAVEL LANES.
- 9. LANE-USE ARROW MARKINGS MAY BE USED TO CONVEY EITHER GUIDANCE OR MANDATORY MESSAGES. ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED BY STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".
- 10.PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED ELSEWHERE IN THE PLANS.

SEPTEMBER 2009

CITY OF SAN ANTONIO

DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS
STANDARD PAVEMENT MARKINGS

(ARROWS)

CENTERLINE & EDGE FOR ALL TWO LANE STREETS CENTERLINE, LANE LINES, & EDGE LINES WITH PASSING ZONE FOR TWO-WAY LEFT TURN LANE CURB 4" SOLID WHITE EDGE LINE 4" SOLID YELLOW LINE - CENTERL INE SEE DETAIL "A" ___4" YELLOW TYPE II-A-A 4" YELLOW $\langle \rangle$ LANE LINE LANE LINE SYMMETRICAL AROUND CENTERLINE YELLOW LINE TYPE II-A-A CONTINUOUS TWO-WAY LEFT TURN LANE 4" SOLID WHITE EDGE LINE - 40' CENTERLINE, LANE LINES & EDGE LINES - CURB FOR FOUR LANE TWO-WAY STREETS 4" WHITE LANE LINE RAISED PAVEMENT MARKER TYPE I-C, CLEAR FACE TOWARD NORMAL TRAFFIC, SHALL BE PLACED ON 40-FOOT CENTERS. CURB 4" SOLID WHITE EDGE LINE TYPE I-C **CURB** SOLID WHITE EDGE LINE 4" SOLID TYPE I-C 4" WHITE YELLOW LINE LANE LINE LANE LINES & EDGE LINES FOR ONE-WAY MULTILANE STREET RAISED PAVEMENT MARKERS TYPE II-C-R SHALL HAVE CLEAR FACE TOWARD NORMAL TRAFFIC AND RED FACE TOWARD WRONG-WAY TRAFFIC. SEE DETAIL "B" TYPF II-A-A 4" SOLID WHITE CURB EDGE LINE TYPE I-C OR II-C-R 4" WHITE TYPE I-C LANE LINE 4" SOLID WHITE CURB EDGE LINE TYPE I-C OR II-C-E 4" WHITE LANE LINE TYPF II-A-A 1"-2 TYPE II-A-A 3-4 4" CURB 4" SOLID WHITE EDGE LINE TYPE II-A-A DETAIL "A" DETAIL "B" ROADWAYS WITH REDUCED SHOULDER GUIDE FOR PLACEMENT OF STOP LINES. TYPE I-C WIDTHS ACROSS BRIDGE OR CULVERT EDGE LINE & CENTERLINE 4" WHITE TYPE I-C 24" TYP. (12" MIN.) BRIDGE RAIL 4' MIN OR FACE OF CURB SOLID WHITE 30' MAX STOP LINES 4" SOLID WHITE SOLID WHITE 20' TYP. WIDTH: 24" EDGE LINE ❖ (L) LANE WIDTH GREATER THAN OR EQUAL TO 10' (TYP.) (TYP.) VARIES NOTES: 4" SOLID WHITE EDGE LINE 1. NO-PASSING ZONE ON BRIDGE APPROACH IS OPTIONAL BUT IF USED, IT SHALL BE A MINIMUM 500 FEET LONG. 2. FOR CROSSHATCHING LENGTH (L) SEE TABLE 1. 3. THE WIDTH OF THE OFFSET (W) AND THE REQUIRED CROSSHATCHING WIDTH IS THE FULL SHOULDER WIDTH IN

ADVANCE OF THE BRIDGE.

4. THE CROSSHATCHING SHOULD BE REQUIRED IF THE SHOULDER WIDTH IN ADVANCE OF THE BRIDGE IS 4 FOOT

OR WIDER AND ANY REDUCTION IN SHOULDER WIDTH ACROSS THE BRIDGE OCCURS.

