FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT
PROJECT NO.
CSJ: 2230-01-021

BEXAR
FM 1560

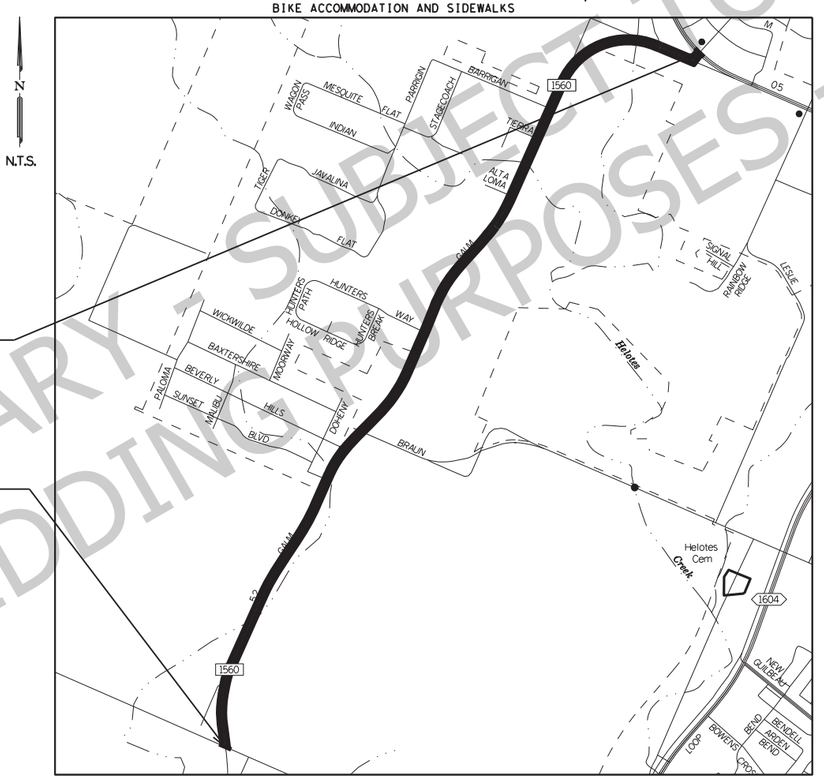
LIMITS FROM: SH 16
TO: GALM / SHANFIELD

NET LENGTH OF ROADWAY = 18,459.00 FT = 3.496 MI
NET LENGTH OF BRIDGE = 285.00 FT = 0.054 MI
NET LENGTH OF PROJECT = 18,744.00 FT = 3.550 MI

EXPAND 2 LANES TO 4 LANES WITH TURN LANES,
BIKE ACCOMMODATION AND SIDEWALKS

N

N.T.S.



END PROJECT
SH 16
STA 386+83.77

BEGIN PROJECT
GALM / SHAENFIELD RD
STA 204+38.50

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: NONE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND THE SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000--008)

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INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

PRELIMINARY

NOT FOR CONSTRUCTION, BIDDING OR PERMITTING

60% SUBMITTAL

DESIGN SPEED FM 1560 = 45MPH
DESIGN SPEED CROSS STREETS = 30MPH
AREA OF DISTURBED SOIL =
ADT(2024) = 27,800
ADT(2044) = 40,700
ACCESSIBILITY STANDARDS = PROWAG

REGISTERED ACCESSIBILITY SPECIALIST INSPECTION REQUIRED
TDLR NO.

THE ABOVE IS REQUIRED IF ANY ONE OF THE FOLLOWING CONDITIONS ARE MET:
1. PEDESTRIAN ELEMENTS GREATER THAN $50,000
2. HIKE AND BIKE TRAIL PROJECTS
3. BUILDING PROJECTS

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED
IN ACCORDANCE WITH THE PLANS.

_____ P.E. _____
AREA ENGINEER DATE

TEXAS DEPARTMENT OF TRANSPORTATION

SUBMITTED FOR LETTING
TRANSPORTATION ENGINEER SUPERVISOR

RECOMMENDED FOR LETTING
DESIGN ENGINEER

RECOMMENDED FOR LETTING
DESIGN SUPPORT DIRECTOR

RECOMMENDED FOR LETTING
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

APPROVED FOR LETTING
DISTRICT ENGINEER

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FILE LOCATION AND NAME
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LEVELS DISPLAYED
1

PROJ. NO._____
COUNTY_____LETTING DATE_____
HWY. NO._____
DATE ACCEPTED_____

	GENERAL		**RETAINING WALL DETAILS**		**TRAFFIC SIGNAL DETAILS**
1	TITLE SHEET	245	RETAINING WALL INDEX	378	TRAFFIC SIGNAL NOTES
2	INDEX OF SHEETS	246	RETAINING WALL HORIZONTAL ALIGN DATA	379	FM 1560 AT BRAUN ROAD EXISTING CONDITIONS
3	PROJECT LAYOUT	247	PLAN AND PROFILE RW01	380	FM 1560 AT BRAUN ROAD PROPOSED SIGNAL LAYOUT
4-6	EXISTING TYPICAL SECTIONS	248-249	PLAN AND PROFILE RW02	381-382	FM 1560 AT BRAUN ROAD PROPOSED SIGNAL DETAILS
7-10	PROPOSED TYPICAL SECTIONS	250	PLAN AND PROFILE RW03	383	FM 1560 AT BRAUN ROAD TRAFFIC SIGNAL ELEVATION
	GENERAL NOTES			384	FM 1560 AT ANTONIO DRIVE EXISTING CONDITIONS
	TRAFFIC CONTROL PLAN SUMMARY		RETAINING WALL STANDARDS	385	FM 1560 AT ANTONIO DRIVE PROPOSED LAYOUT
11	REMOVAL SUMMARY			386-387	FM 1560 AT ANTONIO DRIVE PROPOSED SIGNAL DETAILS
12	GRADING SUMMARY			388	FM 1560 AT ANTONIO DRIVE TRAFFIC SIGNAL ELEVATION
13	RETAINING WALL SUMMARY		**DRAINAGE DETAILS**	389	FM 1560 AT IRON HORSE WAY EXISTING CONDITIONS
14	QUANTITY SUMMARY DRAINAGE CROSSINGS	251	OVERALL DRAINAGE AREA MAP		
15-16	QUANTITY SUMMARY STORM DRAIN	252	DRAINAGE AREA MAP CULEBRA CREEK TRB C BRIDGE CLASS CULVERT A		TRAFFIC SIGNAL STANDARDS
	BRIDGE SUMMARY	253	DRAINAGE AREA MAP CULEBRA CREEK TRB C BRIDGE CLASS CULVERT D AND CROSS CULVERT C		
17	SUMMARY OF TRAFFIC SIGNAL QUANTITIES	254	DRAINAGE AREA MAP HELOTES CREEK TRB A BRIDGE STRUCTURE G		
18	SMALL SIGN SUMMARY	255	DRAINAGE AREA MAP BRIDGE CLASS CULVERT H1		**SIGNING DETAILS**
19-23	SUMMARY OF SMALL SIGNS	256	DRAINAGE AREA MAP BRIDGE CLASS CULVERT H2	390-402	SIGN LAYOUT
24	PAVEMENT MARKING SUMMARY	257	DRAINAGE AREA MAP HELOTES CREEK BRIDGE STRUCTURE I		
25	SW3P SUMMARY	258-259	DRAINAGE AREA MAP PAYNES GRAY		SIGNING STANDARDS
		260-261	DRAINAGE AREA MAP DISC GOLF		
		262-276	DRAINAGE AREA MAP INTERIOR		
	TRAFFIC CONTROL PLAN DETAILS	277-278	HYDRAULIC DATA SHEET CULEBRA CREEK TRB C BRIDGE CLASS CULVERT A		**PAVEMENT MARKINGS & DELINEATION DETAILS**
26	TRAFFIC CONTROL PLAN SCHEDULE OF BARRICADES	279-280	HYDRAULIC DATA SHEET CROSS CULVERT B	403-418	PAVEMENT MARKING & DELINEATION LAYOUT
27-29	TRAFFIC CONTROL PLAN NARRATIVE	281-283	HYDRAULIC DATA SHEET CULEBRA CREEK TRB C BRIDGE CLASS CULVERT D AND CROSS CULVERT C		
30-32	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 1 STEP 1	284	HYDRAULIC DATA SHEET CROSS CULVERT E		PAVEMENT MARKINGS & DELINEATION STANDARDS
33-34	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 1 STEP 2	285	HYDRAULIC DATA SHEET CROSS CULVERT F		
35-38	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 1 STEP 3	286	HYDRAULIC DATA SHEET BRIDGE CLASS CULVERT H1		
39	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 1 STEP 4	287	HYDRAULIC DATA SHEET BRIDGE CLASS CULVERT H2		**ENVIRONMENTAL DETAILS**
40-42	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 2	288-290	HYDRAULIC DATA SHEET PAYNES GRAY	419	STORM WATER POLLUTION PREVENTION PLAN (SW3P)
43-44	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 3	291-292	HYDRAULIC DATA SHEET DISC GOLF	420	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS
45	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 4	293-294	STORM DRAIN RUNOFF COMPUTATIONS	421-426	SW3P LAYOUT PHASE 1
46	TRAFFIC CONTROL PLAN TYPICAL SECTIONS PHASE 5	295-297	STORM DRAIN 10-YR INLET CALCULATIONS	427-442	SW3P LAYOUT PHASE 2
47	TRAFFIC CONTROL PLAN PHASE 1 LAYOUT	298-301	STORM DRAIN 10-YR LINK CALCULATIONS	443-458	SW3P LAYOUT PHASE 3
48-53	TRAFFIC CONTROL PLAN PHASE 1 STEP 1	302-304	STORM DRAIN 100-YR INLET CALCULATIONS	459-474	SW3P LAYOUT PHASE 4
54-56	TRAFFIC CONTROL PLAN PHASE 1 STEP 1 TEMP SHORING	305-308	STORM DRAIN 100-YR LINK CALCULATIONS	475-490	SW3P LAYOUT PHASE 5
57-59	TRAFFIC CONTROL PLAN PHASE 1 STEP 1 TEMPORARY WALL	309	CULVERT LAYOUT CULEBRA CREEK TRB C BRIDGE CLASS CULVERT A		
60-65	TRAFFIC CONTROL PLAN PHASE 1 STEP 2	310	CULVERT LAYOUT CROSS CULVERT B		ENVIRONMENTAL ISSUES STANDARDS
66-71	TRAFFIC CONTROL PLAN PHASE 1 STEP 3	311	CULVERT LAYOUT CROSS CULVERT C		
72-77	TRAFFIC CONTROL PLAN PHASE 1 STEP 4	312	CULVERT LAYOUT CULEBRA CREEK TRB C BRIDGE CLASS CULVERT D		
78	TRAFFIC CONTROL PLAN PHASE 2 LAYOUT	313	CULVERT LAYOUT CROSS CULVERT E		**GEOTECHNICAL DETAILS**
79-93	TRAFFIC CONTROL PLAN PHASE 2	314	CULVERT LAYOUT CROSS CULVERT F	491	GEOTECHNICAL BORE INDEX
94	TRAFFIC CONTROL PLAN PHASE 3 LAYOUT	315	CULVERT LAYOUT BRIDGE CLASS CULVERT H1	492-500	GEOTECHNICAL PAVEMENT BORE DATA
95-109	TRAFFIC CONTROL PLAN PHASE 3	316	CULVERT LAYOUT BRIDGE CLASS CULVERT H2	501-506	GEOTECHNICAL RETAINING WALL BORE DATA
110-121	TRAFFIC CONTROL PLAN PHASE 3 TEMP SHORING	317-320	XP-STORM LAYOUT PAYNES GRAY	507-522	GEOTECHNICAL BRIDGE BORE DATA
122-133	TRAFFIC CONTROL PLAN PHASE 3 TEMPORARY WALL	321-324	XP-STORM LAYOUT DISC GOLF		
134	TRAFFIC CONTROL PLAN PHASE 4 LAYOUT	325-339	STORM DRAIN PLAN & PROFILE		
135-149	TRAFFIC CONTROL PLAN PHASE 4	340	STORM DRAIN LATERALS SYSTEM AA		**UTILITY DETAILS**
150	TRAFFIC CONTROL PLAN PHASE 5 LAYOUT	341-345	STORM DRAIN LATERALS SYSTEM A	523	LAYOUT INDEX
151-165	TRAFFIC CONTROL PLAN PHASE 5 FINAL OVERLAY	346-348	STORM DRAIN LATERALS SYSTEM B	524-549	SUE PLAN LAYOUTS
		349-350	STORM DRAIN LATERALS SYSTEM D		
	TRAFFIC CONTROL PLAN STANDARDS	351-353	STORM DRAIN LATERALS SYSTEM E		
		354-355	STORM DRAIN LATERALS SYSTEM F		
		356-359	STORM DRAIN LATERALS SYSTEM G		
	ROADWAY DETAILS	360	STORM DRAIN LATERALS SYSTEM H		
	SURVEY CONTROL INDEX	361-362	STORM DRAIN LATERALS SYSTEM I		
	SURVEY CONTROL SHEETS	363-365	RIPRAP BASIN DETAILS		
166-181	REMOVAL LAYOUT	366-367	MISCELLANEOUS DRAINAGE DETAILS		
182	HORIZONTAL ALIGNMENT DATA	368-369	CHANNEL - HEADWALL INLET		
183-197	FM 1560 PLAN AND PROFILE LAYOUT				
198	ALTA LOMA PLAN & PROFILE LAYOUT		DRAINAGE DETAILS STANDARDS		
199	ANTONIO DR. PLAN & PROFILE LAYOUT				
200	ANTONIO DRIVE INTERSECTION LAYOUT				
201	BEVERLY HILLS PLAN & PROFILE LAYOUT		**BRIDGE DETAILS**		
202	BRAUN RD. PLAN & PROFILE LAYOUT	370	BRIDGE LAYOUT HELOTES CREEK TRIB - A		
203	BRAUN RD. INTERSECTION LAYOUT	371-373	HYDRAULIC DATA SHEET HELOTES CREEK TRIB A BRIDGE STRUCTURE G		
204	DOHENY RD. PLAN & PROFILE LAYOUT	374	BRIDGE LAYOUT HELOTES CREEK		
205	HUNTERS WAY PLAN & PROFILE LAYOUT	375-377	HYDRAULIC DATA SHEET HELOTES CREEK BRIDGE STRUCTURE I		
206	IRON HORSE WAY PLAN & PROFILE LAYOUT				
207	OLD GALM RD. PLAN & PROFILE LAYOUT		BRIDGE STANDARDS		
208	PARRIGIN RD. PLAN & PROFILE LAYOUT				
209	PAYNES GRAY PLAN & PROFILE LAYOUT				
210	PONCE PASS PLAN & PROFILE LAYOUT				
211	SALTILLO FLAT PLAN & PROFILE LAYOUT				
212	SCHOOL EXIT PLAN & PROFILE LAYOUT				
213	WYNSTONE PL PLAN & PROFILE LAYOUT				
214-227	NB DRIVEWAY LAYOUTS				
228-244	SB DRIVEWAY LAYOUTS				
	ROADWAY STANDARDS				

SUBJECT TO CHANGE
PRELIMINARY PLANS
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FM 1560
INDEX OF SHEETS

SHEET 1 OF 1

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	2
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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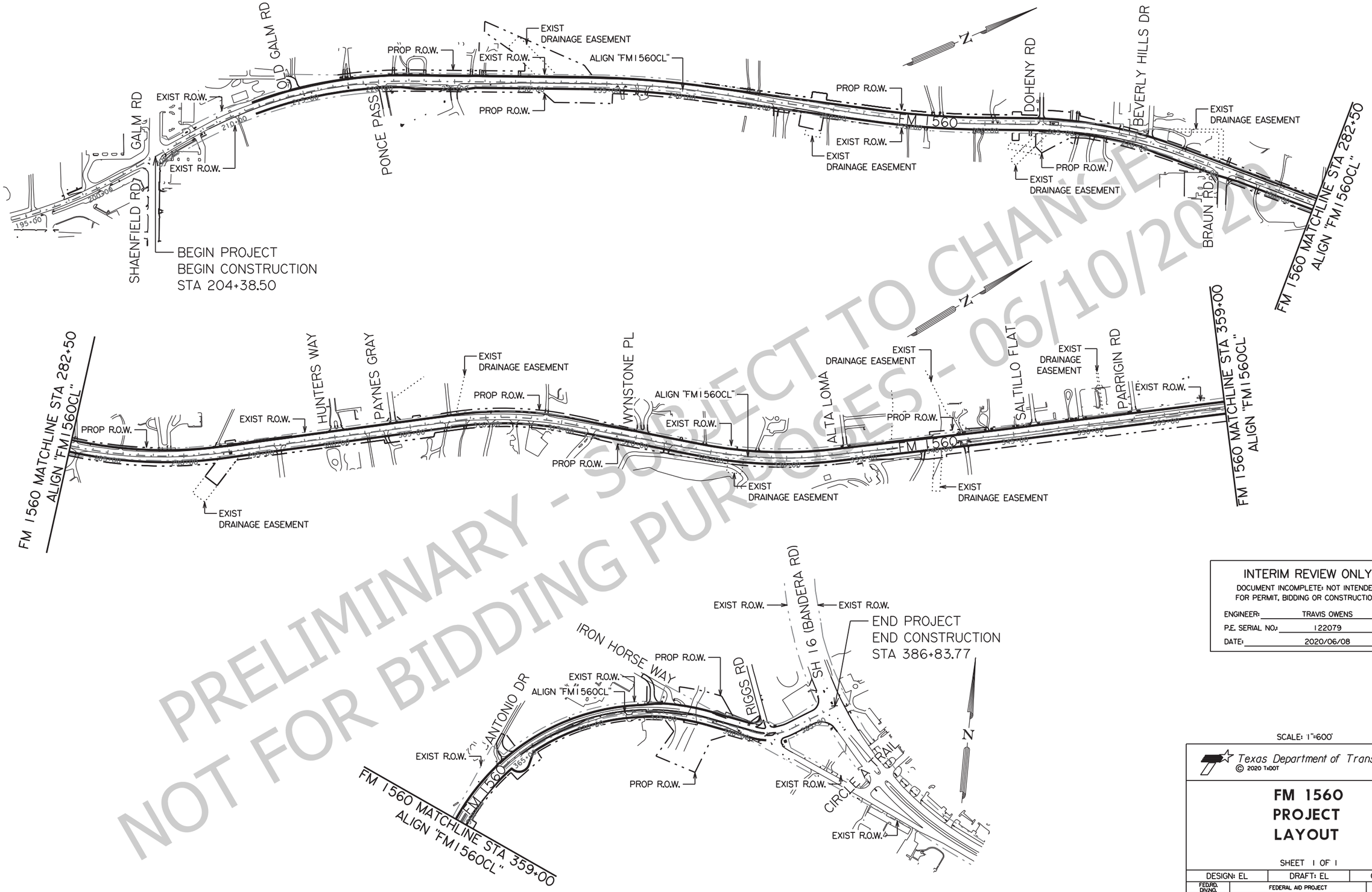

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 2020/06/08

SCALE: 1"=600'

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FM 1560 PROJECT LAYOUT

SHEET 1 OF 1

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	3
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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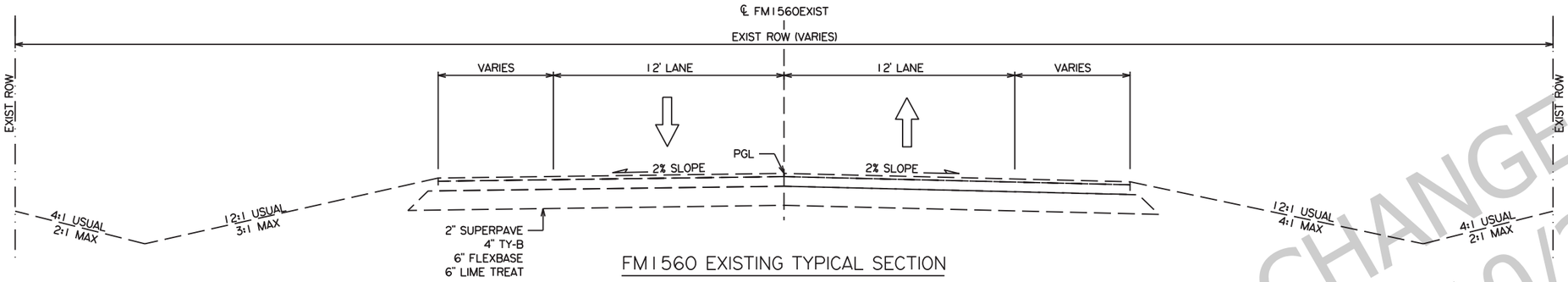

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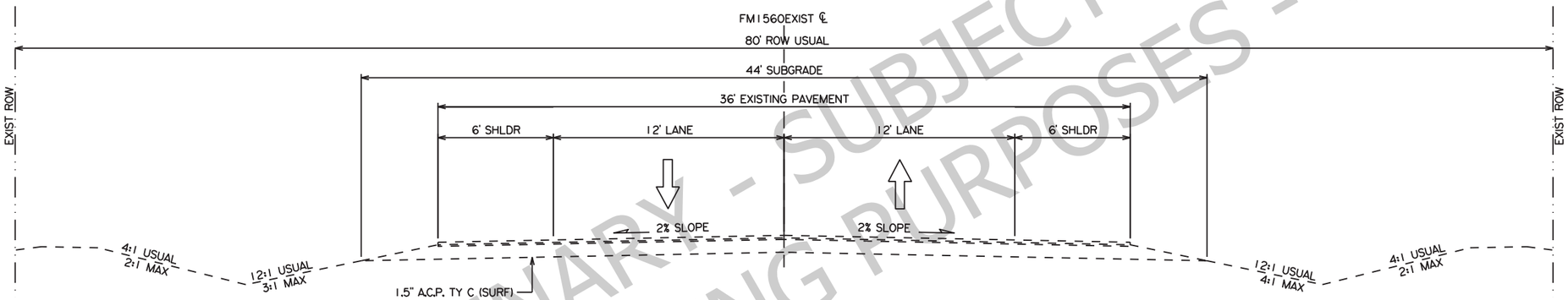

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STA 217+00 TO STA 217+41 (ALIGN "FM1560EXIST")
STA 229+28 TO STA 272+50 (ALIGN "FM1560EXIST")
STA 285+00 TO STA 347+17 (ALIGN "FM1560EXIST")
STA 355+60 TO STA 370+00 (ALIGN "FM1560EXIST")

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FM 1560 EXISTING TYPICAL SECTIONS

SHEET 1 OF 3

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

4

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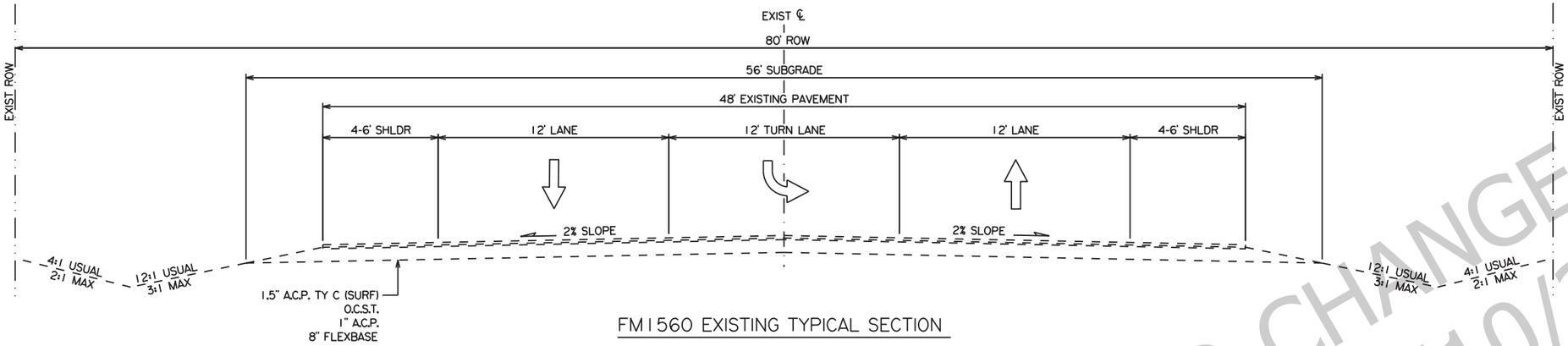

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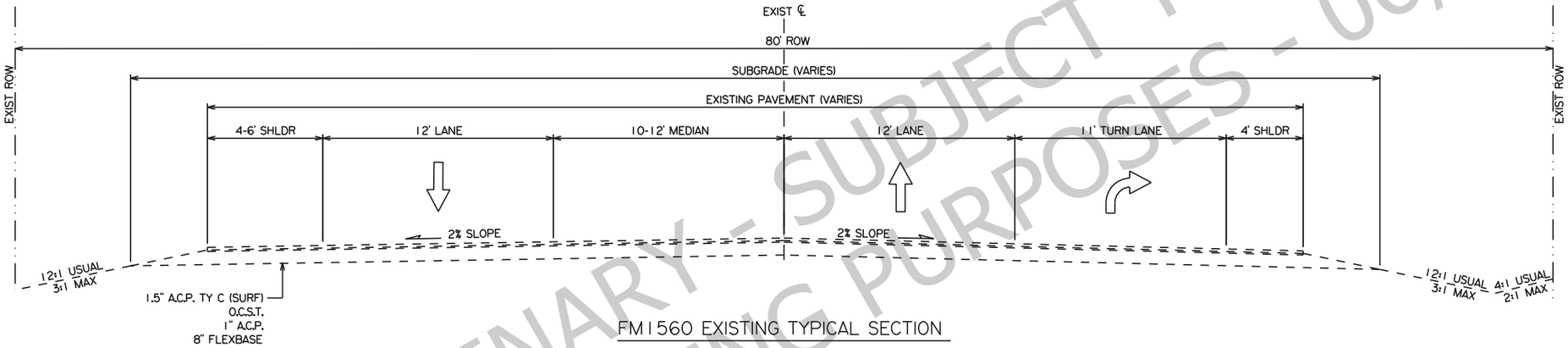
STA 225+19 TO STA 226+53 (ALIGN "FM1560CL")
STA 276+59 TO STA 280+61 (ALIGN "FM1560CL")
STA 378+62 TO STA 282+08 (ALIGN "FM1560CL")



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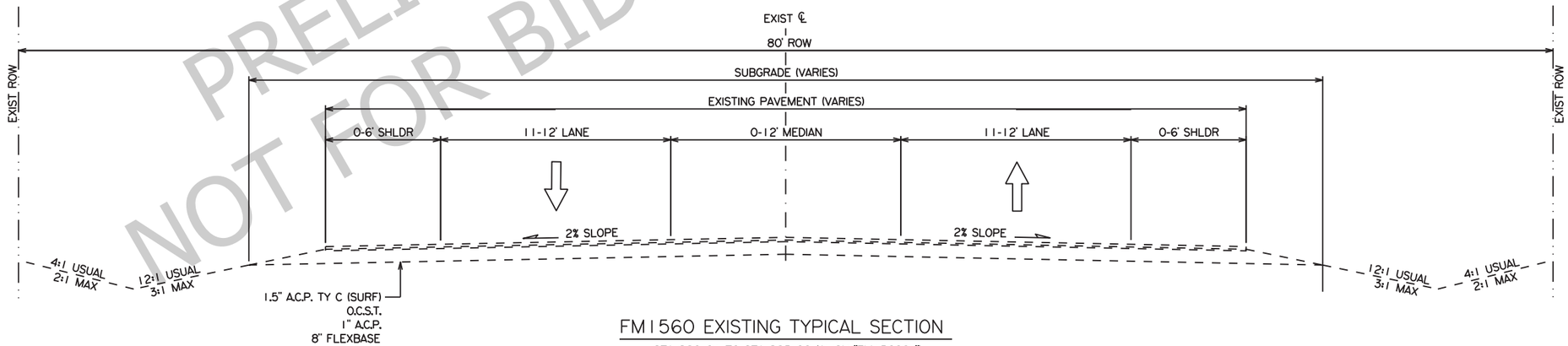

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STA 280+61 TO STA 285+00 (ALIGN "FM1560CL")
STA 347+17 TO STA 350+22 (ALIGN "FM1560CL")
STA 353+40 TO STA 355+60 (ALIGN "FM1560CL")
STA 370+00 TO STA 373+23 (ALIGN "FM1560CL")
STA 376+00 TO STA 376+31 (ALIGN "FM1560CL")

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FM 1560 EXISTING TYPICAL SECTIONS

SHEET 2 OF 3

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$5

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	5
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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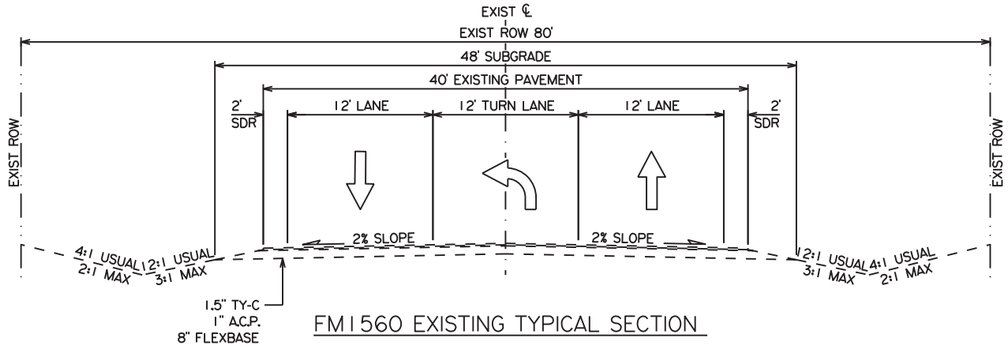

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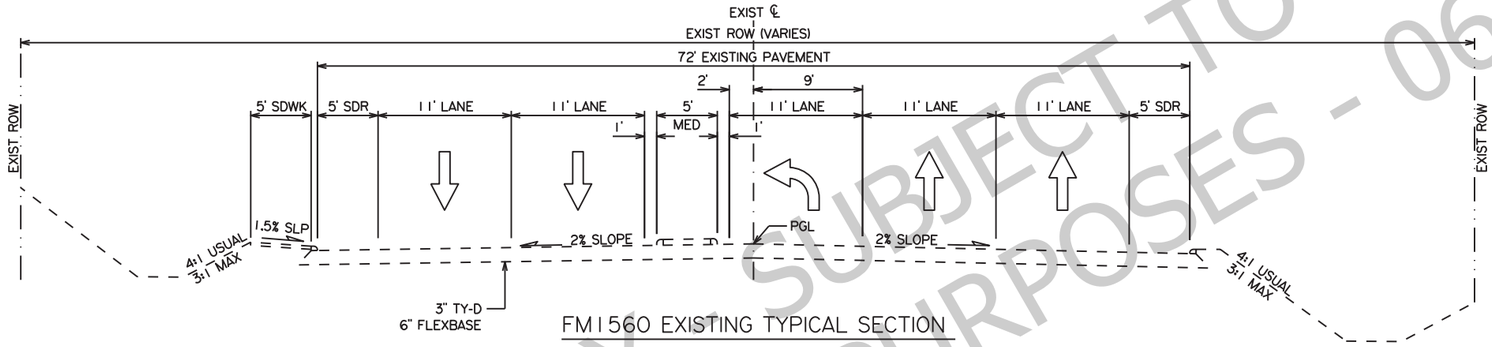
STA 373+23 TO STA 375+00 (ALIGN "FM1560CL")



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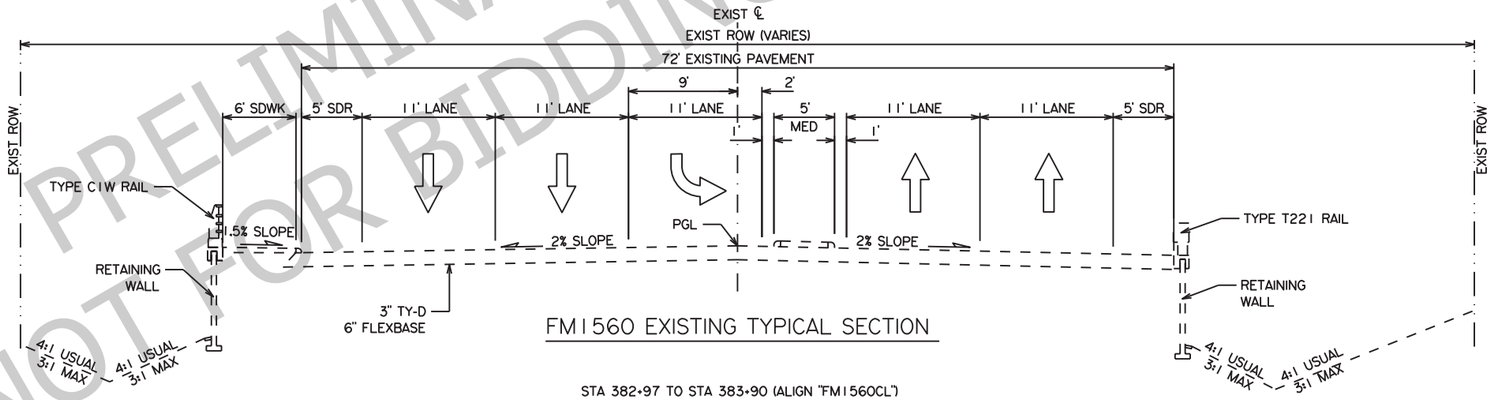

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STA 382+97 TO STA 383+90 (ALIGN "FM1560CL")

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DATE: 2020/06/04

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FM 1560 EXISTING TYPICAL SECTIONS

SHEET 3 OF 3

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6

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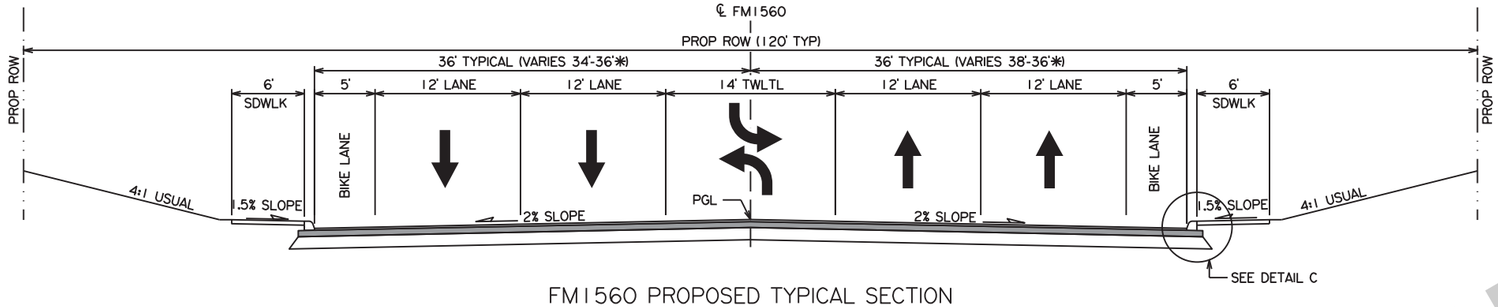

FM1560 PROPOSED TYPICAL SECTION

*STA 211+60 TO STA 214+00 (ALIGN "FM1560CL")
STA 214+00 TO STA 221+46 (ALIGN "FM1560CL")
STA 229+94 TO STA 270+29 (ALIGN "FM1560CL")
STA 282+46 TO STA 324+50 (ALIGN "FM1560CL")
STA 328+30 TO STA 330+50 (ALIGN "FM1560CL")
STA 335+50 TO STA 336+50 (ALIGN "FM1560CL")
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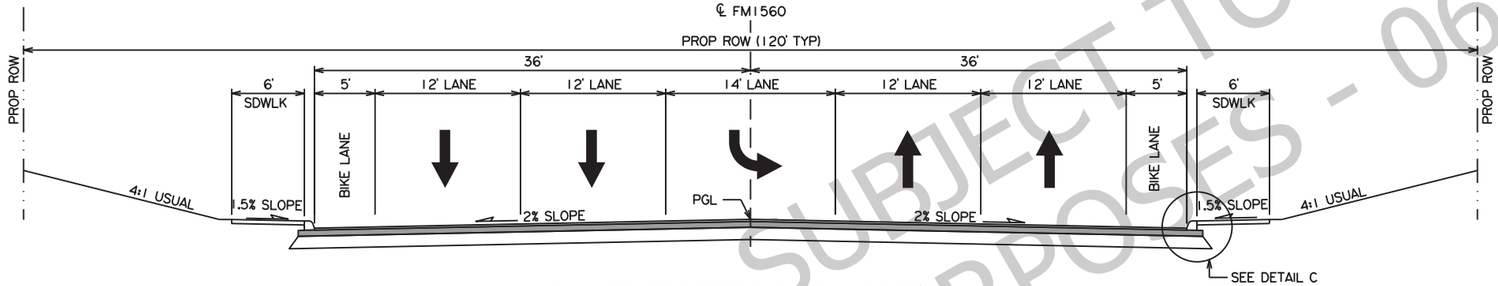

FM1560 PROPOSED TYPICAL SECTION

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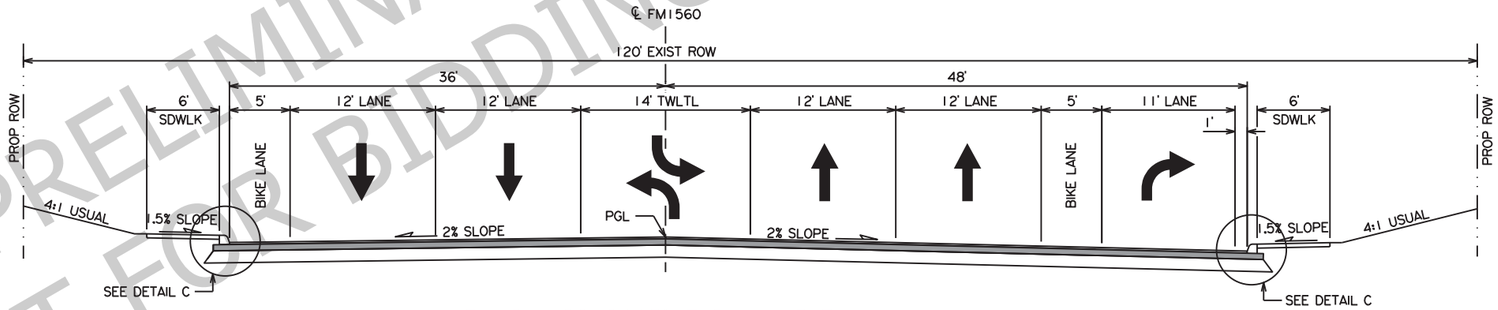

FM1560 PROPOSED TYPICAL SECTION

STA 221+46 TO STA 225+53 (ALIGN "FM1560CL")
STA 271+68 TO STA 275+50 (ALIGN "FM1560CL")

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 2020/06/04

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FM 1560 PROPOSED TYPICAL SECTIONS

SHEET 1 OF 4

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	7

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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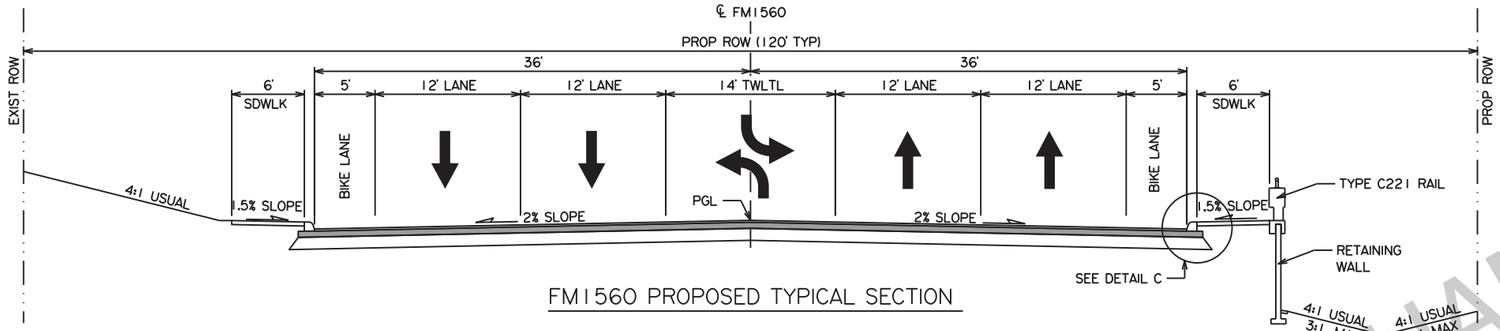
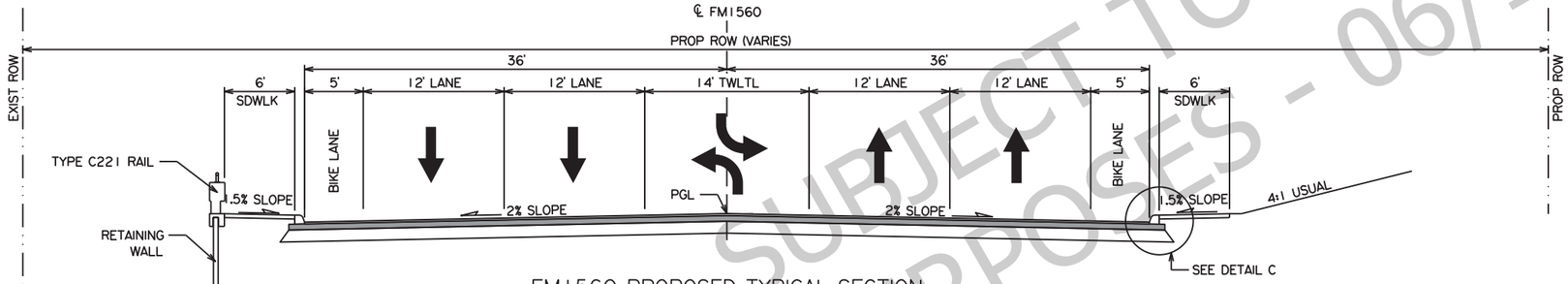


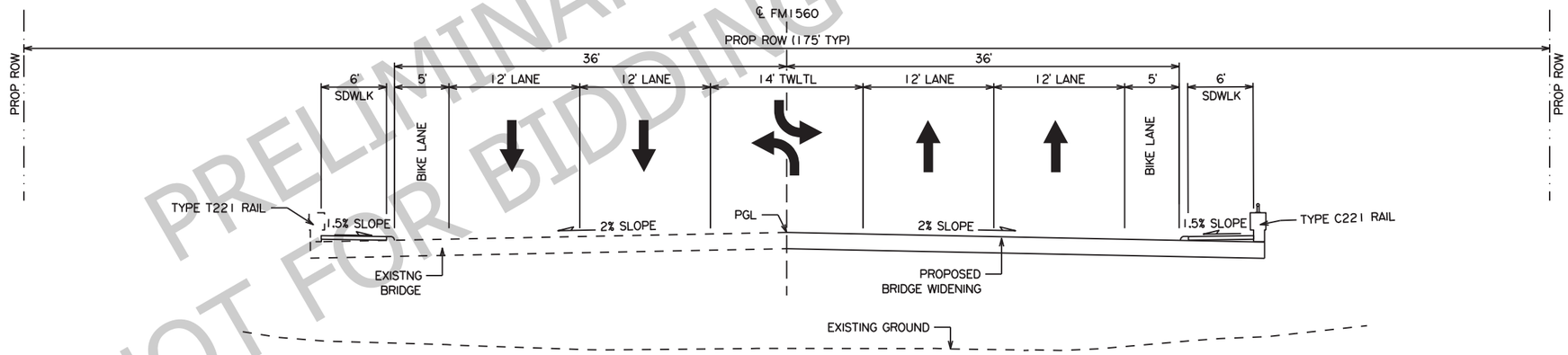
FM1560 PROPOSED TYPICAL SECTION

STA 324+50 TO STA 328+30 (ALIGN "FM1560CL")
STA 330+50 TO STA 335+50 (ALIGN "FM1560CL")



FM1560 PROPOSED TYPICAL SECTION

STA 336+50 TO STA 339+74 (ALIGN "FM1560CL")



FM1560 PROPOSED TYPICAL SECTION

HELOTES CREEK TRIB A

STA 339+74 TO STA 340+34 (ALIGN "FM1560CL")

PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 2020/06/04

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FM 1560 PROPOSED TYPICAL SECTIONS

SHEET 2 OF 4

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$8

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

8

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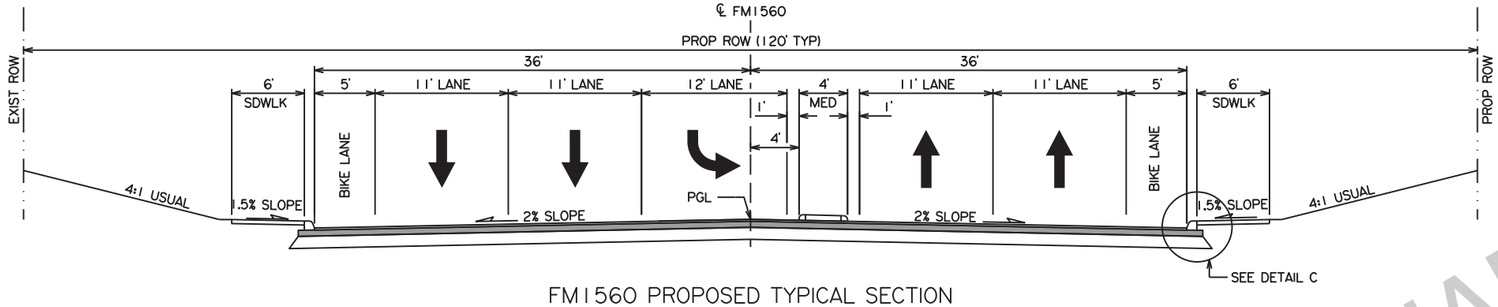
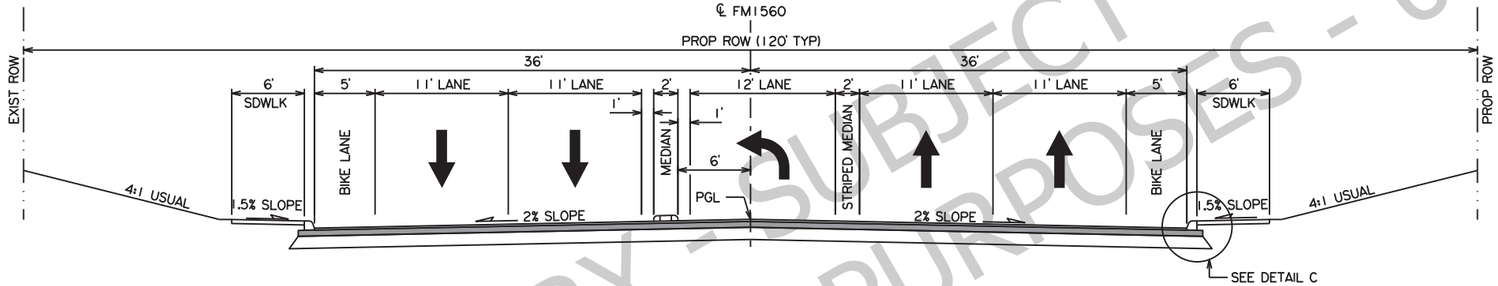


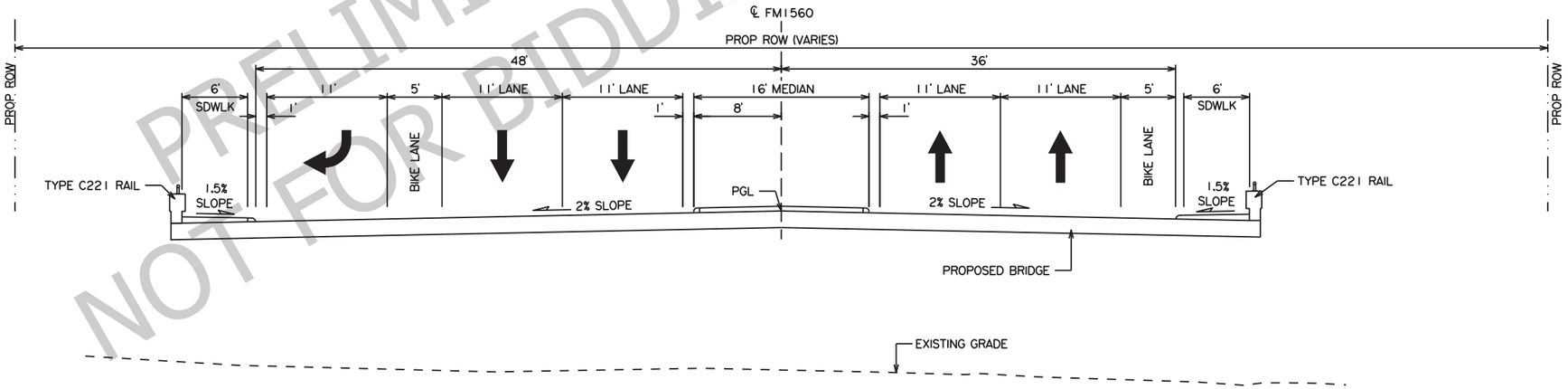
FM1560 PROPOSED TYPICAL SECTION

STA 365+96 TO STA 367+75 (ALIGN "FM1560CL")



FM1560 PROPOSED TYPICAL SECTION

STA 370+18 TO STA 373+66 (ALIGN "FM1560CL")



FM1560 PROPOSED TYPICAL SECTION

HELOTES CREEK

STA 375+32.14 TO STA 376+05 (ALIGN "FM1560CL")

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 2020/06/04

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FM 1560 PROPOSED TYPICAL SECTIONS

SHEET 3 OF 4

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$**$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

9

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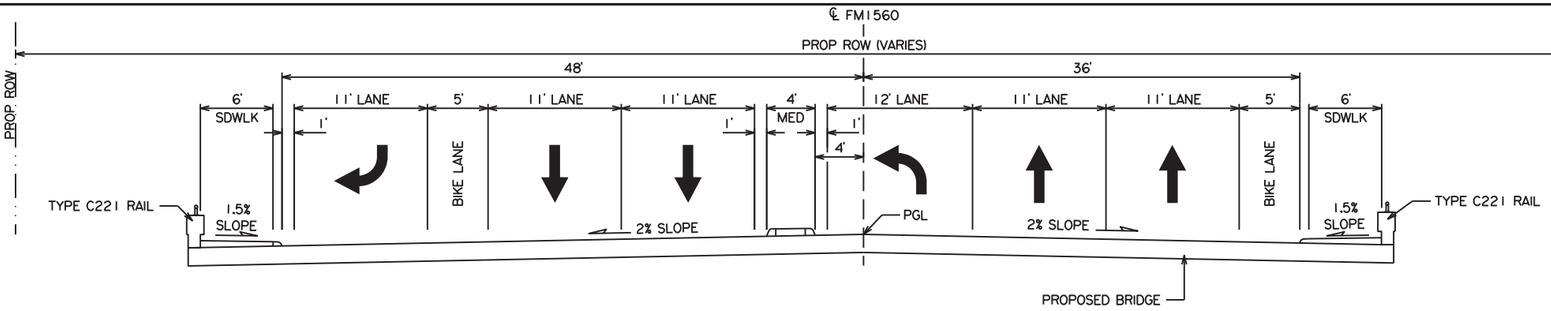
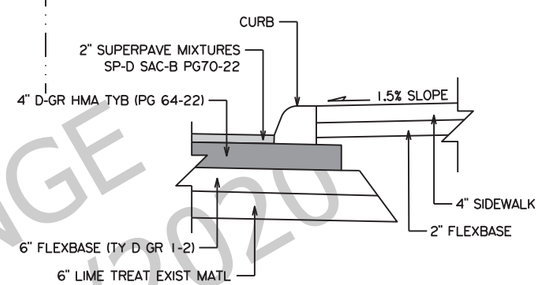


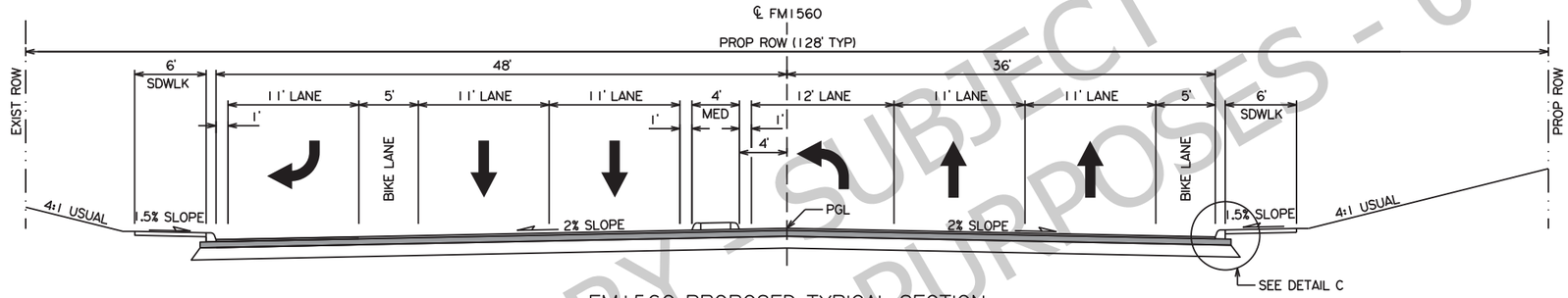
FM1560 PROPOSED TYPICAL SECTION

HELOTES CREEK

STA 377+04 TO STA 378+57.96 (ALIGN "FM1560CL")



DETAIL C



FM1560 PROPOSED TYPICAL SECTION

STA 378+57.96 TO STA 381+75 (ALIGN "FM1560CL")

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ENGINEER: TRAVIS OWENS

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DATE: 2020/06/04

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FM 1560 PROPOSED TYPICAL SECTIONS

SHEET 4 OF 4

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

10

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REMOVAL SUMMARY		0100-6002	0104-6009	0104-6011	0104-6015	0104-6017	0104-6021	0104-6037	0104-6054	0105-6048	0496-6010	0496-6032	0496-6043	0496-6050	0496-6069	0496-6093
SHEET NO.	FM1560 STATION TO STATION	PREPARING ROW	REMOVING CONC (RIPRAP)	REMOVING CONC (MEDIANS)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (CURB)	REMOVE CONC (RAIL)	REMOVING CONCRETE(IMOW STRIP)	REMOVING STAB BASE & ASPH PAV (4"-11")	REMOV STR (BRIDGE 100 - 499 FT LENGTH)	REMOV STR (ROCKWALL)	REMOV STR (SMALL FENCE)	REMOV STR (DRIVEWAY CULVERT)	REMOV STR (SLOTTED DRAIN INLET)	REMOV STR (MASONARY)
CSJ: 2230-01-021		STA	SY	SY	SY	SY	LF	LF	LF	SY	EA	EA	LF	EA	LF	LF
Plan Sheet 1	TO STA 218+00	7	49			47				2586			636	1		
Plan Sheet 2	STA 218+00 TO 230+00	12	144		47	393	148			6286			684	6	160	
Plan Sheet 3	STA 230+00 TO 242+00	12	11			208				4670			1209	1		
Plan Sheet 4	STA 242+00 TO 254+00	12								4748			1703	2		
Plan Sheet 5	STA 254+00 TO 266+00	14	279			46				5219			889	2		
Plan Sheet 6	STA 266+00 TO 278+00	12	88							6629		22	215	3		
Plan Sheet 7	STA 278+00 TO 290+00	12				262				4754						
Plan Sheet 8	STA 290+00 TO 302+00	12	641							5236				1		
Plan Sheet 9	STA 302+00 TO 314+00	12				184				5188			72			489
Plan Sheet 10	STA 314+00 TO 326+00	12				111				5588			821			20
Plan Sheet 11	STA 326+00 TO 338+00	12	14						283	5243			1205			
Plan Sheet 12	STA 338+00 TO 350+00	12	1137			144	138	78	328	4701			1195	7		
Plan Sheet 13	STA 350+00 TO 362+00	12	34							5107			1197			
Plan Sheet 14	STA 362+00 TO 374+00	12								5795			1108			
Plan Sheet 15	STA 374+00 TO 386+00	7	1590	64	178		983		280	4590	1		701			
Plan Sheet 16	FROM STA 386+00															
PROJECT TOTAL		172	3987	64	225	1395	1269	78	891	76340	1	22	11635	23	160	509

REMOVAL SUMMARY		0496-6107	0542-6001	0542-6002	0542-6003	0542-6004	0544-6003	0550-6003	0550-6006	0658-6060	0752-6005	0752-6015	5070-6001	7171-6031	7211-6041
SHEET NO.	FM1560 STATION TO STATION	REMOVE STR (SOUNDWALL)	REMOVE METAL BEAM GUARD FENCE	REMOVE TERMINAL ANCHOR SECTION	REMOVE DOWNSTREAM ANCHOR TERMINAL	RM MTL BM GD FENCE TRANS (THRIE-BEAM)	GUARDRAIL END TREATMENT (REMOVE)	CHAIN LINK FENCE (REMOVE)	GATE (REMOVE)	REMOVE DELIN & OBJECT MARKER ASSMS	TREE REMOVAL (4" - 12" DIA)	TREE AND BRUSH REMOVAL	STEEL FENCE (REMOVE)	GRAVEL DRIVE (REMOVE & REPLACE)	REMOVE ASPHALT DRIVEWAY PAVEMENT
CSJ: 2230-01-021		LF	LF	EA	EA	EA	EA	LF	EA	EA	EA	AC	LF	SY	SY
Plan Sheet 1	TO STA 218+00							244						673	75
Plan Sheet 2	STA 218+00 TO 230+00							338	1	11				57	1170
Plan Sheet 3	STA 230+00 TO 242+00									1			133	352	
Plan Sheet 4	STA 242+00 TO 254+00										14		47	177	540
Plan Sheet 5	STA 254+00 TO 266+00									1			372	496	332
Plan Sheet 6	STA 266+00 TO 278+00							362	3	1			205	77	723
Plan Sheet 7	STA 278+00 TO 290+00								1	1				43	562
Plan Sheet 8	STA 290+00 TO 302+00	269						318		4					298
Plan Sheet 9	STA 302+00 TO 314+00	27						360	3				846	328	505
Plan Sheet 10	STA 314+00 TO 326+00							307	1				447	275	245
Plan Sheet 11	STA 326+00 TO 338+00		225	1			1			5					61
Plan Sheet 12	STA 338+00 TO 350+00		400	5		4	1		1	13				182	522
Plan Sheet 13	STA 350+00 TO 362+00														
Plan Sheet 14	STA 362+00 TO 374+00								2					580	35
Plan Sheet 15	STA 374+00 TO 386+00		475	3	1		2			14		17		128	20
Plan Sheet 16	FROM STA 386+00														
PROJECT TOTAL		296	1100	8	2	4	4	1929	12	51	14	17	2050	3368	5088

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FM 1560 REMOVAL SUMMARY

SHEET 1 OF 1

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	11
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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GRADING SUMMARY		0247-6073	0260-6002	0260-6027	0310-6027	0341-6008	0344-6104	0529-6001	0530-6004	0531-6001	0531-6004	0531-6005	0531-6008	0531-6013	0536-6002	0540-6001	0540-6006	0540-6014	0540-6015	0544-6001	5001-6002
SHEET NO.	STATION TO STATION IH10	FL BS (CMP IN PLCKITY D GR 1-2) (6)	LIME (HYDRATED LIME (SLURRY))	LIME TRT (EXST MATL) (8")	PRIME COAT(MC-30 OR AE-P)	D-GR HMA TY-B PG64-22	SUPERPAVE MIXTURES SP-D SAC-B PG64-22	CONC CURB (TY I)	DRIVEWAYS (CONC)	CONC SIDEWALKS (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	CURB RAMPS (TY 10)	CONC MEDIAN	MTL W-BEAM GD FEN (TIM POST)	MTL BEAM GD FEN TRANS (THRIE-BEAM)	SHORT RADIUS	DRIVEWAY TERMINAL ANCHOR SECTION	GUARDRAIL END TREATMENT (INSTALL)	GEOGRID BASE REINFORCEMENT (TY II)
CSJ: 2230-01-021		SY	SY	SY	SY	SY	SY	LF	SY	SY	EA	EA	EA	EA	SY	LF	EA	LF	EA	EA	SY
Plan Sheet 1	BEGIN TO STA 218+00	5913	5913	5913	5913	5835	45596	1171	116	751				2							6072
Plan Sheet 2	STA 218+00 TO STA 230+00	11802	11802	11802	11802	11653	11205	2405	704	1380	2			2							12101
Plan Sheet 3	STA 230+00 TO STA 242+00	10134	10134	10134	10134	10000	9600	2281	183	1542											10400
Plan Sheet 4	STA 242+00 TO STA 254+00	10134	10134	10134	10134	10000	9600	2135	504	1465											10400
Plan Sheet 5	STA 254+00 TO STA 266+00	10628	10628	10628	10628	10482	9600	1955	686	1344				2							10920
Plan Sheet 6	STA 266+00 TO STA 278+00	12446	12446	12446	12446	12288	11840	2268	688	1220		2	2	2							12735
Plan Sheet 7	STA 278+00 TO STA 290+00	10134	10134	10134	10134	10000	9600	2097	490	1449											10400
Plan Sheet 8	STA 290+00 TO STA 302+00	10469	10469	10469	10469	10334	9929	2267	215	1543	2										10737
Plan Sheet 9	STA 302+00 TO STA 314+00	10476	10476	10476	10476	10338	9922	2136	644	1338				2							10753
Plan Sheet 10	STA 314+00 TO STA 326+00	10544	10544	10544	10544	10406	9992	2192	378	1384				2							10818
Plan Sheet 11	STA 326+00 TO STA 338+00	10416	10416	10416	10416	10277	9860	2298	69	1500				2							10694
Plan Sheet 12	STA 338+00 TO STA 350+00	10356	10356	10356	10356	10221	9817	1992	685	1355				2		95	4	12	1	3	10625
Plan Sheet 13	STA 350+00 TO STA 362+00	10346	10346	10346	10346	10207	9807	1467		1514				2							10615
Plan Sheet 14	STA 362+00 TO STA 374+00	11721	11721	11721	11721	11498	10805	3269		1533		1	1	2	495						12068
Plan Sheet 15	STA 374+00 TO END	7696	7696	7696	7696	7513	6961	1529		995	3				727	88	5	52	1	3	7970
PROJECT TOTAL		153215	153215	153215	153215	151052	184134	31462	5362	20313	7	3	3	20	1222	183	108	64	2	6	157308
	TON		2634			33231	21175														
	GAL				30643																

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FM 1560
GRADING SUMMARY

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	12
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

RETAINING WALL SUMMARY		0423-6001	0432-6046
SHEET NO.	STATION TO STATION FM1560	RETAINING WALL (MSE)	RIPRAP (MOW STRIP)(5 IN)
CSJ: 2230-01-021		SF	CY
Plan Sheet 1		13337	12
Plan Sheet 2		14550	13
Plan Sheet 3		2118	3
Plan Sheet 4		7725	11
PROJECT TOTAL		37730	39

PRELIMINARY
NOT FOR BIDDING
NO CHANGE
ES - 06/10/2020

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FM 1560
RETAINING WALL SUMMARY

SHEET 1 OF 1

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	13
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

SUMMARY OF DRAINAGE CROSSING QUANTITIES

ITEM	400	400	400	402	432	459	459	462	462	462	462	462
BID CODE	6002	6003	6005	6001	6002	6007	6009	6005	6007	6010	6040	6176
STRUCTURE ID	STRUCT EXCAV (BOX) ** CY	STRUCT EXCAV (PIPE) ** CY	CEM STABIL BKFL CY	TRENCH EXCAVATION PROTECTION LF	RIPRAP (CONC) (5 IN) CY	GABION MATTRESSES (GALV) (12 IN) SY	GABIONS (3' X 3') (GALV) CY	CONC BOX CULV (4FT X 4FT) LF	CONC BOX CULV (5FT X 3FT) LF	CONC BOX CULV (6FT X 3FT) LF	CONC BOX CULV (12FT X 4FT) LF	CONC BOX CULV (12FT X 5FT) LF
CSJ: 2230-01-021												
BRIDGE CLASS CULVERT A	6,271		1,313	148	256	3,705	189					1,628
CROSS CULVERT B	228		32	101	71	127.0	30		96			
CROSS CULVERT C		155	104		21							
BRIDGE CLASS CULVERT D	3,071		1,256	92		758.0	78				1016	
CROSS CULVERT E	261		79		25			312				
CROSS CULVERT F	124		30		15	112.0	36		100			
BRIDGE CLASS CULVERT H2	559		138	93	30					279		
BRIDGE CLASS CULVERT H1	871		141	93	41					372		
TOTAL	**11,385**	**155**	**3,093**	**527**	**459**	**4,702**	**333**	**312**	**196**	**651**	**1,016**	**1,628**

** FOR CONTRACTOR'S INFORMATION ONLY

ITEM	464	465	465	466	466	466	466	466	466	467	496	496
BID CODE	6007	6014	6015	6151	6152	6179	6180	6181	6182	6417	6004	6007
STRUCTURE ID	RC PIPE (CL III) (30 IN) LF	INLET (COMPL) (PCO) (3FT) (LEFT) EA	INLET (COMPL) (PCO) (3FT) (RIGHT) EA	WINGWALL (FW-0) (HW=4 FT) EA	WINGWALL (FW-0) (HW=5 FT) EA	WINGWALL (PW-1) (HW=4FT) EA	WINGWALL (PW-1) (HW=5FT) EA	WINGWALL (PW-1) (HW=6FT) EA	WINGWALL (PW-1) (HW=7FT) EA	SET (TY II) (30 IN) (RCP) (3:1) (C) EA	REMOV STR (SET) EA	REMOV STR (PIPE) LF
CSJ: 2230-01-021												
BRIDGE CLASS CULVERT A									2		4	161
CROSS CULVERT B				2							2	48
CROSS CULVERT C	206									4	4	100
BRIDGE CLASS CULVERT D								2			6	210
CROSS CULVERT E							2				6	138
CROSS CULVERT F						2						
BRIDGE CLASS CULVERT H2		1	1		1				1		2	66
BRIDGE CLASS CULVERT H1		1	1		1				1			
TOTAL	**206**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**4**	**4**	**24**	**723**

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FIRM REGISTRATION NO. F-230

tnp

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FM 1560
QUANTITY SUMMARY
DRAINAGE CROSSINGS

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	14

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

SUMMARY OF STORM DRAIN QUANTITIES

STORM SEWER DRAINAGE PLAN AND PROFILE SUMMARY		400-6002	400-6003	400-6005	402-6001	432-6002	462-6001	462-6002	462-6004	462-6006	462-6007	462-6010	464-6005	464-6007	464-6008	464-6031	465-6014	465-6015
SHEET NO.	STATION TO STATION FM 1560	STRUCT EXCAV (BOX) **	STRUCT EXCAV (PIPE) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	CONC BOX CULV (3 FT X 2 FT)	CONC BOX CULV (3 FT X 3 FT)	CONC BOX CULV (4 FT X 3 FT)	CONC BOX CULV (5 FT X 2 FT)	CONC BOX CULV (5 FT X 3 FT)	CONC BOX CULV (6 FT X 3 FT)	RC PIPE (CL III) (24 IN)	RC PIPE (CL III) (30IN)	RC PIPE (CL III) (36 IN)	RC PIPE (ARCH) (CL III) (DES 2)	INLET (COMPL) (PCO) (3FT) (LEFT)	INLET (COMPL) (PCO) (3FT) (RIGHT)
CSJ: 2230-01-021		CY	CY	CY	LF	CY	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA
PLAN & PROFILE SHEET 1	STA. 209+00.00 - 221+00.00	152	182	56	138	0	0	0	0	244	0	0	133	0	0	143	3	0
PLAN & PROFILE SHEET 2	STA. 221+00.00 - 233+00.00	1114	0	38	208	0	0	0	0	342	505	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 3	STA. 233+00.00 - 245+00.00	0	1368	97	717	0	0	0	0	0	0	0	407	353	349	0	0	0
PLAN & PROFILE SHEET 4	STA. 245+00.00 - 257+00.00	170	1863	65	808	0	0	89	0	0	0	0	68	370	335	0	1	0
PLAN & PROFILE SHEET 5	STA. 257+00.00 - 269+00.00	0	770	206	375	0	0	0	0	0	0	0	347	416	0	0	1	0
PLAN & PROFILE SHEET 6	STA. 269+00.00 - 281+00.00	0	6104	133	1017	0	0	0	0	0	0	0	706	288	0	0	1	0
PLAN & PROFILE SHEET 7	STA. 281+00.00 - 293+00.00	3	449	0	0	0	0	3	0	0	0	0	568	109	0	0	0	2
PLAN & PROFILE SHEET 8	STA. 293+00.00 - 305+00.00	1632	3006	283	1065	0	0	393	0	0	0	0	0	48	735	0	0	0
PLAN & PROFILE SHEET 9	STA. 305+00.00 - 317+00.00	0	1827	114	713	0	0	0	0	0	0	0	707	188	0	0	1	0
PLAN & PROFILE SHEET 10	STA. 317+00.00 - 329+00.00	0	1254	0	293	0	0	0	0	0	0	0	0	558	0	0	0	0
PLAN & PROFILE SHEET 11	STA. 329+00.00 - 341+00.00	659	2879	37	754	0	74	0	0	0	0	162	0	99	974	0	0	0
PLAN & PROFILE SHEET 12	STA. 341+00.00 - 352+00.00	6043	339	132	1752	45	585	0	934	0	0	1178	303	0	0	0	1	0
PLAN & PROFILE SHEET 13	STA. 352+00.00 - 363+00.00	0	349	0	343	630	0	0	0	0	0	0	333	0	0	0	1	0
PLAN & PROFILE SHEET 14	STA. 363+00.00 - 375+00.00	0	1402	0	586	0	0	0	0	0	0	0	293	275	0	0	0	1
PLAN & PROFILE SHEET 15	STA. 375+00.00 - 387+00.00	0	1038	0	221	0	0	0	0	0	0	0	145	71	0	0	0	0
STORM SEWER PLAN & PROFILE PROJECT TOTAL		**9773**	**22830**	**1161**	**8990**	**675**	**659**	**485**	**934**	**586**	**505**	**1340**	**4010**	**2775**	**2393**	**143**	**9**	**3**

** FOR CONTRACTOR'S INFORMATION ONLY

SUMMARY OF STORM DRAIN QUANTITIES

STORM SEWER DRAINAGE PLAN AND PROFILE SUMMARY		465-6016	465-6018	465-6019	465-6020	465-6022	465-6026	465-6028	465-6062	465-6070	465-6071	465-6075	465-6076	465-6225
SHEET NO.	STATION TO STATION FM 1560	INLET (COMPL) (PCO) (3FT) (BOTH)	INLET (COMPL) (PCO) (4FT) (LEFT)	INLET (COMPL) (PCO) (4FT) (RIGHT)	INLET (COMPL) (PCO) (4FT) (BOTH)	INLET (COMPL) (PCO) (5FT) (LEFT)	INLET (COMPL) (PCO) (6FT) (LEFT)	INLET (COMPL) (PCO) (6FT) (BOTH)	INLET (COMPL) (PSL) (RH) (3FTX3FT)	INLET (COMPL) (PSL) (RC) (3FTX3FT)	INLET (COMPL) (PSL) (RC) (4FTX4FT)	INLET (COMPL) (PSL) (RC) (5FTX6FT)	INLET (COMPL) (PSL) (RC) (6FTX6FT)	JCT BOX (COMPL) (SPL)
CSJ: 2230-01-021		EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
PLAN & PROFILE SHEET 1	STA. 209+00.00 - 221+00.00	0	0	0	0	0	0	0	0	0	0	1	0	0
PLAN & PROFILE SHEET 2	STA. 221+00.00 - 233+00.00	0	0	0	0	1	1	1	0	0	0	3	1	0
PLAN & PROFILE SHEET 3	STA. 233+00.00 - 245+00.00	0	3	0	0	0	0	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 4	STA. 245+00.00 - 257+00.00	0	2	0	0	0	0	0	0	0	0	1	0	0
PLAN & PROFILE SHEET 5	STA. 257+00.00 - 269+00.00	0	1	0	2	0	0	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 6	STA. 269+00.00 - 281+00.00	2	0	0	1	0	0	0	1	0	0	0	0	0
PLAN & PROFILE SHEET 7	STA. 281+00.00 - 293+00.00	0	0	0	1	0	0	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 8	STA. 293+00.00 - 305+00.00	0	2	0	3	0	0	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 9	STA. 305+00.00 - 317+00.00	1	0	0	0	0	0	0	0	1	2	1	0	0
PLAN & PROFILE SHEET 10	STA. 317+00.00 - 329+00.00	0	0	2	0	0	0	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 11	STA. 329+00.00 - 341+00.00	0	0	2	1	0	0	0	0	0	1	0	0	0
PLAN & PROFILE SHEET 12	STA. 341+00.00 - 352+00.00	0	0	1	1	0	0	0	0	0	0	0	0	1
PLAN & PROFILE SHEET 13	STA. 352+00.00 - 363+00.00	0	0	0	0	0	0	0	0	1	0	0	0	0
PLAN & PROFILE SHEET 14	STA. 363+00.00 - 375+00.00	0	0	1	1	0	0	0	0	1	0	0	0	0
PLAN & PROFILE SHEET 15	STA. 375+00.00 - 387+00.00	1	0	0	0	0	0	0	0	0	0	0	0	0
STORM SEWER PLAN & PROFILE PROJECT TOTAL		**4**	**8**	**6**	**10**	**1**	**1**	**1**	**1**	**3**	**3**	**6**	**1**	**1**

SUBJECT TO CHANGE
PRELIMINARY - 06/10/2020
NOT FOR BIDDING PURPOSES

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
QUANTITY SUMMARY
STORM DRAIN

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	15

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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SUMMARY OF STORM DRAIN QUANTITIES

STORM SEWER LATERAL SUMMARY	400-6002	400-6003	400-6005	402-6001	462-6001	462-6007	464-6005	464-6007	464-6031	465-6014	465-6015	465-6016	465-6018	465-6020	465-6070	465-6126	466-6150	466-6165	467-6388
SHEET NO.	STRUCT EXCAV (BOX) **	STRUCT EXCAV (PIPE) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	CONC BOX CULV (3 FT X 2 FT)	CONC BOX CULV (5 FT X 3 FT)	RC PIPE (CL III) (24 IN)	RC PIPE (CL III) (30IN)	RC PIPE (ARCH) (CL III) (DES 3)	INLET (COMPL) (PCO) (3FT) (LEFT)	INLET (COMPL) (PCO) (3FT) (RIGHT)	INLET (COMPL) (PCO) (3FT) (BOTH)	INLET (COMPL) (PCO) (4FT) (LEFT)	INLET (COMPL) (PCO) (4FT) (BOTH)	INLET (COMPL) (PSL) (RC) (3FTX3FT)	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX3FT)	WINGWALL (FW-0) (HW = 3 FT)	WINGWALL (FW-S) (HW = 4 FT)	SET (TY II) (24 IN) (RCP) (3:1) (C)
CSJ: 2230-01-021	CY	CY	CY	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
SYSTEM AA LATERAL SHEET 1	0	89	33	78	0	0	72	0	0	0	1	0	0	0	0	0	0	0	0
SYSTEM A LATERAL SHEET 1	7	62	12	0	7	0	5	0	72	0	1	0	0	0	0	0	1	0	1
SYSTEM A LATERAL SHEET 2	338	120	155	191	0	145	156	0	0	0	1	1	0	0	0	0	0	1	0
SYSTEM A LATERAL SHEET 3	0	562	70	370	0	0	376	0	0	0	1	3	0	0	0	0	0	0	0
SYSTEM A LATERAL SHEET 4	0	830	33	427	0	0	417	0	0	0	0	4	0	0	0	0	0	0	0
SYSTEM A LATERAL SHEET 5	0	340	31	198	0	0	197	0	0	0	0	2	0	0	0	0	0	0	0
SYSTEM B LATERAL SHEET 1	0	799	34	360	0	0	260	72	0	0	1	4	0	0	0	0	0	0	0
SYSTEM B LATERAL SHEET 2	0	570	37	378	0	0	213	137	0	0	0	3	0	2	0	0	0	0	0
SYSTEM B LATERAL SHEET 3	0	325	57	230	0	0	332	0	0	0	1	3	0	0	0	0	0	0	0
SYSTEM D LATERAL SHEET 1	0	388	97	159	0	0	231	0	0	0	2	1	0	0	0	0	0	0	0
SYSTEM D LATERAL SHEET 2	0	402	87	224	0	0	210	0	0	1	1	1	0	0	1	0	0	0	0
SYSTEM E LATERAL SHEET 1	0	209	87	61	0	0	216	0	0	2	0	1	0	0	0	0	0	0	0
SYSTEM E LATERAL SHEET 2	0	308	92	158	0	0	216	0	0	0	3	0	0	0	0	0	0	0	0
SYSTEM E LATERAL SHEET 3	0	414	66	244	0	0	301	0	0	0	2	1	0	0	0	1	0	0	0
SYSTEM F LATERAL SHEET 1	0	1,023	56	432	0	0	441	0	0	0	0	4	0	0	0	0	0	0	0
SYSTEM F LATERAL SHEET 2	0	460	33	321	0	0	304	0	0	0	0	3	0	0	0	0	0	0	0
SYSTEM G LATERAL SHEET 1	0	768	36	462	0	0	367	72	0	2	0	1	1	0	0	0	0	0	0
SYSTEM G LATERAL SHEET 2	0	339	155	192	0	0	234	0	0	1	0	2	0	0	0	1	0	0	0
SYSTEM G LATERAL SHEET 3	0	173	88	131	0	0	216	0	0	3	0	0	0	0	0	0	0	0	0
SYSTEM G LATERAL SHEET 4	0	148	67	126	0	0	144	0	0	0	1	1	0	0	0	0	0	0	0
SYSTEM H LATERAL SHEET 1	0	127	34	78	0	0	72	0	0	0	1	0	0	0	0	0	0	0	0
SYSTEM I LATERAL SHEET 1	0	678	98	319	0	0	295	0	0	3	0	1	0	0	0	0	0	0	0
SYSTEM I LATERAL SHEET 2	0	390	73	266	0	0	255	0	0	1	0	2	0	0	0	0	0	0	0
STORM SEWER LATERAL PROJECT TOTAL	**345**	**9,524**	**1,531**	**5,405**	**7**	**145**	**5,530**	**281**	**72**	**13**	**16**	**38**	**1**	**2**	**1**	**2**	**1**	**1**	**1**

** FOR CONTRACTOR'S INFORMATION ONLY

SUMMARY OF STORM DRAIN QUANTITIES

STORM SEWER DRAINAGE PLAN AND PROFILE SUMMARY		465-6233	466-6150	466-6165	466-6207	467-6389	467-6418	467-6447
SHEET NO.	STATION TO STATION FM 1560	INLET (COMP) (TY SIDEWALK BRIDGE)	WINGWALL (FW-0) (HW = 3 FT)	WINGWALL (FW-S) (HW = 4 FT)	WINGWALL (SW-0) (HW = 4 FT)	SET (TY II) (24 IN) (RCP) (3:1) (P)	SET (TY II) (30 IN) (RCP) (3:1) (P)	SET (TY II) (36 IN) (RCP) (2:1) (P)
CSJ: 2230-01-021		EA	EA	EA	EA	EA	EA	EA
PLAN & PROFILE SHEET 1	STA. 209+00.00 - 221+00.00	1	0	0	0	0	0	0
PLAN & PROFILE SHEET 2	STA. 221+00.00 - 233+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 3	STA. 233+00.00 - 245+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 4	STA. 245+00.00 - 257+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 5	STA. 257+00.00 - 269+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 6	STA. 269+00.00 - 281+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 7	STA. 281+00.00 - 293+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 8	STA. 293+00.00 - 305+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 9	STA. 305+00.00 - 317+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 10	STA. 317+00.00 - 329+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 11	STA. 329+00.00 - 341+00.00	0	1	1	0	0	0	1
PLAN & PROFILE SHEET 12	STA. 341+00.00 - 352+00.00	0	0	0	1	0	0	0
PLAN & PROFILE SHEET 13	STA. 352+00.00 - 363+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 14	STA. 363+00.00 - 375+00.00	0	0	0	0	0	0	0
PLAN & PROFILE SHEET 15	STA. 375+00.00 - 387+00.00	0	0	0	0	1	1	0
STORM SEWER PLAN & PROFILE PROJECT TOTAL		**1**	**1**	**1**	**1**	**1**	**1**	**1**

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
QUANTITY SUMMARY
STORM DRAIN

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	16

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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ITEM	416-6032	416-6034	618-6046	618-6047	618-6053	618-6054	620-6009	620-6010	621-6005	624-6010	628-6164	628-6167	680-6003	**	**	**	**
TRAFFIC SIGNAL SUMMARY	DRILL SHAFT (TRF SIG POLE) (36 IN)	DRILL SHAFT (TRF SIG POLE) (48 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	CONDT (PVC) (SCH 80) (3")	CONDT (PVC) (SCH 80) (3") (BORE)	ELEC CONDR (NO.6) BARE	ELEC CONDR (NO.6) INSULATED	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TY D (162922) W/APRON	ELC SRV TY D 120/240 070 (NS) AL (E) PS (U)	ELC SRV TY D 120/240 070 (NS) AL (E) TP (O)	INSTALL HWY TRF SIG (SYSTEM)	NEMA TS 2 TY2 SIGNAL CONTROLLER	NEMA TS 2 TY2 SIGNAL CABINET	TRF SIG CONTROLLER CONCRETE BASEDPAD FOUNDATION	ROD, 5/8" X 10' COPPER GROUND (CONTROLLER ONLY)
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA
FM 1560 AT BRAUN ROAD	39	-	130	270	130	650	1175	100	380	5	1	-	1	1	1	1	1
FM 1560 AT ANTONIO DRIVE	13	44	165	410	140	600	1305	90	555	5	-	1	1	1	1	1	1
FM 1560 AT IRON HORSE WAY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	52	44	295	680	270	1250	2480	190	935	10	1	1	2	2	2	2	2

ITEM	**	**	**	**	**	**	**	**	**	**	**	**	**	680-6004	682-6001	682-6002	682-6003
TRAFFIC SIGNAL SUMMARY	POWER SUPPLY	DETECTOR CARD RACK/UNIT	CONTROL, PHOTOELECTRIC	LED LUMINAIRE (250 W EQ) WITH ARM	MAST ARM MOUNTED REG SIGN PANEL	CELLULAR MODEM (CISCO MODEL 809)	ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	IP CAMERA	IP CAMERA MOUNTING BRACKET	POWER STRIP	SWITCH POWER SUPPLY	POE POWER SUPPLY (FOR CAMERA ONLY)	ETHERNET CABLE (COLOR CODED)	REMOVE TRAFFIC SIGNAL	VEH SIG SEC (12")LED(GRN)	VEH SIG SEC (12")LED (GRN ARW)	VEH SIG SEC (12")LED(YEL)
	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
FM 1560 AT BRAUN ROAD	1	1	1	2	4	1	1	1	1	1	1	1	1	1	6	1	6
FM 1560 AT ANTONIO DRIVE	1	1	1	2	5	1	1	1	1	1	1	1	1	-	6	2	6
FM 1560 AT IRON HORSE WAY	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
TOTAL	2	2	2	4	9	2	2	2	2	2	2	2	2	2	12	3	12

ITEM	682-6004	682-6005	682-6006	682-6018	682-6023	682-6024	684-6009	684-6012	684-6080	686-6037	686-6041	686-6043	686-6047	686-6059	686-6067	687-6001	***
TRAFFIC SIGNAL SUMMARY	VEH SIG SEC (12")LED (YEL ARW)	VEH SIG SEC (12")LED(RED)	VEH SIG SEC (12")LED (RED ARW)	PED SIG SEC (LED) (COUNTDOWN)	BACK PLATE (12")(3 SEC)	BACK PLATE (12")(4 SEC)	TRF SIG CBL (TY A) (12 AWG) (4 CONDR)	TRF SIG CBL (TY A) (12 AWG) (7 CONDR)	TRF SIG CBL (TY C) (14 AWG) (2 CONDR)	INS TRF SIG PL AM(S)1 ARM(36')	INS TRF SIG PL AM(S)1 ARM(40')	INS TRF SIG PL AM(S)1 ARM(40')LUM	INS TRF SIG PL AM(S)1 ARM(44')LUM	INS TRF SIG PL AM(S)1 ARM(55')LUM	INS TRF SIG PL AM(S)1 ARM(65')LUM	PED POLE ASSEMBLY	DRILL SHAFT (24IN FOUNDATION)
	EA	EA	EA	EA	EA	EA	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF
FM 1560 AT BRAUN ROAD	2	6	1	6	6	1	850	1040	820	-	1	1	1	-	-	4	24
FM 1560 AT ANTONIO DRIVE	4	6	2	4	6	2	490	1370	460	1	-	-	-	1	1	2	12
FM 1560 AT IRON HORSE WAY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	6	12	3	10	12	3	1340	2410	1280	1	1	1	1	1	1	6	36

ITEM	688-6001	688-6003	6292-6001	****	6292-6002	*****
TRAFFIC SIGNAL SUMMARY	PED DETECT PUSH BUTTON (APS)	PED DETECTOR CONTROLLER UNIT	RVDS (PRESENCE DETECTION ONLY)	6/C-RADAR SMARTSENSOR CABLE	RVDS (ADVANCE DETECTION ONLY)	6/C-RADAR SMARTSENSOR CABLE
	EA	EA	EA	LF	EA	LF
FM 1560 AT BRAUN ROAD	6	1	3	390	2	410
FM 1560 AT ANTONIO DRIVE	4	1	3	530	2	540
FM 1560 AT IRON HORSE WAY	-	-	-	-	-	-
TOTAL	10	2	6	920	4	950

** SUBSIDIARY TO ITEM 680-6003
*** SUBSIDIARY TO ITEM 687-6001
**** SUBSIDIARY TO ITEM 6292-6001
***** SUBSIDIARY TO ITEM 6292-6002

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

60% SUBMITTAL

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

RESPONSIBLE ENGINEER:
TEDSI INFRASTRUCTURE GROUP, INC.
M. R. NEELAPU, P.E.
TEXAS REGISTRATION NO. 107595

6/4/2020

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TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

FM 1560

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	17
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2018\2018-2060-00 - TxDOT Traffic Engineering (San Antonio)\Work Authorizations\2018-2060-02 - WA2 Emergency Work Authorization

SIGN SUMMARY		0644 6001	0644 6004	0644 6027
SHEET NO.	STATION TO STATION	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	IN SM RD SN SUP&AM TYS80(1)SA(P)
CSJ: 2230-01-021		EA	EA	EA
FM 1560 Phase 2		Limits: Galm/Shanfield to SH 16		
1	BEGIN TO STA. 215+00	3		
2	STA. 215+00 TO STA. 230+00	11		1
3	STA. 230+00 TO STA. 245+00	4		
4	STA. 245+00 TO STA. 260+00	1		
5	STA. 260+00 TO STA. 275+00	5		2
6	STA. 275+00 TO STA. 290+00	7	1	
7	STA. 290+00 TO STA. 305+00			2
8	STA. 305+00 TO STA. 320+00		1	1
9	STA. 320+00 TO STA. 335+00			1
10	STA. 335+00 TO STA. 350+00	2		1
11	STA. 350+00 TO STA. 365+00	6		1
12	STA. 365+00 TO STA. 380+00	9		1
13	STA. 380+00 TO END	6	1	
PROJECT TOTAL		54	3	10

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

60% SUBMITTAL

DOCUMENT IS FOR INTERIM REVIEW AND NOT INTENDED FOR CONSTRUCTION BIDDING, OR PERMIT PURPOSES.

PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

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FM 1560

SIGNING LAYOUT

SMALL SIGN SUMMARY

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	18
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:03:59 PM

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		
1	1-1	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X							
							10BWG	1	SA	P		
		R3-9b		24X36	X							
1	1-2	R3-9dP	END CENTER LANE ONLY	24X8	X							
							10BWG	1	SA	P		
		R3-9b		24X36	X							
1	1-3	D3-1B	FM 1560 STOP	54X18	X							
							10BWG	1	SA	P		
		R1-1		36X36	X							
2	2-1	S1-1	AHEAD	36X36	X							
							10BWG	1	SA	P		
		SW16-9P		24X12	X							
2	2-2	S5-2aTP	END SCHOOL ZONE SPEED LIMIT 45	30x15	X							
							10BWG	1	SA	P		
		R2-1		30X36	X							
2	2-3	S5-1	SCHOOL SPEED LIMIT 30 WHEN FLASHING	24X48	X							
							10BWG	1	SA	P		
		S7-1T		24X18	X							
2	2-4	D3-1B	FM 1560	54X18	X							
			Ponce Pass									
		R1-1	STOP	36X36	X							
2	2-5	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES	36X30	X		10BWG	1	SA	P		
2	2-6	R3-5R	ONLY	30X36	X		10BWG	1	SA	P		
2	2-7	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X							
							10BWG	1	SA	P		
		R3-9b		24X36	X							
2	2-8	R3-9dP	END CENTER LANE ONLY	24X8	X							
							10BWG	1	SA	P		
		R3-9b		24X36	X							
2	2-9	R3-7R	RIGHT LANE MUST TURN RIGHT	36X36	X		10BWG	1	SA	P		
2	2-10	D3-1B	FM 1560	54X18	X							
			STOP				10BWG	1	SA	P		
		R1-1		36X36	X							
2	2-11	S5-1	SCHOOL SPEED LIMIT 30 WHEN FLASHING	24X48	X							
							10BWG	1	SA	P		
		S7-1T		24X48	X							
2	2-12	S5-2aTP	END SCHOOL ZONE SPEED LIMIT 45	30X15	X							
							10BWG	1	SA	P		
		R2-1		30X36	X							

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ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

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Texas Department of Transportation

Traffic Operations Division Standard

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SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		2230	01	021	FM 1560
4-16		DIST	COUNTY		SHEET NO.
8-16		SAT.	BEXAR		19

18

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		
3	3-1	S1-1	AHEAD	36X36	X		10BWG	1	SA	P		
		SW16-9P		24X12	X							
3	3-2	W1-4L	40 M.P.H.	36X36	X		10BWG	1	SA	P		
		W13-1P		18X18	X							
3	3-3	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X		10BWG	1	SA	P		
		R3-9b		24X36	X							
3	3-4	R3-9dP	END CENTER LANE ONLY	24X8	X		10BWG	1	SA	P		
		R3-9b		24X36	X							
4	4-1	S3-1T	SCHOOL BUS STOP AHEAD	36X36	X		10BWG	1	SA	P		
		D3-1B	FM 1560	54X18	X							
5	5-1	D3-1B	Doheny Rd	78X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
5	5-2	R2-1	SPEED LIMIT 45	30X36	X		10BWG	1	SA	P		
5	5-3	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES	36X30			10BWG	1	SA	P		
		D3-1B	FM 1560	54X18	X							
5	5-4	D3-1B	Beverly Hills Dr	114X18	X		S80	1	SA	P		
		R1-2	STOP	36X36	X							
5	5-5	R3-5R	ONLY	30X36	X		10BWG	1	SA	P		
5	5-6	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X		10BWG	1	SA	P		
		R3-9b		24X36	X							
5	5-7	R3-9dP	END CENTER LANE ONLY	24X8	X		10BWG	1	SA	P		
		R3-9b		24X36	X							
6	6-1	R3-7R	RIGHT LANE MUST TURN RIGHT	36X36	X		10BWG	1	SA	P		
6	6-2	W1-7		48X24	X		10BWG	1	SA	T		
6	6-3	S3-1T	SCHOOL BUS STOP AHEAD	36X36	X		10BWG	1	SA	P		

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18

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)					BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
							POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION		TY - TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	TY N TY S
6	6-4	R3-17	BIKE LANE	24X18	X		10BWG	1	SA	P		
6	6-5	R2-1	SPEED LIMIT 45	30X36	X		10BWG	1	SA	P		
6	6-6	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X							
		R3-9b		24X36	X		10BWG	1	SA	P		
6	6-7	R3-9dP	END CENTER LANE ONLY	24X8	X							
		R3-9b		24X36	X		10BWG	1	SA	P		
6	6-8	S3-1T	SCHOOL BUS STOP AHEAD	36X36	X		10BWG	1	SA	P		
		D3-1B	FM 1560	54X18	X							
7	7-1	D3-1B	Hunters Way	84X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
		D3-1B	FM 1560	54X18	X							
7	7-2	D3-1B	Paynes Gray	84X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
8	8-1	D14-4T	ADOPT A HIGHWAY NEXT 2 MILES 343RD TRAINING SQUADRON	48X48	X		10BWG	1	SA	T		
		D3-1B	FM 1560	54X18	X							
8	8-2	D3-1B	Wynston Place	114X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
		D3-1B	FM 1560	54X18	X							
9	9-1	D3-1B	Alta Loma	72X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
10	10-1	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	36X36	X		10BWG	1	SA	P		
10	10-2	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	36X36	X		10BWG	1	SA	P		
		D3-1B	FM 1560	54X18	X							
10	10-3	D3-1B	Saltillo Flat	90X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
11	11-1	W1-2R	40 M.P.H.	36X36	X		10BWG	1	SA	P		
		W13-1P		18X18	X							
		D3-1B	FM 1560	54X18	X							
11	11-2	D3-1B	Parragin Rd	90X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							

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PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	TY = TYPE TY N TY S
11	11-3	R2-1	SPEED LIMIT 40	30X36	X		10BWG	1	SA	P		
11	11-4	W3-3		30X30	X		10BWG	1	SA	P		
11	11-5	R3-9dP	END CENTER LANE ONLY	24X8	X							
		R3-9b		24X36	X		10BWG	1	SA	P		
11	11-6	R3-9cP	BEGIN CENTER LANE ONLY	24X8	X							
		R3-9b		24X36	X		10BWG	1	SA	P		
11	11-7	R3-17	BIKE LANE	24X18	X		10BWG	1	SA	P		
12	12-1	R3-17	BIKE LANE	24X18	X		10BWG	1	SA	P		
12	12-1	W3-3		30X30	X		10BWG	1	SA	P		
12	12-3	R2-1	SPEED LIMIT 40	30X36	X		10BWG	1	SA	P		
12	12-4	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	36X36	X		10BWG	1	SA	P		
12	12-5	R2-1	SPEED LIMIT 40	30X36	X		10BWG	1	SA	P		
		D3-1B	FM 1560	54X18	X							
12	12-6	D3-1B	Iron Horse Way	84X18	X		S80	1	SA	P		
		R1-1	STOP	36X36	X							
12	12-7	R3-7R	RIGHT LANE MUST TURN RIGHT	36X36	X		10BWG	1	SA	P		
12	12-8	R3-5R	ONLY	30X36	X		10BWG	1	SA	P		
12	12-9	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES	36X30			10BWG	1	SA	P		
12	12-10	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	36X36	X		10BWG	1	SA	P		

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4-16 8-16	DIST	COUNTY		SHEET NO.
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PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
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13	13-1	R3-17	BIKE LANE	24X18	X		10BWG	1	SA	P		
13	13-2	R1-2	YIELD	36X36X36	X		10BWG	1	SA	T		
13	13-3	R3-7R	RIGHT LANE MUST TURN RIGHT	36X36	X		10BWG	1	SA	P		
13	13-4	R3-2		36X36	X		10BWG	1	SA	P		
13	13-5	R3-17	BIKE LANE	24X18	X							
		R3-17aP	AHEAD	24X8	X		10BWG	1	SA	P		
13	13-6	R3-17	BIKE LANE	24X18	X							
		R3-17bP	ENDS	24X8	X		10BWG	1	SA	P		
13	13-7	R3-2		36X36	X		10BWG	1	SA	P		

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REVISIONS	2230	01	021	FM 1560
4-16	DIST	COUNTY		SHEET NO.
8-16	SAT.	BEXAR		23

18

PAVEMENT MARKING SUMMARY		0666-6006	0666-6033	0666-6036	0666-6048	0666-6054	0666-6078	0666-6102	0666-6105	0666-6111	0666-6147	0666-6156	0666-6224	0666-6226
SHEET NO.	FM1560 STATION TO STATION	REFL PAV MRK TY I (W4(1)DOT)(100MIL)	REFL PAV MRK TY I (W8(1)LNDP)(100MIL)	REFL PAV MRK TY I (W8(1)SLD)(100MIL)	REFL PAV MRK TY I (W12(4)SLD)(100MIL)	REFL PAV MRK TY I (WARROW)(100MIL)	REFL PAV MRK TY I (WWORD)(100MIL)	REF PAV MRK TY I (W136TYLDTRI)(100MIL)	REFL PAV MRK TY I (WBIKEARW)(100MIL)	REFL PAV MRK TY I (WBIKESYMLX)(100MIL)	REFL PAV MRK TY I (Y12(4)SLD)(100MIL)	REFL PAV MRK TY I (YIMEDNOSE)(100MIL)	PAVEMENT SEALER 4"	PAVEMENT SEALER 8"
CSJ:2230-01-021		LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	EA	LF	LF
Plan Sheet 1	TO STA 218+00				20	4			1	1			2823	
Plan Sheet 2	STA 218+00 TO 230+00	136		666	38	11	5		4	4		2	5182	666
Plan Sheet 3	STA 230+00 TO 242+00					4			2	2		1	6388	
Plan Sheet 4	STA 242+00 TO 254+00					2			2	2			6000	
Plan Sheet 5	STA 254+00 TO 266+00				16	6			2	3			5686	
Plan Sheet 6	STA 266+00 TO 278+00	70		624	566	12	6		5	5		2	5660	624
Plan Sheet 7	STA 278+00 TO 290+00			347		6	2		2	2		1	5983	347
Plan Sheet 8	STA 290+00 TO 302+00				32	4			3	3			5486	
Plan Sheet 9	STA 302+00 TO 314+00				15	6			2	2			5669	
Plan Sheet 10	STA 314+00 TO 326+00				38	6			2	2			5539	
Plan Sheet 11	STA 326+00 TO 338+00				16	6			2	2			5660	
Plan Sheet 12	STA 338+00 TO 350+00				19	8			2	2			5614	
Plan Sheet 13	STA 350+00 TO 362+00			20	17	6	1		2	2		1	5783	20
Plan Sheet 14	STA 362+00 TO 374+00	60		1182	419	8	7		4	4			5292	1182
Plan Sheet 15	STA 374+00 TO 386+00		100	756	230	8	8	4	3	2	49		5366	856
Plan Sheet 16	FROM STA 386+00													
PROJECT TOTAL		266	100	3595	1426	97	29	4	38	38	49	7	82131	3695

PAVEMENT MARKING SUMMARY		0666-6230	0666-6231	0666-6232	0666-6233	0666-6243	0666-6244	0666-6245	0666-6300	0666-6303	0666-6312	0666-6315	0672-6007	0672-6009
SHEET NO.	FM1560 STATION TO STATION	PAVEMENT SEALER 24"	PAVEMENT SEALER (ARROW)	PAVEMENT SEALER (WORD)	PAVEMENT SEALER (MED NOSE)	PAVEMENT SEALER (YLD TRI)	PAVEMENT SEALER (BIKE ARROW)	PAVEMENT SEALER (BIKE SYMBOL)	RE PM W/RET REQ TY I (W4(1)BRK)(100MIL)	RE PM W/RET REQ TY I (W4(1)SLD)(100MIL)	RE PM W/RET REQ TY I (Y4(1)BRK)(100MIL)	RE PM W/RET REQ TY I (Y4(1)SLD)(100MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A
CSJ:2230-01-021		LF	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	EA	EA
Plan Sheet 1	TO STA 218+00	20	4				1	1	321	1171	267	1064	17	29
Plan Sheet 2	STA 218+00 TO 230+00	38	11	5	2		4	4	600	2129	233	2084	65	126
Plan Sheet 3	STA 230+00 TO 242+00		4		1		2	2	600	2400	474	2914	30	120
Plan Sheet 4	STA 242+00 TO 254+00		2				2	2	600	2400	600	2400	30	60
Plan Sheet 5	STA 254+00 TO 266+00	16	6				2	3	600	2310	556	2220	30	58
Plan Sheet 6	STA 266+00 TO 278+00	566	12	6	2		5	5	549	2416	396	2229	63	113
Plan Sheet 7	STA 278+00 TO 290+00		6	2	1		2	2	600	2400	377	2606	48	114
Plan Sheet 8	STA 290+00 TO 302+00	32	4				3	3	600	2250	528	2108	30	54
Plan Sheet 9	STA 302+00 TO 314+00	15	6				2	2	600	2309	554	2206	30	56
Plan Sheet 10	STA 314+00 TO 326+00	38	6				2	2	600	2265	536	2138	30	56
Plan Sheet 11	STA 326+00 TO 338+00	16	6				2	2	600	2290	556	2214	30	58
Plan Sheet 12	STA 338+00 TO 350+00	19	8				2	2	600	2294	546	2174	30	56
Plan Sheet 13	STA 350+00 TO 362+00	17	6	1	1		2	2	600	2313	486	2384	31	94
Plan Sheet 14	STA 362+00 TO 374+00	419	8	7			4	4	546	2151		2535	73	40
Plan Sheet 15	STA 374+00 TO 386+00	279	8	8		4	3	2	442	2620		2304	72	34
Plan Sheet 16	FROM STA 386+00													
PROJECT TOTAL		1475	97	29	7	4	38	38	8458	33718	6109	33580	609	1068

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SUBJECT TO CHANGE
- 06/10/2020

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FM 1560
PAVEMENT MARKING SUMMARY

SHEET 1 OF 1

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	24
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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SW3P SUMMARY		1616030	1646027	1646035	1662002	1686001	1696003	5066001	5066011	5066037	5066038	5066039
SHEET NO.	STATION TO STATION IH10	COMPOST MANUF TOPSOIL (6")	CELL FBR MLCH SEED(PERM)(URBAN)(CLAY)	DRILL SEEDING (PERM) (RURAL) (CLAY)	BROADCAST SEED (TEMP)(WARM OR COOL)	VEGETATIVE WATERING	SOIL RETENTION BLANKETS (CL 1) (TY C)	ROCK FILTER DAMS (INSTALL) (TY 1)	ROCK FILTER DAMS (REMOVE)	SANDBAGS FOR EROSION CONTROL (12")	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)
CSJ: 2230-01-021		SY	SY	SY	SY	MG	SY	LF	LF	LF	LF	LF
PHASE 1							PHASE 1					
SHEET 1 OF 6	STA 348+00 TO 354+50										1218	1218
SHEET 2 OF 6	STA 354+50 TO 361+00										1332	1332
SHEET 3 OF 6	STA 361+00 TO 367+50										1422	1422
SHEET 4 OF 6	STA 367+50 TO 374+00										1252	1252
SHEET 5 OF 6	STA 374+00 TO 380+50							457	457		537	537
SHEET 6 OF 6	STA 380+50 TO 386+83											
PHASE 2							PHASE 2					
SHEET 1 OF 16	TO STA 206+00											
SHEET 2 OF 16	STA 206+00 TO 218+00										1413	
SHEET 3 OF 16	STA 218+00 TO 230+00										2197	
SHEET 4 OF 16	STA 230+00 TO 242+00							933			1737	
SHEET 5 OF 16	STA 242+00 TO 254+00							158			1211	
SHEET 6 OF 16	STA 254+00 TO 266+00							597				
SHEET 7 OF 16	STA 266+00 TO 278+00										1896	
SHEET 8 OF 16	STA 278+00 TO 290+00										1759	
SHEET 9 OF 16	STA 290+00 TO 302+00							221			2011	
SHEET 10 OF 16	STA 302+00 TO 314+00							262			1792	
SHEET 11 OF 16	STA 314+00 TO 326+00										1497	
SHEET 12 OF 16	STA 326+00 TO 338+00										1200	
SHEET 13 OF 16	STA 338+00 TO 350+00										958	
SHEET 14 OF 16	STA 350+00 TO 362+00											
SHEET 15 OF 16	STA 362+00 TO 374+00											
SHEET 16 OF 16	STA 374+00 TO 386+00											
PHASE 3							PHASE 3					
SHEET 1 OF 16	TO STA 206+00										170	
SHEET 2 OF 16	STA 206+00 TO 218+00										391	
SHEET 3 OF 16	STA 218+00 TO 230+00											
SHEET 4 OF 16	STA 230+00 TO 242+00											
SHEET 5 OF 16	STA 242+00 TO 254+00											
SHEET 6 OF 16	STA 254+00 TO 266+00							180				
SHEET 7 OF 16	STA 266+00 TO 278+00											
SHEET 8 OF 16	STA 278+00 TO 290+00										426	
SHEET 9 OF 16	STA 290+00 TO 302+00											
SHEET 10 OF 16	STA 302+00 TO 314+00											
SHEET 11 OF 16	STA 314+00 TO 326+00										617	
SHEET 12 OF 16	STA 326+00 TO 338+00										1144	
SHEET 13 OF 16	STA 338+00 TO 350+00										923	
SHEET 14 OF 16	STA 350+00 TO 362+00											
SHEET 15 OF 16	STA 362+00 TO 374+00											
SHEET 16 OF 16	STA 374+00 TO 386+00											
PHASE 4							PHASE 4					
SHEET 1 OF 16	TO STA 206+00											
SHEET 2 OF 16	STA 206+00 TO 218+00									15		
SHEET 3 OF 16	STA 218+00 TO 230+00									30		
SHEET 4 OF 16	STA 230+00 TO 242+00									45		
SHEET 5 OF 16	STA 242+00 TO 254+00									45		
SHEET 6 OF 16	STA 254+00 TO 266+00									15		
SHEET 7 OF 16	STA 266+00 TO 278+00									75		
SHEET 8 OF 16	STA 278+00 TO 290+00									45		
SHEET 9 OF 16	STA 290+00 TO 302+00									75		
SHEET 10 OF 16	STA 302+00 TO 314+00									30		
SHEET 11 OF 16	STA 314+00 TO 326+00									30		
SHEET 12 OF 16	STA 326+00 TO 338+00									45		
SHEET 13 OF 16	STA 338+00 TO 350+00									60		
SHEET 14 OF 16	STA 350+00 TO 362+00											
SHEET 15 OF 16	STA 362+00 TO 374+00											
SHEET 16 OF 16	STA 374+00 TO 386+00											
PHASE 5							PHASE 5					
SHEET 1 OF 16	TO STA 206+00											170
SHEET 2 OF 16	STA 206+00 TO 218+00	4781	4781	4781	4781	1	4781					1804
SHEET 3 OF 16	STA 218+00 TO 230+00	6768	6768	6768	6768	1	6768					2197
SHEET 4 OF 16	STA 230+00 TO 242+00	12026	12026	12026	12026	1	12026		933			1737
SHEET 5 OF 16	STA 242+00 TO 254+00	9059	9059	9059	9059	1	9059		158			1211
SHEET 6 OF 16	STA 254+00 TO 266+00	7230	7230	7230	7230	1	7230		777			
SHEET 7 OF 16	STA 266+00 TO 278+00	5724	5724	5724	5724	1	5724					1896
SHEET 8 OF 16	STA 278+00 TO 290+00	4990	4990	4990	4990	1	4990					2185
SHEET 9 OF 16	STA 290+00 TO 302+00	5331	5331	5331	5331	1	5331		221			2011
SHEET 10 OF 16	STA 302+00 TO 314+00	4506	4506	4506	4506	1	4506		262			1792
SHEET 11 OF 16	STA 314+00 TO 326+00	4747	4747	4747	4747	1	4747					2114
SHEET 12 OF 16	STA 326+00 TO 338+00	4742	4742	4742	4742	1	4742					2344
SHEET 13 OF 16	STA 338+00 TO 350+00	9640	9640	9640	9640	1	9640					1881
SHEET 14 OF 16	STA 350+00 TO 362+00	4286	4286	4286	4286	1	4286					
SHEET 15 OF 16	STA 362+00 TO 374+00	6420	6420	6420	6420	1	6420					
SHEET 16 OF 16	STA 374+00 TO 386+00	15899	15899	15899	15899	1	15899					
TOTAL		106149	106149	106149	106149	15	106149	2808	2808	510	27103	27103

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NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560
SW3P
SUMMARY

SHEET 1 OF 1

DESIGN: AG	DRAFT: AG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 25
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

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TRAFFIC CONTROL PLAN ITEMS

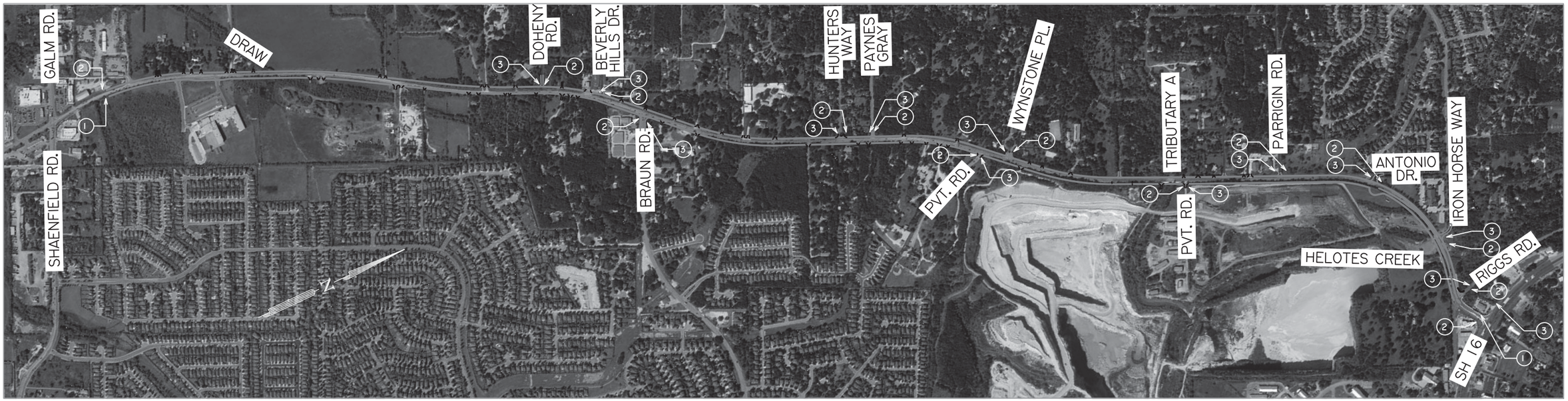
LOCATION	PROJECT LIMIT SIGNING														PHASE SIGNING																
	SPEED LIMIT XX	ROAD WORK AHEAD	END ROAD WORK	ROAD WORK NEXT MILES	ROAD WORK NEXT MILES	END WORK ZONE	BEGIN ROAD WORK NEXT MILES	NAME ADDRESS CITY STATE CONTRACTOR	BEGIN WORK ZONE	STAY ALERT TALK OR TEXT LATER	SPEED LIMIT XX	OBEY WARNING SIGNS STATE LAW	TRAFFIC FINES DOUBLE	WHEN WORKERS ARE PRESENT					BE PREPARED TO STOP		ROAD NARROWS		BUMP	TRUCK CROSSING	LOOSE GRAVEL	UNEVEN LANES	M.P.H.	NEXT 500 FT	ROAD WORK 1500 FT	ROAD WORK 1000 FT	ROAD WORK 500 FT
	CW3-5 30X30	CW20-1D 48 X 48	G20-2 36X18	G20-1oT 72X36	G20-1T 48X18	G20-2bT 36x18	G20-5T 48x24	G20-6T 48x30	G20-9TP 24x24	G20-10T 48x60	R2-1 24x30	R20-3T 48X42	R20-5T 24X30	R20-5aTP 24X12	CW1-4 LR 30X30	CW1-6aT 30X30	CW1-8 LR 24x30	CW3-1 30X30	CW3-4 30X30	CW4-1R 30x30	CW5-1 30x30	CW6-3 30X30	CW8-1 30X30	CW8-6 36X36	CW8-7 30X30	CW8-11 30X30	CW13-1 18x18	CW16-4C 30x24	CW20-1A 36X36	CW20-1B 36X36	CW20-1C 36X36
1	X	X		X	X		X	X	X	X	X	X	X	X																	
2			X			X					X																				
3		X		X	X																										
4		X													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

TRAFFIC CONTROL PLAN ITEMS *(CONTINUED)*

LOCATION	PHASE SIGNING																							PHASE DEVICES							
	DETOUR ½MILE	DETOUR 1 MILE	ROAD CLOSED 1000 FT	ROAD CLOSED AHEAD	ROAD CLOSED ¼MILE		NARROW LANES AHEAD	RIGHT SHOULDER CLOSED	RD-NAME	TO	DETOUR	END DETOUR	DETOUR 24x30	DETOUR 30x30	STOP			YIELD	DO NOT ENTER	ONE WAY	DO NOT STOP ON TRACKS	ROAD CLOSED	ROAD CLOSED TO THRU TRAFFIC	RAILROAD CROSSING		P.C.M.B.	ARROW BOARD	LPCTB	TY III BARRICADE	CW6-4	VP(F)IR,L	BARRELS	CONES (>36")
	CW20-2E 36X36	CW20-2F 36X36	CW20-3B 36X36	CW20-3D 36X36	CW20-3E 36X36	CW20-7a 30X30	CW20-8T 36X36	CW21-5a L,R 30X30	M4-2 24X12	M4-5 24X12	M4-8 24X12	M4-8A 24X18	M4-9 L,R,S	M4-9T L,R	R1-1 36X36	R4X7 24X30	R4X8 24X30	R1-2 36X36X36	R5-1 30X30	R6-1 LR 36X12	R8-8 24X30	R11-2 48X30	R11-4 60X30	R15-1 48X9	WI-9 L OR R 96X36								
1																															
2																															
3																															
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

LOCATION NOTES FOR BARRICADES:

LOCATION NO. 1 TO BE USED AT BEGINNING OF PROJECT.
LOCATION NO. 2 TO BE USED AT THE END OF THE PROJECT EXITING SIDE STREETS.
LOCATION NO. 3 TO BE USED AT ENTERING SIDE STREETS.
LOCATION NO. 4 TO BE USED THROUGHOUT THE COURSE OF THE PROJECT AS DIRECTED BY THE ENGINEER.



SCALE: 1"=1200'

NOTES :

1. CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGER AHEAD" MUST HAVE A "BE PREPARED TO STOP".
2. BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE SIGNING. ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. INACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD MAY BE REQUIRED IN AREAS OF ACTUAL CONSTRUCTION.
3. BARRICADES SHALL NOT BE USED AS A SIGN SUPPORT. SUPPORTS FOR SIGNS SHALL BE TEMPORARY, OR PORTABLE SIGN SUPPORTS AS DIRECTED BY THE ENGINEER OR IN ACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD.

** 4. A DISTANCE PLAQUE IN FEET OR MILES MAY BE REQUIRED FOR USE IN CONJUNCTION WITH WARNING SIGNS.

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FM 1560
TRAFFIC CONTROL PLAN
SCHEDULE OF BARRICADES

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	26
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DETOURS, BARRICADES, WARNING SIGNS, SEQUENCE OF WORK, ETC.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC", OF THE STANDARD SPECIFICATIONS. IN ADDITION TO THESE REQUIREMENTS, THE FOLLOWING PROVISIONS SHALL ALSO GOVERN ON THIS CONTRACT:

1. GENERAL

(1) TRAFFIC MUST BE HANDLED THROUGHOUT THE PROJECT DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE AND COMFORTABLE PASSAGE FOR VEHICULAR AND PEDESTRIAN TRAFFIC WITH MINIMAL INCONVENIENCE TO THE PUBLIC, AS SHOWN IN THE PLANS OR AS DIRECTED/APPROVED BY THE ENGINEER.

(2) THE CONTRACTOR MAY PROPOSE/RECOMMEND MODIFICATIONS TO THE SEQUENCE OF WORK FOR CONSIDERATION BY THE ENGINEER. ANY MAJOR RECOMMENDED MODIFICATION BY THE CONTRACTOR SHALL INCLUDE ANY CHANGES TO THE VARIOUS BID ITEMS, IMPACT TO TRAFFIC, EFFECT OF OVERALL PROJECT IN TIME AND COST, ETC. IF THIS PROPOSAL IS IMPLEMENTED, THE CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPING DETAILED PLAN SHEETS TO BE SEALED BY A LICENSED PROFESSIONAL ENGINEER FOR INCLUSION WITH THE CHANGE ORDER. THE CONTRACTOR CANNOT PROCEED WITH ANY CONSTRUCTION OPERATIONS BASED ON A REVISED PHASE/SEQUENCE UNTIL WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. IF AT ANY TIME DURING CONSTRUCTION THE CONTRACTOR'S PROPOSED PLAN OF OPERATION FOR HANDLING TRAFFIC DOES NOT PROVIDE FOR SAFE AND COMFORTABLE MOVEMENT, THE CONTRACTOR WILL IMMEDIATELY CHANGE THEIR OPERATION TO CORRECT THE UNSATISFACTORY CONDITION.

(3) DO NOT STORE ANY CONSTRUCTION MATERIAL OR EQUIPMENT AT ANY LOCATION THAT WILL CONSTITUTE A HAZARD AND WILL ENDANGER TRAFFIC.

(4) THE CONTRACTOR WILL PROVIDE ADVANCE NOTIFICATION TO THE ENGINEER OF IMPENDING / UPCOMING LANE CLOSURES FOR ALL TEMPORARY AND / OR PERMANENT LANE, RAMP, CONNECTOR, FRONTAGE, SHOULDER, ETC. CLOSURES OR DETOURS. SEE GENERAL NOTES FOR NOTIFICATION REQUIREMENTS.

(5) ACCESS TO ADJOINING PROPERTY MUST BE MAINTAINED AT ALL TIMES.

(6) TEMPORARY DRAINAGE IS THE RESPONSIBILITY OF THE CONTRACTOR.

(7) AT NO TIME SHALL TWO CONSECUTIVE INTERSECTING ROADWAYS BE CLOSED AT ONE TIME DURING CONSTRUCTION.

(8) AT NO TIME SHALL TWO CONSECUTIVE RAMPS BE CLOSED AT ONE TIME DURING CONSTRUCTION OR OVERLAY OPERATIONS.

(9) UNLESS OTHERWISE NOTED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER, DAILY LANE CLOSURES SHALL BE LIMITED ACCORDING TO THE FOLLOWING RESTRICTIONS:

NIGHTTIME : **ASK AREA ENGINEER AND CONSTRUCTION ENGINEER** (WITH UNIFORMED OFF DUTY LAW ENFORCEMENT OFFICERS)

WEEKEND CLOSURES WHEN APPROVED BY THE ENGINEER: **ASK AREA ENGINEER AND CONSTRUCTION ENGINEER**

NO LANE CLOSURES OR ROADWAY CLOSURES WILL BE PERMITTED FOR THE FOLLOWING KEY DATES AND/OR SPECIAL EVENTS:

BETWEEN DECEMBER 15 AND JANUARY 1.

FIESTA WEEK AND TAX FREE WEEKEND. (BEXAR COUNTY ONLY)

WEDNESDAY BEFORE THANKSGIVING THRU THE SUNDAY AFTER THANKSGIVING

SATURDAY AND SUNDAY BEFORE MEMORIAL DAY AND LABOR DAY.

SATURDAY OR SUNDAY WHEN JULY 4 FALLS ON A FRIDAY OR MONDAY.

ELECTION DAYS (BEXAR COUNTY ONLY)

DURING MAJOR EVENTS AT THE AT&T CENTER (SPURS HOME GAMES, RODEO, CONCERTS, ETC.), ALAMODOME AND OR CONVENTION CENTER

CALL OUT SPECIFIC DATES FOR EASTER WEEKEND

(10) REMOVAL AND DISPOSAL OF EXISTING ABANDONED UTILITIES (EITHER PREVIOUSLY ABANDONED OR ABANDONED DURING THIS PROJECT) REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE PERFORMED UNDER THE OVERALL PREPARE RIGHT-OF-WAY ITEM (ITEM 100).

(11) COORDINATE WITH ADJACENT PROJECTS.

(12) COVER PERMANENT SIGNS IF NOT USED. THIS IS SUBSIDIARY TO ITEM 502.

(13) EXCAVATION WITHIN 5 FEET OF AN EXISTING CPS ENERGY POLE WILL REQUIRE POLE BRACING. CONTACT CPS ENERGY UTILTY COORDINATION TO REQUEST POLE BRACING (JOHN OFFER, JEOFFER@CPSENERGY.COM). THE ESTIMATED DURATION FOR THE POLE BRACING PROCESS IS APPROXIMATELY 6 TO 8 WEEKS.

(14) COORDINATE WITH THE CITY OF SAN ANTONIO OR TXDOT FOR SIGNAL TIMING REVISIONS, AS NECESSARY.

2. SEQUENCE OF WORK

(1) THIS PROJECT WILL BE CONSTRUCTED IN (4) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY, AS WELL AS THROUGHOUT THE PROJECT WHERE ACCESS TO ADJACENT PROPERTIES IS ALLOWED TO DRIVEWAYS AND SIDE STREETS.

(2) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURING, AS PER THE PHASES NOTED BELOW.

(3) PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC. BEGIN SURFACE CONSTRUCTION ON HIGH SIDE OF ROAD TO AVOID WATER PONDING ISSUES.

(4) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1

THE INTENT OF THIS PHASE IS TO COMPLETE ALL PROPOSED WORK BETWEEN STA. 358+00 TO 384+00 PRIOR TO BEGINNING WORK ON ANY OTHER PORTION OF PROJECT LIMITS. SPECIALIZED CREWS MAY MOVE ON TO WORK IN OTHER PHASES OF WORK HOWEVER THE PRIORITY IS TO COMPLETE STATED SECTION OF PROJECT FIRST.

STEP 1

(1) INSTALL BARRICADES AND SW3P ITEMS

(2) PREP RIGHT OF WAY AND REMOVE TREES

(3) INSTALL DETOUR STA. 358+00

(4) PLACE WORK ZONE PAVEMENT MARKINGS FOR STEP 1 SHIFT

(5) INSTALL LOW PROFILE TRAFFIC BARRIER AT LOCATIONS SHOWN

(6) BEGIN NORTHBOUND HELOTES CREEK BRIDGE CONSTRUCTION

(7) CONSTRUCT NORTHBOUND PAVEMENT STATION 358+00 - 380+00

(8) BEGIN CONSTRUCTION OF PROPOSED TRAFFIC SIGNALS

(9) RECONSTRUCT ANTONIO DRIVE (EXCLUDING FINAL OVERLAY)

(10) SET UP DETOUR FOR LOCAL SUBDIVISION THROUGH IRON HORSE;

(11) SET UP DETOURS FOR RIGGS ROAD INTERSECTION

STEP 2

(1) INSTALL BARRICADES AND SW3P ITEMS

(2) PREP RIGHT OF WAY AND REMOVE TREES

(3) INSTALL DETOUR STA. 358+00

(4) PLACE WORK ZONE PAVEMENT MARKINGS FOR STEP 2 SHIFT

(5) INSTALL LOW PROFILE TRAFFIC BARRIER AT LOCATIONS SHOWN

(6) BEGIN SOUTHBOUND HELOTES CREEK BRIDGE CONSTRUCTION

(7) CONSTRUCT SOUTHBOUND PAVEMENT STATION 358+00 - 380+00

(8) RECONSTRUCT IRON HORSE (FINAL OVERLAY BOTH STREETS)

(9) SET UP DETOUR FOR LOCAL SUBDIVISION THROUGH ANTONIO DRIVE;

(10) SET UP SOUTHBOUND DETOURS FOR RIGGS ROAD INTERSECTION

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FM 1560
TRAFFIC CONTROL PLAN NARRATIVE

SHEET 1 OF 3

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	27
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

STEP 3

(1) COMPLETE TRAFFIC SIGNAL WORK AT ANTONIO AND IRON HORSE INTERSECTIONS

(2) INSTALL FINAL SIGNS, COVER CONFLICTING SIGNS THAT ARE FOR FINAL PAVEMENT MARKING LAYOUT TEMPORARILY

(3) REMOVE STEP 2 LOW PROFILE TRAFFIC BARRIER

(4) CONSTRUCT DETOUR FOR PHASE 2 WORKZONE AT STA. 358+00

(5) PLACE WORK ZONE PAVEMENT MARKINGS FOR STEP 3 IN FINAL CONFIGURATION

(6) CONSTRUCT MEDIAN ISLANDS FOR NEW WORK ZONE CONFIGURATION

(7) ESTABLISH VEGETATION

(8) INSTALL CONCRETE RIPRAP AT HELOTES CREEK BRIDGE

STEP 4

(1) PLACE FINAL OVERLAY BETWEEN STA. 358+00 - 380+00

(2) INSTALL TY II WORKZONE MARKINGS IN PROPOSED PAVEMENT MARKING CONFIGURATION

(3) PLACE FINAL TY I PAVEMENT MARKINGS AT THE END OF PHASE 5 BETWEEN STATION 358+00 - 380+00

PHASE 2

THE INTENT OF THIS PHASE IS TO WIDEN THE EXISTING ROADWAY WITH TEMPORARY PAVEMENT AND PERMANENT PAVEMENT SECTIONS, IN PREPARATION FOR BUILDING THE NB CORRIDOR SECTION.
IN ADDITION, BEGIN CONSTRUCTION ON:
NB HALF OF BRIDGE STRUCTURE STA 231+75;
NB WIDENING OF EXISTING TRIBUTARY A BRIDGE; NB HALF OF HELOTES CREEK BRIDGE STRUCTURE;
NB DRAINAGE INFRASTRUCTURE WITHIN TCP LAYOUT LIMITS.

(1) INSTALL BARRICADES AND SW3P ITEMS

(2) PREP RIGHT OF WAY AND REMOVE TREES

(3) WIDEN EXISTING STRUCTURE AT STATION 231+75

(4) WIDEN EXISTING ROADWAY FROM STATION ?? TO STATION???

(5) INSTALL LOW PROFILE TRAFFIC BARRIER AT LOCATIONS SHOWN

(6) PLACE WK ZONE PAVEMENT MARKINGS FOR PHASE 2 TRAFFIC SHIFT

(7) SHIFT TRAFFIC FOR PHASE 2

PHASE 3

THE INTENT OF THIS PHASE IS FOR THE CONSTRUCTION OF THE NORTHBOUND PROPOSED ROADWAY.
FROM STATIONS? TO STATION?

(1) INSTALL DRAINAGE STRUCTURES #?? TO??

(2) BEGIN BRIDGE CONSTRUCTION AT STATION???

(3) BEGIN ROADWAY EXCAVATION END EMBANKMENT FROM STATION?? TO STATION??

(4) PLACE HOT MIX TY B

(5) PLACE HOT MIX TY C

(6) SHIFT TRAFFIC FOR PHASE 3

PHASE 4

THE INTENT OF THIS PHASE IS TO SHIFT TRAFFIC TO NEWLY CONSTRUCTED NB CORRIDOR AND COMPLETE THE CONSTRUCTION OF THE SB LANES, AND FLATWORK OF CORRIDOR.
IN ADDITION, BEGIN CONSTRUCTION ON:
SB HALF OF BRIDGE STRUCTURE STA 231+75; NB WIDENING OF EXISTING TRIBUTARY A BRIDGE;
SB HALF OF HELOTES CREEK BRIDGE STRUCTURE; SB DRAINAGE INFRASTRUCTURE WITHIN TCP LAYOUT LIMITS.

(1) INSTALL DRAINAGE STRUCTURES #?? TO ??

(2) BEGIN BRIDGE CONSTRUCTION AT STATION ???

(3) BEGIN ROADWAY EXCAVATION END EMBANKMENT FROM STATION?? TO STATION??

(4) PLACE HOT MIX TY B

(5) PLACE HOT MIX TY C

(6) REMOVE ALL LPCTB; PLACE TEMPORARY STRIPING FOR FINAL LANE CONFIGURATIONS

PHASE 5

THE INTENT OF THIS PHASE IS TO PERFORM FINAL OVERLAY; INSTALL MEDIAN CURB ISLANDS;
INSTALL FINAL PAVMENT MARKINGS;MAILBOXES; SIGNS; COMPLETE ALL GRADING WITHIN ROW LIMITS.

(1) PREPARE PAVEMENT FOR FINAL SURFACE

(2) ESTABLISH VEGETATION

(3) PLACE FINAL RIDING SURFACE OF PAVEMENT SECTION

(4) BEGIN INSTALLING CONCRETE MEDIANS AS SHOWN IN TCP LAYOUTS

(5) INSTALL FINAL SIGNAGE

(6) INITIATE PROJECTWIDE PUNCHLIST

(7) REMOVE BMPS, PROJECT CLEAN UP

(8) REMOVE WORKZONE PROJECT LIMIT SIGNS

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NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560
TRAFFIC CONTROL PLAN NARRATIVE

SHEET 2 OF 3

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	28
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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3. SAFETY

(1) THE CONTRACTOR WILL PROVIDE, CONSTRUCT AND MAINTAIN BARRICADES AND SIGNS IN ACCORDANCE WITH STATE STANDARDS BC(1-12)-14. ANY SIGNS REQUIRED THAT ARE NOT DETAILED IN THE STANDARD SHEETS SHALL BE IN CONFORMANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND THE "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS."

(2) BARRICADES AND WARNING SIGNS SHALL BE PLACED AS INDICATED ON THE PLANS. THIS SHALL BE CONSIDERED THE MINIMUM REQUIRED TO PROVIDE FOR THE SAFETY OF TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN OTHER SUCH BARRICADES AND SIGNS DEEMED NECESSARY BY THE ENGINEER OR AS DIRECTED BY FIELD CONDITIONS, TO PROVIDE FOR THE PASSAGE OF TRAFFIC IN SAFETY AT ALL TIMES.

(3) THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FLAGGERS AS DIRECTED/APPROVED BY THE ENGINEER, AT SUCH POINTS, AND FOR SUCH PERIODS OF TIME AS MAY BE REQUIRED, TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC AND THE CONTRACTOR'S PERSONNEL.

(4) THE CONTRACTOR SHALL KEEP THE ROADWAY CLEAN AND FREE OF DIRT OR OTHER MATERIALS DURING HAULING OPERATIONS. IF THE CONTRACTOR DOES NOT MAINTAIN A CLEAN ROADWAY, THEY SHALL CEASE ALL CONSTRUCTION OPERATIONS, WHEN DIRECTED BY THE ENGINEER, TO CLEAN THE ROADWAY TO THE SATISFACTION OF THE ENGINEER.

4. HAULING EQUIPMENT

(1) THE USE OF RUBBER-TIRED EQUIPMENT WILL BE REQUIRED FOR MOVING DIRT OR OTHER MATERIALS ALONG OR ACROSS PAVEMENTED SURFACES. WHERE THE CONTRACTOR DESIRES TO MOVE ANY EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS, ON OR ACROSS PAVEMENT. THEY SHALL PROTECT THE PAVEMENT FROM DAMAGE AS DIRECTED / APPROVED BY THE ENGINEER.

(2) THROUGHOUT CONSTRUCTION OPERATIONS, THE CONTRACTOR WILL BE REQUIRED TO CONDUCT THEIR HAULING OPERATIONS IN A MANNER SUCH THAT VEHICLES WILL NOT HAUL OVER PREVIOUSLY RECOMPACTED SUBGRADE OR COMPACTED BASE MATERIAL, EXCEPT IN SHORT SECTIONS FOR DUMPING MANIPULATIONS.

5. FINAL CLEAN UP

UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE AND FINAL PAYMENT IS MADE, THE CONTRACTOR SHALL CLEAR AND REMOVE FROM THE SITE ALL SURPLUS AND DISCARDED MATERIALS AND DEBRIS OF EVERY KIND AND LEAVE THE ENTIRE PROJECT IN A SMOOTH, NEAT AND SIGHTLY CONDITION.

6. PAYMENT

ALL BARRICADES, SIGNS, AND FLAGGERS SHALL BE SUBSIDIARY TO ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING. ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE PAID FOR UNDER ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS. ALL WORK ZONE PAVEMENT MARKINGS WILL BE PAID FOR UNDER ITEM 662 WORK ZONE PAVEMENT MARKINGS. ALL OTHER WORK AND MATERIALS SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS UNLESS OTHERWISE INDICATED IN THE PLANS.

SUBJECT TO CHANGE
PRELIMINARY - NOT FOR BIDDING PURPOSES - 06/10/2020

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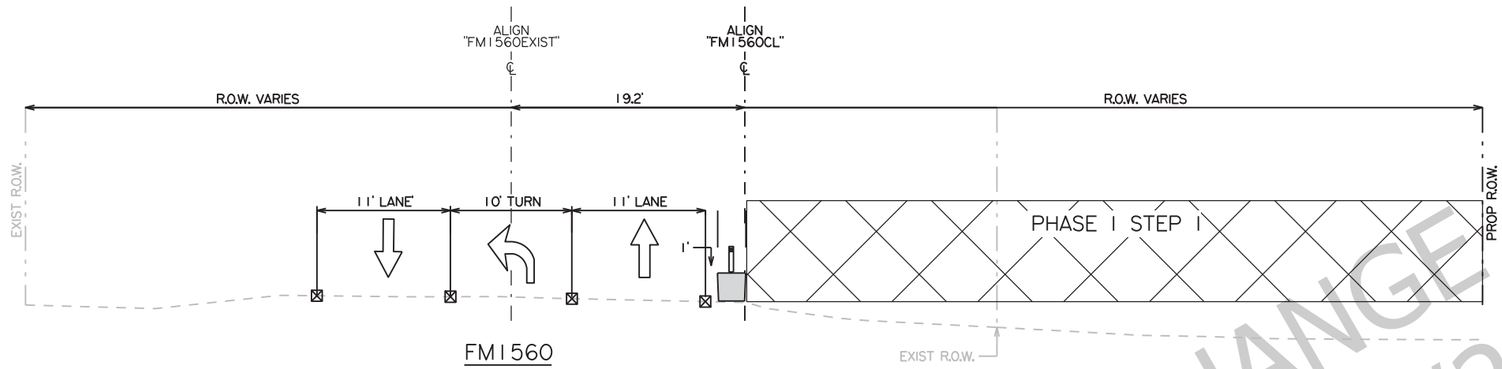
FM 1560
TRAFFIC CONTROL PLAN NARRATIVE

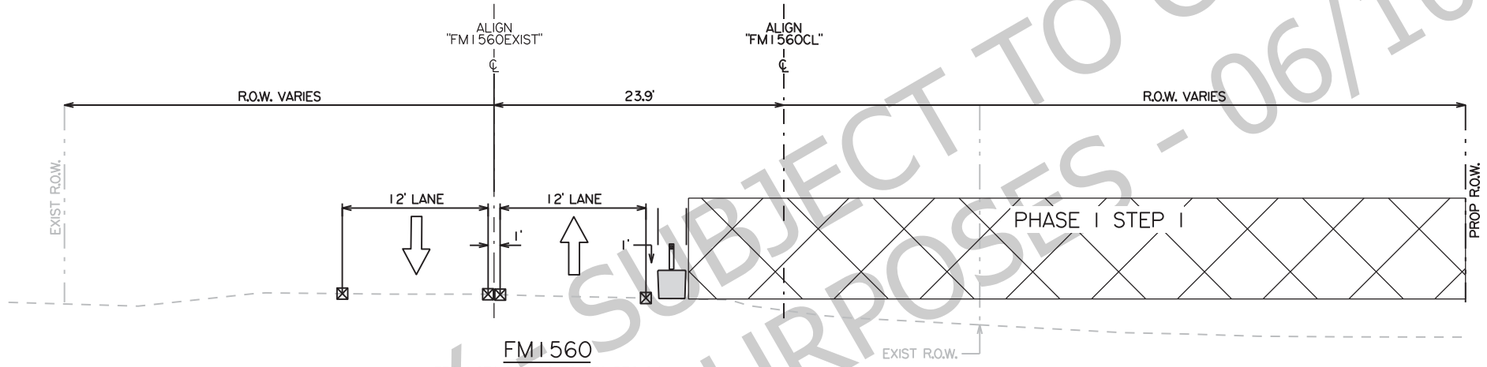
SHEET 3 OF 3

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	29
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



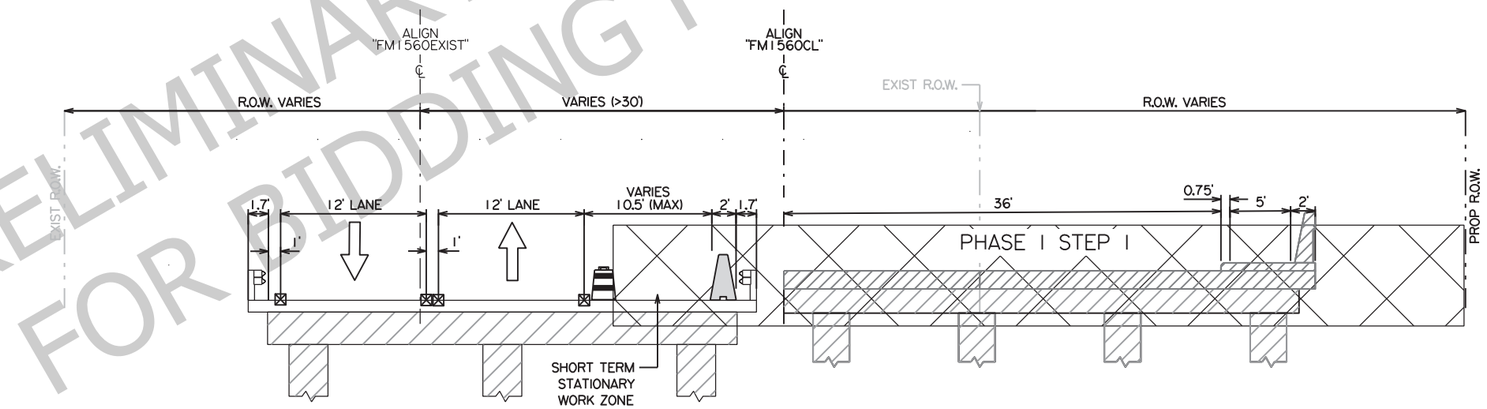
FM1560

FROM STA 349+00 TO STA 356+00 ALIGN "FM1560CL"
*TRANSITION FROM EXISTING STA 347+50 TO 350+60



FM1560

FROM STA 356+00 TO STA 376+04
FROM STA 379+29 TO STA 380+00
ALIGN "FM1560CL"



HELOTES CREEK BRIDGE

FROM STA 376+04 TO STA 379+29
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 1

SHEET 1 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	30
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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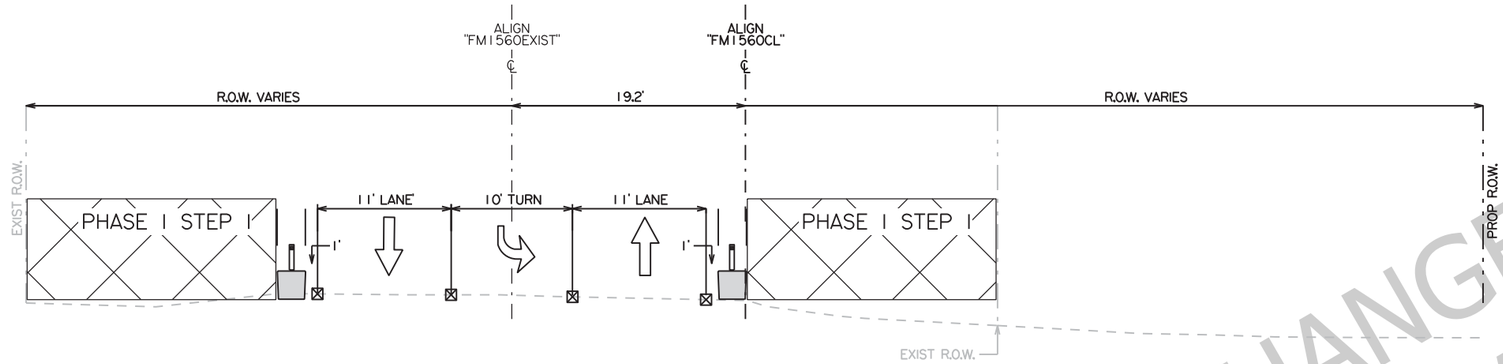
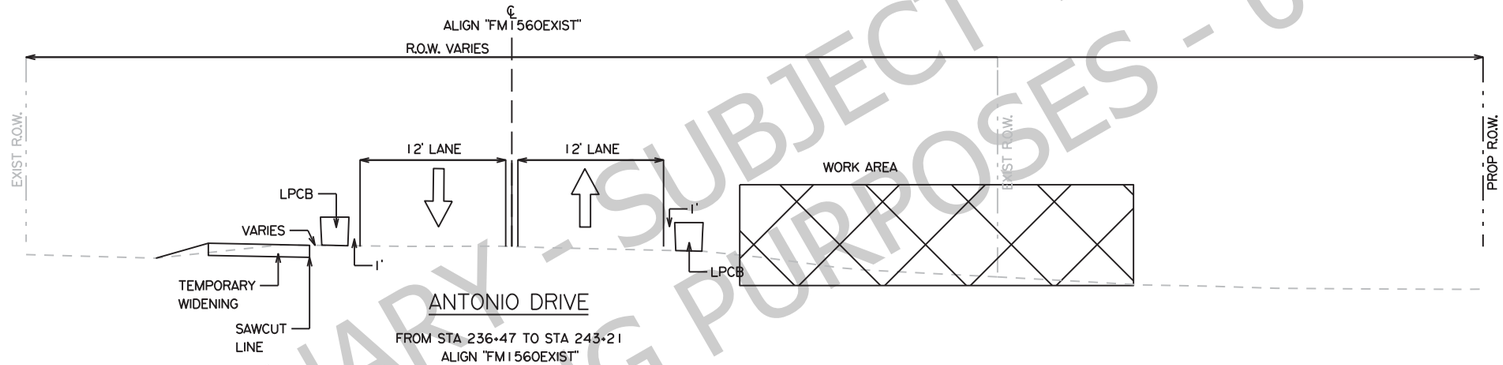


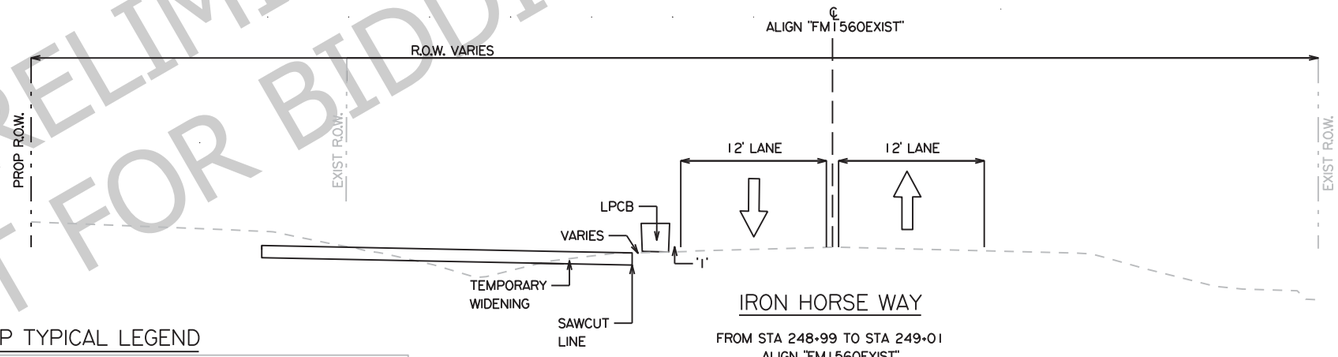
FM1560 @ BRAUN ROAD (SIGNAL WORK)

FROM STA 274+00 TO STA 278+00
ALIGN "FM1560EXIST"



ANTONIO DRIVE

FROM STA 236+47 TO STA 243+21
ALIGN "FM1560EXIST"



IRON HORSE WAY

FROM STA 248+99 TO STA 249+01
ALIGN "FM1560EXIST"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 1

SHEET 2 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	31
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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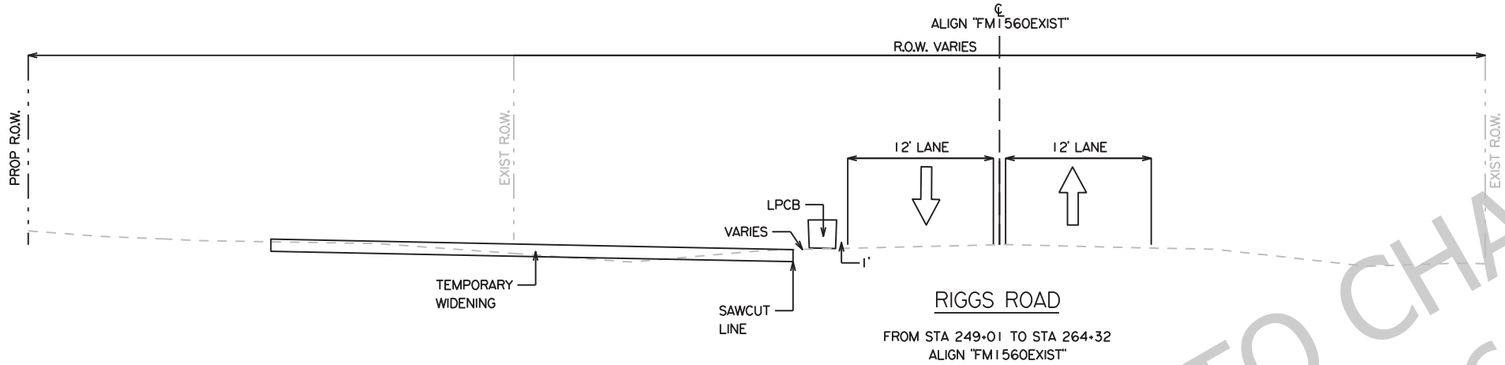

RIGGS ROAD

FROM STA 249+01 TO STA 264+32
ALIGN "FM1560EXIST"

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 1

SHEET 3 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	32

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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NOTES :

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- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
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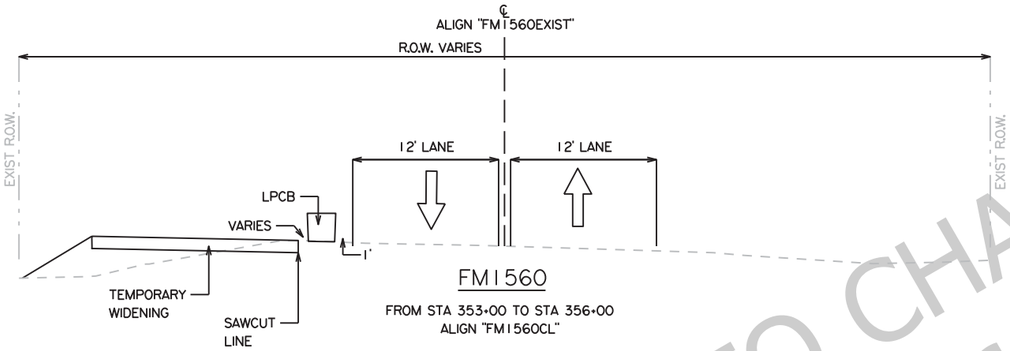

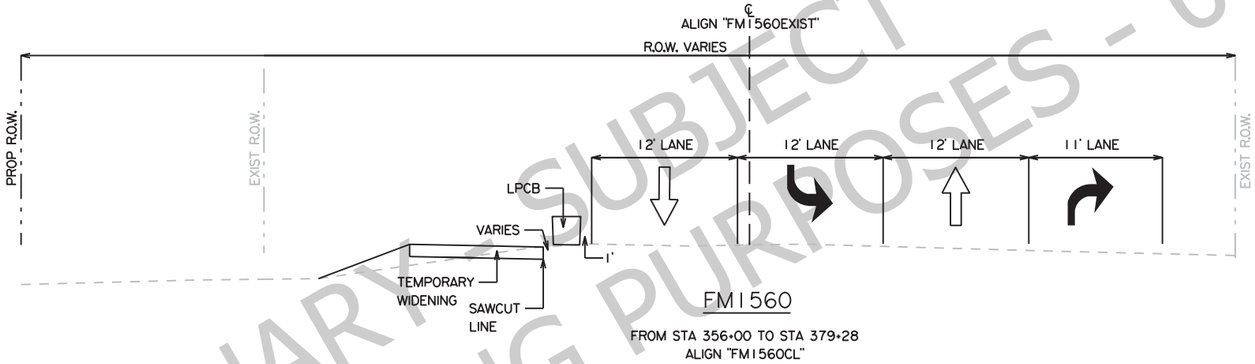

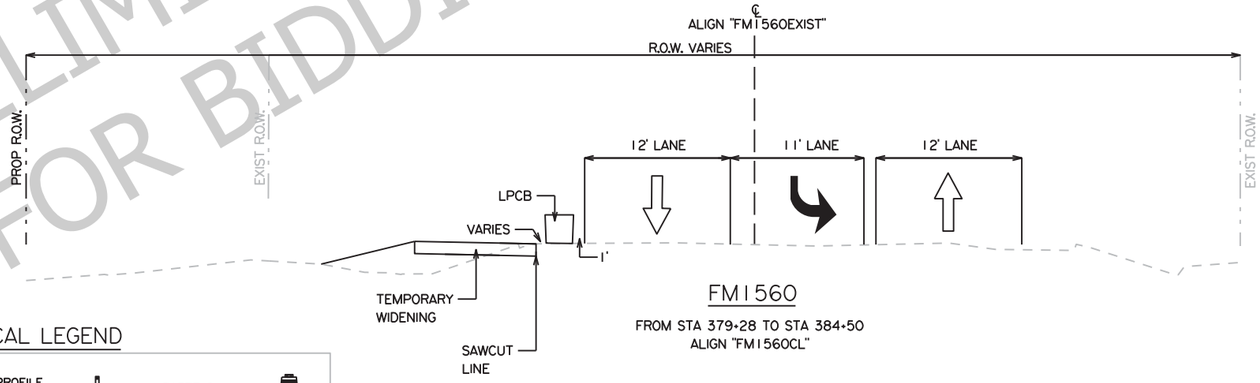

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 2

SHEET 1 OF 2

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	33

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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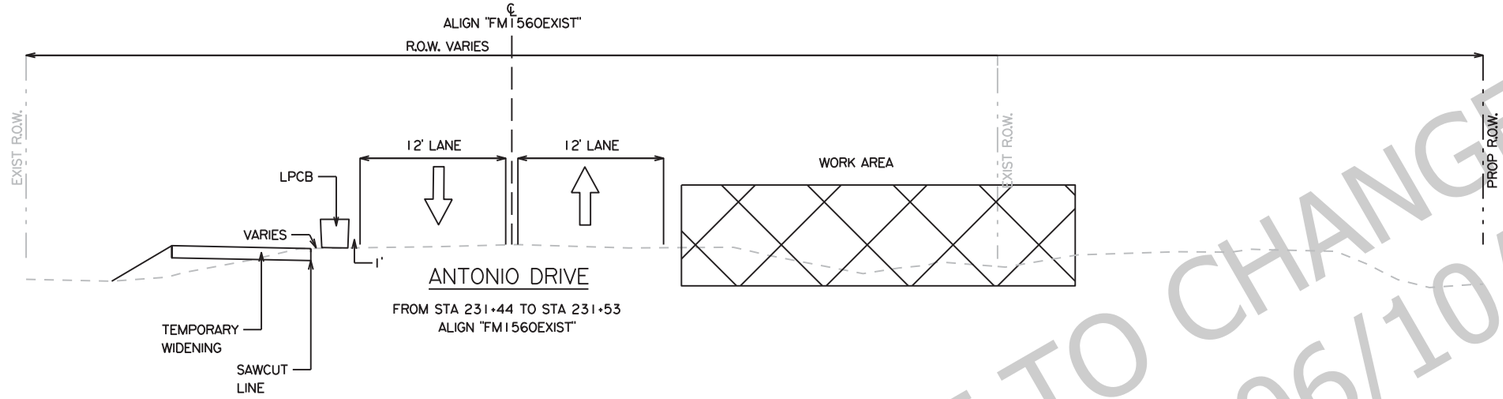

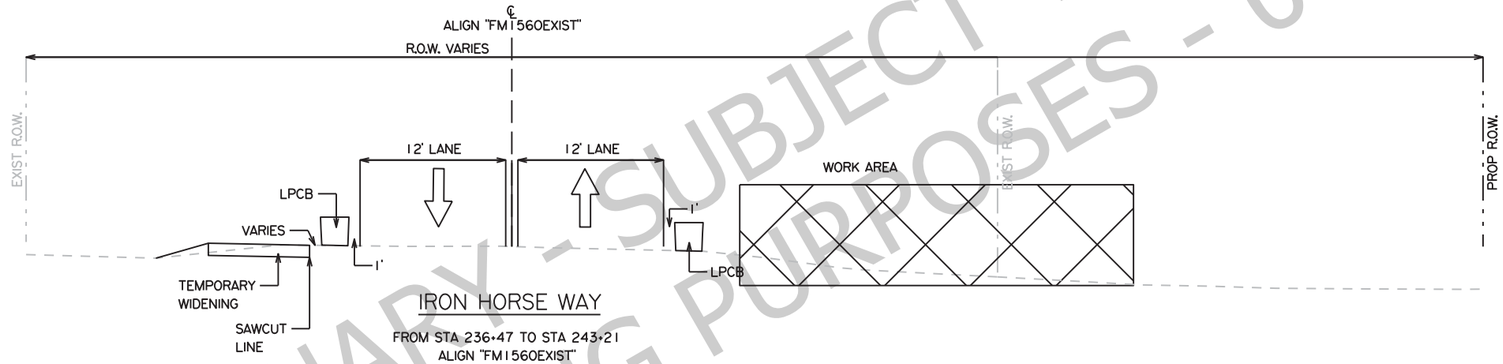

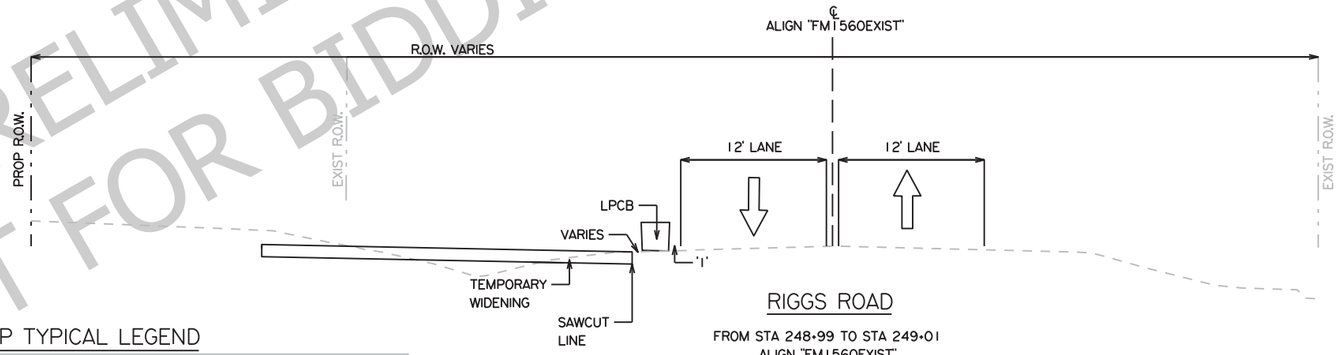

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 2

SHEET 2 OF 2

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	34

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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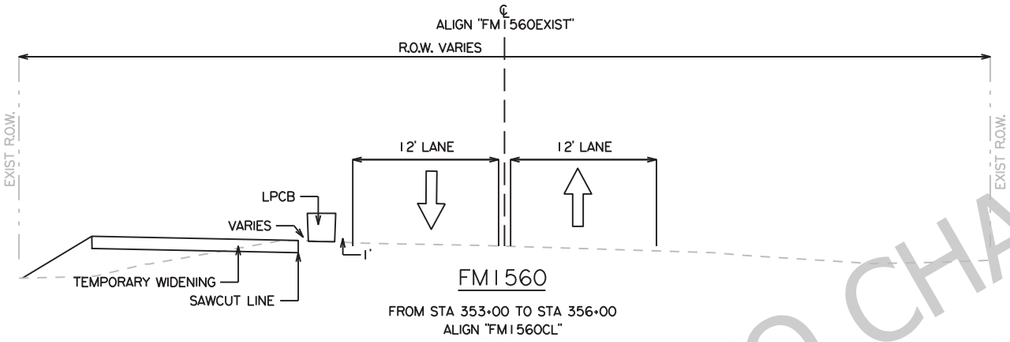
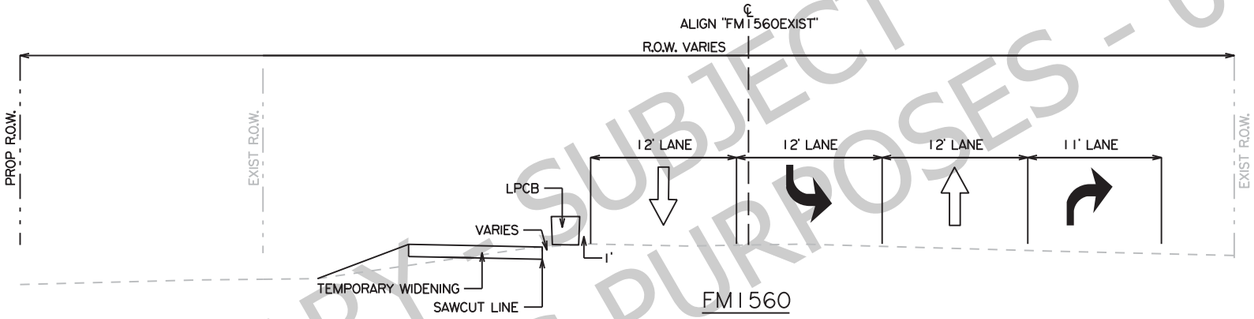


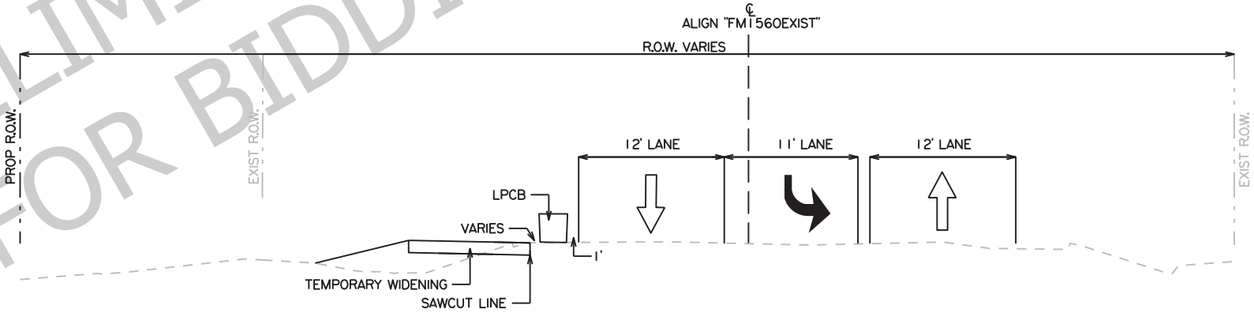
FM1560

FROM STA 353+00 TO STA 356+00
ALIGN "FM1560CL"



FM1560

FROM STA 356+00 TO STA 375+00
ALIGN "FM1560CL"



FM1560 AT HELOTES CREEK BRIDGE

FROM STA 224+80 TO STA 228+00
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
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PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 3

