

CPM	74-6-174	09
NECES	74-6-174	09

8162	
FINAL	
UNBOUND	AP CARDS 1
TOTAL SHEETS	40
11x19	3
8x11	
ORDERED BY	M. GARZA
COUNTY	NUECES
TICKET NUMBER	C99295
DATE FILMED	6-9-94
CONTROL	74-6-174
	2C.C. 10.7

# INDEX OF SHEETS

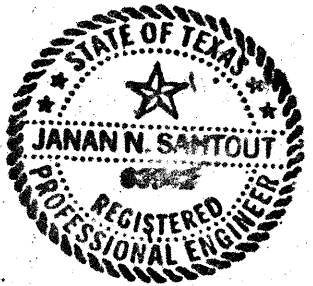
SHEET NO.	DESCRIPTION
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8162

11

\* THE ABOVE STANDARD SHEET SPECIFICALLY IDENTIFIED HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

Janan N. Santout P.E. 5/14/93  
RESPONSIBLE ENGINEER DATE

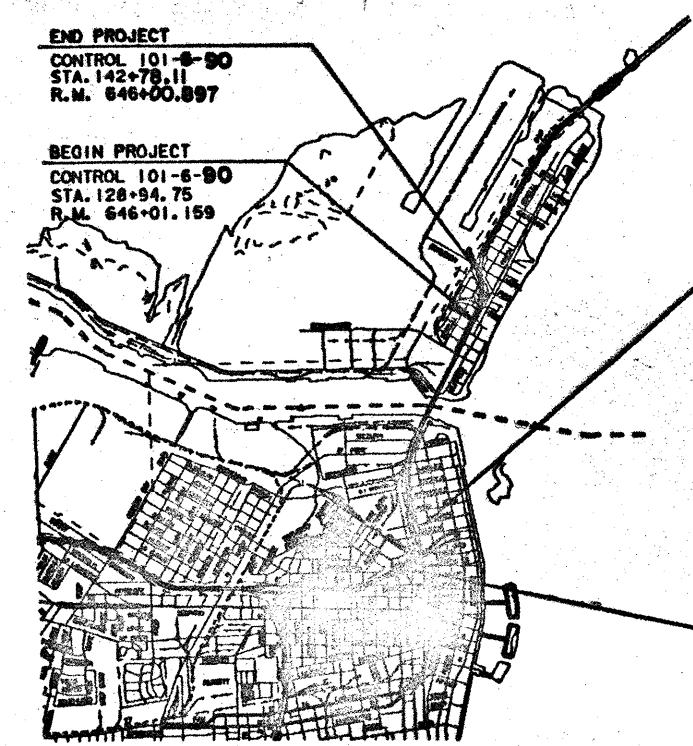


SPECIFICATIONS ADOPTED BY THE STATE DEPARTMENT OF HIGHWAYS & PUBLIC TRANSPORTATION OF TEXAS, SEPTEMBER 1, 1982, AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT.  
SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000-6084)

## STATE OF TEXAS TEXAS DEPARTMENT OF TRANSPORTATION

### PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT STATE PROJECT:

CPM 74-6-174 09  
NET LENGTH OF PROJECT = 3490' FT. = 0.661 MILES  
IH 37-US 181, CORPUS CHRISTI, TEXAS  
PROJECT LIMITS: FROM THE SOUTH APPROACH TO THE HARBOR BRIDGE AND SHORELINE BLVD. TO WACO STREET  
CPM 101-6-90  
NET LENGTH OF PROJECT = 1383.36 FT. = 0.262 MILES  
US 181, CORPUS CHRISTI, TEXAS  
PROJECT LIMITS: FROM NORTH END OF THE HARBOR BRIDGE TO THE SOUTH END OF THE BURLESON STREET BRIDGE  
CONSTRUCTION OF: THE UPGRADING OF A FREEWAY FACILITY CONSISTING OF OVERLAYING AND INLET ADJUSTMENT



NO EXCEPTIONS  
NO EQUATIONS  
NO RAILROAD CROSSING

### CERTIFICATION FOR FINAL PLANS

THIS PROJECT WAS BUILT ACCORDING TO THE PLANS & SPECIFICATIONS. THESE FINAL PLANS REFLECT THE WORK DONE AND THE QUANTITIES SHOWN THEREON AND ON THE FINAL ESTIMATE ARE FINAL QUANTITIES.

### FINAL PLANS

CONTRACTOR HELDENFELD BROTHERS, INC.  
DATE WORK BEGAN OCT. 12, 1992  
DATE WORK COMPLETED JAN. 20, 1994  
CONTRACT AMOUNT \$405,518.20  
FINAL ESTIMATE AMOUNT \$200,818.57  
WORKING DAYS ALLOTTED 40  
WORKING DAYS USED 29

### PLANS CORRECTED AS BUILT:

Id = Jan 12 4-15-94  
TITLE: DATE  
C.R. N. 1 PROVIDED FOR LEVEL UP AT LOCATION NORTH APPROACH OF BEACH ST. BRIDGE DUE TO SETTLEMENT.

RETURN TO  
RECORDS MANAGEMENT  
DEPARTMENT OF  
TRANSPORTATION

TEXAS DEPARTMENT  
OF  
TRANSPORTATION

SUBMITTED BY [Signature] AREA ENGINEER	RECOMMENDED FOR LETTING [Signature] JUNE 3, 1993 DIRECTOR OF TRANSPORTATION	APPROVED FOR LETTING [Signature] JULY 1, 1993 DIRECTOR OF BRIDGE & STRUCTURES	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION APPROVED [Signature] DIVISION ADMINISTRATOR
DISTRICT ENGINEER	DIRECTOR OF HIGHWAY DESIGN		

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 7

UPON COMPLETION OF ALL WORK PROVIDED FOR IN THE CONTRACT FOR ANY INDIVIDUAL CONTROL, THE ENGINEER WILL MAKE AN INSPECTION, AND IF THE WORK IS FOUND TO BE SATISFACTORY, THE CONTRACTOR WILL BE RELEASED FROM FURTHER MAINTENANCE ON THAT CONTROL. SUCH PARTIAL ACCEPTANCE WILL BE MADE IN WRITING AND SHALL IN NO WAY VOID OR ALTER THE TERMS OF THE CONTRACT.

ITEM 8

THE OPEN SEASON FOR THE APPLICATION OF ASPHALT SHALL BE BETWEEN MARCH 1 AND OCTOBER 31, 1993 UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER IN WRITING. THE LATEST ROADWAY START WORK DATE IS SEPTEMBER 30, 1993, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER IN WRITING.

ITEM 421

THE ENGINEER WILL SAMPLE ALL CONCRETE AND MAKE AND TEST ALL TEST BEAMS IN ACCORDANCE WITH TEST METHODS TEX-418-A AND TEX-420-A.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL TEST MOLDS. THE TEST MOLD SHALL MEET THE REQUIREMENTS OF TEST METHODS TEX-418-A AND TEX-420-A AND IN THE OPINION OF THE ENGINEER, MUST BE SATISFACTORY FOR USE AT THE TIME OF USE. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PERSONNEL TO REMOVE THE TEST SPECIMENS FROM THE MOLDS AND TO TRANSPORT THEM TO THE PROPER CURING LOCATION AT THE SCHEDULE DESIGNATED BY THE ENGINEER AND IN ACCORDANCE WITH THE GOVERNING SPECIFICATION. FOR ALL CONCRETE ITEMS, THE CONTRACTOR SHALL HAVE AVAILABLE TO USE IN THE SAMPLING OF THE CONCRETE A WHEELBARROW OR OTHER CONTAINER ACCEPTABLE TO THE ENGINEER.

ALL LABOR AND EQUIPMENT FURNISHED BY THE CONTRACTOR WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS AND WILL NOT BE PAID FOR DIRECTLY.

ITEM 437

HIGH RANGE WATER REDUCERS WILL BE USED ONLY TO MEET SPECIAL REQUIREMENTS AND WILL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER ON EACH SPECIFIC PROJECT. A SATISFACTORY WORK PLAN FOR CONTROL SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL AND AN EVALUATION OF THE CONCRETE CONTAINING THE ADMIXTURE WILL BE PERFORMED BY THE ENGINEER.

SPECIFICATION DATA

07/13

SHEET A

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 479

THE MANHOLES AND WATER VALVES THAT ARE TO BE ADJUSTED ARE LOCATED ON BELDEN STREET AND ON LINE "C" FRONTAGE ROAD.

ITEM 502

ALL TRAFFIC CONTROL DEVICES AND PROCEDURES ARE TO BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

FOR THIS PROJECT, TYPE A, B OR C SHEETING WILL BE ALLOWED. FOR NIGHTTIME USAGE, THE TYPE OF SHEETING USED SHALL BE OF THE SAME TYPE THROUGHOUT THE PROJECT.

TRAFFIC CONTROL SHALL BE HANDLED BY UTILIZING LANE CLOSURES AS SHOWN ON LC(16)-2.

CONSTRUCTION SHALL BE SCHEDULED TO INTERFERE AS LITTLE AS POSSIBLE WITH VEHICLE TRAFFIC. THE FOLLOWING REQUIREMENTS MUST BE OBSERVED:

- 1) NO TRAFFIC CARRYING LANES OR RAMPS SHALL BE BLOCKED BEFORE 8:30 AM OR AFTER 4:00 PM DURING WEEKDAYS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 2) BEFORE ANY OBSTRUCTION IS PLACED ON THE PAVEMENT, WARNING DEVICES SHALL BE PLACED IN POSITION AS INDICATED ON THE TRAFFIC CONTROL PLAN, LC(16)-2, AND BC(1)-(9)-92.
- 3) POLICE ASSISTANCE MAY BE NEEDED FOR TRAFFIC CONTROL. ACQUIRING POLICE ASSISTANCE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

FOR THIS CONTRACT, THE CONTRACTOR WILL PROVIDE TWO CHANGEABLE MESSAGE SIGNS.

CLOSURE OF THE CENTER LANES OF IH 37 AND US 181 SHALL BE DONE ON SUNDAYS OR AS APPROVED BY THE ENGINEER.

SPECIFICATION DATA

07/13

SHEET B

2

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2A
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

TRAFFIC CONTROL

A COPY OF THE SUGGESTED TRAFFIC CONTROL PLAN IS AVAILABLE FOR VIEWING AT THE AREA ENGINEER'S OFFICE.

A) IH 37 - LINE "B"(SOUTHBOUND) AND US 181 - LINE "C"(NORTHBOUND)

- OVERLAYING THE OUTSIDE TRAVEL LANE - USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE INSIDE LANE PRIOR TO THE BROWNLEE STREET OVERPASS. CLOSE ON-RAMP AT MEXICO STREET. SHIFT TRAFFIC OVER FROM OUTSIDE TWO LANES TO INSIDE TWO LANES PRIOR TO STAPLES STREET OVERPASS. CONE OFF OUTSIDE LANE. CLOSE RAMP "T" AT ARTESIAN AND BUFFALO STREETS. CLOSE RAMP "V" AND RAMP "X". COMPLETE OVERLAY OF LINE "B", RAMP "V", RAMP "X", RAMP "T" AND LINE "C" TO NOSE OF RAMP "U".
- CONE OFF FREE RIGHT AT IH 37 - LINE "A"(NORTHBOUND) AND SHORELINE. USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE INSIDE LANE ON SHORELINE (NORTHBOUND). ALLOW ONE LANE ON SHORELINE TO TURN ONTO INSIDE LANE OF LINE "A". KEEP OUTSIDE TWO LANES OF LINE "A" CONED OFF. COMPLETE OVERLAY OF OUTSIDE TWO LANES FROM SHORELINE TO MESQUITE STREET. RAMP "U" TO REMAIN OPEN. OPEN INTERSECTIONS TO TRAFFIC AS SOON AS POSSIBLE.
- PLACE CHANGEABLE MESSAGE SIGN IN MEDIAN AT IH 37 - LINE "A" AND SHORELINE WITH MESSAGE "US 181 NORTH RAMP CLOSED USE POWER STREET ON-RAMP". CLOSE RAMP "U". COMPLETE OVERLAY OF RAMP "U", LINE "A" TO LINE "E" AND LINE "C" TO NOSE OF POWER STREET ON-RAMP.
- REMOVE TRAFFIC CONTROL FROM IH 37 - LINE "A" AND OPEN RAMP "U". ALLOW RAMP "U" TRAFFIC TO MERGE INTO INSIDE TRAVEL LANE OF US 181 (NORTHBOUND). CLOSE FRONTAGE ROAD AND POWER STREET ON-RAMP. COMPLETE OVERLAY OF FRONTAGE ROAD, ON-RAMP AND TWO OUTSIDE LANES OF LINE "C" TO SOUTH END OF HARBOR BRIDGE.
- KEEP OUTSIDE LANE CLOSED ACROSS THE HARBOR BRIDGE. PLACE CHANGEABLE MESSAGE SIGN WITH "NEXT EXIT CLOSED USE BEACH STREET EXIT" 2000 FEET IN ADVANCE OF THE TIMON STREET EXIT AND 1500 FEET FROM SOUTH END OF THE HARBOR BRIDGE (PRIOR TO THE CREST). CLOSE LINE "B" ON NORTH BEACH. COMPLETE OVERLAY OF OUTSIDE LANE FROM NORTH END OF HARBOR BRIDGE TO THE BURLESON STREET BRIDGE.

NOTE: PARTS 3, 4 & 5 ARE TO BE DONE ON SUNDAYS ONLY.

SPECIFICATION DATA

07/18

SHEET C

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2A
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

B) IH 37 - LINE "B"(SOUTHBOUND)

- OVERLAYING THE CENTER LANE - (FROM STAPLES STREET OVERPASS TO LINE "C" SPLIT) USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE INSIDE LANE OF IH 37 PRIOR TO BROWNLEE STREET OVERPASS. AFTER IH 37-SH 286 INTERCHANGE, USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE CENTER LANE PRIOR TO STAPLES STREET OVERPASS (TRAFFIC IN OUTSIDE LANE). ALLOW SHORELINE TRAFFIC TO EXIT VIA A CONED TRANSITION TO INSIDE LANE OF IH 37. COMPLETE OVERLAY OF CENTER LANE FROM STAPLES STREET OVERPASS TO TRANSITION. SHIFT TRANSITION TO ALLOW COMPLETION OF OVERLAY TO NOSE OF LINE "C" SPLIT.
- OVERLAYING THE CENTER LANE - (FROM LINE "C" SPLIT TO SHORELINE BLVD) REMOVE SECOND LANE CLOSURE. INSIDE LANE TO REMAIN CONED OFF. USE CONES TO TRANSITION SHORELINE TRAFFIC TO INSIDE LANE PRIOR TO NOSE OF LINE "C" SPLIT. CONE OFF OUTSIDE LANE OF LINE "B" FROM LINE "C" SPLIT TO SHORELINE BLVD. COMPLETE OVERLAY OF OUTSIDE LANE OF LINE "B" FROM LINE "C SPLIT TO SHORELINE BLVD. OPEN INTERSECTIONS AS SOON AS POSSIBLE TO TRAFFIC.

NOTE: PART 1 TO BE DONE ON SUNDAYS ONLY.

C) IH 37 - LINE "B"(SOUTHBOUND)

USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE INSIDE LANE PRIOR TO STAPLES STREET OVERPASS. COMPLETE OVERLAY OF INSIDE LANE FROM STAPLES STREET OVERPASS TO SHORELINE BLVD. OPEN INTERSECTIONS TO TRAFFIC AS SOON AS POSSIBLE.

D) US 181 - LINE "C"(NORTHBOUND)

- USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE THE INSIDE LANE OF IH 37 PRIOR TO THE BROWNLEE STREET OVERPASS. CLOSE ON-RAMP AT MEXICO STREET. SHIFT TRAFFIC FROM OUTSIDE TWO LANES TO INSIDE TWO LANES PRIOR TO THE STAPLES STREET OVERPASS. ALLOW ONE LANE OF TRAFFIC TO EXIT TO THE OUTSIDE LANE OF LINE "C" VIA A CONED TRANSITION. KEEP INSIDE LANE OF LINE "C" CONED OFF. COMPLETE OVERLAY OF LINE "C" FROM LINE "B" SPLIT TO SOUTH END OF THE HARBOR BRIDGE.
- USE LC(16)-2 TO CLOSE THE CENTER LANE OF US 181 - LINE "C" (NORTHBOUND) PRIOR TO THE CREST OF THE HARBOR BRIDGE. CLOSE LINE "B" ON-RAMP. COMPLETE OVERLAY OF THE INSIDE TWO LANES FROM THE NORTH END OF THE HARBOR BRIDGE TO THE BURLESON STREET BRIDGE.

NOTE: PART 2 TO BE DONE ON SUNDAYS ONLY.

SPECIFICATION DATA

07/18

SHEET D

2A



F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2B
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

E) US 181 - LINE "D" (SOUTHBOUND)

OVERLAYING OUTSIDE LANE - USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE THE OUTSIDE LANE PRIOR TO THE CREST OF THE BURLESON STREET OVERPASS. BURLESON ON-RAMP SHALL REMAIN OPEN. PLACE CHANGEABLE MESSAGE SIGN 1500 FEET IN ADVANCE OF THE PORT AREA EXIT RAMP AND IN ADVANCE OF THE CREST ON THE HARBOR BRIDGE. CLOSE THE PORT AREA EXIT RAMP AND HAVE MESSAGE "PORT AREA EXIT CLOSED, USE STAPLES EXIT". COMPLETE OVERLAY OF OUTSIDE LANE FROM SOUTH END OF HARBOR BRIDGE TO NORTH END OF BELDEN STREET BRIDGE AND PORT AREA EXIT. OPEN PORT AREA EXIT RAMP. CHANGE MESSAGE TO "STAPLES EXIT CLOSED, USE PORT AREA EXIT". CLOSE STAPLES STREET EXIT. COMPLETE OVERLAY OF OUTSIDE LANE FROM SOUTH END OF BELDEN STREET BRIDGE TO NOSE OF STAPLES ON-RAMP AND STAPLES EXIT RAMP. OPEN STAPLES EXIT. CLOSE STAPLES ON-RAMP. COMPLETE OVERLAY OF OUTSIDE LANE AND STAPLES ON-RAMP.

F) US 181 - LINE "D" (SOUTHBOUND)

OVERLAYING INSIDE TWO LANES (SUNDAYS ONLY WORK) - USE LC(16)-2 "TWO LANE CLOSURE" TO CLOSE INSIDE TWO LANES PRIOR TO THE BURLESON STREET BRIDGE. COMPLETE OVERLAY ON NORTH BEACH. CONTINUE TO CONE OFF INSIDE TWO LANES ACROSS THE HARBOR BRIDGE AND INSIDE LANE OF LINE "E". PLACE CHANGEABLE MESSAGE SIGN BEFORE THE CREST OF THE HARBOR BRIDGE AND 1500 FEET IN ADVANCE OF THE PORT AREA EXIT WITH THE MESSAGE "SHORELINE TRAFFIC USE THE PORT AREA EXIT. PLACE CONES ON OUTSIDE SHOULDER OF LINE "A". COMPLETE OVERLAY OF INSIDE TWO LANES OF LINE "D", RAMP "W" AND CENTER LANE OF LINE "A".

G) IH 37 - WESTBOUND (LINE "A")

OVERLAYING THE INSIDE LANE - USE LC(16)-2 "SINGLE LANE CLOSURE" TO CLOSE INSIDE LANE OF SHORELINE BLVD. IN ADVANCE OF LINE "A". CONE OFF INSIDE LANE OF LINE "A" FROM SHORELINE TO LIMITS OF OVERLAY. USE LC(16)-2 TO CLOSE THE OUTSIDE LANE OF US 181 - LINE "D" IN ADVANCE OF THE CREST OF THE HARBOR BRIDGE. ALLOW ONE LANE OF TRAFFIC TO EXIT TO THE OUTSIDE LANE OF LINE "E". CONE OFF THE INSIDE LANE OF LINE "E" FROM THE LINE "D" SPLIT TO LIMITS OF OVERLAY. COMPLETE OVERLAY FROM SHORELINE TO LIMITS OF OVERLAY. PORT AREA EXIT AND STAPLES EXIT SHALL REMAIN OPEN. OPEN INTERSECTIONS AS SOON AS POSSIBLE TO TRAFFIC.

SPECIFICATION DATA

07/18

SHEET E

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2B
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 3817 & 3818

A CONTROL SECTION WILL NOT BE REQUIRED FOR THIS PROJECT.

ITEM 3834

THE OVERLAY WILL NOT BE PLACED ON BRIDGE STRUCTURES.

THE OVERLAY QUANTITIES ARE BASED ON THE APPLICATION RATE OF 150 LBS/SY.

THE TYPICAL SECTIONS INCLUDED IN THE PLANS REPRESENT ONLY A PORTION OF THE AREAS TO BE OVERLAID ON THIS PROJECT. THE OTHER AREAS TO BE OVERLAID CONSISTS OF TRANSITIONS, WIDENINGS AND AREAS OF VARYING WIDTHS AND LENGTHS THAT MAKE UP THE REMAINDER OF THE PROJECT.

THE TEXAS DEPARTMENT OF TRANSPORTATION WILL FURNISH THE LABORATORY BUILDING REQUIRED FOR TESTING ALL ASPHALTIC MATERIAL FOR THIS ITEM. THE CONTRACTOR SHALL PROVIDE ELECTRICITY, WATER AND GAS SERVICE AT THIS FACILITY AT HIS OWN EXPENSE.

A MINIMUM POLISH VALUE OF 32, WHEN TESTED IN ACCORDANCE WITH TEST METHOD TEX-438-A, WILL BE REQUIRED FOR THE COARSE AGGREGATE USED IN THE SURFACE COURSE.

SAMPLES FOR TEST METHOD TEX-217-F (PARTS I AND II) SHALL BE FROM THE HOT BINS FOR CONVENTIONAL BATCH PLANTS AND FROM THE STOCKPILE FOR DRYER DRUM PLANTS.

COARSE AGGREGATES USED SHALL BE SUBJECTED TO FIVE CYCLES OF THE MAGNESIUM SULFATE SOUNDNESS TEST IN ACCORDANCE WITH TEST METHOD TEX-411-A. THE LOSS SHALL NOT BE GREATER THAT 35 PERCENT. AGGREGATES NOT LISTED IN THE TXDOT QUALITY MONITORING PROGRAM SHALL BE SAMPLED AND TESTED AT THE RATE OF 1 TEST FOR EACH 10,000 TONS OF AGGREGATE OR FRACTION THEREOF. IF AGGREGATES ARE BLENDED, EACH INDIVIDUAL AGGREGATE SHALL NOT HAVE A LOSS GREATER THAN 55% AND THE BLEND SHALL NOT HAVE A LOSS GREATER THAN 35%.

THE SAND EQUIVALENT VALUE OF THE COMBINED MINERAL AGGREGATE SHALL NOT BE LESS THAN 45. AN ADDITIONAL TEST, TEST METHOD TEX-203-F, SHALL BE PERFORMED ON THE SAND ONLY AND SHALL HAYE A VALUE OF NOT LESS THAN 25.

SPECIFICATION DATA

07/18

SHEET F

2B



F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2C
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

AGGREGATE STOCKPILES TESTED AND DESIGNATED FOR DEPARTMENTAL PROJECTS WILL NOT BE USED FOR OTHER SALES AND WILL NOT BE ADDED TO, RESHAPED OR MOVED WITHOUT APPROVAL OF THE ENGINEER.

IF THE CONTRACTOR CHANGES SOURCES OF MATERIALS, THE COST TO REDESIGN THE MIX SHALL BE AT THE CONTRACTOR'S EXPENSE. THE DEPARTMENT'S LABORATORY WILL RUN THE TESTS AT THE CURRENT UNIT PRICE AT THE TIME EACH TEST IS RUN. THE CONTRACTOR SHALL REIMBURSE THE STATE FOR THE COST OF THE ADDITIONAL TESTS AND SUCH REIMBURSEMENT WILL BE MADE TO THE STATE BY MAKING DEDUCTIONS FROM THE CONTRACTOR'S ESTIMATE.

THE MIXTURE DESIGN GRADATION WILL BE BASED UPON RESULTS FROM TEST METHOD TEX-200-F, PART II, WASHED METHOD.

THE CONTRACTOR SHALL FURNISH A CORE DRILLING MACHINE CAPABLE OF PRODUCING A 6" CORE FROM THE ASPHALTIC CONCRETE PAVEMENT. THE CONTRACTOR SHALL OBTAIN AT LEAST ONE CORE DAILY FROM THE PREVIOUS DAY'S PLACEMENT FOR THE STATED USE IN DETERMINING IN-PLACE COMPACTION. THE EQUIPMENT, LABOR AND COST TO DO THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS OF THE CONTRACT.

TRUCKS SHALL BE COVERED WITH TARPS DURING COOL WEATHER BELOW 60 F AND DURING RAINY WEATHER.

ITEM 6910

PAVEMENT SURFACE PREPARATION FOR MARKINGS AND MARKERS WILL NOT BE PAID DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 6910.

PAVEMENT SURFACE PREPARATION FOR MARKINGS AND MARKERS SHALL CONFORM TO THE REQUIREMENTS OF SPECIAL SPECIFICATION ITEM 6914, EXCEPT FOR MEASUREMENT AND PAYMENT.

ITEM 6912

FOR THIS PROJECT THE TY II-A-A, TY 1-A, TY II-CR, TY 1-C PAVEMENT MARKERS AND JIGGLE BARS SHALL BE PLACED IN ACCORDANCE WITH AND AS SHOWN ON SHEETS RPM (1) AND PM (2)-92.

THE 12-INCH SOLID WHITE CHANNELIZING LINE SHALL HAVE "RAIS PAV MARK CL B (REF) TY II-C-R PLACED EVERY TWENTY FEET ON BOTH SIDES OF THE STRIPE.

SPECIFICATION DATA

07/13

SHEET 0

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2C
NUECES	COUNTY	HWY US 181	CONT 0074-6-174,ETC

GENERAL NOTES AND SPECIFICATION DATA--

ITEM 6913

THE CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC BUTTONS, PAVEMENT MARKERS AND JIGGLE BARS AS THE WORK PROGRESSES AND AS DIRECTED BY THE ENGINEER. ALL MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE PROJECT. FOR THIS PROJECT THERE ARE APPROXIMATELY 415 TRAFFIC BUTTONS OR PAVEMENT MARKERS AND 599 JIGGLE BARS TO BE REMOVED.

ITEM 6924

THE CONTRACTOR SHALL INSTALL SHORT TERM PAVEMENT MARKINGS ON THE PERMANENT ROADWAY PRIOR TO OPENING TO TRAFFIC. PATTERN AND SPACING OF SHORT TERM PAVEMENT MARKINGS SHALL BE AS SHOWN ON WZ(STPM)-92. NON-TYPICAL SHORT TERM PAVEMENT MARKINGS PATTERNS SHALL BE PLACED AS APPROVED BY THE ENGINEER.

REMOVAL OF SHORT TERM PAVEMENT MARKINGS WILL BE REQUIRED IMMEDIATELY PRIOR TO PLACEMENT OF PERMANENT MARKINGS.

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MARK THE LOCATION OF THE STANDARD PAVEMENT MARKINGS INCLUDING EDGE LINES, GORES AND TRANSITIONS.

SPECIFICATION DATA

07/13

SHEET H

2c

F.R. DIV.6	TEXAS	CPM 74-6-174, ETC	SHEET 2D
NUECES	COUNTY	HWY US 181	CONT 0074-6-174, ETC

GENERAL NOTES AND SPECIFICATION DATA--  
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FOR CONTRACTOR'S INFORMATION ONLY  
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LOCATION OF SOLID WHITE LINE  
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NORTH END OF RAMP "V" - 350 FT.  
 LINE "A" AT MERGING OF LINE "E" - 600 FT.  
 LINE "B" - LINE "C" SPLIT - 1200 FT.  
 LINE "B" AT MESQUITE STREET - 250 FT.  
 LINE "C" AT MERGING OF RAMP "U" - 100 FT.  
 LINE "C" AT MERGING OF RAMP "V" - 200 FT.

LOCATION OF DOUBLE YELLOW LINE  
-----

BELDEN STREET - 380 FT.  
 MARTIN LUTHER KING STREET - 950 FT.  
 CHAPARRAL STREET - 200 FT.