TABLE 1 - TYPICAL LENGTH (L)

* POSTED SPEED	FORMULA
45>	L= WS 2
<u>></u> 45	L= WS

- * 85TH PERCENTILE SPEED MAY BE USED ON ROADS WHERE TRAFFIC SPEEDS NORMALLY EXCEED THE POSTED SPEED LIMIT.
 CROSSHATCHING LENGTH SHOULD BE ROUNDED UP TO NEAREST 5 FOOT INCREMENT.
- L= LENGTH OF CROSSHATCHING (FT) W= WIDTH OF OFFSET (FT)
- S= POSTED SPEED (MPH)

FXAMPLES:

AN 8 FOOT SHOULDER IN ADVANCE OF A BRIDGE REDUCES TO 4 FEET ON A 70 MPH ROADWAY. THE LENGTH OF THE CROSS-HATCHING SHOULD BE:

I =8X70=560 FT

A 4 FOOT SHOULDER IN ADVANCE OF A BRIDGE REDUCES TO 2 FEET ON A 40 MPH ROADWAY. THE LENGTH OF THE CROSS-

HATCHING SHOULD BE: L= 4(40) / 60= 106.67 FT ROUNDED TO 110 FT

YIELD LINES

3 TO 12" 12" 18"

▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼

GENERAL NOTES:

- . EDGELINE ADJACENT TO CURB AND GUTTER IS NOT REQUIRED IN ALL CASES, HOWEVER SHALL BE PLACED AS DIRECTED BY CITY TRAFFIC ENGINEER.
- THE TRAVELED WAY INCLUDES ONLY THAT PORTION OF THE ROADWAY USED FOR VEHICULAR TRAVEL AND NOT THE PARKING LANES, SIDEWALKS, BERMS AND SHOULDERS. THE TRAVELED WAYS SHALL BE MEASURED FROM THE INSIDE OF EDGELINE TO INSIDE OF EDGELINE OF A TWO LANE ROADWAY.
- ALL RAISED PAVEMENT MARKERS PLACED IN BROKEN LINES SHALL BE PLACED IN LINE WITH AND MIDWAY BETWEEN THE STRIPES.
- ON CONCRETE PAVEMENTS THE RAISED PAVEMENT MARKERS SHOULD BE PLACED TO ONE SIDE OF THE LONGITUDINAL JOINTS.
- ALL PAVEMENT MARKING MATERIAL SHALL MEET THE REQUIRED MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS.
- 4" SOLID WHITE EDGE LINES ARE OPTIONAL AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

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CITY OF SAN ANTONIO

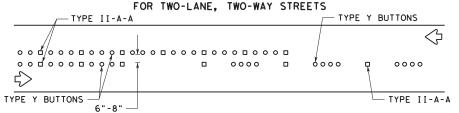
DEPARTMENT OF PUBLIC WORKS

STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE 1 SHFFT 4 0F 16

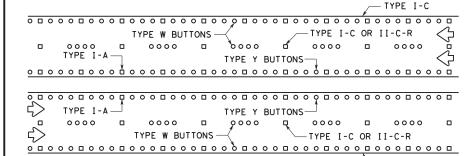
RAISED PAVEMENT MARKING PLACEMENT PATTERNS

PLACED W/ REFLECTION PAVEMENT MARKERS (OPTIONAL)

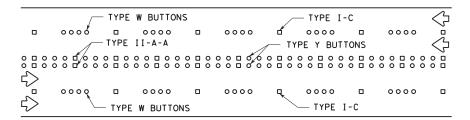
CENTER LINE & NO-PASSING ZONE BARRIER LINES



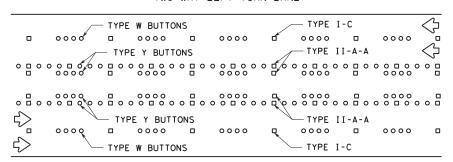
EDGE & LANE LINES FOR DIVIDED STREET



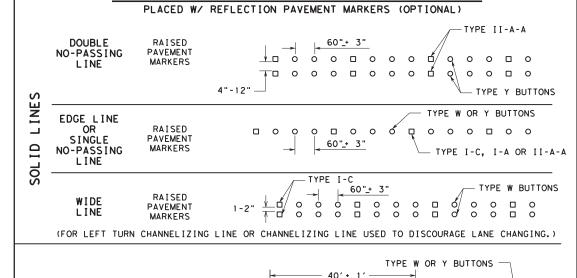
LANE & CENTER LINES FOR MULTILANE UNDIVIDED STREETS



TWO-WAY LEFT TURN LANE



RAISED PAVEMENT MARKINGS PLACEMENT DETAILS



30'

D

0 0 0 0

l 10′ → | -

(FOR CENTER LINE OR LANE LINE.)