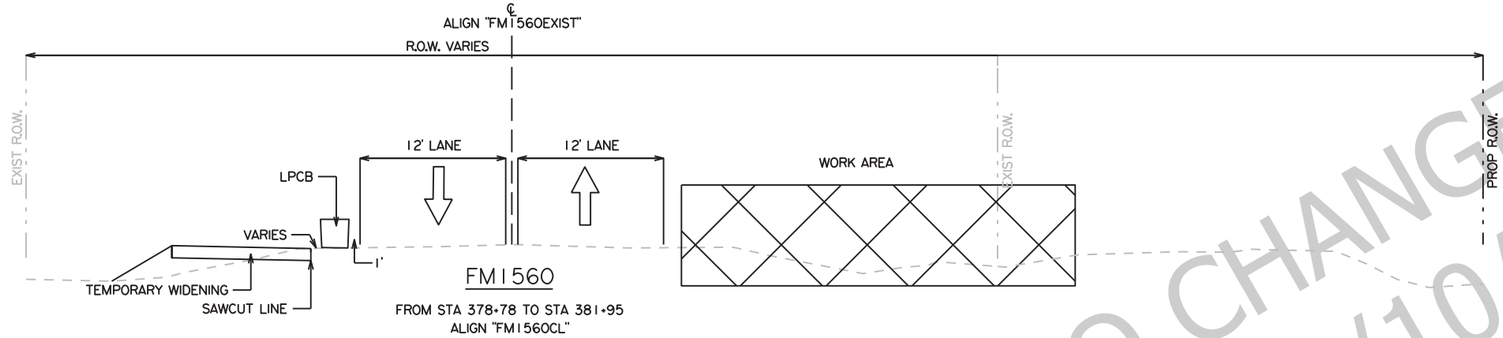
SHEET 1 OF 4

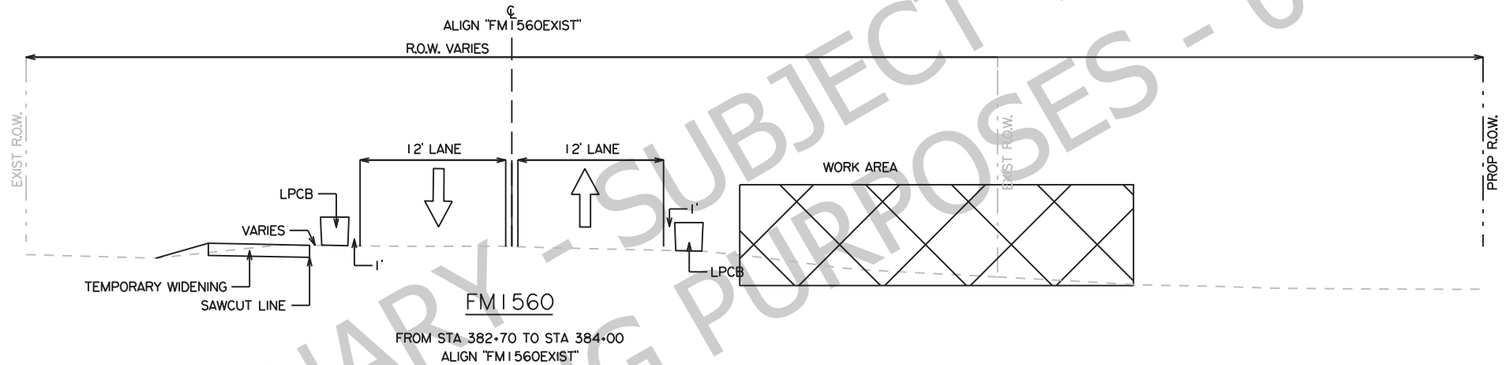
DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

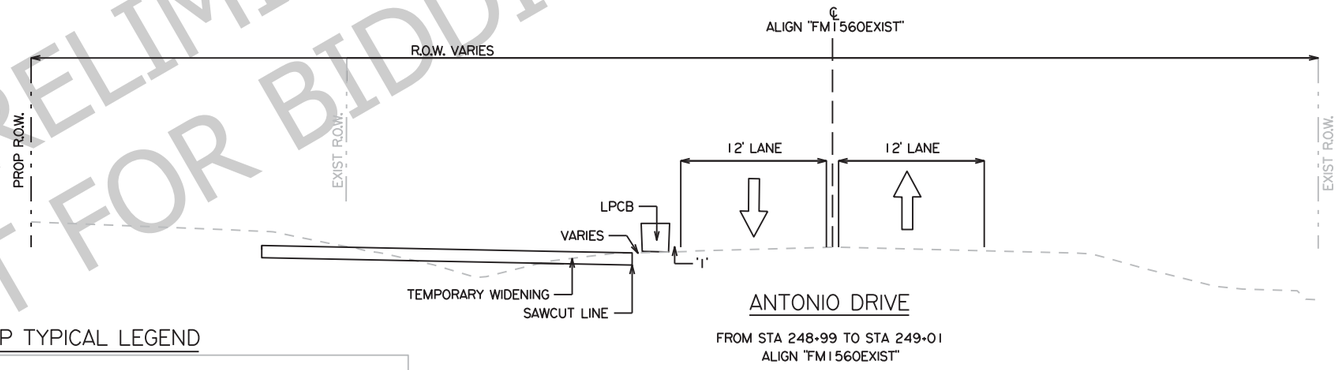
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560







TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA
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DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 3

SHEET 2 OF 4

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	36
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:17:34 AM
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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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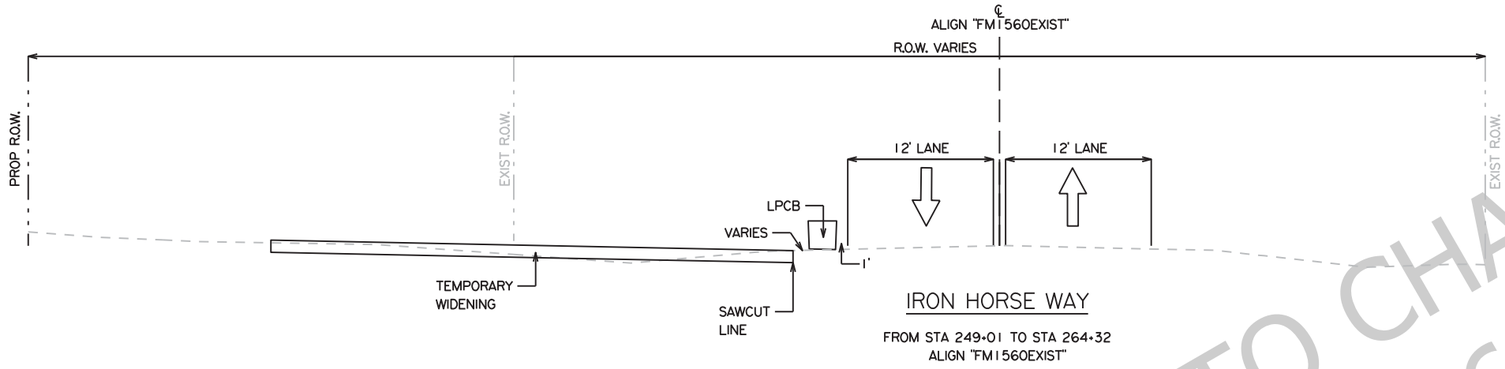
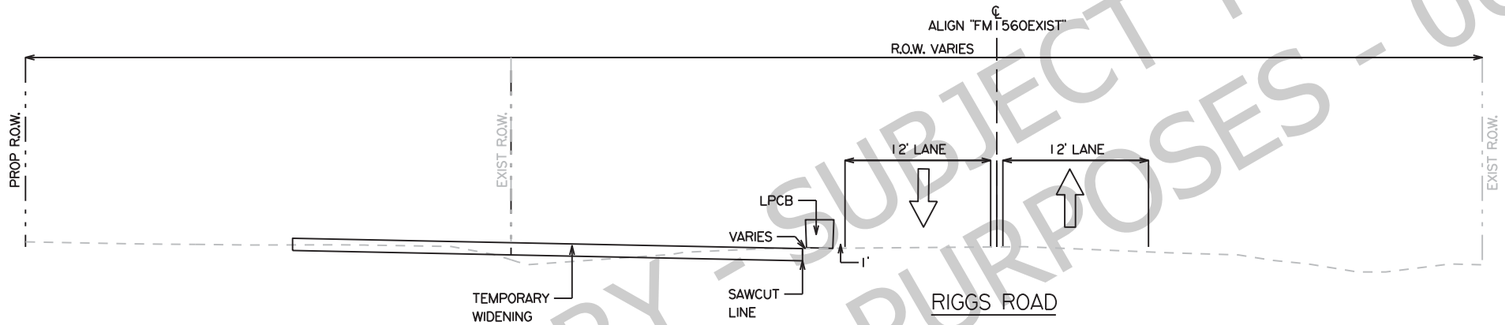


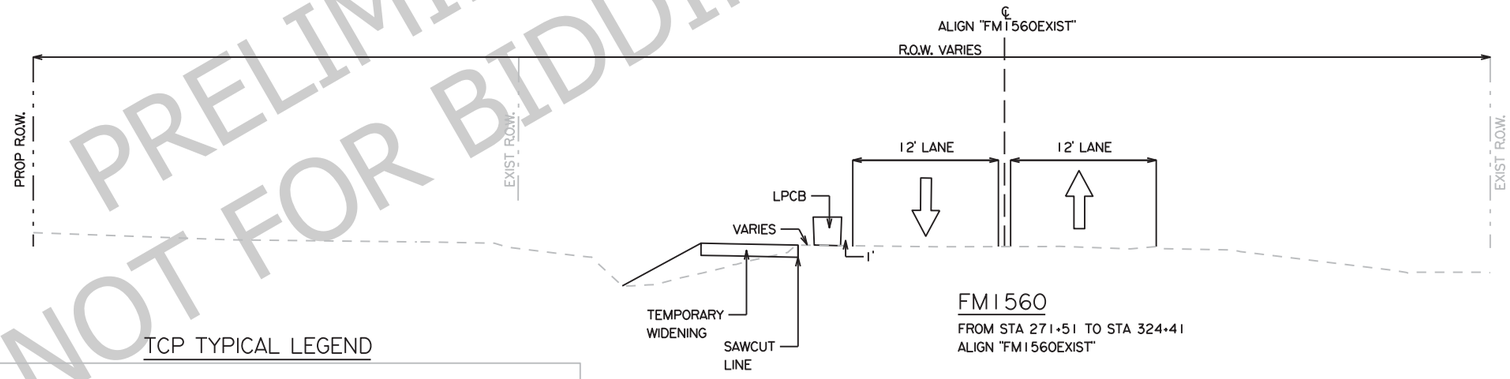
IRON HORSE WAY

FROM STA 249+01 TO STA 264+32
ALIGN "FM1560EXIST"



RIGGS ROAD

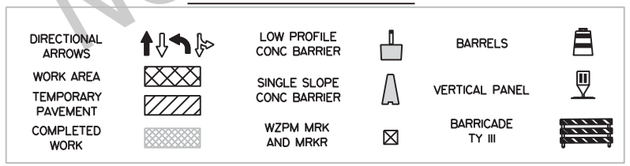
FROM STA 264+32 TO STA 271+51
ALIGN "FM1560EXIST"



FM1560

FROM STA 271+51 TO STA 324+41
ALIGN "FM1560EXIST"

TCP TYPICAL LEGEND



INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 3

SHEET 3 OF 4

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	37
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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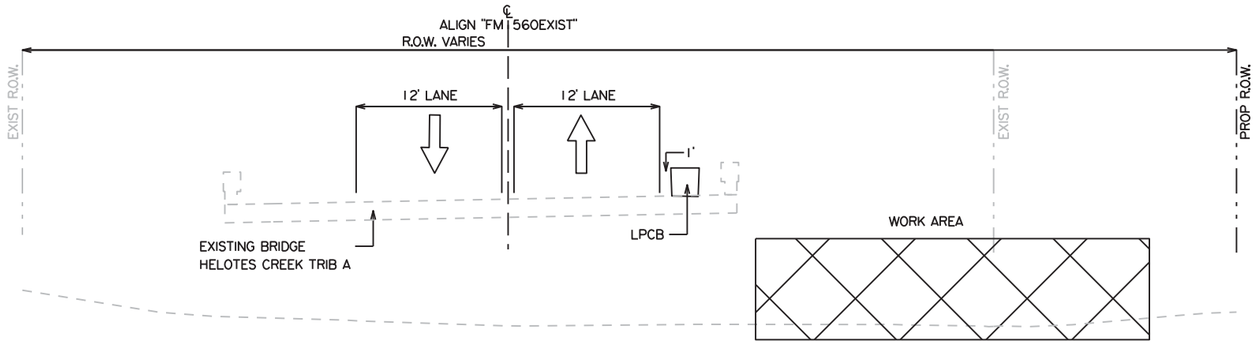
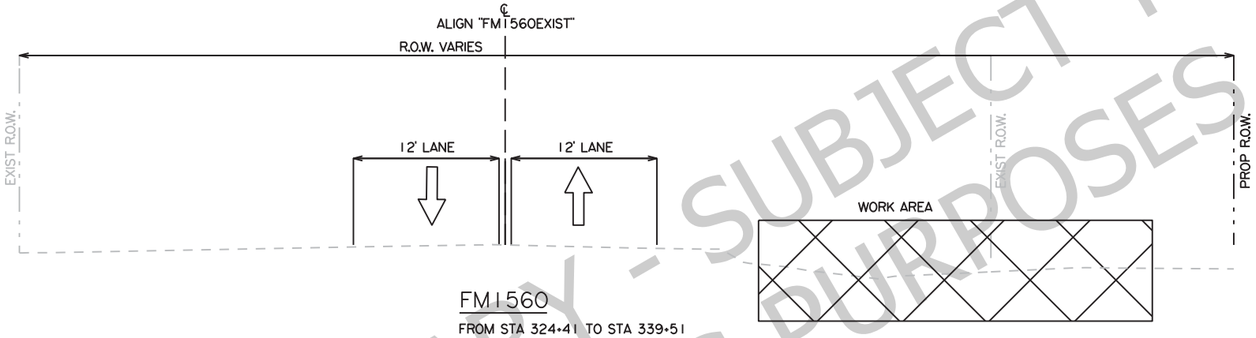


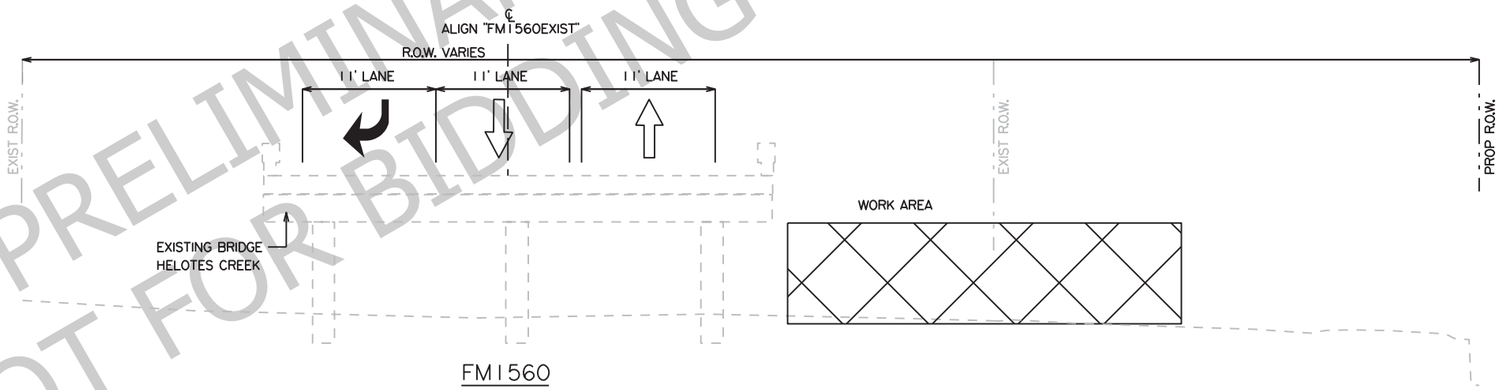
FM1560

FROM STA 339+51 TO STA 340+32
ALIGN "FM1560EXIST"



FM1560

FROM STA 324+41 TO STA 339+51
ALIGN "FM1560EXIST"



FM1560

FROM STA 376+30 TO STA 379+65
ALIGN "FM1560EXIST"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 3

SHEET 4 OF 4

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	38
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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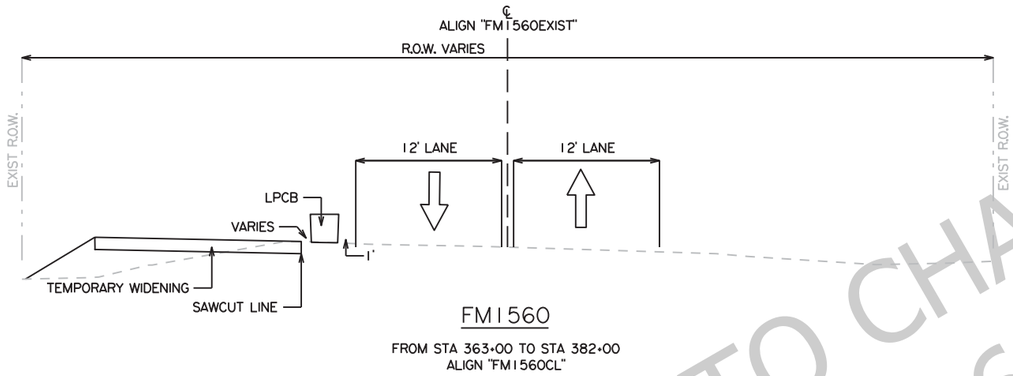

FM1560

FROM STA 363+00 TO STA 382+00
ALIGN "FM1560CL"

ANTONIO DRIVE

OPEN TO PROPOSED TYPICAL SECTION

IRON HORSE WAY

OPEN TO PROPOSED TYPICAL SECTION

RIGGS ROAD

OPEN TO PROPOSED TYPICAL SECTION

NOTES :

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

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FM 1560
TCP TYPICAL SECTIONS
PHASE 1 STEP 4

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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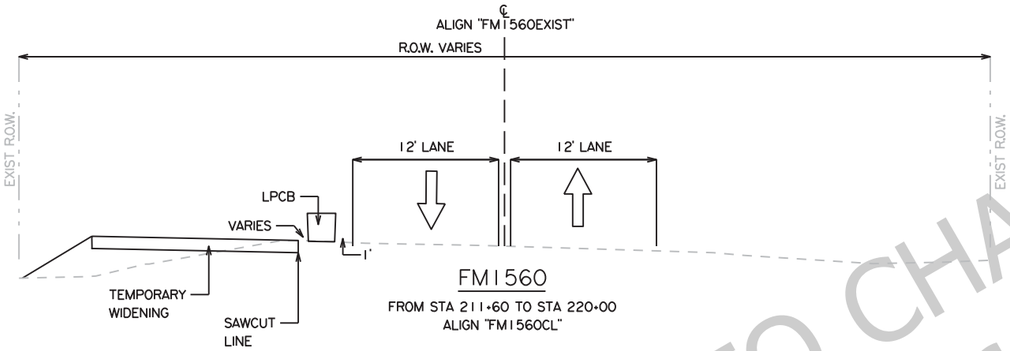

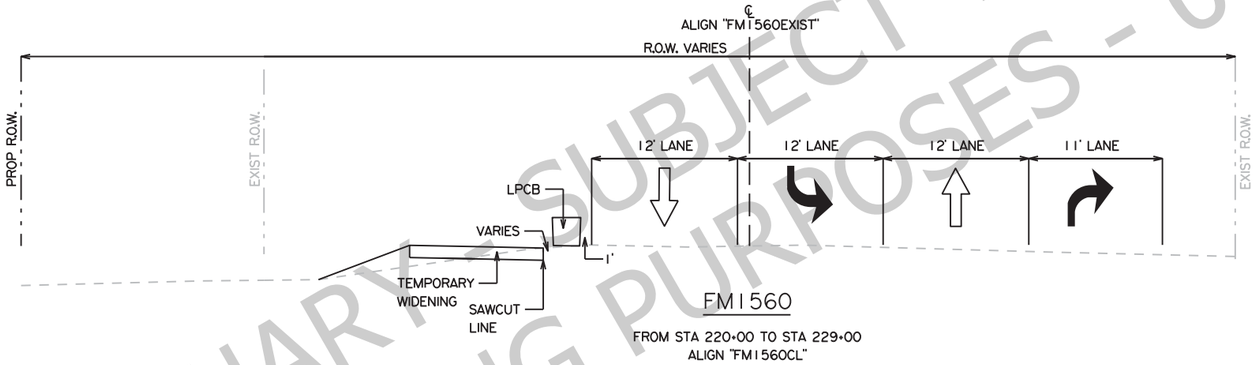

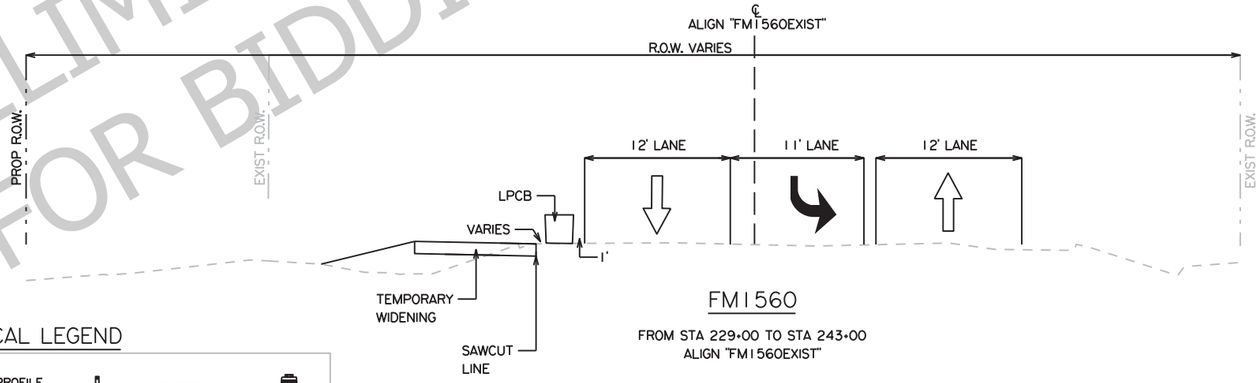

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

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DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 2

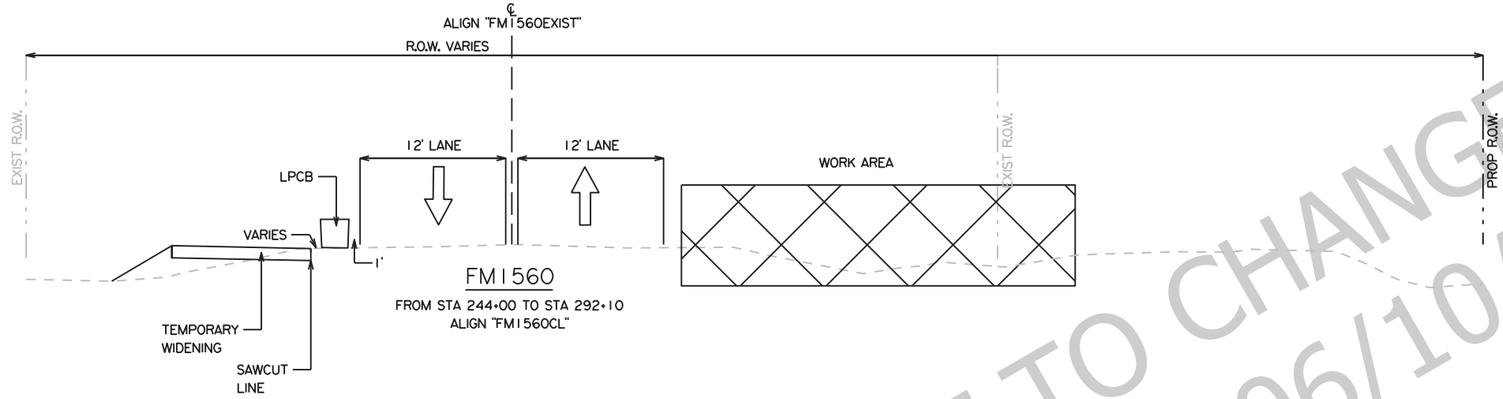
SHEET 1 OF 3

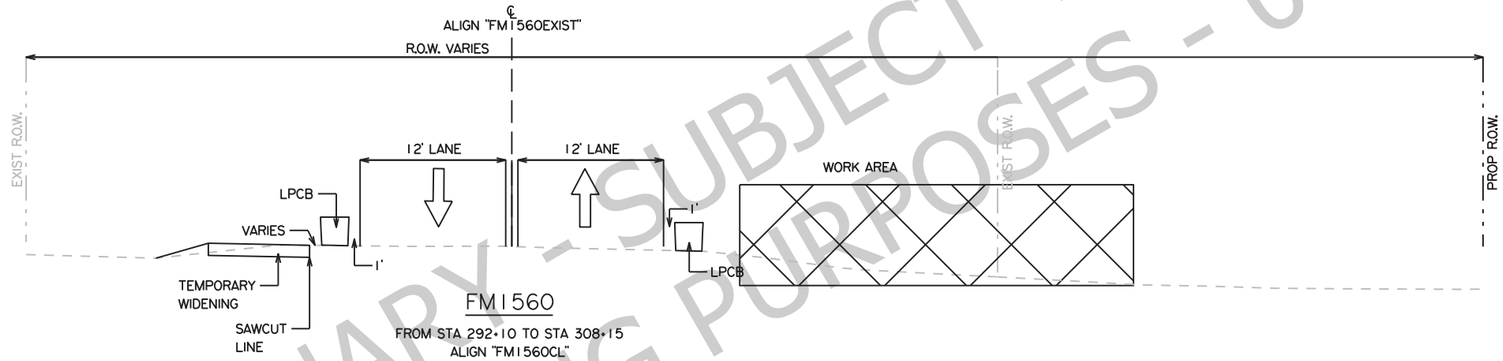
DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

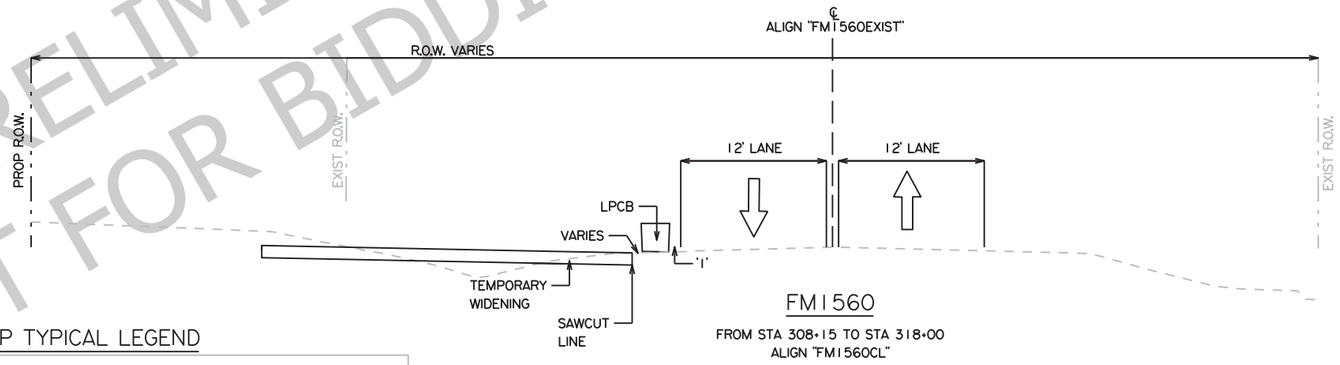
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	40

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560







TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 2

SHEET 2 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	41

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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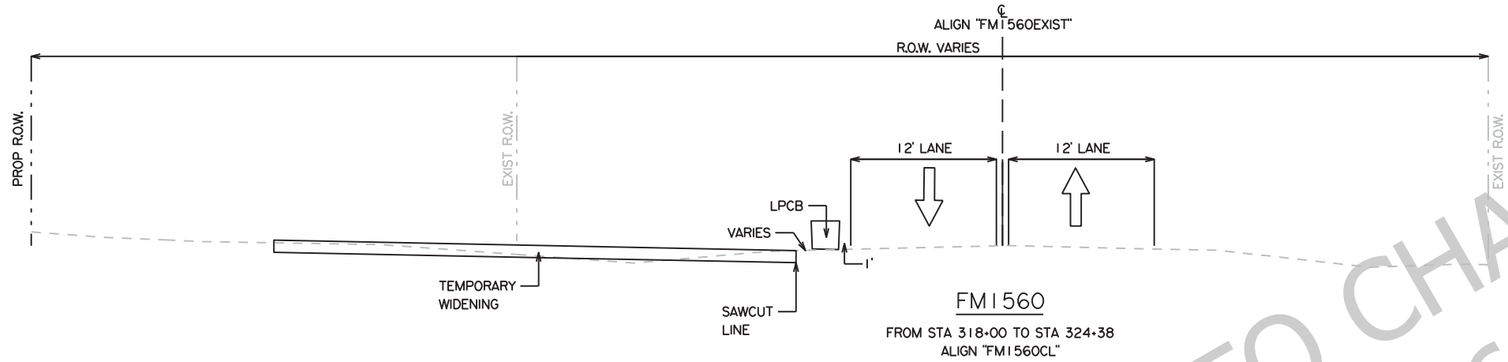
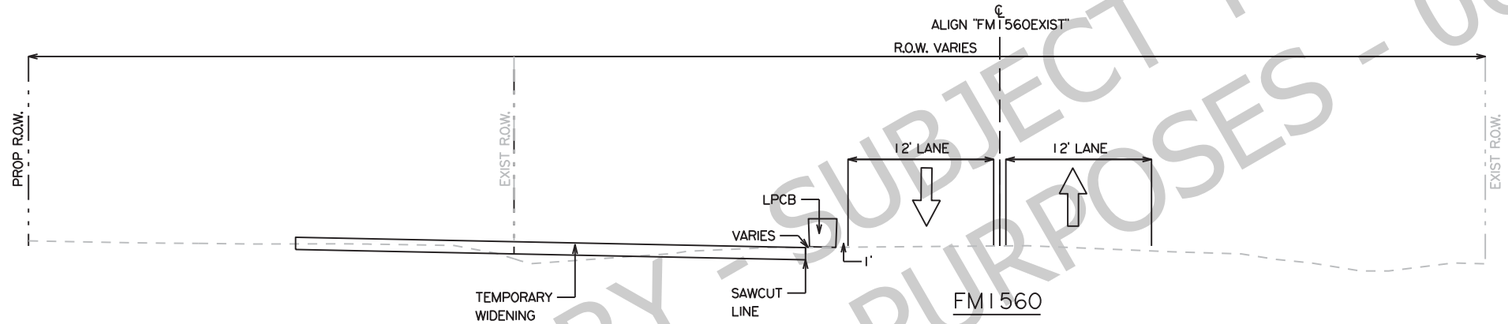


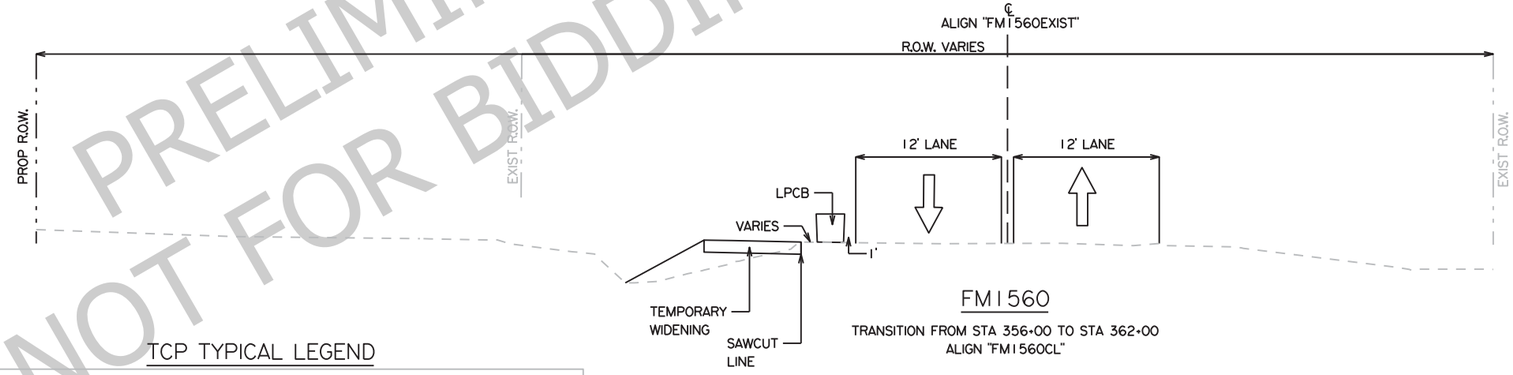
FM1560

FROM STA 318+00 TO STA 324+38
ALIGN "FM1560CL"



FM1560

FROM STA 324+18 TO STA 356+00
ALIGN "FM1560CL"



FM1560

TRANSITION FROM STA 356+00 TO STA 362+00
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 2

SHEET 3 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	42
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:18:16 AM
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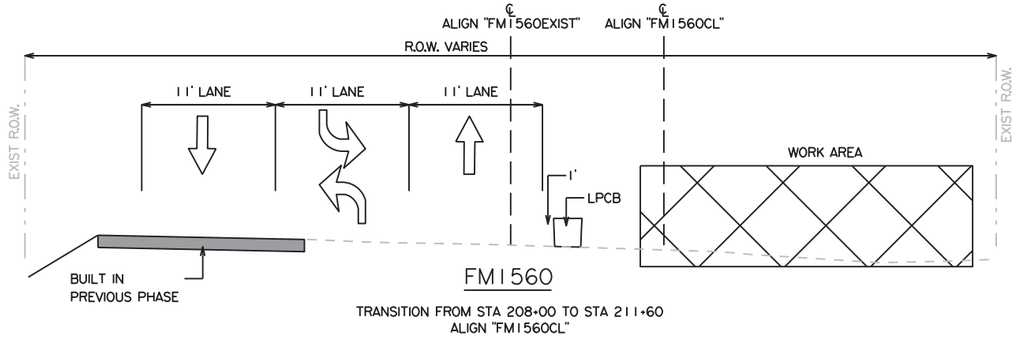
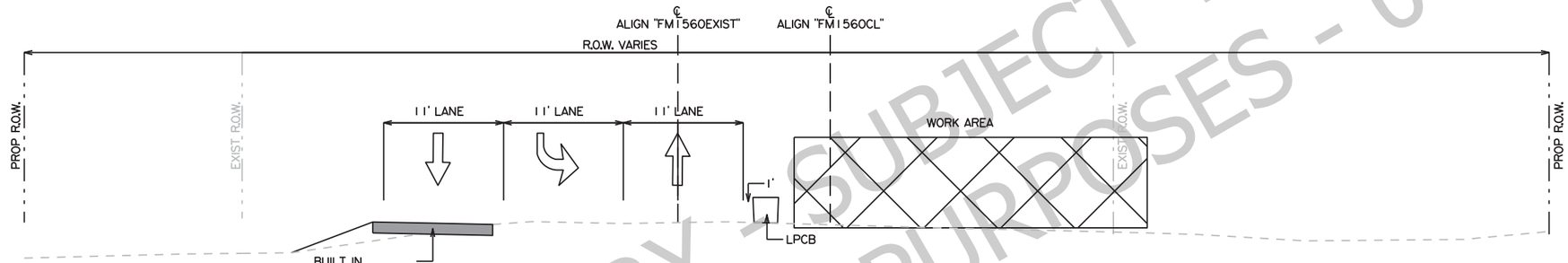


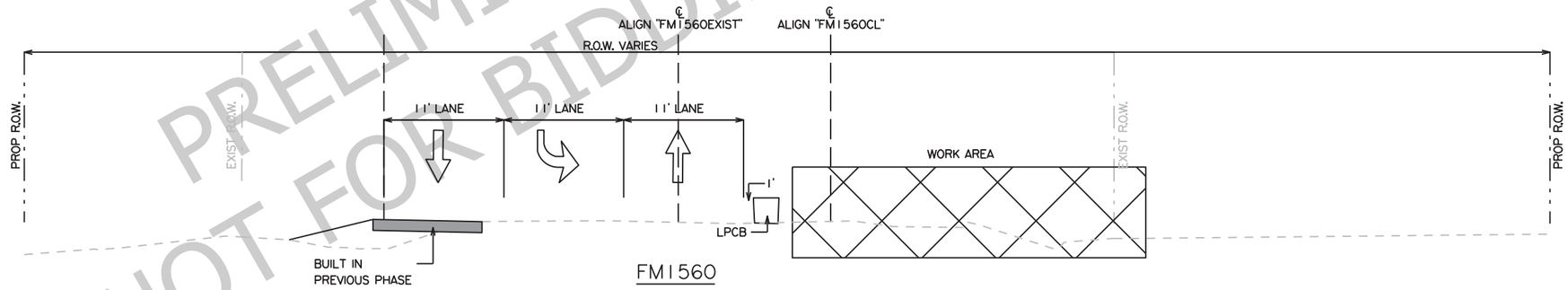
FM1560

TRANSITION FROM STA 208+00 TO STA 211+60
ALIGN "FM1560CL"



FM1560

FROM STA 211+60 TO STA 229+00
ALIGN "FM1560EXIST"



FM1560

FROM STA 229+00 TO STA 243+00
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 3

SHEET 1 OF 2

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	43
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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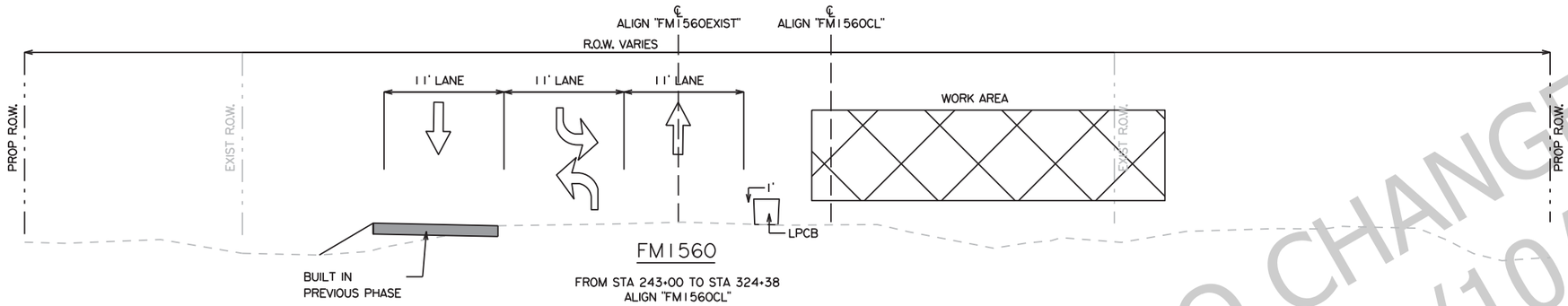
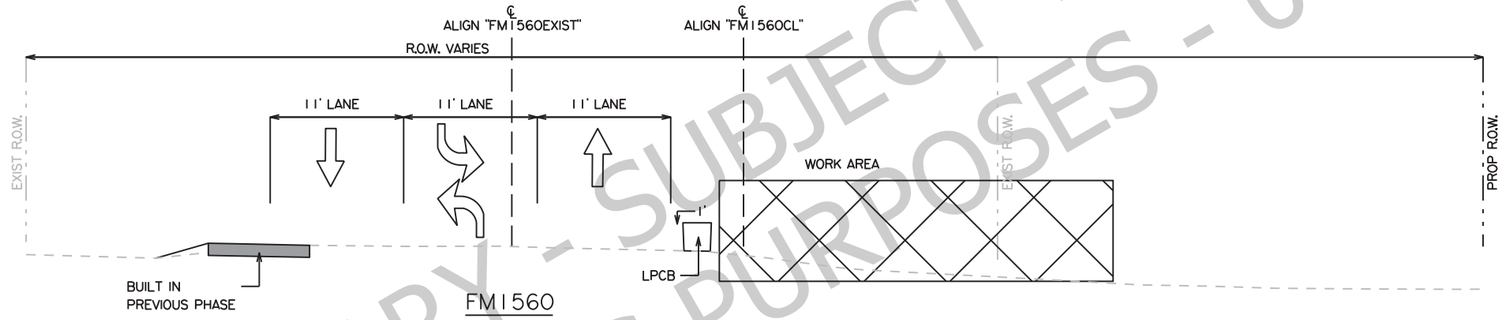


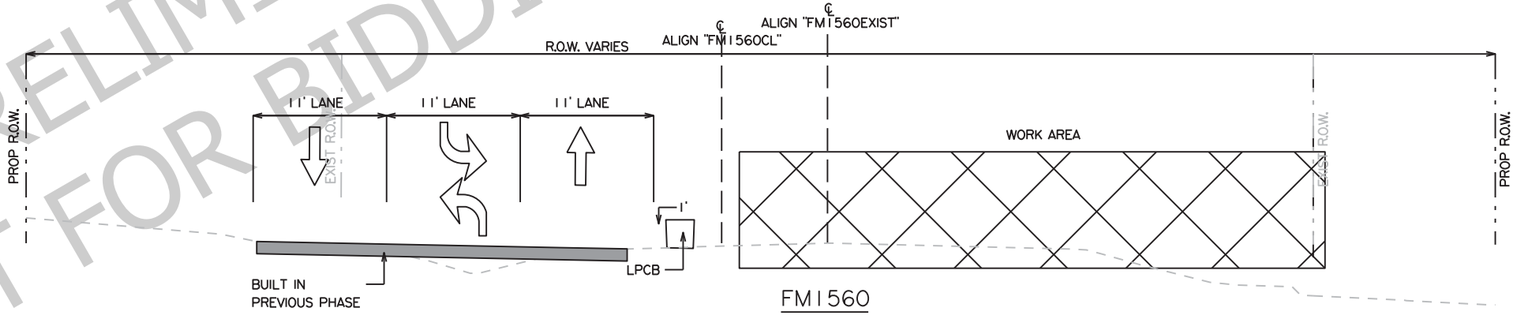
FM1560

FROM STA 243+00 TO STA 324+38
ALIGN "FM1560CL"



FM1560

FROM STA 324+38 TO STA 356+00
ALIGN "FM1560CL"



FM1560

EXISTING WORK ZONE TRANSITION FROM STA 356+00 TO STA 362+00
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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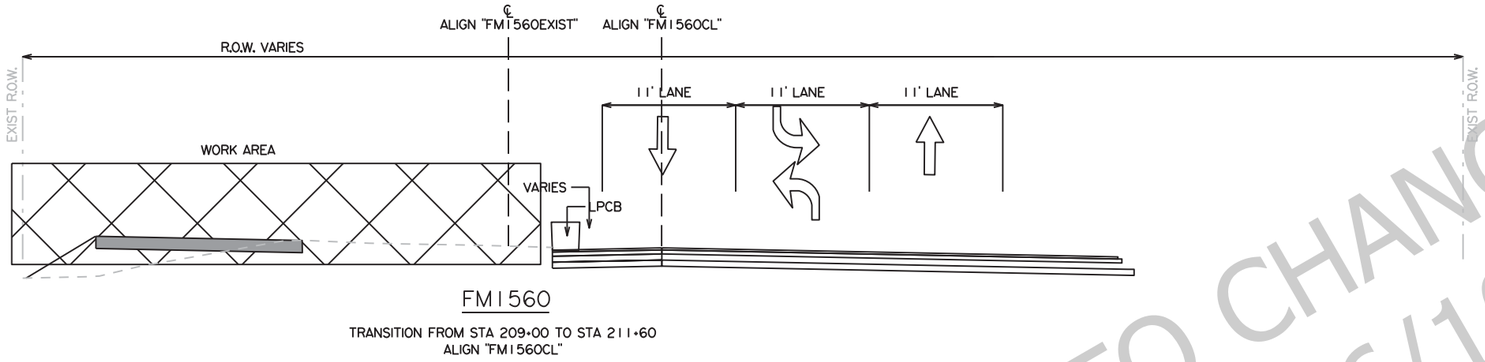
FM 1560
TCP TYPICAL SECTIONS
PHASE 3

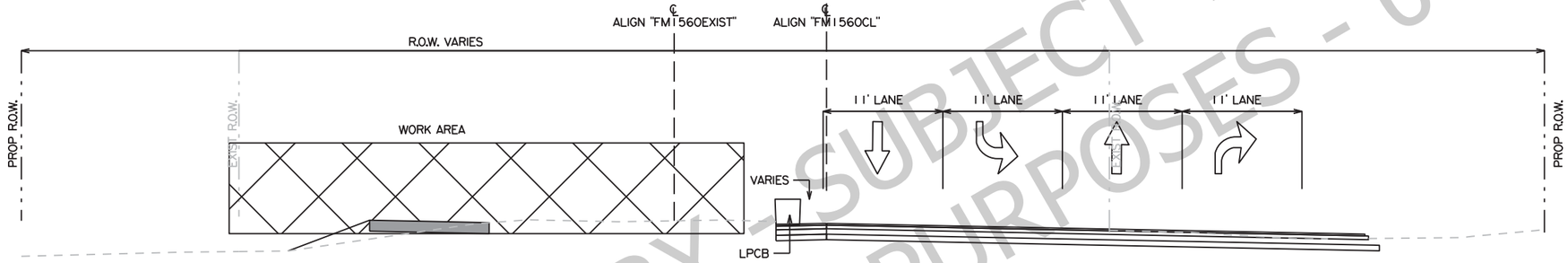
SHEET 2 OF 2

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	44
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



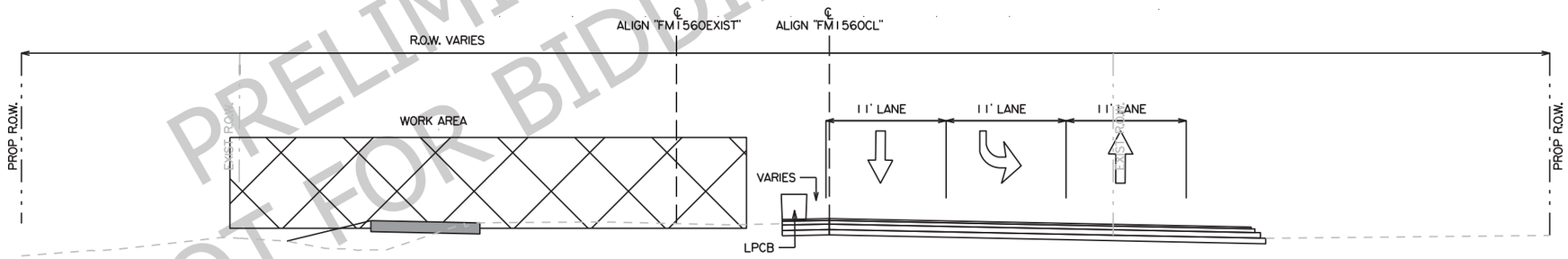
FM1560

TRANSITION FROM STA 209+00 TO STA 211+60
ALIGN "FM1560CL"



FM1560

FROM STA 211+60 TO STA 356+00
ALIGN "FM1560CL"



FM1560

TRANSITION FROM STA 356+00 TO STA 362+00
ALIGN "FM1560CL"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 4

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	45
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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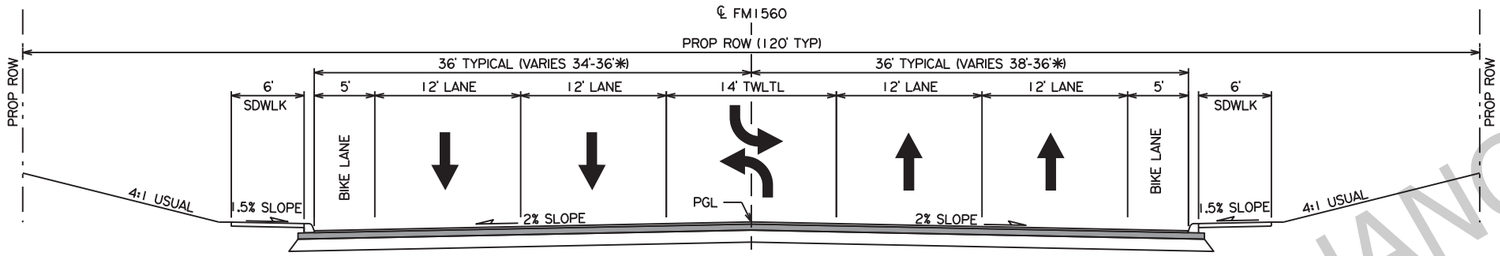
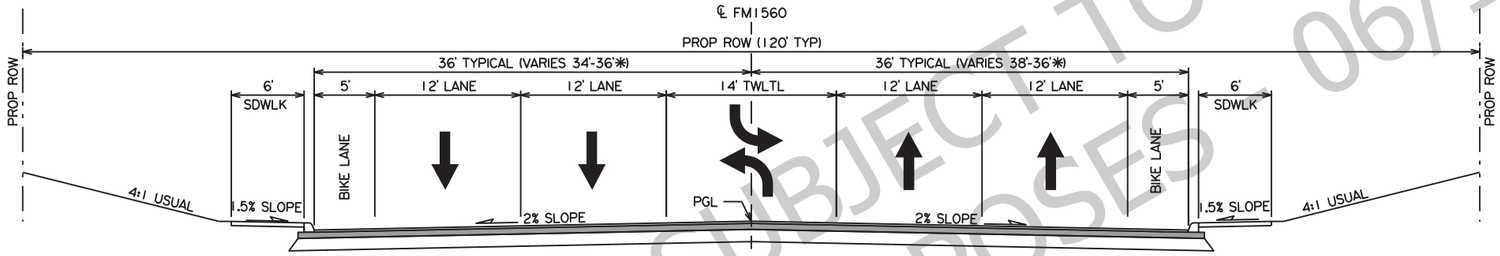


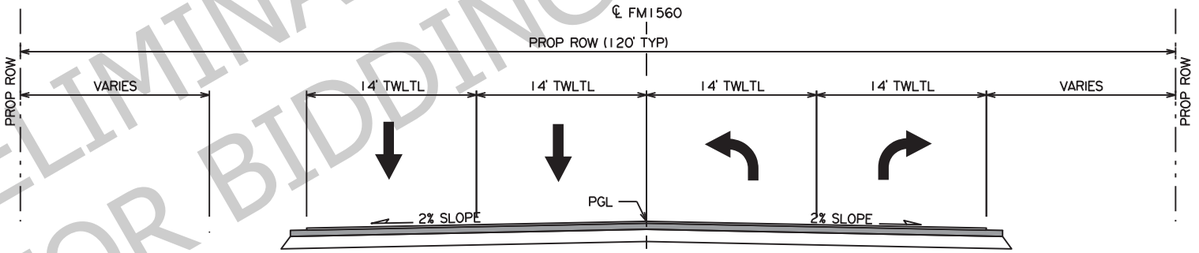
FM1560 NB

PROP OVERLAY FROM STA 211+60 TO STA 356+00
(REMOVE TRANSITION FROM STA 209+00 TO STA 211+60)
ALIGN "FM1560CL"



FM1560 SB

PROP OVERLAY FROM STA 211+60 TO STA 356+00
(REMOVE PHASE 4 TRANSITION FROM STA 356+00 TO STA 362+00)
ALIGN "FM1560CL"



BRAUN ROAD

PROP OVERLAY FROM STA 231+13 TO STA 234+16
ALIGN "BRAUN"

TCP TYPICAL LEGEND

DIRECTIONAL ARROWS		LOW PROFILE CONC BARRIER		BARRELS	
WORK AREA		SINGLE SLOPE CONC BARRIER		VERTICAL PANEL	
TEMPORARY PAVEMENT		WZPM MRK AND MRKR		BARRICADE TY III	
COMPLETED WORK					

NOTES :

- PIN ALL LPCTB TY 2
- WORK ZONE PAVEMENT MARKINGS ARE REQUIRED WITHIN PROJECT LIMITS SEE TCP PLAN LAYOUTS FOR QUANTITIES.
- SAWCUT LONGITUDINALLY, FOR ALL PAVEMENT TIE-INS AND ADJACENT TEMP STRUCTURES, WHEN BEING PLACED AT OR NEAR EXISTING PAVEMENT.
- CONFLICTS WITH EXISTING PAVEMENT: SAWCUT TYPICALLY 1 FT OFFSET OF PROPOSED FM1560CL (OPPOSITE PHASE WORK AREA). COLLABORATE WITH PROJECT ENGINEER ON ALL CONFLICTS WITH SAWCUTS.

PRELIMINARY - SUBJECT TO CHANGE
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DATE: 6/9/2020

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FM 1560
TCP TYPICAL SECTIONS
PHASE 5

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	46
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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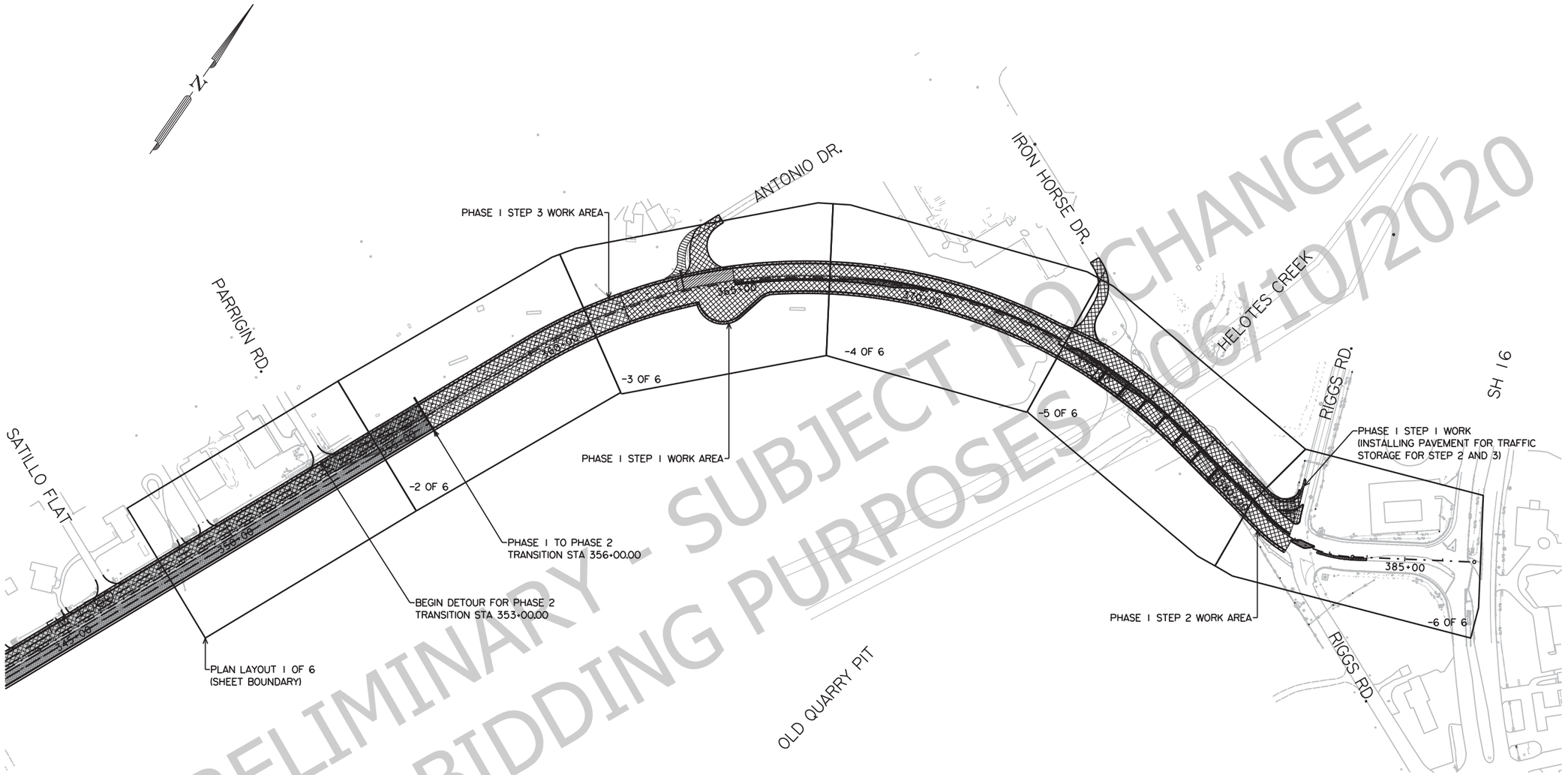

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PHASE 1 NOTES:

-SEE TCP NARRATIVE FOR ADDITIONAL DETAILS

-THERE ARE 4 STEPS FOR PHASE 1. PHASE 1 INTENT IS TO COMPLETE FM1560 CORRIDOR BETWEEN ANTONIO DR AND RIGGS RD, PRIOR TO ANY WORK OR TRAFFIC IMPACTS TO REST OF PROJECT.

-STEP 1 INSTALLS A BASE PAVEMENT STRUCTURE IN UNDISTURBED GROUND AT RIGGS ROAD (MAKING ROOM FOR WORK IN STEPS 2 AND 3); BUILDS THE NORTHBOUND PAVEMENT STRUCTURE AND PERTINENT CONCRETE STRUCTURES OF FM 1560;

-STEP 2 TIES IN THE NORTH BOUND PAVEMENT STRUCTURE OF FM 1560 INTO THE INTERSECTION AT RIGGS ROAD AS WELL AS ALL PERTINENT UTILITY ADJUSTMENTS AND TRAFFIC MANAGEMENT DEVICES.

-STEP 3 BUILDS THE SB PAVEMENT STRUCTURE AND PERTINENT CONCRETE STRUCTURES OF FM 1560

-STEP 4 BUILDS THE MEDIAN ISLANDS; TRANSITION DETOUR TO PHASE 2 WORK; INSTALLS LONG TERM WORK ZONE MARKINGS; INSTALLS PERMANENT TRAFFIC MANAGEMENT DEVICES; BEGINS COMPLETES FLATWORK AND VEGETATION ESTABLISHMENT.

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1" = 300'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 LAYOUT

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	47
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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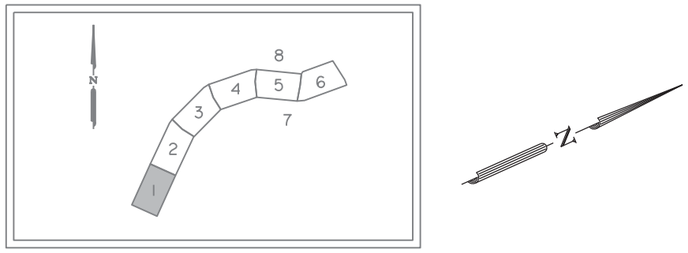

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

SBDW46

SBDW47

EXIST ROW

FM 1560 SB

FM 1560 NB

350+00

350+00

EXIST ROW

ALIGN "FM1560CL"

PARRIGIN

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

ALIGN "FM1560_EXIST"

FM 1560 MATCH LINE STA. 348+00.00

FM 1560 MATCH LINE STA. 354+50.00

PROP ROW

INSTALL DRAINAGE STRUCTURE
SECONDARY PRIORITY

INSTALL NB PORTION OF BCS STRUCTURE

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 1 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	48
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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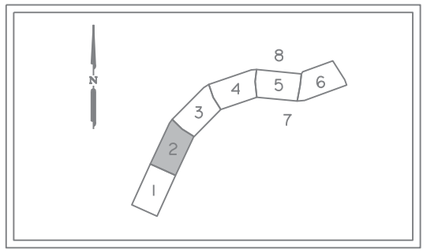

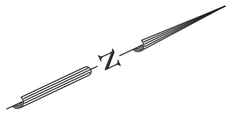

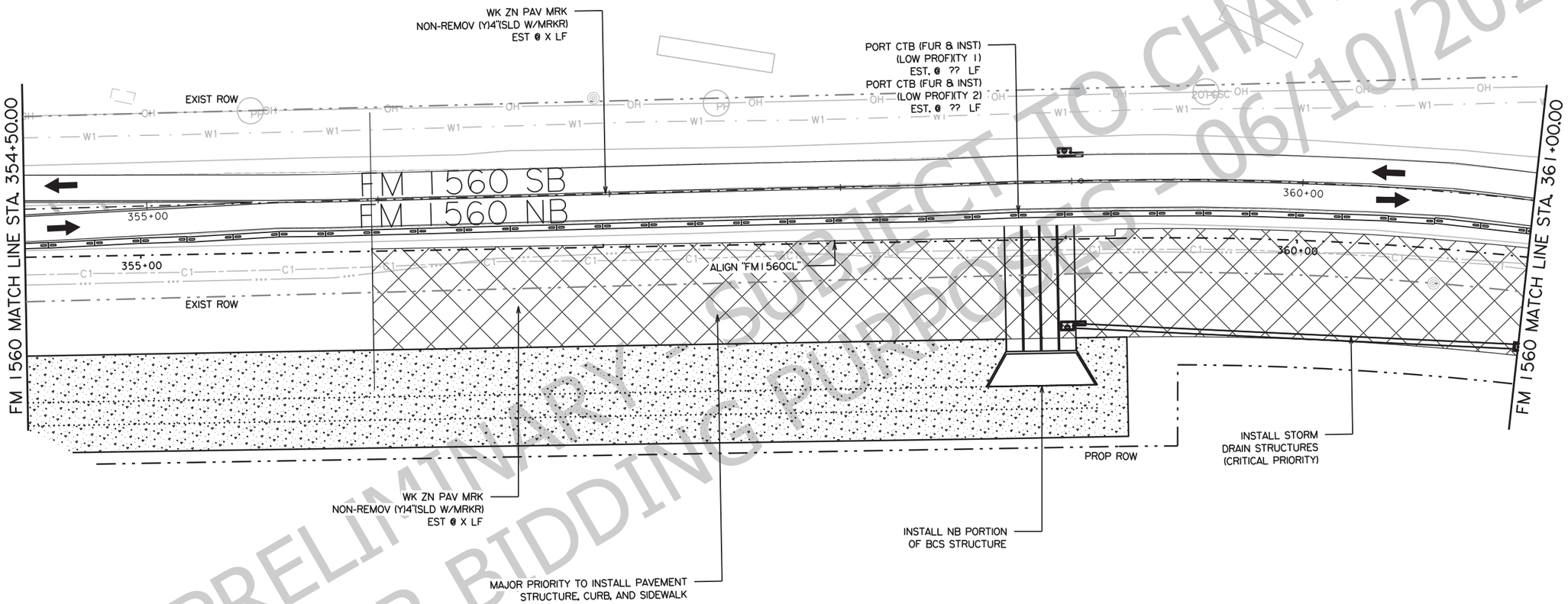

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 2 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	49
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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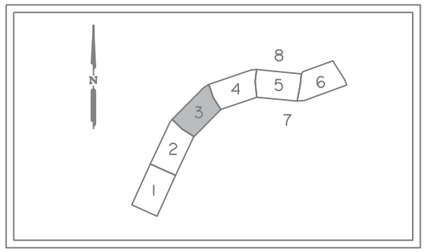

N

INSTALL TRAFFIC SIGNAL CONTROLLER AND CONDUITS IN THIS PHASE

OTHERS ROW

ANTONIO DR

PROP ROW

PORT CTB (FUR & INST)
(LOW PROF)(TY 1)
EST. @ ?? LF
PORT CTB (FUR & INST)
(LOW PROF)(TY 2)
EST. @ ?? LF

PORT CTB (FUR & INST)
(LOW PROF)(TY 1)
EST. @ ?? LF
PORT CTB (FUR & INST)
(LOW PROF)(TY 2)
EST. @ ?? LF

WK ZN PAV MRK
NON-REMOV (Y14"(SLD W/MRKR)
EST @ X LF

EXIST ROW

EXIST ROW

FM 1560 SB

FM 1560 NB

ALIGN 'FM1560CL'

365+00

365+00

FM 1560 MATCH LINE STA 361+00.00

FM 1560 MATCH LINE STA 367+50.00

EXIST ROW

PROP ROW

INSTALL SIGNALS SHOWN IN THIS PHASE
USE AS TEMPORARY AS DIRECTED BY ENGINEER

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 3 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	50
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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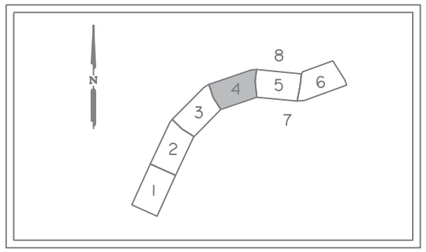

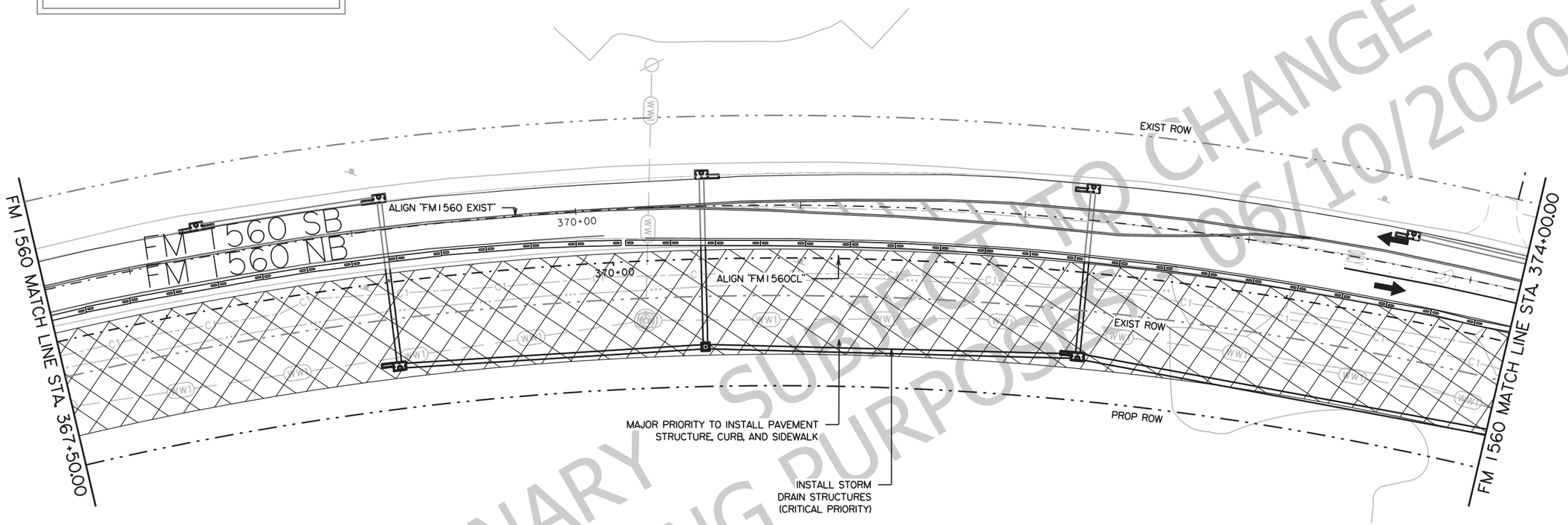

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 4 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	51
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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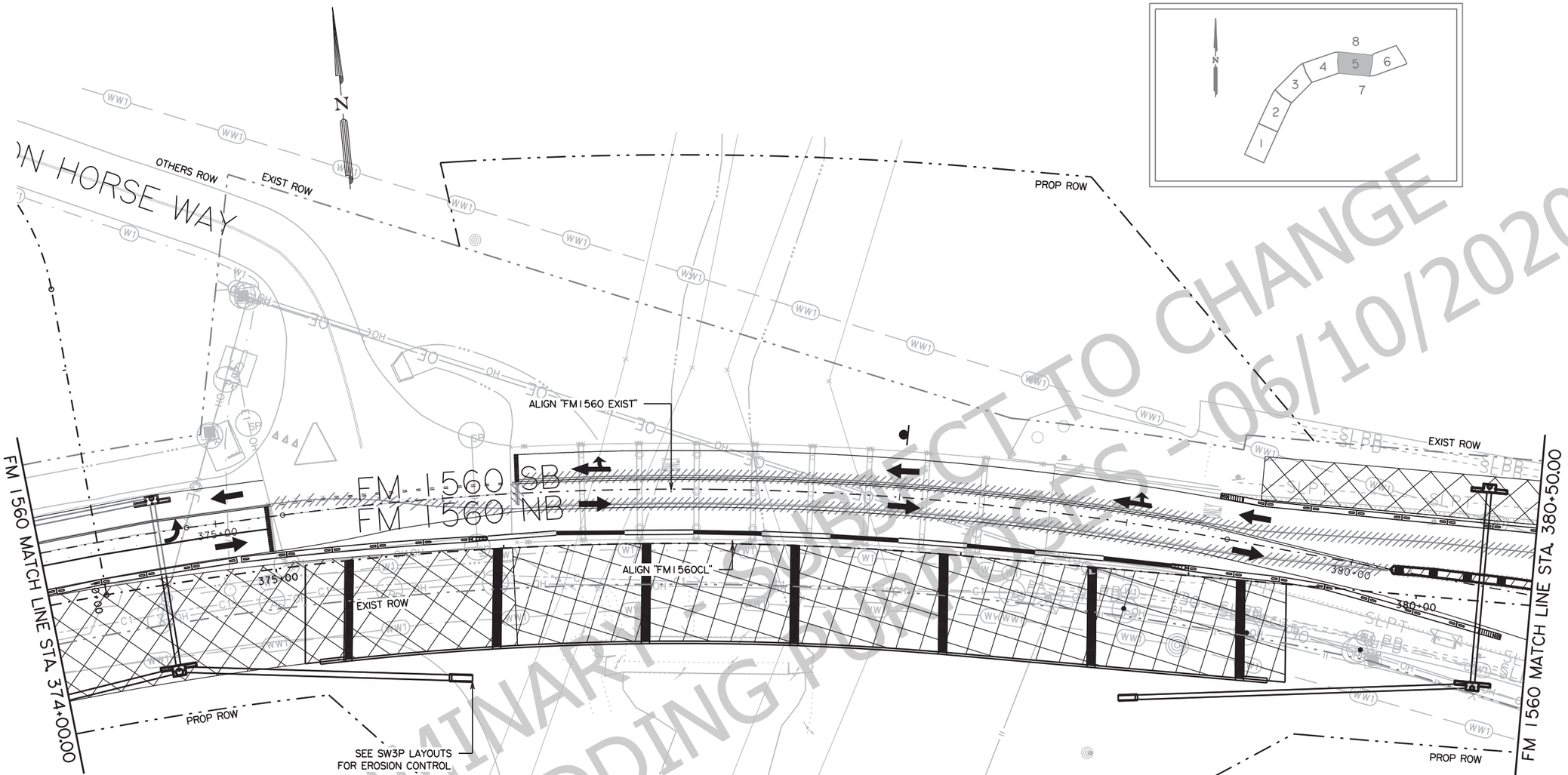

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 5 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	52
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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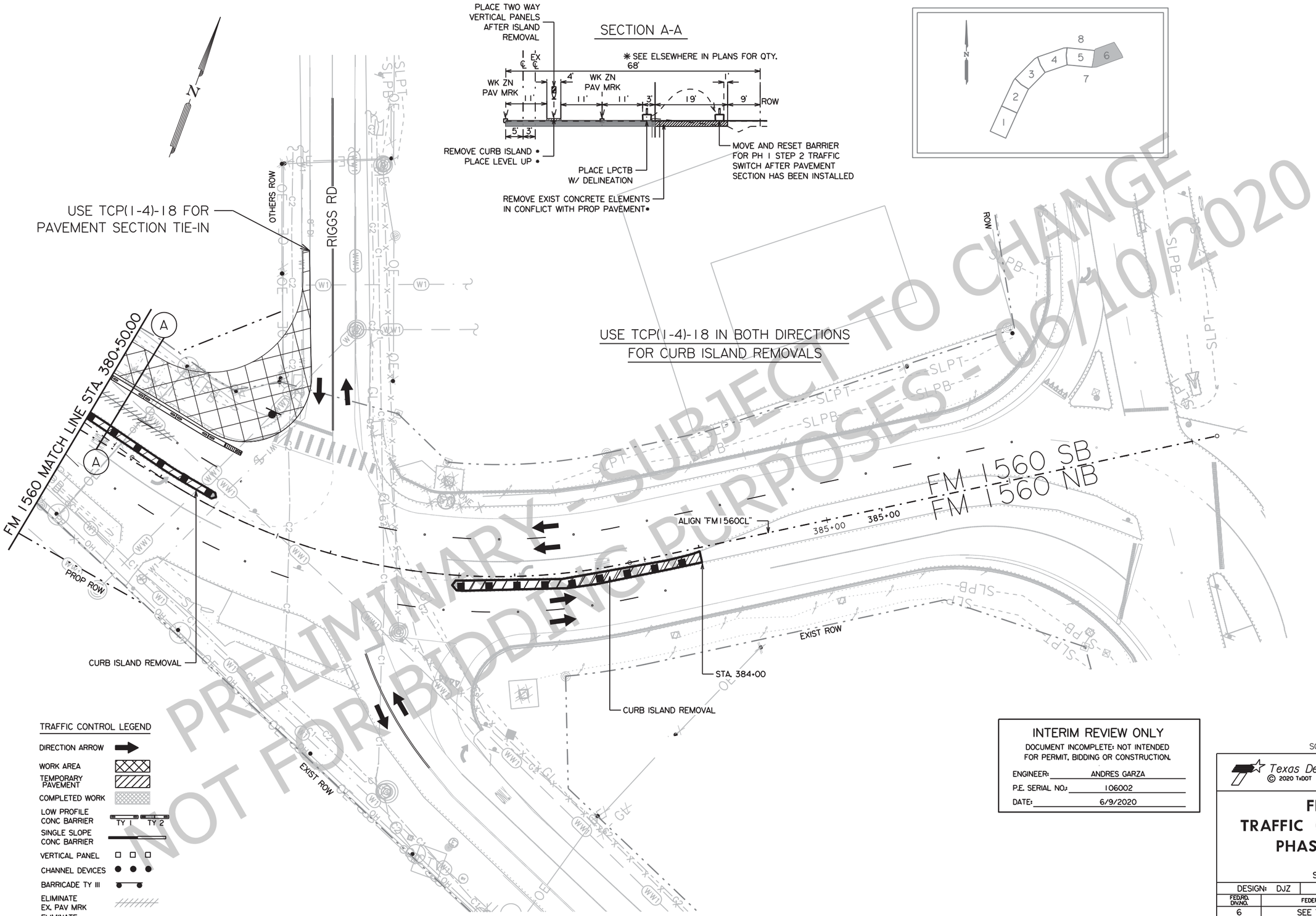

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 6 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	53
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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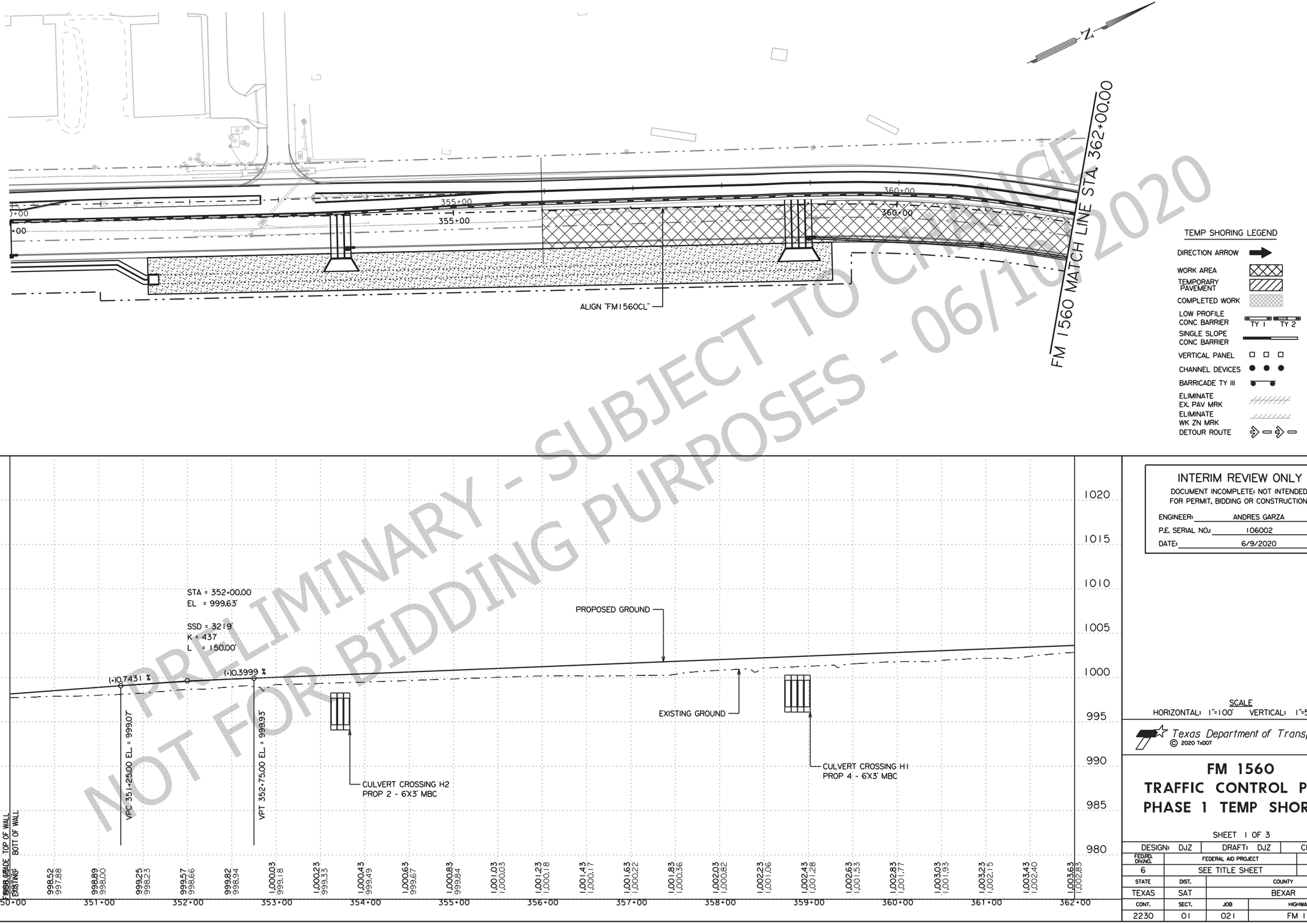

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMP SHORING

SHEET 1 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	54
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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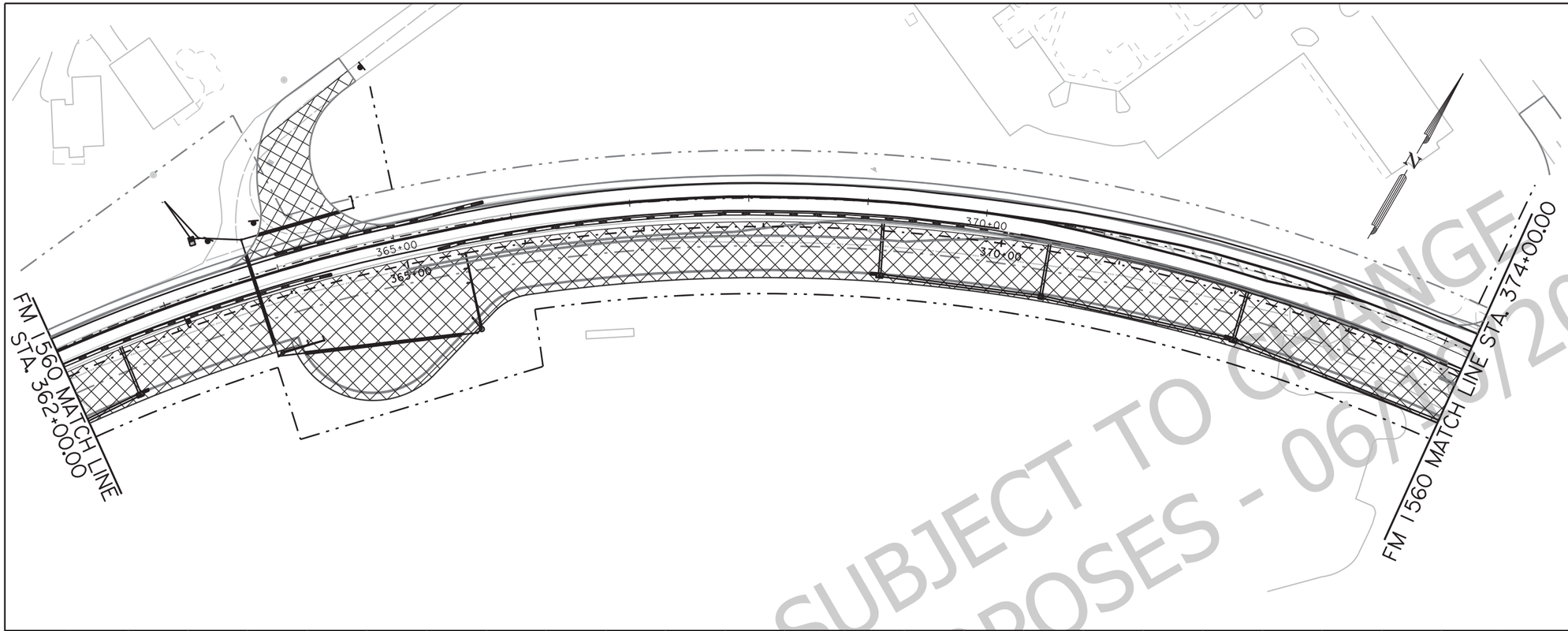
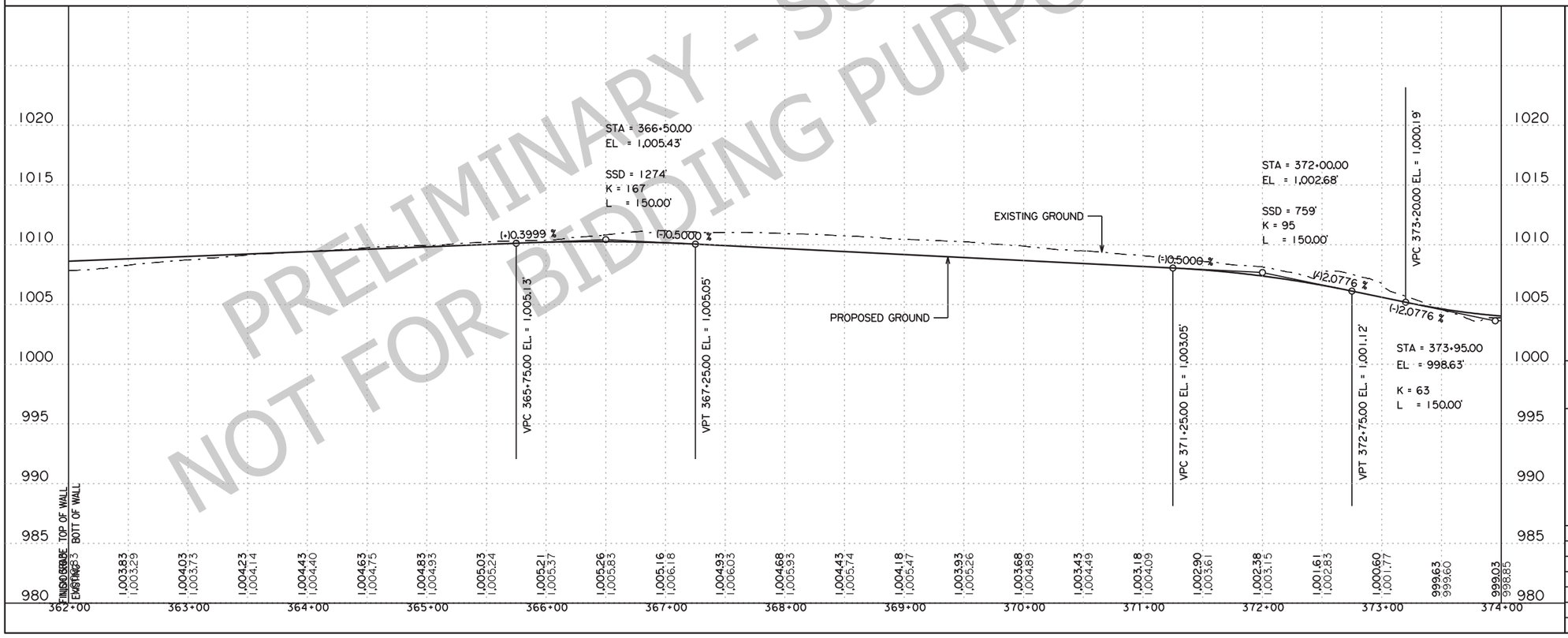


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

SUBJECT TO CHANGE
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/15/2020



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMP SHORING

SHEET 2 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	55

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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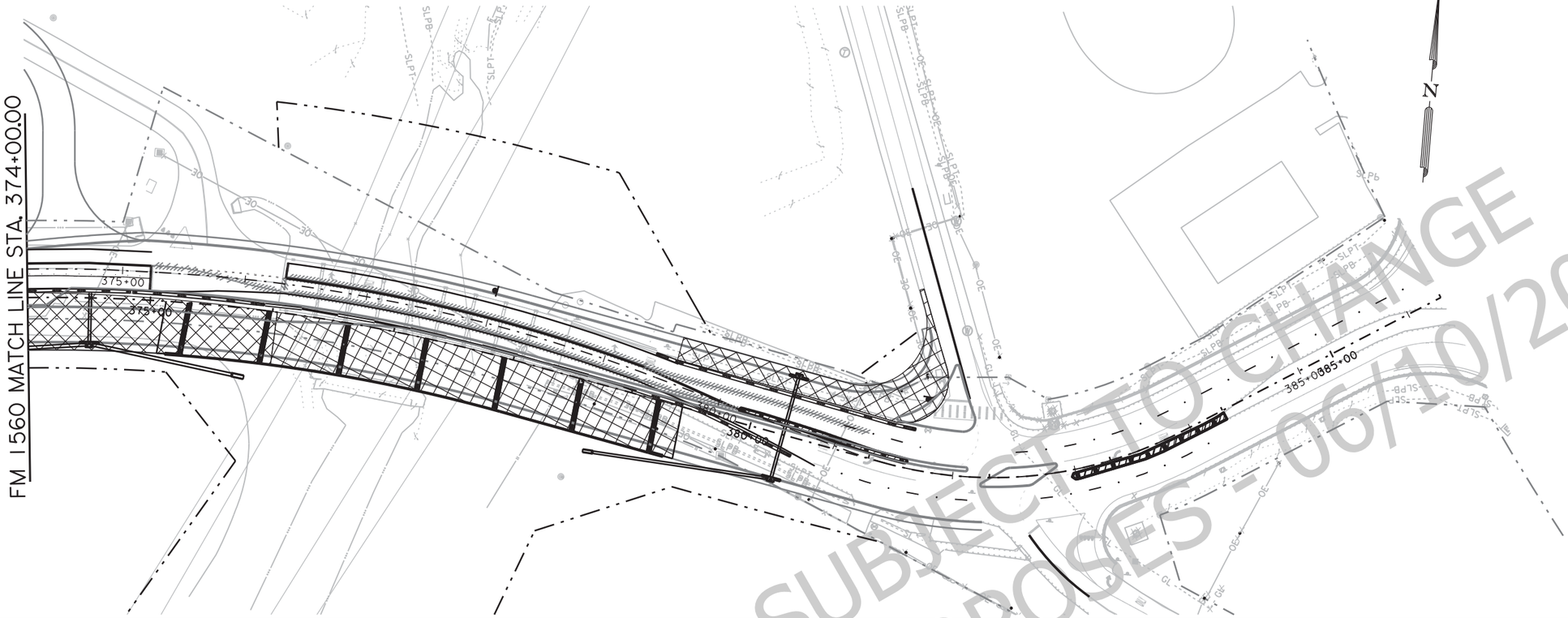
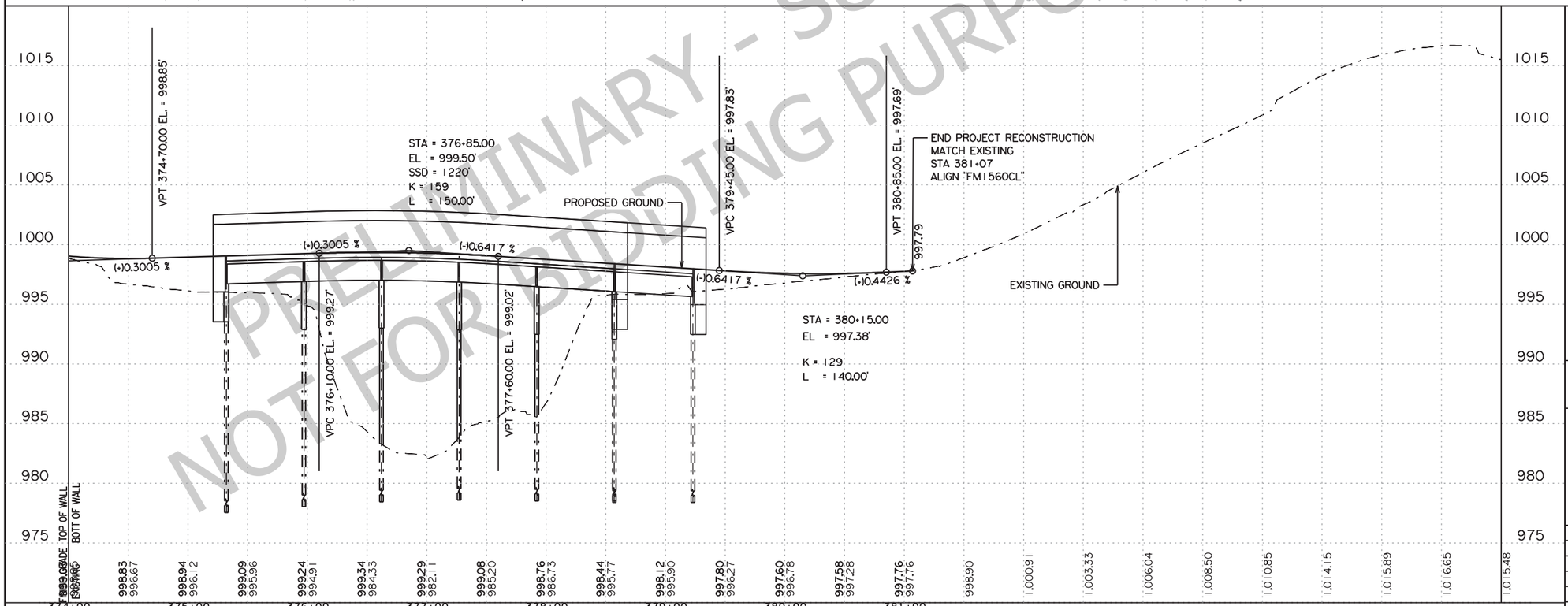
FM 1560 MATCH LINE STA. 374+00.00



TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

SUBJECT TO CHANGE
PRELIMINARY - 06/10/2020
NOT FOR BIDDING PURPOSES



INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMP SHORING

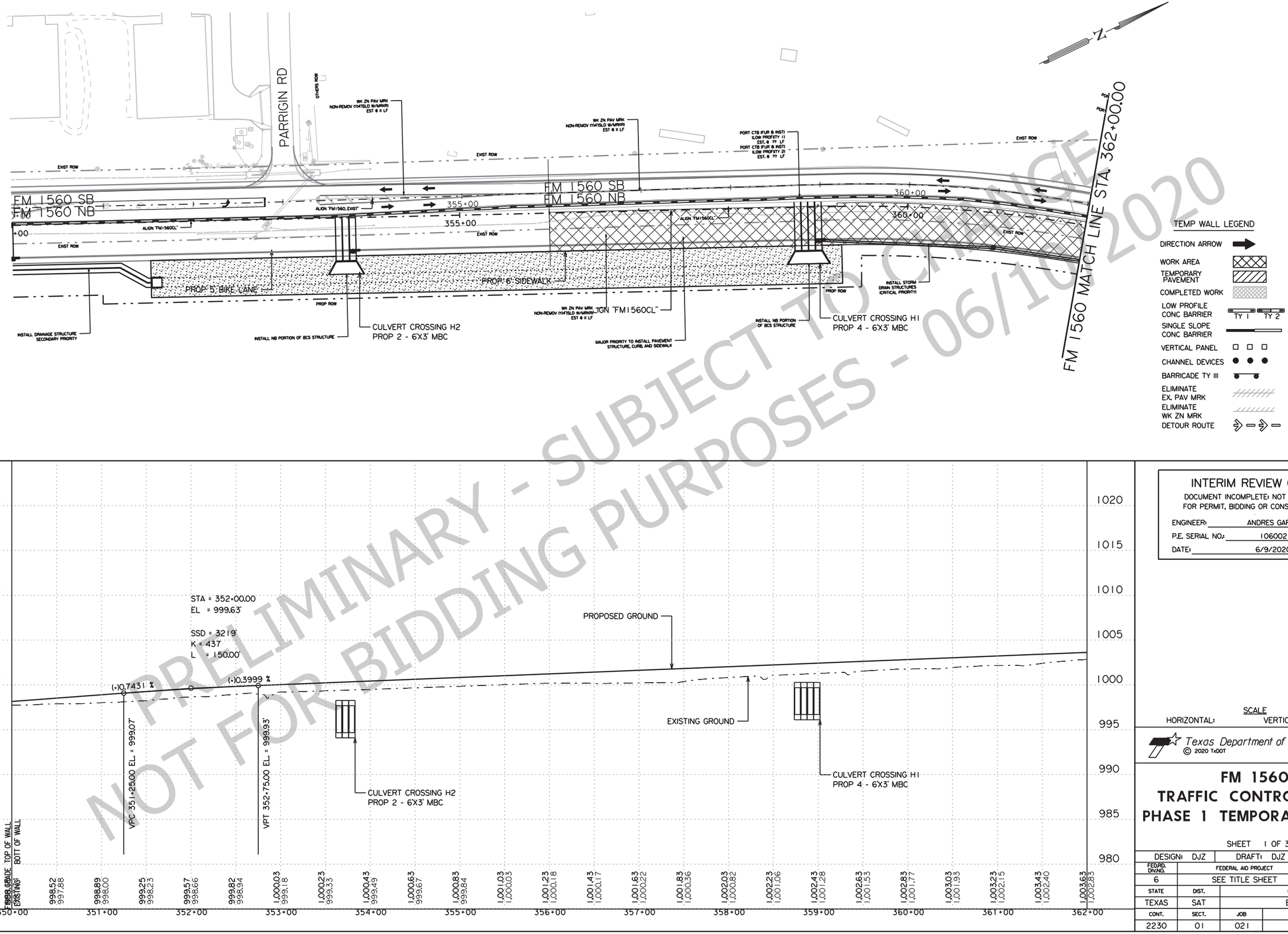
SHEET 3 OF 3

DESIGN: TDJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



SUBJECT TO CHANGE
PRELIMINARY - NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMPORARY WALL

SHEET 1 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

57

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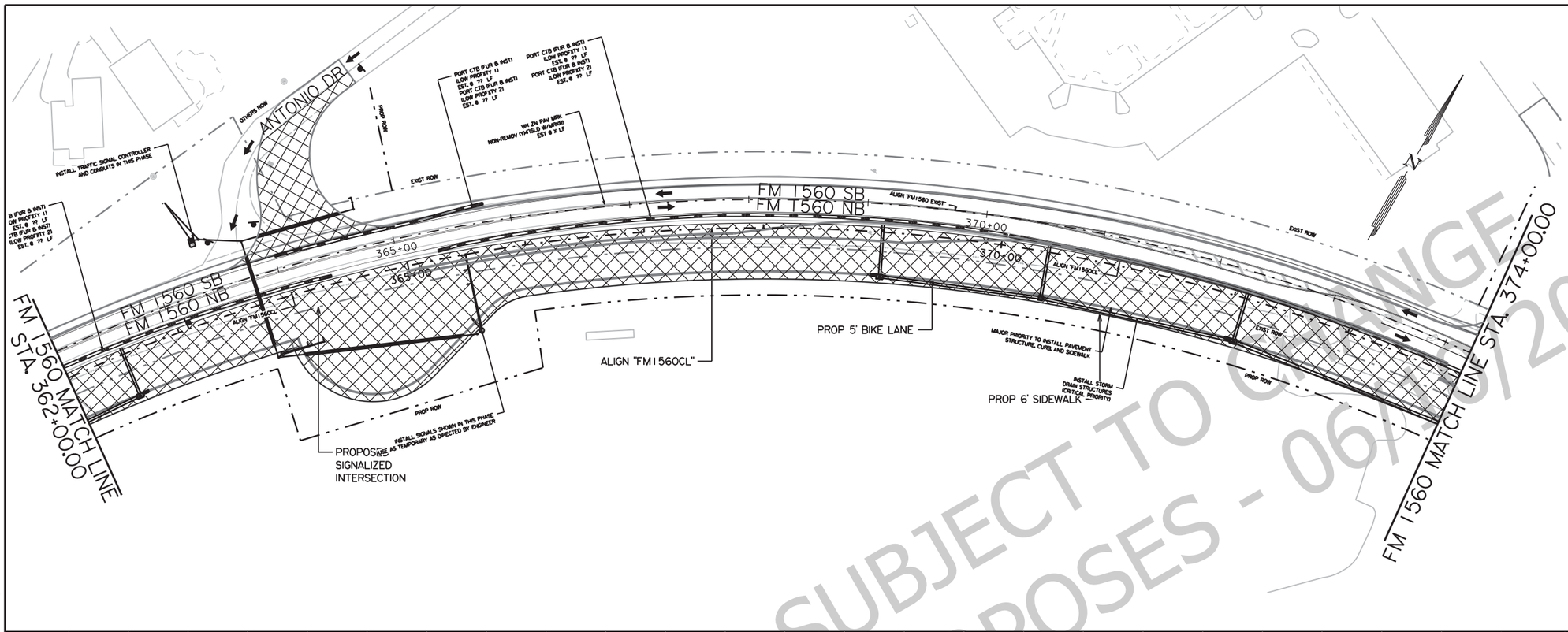
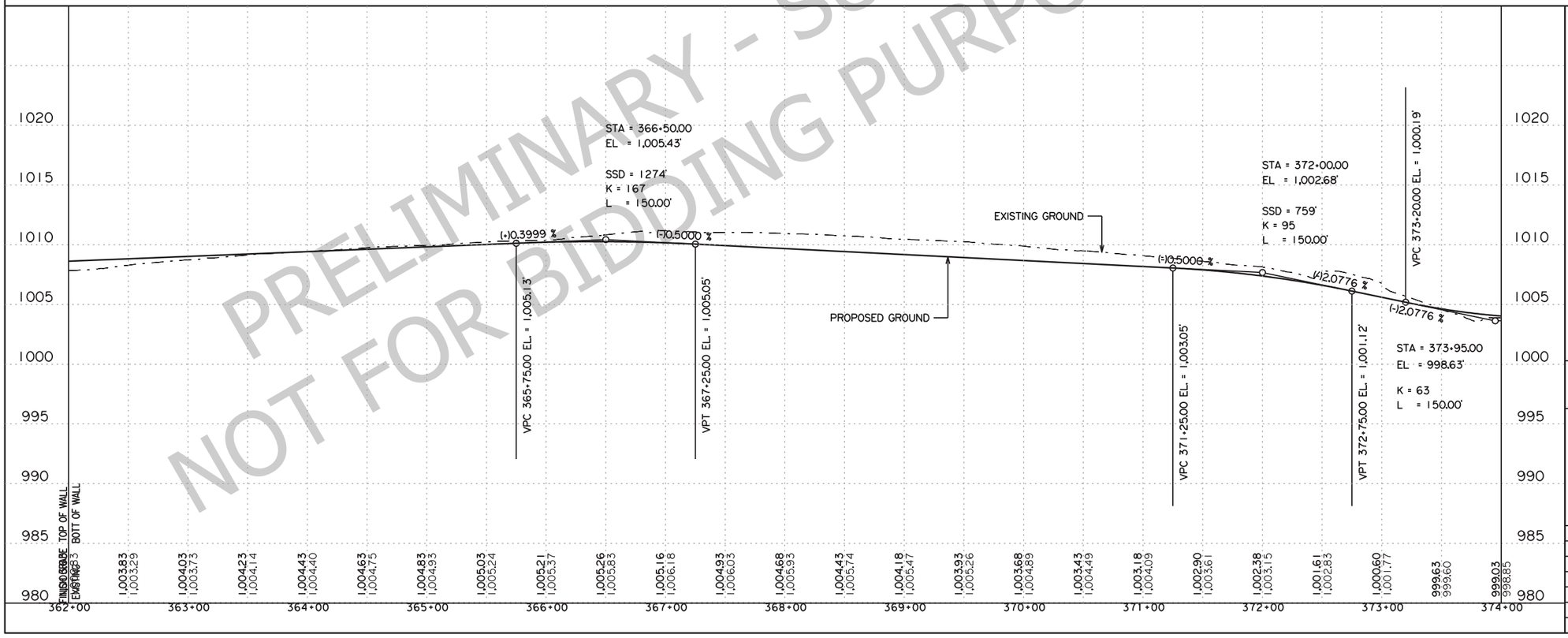


TEMP WALL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/9/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMPORARY WALL

SHEET 2 OF 3

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	58

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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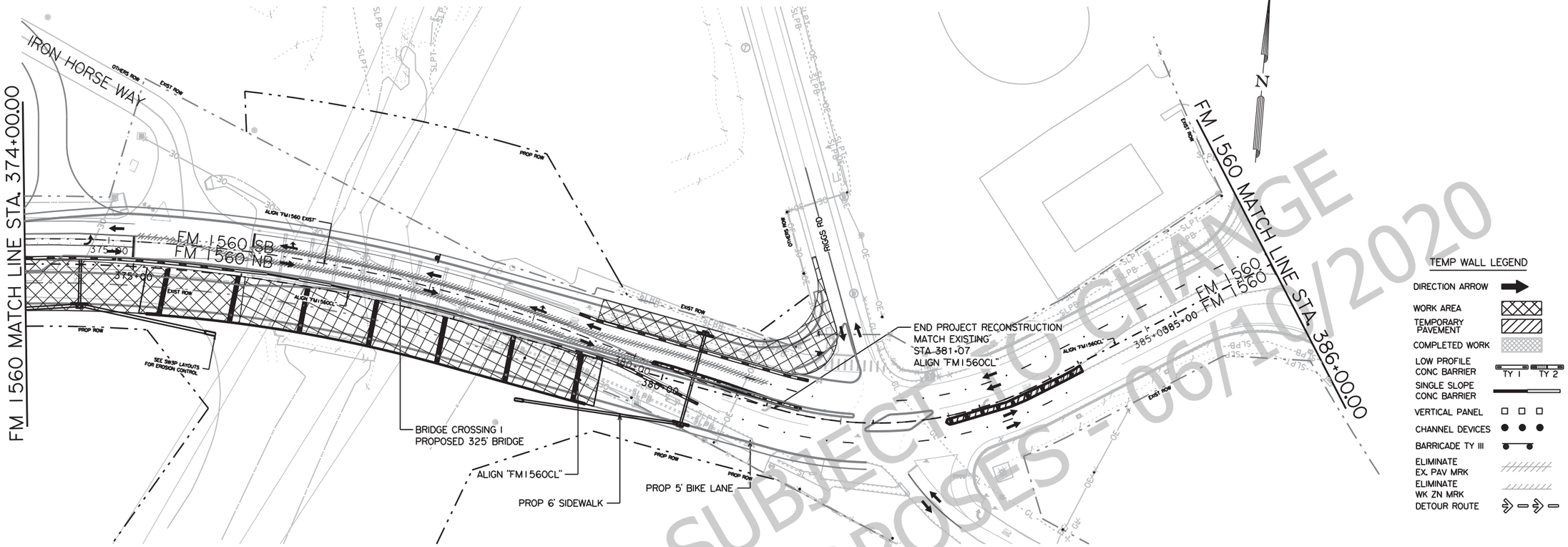

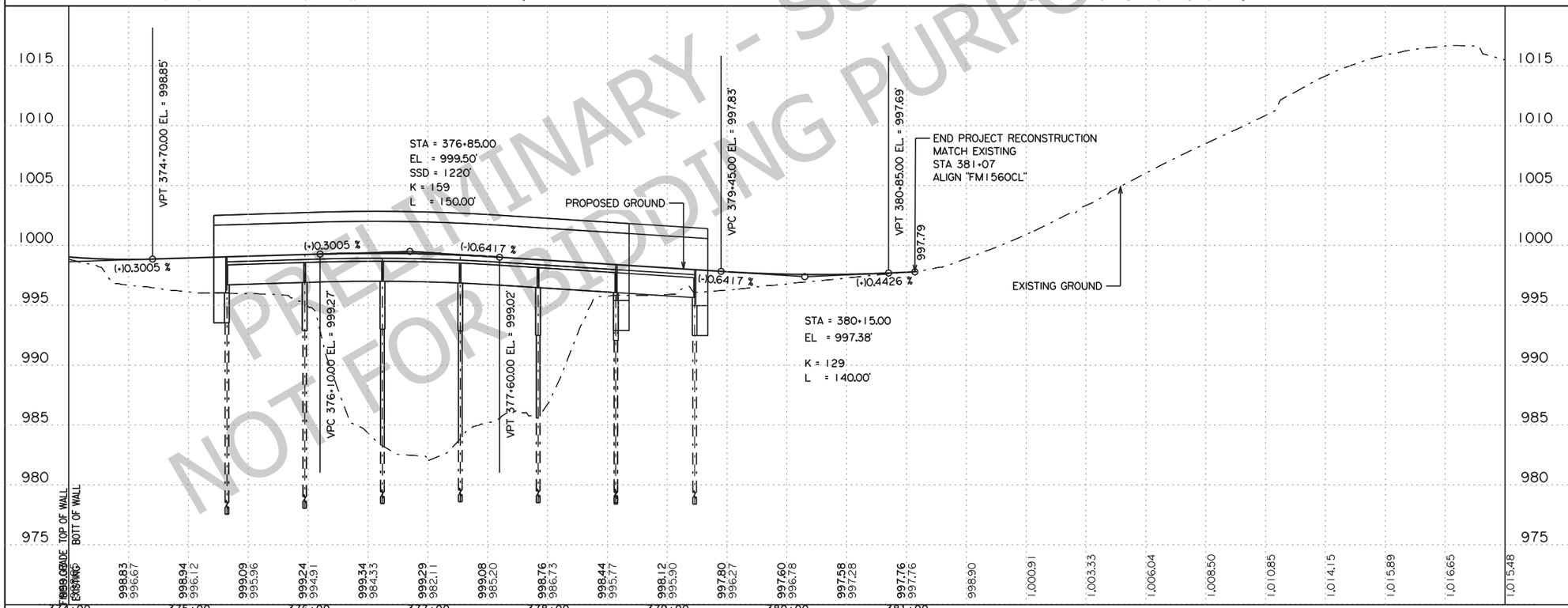

SUBJECT TO CHANGE
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 TEMPORARY WALL

SHEET 3 OF 3

DESIGN: TDJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	59

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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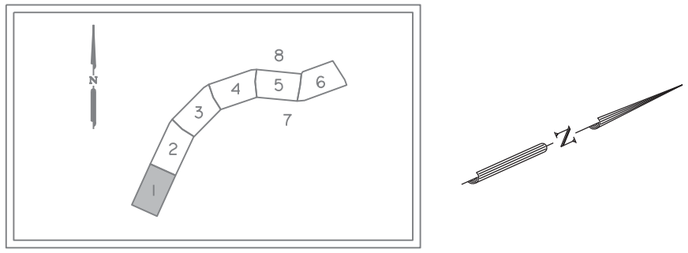

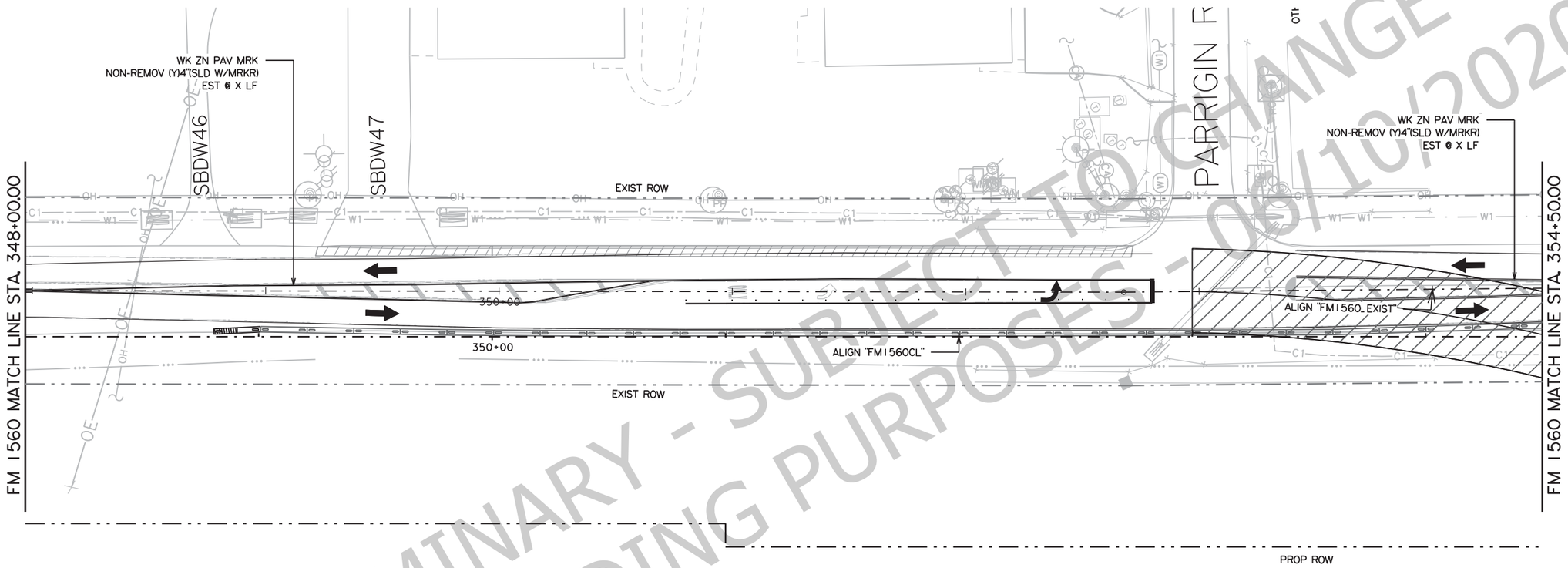

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 1 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	60
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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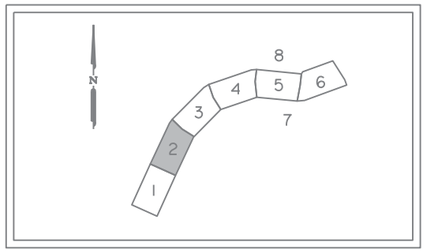

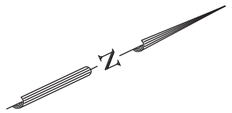

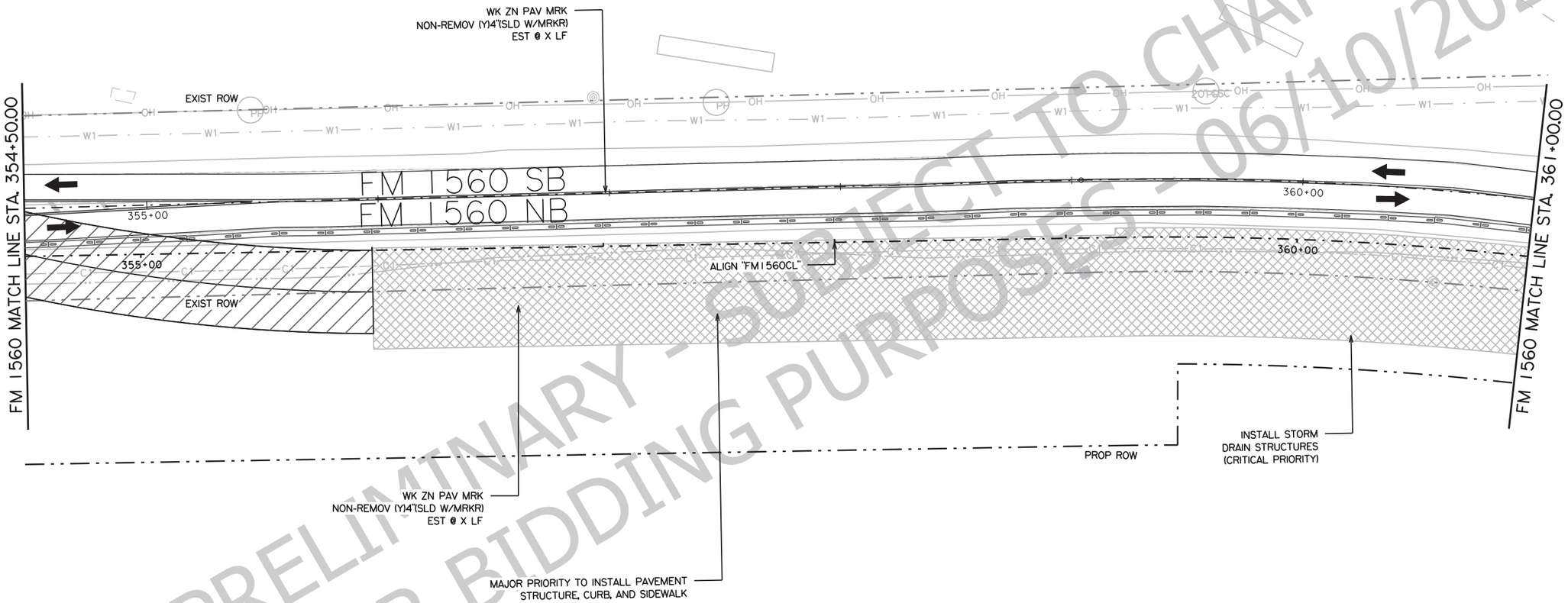

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 2 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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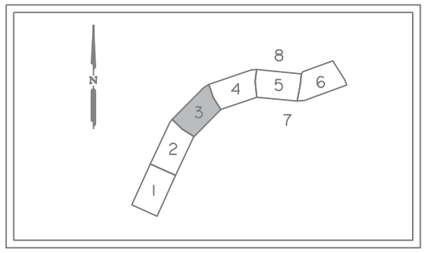

INSTALL TRAFFIC SIGNAL CONTROLLER AND CONDUITS IN THIS PHASE

OTHERS ROW

ANTONIO DR

PROP ROW

REMOVE BARRIER

PORT CTB (FUR & INST)
(LOW PROFILE TY 1)
EST. @ ?? LF
PORT CTB (FUR & INST)
(LOW PROFILE TY 2)
EST. @ ?? LF

EXISTING
WK ZN PAV MRK
TO REMAIN

EXIST ROW

LPCTB TO REMAIN
IN THIS PHASE

FM 1560 MATCH LINE STA 361+00.00

365+00

ALIGN "FM1560CL"

365+00

EXIST ROW

FM 1560 MATCH LINE STA 367+50.00

PROP ROW

INSTALL SIGNALS SHOWN IN THIS PHASE
USE AS TEMPORARY AS DIRECTED BY ENGINEER

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 3 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	62

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:23:23 AM
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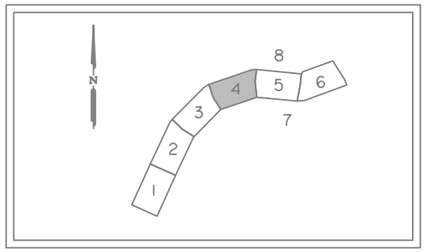

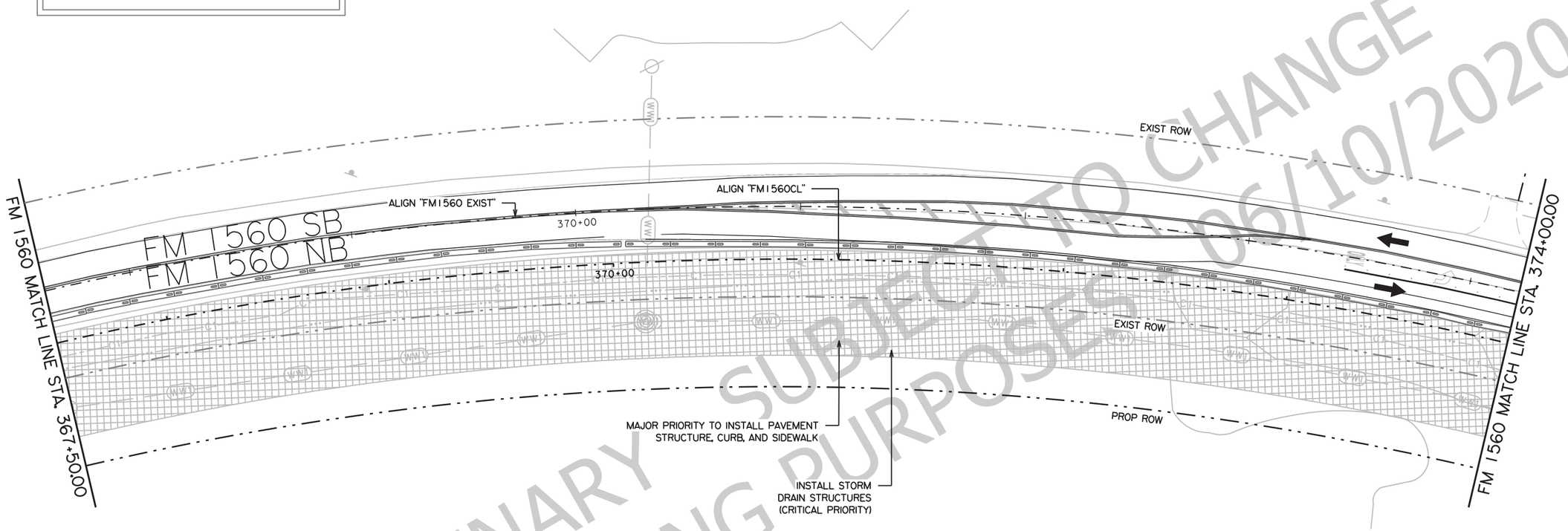

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 4 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	63
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:23:37 AM
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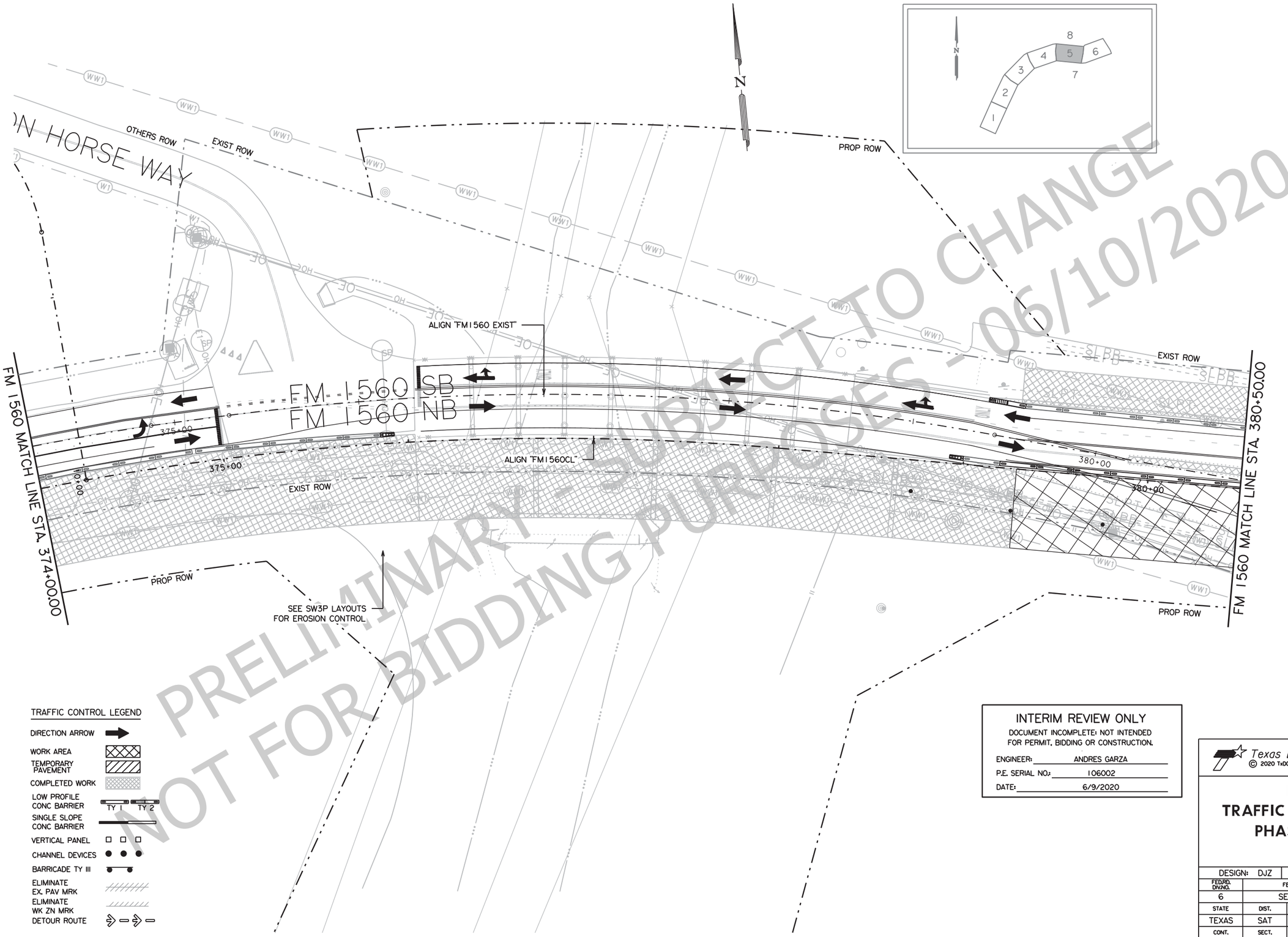

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
© 2020 TxDOT

FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 5 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	64
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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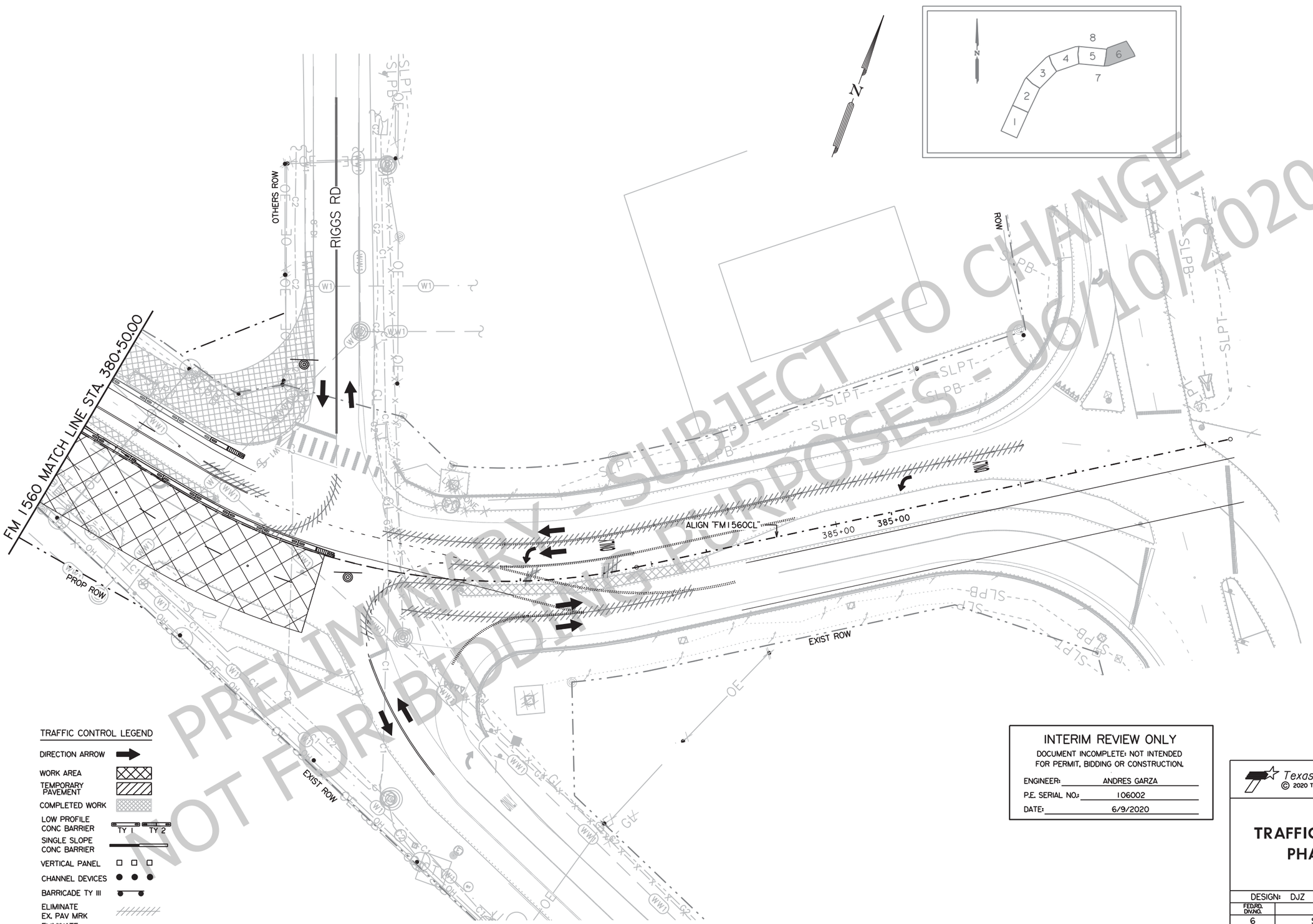

SUBJECT TO CHANGE
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2

SHEET 6 OF 10

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	65

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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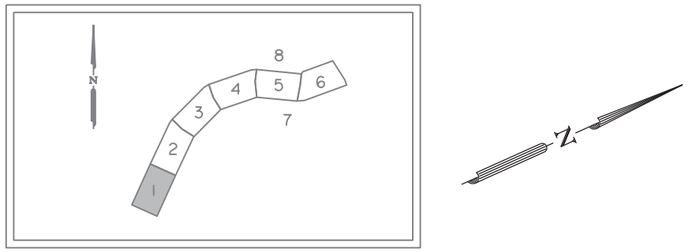

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

SBDW46

SBDW47

EXIST ROW

350+00

350+00

ALIGN "FM1560CL"

EXIST ROW

PARRIGIN F

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

FM 1560 MATCH LINE STA. 348+00.00

FM 1560 MATCH LINE STA. 354+50.00

PROP ROW

INSTALL DRAINAGE STRUCTURE
SECONDARY PRIORITY

INSTALL NB PORTION OF BCS STRUCTURE

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 1 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	66
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:24:13 AM
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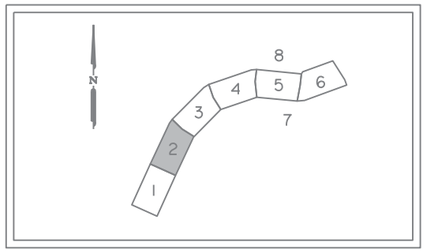

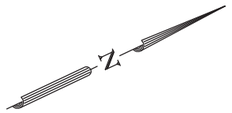

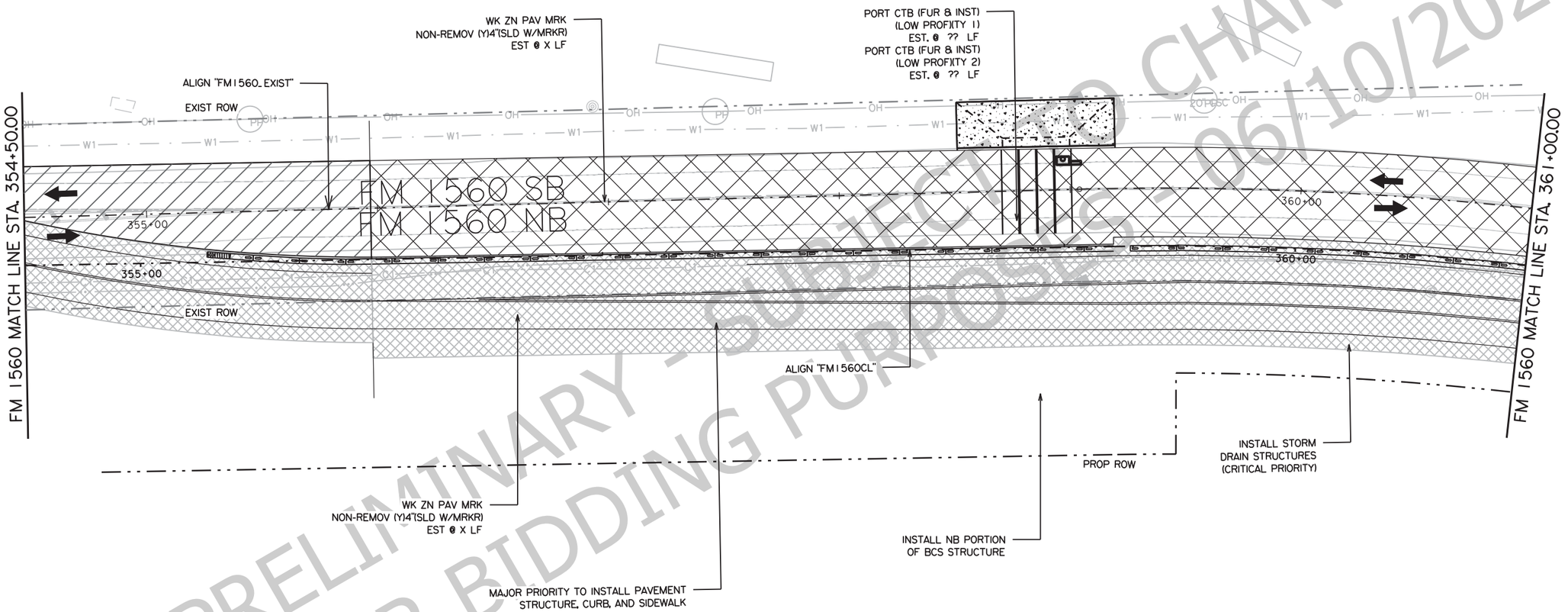

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 2 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	67
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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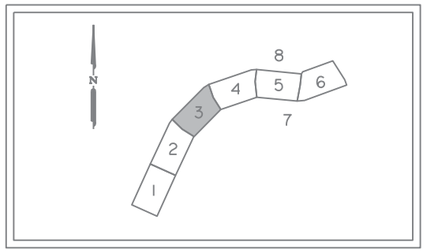

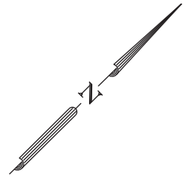

INSTALL TRAFFIC SIGNAL CONTROLLER AND CONDUITS IN THIS PHASE

OTHERS ROW

ANTONIO DR

PROP ROW

PORT CTB (FUR & INST)
(LOW PROF)(TY 1)
EST. @ ?? LF
PORT CTB (FUR & INST)
(LOW PROF)(TY 2)
EST. @ ?? LF

PORT CTB (FUR & INST)
(LOW PROF)(TY 1)
EST. @ ?? LF
PORT CTB (FUR & INST)
(LOW PROF)(TY 2)
EST. @ ?? LF

WK ZN PAV MRK
NON-REMOV (Y14"(SLD W/MRKR)
EST @ X LF

EXIST ROW

EXIST ROW

FM 1560 MATCH LINE STA 361+00.00

365+00

ALIGN "FM1560CL"

365+00

EXIST ROW

FM 1560 MATCH LINE STA 367+50.00

PROP ROW

INSTALL SIGNALS SHOWN IN THIS PHASE
USE AS TEMPORARY AS DIRECTED BY ENGINEER

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 3 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	68

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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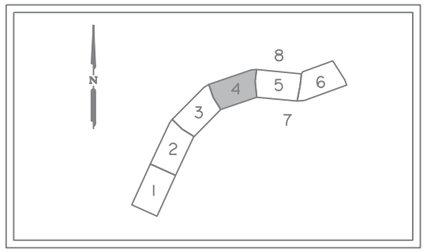

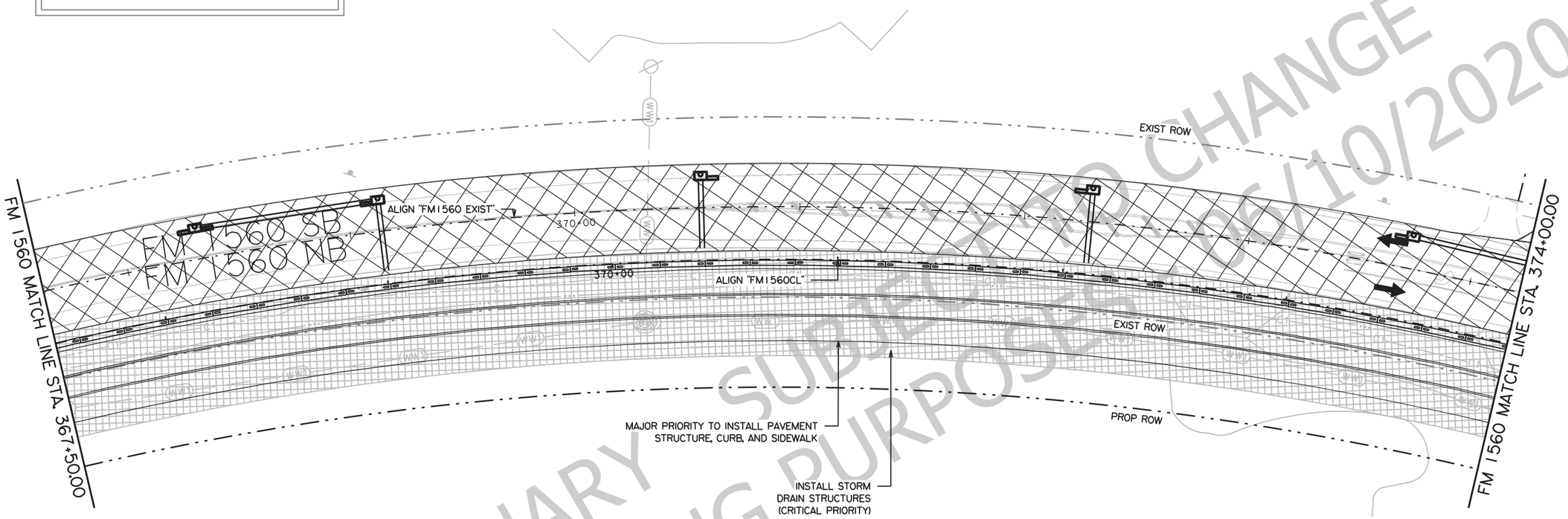

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 4 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	69
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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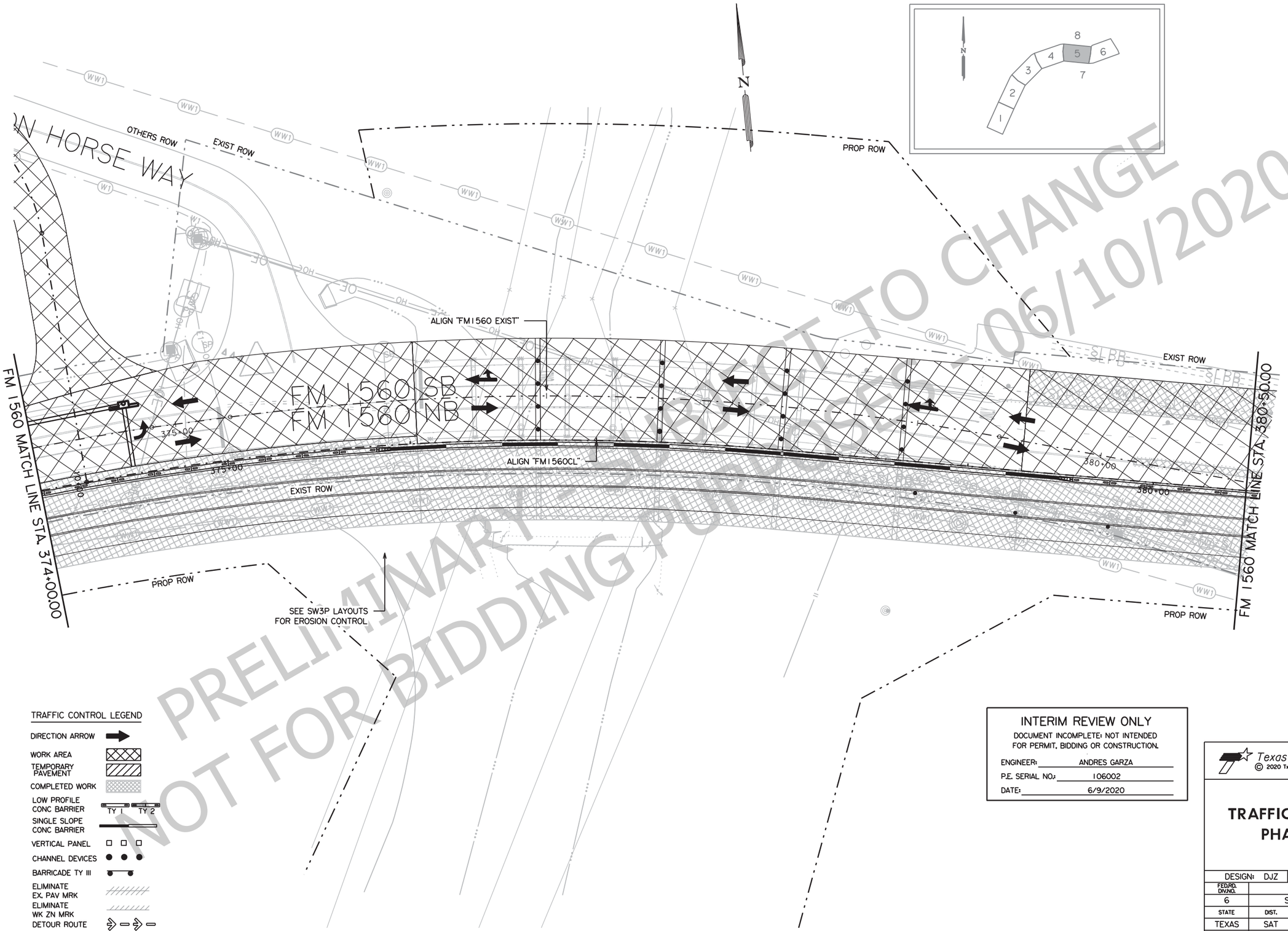

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 5 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 70

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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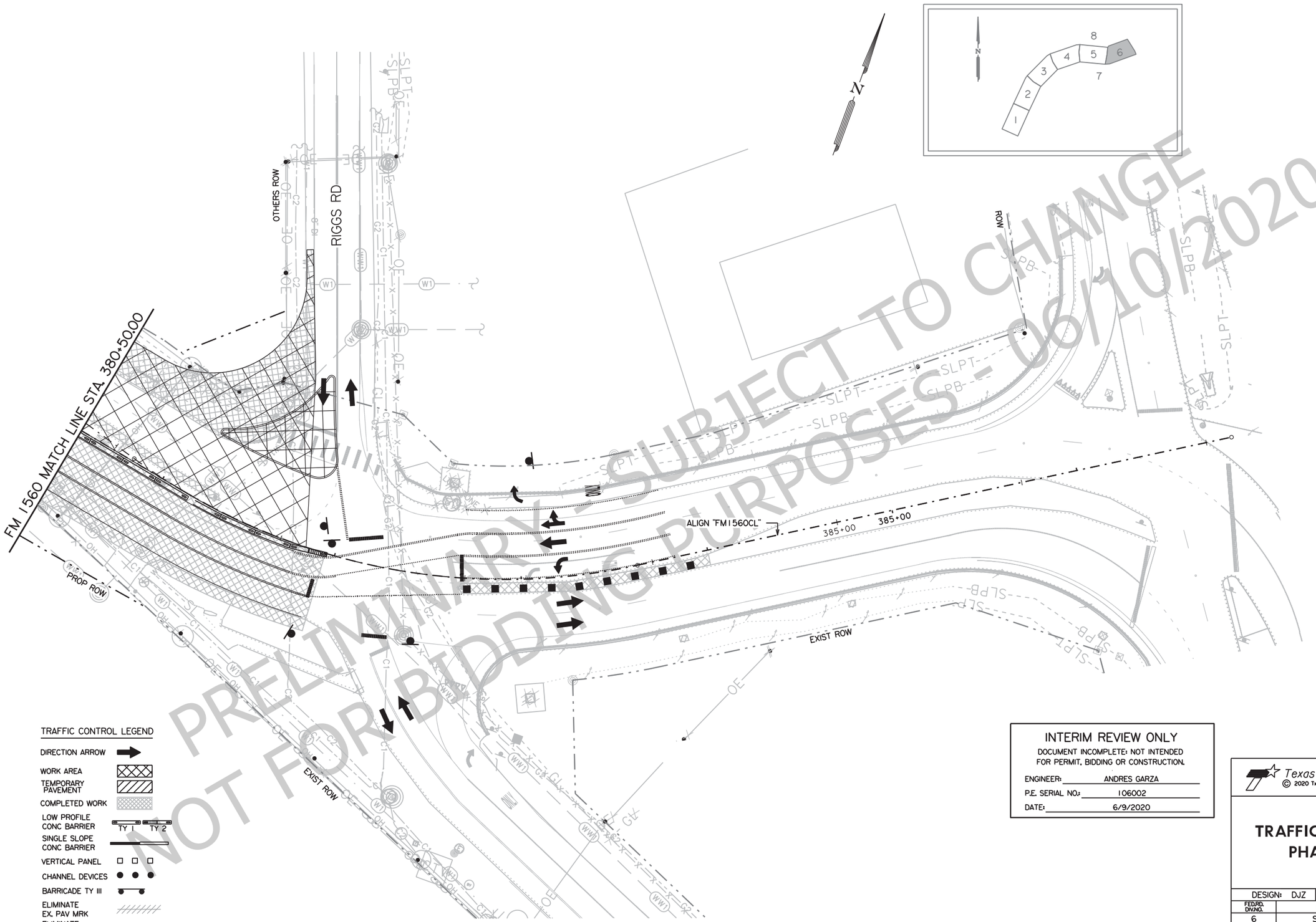
FM 1560 MATCH LINE STA. 380+50.00
RIGGS RD
OTHERS ROW
PROP ROW
EXIST ROW
ALIGN "FM1560CL"
385+00
385+00
PROP ROW
EXIST ROW
SLPT
SLPB
OE
W1
WW1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
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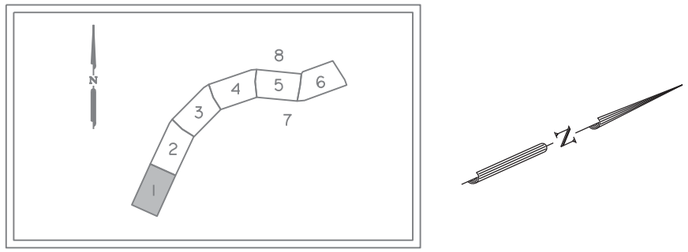
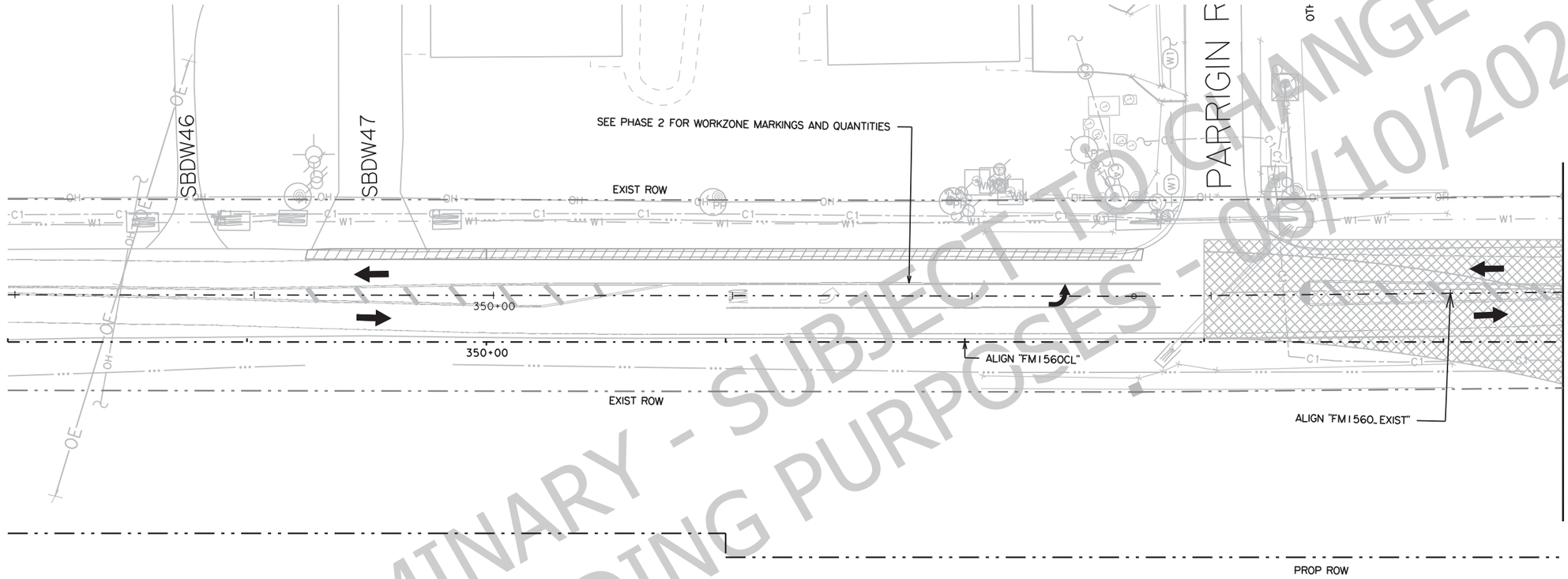
C39
C40





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 1 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	72

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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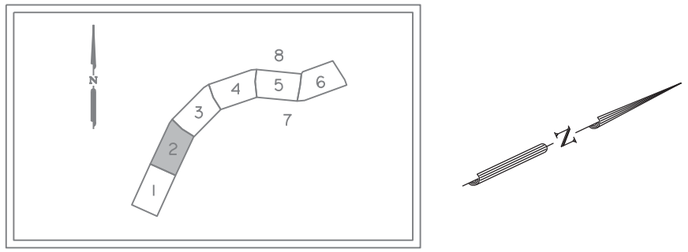

PHASE 1 END LIMIT FOR PROPOSED PAVEMENT CONSTRUCTION STA. 356+00 ALIGN "FM1560CL"

SEE PHASE 2 FOR WORKZONE MARKINGS AND QUANTITIES

EXIST ROW

FM 1560 SB

FM 1560 NB

ALIGN "FM1560CL"

355+00

360+00

EXIST ROW

FM 1560 MATCH LINE STA. 354+50.00

FM 1560 MATCH LINE STA. 361+00.00

PROP ROW

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 2 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	73
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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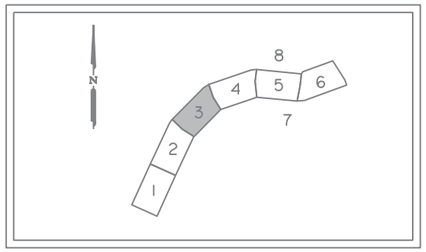

ANTONIO DR

OTHERS ROW

W1

EXIST ROW

OH

MW1

PROP ROW

INSTALL PROPOSED MEDIAN ISLAND
PRIOR TO FINAL OVERLAY

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

365+00

10.00

ALIGN "FM1560CL"

FM 1560 MATCH LINE STA 361+00.00

FM 1560 MATCH LINE STA 367+50.00

WK ZN PAV MRK
NON-REMOV (Y)4"(SLD W/MRKR)
EST @ X LF

PROP ROW

WK ZN PAV MRK
NON-REMOV (W)4"(BRK W/MRKR)
EST @ X LF

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 3 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	74
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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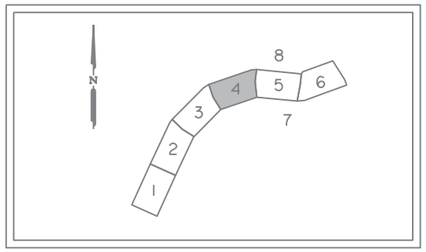

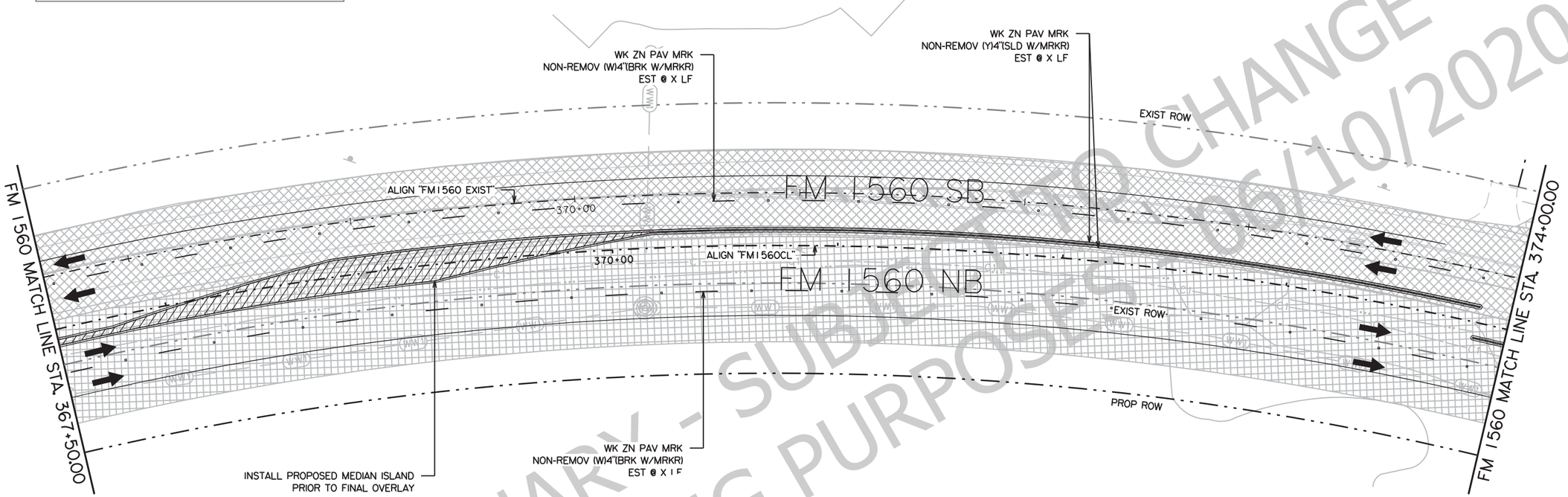

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 4 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	75
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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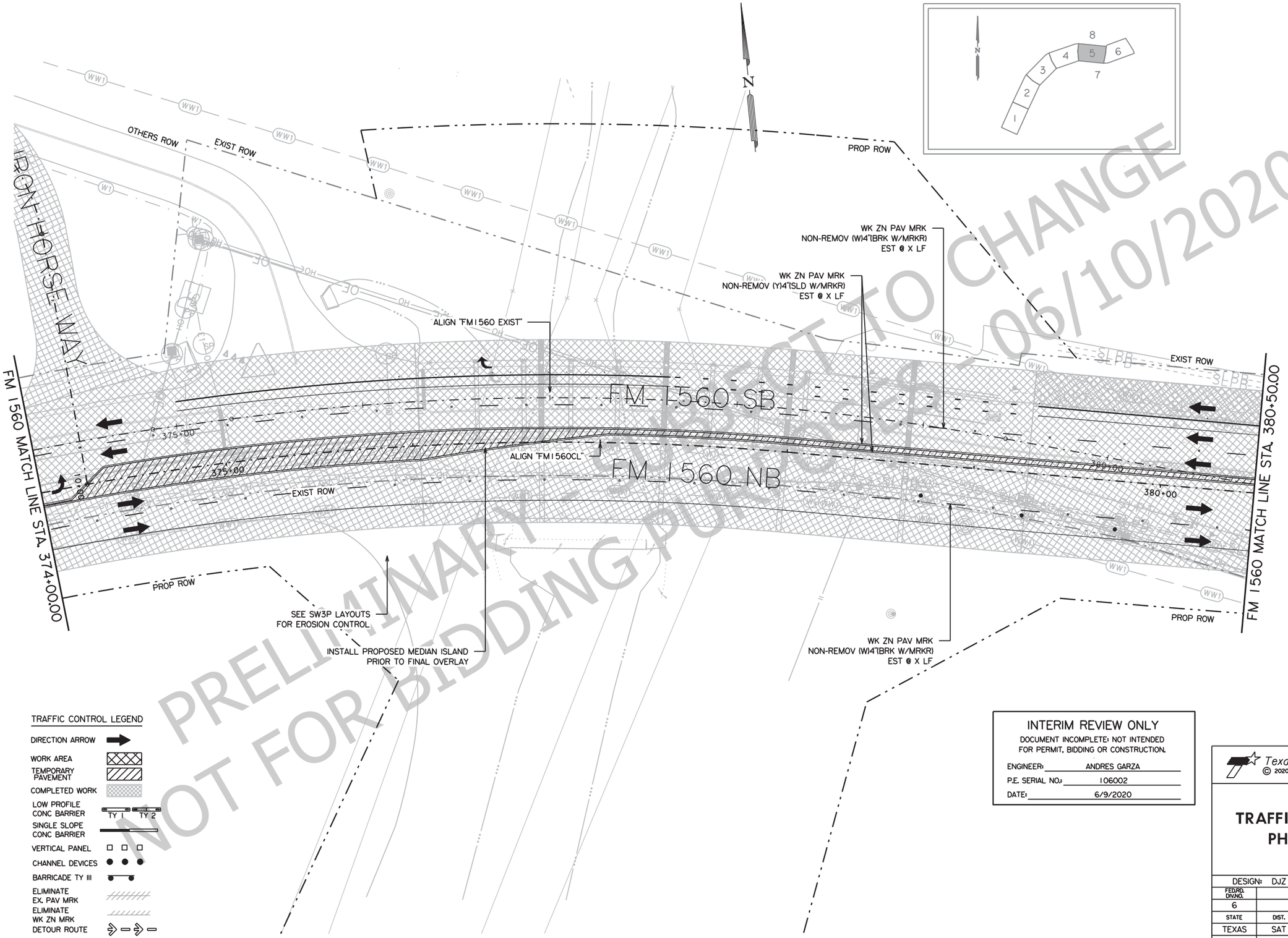

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 5 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	76
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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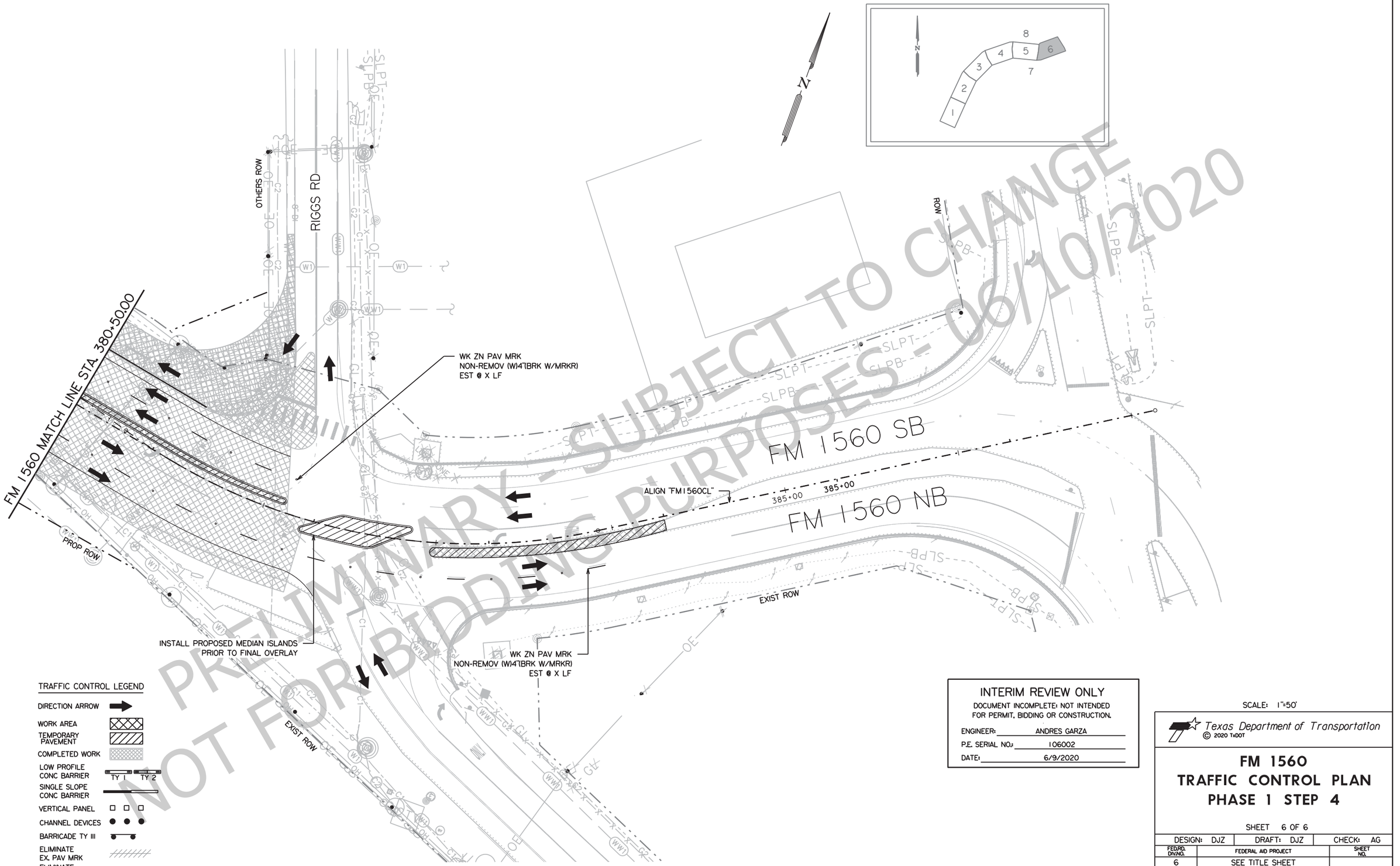

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=50'

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TRAFFIC CONTROL PLAN
PHASE 1 STEP 4

SHEET 6 OF 6

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	77
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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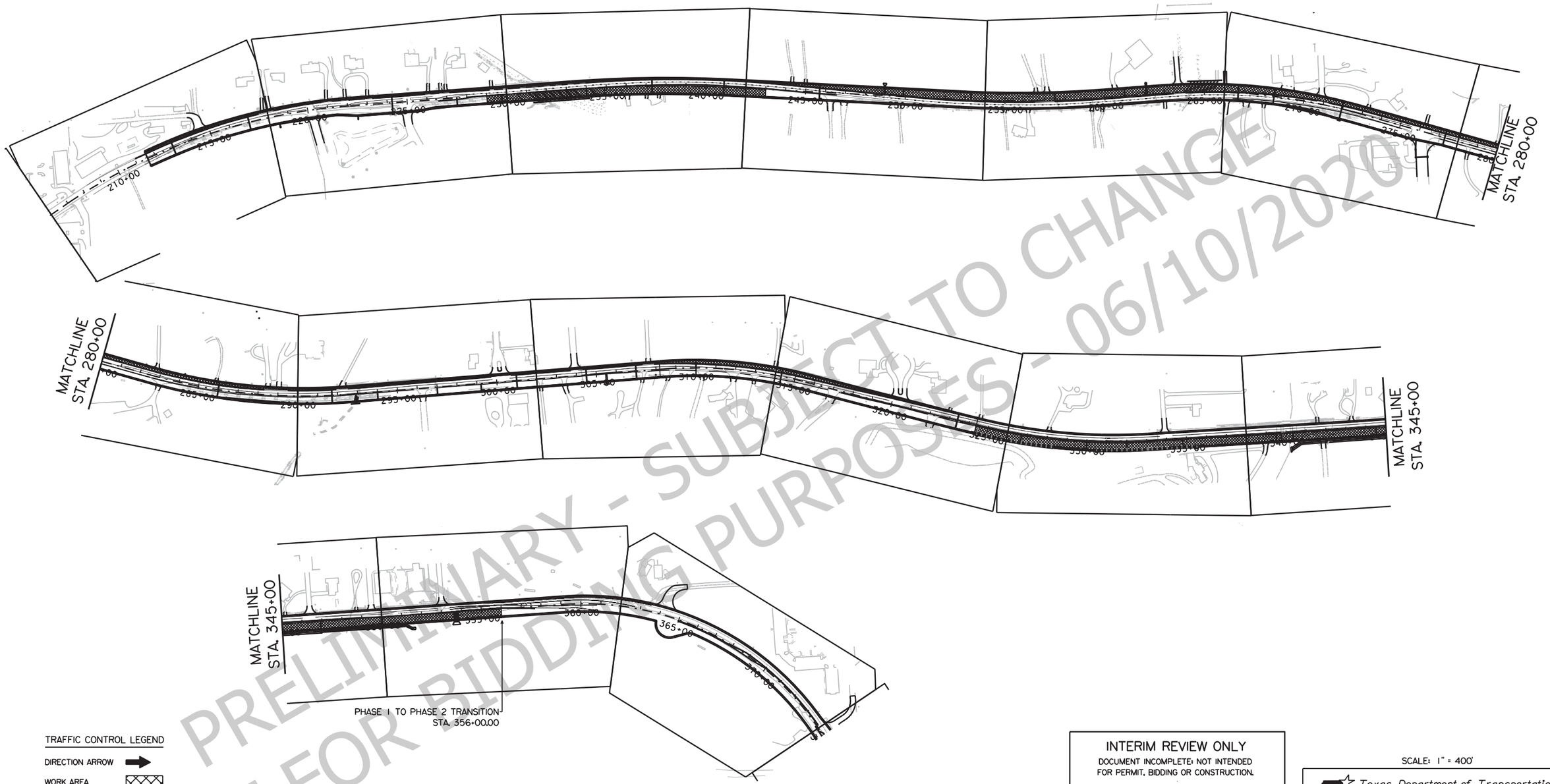