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DESCRIPTION	BASIS OF ESTIMATE	QUANTITY	UNITS
	RATE/UNIT		
*ITEM 3834 TACK COAT(ALL TYPES)---	.03 GAL/SY	2915.	GAL
ITEM 3834 ASPH CONC (TY D) (SURF)			
* ASPHALT	APPROX. 5.5% BY WEIGHT		
* AGGREGATE	APPROX. 94.5% BY WEIGHT		

\*FOR CONTRACTOR'S INFORMATION ONLY

SPECIFICATION DATA  
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07/13

SHEET 1  
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2D

# ESTIMATE SUMMARY

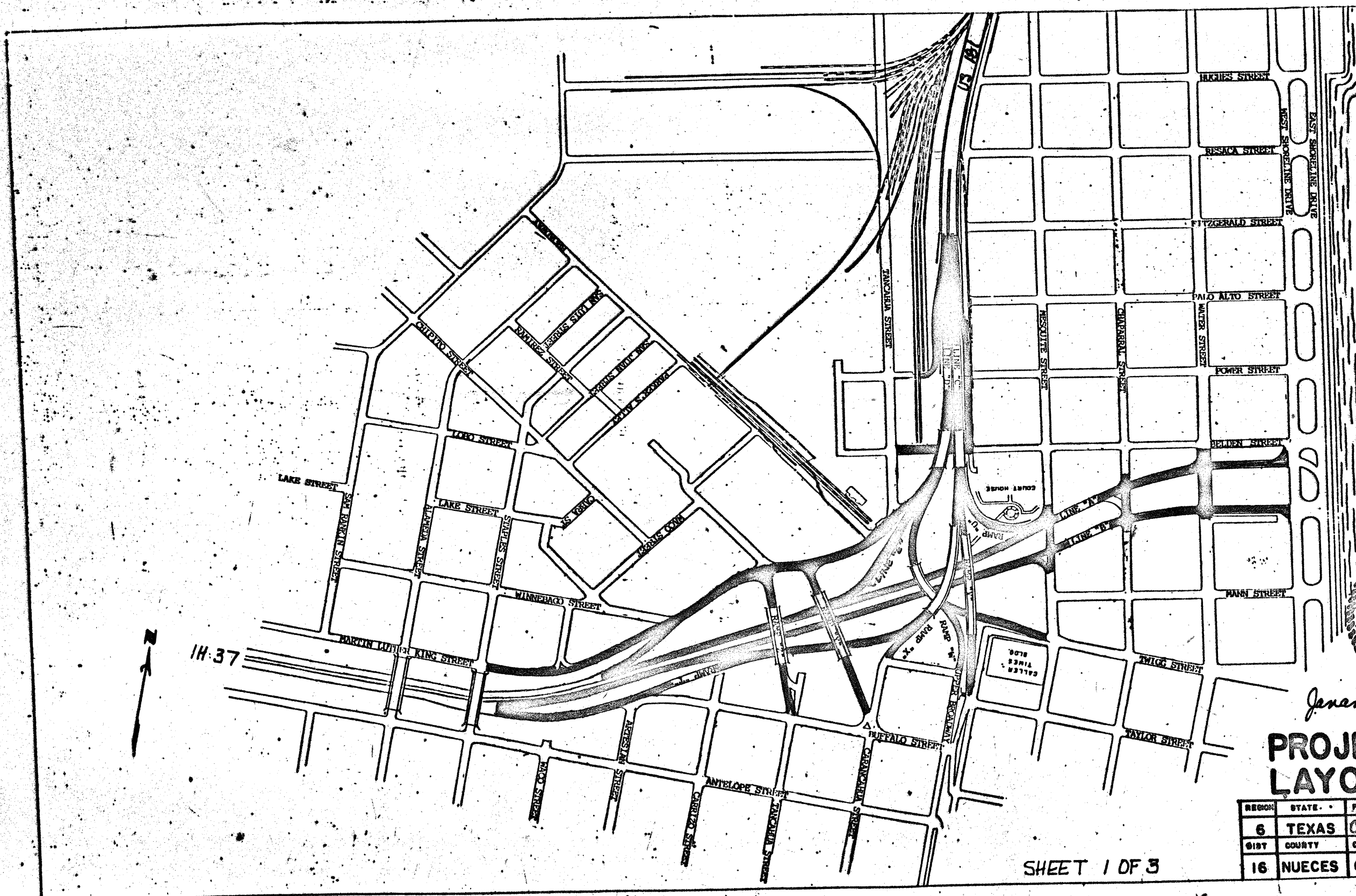
						PROJECT CPM 101-6-90		PROJECT CPM 74-6-174		ALT	ITEM-CODE			DESCRIPTION	UNIT	TOTAL	
						CONTROL 0101-06-090		CONTROL 0074-06-174			ITEM NO	DESC	QTY			EST.	FINAL
EST.		FINAL		EST.		FINAL		EST.									
						US 101 ROADWAY		US 101 ROADWAY									
								8.000		471	001		GRATE	EA	8.000		
								10.000		479	001		ADJ MANH	EA	10.000		
								8.000		479	002		ADJ INLET	EA	8.000		
								4.000		479	027		ADJ WATER VALVE	EA	4.000		
								2.000		502	001	022	BARCD, SIGN AND TRAF HANDLING	MO	2.000		
						760.000		6521.000		8834	012		ASPH CONC (TY D) (SURF)	TON	7281.000		
								1.000		5641	001		MOBILIZATION	LS	1.000		
						1800.000		7590.000		6910	001		REFL PAV MRK TY I (W) (4") (SLD)	LF	9890.000		
						900.000		3900.000		6910	002		REFL PAV MRK TY I (W) (4") (BRK)	LF	4800.000		
						600.000		11250.000		6910	007		REFL PAV MRK TY I (W) (12") (SLD)	LF	11850.000		
						150.000		2547.000		6910	009		REFL PAV MRK TY I (W) (24") (SLD)	LF	2697.000		
						1800.000		18660.000		6910	020		REFL PAV MRK TY I (V) (4") (SLD)	LF	15460.000		
						118.000		1644.000		6912	004		RAIS PAV MRK CL A (JIGGLE) TY W	EA	1762.000		
								90.000		6912	006		RAIS PAV MRK CL B (REFL) TY I-A	EA	90.000		
								27.000		6912	007		RAIS PAV MRK CL B (REFL) TY I-C	EA	27.000		
								12.000		6912	009		RAIS PAV MRK CL B (REFL) TY II-A-A	EA	12.000		
						64.000		347.000		6912	010		RAIS PAV MRK CL B (REFL) TY II-C-R	EA	411.000		
						115.000		943.000		6913	014		ELIM EXT PAV MRK & MRKER (RAIS MRKER)	EA	1058.000		
						89.000		402.000		6924	057		WRK ZN PAV MRK GDMRK (W)	EA	491.000		
						178.000		940.000		6924	068		WRK ZN PAV MRK SH TRM (TAB) TY W	EA	1110.000		
								136.000		6924	070		WRK ZN PAV MRK SH TRM (TAB) TY V-2	EA	136.000		
		</															

# ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
16	NUECES	CPH 74-6-174, ETC	3



4



CORPUS CHRISTI MAP



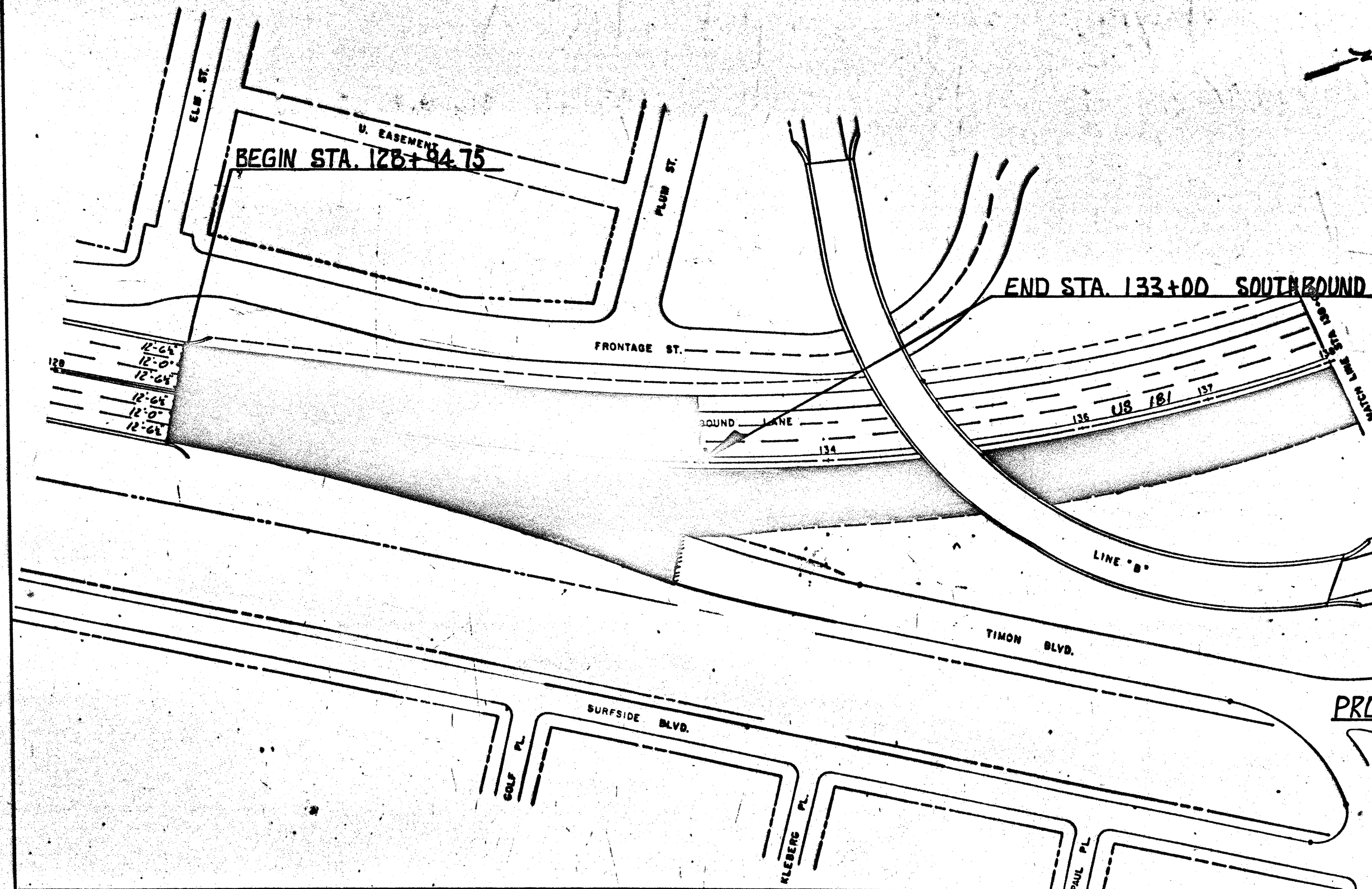
Janan N. Sahtout, P.E.  
4/7/93

# PROJECT LAYOUT

REGION	STATE	FEDERAL AID PROJECT NO	SHEET NO
6	TEXAS	CPM 74-174, etc.	4
DIST	COUNTY	CONTROL SECT	JOB
16	NUECES	0074 06	174 USMT

SHEET 1 OF 3

5



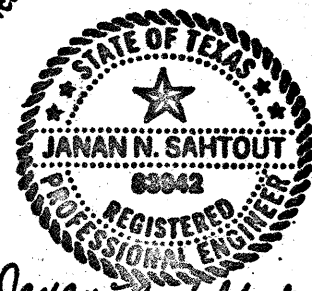
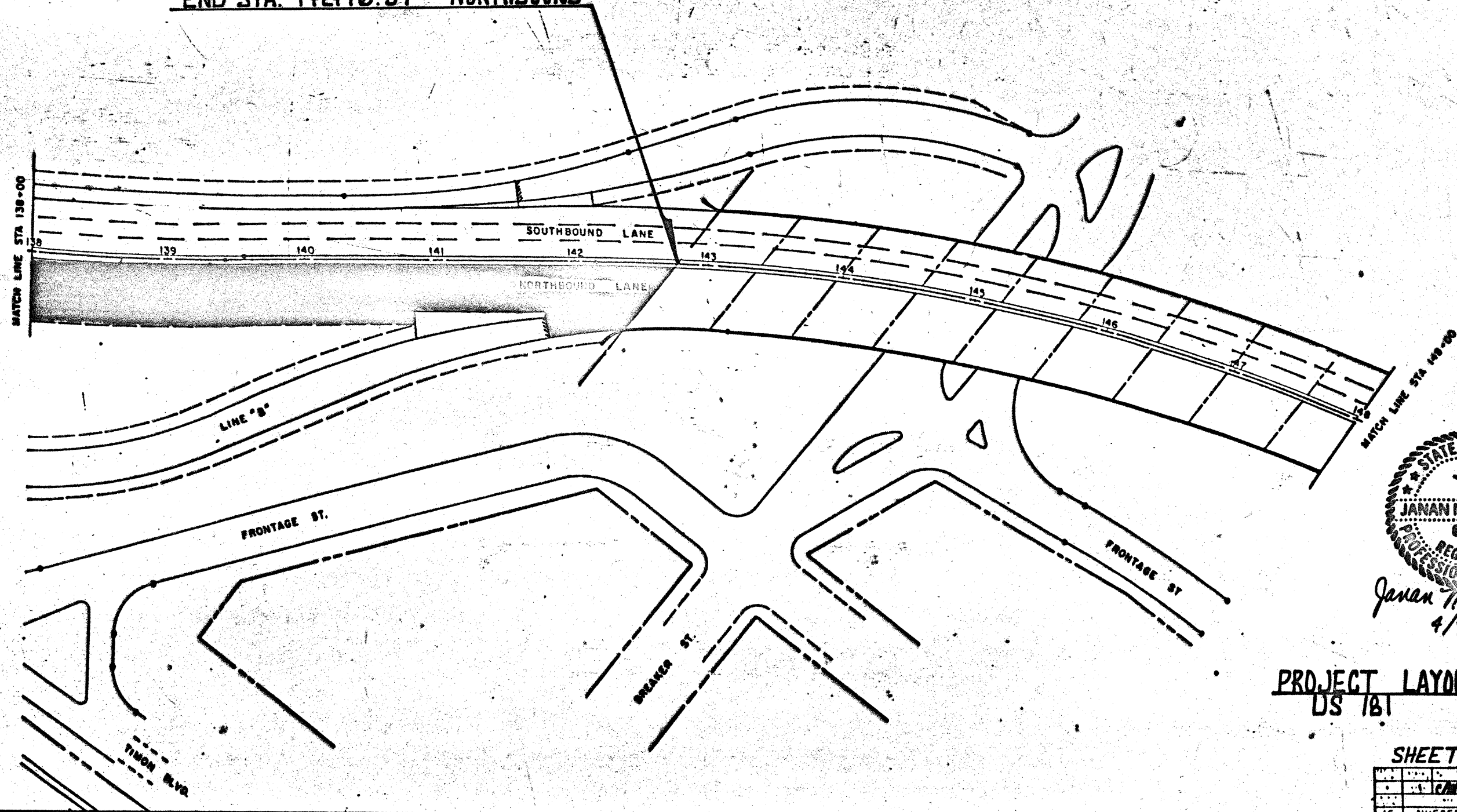
Janan N. Sahtout, P.E.  
4/7/93

PROJECT / LAYOUT  
US 181

SHEET 2 OF 3

NO.	DATE	REVISION
1	10/1/92	ISSUED FOR BIDDING
2	10/1/92	REVISED
3	10/1/92	REVISED
4	10/1/92	REVISED
5	10/1/92	REVISED
6	10/1/92	REVISED
7	10/1/92	REVISED
8	10/1/92	REVISED
9	10/1/92	REVISED
10	10/1/92	REVISED
11	10/1/92	REVISED
12	10/1/92	REVISED
13	10/1/92	REVISED
14	10/1/92	REVISED
15	10/1/92	REVISED
16	10/1/92	REVISED

6



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4/7/93

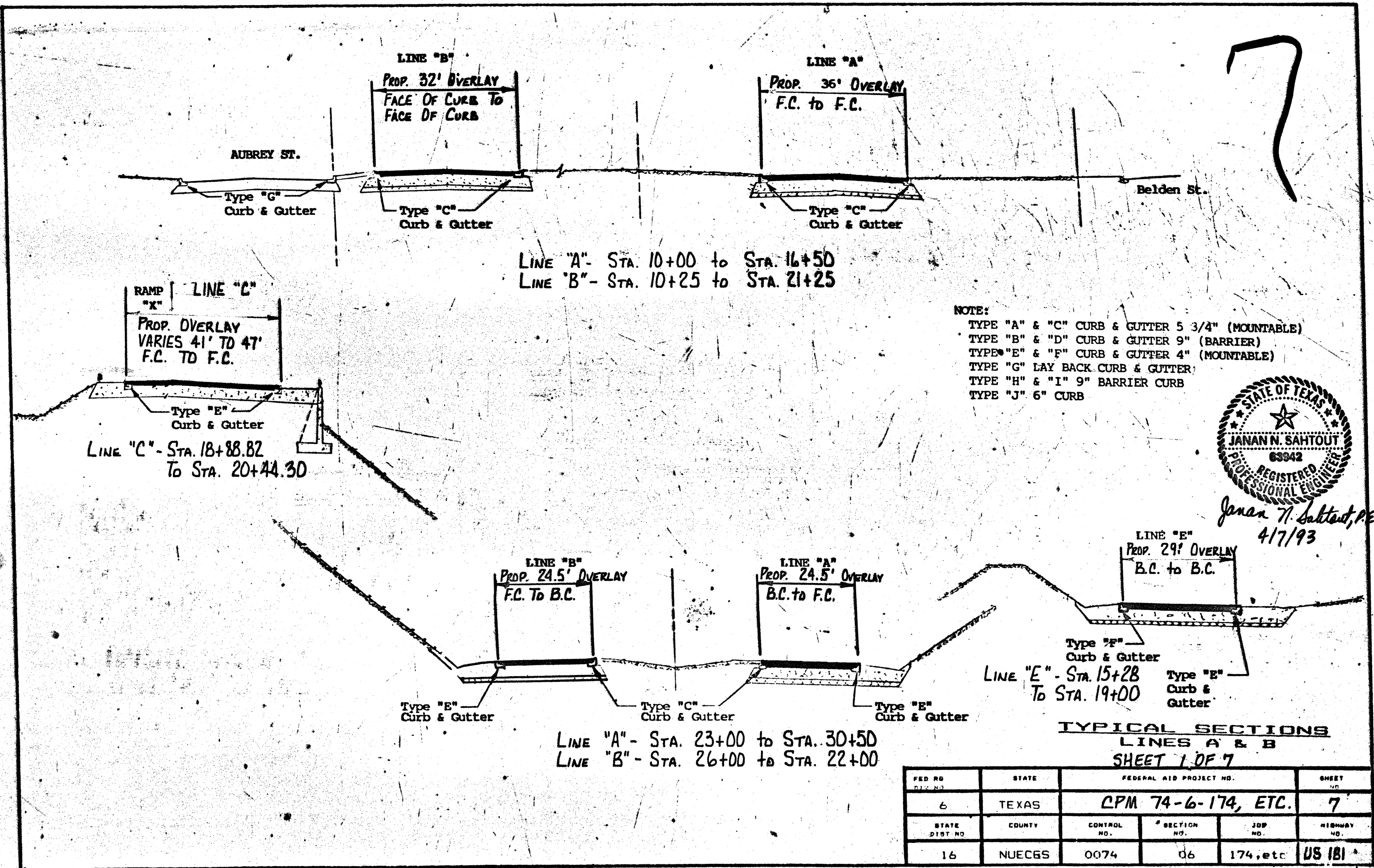
PROJECT LAYOUT  
DS 181

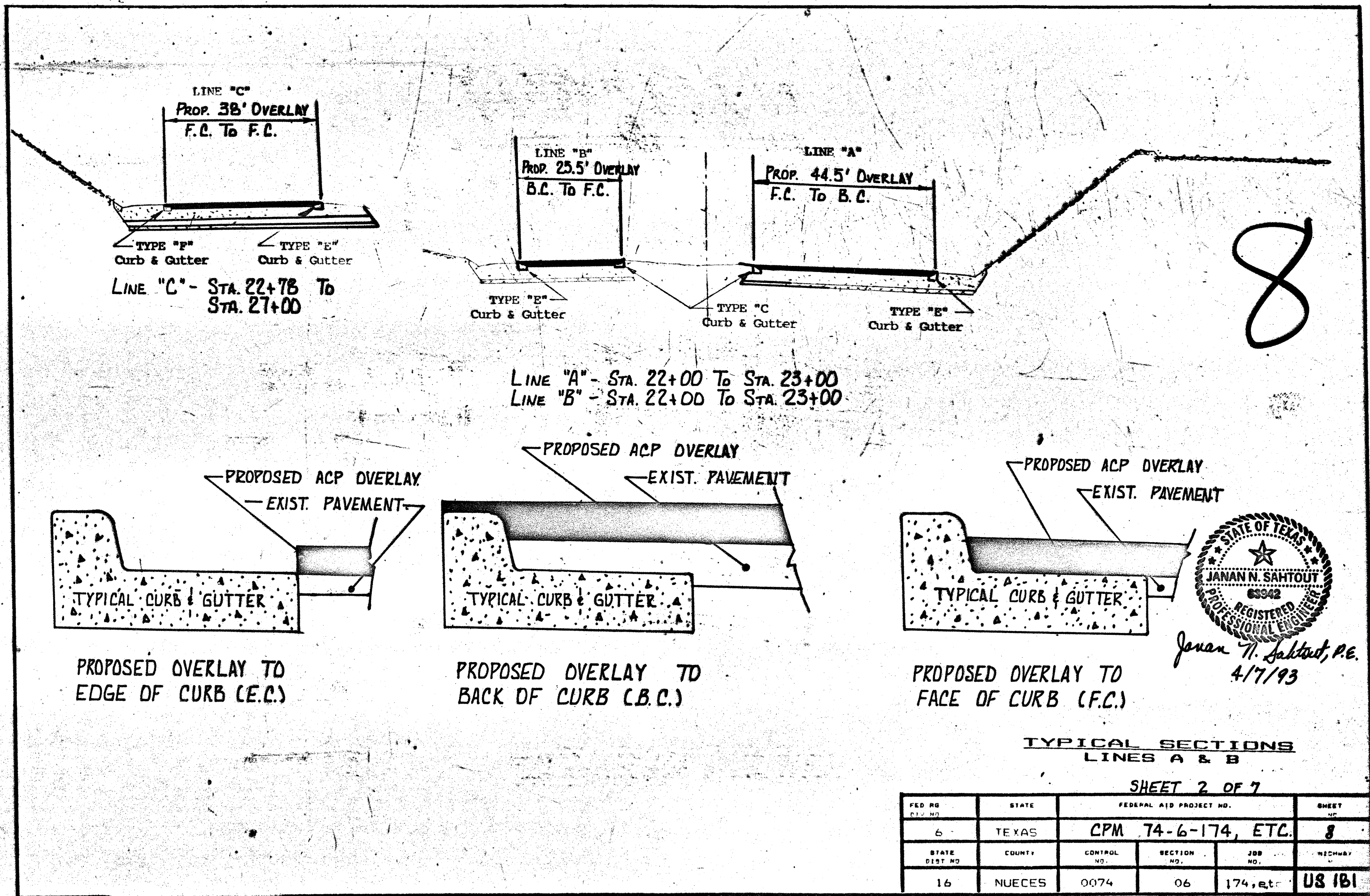
**SHEET 3 OF 3**

[illegible]

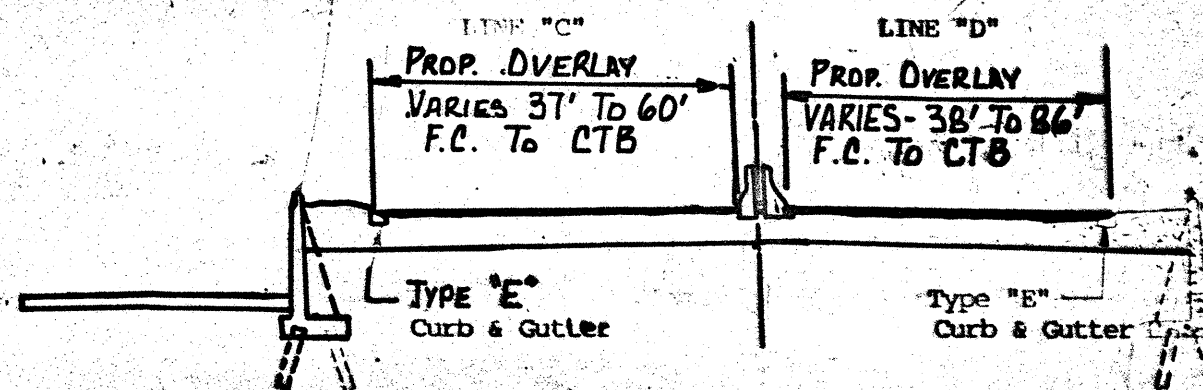
270



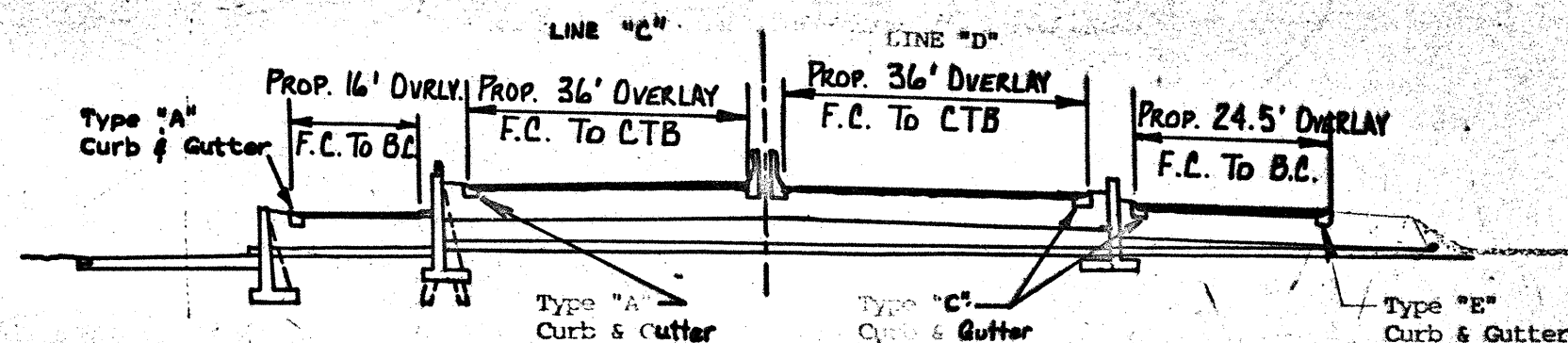




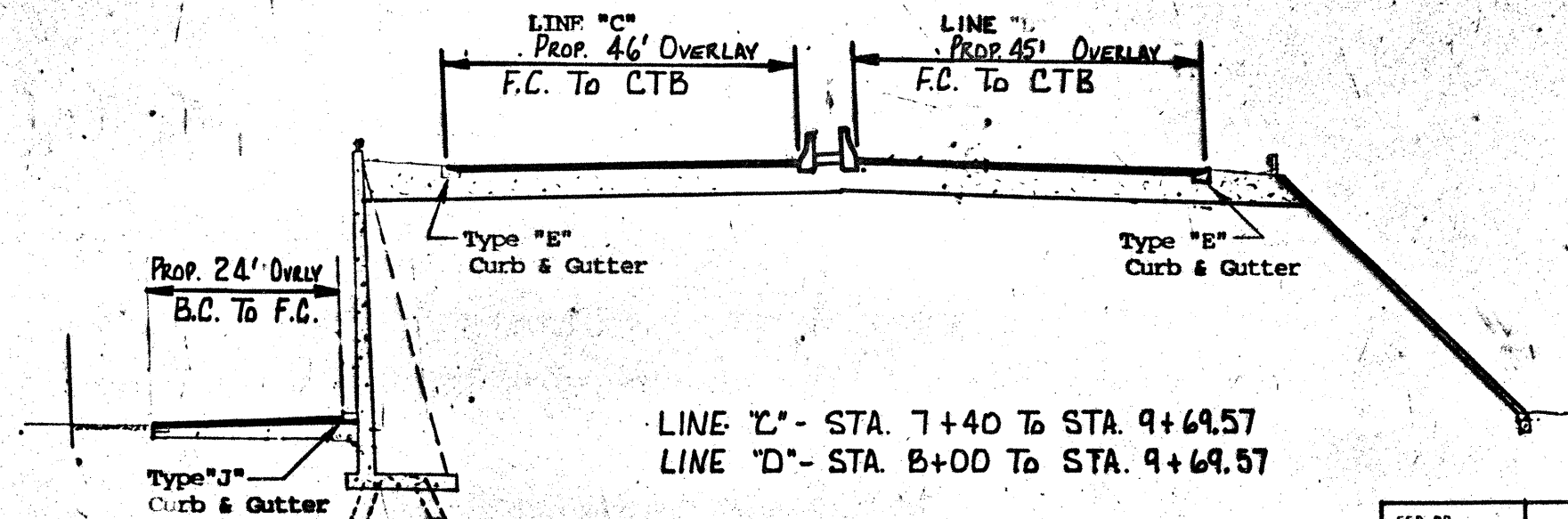
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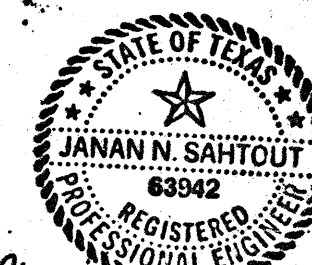
LINE C & D  
STA. 0+00 TO STA. 3+75



LINE 'C' - STA. 3+75 TO STA. 5+00  
LINE 'D' - STA. 3+75 TO STA. 8+00



LINE 'C' - STA. 7+40 TO STA. 9+69.57  
LINE 'D' - STA. 8+00 TO STA. 9+69.57



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4/7/93

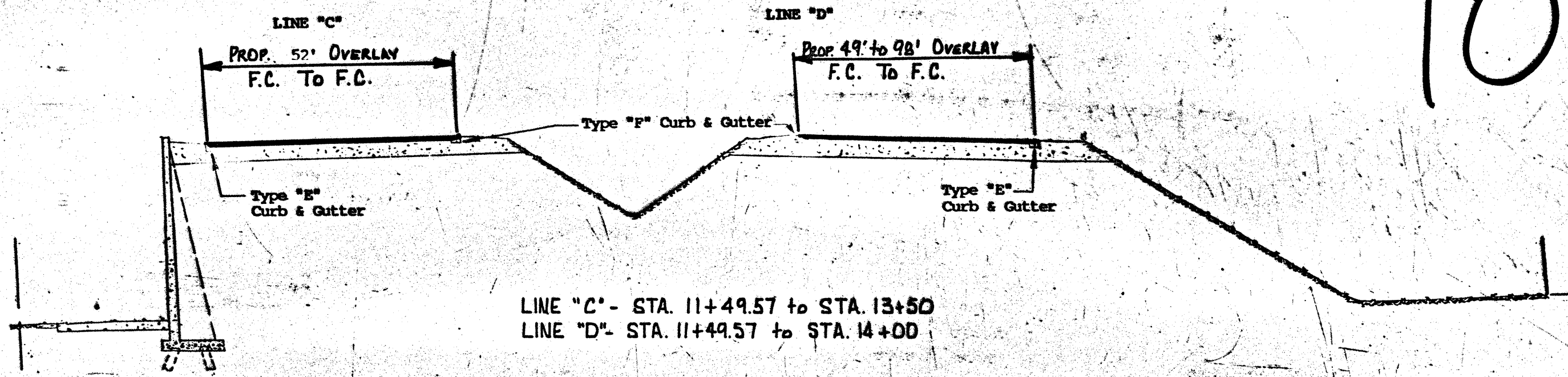
TYPICAL SECTIONS  
LINES C & D

SHEET 3 OF 7

FED RD DIST NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	CPM 74-6-174, ETC			9
STATE DIST NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
16	NUECES	0074	06	174, etc	US 101