BROKEN L I NE

DIRECTION OF TRAFFIC

— TYPE I-C

RAISED

PAVEMENT

MARKERS

D

-3/8 "R

TOP VIEW

0 0 0 0

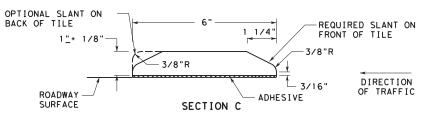
JIGGLE BAR TILES

0000

_ 40"<u>+</u> 3"

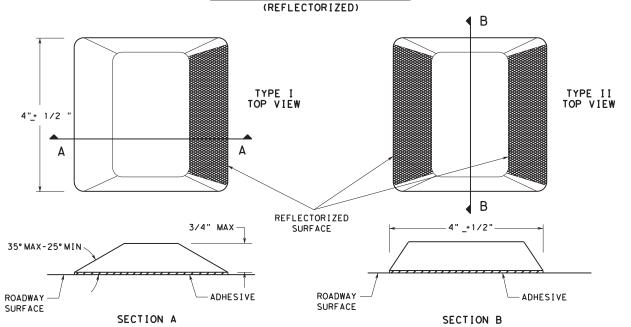


(NON-REFLECTORIZED)



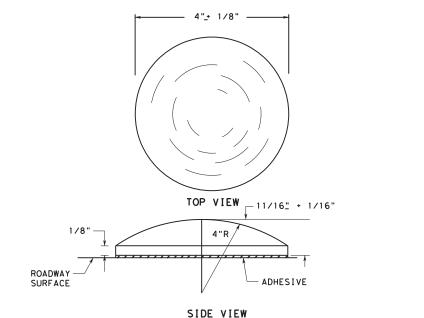
ROADWAY SURFACE SECTION D ADHESIVE

RAISED PAVEMENT MARKERS



TRAFFIC BUTTONS (NON-REFLECTORIZED)

NOTE: MINIMUM AREA OF MARKERS SHALL BE NOT LESS THAN 12.5 SQUARE INCHES.



NOTES:

- 1. RAISED PAVEMENT MARKERS (RPMs) MAY CONSIST OF TRAFFIC BUTTONS, PAVEMENT MARKERS AND/OR JIGGLE BAR TILES. PAVEMENT SURFACE SHALL BE PREPARED AND CLEANED SUBJECT TO APPROVAL OF THE CITY TRAFFIC ENGINEER BEFORE ADHESIVE AND RPMS ARE PLACED.
- 2. JIGGLE BARS SHALL BE ORIENTED PERPENDICULAR TO ROADWAY. JIGGLE BARS SHALL ALSO BE PLACED AT SUCH OTHER LOCATIONS AS SHOWN IN PLANS OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
- 3. MARKERS, BUTTONS AND JIGGLE BAR TILES SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY AND NOT INTENDED TO SPECIFY ANY PARTICULAR PRODUCT. ALL PAVEMENT MARKERS PROVIDED SHALL BE OF THE SAME MANUFACTURER.
- 4. ALL DIMENSIONS ARE +/- 1/8" UNLESS OTHERWISE NOTFD.
- ALL PAVEMENT MARKING MATERIALS SHALL MEET MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS.
- TRAFFIC BUTTONS AND JIGGLE BAR TILES ARE TO BE USED ONLY FOR TEMPORARY TRAFFIC CONTROL OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

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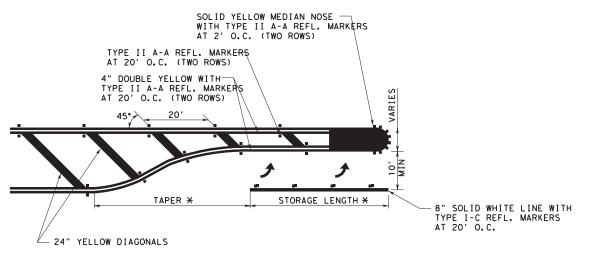
CITY OF SAN ANTONIO