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1" = 400'

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TRAFFIC CONTROL PLAN
PHASE 2 LAYOUT

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

78

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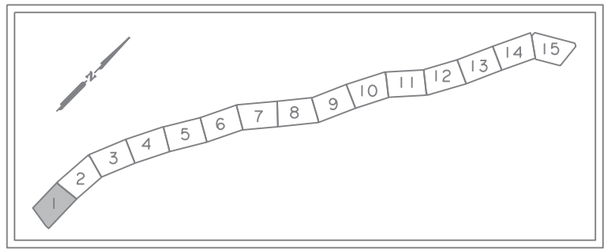

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 2

SHEET 1 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	79

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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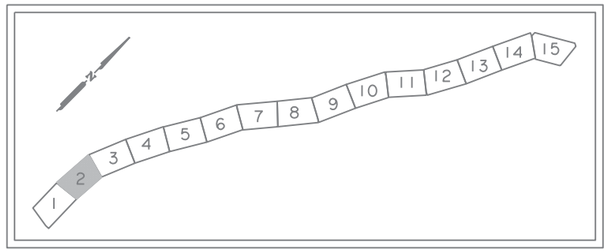

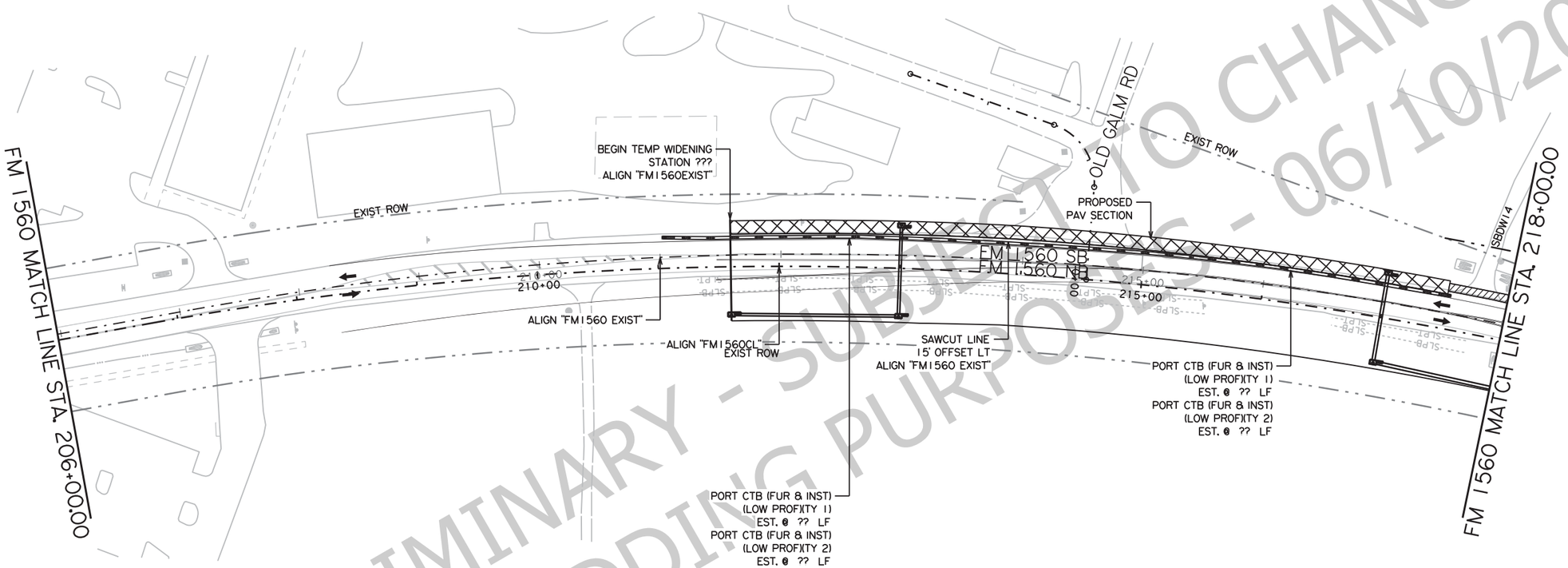

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
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P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 1 OF 16

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	80
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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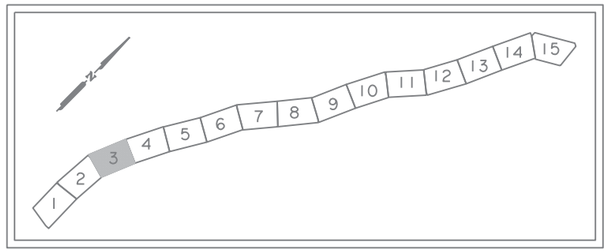

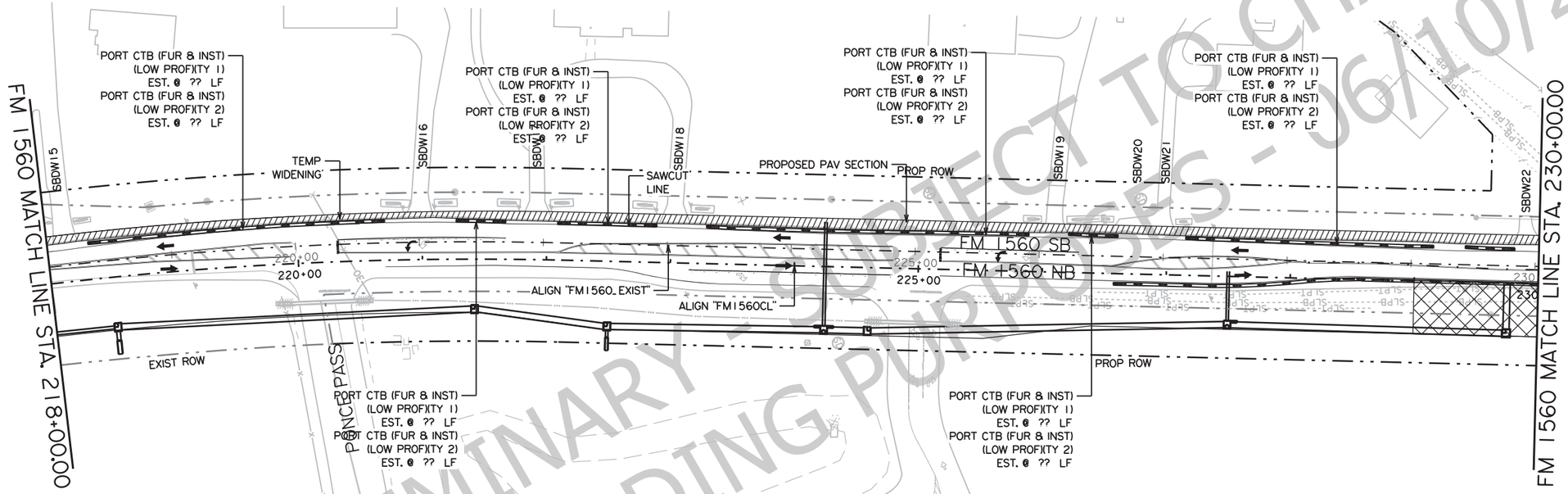

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 3 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	81
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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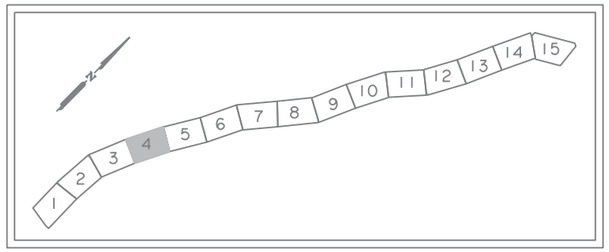

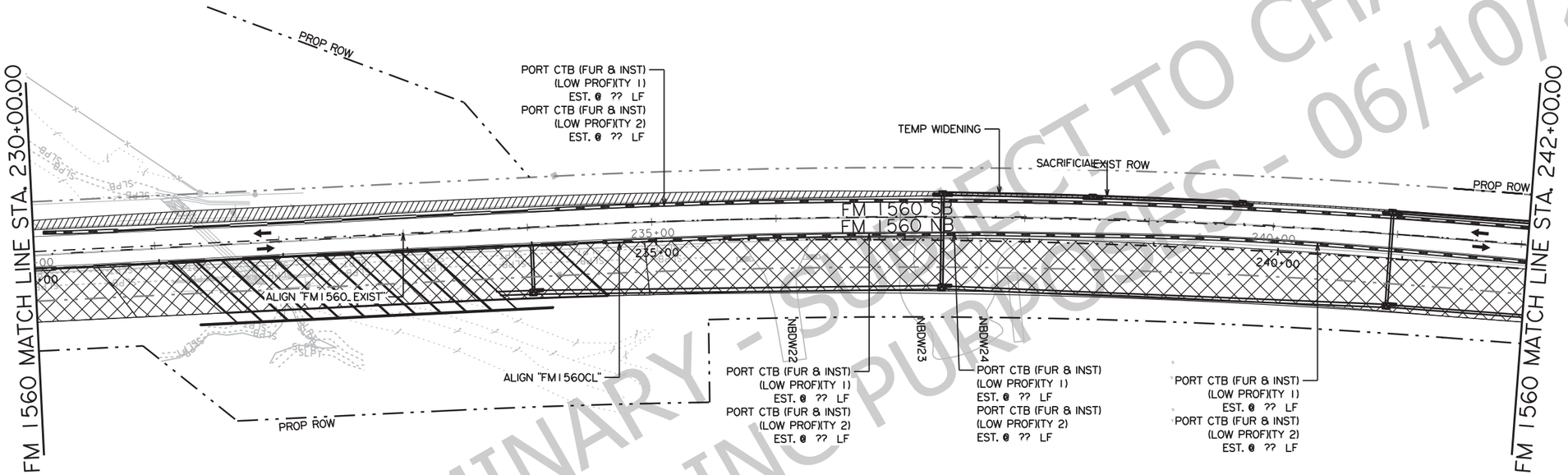

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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
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INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 3 OF 16

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	82
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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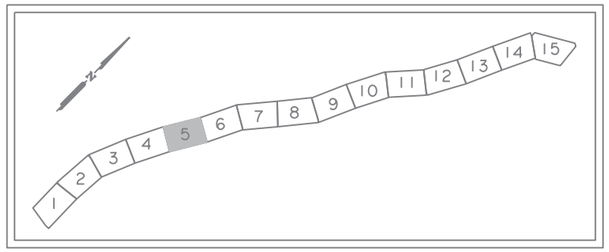

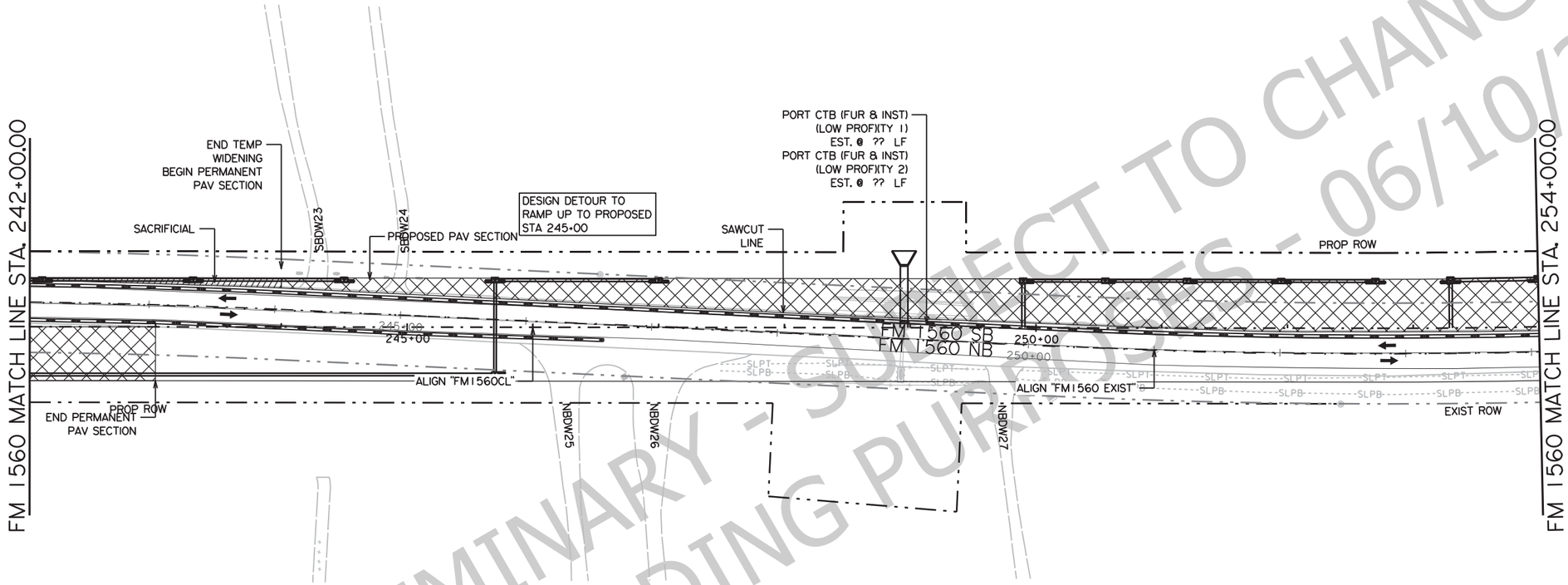

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
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PRELIMINARY - SUBJECT TO CHANGE
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DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 5 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	83
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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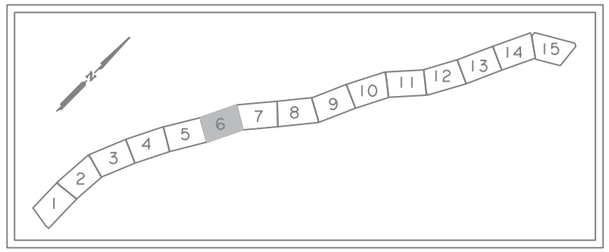

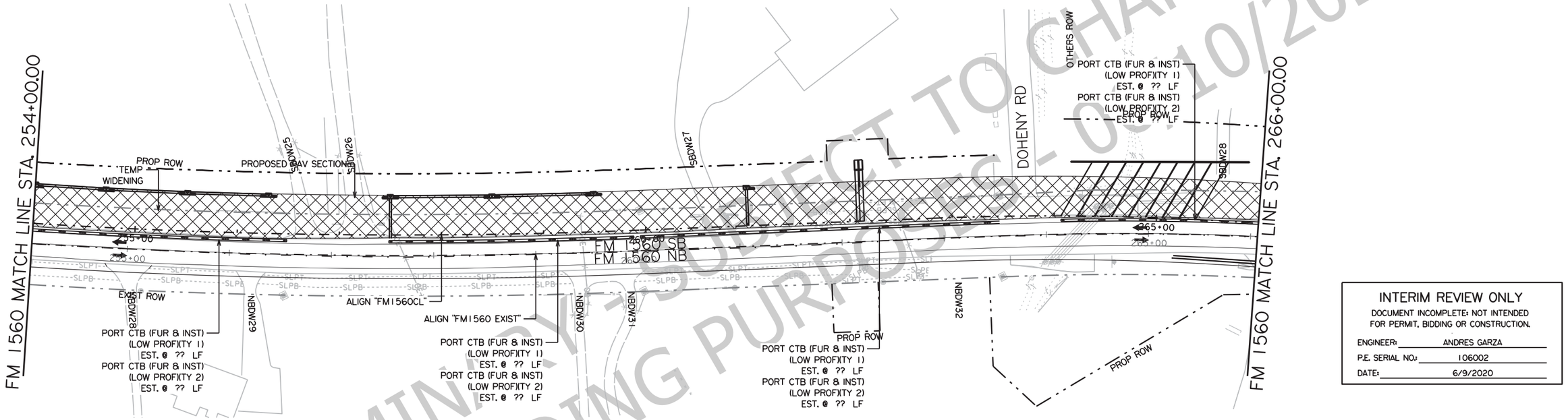

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
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DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 6 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	84
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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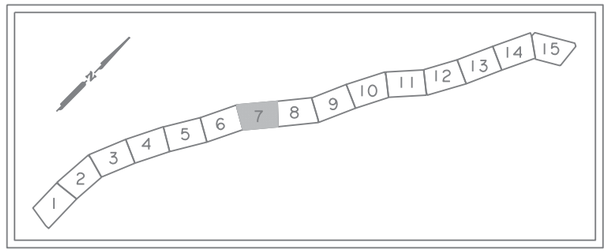

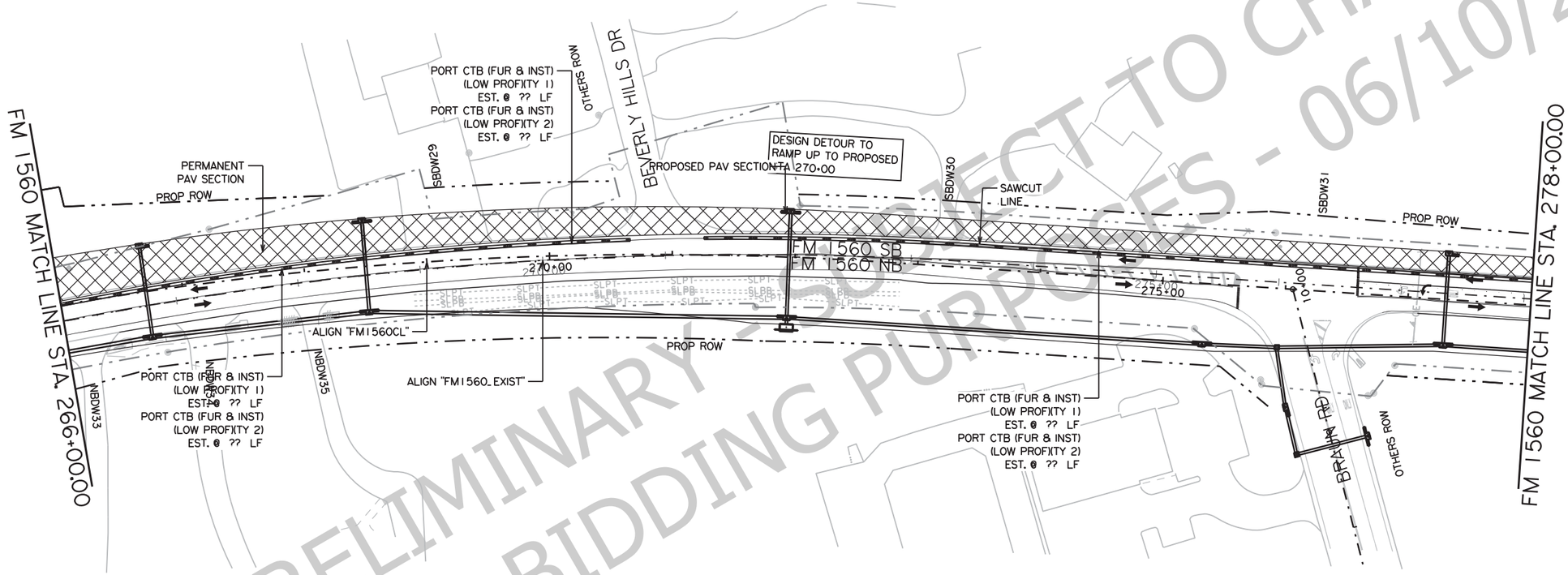

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
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- LOW PROFILE CONC BARRIER — TY 1, TY 2
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DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 2

SHEET 6 OF 16

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	85

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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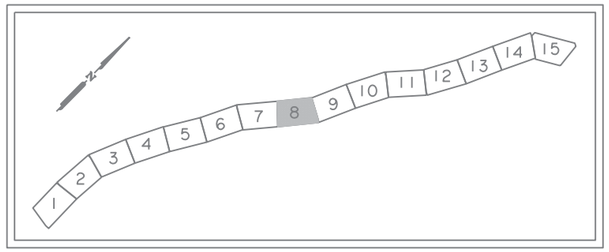

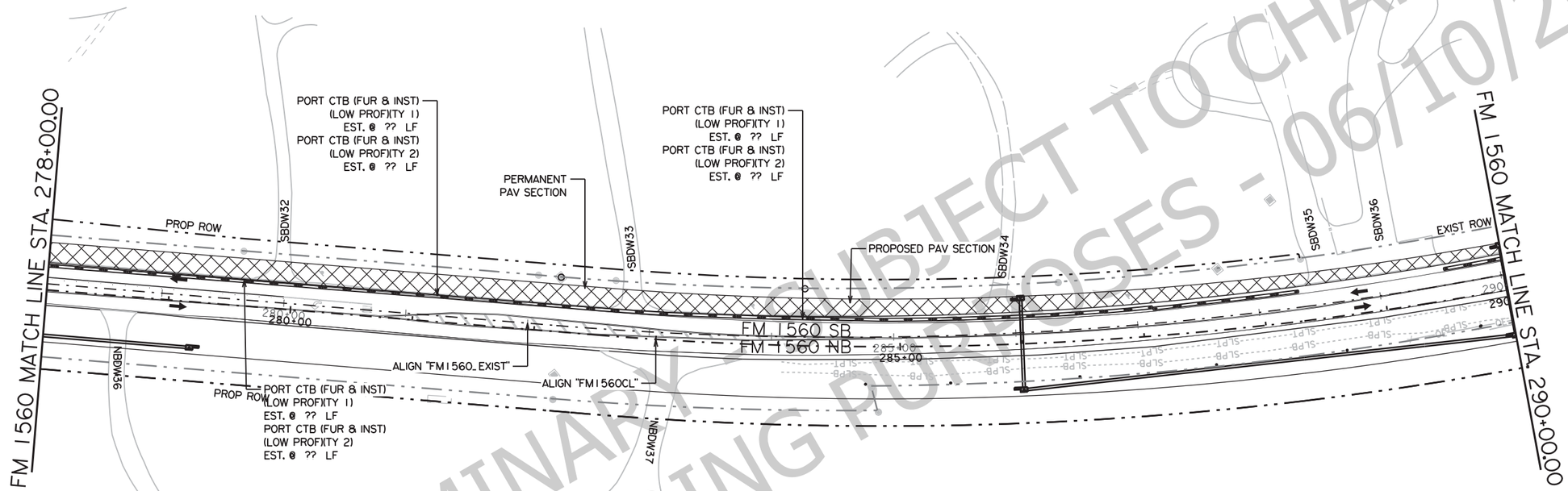

TRAFFIC CONTROL LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 2

SHEET 8 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	86
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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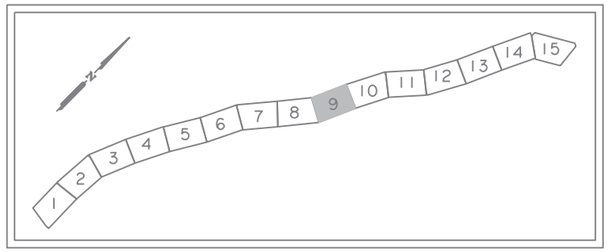

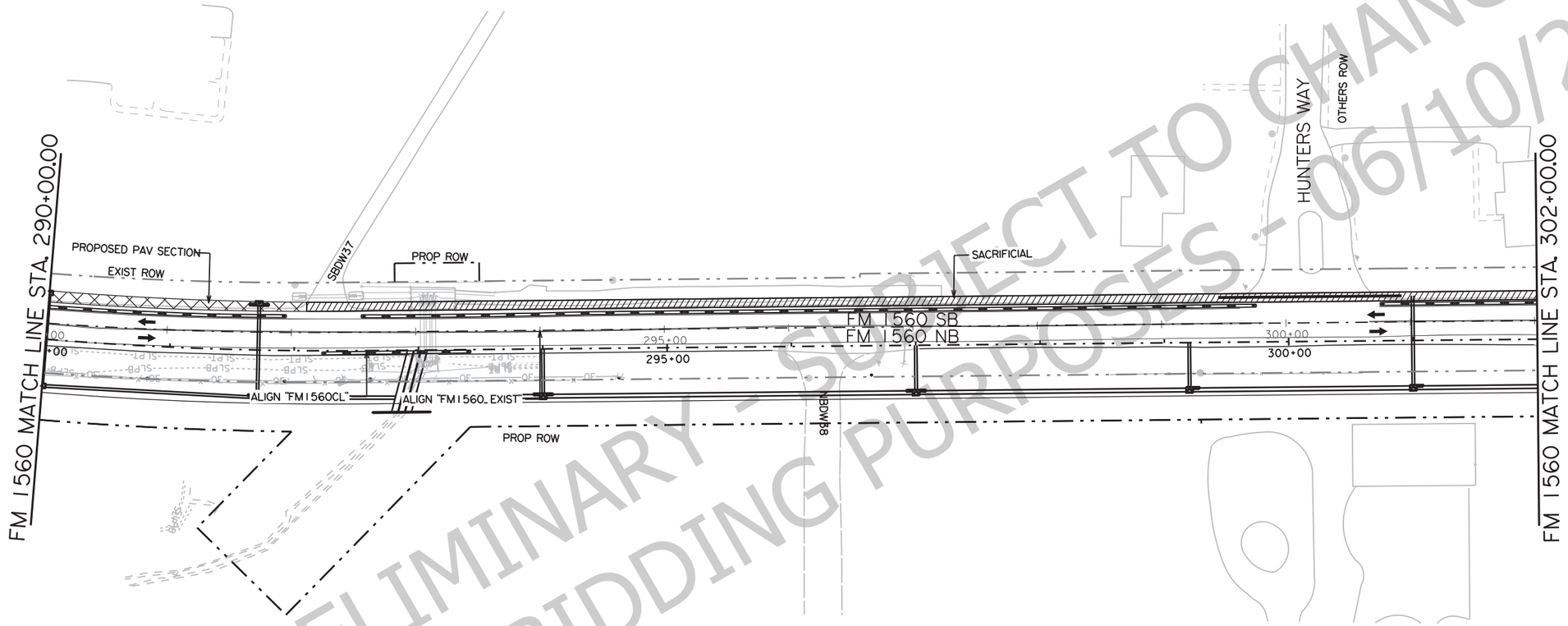

TRAFFIC CONTROL LEGEND

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- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 2

SHEET 9 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	87
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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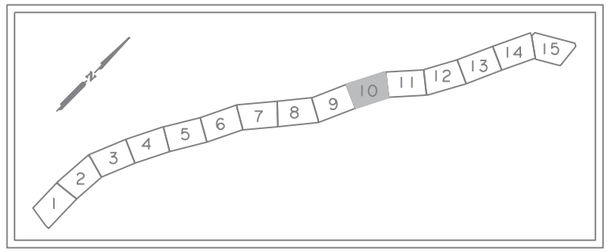

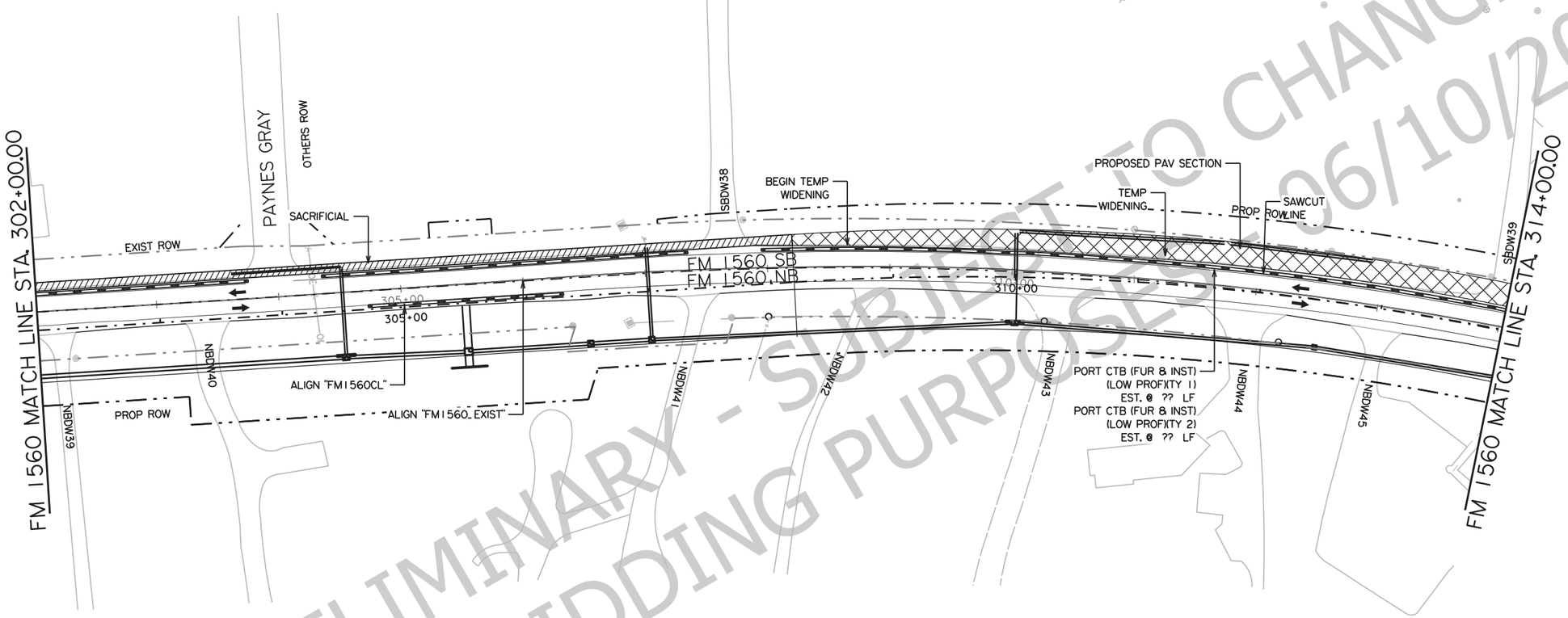

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 10 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	88

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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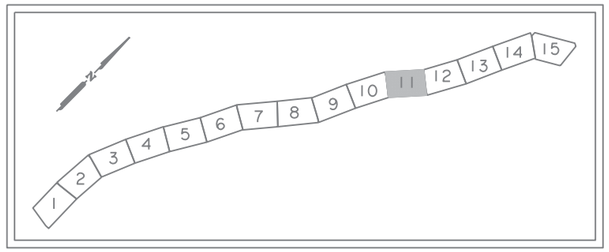

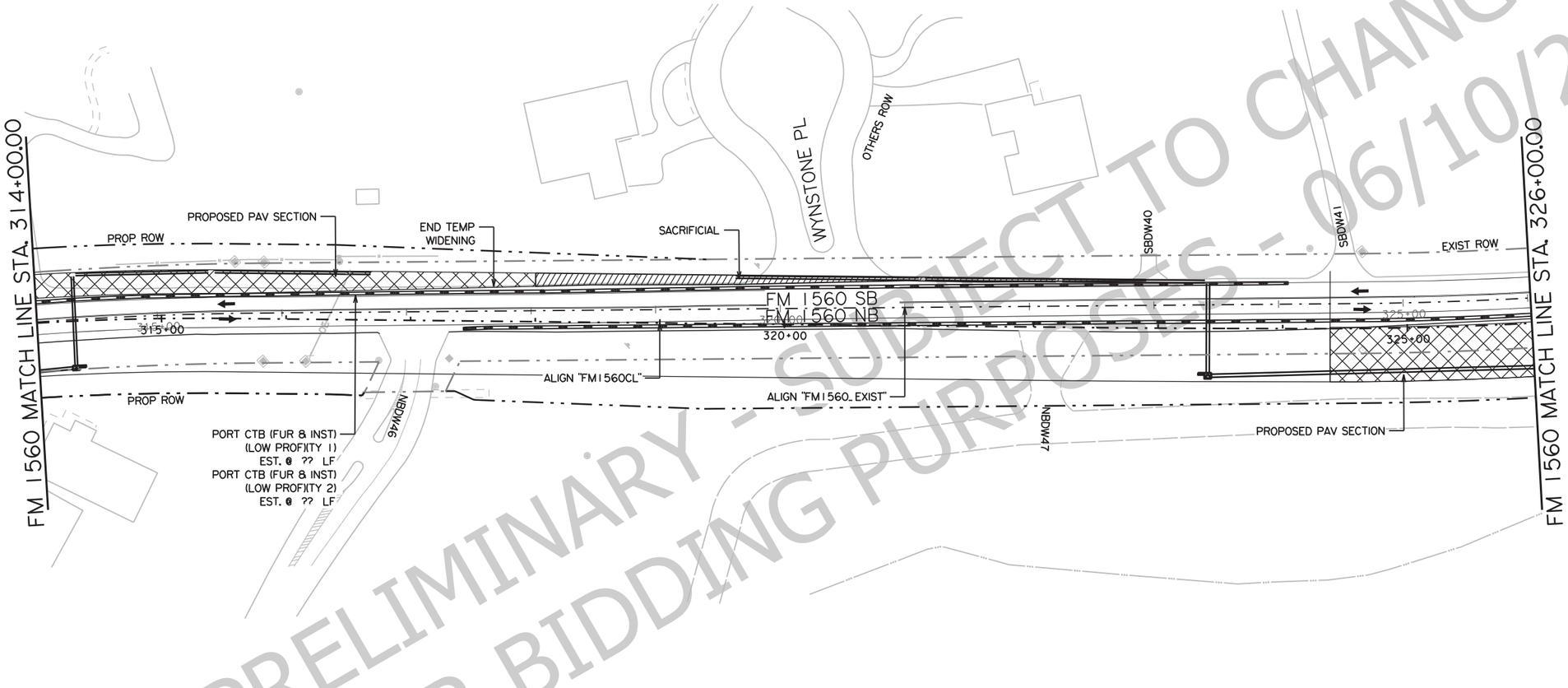

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 10 OF 16

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

89

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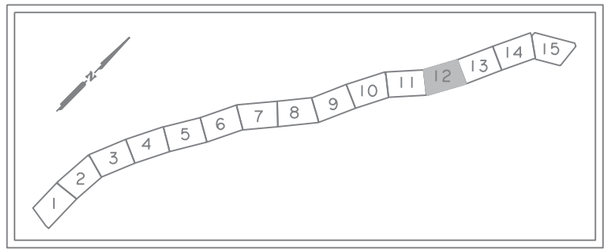

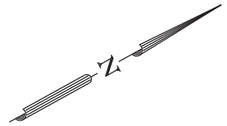

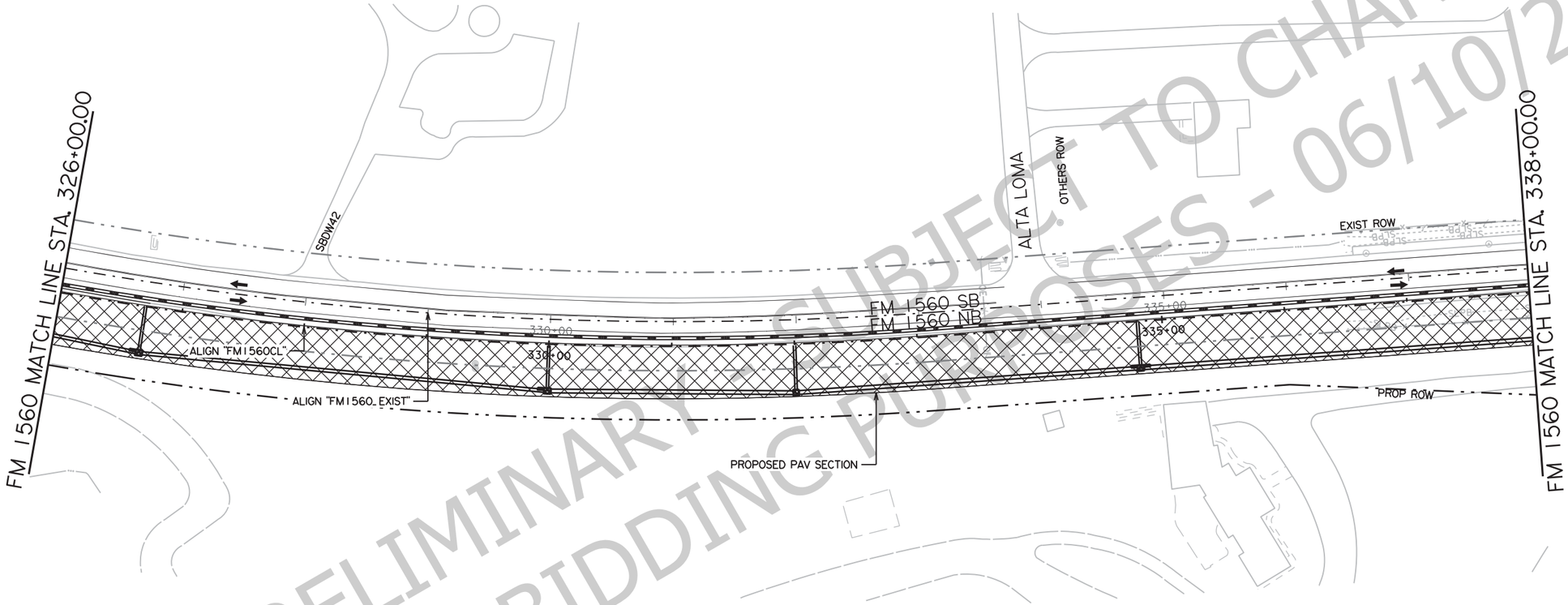

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 12 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	90
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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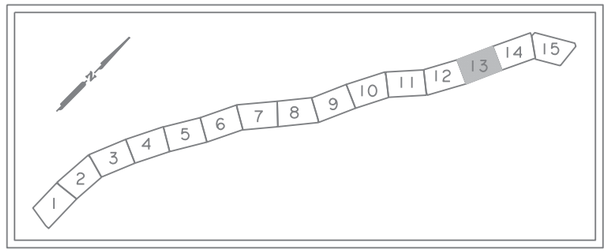

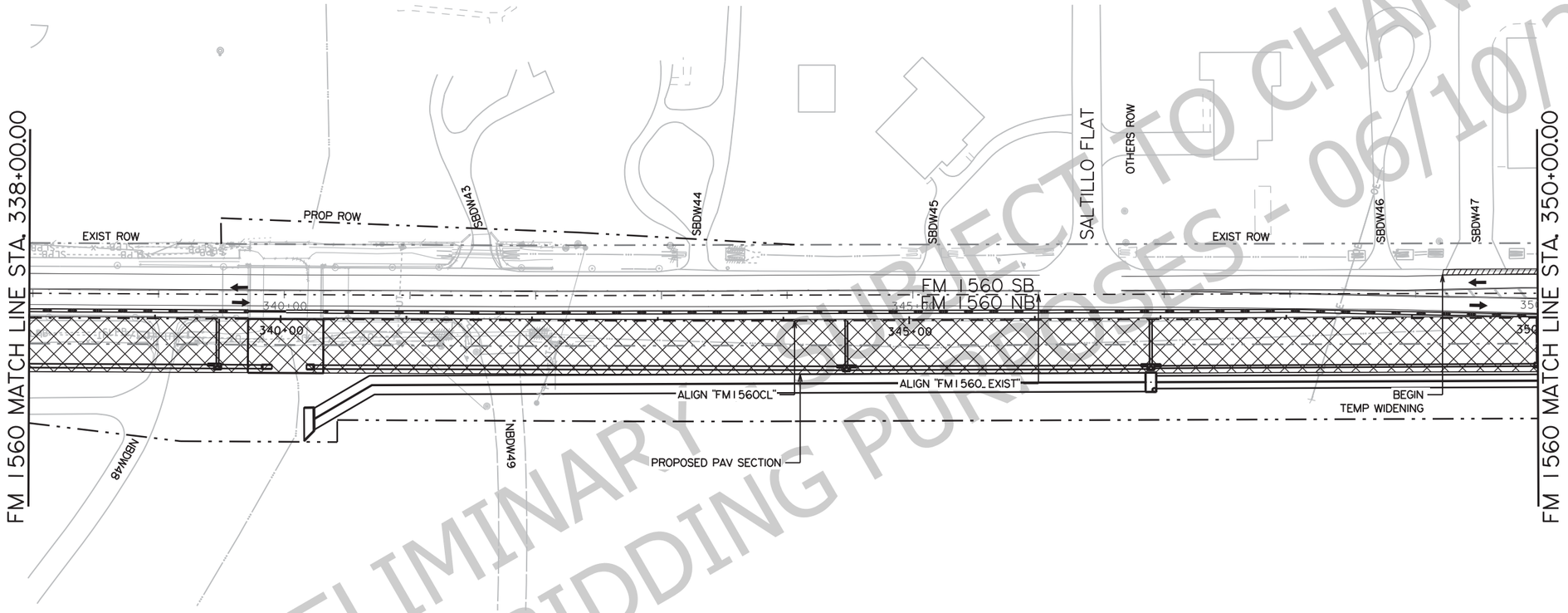

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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P.E. SERIAL NO.: 106002
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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 13 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	91
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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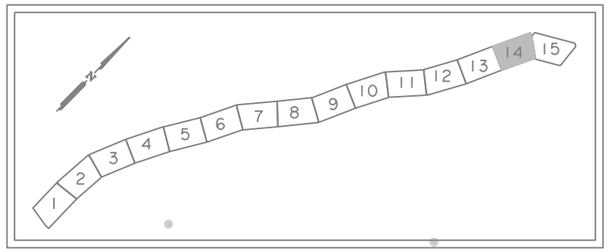

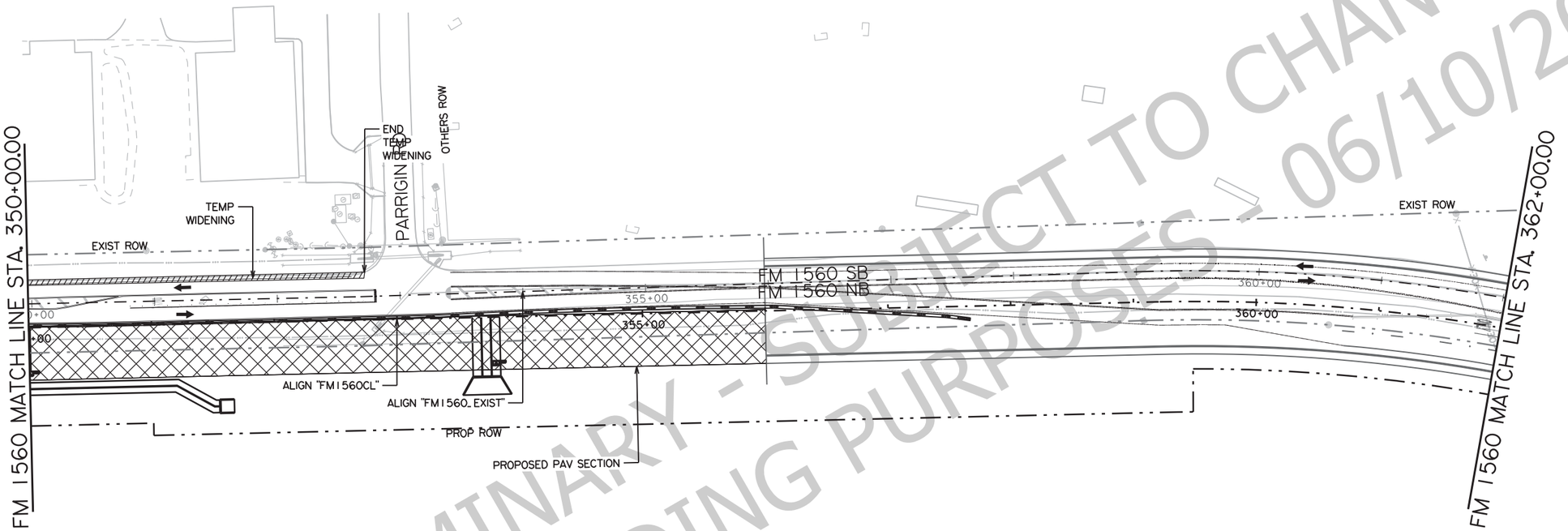

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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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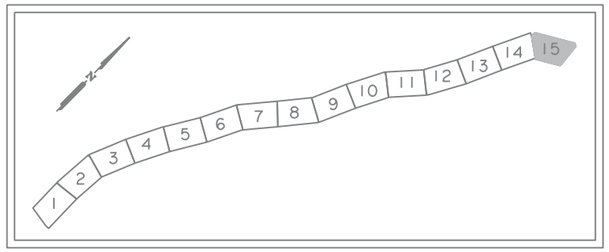
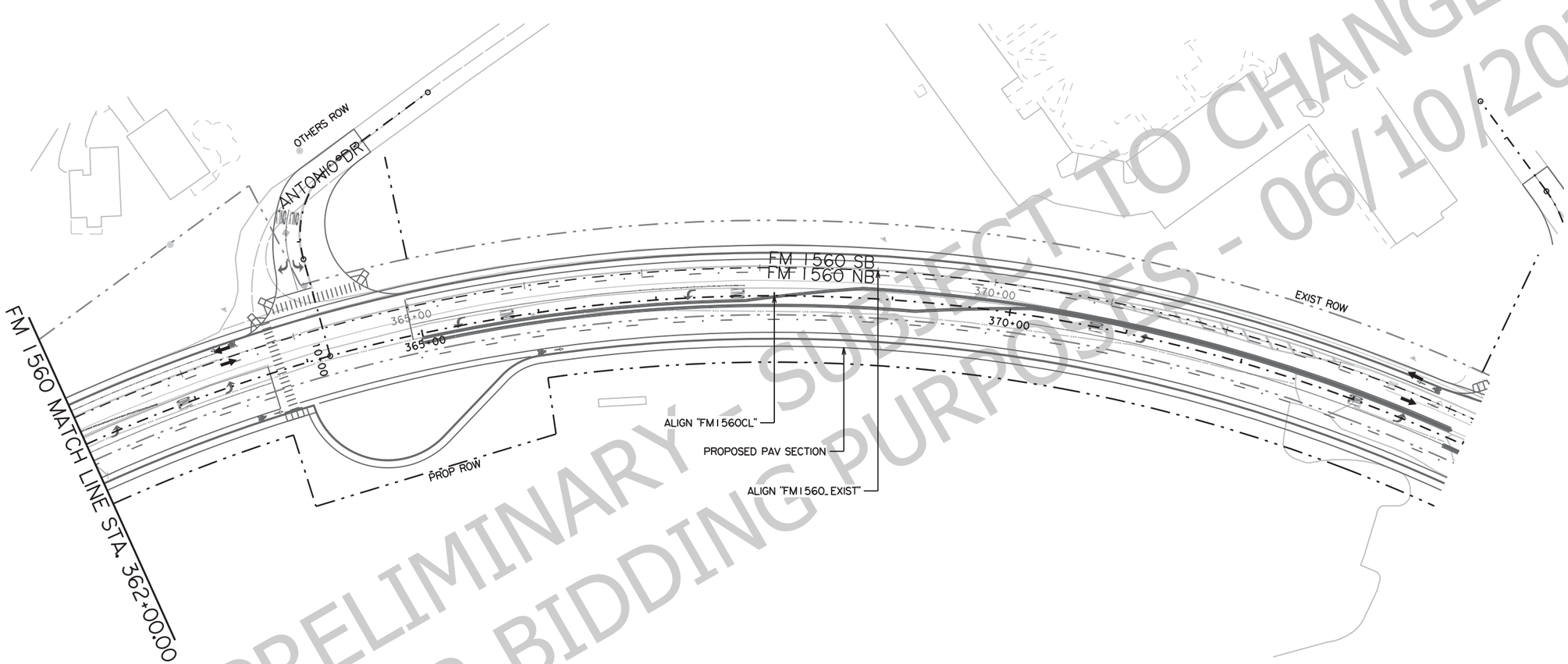
TRAFFIC CONTROL PLAN
PHASE 2

SHEET 14 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	92
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560





TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
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- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 2

SHEET 15 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	93
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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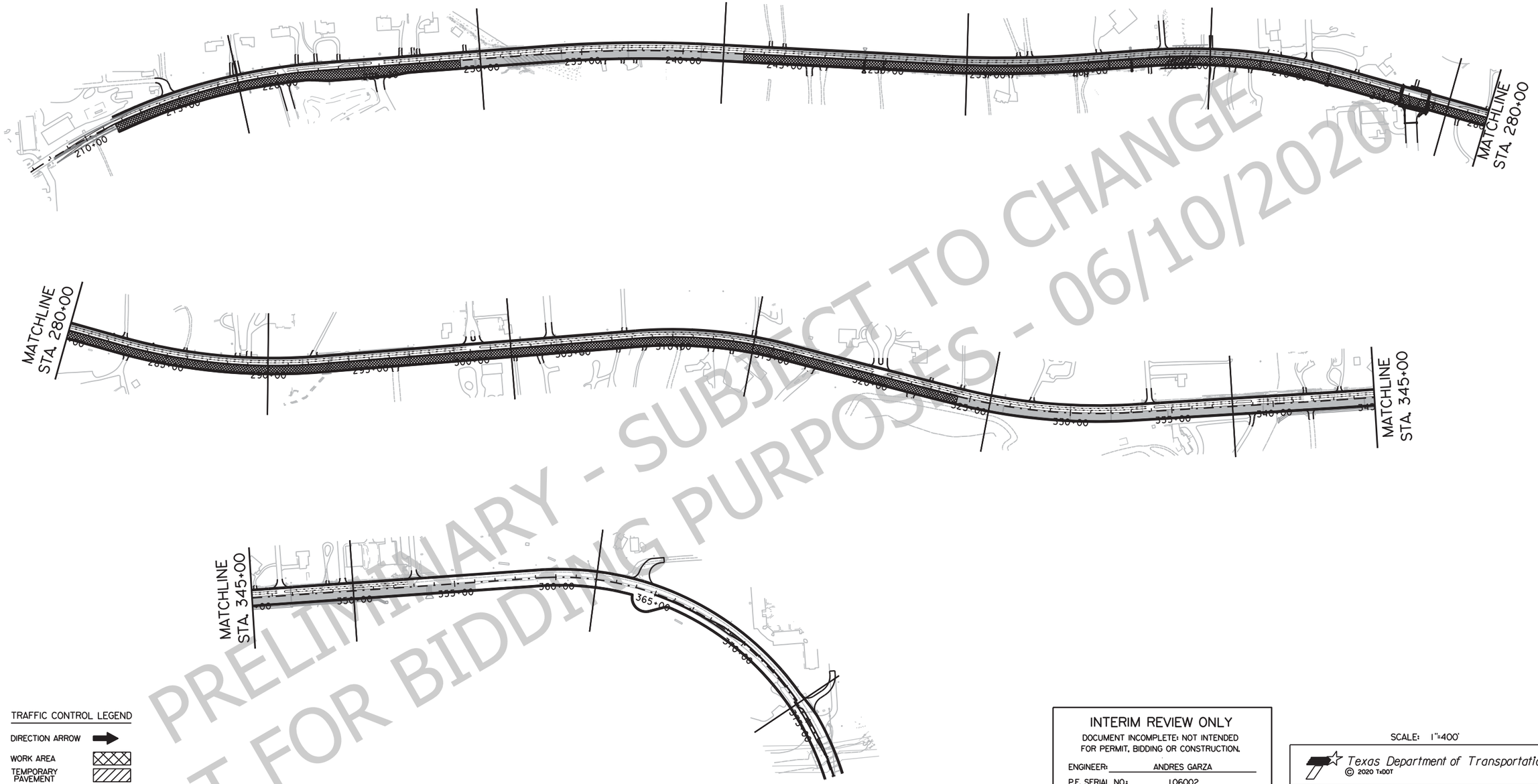

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=400'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 LAYOUT

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	94

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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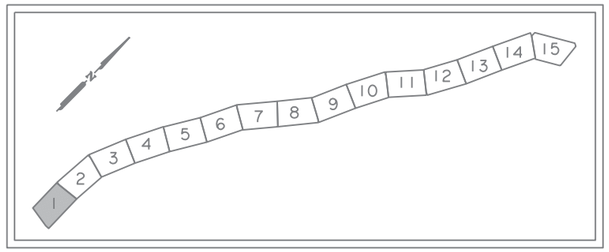

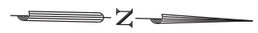

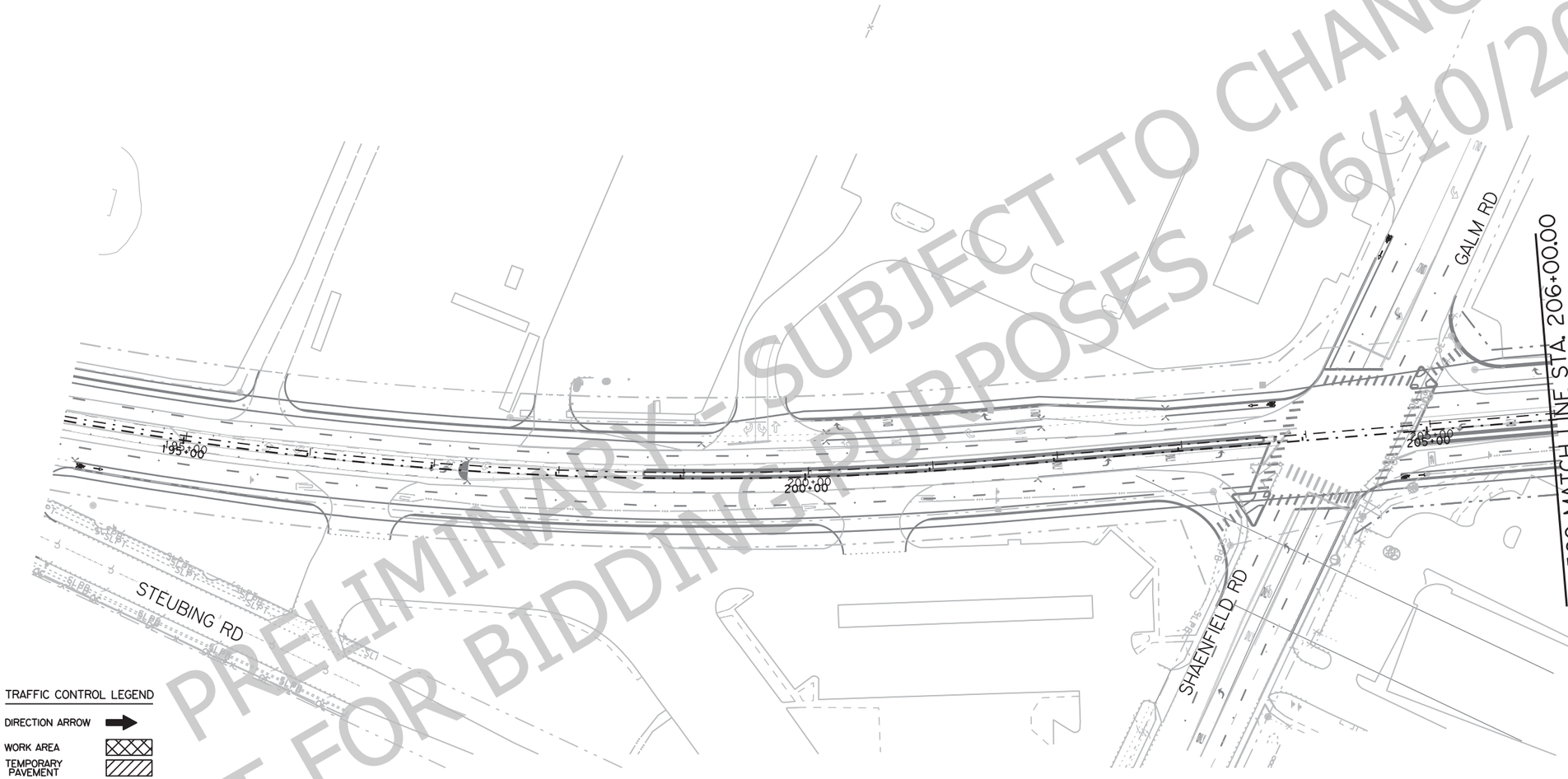

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 1 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	95
TEXAS	SAT	BEXAR	
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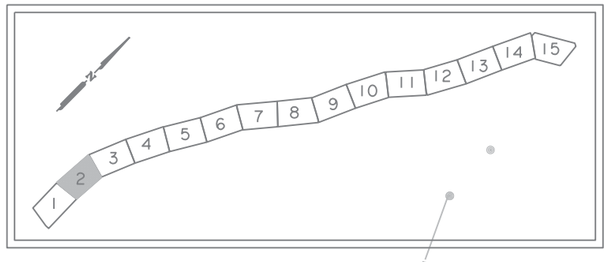
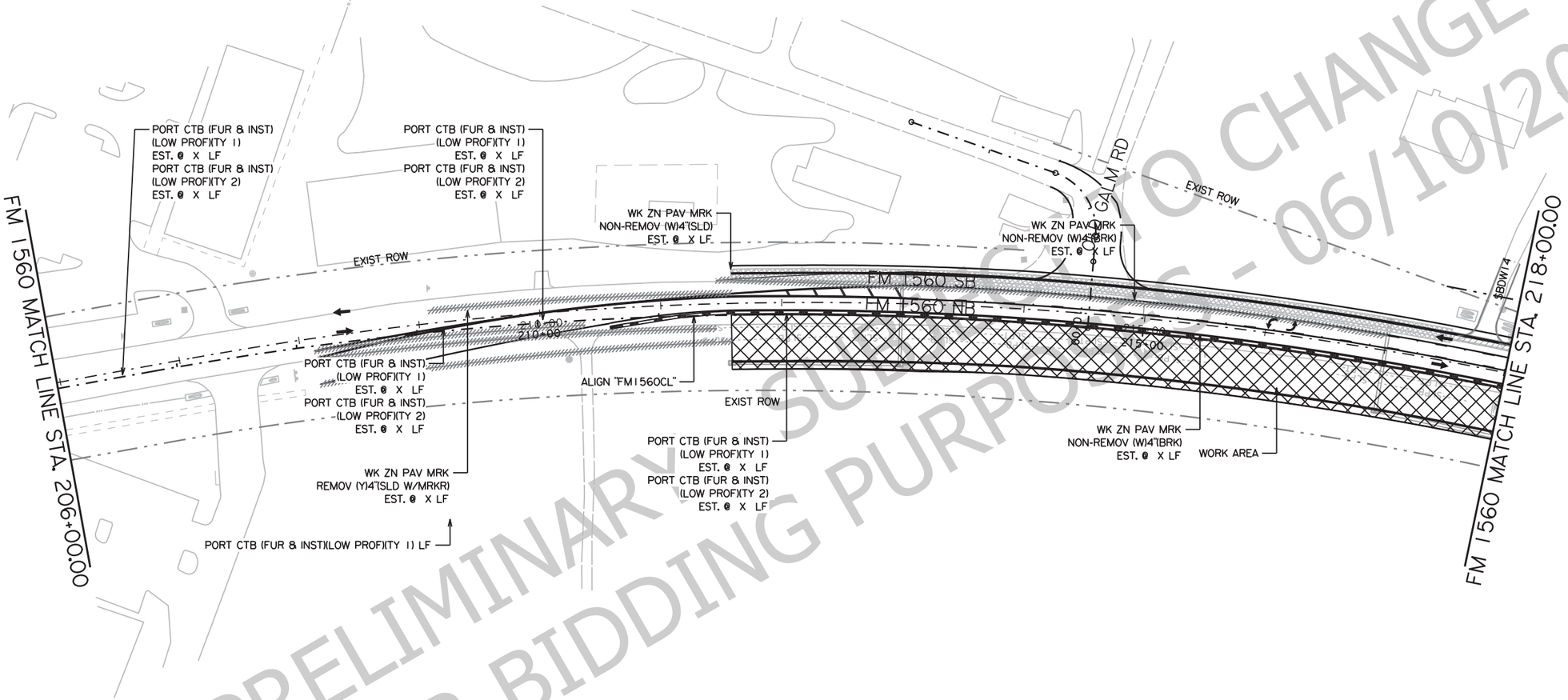
2230	01	021	FM 1560





TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
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- DETOUR ROUTE

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DATE: 6/9/2020

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 2 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	96
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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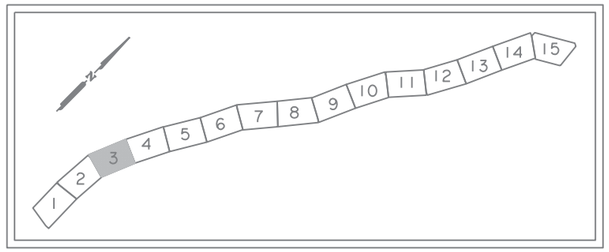

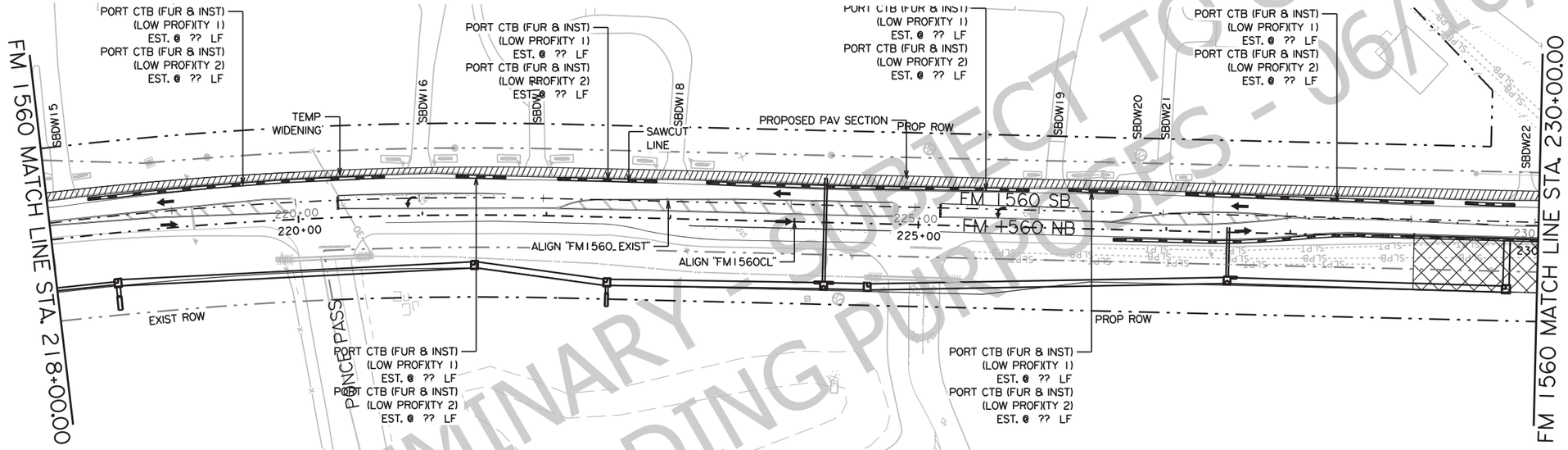

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 3 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	97
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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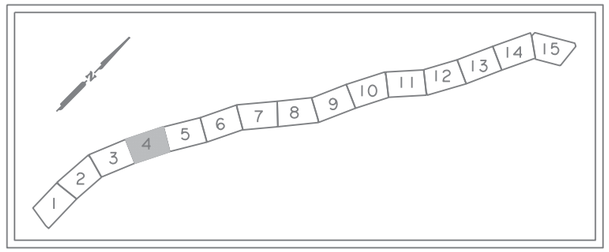

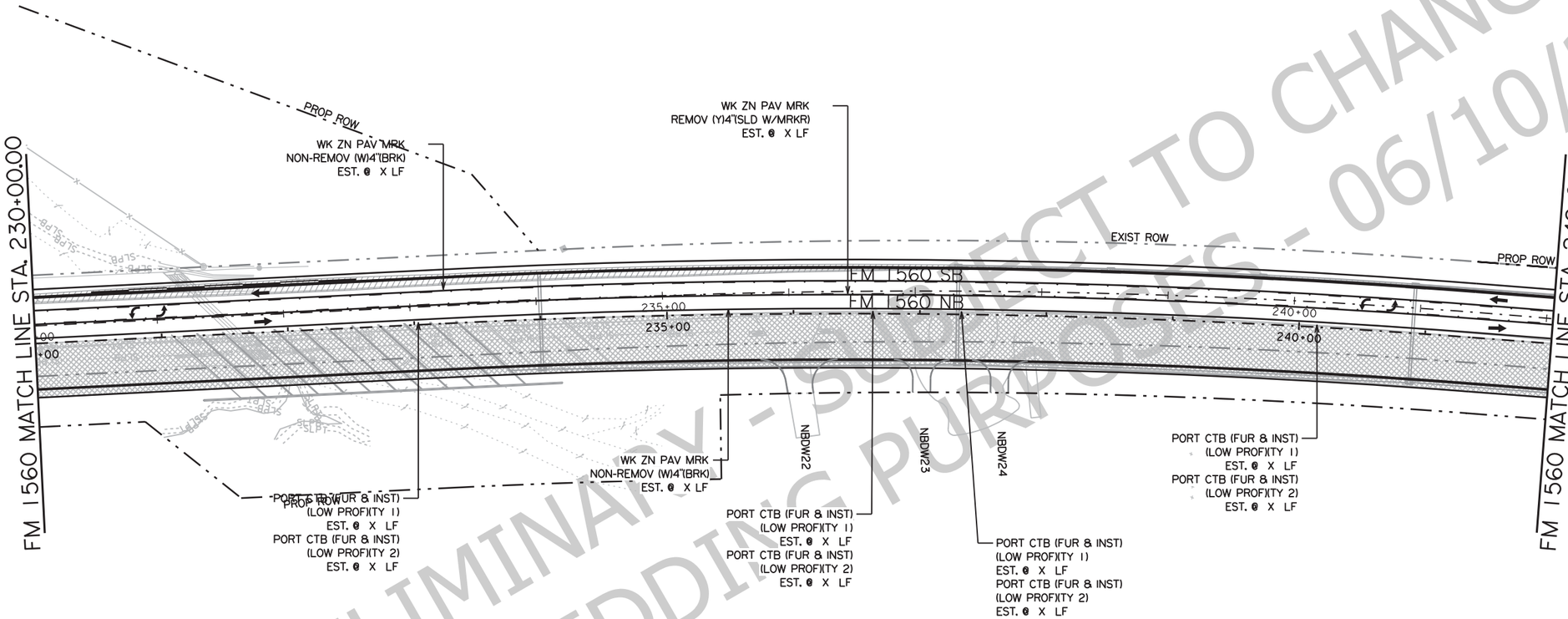

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 4 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 98

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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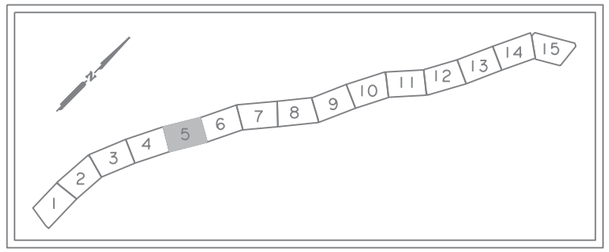

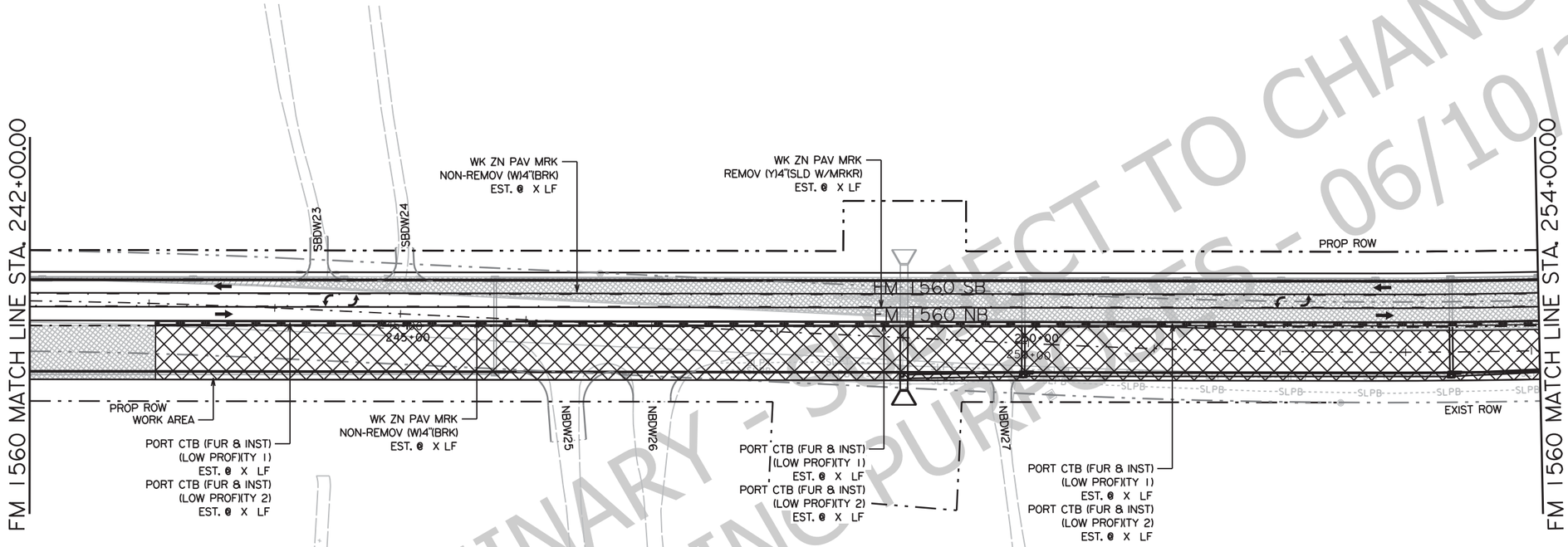

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 5 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	99
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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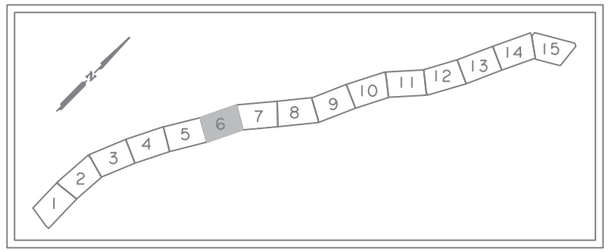

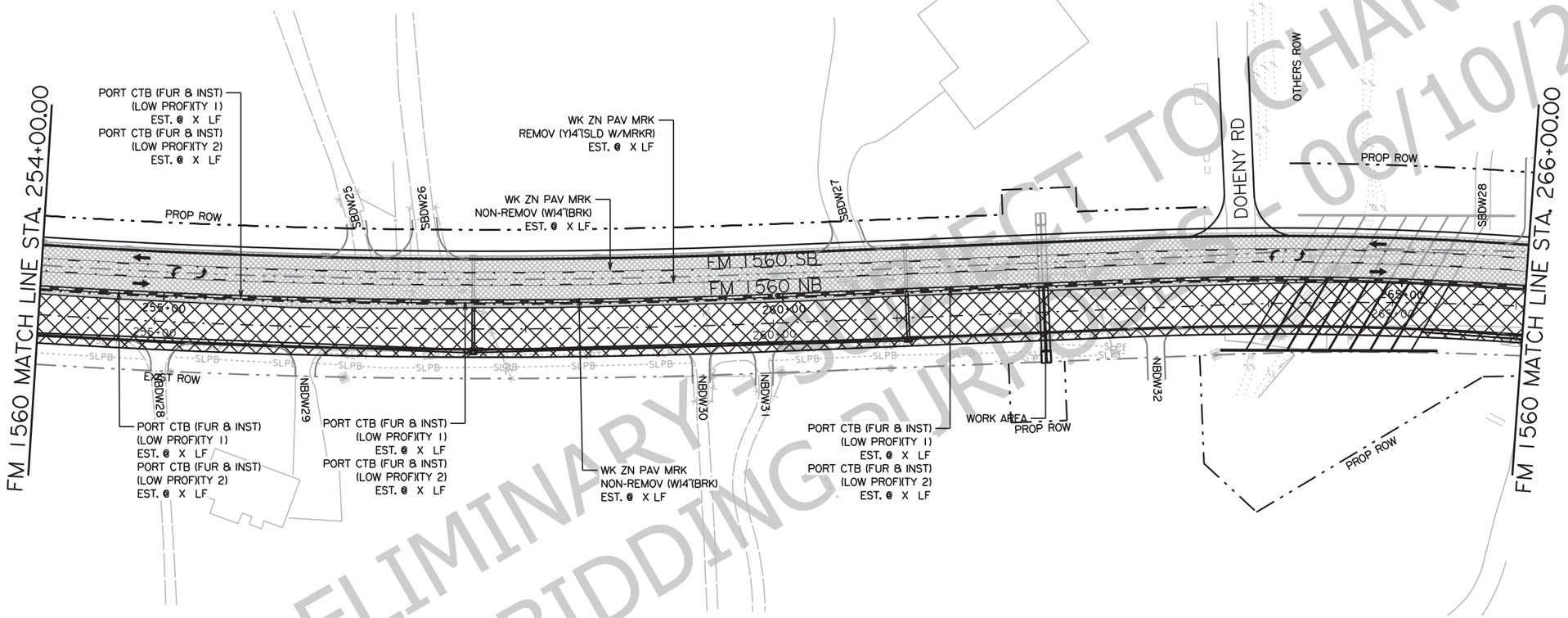

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 6 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	100

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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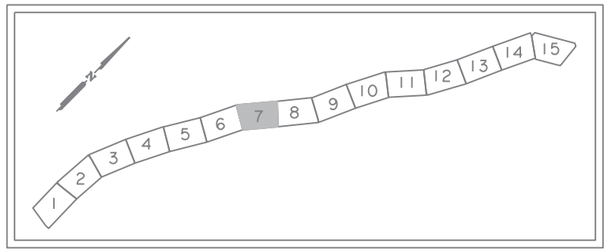

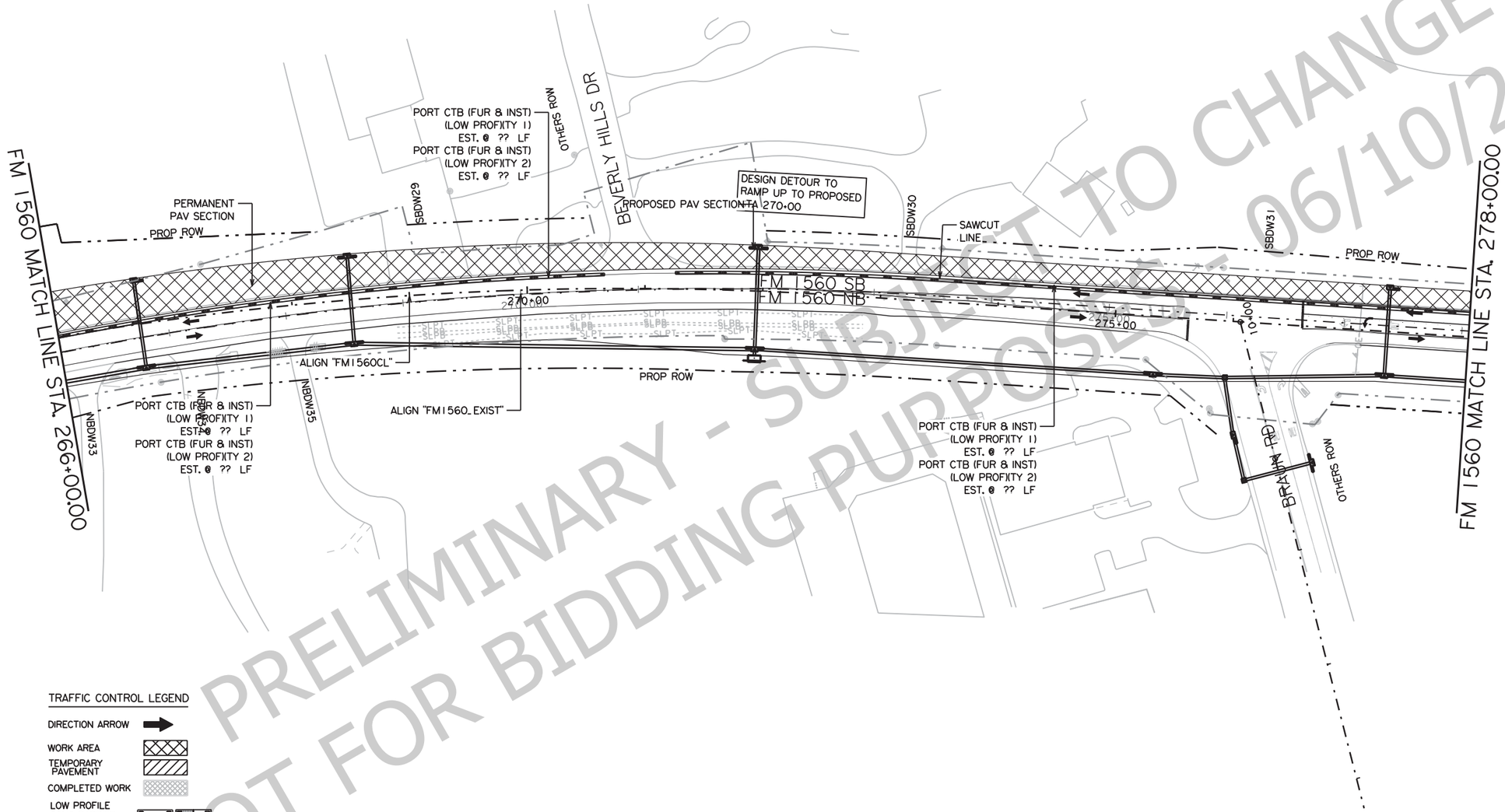

PRELIMINARY - SUBJECT TO CHANGE
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06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 7 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	101

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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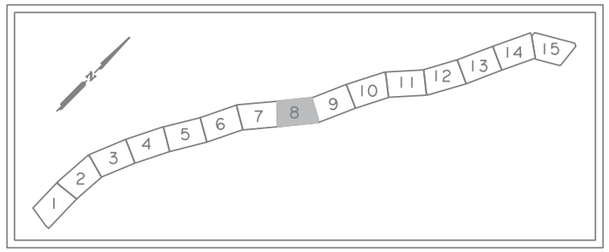

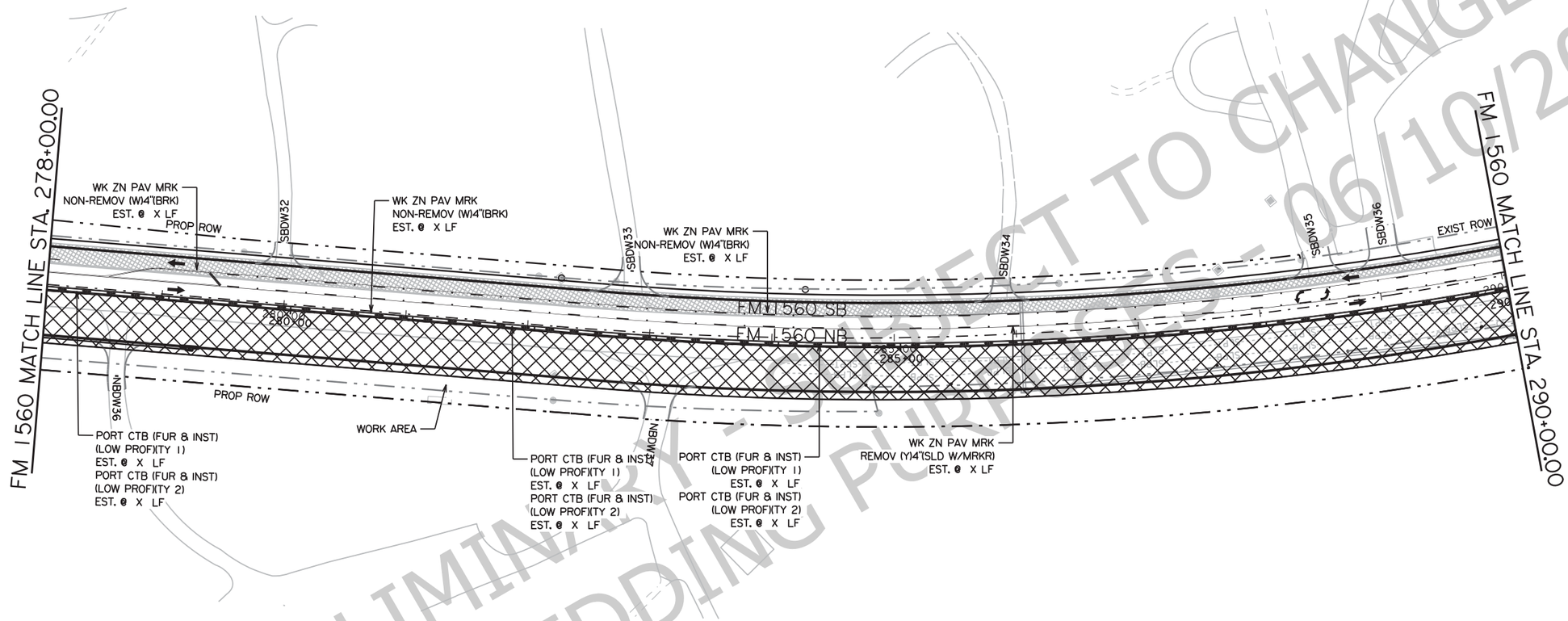

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 8 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	102
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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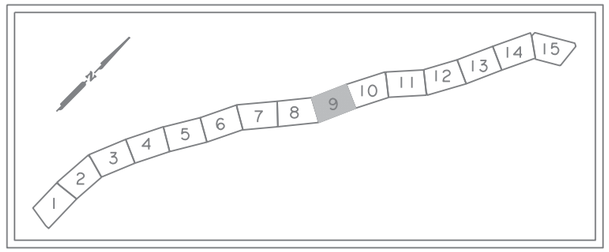

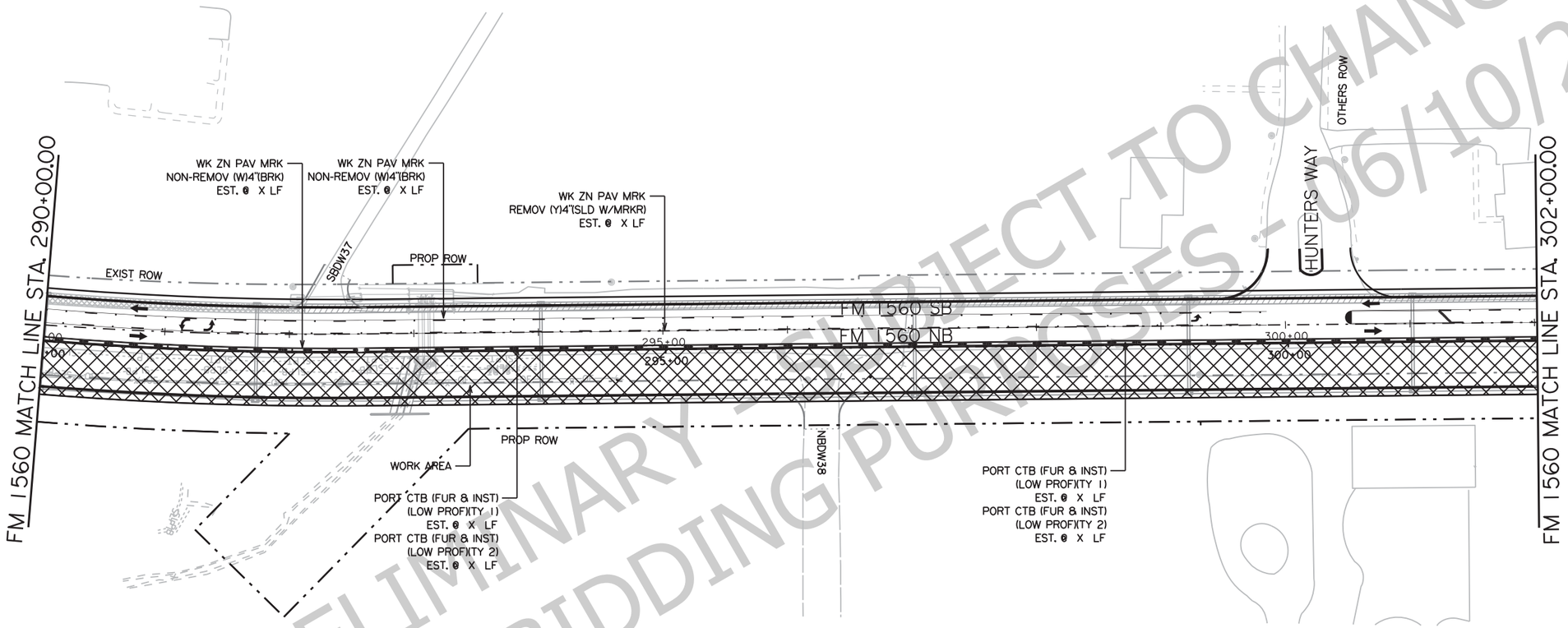

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
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DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 9 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FEDRD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	103

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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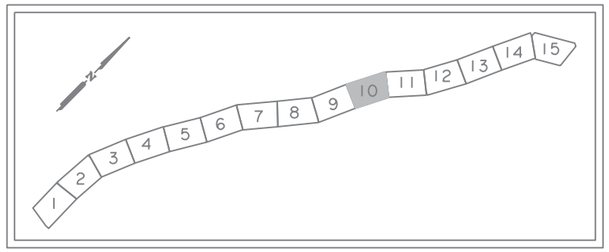

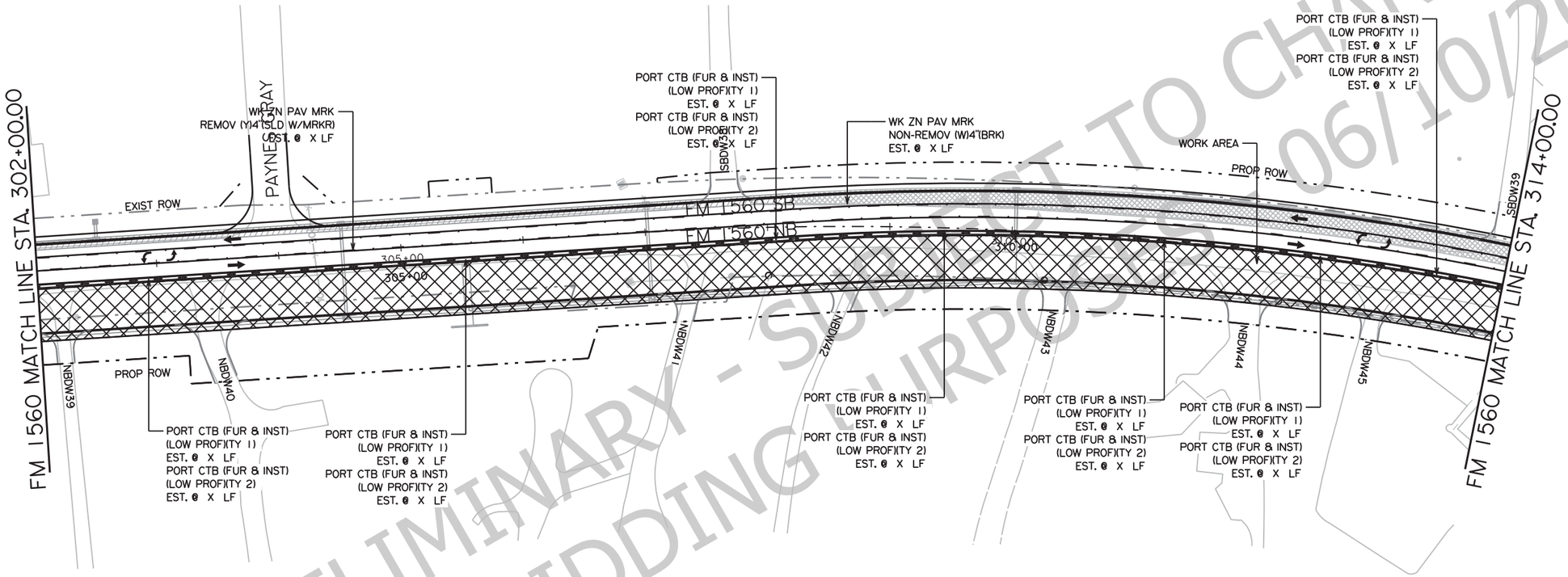

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 10 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	104
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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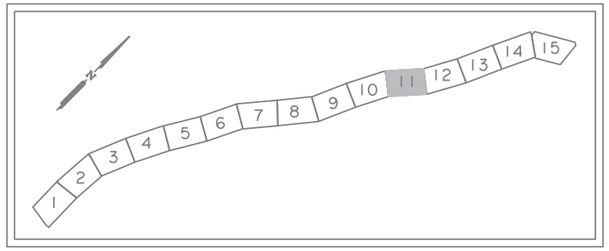

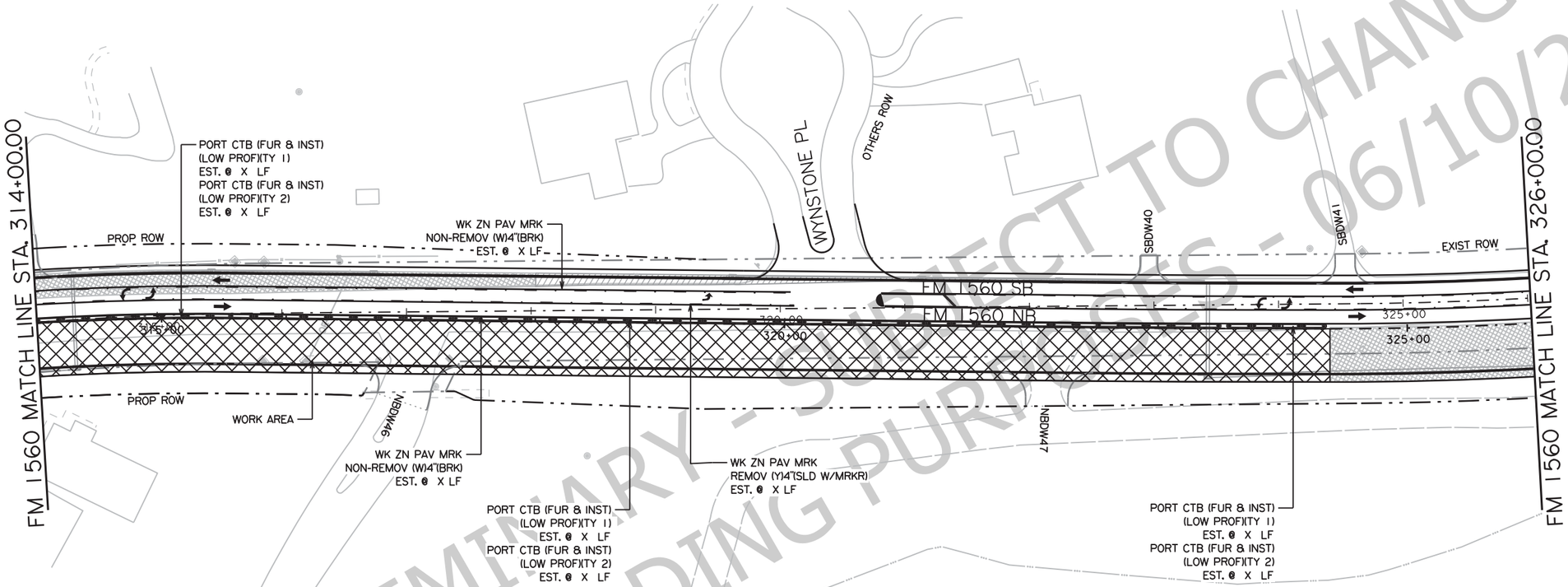

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 11 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	105
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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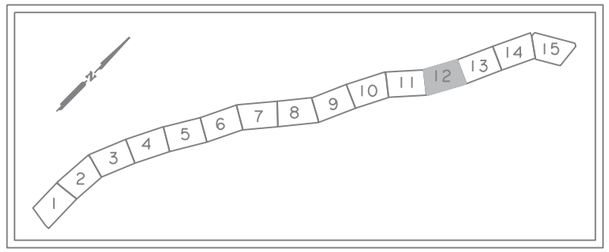

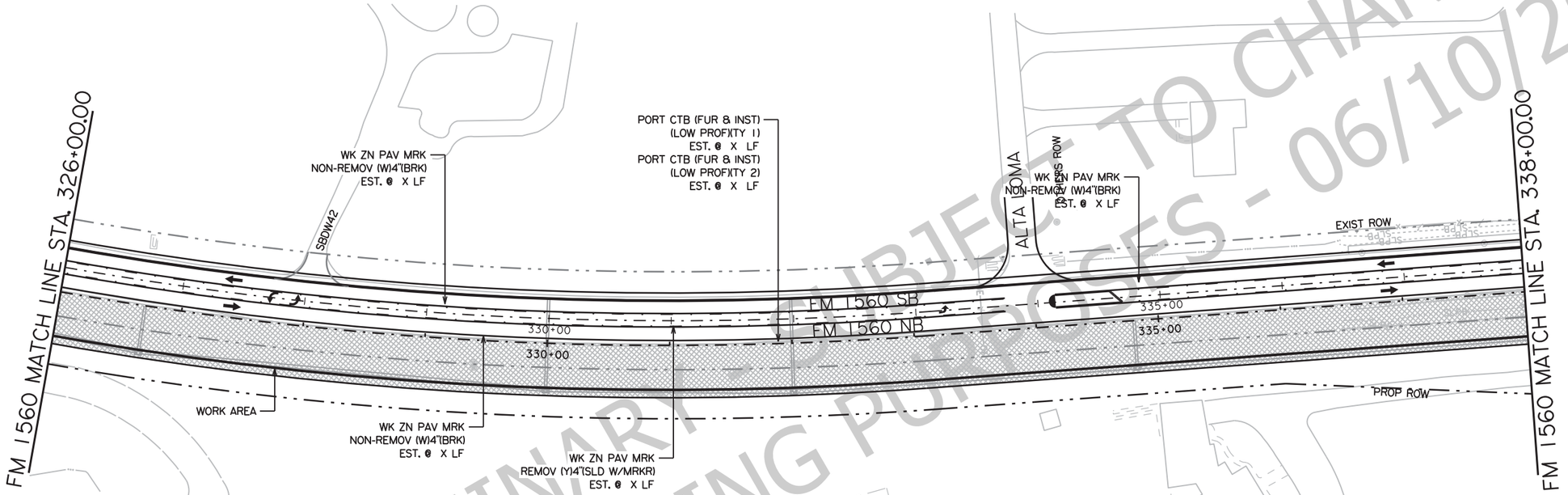

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

SUBJECT TO CHANGE
PROCESS - 06/10/2020
PRELIMINARY - DRAFT
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 12 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	106
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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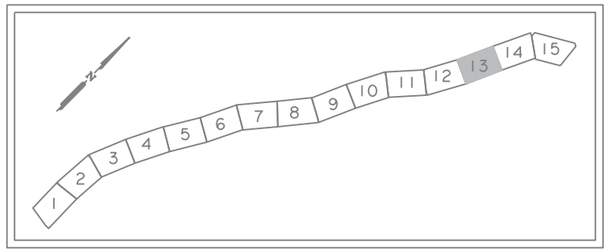

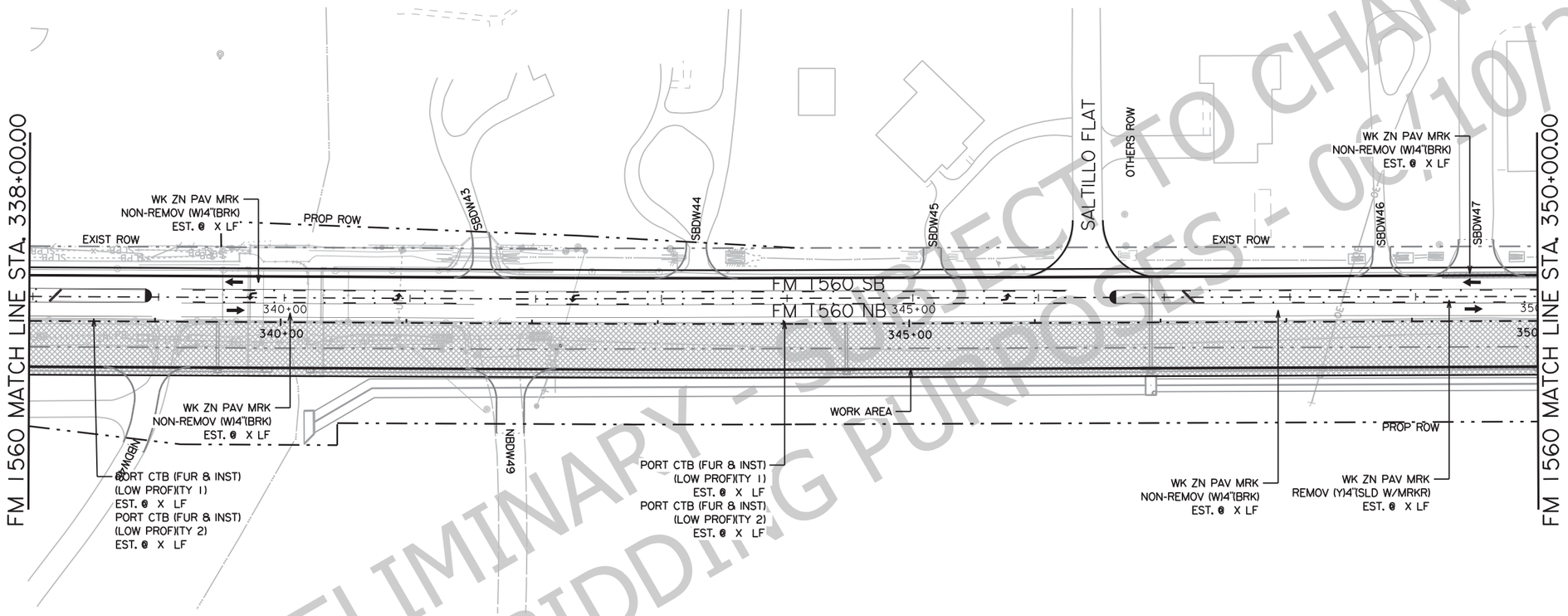

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

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TRAFFIC CONTROL PLAN
PHASE 3

SHEET 13 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	107
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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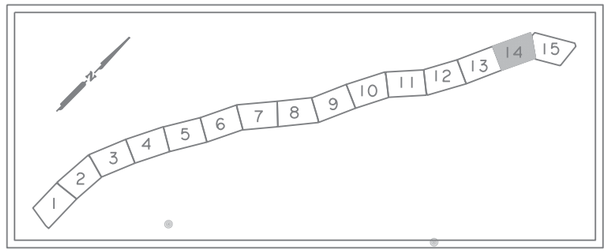

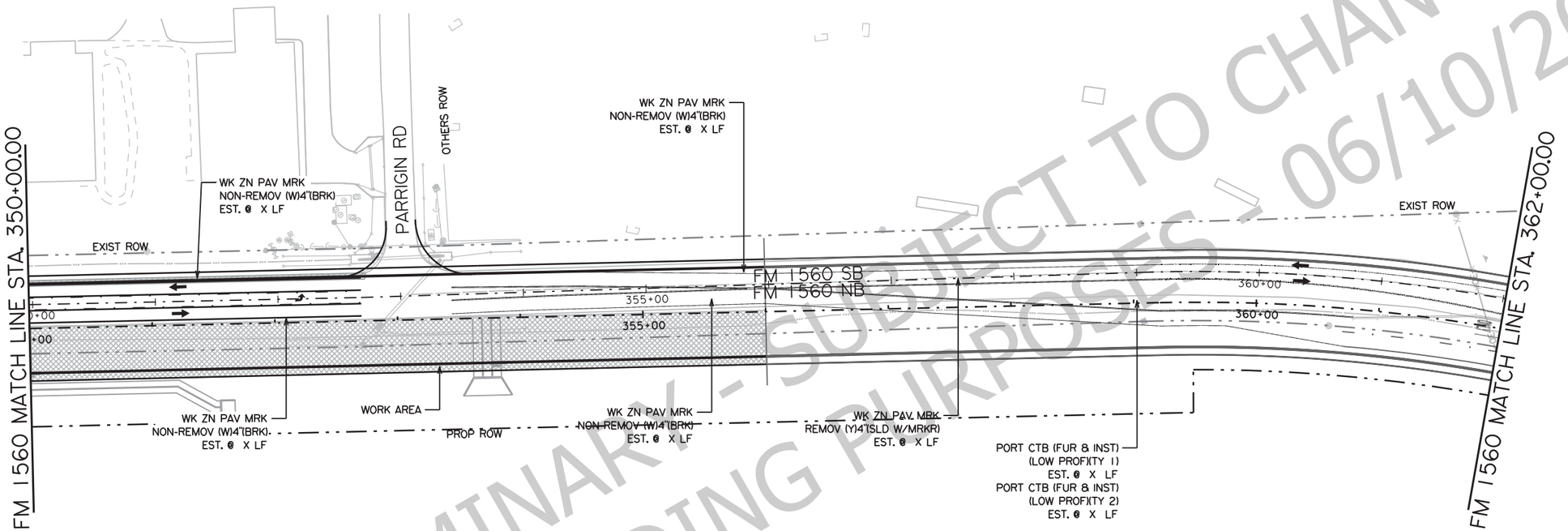

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 14 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	108
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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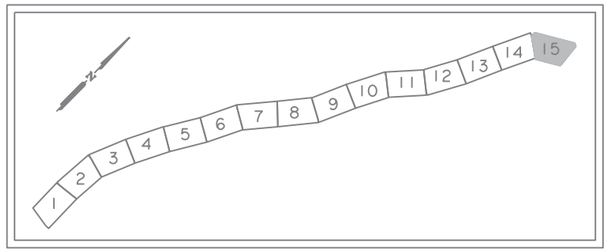

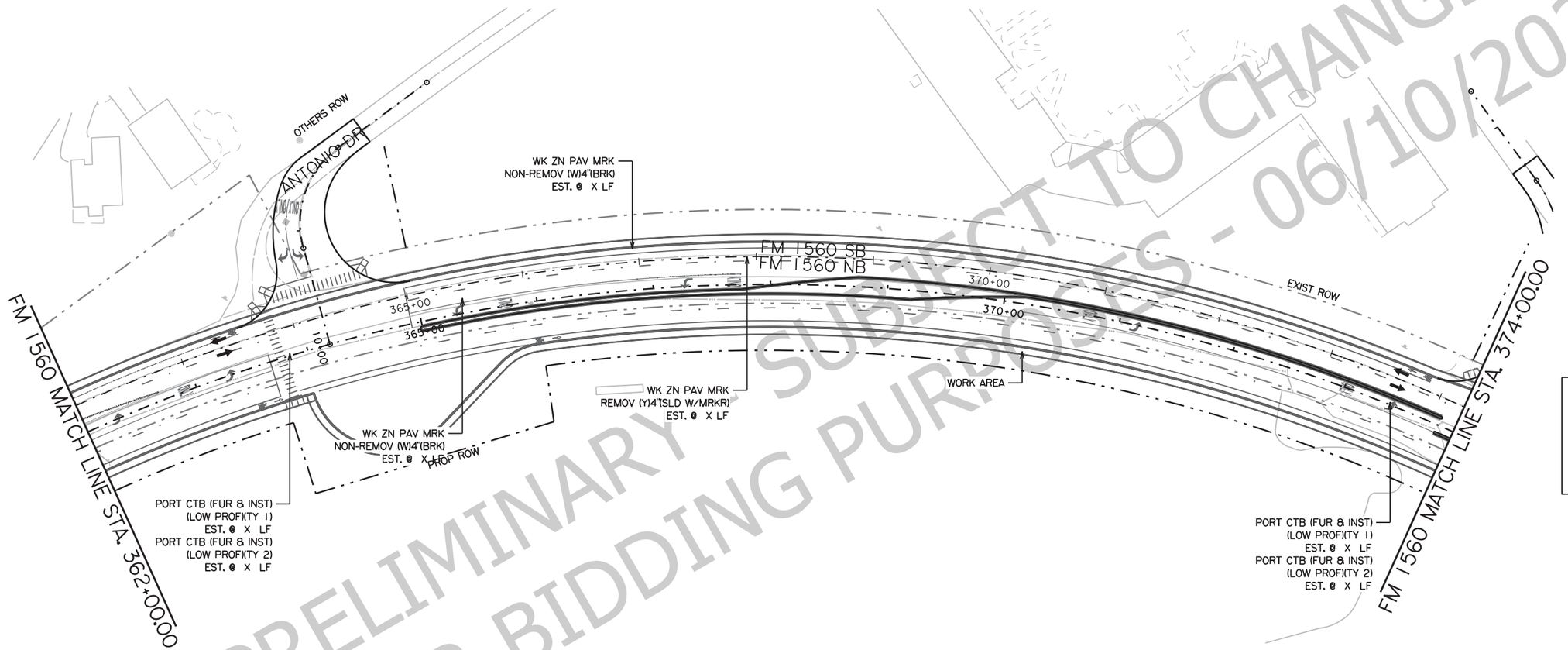

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3

SHEET 15 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	109
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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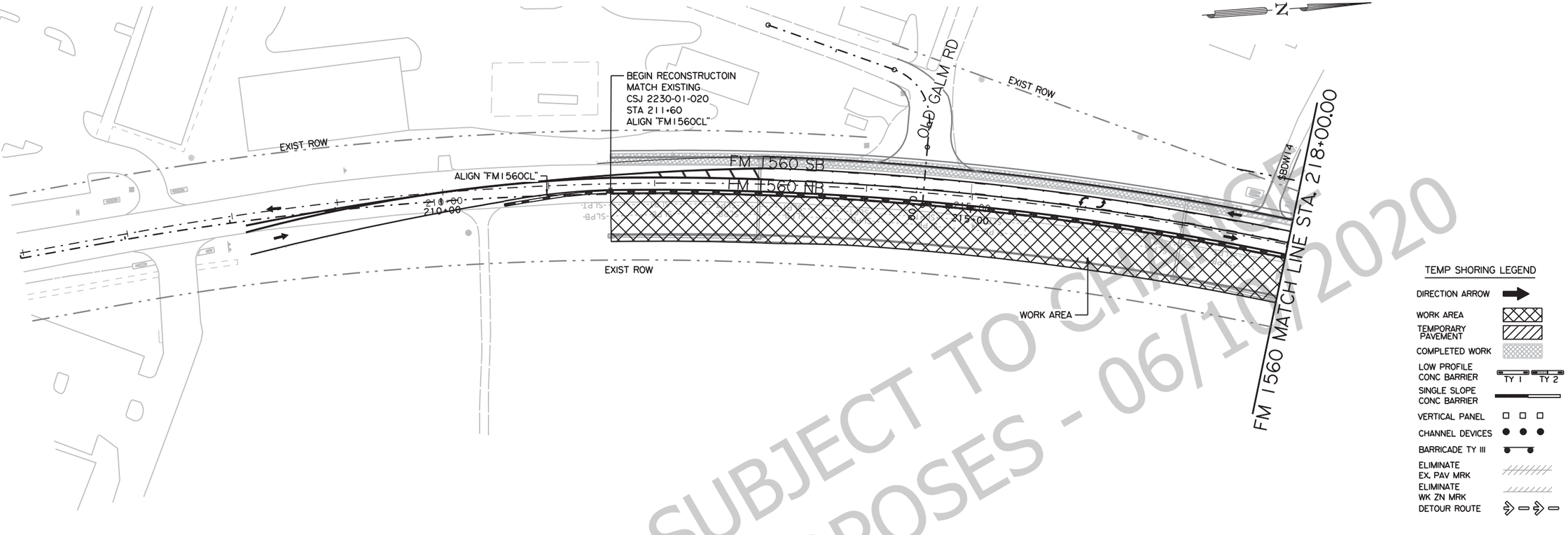

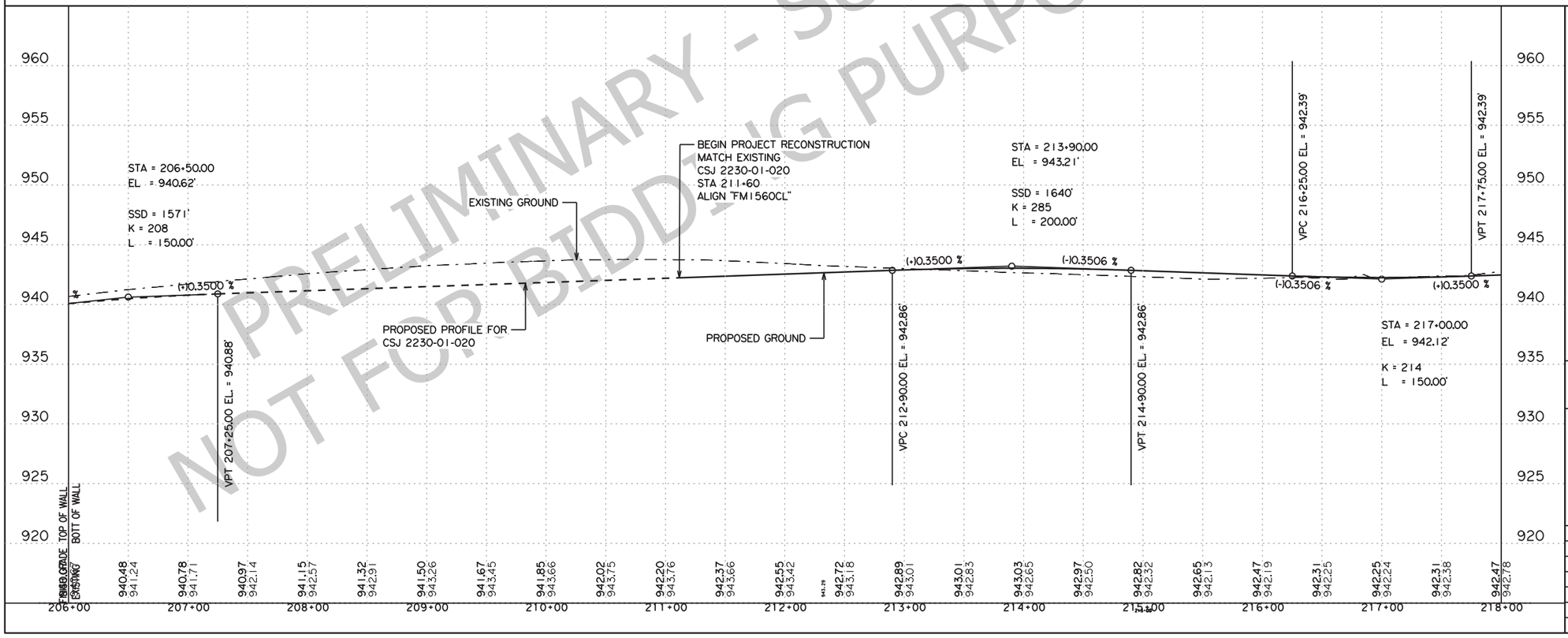

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 1 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

110

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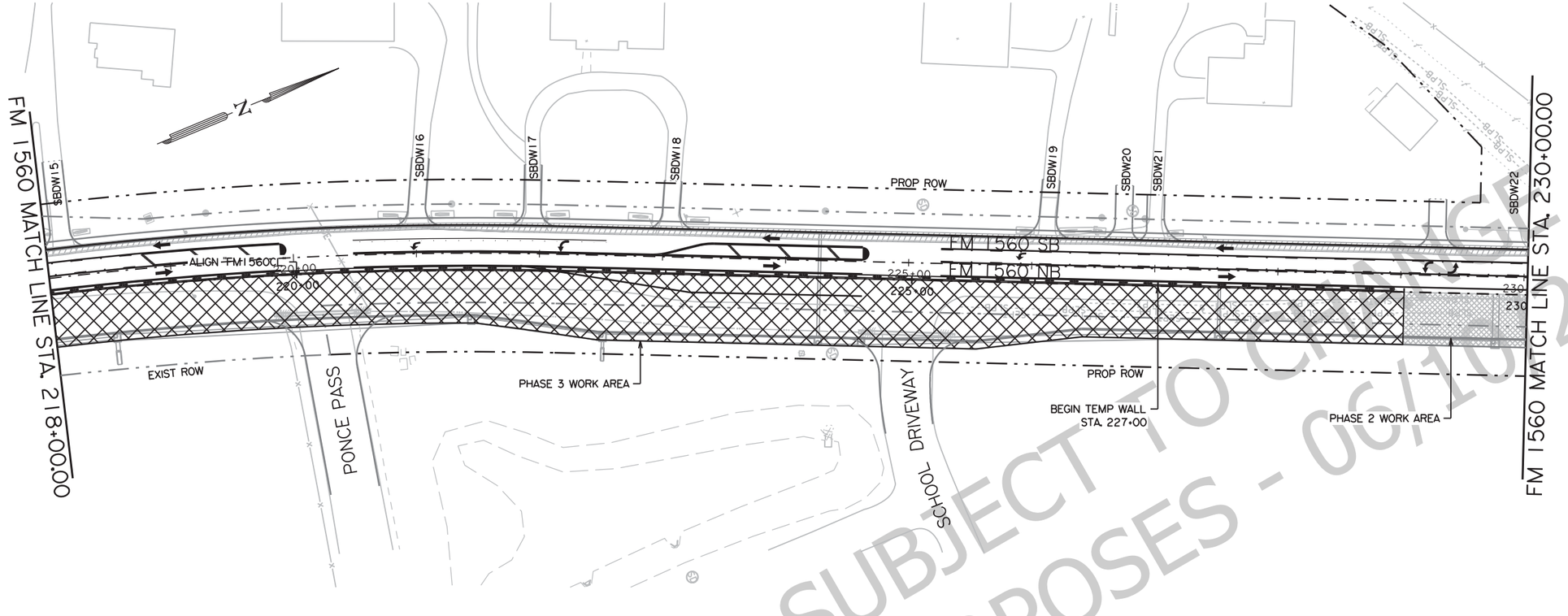

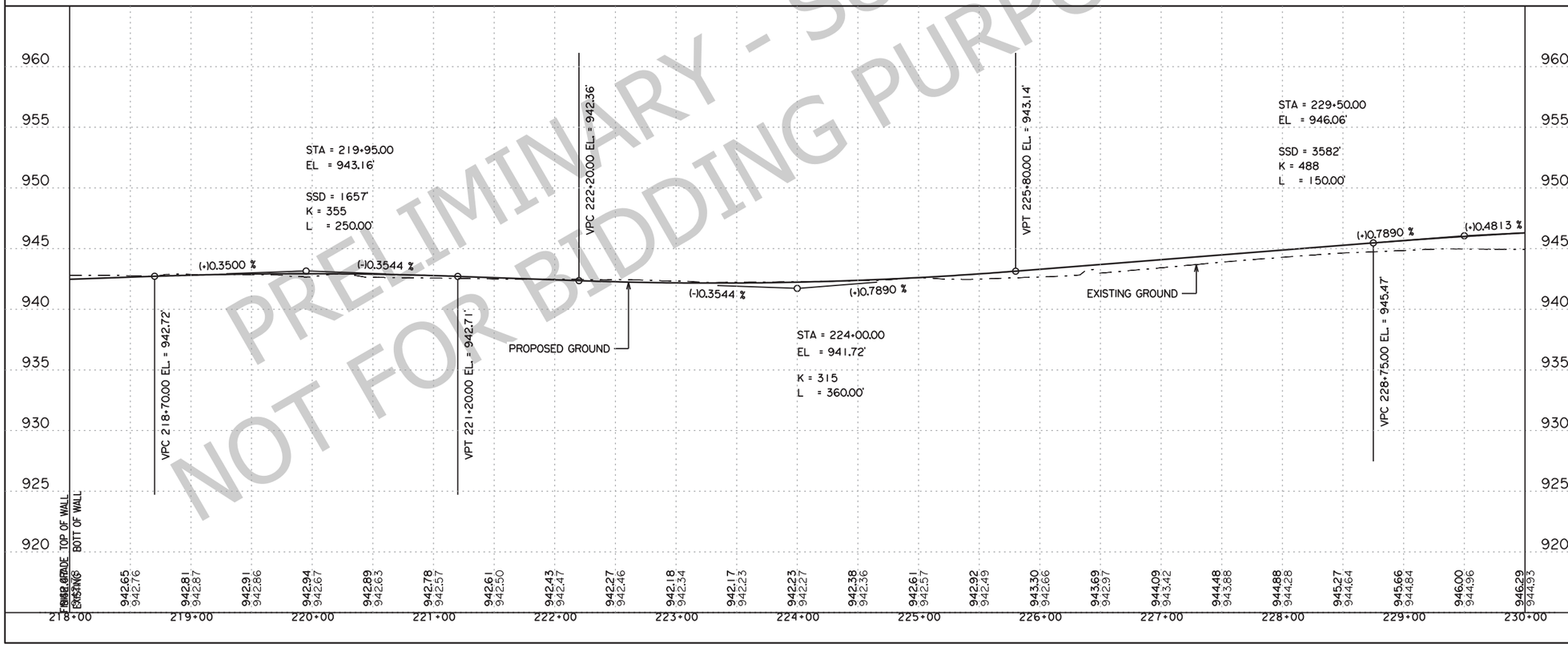

TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 2 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAT	BEXAR	111

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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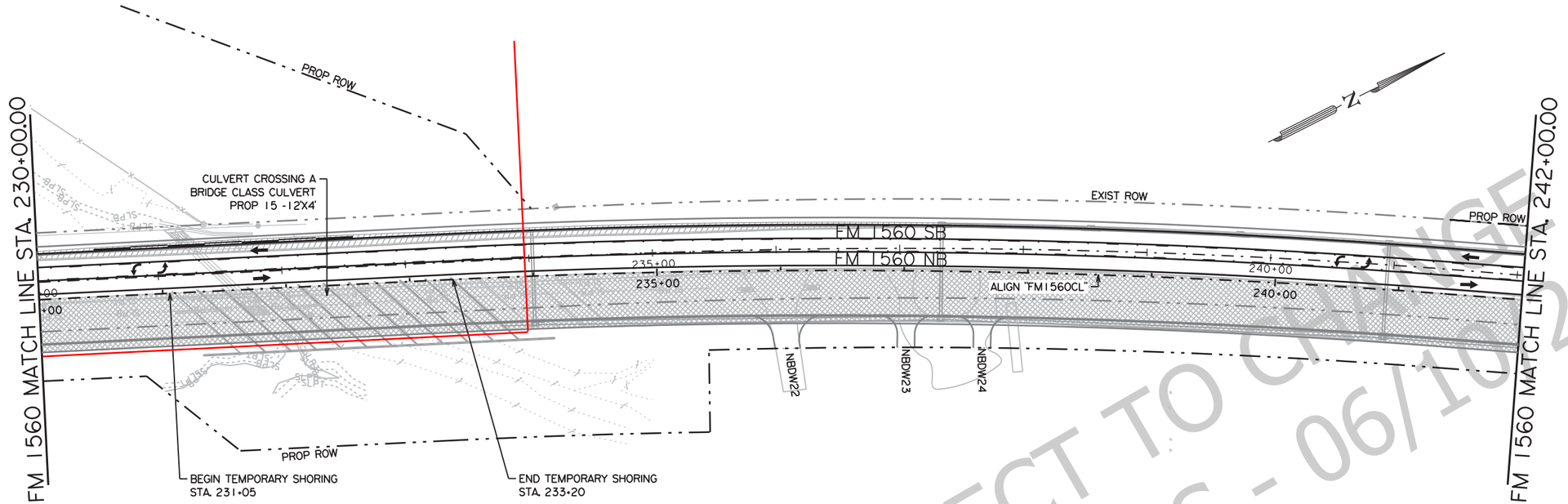
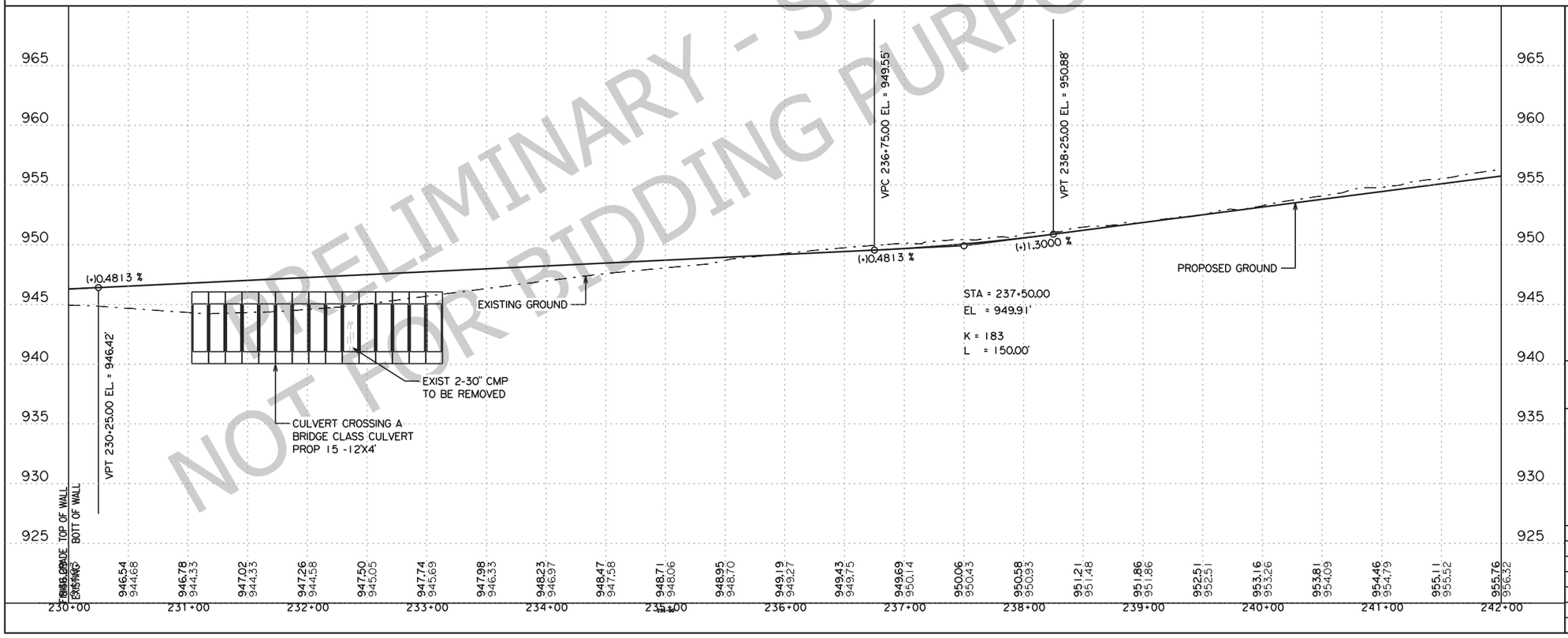


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 3 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	112
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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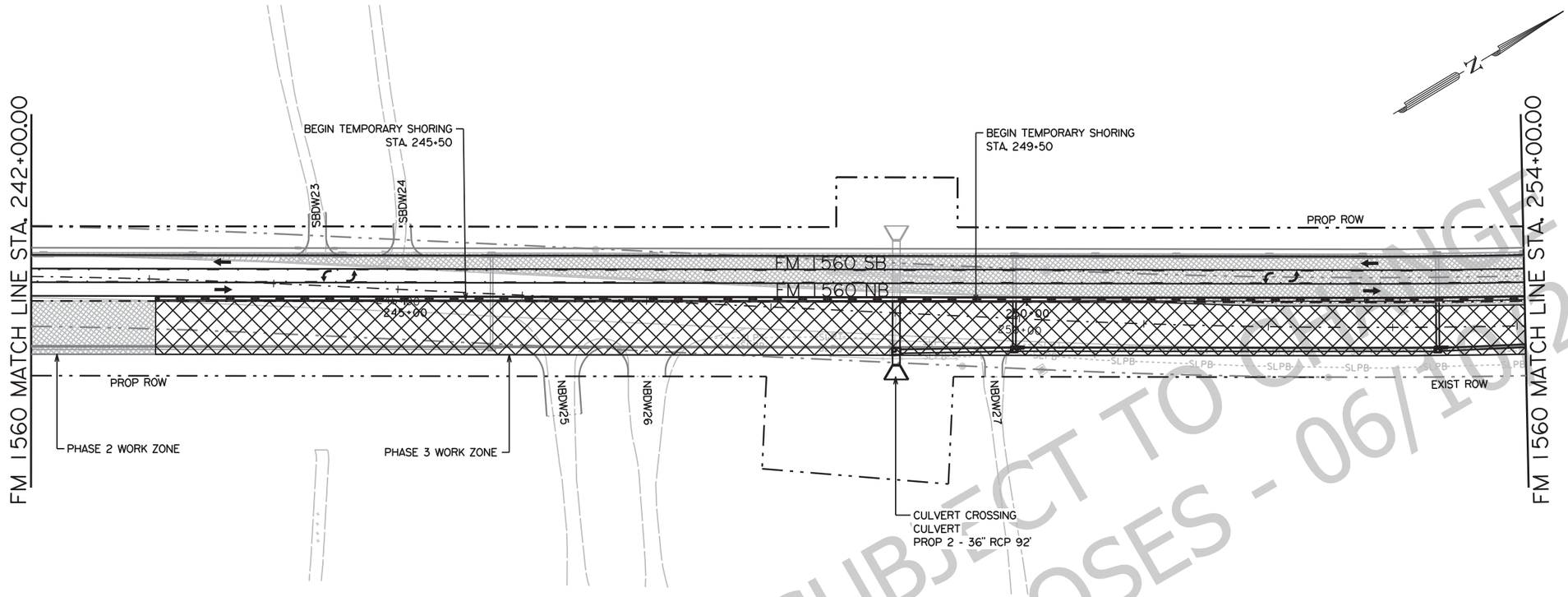
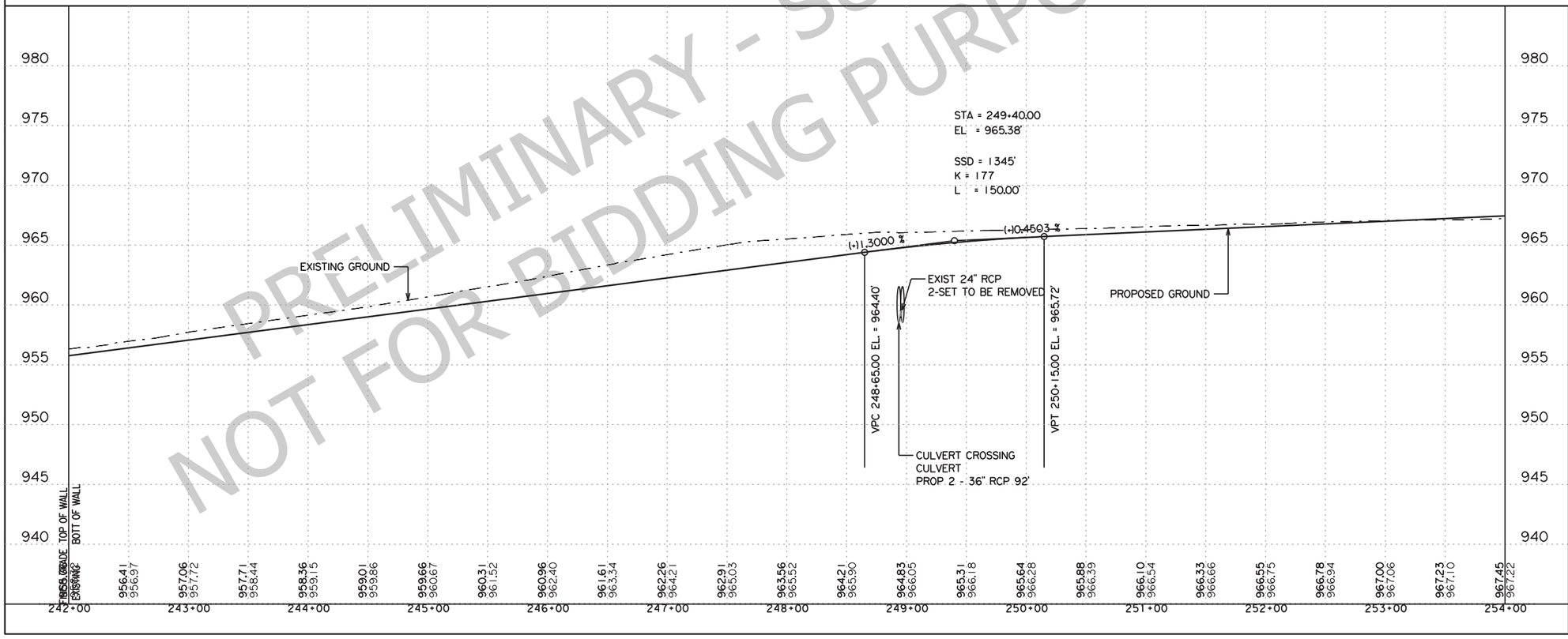


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 4 OF 12

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	113
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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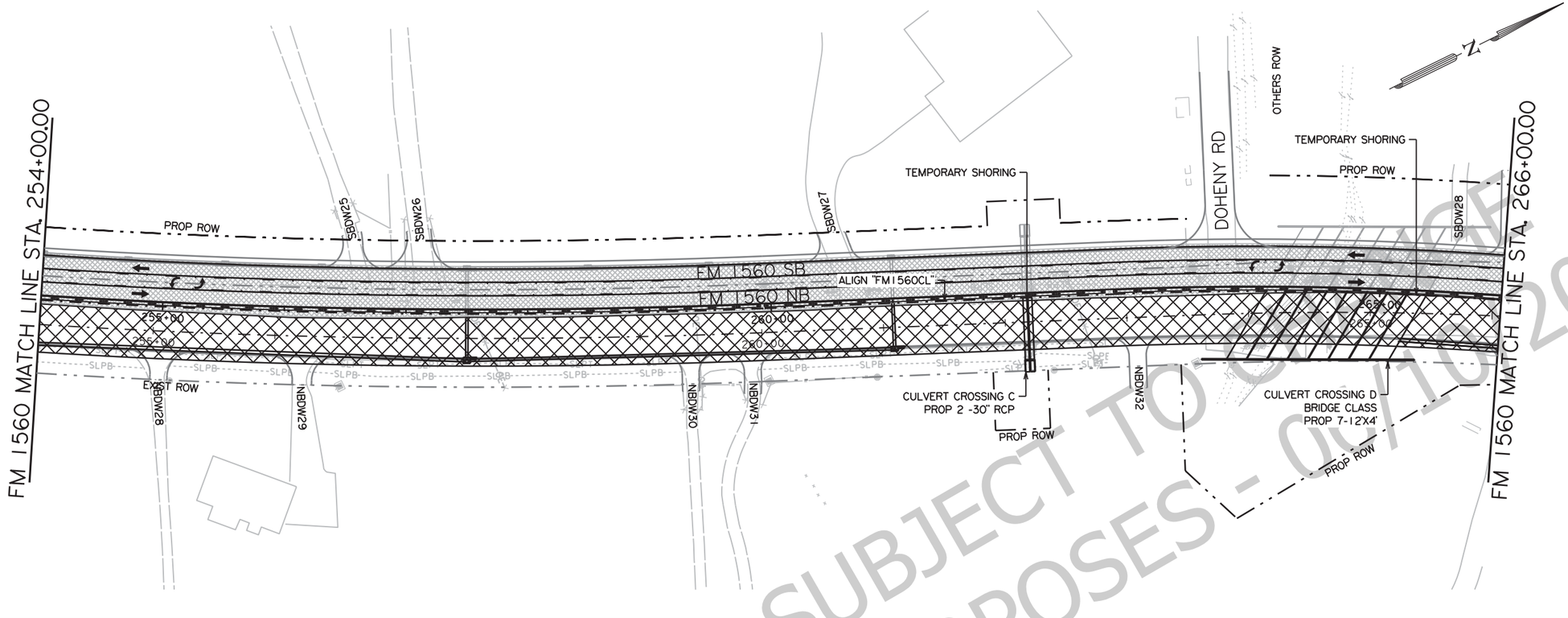

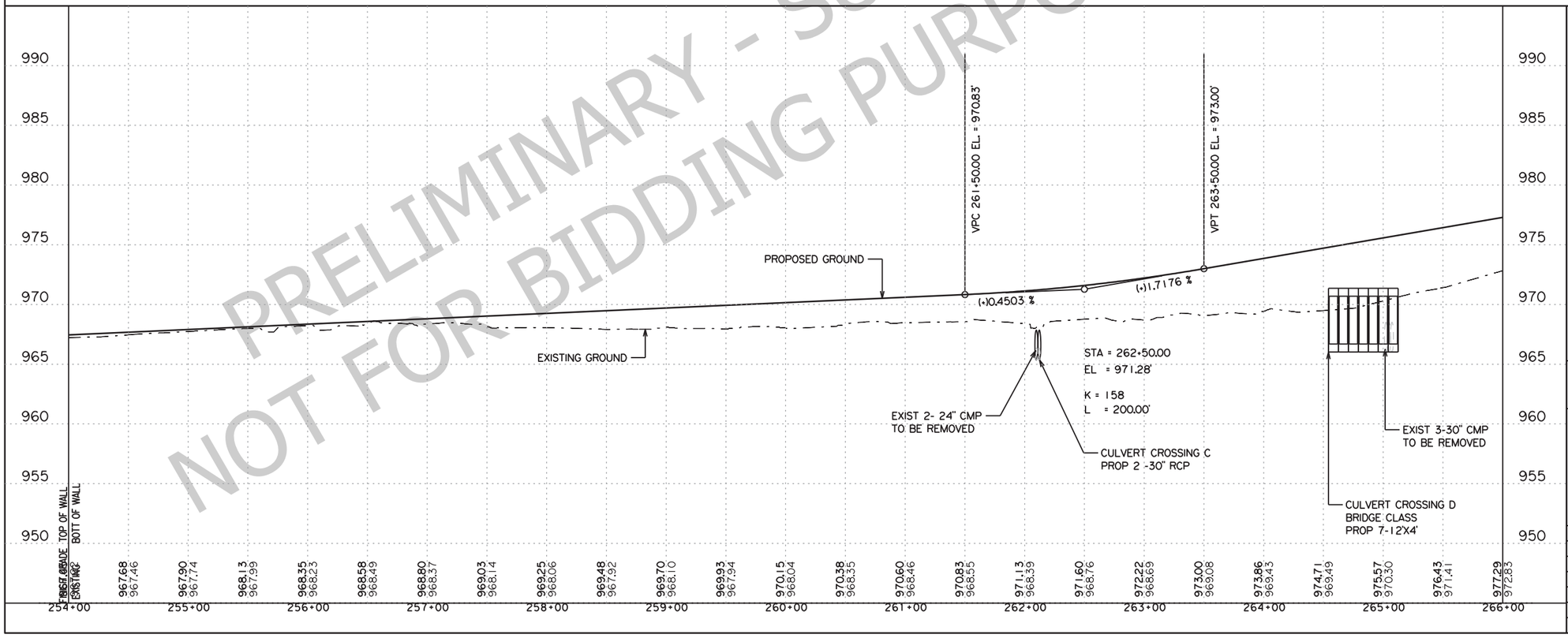

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 5 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

114

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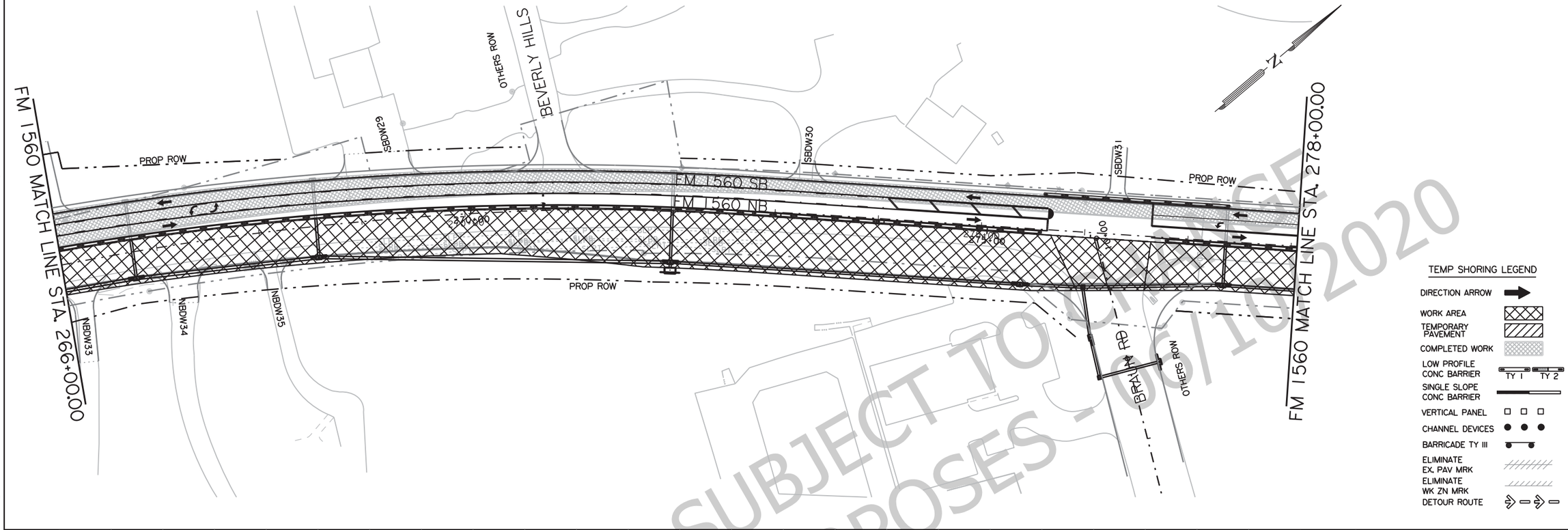
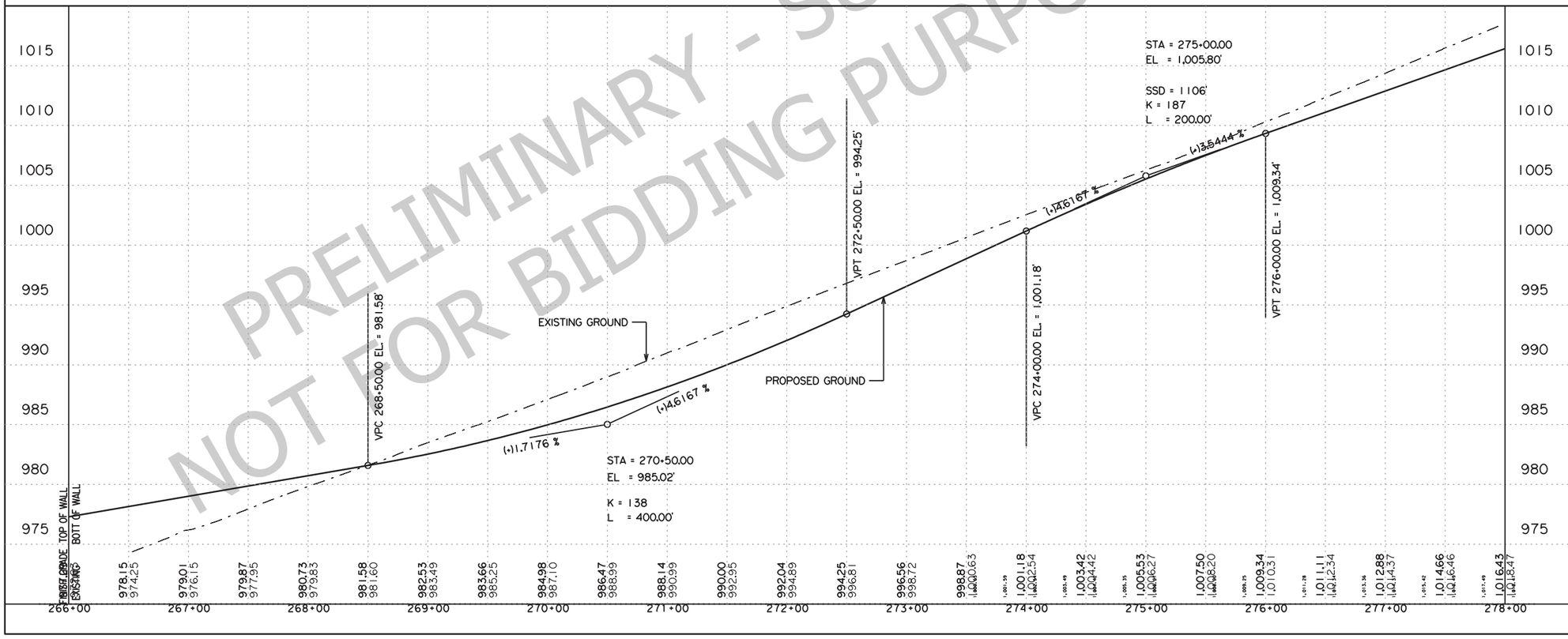


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 6 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	115
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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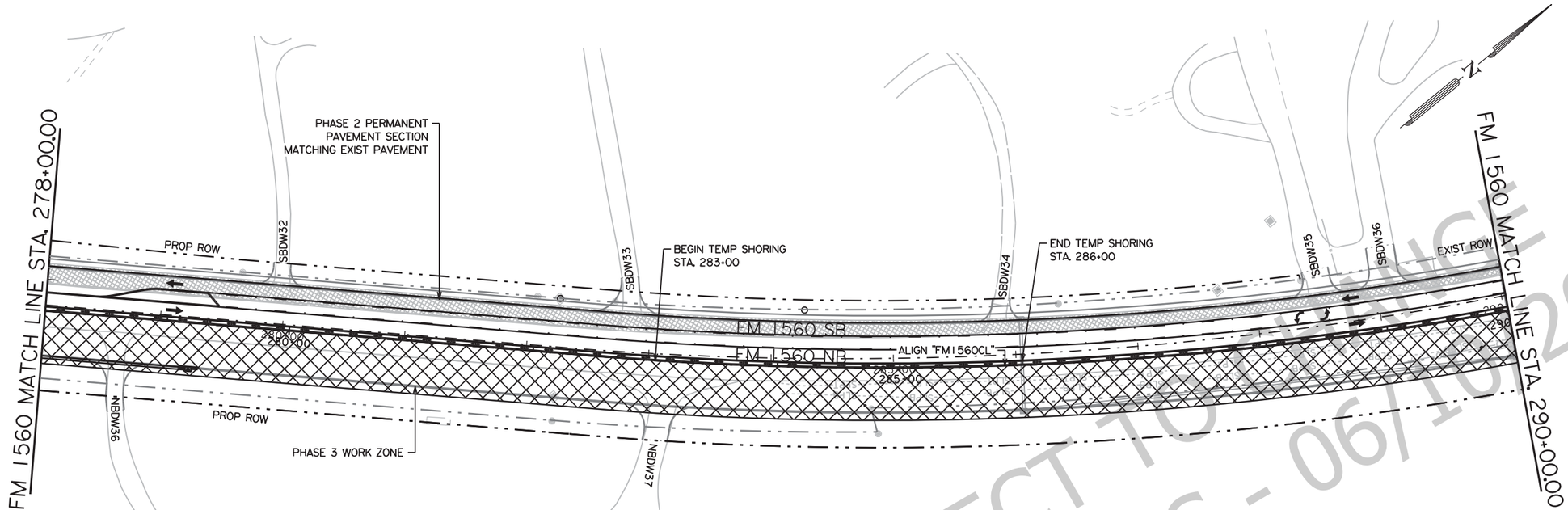
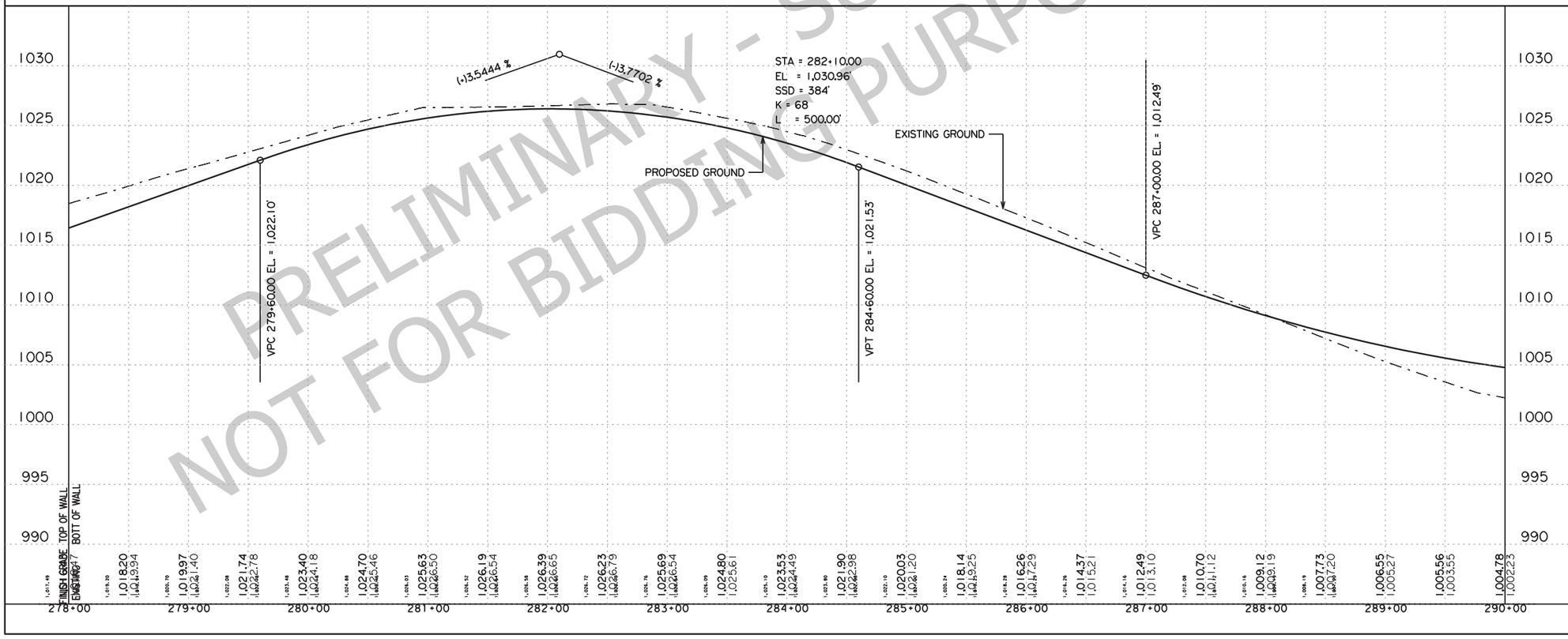


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

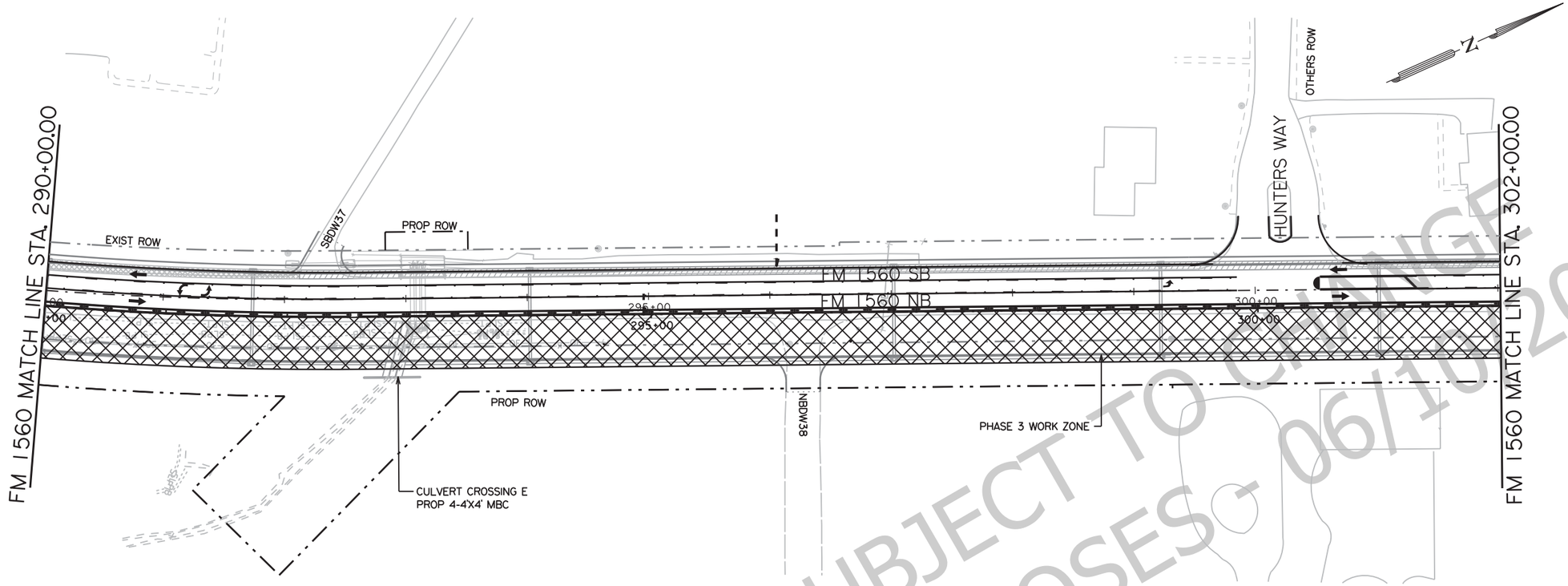
SHEET 7 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	116

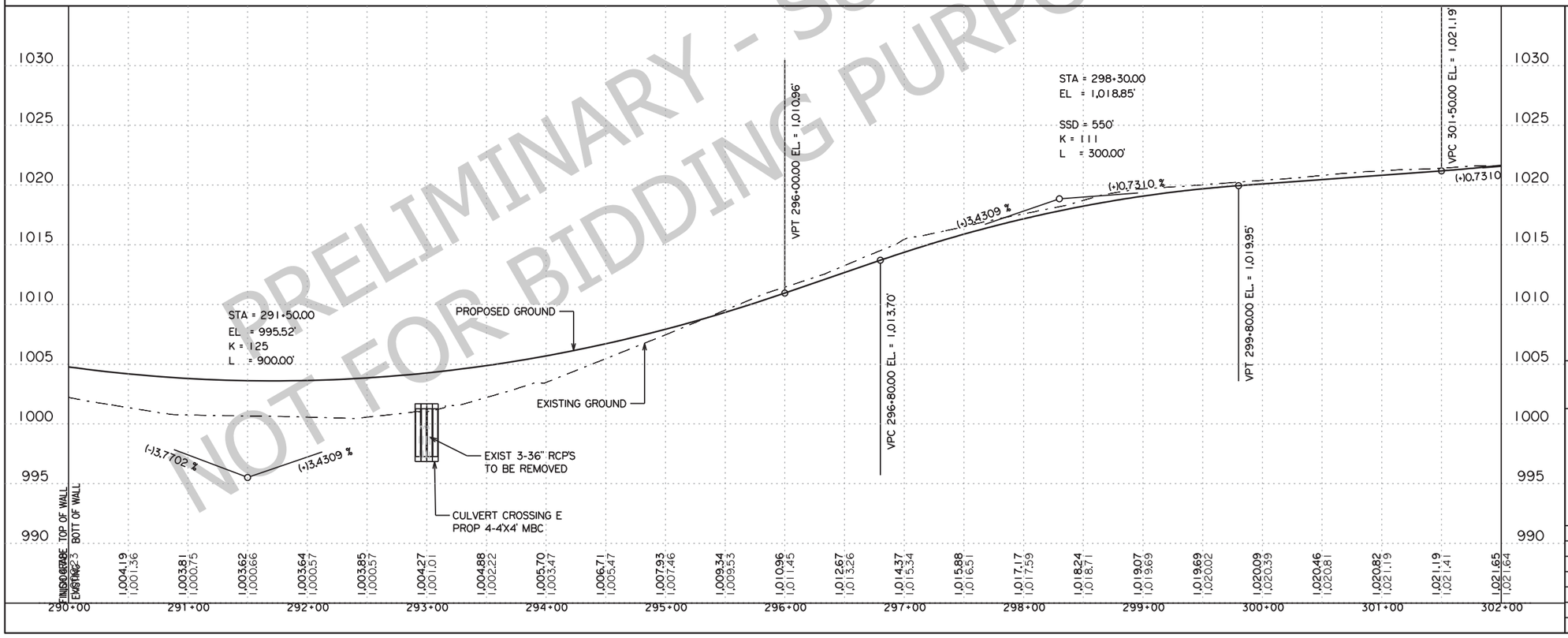
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

SUBJECT TO CHANGE
PRELIMINARY - 06/10/2020
NOT FOR BIDDING PURPOSES



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 8 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	117
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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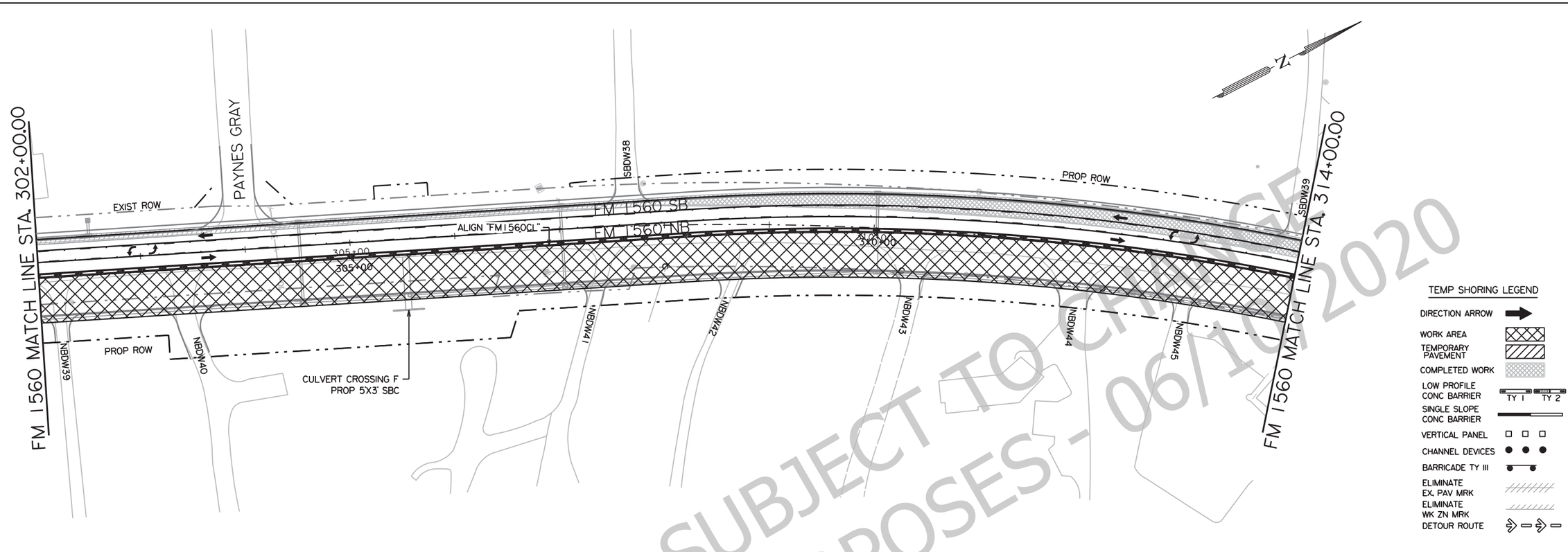

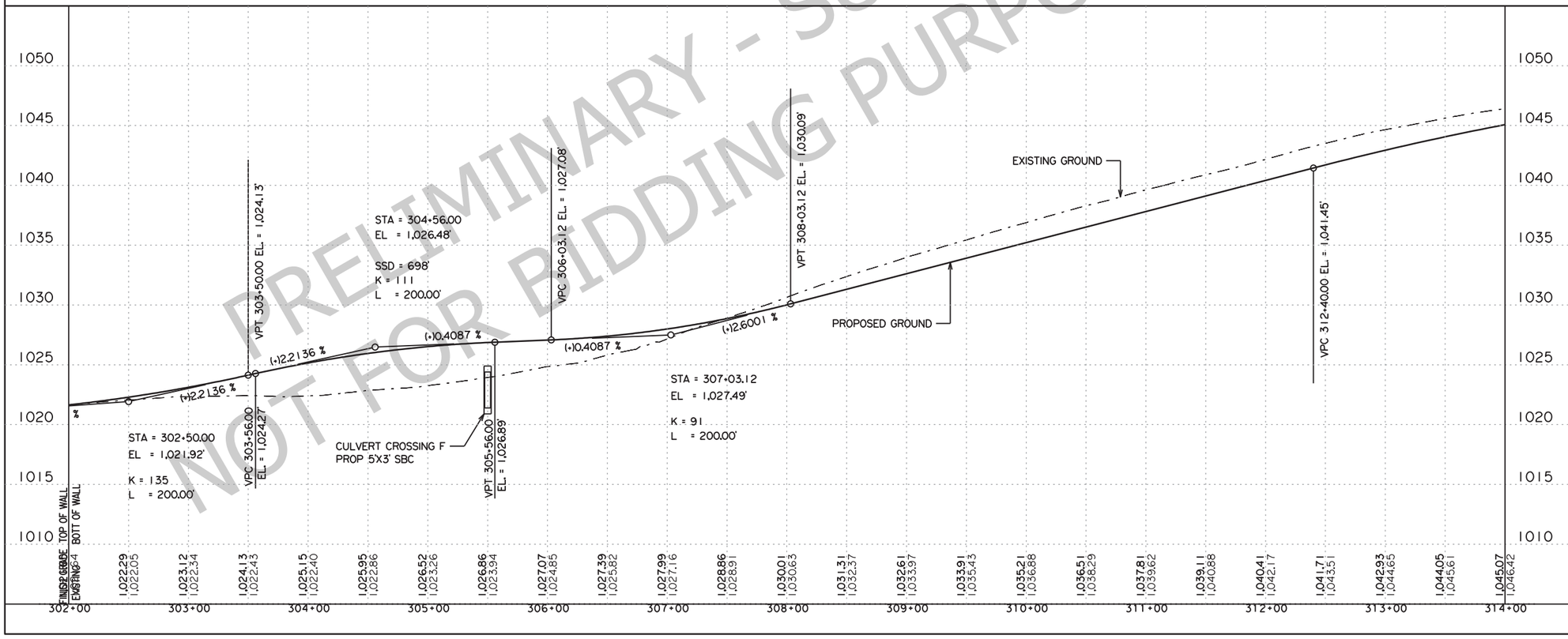

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 9 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