10

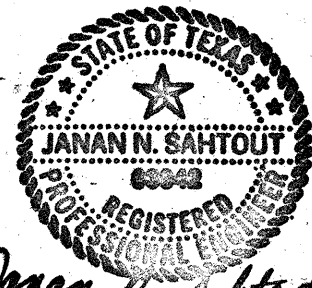
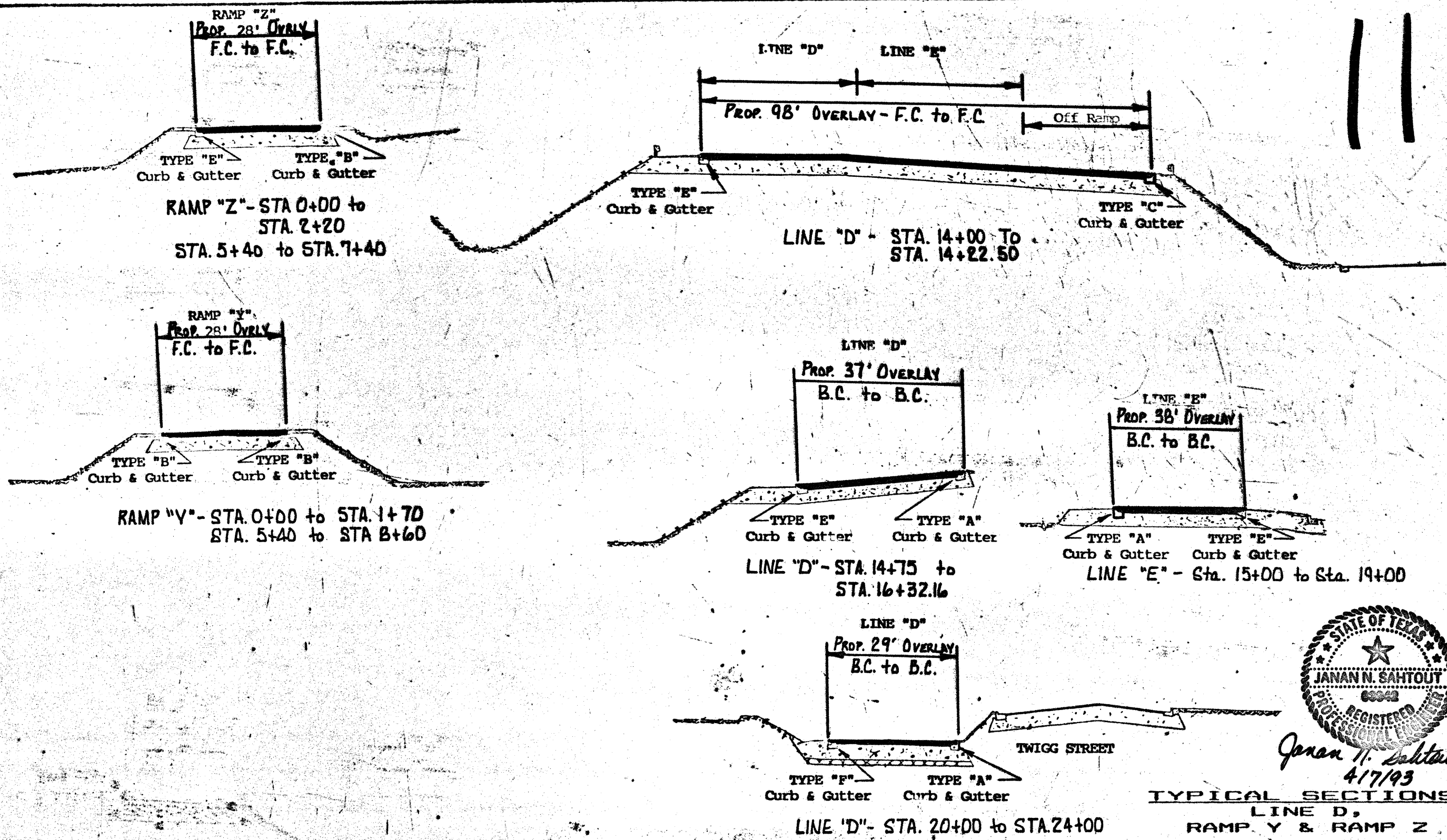


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4/7/93

TYPICAL SECTIONS  
LINES C & D

SHEET 4 OF 7

FED RD DIST NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	LPM 74-6-174, ETC.			10
STATE DIST NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
16	NUECES	0074	06	174, etc	US 181



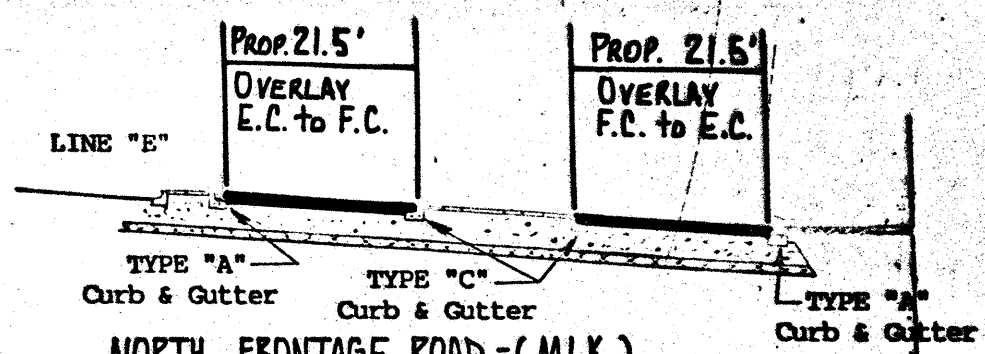
Janan N. Sahtout, P.E.  
4/17/93

TYPICAL SECTIONS  
LINE D,  
RAMP Y & RAMP Z

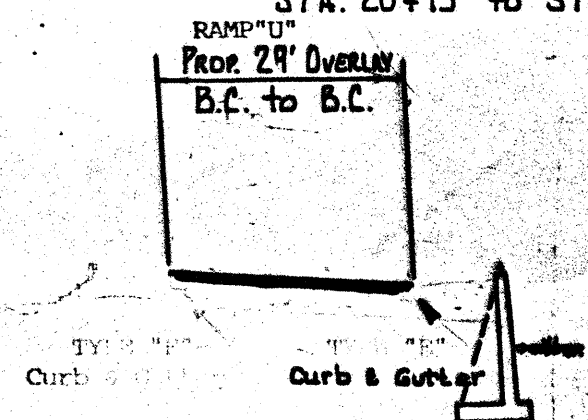
SHEET 5 OF 7

FED RD DIV NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	CPM 74-6-174, ETC.			11
STATE DIST NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
16	NUECES	0074	06	174, etc	US 181

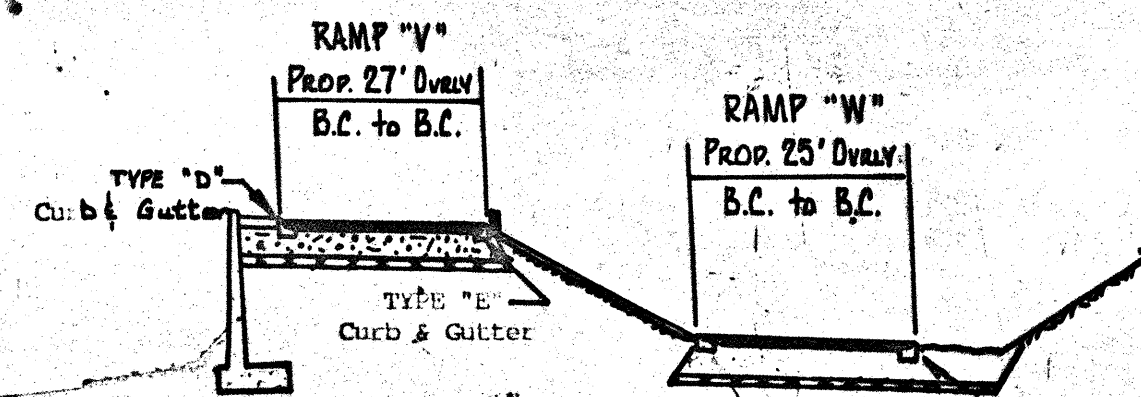
12



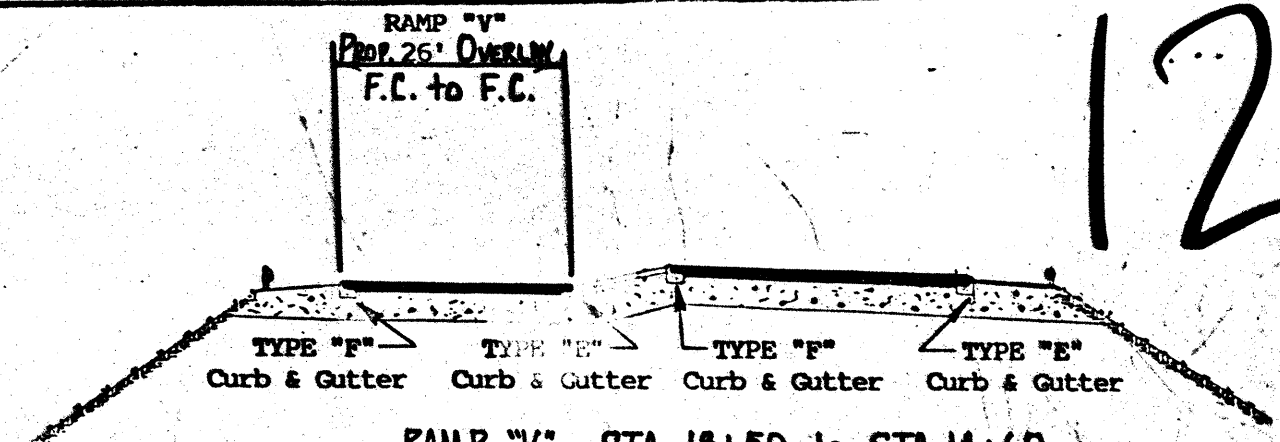
NORTH FRONTAGE ROAD - (MLK.)  
STA. 15+50 to STA. 17+00  
STA. 20+15 to STA. 22+60



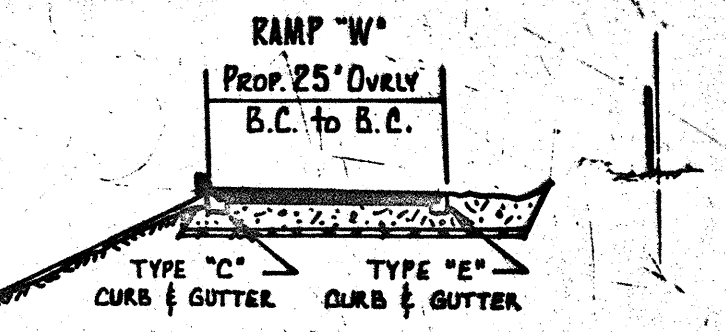
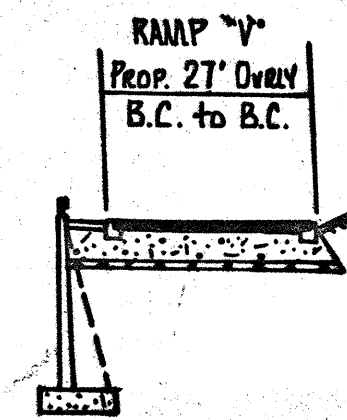
RAMP "U" - STA. 22+12 to STA. 23+85.63



RAMP "W" - STA. 19+71 to STA. 20+70  
RAMP "V" - STA. 19+65 to STA. 21+00

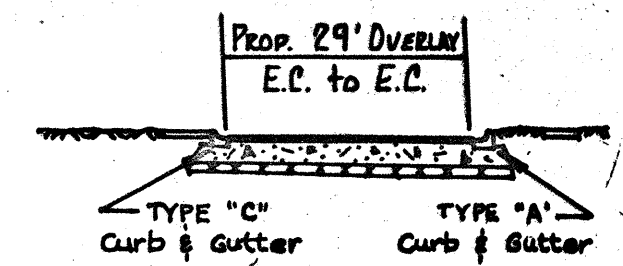


RAMP "V" - STA. 13+50 to STA. 14+60

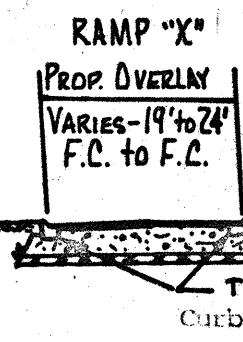


RAMP "W" - STA. 20+70 to STA. 21+81  
RAMP "V" - STA. 21+00 to STA. 22+60

LOWER BROADWAY



NORTH FRONTAGE ROAD (MLK)  
STA. 24+00 to STA. 32+00



RAMP "X" - STA. 20+44.30 to STA. 21+20



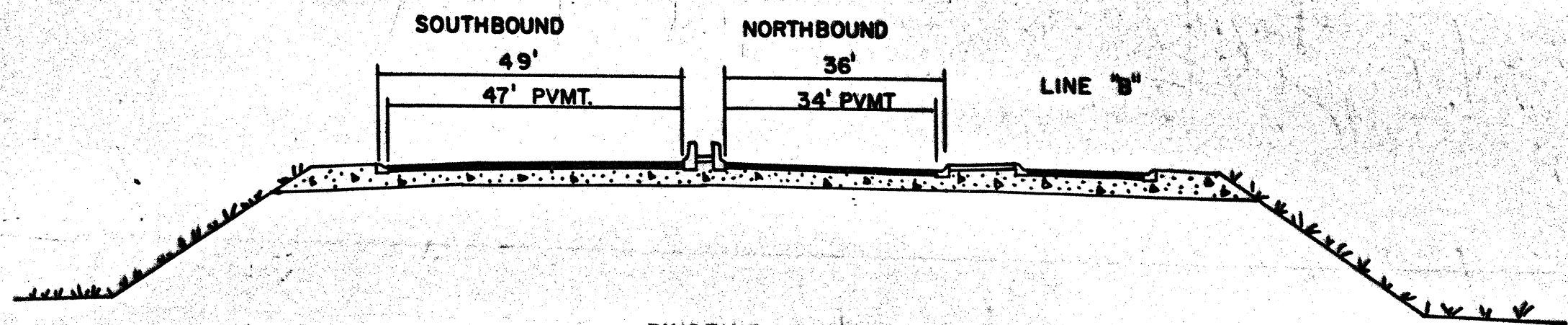
Janan N. Sahtout, P.E.  
4/7/93

LEGEND  
RAMP U, RAMP V,  
RAMP X, RAMP W,  
& NORTH FRONTAGE ROAD  
SHEET 6 OF 7

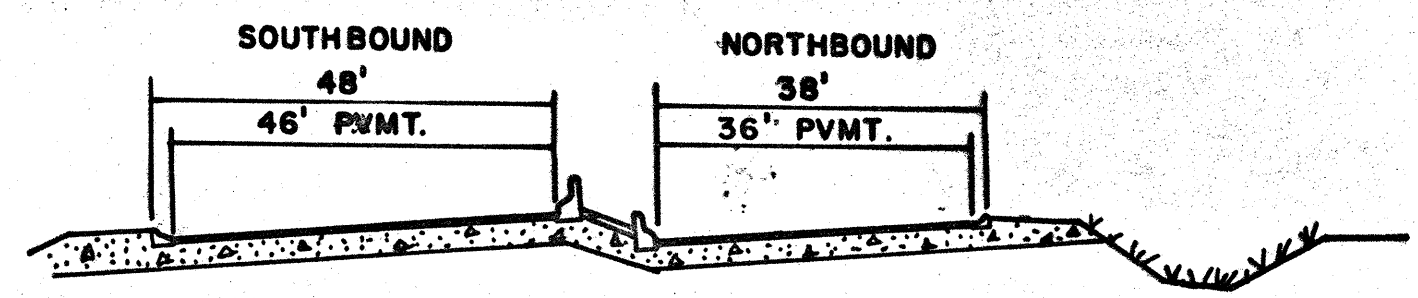
FED. RD. DIST. NO.	STATE	FEDERAL AID PROJECT NO.			SHEET NO.
6	TEXAS	CPM- 74-6-174, ETC.			12
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
16	NUECES	0074	06	174, etc.	US 101



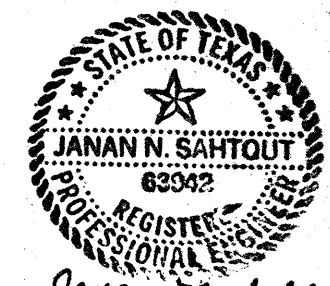
13



EXISTING  
TYPICAL SECTION  
STA. 141+00 - MAINLANES



EXISTING  
TYPICAL SECTION  
STA. 134+00 - MAINLANES



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1-7-93

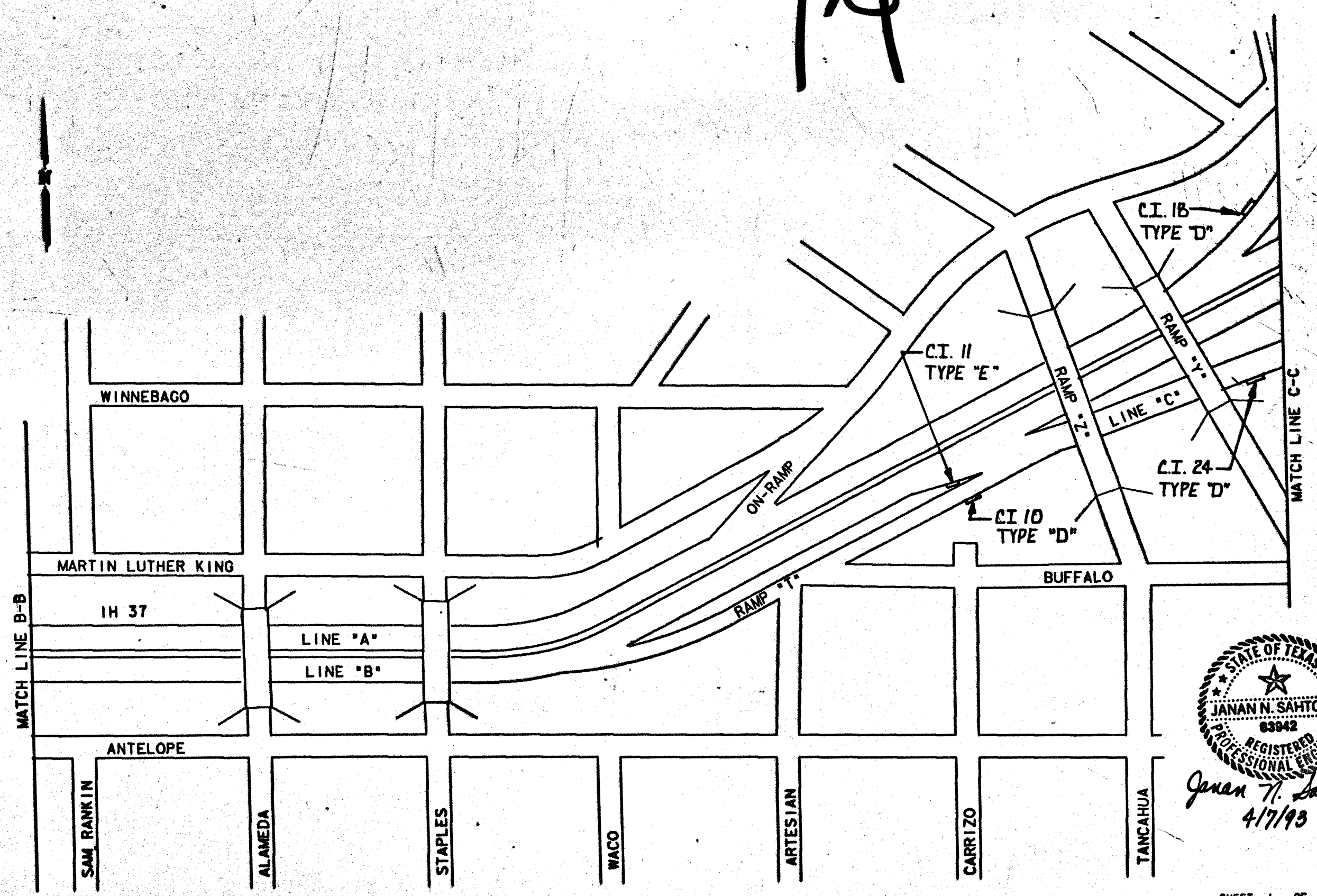
US 181  
TYPICAL SECTION

SHEET 7 OF 7

REGION	STATE	FEDERAL AID PROJECT	SHEET NO.		
6	TEXAS	CPM 74-S-174	13		
STATE DIST	COUNTY	CONTROL SECT	JOB	HIGHWAY NO.	
16	NUECES	0074	06	174	US 181

ETC.

14



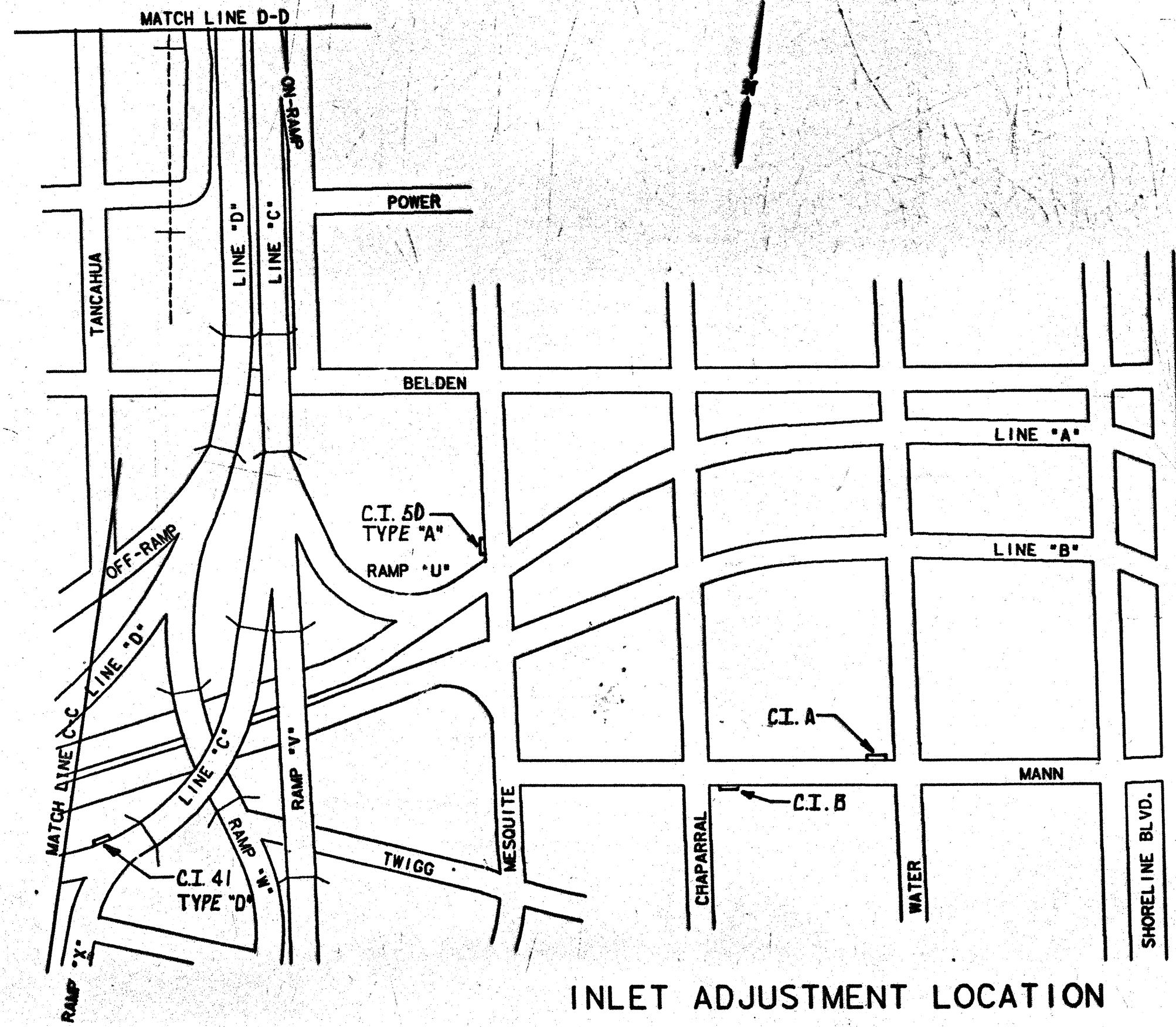
Janan N. Sahtout, P.E.  
4/7/93

# INLET ADJUSTMENT LOCATION

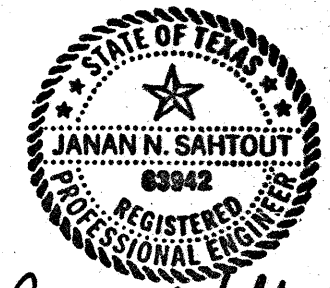
SHEET 1 OF 2 SHEETS			
DATE	STATE	PROJECT NO.	DATE
6	TEXAS	CPM 74-6-174	US 181
DATE	CITY	DATE	DATE
16	MUECES	0074 06 174	74

ZFA31 [320, 100] IH37 JAN

15



INLET ADJUSTMENT LOCATION

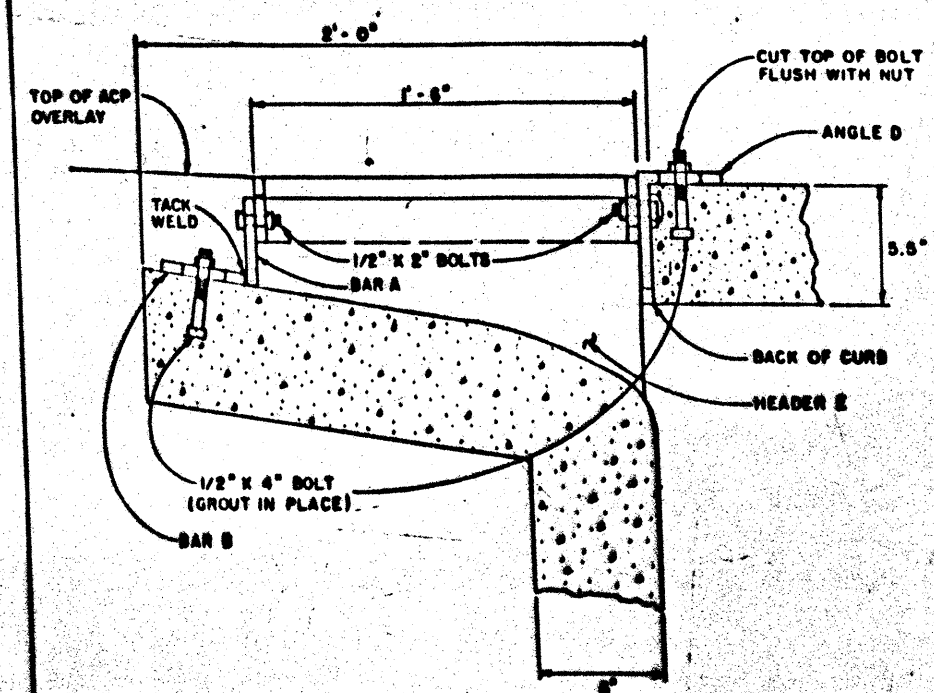


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4/7/93

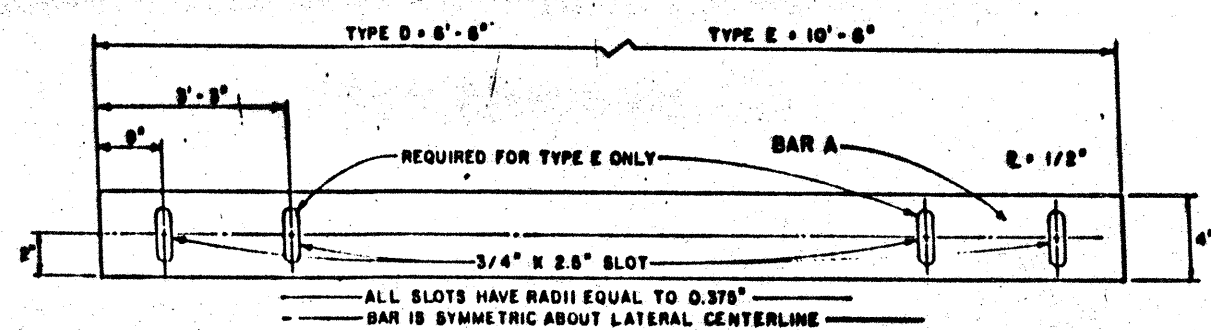
SHEET 2 OF 2 SHEETS									
NO.	DATE	BY	CHKD.	APP'D.	REVISION	DESCRIPTION	DATE	BY	CHKD.
6	10/92	EDDY				CPM 74-6-174	US 101		
15						REVISION			
						REVISION			



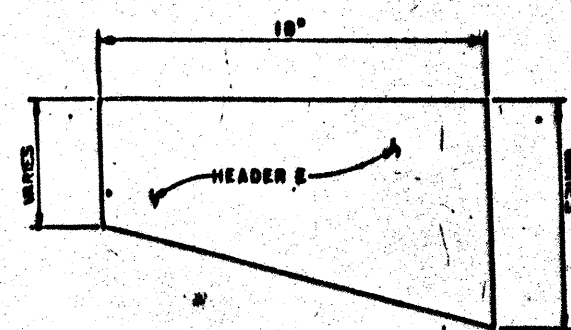
REGION	STATE	FEDERAL AID PROJECT NO	SHEET NO
6	TEXAS	2PM 74-6-174, ETC	16
DIST	COUNTY	CONTROL	SHEET
16	NUECES	0074	06
		174	US/07