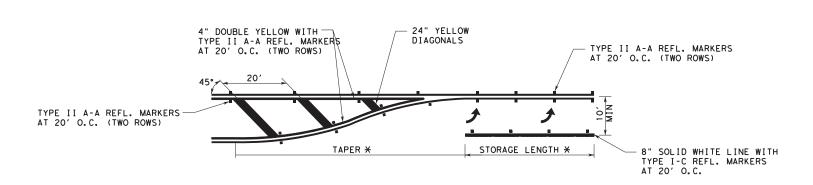
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS
RAISED PAVEMENT MARKERS, REFLECTIVE
PAVEMENT MARKERS, TRAFFIC BUTTONS &
JIGGLE BAR TILES 2
SHEET 5 OF 16

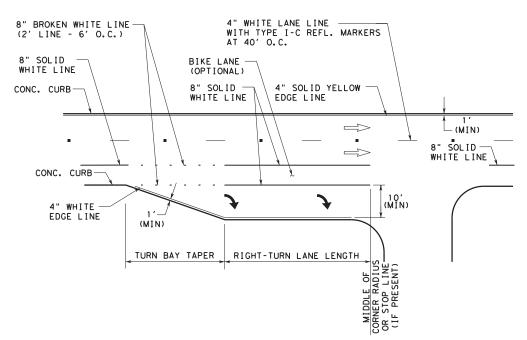
PAINTED MEDIAN LEFT TURN BAY DETAILS

* - USE MINIMUM TURN BAY REVERSE CURVE TAPER LENGTH AND MINIMUM STORAGE LENGTH TABLES FOR "LEFT-TURN LANE (RAISED MEDIAN)" ON SHEET 10 OF 16.





UNSIGNALIZED RIGHT-TURN LANE



MINIMUM TURN	BAY TAPER LENGTH
POSTED SPEED (MPH)	LENGTH (FT)
30 OR LESS	90'
35 OR MORE	120′

MINIMUM RIGHT	TURN LANE LENGTH
POSTED SPEED (MPH)	LENGTH (FT)
40 OR LESS	110′
45 OR MORE	150′

NOTES:

- 1. THE POSTED SPEED LIMIT IS TYPICALLY EQUAL TO THE DESIGN SPEED MINUS 5 MPH.
- 2. THE DIMENSIONS GIVEN FOR DUAL LEFT (RAISED MEDIAN) IN THE MINIMUM LENGTH TABLES ON THIS SHEET ARE ALSO APPLICABLE FOR DUAL RIGHT-TURN
- STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS OR APPROXIMATE CALCULATIONS.
- 4. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS SEE LEFT-TURN "ONLY" AND ARROW SPACING WORKSHEET.
- 5. REFER TO APPLICABLE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE AND LEFT-TURN & RIGHT-TURN LANE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT
- 6. REFER TO BICYCLE LANE PAVEMENT MARKINGS STANDARD FOR TYPE AND PLACEMENT.
- 7. 4" SOLID WHITE AND YELLOW EDGE LINES ARE OPTIONAL AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