118

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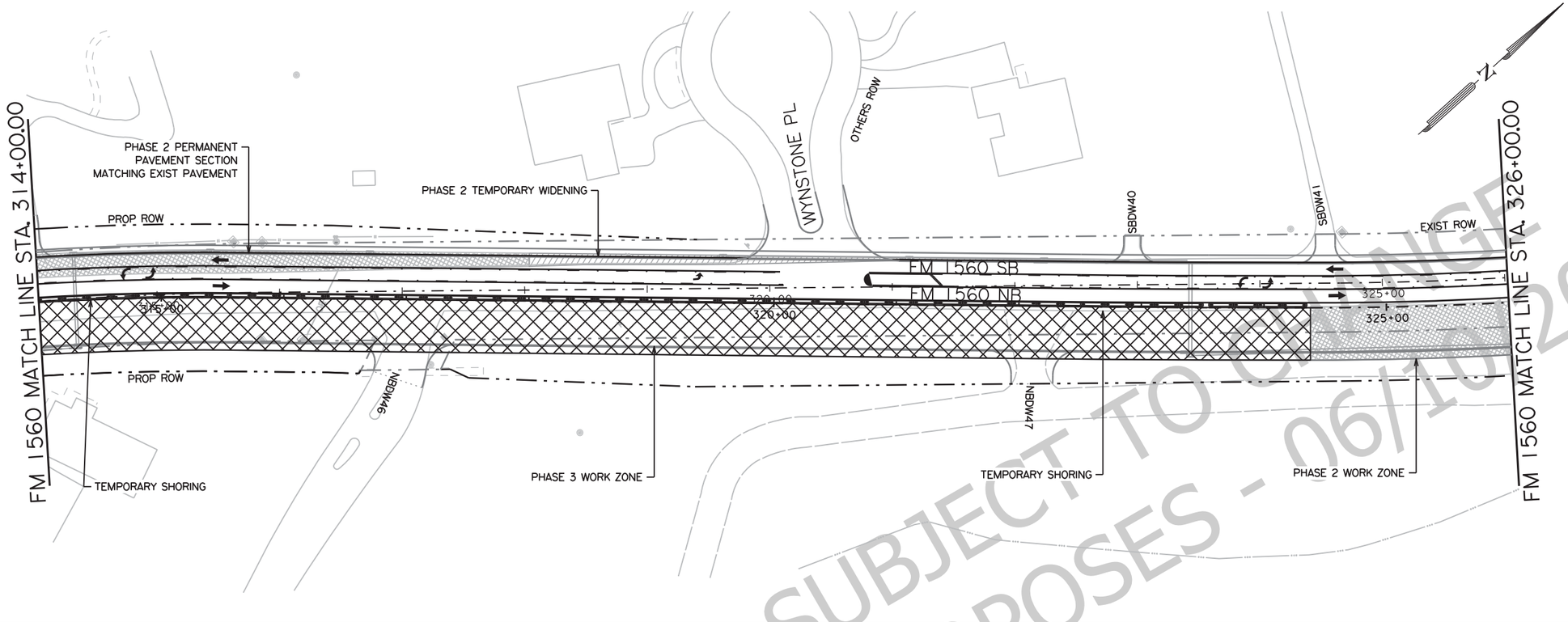
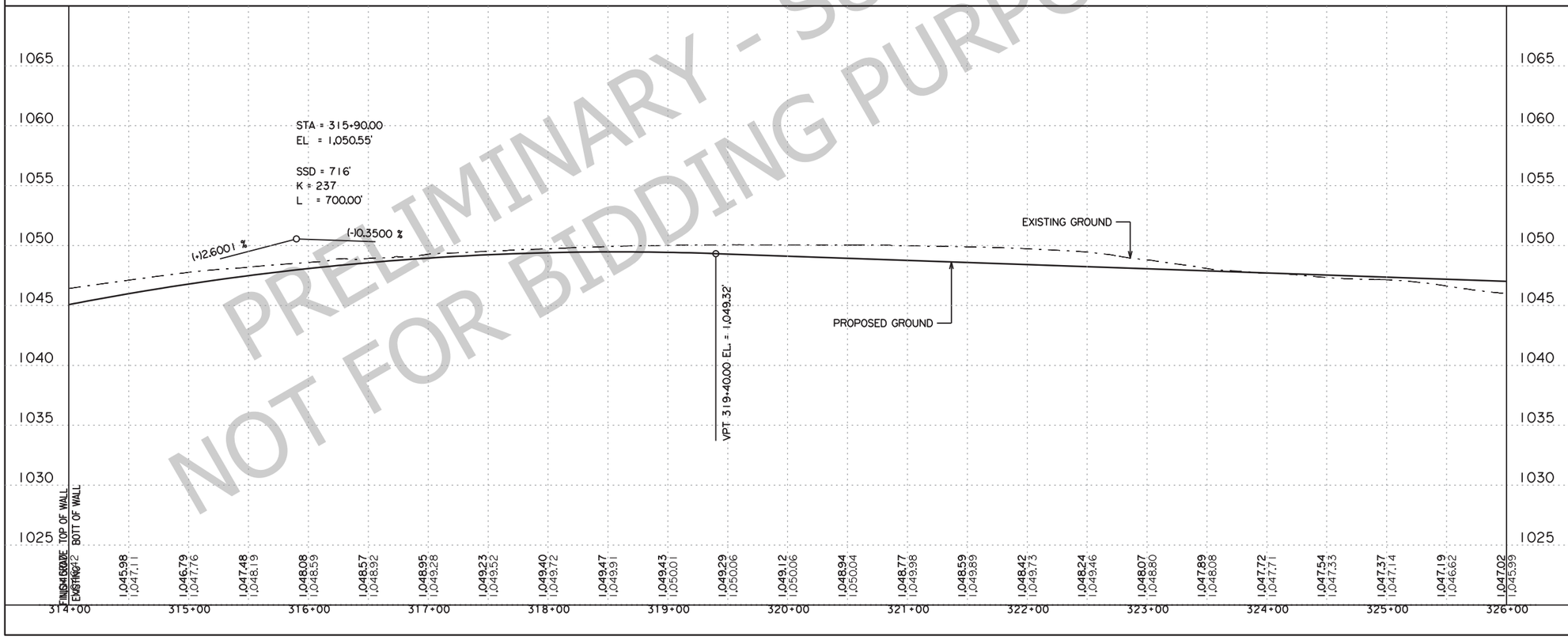


TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/15/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 10 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

119

6/9/2020 12:44:12 AM
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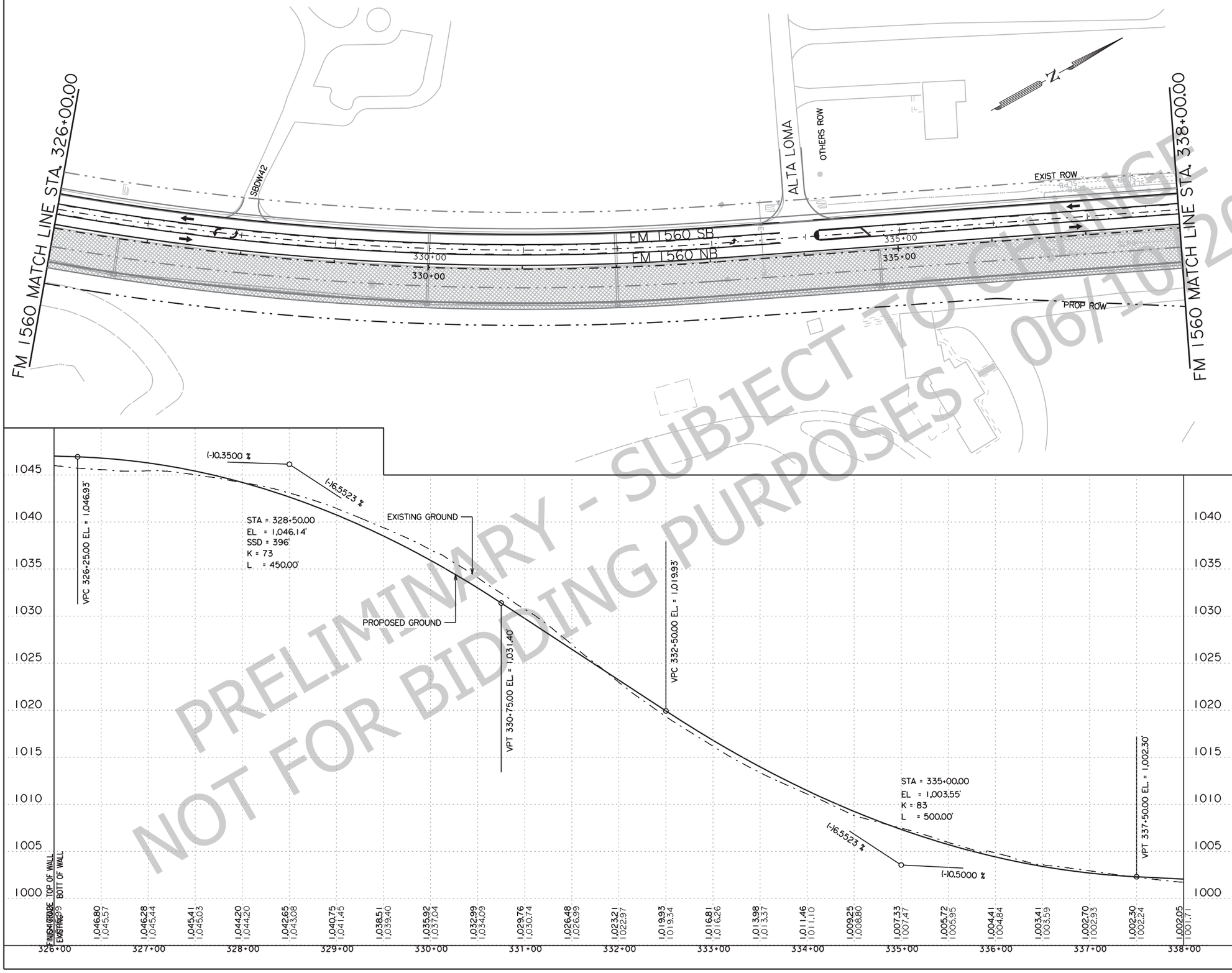

TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY I, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

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TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 11 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	120
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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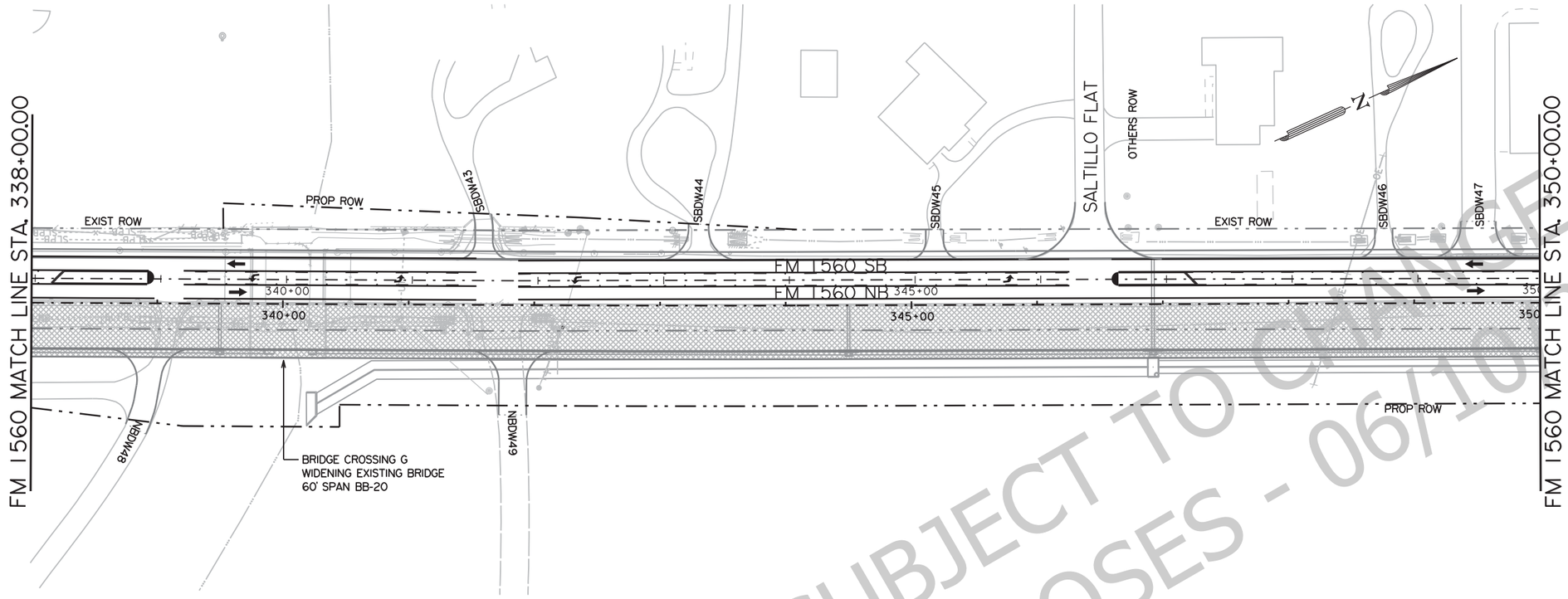

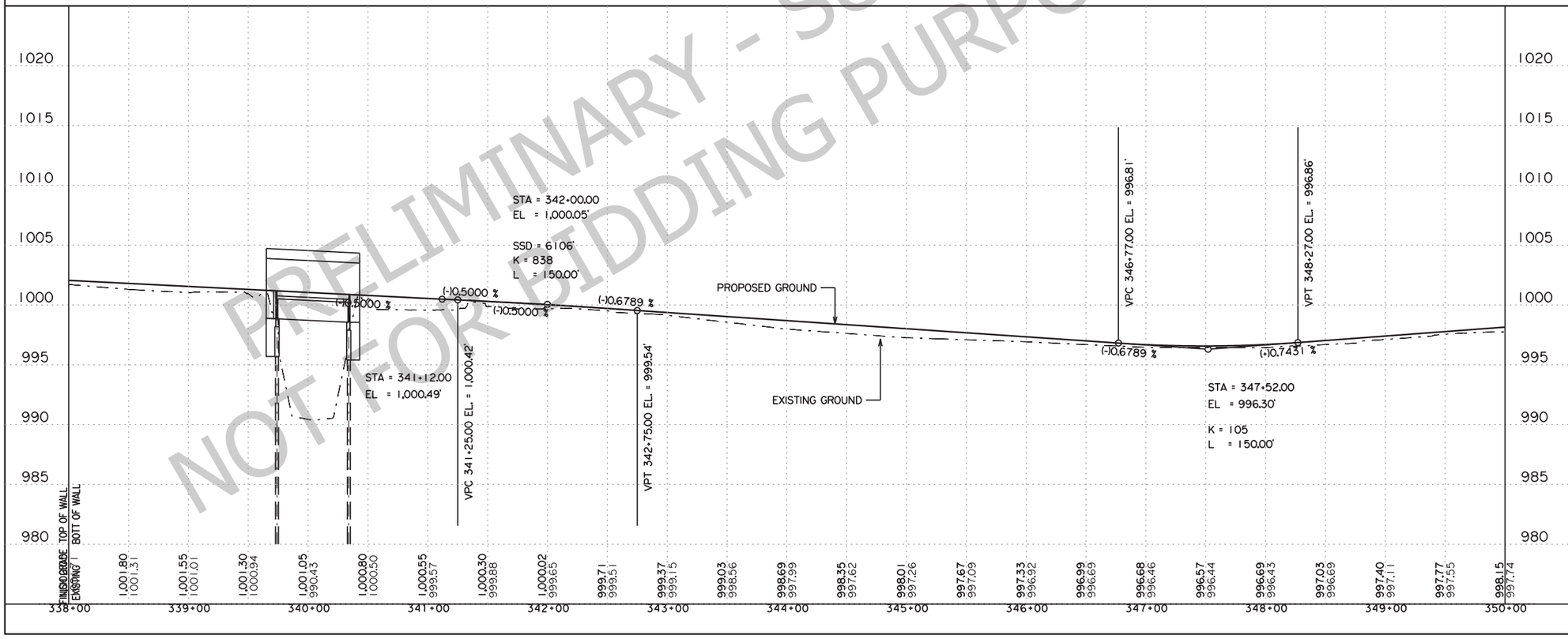

TEMP SHORING LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=5'

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMP SHORING

SHEET 12 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

121

6/9/2020 12:44:44 AM
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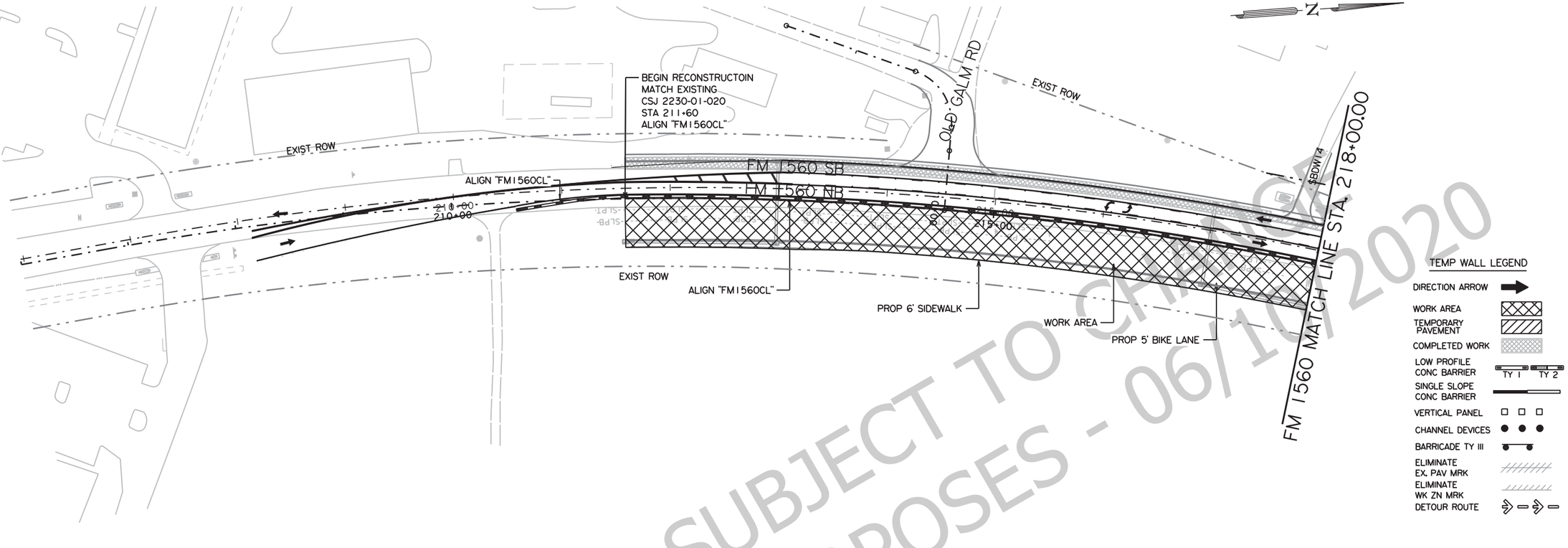

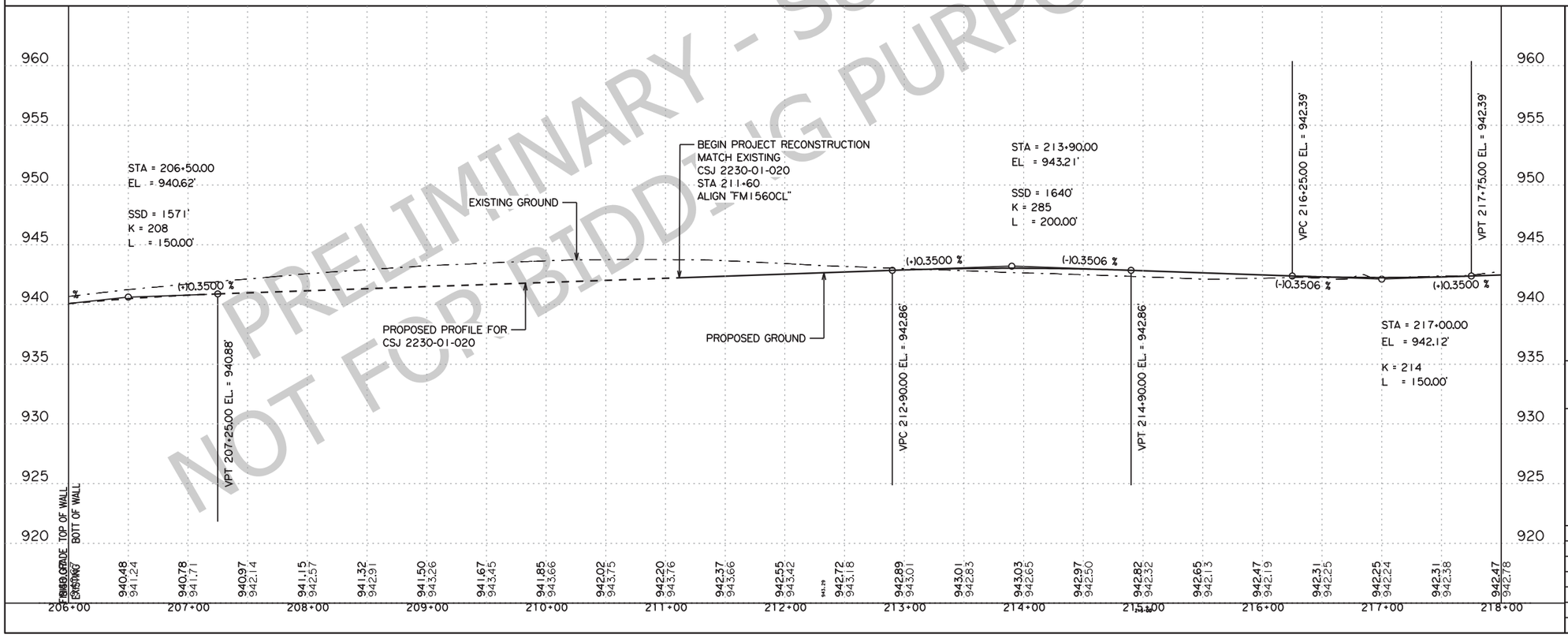

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 1 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	122

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:45:43 AM
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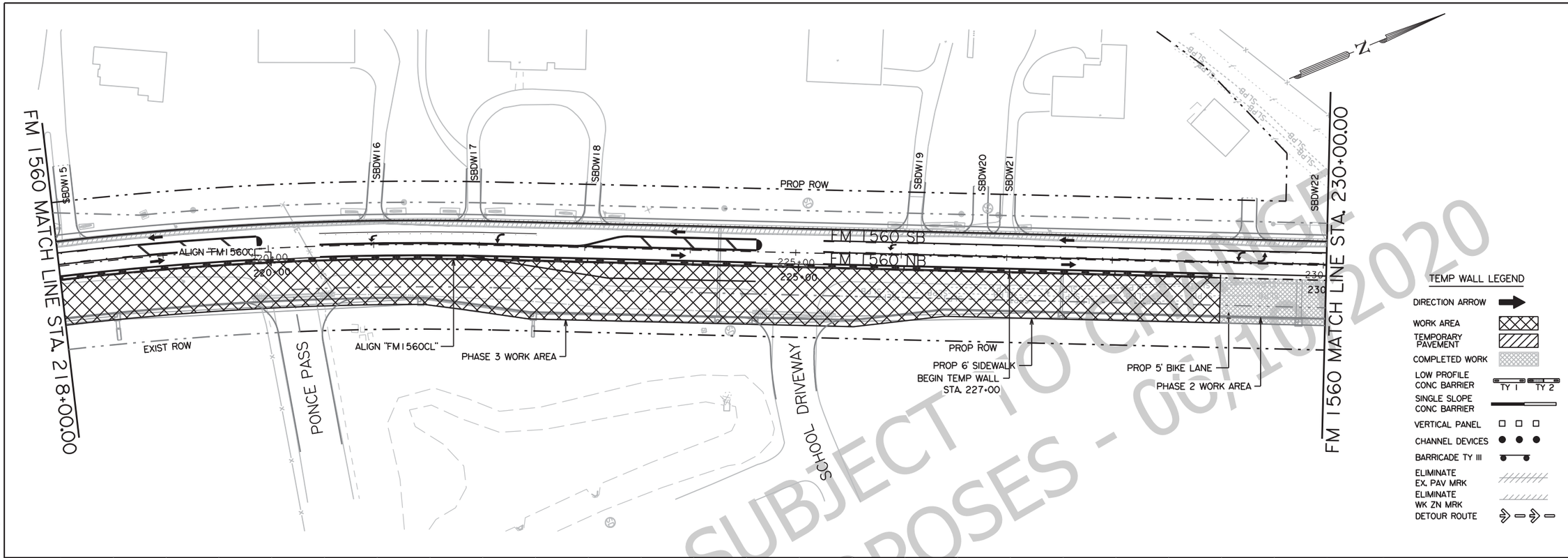

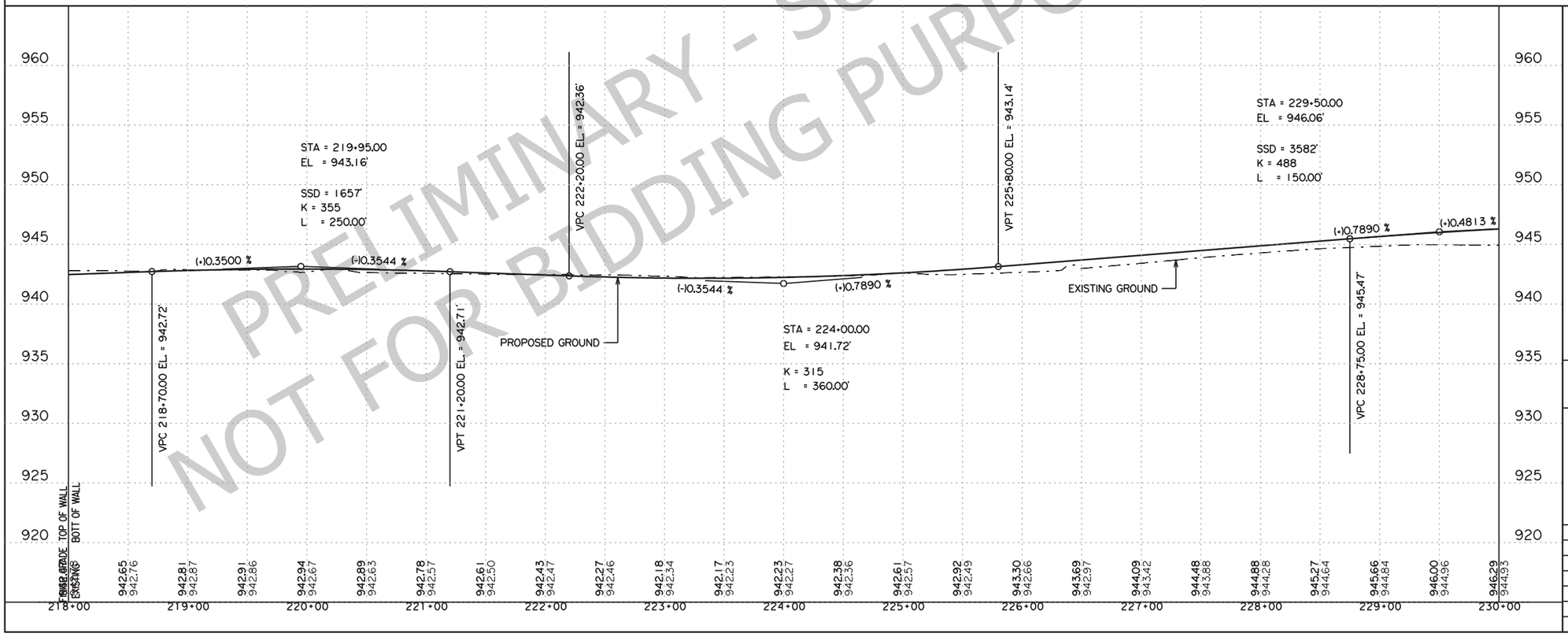

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

Texas Department of Transportation
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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 2 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	123

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:46:00 AM
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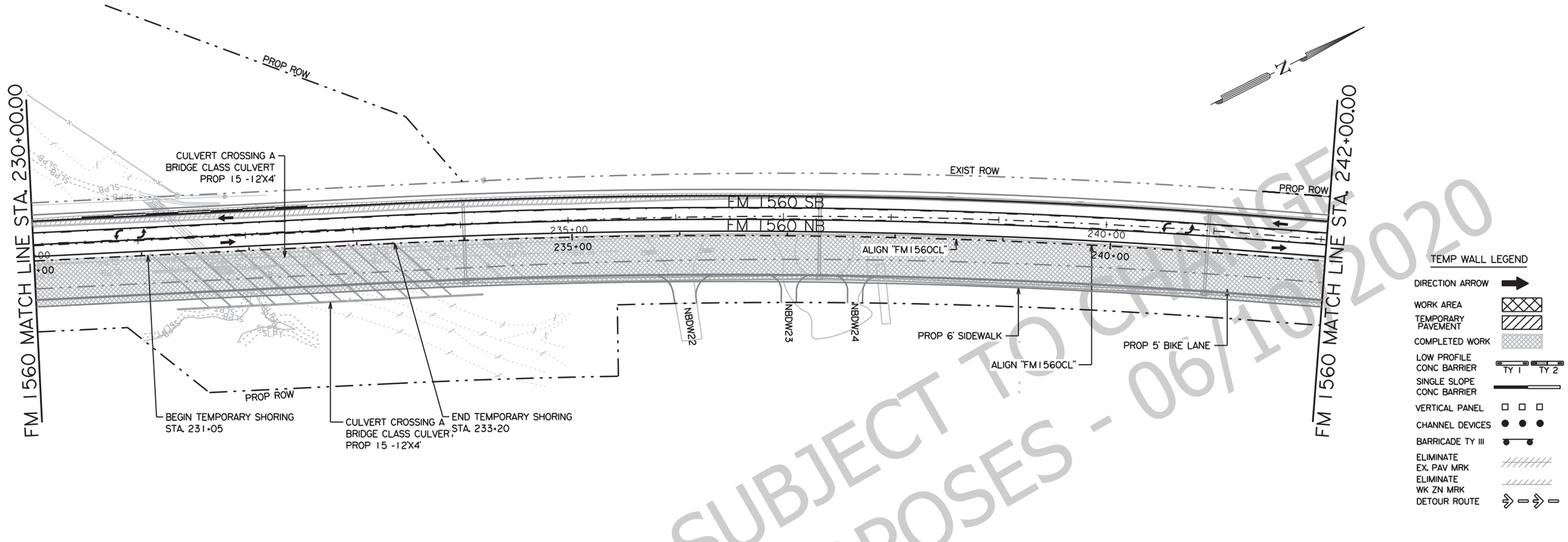

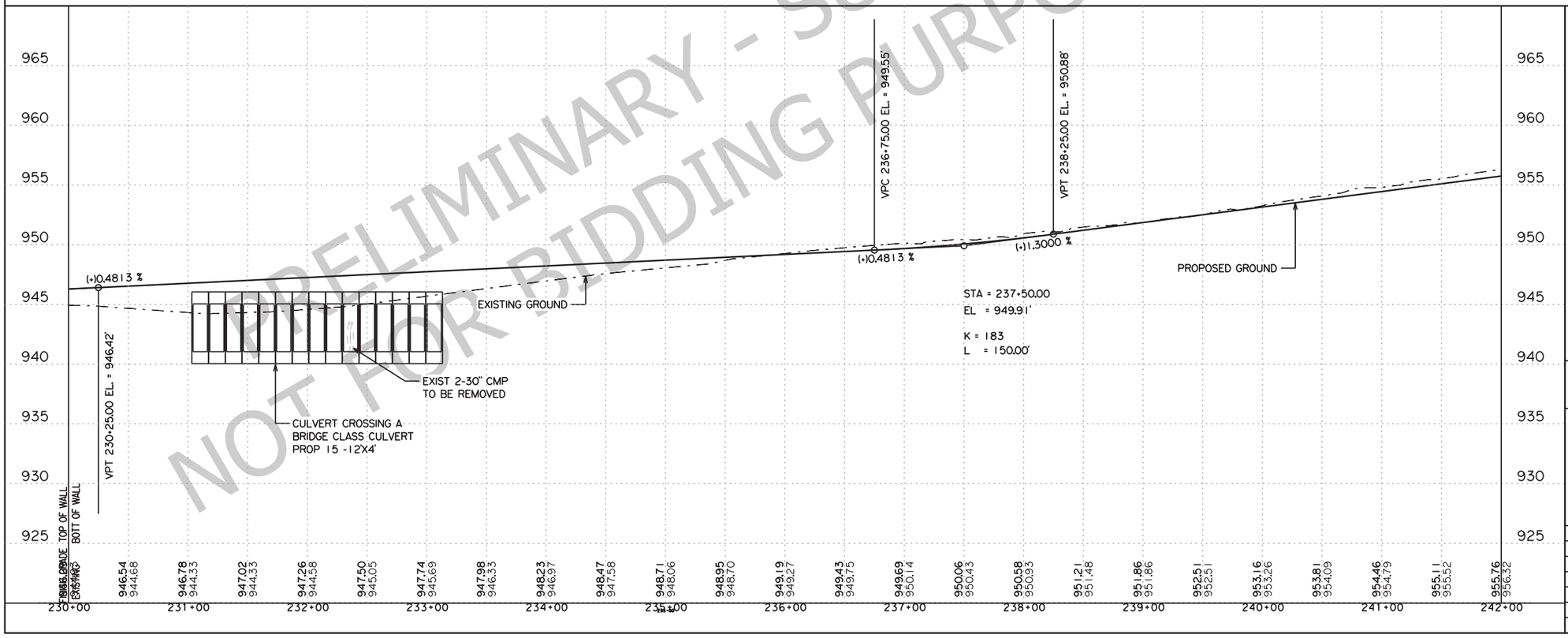

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 3 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	124
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:46:17 AM
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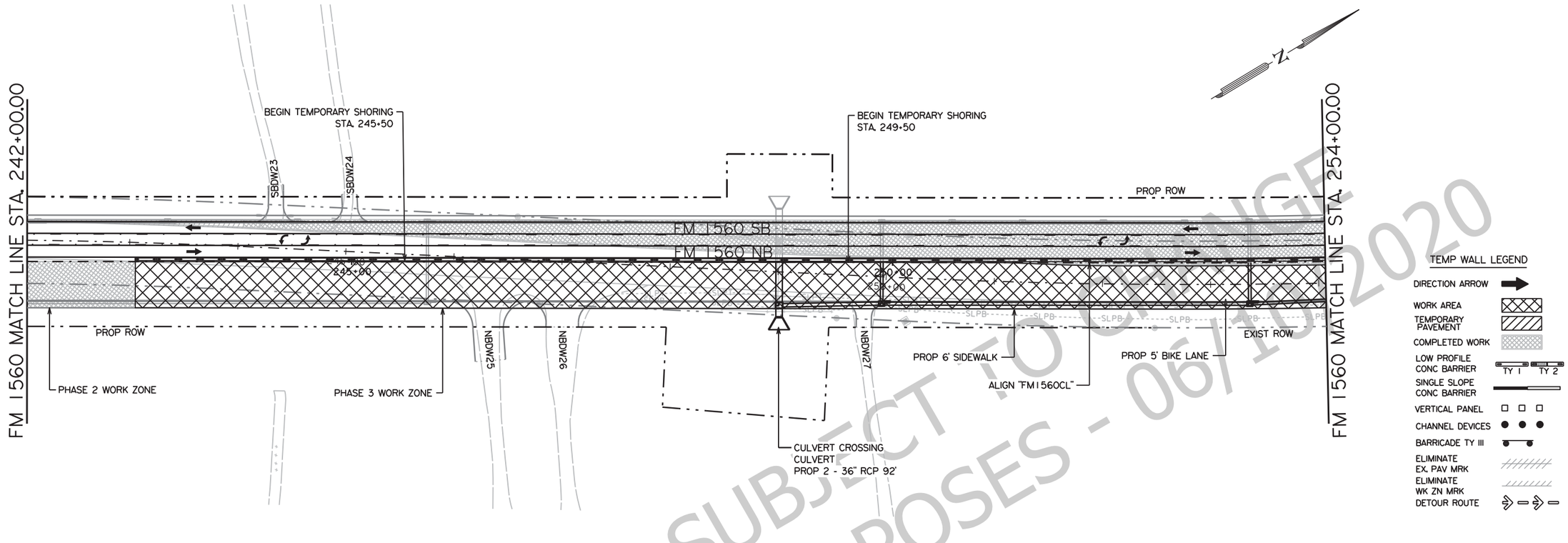

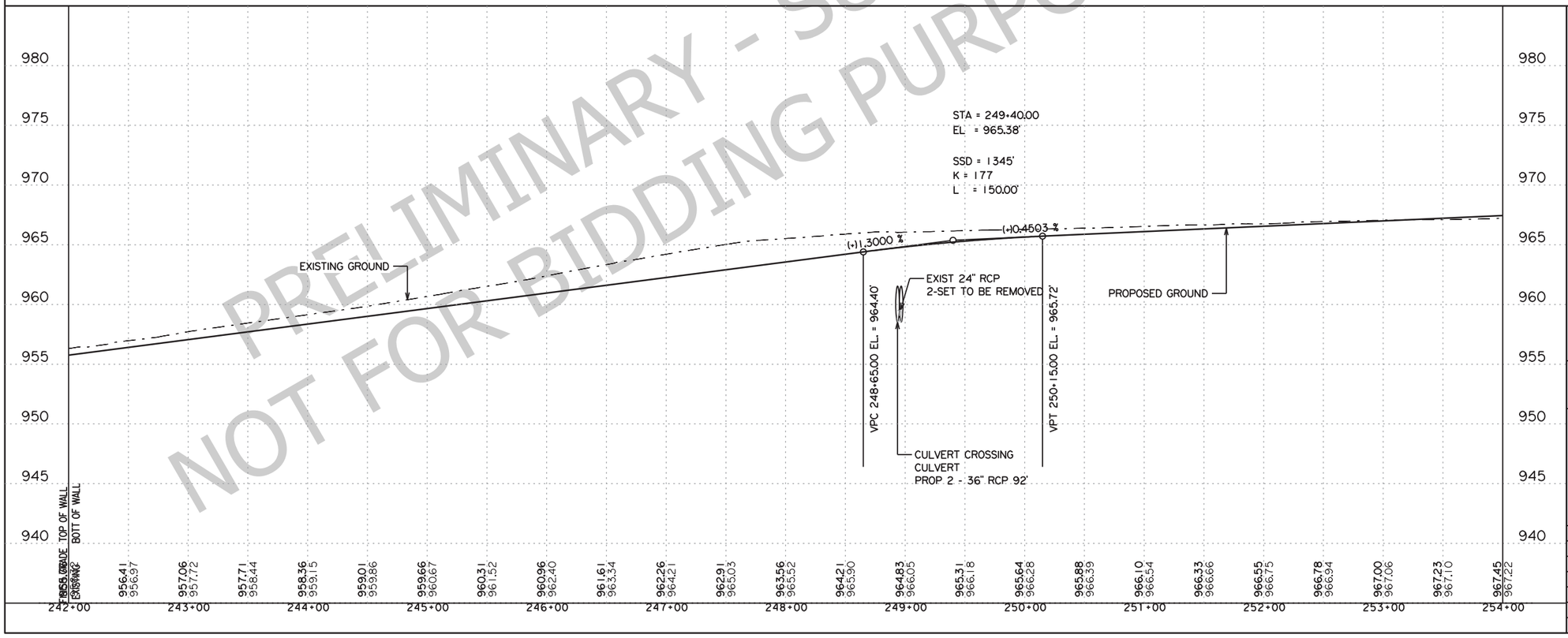

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 4 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	125
TEXAS	SAT	BEXAR	

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:46:34 AM
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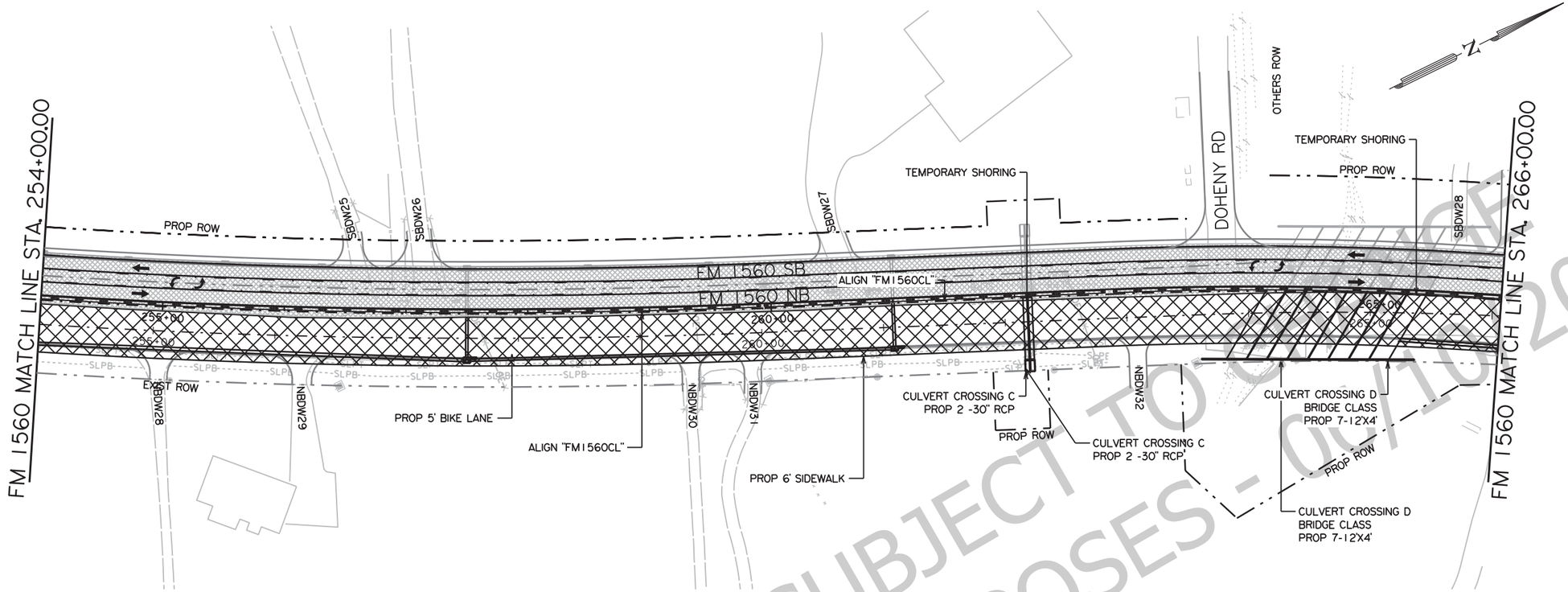

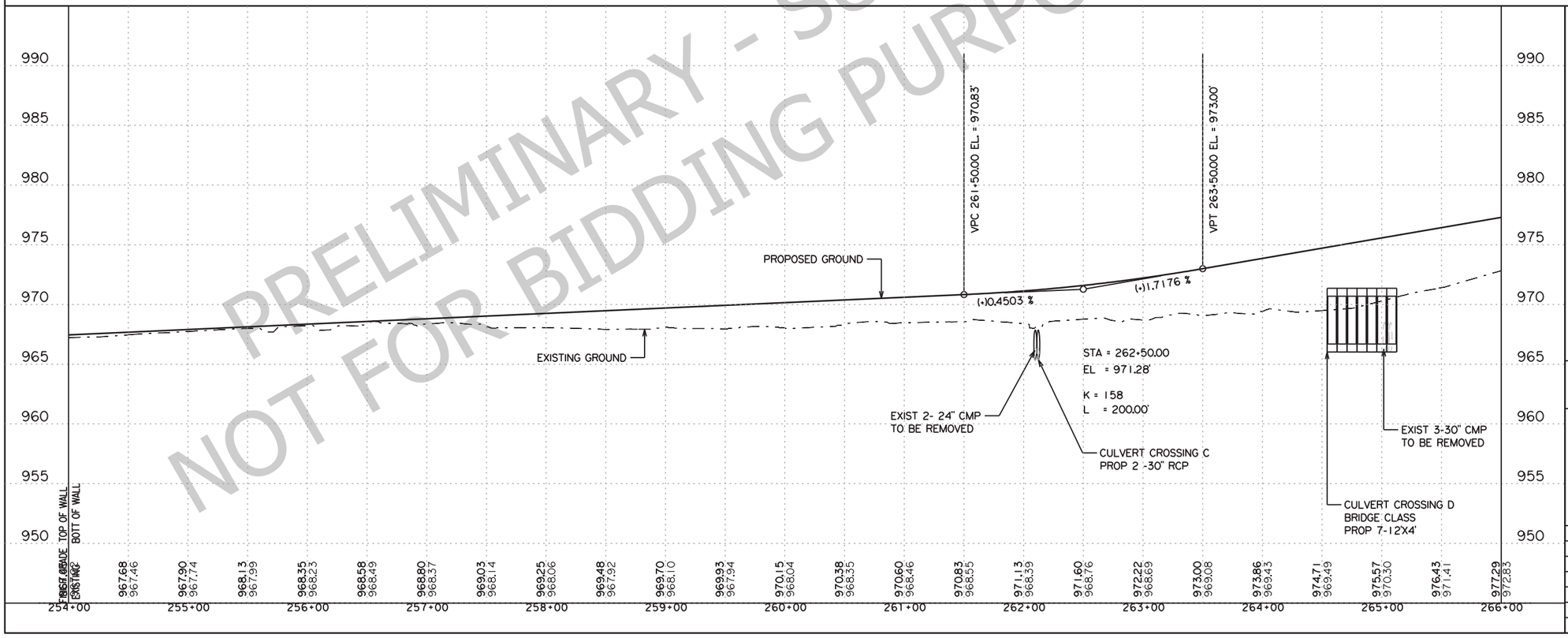

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 5 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

126

6/9/2020 12:47:05 AM
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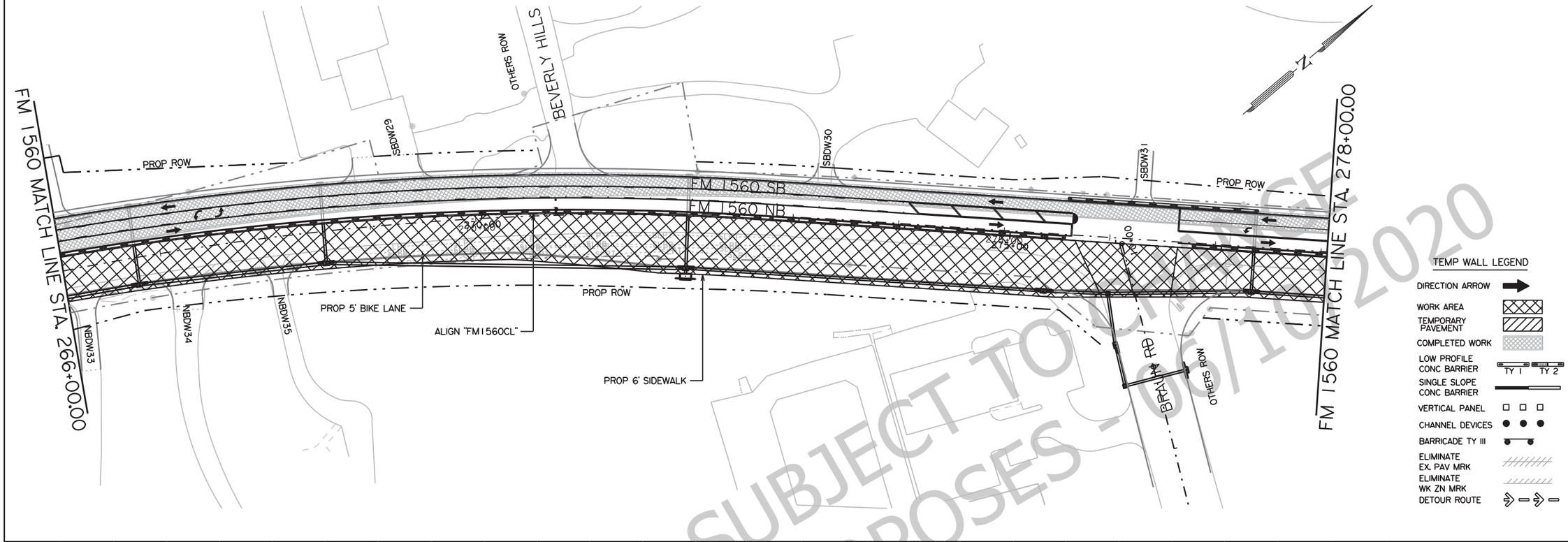

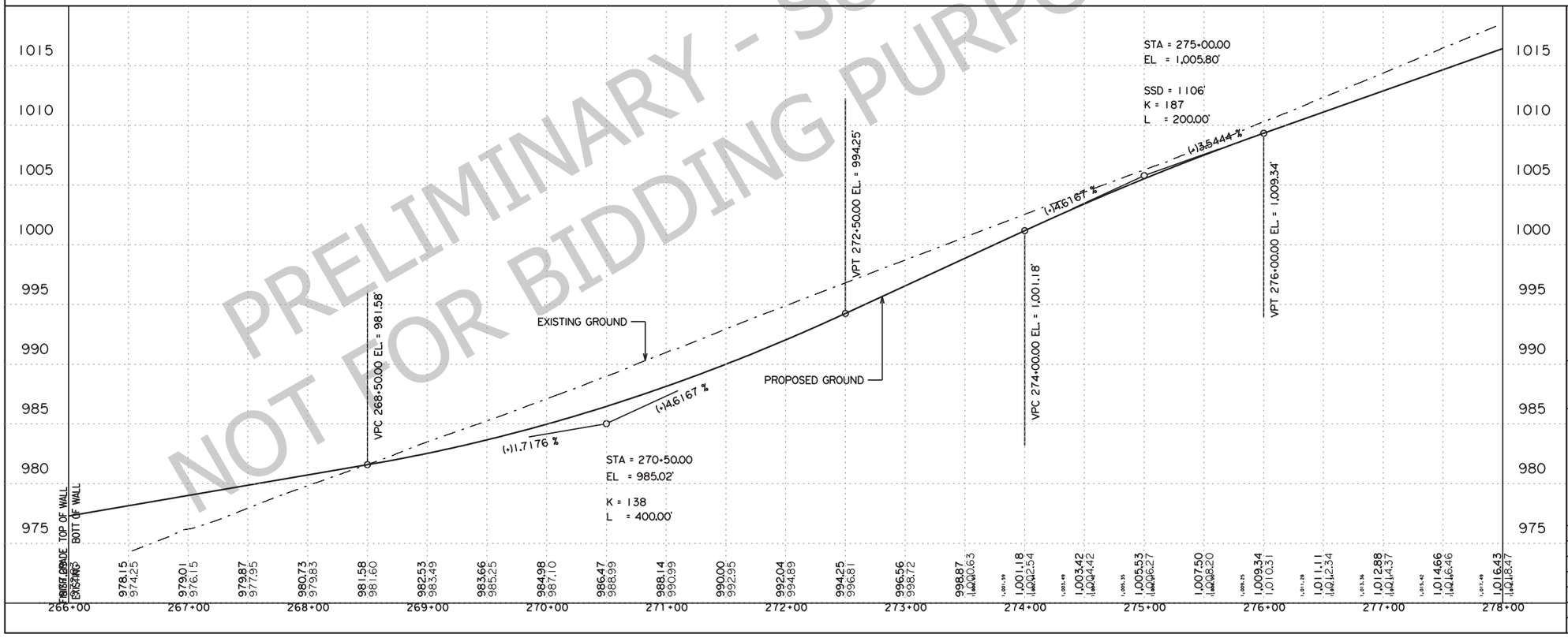

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 6 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

127

6/9/2020 12:47:21 AM
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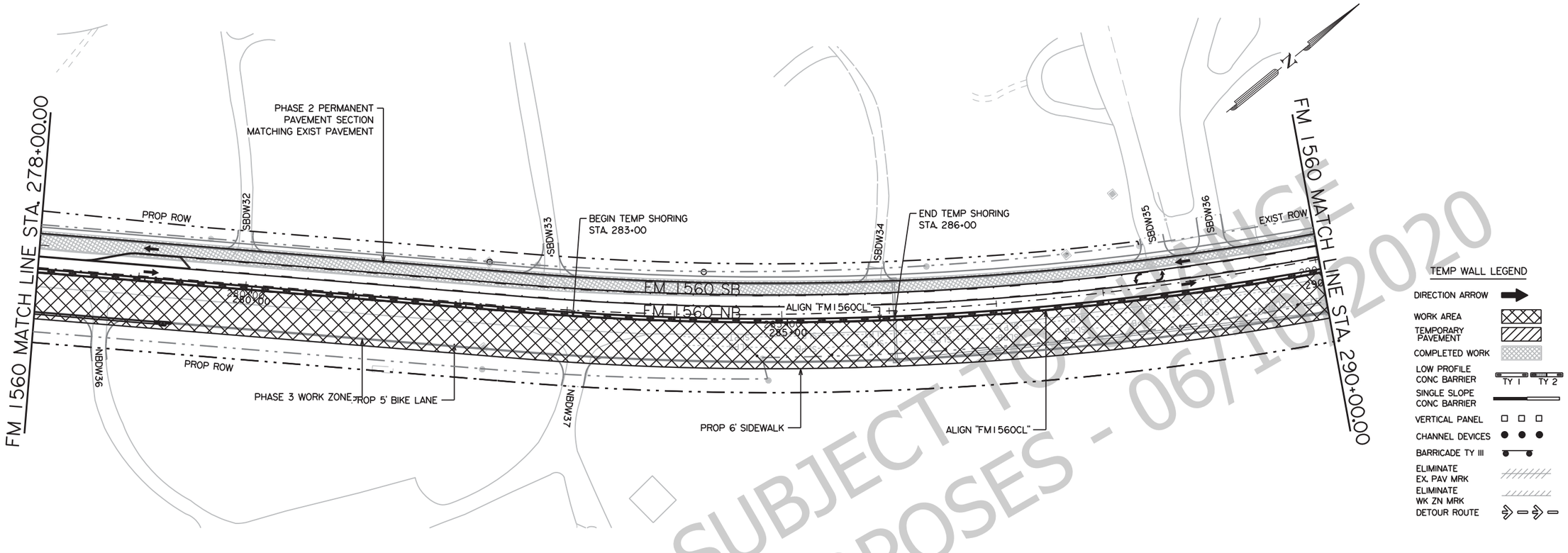

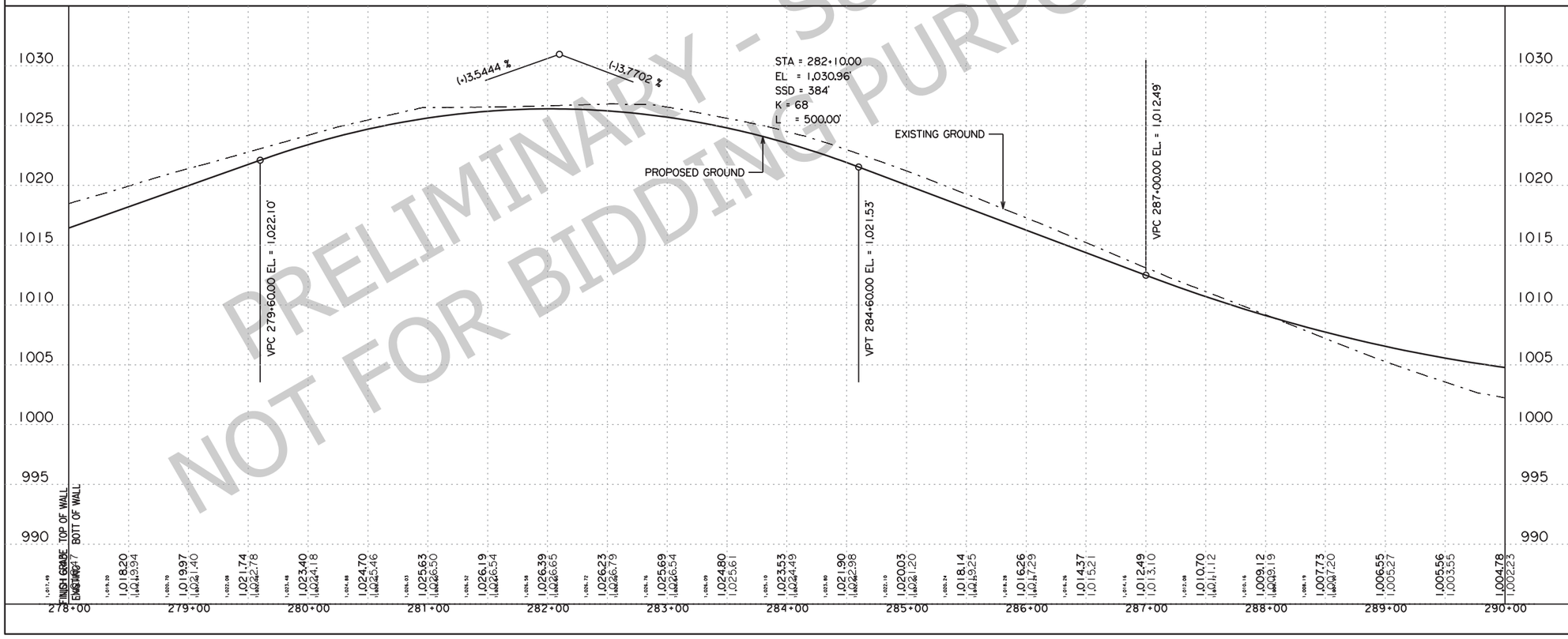

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 7 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

128

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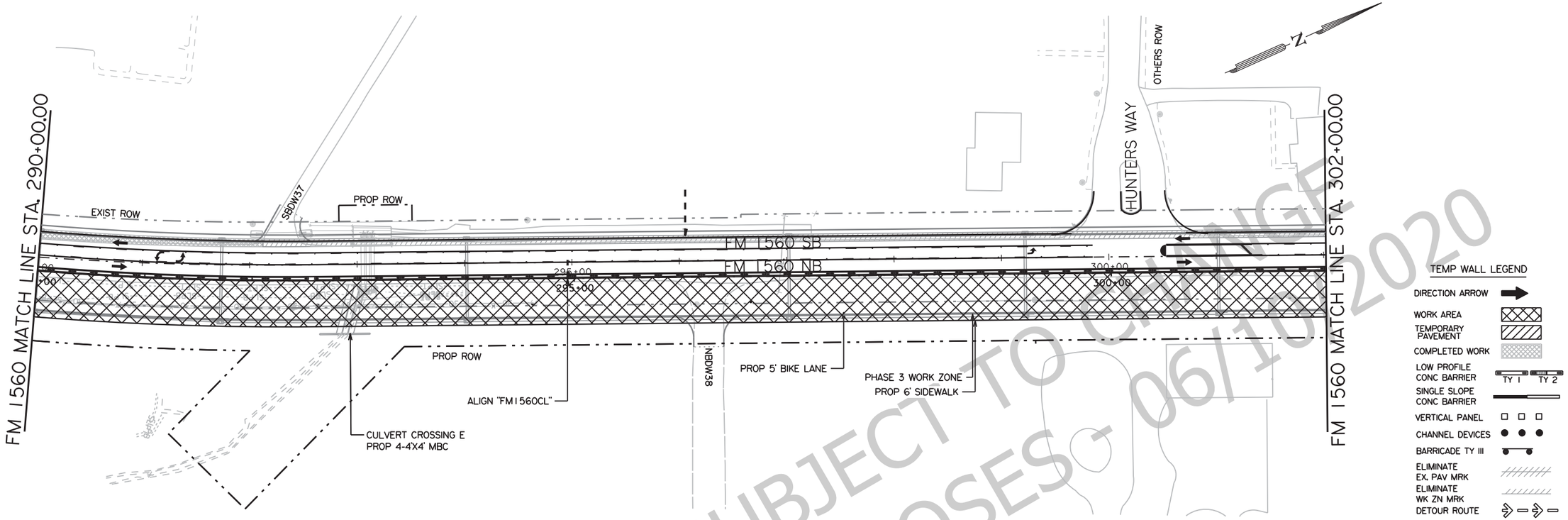

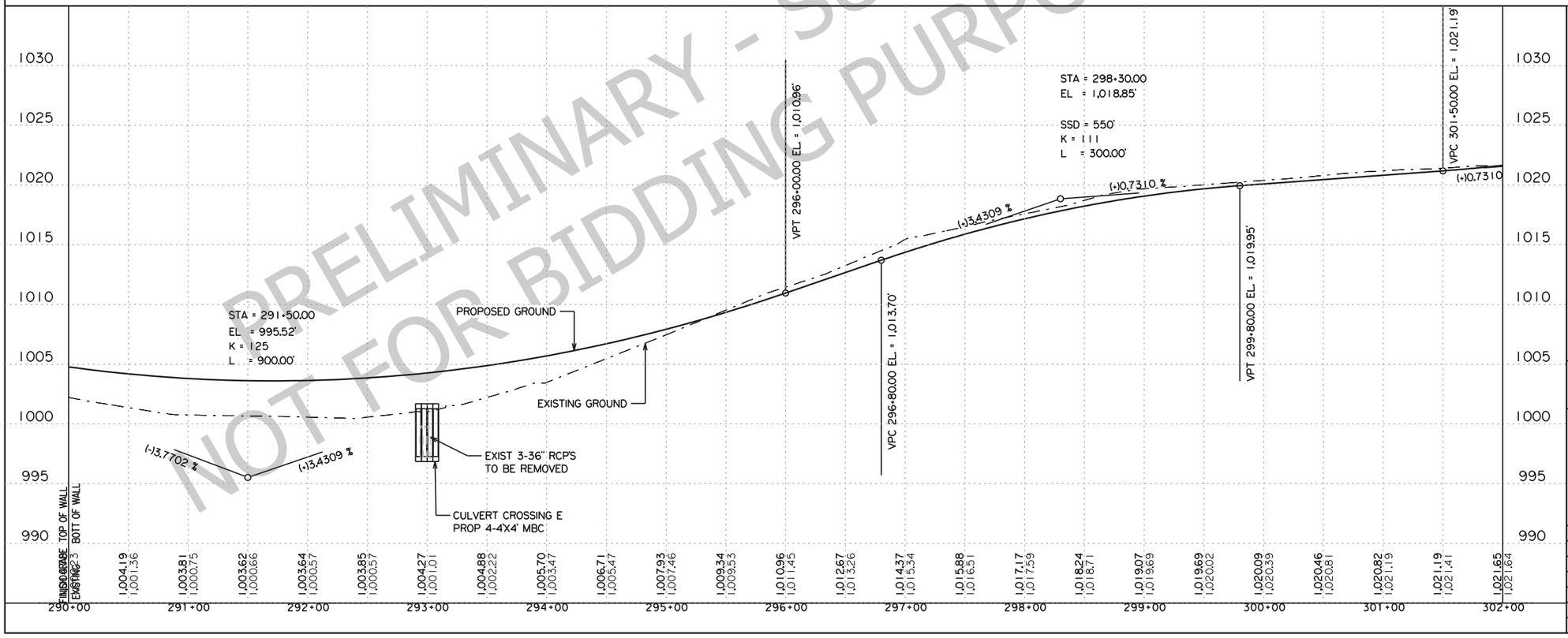

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 8 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	129

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:47:52 AM
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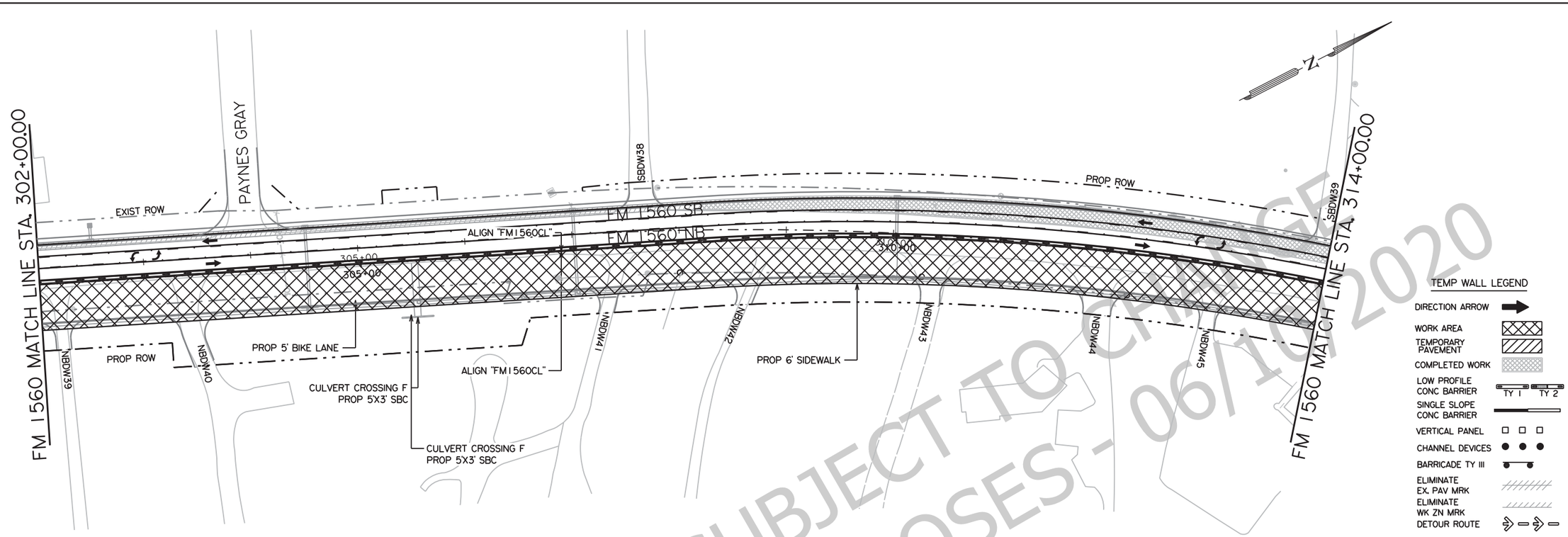

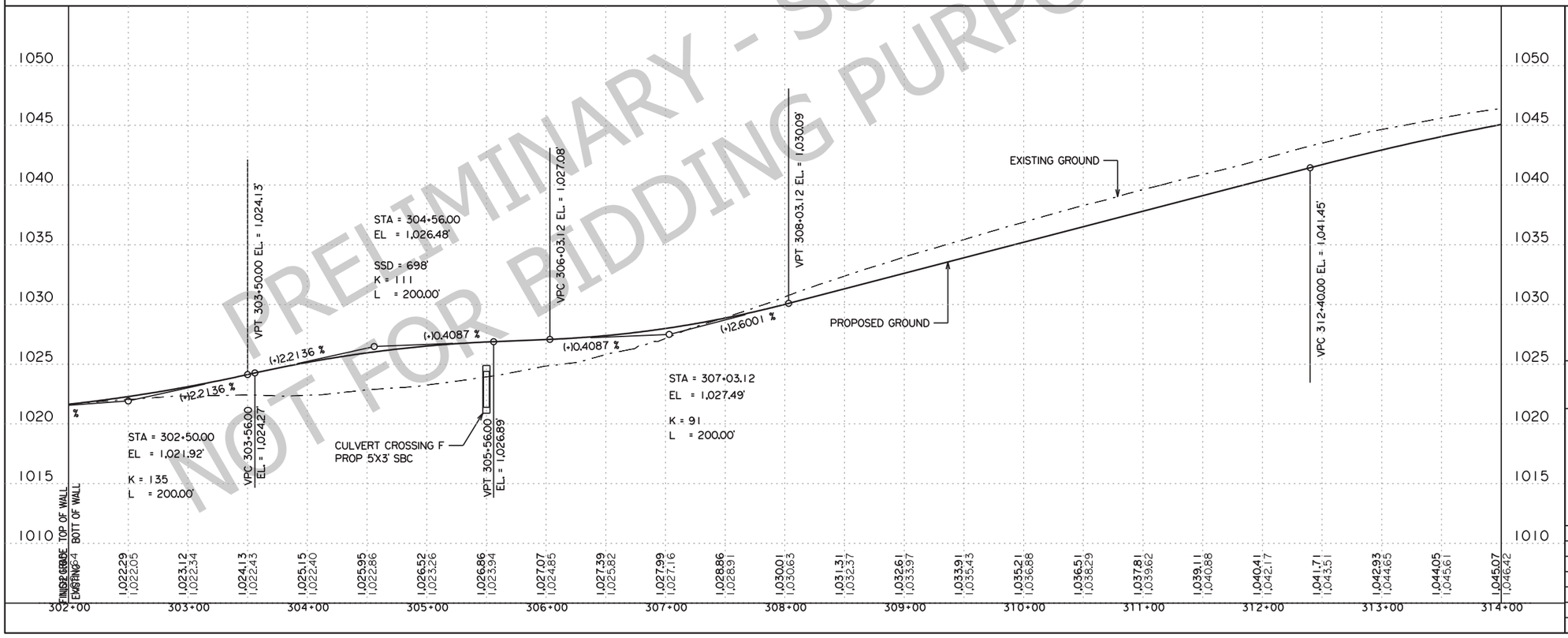

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 9 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	130

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:48:09 AM
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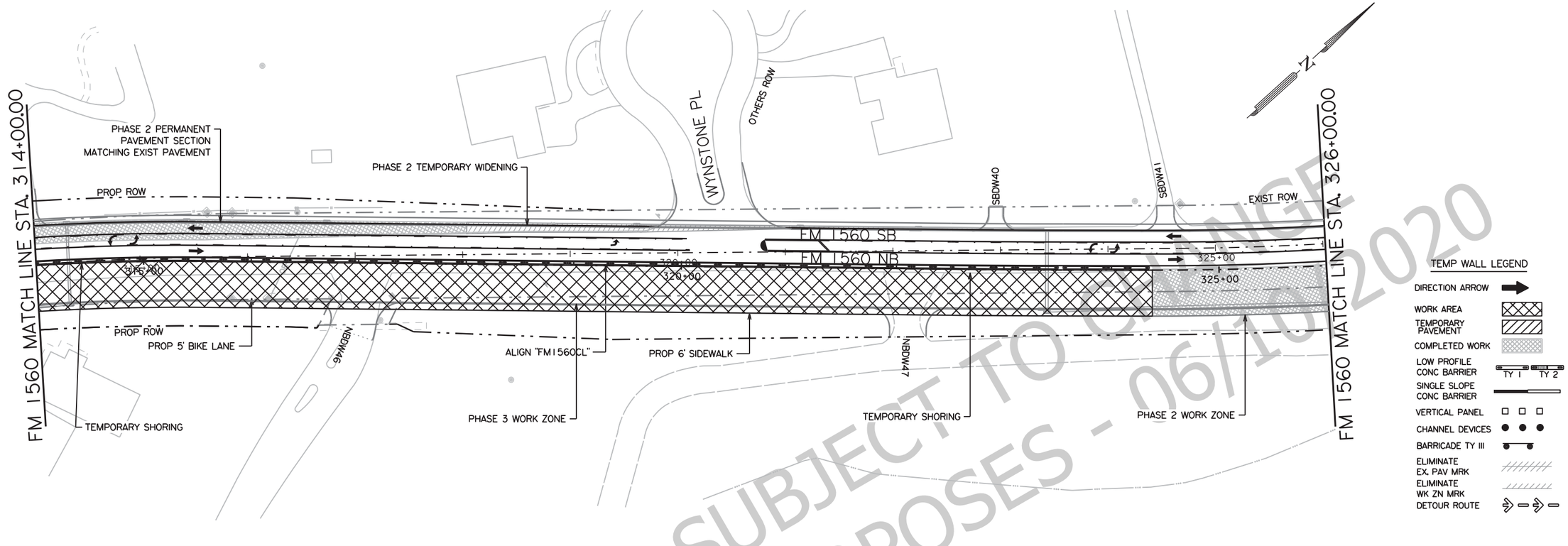

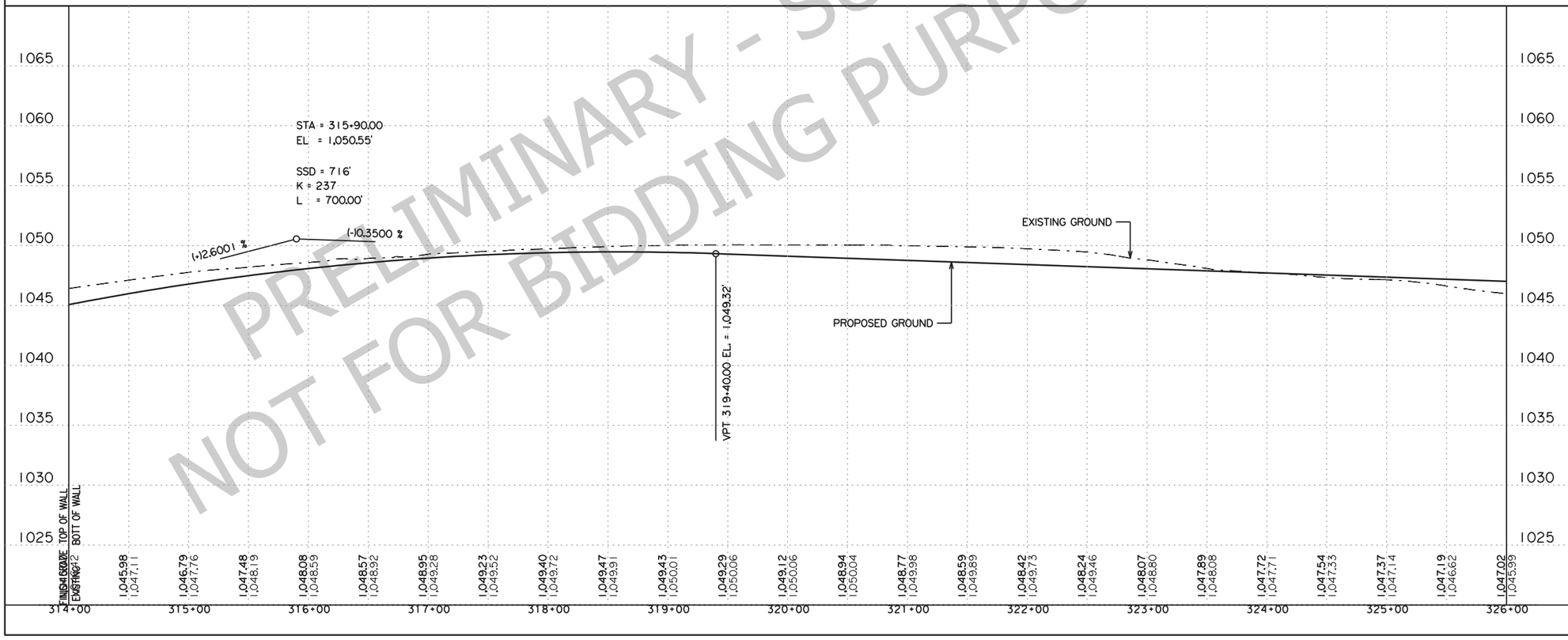

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/15/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 10 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

131

6/9/2020 12:48:28 AM
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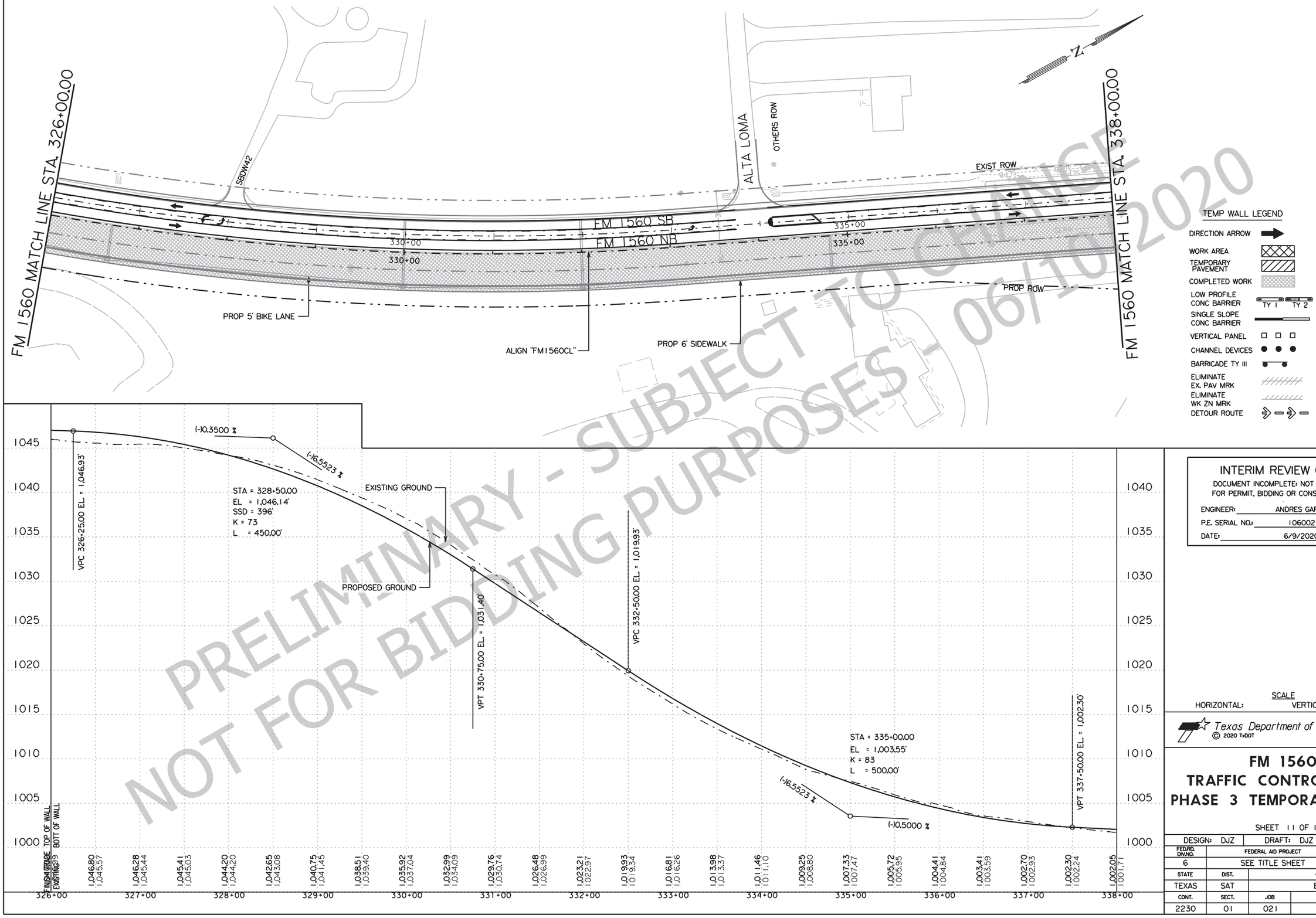

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 11 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

132

6/9/2020 12:48:44 AM
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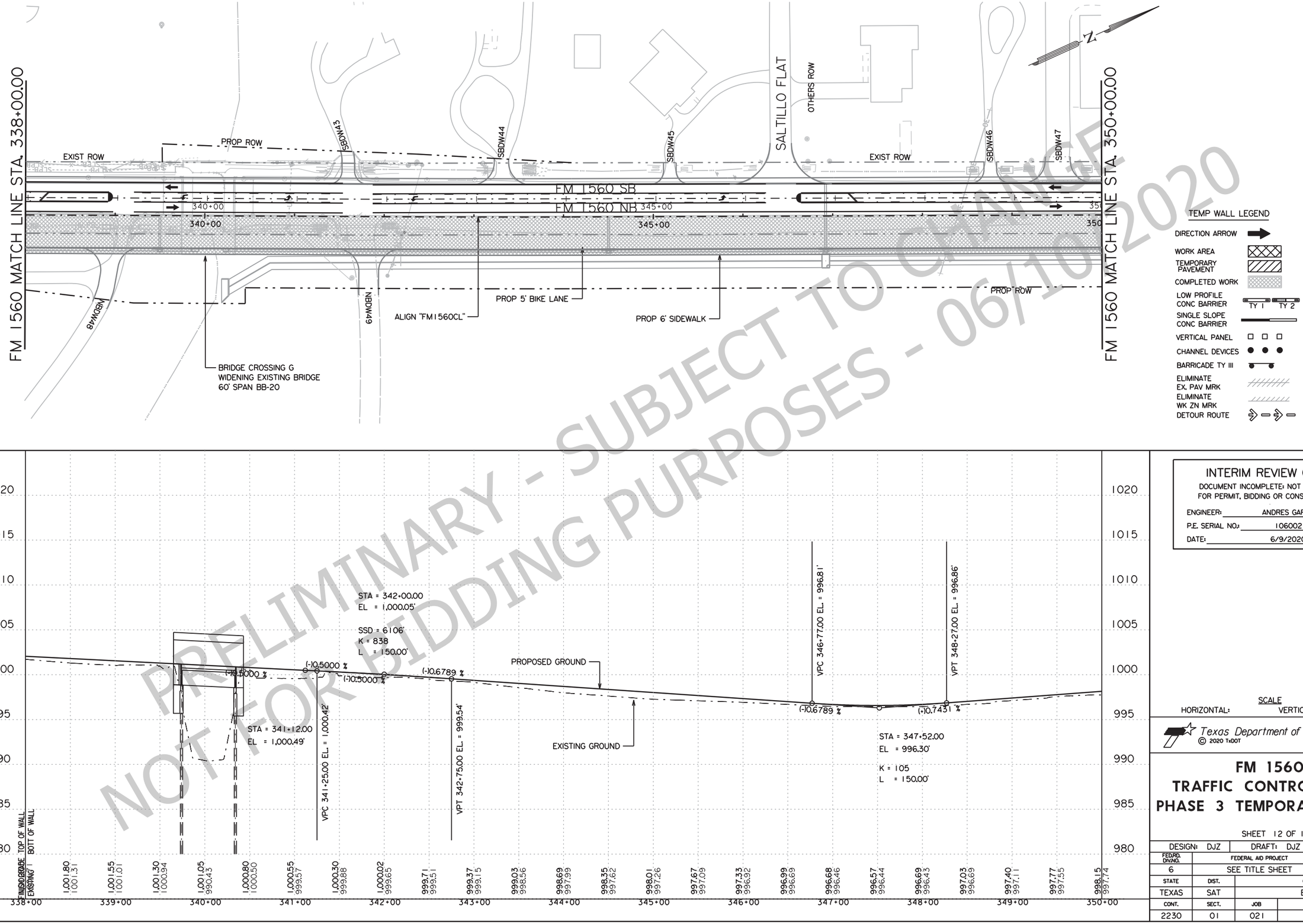

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE
HORIZONTAL: VERTICAL:

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 3 TEMPORARY WALL

SHEET 12 OF 12

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	133

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 12:49:01 AM
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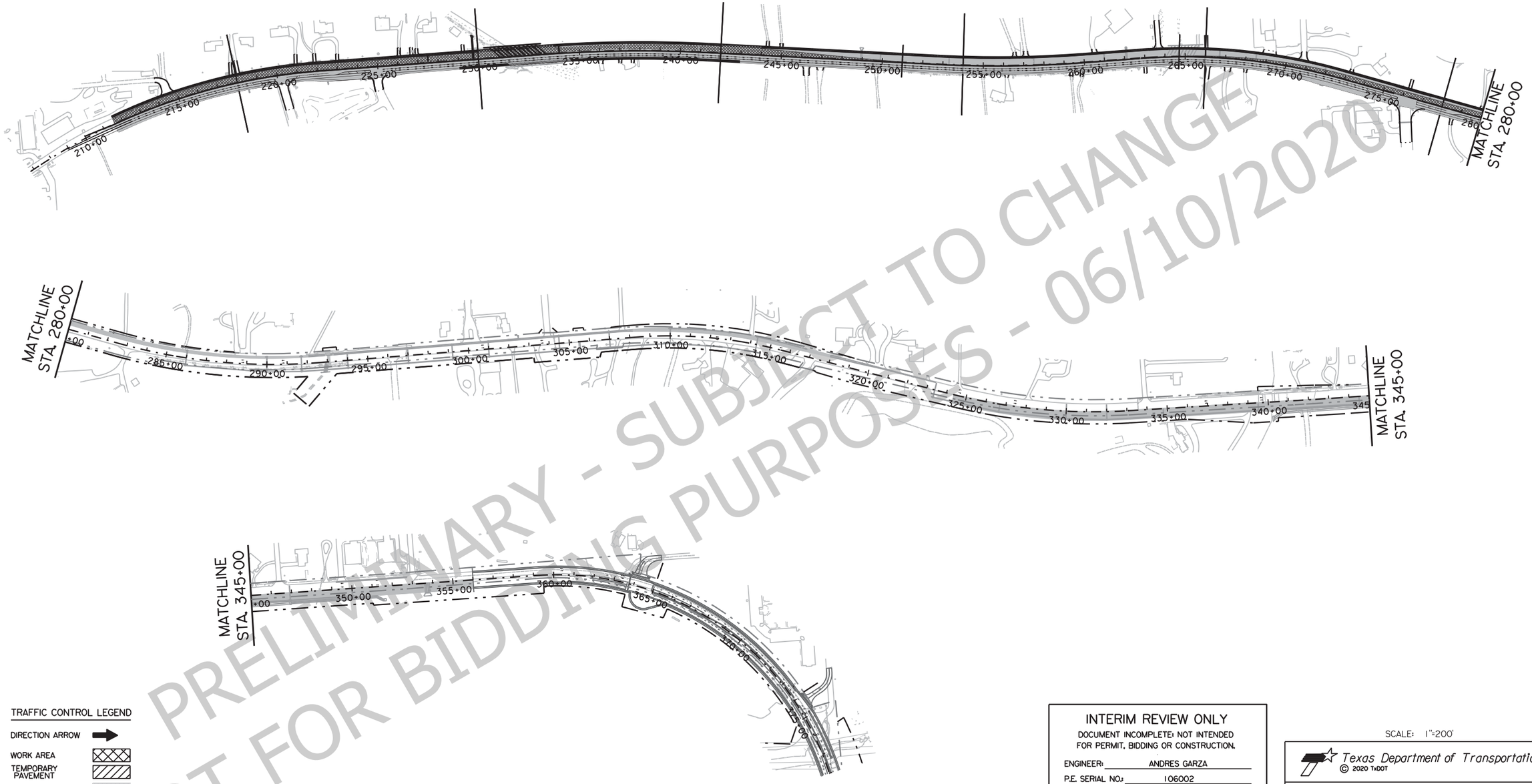

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY I, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=200'

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TRAFFIC CONTROL PLAN
PHASE 4 LAYOUT

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	134
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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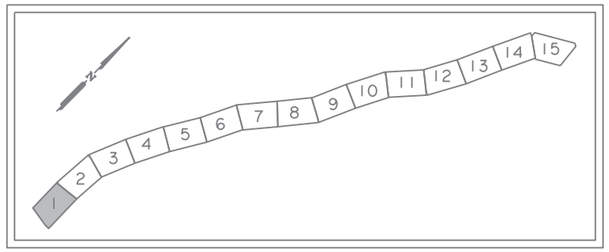

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 1 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	135
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
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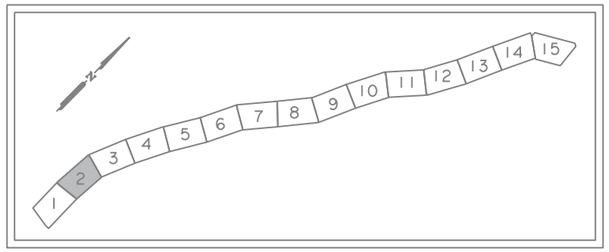

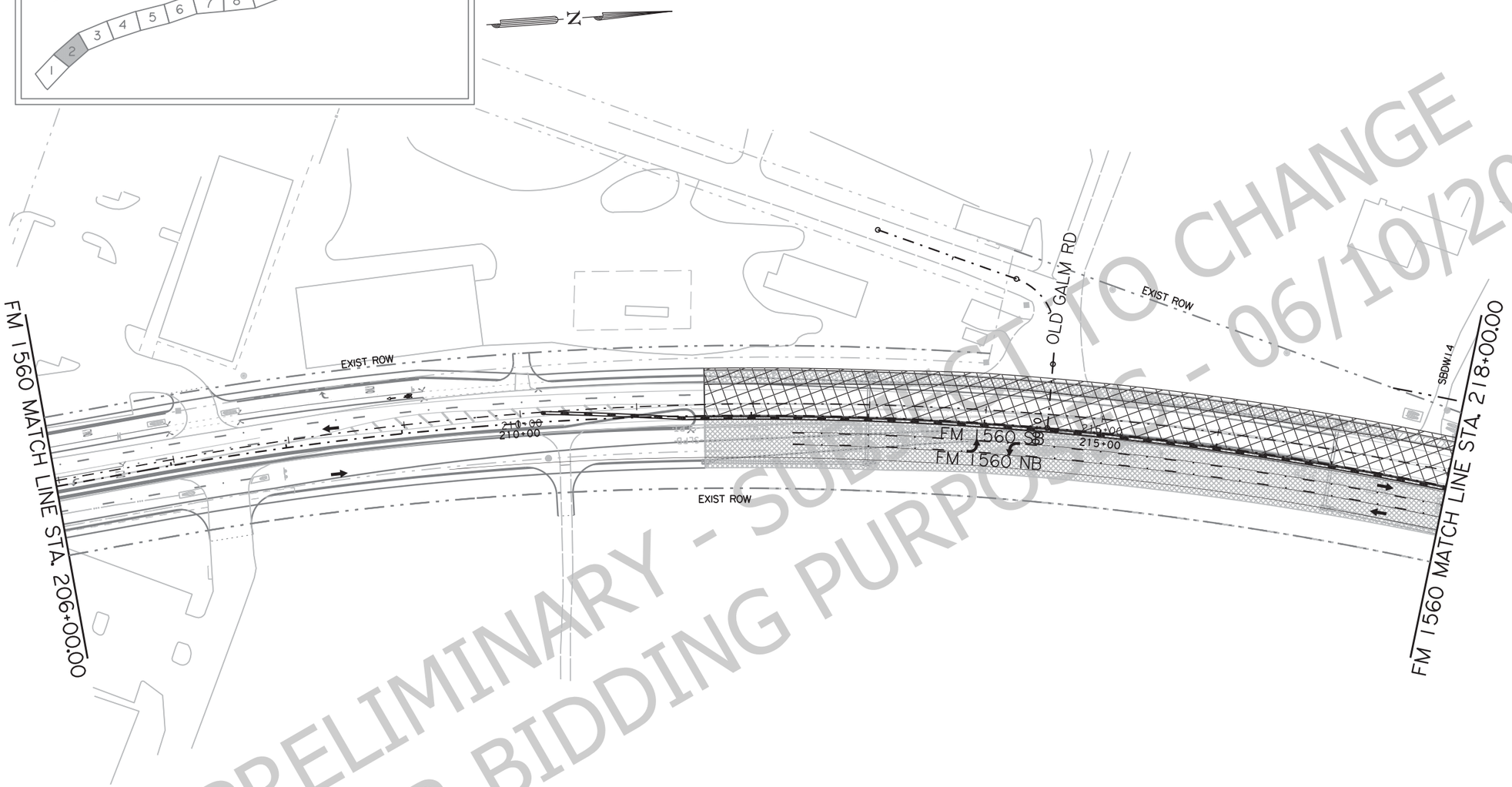

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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P.E. SERIAL NO.: 106002
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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 2 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	136
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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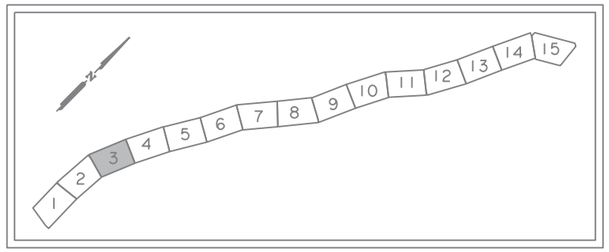

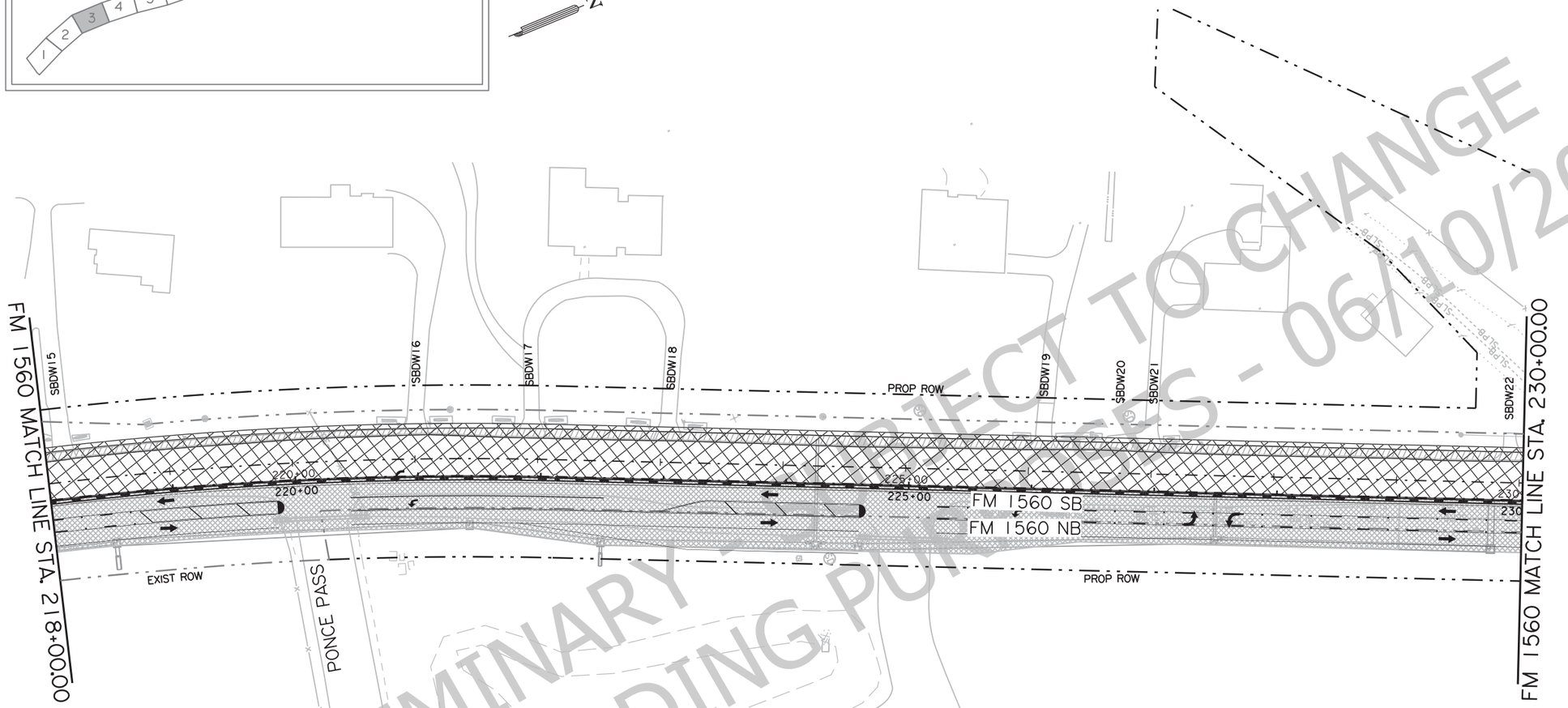

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TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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P.E. SERIAL NO.: 106002
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SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 3 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	137
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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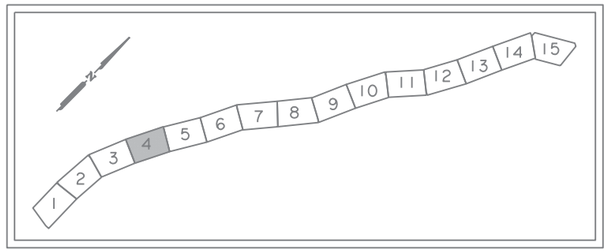

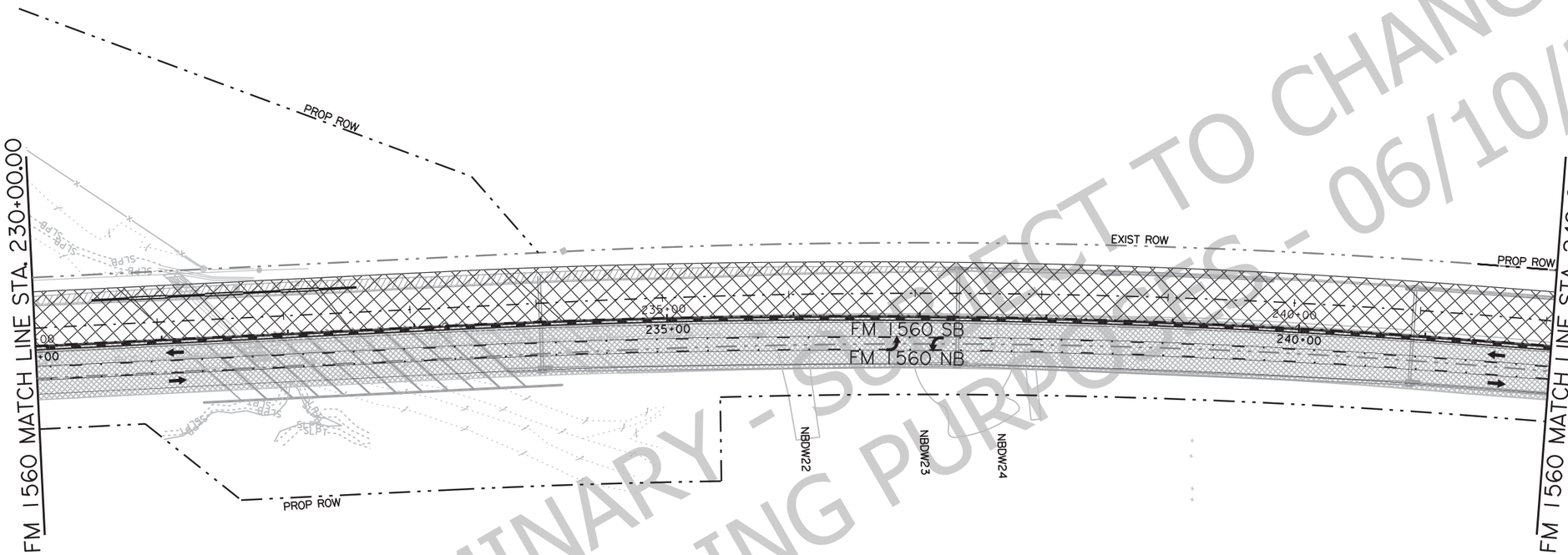

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 4 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	138
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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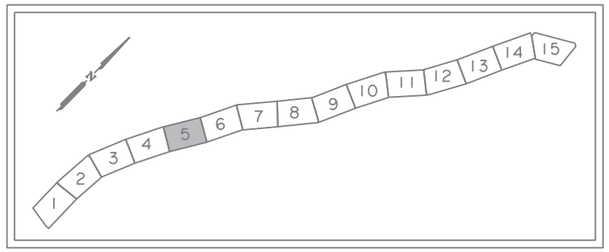

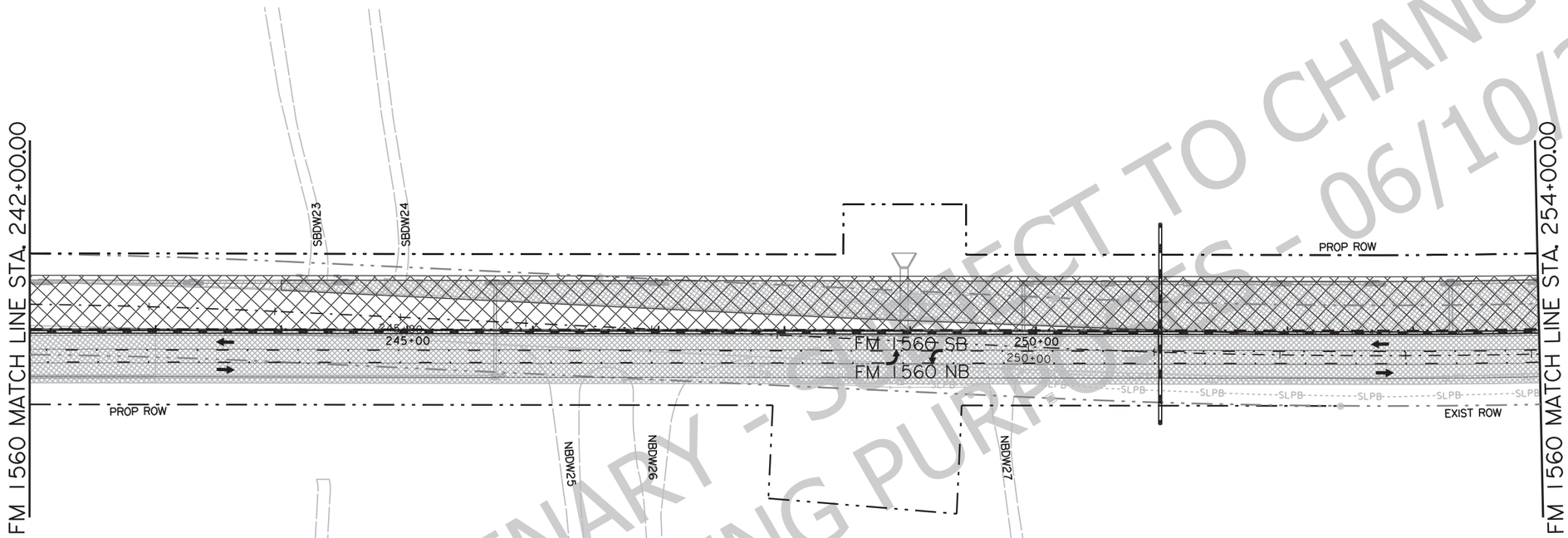

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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PHASE 4

SHEET 5 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	139
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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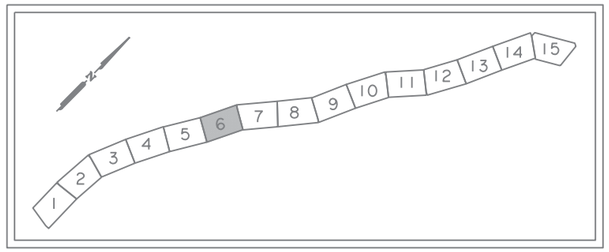

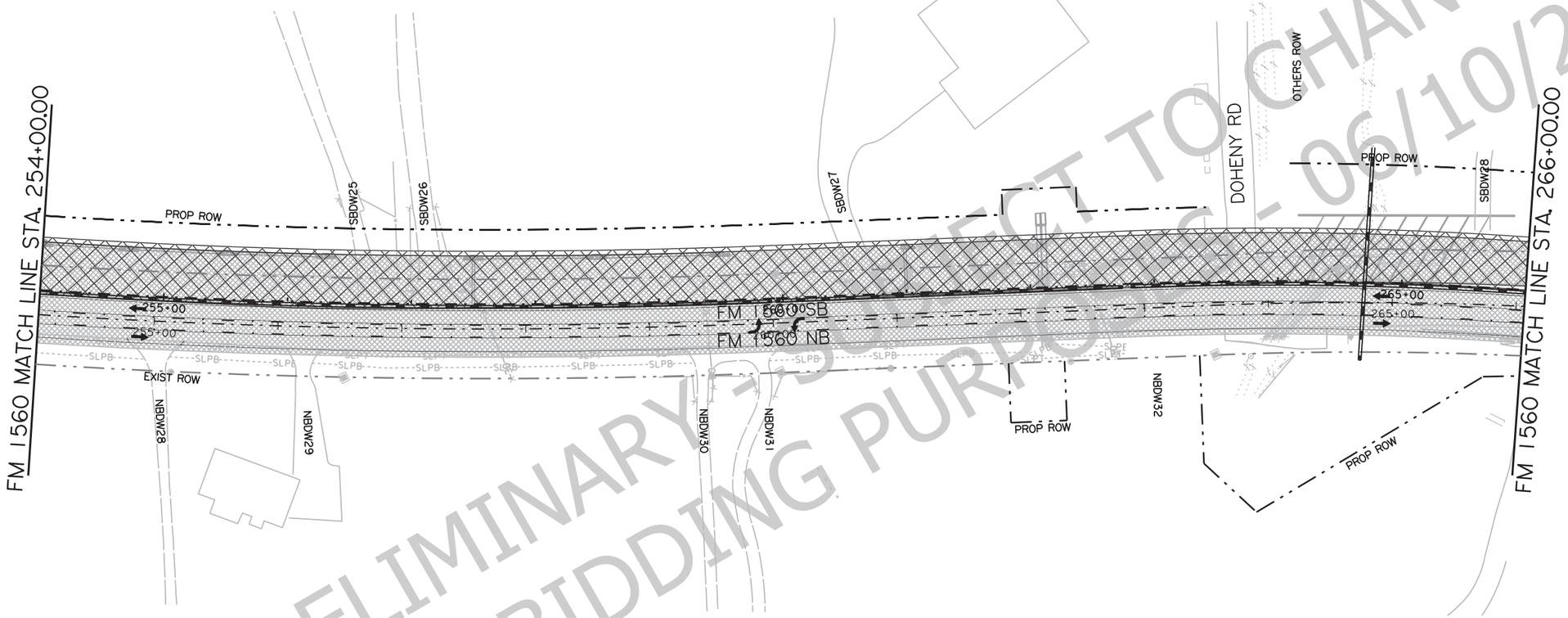

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 6 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	140
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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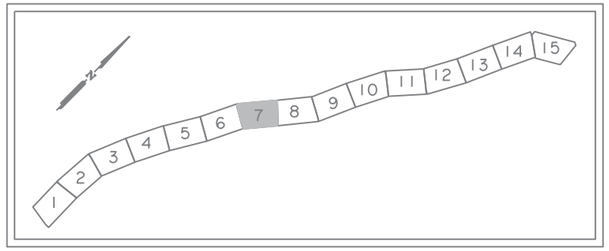

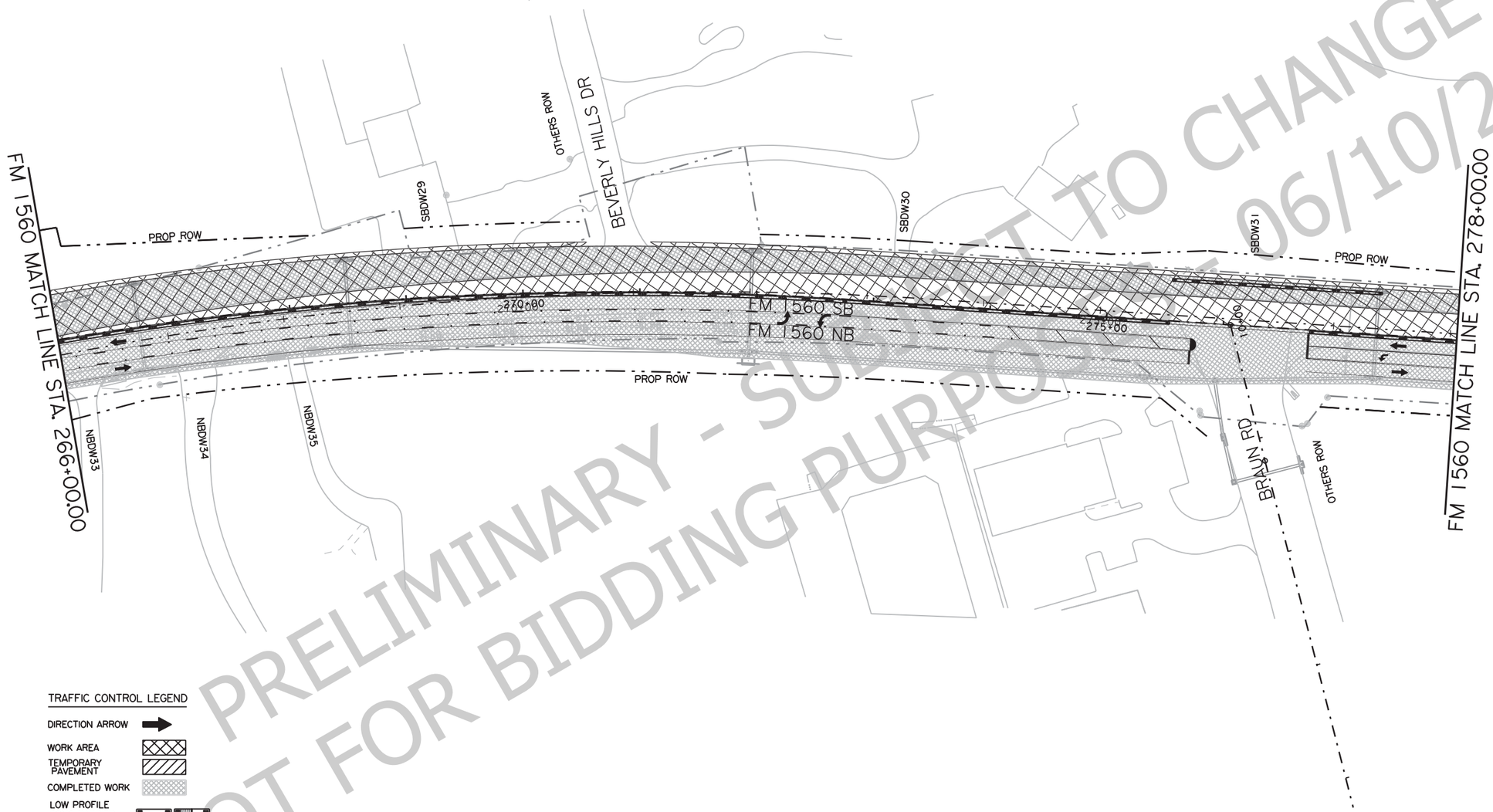

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06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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PHASE 4

SHEET 7 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	141
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CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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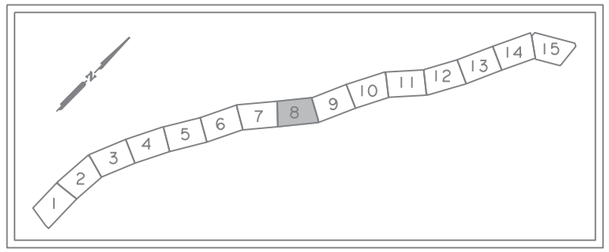

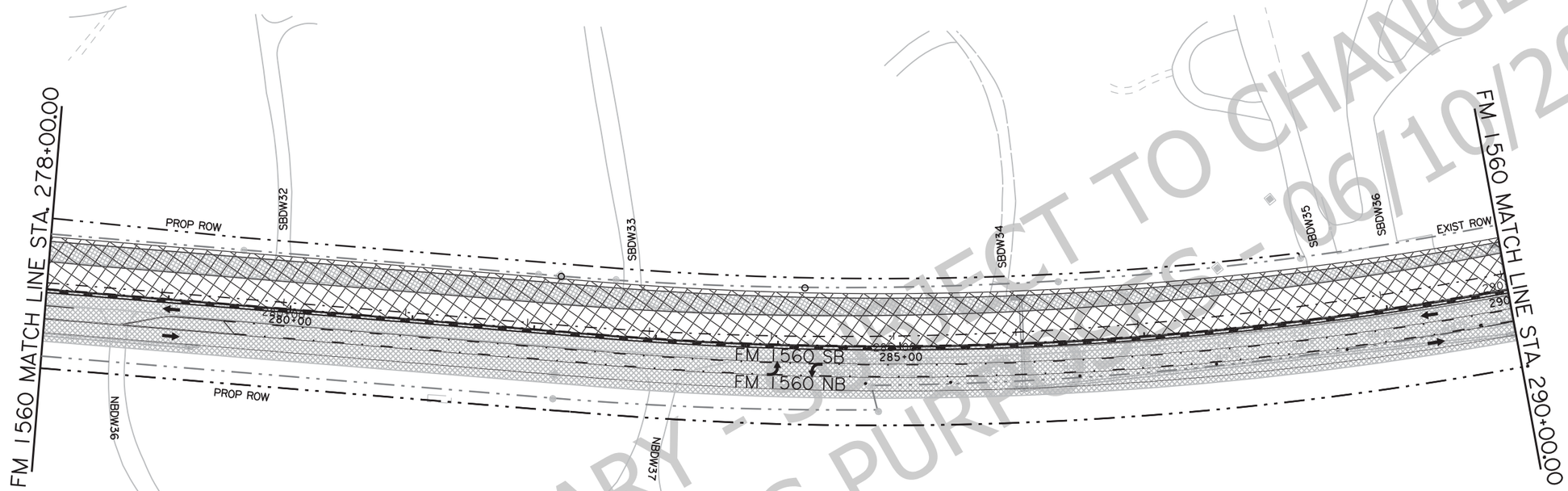

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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PHASE 4

SHEET 8 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	142
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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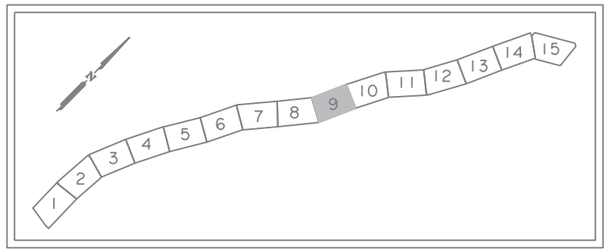

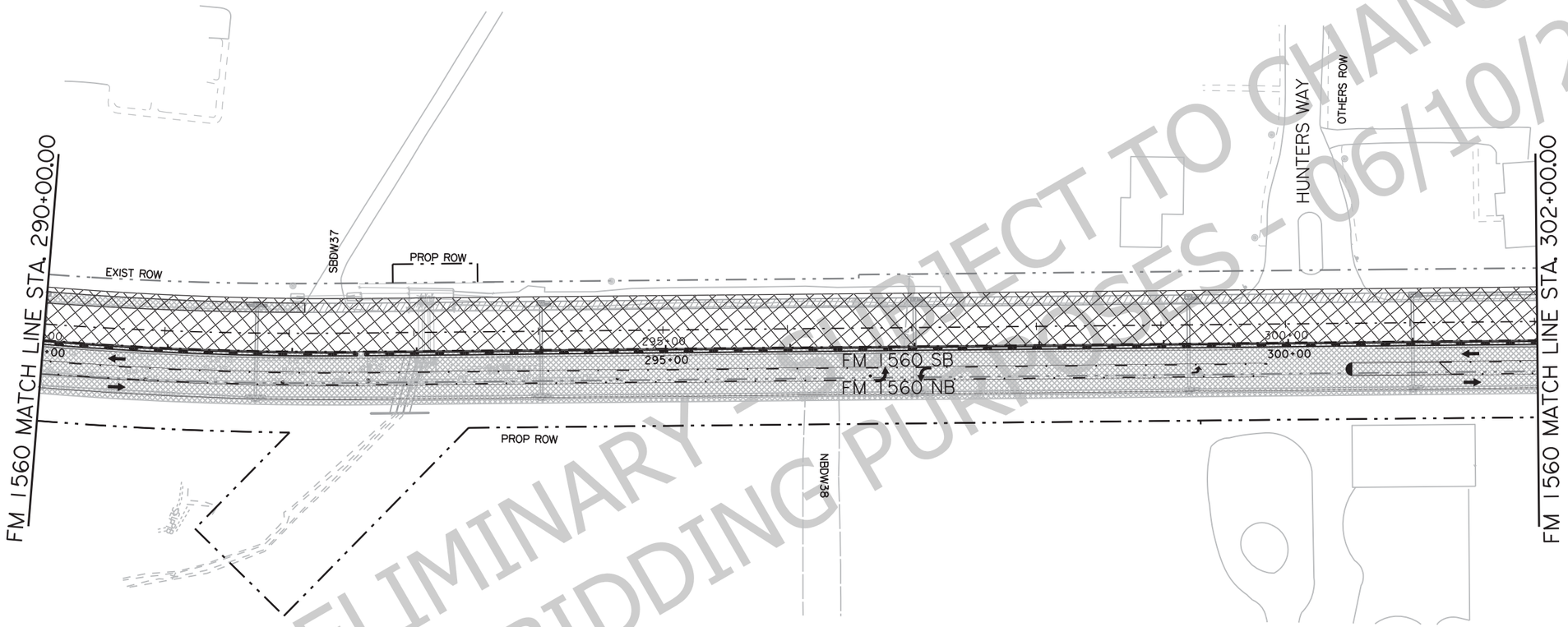

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 9 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	143

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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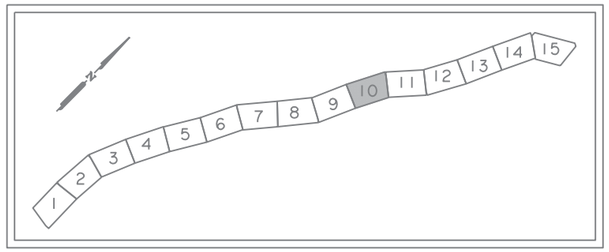

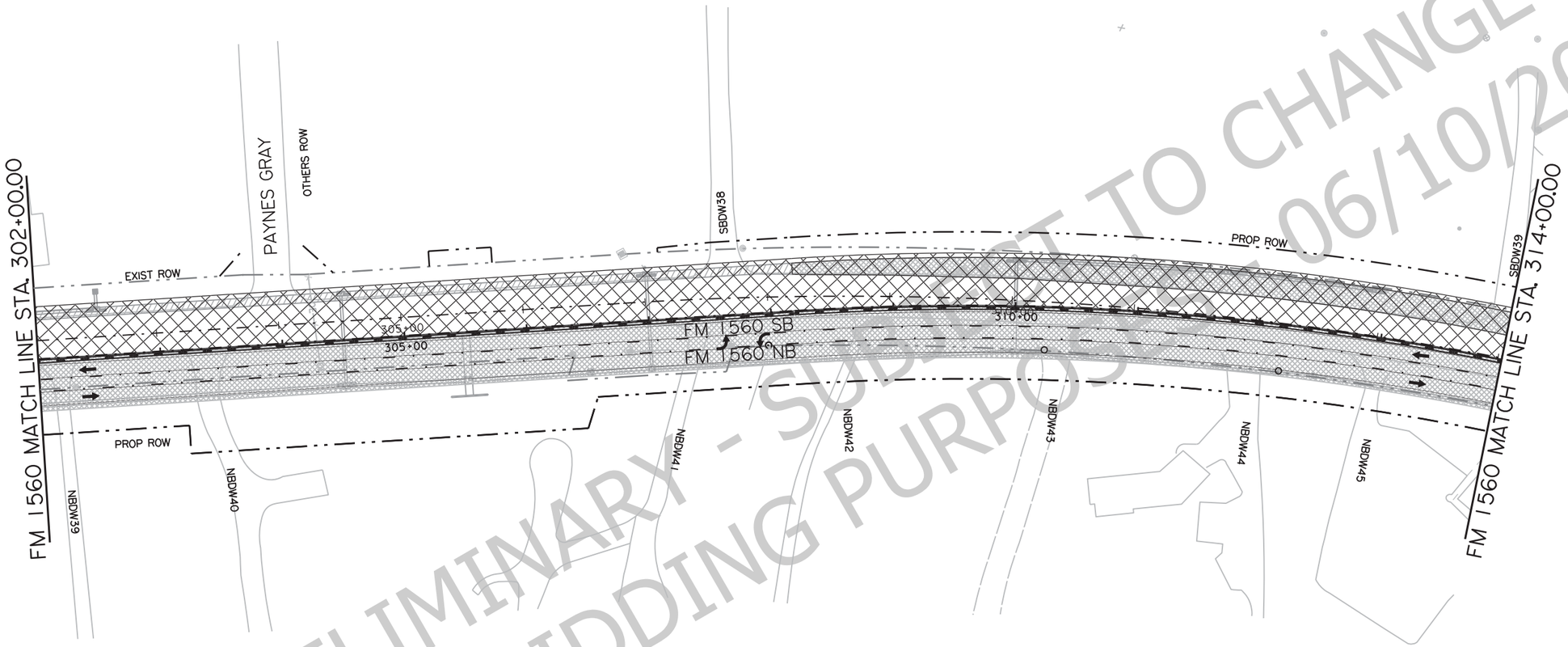

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 10 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	144
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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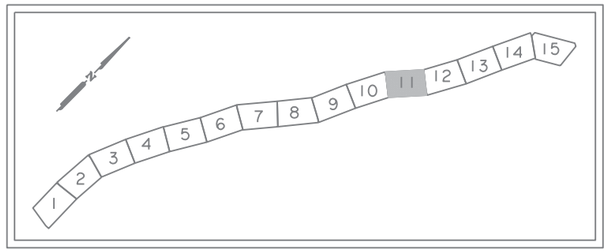

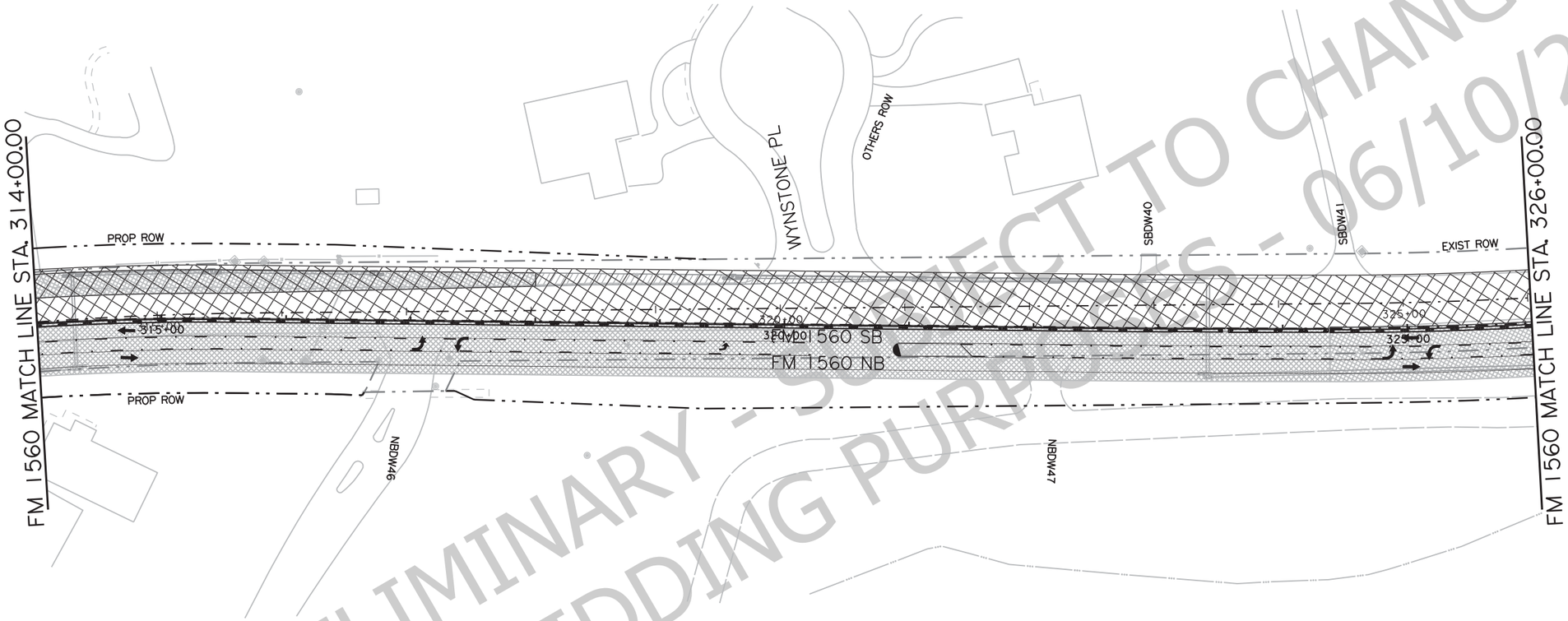

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 11 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	145
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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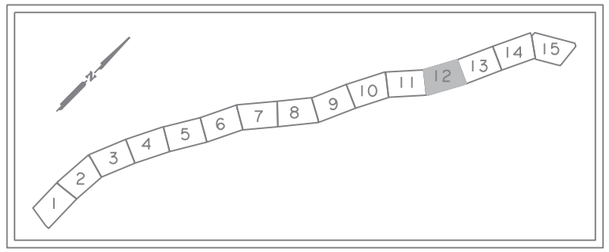

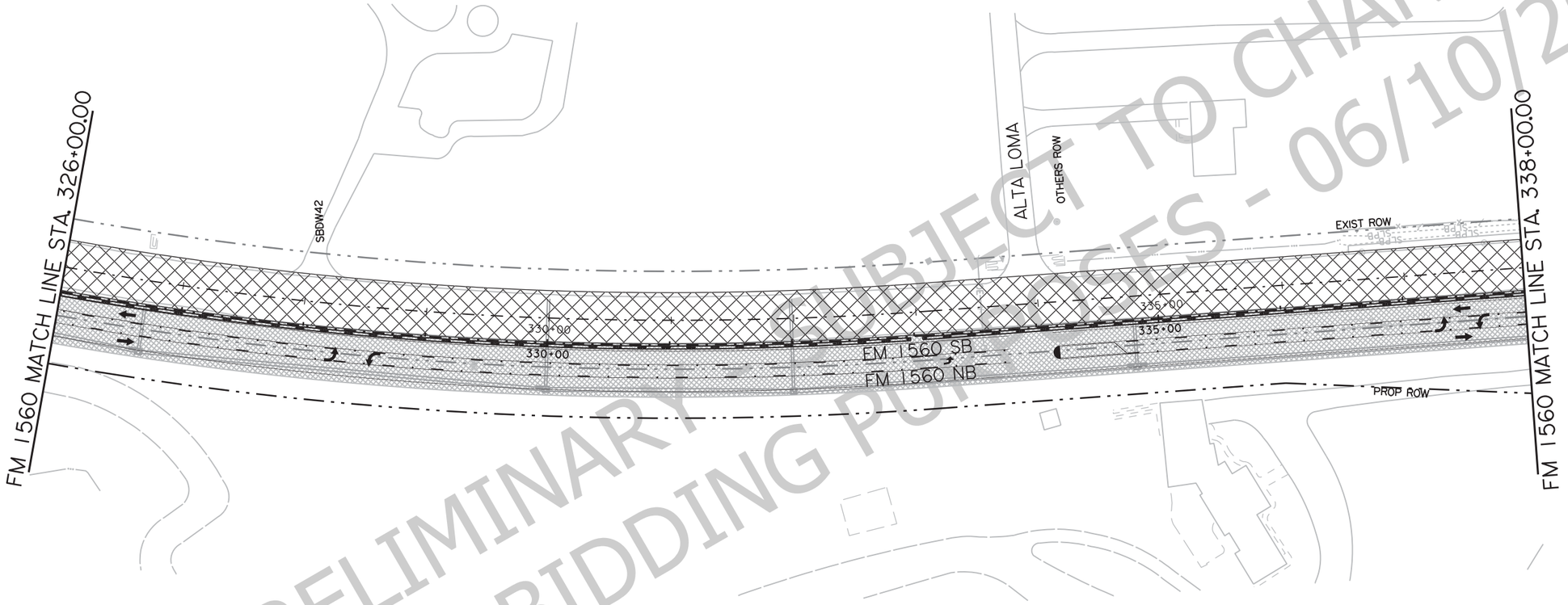

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 4

SHEET 12 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	146
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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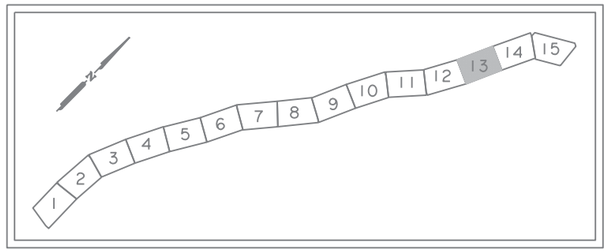

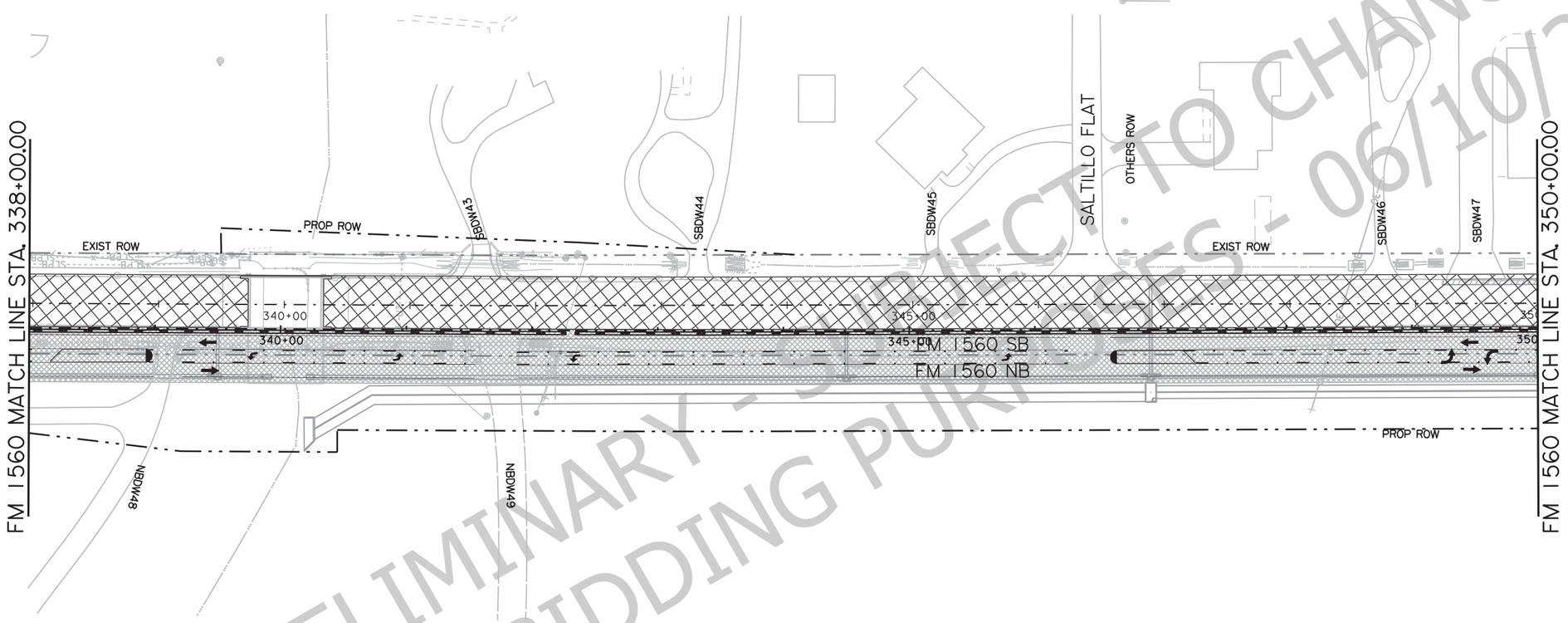

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1, TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 4

SHEET 13 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	147
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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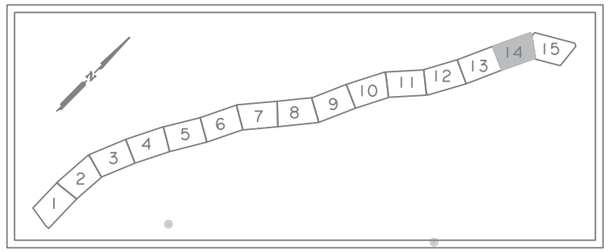

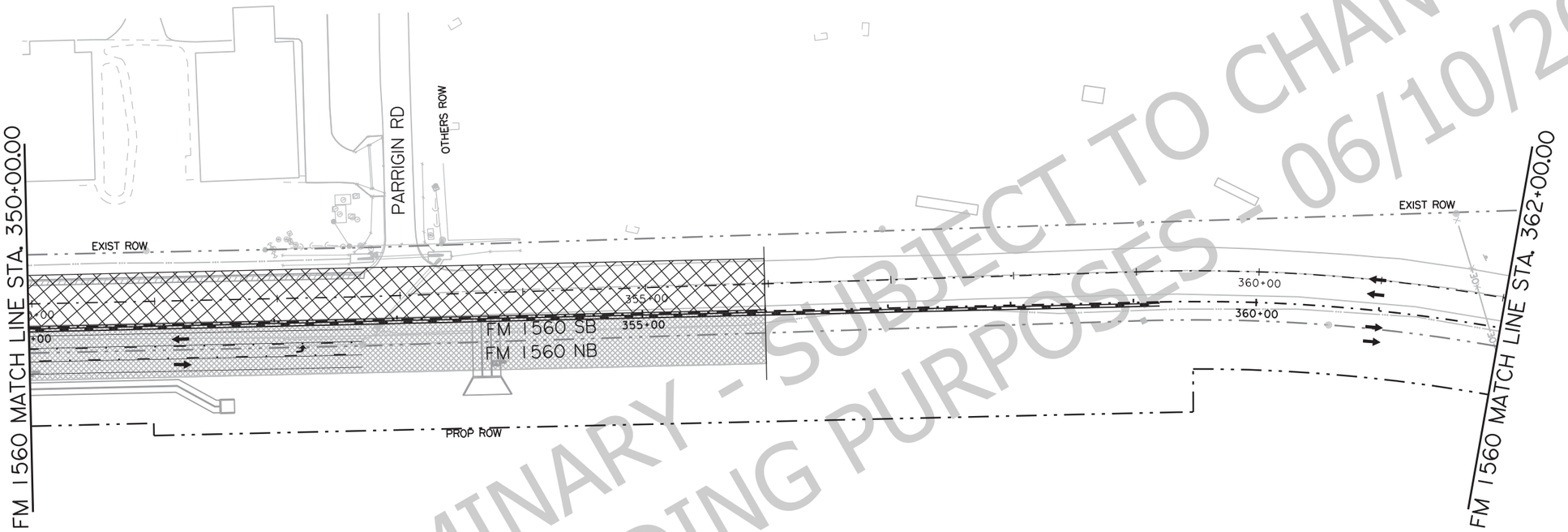

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 14 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	148

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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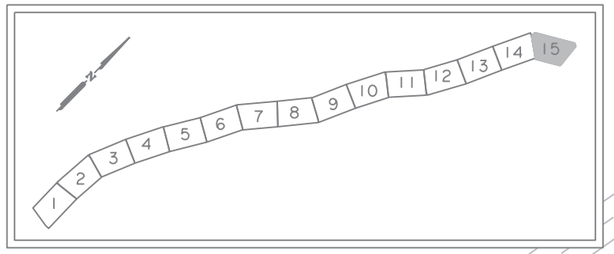

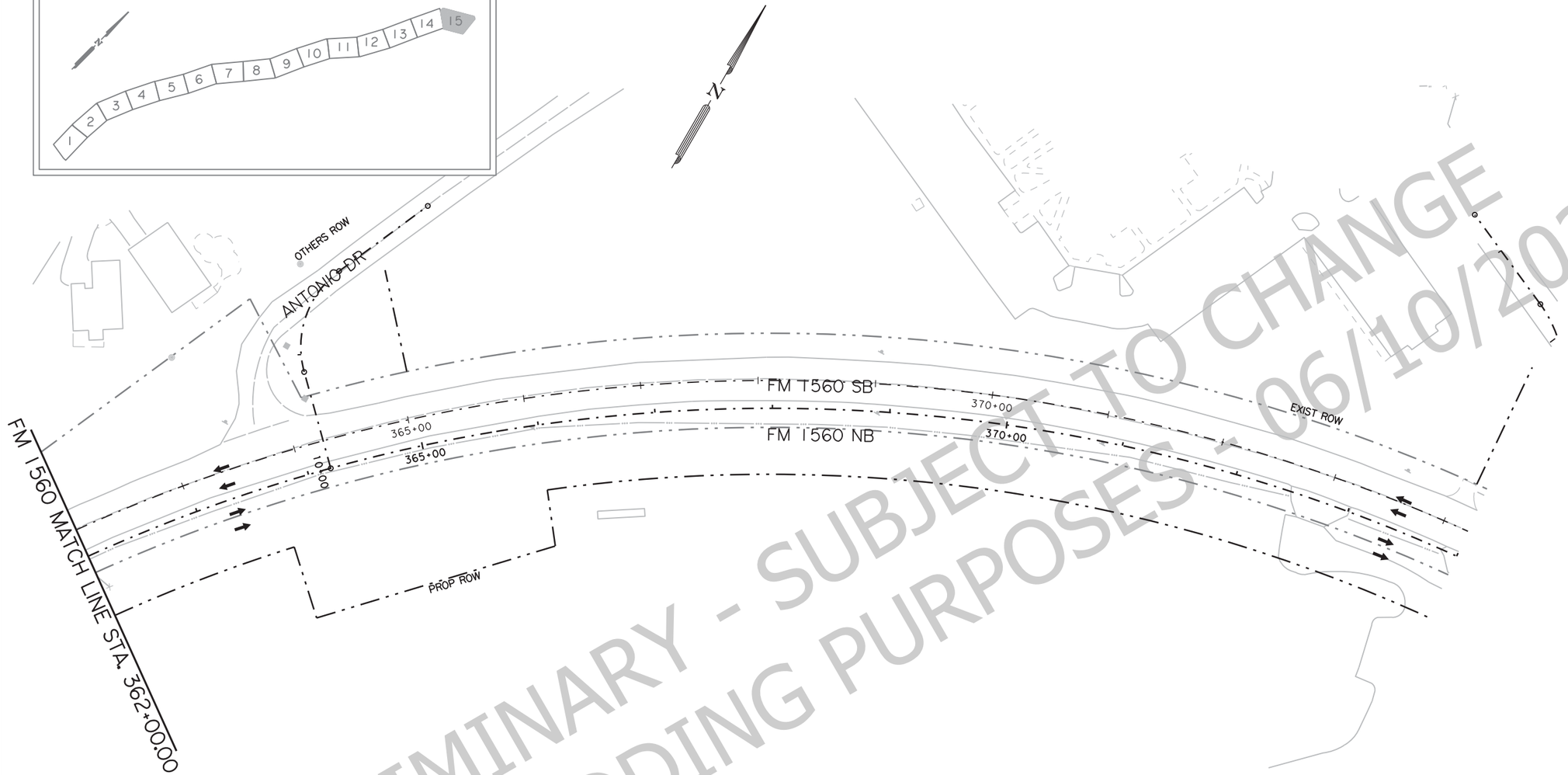

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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TRAFFIC CONTROL PLAN
PHASE 4

SHEET 15 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	149
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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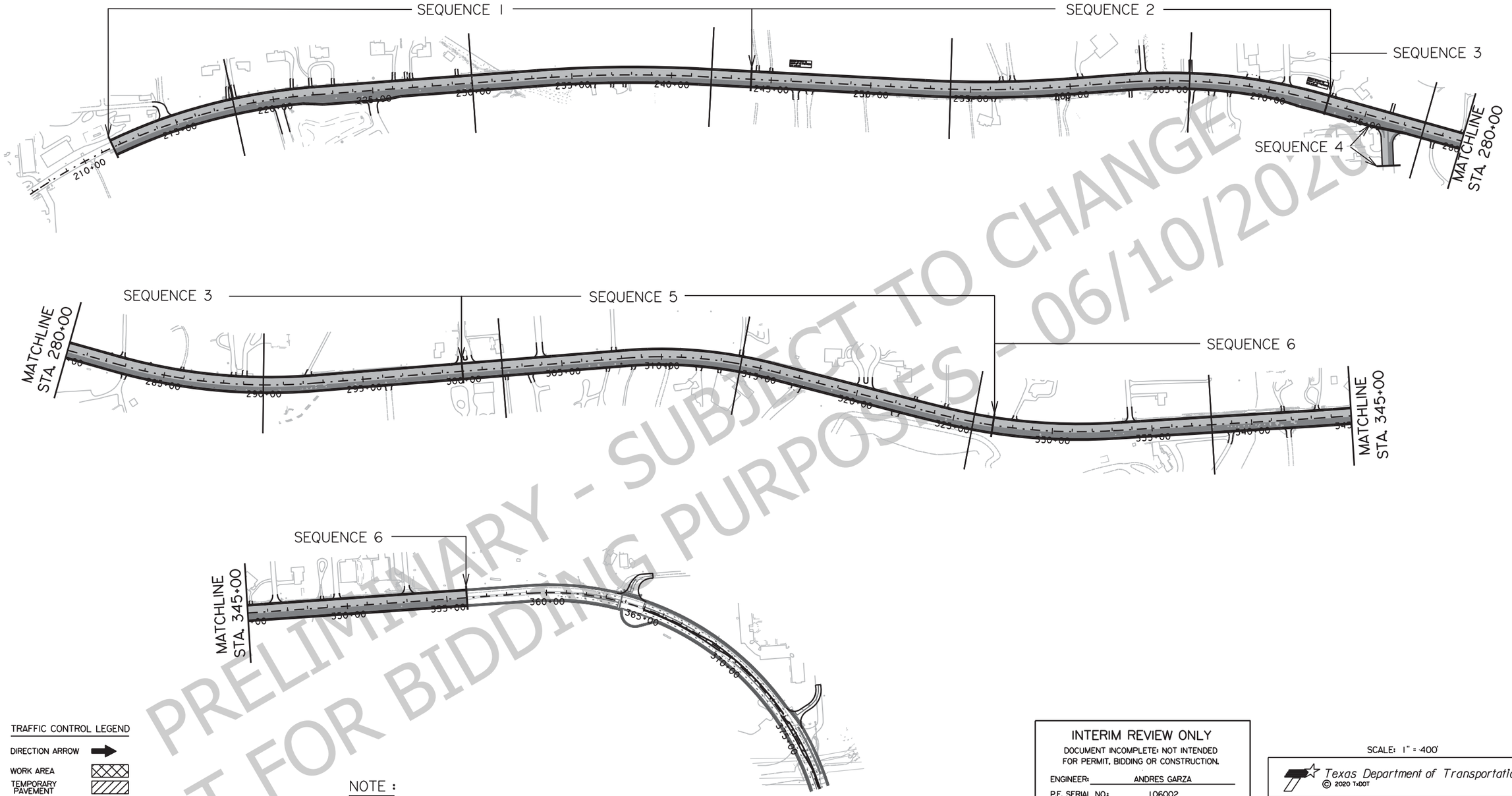

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

NOTE :

FOR THE PHASE FIVE OVERLAY, COMPLETE 1 SEQUENCE AT A TIME. TRAFFIC CONTROL SHOULD ACCOUNT FOR 2 NORTHBOUND AND 2 SOUTHBOUND CLOSURES FOR EACH OF THE 6 SEQUENCES WITH TCP SET UP. COMPLETE SEQUENCES AS DIRECTED BY ENGINEER.

PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1" = 400'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 LAYOUT

SHEET 1 OF 1

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 150
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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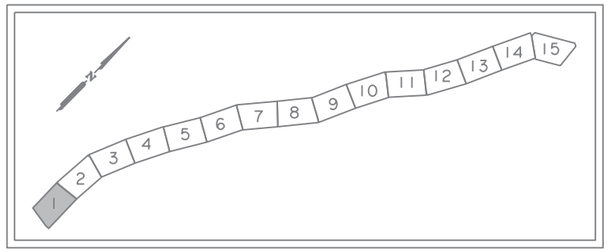

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
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- CHANNEL DEVICES
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 1 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	151

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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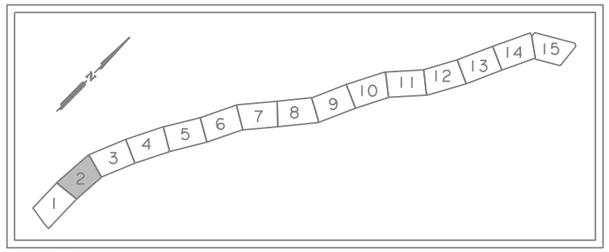

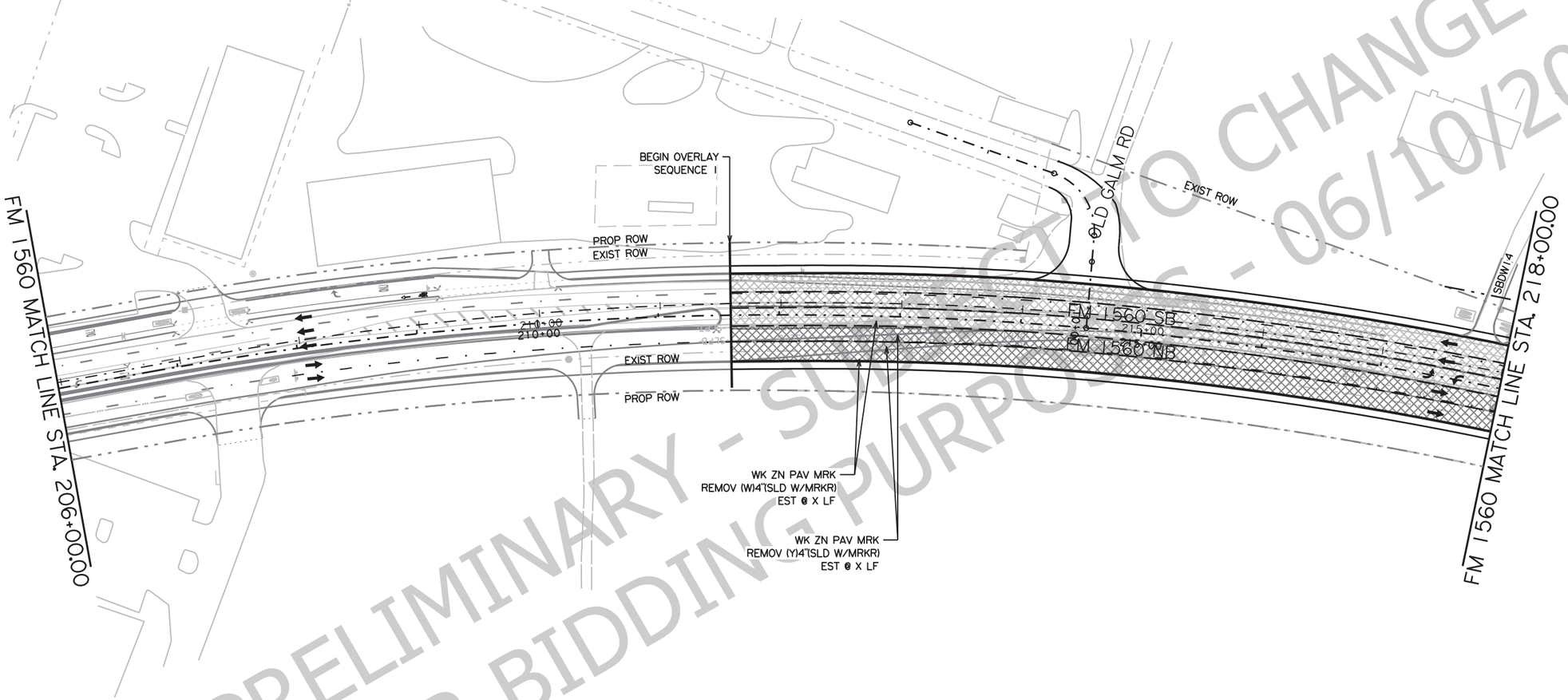

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
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- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE - 06/10/2020
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INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 2 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	152
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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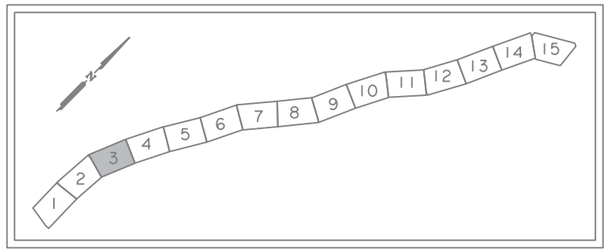

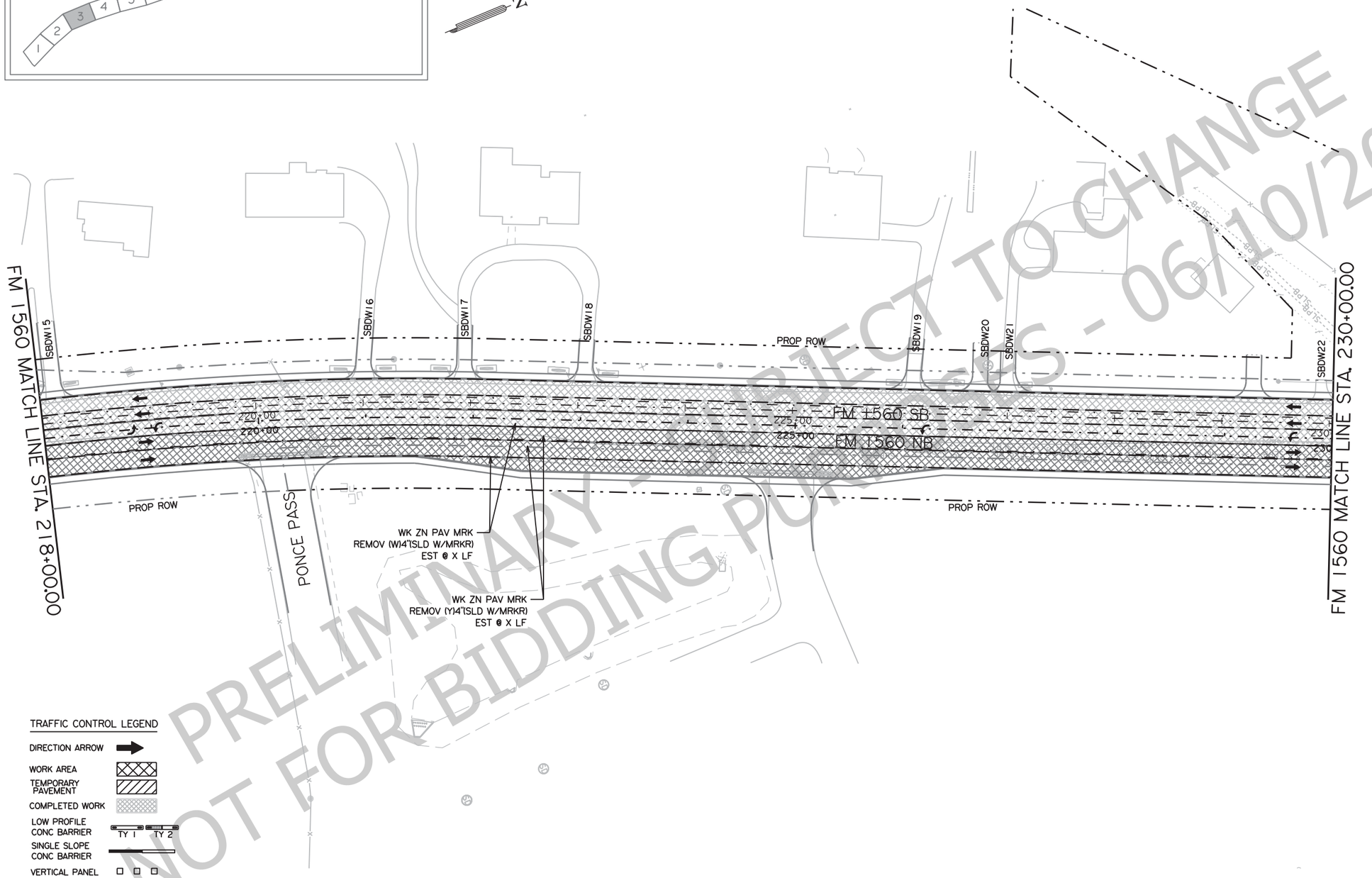

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 3 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	153
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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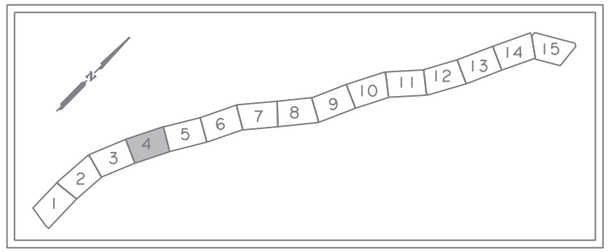

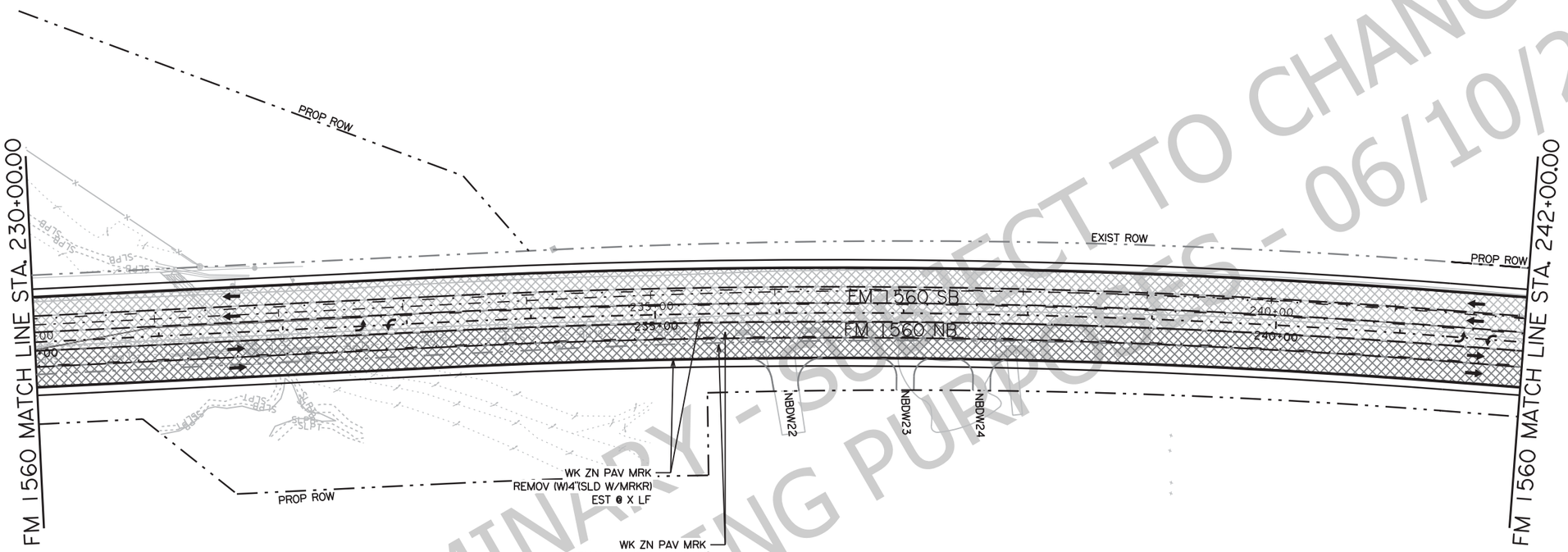

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
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PRELIMINARY - SUBJECT TO CHANGE
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P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 4 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	154
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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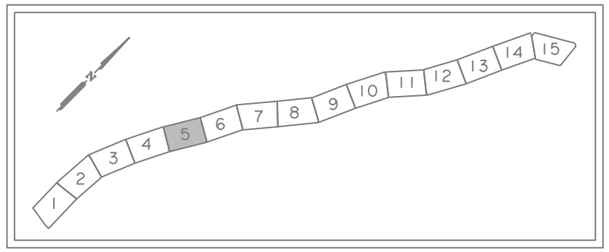

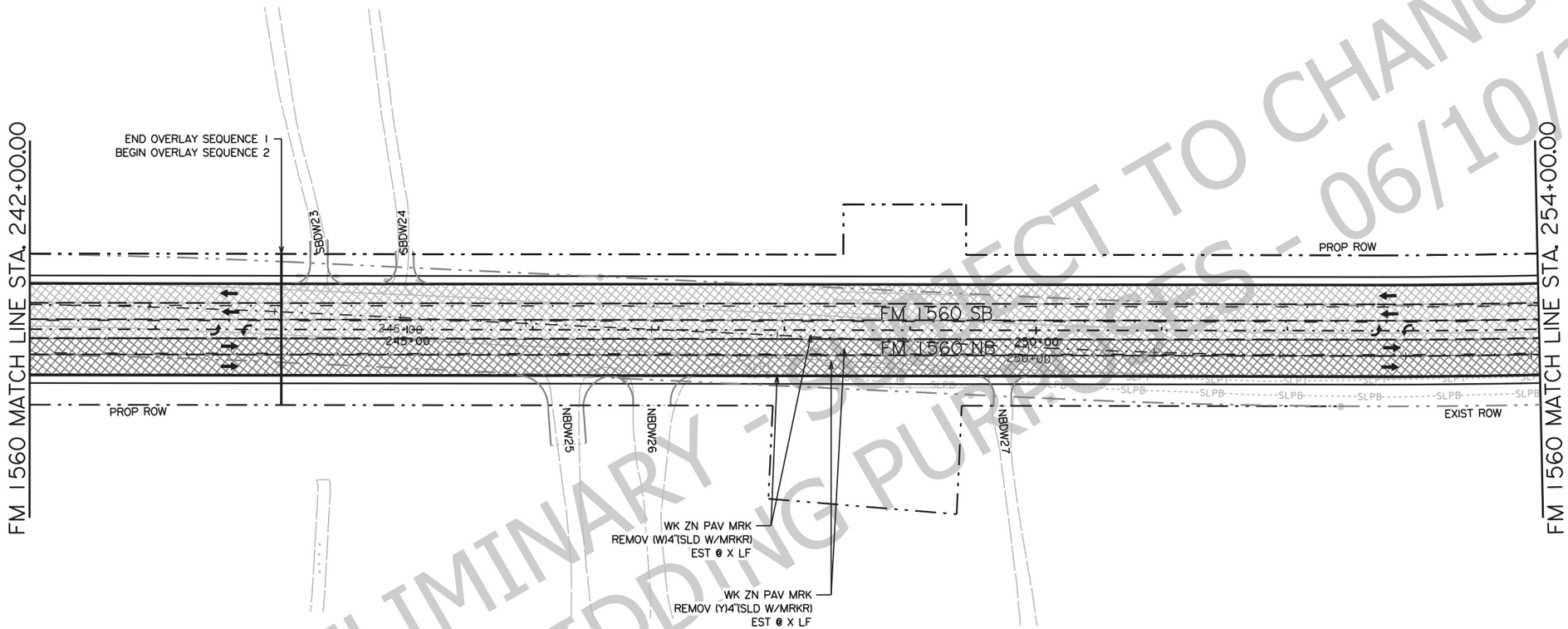

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 5 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	155
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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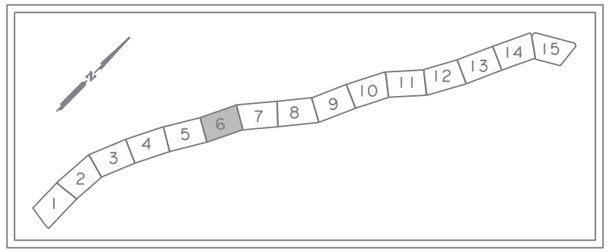

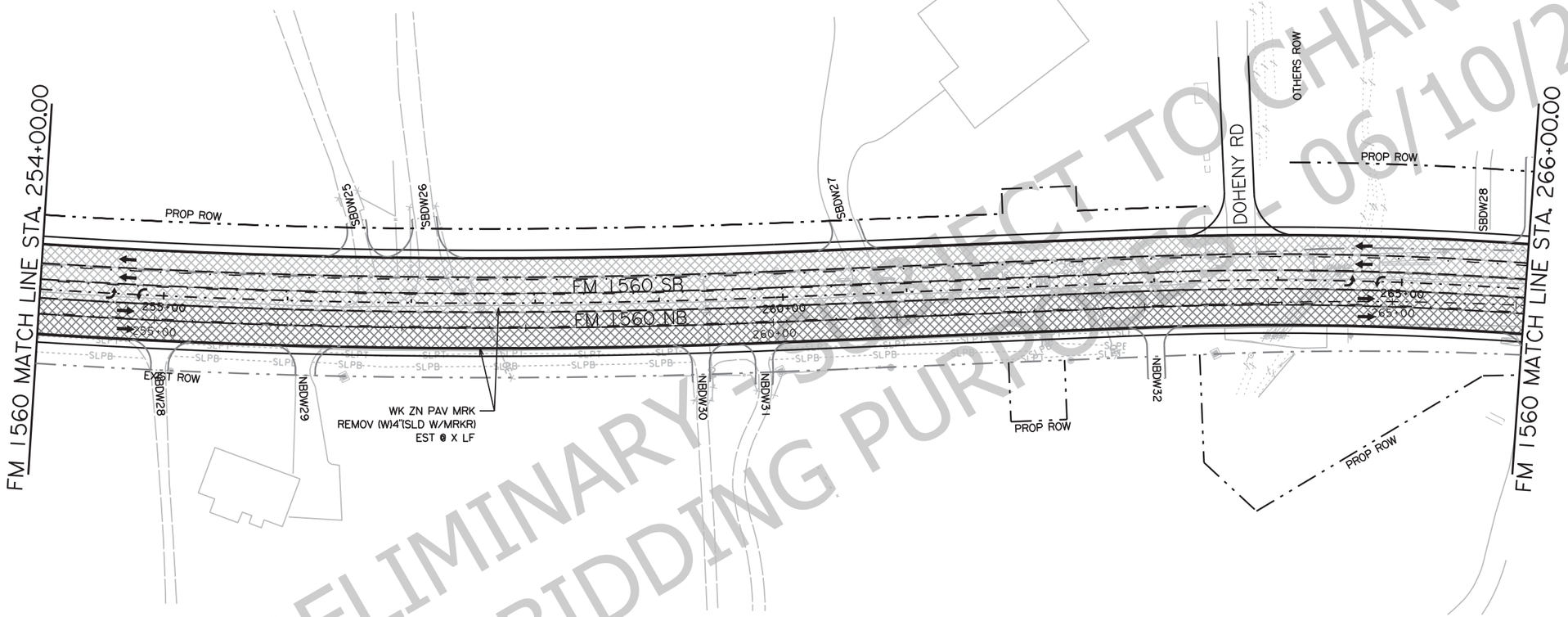

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
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- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
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ENGINEER: ANDRES GARZA
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DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 6 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	156
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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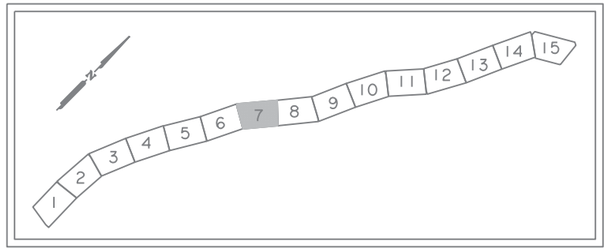

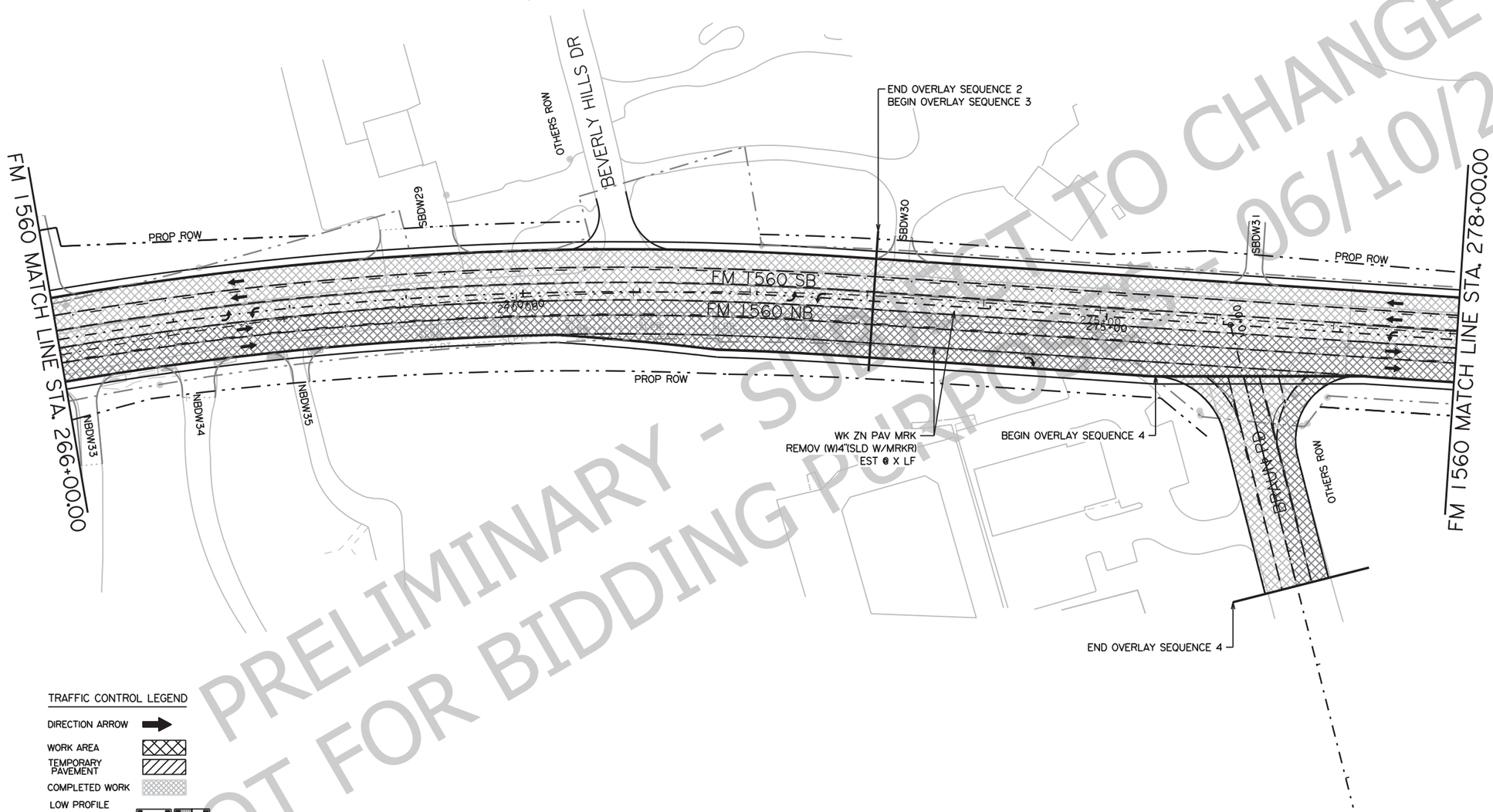

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 7 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	157
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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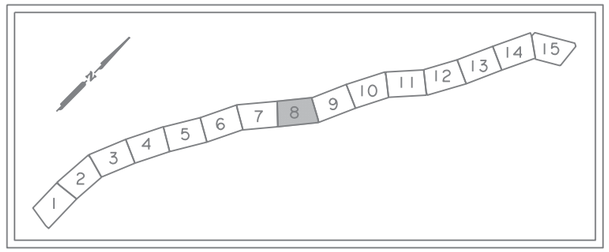

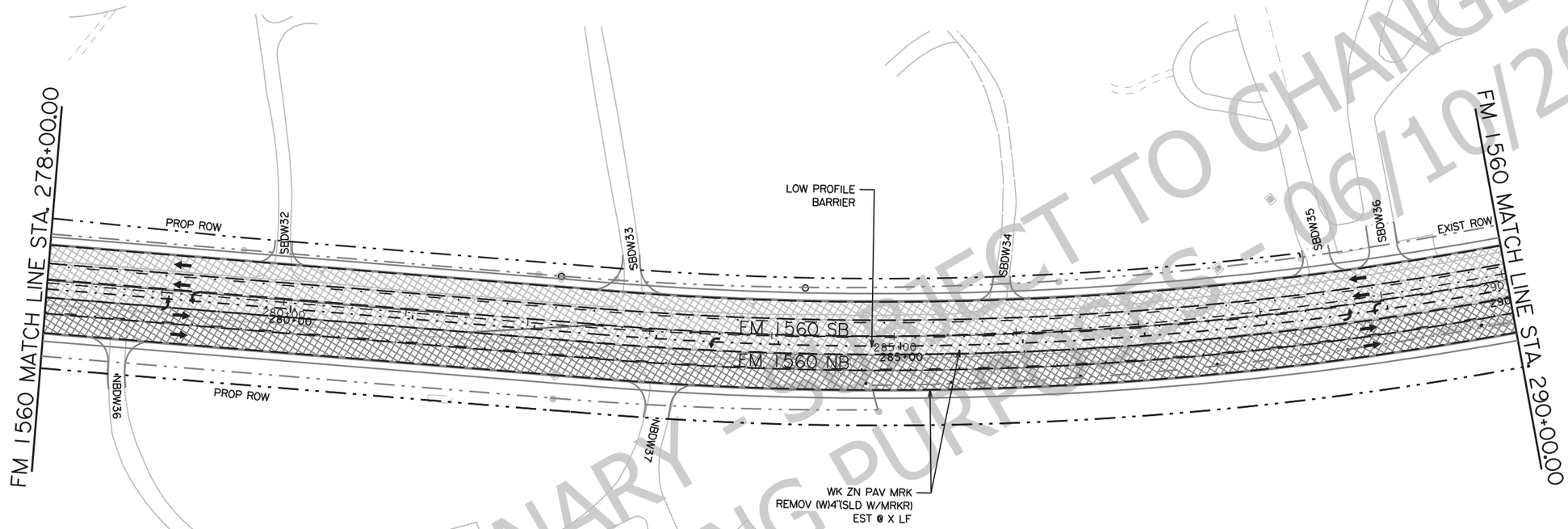

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 8 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	158
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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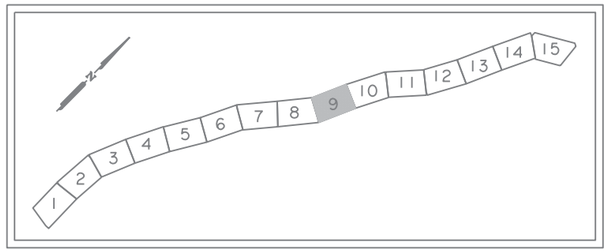

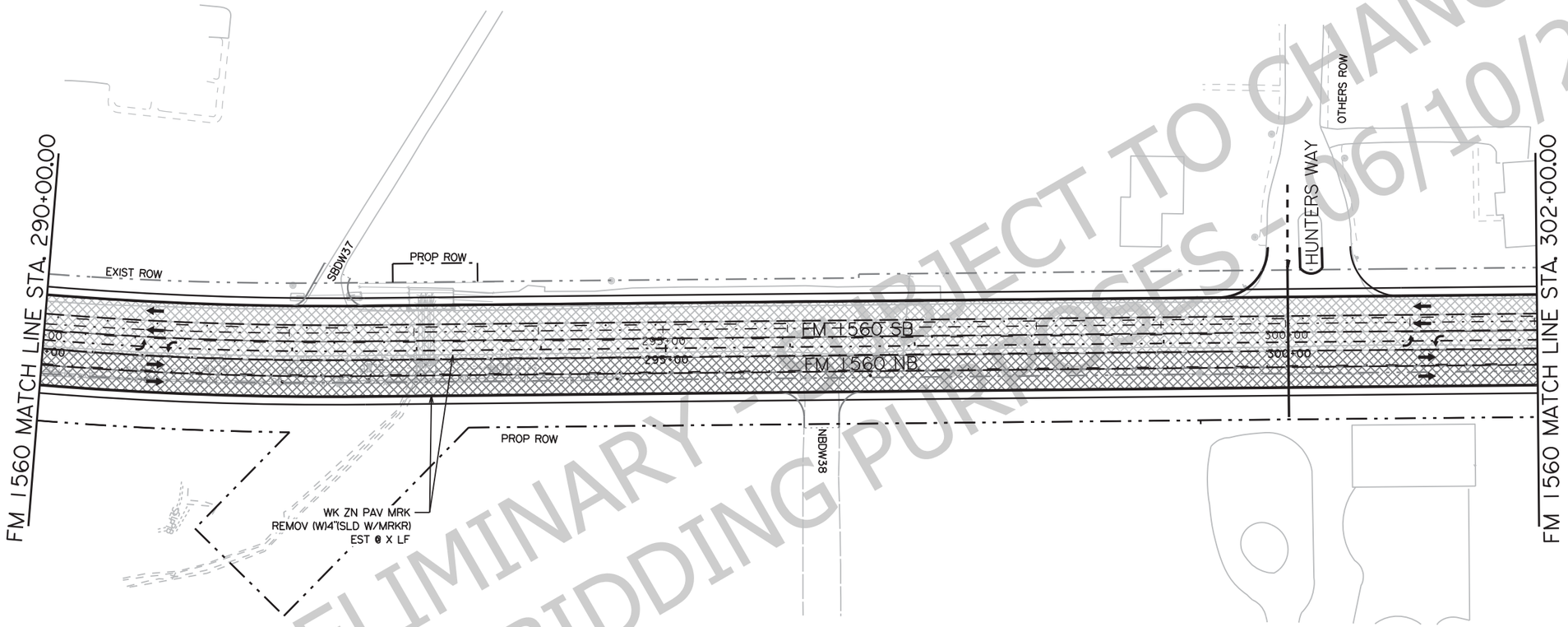

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 9 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FEDRD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	159
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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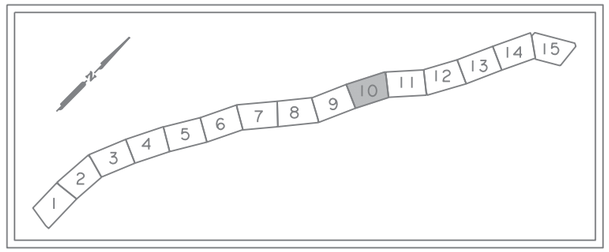

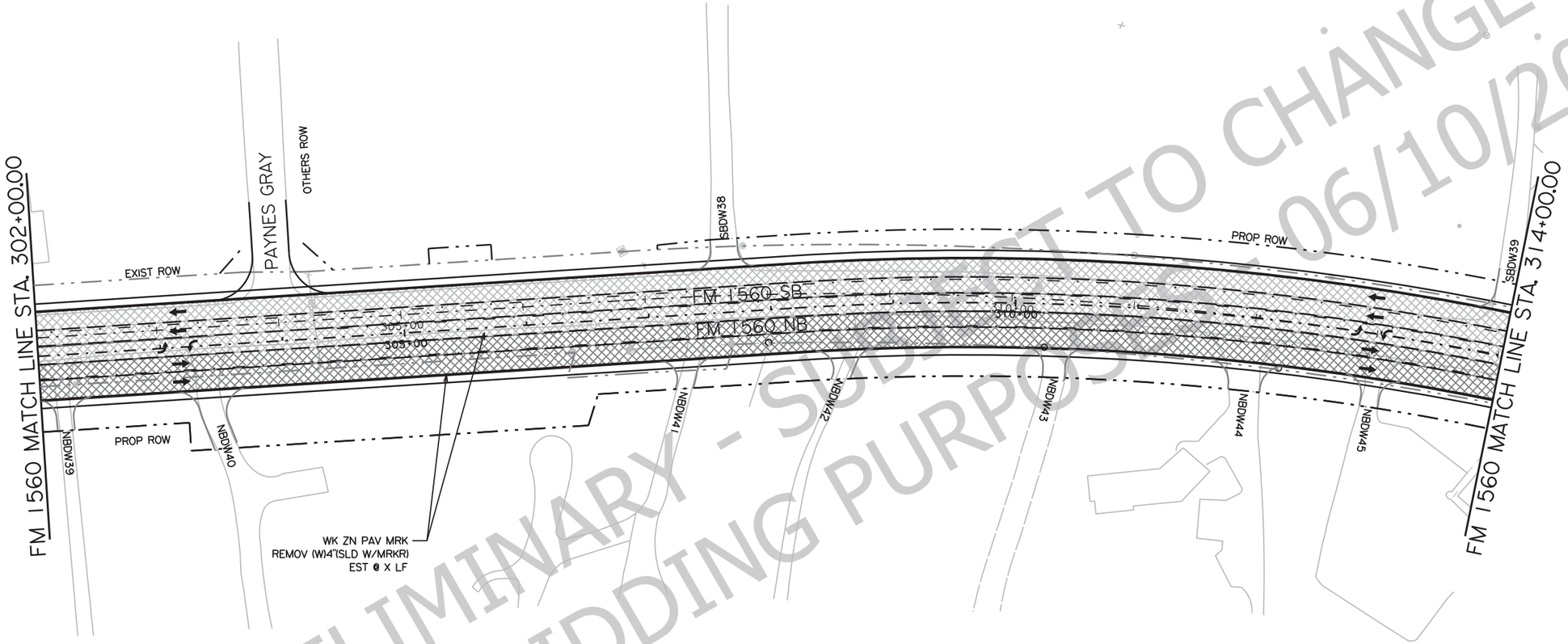

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 10 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	160
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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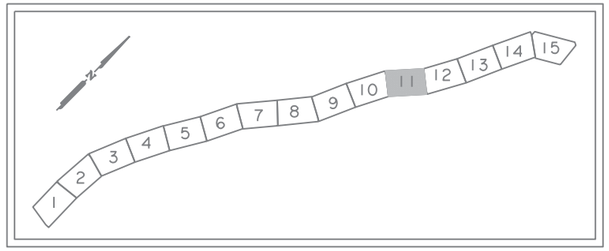

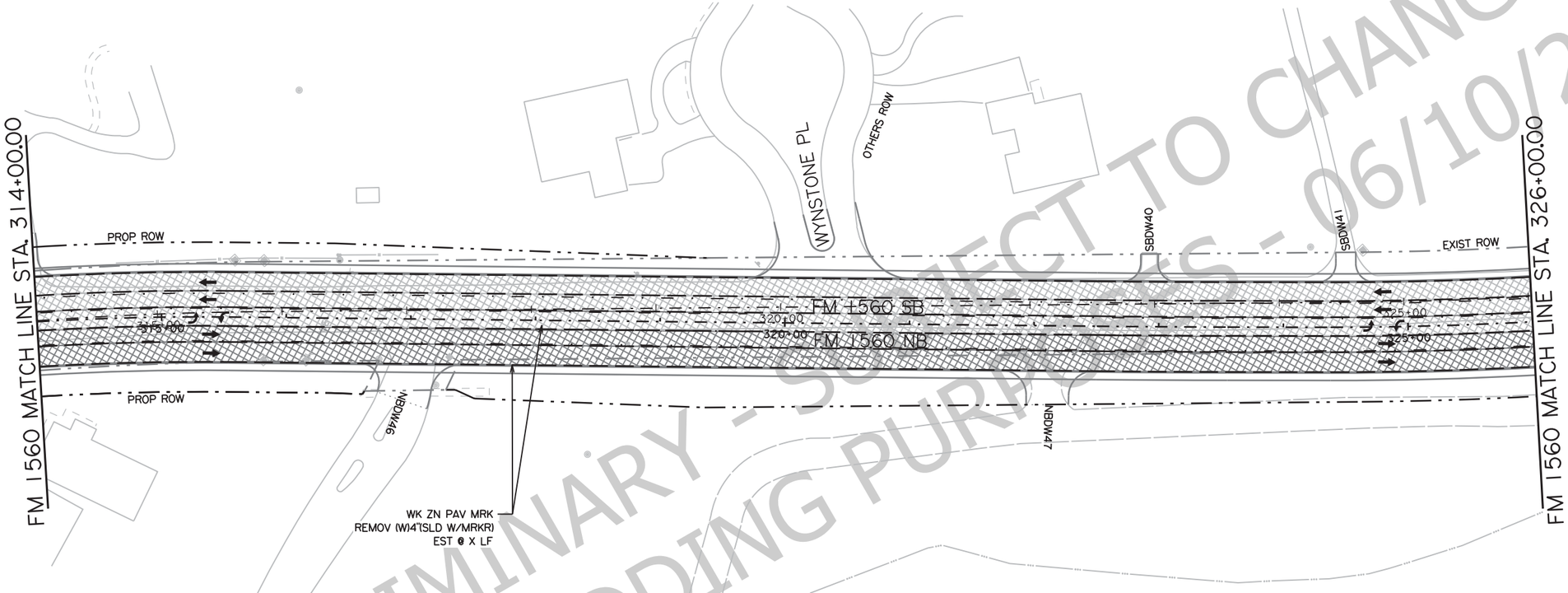

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 11 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	161
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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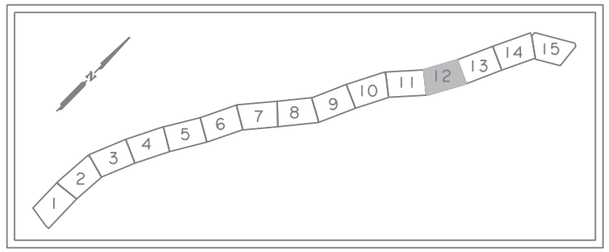

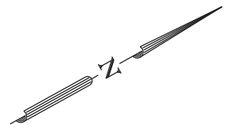

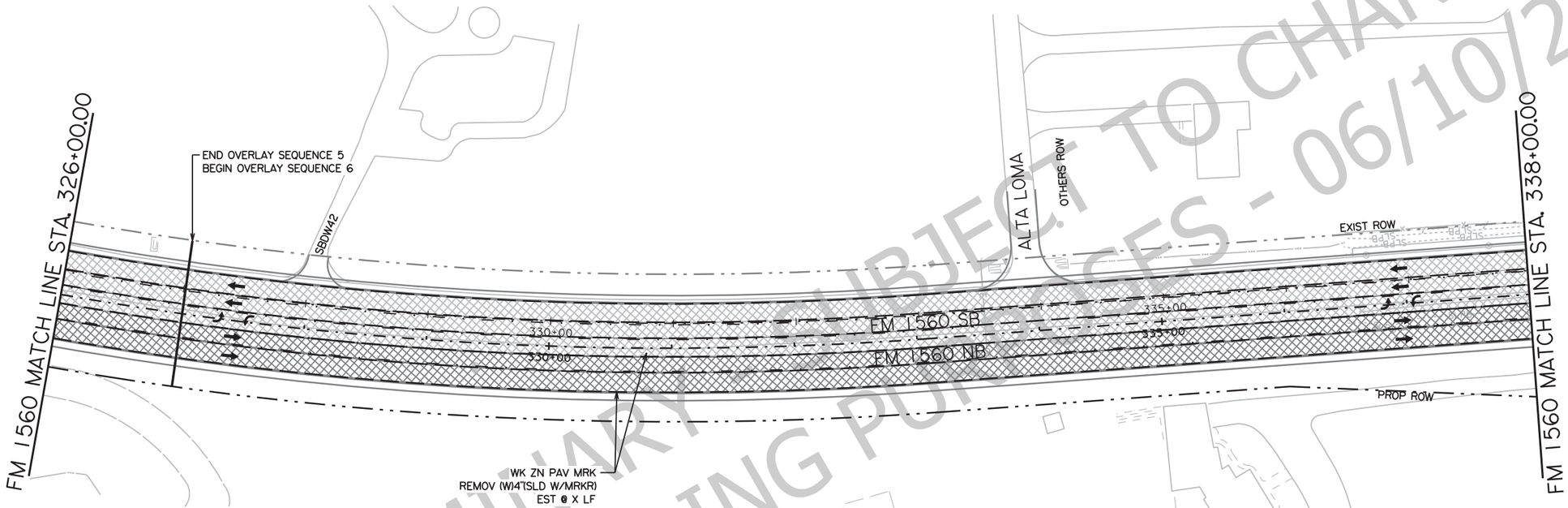

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
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- ELIMINATE WK ZN MRK
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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 12 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	162
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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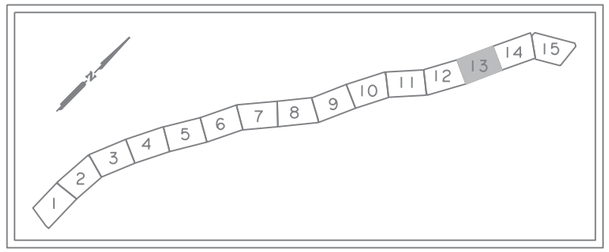

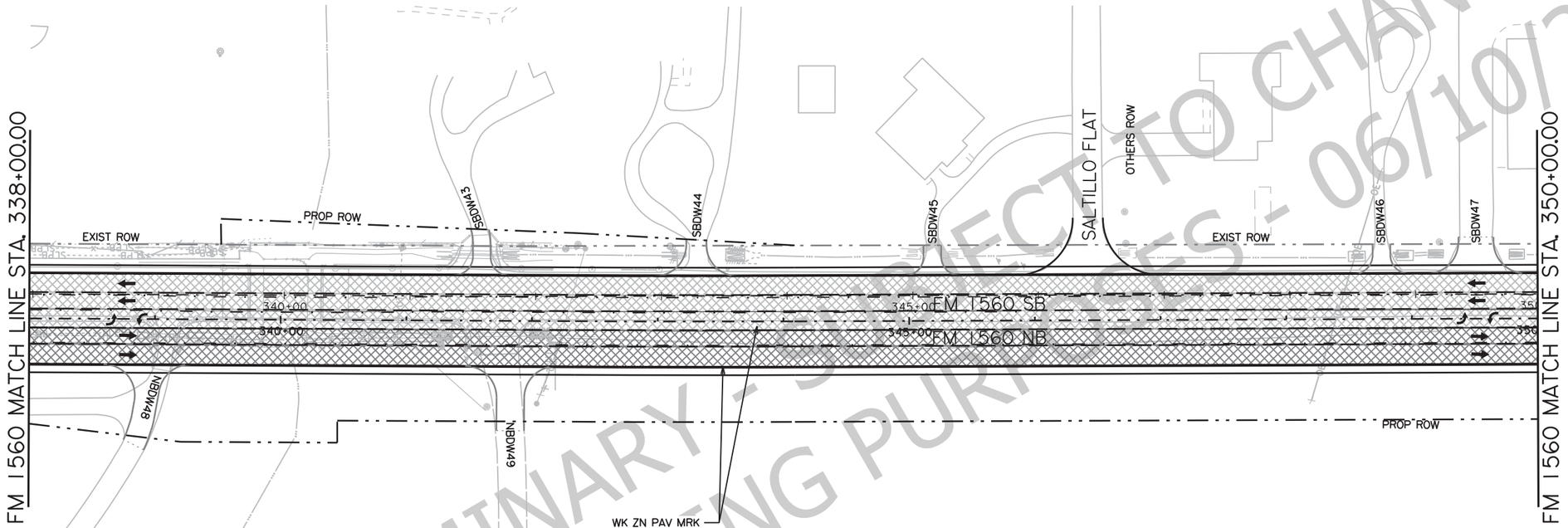

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1 / TY 2)
- SINGLE SLOPE CONC BARRIER
- VERTICAL PANEL
- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 13 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	163
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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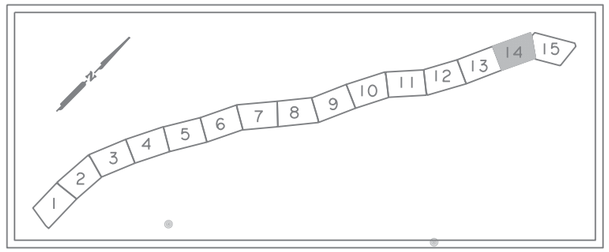

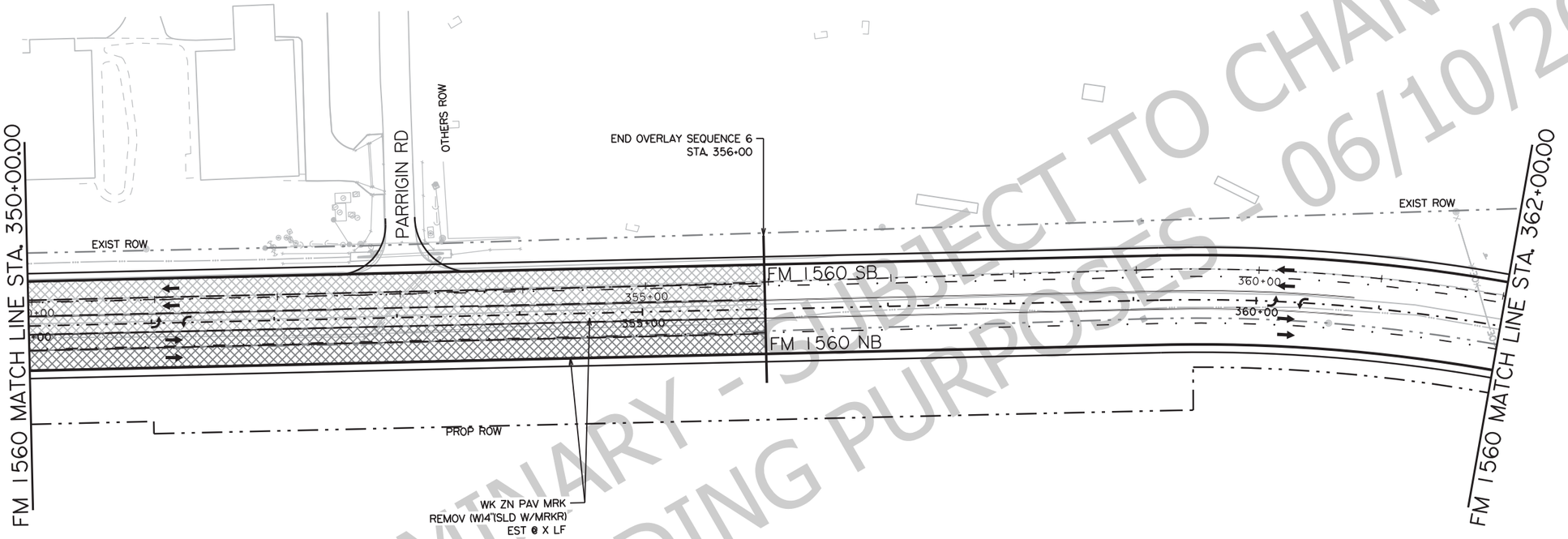

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER (TY 1, TY 2)
- SINGLE SLOPE CONC BARRIER
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- CHANNEL DEVICES
- BARRICADE TY III
- ELIMINATE EX. PAV MRK
- ELIMINATE WK ZN MRK
- DETOUR ROUTE

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 14 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	164
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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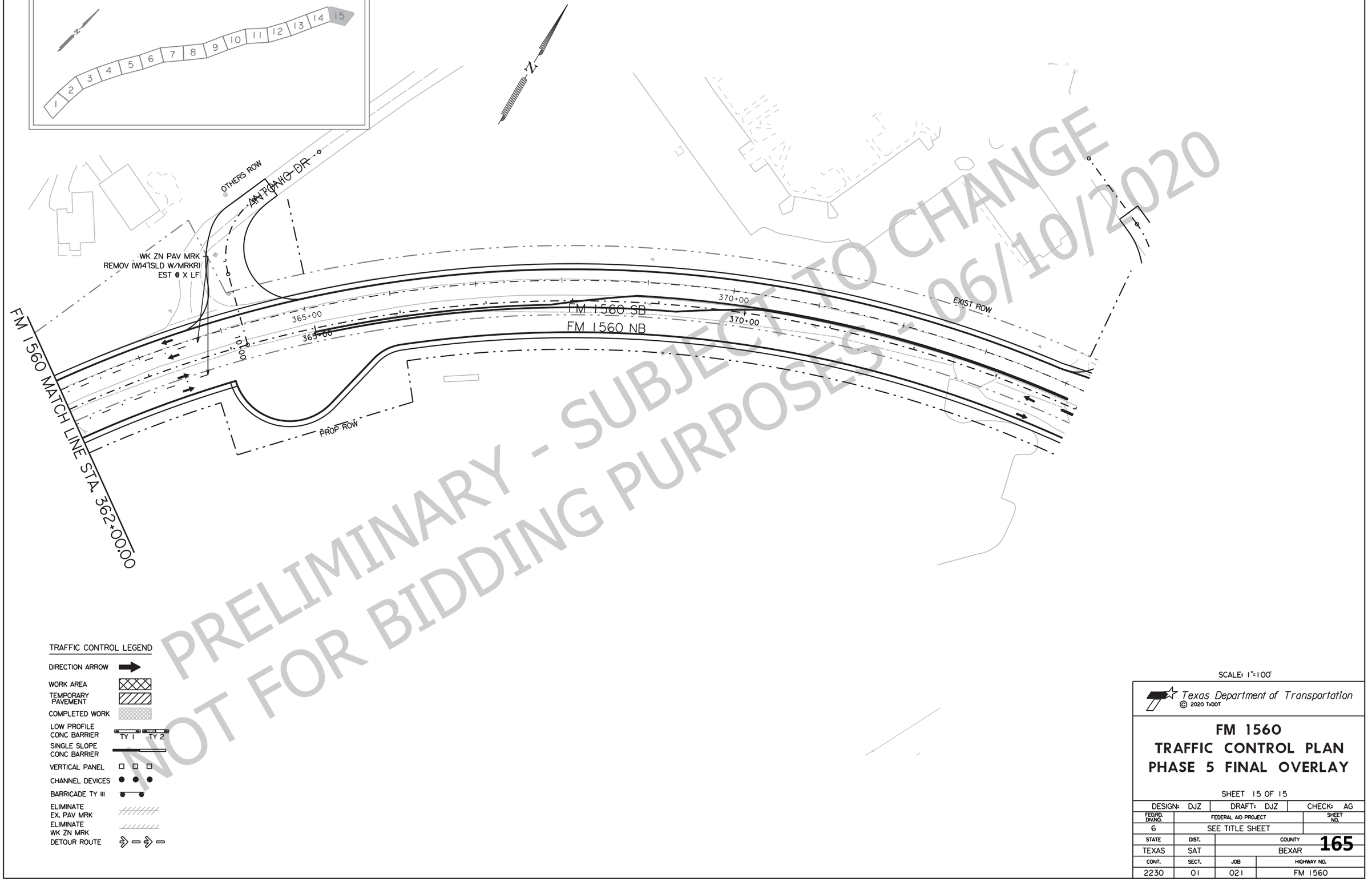

TRAFFIC CONTROL LEGEND

- DIRECTION ARROW
- WORK AREA
- TEMPORARY PAVEMENT
- COMPLETED WORK
- LOW PROFILE CONC BARRIER — TY 1 / TY 2
- SINGLE SLOPE CONC BARRIER
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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SCALE: 1"=100'

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FM 1560
TRAFFIC CONTROL PLAN
PHASE 5 FINAL OVERLAY

SHEET 15 OF 15

DESIGN: DJZ	DRAFT: DJZ	CHECK: AG	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	165
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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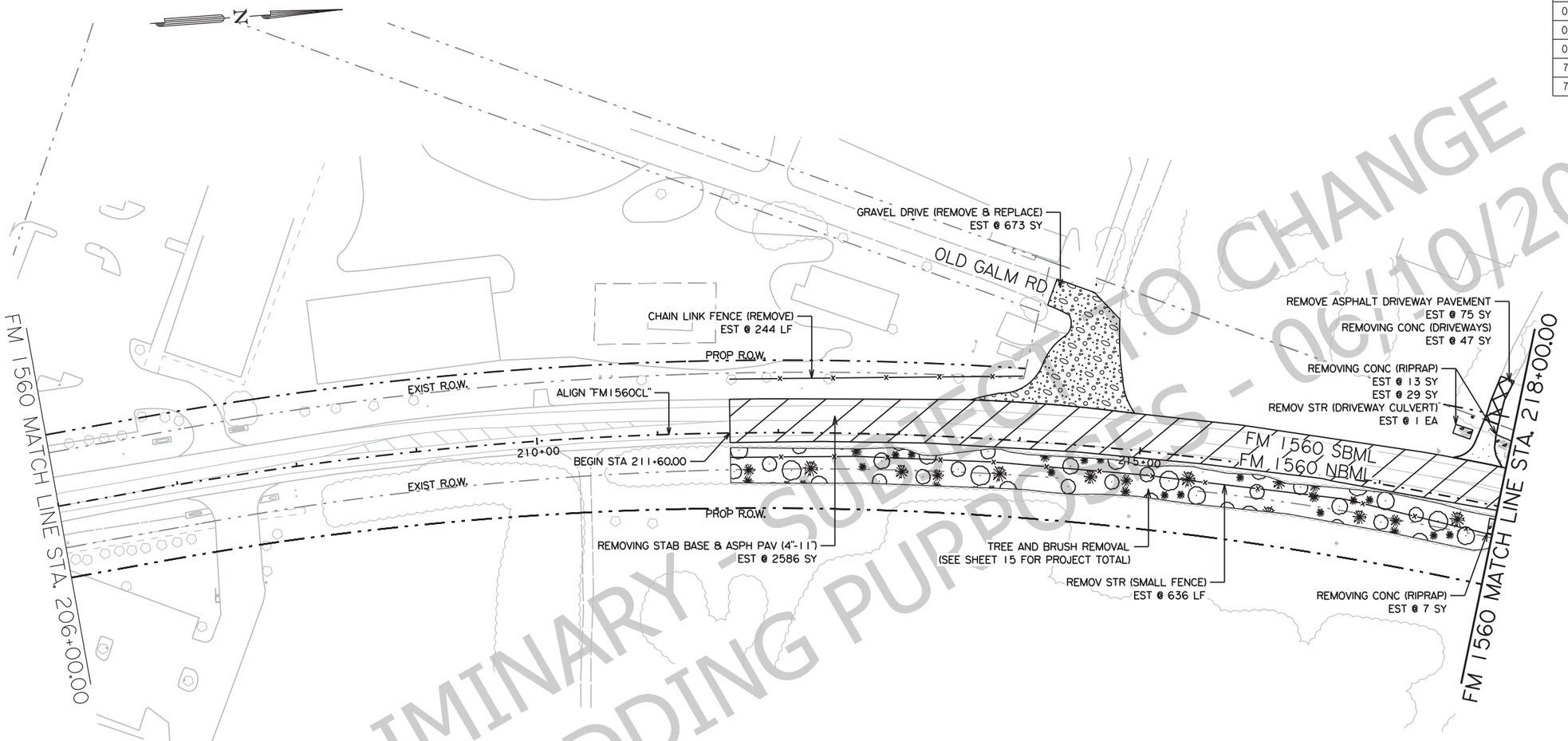
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	7
0104-6009	REMOVING CONC (RIPRAP)	SY	49
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	47
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	2586
0496-6043	REMOV STR (SMALL FENCE)	LF	636
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	1
0550-6003	CHAIN LINK FENCE (REMOVE)	LF	244
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	673
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	75



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

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SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 1 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	166
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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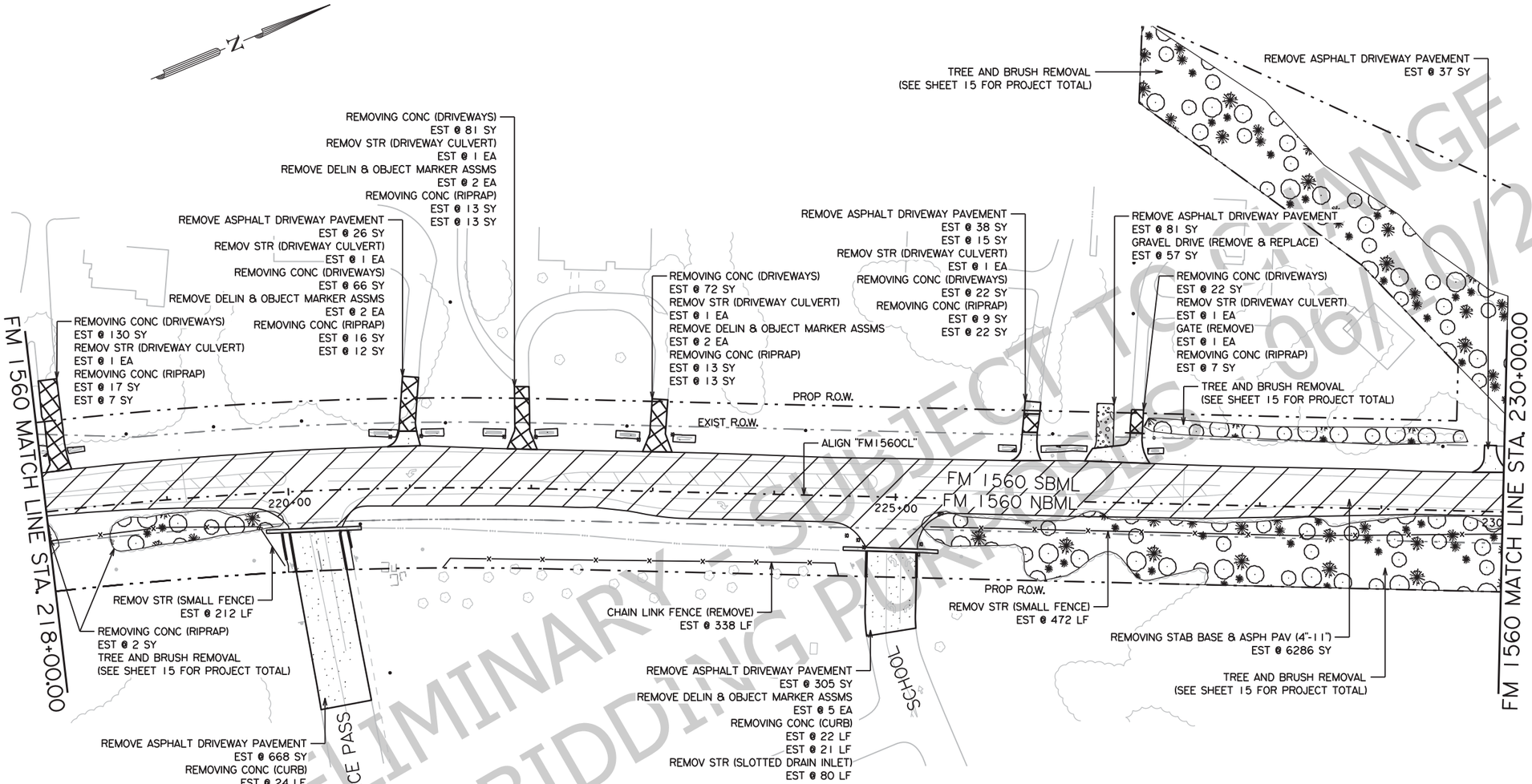

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	144
0104-6015	REMOVING CONC (SIDEWALKS)	SY	47
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	393
0104-6021	REMOVING CONC (CURB)	LF	148
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	6286
0496-6043	REMOV STR (SMALL FENCE)	LF	684
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	6
0496-6069	REMOV STR (SLOTTED DRAIN INLET)	LF	160
0550-6003	CHAIN LINK FENCE (REMOVE)	LF	338
0550-6006	GATE (REMOVE)	EA	1
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	11
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	57
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	1170

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 5/28/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 9/10/2020

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 2 OF 16

DESIGN: JH	DRAFT: JH	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

167

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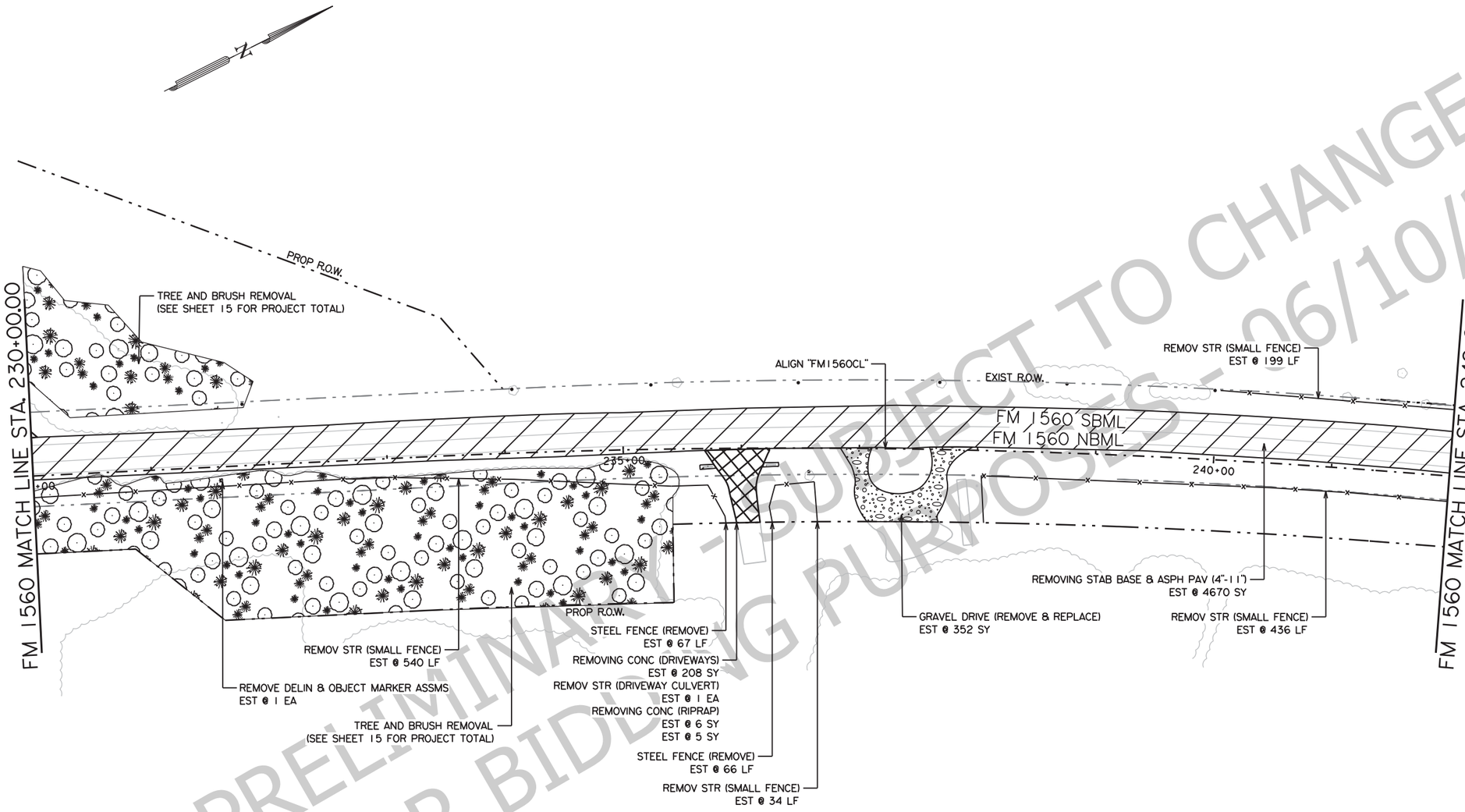
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	11
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	208
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	4670
0496-6043	REMOV STR (SMALL FENCE)	LF	1209
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	1
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	1
5070-6001	STEEL FENCE (REMOVE)	LF	133
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	352



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 3 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	168
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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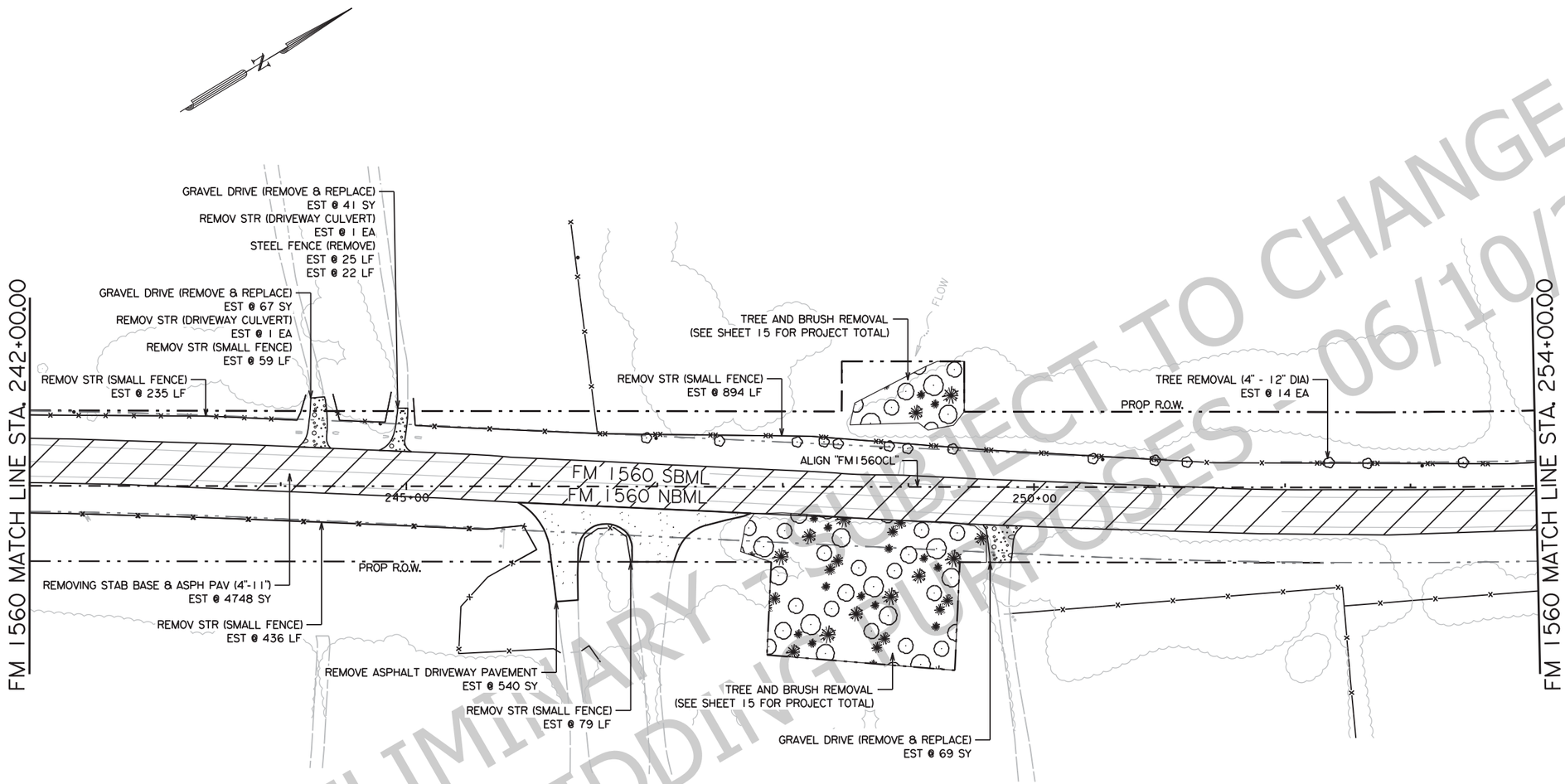
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	4748
0496-6043	REMOV STR (SMALL FENCE)	LF	1703
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	2
0752-6005	TREE REMOVAL (4" - 12" DIA)	EA	14
5070-6001	STEEL FENCE (REMOVE)	LF	47
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	177
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	540



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

SCALE: 1"=100'

Texas Department of Transportation
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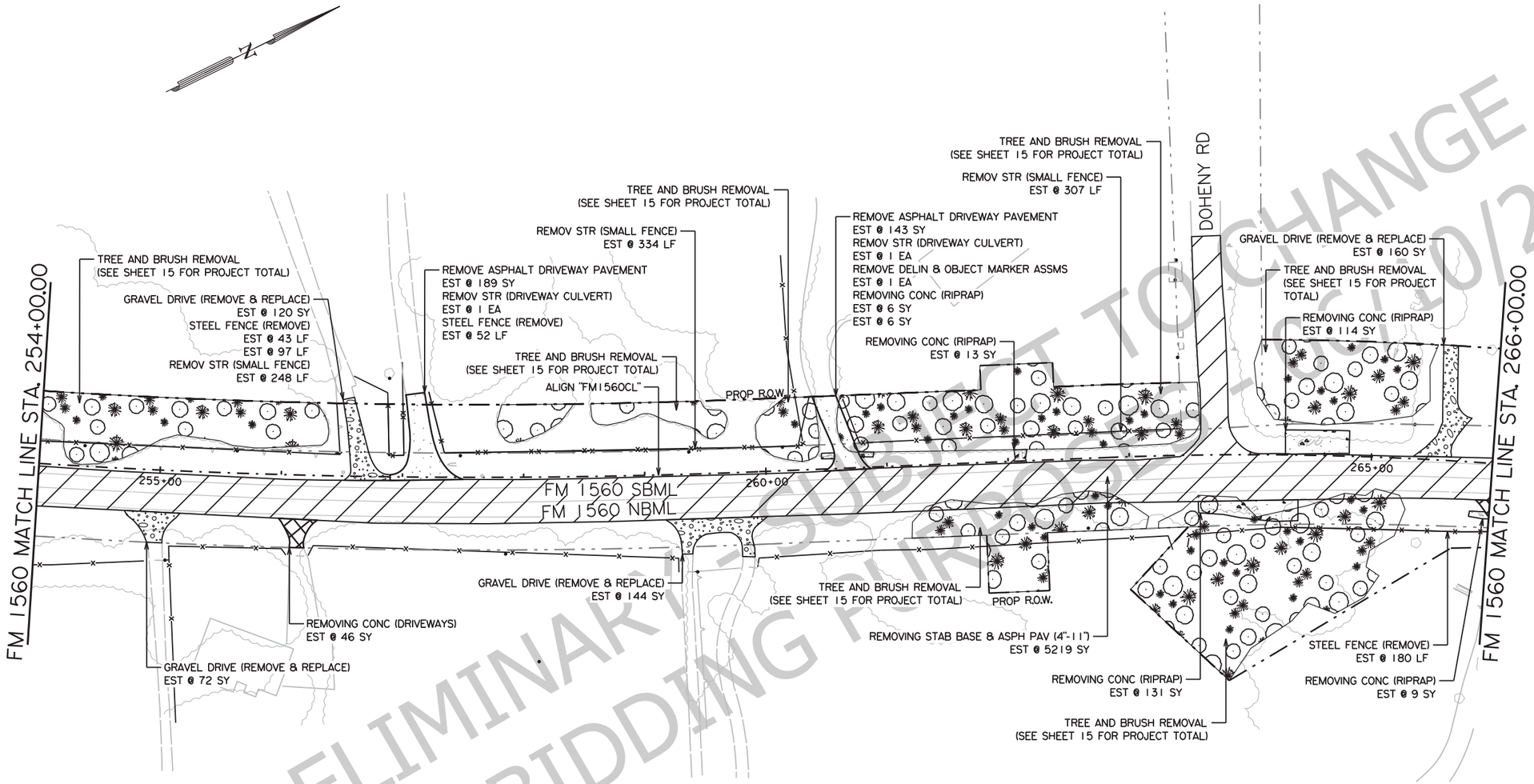
FM 1560 REMOVAL LAYOUT

SHEET 4 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	169
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	14
0104-6009	REMOVING CONC (RIPRAP)	SY	279
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	46
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	5219
0496-6043	REMOV STR (SMALL FENCE)	LF	889
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	2
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	1
5070-6001	STEEL FENCE (REMOVE)	LF	372
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	496
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	332



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
5/28/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 5 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	170
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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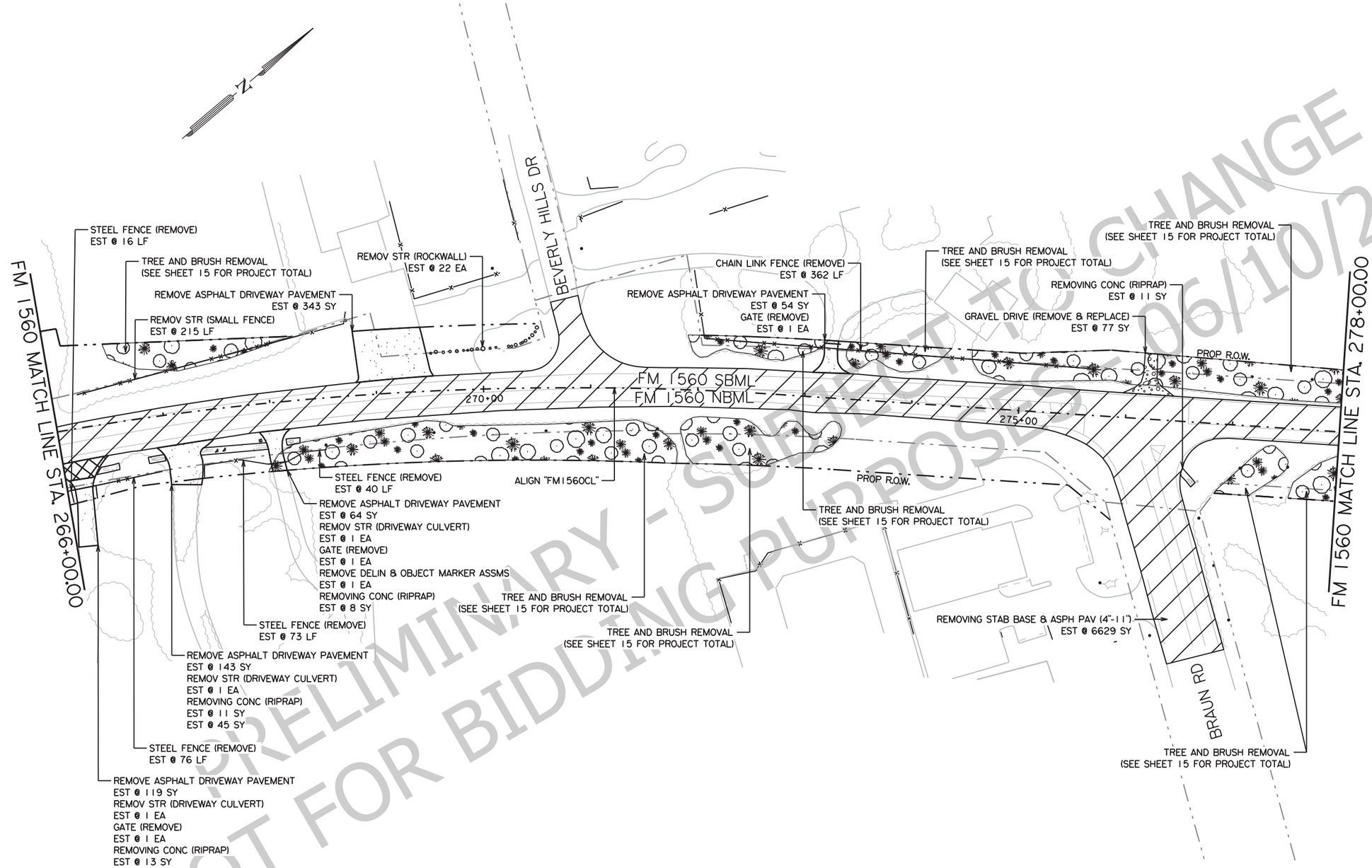

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	14
0104-6009	REMOVING CONC (RIPRAP)	SY	279
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	46
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	5219
0496-6043	REMOV STR (SMALL FENCE)	LF	889
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	2
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	1
5070-6001	STEEL FENCE (REMOVE)	LF	372
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	496
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	332

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 6 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	171
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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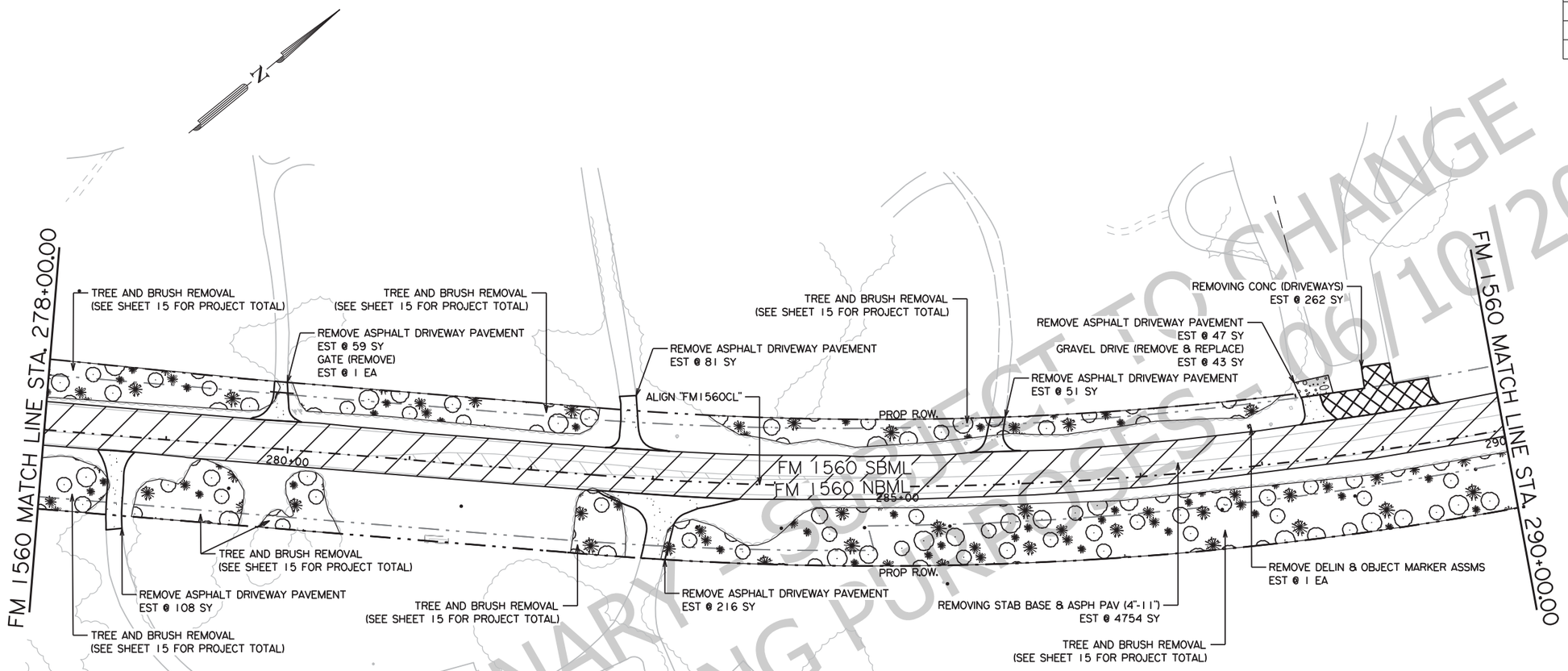
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	262
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	4754
0550-6006	GATE (REMOVE)	EA	1
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	1
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	43
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	562



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

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INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 7 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	172
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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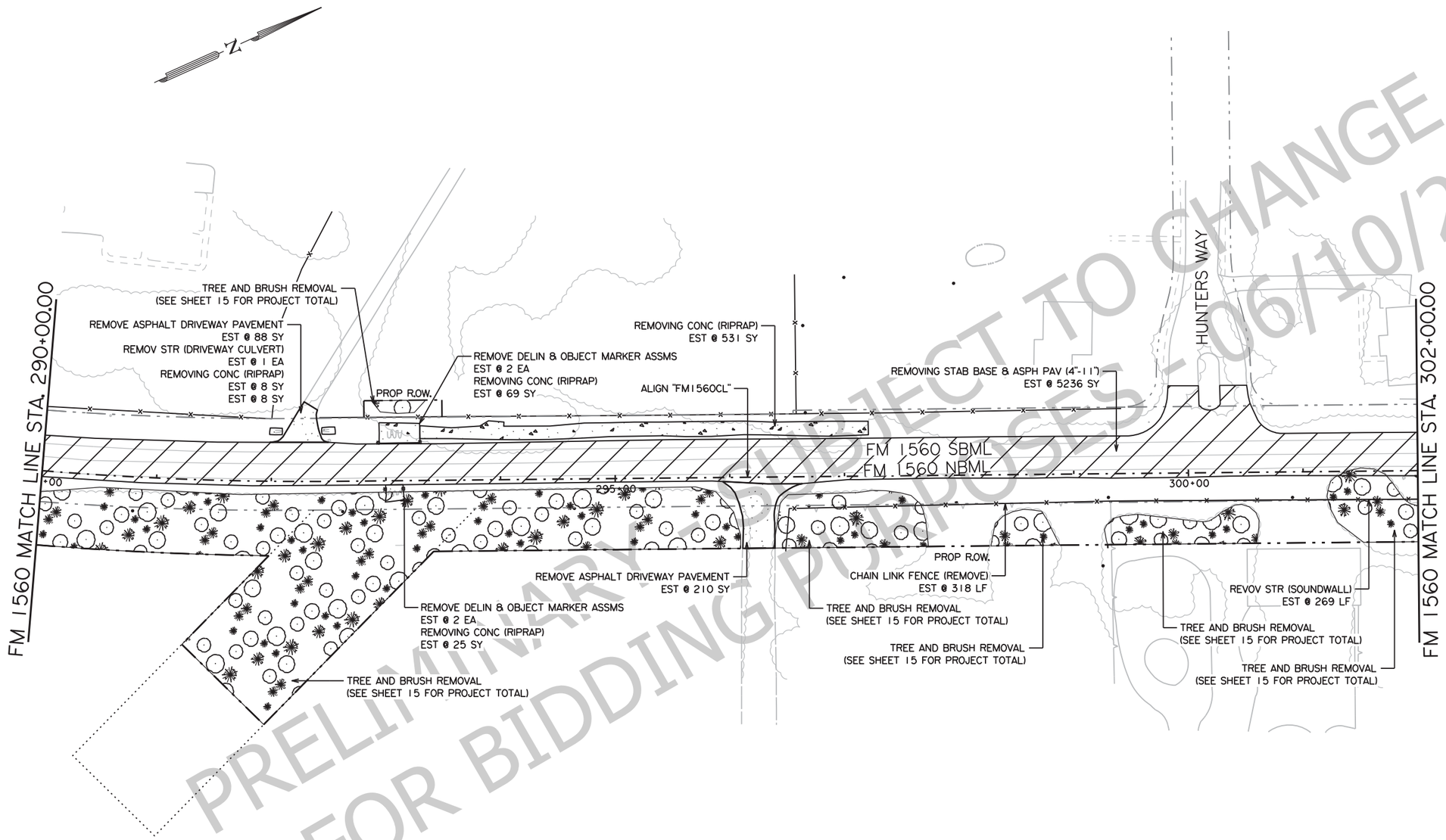
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	641
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	5236
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	1
0496-6107	REMOVE STR (SOUNDWALL)	LF	269
0550-6003	CHAIN LINK FENCE (REMOVE)	LF	318
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	4
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	298



LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

SUBJECT TO CHANGE
PRELIMINARY - 06/10/2020
NOT FOR BIDDING PURPOSES

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 8 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	173
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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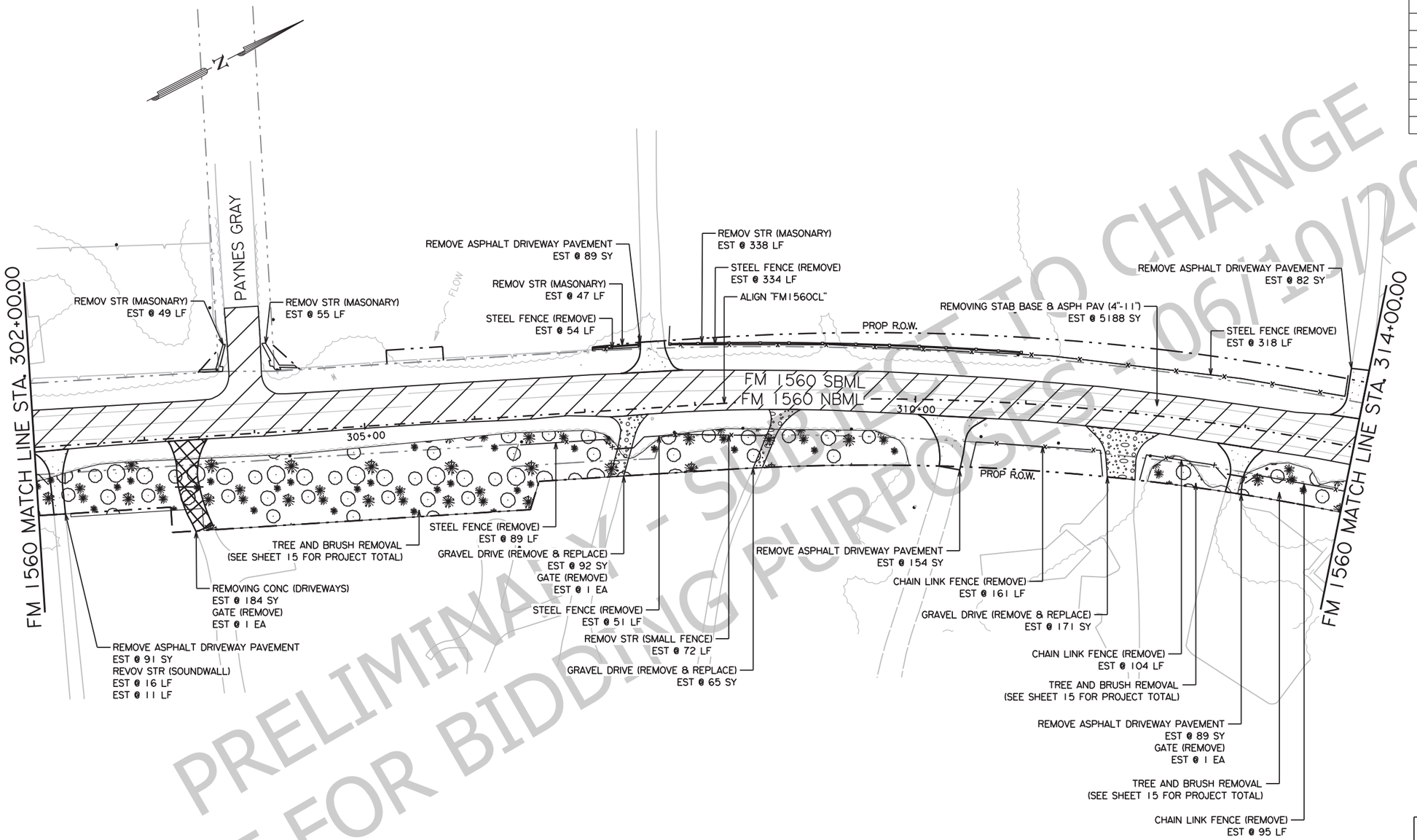
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	184
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	5188
0496-6043	REMOV STR (SMALL FENCE)	LF	72
0496-6093	REMOV STR (MASONARY)	LF	489
0496-6107	REMOVE STR (SOUNDWALL)	LF	27
0550-6003	CHAIN LINK FENCE (REMOVE)	LF	360
0550-6006	GATE (REMOVE)	EA	3
5070-6001	STEEL FENCE (REMOVE)	LF	846
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	328
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	505



LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/19/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 9 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	174
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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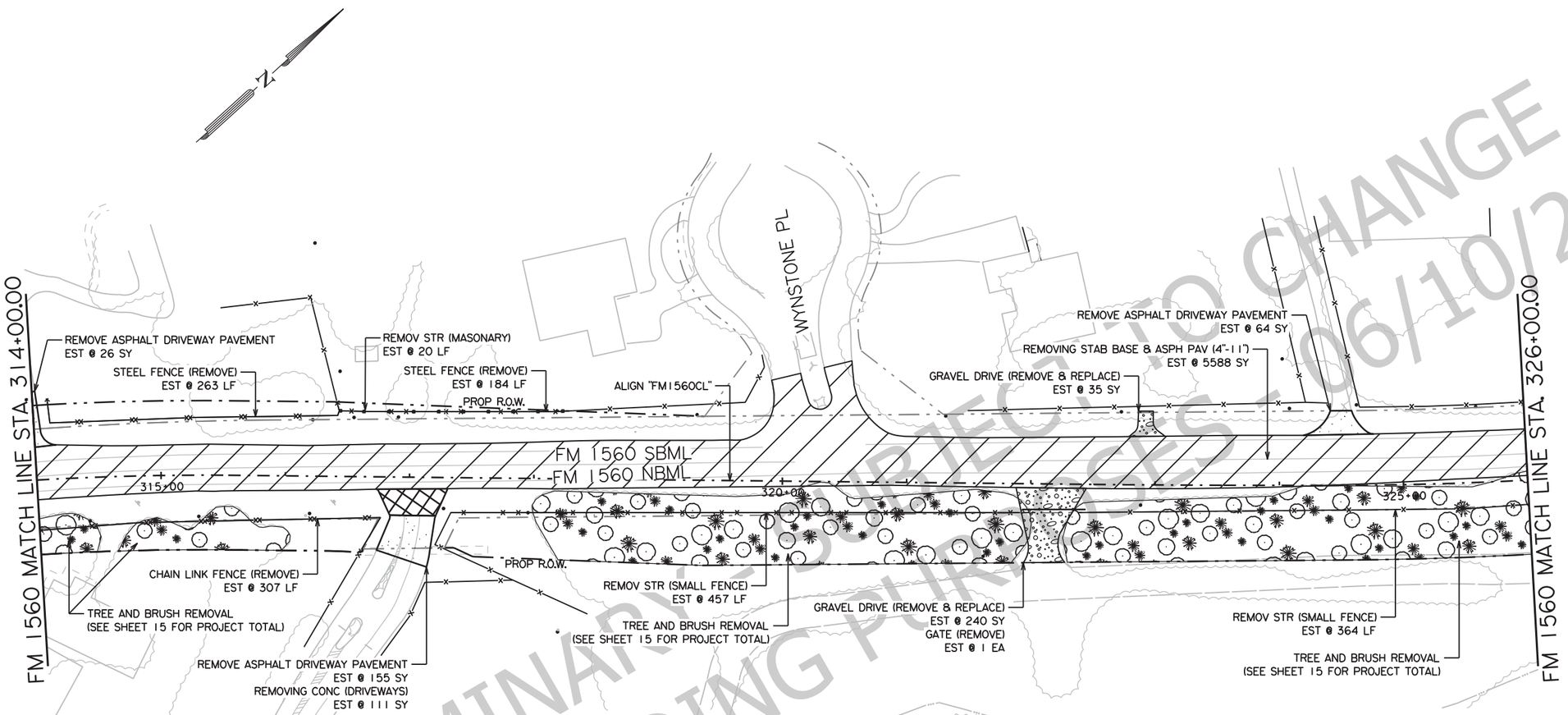
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	111
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	5588
0496-6043	REMOV STR (SMALL FENCE)	LF	821
0496-6093	REMOV STR (MASONARY)	LF	20
0550-6003	CHAIN LINK FENCE (REMOVE)	LF	307
0550-6006	GATE (REMOVE)	EA	1
5070-6001	STEEL FENCE (REMOVE)	LF	447
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	275
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	245



NOTES:

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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 10 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	175
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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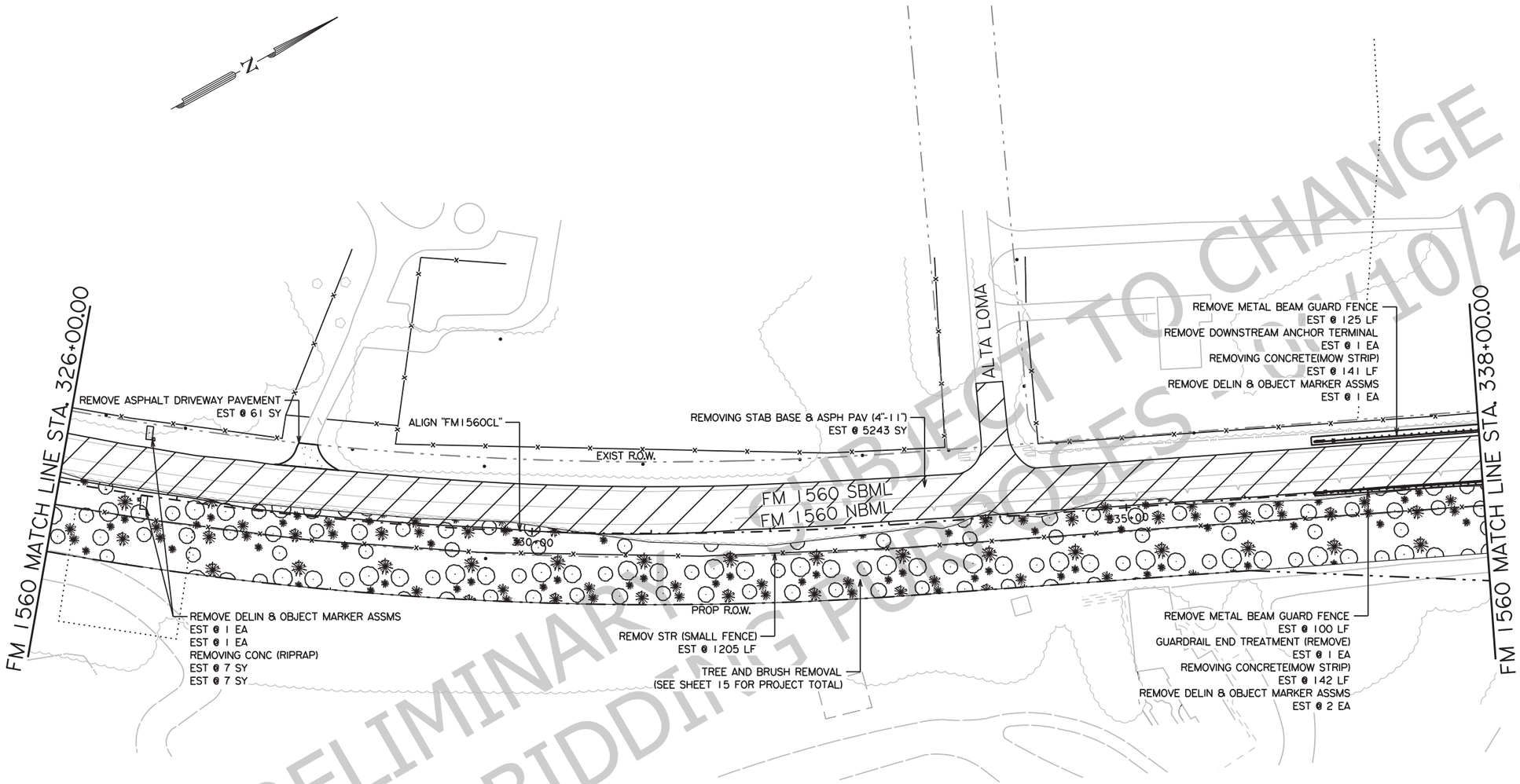
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	14
0104-6054	REMOVING CONCRETE(MOW STRIP)	LF	283
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	5243
0496-6043	REMOV STR (SMALL FENCE)	LF	1205
0542-6001	REMOVE METAL BEAM GUARD FENCE	LF	225
0542-6003	REMOVE DOWNSTREAM ANCHOR TERMINA	EA	1
0544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	1
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	5
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	61



SUBJECT TO CHANGE
PRELIMINARY PLANS - 5/10/2020
NOT FOR BIDDING PURPOSES

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 11 OF 16

DESIGN: JH	DRAFT: JH	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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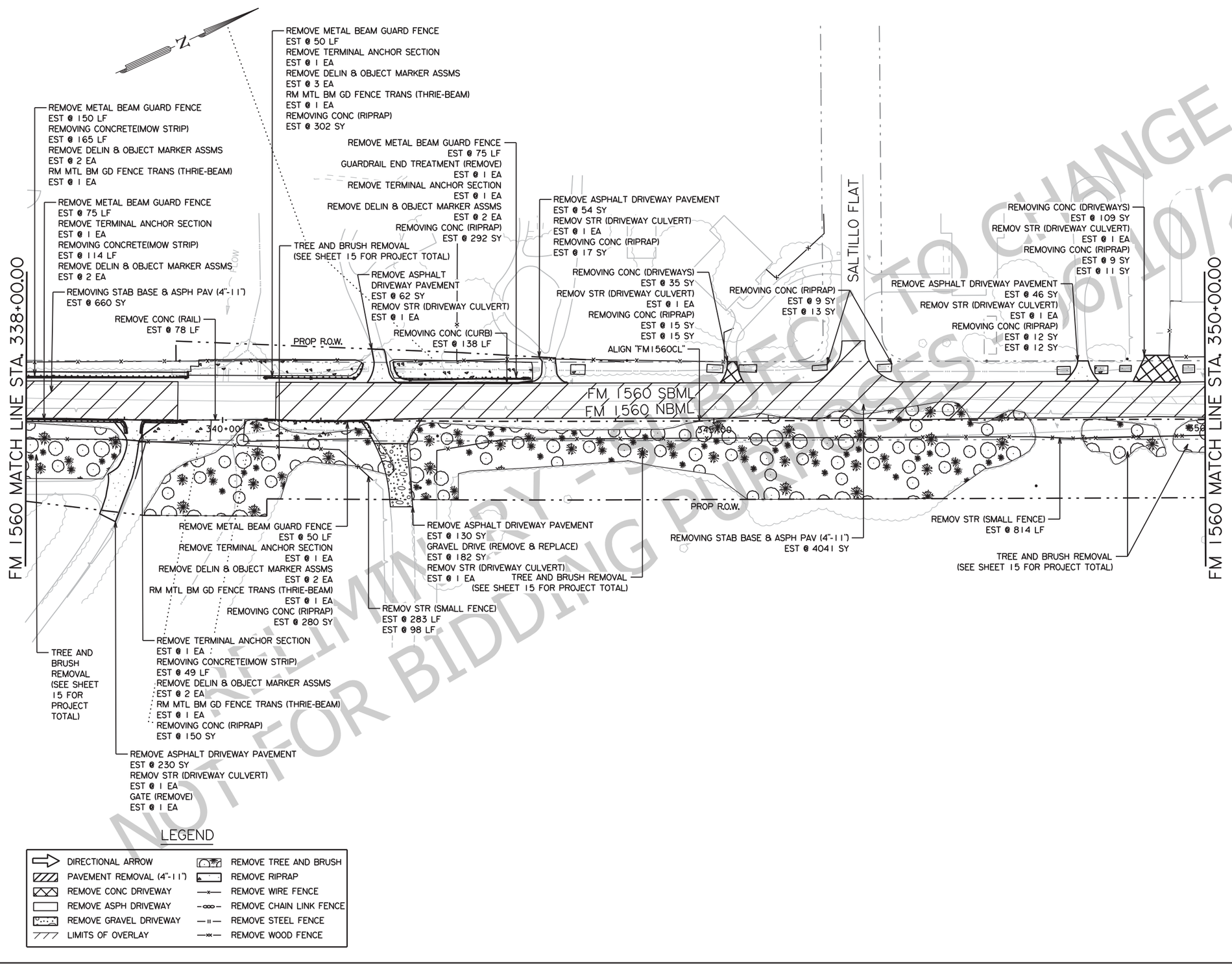

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 6/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	1137
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	144
0104-6021	REMOVING CONC (CURB)	LF	138
0104-6037	REMOVE CONC (RAIL)	LF	78
0104-6054	REMOVING CONCRETE(MOW STRIP)	LF	328
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	4701
0496-6043	REMOV STR (SMALL FENCE)	LF	1195
0496-6050	REMOV STR (DRIVEWAY CULVERT)	EA	7
0542-6001	REMOVE METAL BEAM GUARD FENCE	LF	400
0542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	5
0542-6004	RM MTL BM GD FENCE TRANS (THRIE-BEAM	EA	4
0544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	1
0550-6006	GATE (REMOVE)	EA	1
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	13
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	182
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	522

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 12 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	177
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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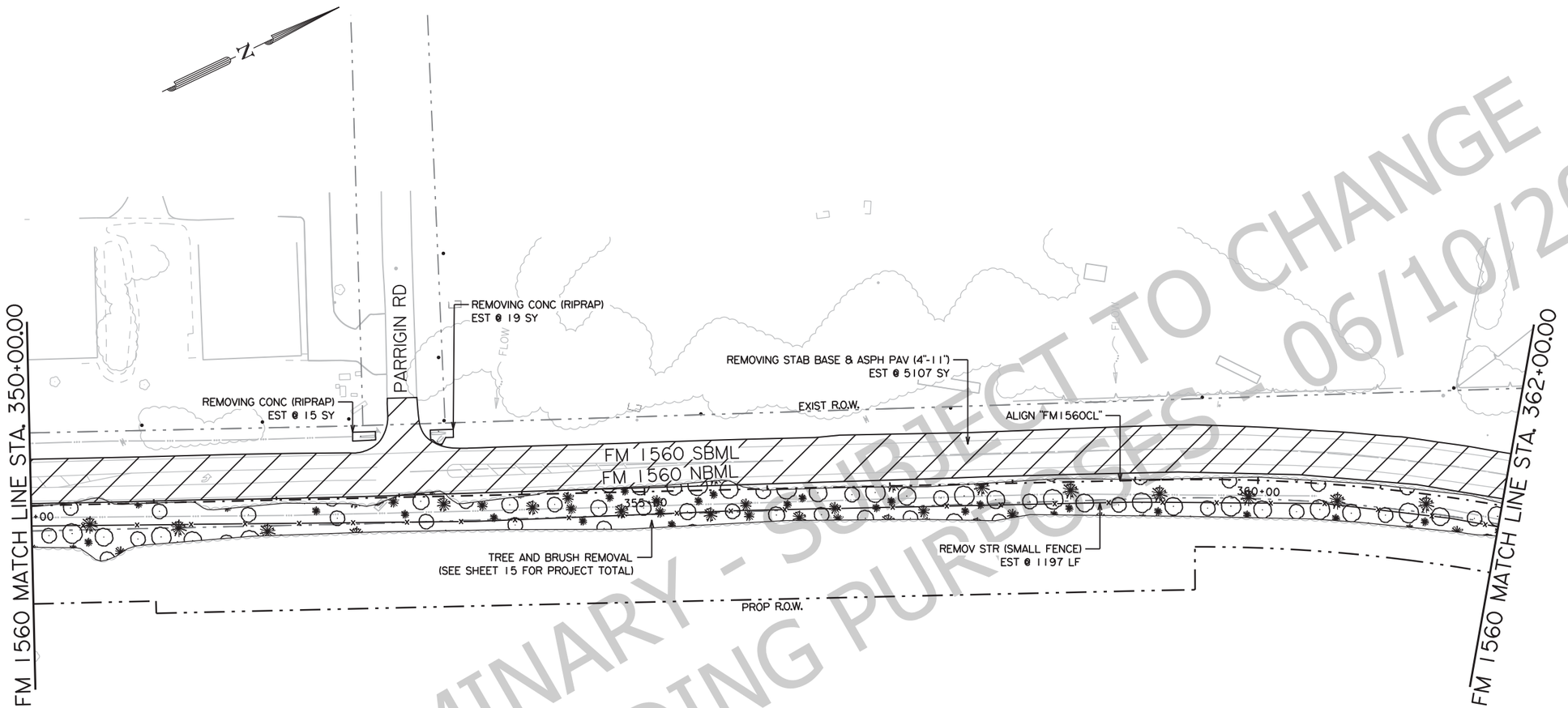
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0104-6009	REMOVING CONC (RIPRAP)	SY	34
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	5107
0496-6043	REMOV STR (SMALL FENCE)	LF	1197



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 13 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	178
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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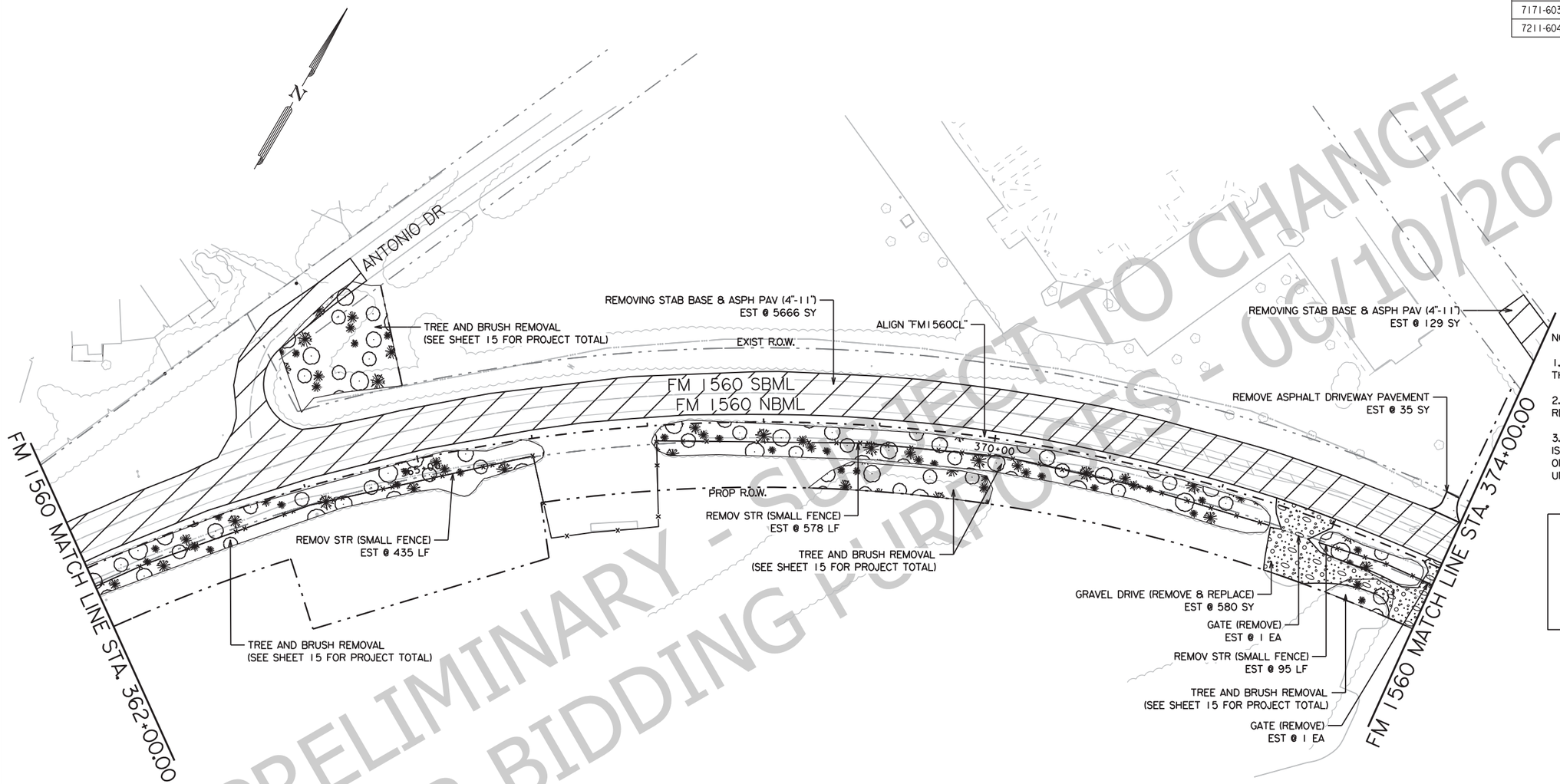
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	12
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11")	SY	5795
0496-6043	REMOV STR (SMALL FENCE)	LF	1108
0550-6006	GATE (REMOVE)	EA	2
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	580
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	35



NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 5/28/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 14 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	179
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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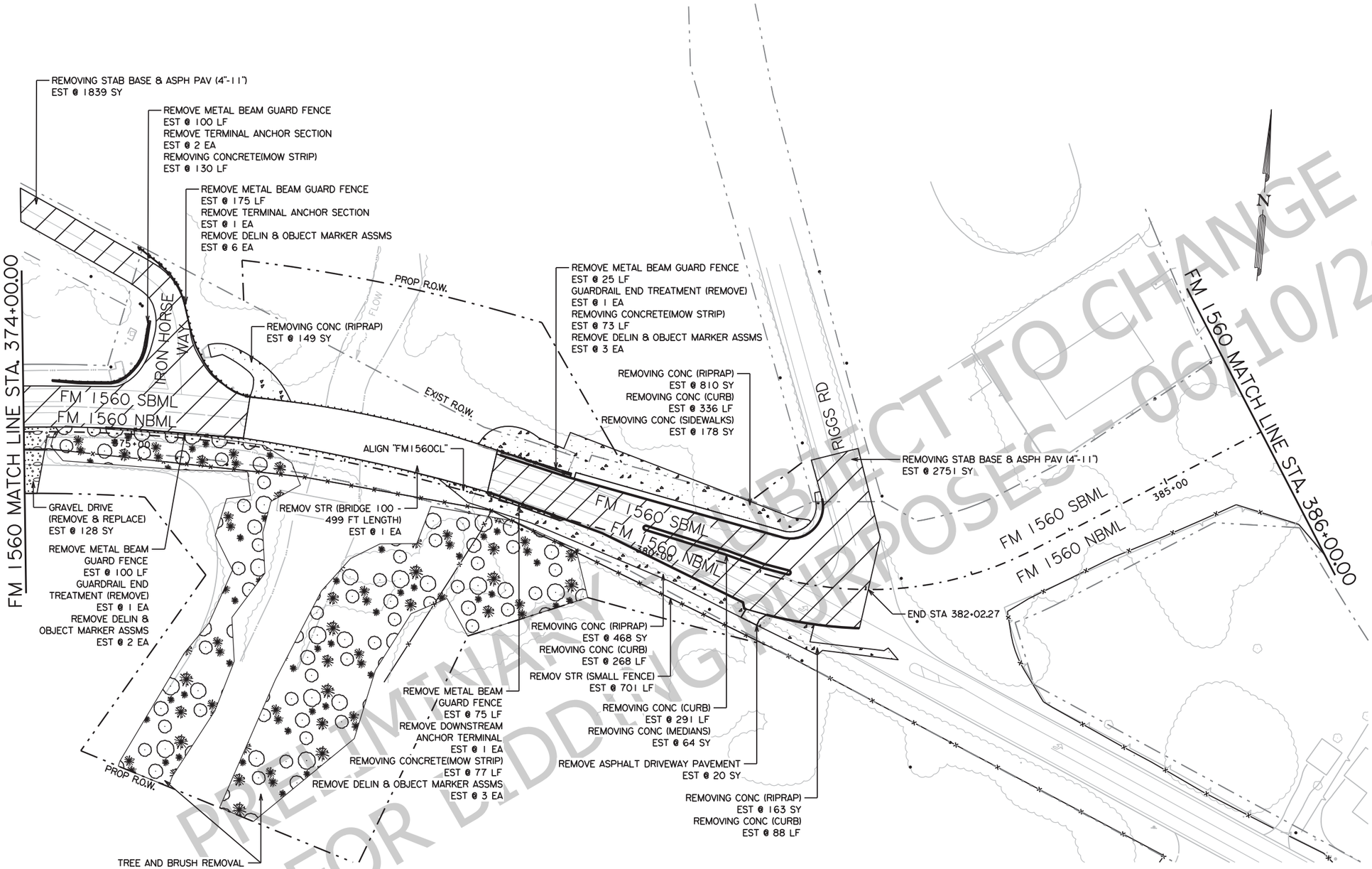

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0100-6002	PREPARING ROW	STA	7
0104-6009	REMOVING CONC (RIPRAP)	SY	1590
0104-6011	REMOVING CONC (MEDIANS)	SY	64
0104-6015	REMOVING CONC (SIDEWALKS)	SY	178
0104-6021	REMOVING CONC (CURB)	LF	983
0104-6054	REMOVING CONCRETE(MOW STRIP)	LF	280
0105-6048	REMOVING STAB BASE & ASPH PAV (4"-11"	SY	4590
0496-6010	REMOV STR (BRIDGE 100 - 499 FT LENGTH	EA	1
0496-6043	REMOV STR (SMALL FENCE)	LF	701
0542-6001	REMOVE METAL BEAM GUARD FENCE	LF	475
0542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	3
0542-6003	REMOVE DOWNSTREAM ANCHOR TERMINA	EA	1
0544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	2
0658-6060	REMOVE DELIN & OBJECT MARKER ASSM	EA	14
0752-6015	TREE AND BRUSH REMOVAL	AC	17
7171-6031	GRAVEL DRIVE (REMOVE & REPLACE)	SY	128
7211-6041	REMOVE ASPHALT DRIVEWAY PAVEMENT	SY	20

NOTES:

1. "TREE AND BRUSH REMOVAL" TOTAL FOR THE ENTIRE PROJECT IN ACRES ON SHEET 15.

2. "REMOV STR (SMALL FENCE)" REPRESENTS REMOVAL OF WIRE AND/OR BARB WIRE FENCES.

3. THE ITEM "GRAVEL DRIVE (REMOVE & REPLACE)" IS PAYMENT FOR THE REMOVAL OF THE DRIVEWAY ONLY. PROPOSED DRIVEWAYS WILL BE PAID FOR UNDER "530-6004" ON THE DRIVEWAY LAYOUTS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 5/28/2020

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

SCALE: 1"=100'

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FM 1560 REMOVAL LAYOUT

SHEET 15 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	180
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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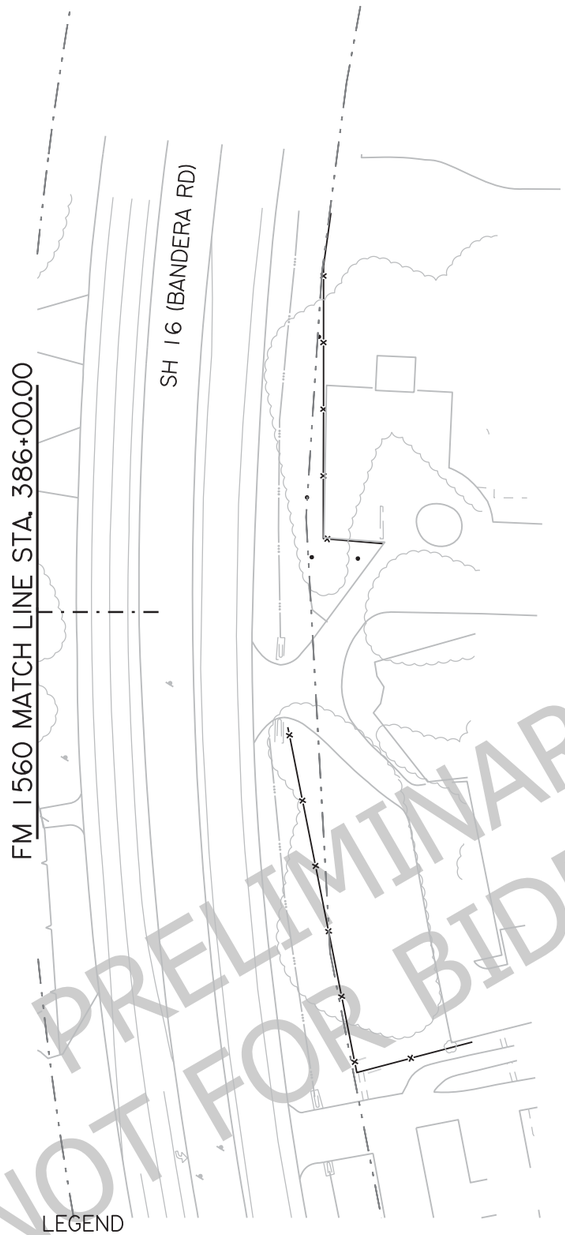

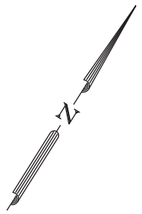

LEGEND

DIRECTIONAL ARROW	REMOVE TREE AND BRUSH
PAVEMENT REMOVAL (4"-11")	REMOVE RIPRAP
REMOVE CONC DRIVEWAY	REMOVE WIRE FENCE
REMOVE ASPH DRIVEWAY	REMOVE CHAIN LINK FENCE
REMOVE GRAVEL DRIVEWAY	REMOVE STEEL FENCE
LIMITS OF OVERLAY	REMOVE WOOD FENCE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 5/28/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560 REMOVAL LAYOUT

SHEET 16 OF 16

DESIGN: JH	DRAFT: JH	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	181
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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Beginning chain FM1560CL description
Feature: Road_Centerline

Curve Data

Curve FM1560CL_15
P.I. Station 194+27.94 N 13,740,098.5669 E 2,058,578.3037
Delta = 30° 00' 00.00" (LT)
Degree = 2° 01' 02.85"
Tangent = 760.9757
Length = 1,487.0205
Radius = 2,840.0000
External = 100.1844
Long Chord = 1,470.0922
Mid. Ord. = 96.7707
P.C. Station 186+66.97 N 13,739,403.0775 E 2,058,269.4697
P.T. Station 201+53.99 N 13,740,855.2955 E 2,058,498.0170
C.C. N 13,740,555.6616 E 2,055,673.8677
Back = N 23° 56' 37.48" E
Ahead = N 6° 03' 22.52" W
Chord Bear = N 8° 56' 37.48" E

Course from PT FM1560CL_15 to PC FM1560CL_18 N 6° 03' 22.52" W Dist 525.5489

Curve Data

Curve FM1560CL_18
P.I. Station 214+63.77 N 13,742,157.7669 E 2,058,359.8287
Delta = 30° 04' 00.00" (RT)
Degree = 1° 57' 43.86"
Tangent = 784.2327
Length = 1,532.3060
Radius = 2,920.0000
External = 103.4783
Long Chord = 1,514.7848
Mid. Ord. = 99.9367
P.C. Station 206+79.53 N 13,741,377.9112 E 2,058,442.5691
P.T. Station 222+11.84 N 13,742,874.1411 E 2,058,678.9350
C.C. N 13,741,685.9855 E 2,061,346.2719
Back = N 6° 03' 22.52" W
Ahead = N 24° 00' 37.48" E
Chord Bear = N 8° 58' 37.48" E

Course from PT FM1560CL_18 to PC FM1560CL_21 N 24° 00' 37.48" E Dist 1,112.4757

Curve Data

Curve FM1560CL_21
P.I. Station 237+31.38 N 13,744,262.1971 E 2,059,297.2396
Delta = 7° 11' 20.47" (RT)
Degree = 0° 53' 03.10"
Tangent = 407.0637
Length = 813.0590
Radius = 6,480.0000
External = 12.7730
Long Chord = 812.5258
Mid. Ord. = 12.7478
P.C. Station 233+24.32 N 13,743,890.3560 E 2,059,131.6043
P.T. Station 241+37.38 N 13,744,610.3870 E 2,059,508.1061
C.C. N 13,741,253.6271 E 2,065,050.8999
Back = N 24° 00' 37.48" E
Ahead = N 31° 11' 57.95" E
Chord Bear = N 27° 36' 17.71" E

Course from PT FM1560CL_21 to PC FM1560CL_24 N 31° 11' 57.95" E Dist 1,133.9324

Curve Data

Curve FM1560CL_24
P.I. Station 256+33.34 N 13,745,889.9863 E 2,060,283.0416
Delta = 7° 15' 20.47" (LT)
Degree = 1° 00' 12.34"
Tangent = 362.0286
Length = 723.0894
Radius = 5,710.0000
External = 11.4653
Long Chord = 722.6063
Mid. Ord. = 11.4423
P.C. Station 252+71.31 N 13,745,580.3180 E 2,060,095.5040
P.T. Station 259+94.40 N 13,746,220.8603 E 2,060,429.9671
C.C. N 13,748,538.2037 E 2,055,211.3447
Back = N 31° 11' 57.95" E
Ahead = N 23° 56' 37.48" E
Chord Bear = N 27° 34' 17.71" E

Course from PT FM1560CL_24 to PC FM1560CL_27 N 23° 56' 37.48" E Dist 286.7893

Curve Data

Curve FM1560CL_27
P.I. Station 267+81.96 N 13,746,940.6445 E 2,060,749.5892
Delta = 20° 00' 00.00" (RT)
Degree = 2° 01' 02.85"
Tangent = 500.7686
Length = 991.3470
Radius = 2,840.0000
External = 43.8116
Long Chord = 986.3216
Mid. Ord. = 43.1460
P.C. Station 262+81.19 N 13,746,482.9698 E 2,060,546.3575
P.T. Station 272+72.53 N 13,747,301.2086 E 2,061,097.0984
C.C. N 13,745,330.3857 E 2,063,141.9595
Back = N 23° 56' 37.48" E
Ahead = N 43° 56' 37.48" E
Chord Bear = N 33° 56' 37.48" E

Course from PT FM1560CL_27 to PC FM1560CL_30 N 43° 56' 37.48" E Dist 979.5422

Curve Data

Curve FM1560CL_30
P.I. Station 287+60.51 N 13,748,372.5867 E 2,062,129.6852
Delta = 20° 18' 00.00" (LT)
Degree = 2° 01' 02.85"
Tangent = 508.4384
Length = 1,006.2172
Radius = 2,840.0000
External = 45.1533
Long Chord = 1,000.9625
Mid. Ord. = 44.4467
P.C. Station 282+52.08 N 13,748,006.5001 E 2,061,776.8534
P.T. Station 292+58.29 N 13,748,838.3452 E 2,062,333.5937
C.C. N 13,749,977.3230 E 2,059,731.9923
Back = N 43° 56' 37.48" E
Ahead = N 23° 38' 37.48" E
Chord Bear = N 33° 47' 37.48" E

Course from PT FM1560CL_30 to PC FM1560CL_33 N 23° 38' 37.48" E Dist 1,561.1107

Curve Data

Curve FM1560CL_33
P.I. Station 311+90.15 N 13,750,608.0376 E 2,063,108.3628
Delta = 19° 07' 53.13" (RT)
Degree = 2° 36' 15.67"
Tangent = 370.7481
Length = 734.5940
Radius = 2,200.0000
External = 31.0209
Long Chord = 731.1861
Mid. Ord. = 30.5895
P.C. Station 308+19.40 N 13,750,268.4113 E 2,062,959.6748
P.T. Station 315+54.00 N 13,750,880.1757 E 2,063,360.1464
C.C. N 13,749,386.1045 E 2,064,974.9998
Back = N 23° 38' 37.48" E
Ahead = N 42° 46' 30.61" E
Chord Bear = N 33° 12' 34.04" E

Course from PT FM1560CL_33 to PC FM1560CL_36 N 42° 46' 30.61" E Dist 696.3380

Curve Data

Curve FM1560CL_36
P.I. Station 323+02.70 N 13,751,429.7383 E 2,063,868.6048
Delta = 0° 30' 00.00" (LT)
Degree = 0° 28' 38.87"
Tangent = 52.3602
Length = 104.7197
Radius = 12,000.0000
External = 0.1142
Long Chord = 104.7194
Mid. Ord. = 0.1142
P.C. Station 322+50.34 N 13,751,391.3046 E 2,063,833.0457
P.T. Station 323+55.06 N 13,751,468.4808 E 2,063,903.8270
C.C. N 13,759,540.7836 E 2,055,024.7546
Back = N 42° 46' 30.61" E
Ahead = N 42° 16' 30.61" E
Chord Bear = N 42° 31' 30.61" E

Course from PT FM1560CL_36 to PC FM1560CL_39 N 42° 16' 30.61" E Dist 82.9434

Curve Data

Curve FM1560CL_39
P.I. Station 328+75.84 N 13,751,853.8205 E 2,064,254.1541
Delta = 17° 31' 42.53" (LT)
Degree = 2° 01' 02.85"
Tangent = 437.8404
Length = 868.8403
Radius = 2,840.0000
External = 33.5525
Long Chord = 865.4560
Mid. Ord. = 33.1608
P.C. Station 324+38.00 N 13,751,529.8525 E 2,063,959.6224
P.T. Station 333+06.84 N 13,752,251.4529 E 2,064,437.4372
C.C. N 13,753,440.2975 E 2,061,858.2419
Back = N 42° 16' 30.61" E
Ahead = N 24° 44' 48.08" E
Chord Bear = N 33° 30' 39.34" E

Course from PT FM1560CL_39 to PC FM1560CL_42 N 24° 44' 48.08" E Dist 927.4660

Curve Data

Curve FM1560CL_42
P.I. Station 343+21.57 N 13,753,173.0003 E 2,064,862.2118
Delta = 0° 30' 00.00" (LT)
Degree = 0° 17' 11.32"
Tangent = 87.2670
Length = 174.5329
Radius = 20,000.0000
External = 0.1904
Long Chord = 174.5324
Mid. Ord. = 0.1904
P.C. Station 342+34.30 N 13,753,093.7472 E 2,064,825.6812
P.T. Station 344+08.84 N 13,753,252.5691 E 2,064,898.0494
C.C. N 13,761,465.8924 E 2,046,662.3339
Back = N 24° 44' 48.08" E
Ahead = N 24° 14' 48.08" E
Chord Bear = N 24° 29' 48.08" E

Course from PT FM1560CL_42 to PC FM1560CL_45 N 24° 14' 48.08" E Dist 1,512.4836

Curve Data

Curve FM1560CL_45
P.I. Station 370+30.25 N 13,755,642.7379 E 2,065,974.5758
Delta = 76° 22' 06.26" (RT)
Degree = 4° 03' 48.71"
Tangent = 1,108.9312
Length = 1,879.3610
Radius = 1,410.0000
External = 383.8307
Long Chord = 1,743.3006
Mid. Ord. = 301.7014
P.C. Station 359+21.32 N 13,754,631.6301 E 2,065,519.1753
P.T. Station 378+00.68 N 13,755,438.4613 E 2,067,064.5298
C.C. N 13,754,052.5908 E 2,066,804.7932
Back = N 24° 14' 48.08" E
Ahead = S 79° 23' 05.66" E
Chord Bear = N 62° 25' 51.21" E

Course from PT FM1560CL_45 to PC FM1560CL_48 S 79° 23' 05.66" E Dist 312.3957

Curve Data

Curve FM1560CL_48
P.I. Station 382+43.73 N 13,755,356.8469 E 2,067,499.9979
Delta = 42° 50' 44.36" (LT)
Degree = 17° 12' 21.38"
Tangent = 130.6543
Length = 249.0167
Radius = 333.0000
External = 24.7144
Long Chord = 243.2550
Mid. Ord. = 23.0068
P.C. Station 381+13.08 N 13,755,380.9148 E 2,067,371.5794
P.T. Station 383+62.09 N 13,755,426.5285 E 2,067,610.5195
C.C. N 13,755,708.2161 E 2,067,432.9215
Back = S 79° 23' 05.66" E
Ahead = N 57° 46' 09.98" E
Chord Bear = N 79° 11' 32.16" E

Course from PT FM1560CL_48 to 5 N 57° 46' 09.98" E Dist 321.6745

Point 5 N 13,755,598.0863 E 2,067,882.6269 Sta 386+83.77

Ending chain FM1560CL description

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/3/2020

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FM 1560
HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	182

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

SUBJECT TO CHANGE
PROPOSED 06/10/2020
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES

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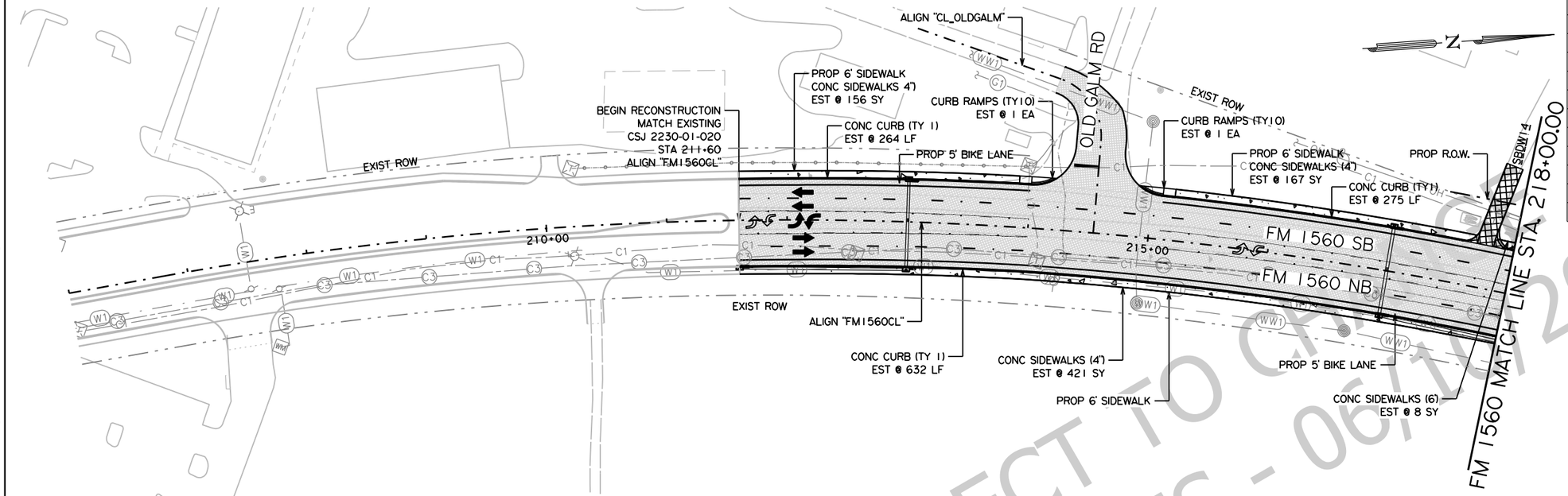
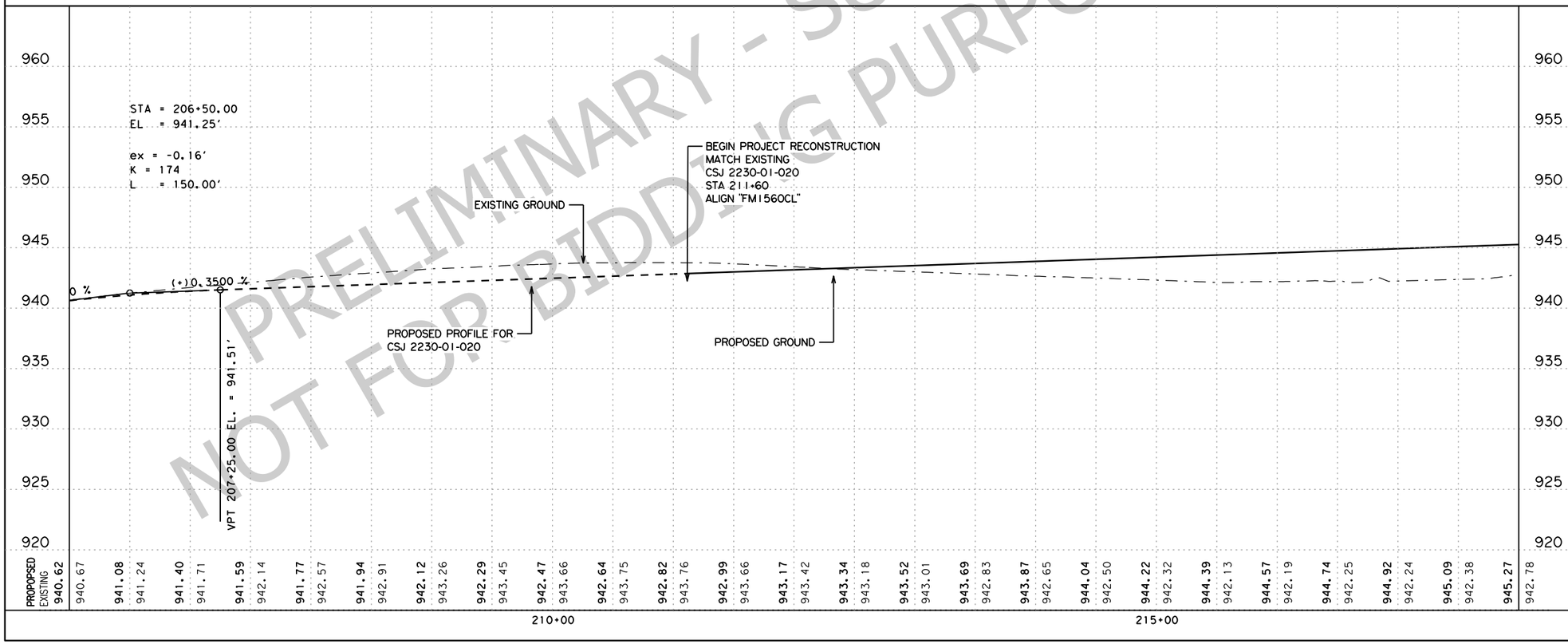


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	5913
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	5913
0260-6027	LIME TRT (EXST MATL)(8")	SY	5913
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	5913
0341-6008	D-GR HMA TY-B PG64-22	SY	5835
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	45596
0529-6001	CONC CURB (TY 1)	LF	1171
0530-6004	DRIVEWAYS (CONC)	SY	116
0531-6001	CONC SIDEWALKS (4")	SY	751
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	6072

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/09/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 1 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	183
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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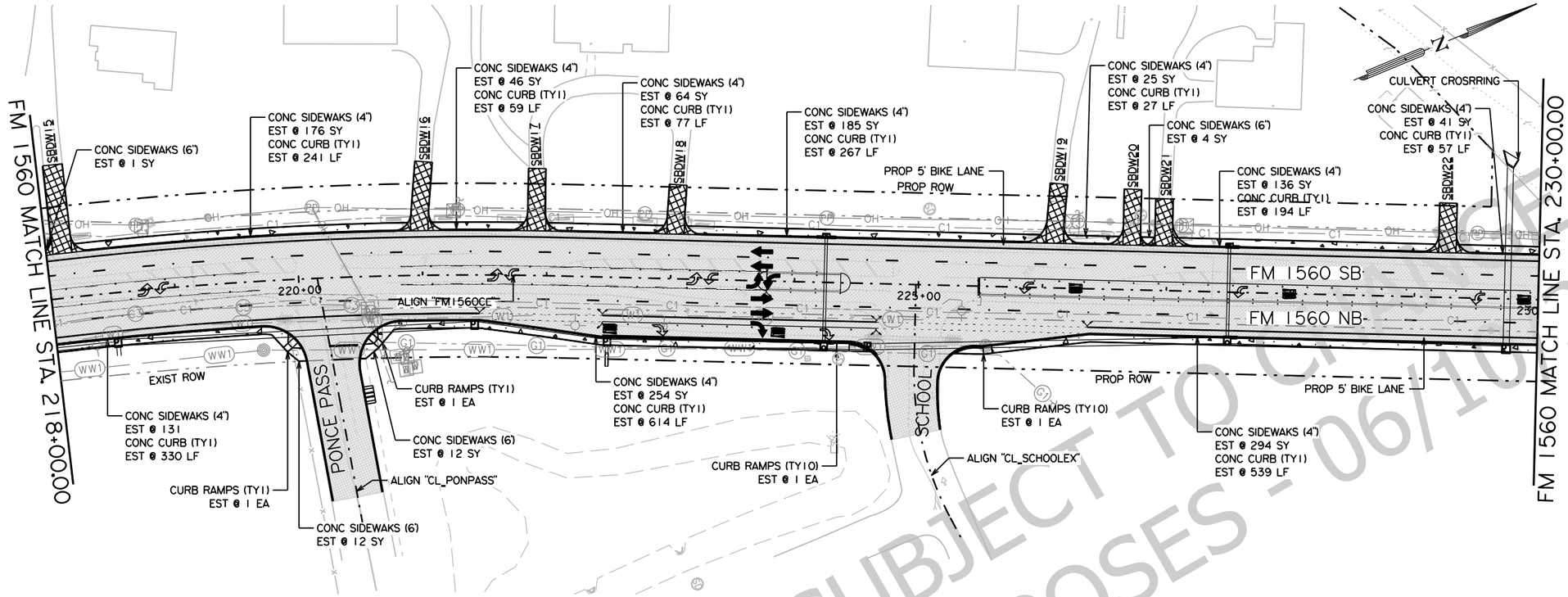
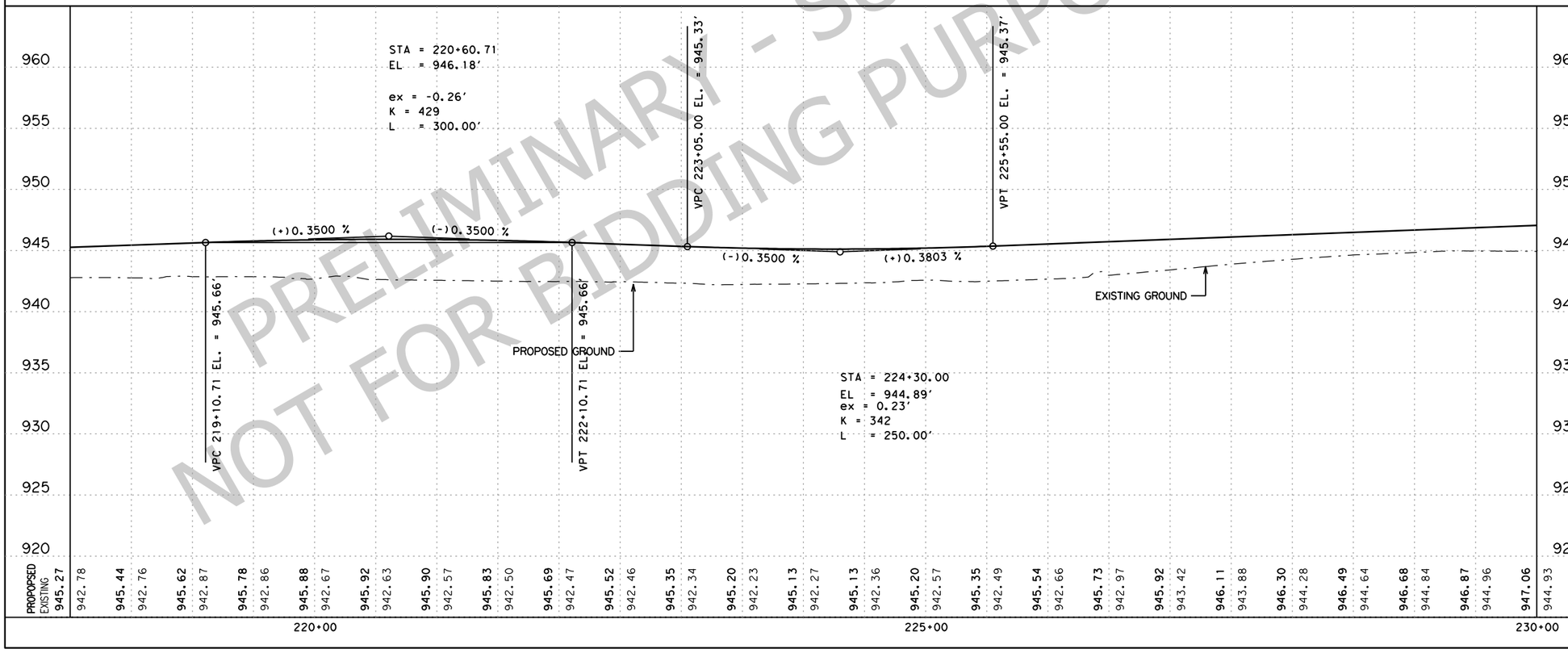


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	11802
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	11802
0260-6027	LIME TRT (EXST MATL)(8")	SY	11802
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	11802
0341-6008	D-GR HMA TY-B PG64-22	SY	11653
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	11205
0529-6001	CONC CURB (TY I)	LF	2405
0530-6004	DRIVEWAYS (CONC)	SY	704
0531-6001	CONC SIDEWALKS (4")	SY	1380
0531-6004	CURB RAMPS (TY I)	EA	2
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	12101

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 2 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	184
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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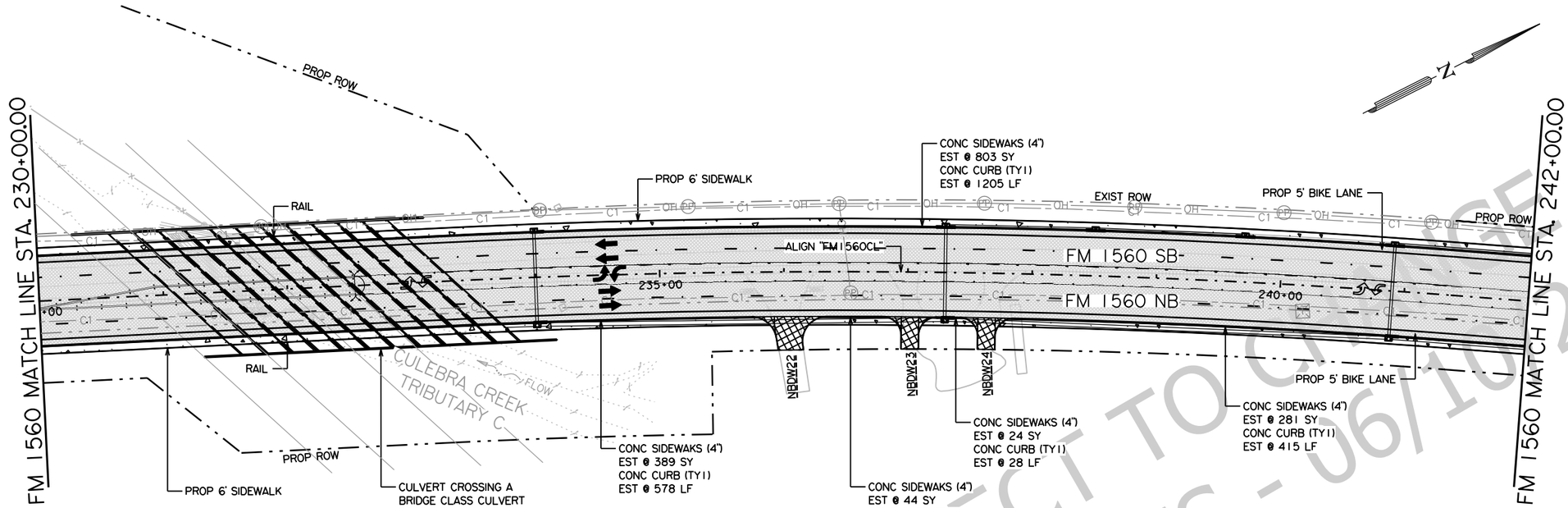
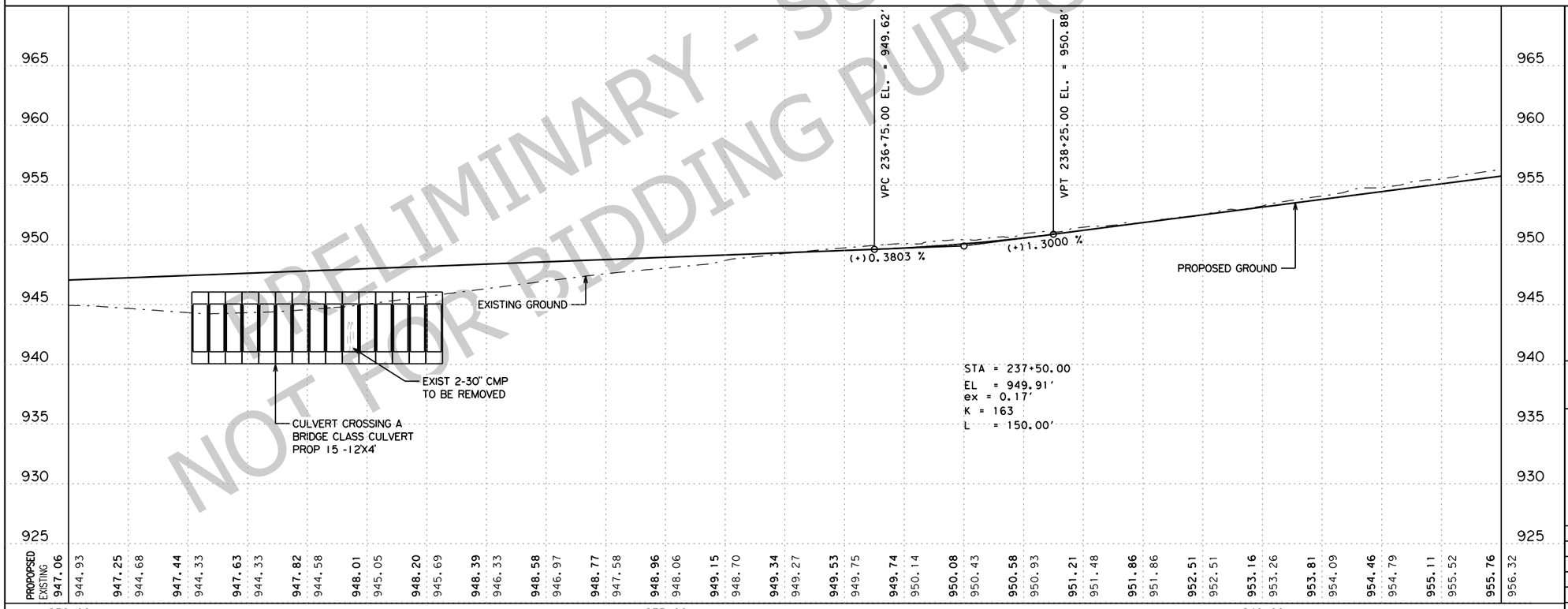


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2)(6")	SY	10134
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10134
0260-6027	LIME TRT (EXST MATL)(8")	SY	10134
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10134
0341-6008	D-GR HMA TY-B PG64-22	SY	10000
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9600
0529-6001	CONC CURB (TY I)	LF	2281
0530-6004	DRIVEWAYS (CONC)	SY	183
0531-6001	CONC SIDEWALKS (4")	SY	1542
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10400

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE

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PLAN AND PROFILE LAYOUT

SHEET 3 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	185
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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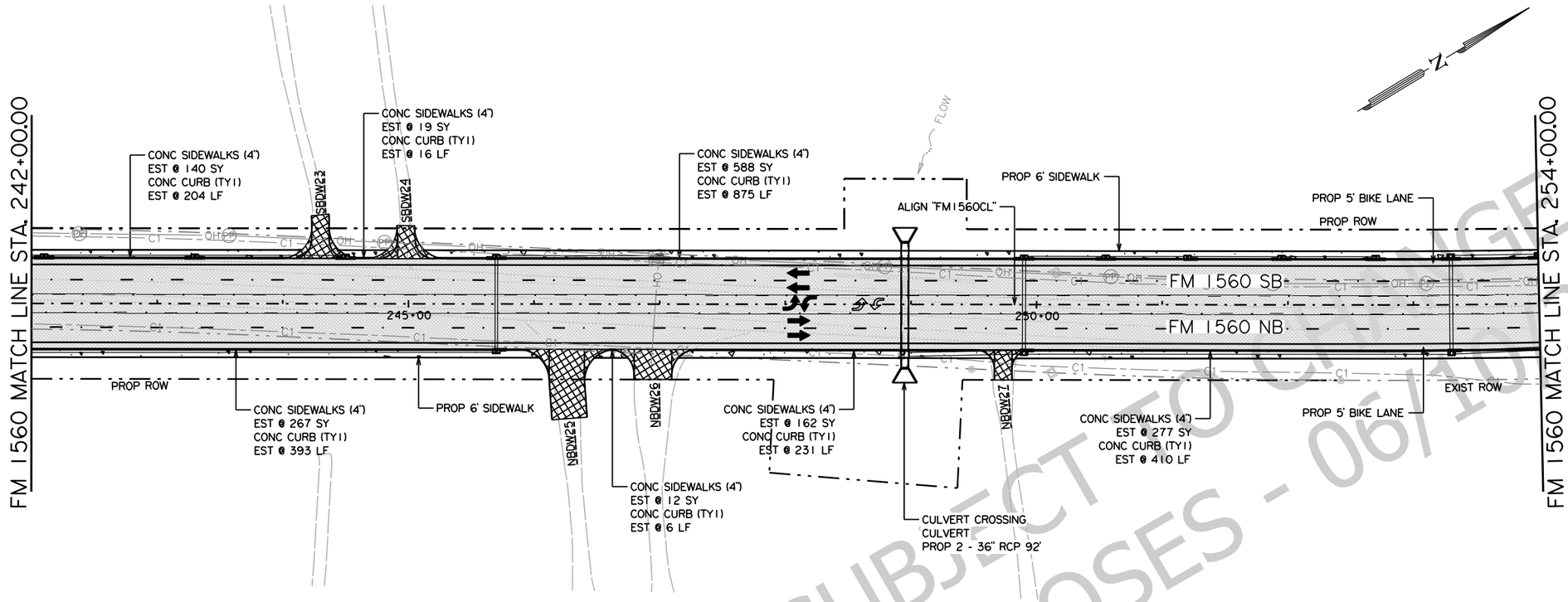
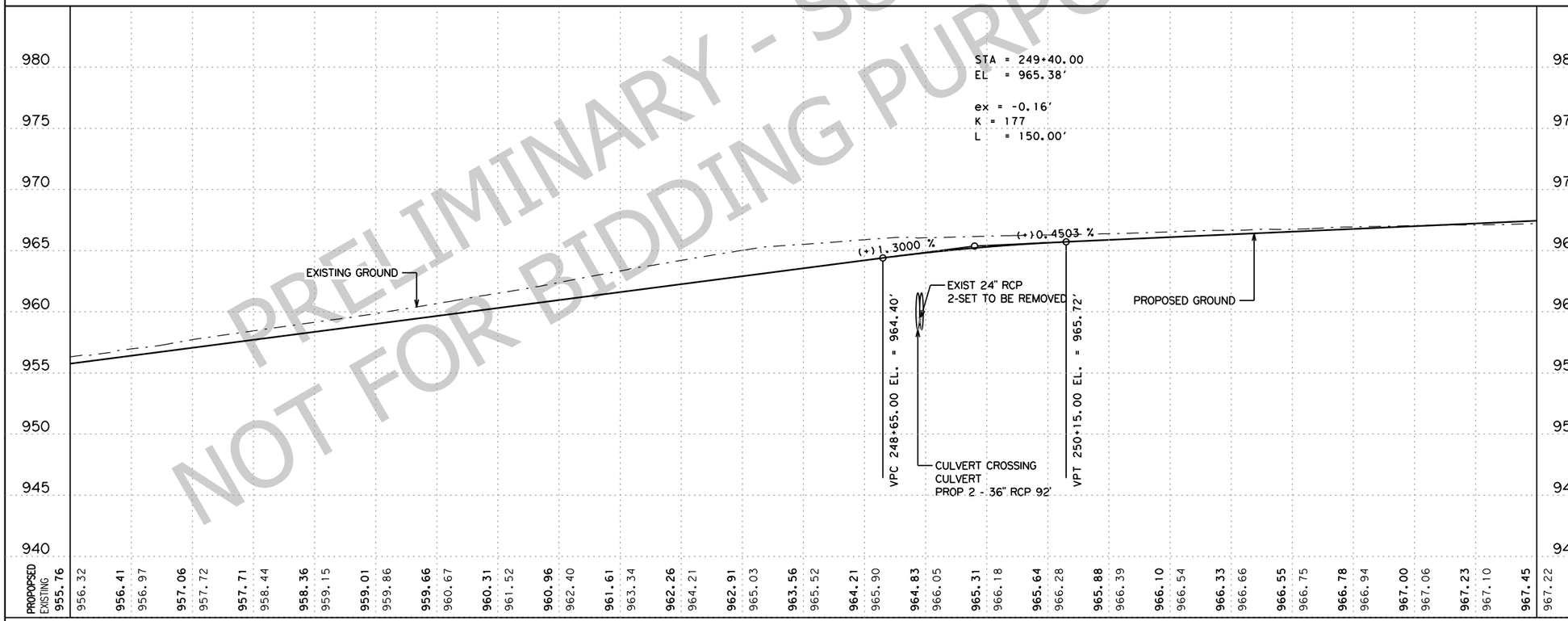
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10134
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10134
0260-6027	LIME TRT (EXST MATL)(8")	SY	10134
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10134
0341-6008	D-GR HMA TY-B PG64-22	SY	10000
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9600
0529-6001	CONC CURB (TY I)	LF	2135
0530-6004	DRIVEWAYS (CONC)	SY	504
0531-6001	CONC SIDEWALKS (4")	SY	1465
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10400



PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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PLAN AND PROFILE LAYOUT

SHEET 4 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	186
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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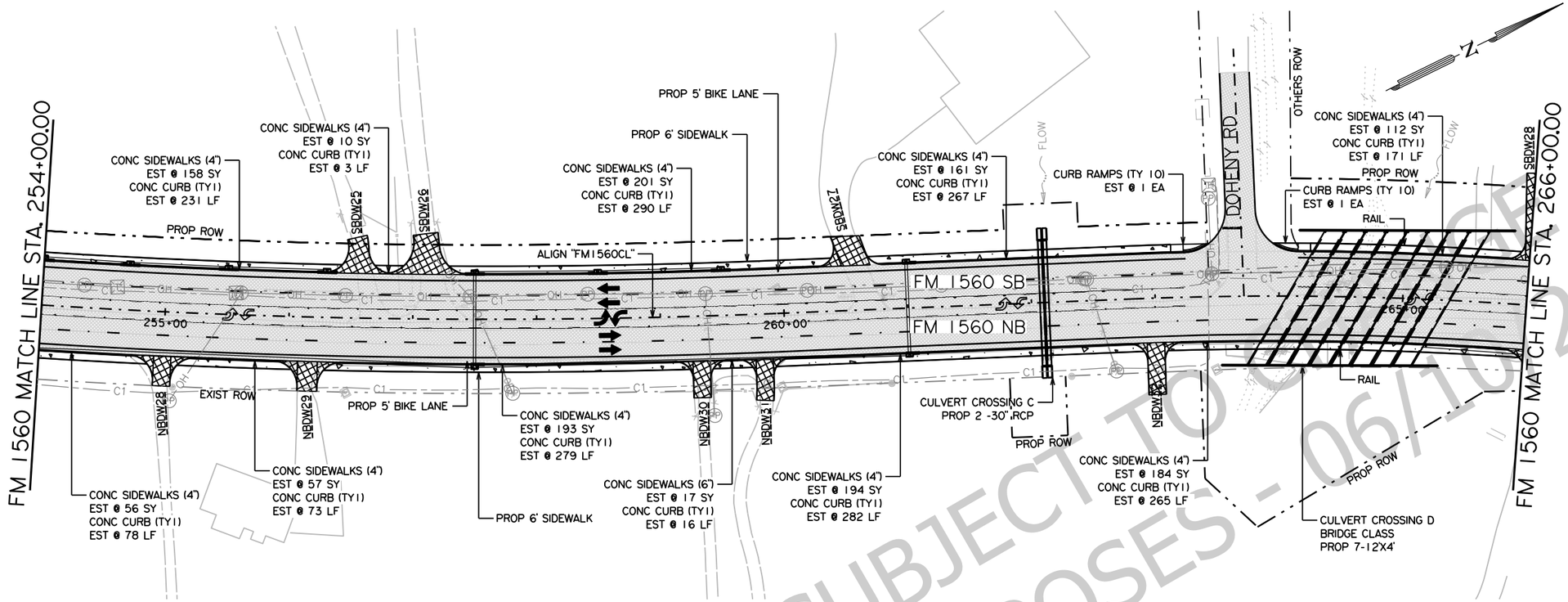
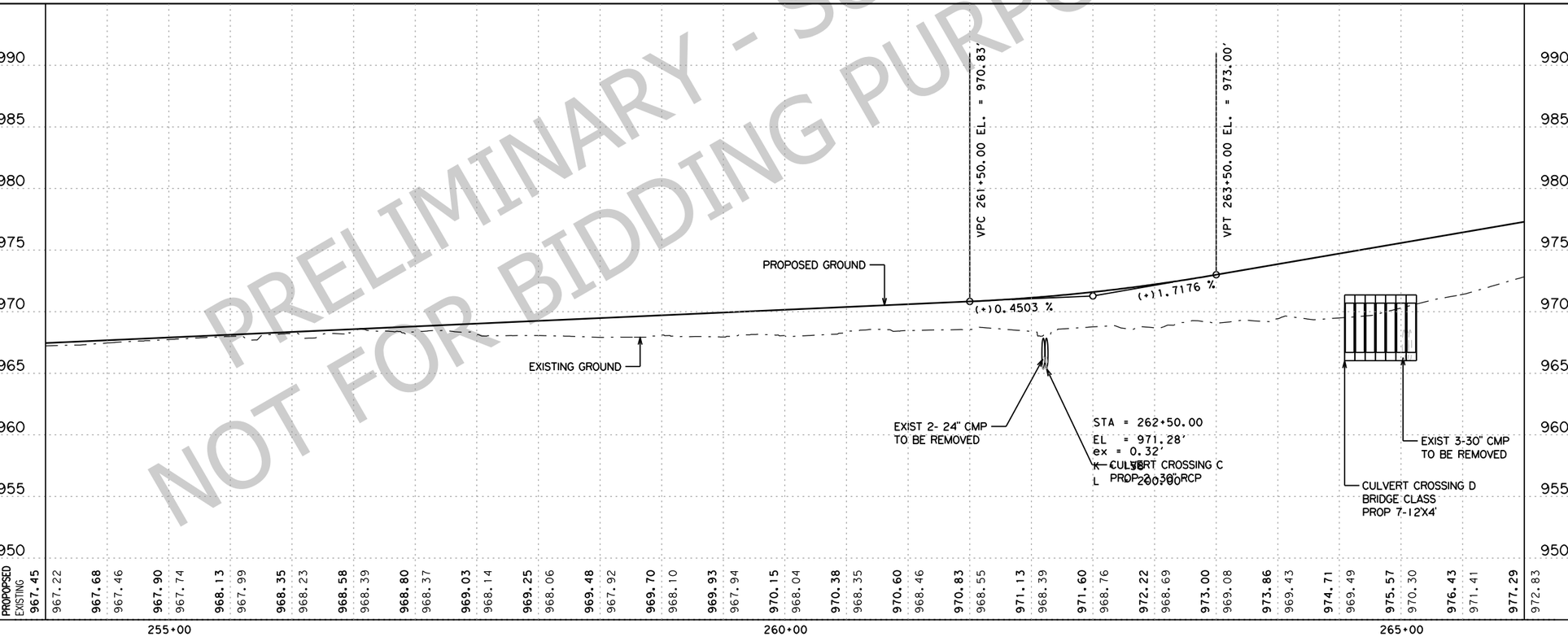


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10628
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10628
0260-6027	LIME TRT (EXST MATL)(8")	SY	10628
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10628
0341-6008	D-GR HMA TY-B PG64-22	SY	10482
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9600
0529-6001	CONC CURB (TY 1)	LF	1955
0530-6004	DRIVEWAYS (CONC)	SY	686
0531-6001	CONC SIDEWALKS (4")	SY	1344
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY III)	SY	10920

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 5 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	187
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
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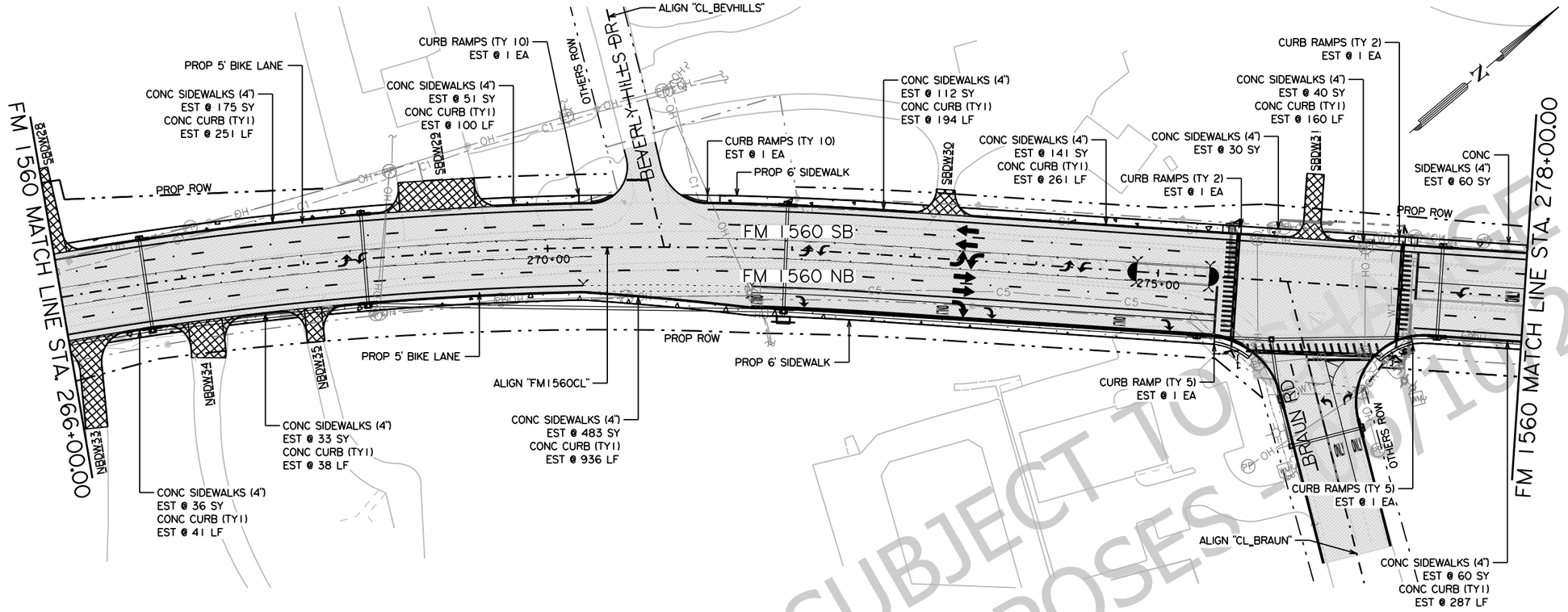
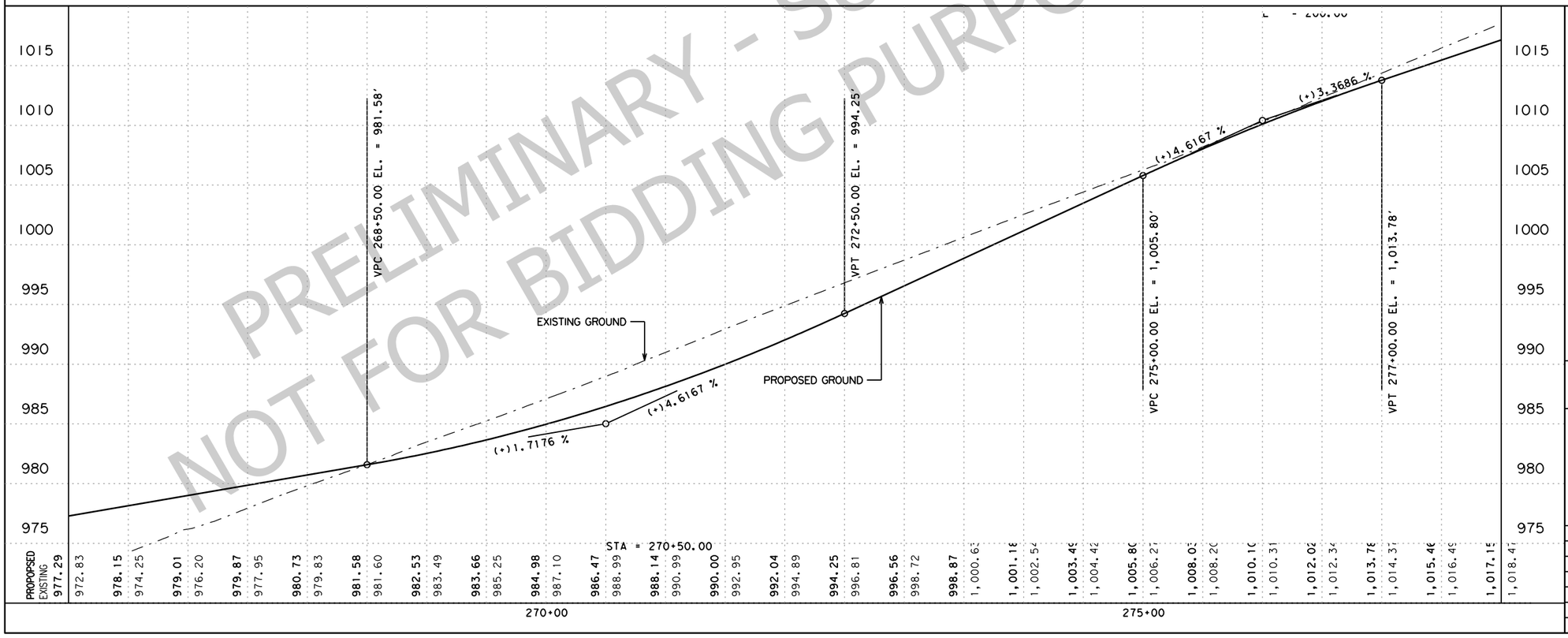


QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	12446
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	12446
0260-6027	LIME TRT (EXST MATL)(8")	SY	12446
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	12446
0341-6008	D-GR HMA TY-B PG64-22	SY	12288
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	11840
0529-6001	CONC CURB (TY I)	LF	2268
0530-6004	DRIVEWAYS (CONC)	SY	688
0531-6001	CONC SIDEWALKS (4")	SY	1220
0531-6005	CURB RAMPS (TY 2)	EA	2
0531-6008	CURB RAMPS (TY 5)	EA	2
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	12735



PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 6 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	188
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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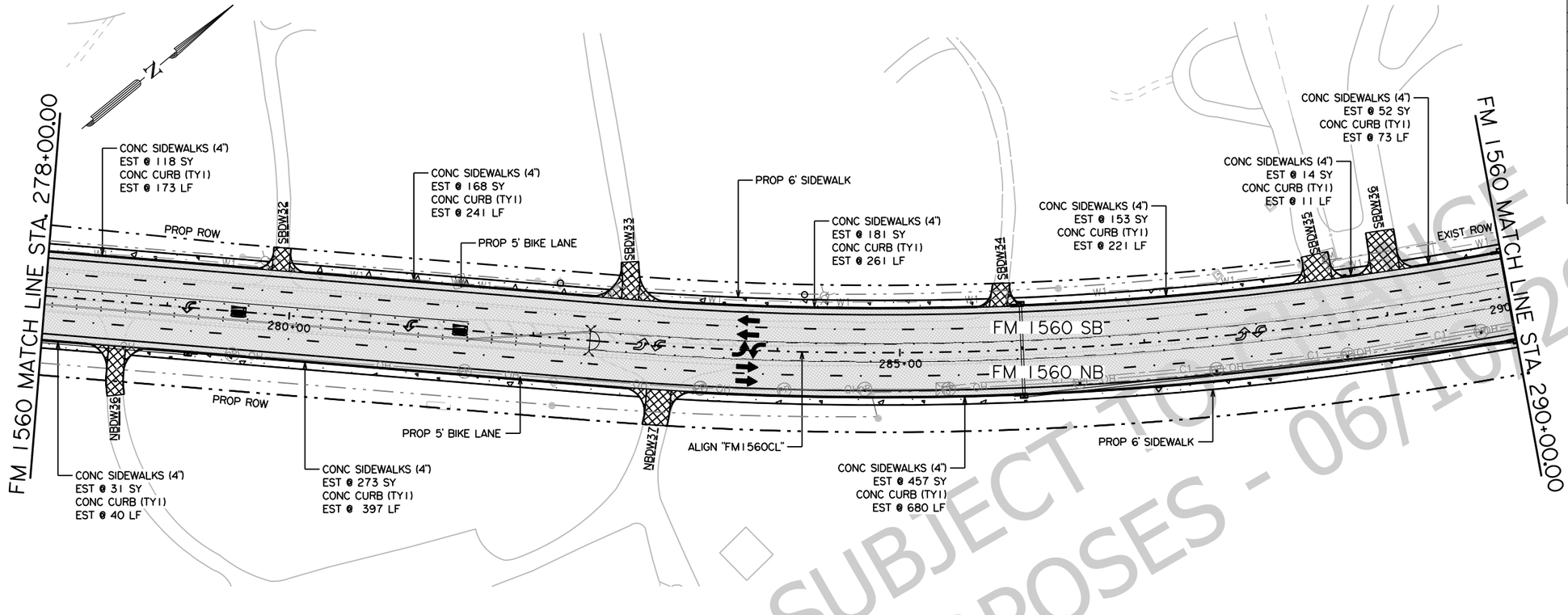
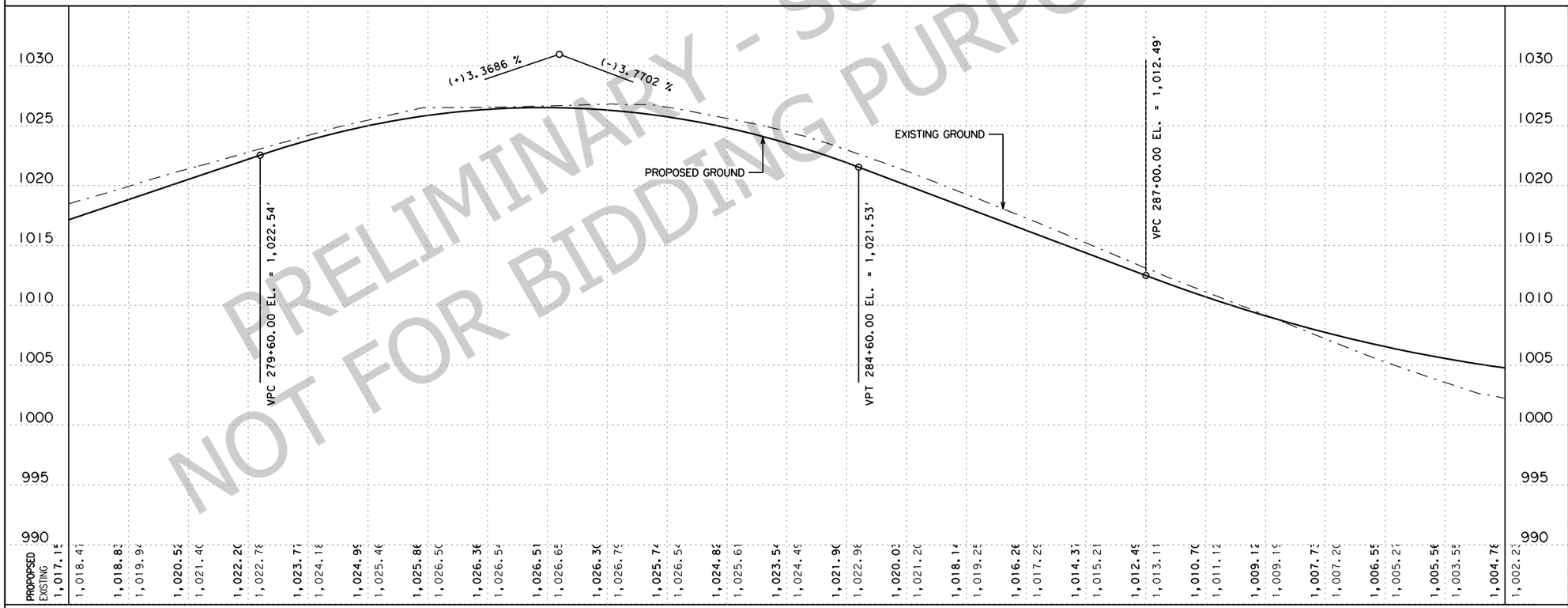
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10134
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10134
0260-6027	LIME TRT (EXST MATL)(8")	SY	10134
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10134
0341-6008	D-GR HMA TY-B PG64-22	SY	10000
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9600
0529-6001	CONC CURB (TY I)	LF	2097
0530-6004	DRIVEWAYS (CONC)	SY	490
0531-6001	CONC SIDEWALKS (4")	SY	1449
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10400



PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 7 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	189
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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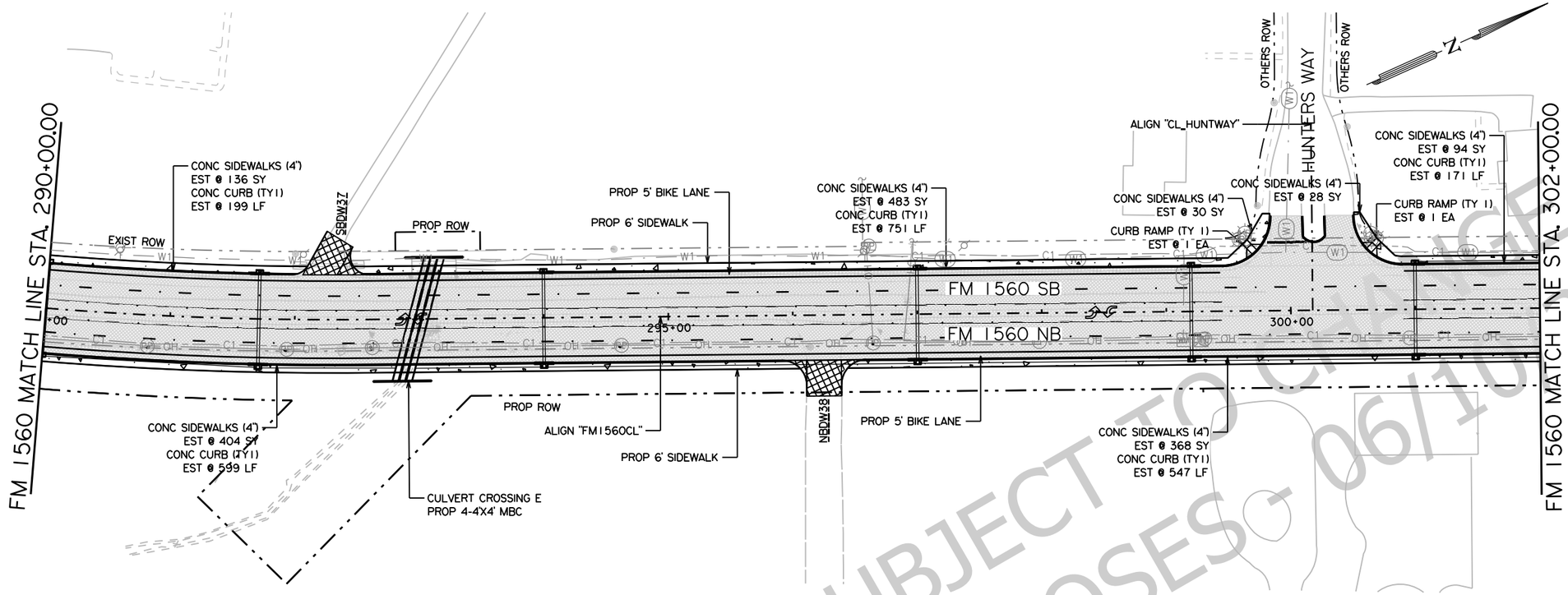
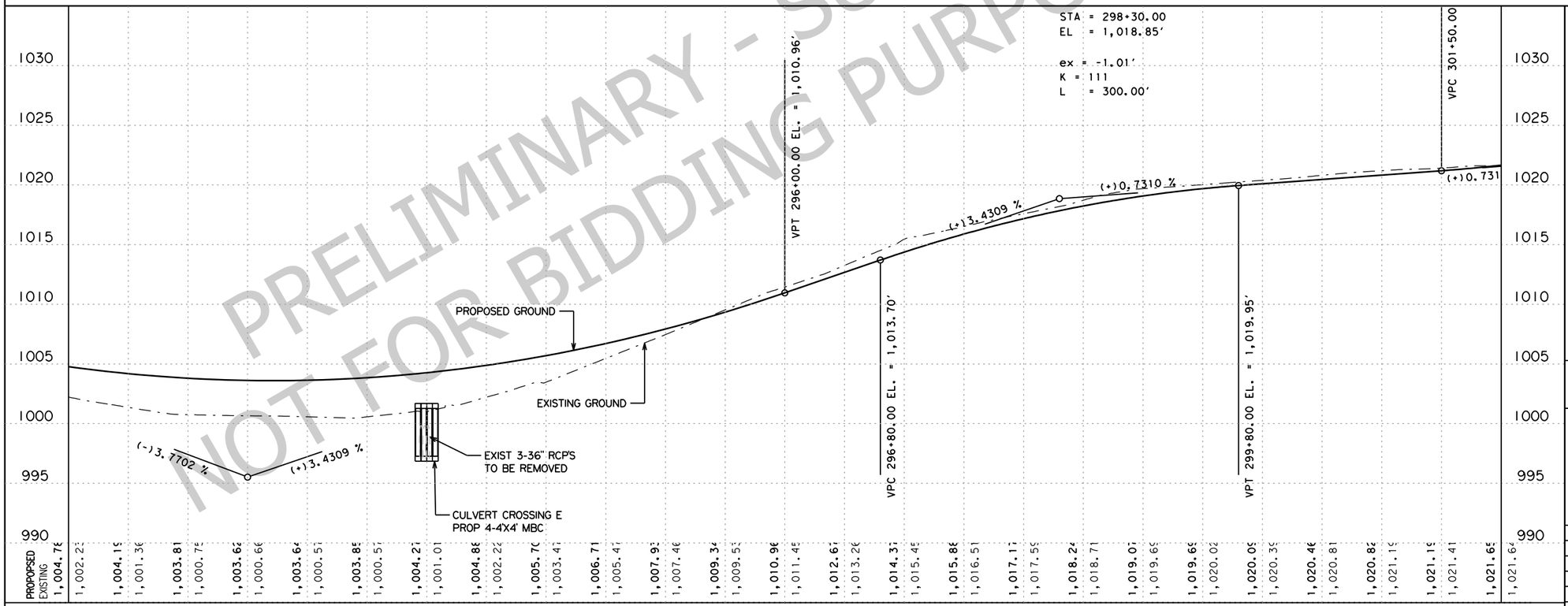


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10469
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10469
0260-6027	LIME TRT (EXST MATL)(8")	SY	10469
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10469
0341-6008	D-GR HMA TY-B PG64-22	SY	10334
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9929
0529-6001	CONC CURB (TY I)	LF	2267
0530-6004	DRIVEWAYS (CONC)	SY	215
0531-6001	CONC SIDEWALKS (4")	SY	1543
0531-6004	CURB RAMPS (TY I)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY III)	SY	10737