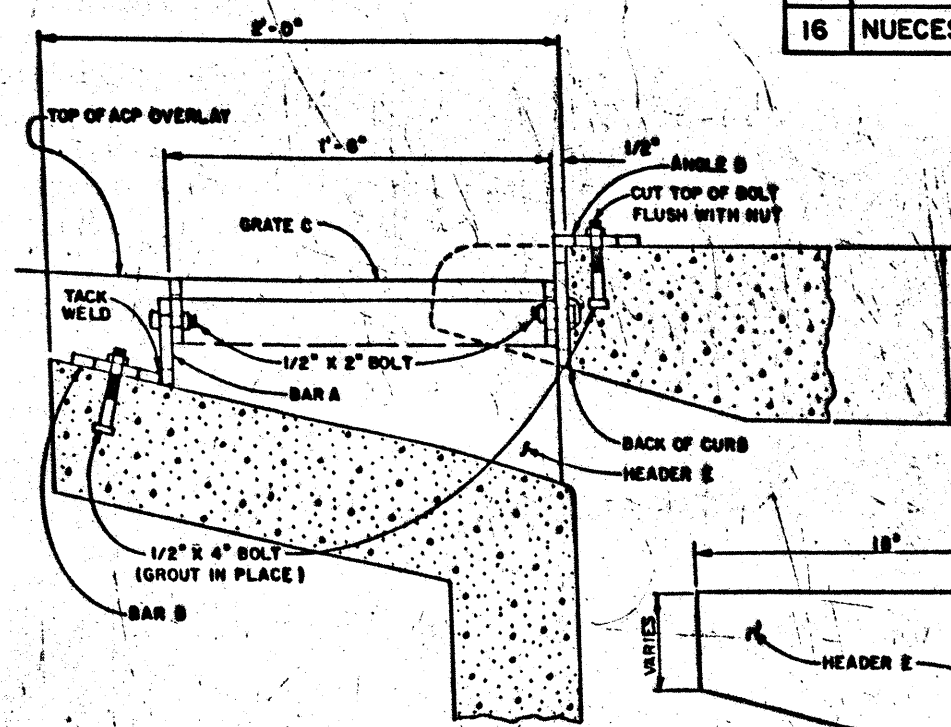
GRATE MOUNT DETAIL  
(FOR EXIST. CURB INLET TYPE D & E)  
(4" TO 6" OVERLAY THICKNESS)



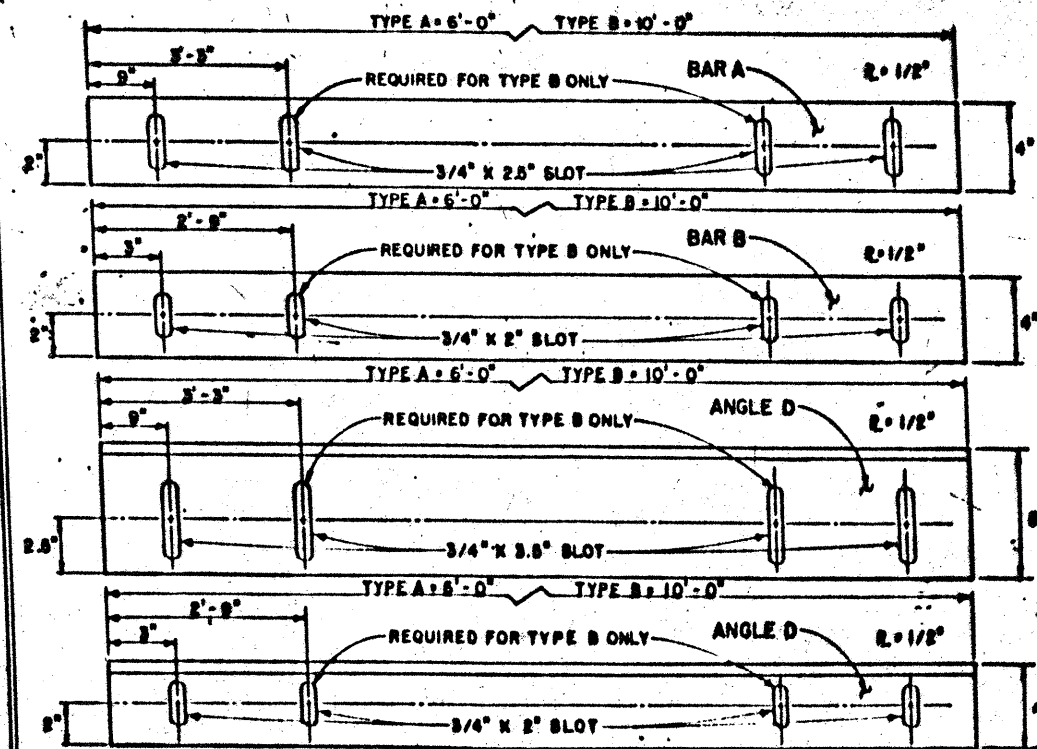
ALL SLOTS HAVE RADII EQUAL TO 0.375"  
BAR IS SYMMETRIC ABOUT LATERAL CENTERLINE



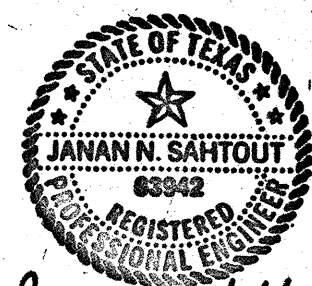
NOTE: PAYMENT FOR VARIABLE DEPTH METAL PLATE HEADERS AT EACH END OF GRATE, GROUTING OF BOLTS, SAWCUTTING AND RESTORING OF PAVEMENT SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT BID ITEM.  
BOLTS AND NUTS SHALL CONFORM TO ASTM A307. STEEL BARS SHALL CONFORM TO ASTM A36.  
GRATES, BARS, AND HEADERS SHALL BE GIVEN ONE COAT OF A COMMERCIAL GRADE PRIMER AND TWO COATS OF COMMERCIAL GRADE ALUMINUM PAINT. PAINTED ELEMENTS DAMAGED DURING TRANSPORT OR CONSTRUCTION SHALL BE REPAIRED THROUGH THE APPLICATION OF PRIMER AND ALUMINUM PAINT.  
COMMERCIAL GRADE GALVANIZED BOLTS AND NUTS SHALL BE USED.



GRATE MOUNT DETAIL  
(FOR EXIST. CURB INLET TYPE A & B)  
(4" TO 6" OVERLAY THICKNESS)



ALL SLOTS HAVE RADII EQUAL TO 0.375"  
ALL BARS ARE SYMMETRIC ABOUT THEIR LATERAL CENTERLINES

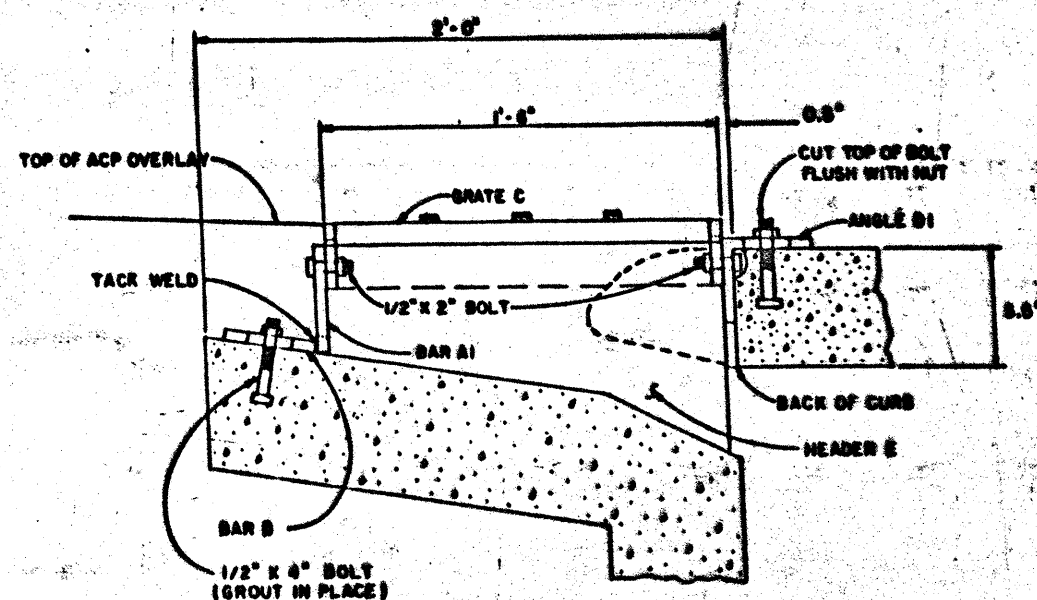


Janan N. Sahtout, P.E.  
4/7/93

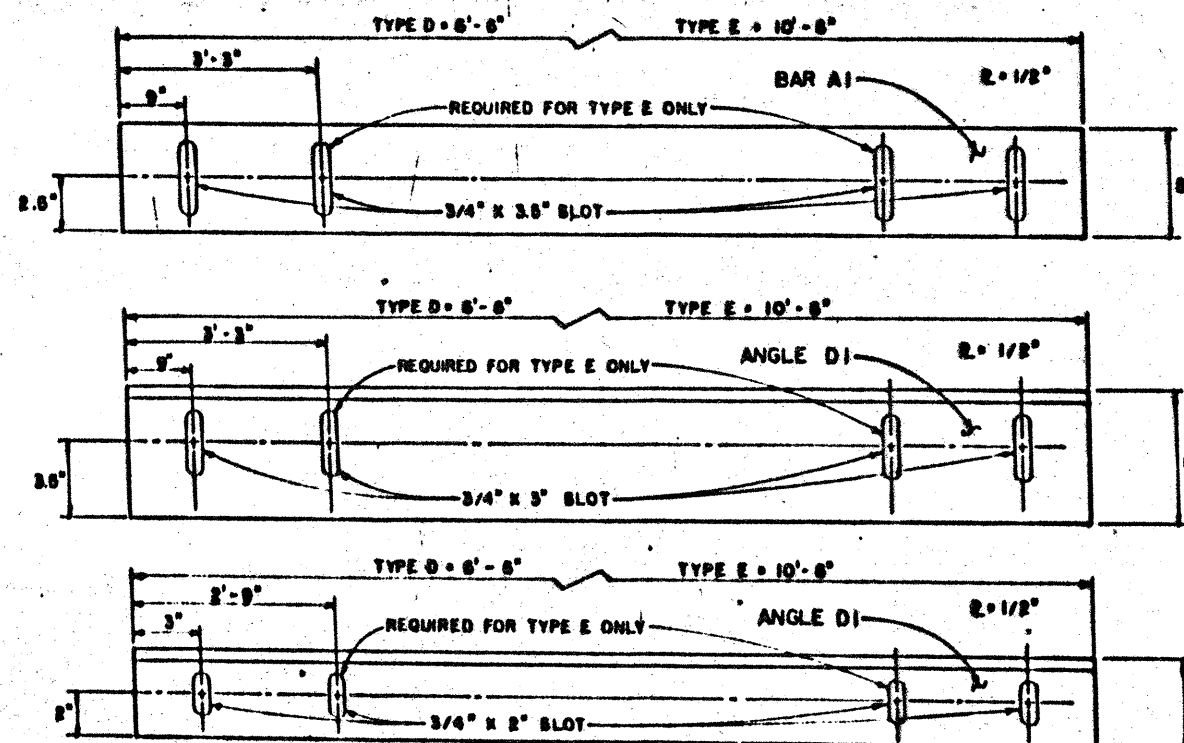
16

INLET  
ADJUSTMENT

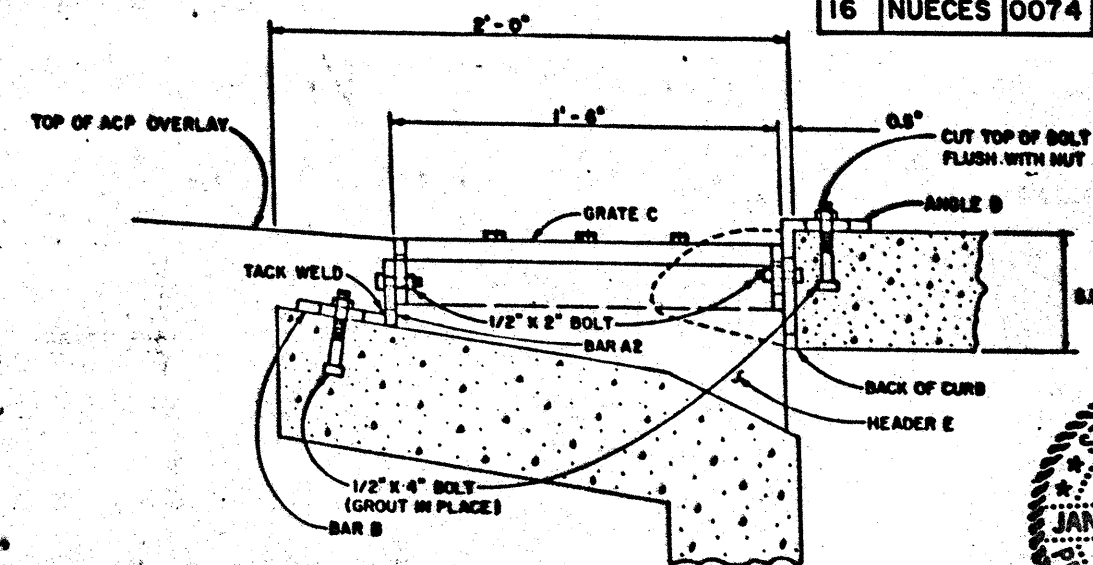
REGION	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	CPM 74-6-174, ETC	17
DIST	COUNTY	CONTROL	SECT
16	NUECES	0074	06
		17A	US HWY



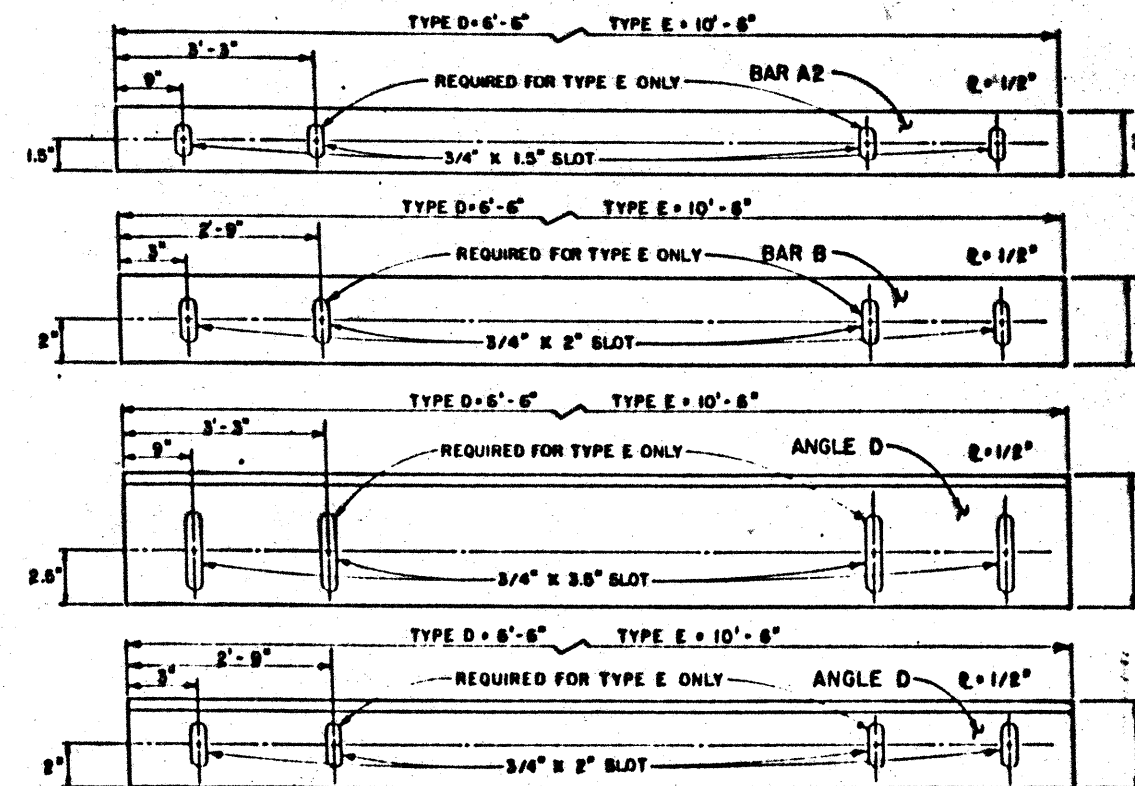
GRATE MOUNT DETAIL  
(FOR EXIST. CURB INLET TYPE D & E)  
(6\"/>



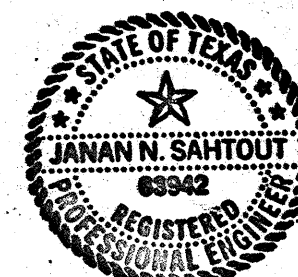
ALL SLOTS HAVE RADII EQUAL TO 0.375\"/>



GRATE MOUNT DETAIL  
(FOR EXIST. CURB INLET TYPE D & E)  
(3\"/>

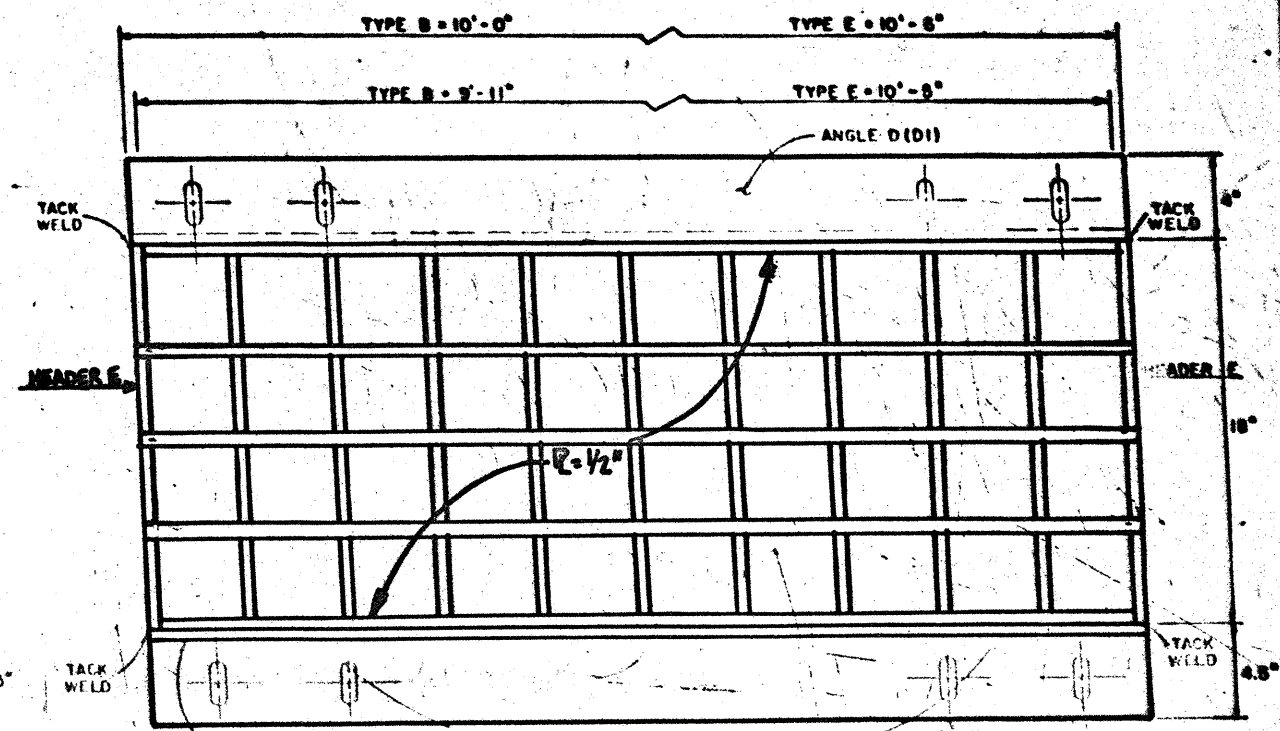
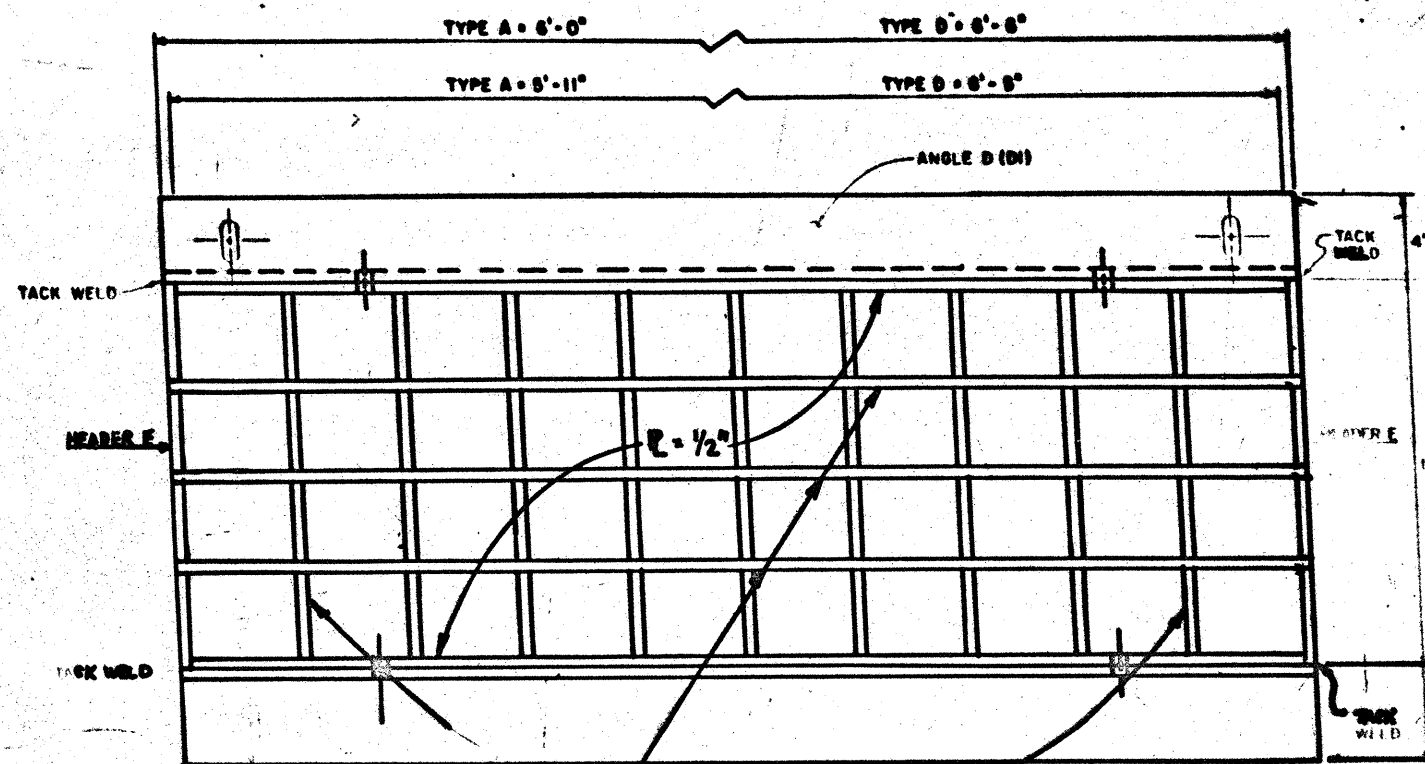


ALL SLOTS HAVE RADII EQUAL TO 0.375\"/>



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4/7/93

INLET  
ADJUSTMENT

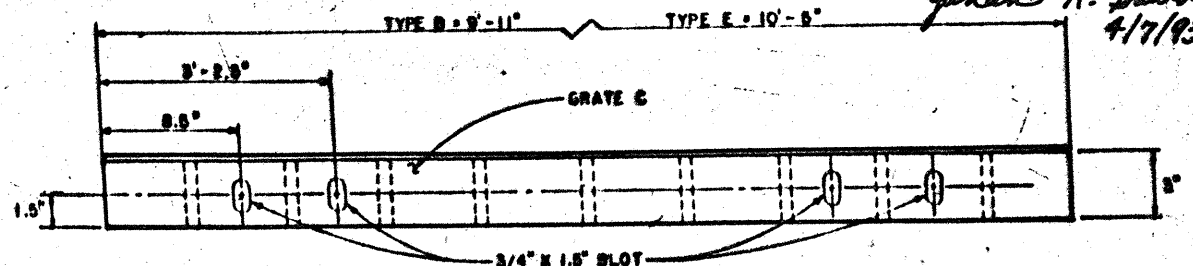
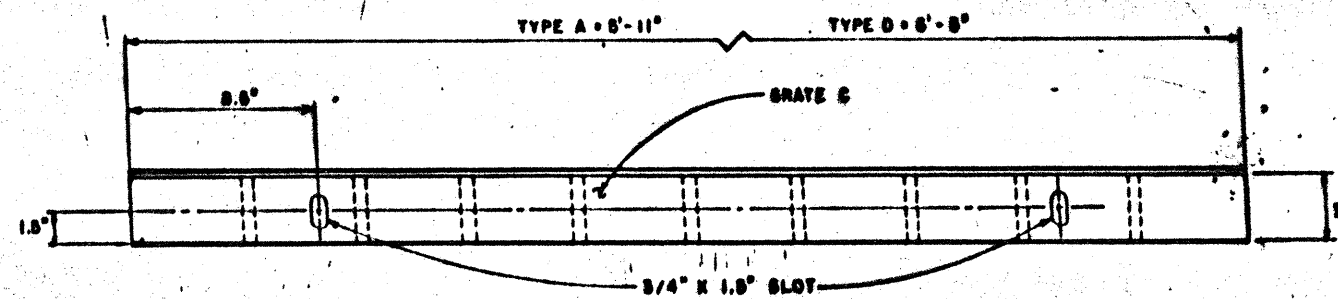


1/2" x 1/4" FLAT BARS  
6" C-C TYPICAL  
ALL GRATES

TYPE A: 11 BARS AT 60"  
TYPE D: 12 BARS AT 60"  
(C = 1/2")

TYPE B: 19 BARS AT 60"  
TYPE E: 20 BARS AT 60"  
(C = 1/2")

SEE INLET ADJUSTMENT SHEET FOR DETAILS ON PLATE A, PLATE D, AND ANGLE D.