SEPTEMBER 2009

CITY OF SAN ANTONIO

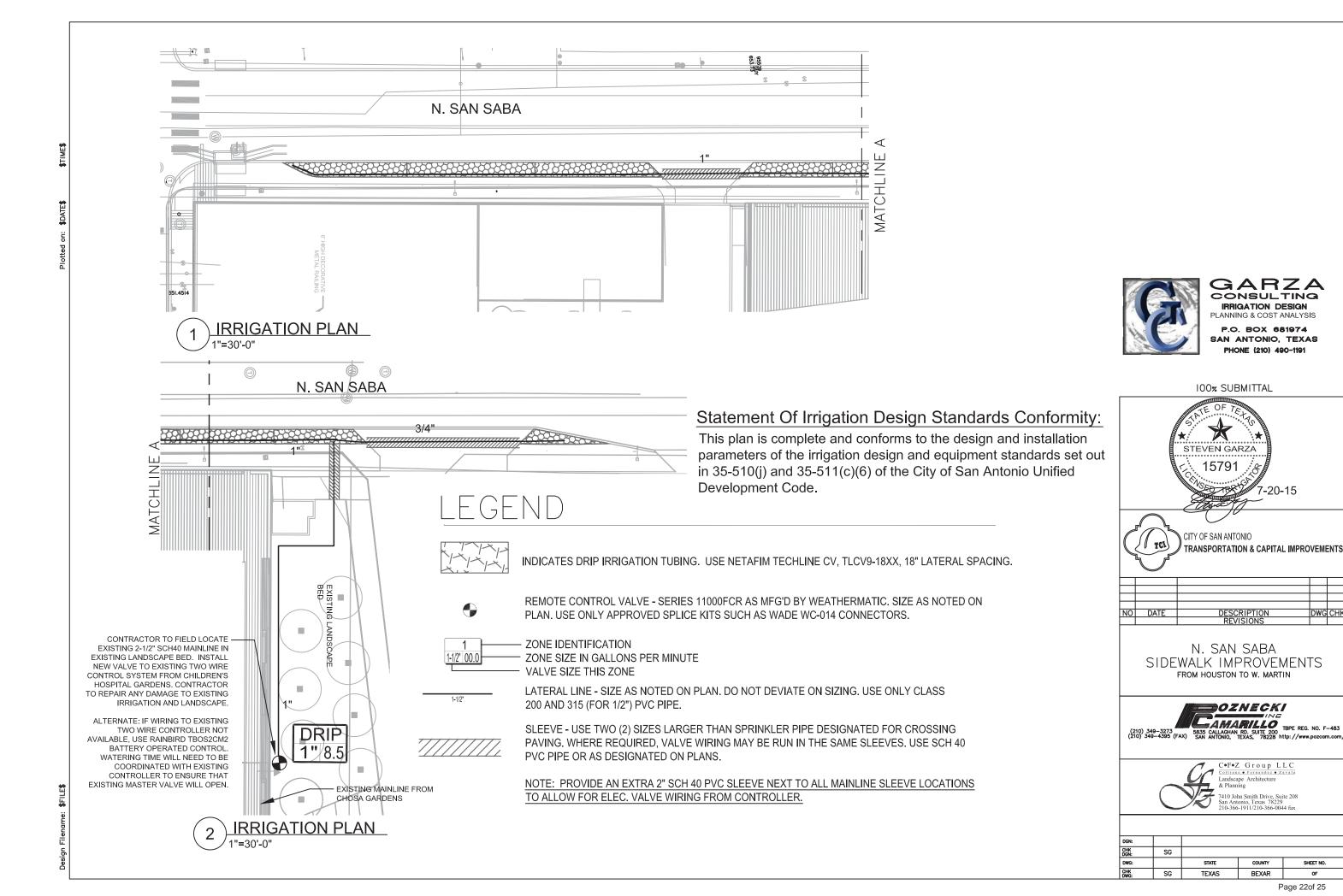
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS

LEFT-TURN LANE & RIGHT-TURN LANE DESIGN WORKSHEET 2

SHEET 11 OF 16

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SHEET NO.