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 8 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	190
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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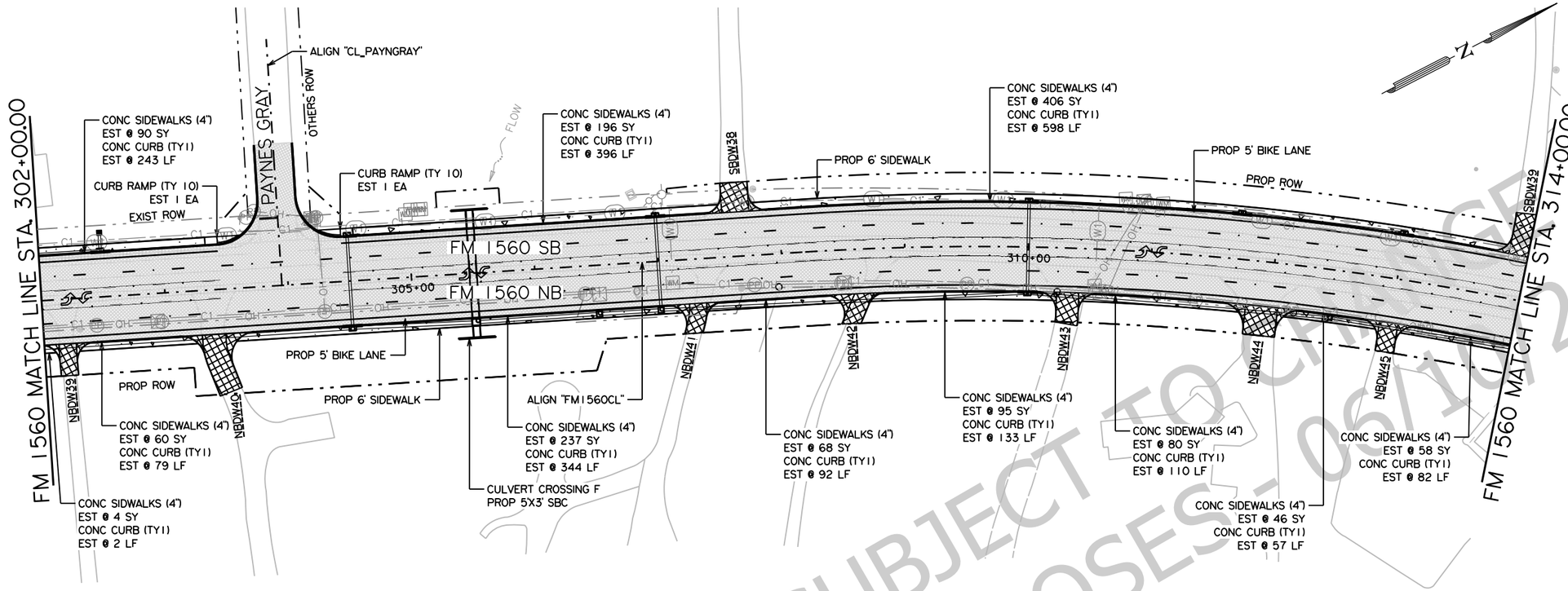
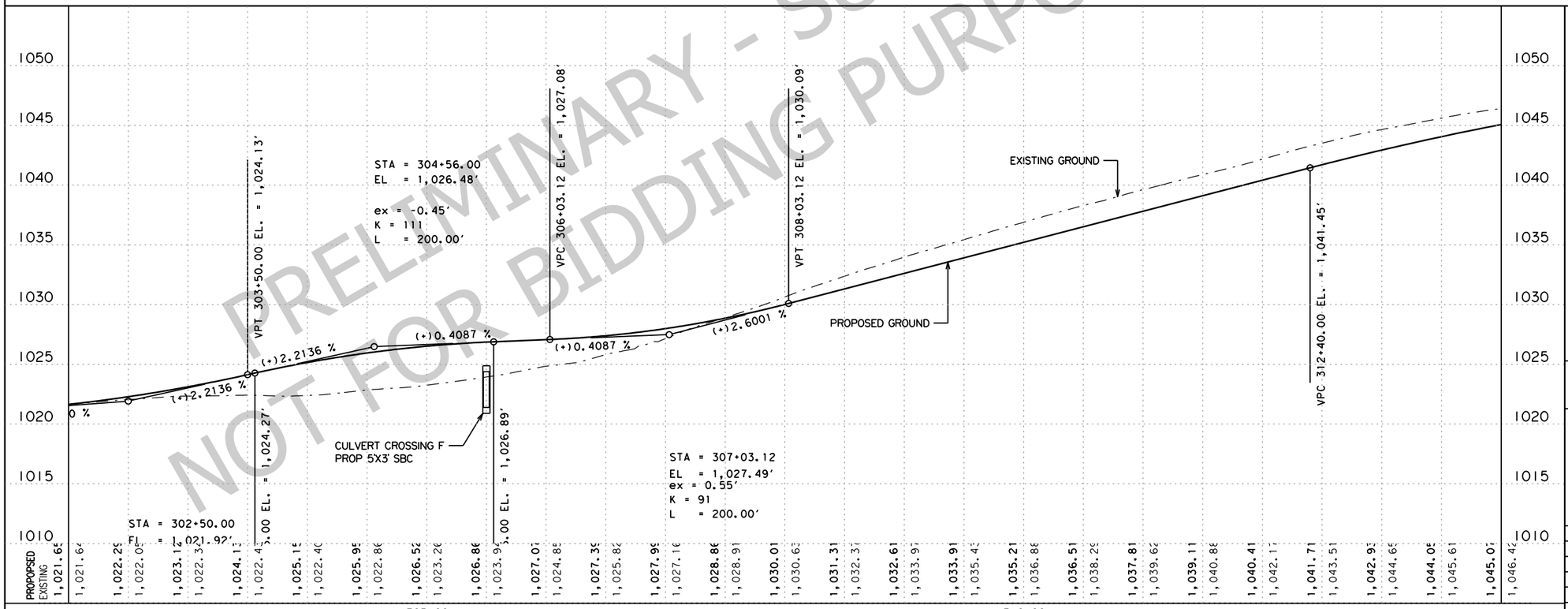


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10476
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10476
0260-6027	LIME TRT (EXST MATL)(8")	SY	10476
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10476
0341-6008	D-GR HMA TY-B PG64-22	SY	10338
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9922
0529-6001	CONC CURB (TY 1)	LF	2136
0530-6004	DRIVEWAYS (CONC)	SY	644
0531-6001	CONC SIDEWALKS (4")	SY	1338
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY III)	SY	10753

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE

HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 9 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	191
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
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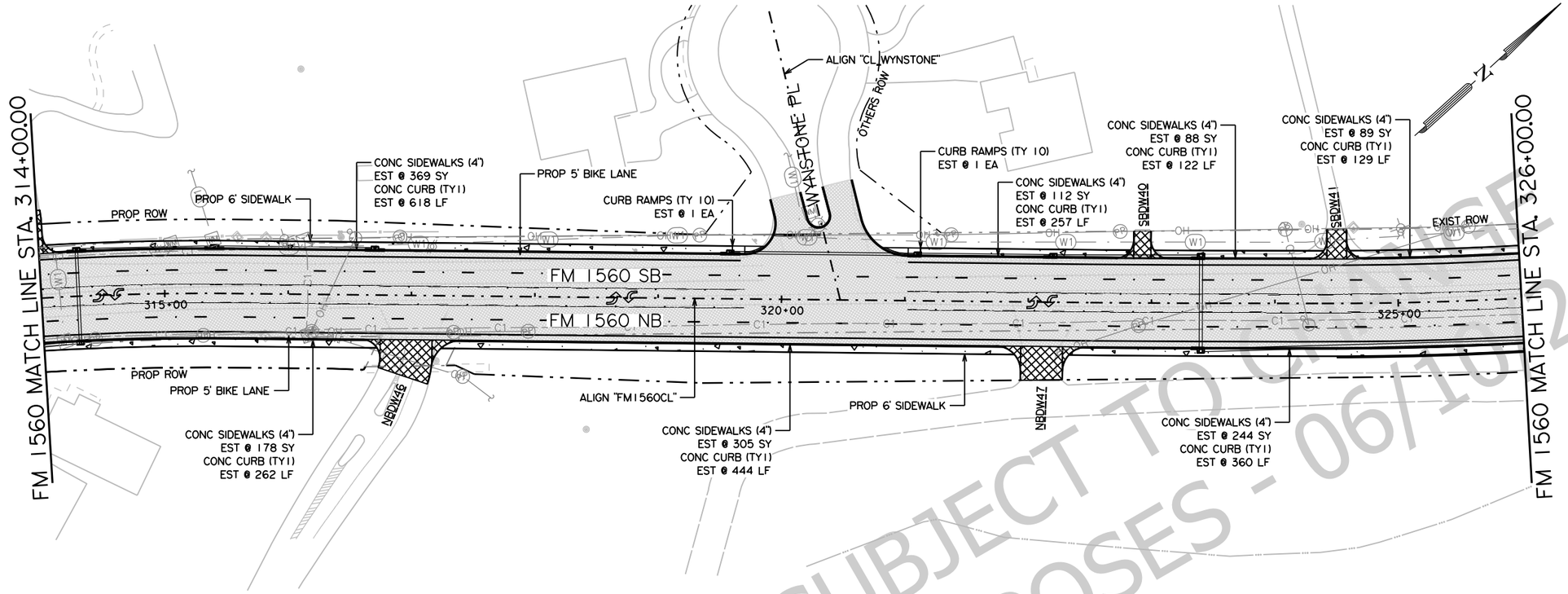
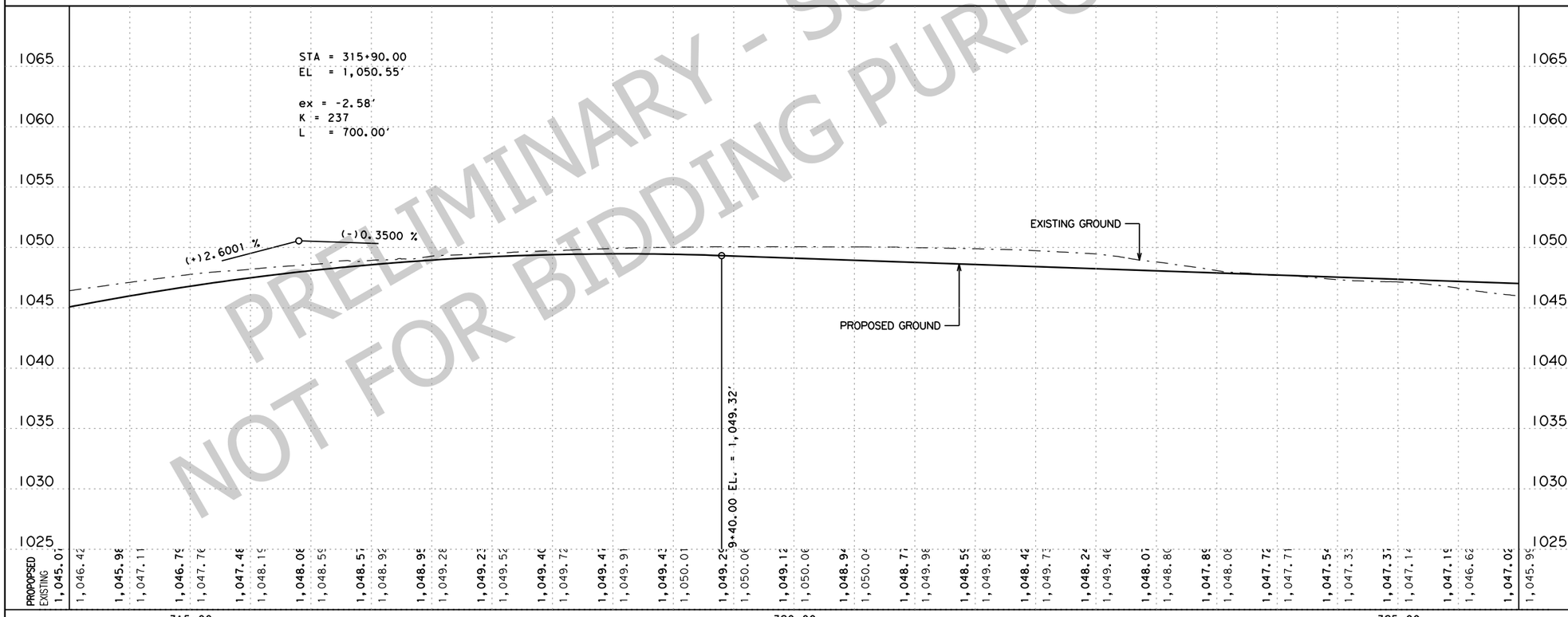


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10544
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10544
0260-6027	LIME TRT (EXST MATL)(8")	SY	10544
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10544
0341-6008	D-GR HMA TY-B PG64-22	SY	10406
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9992
0529-6001	CONC CURB (TY I)	LF	2192
0530-6004	DRIVEWAYS (CONC)	SY	378
0531-6001	CONC SIDEWALKS (4")	SY	1384
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY III)	SY	10818

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 10 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	192
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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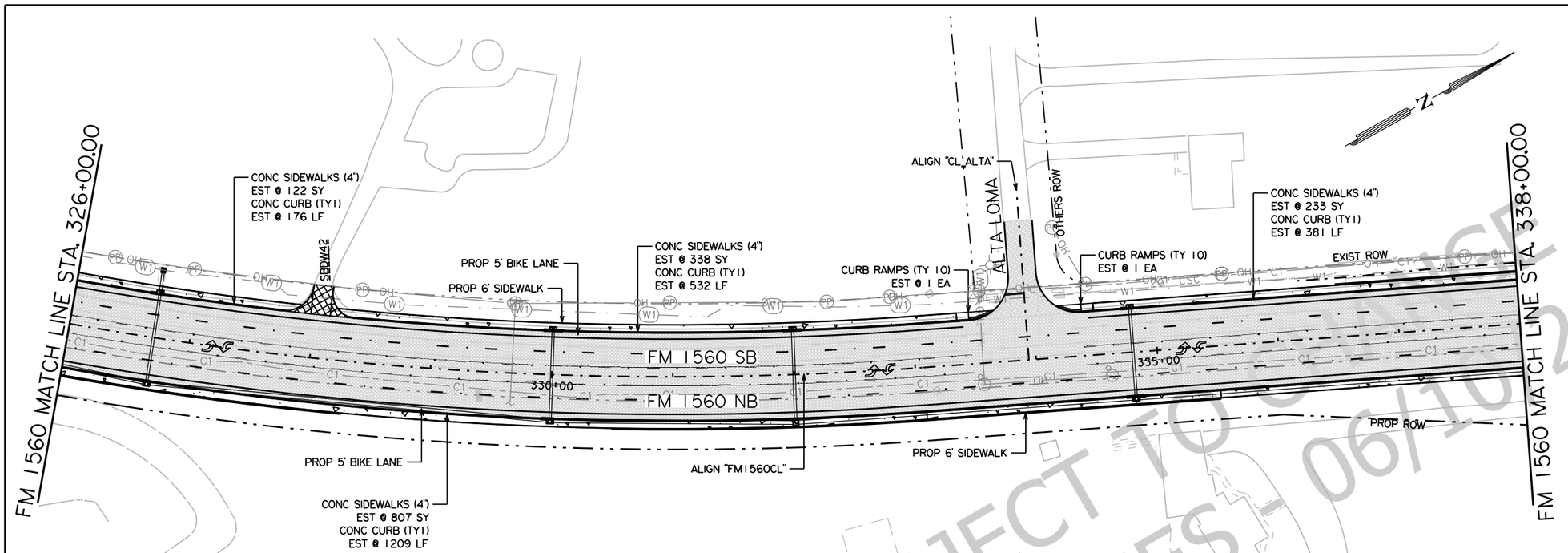

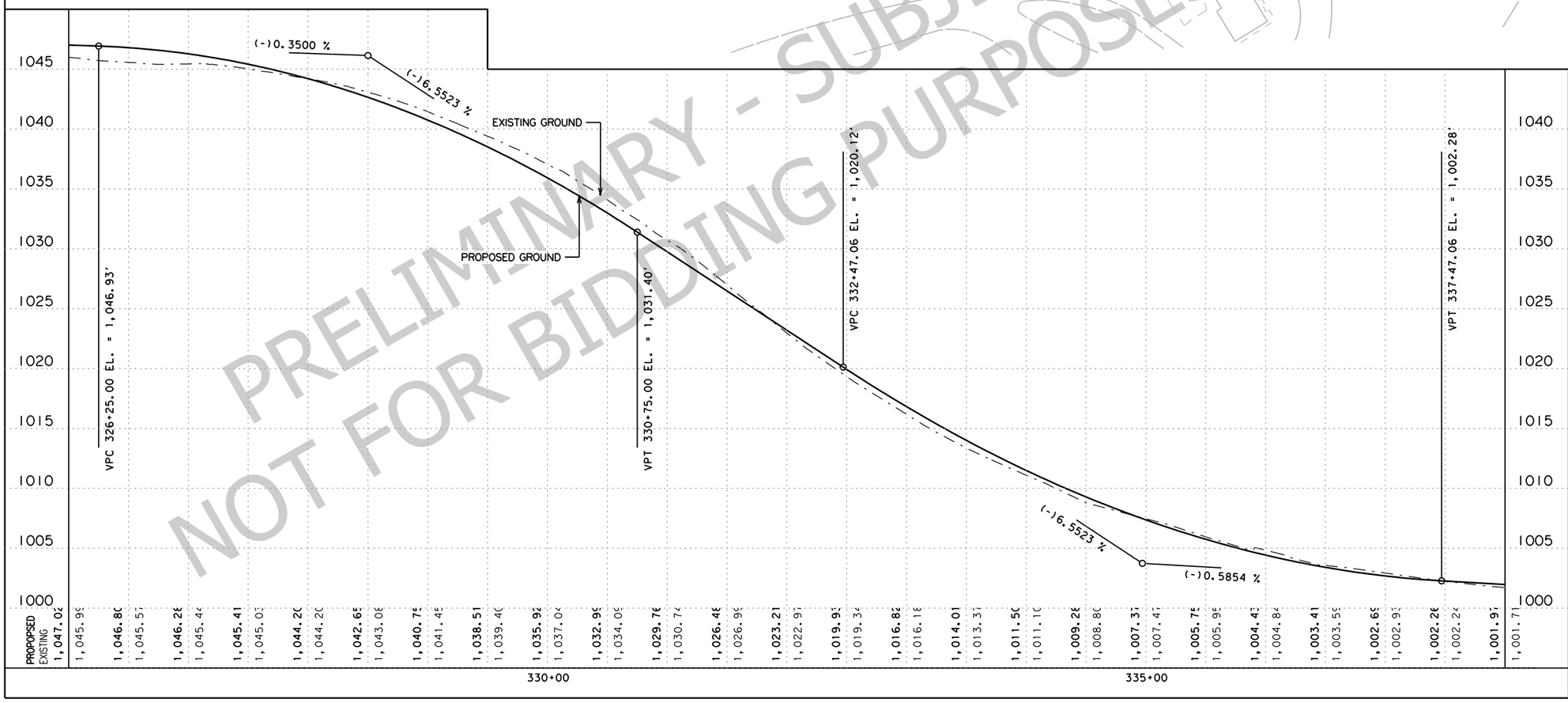

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10416
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10416
0260-6027	LIME TRT (EXST MATL)(8")	SY	10416
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10416
0341-6008	D-GR HMA TY-B PG64-22	SY	10277
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9860
0529-6001	CONC CURB (TY 1)	LF	2298
0530-6004	DRIVEWAYS (CONC)	SY	69
0531-6001	CONC SIDEWALKS (4")	SY	1500
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10694

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 11 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	193
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CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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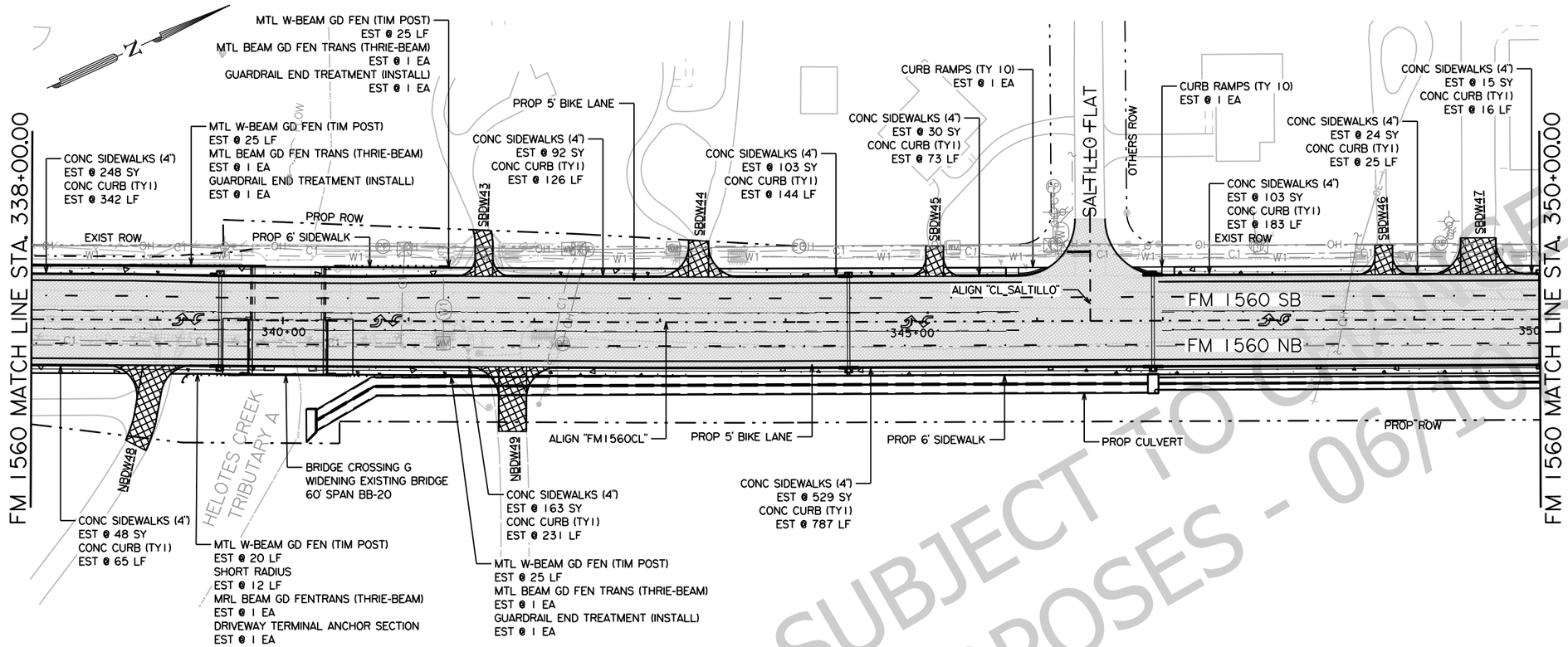

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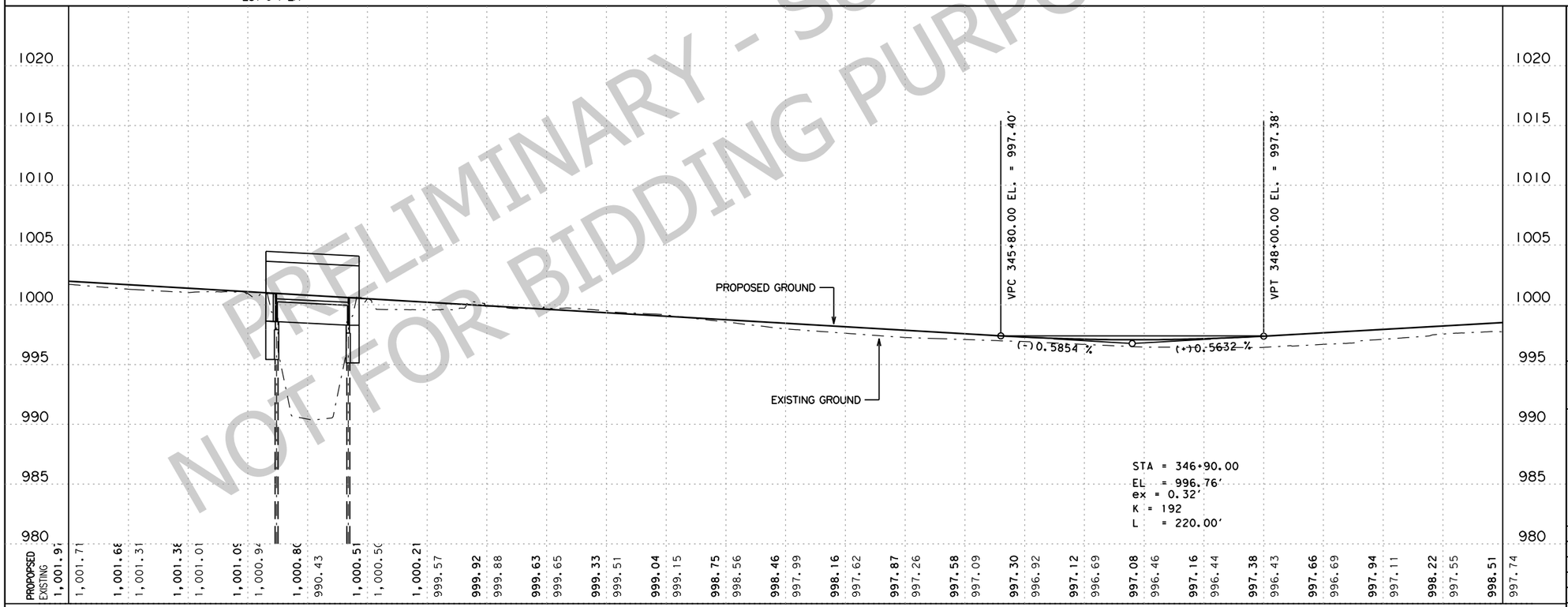
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10356
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10356
0260-6027	LIME TRT (EXST MATL)(8")	SY	10356
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10356
0341-6008	D-GR HMA TY-B PG64-22	SY	10221
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9817
0529-6001	CONC CURB (TY I)	LF	1992
0530-6004	DRIVEWAYS (CONC)	SY	685
0531-6001	CONC SIDEWALKS (4")	SY	1355
0531-6013	CURB RAMPS (TY 10)	EA	2
0540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	95
0540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	4
0540-6014	SHORT RADIUS	LF	12
0540-6015	DRIVEWAY TERMINAL ANCHOR SECTION	EA	1
0544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	3
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10625

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 12 OF 15

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	194
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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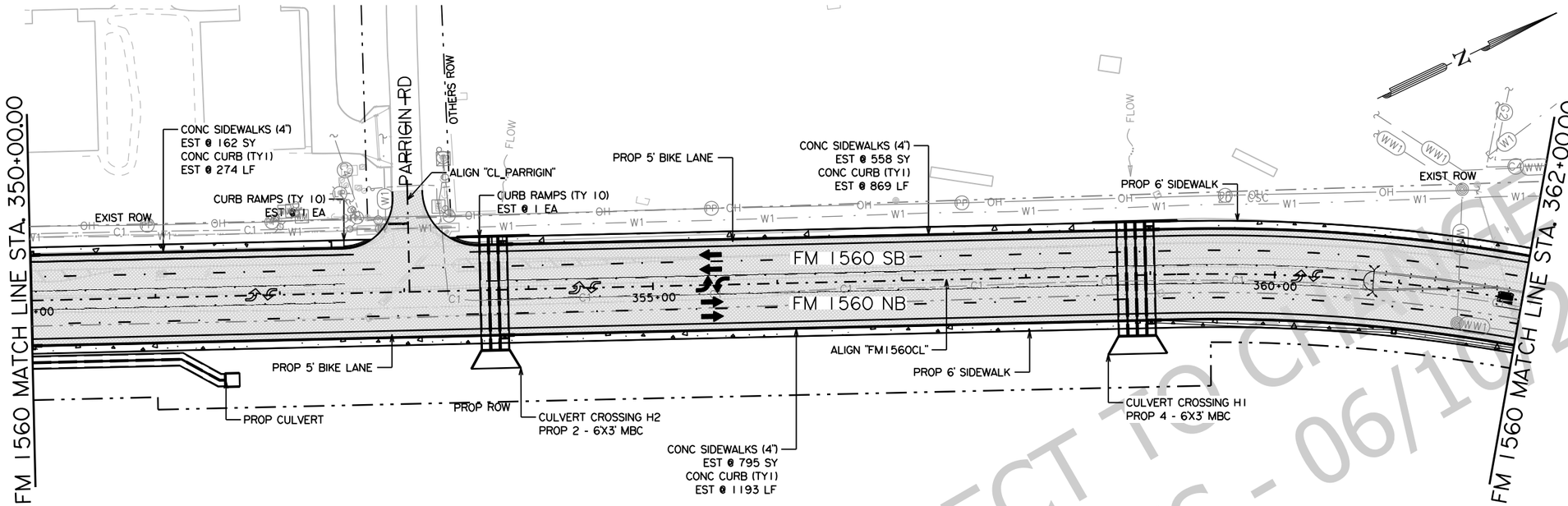
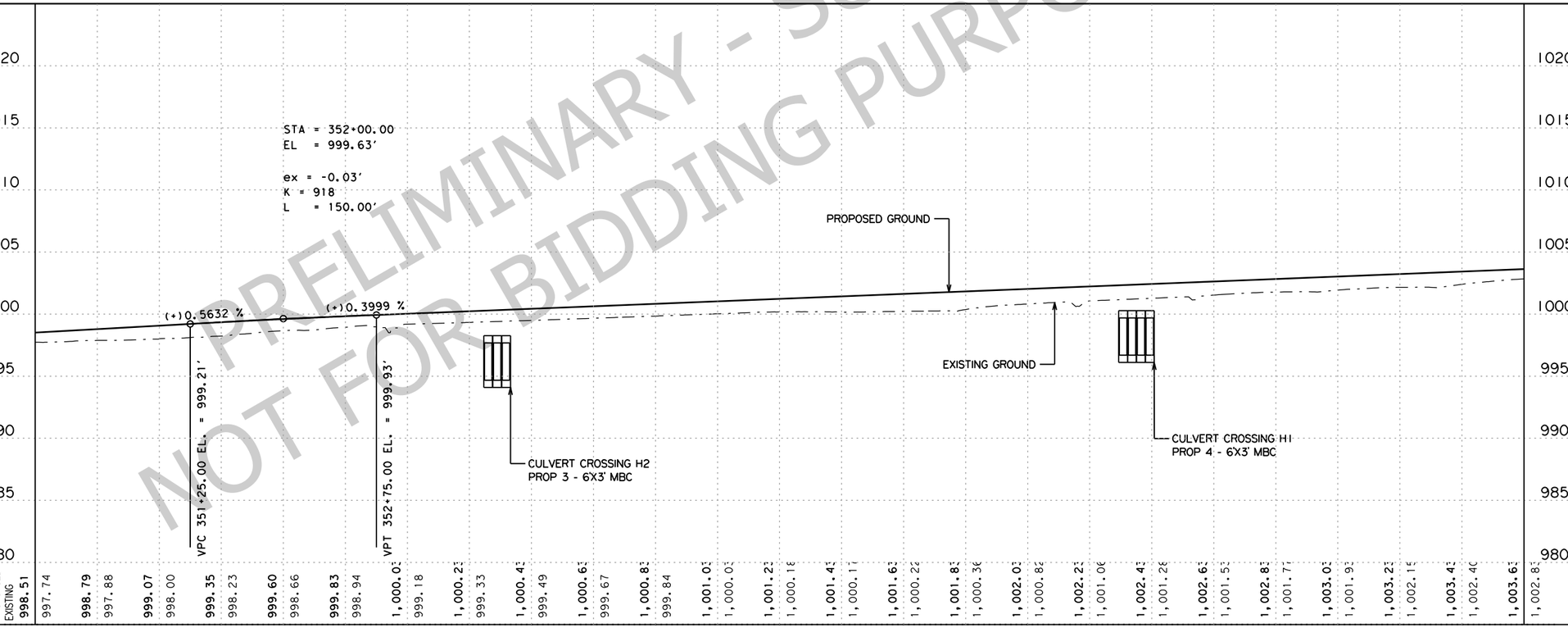


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	10346
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	10346
0260-6027	LIME TRT (EXST MATL)(8")	SY	10346
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	10346
0341-6008	D-GR HMA TY-B PG64-22	SY	10207
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	9807
0529-6001	CONC CURB (TY I)	LF	1467
0531-6001	CONC SIDEWALKS (4")	SY	1514
0531-6013	CURB RAMPS (TY 10)	EA	2
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	10615

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW

SUBJECT TO CHANGE
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020



INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE

HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 13 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
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STATE	DIST.	COUNTY	195
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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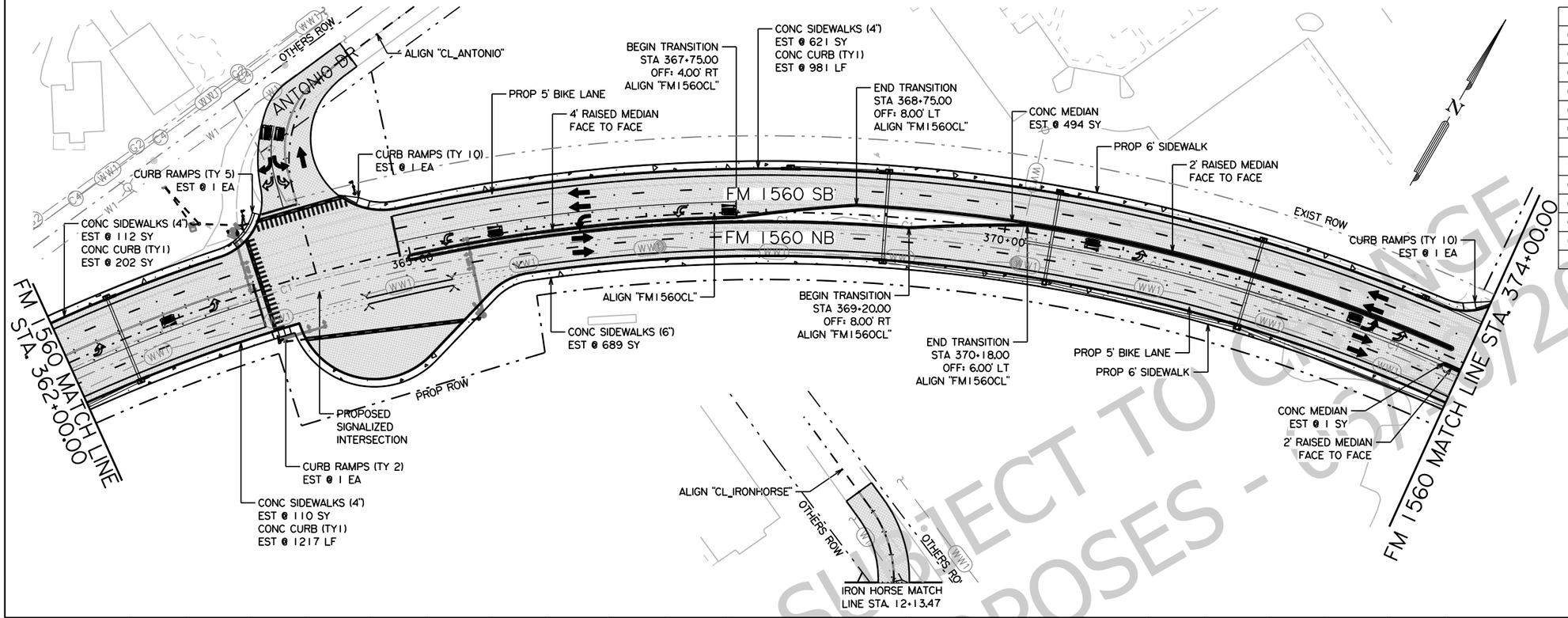
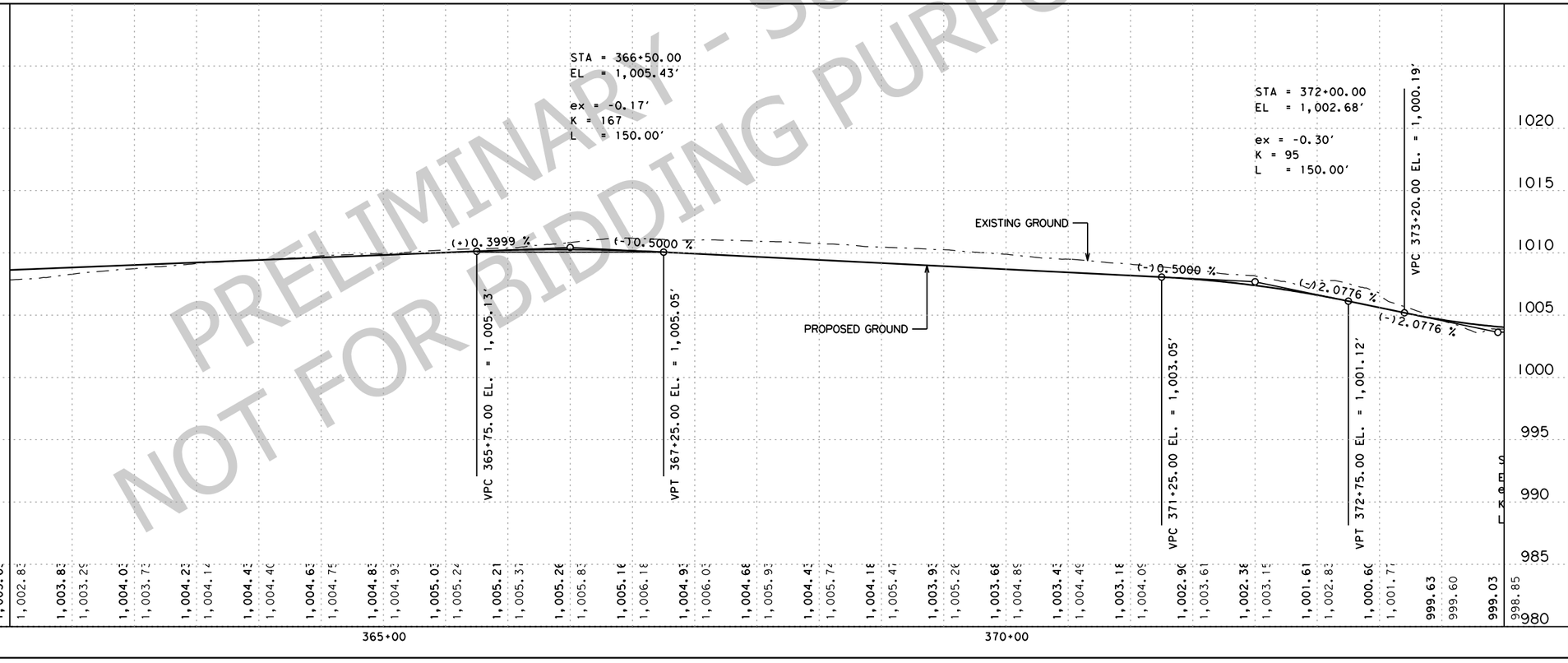


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	11721
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	11721
0260-6027	LIME TRT (EXST MATL)(8")	SY	11721
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	11721
0341-6008	D-GR HMA TY-B PG64-22	SY	11498
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	10805
0529-6001	CONC CURB (TY I)	LF	3269
0531-6001	CONC SIDEWALKS (4")	SY	1533
0531-6005	CURB RAMPS (TY 2)	EA	1
0531-6008	CURB RAMPS (TY 5)	EA	1
0531-6013	CURB RAMPS (TY 10)	EA	2
0536-6002	CONC MEDIAN	SY	495
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	12068

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE LAYOUT

SHEET 14 OF 15

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	196
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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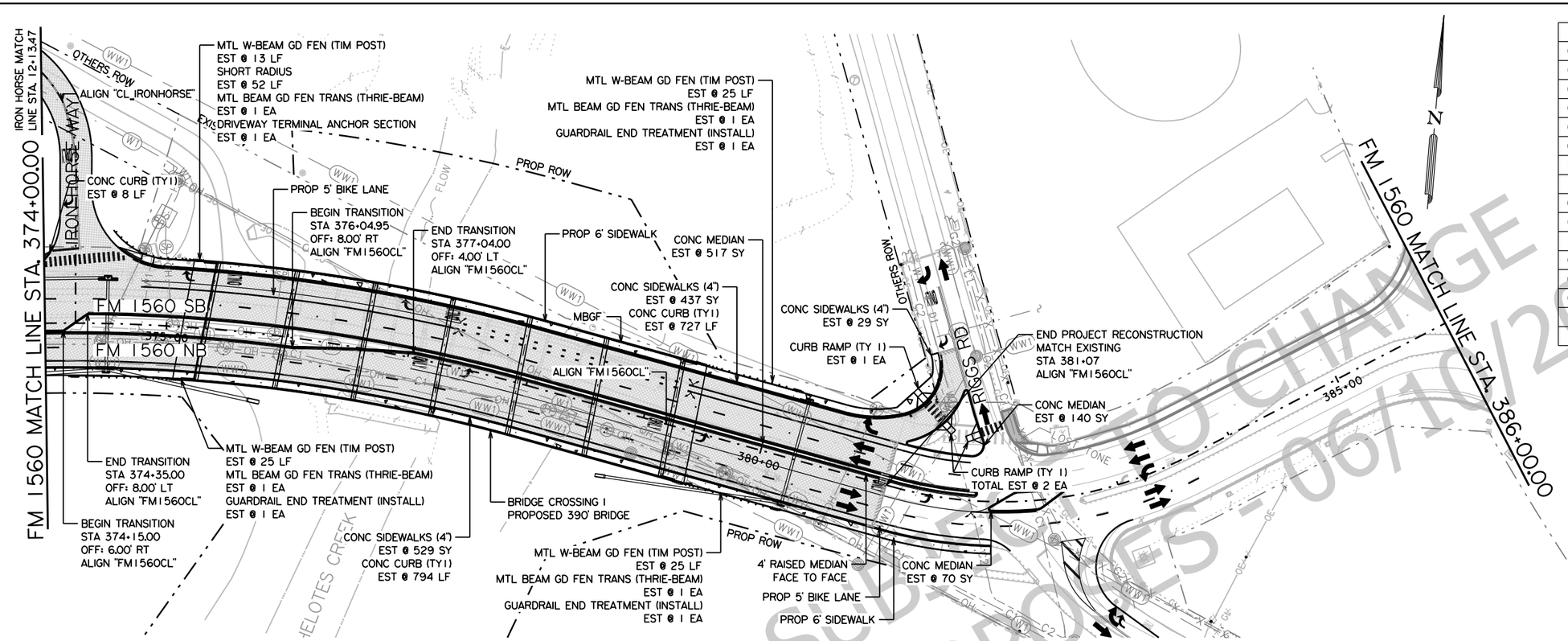
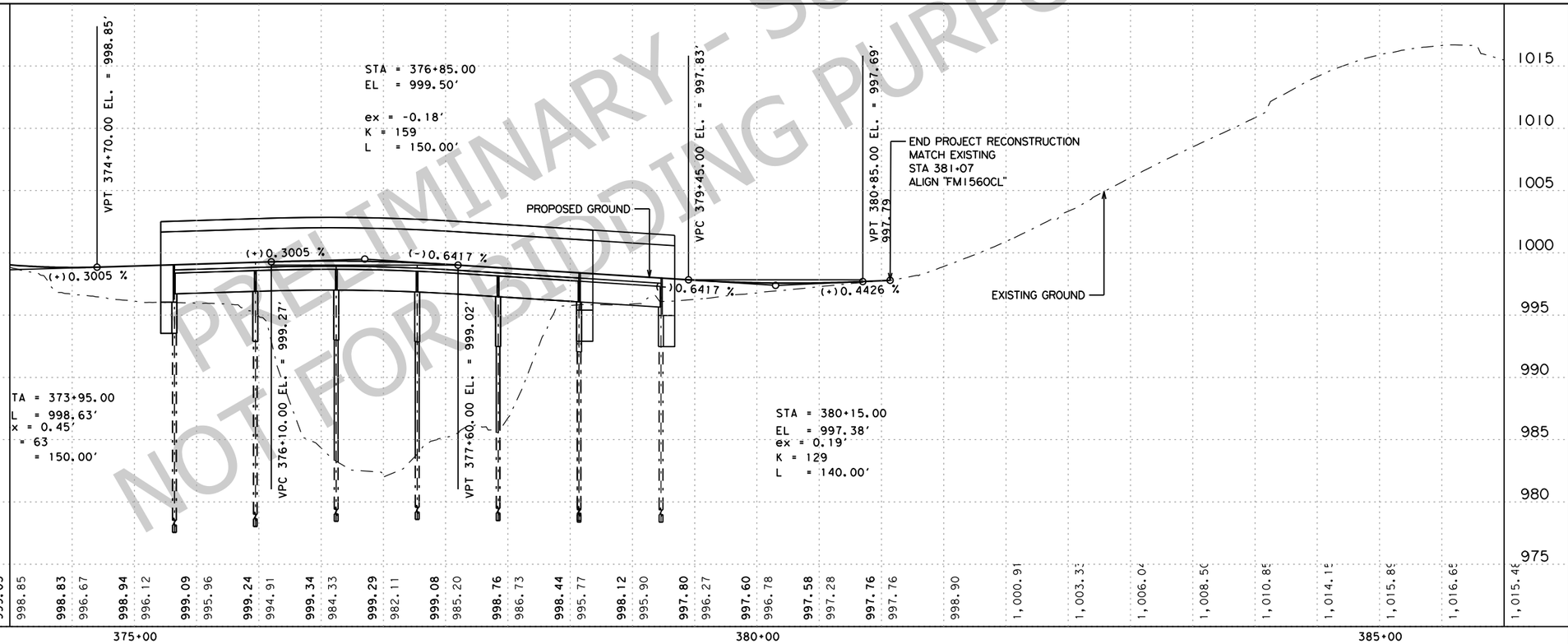


	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
0247-6073	FL BS (CMP IN PLC)(TY D GR 1-2) (6")	SY	7696
0260-6002	LIME (HYDRATED LIME (SLURRY))	SY	7696
0260-6027	LIME TRT (EXST MATL)(8")	SY	7696
0310-6027	PRIME COAT(MC-30 OR AE-P)	SY	7696
0341-6008	D-GR HMA TY-B PG64-22	SY	7513
0344-6104	SUPERPAVE MIXTURES SP-D SAC-B PG64-2	SY	6961
0529-6001	CONC CURB (TY I)	LF	1529
0531-6001	CONC SIDEWALKS (4")	SY	995
0531-6004	CURB RAMPS (TY I)	EA	3
0536-6002	CONC MEDIAN	SY	727
0540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	88
0540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	5
0540-6014	SHORT RADIUS	LF	52
0540-6015	DRIVEWAY TERMINAL ANCHOR SECTION	EA	1
0544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	3
5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	7970

PLAN LEGEND

- LIMITS OF RECONSTRUCTION
- LIMITS OF OVERLAY (ROADWAY)
- CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- DIRECTIONAL ARROW



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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE

HORIZONTAL: 1"=100' VERTICAL: 1"=10'

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FM 1560 PLAN AND PROFILE LAYOUT

SHEET 15 OF 15

DESIGN: TO	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	197
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
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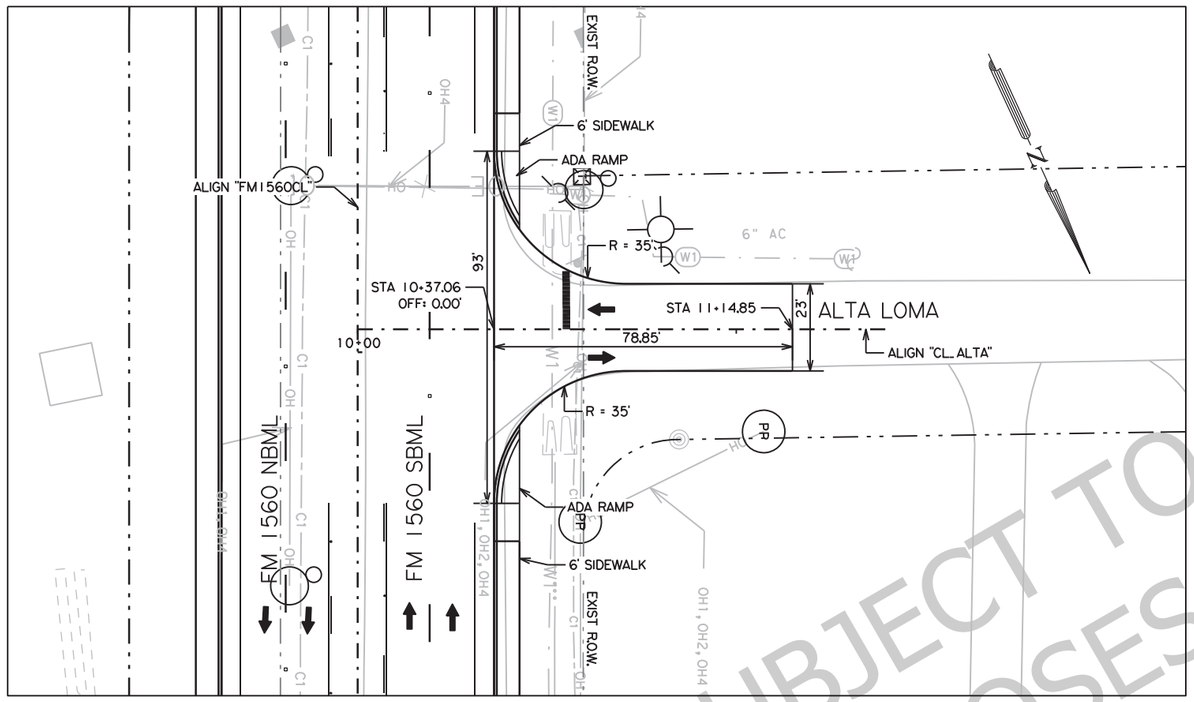
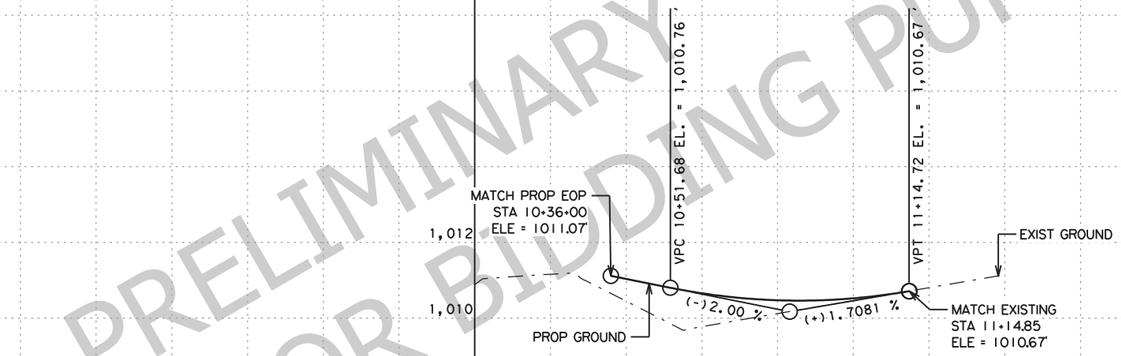


PLAN



PROFILE

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10+00 11+00

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
ALTA LOMA
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	198
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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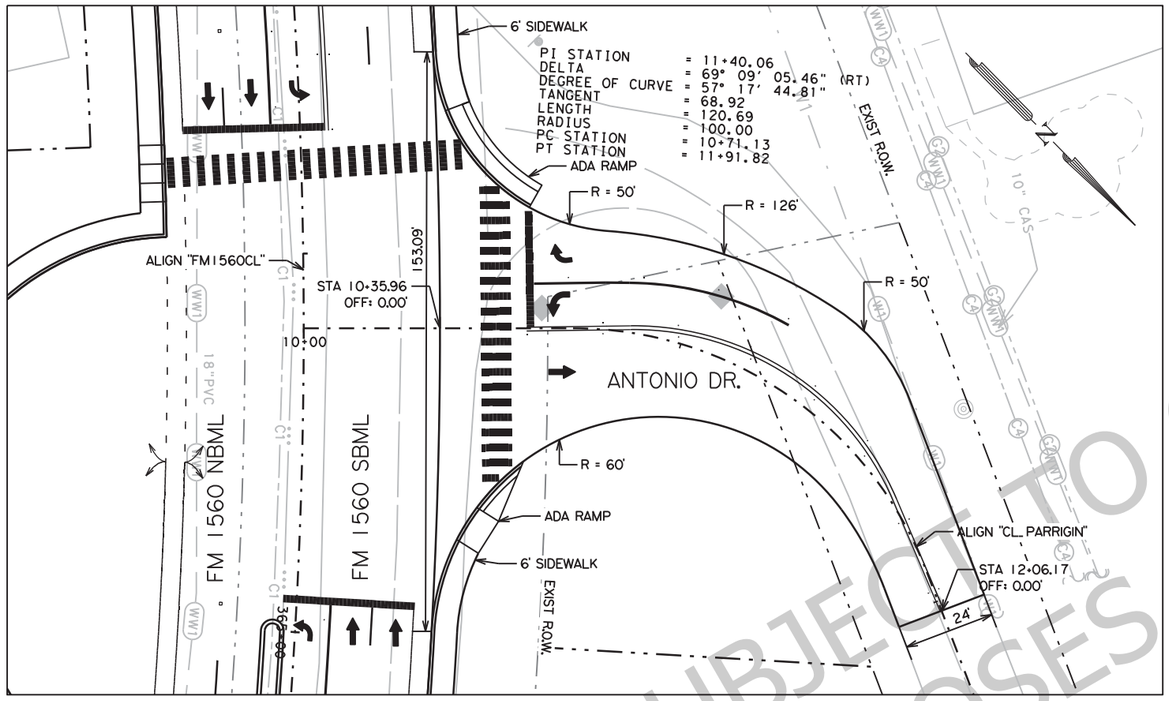
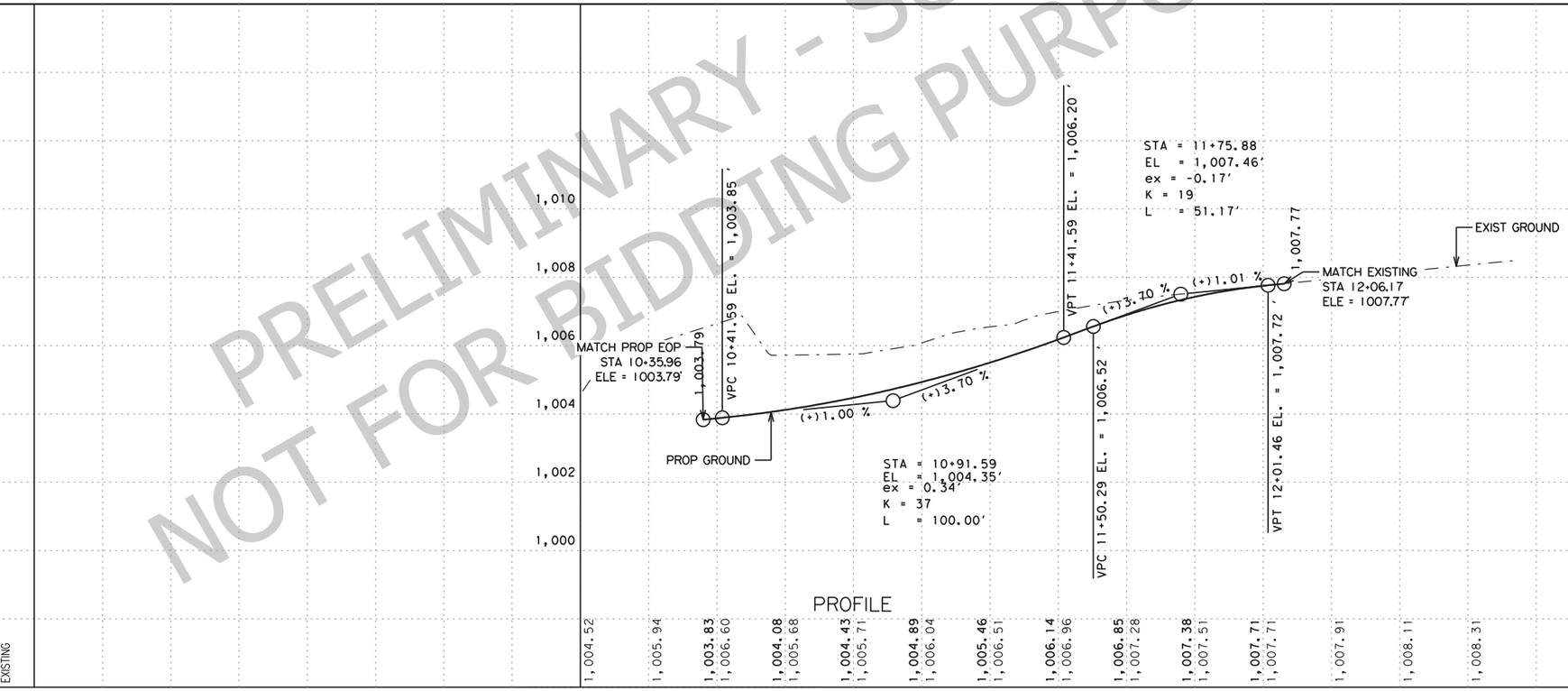


PLAN



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
ANTONIO DR.
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

199

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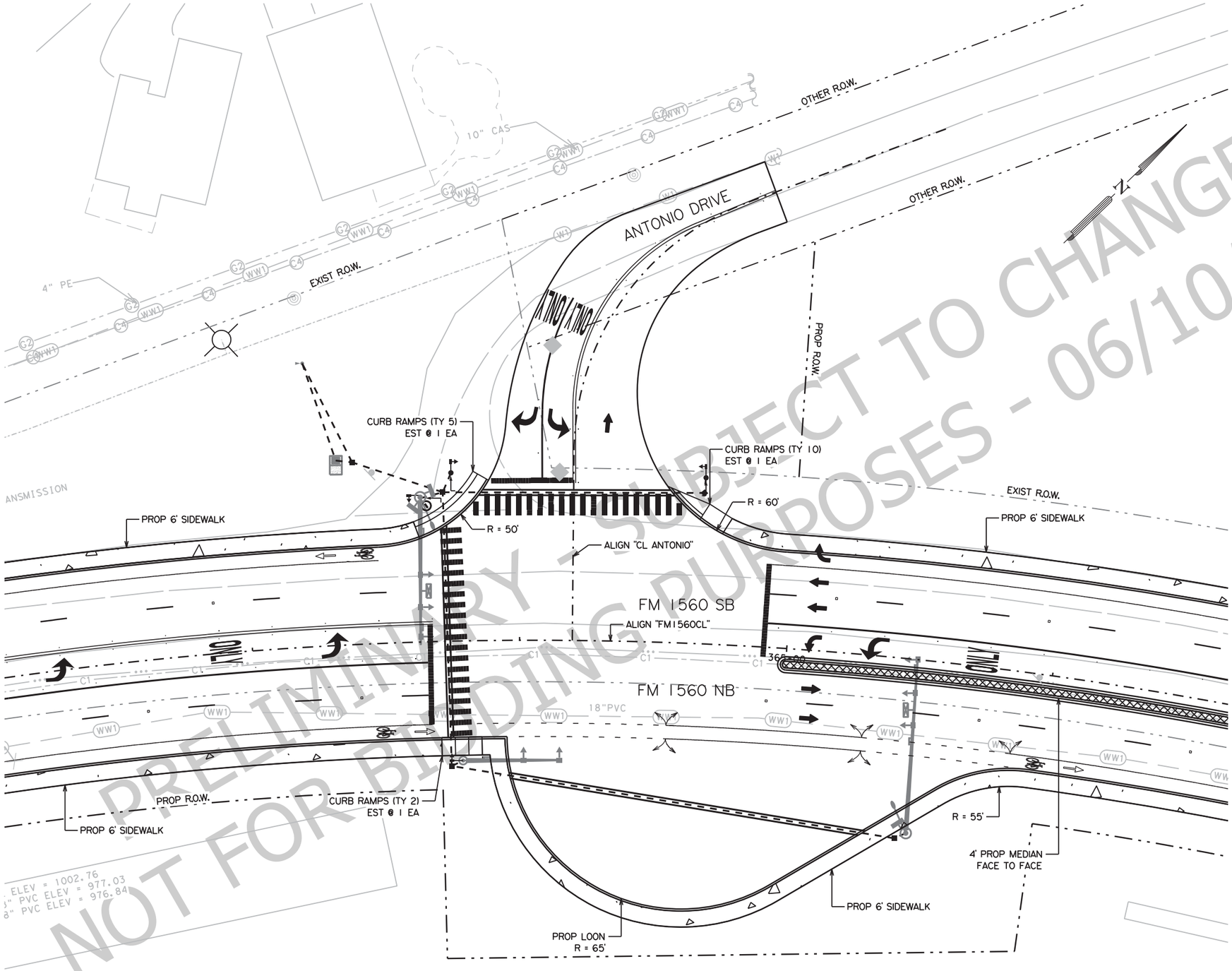

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/3/2020

SCALE: 1"=40'

Texas Department of Transportation
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FM 1560
ANTONIO DRIVE
INTERSECTION LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

200

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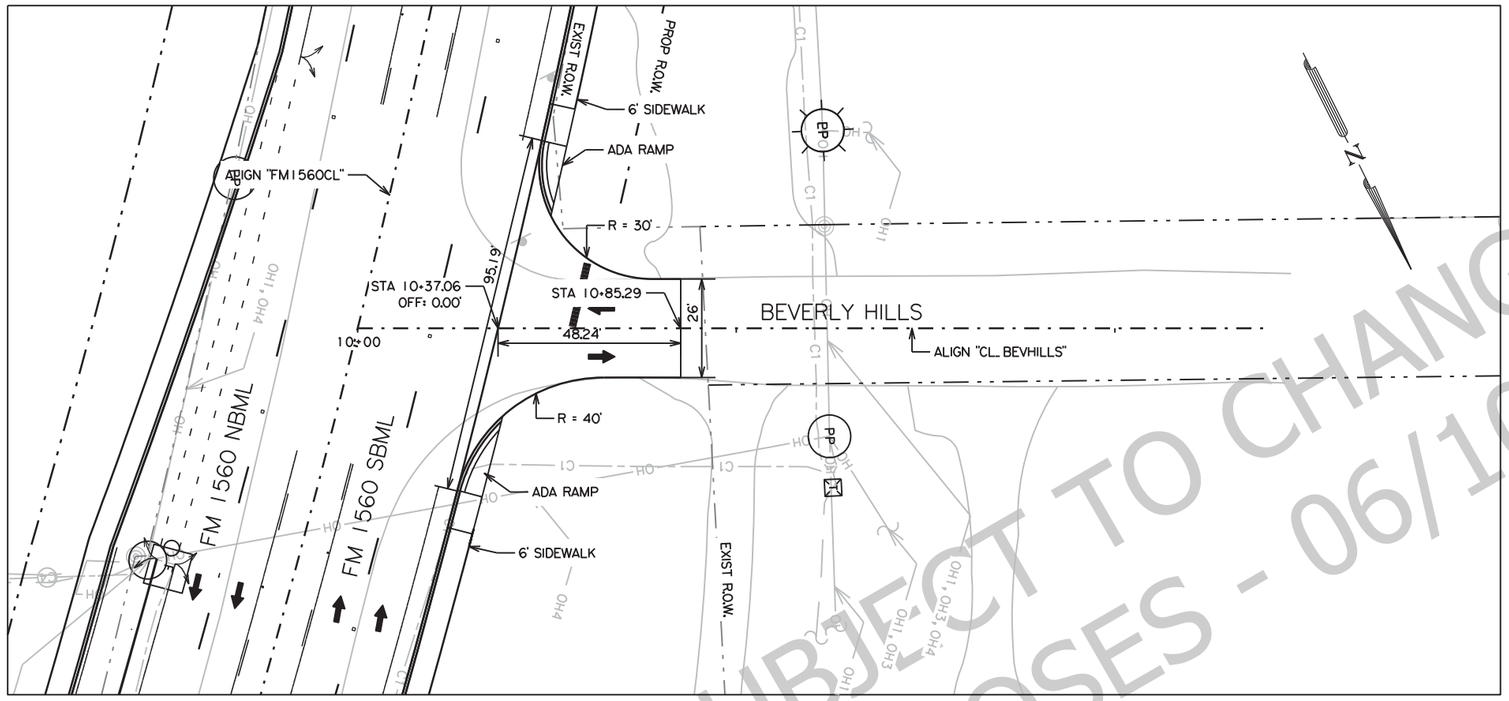
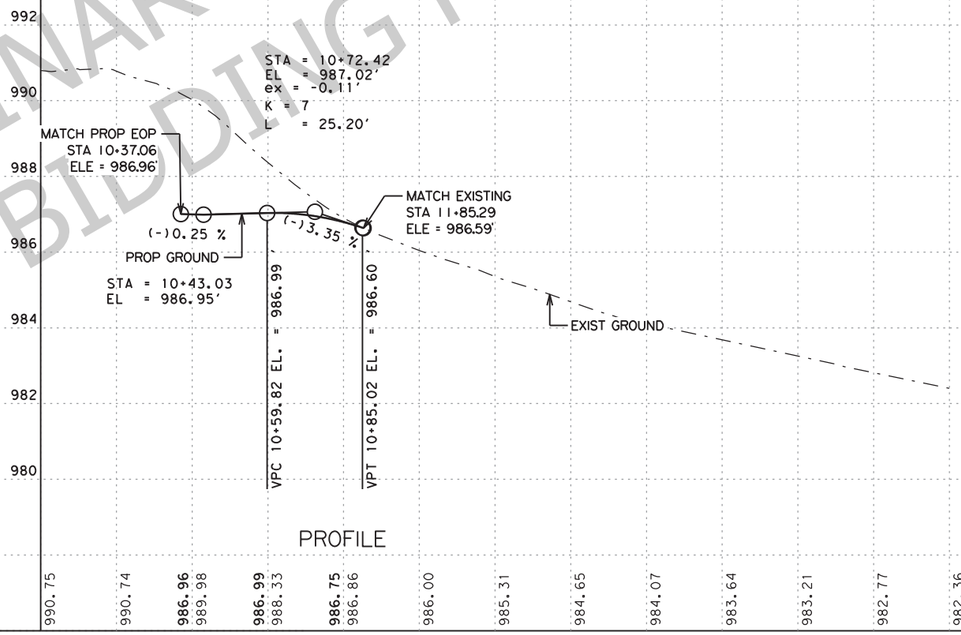


PLAN



PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
BEVERLY HILLS
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	201
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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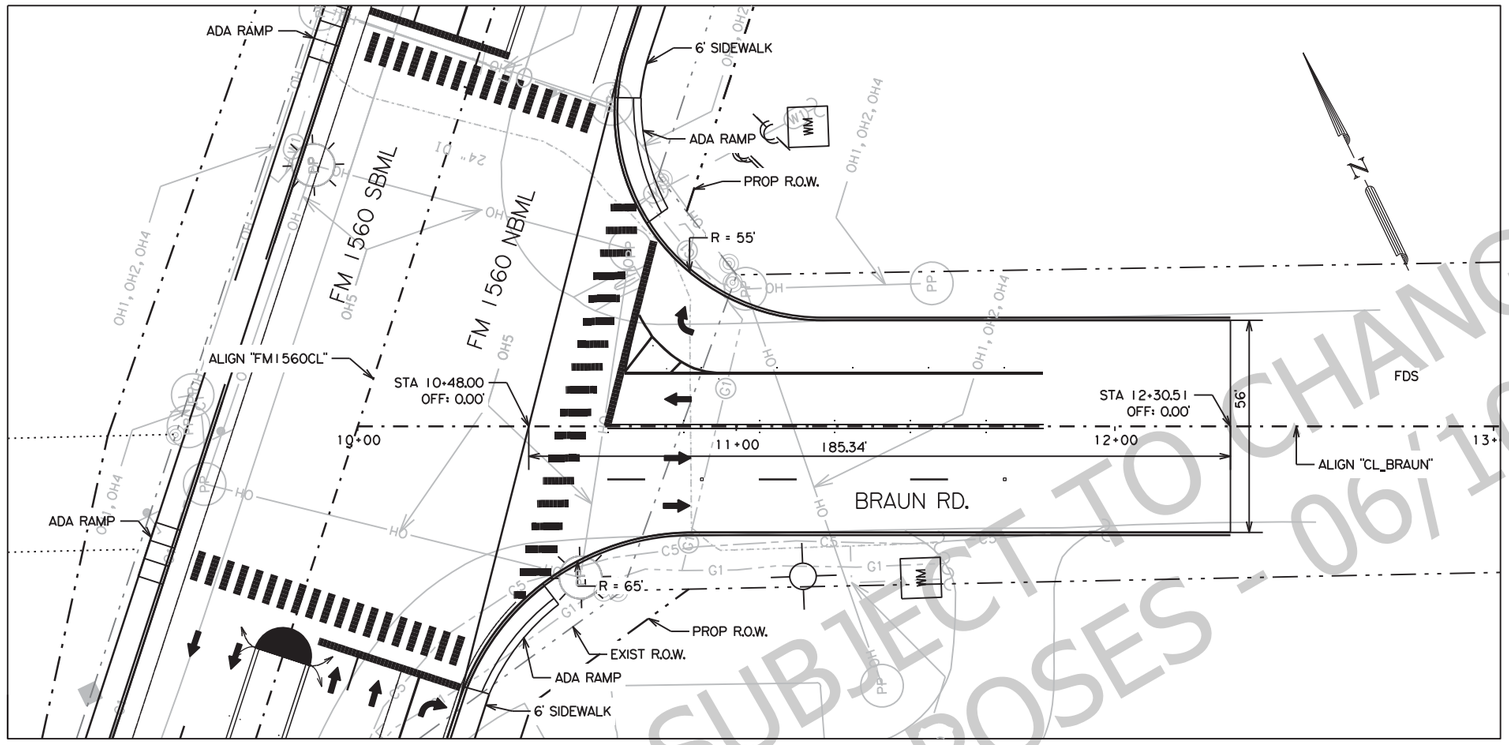

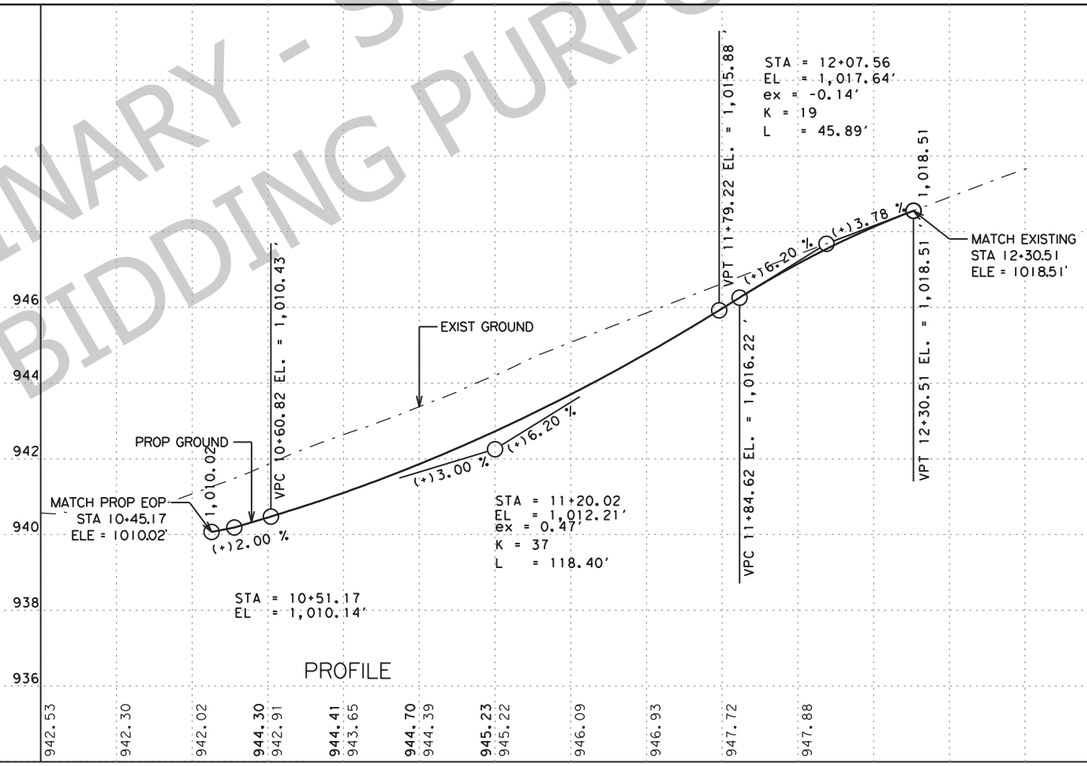

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
BRAUN RD.
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	202
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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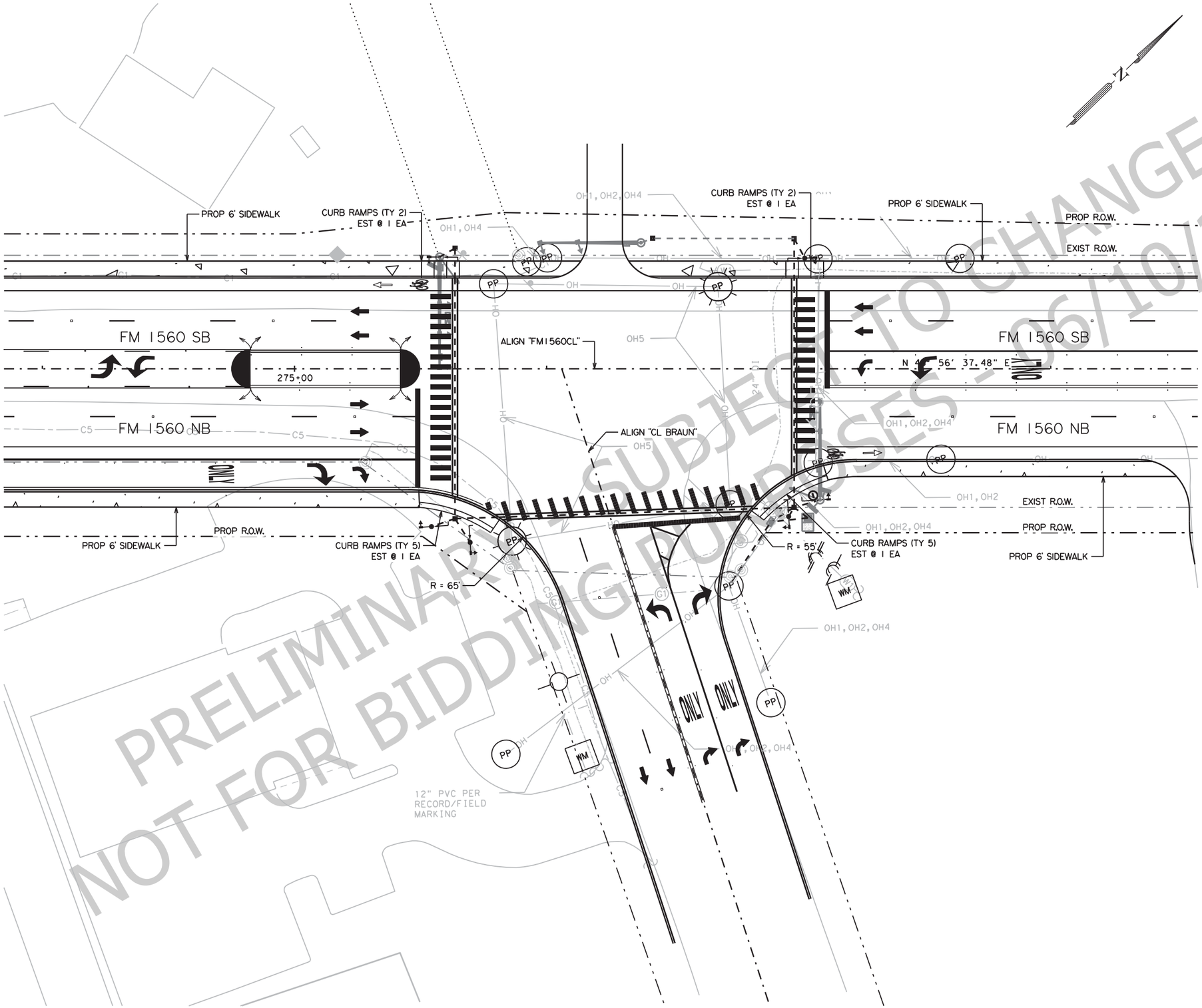

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/3/2020

SCALE: 1"=40'

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FM 1560
BRAUN RD.
INTERSECTION LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	203
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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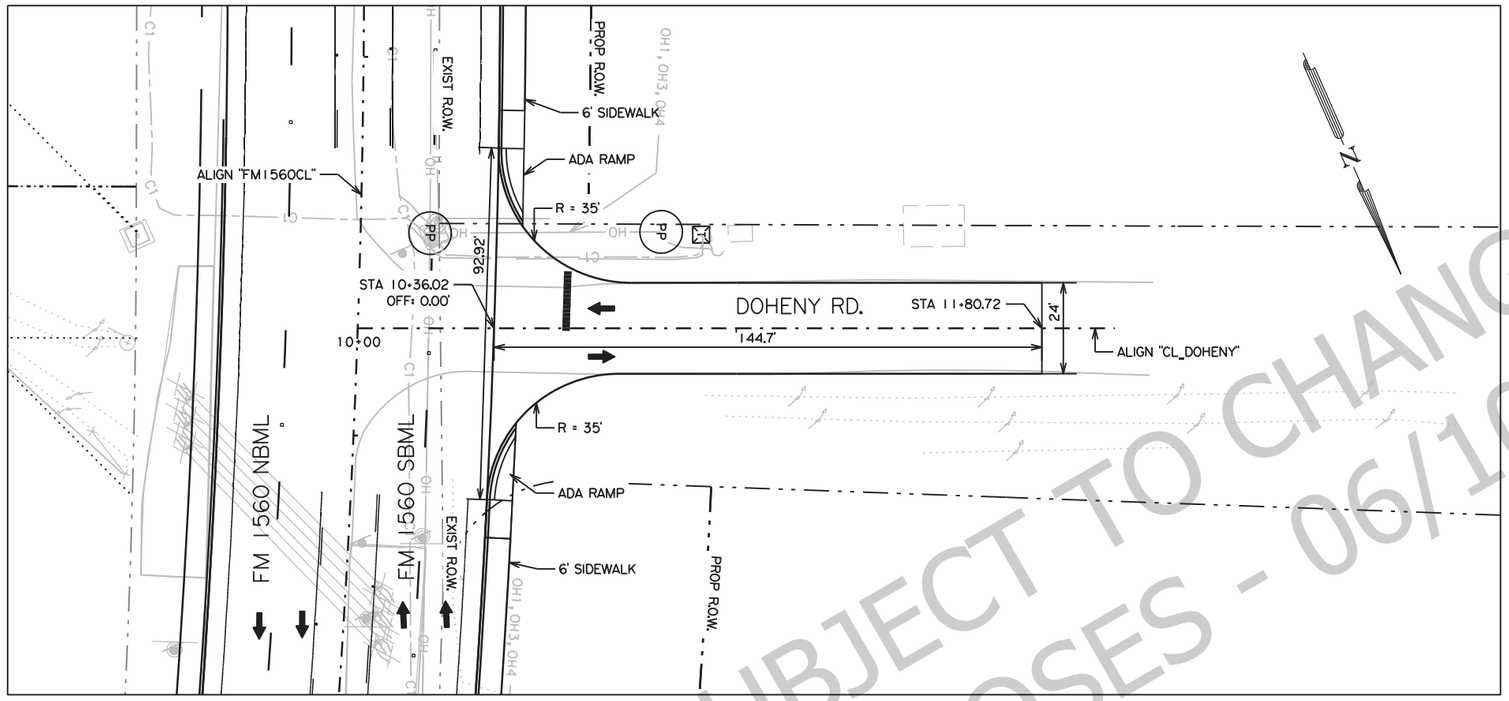
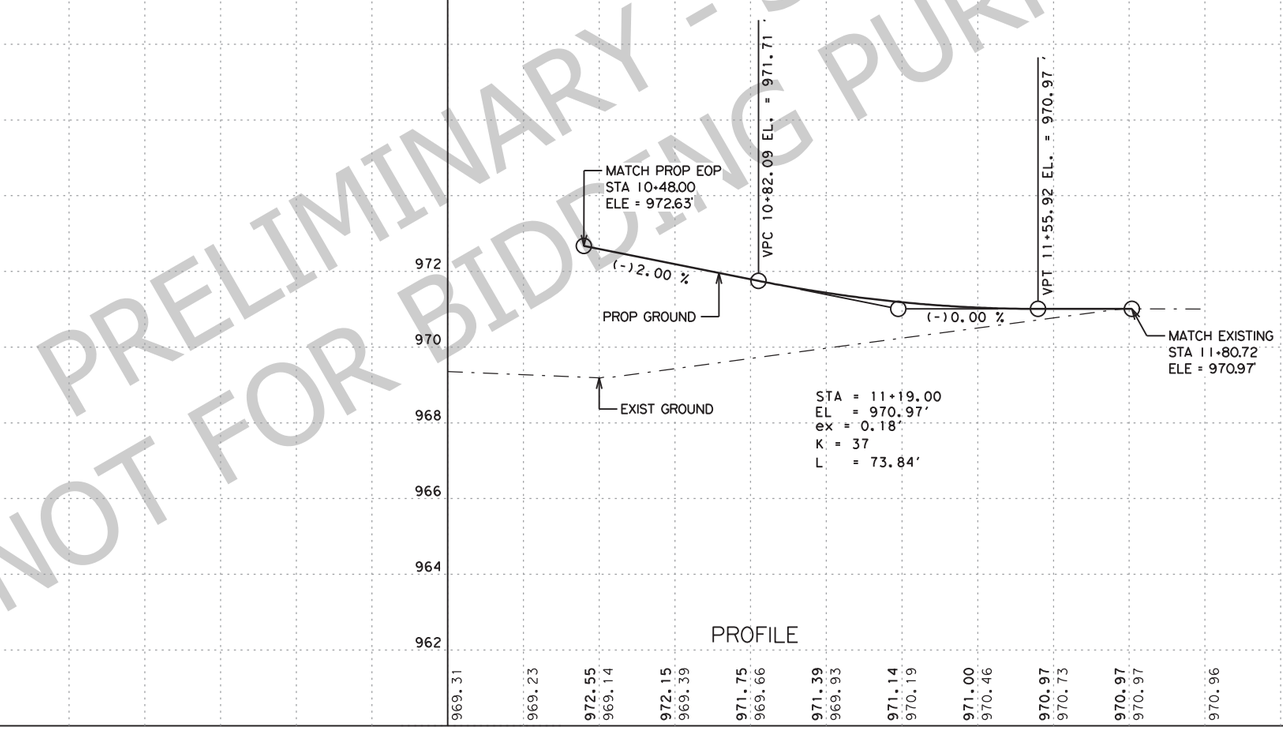


PLAN



PROFILE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
DOHENY RD.
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

204

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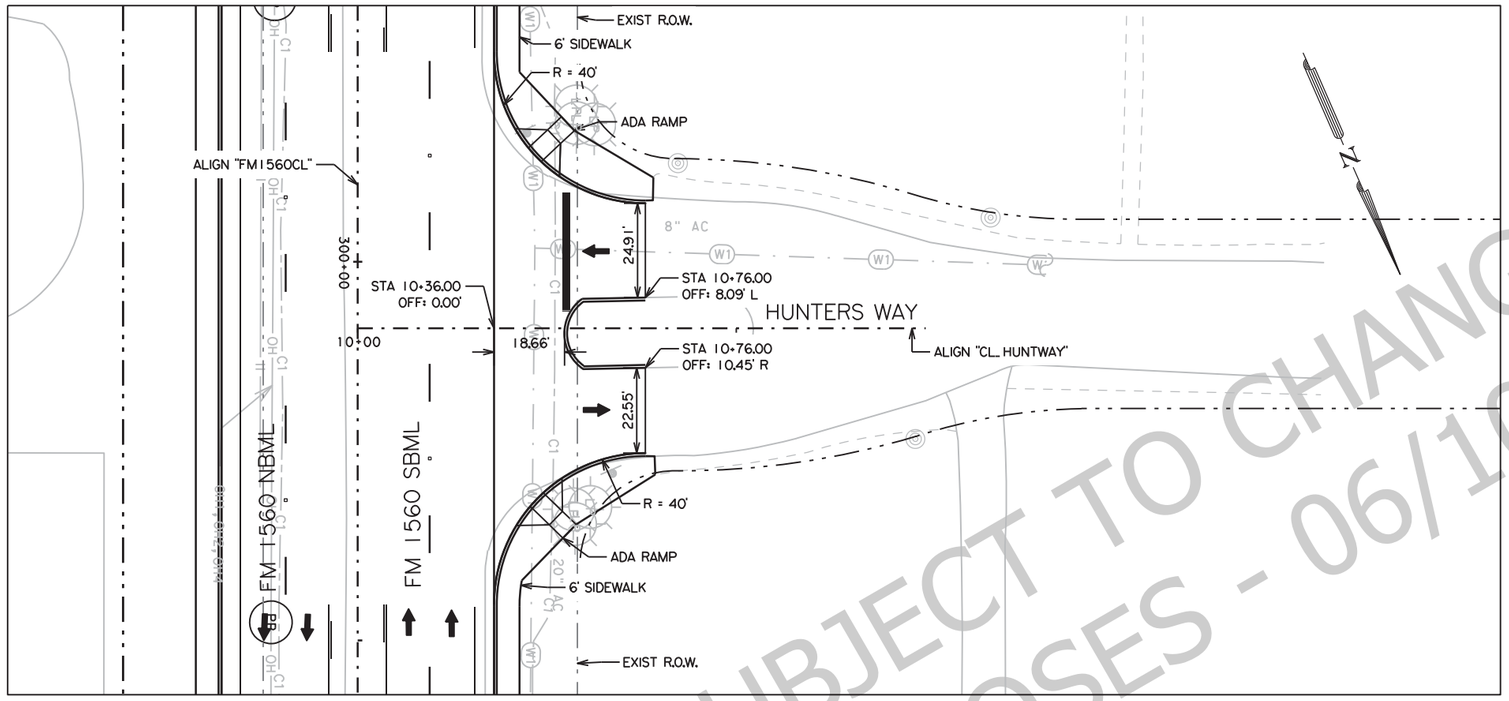

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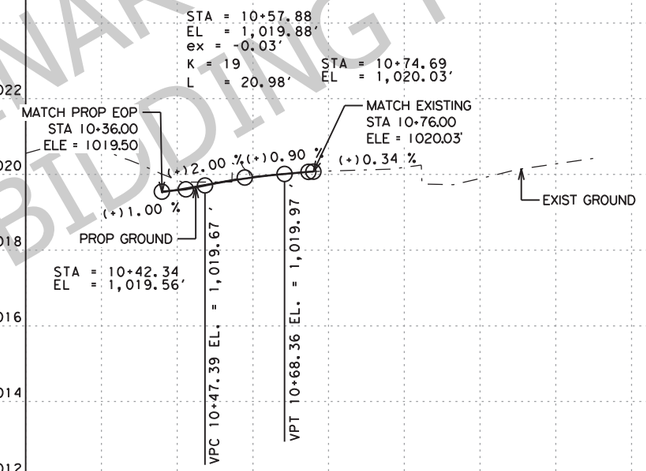

PROFILE

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		1,019.81	1,019.89				

10+00 11+00

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
© 2020 TxDOT

FM 1560
HUNTERS WAY
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	205
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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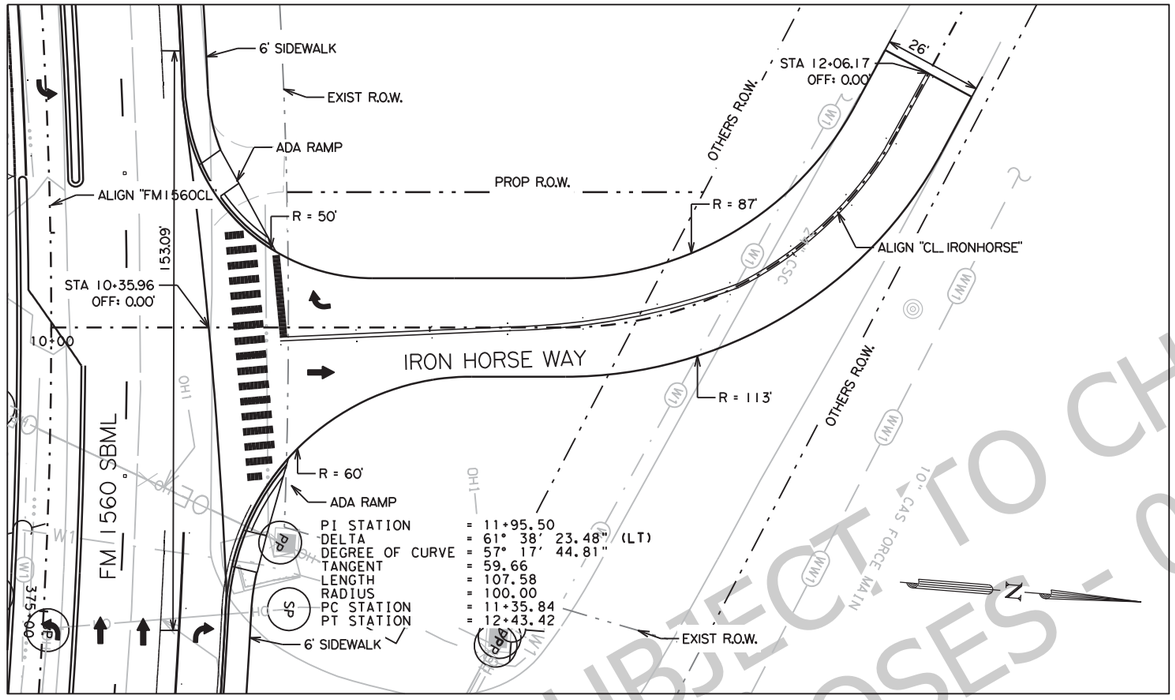
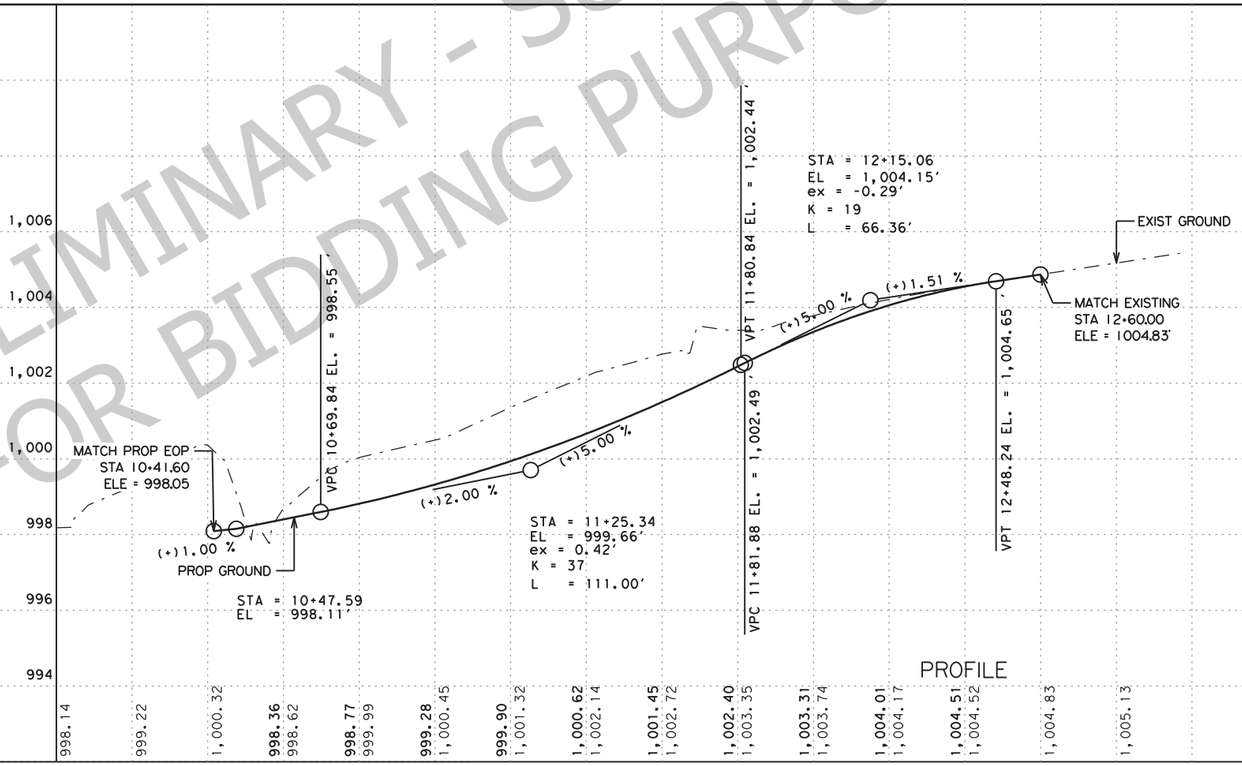


PLAN



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
IRON HORSE WAY
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	206
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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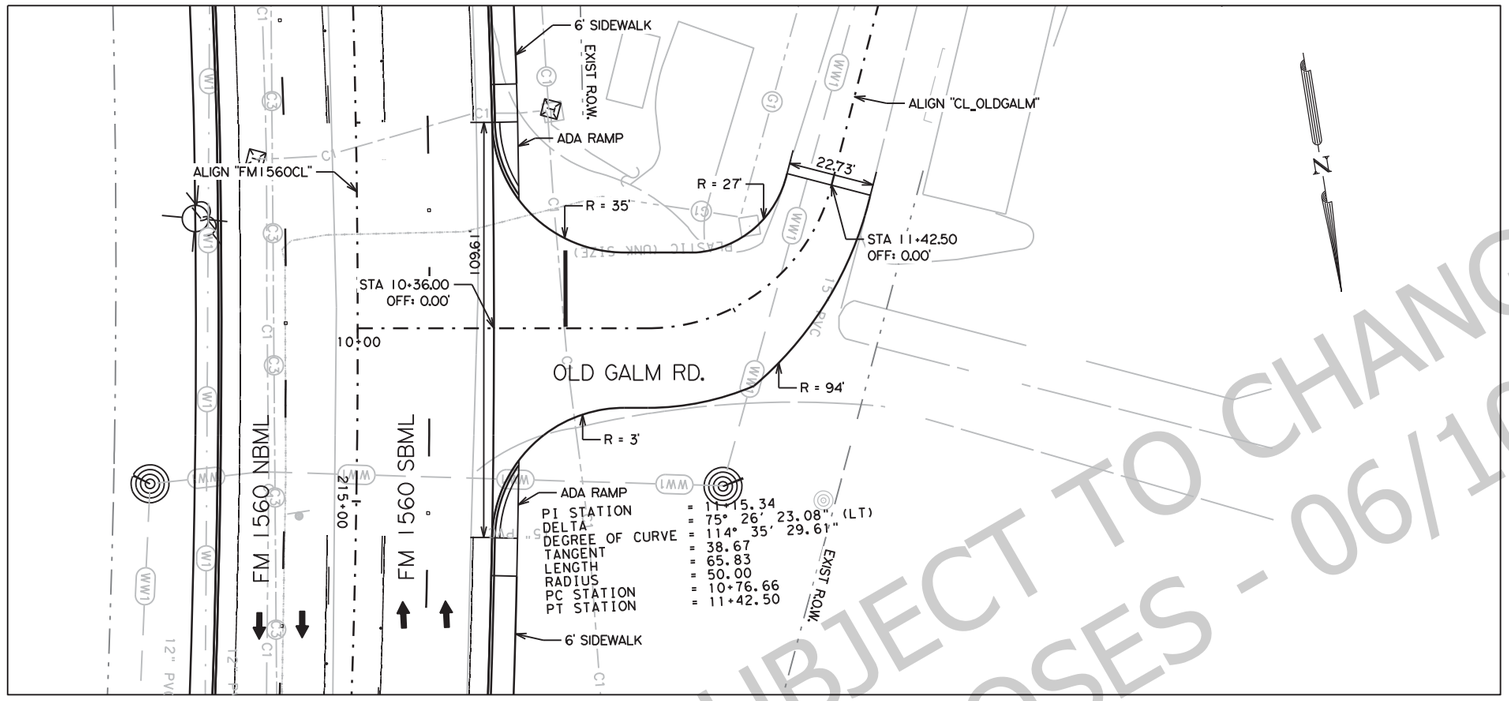

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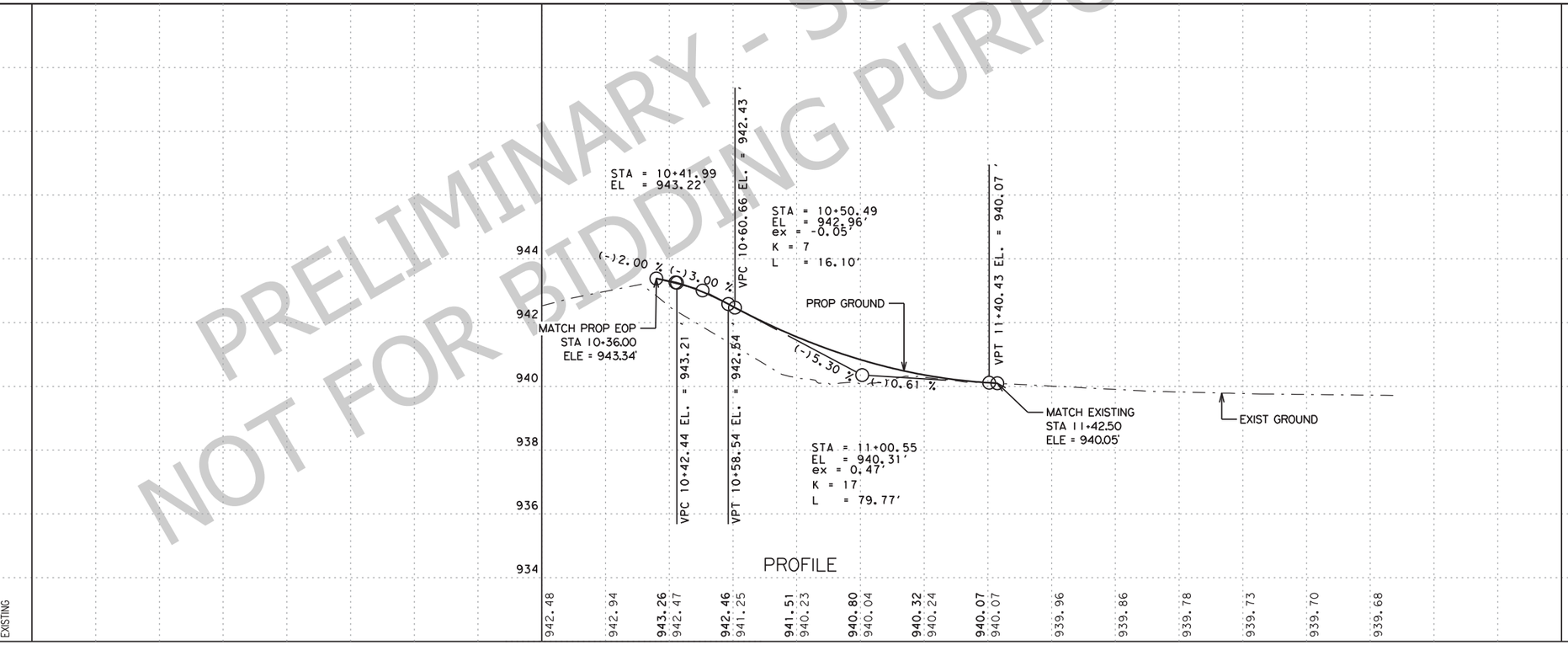

PROFILE

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
OLD GALM RD.
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	207
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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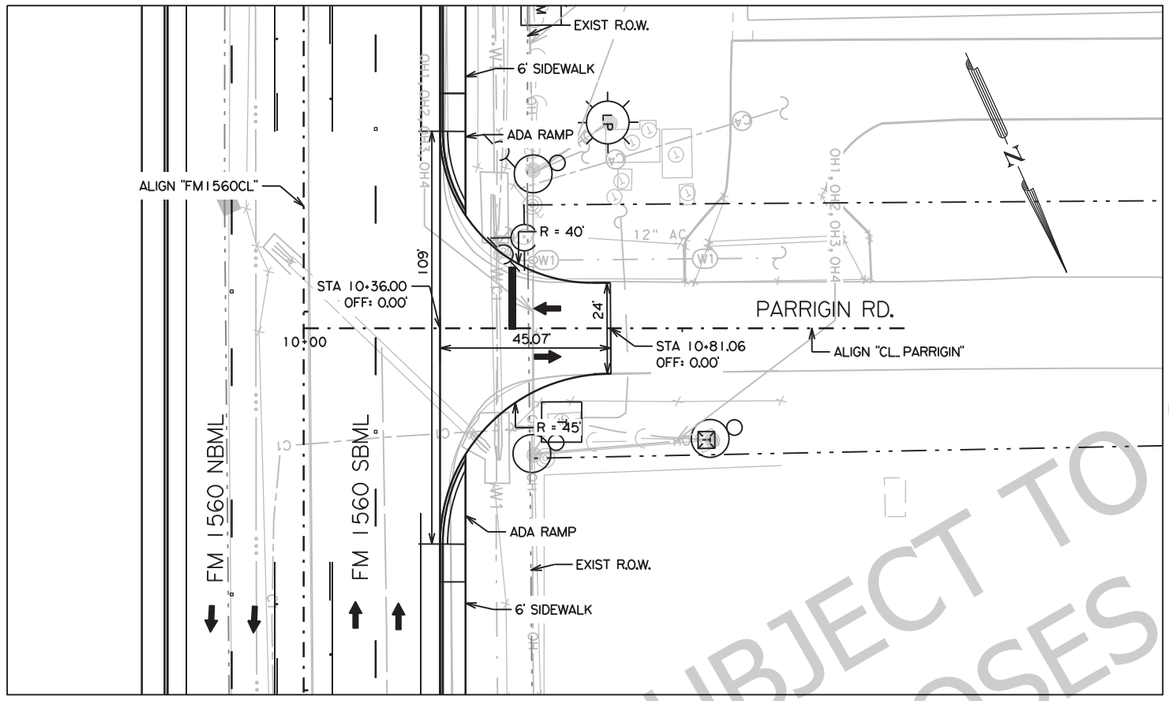
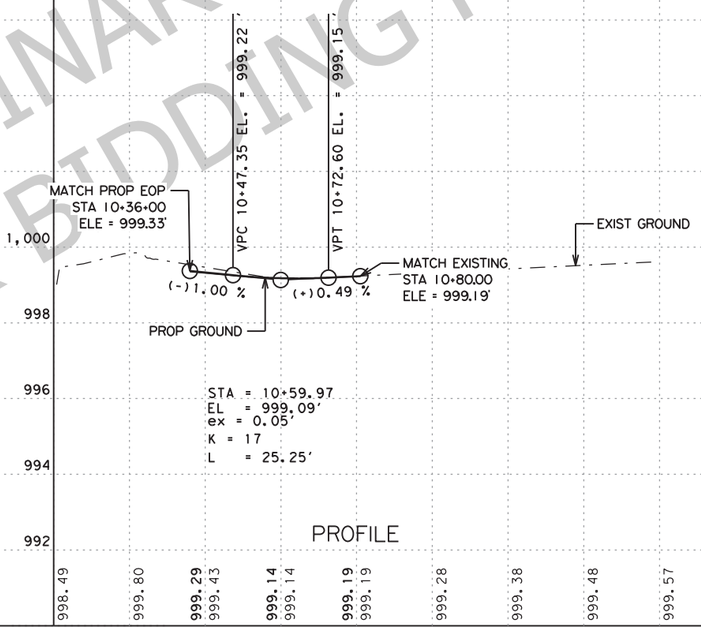


PLAN



PROFILE

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
PARRIGIN RD.
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

208

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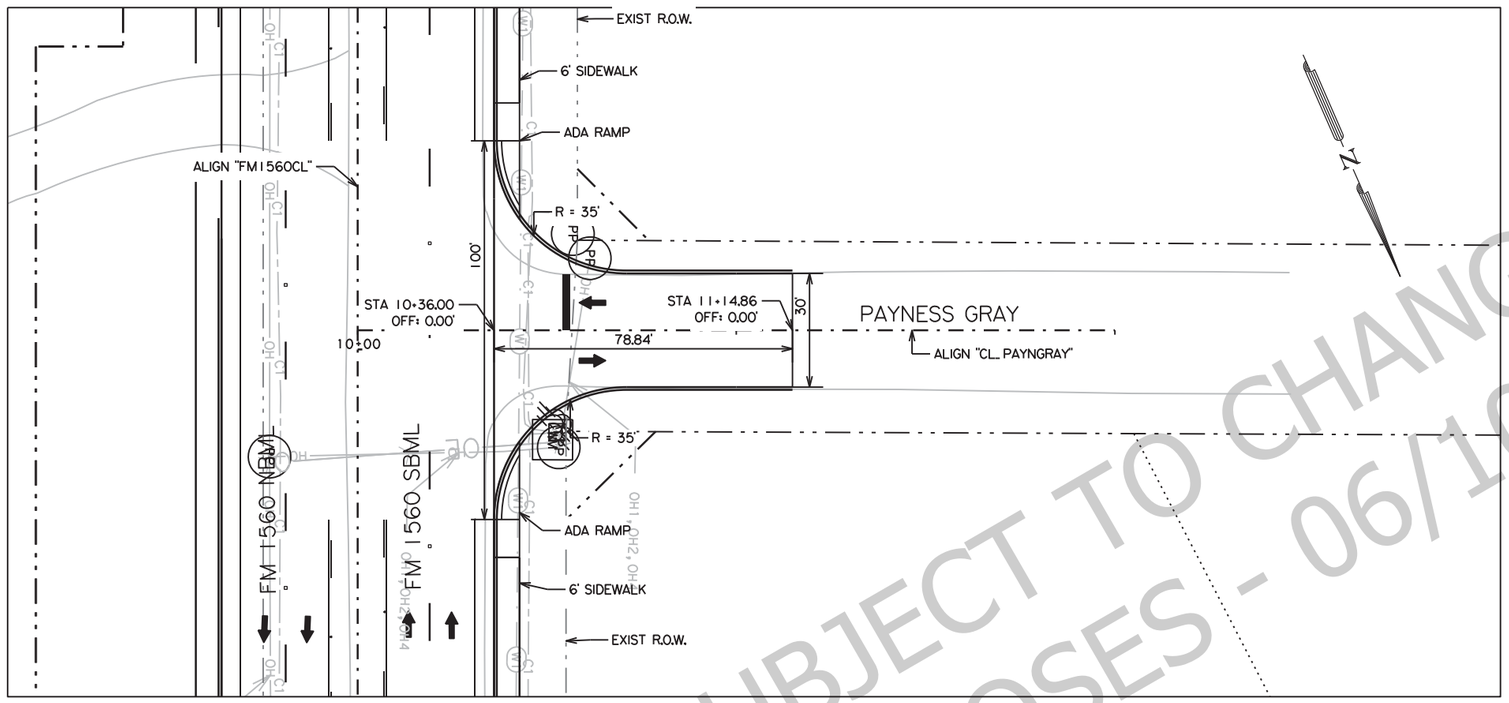
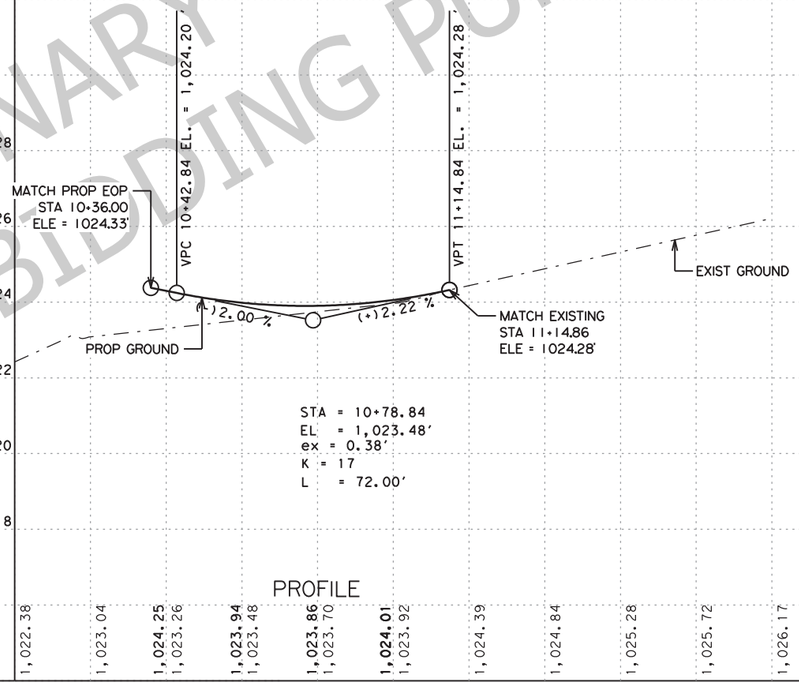


PLAN



PROFILE

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
PAYNESS GRAY
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	209
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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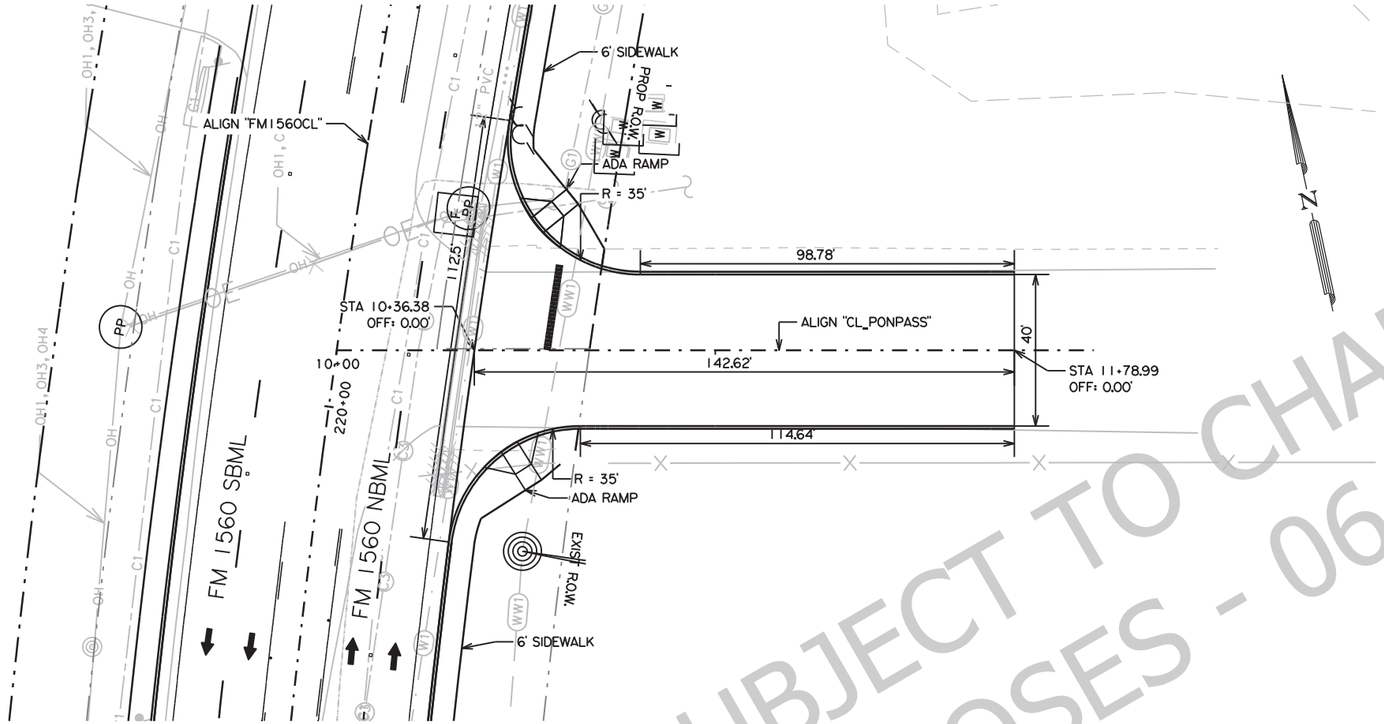

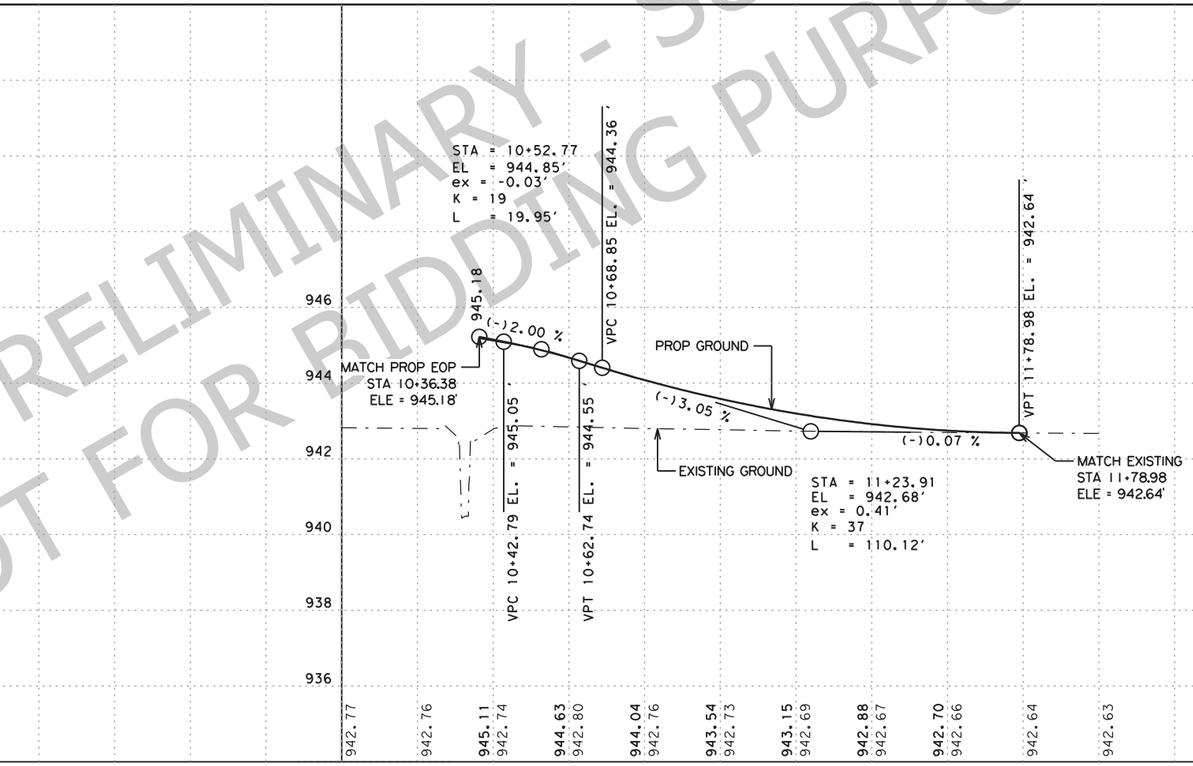

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
PONCE PASS
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

210

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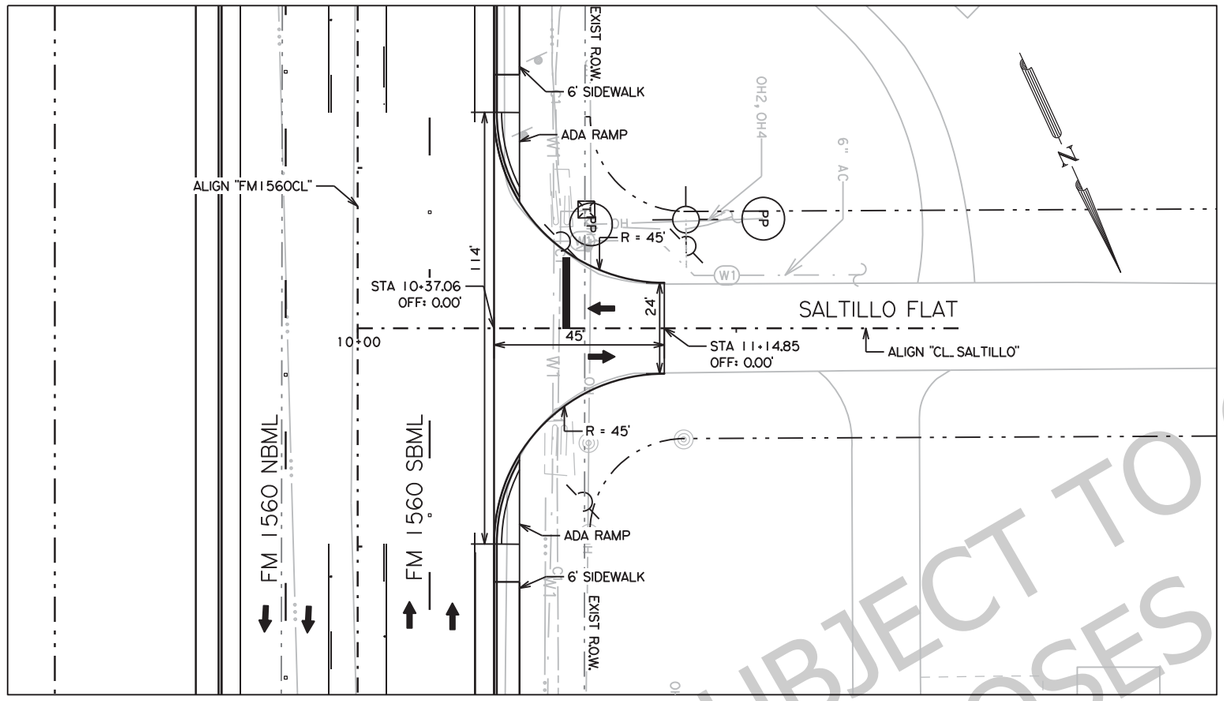
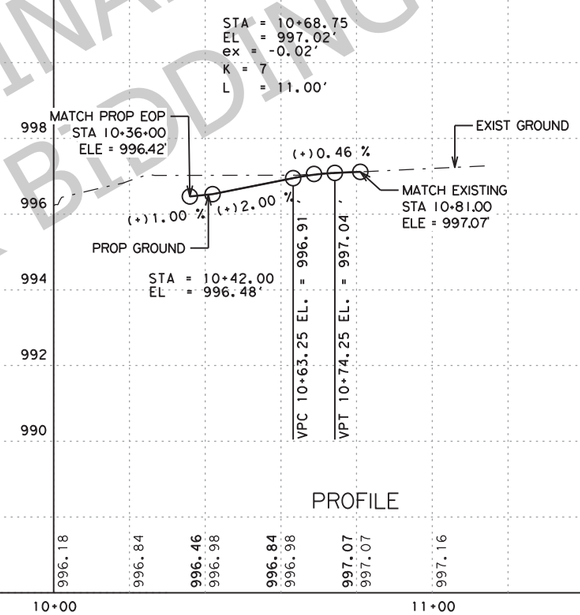


PLAN



PROFILE

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
SALTILLO FLAT
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	211
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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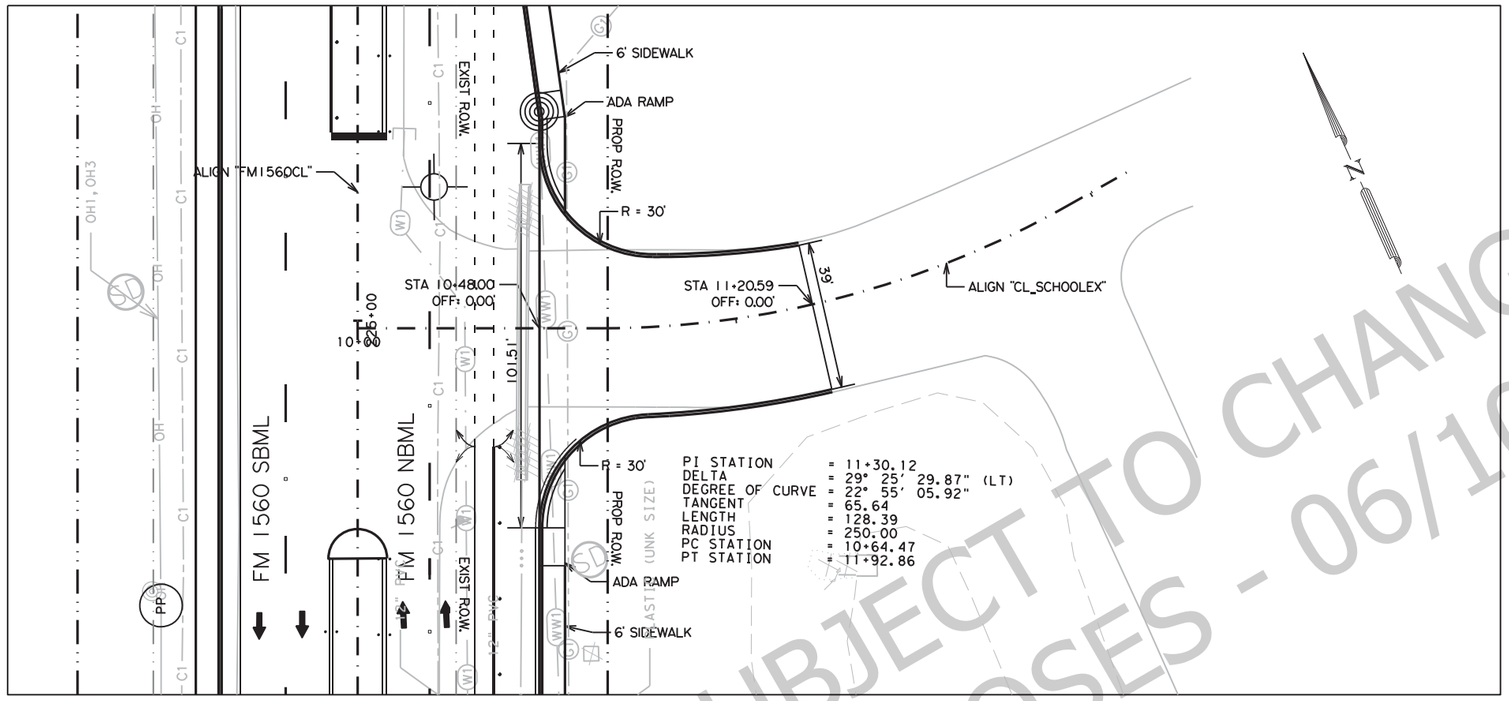
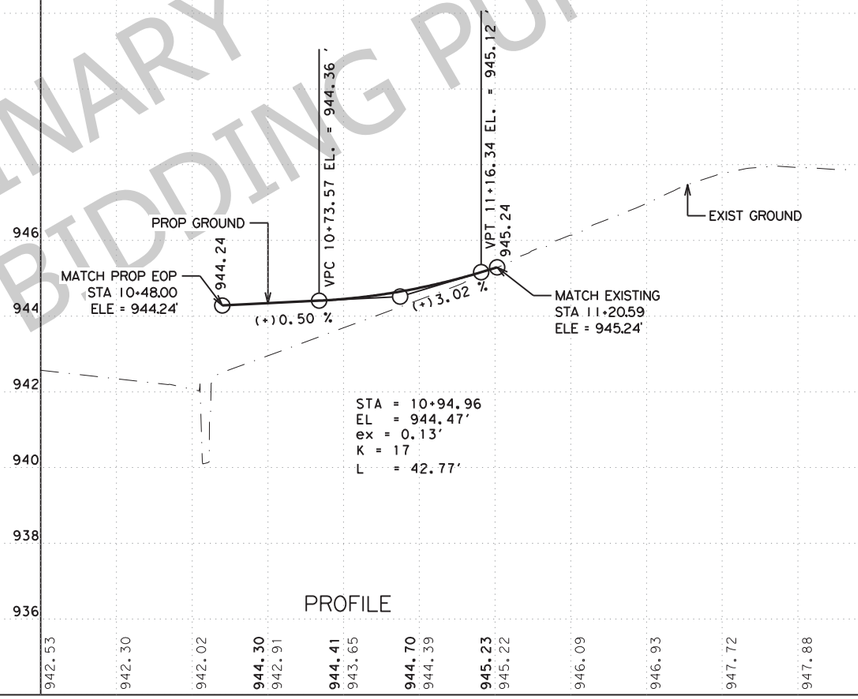


PLAN



PROFILE

PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 2020/06/08

SCALE

HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
SCHOOL EXIT
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	212
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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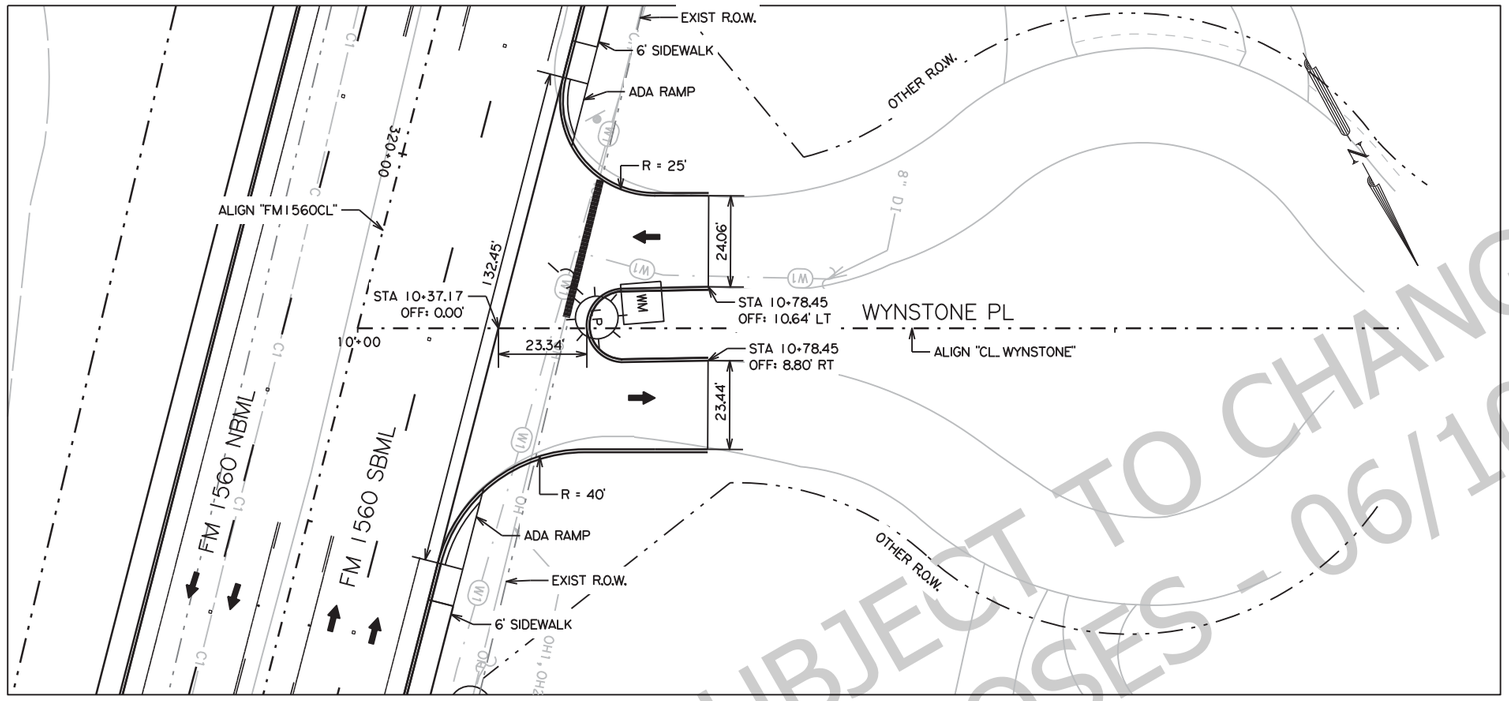
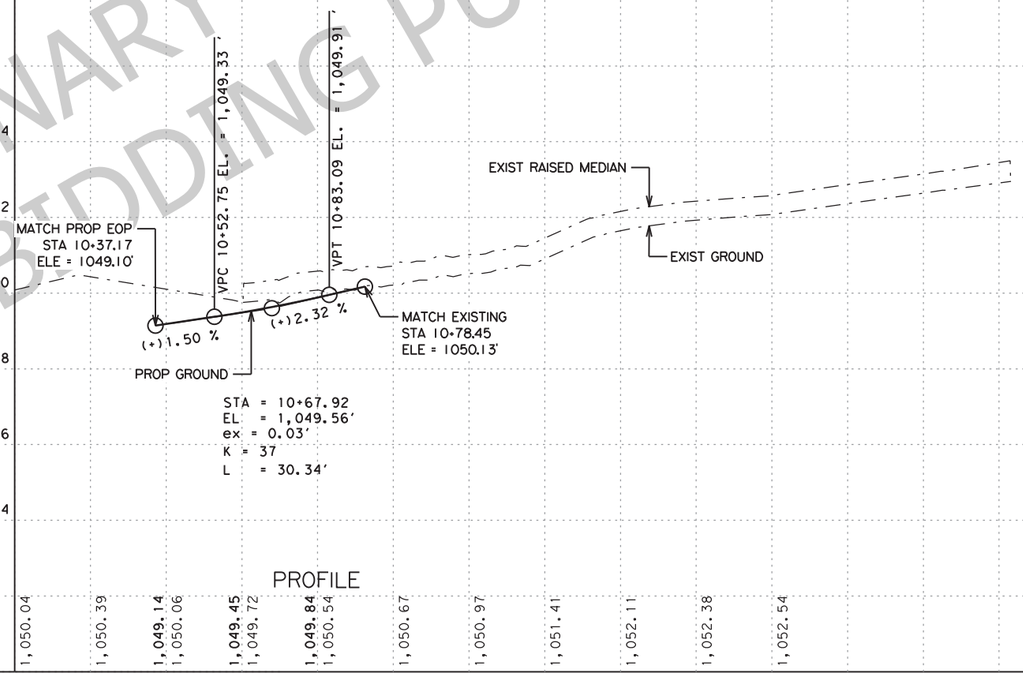


PLAN



PROPOSED
EXISTING

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1" = 40' VERTICAL: 1" = 4'

Texas Department of Transportation
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FM 1560
WYNSTONE PL
PLAN & PROFILE LAYOUT

SHEET 1 OF 1

DESIGN:	DRAFT:	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

213

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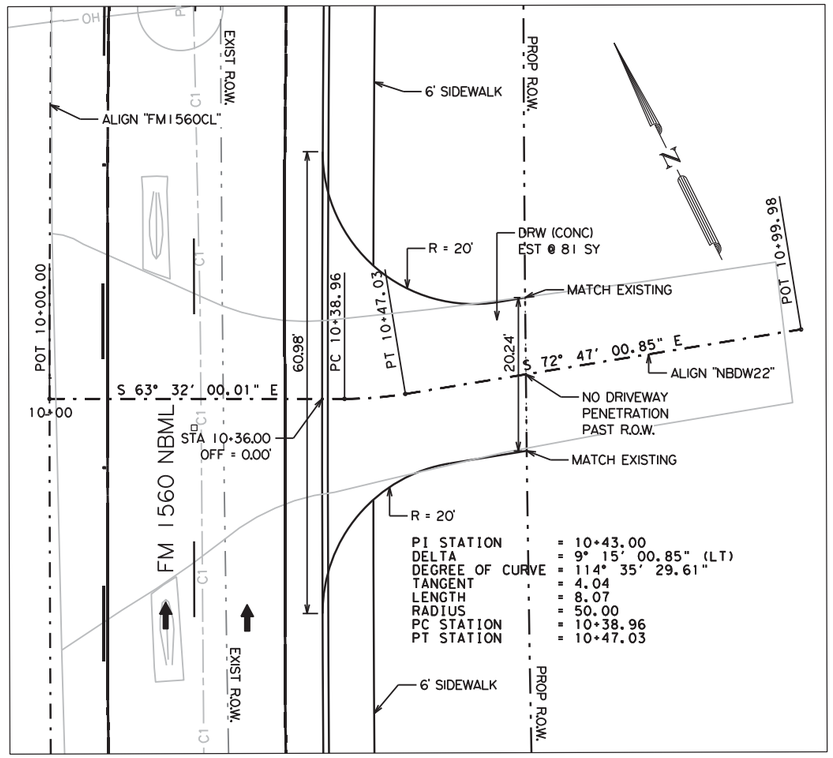
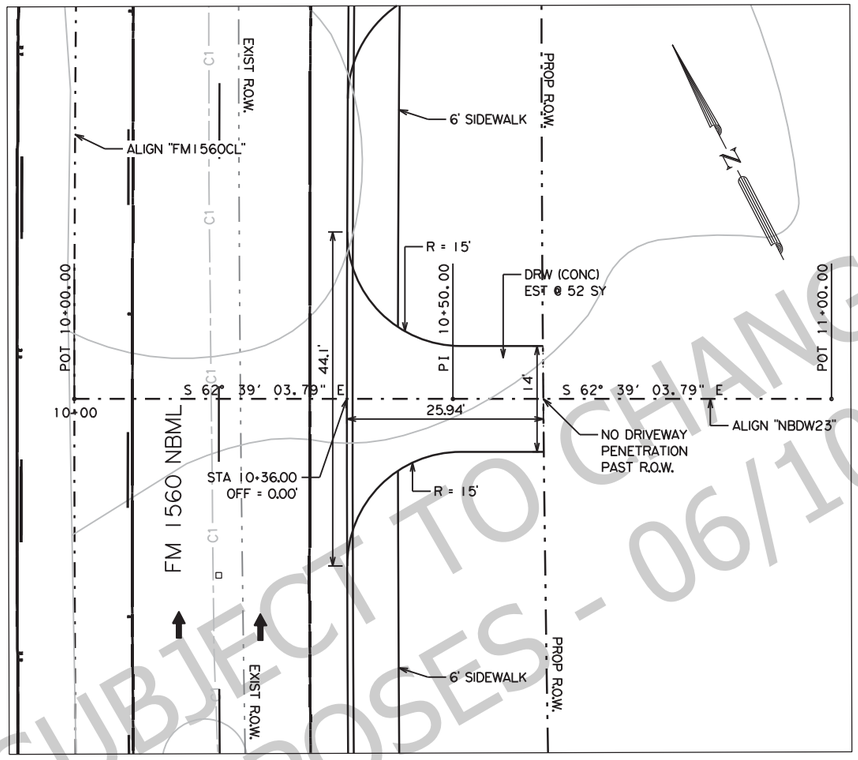
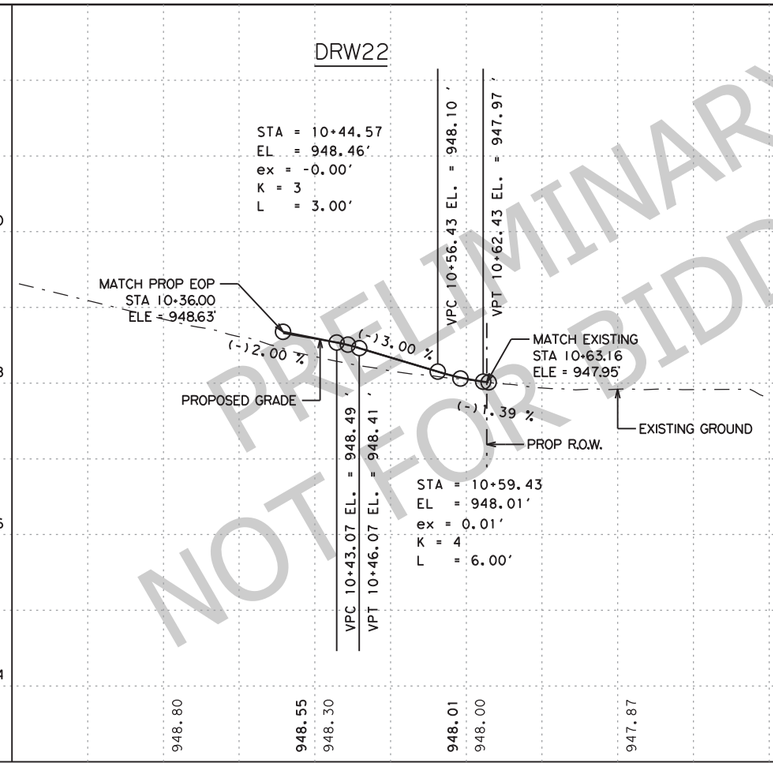


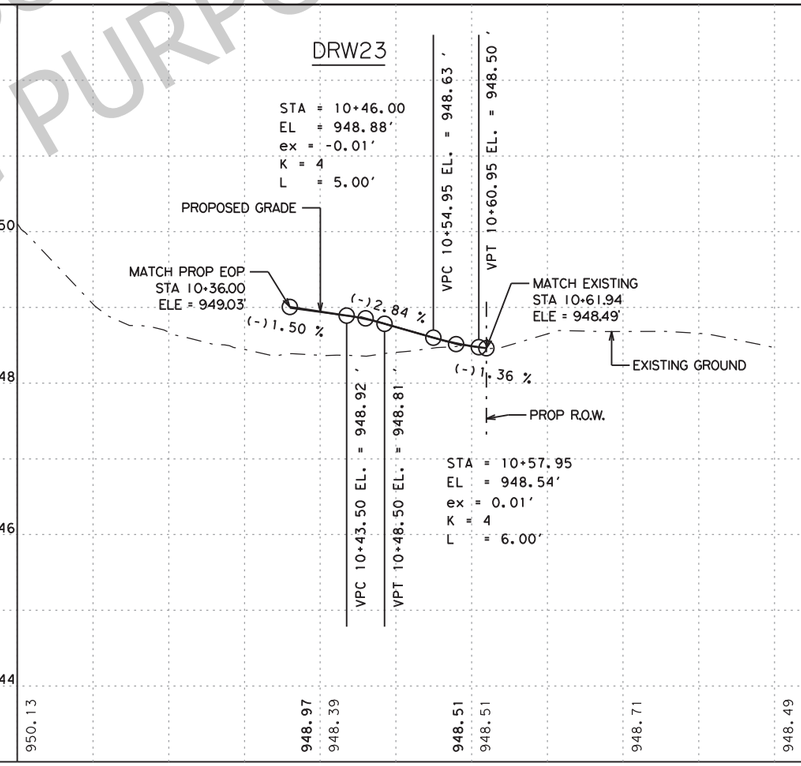


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	133

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 1 OF 14

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

214

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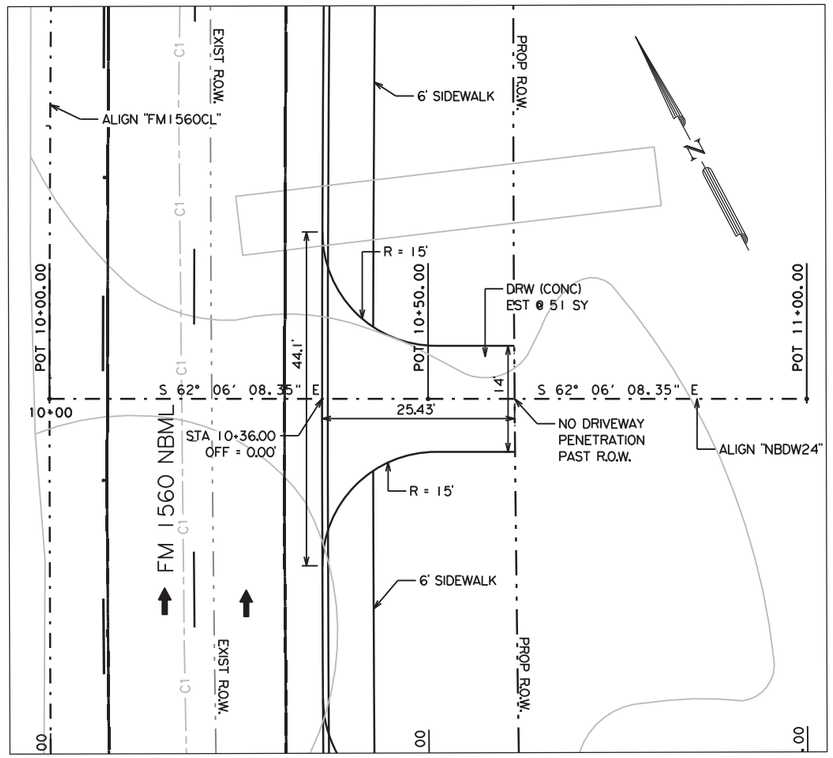
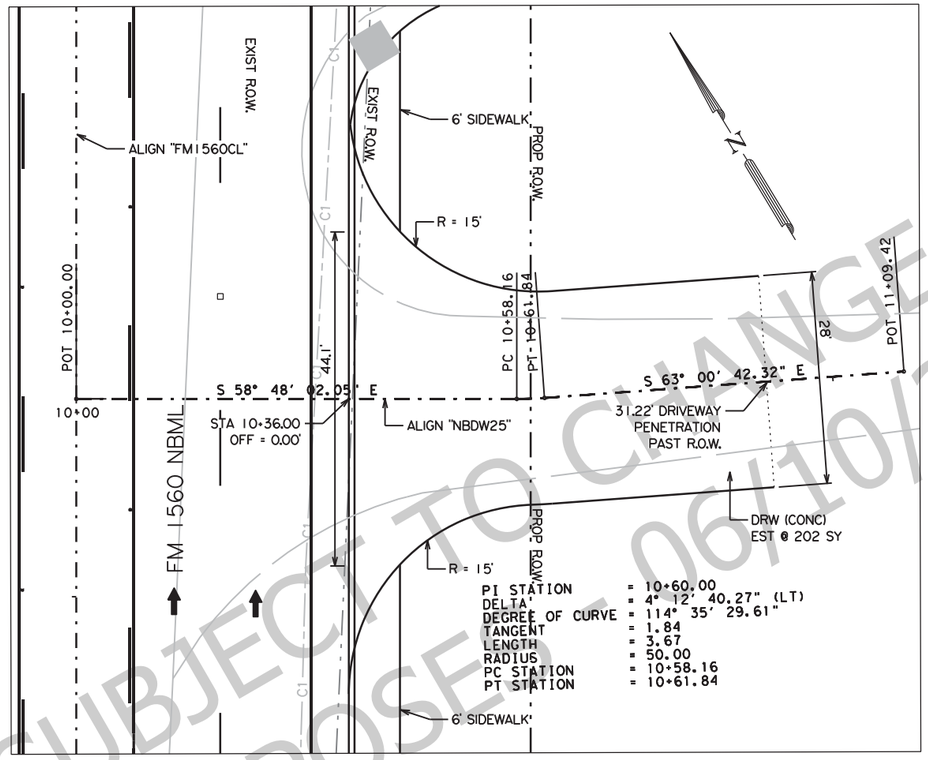
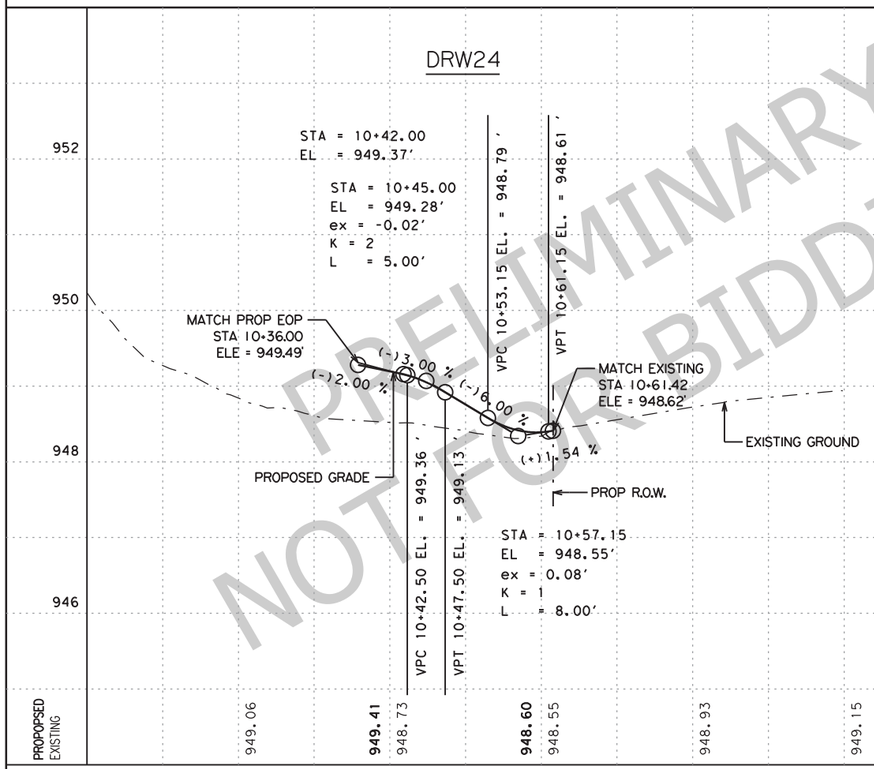
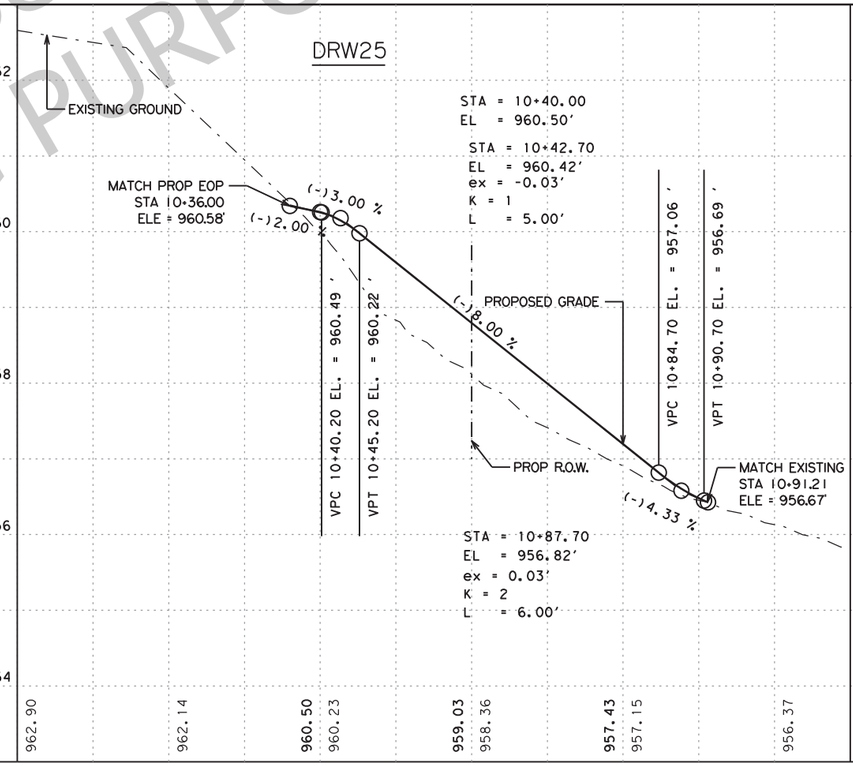
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	253









PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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NB
DRIVEWAY LAYOUTS

SHEET 2 OF 14

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

215

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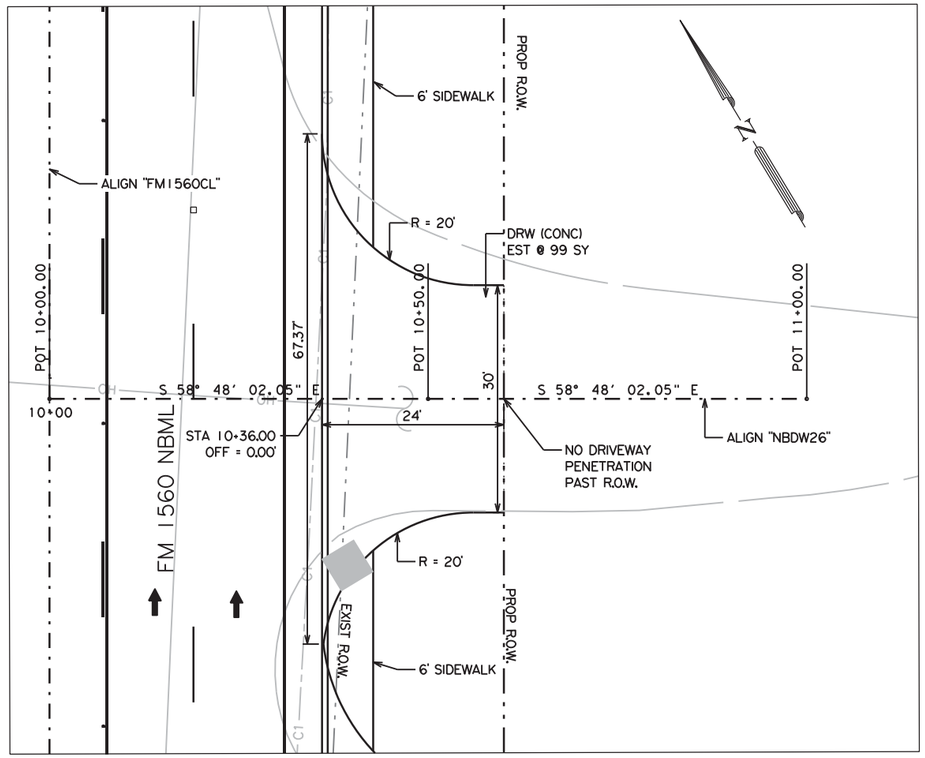
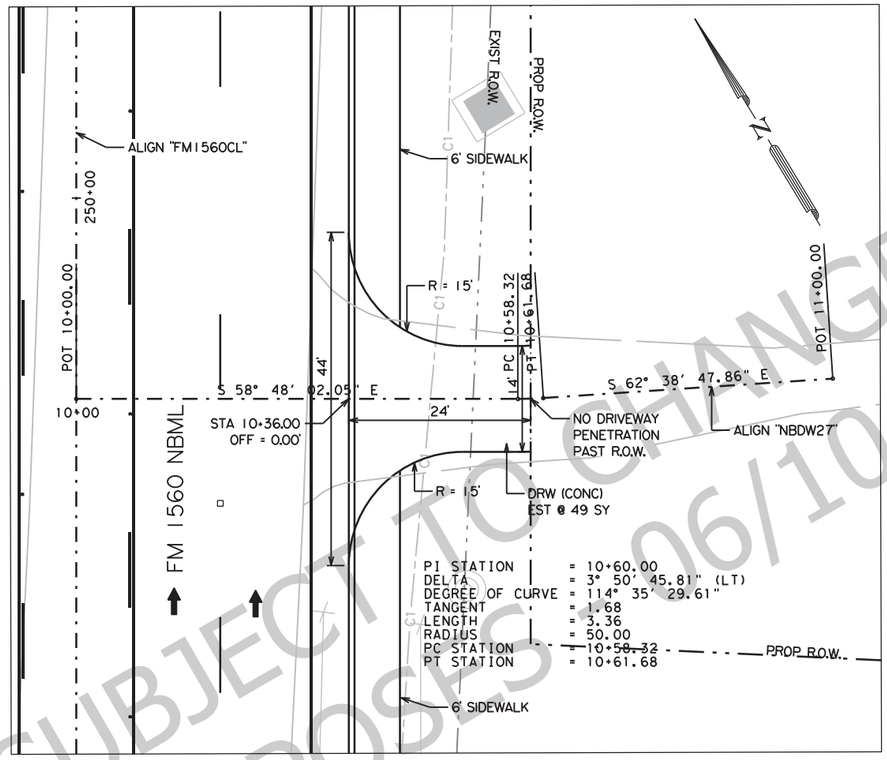
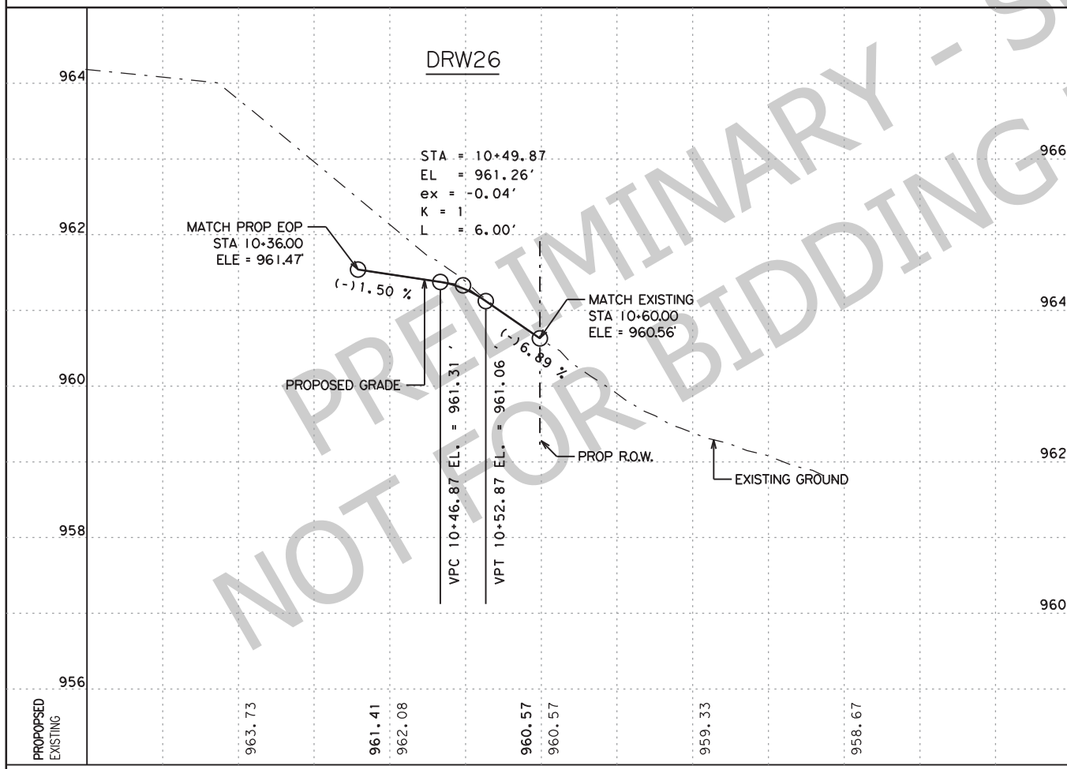
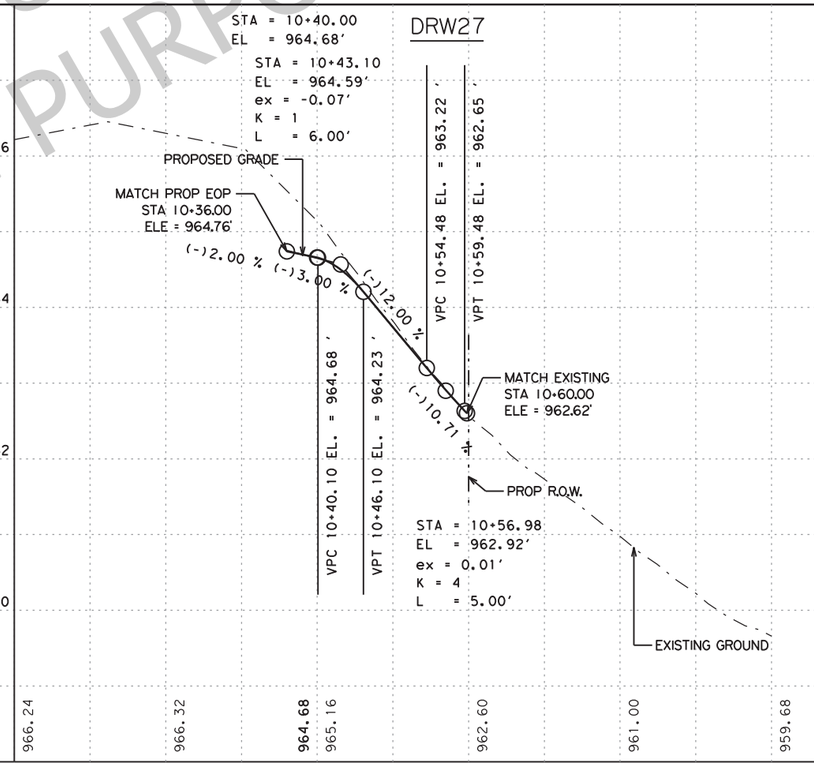




QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	148





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 3 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	216
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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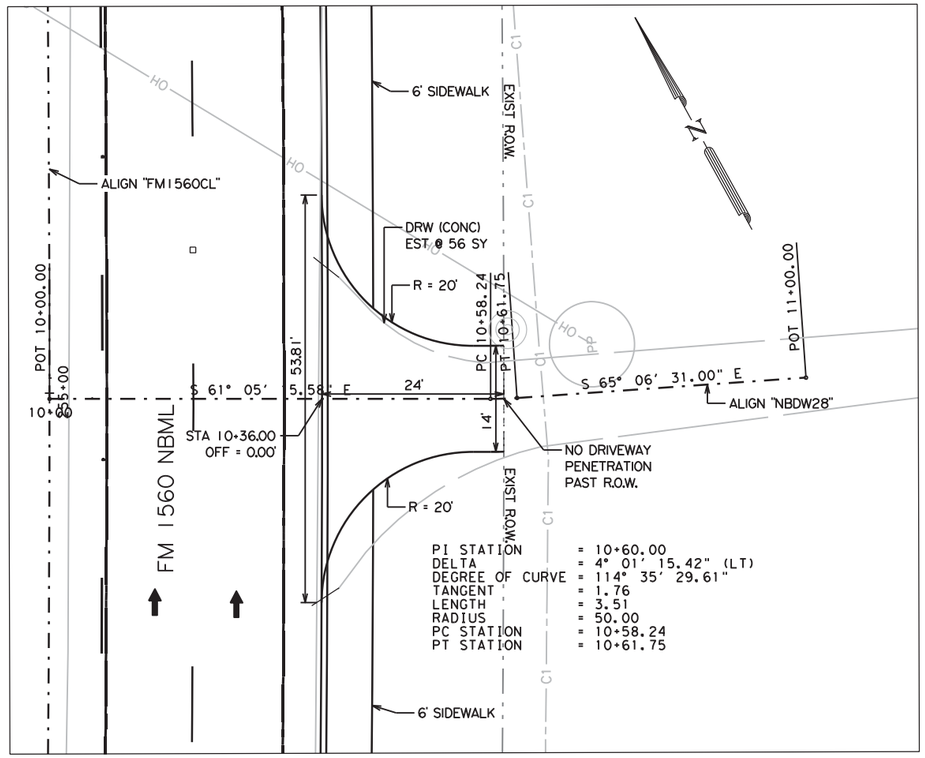
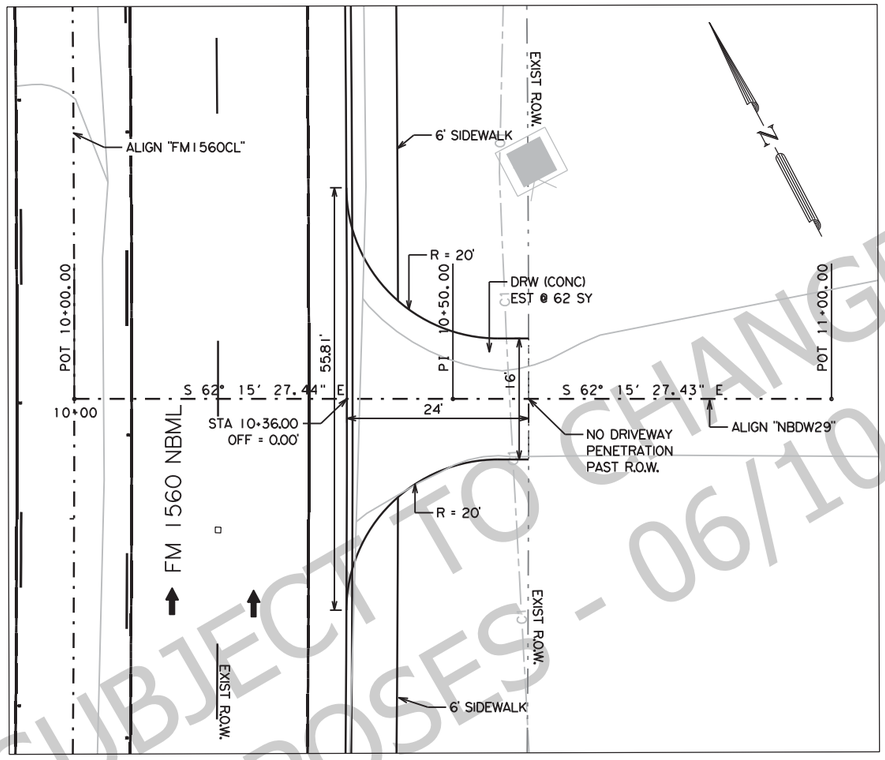
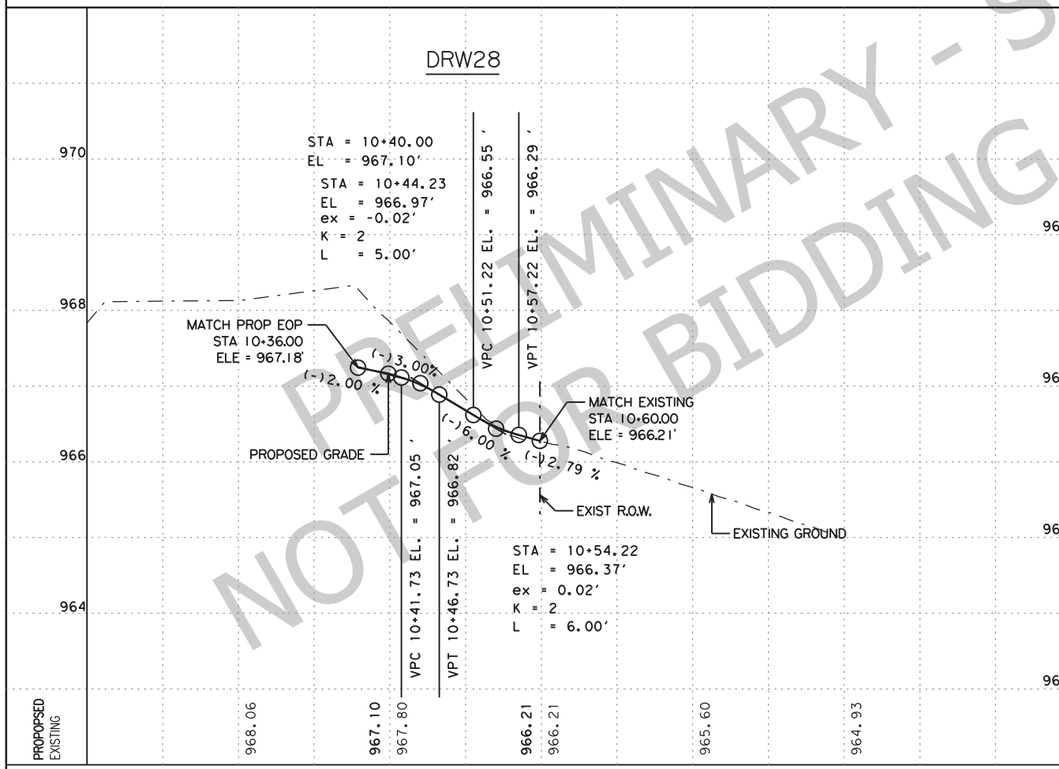