ALL PLATES ARE SYMMETRIC TO THEIR RESPECTIVE CENTERLINES

SEE ALSO NOTES ON INLET ADJUSTMENT SHEET



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4/7/93

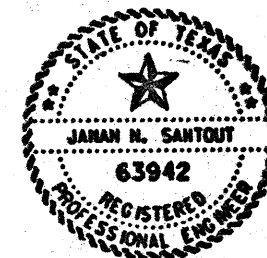
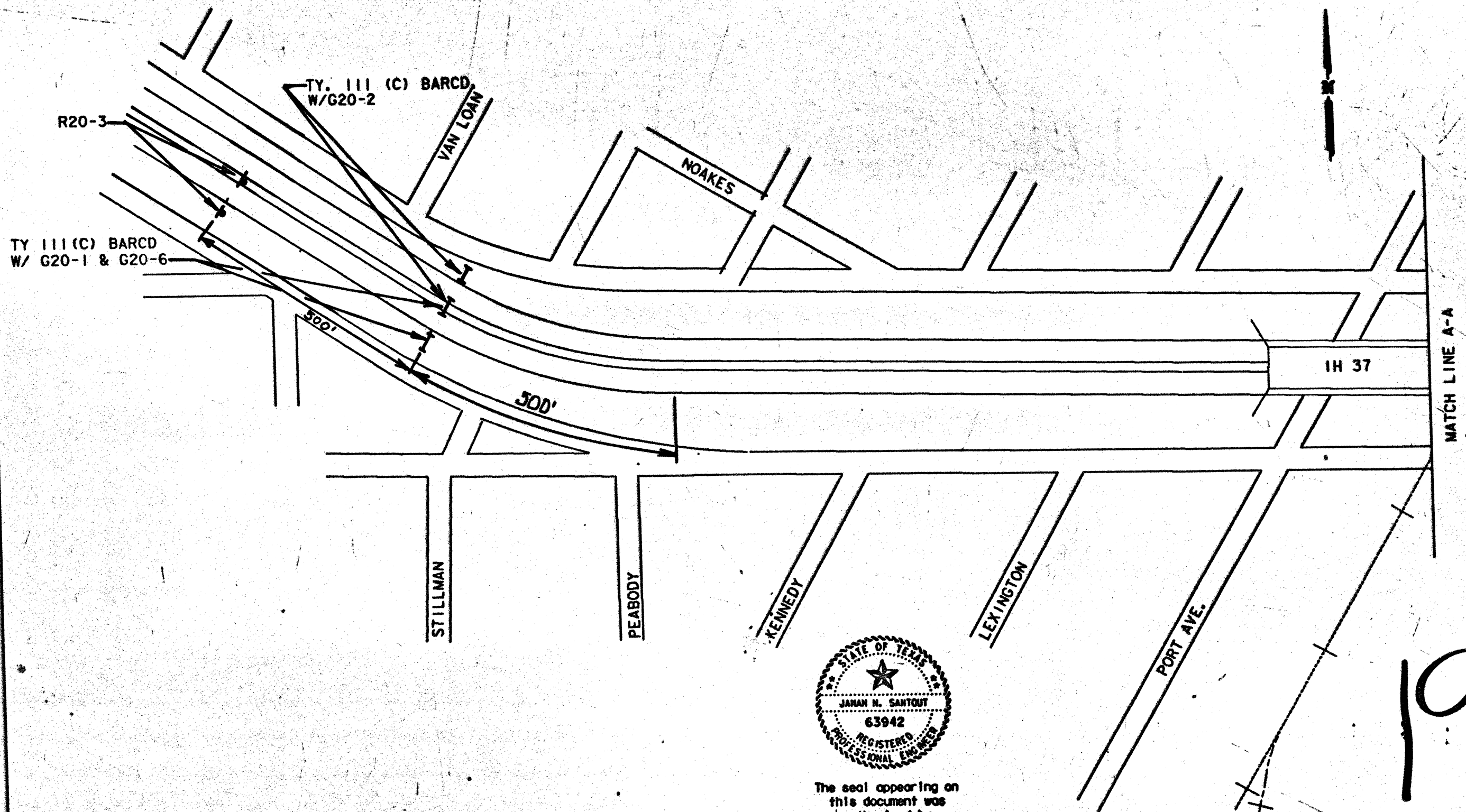
18

# GRATE DETAILS

REGION	STATE	FEDERAL AID PROJECT NO	SHEET NO
6	TEXAS	CPM 74-6-174, ETC	18
DIST	COUNTY	CONTROL SECT	JOB HIGHWAY
16	WUECES	0074 06	174 US 181

ETC





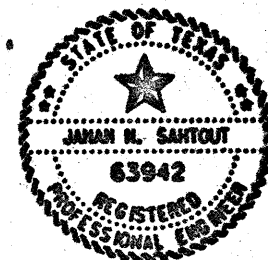
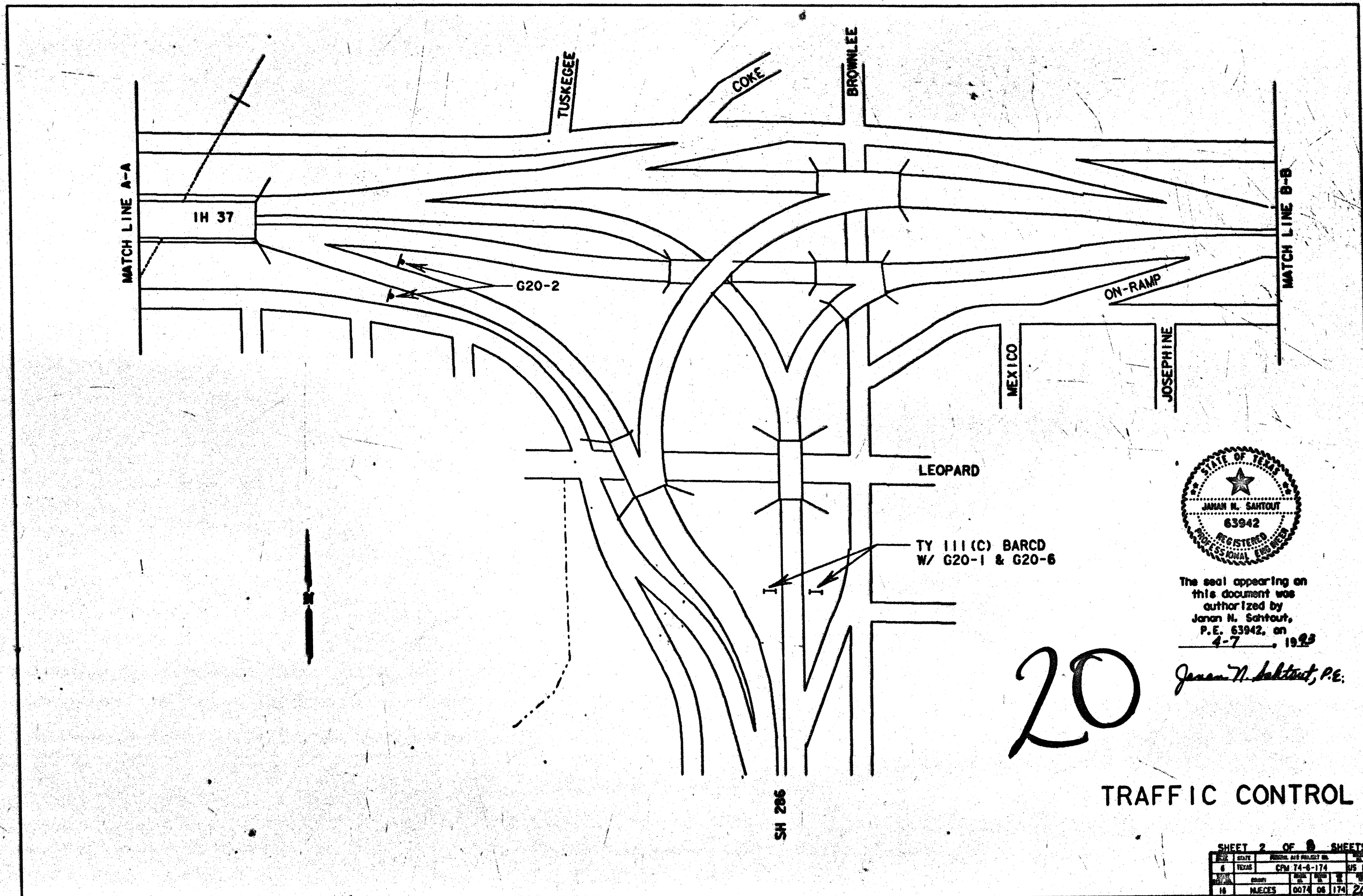
The seal appearing on  
this document was  
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4-7, 1993

*Janan N. Santout, P.E.*

TRAFFIC CONTROL

SHEET 1 OF 8 SHEETS			
STATE	TEXAS	FEDERAL AID PROJECT NO.	CPM 74-6-174
COUNTY	EL PASO	SECTION	15
DISTRICT	15	PROJECT NO.	0074 08 174

ZFA3: [320, 100] IH37 JAN



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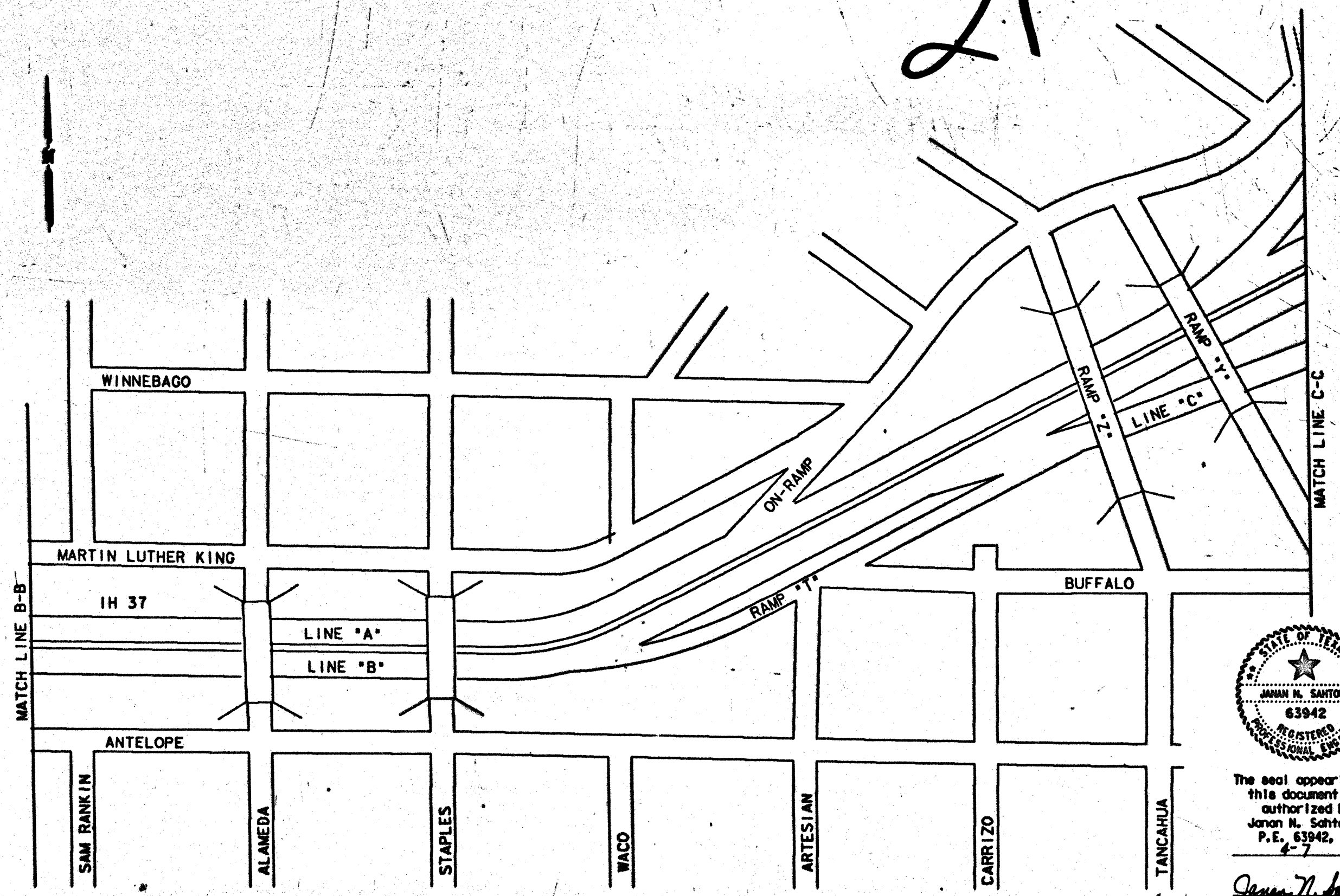
20

TRAFFIC CONTROL

SHEET 2 OF 8 SHEETS			
STATE	PROJECT NO.	DATE	
TEXAS	CPM 74-6-174	05/18/93	
COUNTY	SHEET NO.	OF	
10	0074	06	174

ZFA3: [320, 100] IH37 IAN

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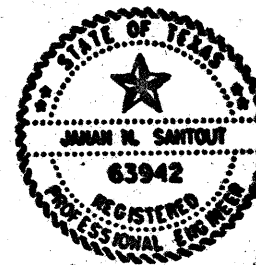
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SHEET 3 OF 3 SHEETS  
STATE OF TEXAS  
CPM 74-6-174  
JAN 18  
15  
BUCCES 0074 08 174 27

TRAFFIC CONTROL

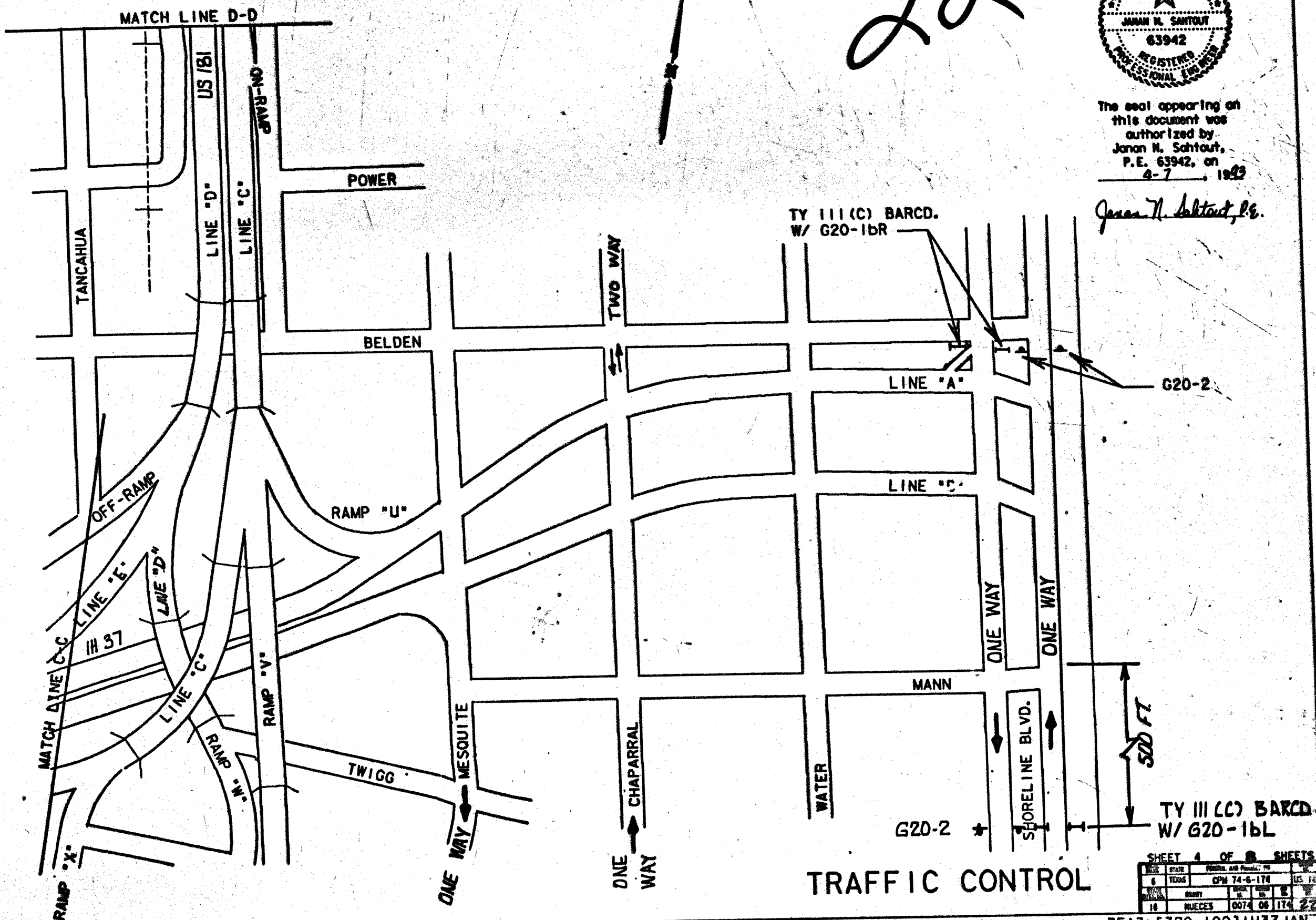


22



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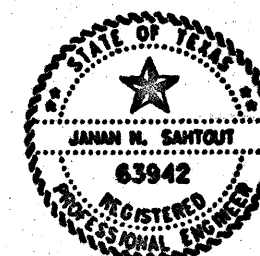
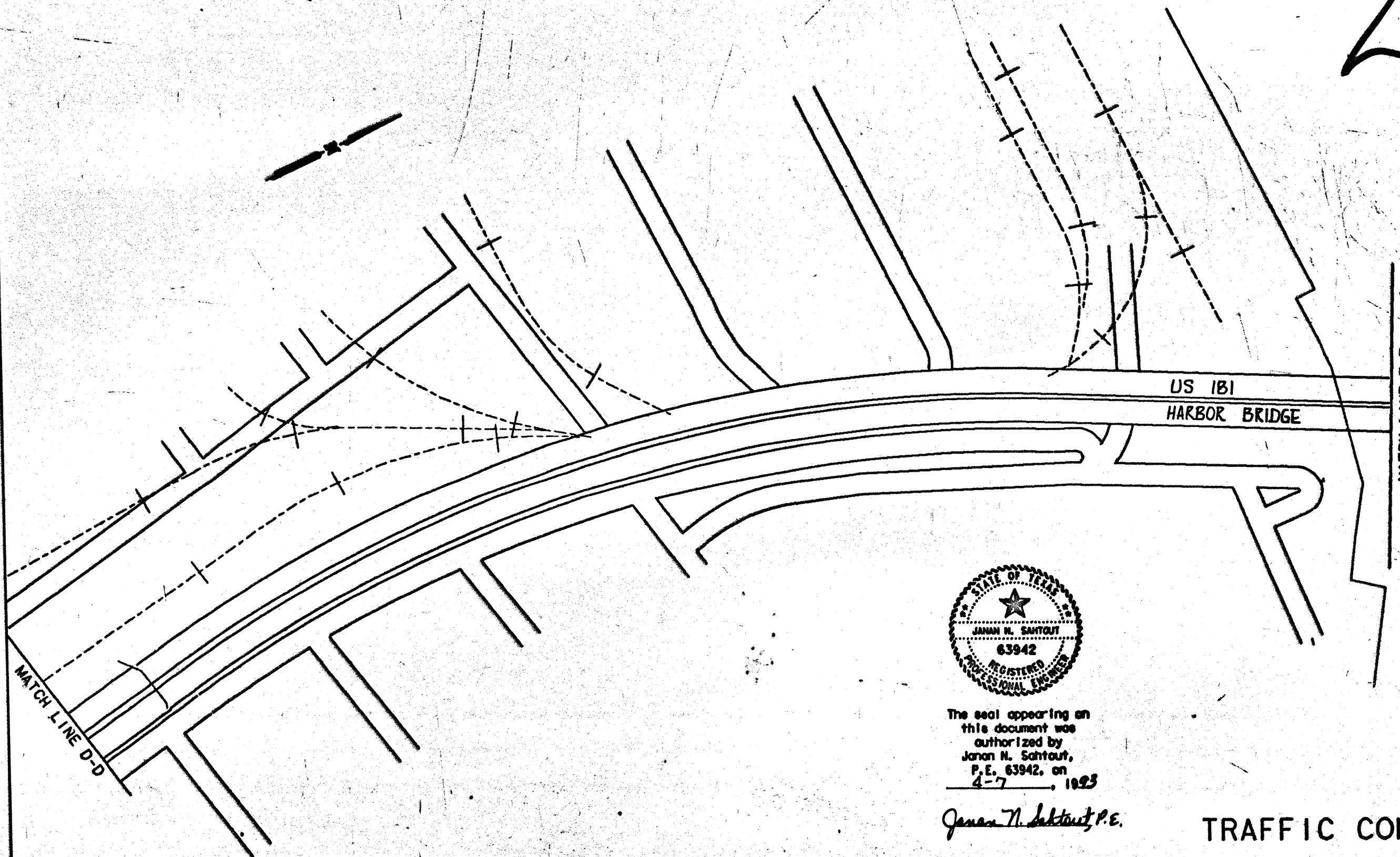
Janan N. Saktout, P.E.



SHEET 4 OF 8 SHEETS			
6	TEXAS	CPM 74-6-174	US 181
18	NUCES	0074 08 174	22

ZFA31 E320, 1001H37JAN

23



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P.E. 63942, on  
4-7, 1993

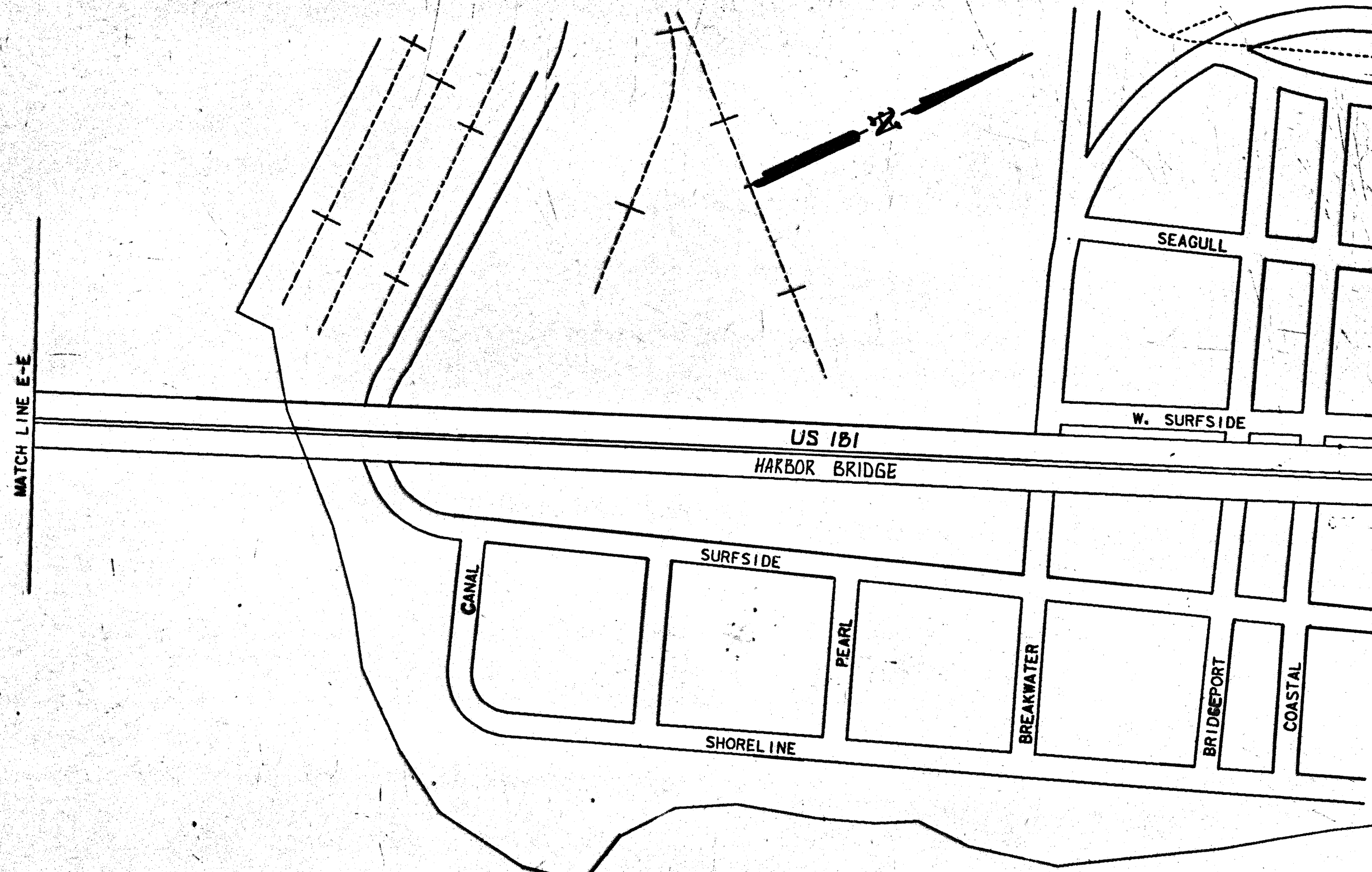
*Janan N. Sautout, P.E.*

TRAFFIC CONTROL

SHEET 5 OF 8 SHEETS			
NO.	DATE	PERSON AND PROJECT NO.	NO.
6	TEXAS	CPM 74-6-174	US 181
18	NOV	0014 00 174	23

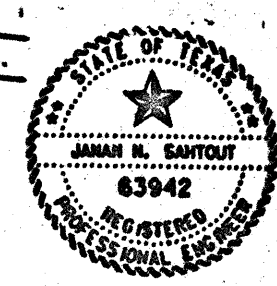
ZFA3: [320, 100] 1H37JAN

24



MATCH LINE E-E

MATCH LINE F-F



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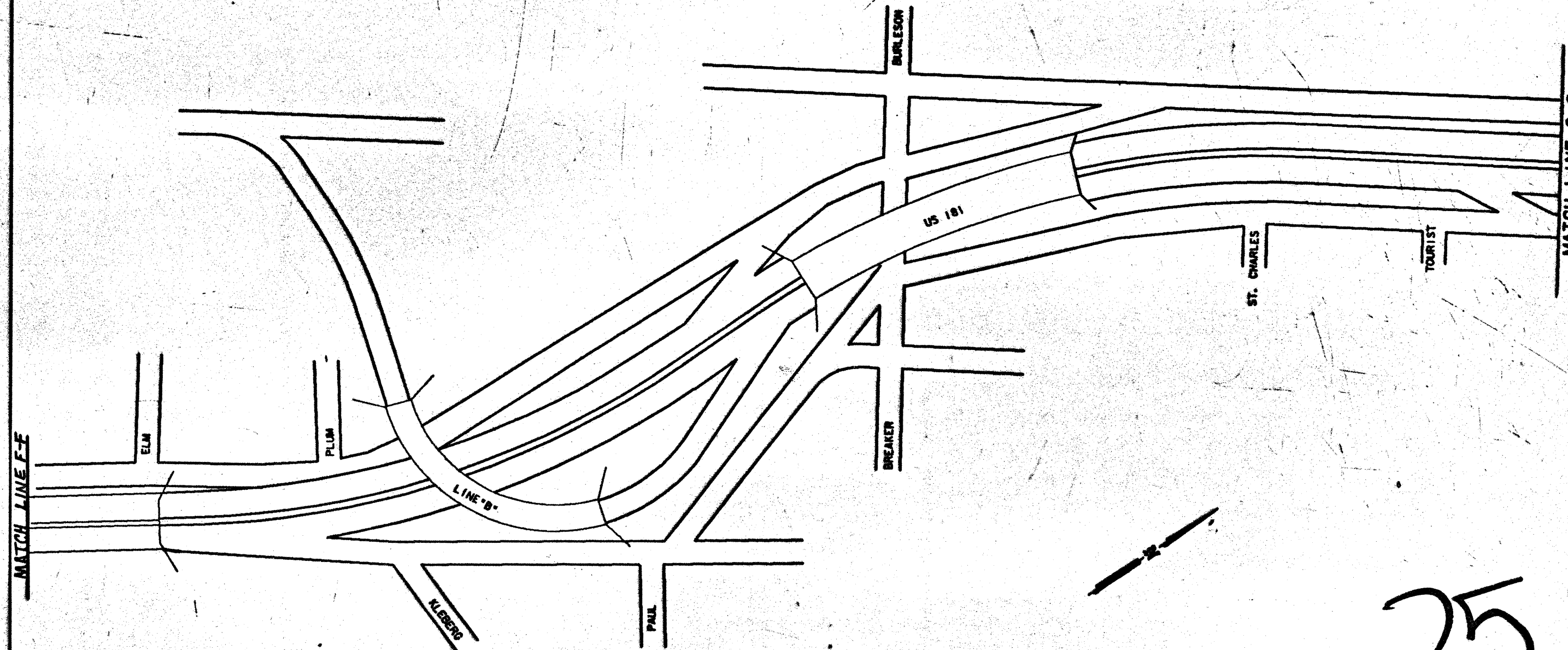
Janah M. Santout P.E.

TRAFFIC CONTROL

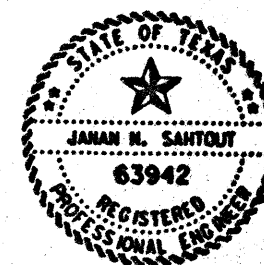
SHEET 8 OF 8 SHEETS			
STATE	TEXAS	FEDERAL AID PROJECT NO.	CPM 74-6-174
COUNTY	MEYES	PROJECT NO.	1074 00 174 24
DATE	1993	BY	JS

ZFA3: [320, 100] 1H37JAN





25

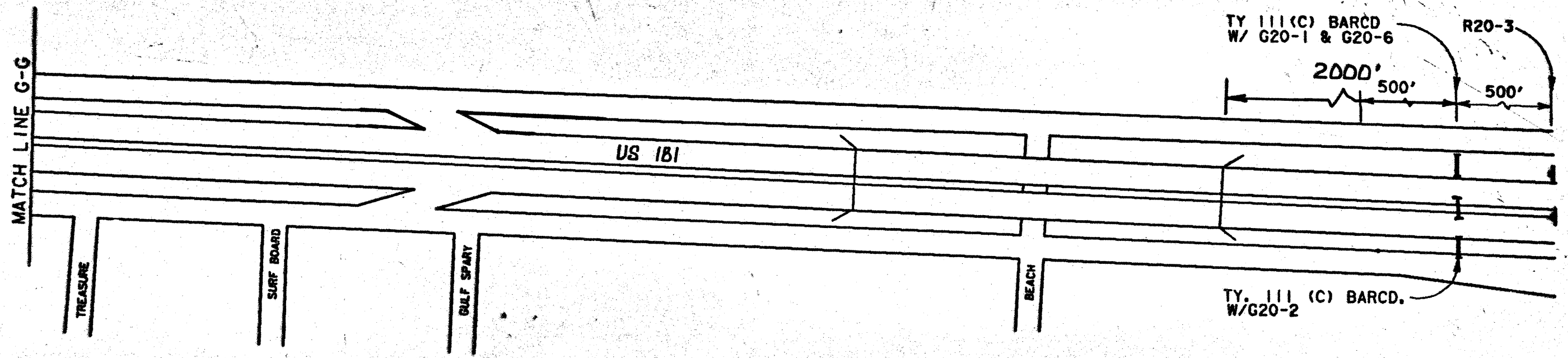


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Janan N. Saktout,  
P.E. 63942, on  
4-7, 1993

Janan N. Saktout, P.E.

# TRAFFIC CONTROL

SHEET 7 OF 8 SHEETS					
NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.		
6	TEXAS	CPD 74-6-174	US 181		
NO.	COUNTY	SECTION NO.	DATE	BY	CHK
16	MECES	0074	06	174	25



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26

# TRAFFIC CONTROL

SHEET 8 OF 8 SHEETS					
NO.	STATE	CPW	DATE	US	181
6	TEXAS	CPW 14-6-194			
NO.	CITY	NO.	NO.	NO.	NO.
18	MUECES	0074	06	174	22

ZFA3-1.380, 10031137JAN

## GENERAL NOTES

1. MAJOR OPERATION is defined as a work activity in which traffic control devices may effect traffic during day and night conditions. Work activities on high speed, high volume roadways may also be considered a major operation.
2. All traffic control devices used at night shall be reflectorized or illuminated from within, or externally illuminated.
3. For additional guidance on one-way traffic control reference should be made to the 1980 TSMUTCD Section 6F-6.
4. When the work area involves a pavement drop-off and the nearest vehicle wheel path is within 12' of the drop-off reference should be made to the traffic control plan for details on pavement drop-offs.
5. Vehicles within 30' of traveled way should have strobes or rotating beacons in use.

## WORKER SAFETY

1. When vehicles are used to shadow the work area, the vehicle should be parked 30' or more from the work area, engine turned off, transmission in gear (or set in PARK), emergency brake set on, and front wheel turned away from the work area.
2. Vehicle mounted attenuators may be installed on vehicles used to shadow the work area.
3. Vehicles parked at the work site that are not used to shadow the work area should be parked as close to the right of way as possible.

## WORK ZONE DELINEATION

1. Delineation in work zones is intended to be a guide to indicate the alignment of the roadway and outlines the required vehicle path through the work area.
2. Delineators are not to be used as a warning device. They should be installed in combination with other traffic control devices such as vertical panels.
3. Spacing along roadway curves should be such that several delineators are always visible to the driver, (Table I).
4. Devices used in a series for channelization purposes at night should be supplemented with delineators or steady burn warning lights as needed.