DWG CHK

GENERAL NOTES

- 1. SPRINKLER LINES AS SHOWN ARE DIAGRAMMATIC BUT SHOULD BE REASONABLY FOLLOWED. LOCATIONS OF SPRINKLER HEADS SHALL BE ESTABLISHED BY THE CONTRACTOR BUT DESIGN SPACING MAY NOT BE EXCEEDED WITHOUT AUTHORIZATION FROM LANDSCAPE ARCH. IRRIGATION TRENCHING SHALL ADHERE TO TREE PROTECTION PLANS & DETAILS. REFER TO CIVIL DRAWINGS SHEETS 4 & 6 AND L0.02. NO TRENCHING SHALL OCCUR WITHIN 5' RADIUS OF TREE TRUNK UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT.
- 2. INSTALL ALL VALVES IN 12" RECTANGULAR VALVE BOXES. VALVE SHOULD BE CENTERED IN BOX TO ALLOW EASY ACCESS TO SOLENOID ASSEMBLY AND COVER BOLTS.
- 3. ZONE PIPE SIZING IS PARTICULARLY IMPORTANT ON PROJECTS WHERE LONG RUNS ARE NECESSARY. "RULE OF THUMB" SIZING IS NOT ALLOWED ON THIS PROJECT. SIZING AS SHOWN MUST BE FOLLOWED.
- 4. INSTALL RAIN & FREEZE SWITCHES IN AN ELEVATED LOCATION CLEAR OF TREES OR OTHER OBSTRUCTIONS. INSTALL IN LOCATION EXPOSED TO EXTERIOR AMBIENT CONDITION.
- 5. ALLOW A MINIMUM OF 4" CLEARANCE FROM ANY STRUCTURE WHEN INSTALLING SPRINKLER HEADS. THIS INCLUDES SIDEWALKS, CURBS, BUILDINGS, ETC..
- 6. INSTALL SLEEVING SUCH THAT A MINIMUM OF 6" EXTENDS BEYOND CURBS, WALKS, OR WALLS.
- 7. AFTER INSTALLATION SYSTEM MUST BE BALANCED BY ADJUSTING FLOW CONTROLS ON VALVES. SPRAY ZONES SHALL BE ADJUSTED TO 25 PSI-30 PSI AT THE FURTHEST HEAD IN EACH ZONE.
- 8. SYSTEM SHALL REQUIRE MINIMUM OF 62 LBS. STATIC PRESSURE FOR SYSTEM TO OPERATE PROPERLY. IRRIGATION CONTRACTOR SHALL NOTIFY SPRINKLER SYSTEM DESIGNER OF PRESSURE DEFICIENCIES OR ANY OTHER SITE PROBLEMS THAT MAY ALTER THE EFFECTIVENESS OF THE SYSTEM.
- 9. CONTRACTOR TO PROVIDE TEMPORARY DRIP IRRIGATION FOR EXISTING TREES WITHIN THE LIMITS OF CONSTRUCTION. REFERENCE SHEET L0.02 FOR CONSTRUCTION DETAIL.

MOST CRITICAL ZONE CHART

PRESSURE REQUIREMENT CALCULATIONS AT ZONE DESIGN STATISTICS FOR CALCULATIONS

SPRINKLER HEAD REQUIREMENT:	30 PSI
TOTAL ZONE FLOW:	4.4 GPM
ELECTRIC VALVE SIZE:	
STATIC PRESSURE LESS 10%:	60 PSI
ACCUMULATIVE LOSSES FROM WATER SOURCE TO	O FURTHEST HEAD
ZONE PIPE/FITTING LOSS:	1 PSI
1" ELECTRIC VALVE LOSS:	2.3 PSI
ELEVATION NET GAIN/LOSS:	0 PSI
EX.SYSTEM MAINLINE LOSS:	3 PSI
EX.SYSTEM MAIN LOOP LOSS:	1.4 PSI
EX.BACKFLOW PREVENTER LOSS:	5 PSI
EX.WATER METER LOSS:	3.3 PSI
EX. MASTER VALVE LOSS:	2.3 PSI
EX.TYPE K COPPER SERVICE LOSS:	1.3 PSI
TOTAL NET LOSS:	19.6 PSI
DESIGN PRESSURE:	49.6 PSI

NOTE:

IF DESIGN PRESSURE IS LESS THAN STATIC PRESSURE, CONTACT IRRIGATION CONSULTANT.

Scheduling Controller

Typical Weekly, Based on Precipitation Rate

Total Hours of Operation

2.38

ZONE TYPE	Precipitation Rate (in/hr)	Water Desired Inch/Week	Time per cycle (min)	No. of Zones	Total Minutes	Total Hours
DRIP	0.42	1.00	142.86	1	142.9	2.38

NOTE:

IT WILL BE NECESSARY TO DIVIDE TIME INTO 2 TO 3 CYCLES TO MINIMIZE RUNOFF. A TYPICAL SCHEDULE WOULD ALLOW WATERING TO OCCUR TWO DAYS PER WEEK. TOTAL WATERING TIME WOULD BE DIVIDED BY THE NUMBER OF WATERING DAYS. THIS SCHEDULE IS DESIGNED FOR SUMMER WATER USAGE. CONTRACTOR RESPONSIBLE FOR WATERING SCHEDULE DURING ESTABLISHMENT. FOLLOW LOCAL ORDINANCES DURING DROUGHT RESTRICTIONS