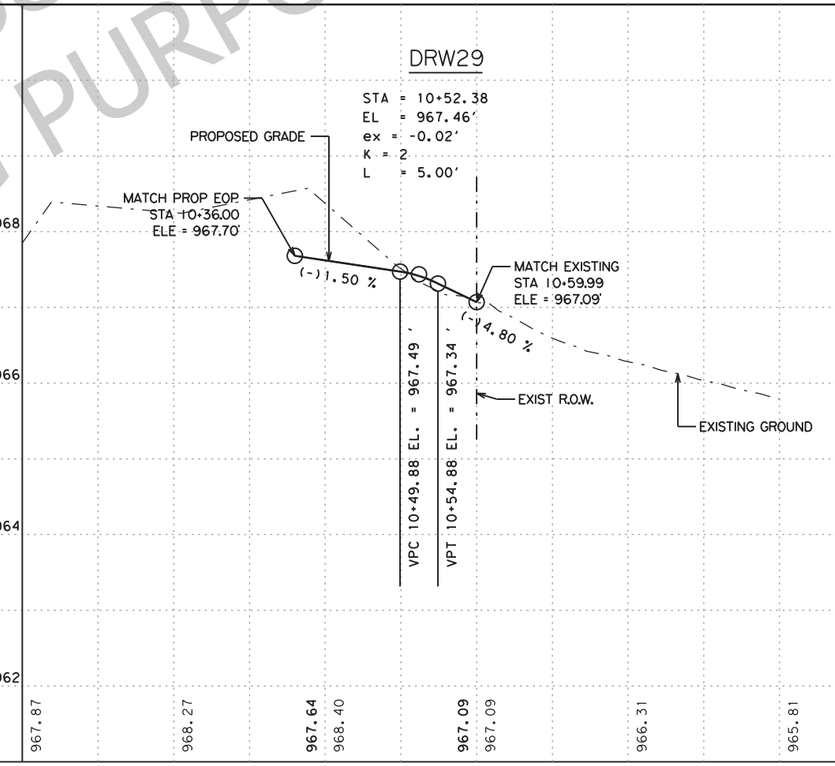


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	118

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 4 OF 14

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

217

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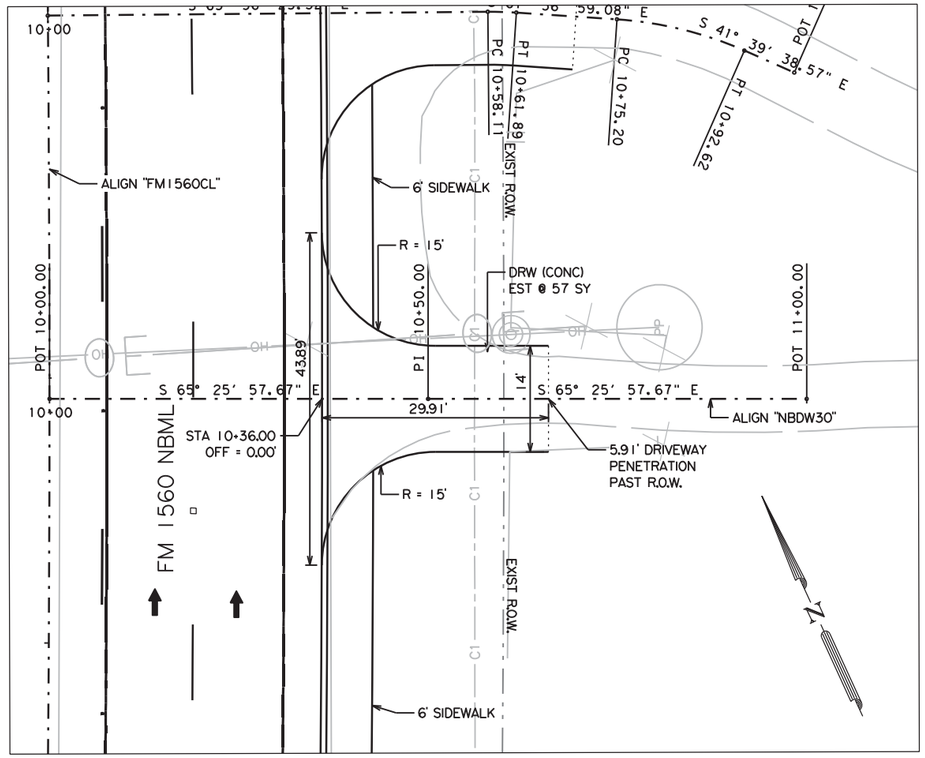
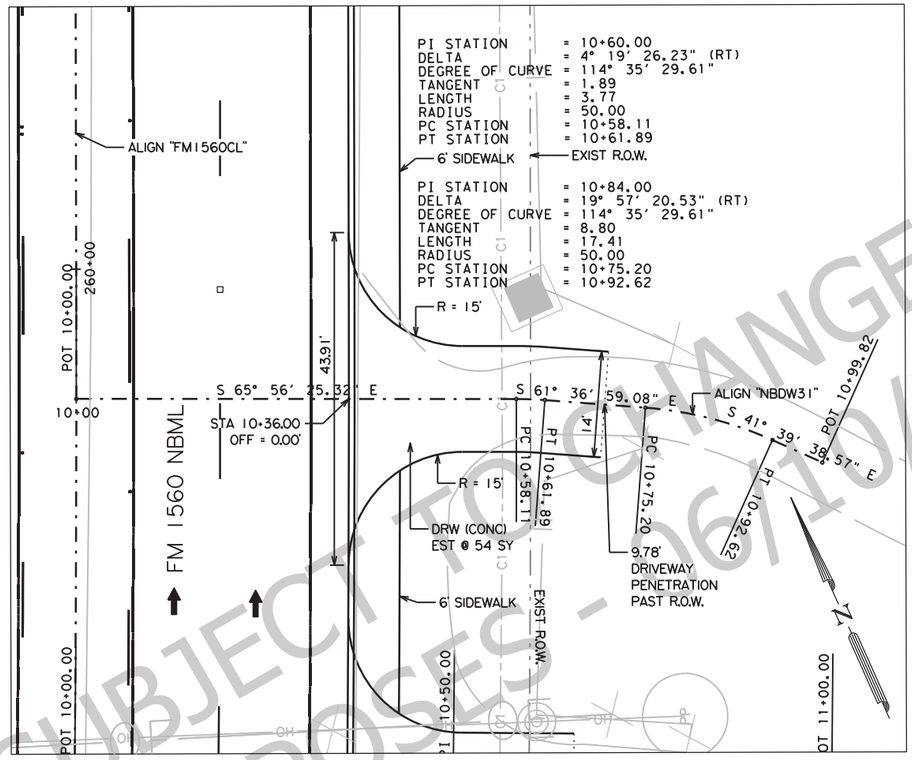
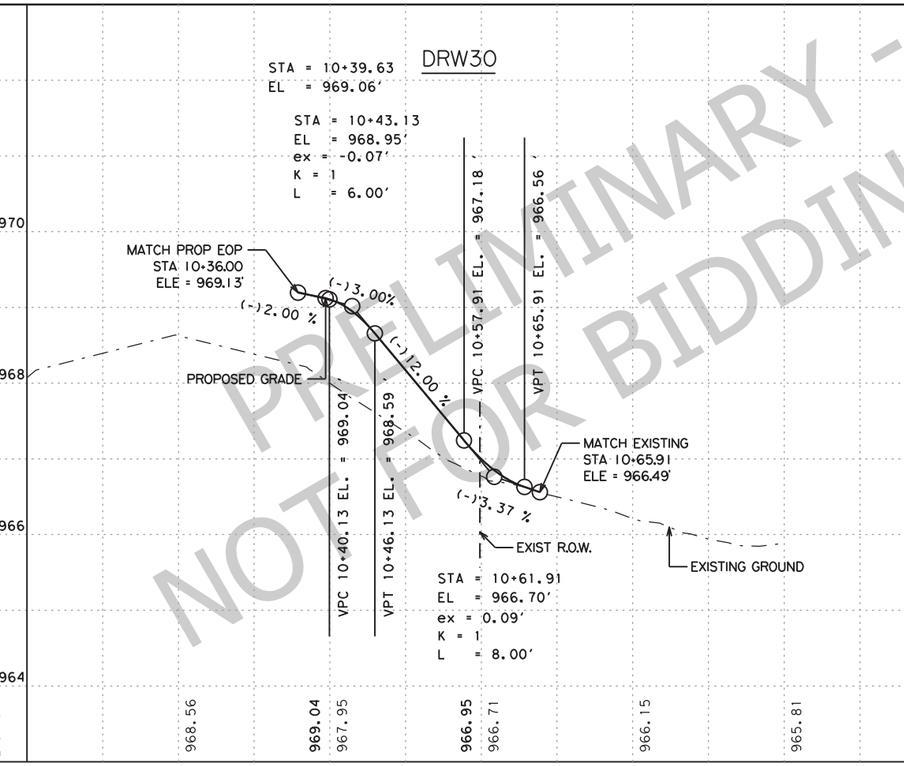


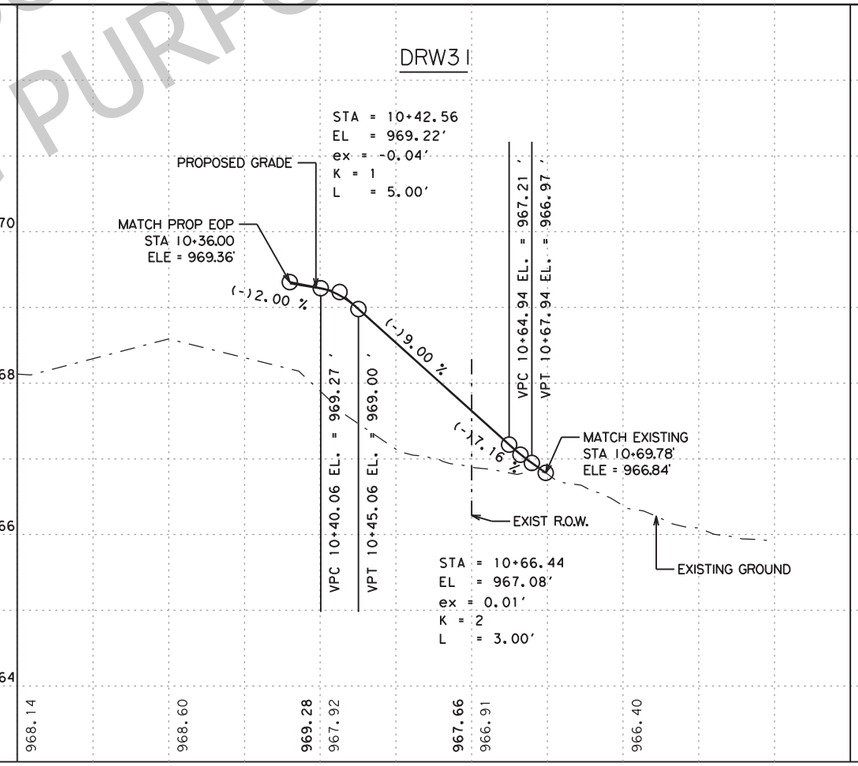


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	121

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 5 OF 14

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

218

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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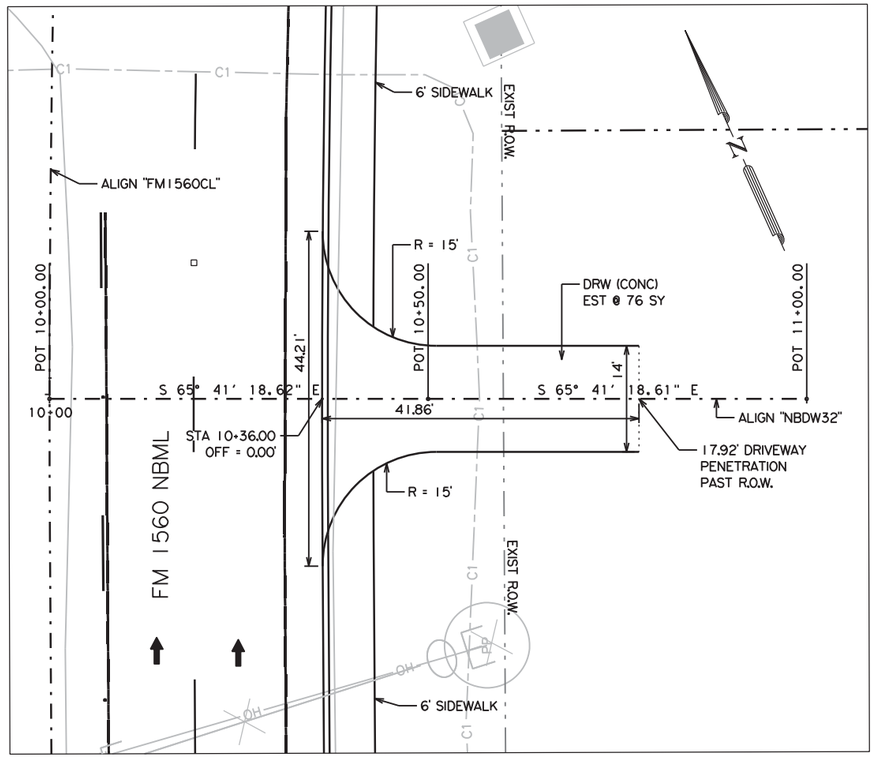
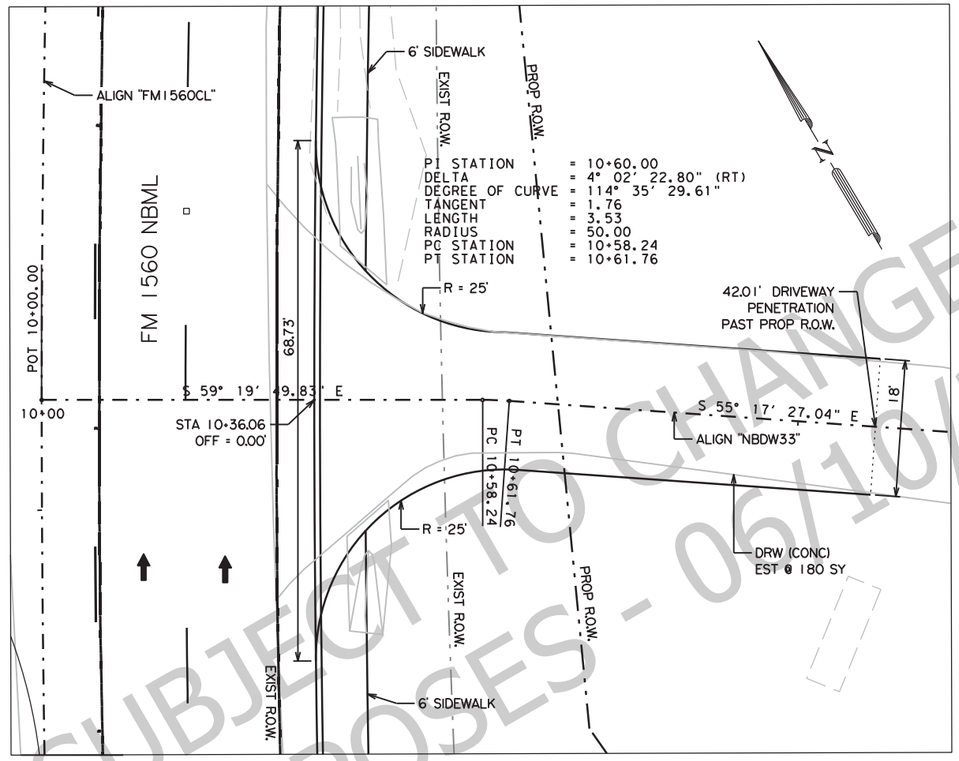
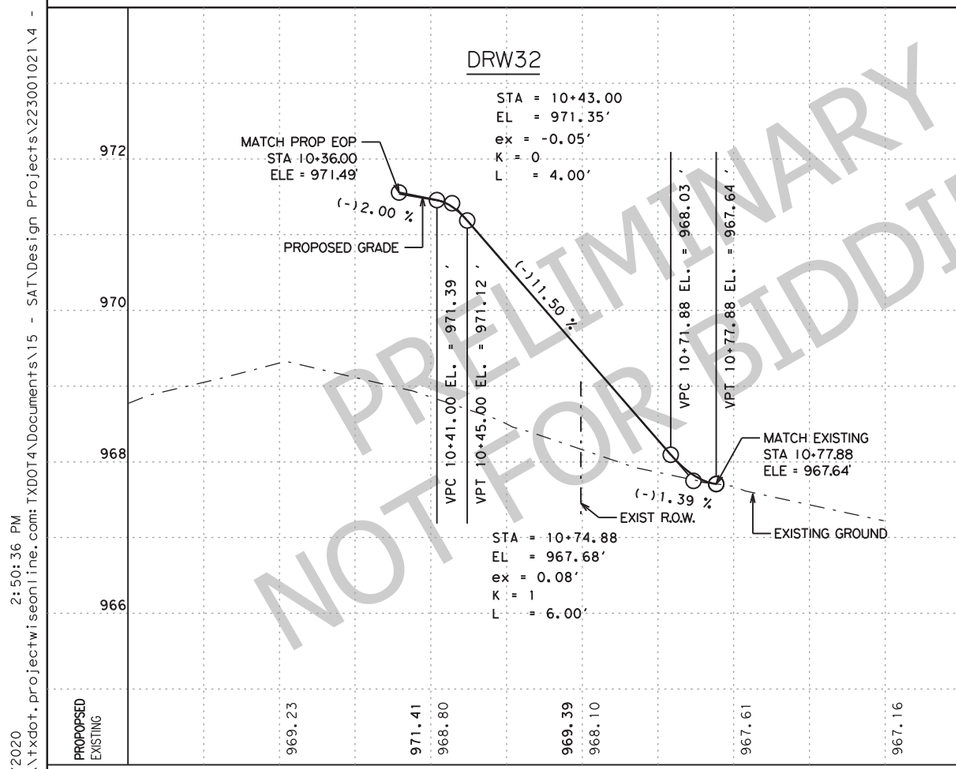


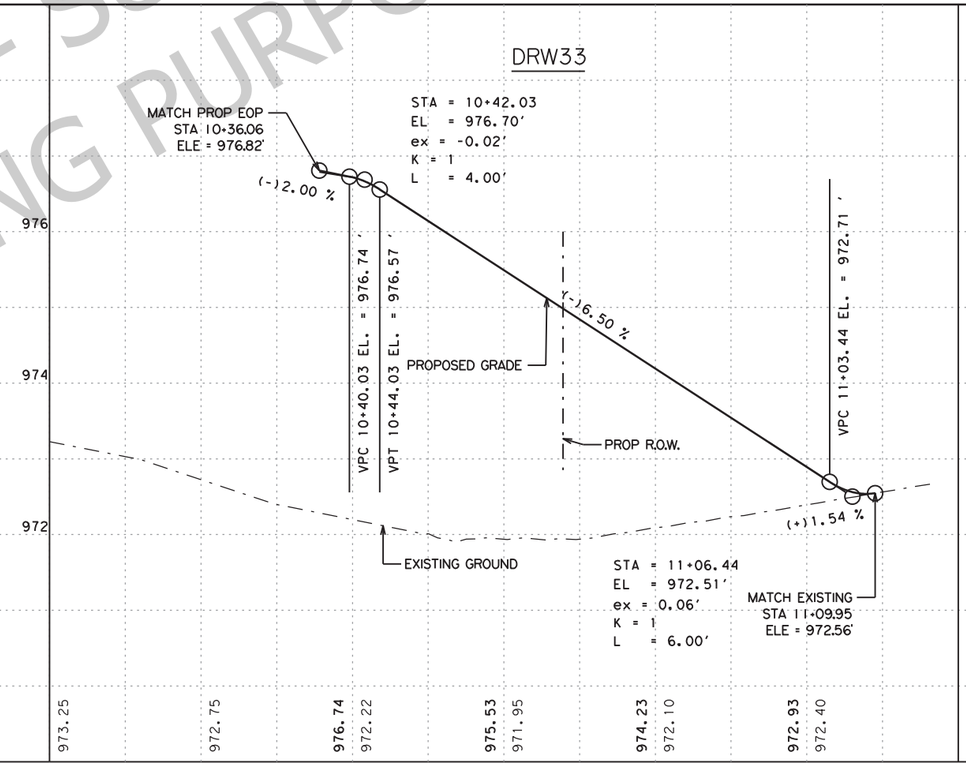


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	256

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 6 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	219
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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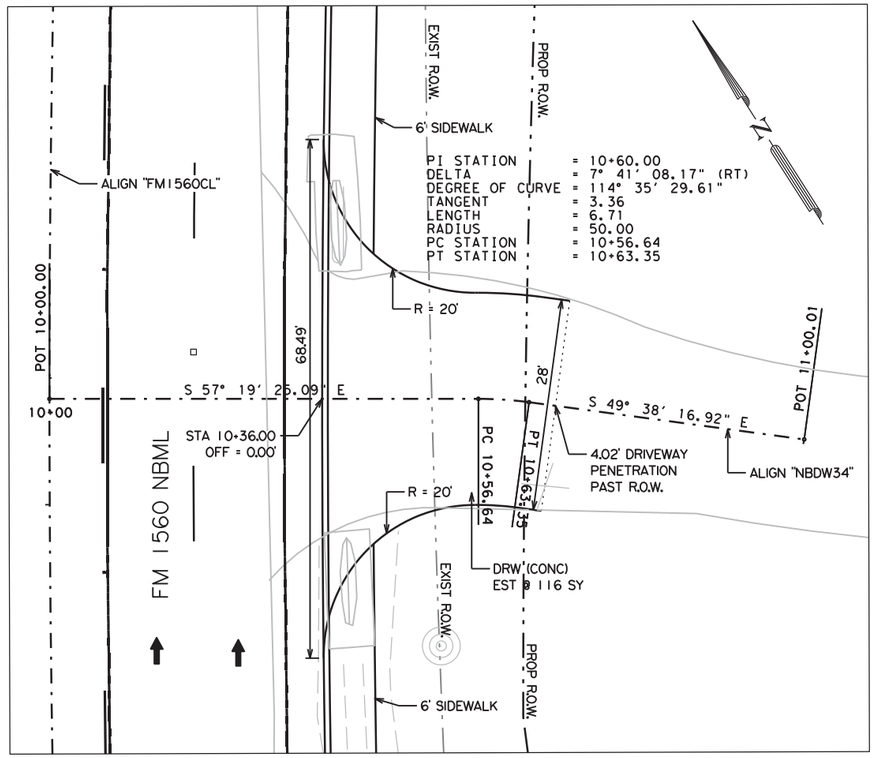
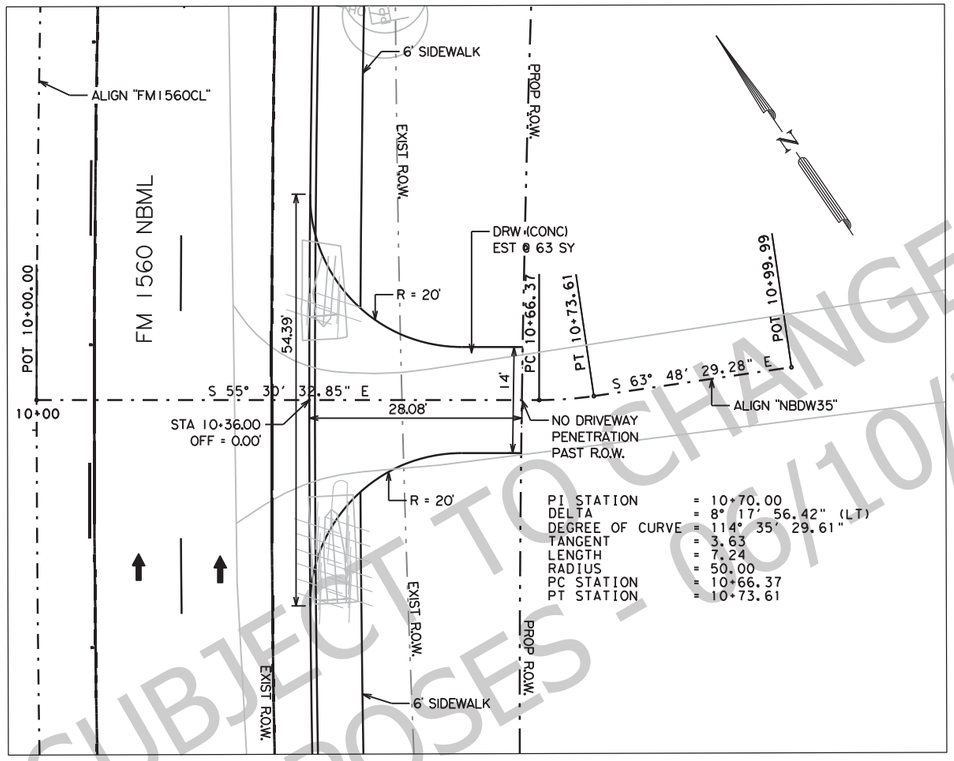


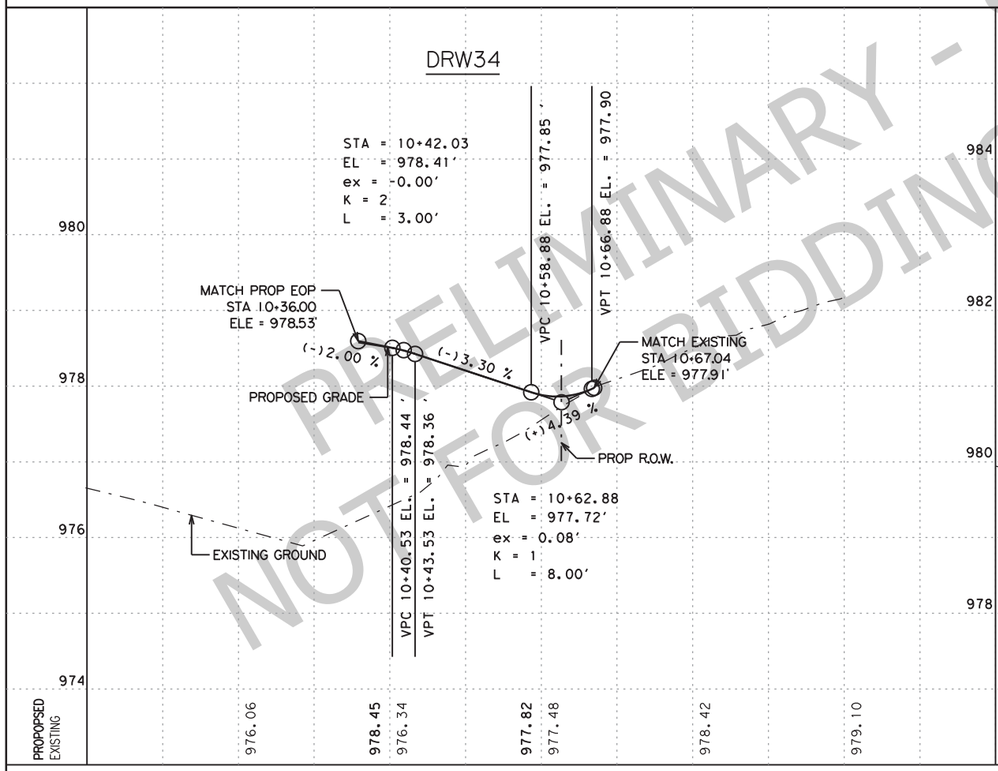


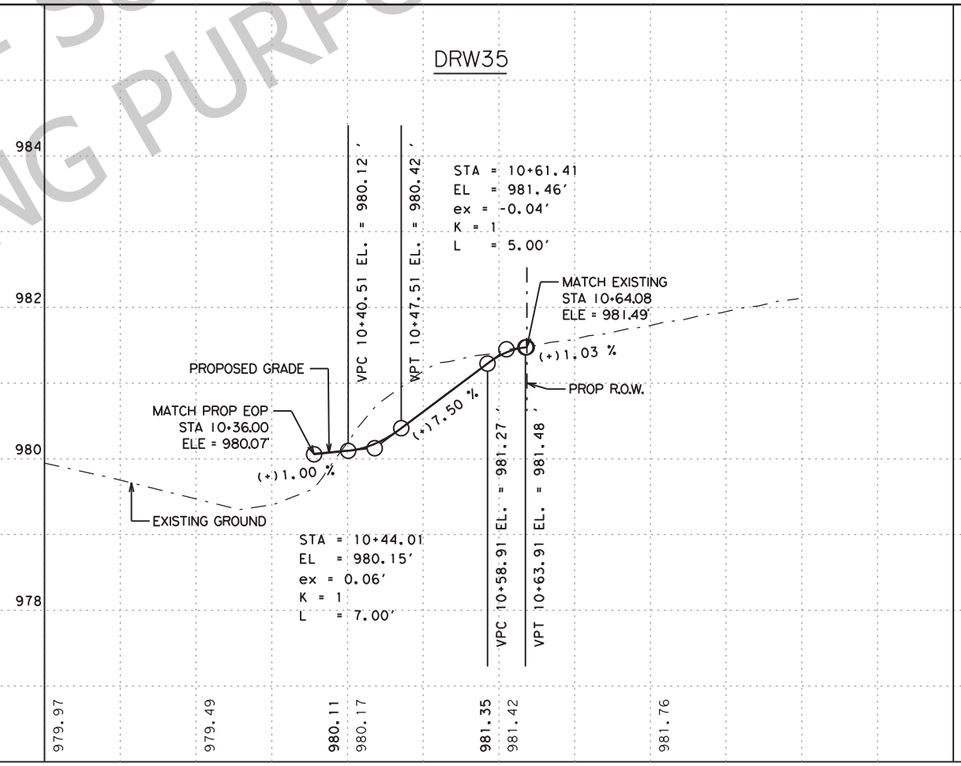
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	179

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 6/5/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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RETAINING WALL NB HORIZONTAL ALIGNMENT DRIVEWAY LAYOUTS DATA

SHEET 7 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	220
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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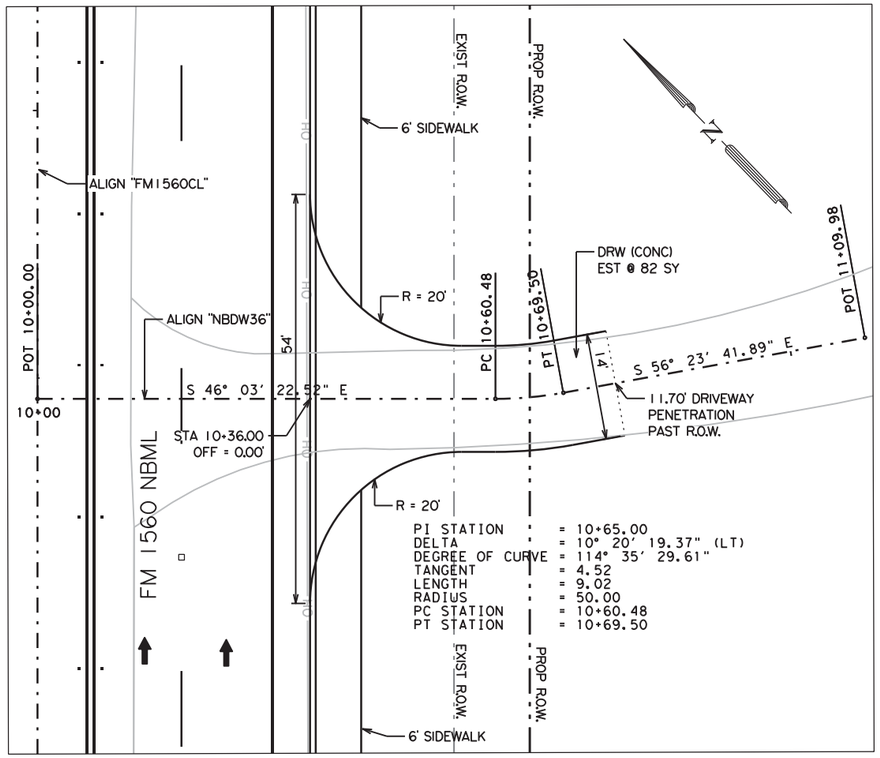
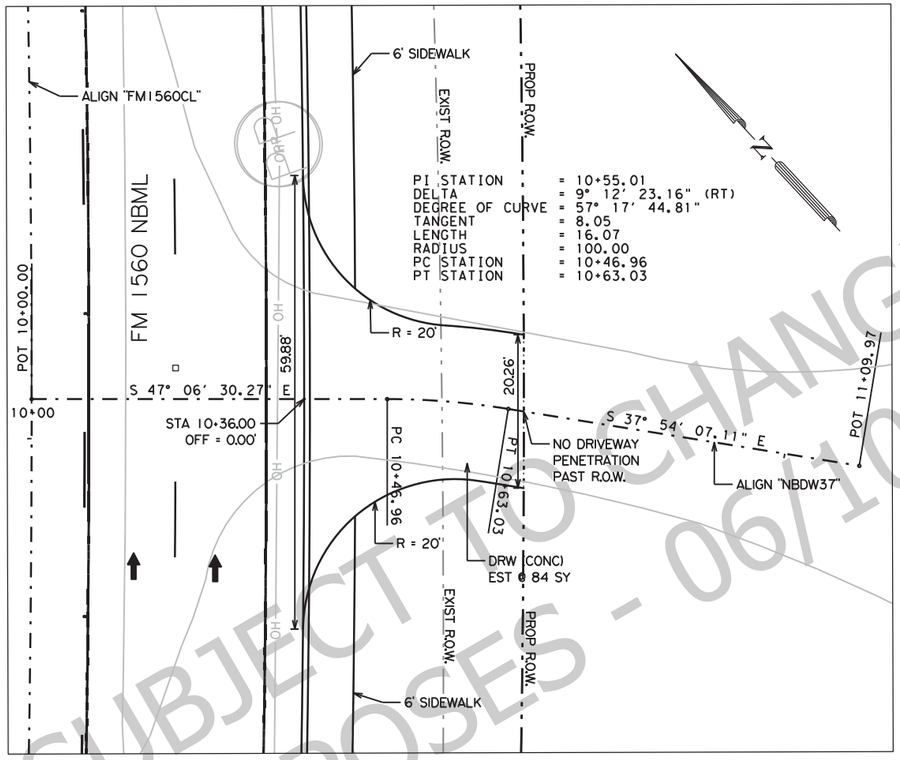
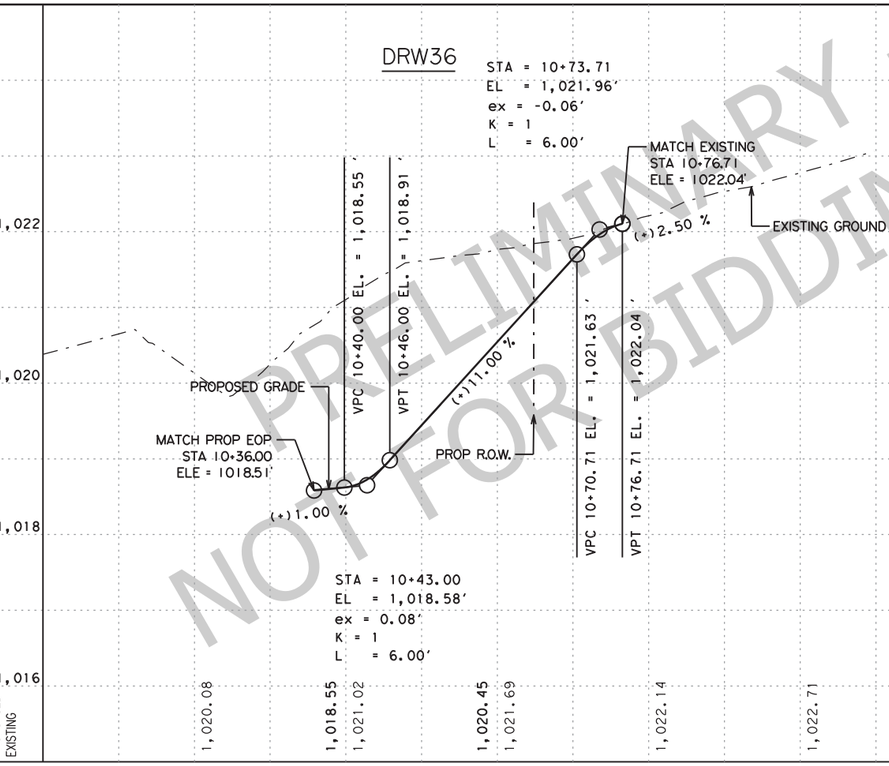


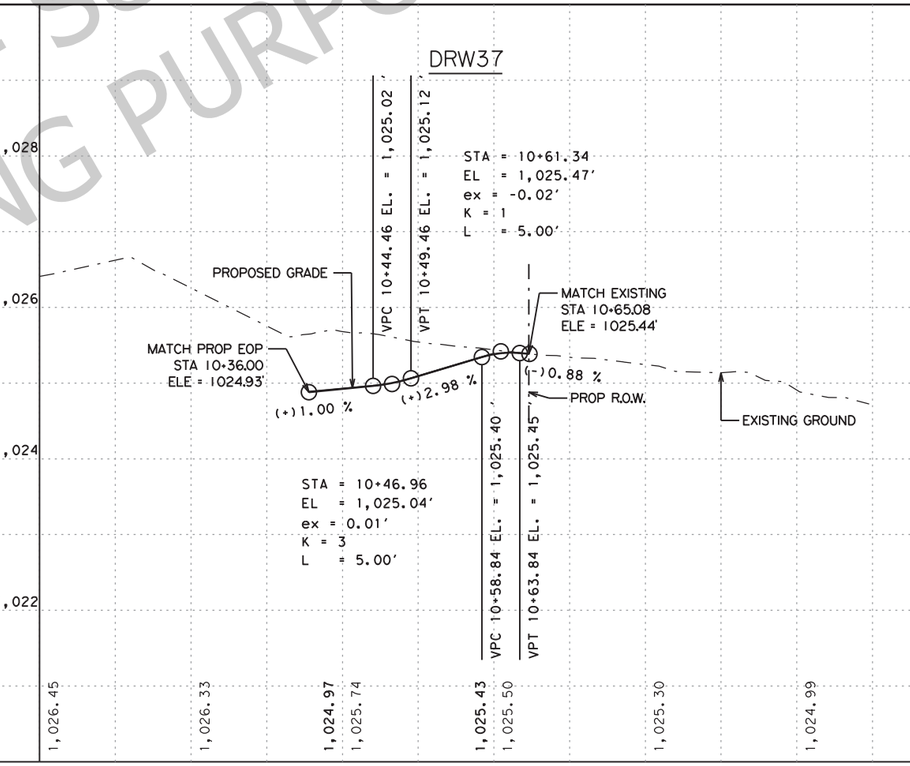


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	166

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 8 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	221
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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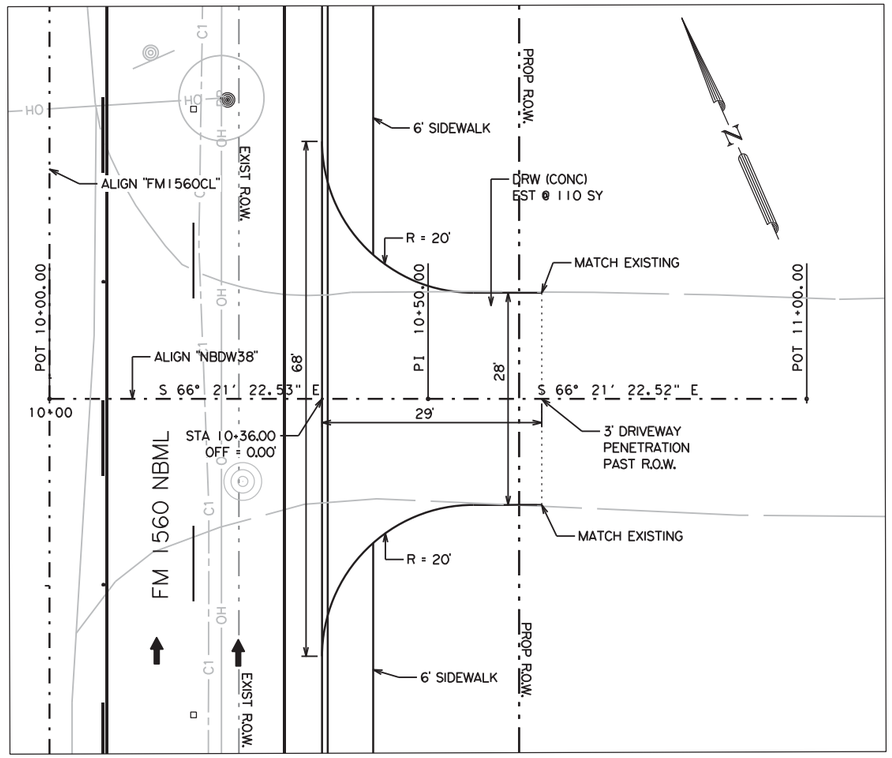
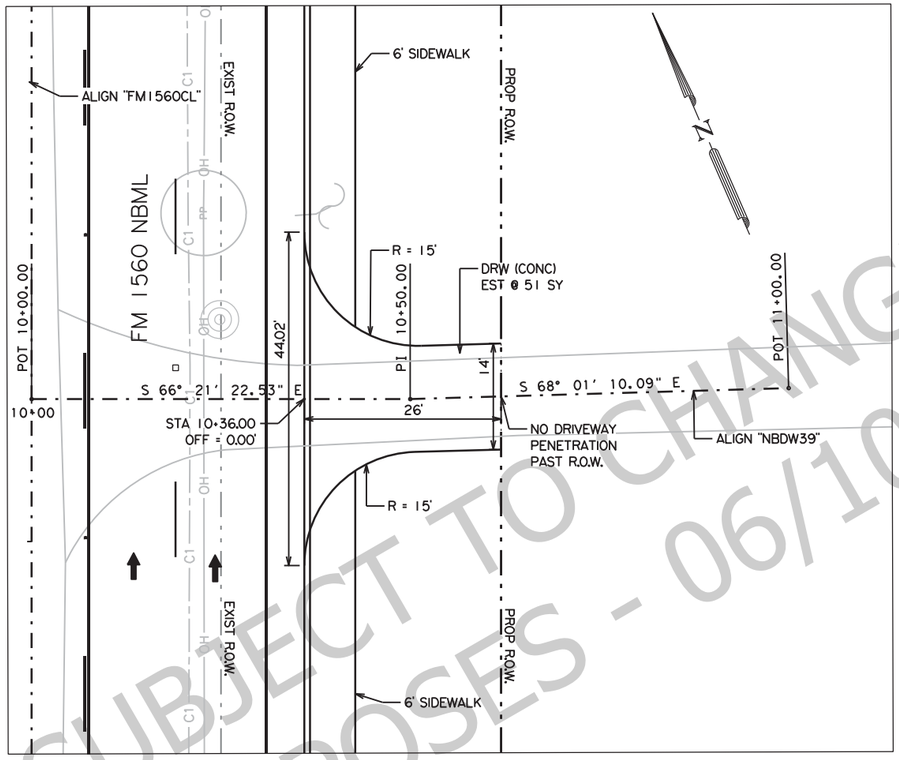
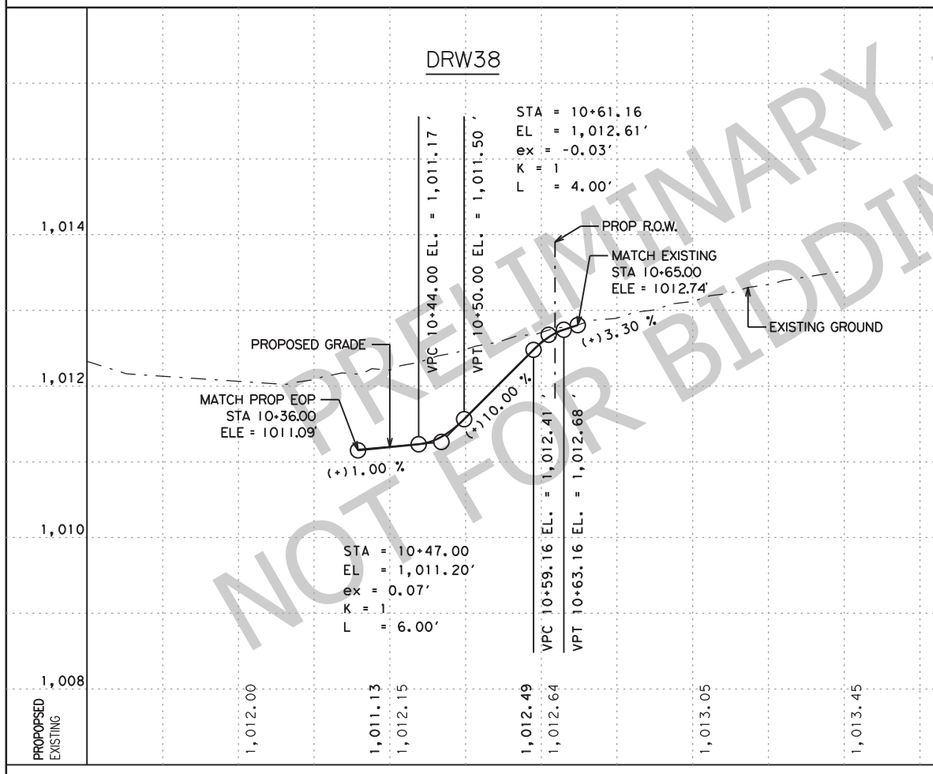


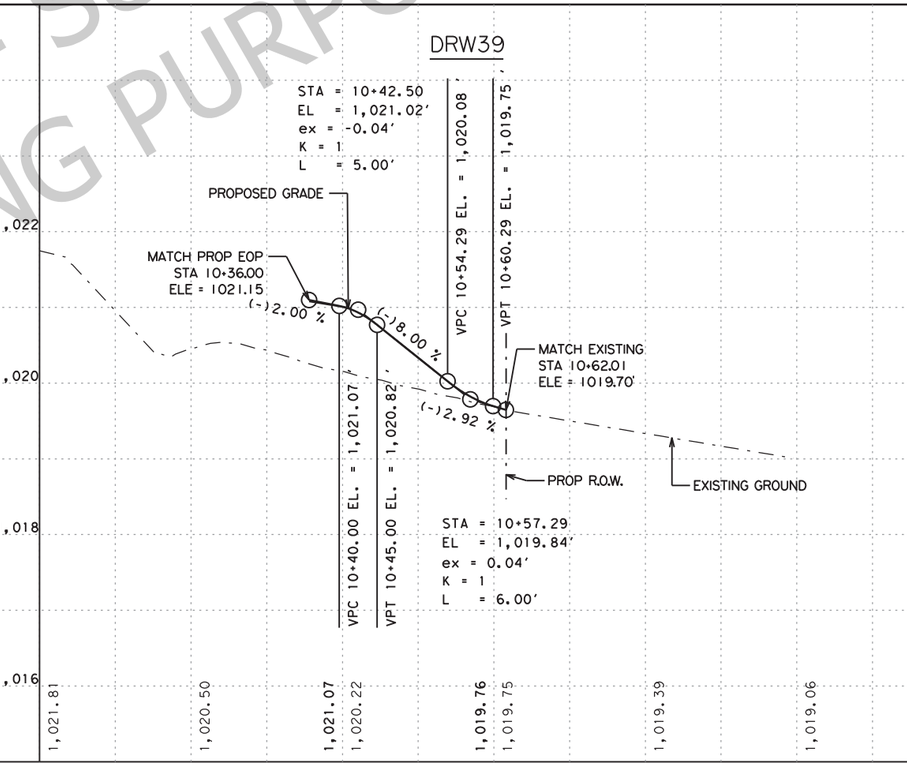


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	161

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 9 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	222
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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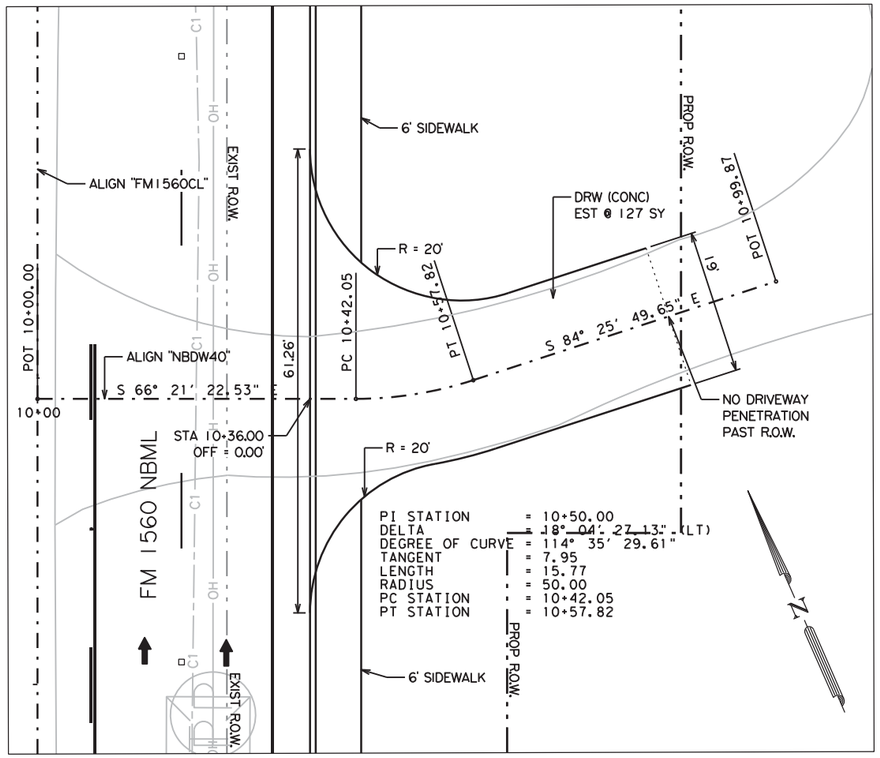
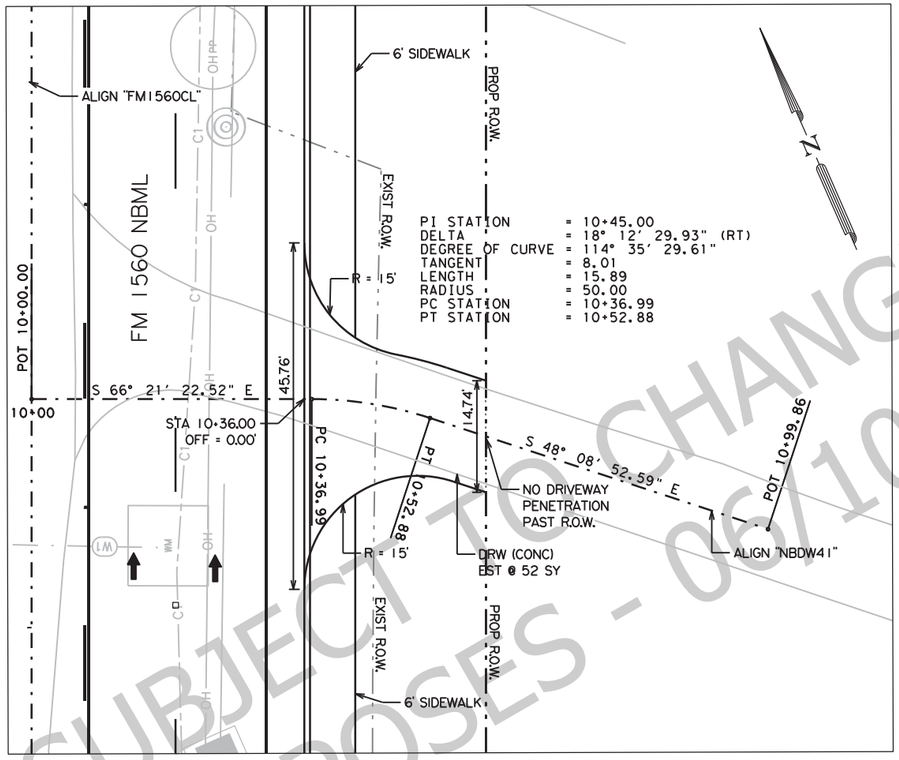


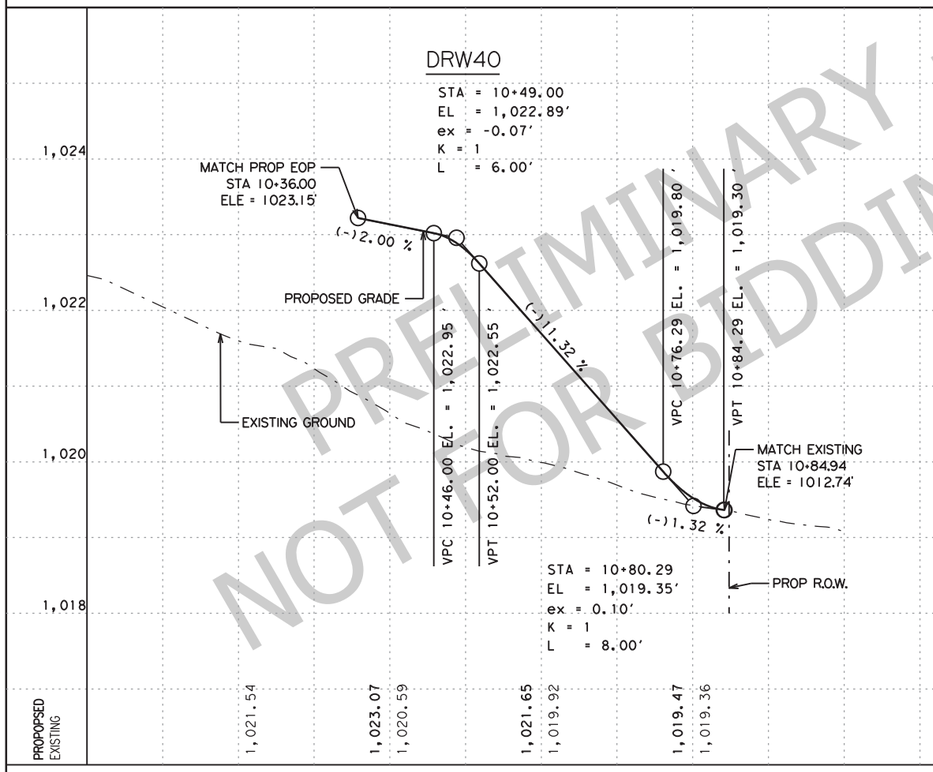


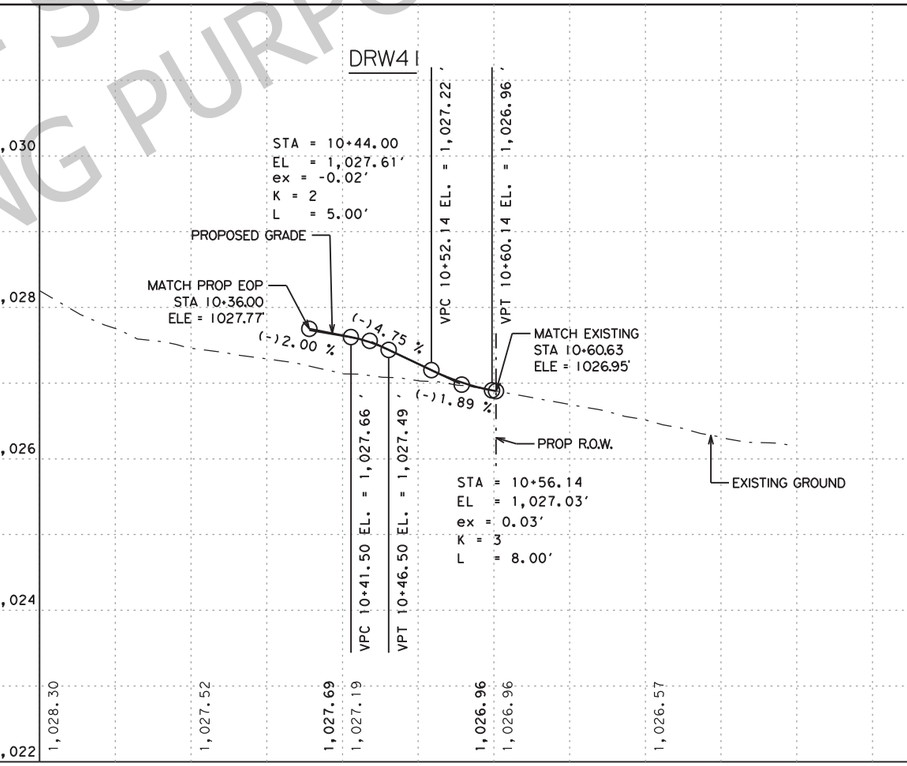
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	179

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 10 OF 14

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

223

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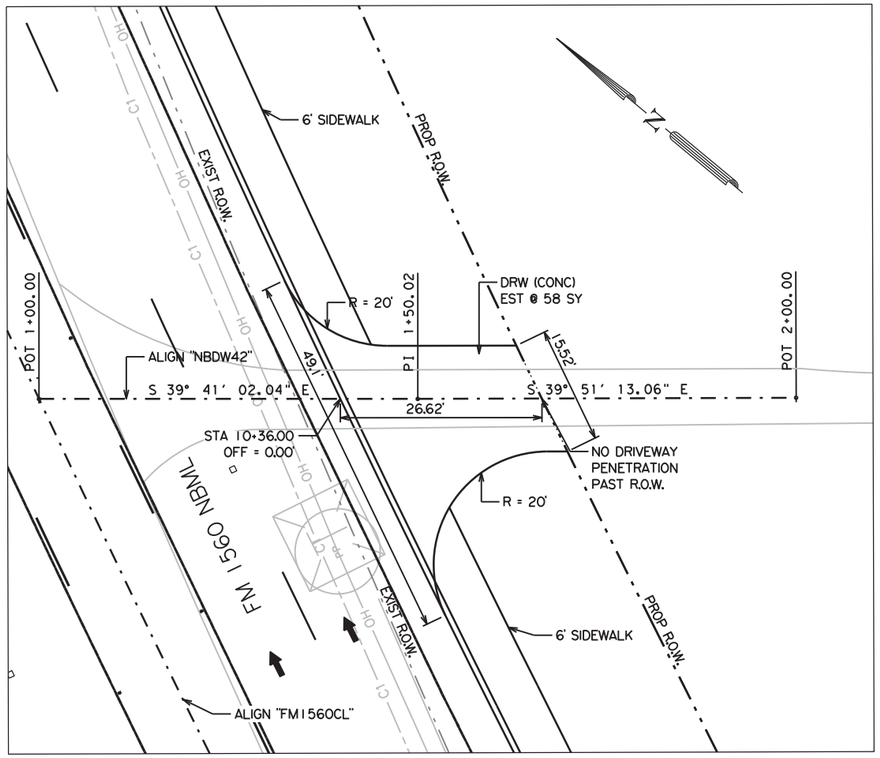
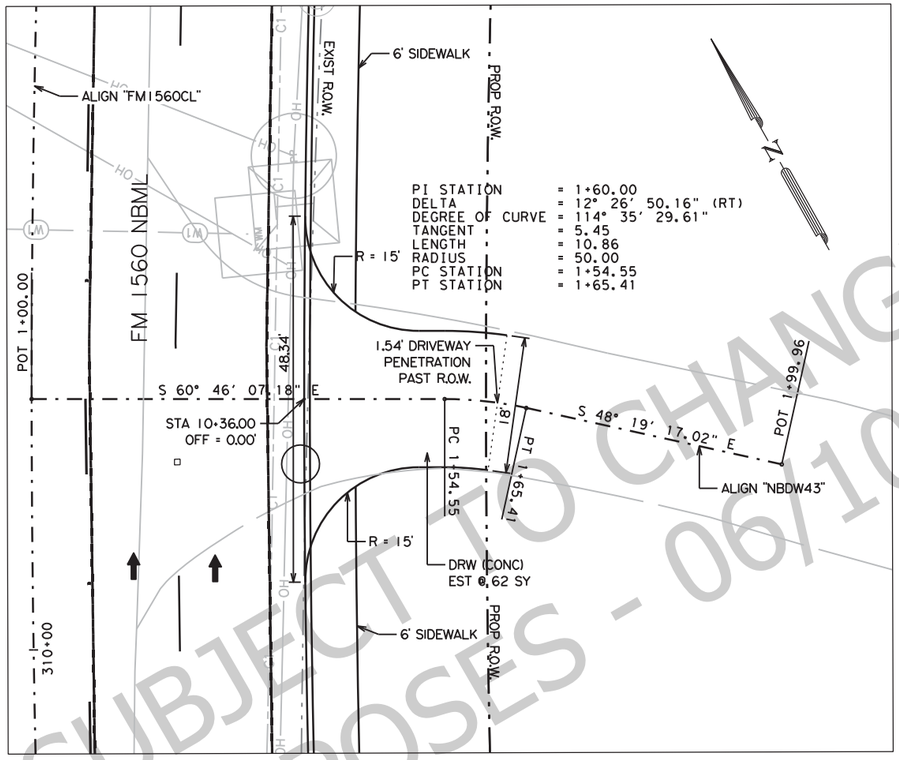
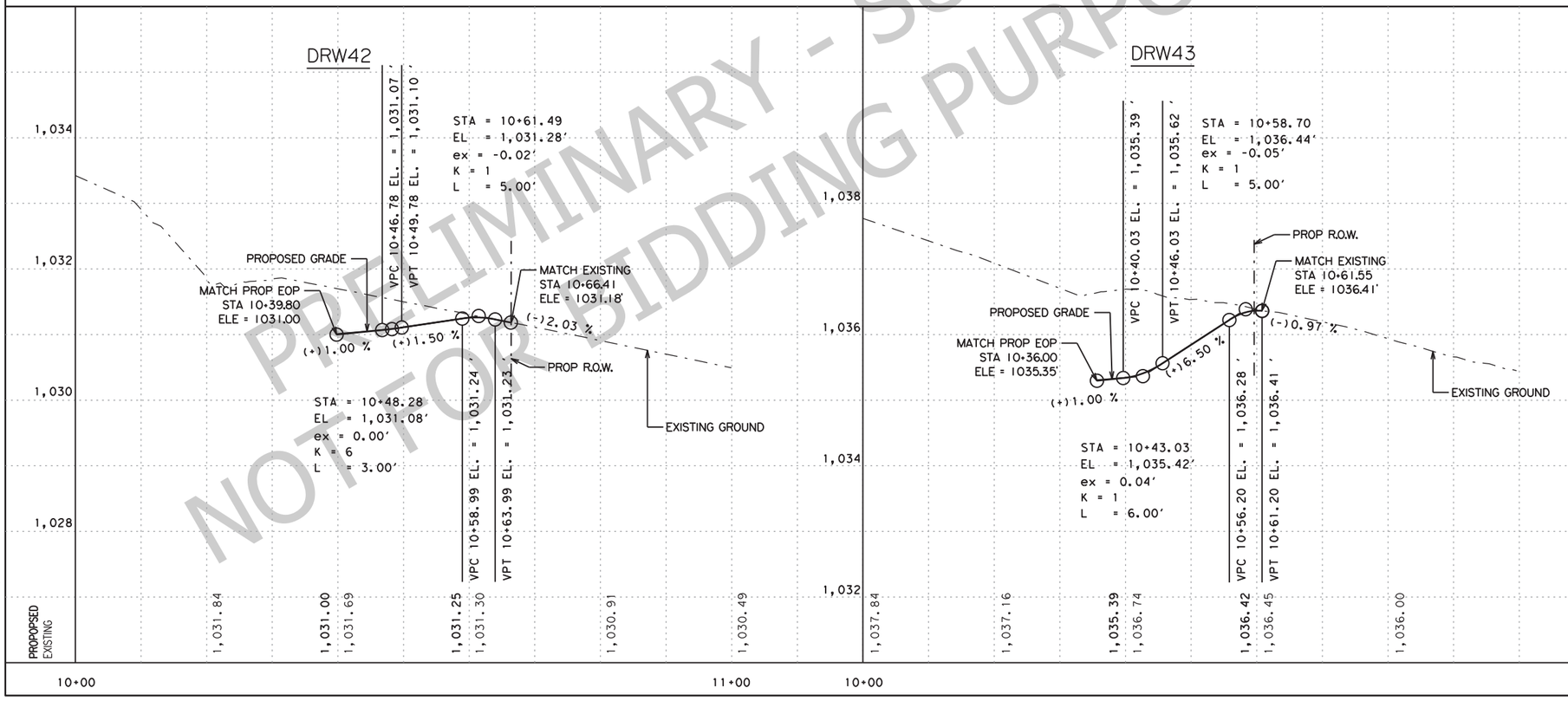




QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	120

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.



INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 11 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	224
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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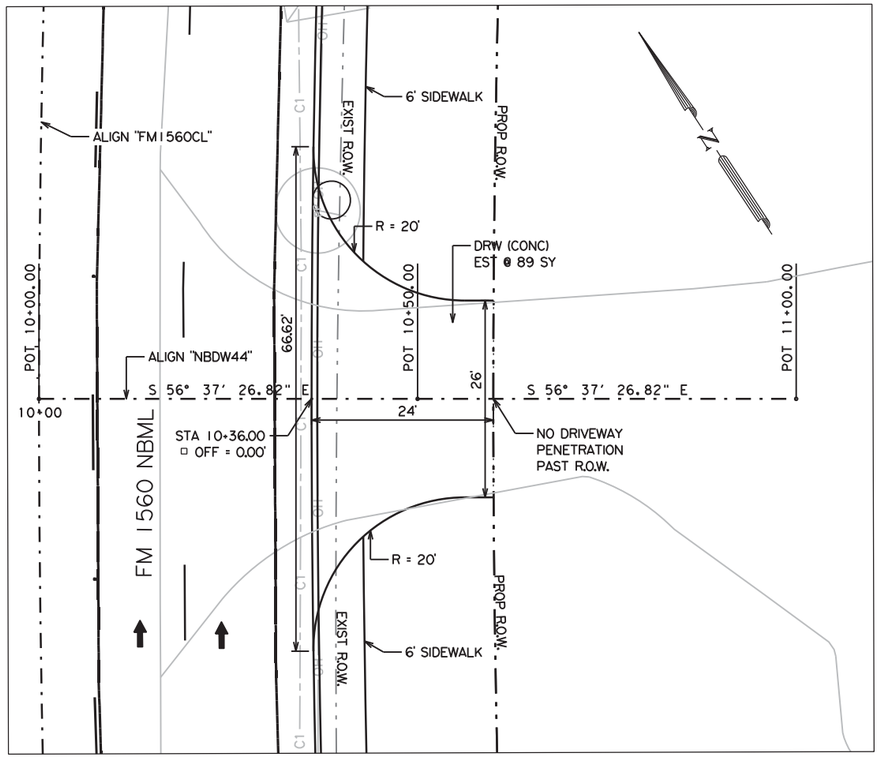
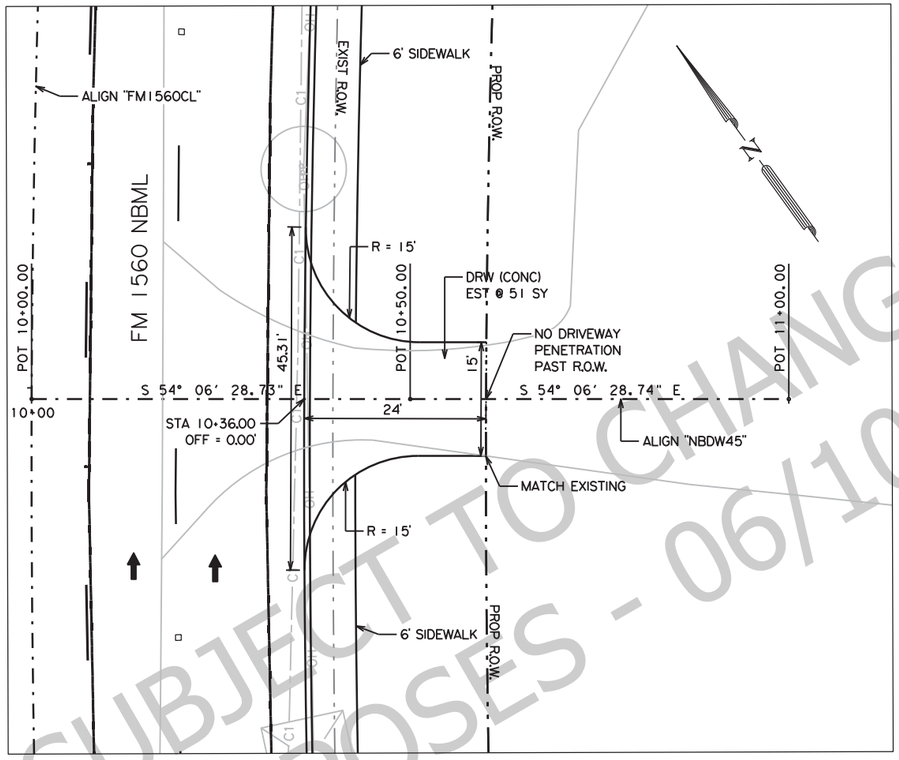
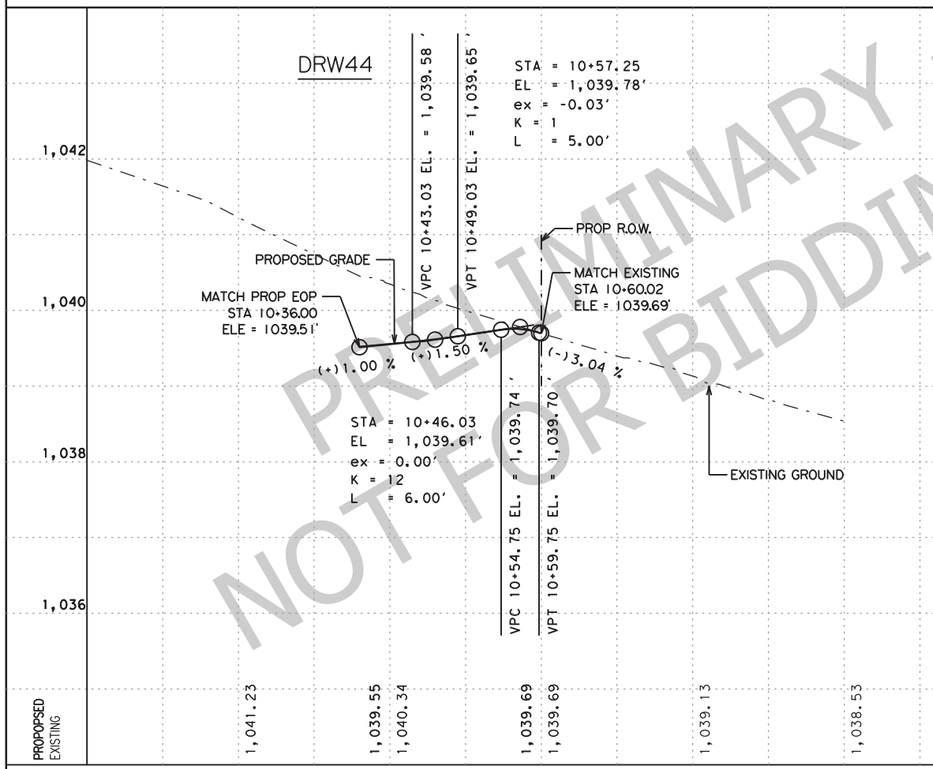


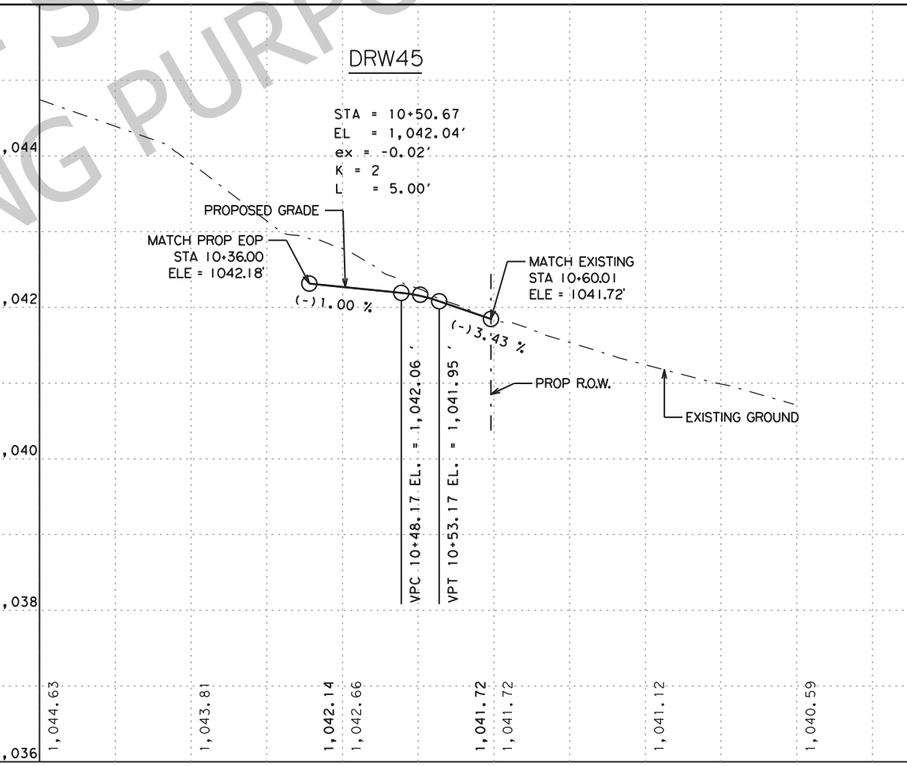


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	140

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 12 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	225
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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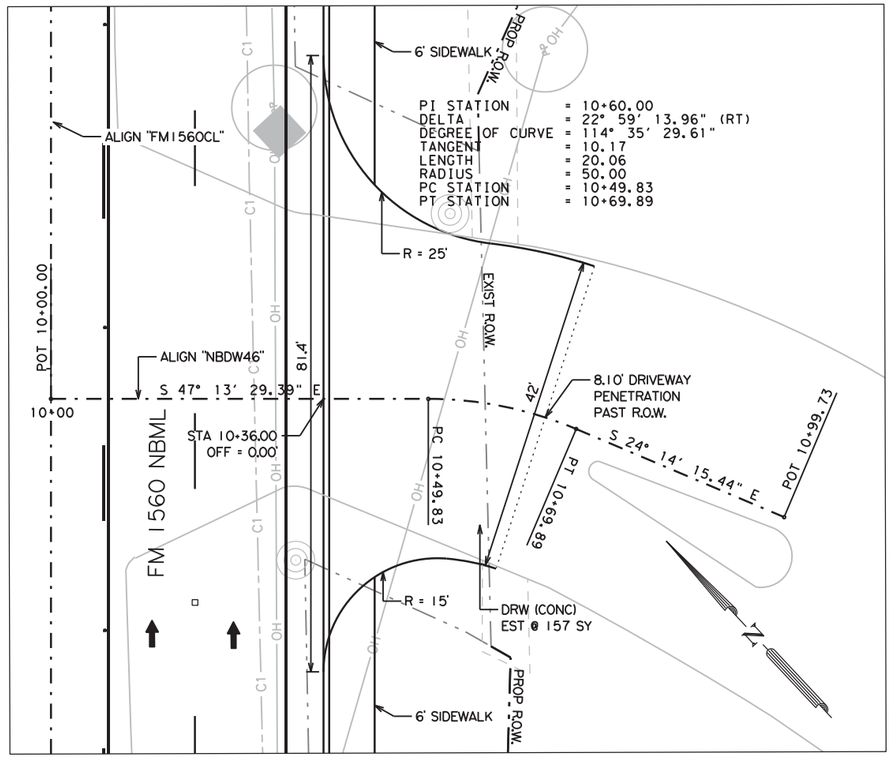
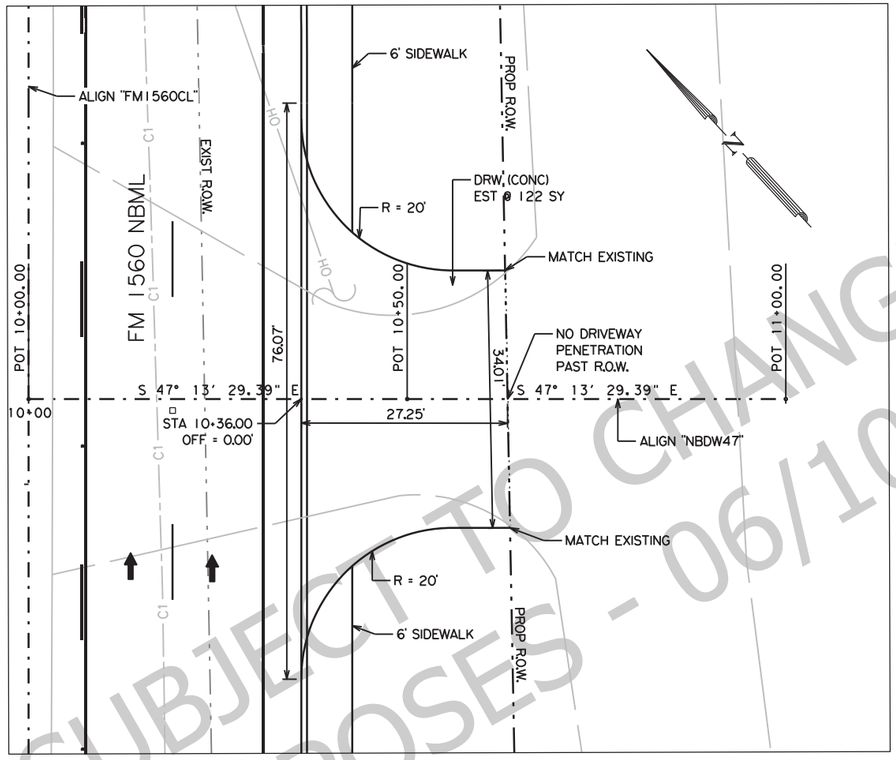
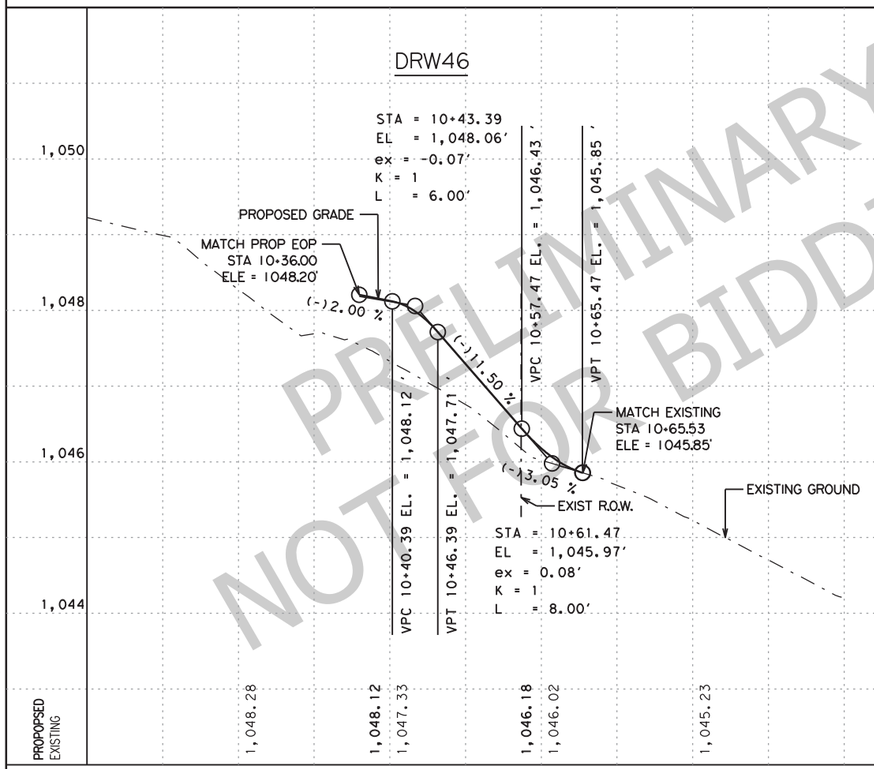


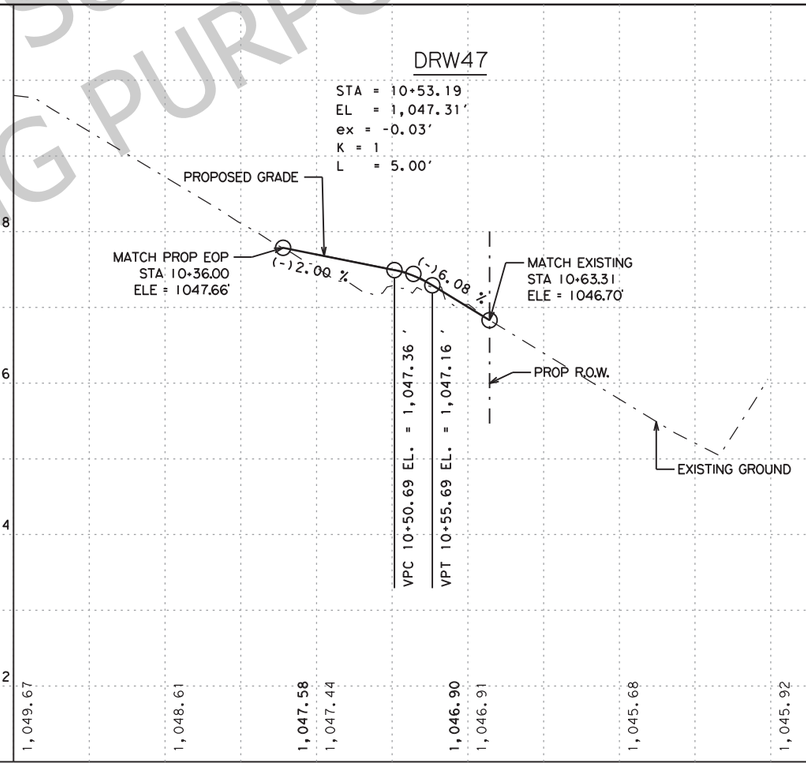


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	279

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 13 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	226
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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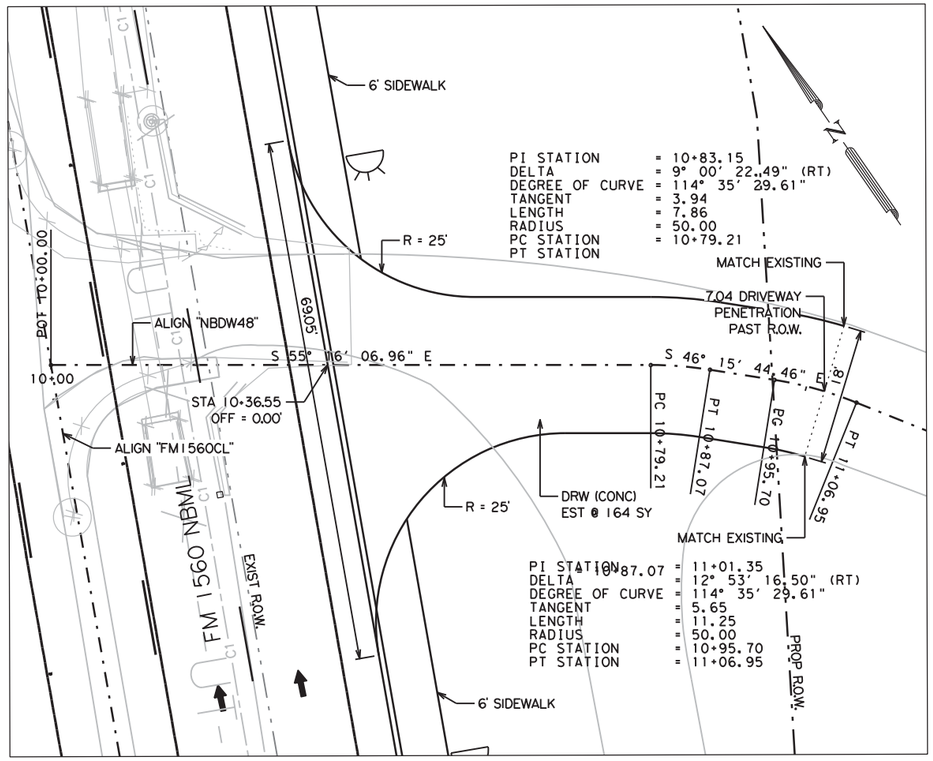
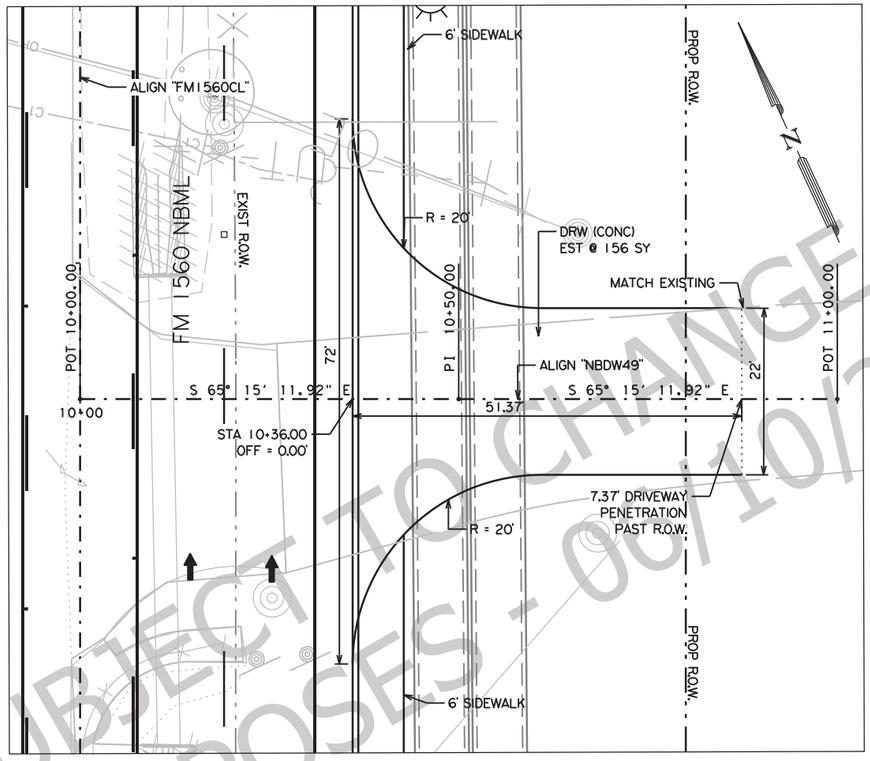
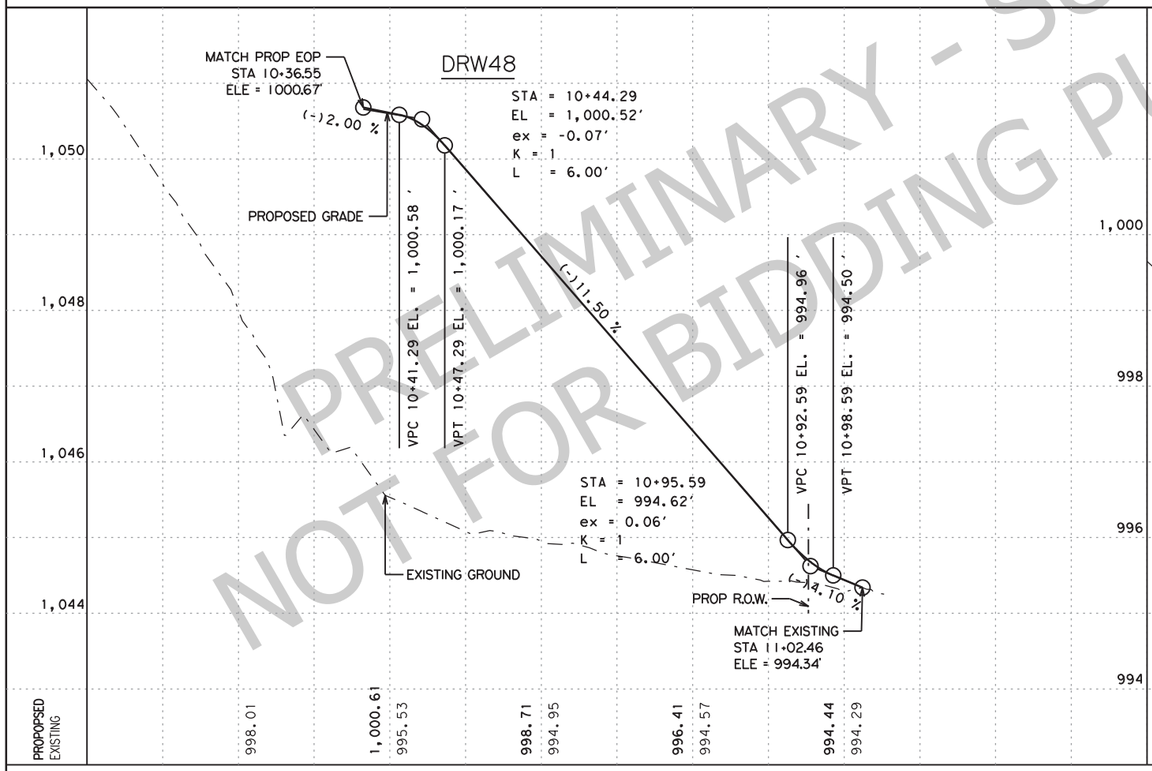


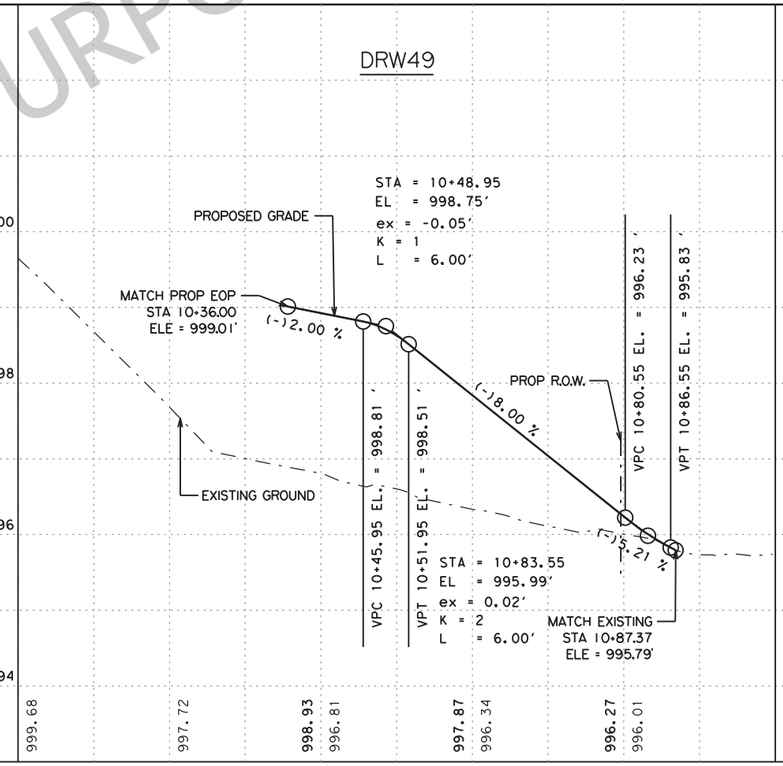


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	320

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
NB
DRIVEWAY LAYOUTS

SHEET 14 OF 14

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	227
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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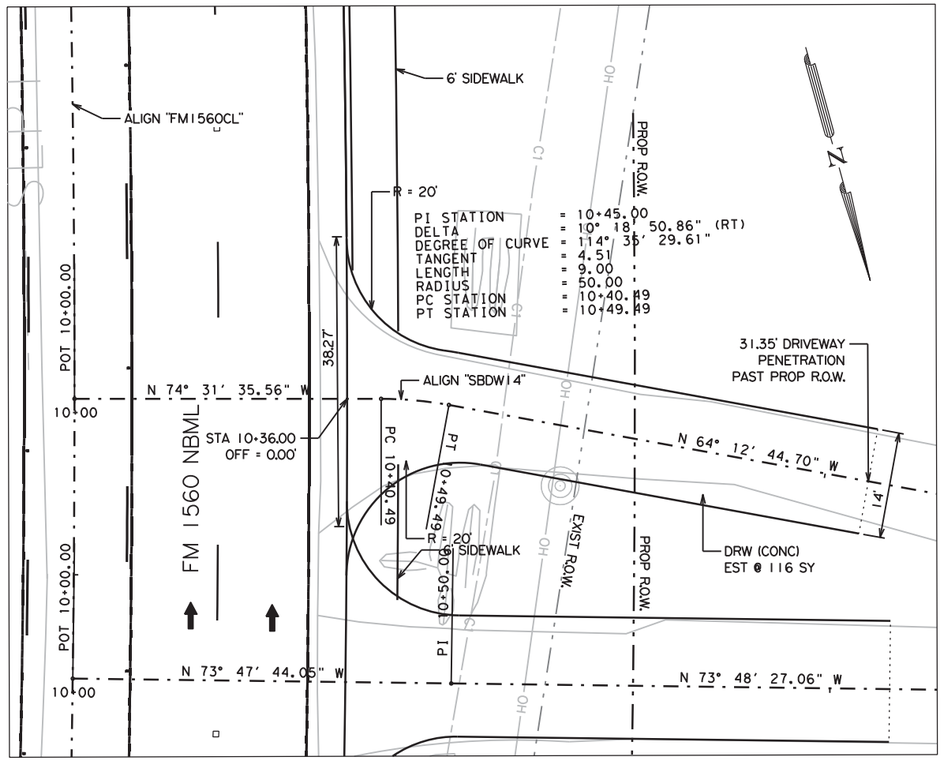
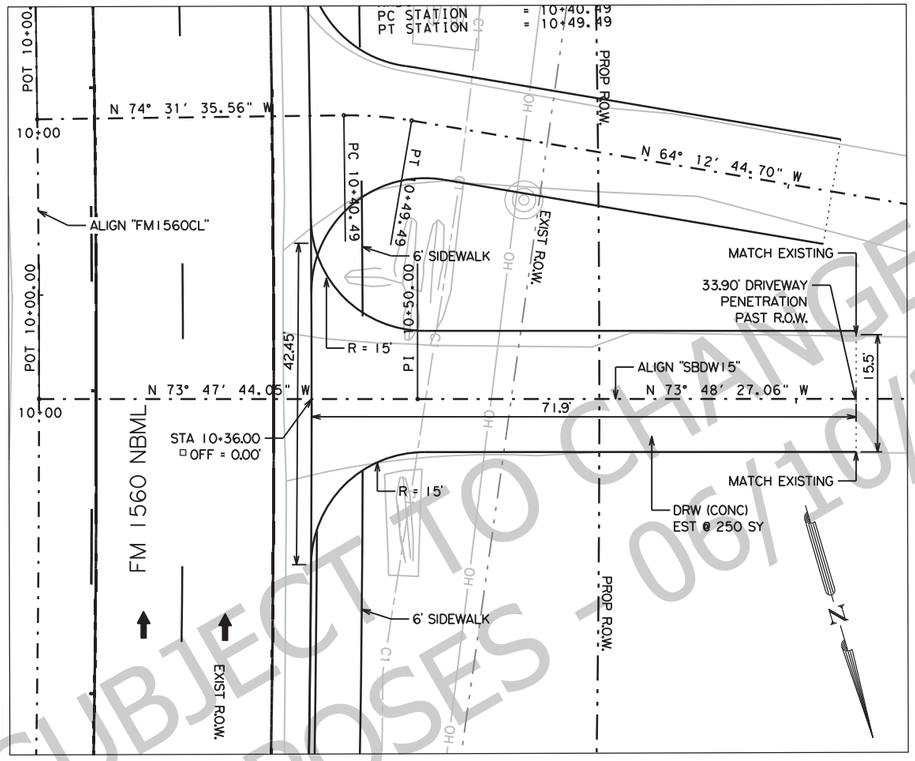
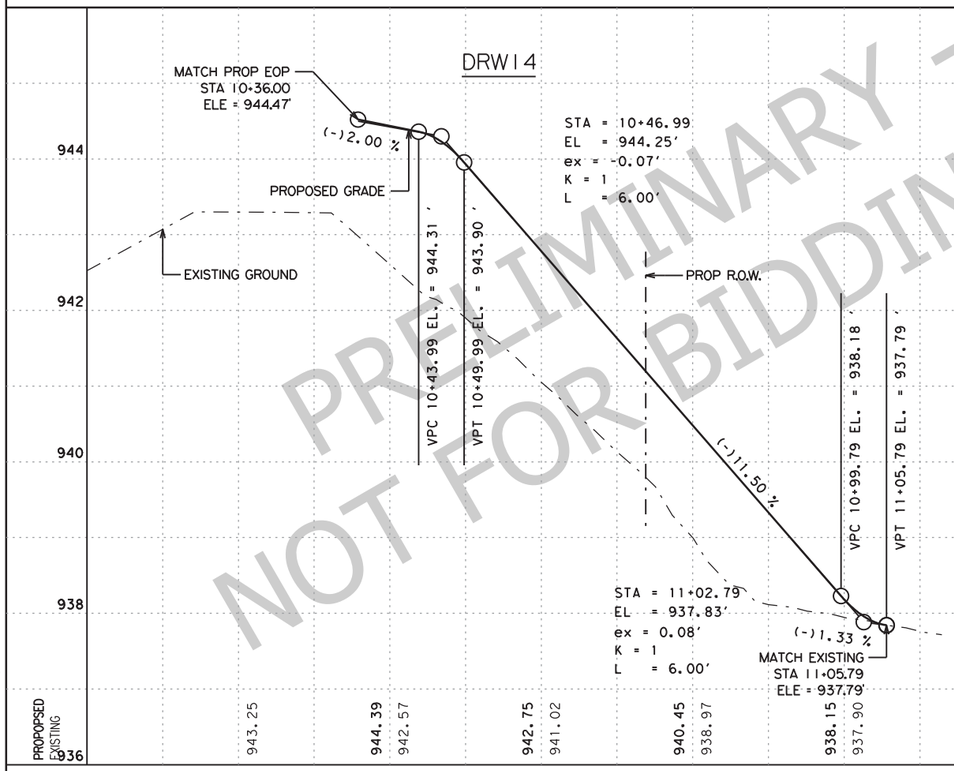


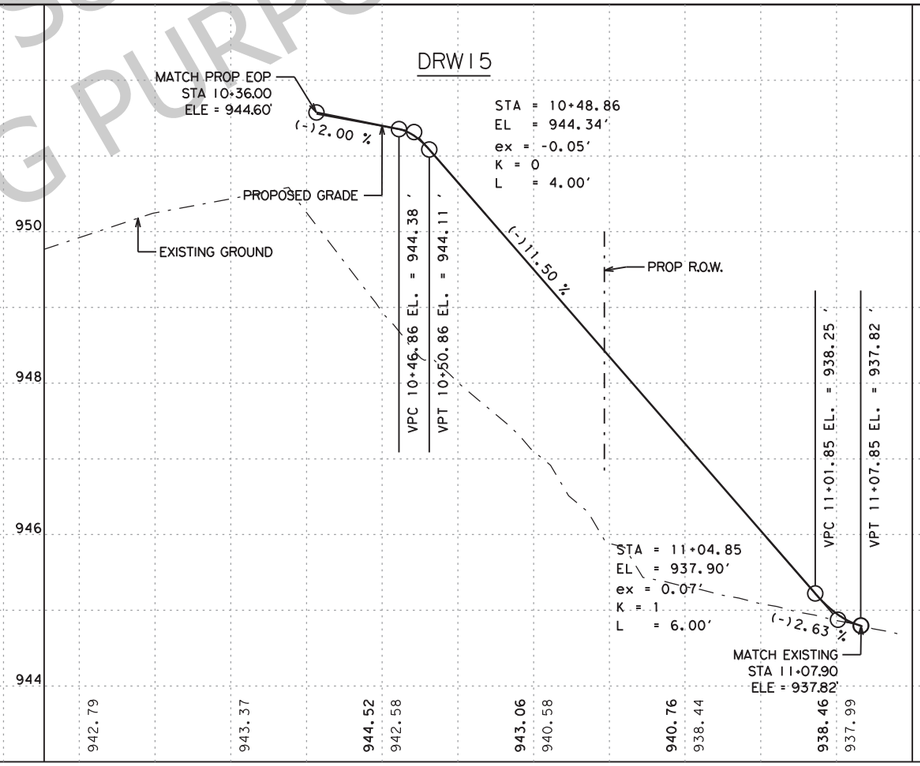


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	250

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/19/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 1 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	228
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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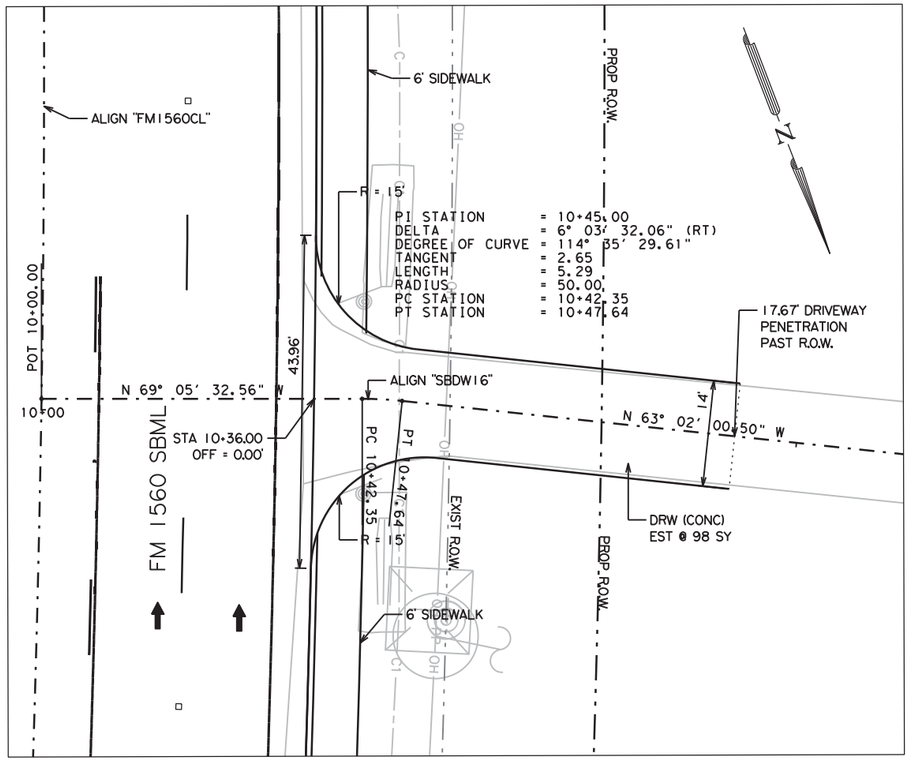
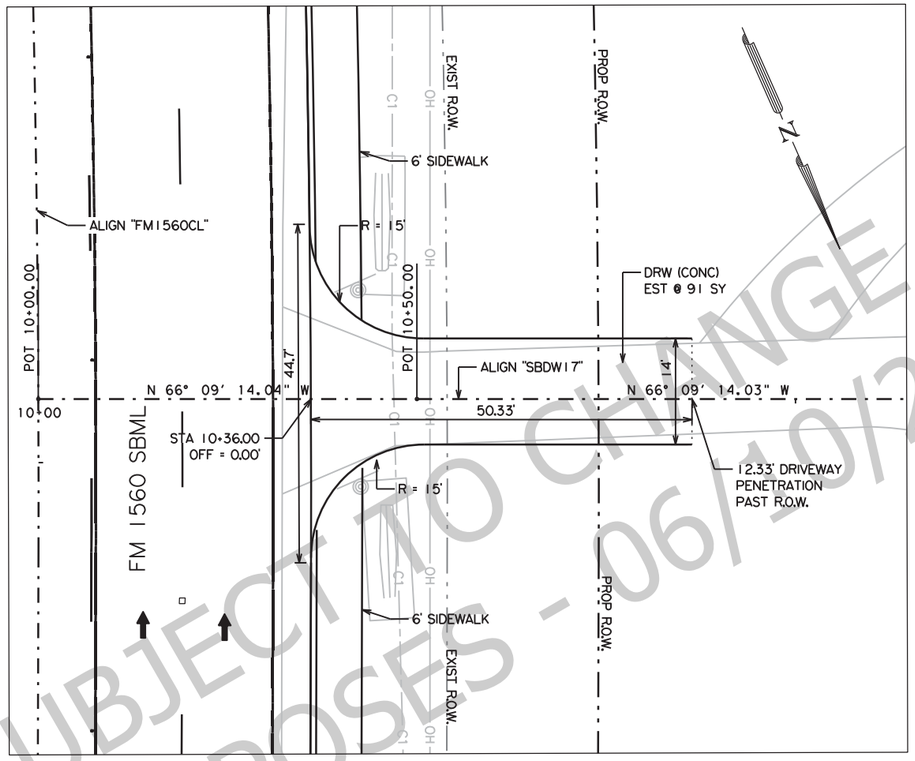
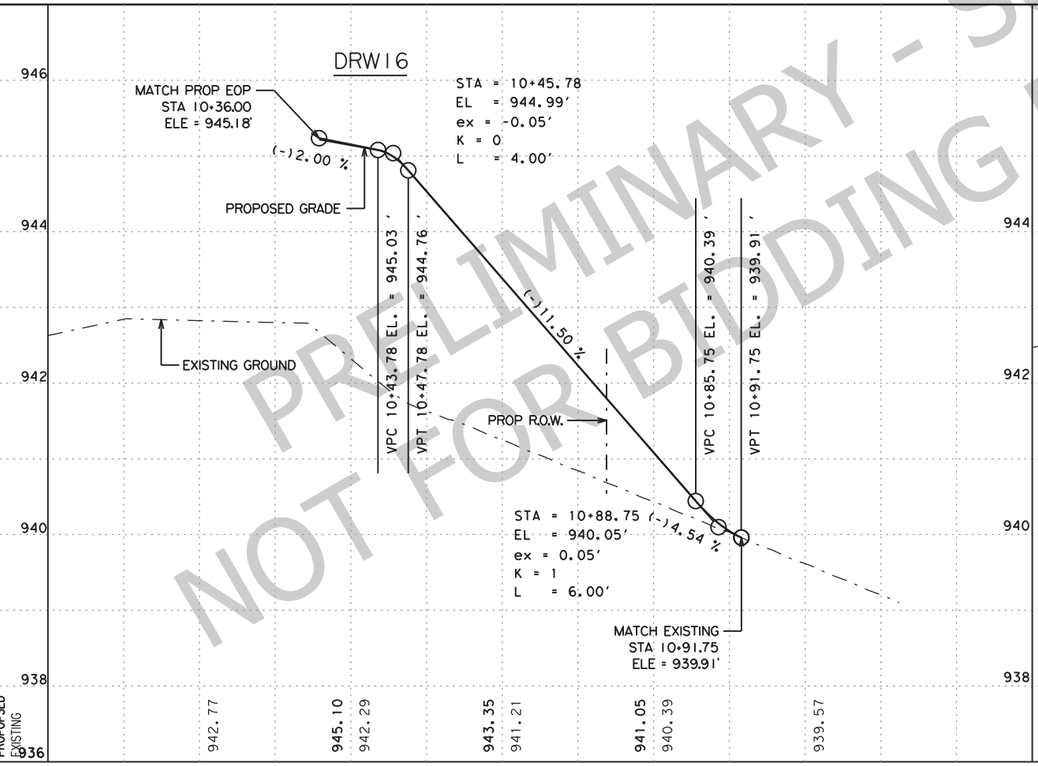


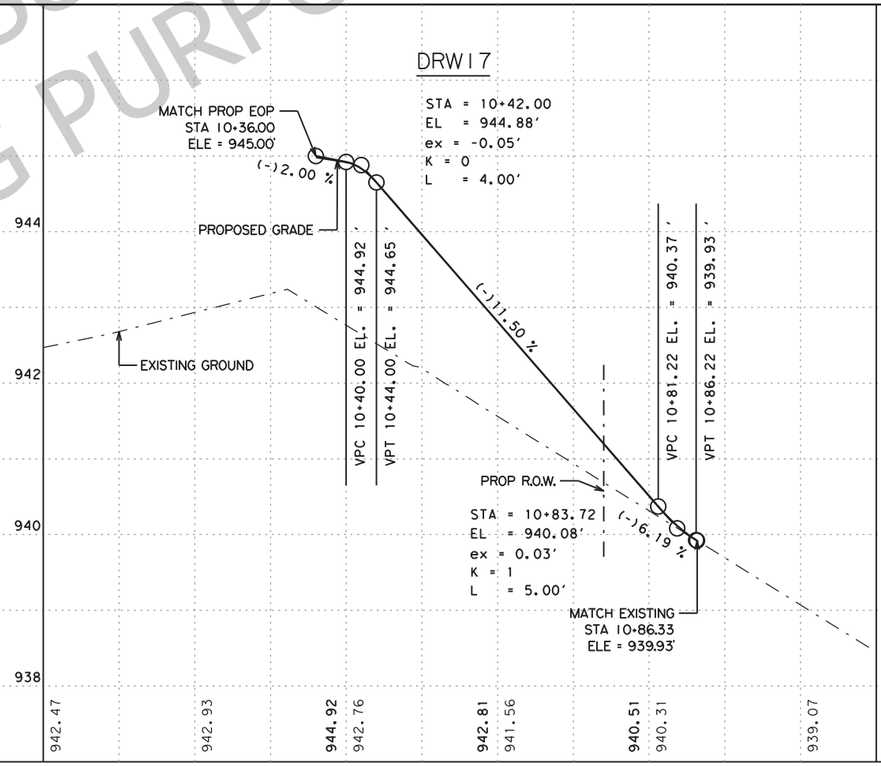


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	189

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/19/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 2 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	229
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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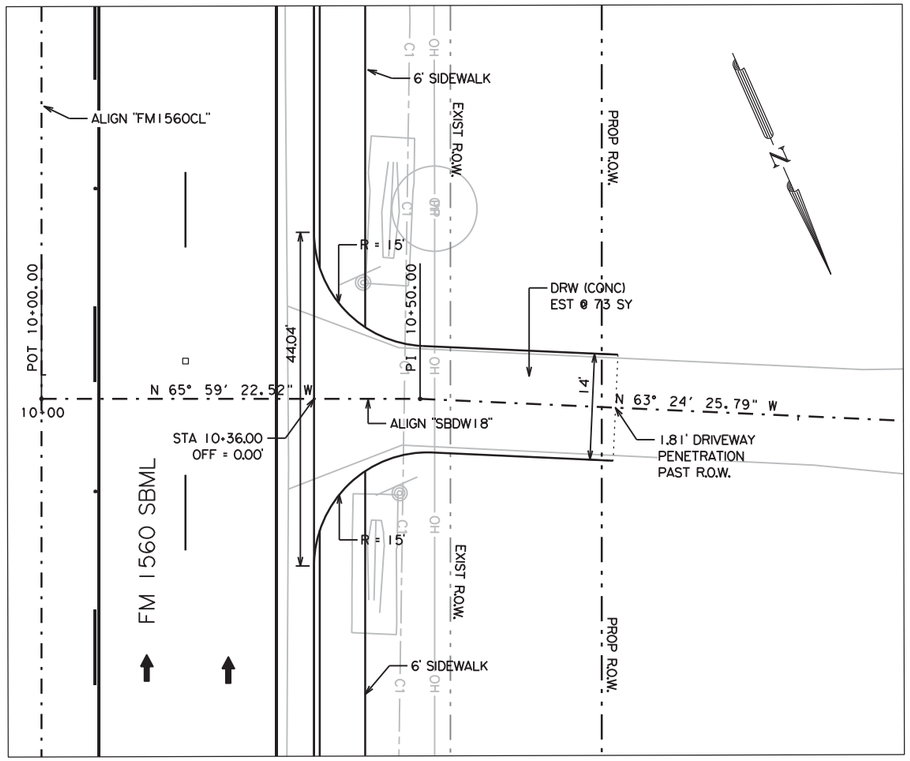
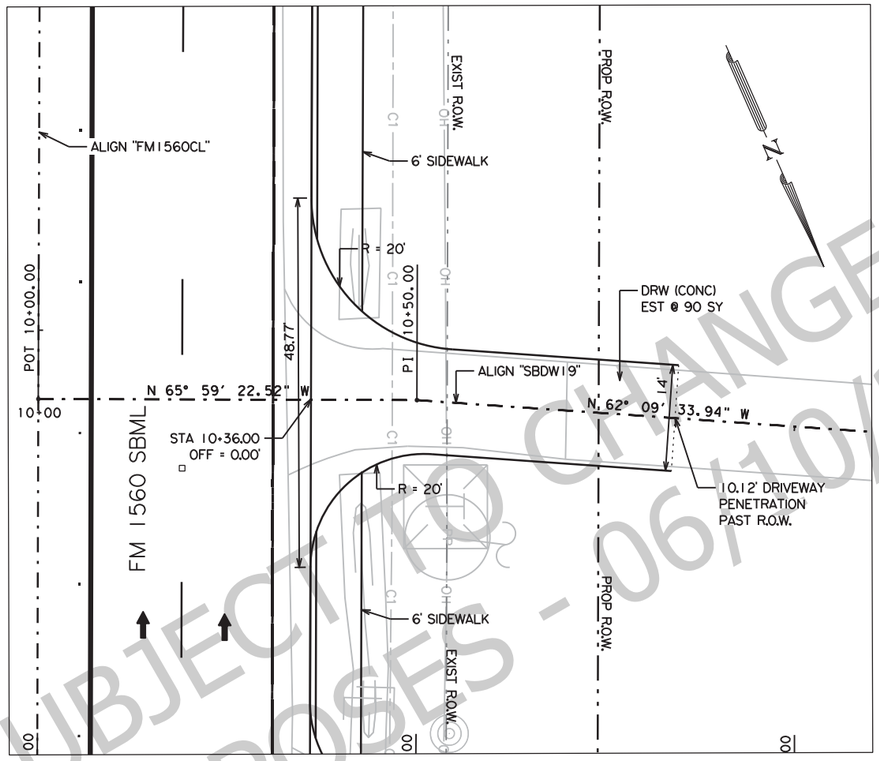
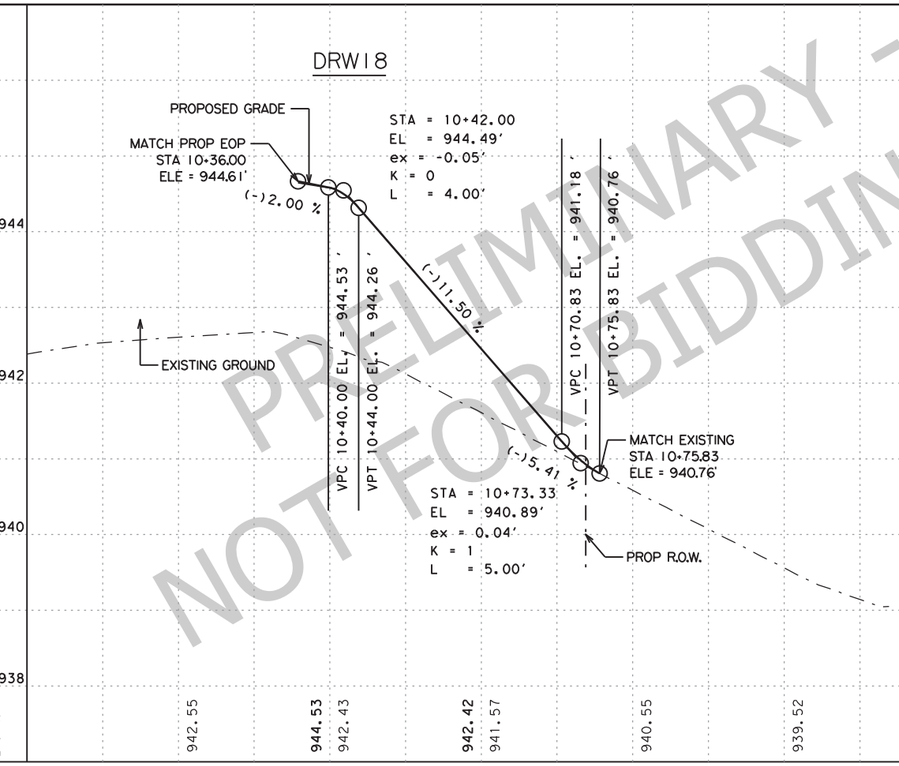


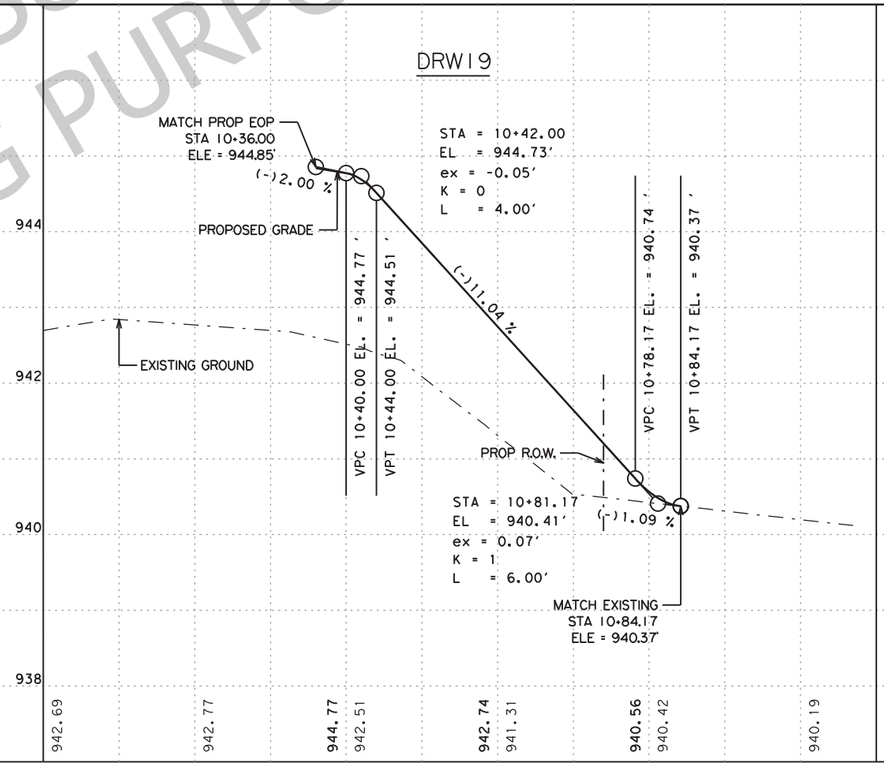


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	163

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 3 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

230

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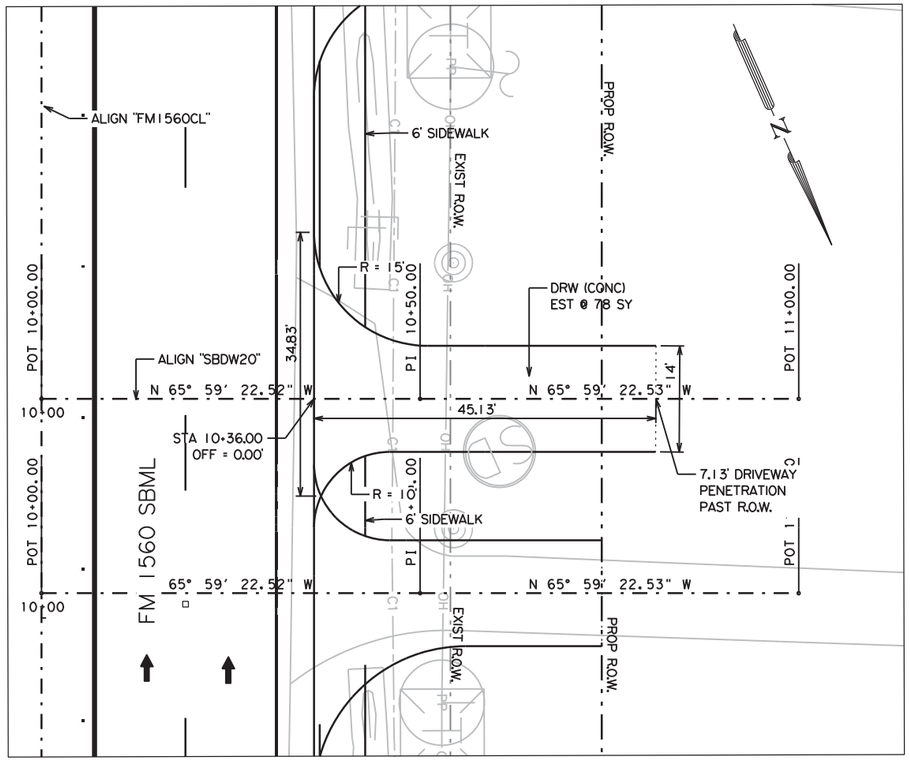
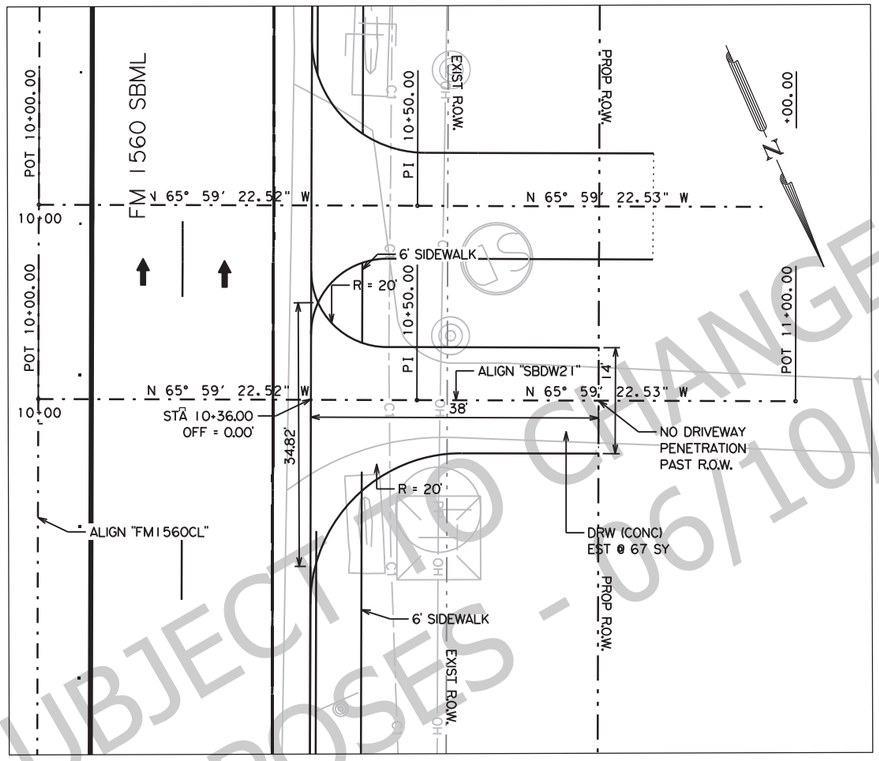
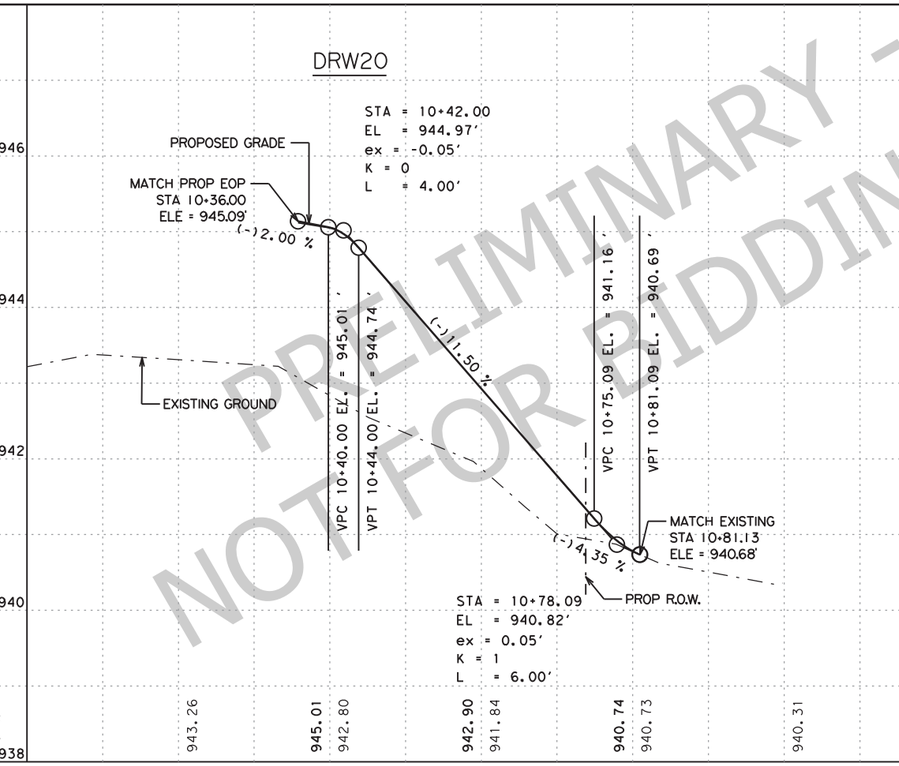


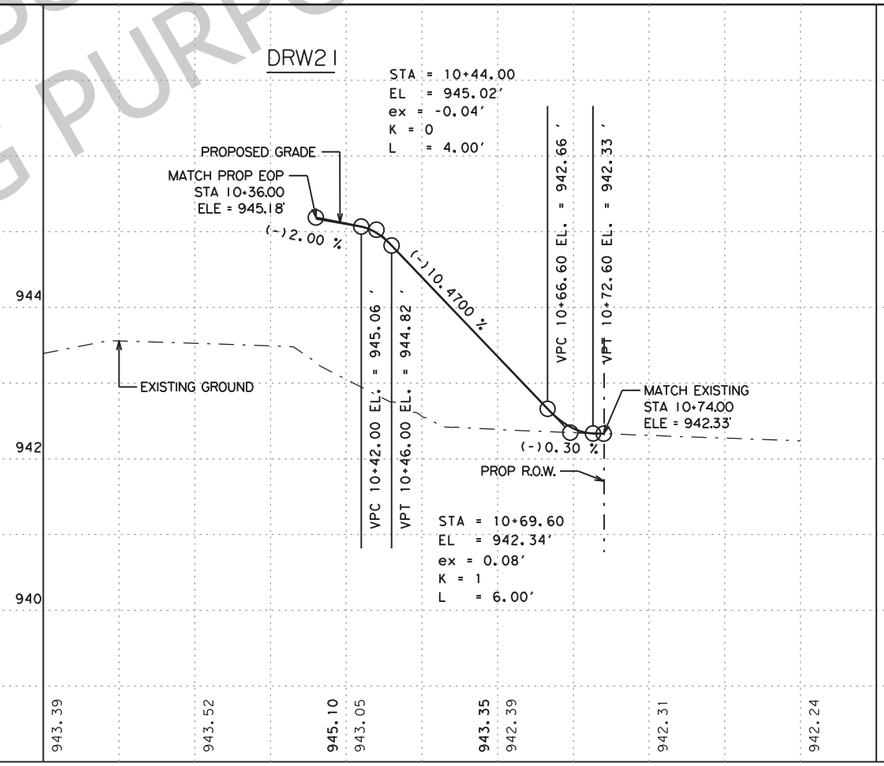


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	145

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 4 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	231
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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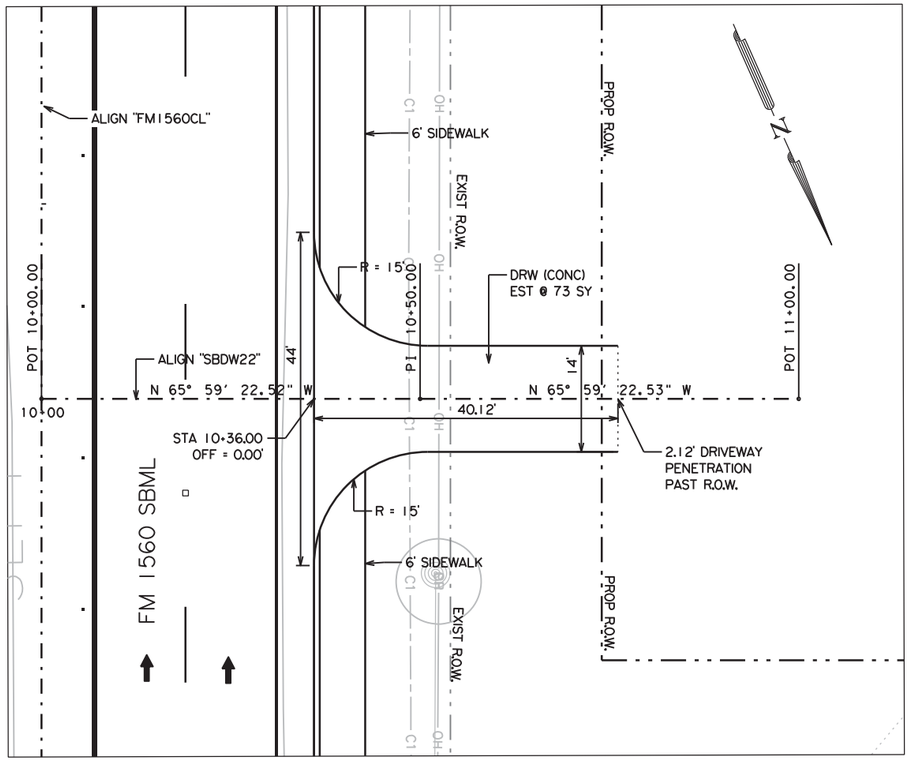
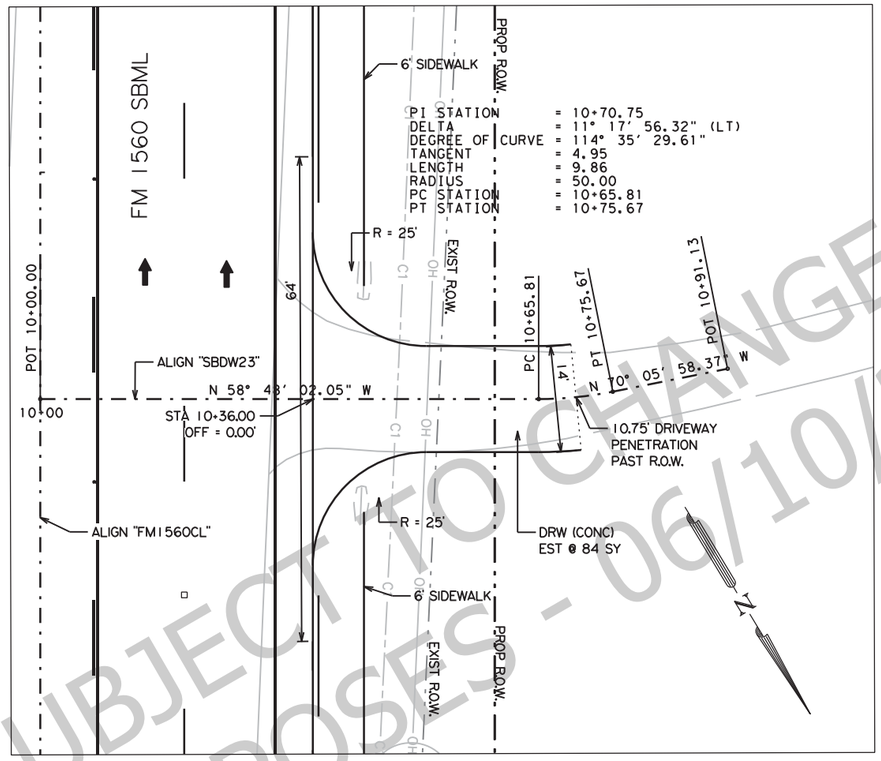
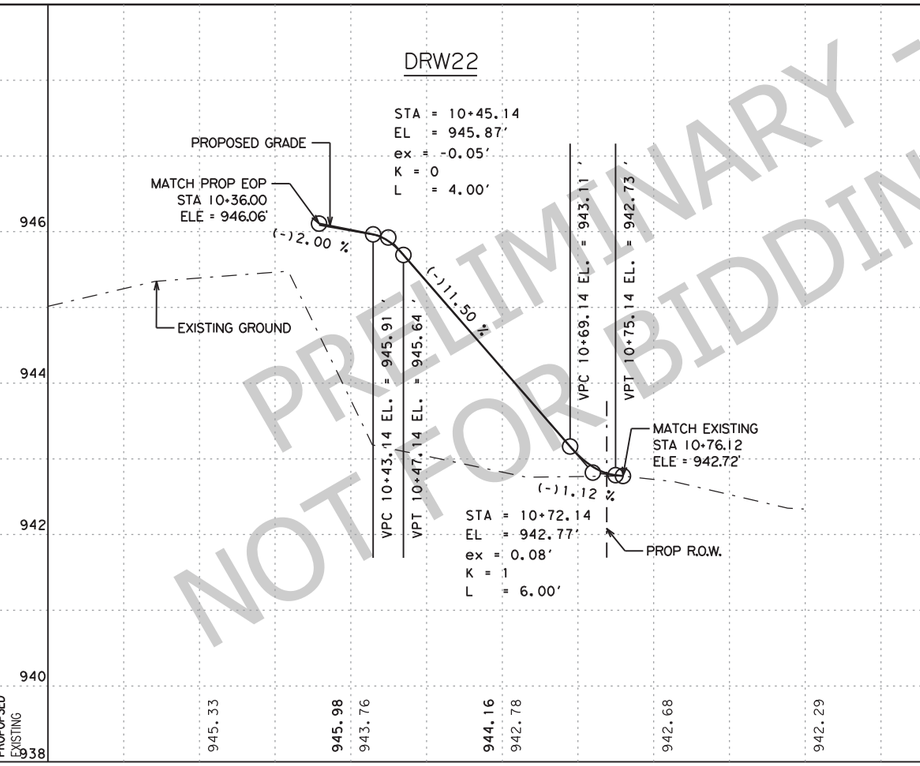


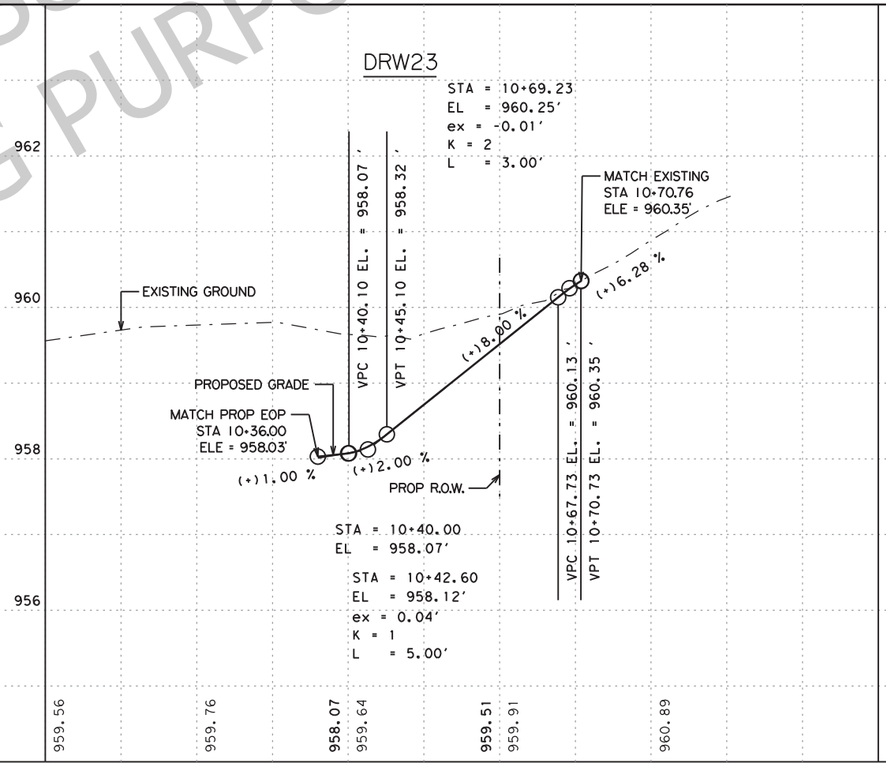


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	157

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 5 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

232

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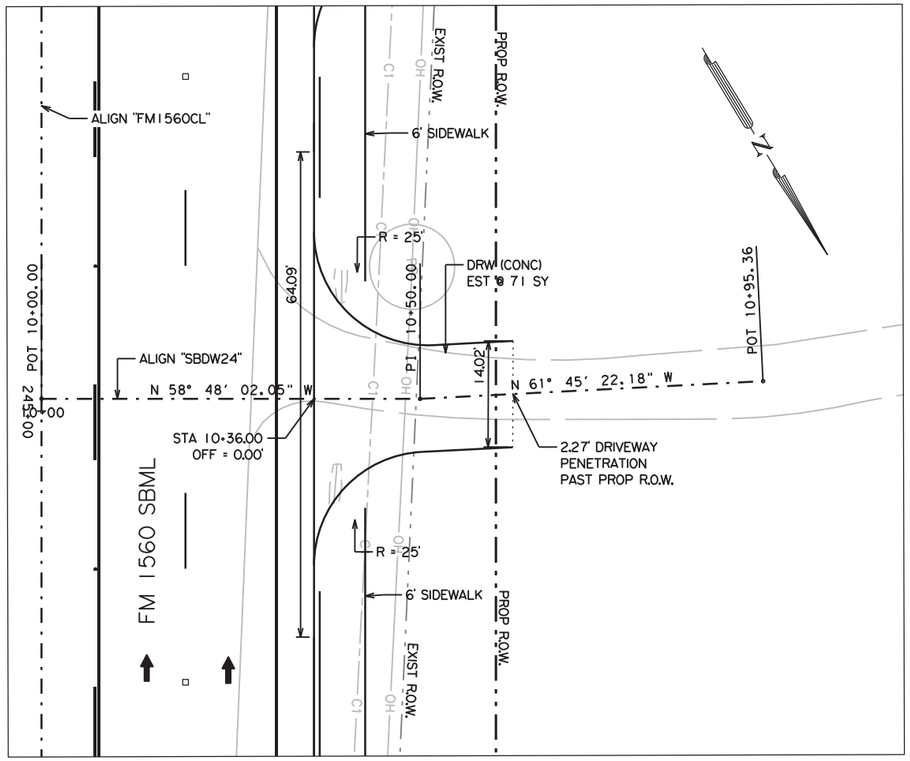
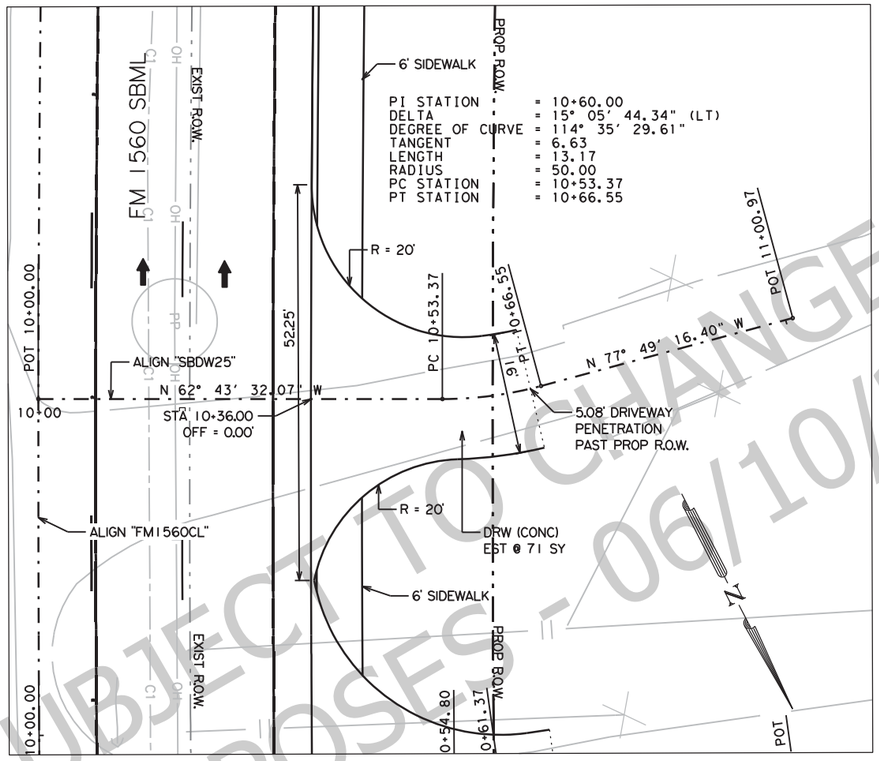
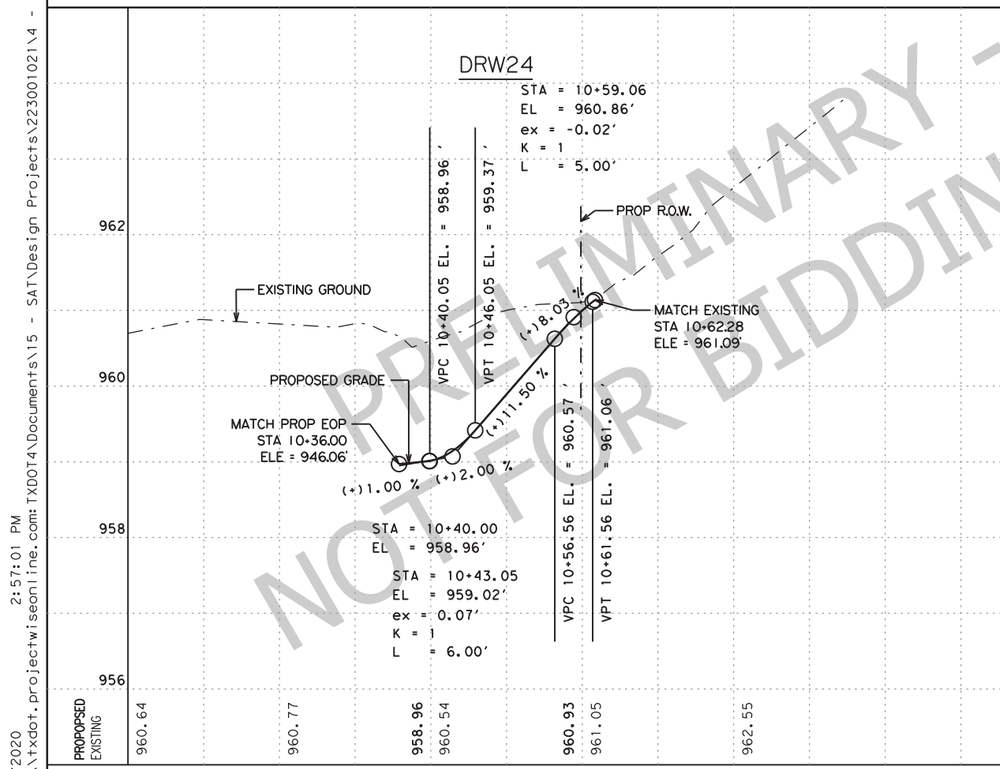


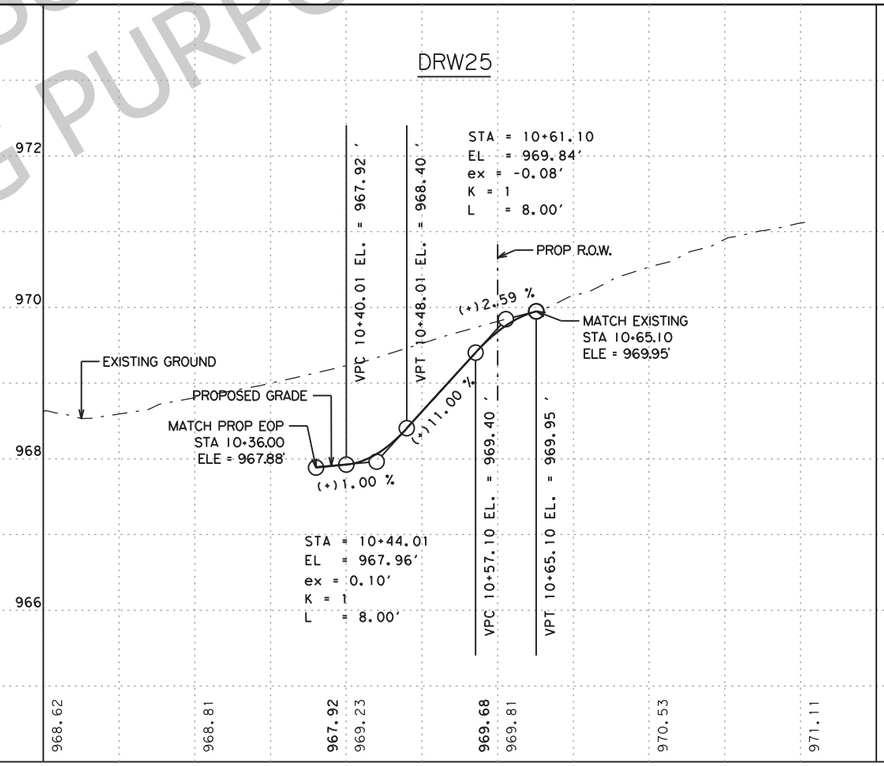


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	142

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 6 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

233

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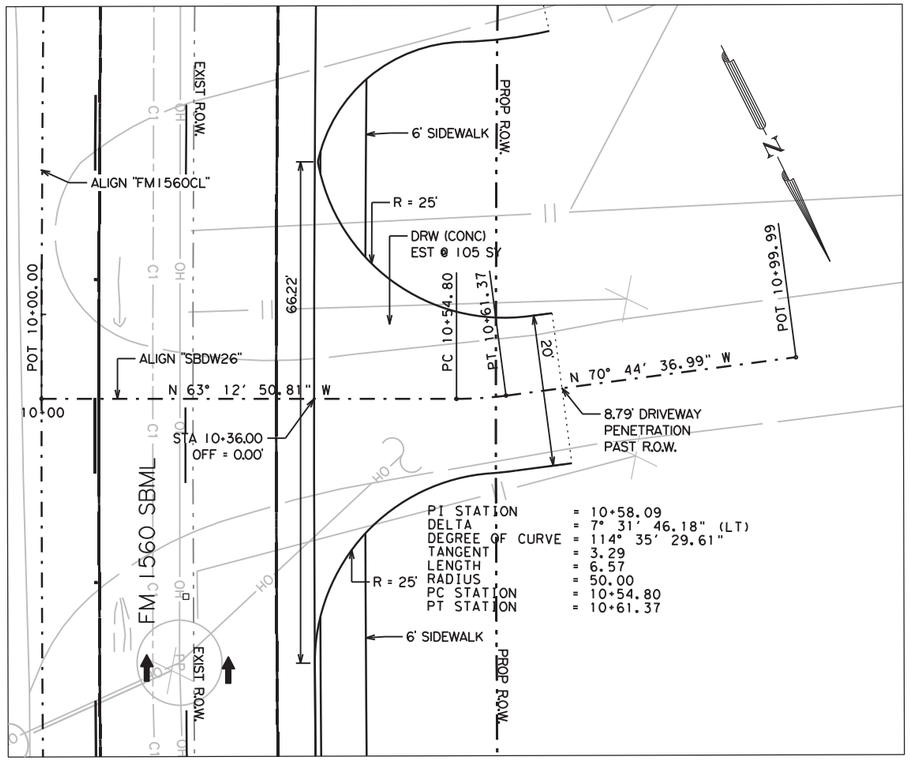
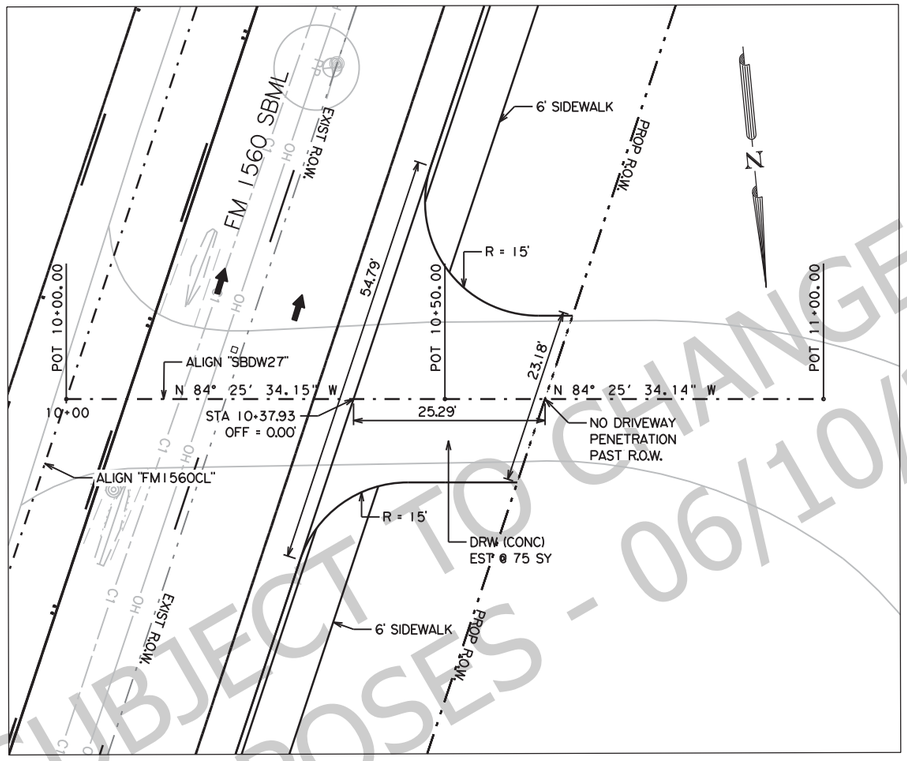
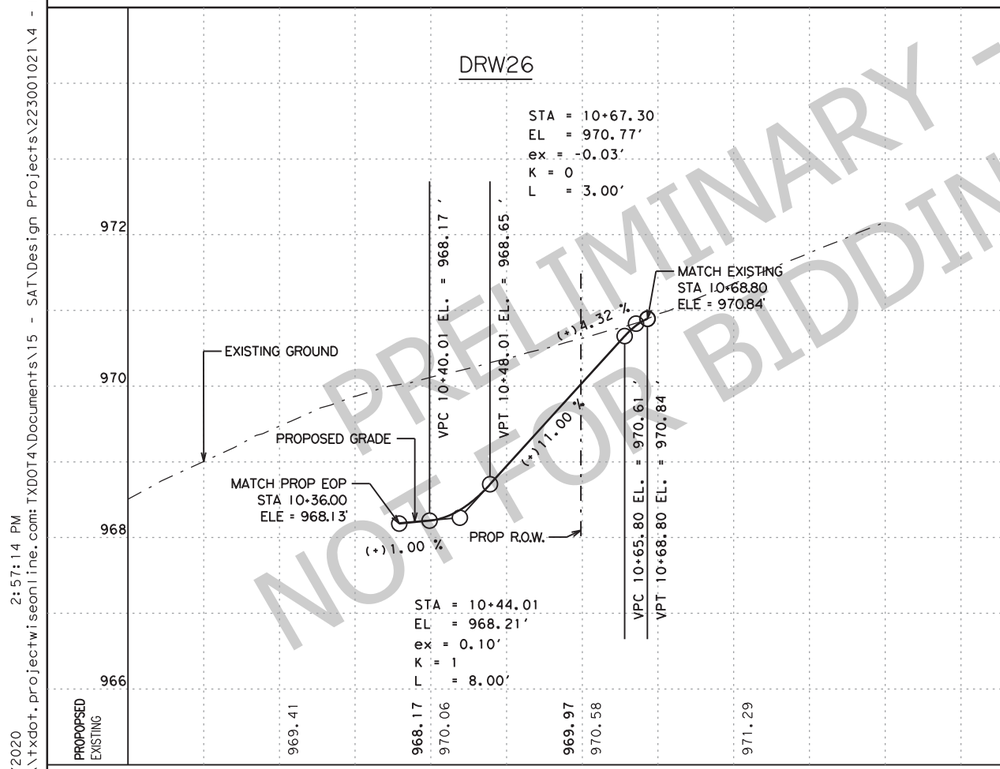


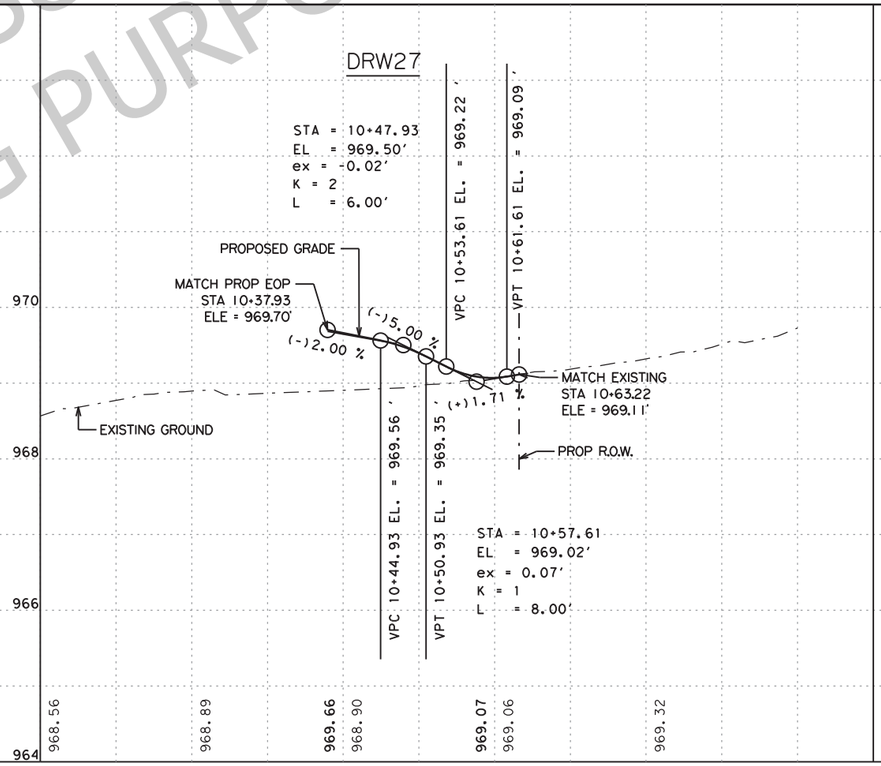


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	180

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 7 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	234
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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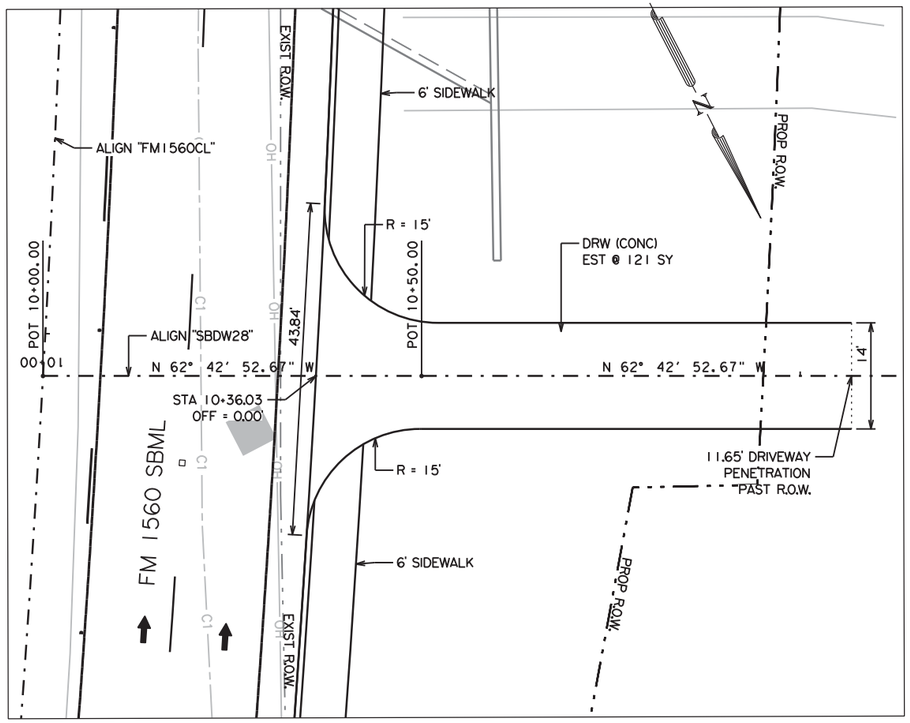
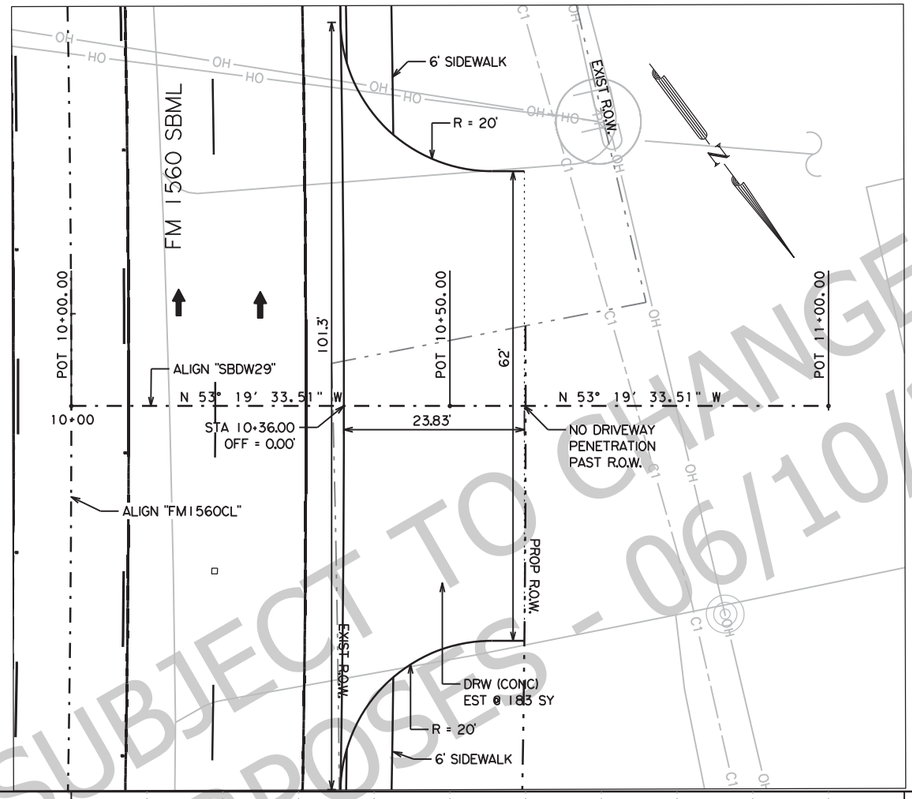