Table I

### SUGGESTED MAXIMUM SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES

(Distance in Feet Rounded to the Nearest 5 Feet)

Radius of Curve (in feet)	Spacing on Curve (in feet)
80	80
100	90
150	100
200	110
250	120
300	130
400	140
500	150
600	160
700	170
800	180
900	190
1000	200

Spacing for specific radii not shown may be interpolated from table. The minimum spacing should be 20 feet. The spacing on curves should not exceed 300 feet. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator approaching a curve is 2 S, the second 3 S, and the third 5 S but not to exceed 300 feet. S refers to the delineator spacing for specific radii computed from the formula  $S = \sqrt{R \cdot 50}$ .

## BARRICADES

1. Barricades may be used to support signs; however, no more than two information or guide type signs may be placed on a barricade and only one regulatory or warning sign shall be placed on a barricade. Minimum mounting height is 3 feet.
2. Barricades shall NOT be placed (horizontal rails) parallel to traffic within 30' of the traveled way.
3. Type III Barricades should not be used for channelizing devices.
4. Type III Barricades shall have reflective stripes on one side if it is facing traffic in one direction only and on both sides if it serves traffic in two directions.

## FLAGGER CONTROL

1. For one-lane, two-way traffic control, one or more flaggers should be used where traffic, road conditions, or terrain warrant their use. If flaggers are used the taper may be reduced to 50' minimum. When flaggers are used to control traffic the Symbol Advance Flagger sign shall be used. When flaggers are used the "BE PREPARED TO STOP" sign should be used. Proper spacing between signs shall be maintained.
2. Flaggers may carry hand held air horns to alert work crew of emergency condition.
3. When more than one flagger is used, a chief flagger should be assigned the responsibility of making all decisions concerning traffic control.
4. Flaggers shall wear vests and shall use flags and/or paddles to signal traffic.
5. Flagger(s) may be used to control traffic, draw attention to signs or draw attention to moving work areas.
6. Flaggers may work behind cones to draw attention to the flagger position.

## SIGNS

1. The selection of sign size should be based on Table II.
2. Flashing warning lights, channelizing devices, and/or flags may be used to call attention to the advance warning signs.
3. The word "AHEAD" may be substituted for the actual distance on the advance warning signs where applicable. When used, distances on warning signs should be rounded to the nearest 100'.
4. The word "UTILITY", "Signal", "BRIDGE", "LIGHTING", "SIGN", "STREET", or "RAMP" may be substituted for "ROAD" in all signs where applicable.
5. Appropriate advisory speed signs may be used in conjunction with warning signs. Speeds shall be determined in the field by the Engineer.
6. Advance warning signs may be mounted on portable sign supports with a 3' minimum mounting height.
7. Regulatory signs should be mounted on supports with a 5' minimum mounting height.

Table II

### TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

Roadway Classification	Posted Speed	Sign Spacing	Major Construction Or Major Maintenance Approach Warning Signs		Major Construction Or Major Maintenance Approach Warning Signs		Other Warning Signs
			CW 20n Series And CW 22-1 Sign	Standard Minimum	CW 21 Series	Standard Minimum	
Conven.	MPH	FT. (Apprx.)	Inches	Inches	Inches	Inches	Inches
	30	80	48x48	36x36	30x30 or 36x36	25x24 or 30x30	30x30 or 36x36
	35	120					
	40	160					
	45	240					
	50	320					
Exp or Frwy	55	500 <sup>1</sup>		Use Standard Size		Use Standard Size	
	55	500 <sup>1</sup>			48x48 <sup>2</sup>	48x48 <sup>2</sup>	48x48 <sup>2</sup>

<sup>1</sup> Minimum distance from work to 1st Advance Warning sign and/or distance between each additional sign.

<sup>2</sup> Smaller sign sizes may be used where sign designs have not been included in the Standard Traffic Sign Design Booklet.

#### General Notes:

1. Special or larger size signs may be used as may be necessary.
2. Distance between signs should be increased as required to have 1500' advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. For use only on secondary roads or city streets where speeds are low.
5. Only diamond shaped warning sign sizes are indicated.
6. See sign listing in TSMUTCD, Appendix A for complete list of all available sign design sizes.
7. Where two sizes are listed, see sign size list in TSMUTCD, Appendix A for proper size.

## CHANNELIZING DEVICES

1. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit (35). The maximum spacing between channelizing devices in a tangent should be approximately equal in feet to twice the speed limit (25).
2. When channelizing devices are used to direct traffic across existing lane lines or edge lines the spacing between channelizing devices may be reduced by as much as 50%.
3. Channelizing device spacing should be reduced when placed on curves, hills, or next to potential hazards. At least 3 channelizing devices should be in view at any one time.
4. Lane closure length is equal to "L". Shoulder closure taper length is equal to "1/2 L".
5. Down stream tapers are generally optional and when used should be 50'-100' long.
6. Tapers may be 50 feet long when placed downstream of a flagger, YIELD sign, or STOP sign.
7. The selection of channelizing devices should be based on the degree of hazard associated with the work area. The selection priority of channelizing devices, in the order of increasing hazard recognition are:

portable mounted delineators  
28" cones  
36" or more tubular cones  
portable mounted vertical panels  
36" cones  
Type II Barricade  
Type III Barricade  
Plastic drum  
MBGF, fixed or drum mounted  
Concrete Barrier Rail

8. Flashing arrow panels used on two-way, two-lane roadways should flash in the caution mode.

9. Flashing warning lights shall not be used for delineation. Flashing warning lights should be used to attract the attention of motorists to a traffic control device or the approach to a potentially hazardous area.

Table III

### TYPICAL TRANSITION LENGTHS

### AND SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed	Formula	Minimum Desirable Taper Lengths <sup>1</sup>			Suggested Maximum Spacing of Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	$L = \frac{S^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'

<sup>1</sup> 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.

<sup>2</sup> Taper lengths have been rounded off.

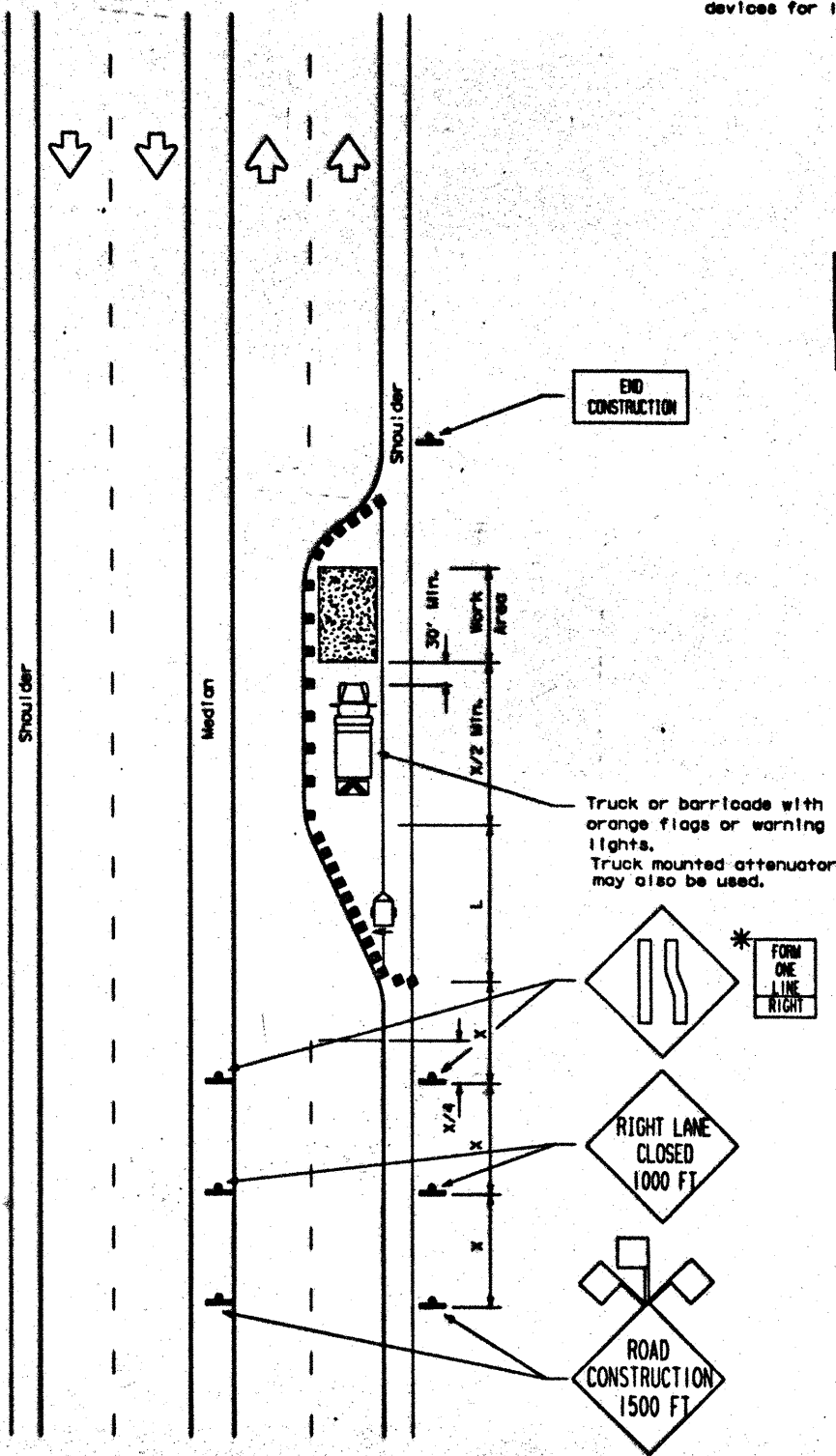
### STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

### TRAFFIC CONTROL PLAN SHEET

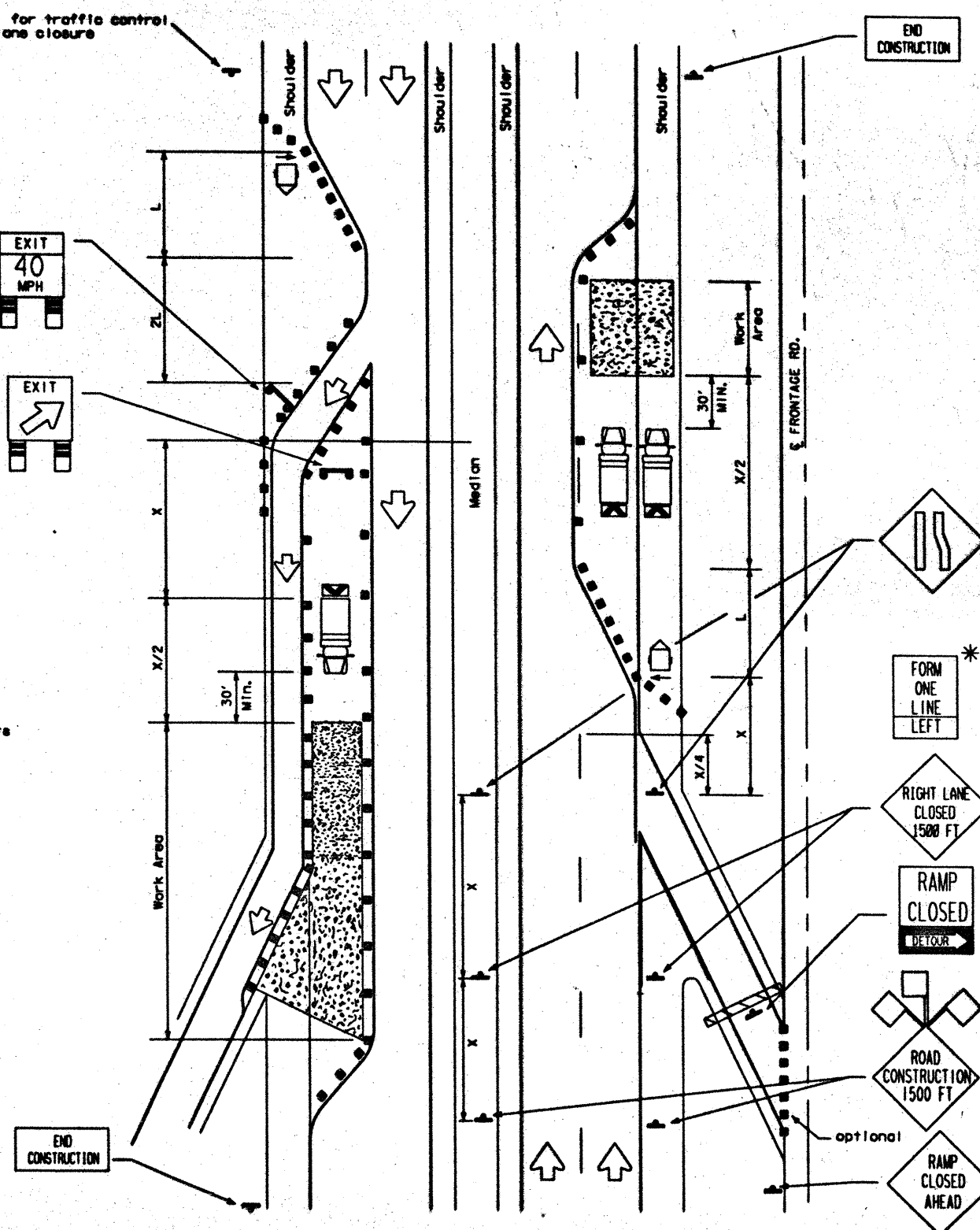
10/89

DRAWN	DATE	STATE	FEDERAL AID PROJECT NO.	DATE
CHECKED	6	TEXAS	CPM 74-6-174	05/81
TRACED	STATE DIST. NO.	COUNTY	DIST. NO.	DATE
CHECKED	16	NUECES	74 6 174	27





TCP (2-5a)  
Major Operations  
One Lane Closure



TCP (2-5b)  
Major Operations  
Lane Closure Near Ramps

- Legend**
- Barricade
  - Channelizing devices
  - Flag
  - Heavy Work Vehicle
  - Truck Mounted Attenuator (optional)
  - Trailer mounted flashing arrow board
  - Flagger

Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)	Taper Formula
30 or less	80	$L = (S) \cdot (W)$ for speeds of 45 or more.
35	120	$L = (W) \cdot (S) \cdot (S) / 60$ for speeds of 40 or less.
40	160	Where:
45	240	L = Minimum length of taper.
50	320	S = Numerical value of posted speed limit prior to work or 85% speed.
55	500	W = Width of taper offset.

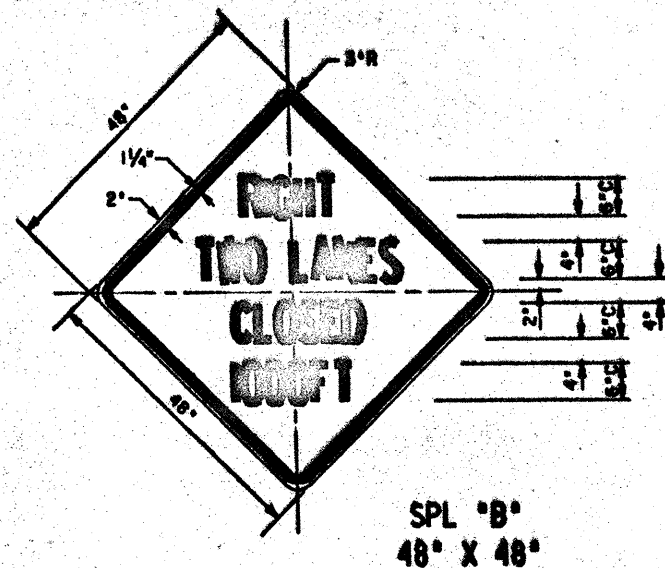
**Example:**  
Taper length for the closure of a 12 foot lane with 55 MPH posted speed limit will be:  
 $L = 55 \cdot 12$   
 $L = 660$  feet

- General Notes**
1. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device.
  2. Channelizing devices used along the work area or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VP's, the VP's may be placed on each channelizing device.
  3. In areas with safety lighting or continuous illumination the VP's may be supplemented with delineators or steady burn warning lights.
  4. Work vehicles may use truck mounted attenuators.
  5. The "FORM ONE LANE LEFT" sign may be used before the "RIGHT LANE CLOSED 1000 FT" sign. Spacing distance between signs should be the minimum distance indicated in above table.

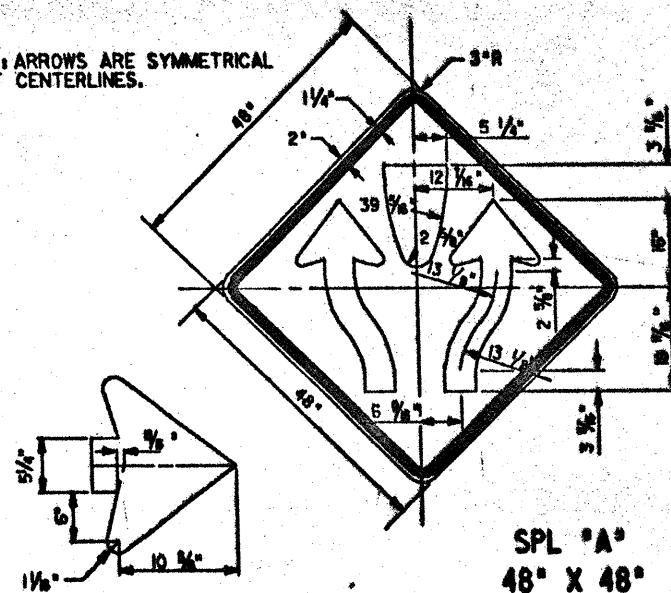
28

STATE DEPARTMENT OF HIGHWAYS  
AND PUBLIC TRANSPORTATION  
**TRAFFIC CONTROL  
PLAN SHEET**

DRAWN		DATE	STATE	FEDERAL AID PROJECT NO.	SHEET OF SHEETS
CHECKED	6	TEXAS	CPM 74-6-174	16181	
TRACED		STATE DIST. NO.	COUNTY	DATE	BY
CHECKED	16	NUECES	74	6	174 23



NOTE: ARROWS ARE SYMMETRICAL ABOUT CENTERLINES.



### GENERAL NOTES

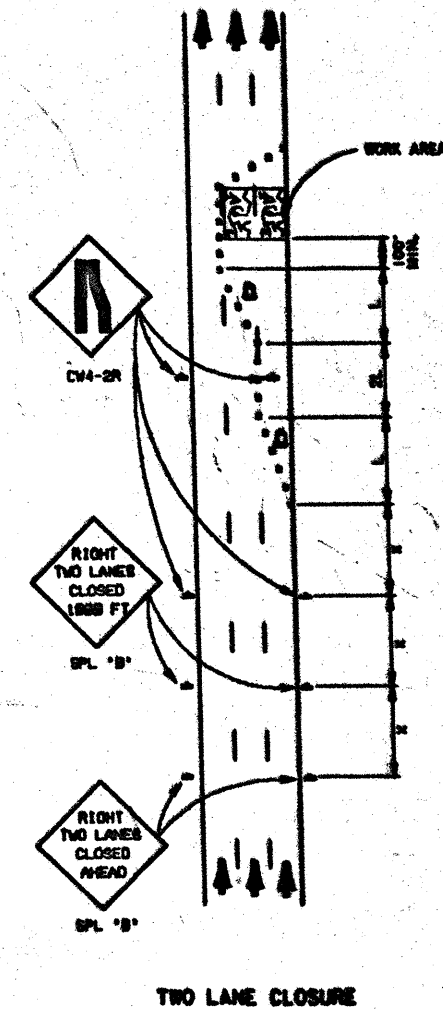
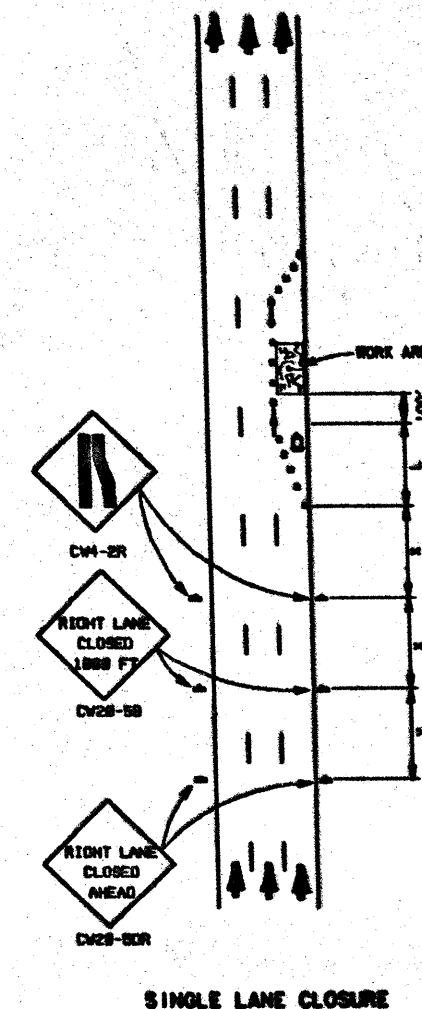
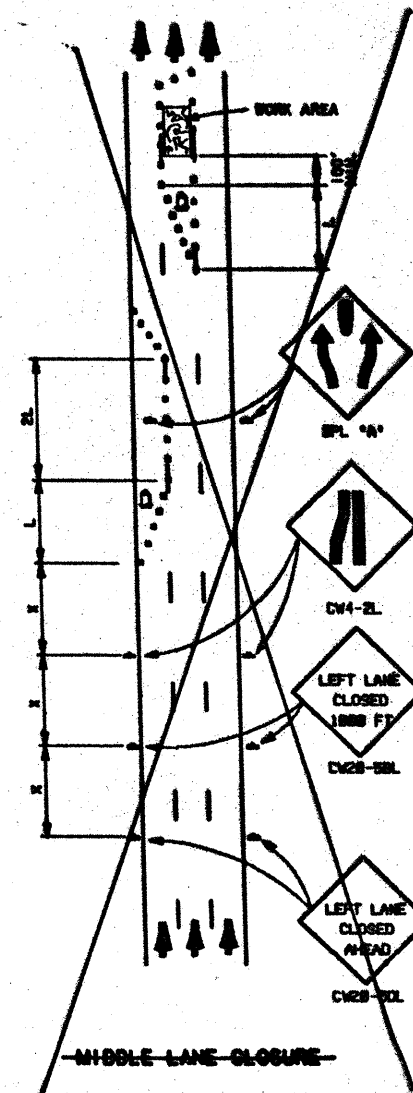
1. THE TRAFFIC CONTROL DEVICES SHOWN ARE THE MINIMUM REQUIRED. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE NECESSARY TO ROUTE TRAFFIC AROUND THE WORK AREA.
2. THE FOLLOWING TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ADVANCE OF THE PROJECT LIMITS. OBSERVE WARNING SIGNS STATE LAW (R20-3), END CONSTRUCTION (G20-2), CONTRACTORS NAME (G20-8), ROAD CONSTRUCTION NEXT XX MILES (G20-1), AND TYPE III (C) BARRICADES.
3. SIGNING SHOWN FOR ONE DIRECTION ONLY.
4. CONES SHALL BE A MINIMUM HEIGHT OF 28\".
5. ARROW PANEL SHALL BE TYPE C (15 LAMPS, MINIMUM SIZE OF 48\"/>

TABLE FOR DIMENSION \*X\*  
(SIGN SPACING)

POSTED SPEED OR 85% SPEED (MPH)	X MIN. DISTANCE (FEET)
30 OR LESS	80
35	120
40	160
45	240
50	320
55	500

### LEGEND:

- CHANNELIZING DEVICES
- FLAGGER
- TRAILER OR TRUCK MOUNTED ARROW PANEL TYPE C



POSTED SPEED *	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS **			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60' - 75'
35		205'	225'	245'	35'	70' - 90'
40		265'	295'	320'	40'	80' - 100'
45	L=WS	450'	495'	540'	45'	90' - 110'
50		500'	550'	600'	50'	100' - 125'
55		550'	605'	660'	55'	110' - 140'
60		600'	660'	720'	60'	120' - 150'

\* 85TH PERCENTILE SPEED MAY BE USED ON ROADS WHERE TRAFFIC SPEEDS NORMALLY EXCEED THE POSTED SPEED LIMIT.  
\*\* TAPER LENGTHS HAVE BEEN ROUNDED OFF.

L = LENGTH OF TAPER (FT)  
W = WIDTH OF OFFSET (FT)  
S = POSTED SPEED (MPH)



Janan N. Sahtout, P.E.  
4-7-95

TRAFFIC CONTROL  
FOR  
LANE CLOSURES  
LC(16)-2

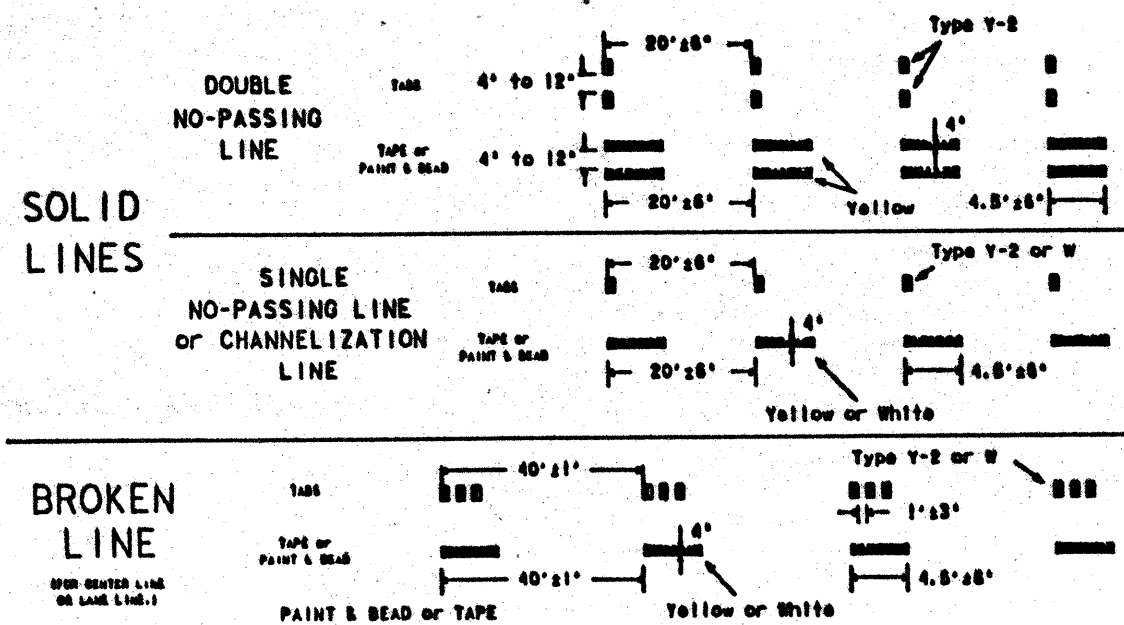
DISTRICT 16

DATE	STATE	FEDERAL AID PROJECT NO.	NO.
6	TEXAS	CPM 74-6-174	174
DATE	COUNTY	NO.	NO.
15	NUCCES	74	174

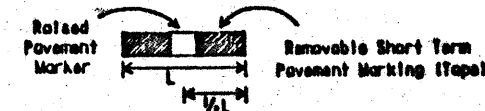
8-6-85

TCPLC162

# WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.



SPECIFICATION REFERENCE TABLE	
MATERIALS AND TESTS SPECIFICATIONS (D-9)	D-9-8241
PREFABRICATED PAVEMENT MARKINGS-REMOVABLE	D-9-8242
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	D-9-8243
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200

## NOTES:

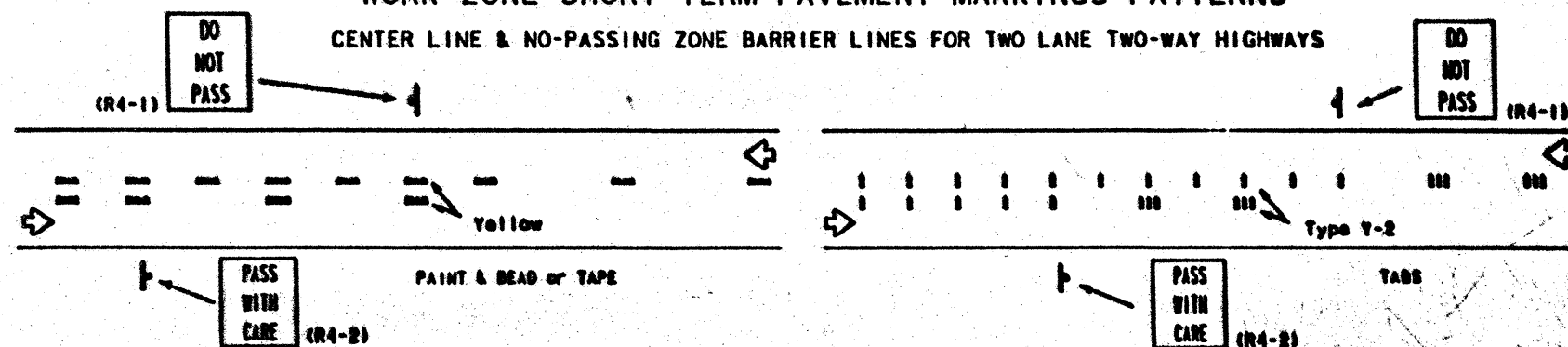
- Short term pavement markings may be paint and beads, prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans. Paint and beads shall not be used as removable short term pavement markings.
- Short term pavement markings shall NOT be used to simulate edge lines.
- Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
- Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
- No segment of roadway open to traffic shall remain without standard pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until standard pavement markings are in place. When the Contractor is responsible for placement of standard pavement markings, no segment of roadway shall remain without standard pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Standard pavement markings shall be placed as soon as weather permits.
- For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the MUTCD and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Standard pavement markings should then be placed.
- For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer.

## TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS (TABS)

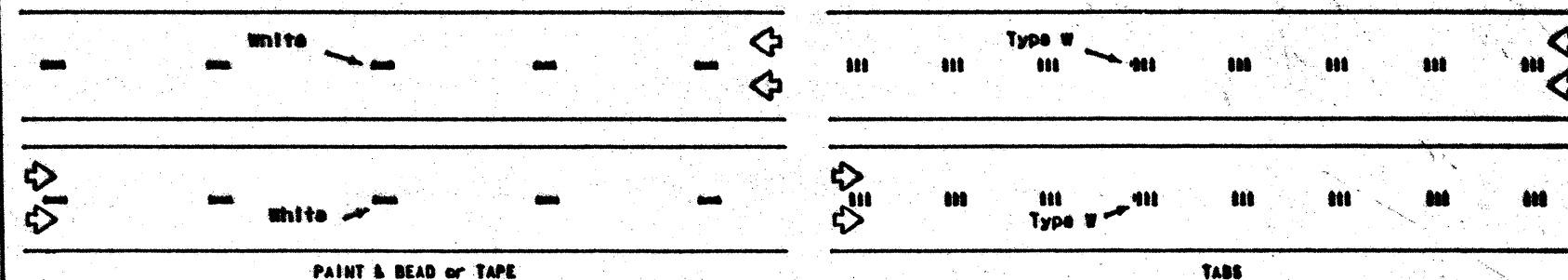
- Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body), Type Y (one amber reflective surface with yellow body), and Type W (one silver reflective surface with white body). Additional details may be found on 8C(1).
- Tabs shall meet requirements of Department Material Specification D-9-8242.
- The body of tabs shall consist of a base and vertical wall made of polyurethane, polyester elastomer or other material approved by the Division of Materials and Tests.
- The reflective material shall be protected with an easily removable heat resistant transparent cover capable of withstanding and protecting reflective material from application of 400 degree F asphalt. Stapling or clipping devices used to retain the protective cover shall not protrude through reflective material.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
  - Select five (5) or more tabs at random from each lot or shipment and submit to the Division of Materials and Tests to determine specification compliance.
  - Select five (5) tabs and submit to the following test. Affix five (5) tabs at two (2) foot intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with front and rear wheels at a speed of 35 to 40 miles per hour, four times in each direction. No more than one (1) out of five reflective surfaces shall be lost or displaced as a result of this test.
- When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when

# WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS

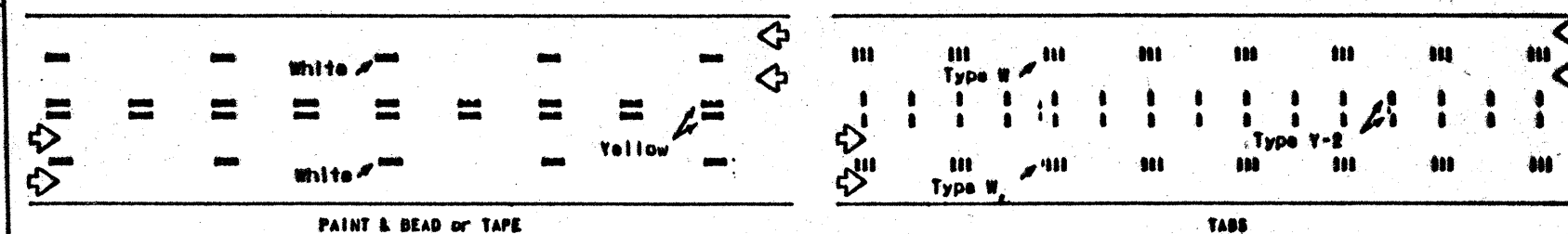
## CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



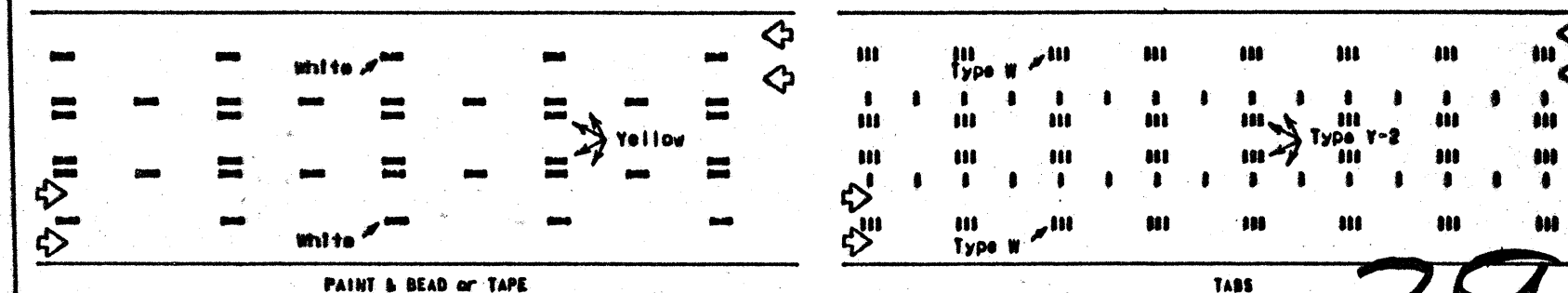
## LANE LINES FOR DIVIDED HIGHWAY



## LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



## TWO-WAY LEFT TURN LANE



- Illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
7. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of note 6.

## REMOVABLE - PREFABRICATED PAVEMENT MARKINGS

- Prefabricated Pavement Markings shall be a material of manufacture and product code or designation shown on list of approved materials covered by Department Materials Specification D-9-8241.

## NON REMOVABLE - PREFABRICATED PAVEMENT MARKINGS (FOIL BACK)

- Prefabricated Pavement Markings shall be a material of manufacture and product code or designation shown on list of approved materials covered by Specification TxDOT-550-74-01.

## RAISED PAVEMENT MARKERS

- Raised pavement markers used to supplement short term removable pavement markings shall meet the requirements of Item "RAISED PAVEMENT MARKERS".



STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION

## WORK ZONE SHORT TERM PAVEMENT MARKINGS

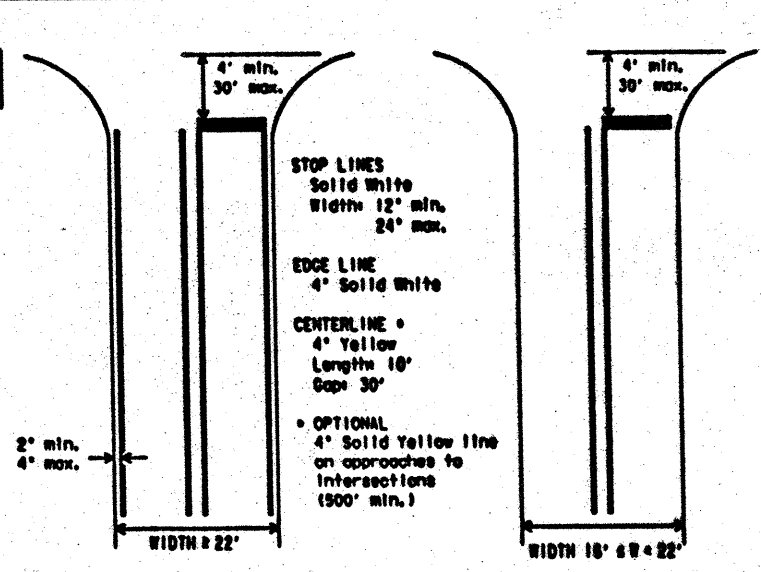
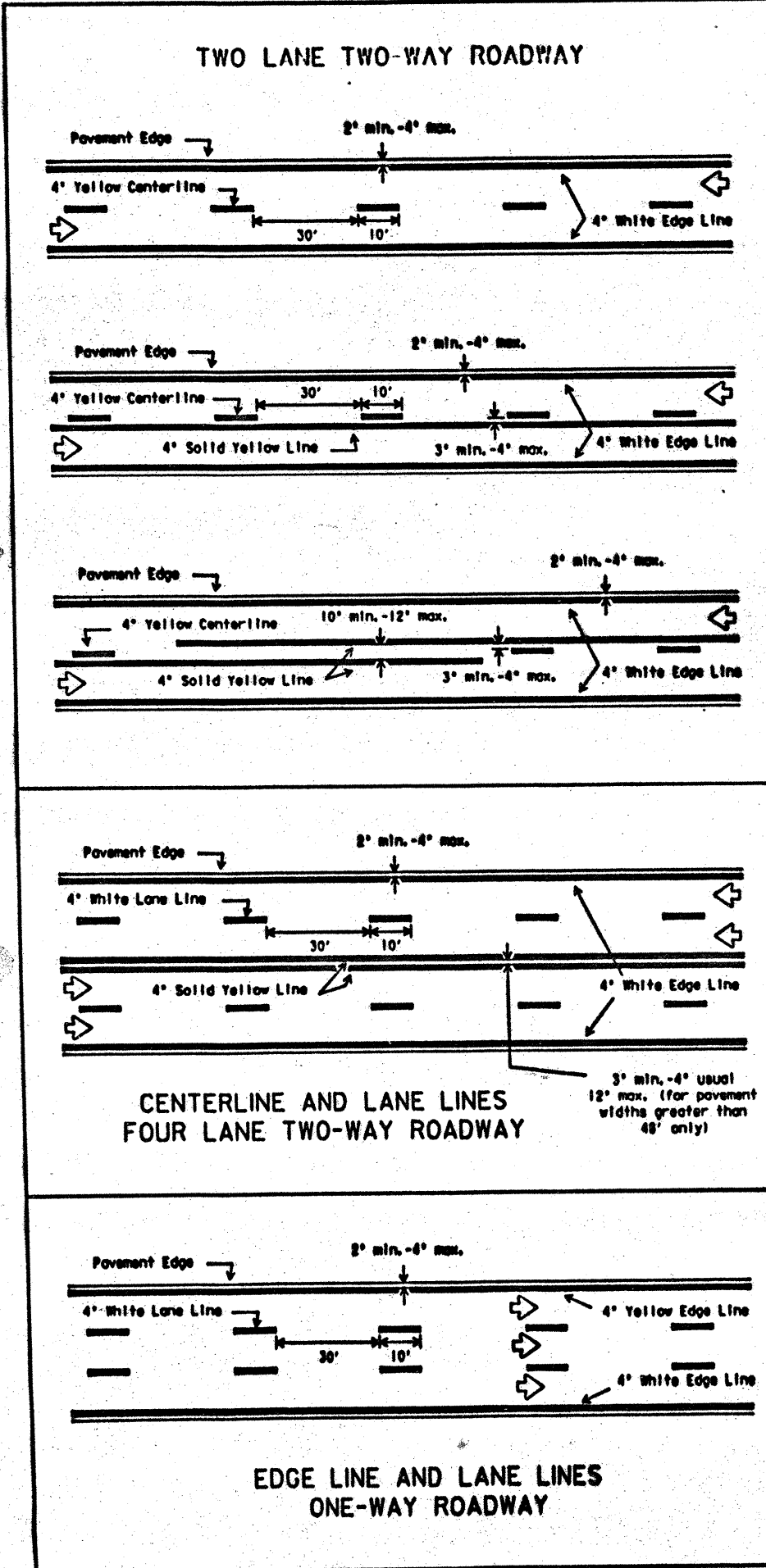
WZ (STPM) -92

Division	4-92	Project	161	Sheet	CM 74-6-114	39
Division	4-92	Project	161	Sheet	CM 74-6-114	39
Division	4-92	Project	161	Sheet	CM 74-6-114	39

Division of Maintenance and Operations

39





GUIDE FOR PLACEMENT OF STOP LINES,  
EDGE LINE & CENTERLINE

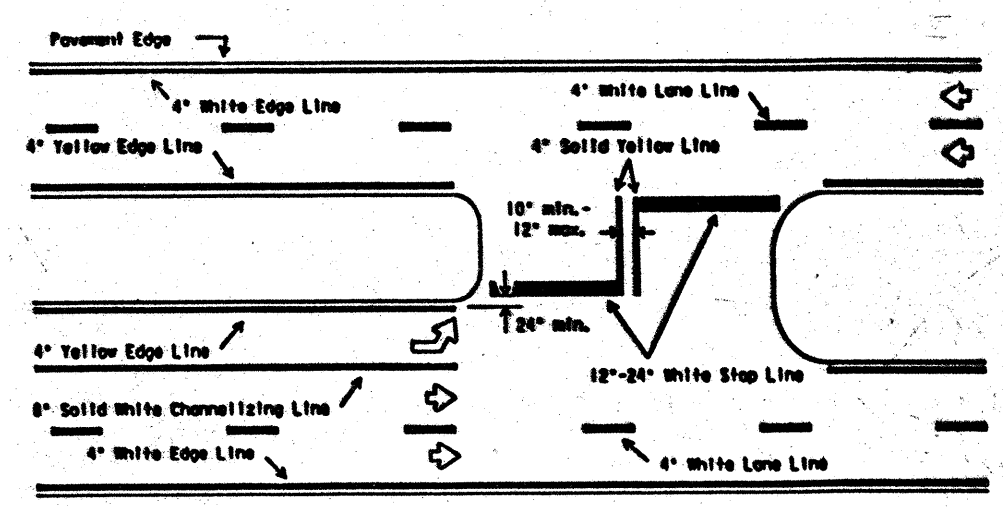
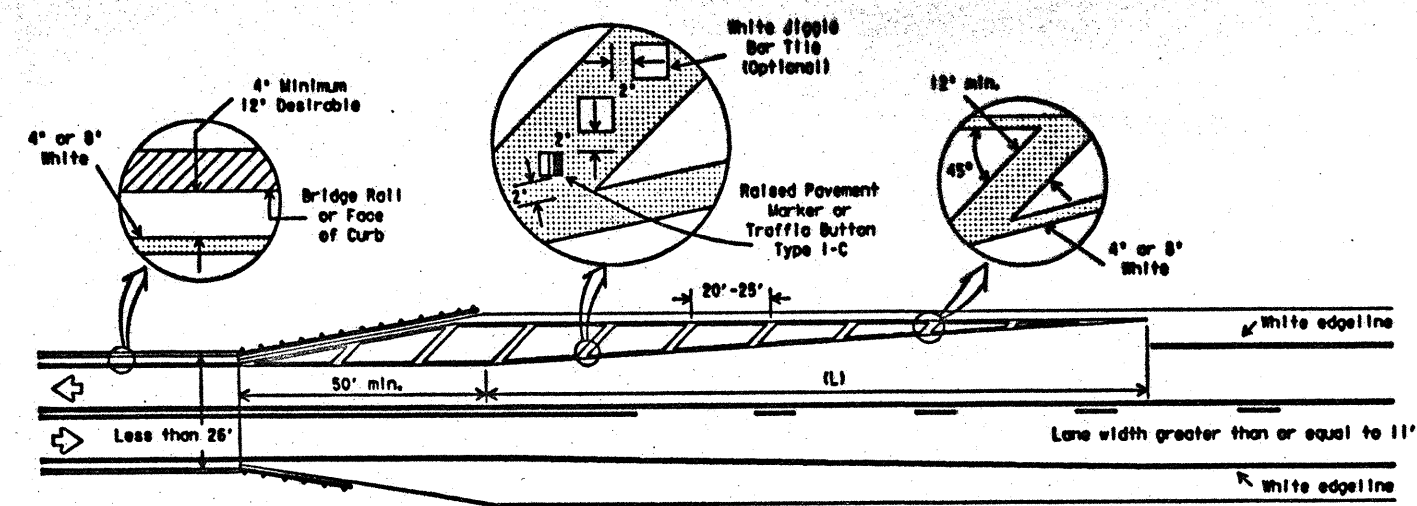


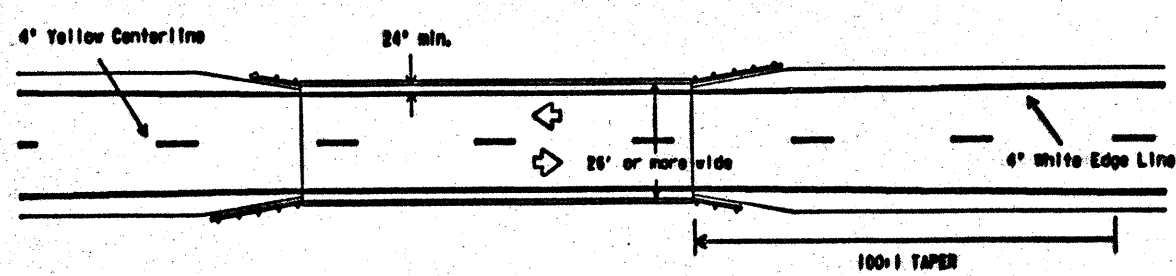
TABLE 1  
TYPICAL TAPER LENGTH (L)

Posted Speed #	Formula	Minimum Desirable Taper Lengths #'		
		10'	11'	12'
30	$L = \frac{WS^2}{60}$	150'	165'	180'
35		205'	225'	245'
40		265'	295'	320'
45		450'	495'	540'
50	L=WS	500'	550'	600'
55		550'	605'	660'
60		600'	660'	720'
65		650'	715'	780'

Use 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.  
 \*Taper lengths have been rounded off.  
 L=Length of Taper (ft.) S=Speed of Offset (ft.)  
 S=Posted Speed (MPH)



- NOTES:**
1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
  2. 12 inch crosshatching is optional. See plan quantities.
  3. For taper length (L) see Table 1.



40

STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION

TYPICAL STANDARD  
PAVEMENT MARKINGS

PM(1)-92A

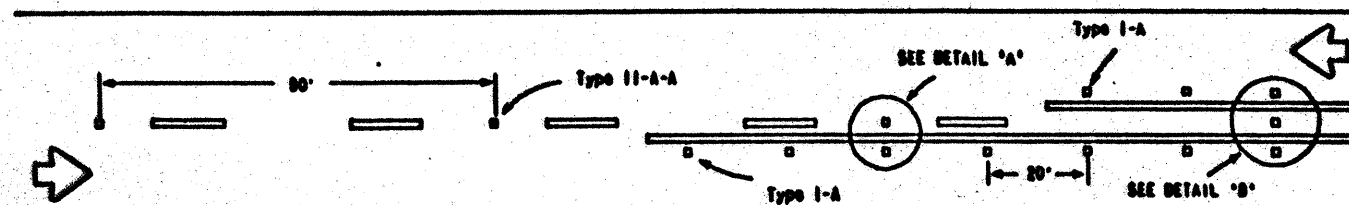
DESIGNED BY	CHECKED BY	DATE	PROJECT NO.	DATE
DR-1	DR-1	8-82	CPM 74-6-174	80
DR-2	DR-2	11-85	DATE	DATE
DR-3	DR-3	7-86	DATE	DATE

22A

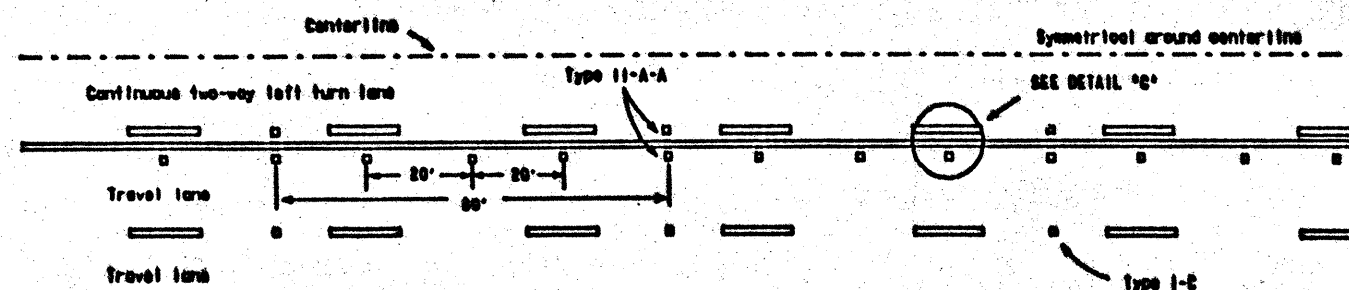
Raised pavement markers supplement painted lines

# CENTERLINE & NO-PASSING LINES FOR TWO LANE TWO-WAY HIGHWAYS

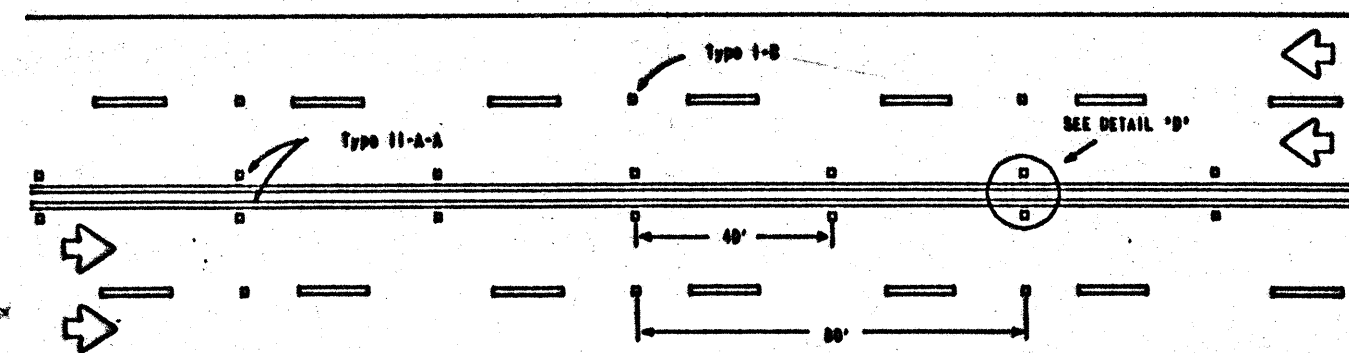
Raised pavement markers as vehicle positioning guides



(FOR ROADWAYS 24 FEET OR WIDER)

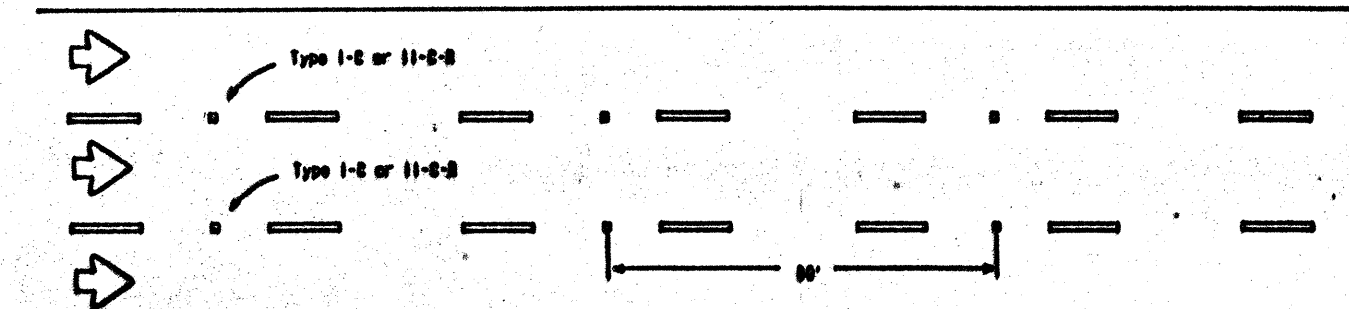


TWO-WAY LEFT TURN LANE



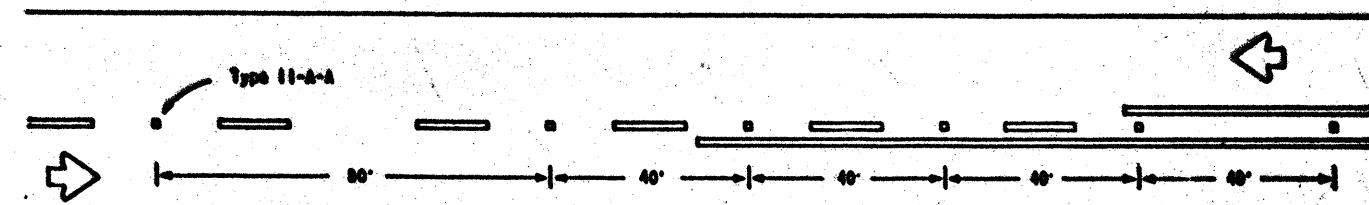
## CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

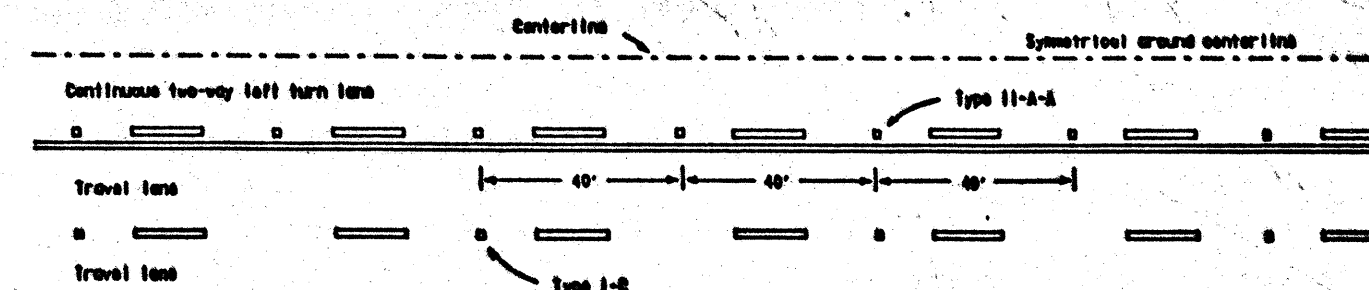


## LANE LINES FOR ONE-WAY ROADWAY

Raised pavement markers Type II-C-B, clear face toward normal traffic and red face toward wrong-way traffic, shall be spaced on 80-foot centers. As required by the Engineer or shown elsewhere in the plans, Type II-C-B markers shall be placed on 40-foot centers for the below listed conditions:  
1. Vertical curves with grades over 2 percent and less than 1000 feet long.  
2. Horizontal curves.  
3. or continuously illuminated sections.

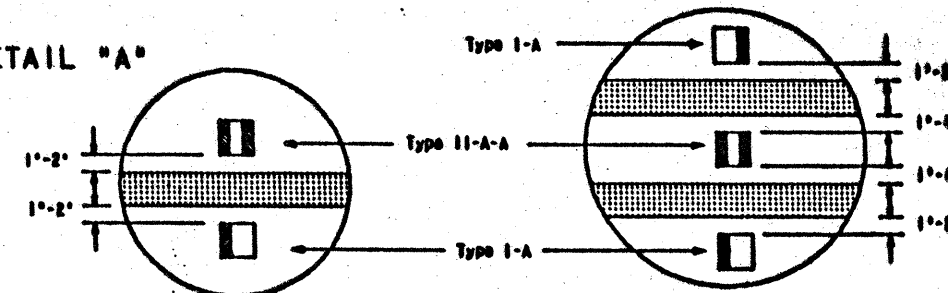


(FOR ALL ROADWAYS)



TWO-WAY LEFT TURN LANE

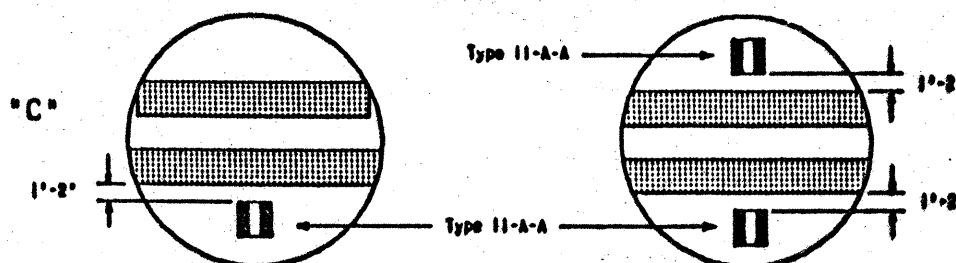
### DETAIL "A"



### DETAIL "B"

41

### DETAIL "C"



### DETAIL "D"

### GENERAL NOTES:

All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.

First and last raised pavement markers in a no-passing line are to be located adjacent to either the midpoint of the gap of the centerline marking or the midpoint of the broken line of the centerline marking.