CONSULTING
IRRIGATION DESIGN
PLANNING & COST ANALYSIS
P.O. BOX 681974

SAN ANTONIO, TEXAS PHONE (210) 490-1191

100% SUBMITTAL



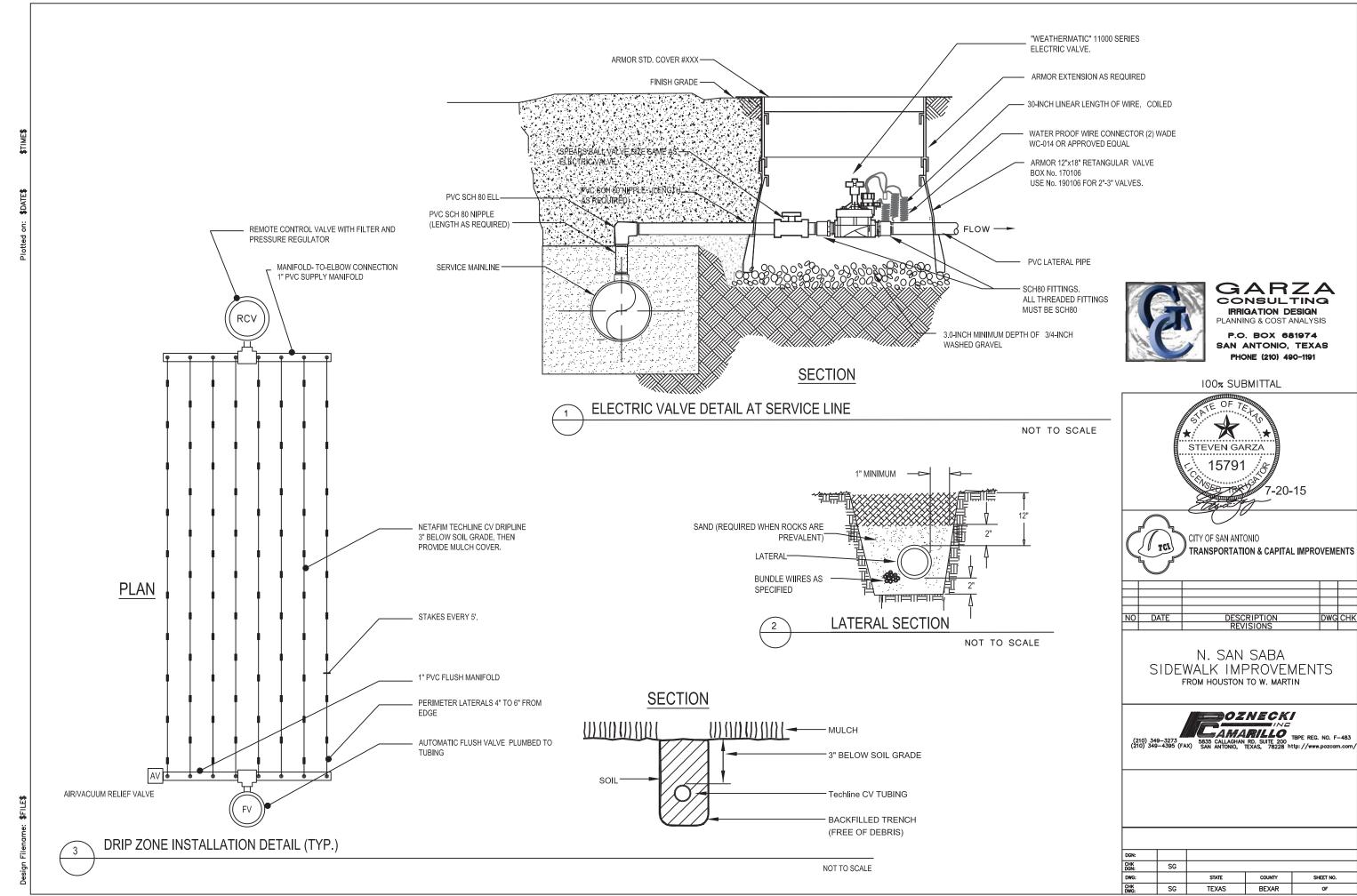
CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

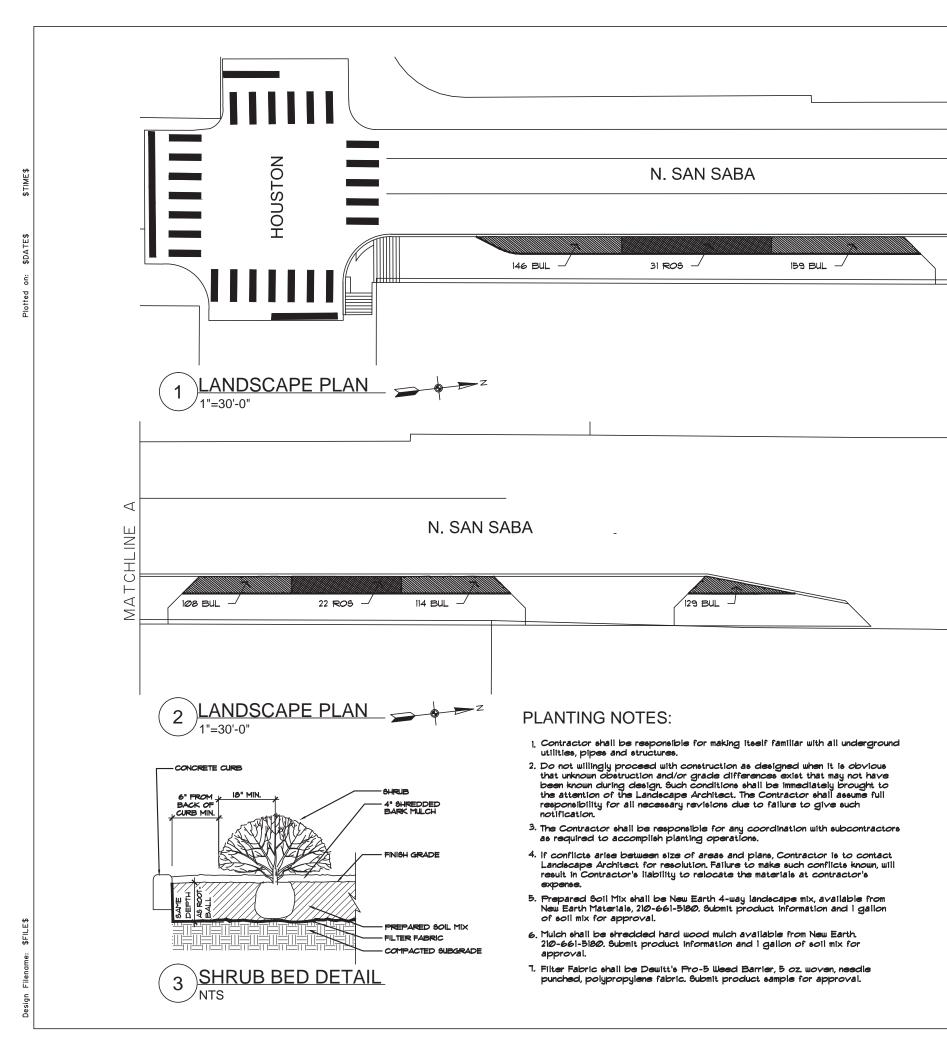
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N. SAN SABA SIDEWALK IMPROVEMENTS FROM HOUSTON TO W. MARTIN



GN:				
IK SN:	SG			
NG:		STATE	COUNTY	SHEET NO.
-IK NG:	SG	TEXAS	BEXAR	OF





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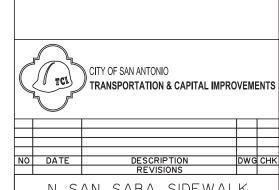
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MAT

KEY	SCIENTIFIC NAME		
	COMMON NAME	CONDITION	REMARKS
	SHRUBS		
ROS	Rosmarinus officinalis 'Lockwood de Forest'	l gal.	12" ht., 12" sprd,
	Rosemary		full, 36" o.c.
BUL	Bulbine frutescens 'Tiny Tangerine'	l gal.	12" ht., 12" sprd,
	Yellow Bulbine	_	Pull, 15 a.c.

100% SUBMITTAL



N SAN SABA SIDEWALK **IMPROVEMENTS** FROM W HOUSTON TO W MARTIN

JOZNECKI



CULLEN PATRICK COLTRANE

1784

7/ 20/15

5835 CALLAGHAN RD. SUITE 200 SAN ANTONIO, TEXAS, 78228 (210) 349-4395 (FAX) http://www.pozcam.com/



CHK DGN: TH STATE COUNTY SHEET NO. СС TEXAS BEXAR | OF |