On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

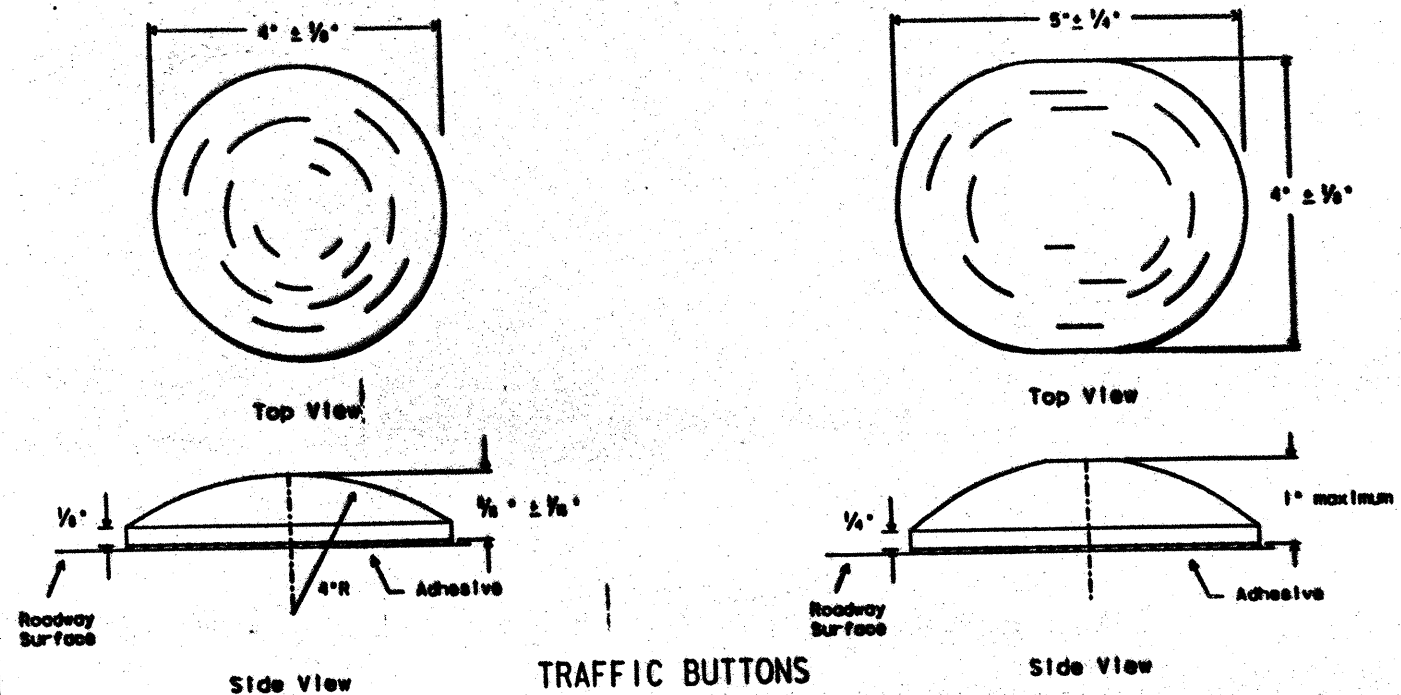


STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION  
TYPICAL STANDARD  
PAVEMENT MARKINGS  
WITH RAISED  
PAVEMENT MARKERS

PM(2)-92

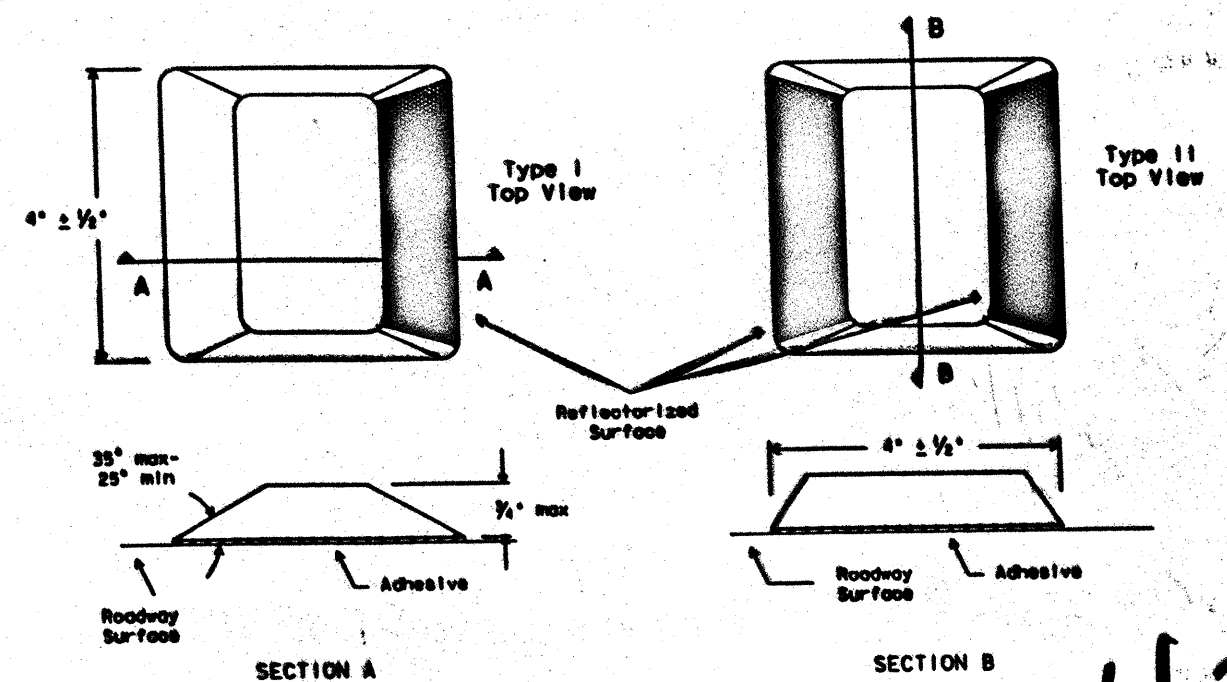
Revised	4-77	Revised	10-88	Revised	10-88	Revised	10-88
Revised	11-88	Revised	11-88	Revised	11-88	Revised	11-88
Revised	1-88	Revised	1-88	Revised	1-88	Revised	1-88
Revised	1-88	Revised	1-88	Revised	1-88	Revised	1-88

Division of Maintenance and Operations



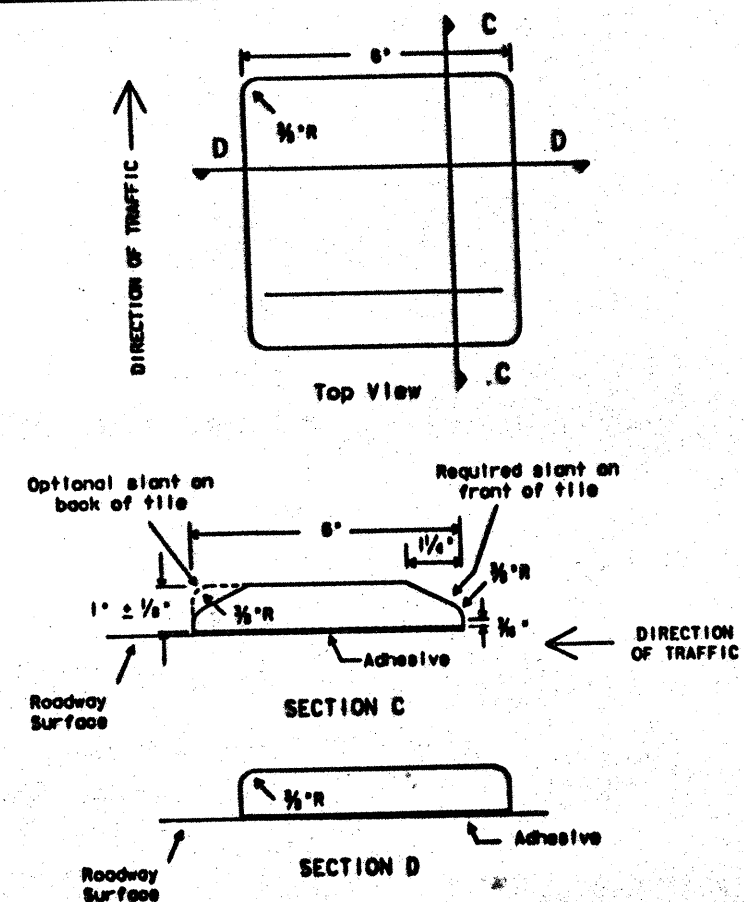
**TRAFFIC BUTTONS  
(NON-REFLECTORIZED)**

NOTE: Minimum area of markers shall be not less than 12.5 square inches.  
Either shape may be used but the same shape shall be used through out the project.



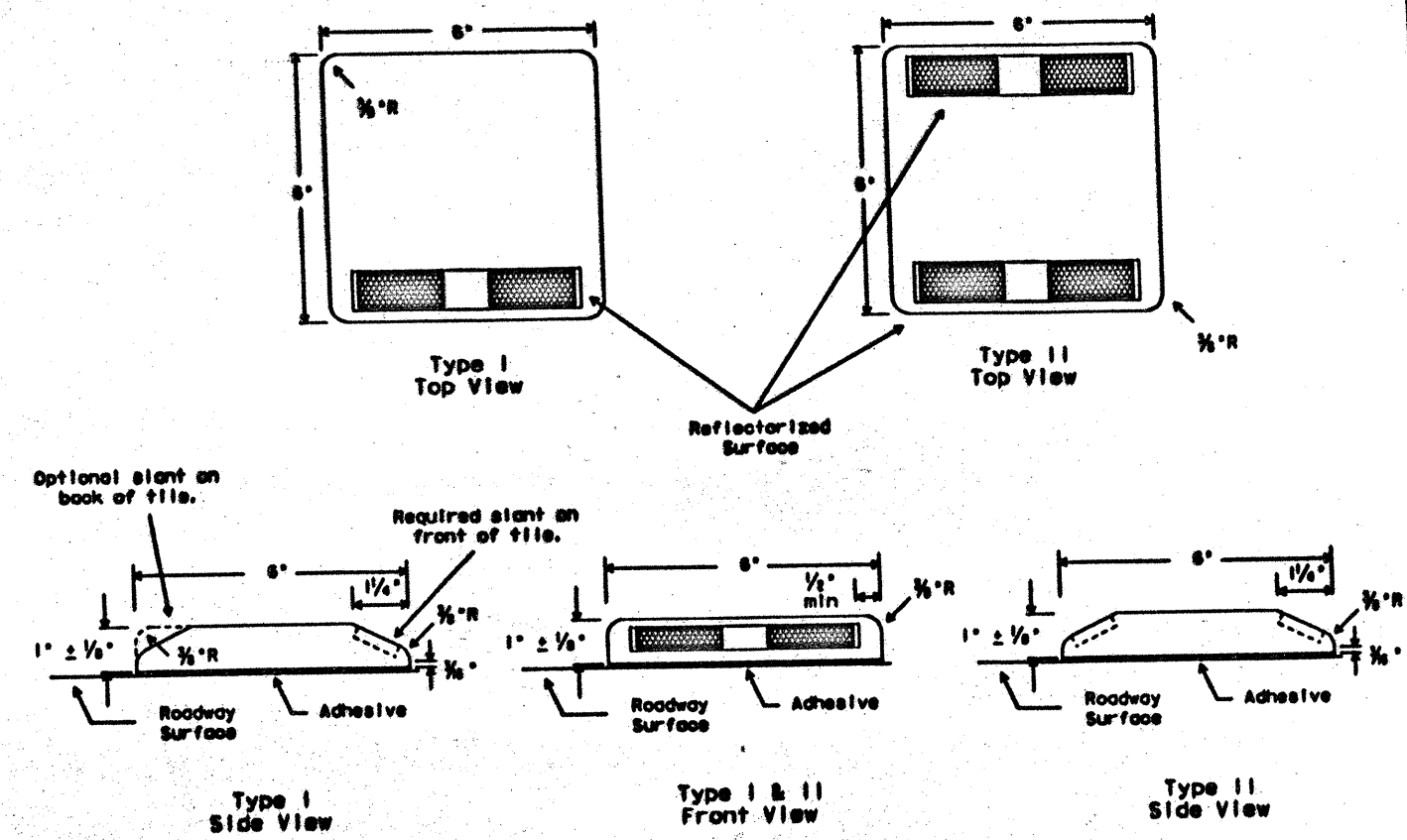
**RAISED PAVEMENT MARKERS  
(REFLECTORIZED)**

42



**JIGGLE BAR TILES  
(NON-REFLECTORIZED)**

"Jiggle Bars" consist of a number of Jiggle Bar Tiles placed in a linear configuration.



**JIGGLE BAR TILES  
(REFLECTORIZED)**

SPECIFICATION REFERENCE TABLE MATERIALS AND TEST SPECIFICATIONS (D-9)	
JIGGLE BAR TILE	D-9-4100
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200
TRAFFIC BUTTONS	D-9-4300
BITUMINOUS ADHESIVE	D-9-5130

**GENERAL NOTES:**

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 ENGINEER BEFORE ADHESIVE AND RPMs ARE PLACED.

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 ENGINEER.

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.

ALL DIMENSIONS ARE ± 1/8" UNLESS OTHERWISE NOTED.



**STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION  
RAISED PAVEMENT MARKERS  
REFLECTIVE PAVEMENT MARKERS,  
TRAFFIC BUTTONS &  
JIGGLE BAR TILE**

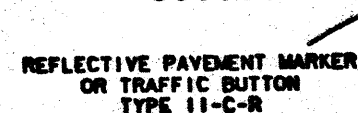
**RPM(1)-92**

REVISION	DATE	BY	CHKD	APP'D	REASON
1	2-82	7-82	4-82		
2	7-82	10-82			
3	11-82	12-90			



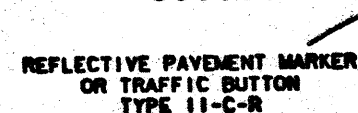


REFLECTORIZED WRONG WAY ARROWS, NOT TO EXCEED TWO, SHALL BE PLACED ON ALL EXIT RAMP WITHIN THE LIMITS OF THE PROJECT. LOCATION OF THE ARROWS SHALL BE AS SHOWN IN THE PLANS OR AS DETERMINED BY THE ENGINEER IN THE FIELD.



**REFLECTIVE PAINT OR  
OTHER SPECIFIED MATERIAL**

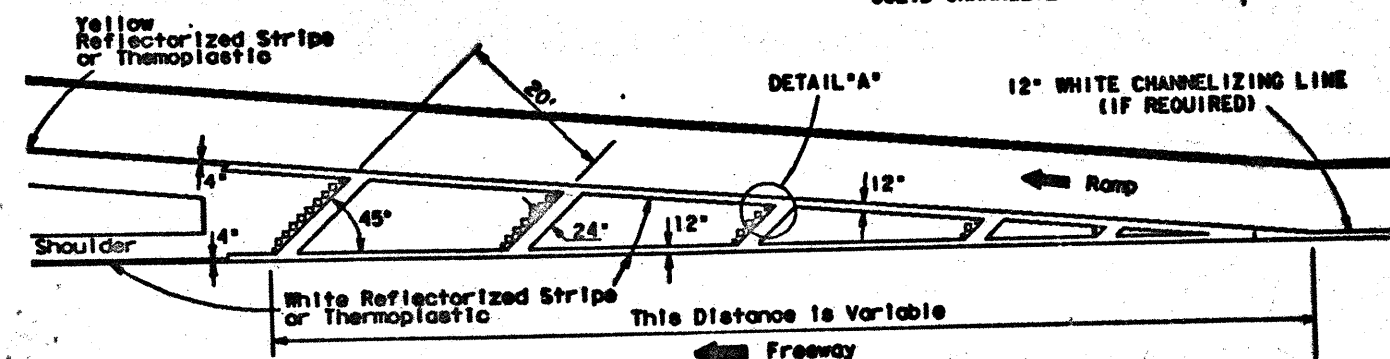
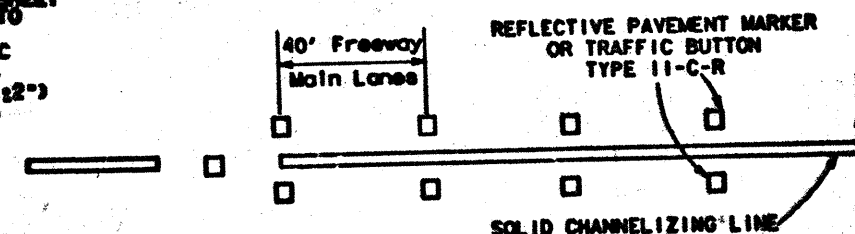
PAVEMENT MARKERS OR TRAFFIC BUTTON (REFLECTORIZED) TYPE II-C-R SHALL BE SPACED ON 80' CENTERS WITH THE CLEAR FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY TRAFFIC. SPACING MAY ALSO BE ON 40' CENTERS WHEN SHOWN ELSEWHERE IN THE PLANS.



**NON-REFLECTIVE  
TRAFFIC BUTTONS**

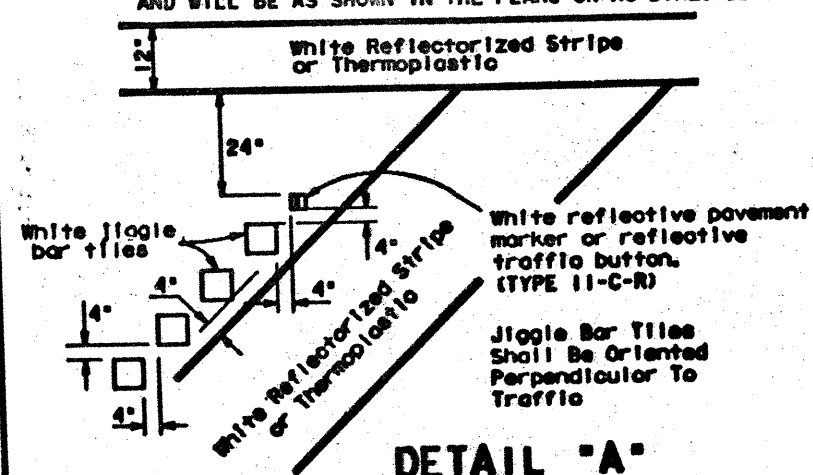
PAVEMENT MARKERS OR TRAFFIC BUTTON (REFLECTORIZED) TYPE 11-C-R SHALL BE SPACED ON 80' CENTERS WITH THE CLEAR FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY WHEN SHOWN ELSEWHERE IN THE PLANS.

## TRAFFIC LANE LINES



THE SHAPE OF THE GORE MARKING WILL VARY DEPENDING ON THE RAMP DESIGN AND WILL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

### TYPICAL EXIT RAMP GORE MARKING



### DETAIL "A"



**STATE DEPARTMENT OF HIGHWAYS  
AND PUBLIC TRANSPORTATION**

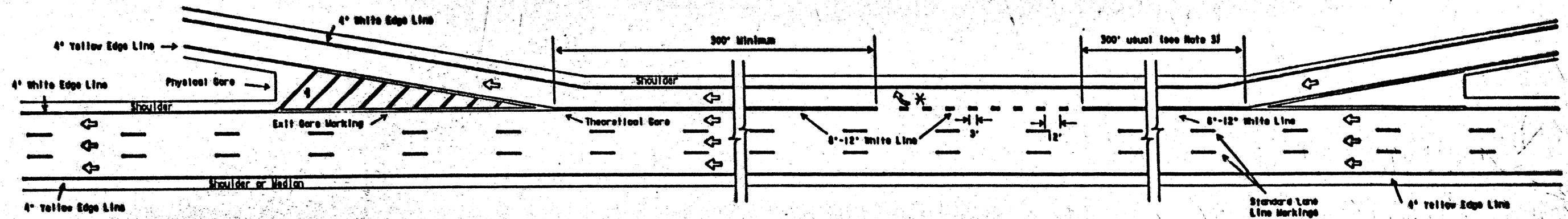
## PAVEMENT MARKING DETAILS FREEWAYS

**DISTRICT 16**

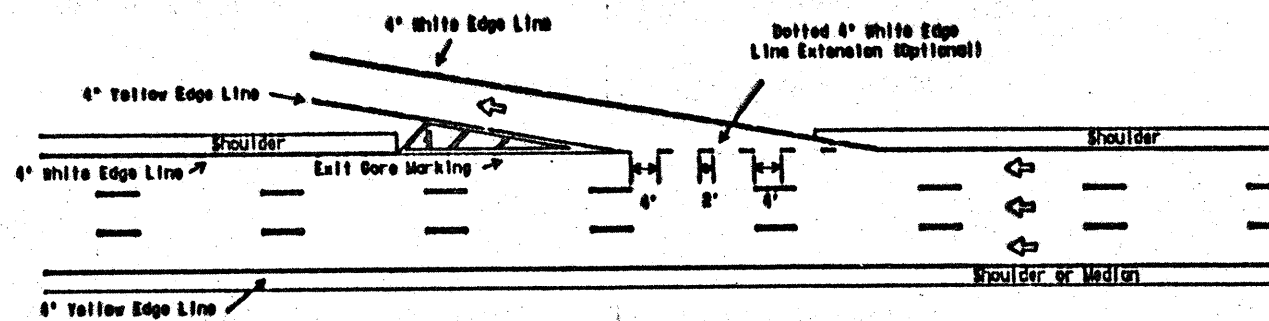
PM(16)-2

ORIGINAL GRADING DATE: 6-90		DEATH DISTRICT	CERTIFICATION SECTION	FEDERAL AND FOREIGN	OTHER
IN 1	REVISIONS	16	6	CPM 74-6-74	43
IN 2	3-91	DEATH		CERTIFICATION SECTION	OTHER
IN 3		NUECES		74 6	179

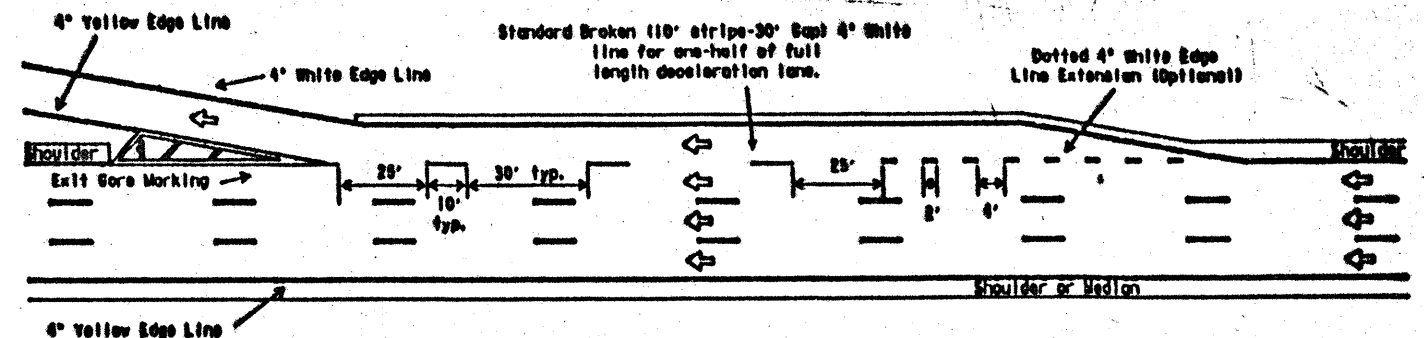
**FBI 62**



SINGLE LANE EXIT WITH AUXILIARY LANE  
(See Note 3)



TAPERED DECELERATION LANE



PARALLEL DECELERATION LANE

LEGEND

- 1. CM-2HR, CM-2HP or surface mount object marker (I-Marker) installed 2 to 10 feet from Physical Gore. Mounting height is approximately 18 inches. I-Marker may be Carbonite, Safe-Hit or equal.
- 2. Shows direction of traffic.
- 3. Pavement marking arrows (white).
- 4. Optional.

NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Pavement marking arrows to be located as specified elsewhere in the plans.
3. Length of 8"-12" white line may vary depending on location.
4. Lane drop markings are to be used to separate lanes that are required to go in different directions.
5. A lane drop (EXIT ONLY) condition is typically when the nearest entrance ramp is greater than 2000 feet upstream of the exit ramp, measured from theoretical gore of entrance ramp to theoretical gore of exit ramp.

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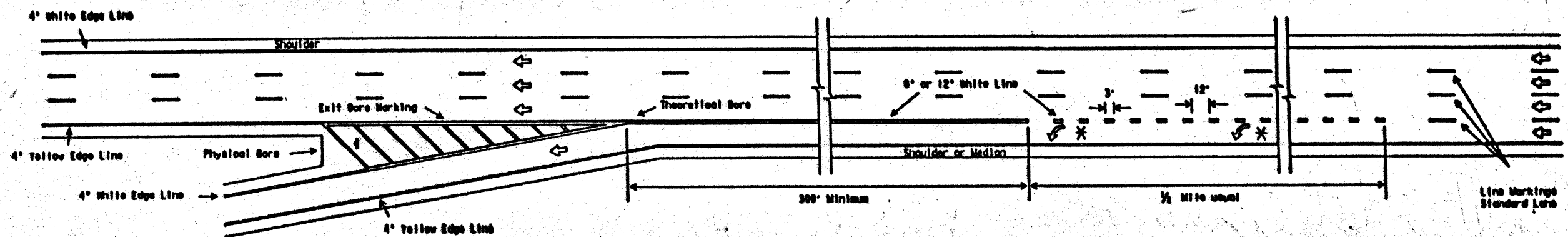
STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION

TYPICAL STANDARD  
FREEWAY PAVEMENT MARKINGS  
ENTRANCE AND EXIT RAMP

FPM(2)-92

DESIGNED BY: 2-77	CHECKED BY: 16-77	DATE: 10-77	BY: 16-77
DESIGNED BY: 4-72	CHECKED BY: 16-77	DATE: 10-77	BY: 16-77
DESIGNED BY: 4-72	CHECKED BY: 16-77	DATE: 10-77	BY: 16-77
DESIGNED BY: 4-72	CHECKED BY: 16-77	DATE: 10-77	BY: 16-77

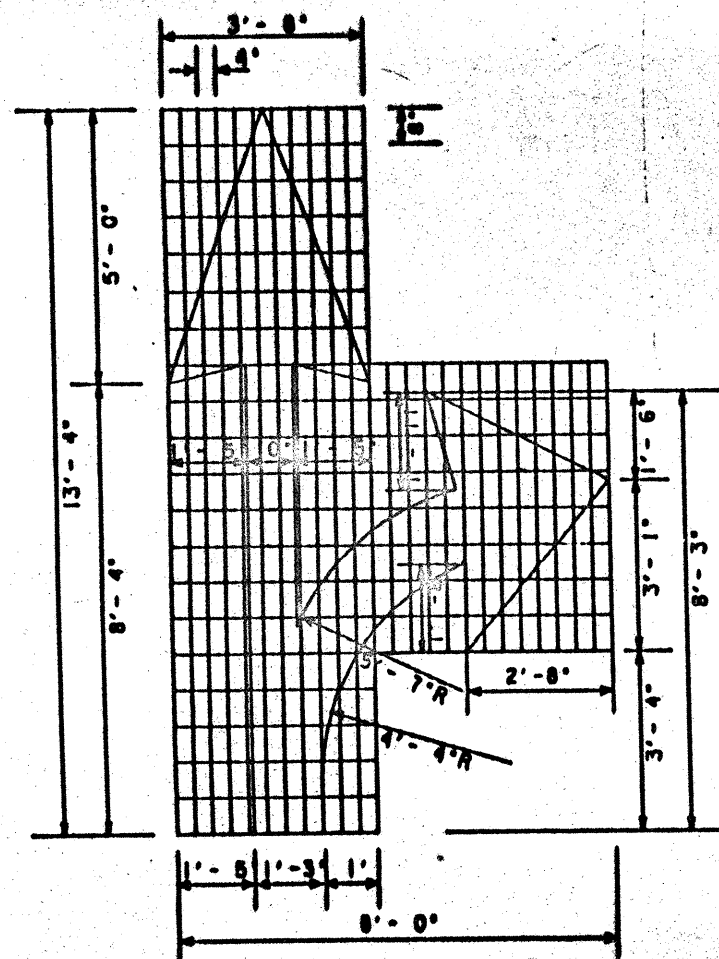
Division of Maintenance and Operations



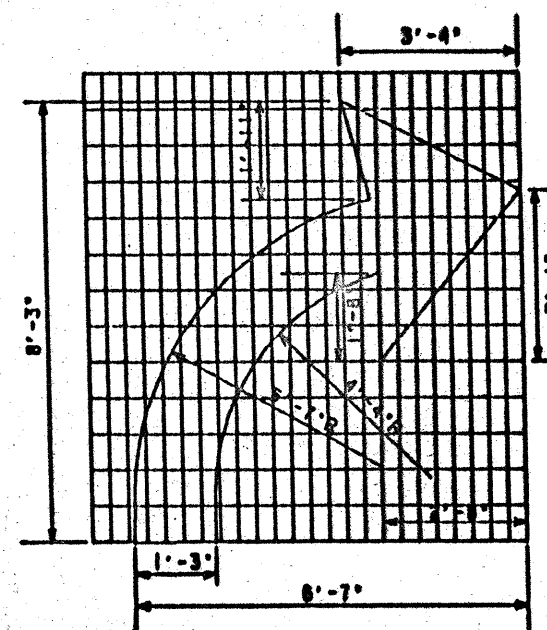
SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFTHAND)

8162-11

### ARROW DETAILS



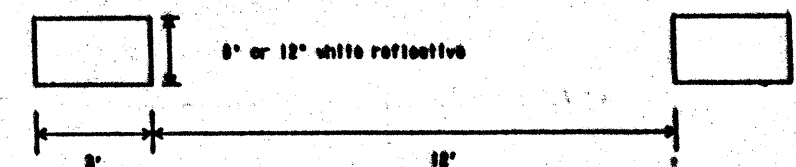
(30.7 S.F.)



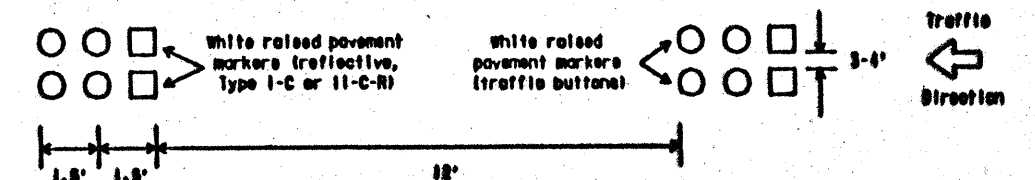
(16 S.F.)

### LANE DROP PAVEMENT MARKING DETAILS

#### PAINT AND BEAD



#### RAISED PAVEMENT MARKERS



#### LEGEND

- 1. - CM-2HP, CM-2HP or surface mount object marker (k-marker) installed 2 to 10 feet from Physical Gore. Mounting height is approximately 18 inches. k-Marker may be Coranite, Safe-Hit or equal.
- 2. - Denotes direction of traffic.
- 3. - Pavement marking arrow (white).
- 4. - Optional

#### NOTES:

1. Pavement markings shall be white except as otherwise noted.
2. Pavement marking arrows to be located as specified elsewhere in the plans.
3. Length of 6'-12' white line may vary depending on location.
4. Lane drop markings are to be used to separate lanes that are required to go in different directions.
5. A lane drop (EXIT ONLY) condition is typically when the nearest entrance ramp is greater than 2000 feet upstream of the exit ramp, measured from theoretical gore of entrance ramp to theoretical gore of exit ramp.

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STANDARD PLANS  
TEXAS DEPARTMENT OF TRANSPORTATION

TYPICAL STANDARD  
FREEWAY PAVEMENT MARKINGS  
LANE DROP (EXIT ONLY) DETAILS

FPM(4)-92

DESIGNED BY	4-92	CHECKED BY	16	DATE	7-4-74	45
DRAWN BY		APPROVED BY		DATE		
IN CHARGE		REVISIONS		DATE		
		1. WVEES	74	7	174	181

Division of Maintenance and Operations