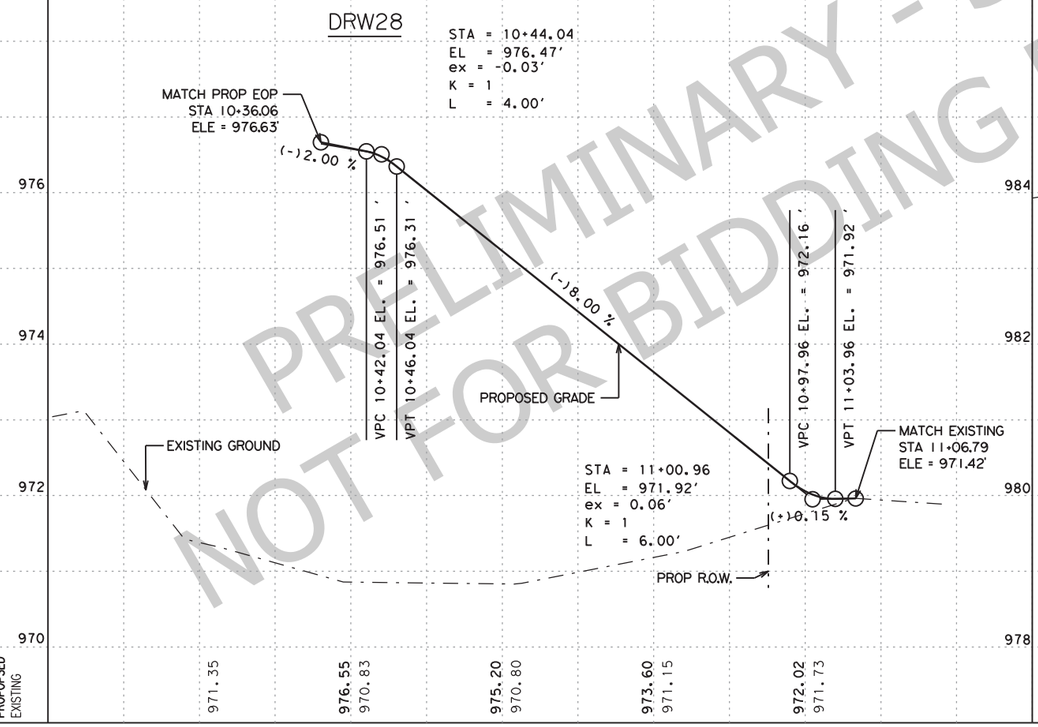


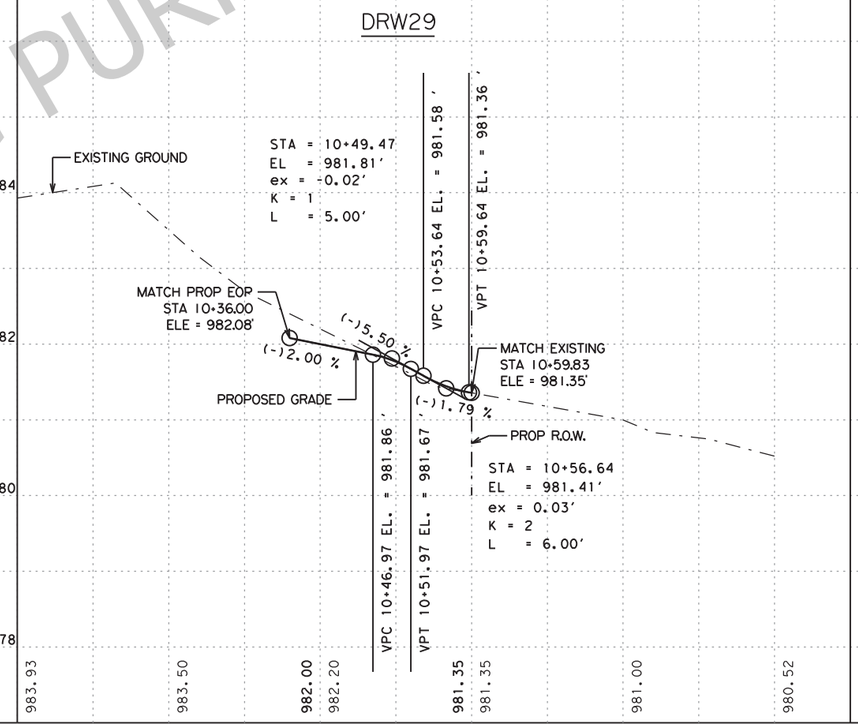
QUANTITY SUMMARY CSJ: 2330-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	304

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 8 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

235

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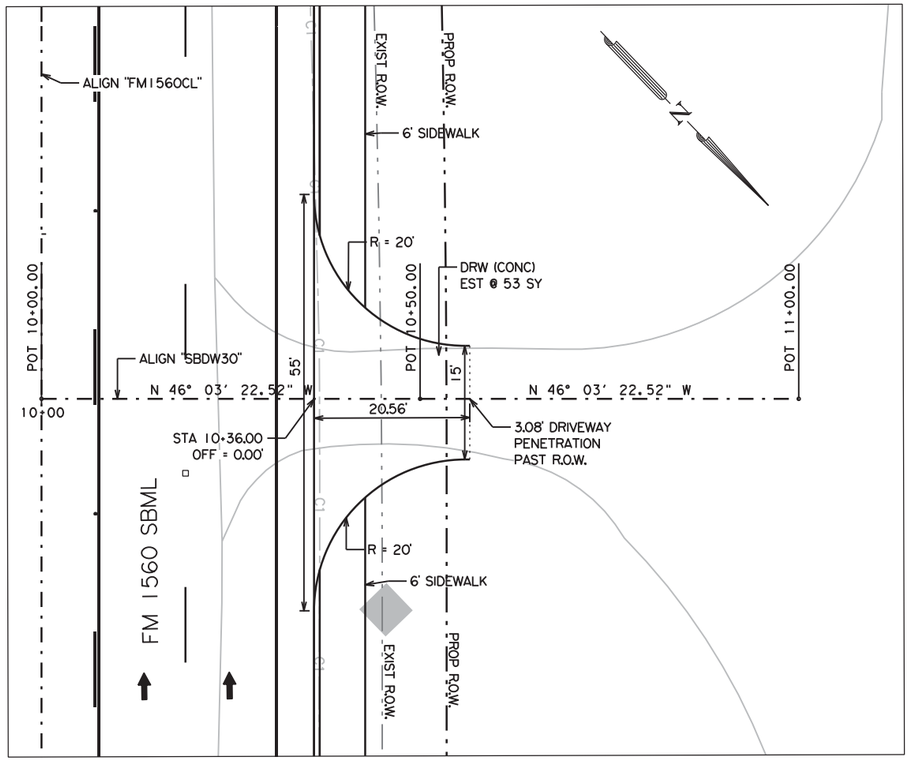
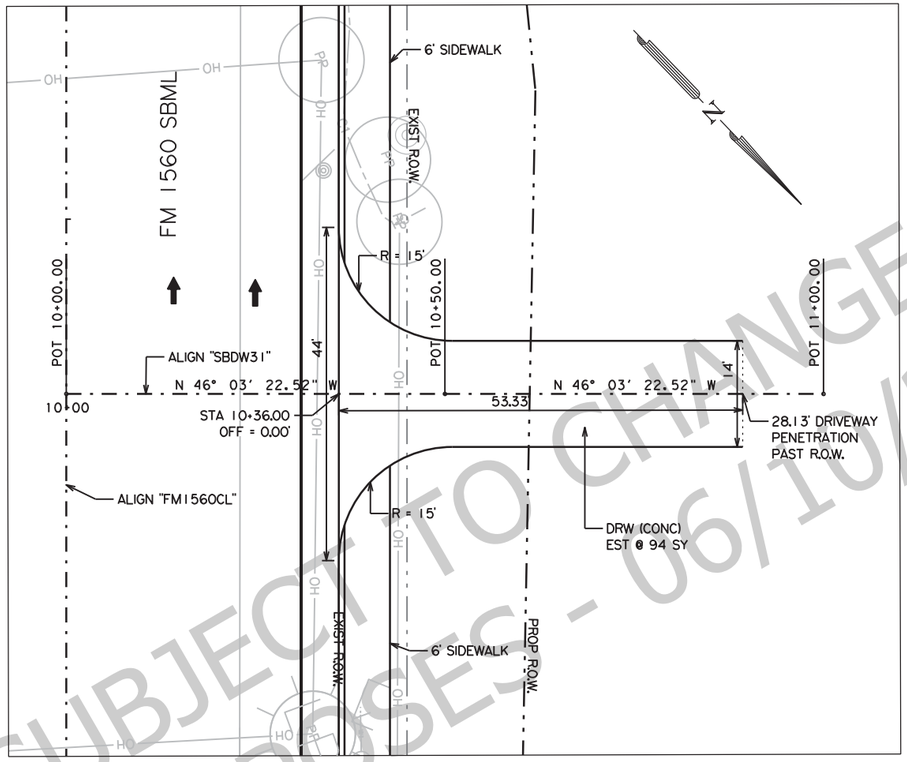


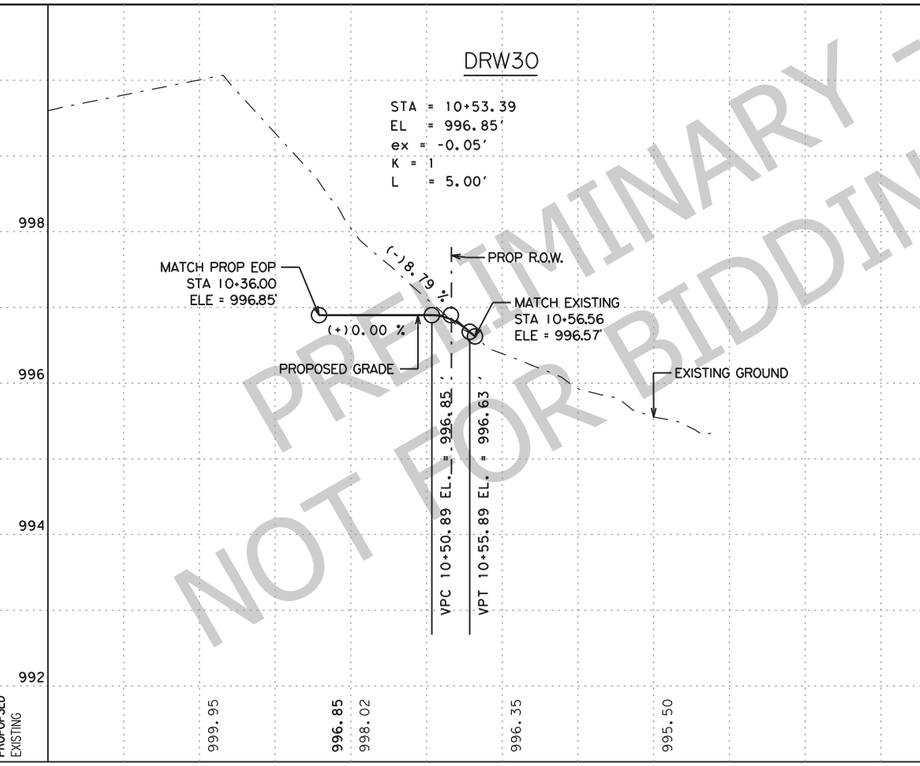


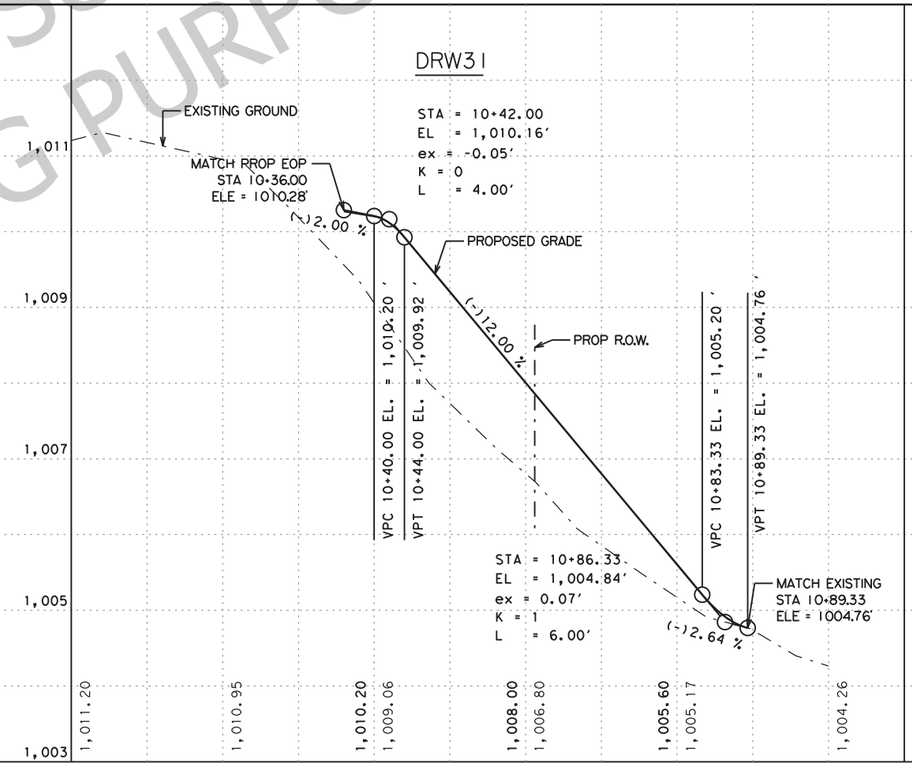
QUANTITY SUMMARY CSJ: 2330-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	147

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 9 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

236

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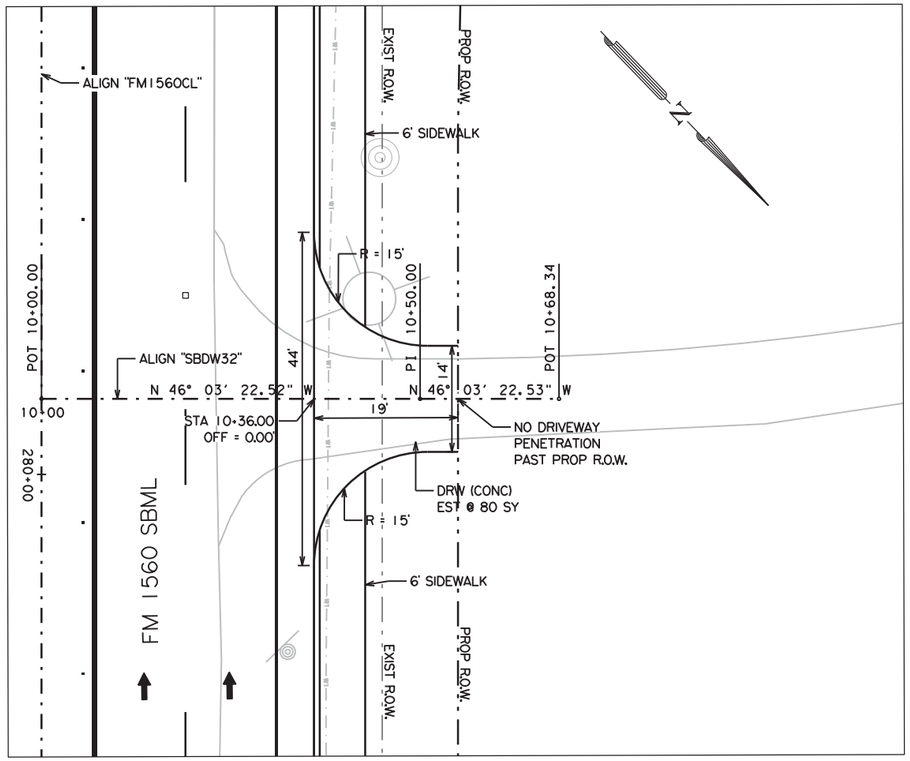
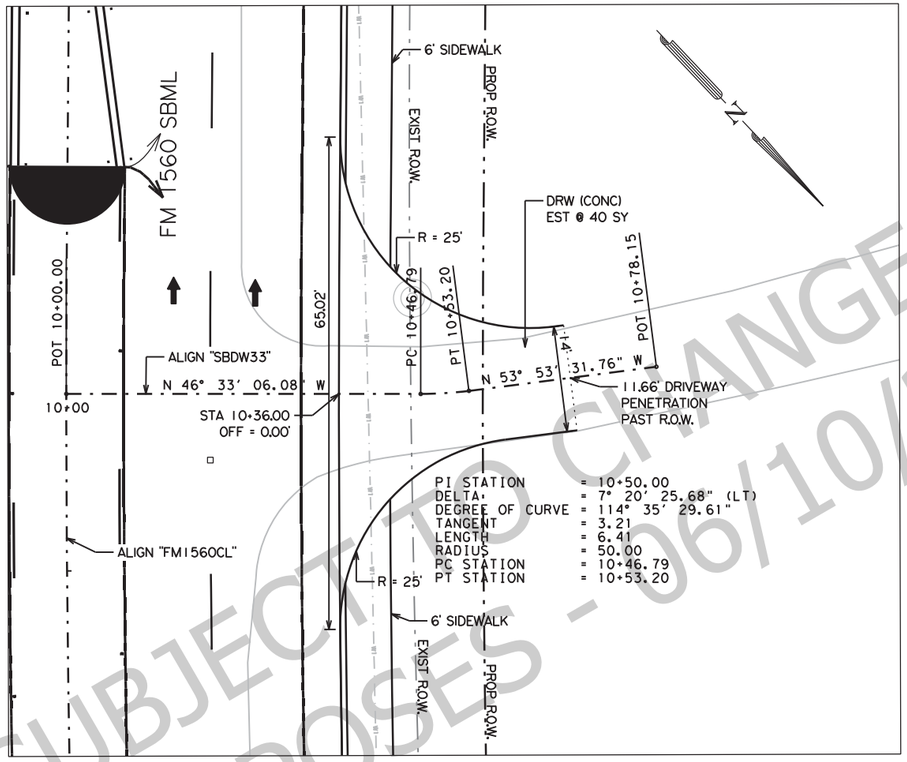
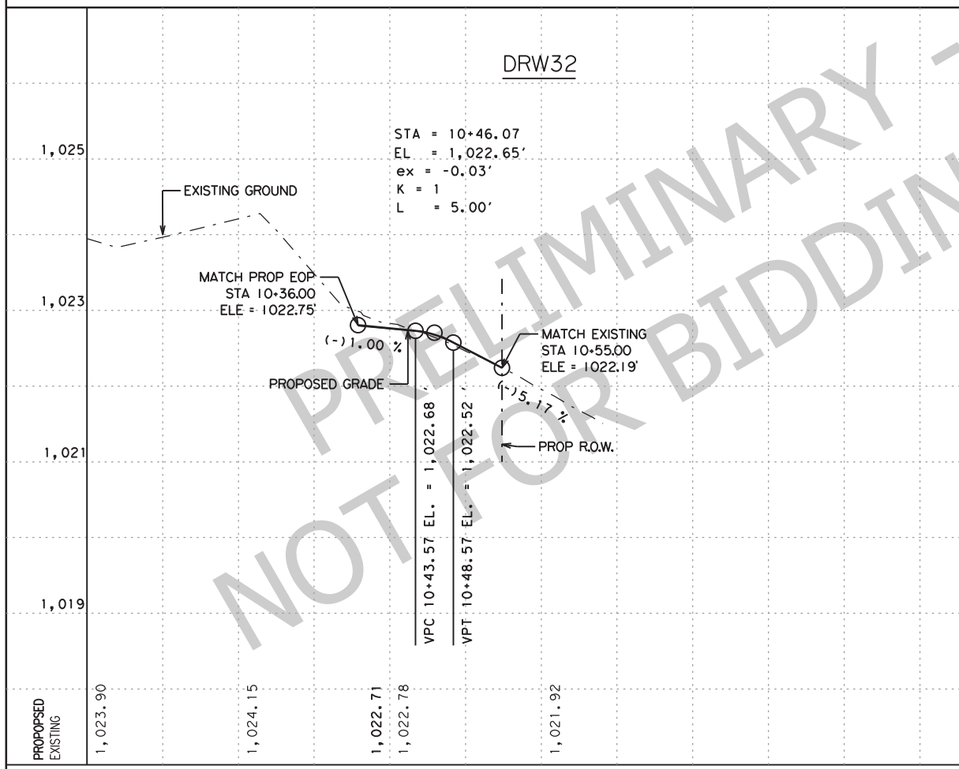


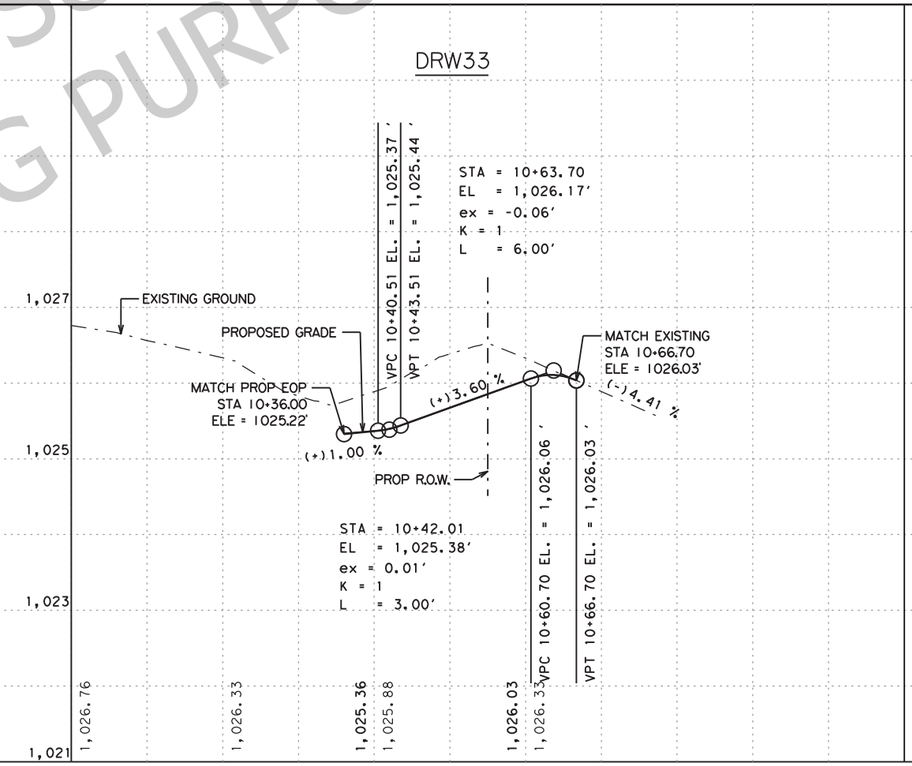


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	120

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 10 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	237
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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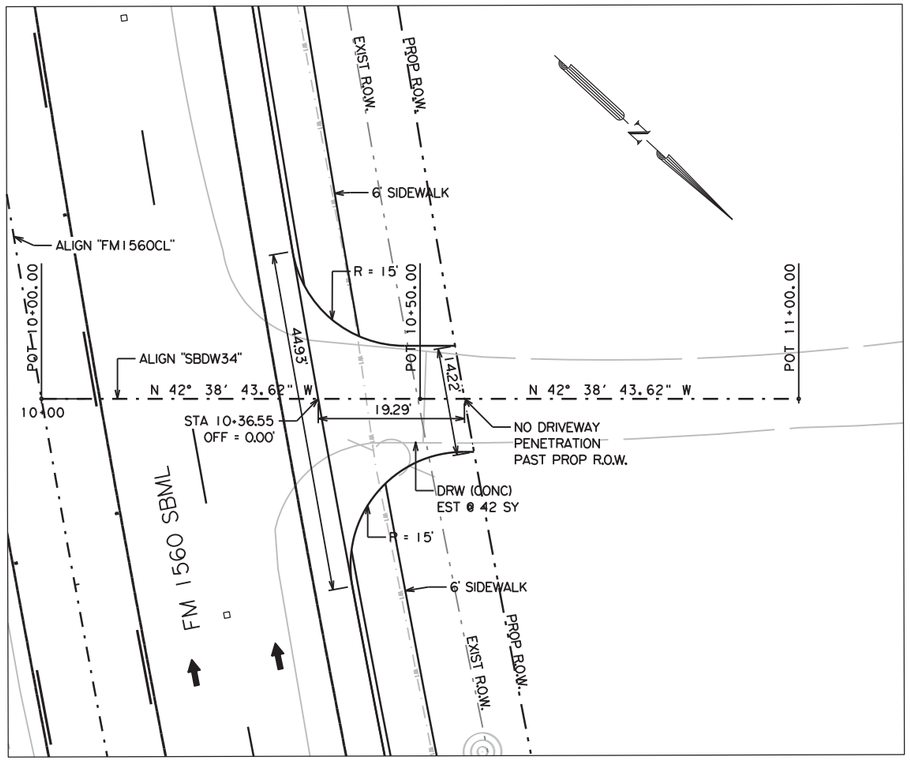
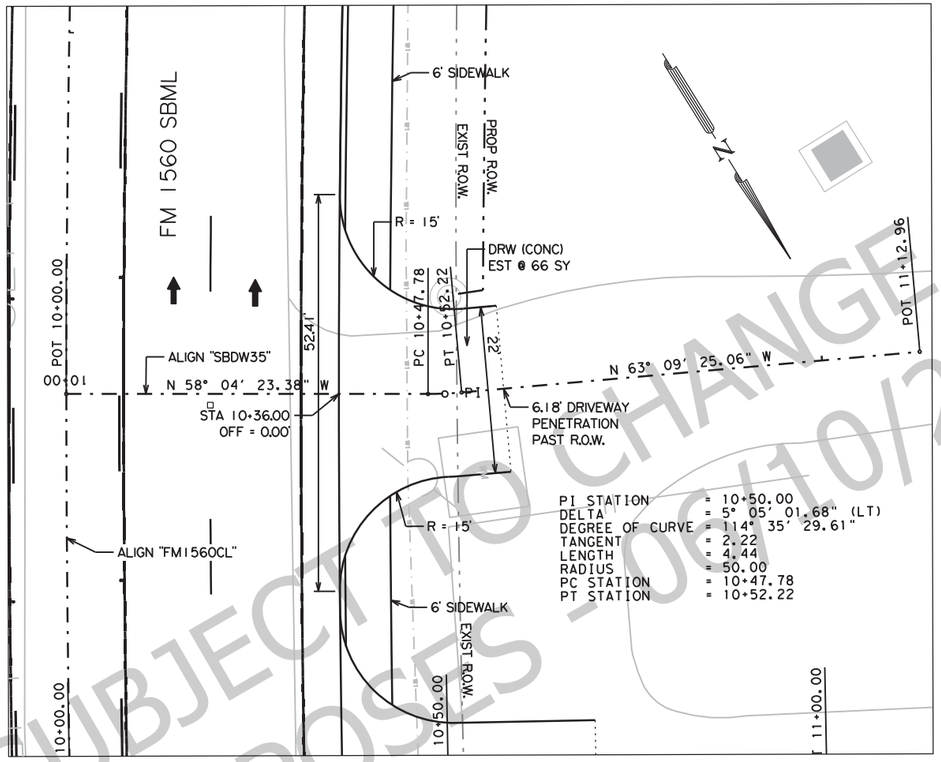
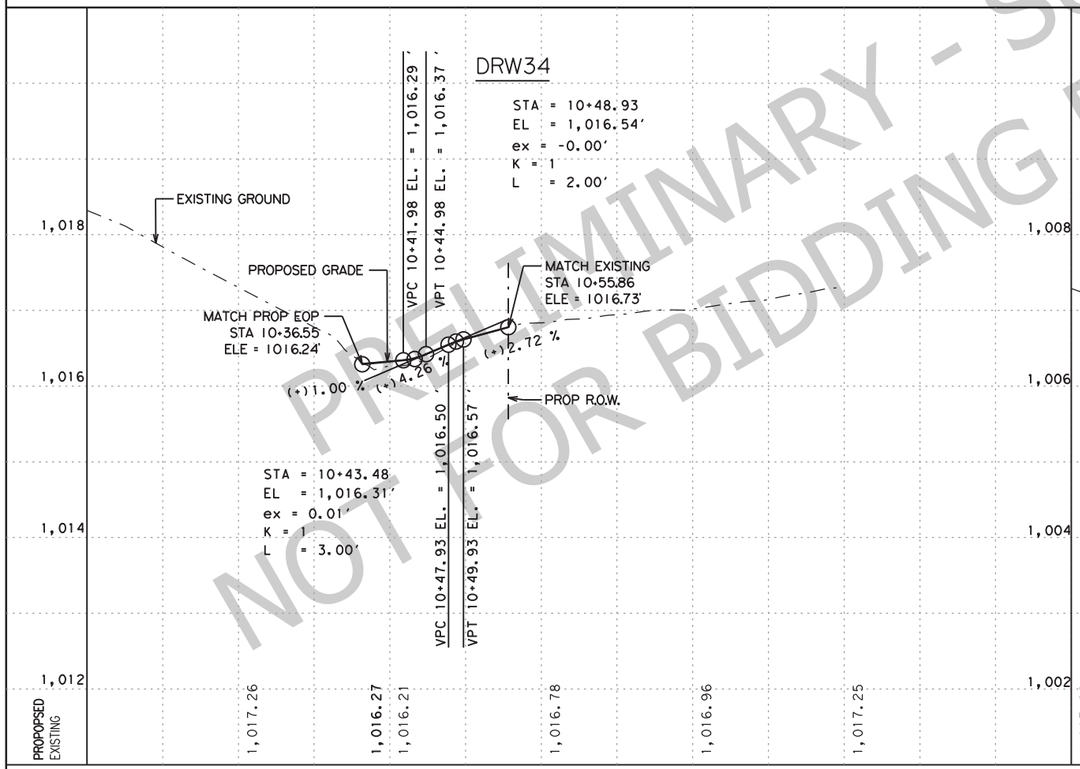


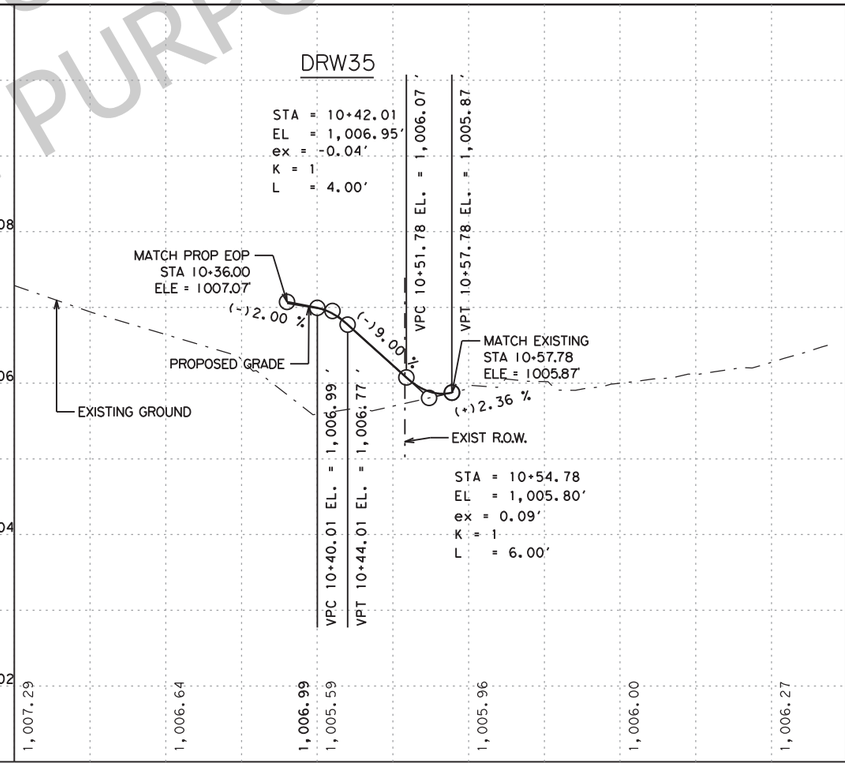


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	108

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 11 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

238

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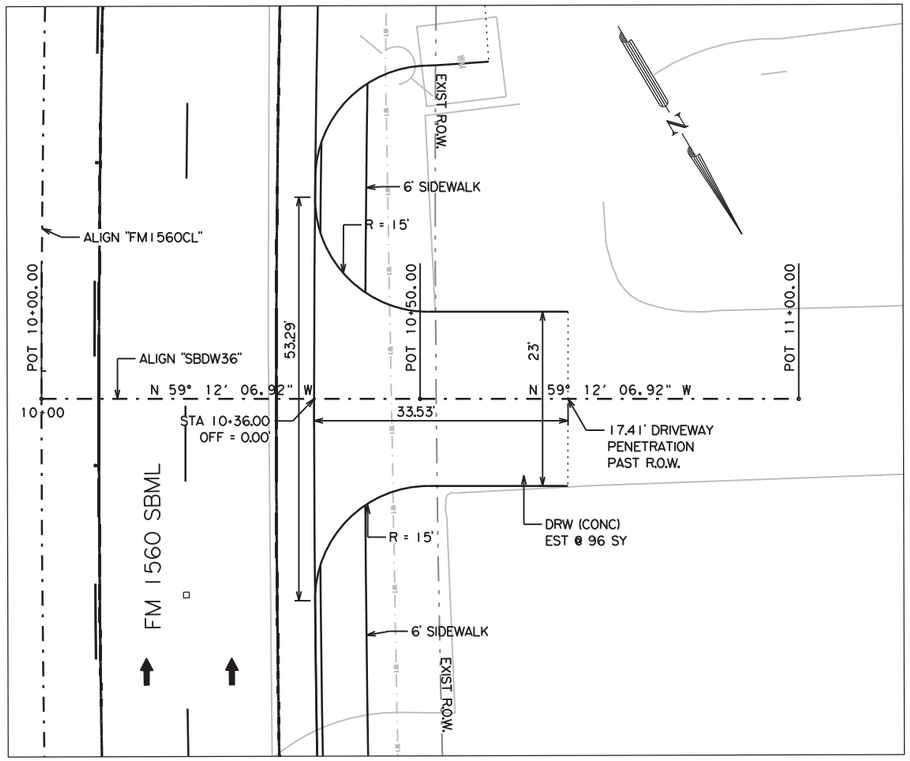
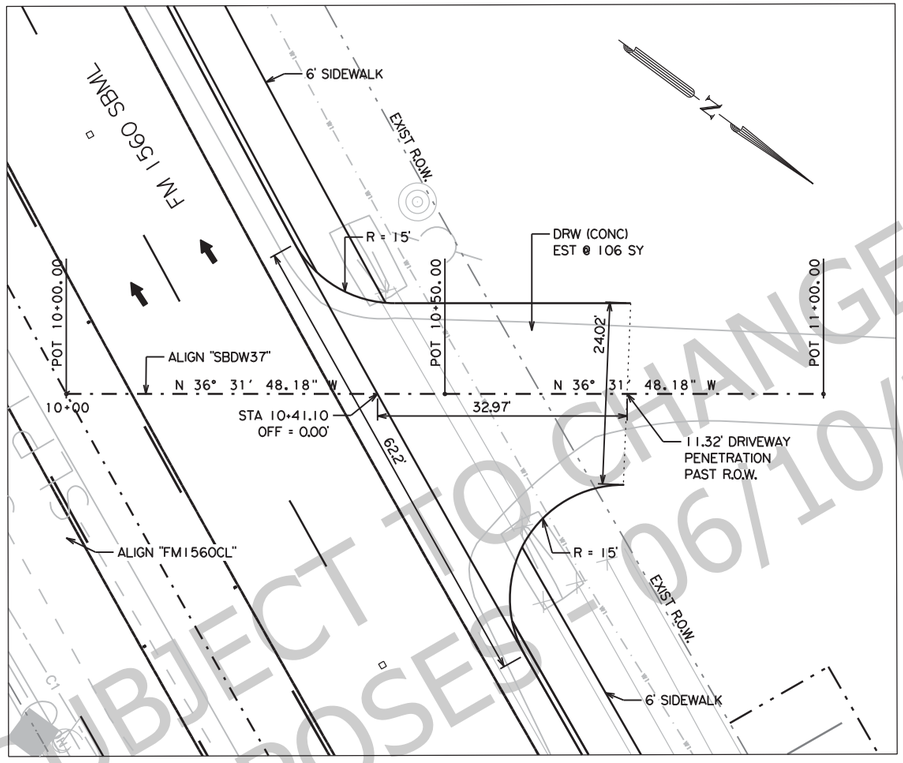
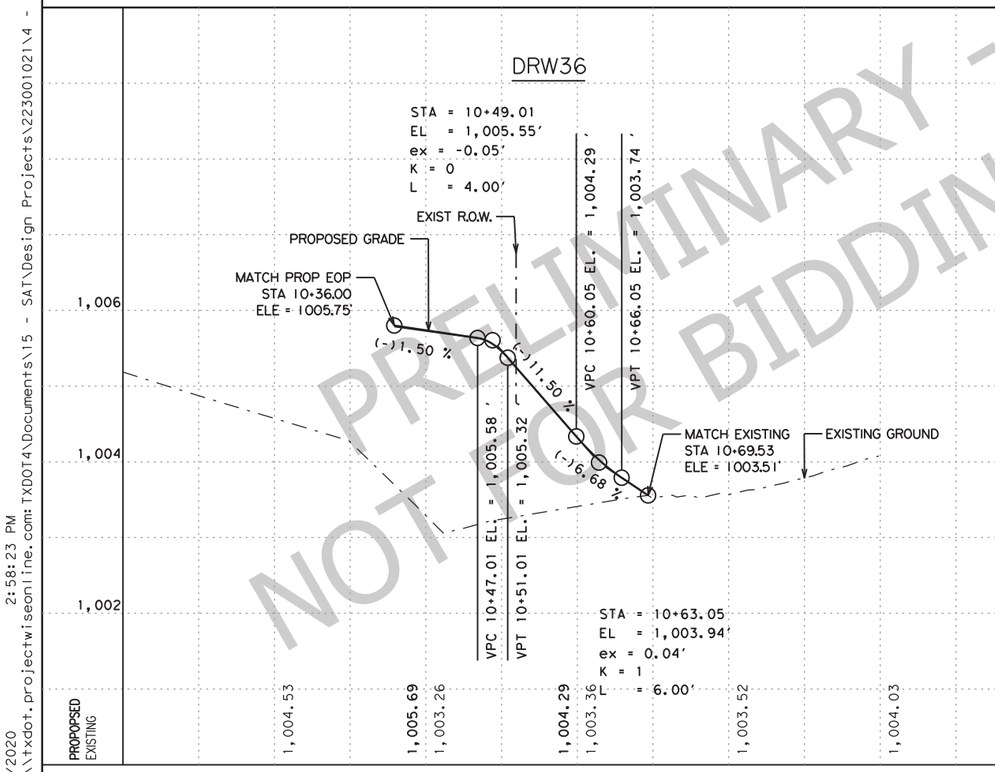


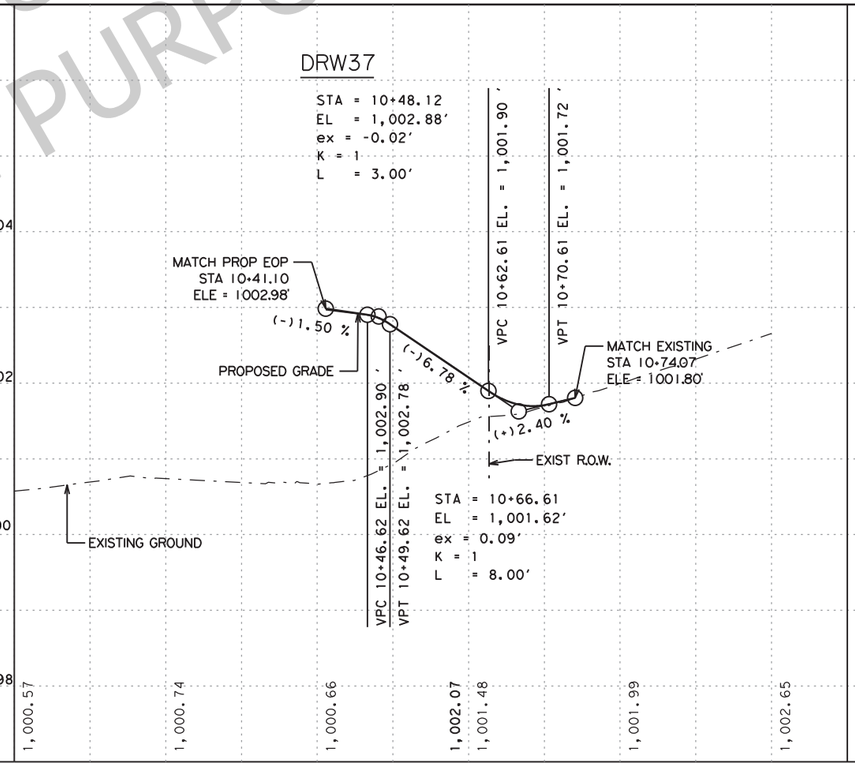


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	202

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 12 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

239

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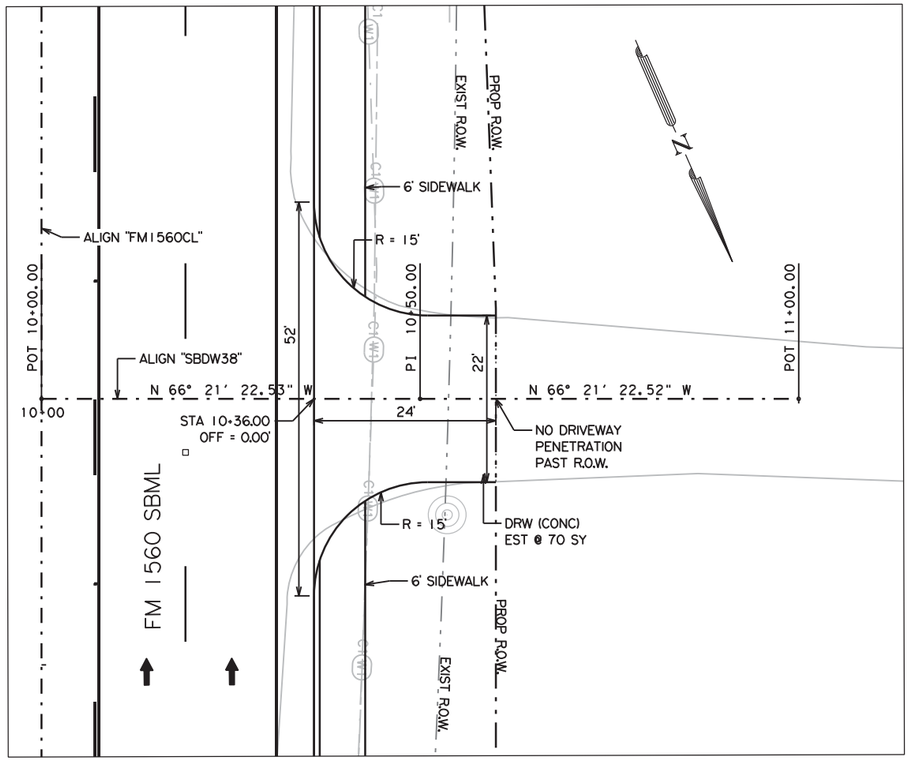
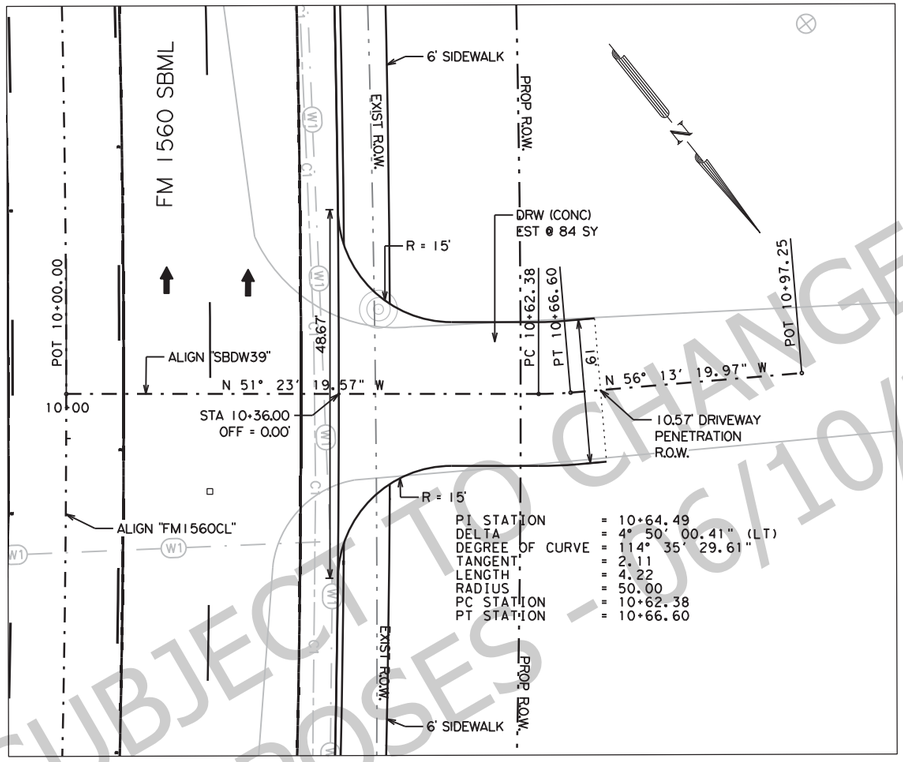
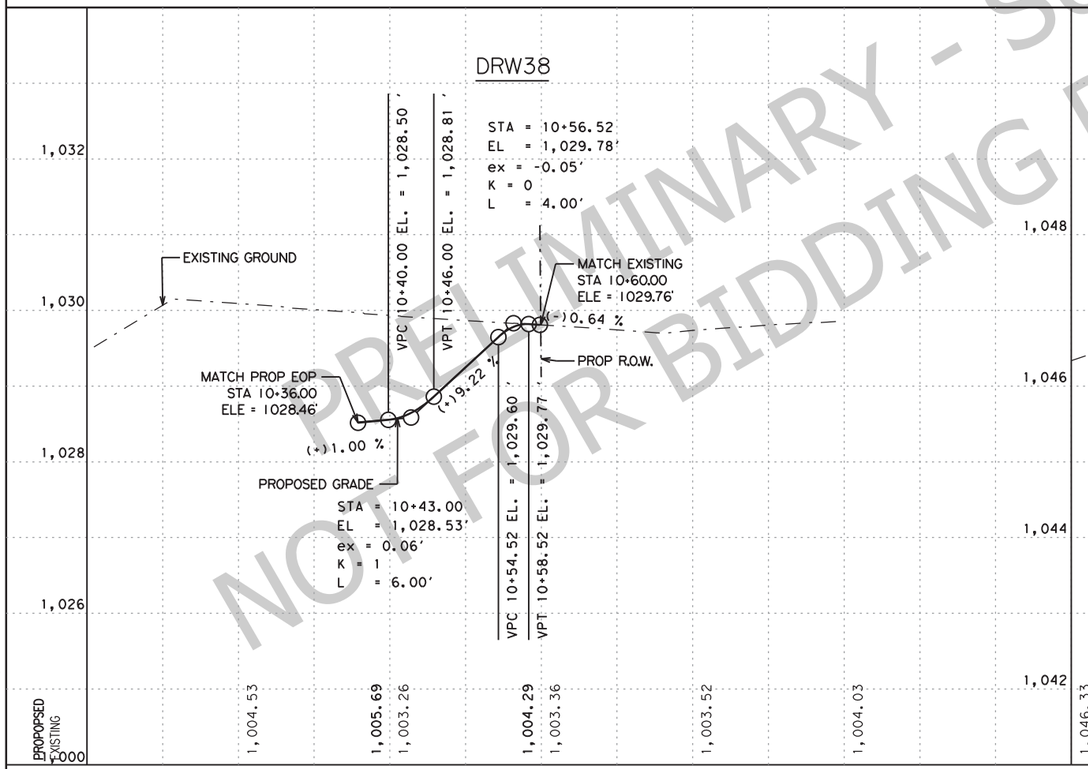


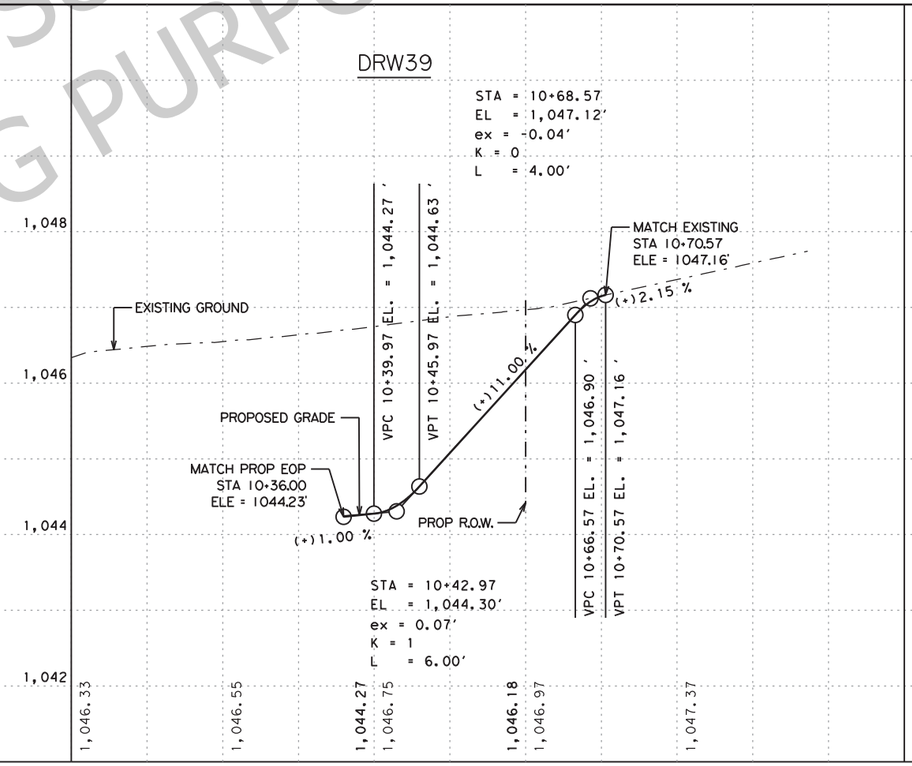


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	154

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 6/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 13 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	240
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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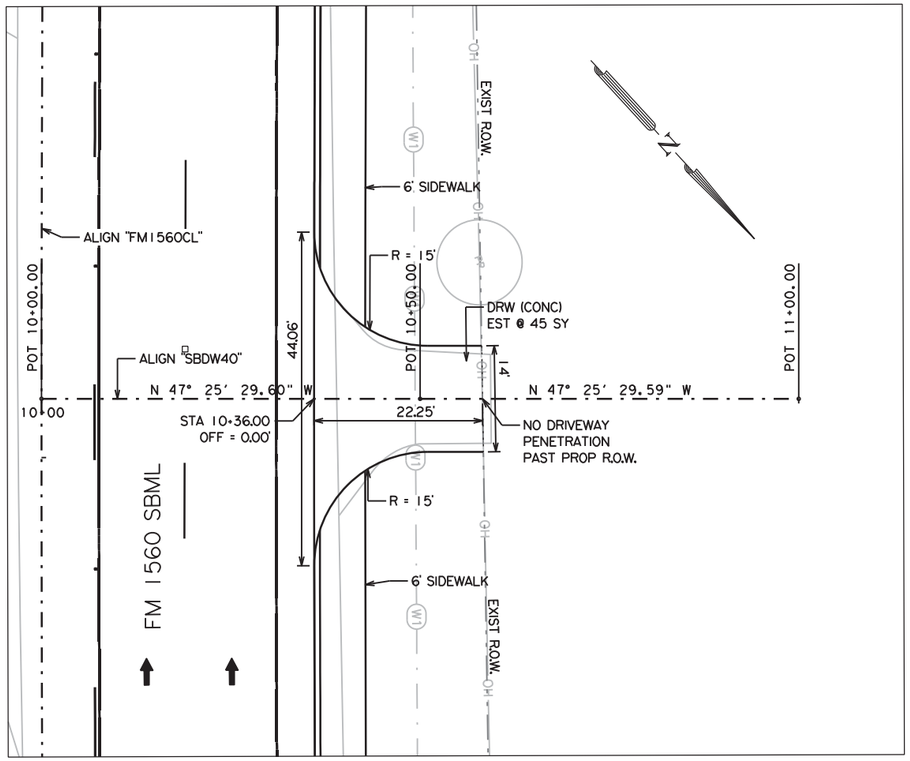
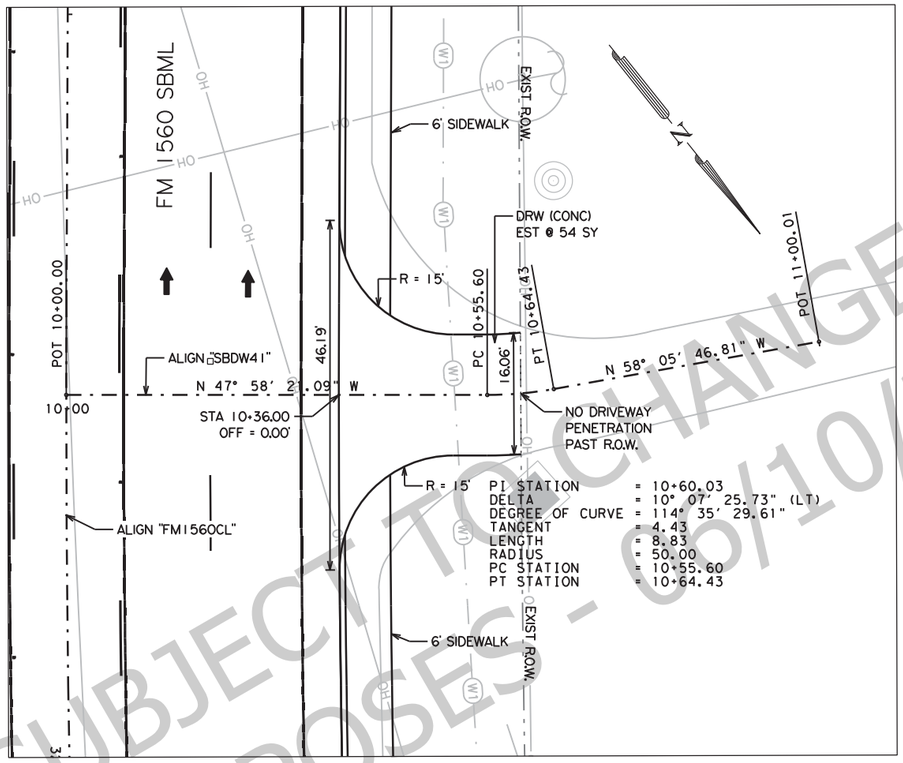
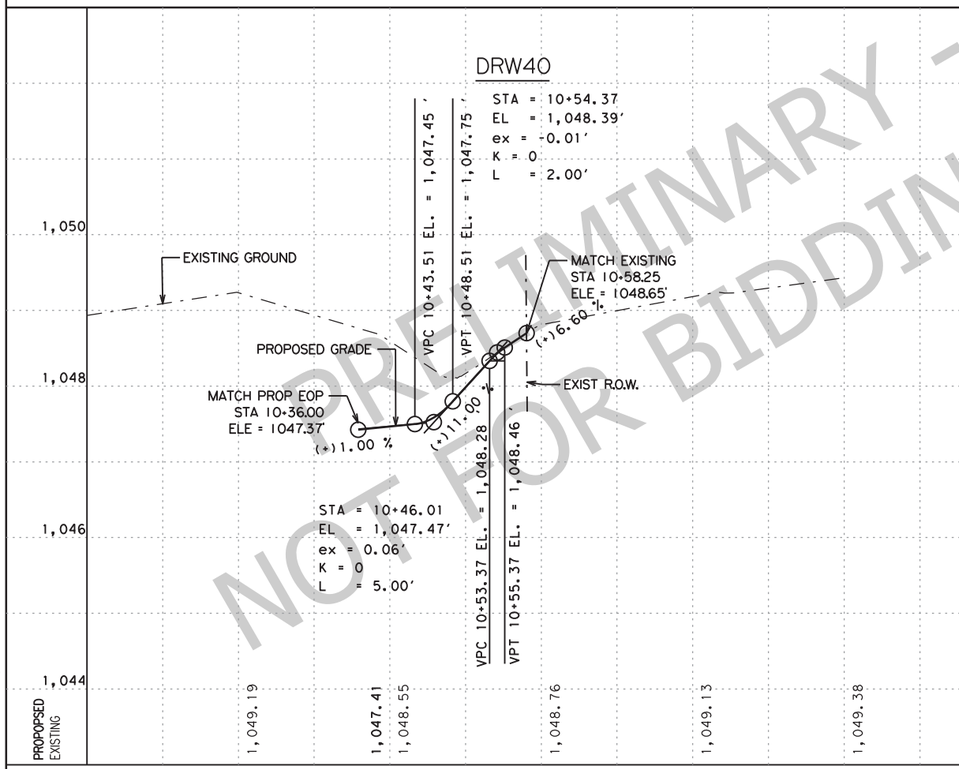


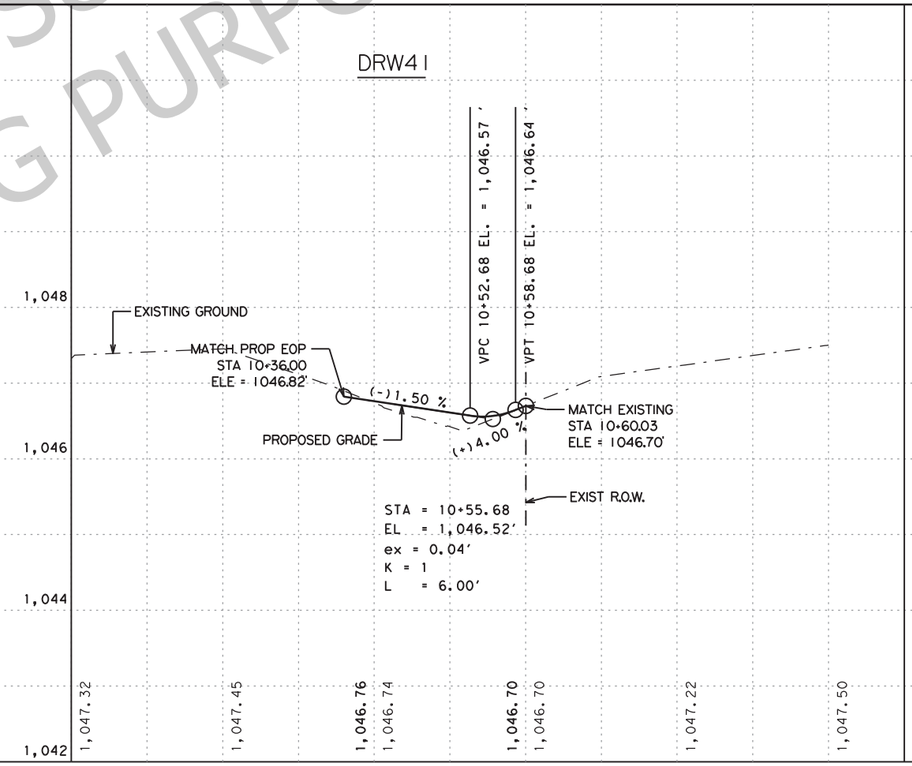


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	99

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 14 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

241

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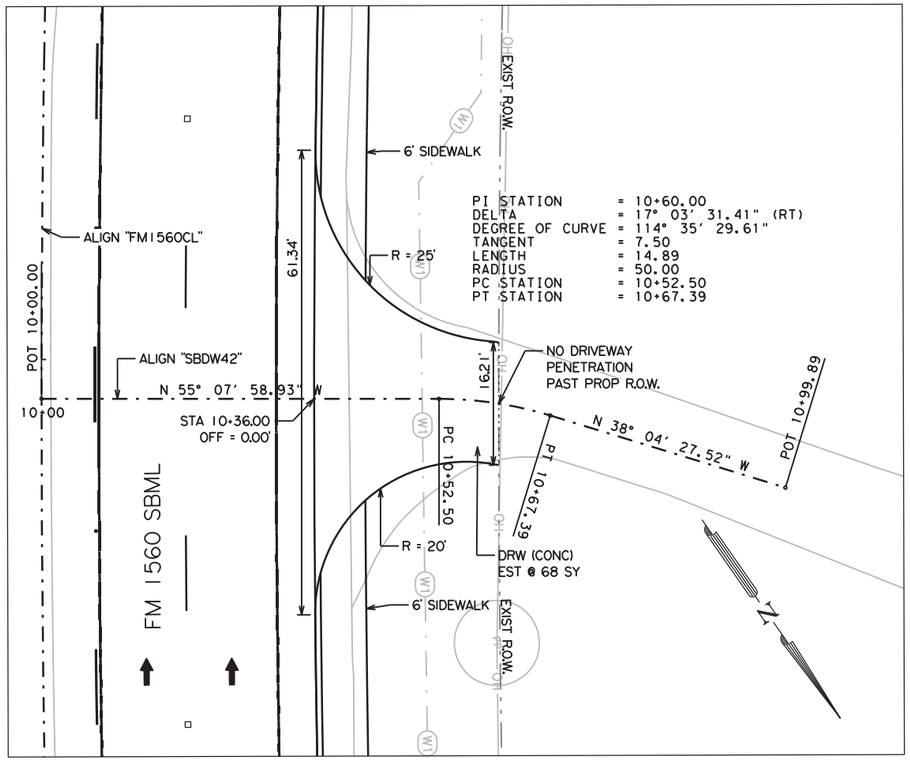
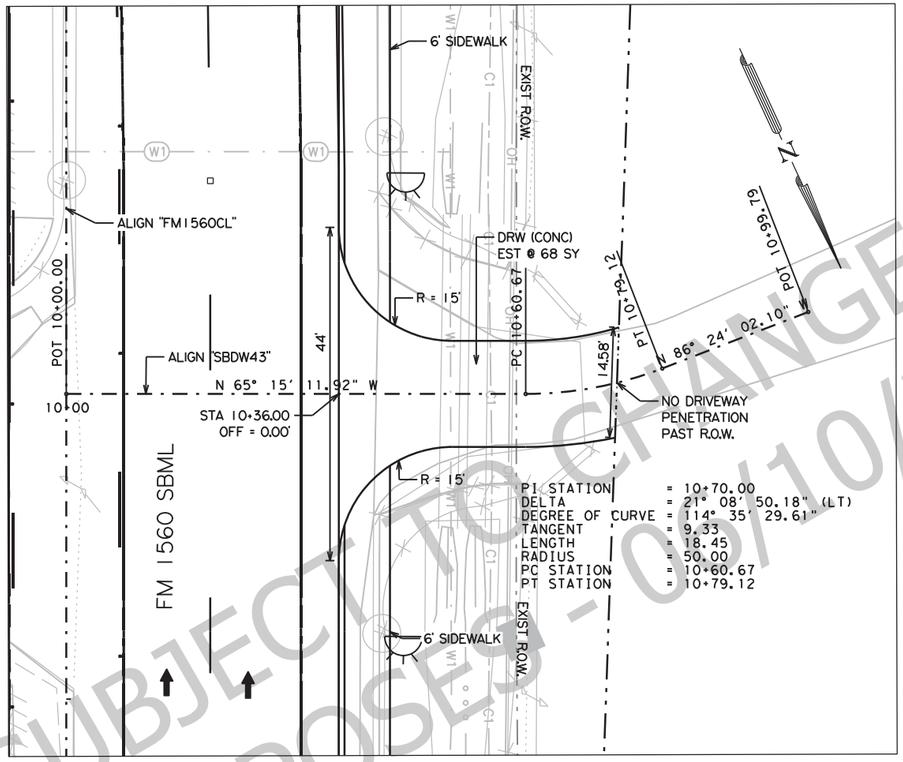


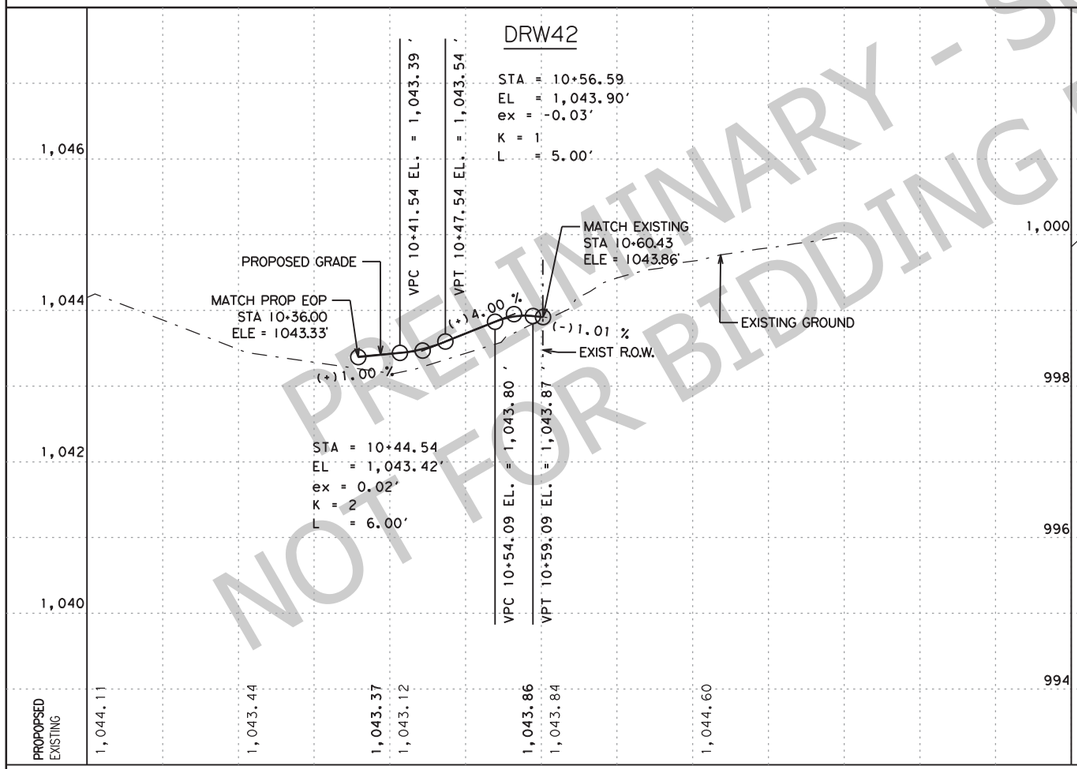


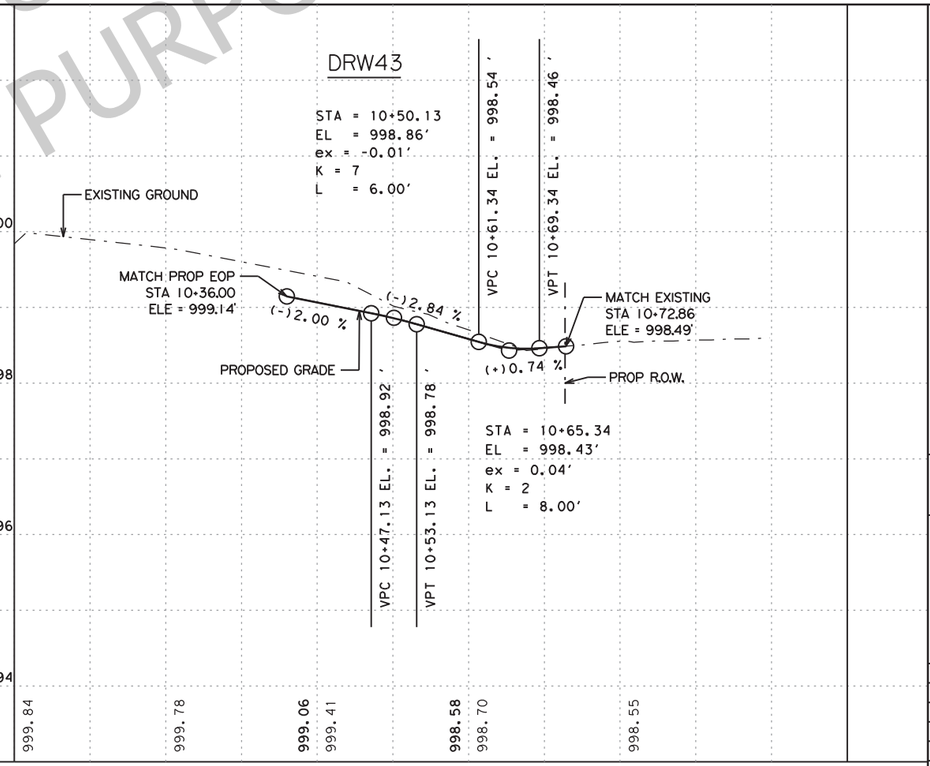
QUANTITY SUMMARY CSJ: 2330-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	136

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 15 OF 17

DESIGN: JL	DRAFT: JL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

242

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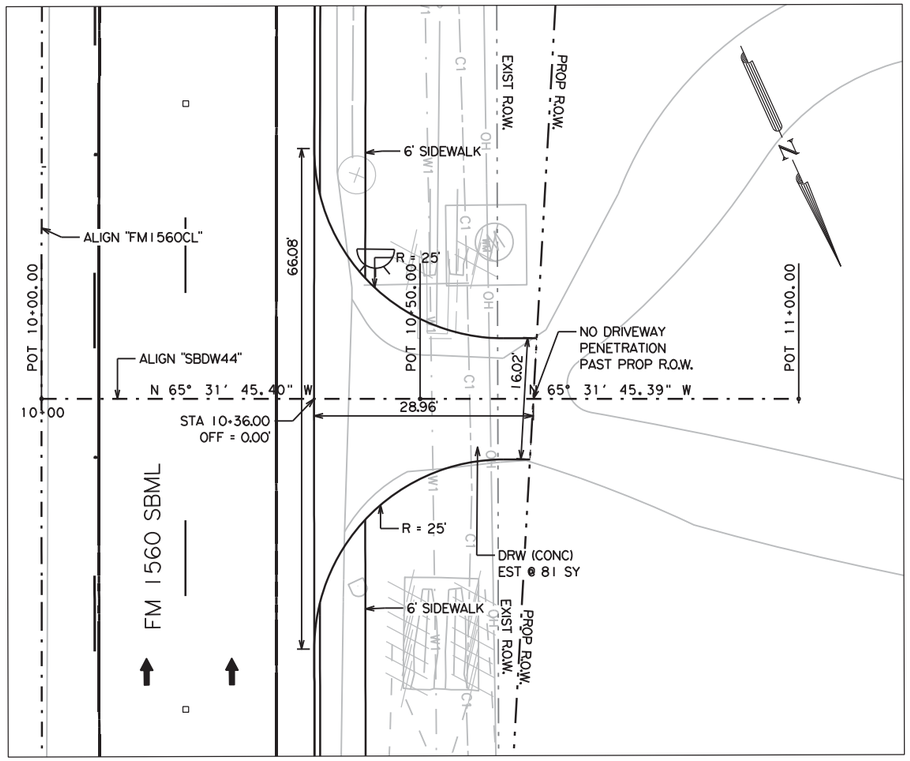
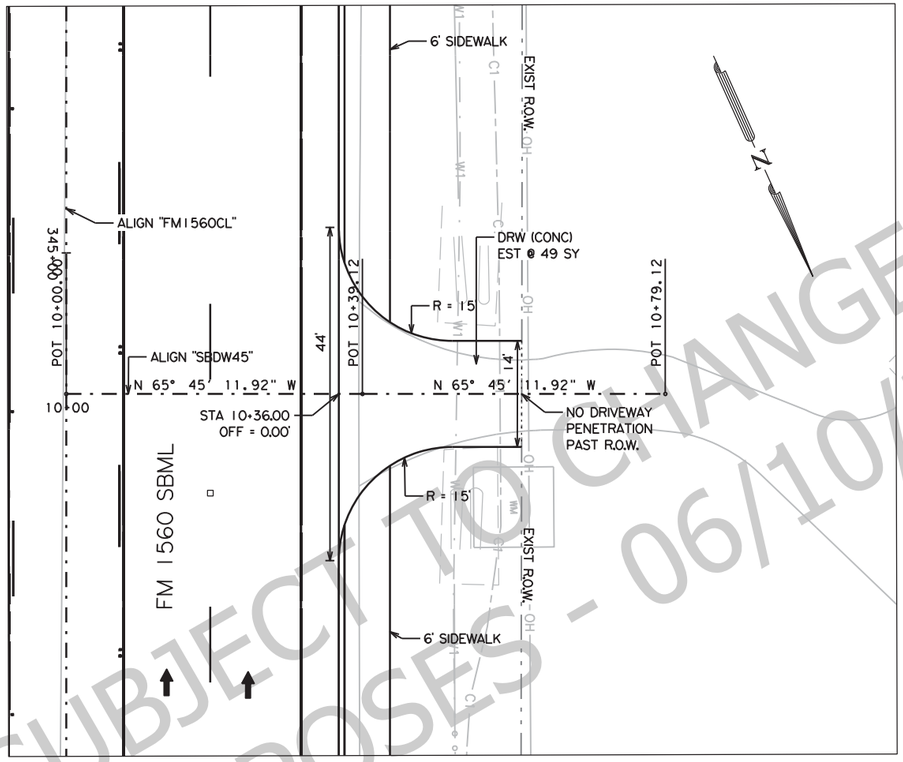
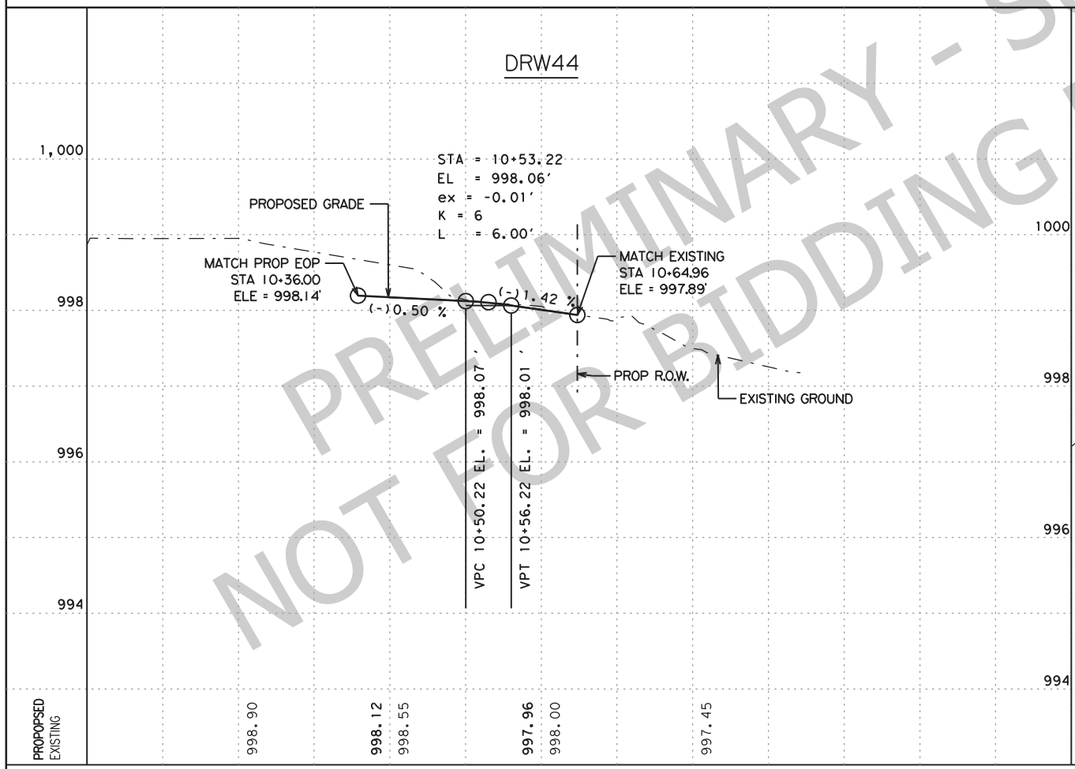


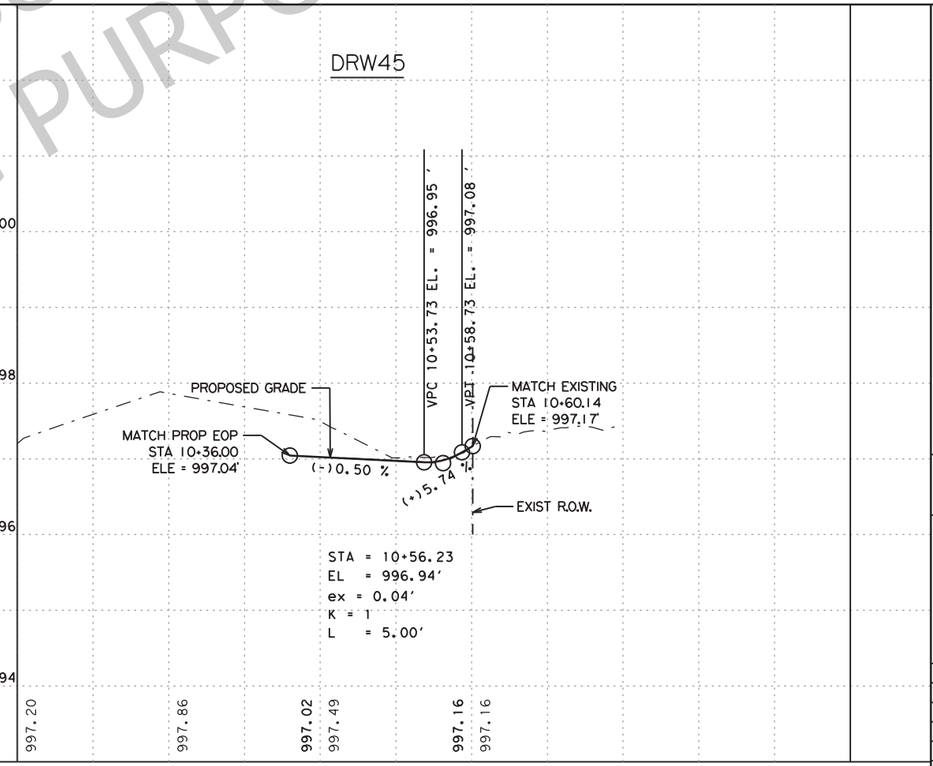


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	130

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 16 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	243
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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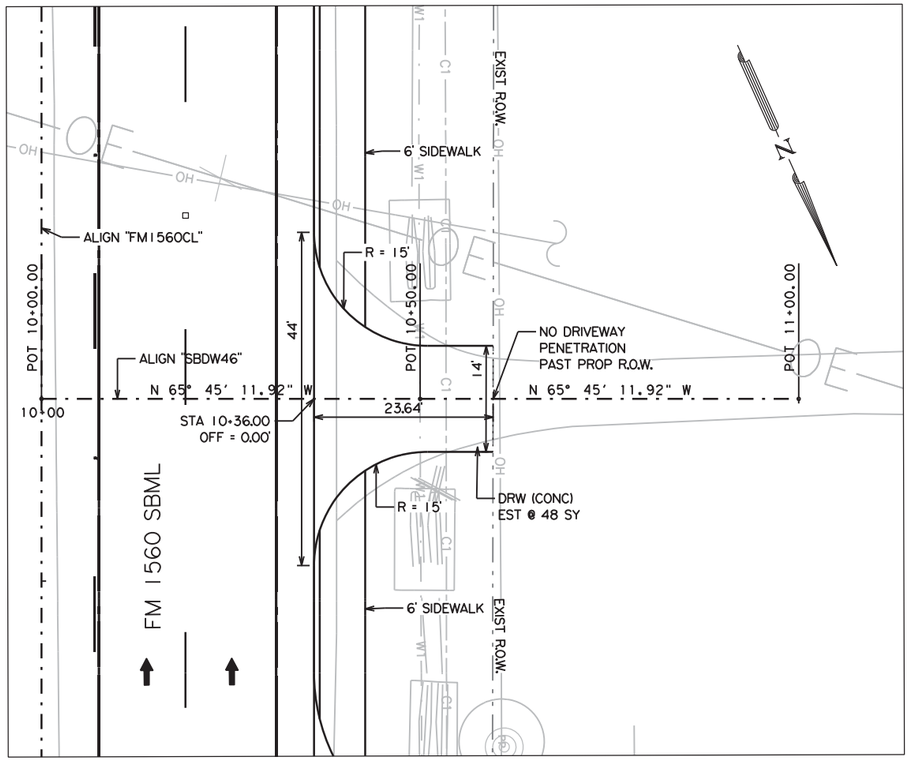
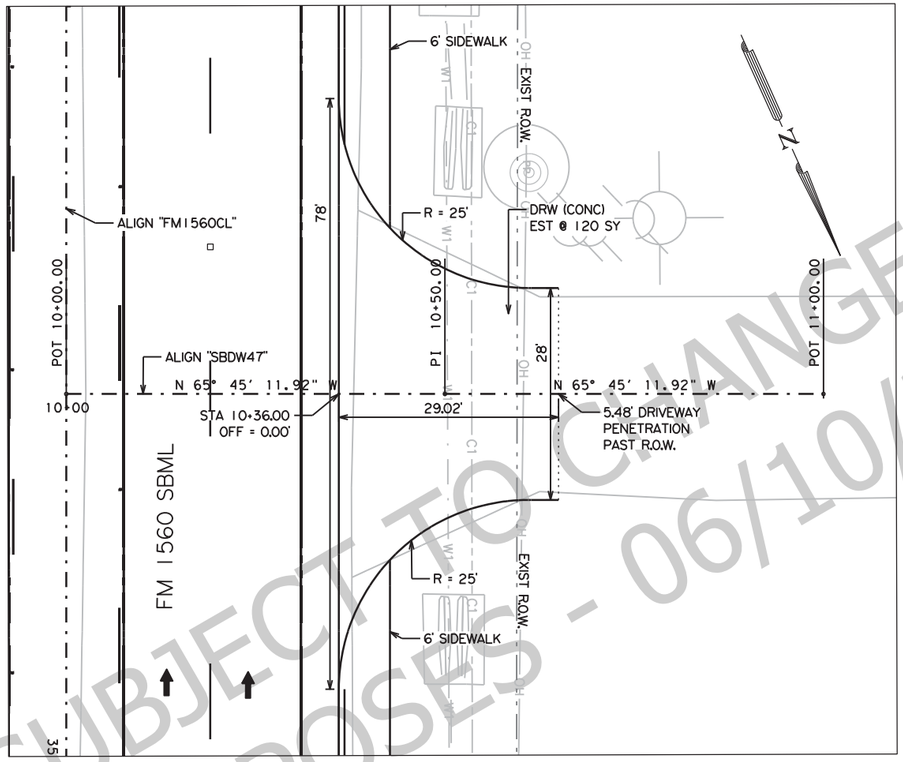
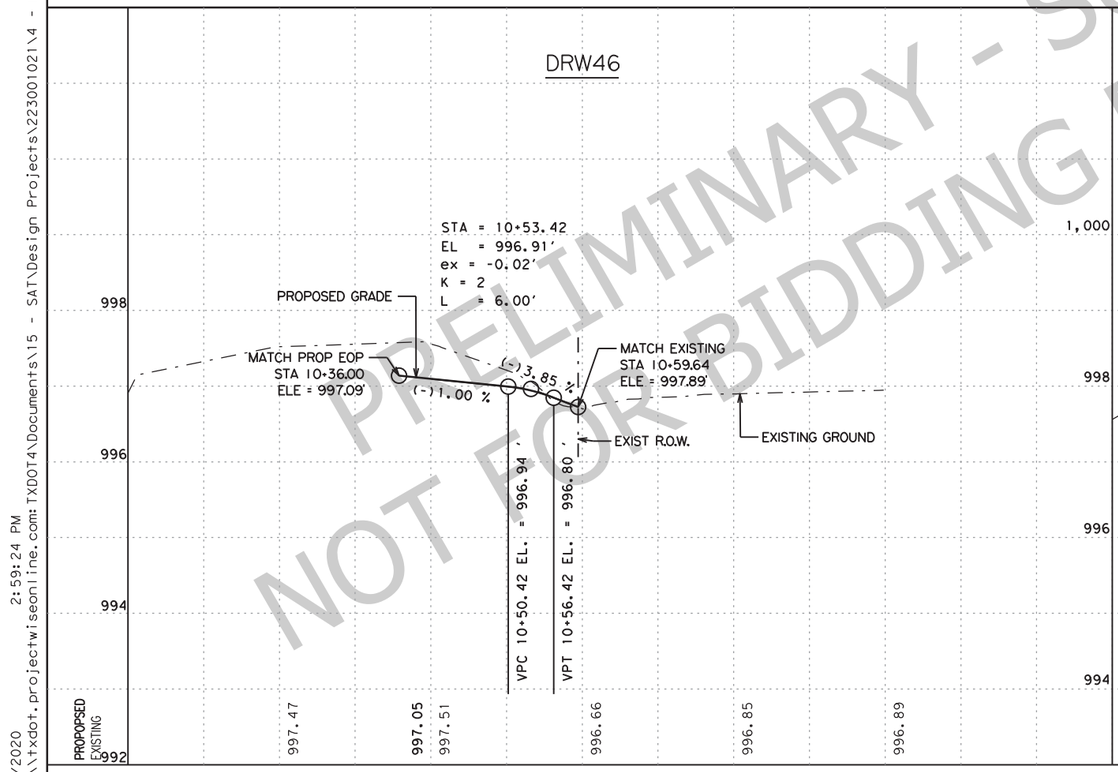


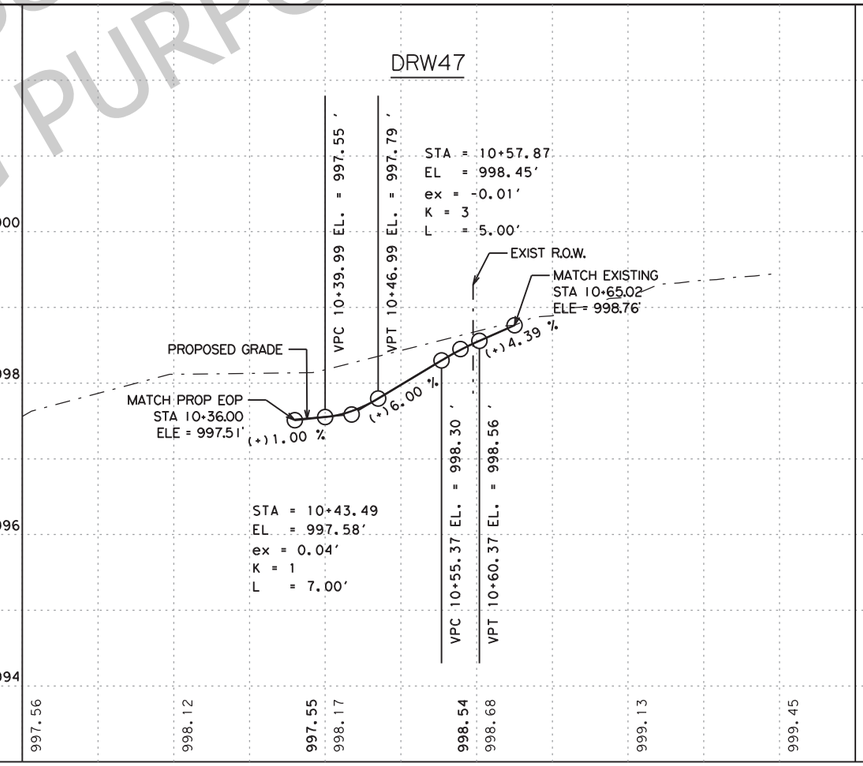


QUANTITY SUMMARY CSJ: 2330-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0530-6004	DRIVEWAYS (CONC)	SY	168

NOTES:

1. SEE ROADWAY MISC DETAILS FOR DRIVEWAY PAVEMENT SECTION.





PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=20' VERTICAL: 1"=2'

Texas Department of Transportation
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FM 1560
SB
DRIVEWAY LAYOUTS

SHEET 17 OF 17

DESIGN: JL	DRAFT: JL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		XX
STATE	DIST.	COUNTY	244
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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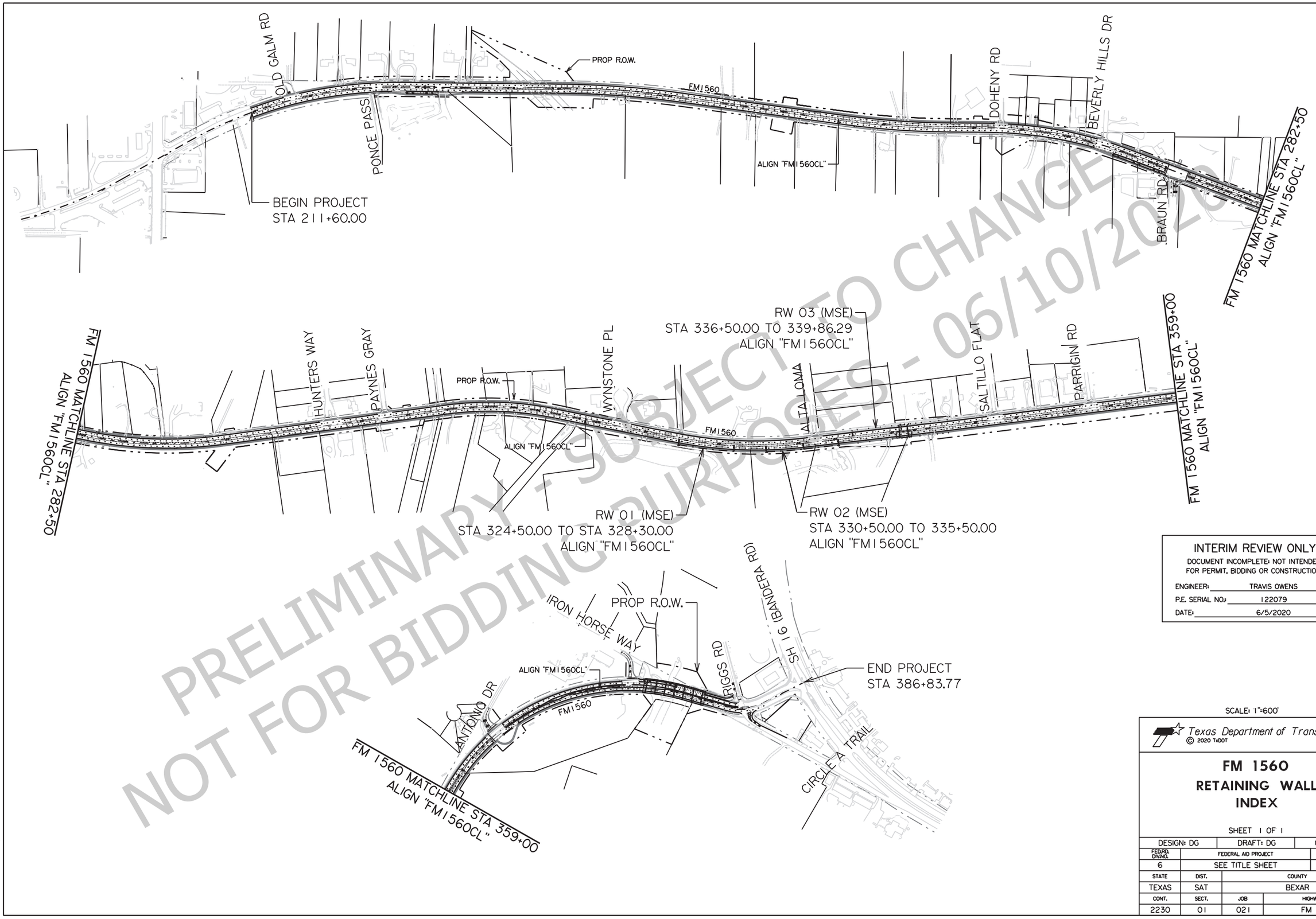

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE: 1"=600'

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FM 1560
RETAINING WALL
INDEX

SHEET 1 OF 1

DESIGN: DG	DRAFT: DG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	108
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

245

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RETAINING WALL 01

Beginning chain RW01 description
Feature: Struc_Wall_Type1

		Curve Data	

Curve RW01_1			
P.I. Station	11+93.22 N	13,751,652.9688 E	2,064,129.5416
Delta =	7° 39' 58.81" (LT)		
Degree =	1° 59' 12.66"		
Tangent =	193.2153		
Length =	385.8539		
Radius =	2,883.7500		
External =	6.4656		
Long Chord =	385.5661		
Mid. Ord. =	6.4511		
P.C. Station	10+00.00 N	13,751,509.4564 E	2,064,000.1726
P.T. Station	13+85.85 N	13,751,812.4567 E	2,064,238.6092
C.C.	N	13,753,440.2975 E	2,061,858.2419
Back = N	42° 01' 58.96" E		
Ahead = N	34° 22' 00.15" E		
Chord Bear = N	38° 11' 59.56" E		

Ending chain RW01 description

RETAINING WALL 02

Beginning chain RW02 description
Feature: Struc_Wall_Type1

		Curve Data	

Curve RW02_1			
P.I. Station	11+30.49 N	13,752,114.6351 E	2,064,422.5469
Delta =	5° 10' 53.81" (LT)		
Degree =	1° 59' 12.66"		
Tangent =	130.4867		
Length =	260.7955		
Radius =	2,883.7500		
External =	2.9507		
Long Chord =	260.7066		
Mid. Ord. =	2.9477		
P.C. Station	10+00.00 N	13,752,001.5487 E	2,064,357.4450
P.T. Station	12+60.80 N	13,752,233.1388 E	2,064,477.1696
C.C.	N	13,753,440.2975 E	2,061,858.2419
Back = N	29° 55' 41.89" E		
Ahead = N	24° 44' 48.08" E		
Chord Bear = N	27° 20' 14.99" E		

Course from PT RW02_1 to RW023 N 24° 44' 48.08" E Dist 243.1611

Point RW023 N 13,752,453.9698 E 2,064,578.9586 Sta 15+03.96

Ending chain RW02 description

RETAINING WALL 03

Beginning chain RW03 description
Feature: Struc_Wall_Type1

Point RW031 N 13,752,886.8230 E 2,064,682.1284 Sta 10+00.00

Course from RW031 to RW032 S 24° 44' 48.08" W Dist 336.2908

Point RW032 N 13,752,581.4147 E 2,064,541.3546 Sta 13+36.29

Ending chain RW03 description

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

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FM 1560
RETAINING WALL
HORIZONTAL ALIGNMENT
DATA

SHEET 1 OF 1

DESIGN: DG	DRAFT: DG	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		109
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	246
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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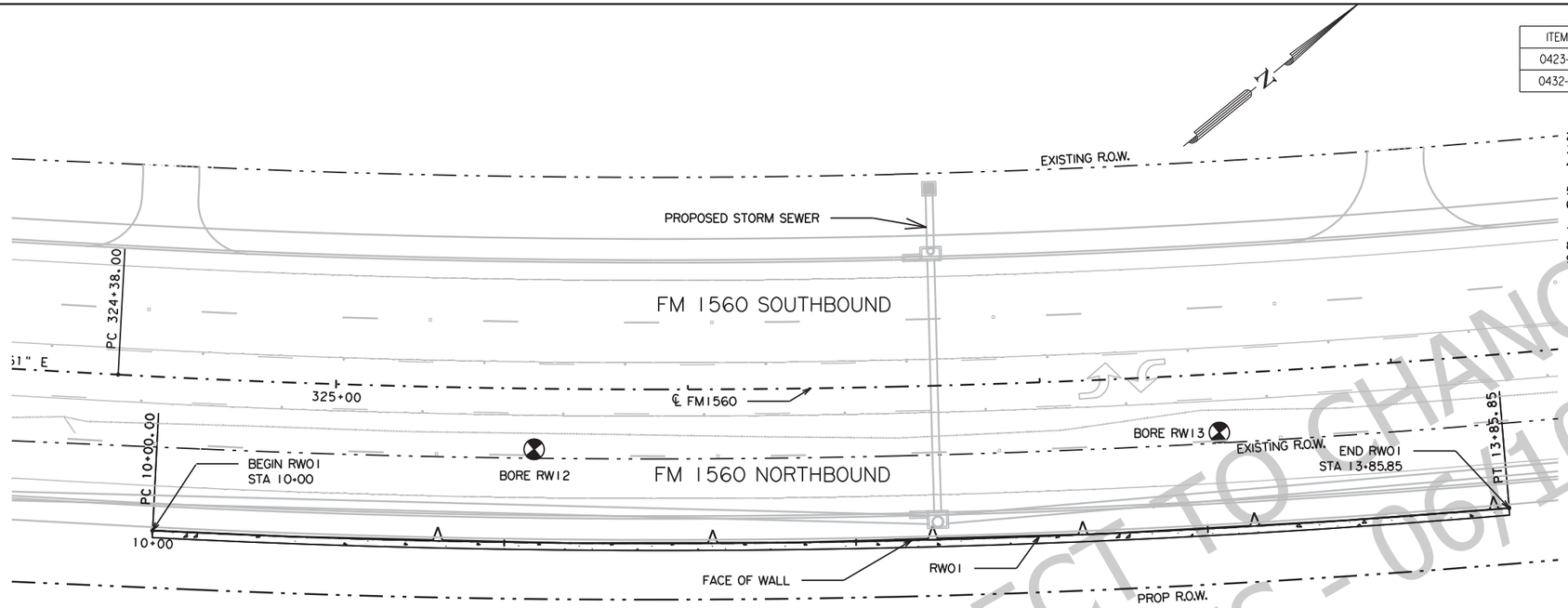
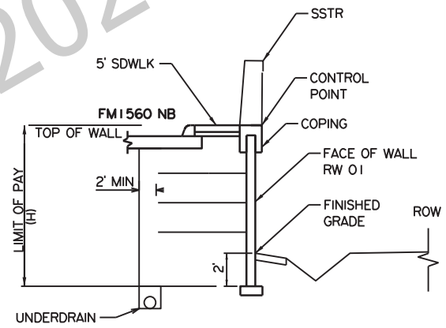
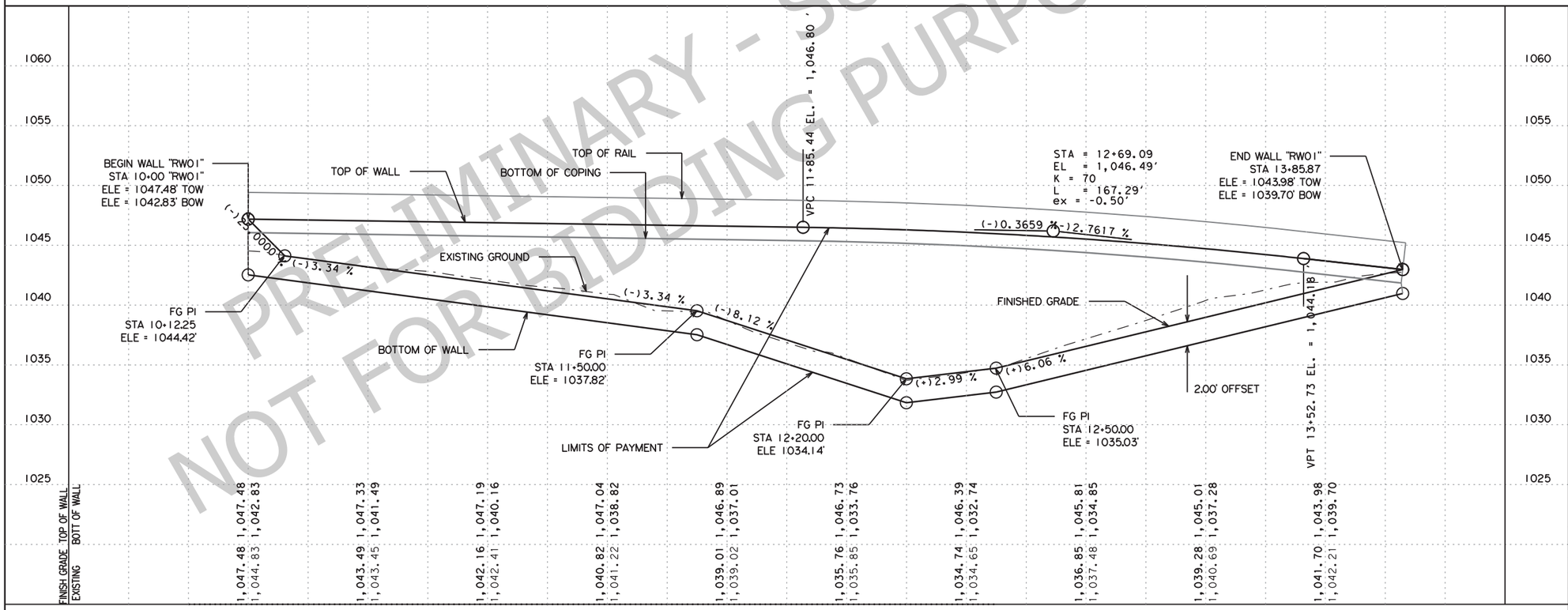
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0423-6001	RETAINING WALL (MSE)	SF	13337
0432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	12

1. SEE RETAINING WALL HORIZONTAL ALIGNMENT DATA OR INFORMATION.
2. SEE BORING LOG SHEETS FOR ADDITIONAL INFORMATION.
3. SEE AESTHETIC DETAIL SHEETS FOR ADDITIONAL INFORMATION.
4. SEE DRAINAGE PLANS FOR LOCATION, SIZES, AND ELEVATIONS OF DRAINAGE PIPES AND INLETS.
5. SEE RETAINING WALL MISCELLANEOUS DETAILS FOR INFORMATION.
6. COPING IS TO BE ANCHORED INTO CONCRETED SIDEWALK AS SHOWN ON TXDOT STANDARD RW (TRF) "WIDE BASED ADJACENT TO CONCRETE PAVEMENT".
7. FOR MSE WALL, TYPE DS BACKFILL IS REQUIRED UNLESS SHOWN OTHERWISE IN THE PLANS.
8. ENSURE POSITIVE DRAINAGE TO INLET.
9. PAINTING OF PROPOSED RETAINING WALLS AS PER AESTHETIC DETAILS IS SUBSIDIARY TO ITEM 0423 6001.





RW 01 TYPICAL SECTION



INTERIM REVIEW ONLY
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=40' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE
RW01

SHEET 1 OF 1

DESIGN: DG	DRAFT: DG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	110
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

247

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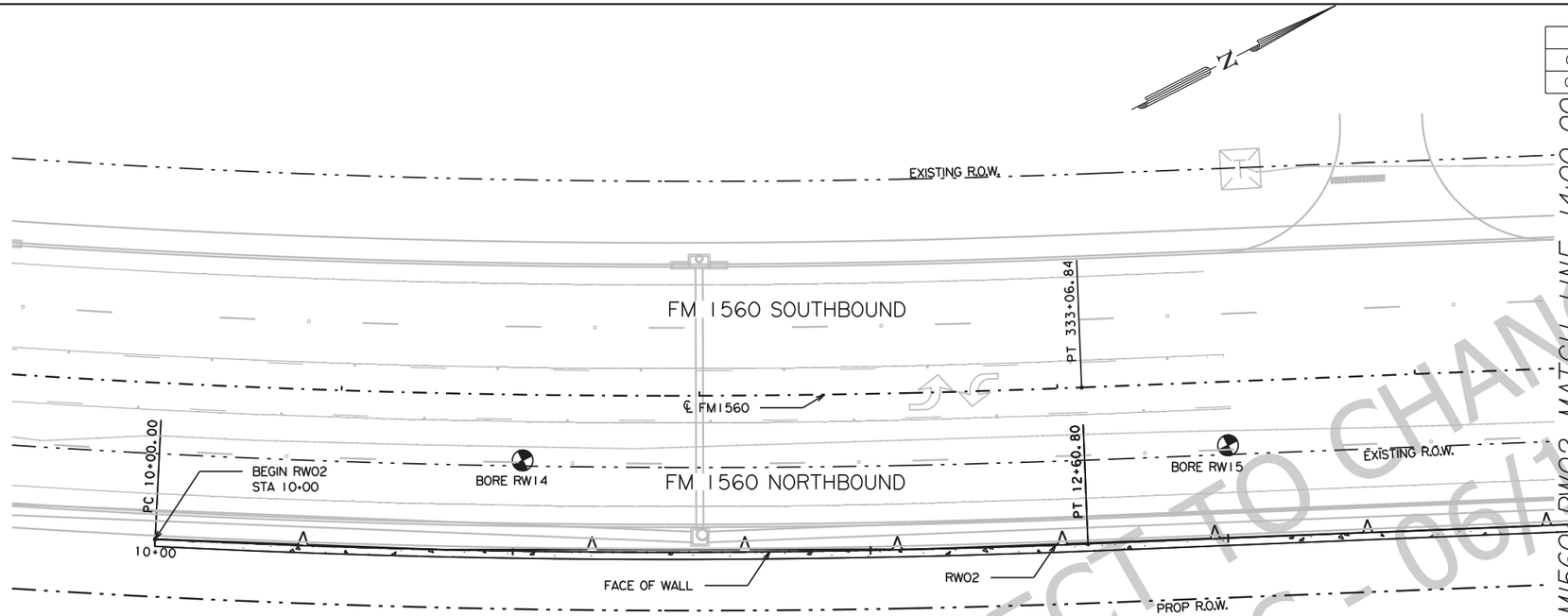
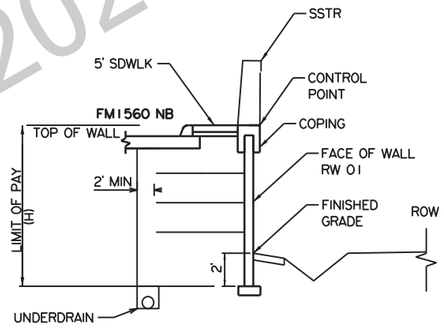
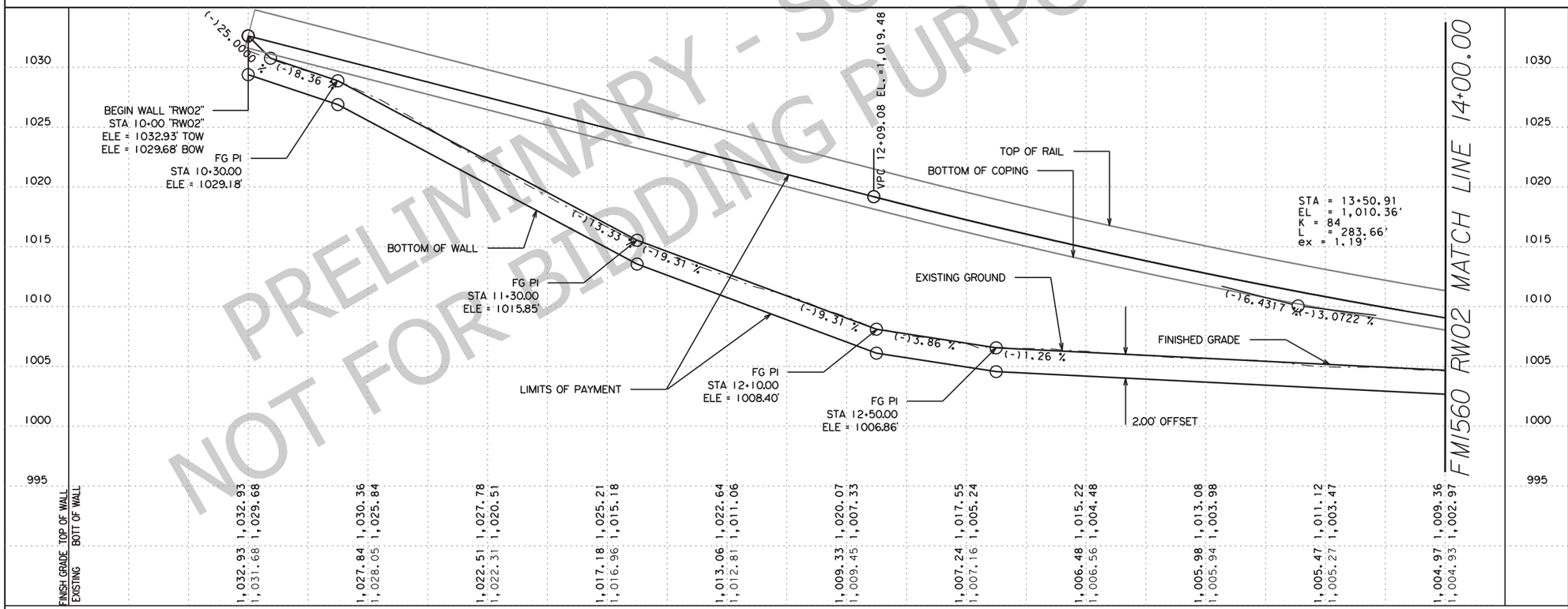


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0423-6001	RETAINING WALL (MSE)	SF	14550
0432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	13

1. SEE RETAINING WALL HORIZONTAL ALIGNMENT DATA OR INFORMATION.
2. SEE BORING LOG SHEETS FOR ADDITIONAL INFORMATION.
3. SEE AESTHETIC DETAIL SHEETS FOR ADDITIONAL INFORMATION.
4. SEE DRAINAGE PLANS FOR LOCATION, SIZES, AND ELEVATIONS OF DRAINAGE PIPES AND INLETS.
5. SEE RETAINING WALL MISCELLANEOUS DETAILS FOR INFORMATION.
6. COPING IS TO BE ANCHORED INTO CONCRETED SIDEWALK AS SHOWN ON TXDOT STANDARD RW (TRF) "WIDE BASED ADJACENT TO CONCRETE PAVEMENT".
7. FOR MSE WALL, TYPE DS BACKFILL IS REQUIRED UNLESS SHOWN OTHERWISE IN THE PLANS.
8. ENSURE POSITIVE DRAINAGE TO INLET.
9. PAINTING OF PROPOSED RETAINING WALLS AS PER AESTHETIC DETAILS IS SUBSIDIARY TO ITEM 0423 6001.



RW 02 TYPICAL SECTION



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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=40' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE
RW02

SHEET 1 OF 2

DESIGN: DG	DRAFT: DG	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		111
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	248
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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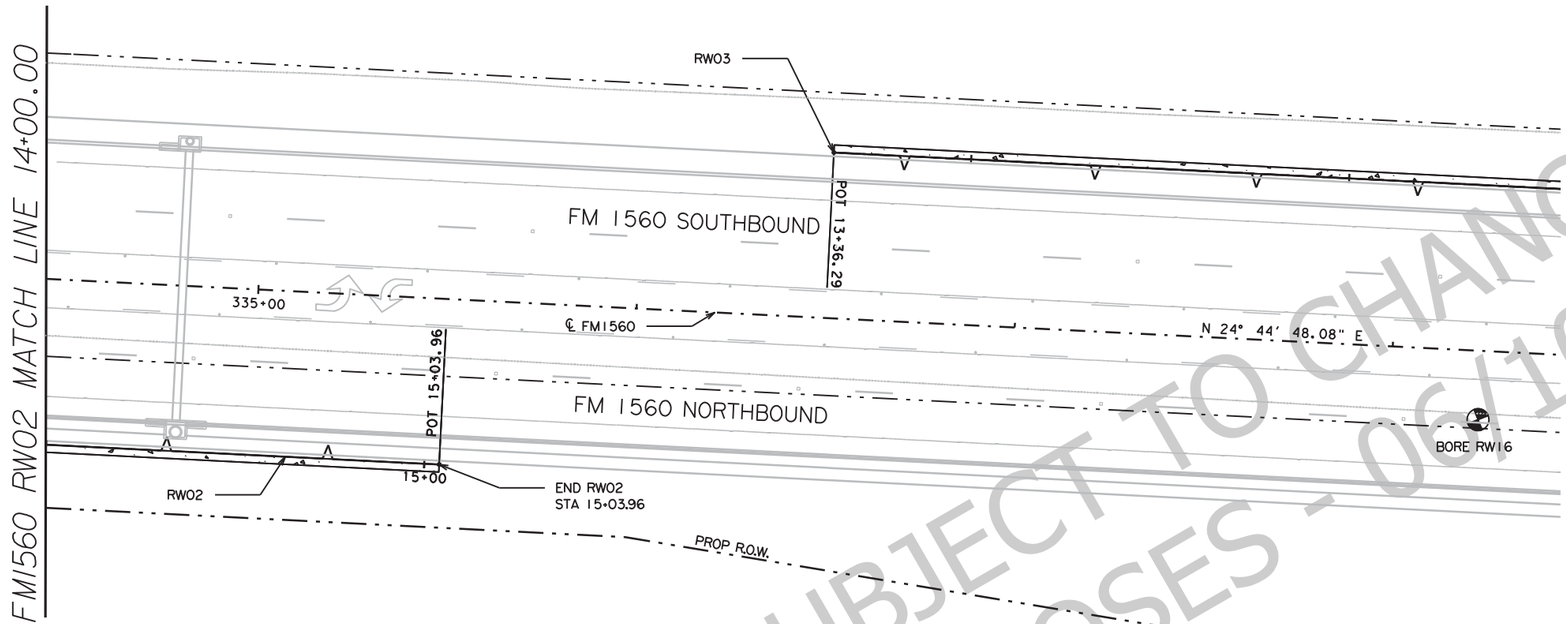
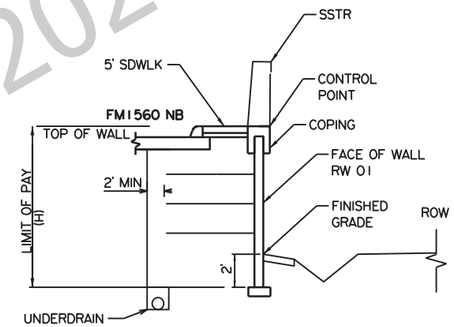
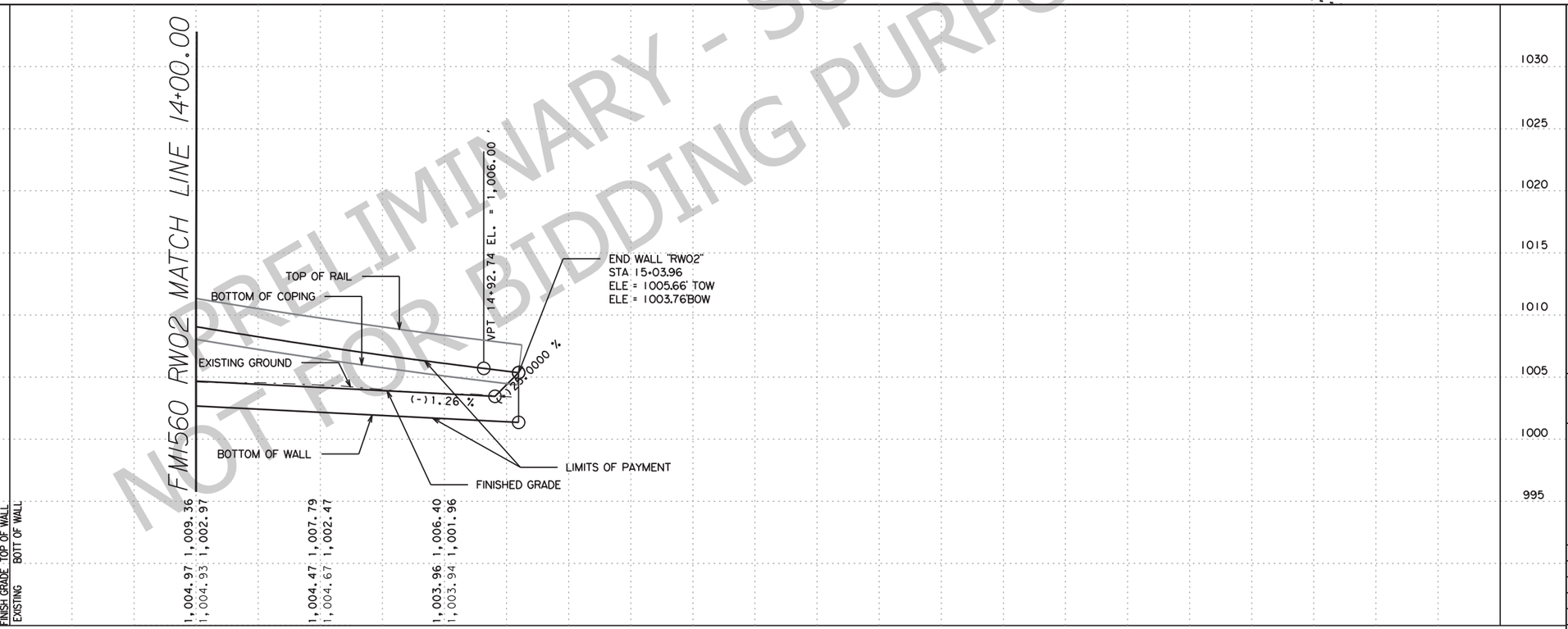
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0423-6001	RETAINING WALL (MSE)	SF	2118
0432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	3

1. SEE RETAINING WALL HORIZONTAL ALIGNMENT DATA OR INFORMATION.
2. SEE BORING LOG SHEETS FOR ADDITIONAL INFORMATION.
3. SEE AESTHETIC DETAIL SHEETS FOR ADDITIONAL INFORMATION.
4. SEE DRAINAGE PLANS FOR LOCATION, SIZES, AND ELEVATIONS OF DRAINAGE PIPES AND INLETS.
5. SEE RETAINING WALL MISCELLANEOUS DETAILS FOR INFORMATION.
6. COPING IS TO BE ANCHORED INTO CONCRETED SIDEWALK AS SHOWN ON TXDOT STANDARD RW (TRF) "WIDE BASED ADJACENT TO CONCRETE PAVEMENT".
7. FOR MSE WALL, TYPE DS BACKFILL IS REQUIRED UNLESS SHOWN OTHERWISE IN THE PLANS.
8. ENSURE POSITIVE DRAINAGE TO INLET.
9. PAINTING OF PROPOSED RETAINING WALLS AS PER AESTHETIC DETAILS IS SUBSIDIARY TO ITEM 0423 6001.





RW 02 TYPICAL SECTION



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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=40' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE
RW02

SHEET 2 OF 2

DESIGN: DG	DRAFT: DG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	112
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

249

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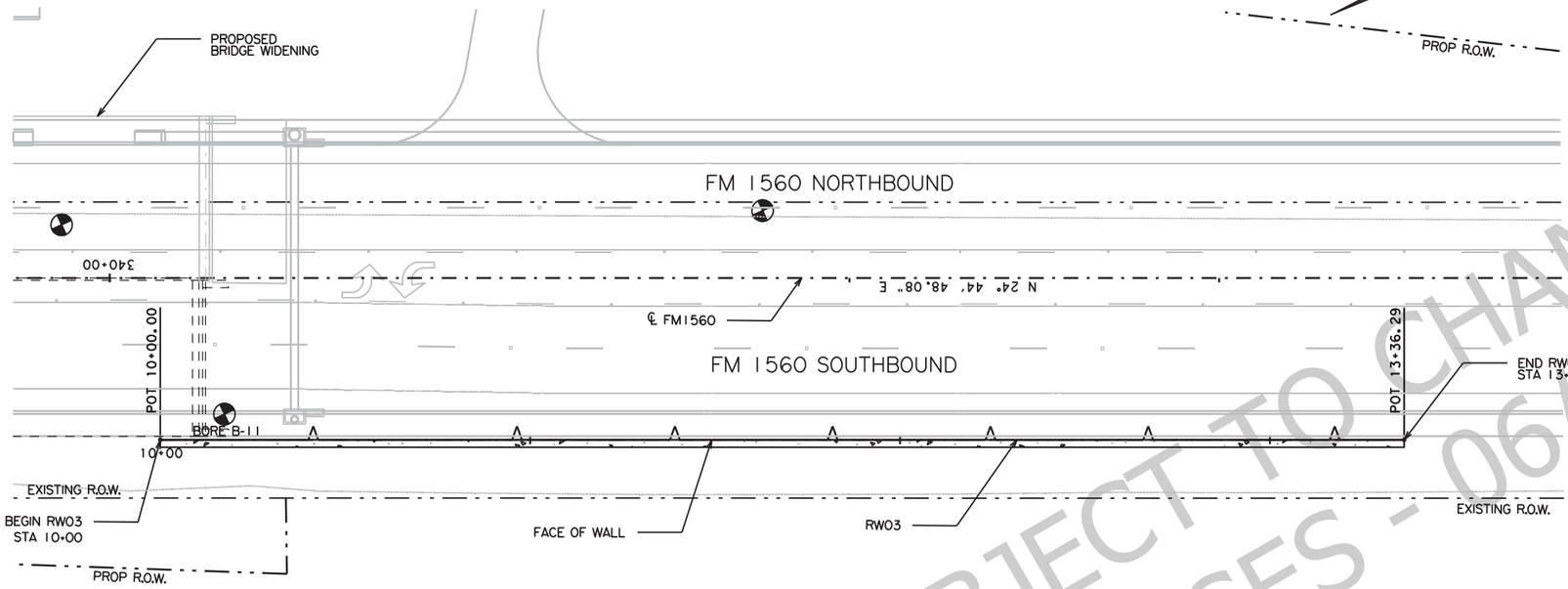
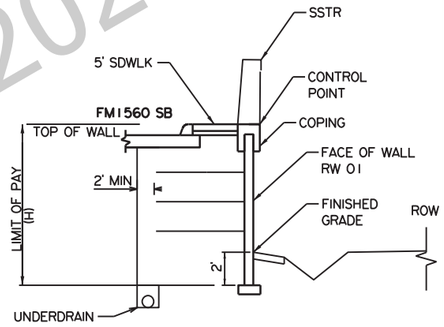
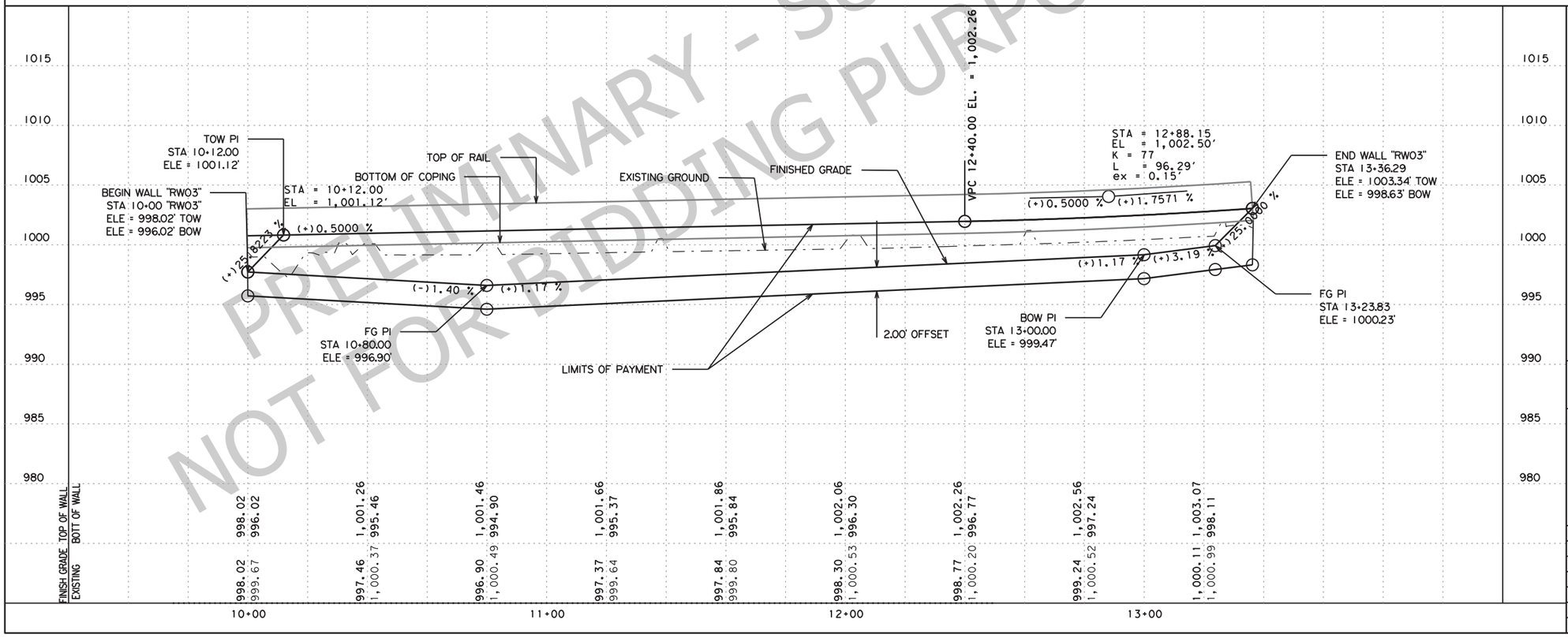


QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0423-6001	RETAINING WALL (MSE)	SF	7725
0432-6046	RIPRAP (MOW STRIP)(5 IN)	CY	11

1. SEE RETAINING WALL HORIZONTAL ALIGNMENT DATA OR INFORMATION.
2. SEE BORING LOG SHEETS FOR ADDITIONAL INFORMATION.
3. SEE AESTHETIC DETAIL SHEETS FOR ADDITIONAL INFORMATION.
4. SEE DRAINAGE PLANS FOR LOCATION, SIZES, AND ELEVATIONS OF DRAINAGE PIPES AND INLETS.
5. SEE RETAINING WALL MISCELLANEOUS DETAILS FOR INFORMATION.
6. COPING IS TO BE ANCHORED INTO CONCRETED SIDEWALK AS SHOWN ON TXDOT STANDARD RW (TRF) "WIDE BASED ADJACENT TO CONCRETE PAVEMENT".
7. FOR MSE WALL, TYPE DS BACKFILL IS REQUIRED UNLESS SHOWN OTHERWISE IN THE PLANS.
8. ENSURE POSITIVE DRAINAGE TO INLET.
9. PAINTING OF PROPOSED RETAINING WALLS AS PER AESTHETIC DETAILS IS SUBSIDIARY TO ITEM 0423 6001.



RW 03 TYPICAL SECTION



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INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/5/2020

SCALE
HORIZONTAL: 1"=40' VERTICAL: 1"=10'

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FM 1560
PLAN AND PROFILE
RW03

SHEET 1 OF 1

DESIGN: DG	DRAFT: DG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	113
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

250

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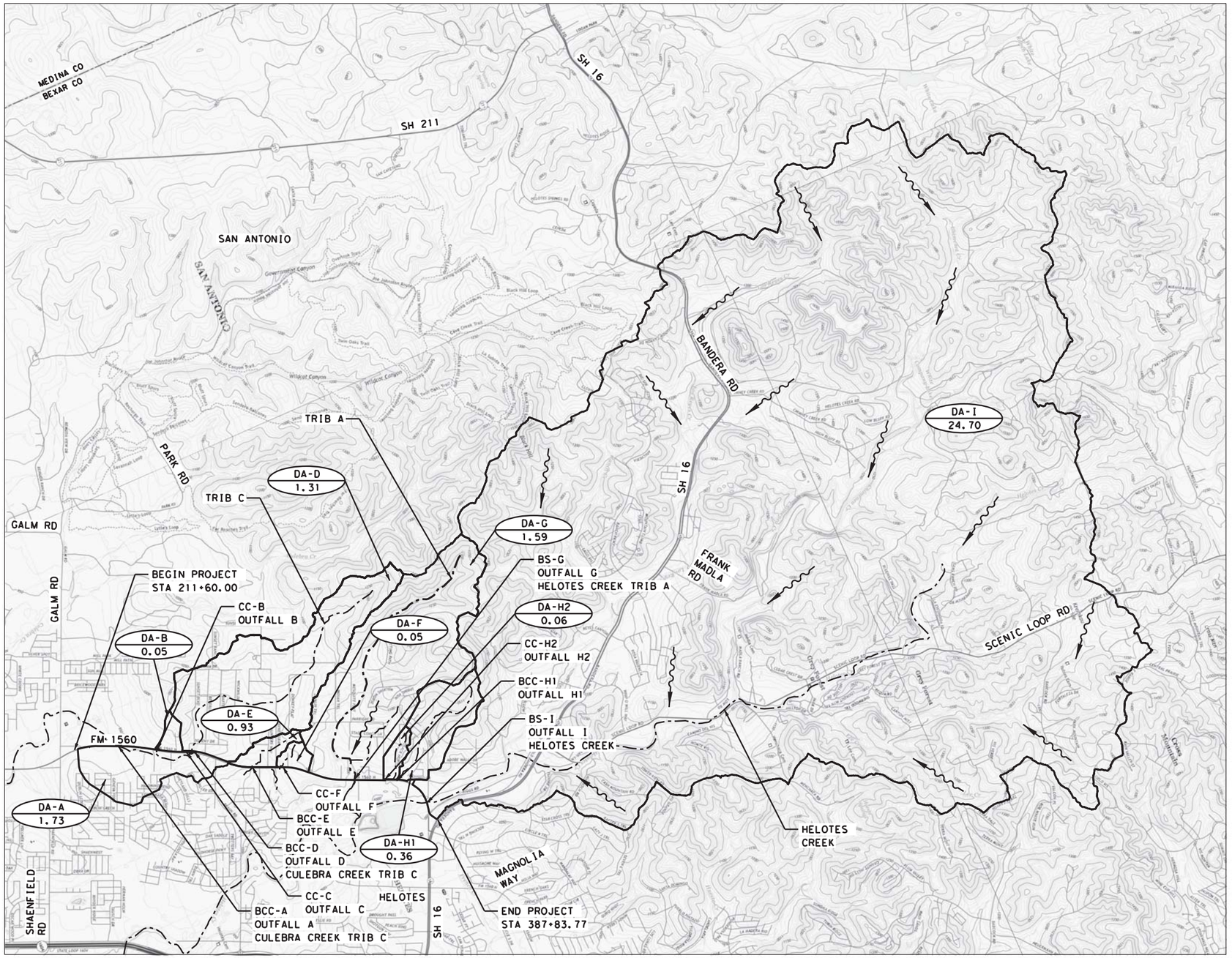
LEGEND

- WATERSHED BOUNDARY
- STREAM PATH
- FLOW DIRECTION
- DA-X / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (SQ MI)



0 5,000′ 10,000′
SCALE: 1" = 5,000′

NOTES:

1. DRAINAGE AREA DA-A INCLUDES DRAINAGE AREAS DA-B, AND DA-D.

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DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560 OVERALL DRAINAGE AREA MAP

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	251
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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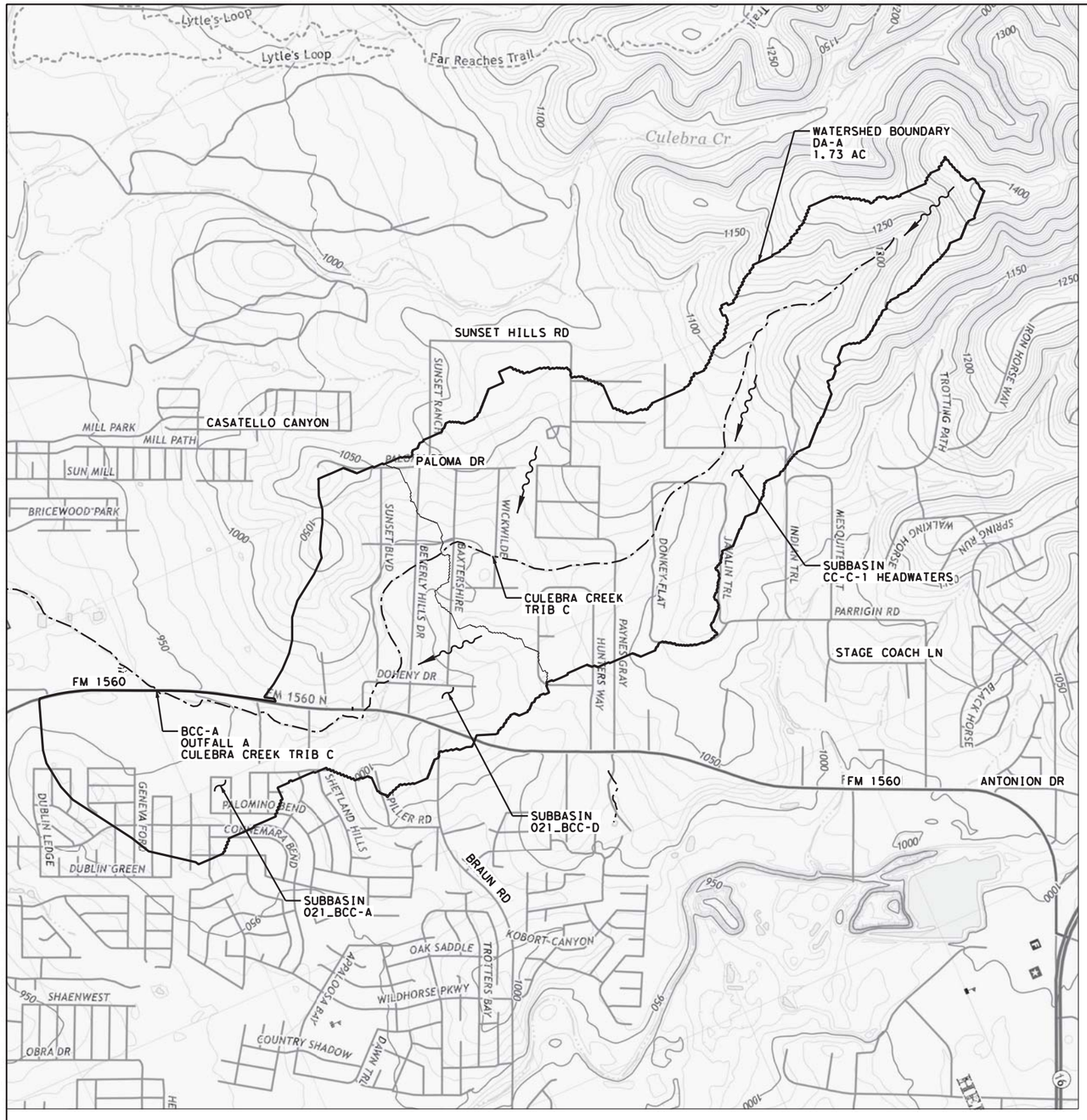

NOTES:

1. THIS SITE LIES WITHIN A FLOOD HAZARD (ZONE A) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0215G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010.
2. HYDROLOGIC METHOD: FEMA EFFECTIVE HMS MODEL USES NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD. (HEC-HMS VERSION 4.3)
3. THE HYDROLOGIC DATA WAS BASED ON THE FEMA EFFECTIVE HMS MODEL AND UPDATED WITH ATLAS 14 PRECIPITATION TO DEVELOP THE REVISED EXISTING AND PROPOSED FLOWS.
4. FLOWS ARE DERIVED FROM JUNCTION "JCTC02A" OF THE HMS MODEL.
5. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

0 2,000′ 4,000′

SCALE: 1" = 2,000′

NO CHANGES - 06/10/2020

SUBBASIN PARAMETERS FOR FM 1560 AT CULEBRA CREEK BCC-A

Stream Name	Subbasin ID	Area (Sq Mi)	RCN	% Impervious		Lag Time	Peaking Coeffcient
				Existing	Proposed	(Hr)	
CULEBRA CREEK TRIB C	CC-C-1 Headwaters	1.00	79	0.00%	0.00%	0.649	0.81
CULEBRA CREEK TRIB C	021_BCC-D	0.31	81	0.00%	1.06%	0.603	0.81
CULEBRA CREEK TRIB C	021_BCC-A	0.42	81	0.00%	2.05%	0.154	0.81

SOILS DATA OBTAINED FROM NRCS ONLINE WEB SOIL SURVEY

BEXAR COUNTY CURRENT LAND USE DATA OBTAINED FROM THE SAN ANTONIO RIVER AUTHORITY DATED 2017

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/5/2020

RUNOFF COMPUTATIONS FOR FM 1560 AT CULEBRA CREEK BCC-A

STREAM NAME	JUNCTION ID	24-HOUR PRECIPICATION (in)					REVISED EXISTING PEAK DISCHARGE (cfs)					PROPOSED PEAK DISCHARGE (cfs)				
		10-YR	25-YR	50-YR	100-YR	500-YR	10-YR	25-YR	50-YR	100-YR	500-YR	10-YR	25-YR	50-YR	100-YR	500-YR
CULEBRA CREEK TRIB C	JCTC02A	6.68	8.61	10.30	12.20	17.70	1689	2324	2839	3387	4817	1691	2325	2842	3387	4810

NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD MODELED IN HEC-HMS VERSION 4.3

PRECIPITATION DATA DERIVED FROM "NOAA ATLAS 14 PRECIPITATION - FREQUENCY ATLAS OF THE UNITED STATES VOLUME 11 VERSION 2.0: TEXAS".

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
DRAINAGE AREA MAP
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT A

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	252
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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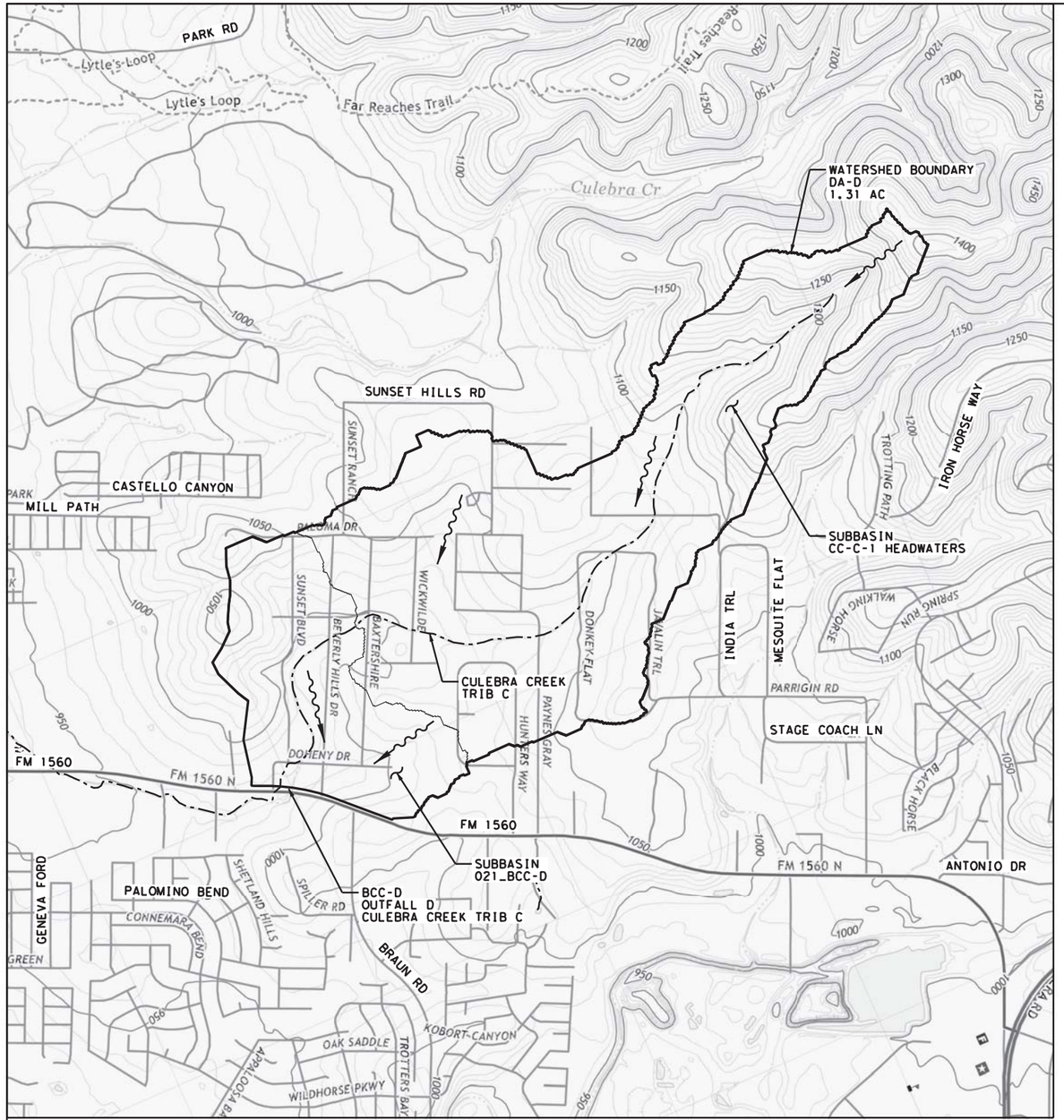

NOTES:

1. THIS SITE LIES WITHIN A FLOOD HAZARD (ZONE A) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0215G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010.
2. HYDROLOGIC METHOD: FEMA EFFECTIVE HMS MODEL USES NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD. (HEC-HMS VERSION 4.3)
3. THE HYDROLOGIC DATA WAS BASED ON THE FEMA EFFECTIVE HMS MODEL AND UPDATED WITH ATLAS 14 PRECIPITATION TO DEVELOP THE REVISED EXISTING AND PROPOSED FLOWS.
4. FLOWS ARE DERIVED FROM JUNCTION "JCTC02A" OF THE HMS MODEL.
5. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

0 2,000' 4,000'
SCALE: 1" = 2,000'

NOT TO CHANGE
PROPOSES - 06/10/2020

SUBBASIN PARAMETERS FOR FM 1560 AT CULEBRA CREEK BCC-D

STREAM NAME	SUBBASIN ID	AREA (Sq Mi)	RCN	% IMPERVIOUS EXISTING	% IMPERVIOUS PROPOSED	LAG TIME (Hr)	PEAKING COEFFICIENT
CULEBRA CREEK TRIB C	CC-C-1 Headwaters	1.00	79	0.00%	0.00%	0.649	0.81
CULEBRA CREEK TRIB C	021_BCC-D	0.31	81	0.00%	1.06%	0.603	0.81

SOILS DATA OBTAINED FROM NRCS ONLINE WEB SOIL SURVEY

BEXAR COUNTY CURRENT LAND USE DATA OBTAINED FROM THE SAN ANTONIO RIVER AUTHORITY DATED 2017

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

RUNOFF COMPUTATIONS FOR FM 1560 AT CULEBRA CREEK BCC-D

STREAM NAME	JUNCTION ID	24-HOUR PRECIPICATION (in) 10-YR	25-YR	50-YR	100-YR	500-YR	REVISED EXISTING PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR	PROPOSED PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR
CULEBRA CREEK TRIB C	JCTC02B	6.68	8.61	10.30	12.20	17.70	1774	2377	2834	3305	4553	1775	2379	2835	3308	4556

NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD MODELED IN HEC-HMS VERSION 4.3

PRECIPITATION DATA DERIVED FROM "NOAA ATLAS 14 PRECIPITATION - FREQUENCY ATLAS OF THE UNITED STATES VOLUME 11 VERSION 2.0: TEXAS".

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT D
AND CROSS CULVERT STRUCTURE C

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	253

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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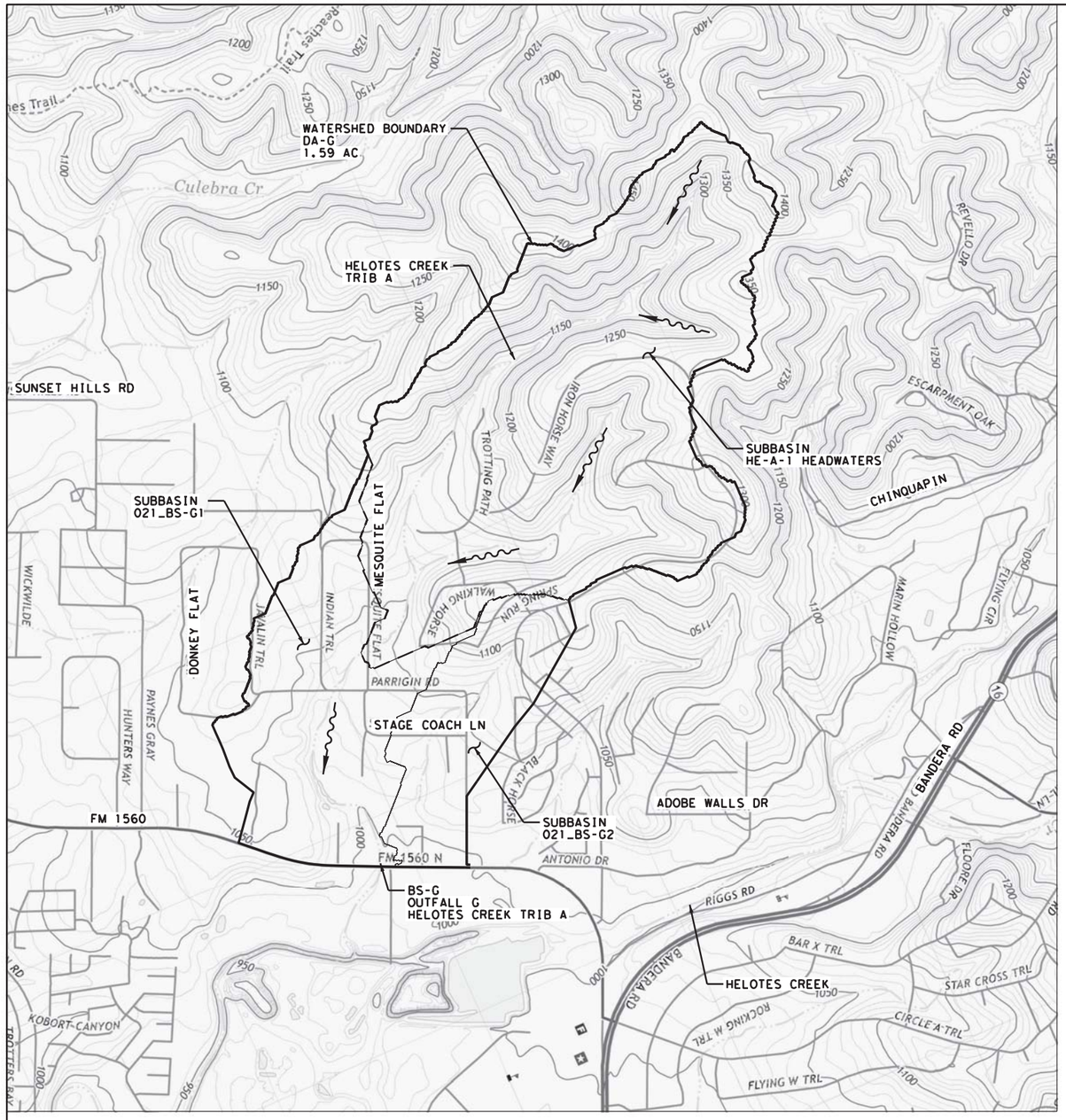

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

NOTES:

1. THIS SITE LIES WITHIN A FLOOD HAZARD (ZONE A) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0215G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010.
2. HYDROLOGIC METHOD: FEMA EFFECTIVE HMS MODEL USES NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD. (HEC-HMS VERSION 4.3)
3. THE HYDROLOGIC DATA WAS BASED ON THE FEMA EFFECTIVE HMS MODEL AND UPDATED WITH ATLAS 14 PRECIPITATION TO DEVELOP THE REVISED EXISTING AND PROPOSED FLOWS.
4. FLOWS ARE DERIVED FROM JUNCTION "JCTC02A" OF THE HMS MODEL.
5. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

NOT TO CHANGE
USES - 06/10/2020

0 2,000' 4,000'
SCALE: 1" = 2,000'

SUBBASIN PARAMETERS FOR FM 1560 AT HELOTES CREEK TRIB A BS-G

STREAM NAME	SUBBASIN ID	AREA (Sq Mi)	RCN	% IMPERVIOUS EXISTING	% IMPERVIOUS PROPOSED	LAG TIME (Hr)	PEAKING COEFFICIENT
HELOTES CREEK TRIB A	HE-A-1 Headwaters	1.01	77	0.00%	0.00%	0.530	0.71
HELOTES CREEK TRIB A	021_BS-G1	0.37	81	0.00%	1.14%	0.558	0.71
HELOTES CREEK TRIB A	021_BS-G2	0.21	84	0.00%	0.89%	0.275	0.71

SOILS DATA OBTAINED FROM NRCS ONLINE WEB SOIL SURVEY

BEXAR COUNTY CURRENT LAND USE DATA OBTAINED FROM THE SAN ANTONIO RIVER AUTHORITY DATED 2017

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

RUNOFF COMPUTATIONS FOR FM 1560 AT HELOTES CREEK TRIB A BS-G

STREAM NAME	JUNCTION ID	24-HOUR PRECIPICATION (in) 10-YR	25-YR	50-YR	100-YR	500-YR	REVISED EXISTING PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR	PROPOSED PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR
HELOTES CREEK TRIB A	JHETA02A	6.68	8.61	10.30	12.20	17.70	1915	2586	3116	3663	5165	1906	2601	3125	3667	5165

NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD MODELED IN HEC-HMS VERSION 4.3

PRECIPITATION DATA DERIVED FROM "NOAA ATLAS 14 PRECIPITATION - FREQUENCY ATLAS OF THE UNITED STATES VOLUME 11 VERSION 2.0: TEXAS".

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
HELOTES CREEK TRIB A
BRIDGE STRUCTURE G

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	254
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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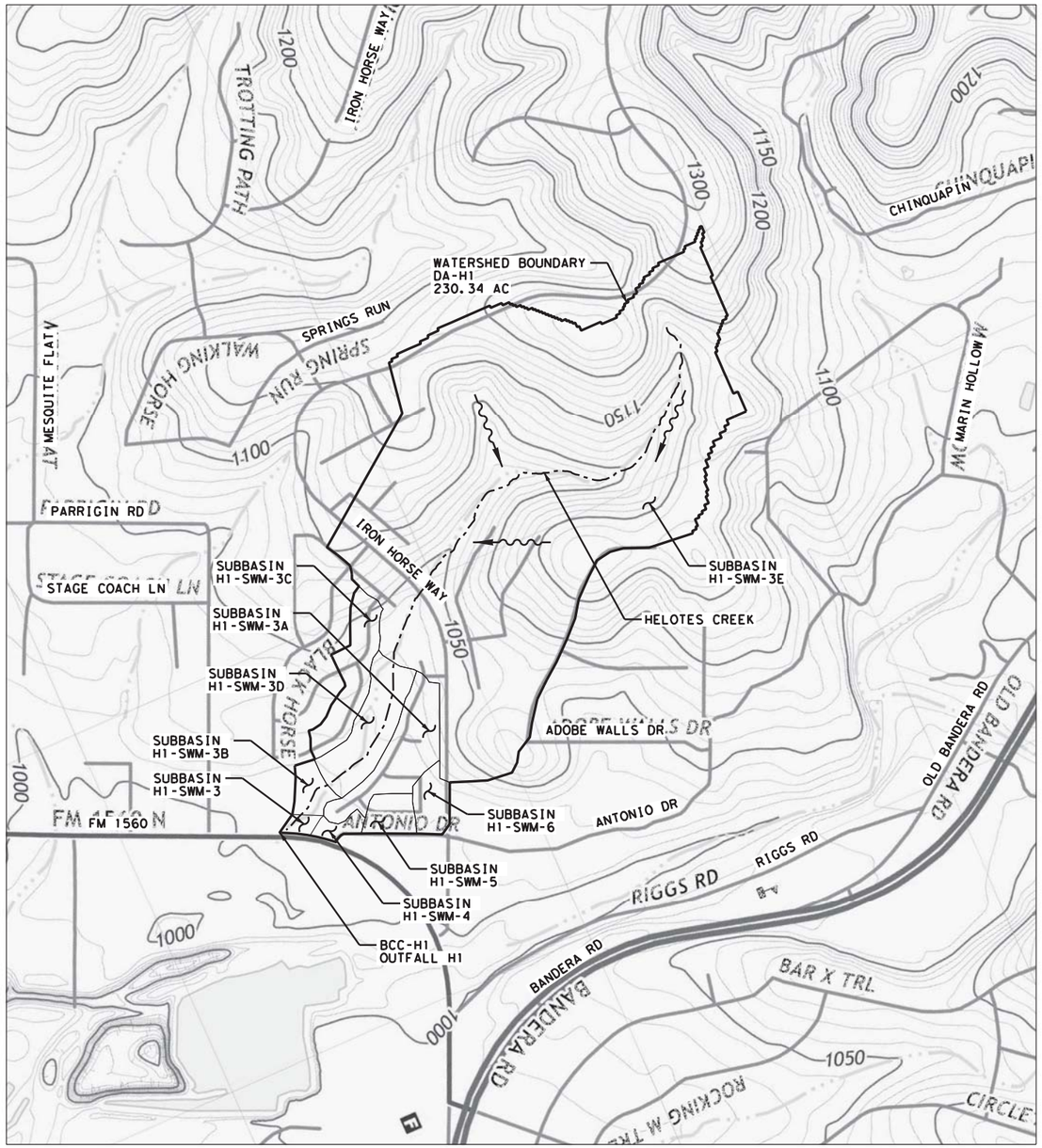

NOTES:

1. AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0205G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010, THIS AREA IS DESIGNATED AS ZONE X, AREA OF MINIMAL FLOOD HAZARD.
2. HYDROLOGIC METHOD: RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.
3. FLOWS ARE DERIVED FROM JUNCTION "H1-SWM-3" OF THE XP-STORM MODEL.
4. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

0 6000′ 1,200′
SCALE: 1" = 1,200′

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

SUBBASIN PARAMETERS FOR FM 1560 AT BCC-H1 (Rational Method)

SUBBASIN ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (min)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (in/hr)	10YR DISCHARGE (cfs)	100YR INTENSITY (in/hr)	100YR DISCHARGE (cfs)
H1-SWM-3	0.97	0.35	3.69	10.00	7.44	2.53	11.16	3.79
H1-SWM-4	1.44	0.49	3.33	10.00	7.44	5.27	11.16	7.91
H1-SWM-5	3.10	0.62	5.14	10.00	7.44	14.32	11.16	21.48
H1-SWM-6	3.43	0.65	3.73	10.00	7.44	16.59	11.16	24.88
H1-SWM-3A	10.10	0.65	9.97	10.00	7.44	48.84	11.16	73.27
H1-SWM-3B	2.69	0.43	2.76	10.00	7.44	8.52	11.16	12.78
H1-SWM-3C	8.19	0.65	11.35	11.35	7.07	37.66	10.63	56.58
H1-SWM-3D	9.58	0.48	5.80	10.00	7.44	33.87	11.16	50.81
H1-SWM-3E	190.84	0.48	28.01	28.01	4.56	420.49	7.00	644.99

NO CHANGES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

RUNOFF COMPUTATIONS FOR FM 1560 AT BCC-H1

XP-STORM NODE ID	PEAK DISCHARGE (CFS)			
	REVISED EXISTING		PROPOSED	
	10-yr	100-yr	10-yr	100-yr
H1-SWM-3	570	868	570	868

FLOW IS TOTAL FLOW AT UPSTREAM FACE OF CULVERT. SEE DISC GOLF XP-STORM ANALYSIS FOR FLOW DISTRIBUTION.

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
BRIDGE CLASS CULVERT H1

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	255
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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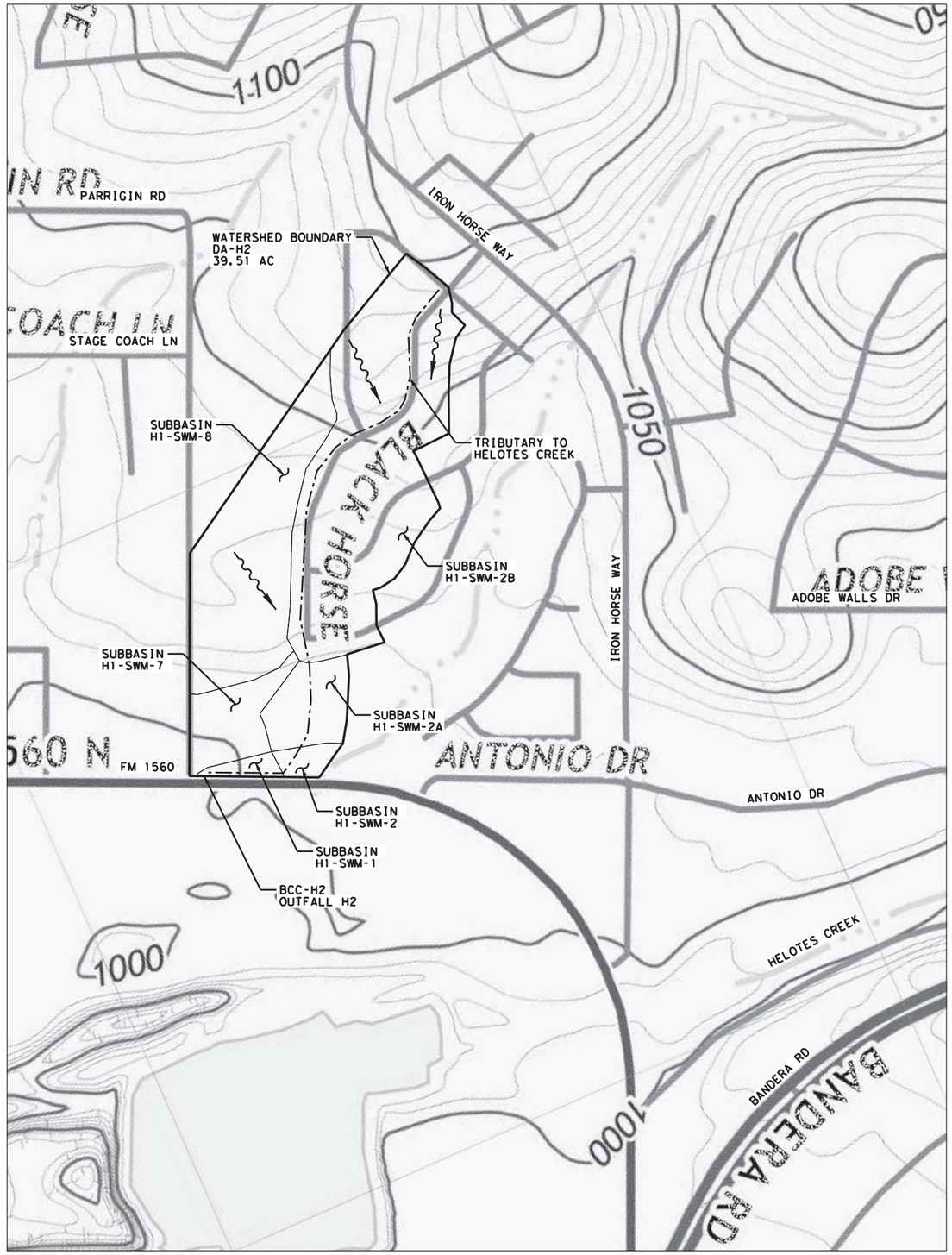

NOTES:

1. AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0205G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010, THIS AREA IS DESIGNATED AS ZONE X, AREA OF MINIMAL FLOOD HAZARD.
2. HYDROLOGIC METHOD: RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.
4. FLOWS ARE DERIVED FROM JUNCTION "H1-SWM-3" OF THE XP-STORM MODEL.
5. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

0 300′ 600′
SCALE: 1" = 600′

TO CHANGE
JES- 06/10/2020

SUBBASIN PARAMETERS FOR FM 1560 AT BCC-H2 (Rational Method)

SUBBASIN ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (min)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (in/hr)	10YR DISCHARGE (cfs)	100YR INTENSITY (in/hr)	100YR DISCHARGE (cfs)
H1-SWM-1	0.63	0.35	2.87	10.00	7.44	1.64	11.16	2.46
H1-SWM-2	0.79	0.35	2.22	10.00	7.44	2.06	11.16	3.09
H1-SWM-7	3.16	0.49	5.09	10.00	7.44	11.55	11.16	17.32
H1-SWM-8	11.67	0.65	12.98	12.98	6.69	50.71	10.06	76.33
H1-SWM-2A	3.03	0.39	3.70	10.00	7.44	8.87	11.16	13.31
H1-SWM-2B	20.23	0.65	13.71	13.71	6.53	85.82	9.83	129.29

RUNOFF COMPUTATIONS FOR FM 1560 AT BCC-H2

XP-STORM NODE ID	PEAK DISCHARGE (CFS)			
	REVISED EXISTING		PROPOSED	
	10-yr	100-yr	10-yr	100-yr
H1-SWM-1 *	707	1017	207	403

FLOW IS TOTAL FLOW AT UPSTREAM FACE OF CULVERT, WHICH INCLUDES OVERFLOW FROM BCC-H1. SEE DISC GOLF XP-STORM ANALYSIS FOR FLOW DISTRIBUTION.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
BRIDGE CLASS CULVERT H2

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	256
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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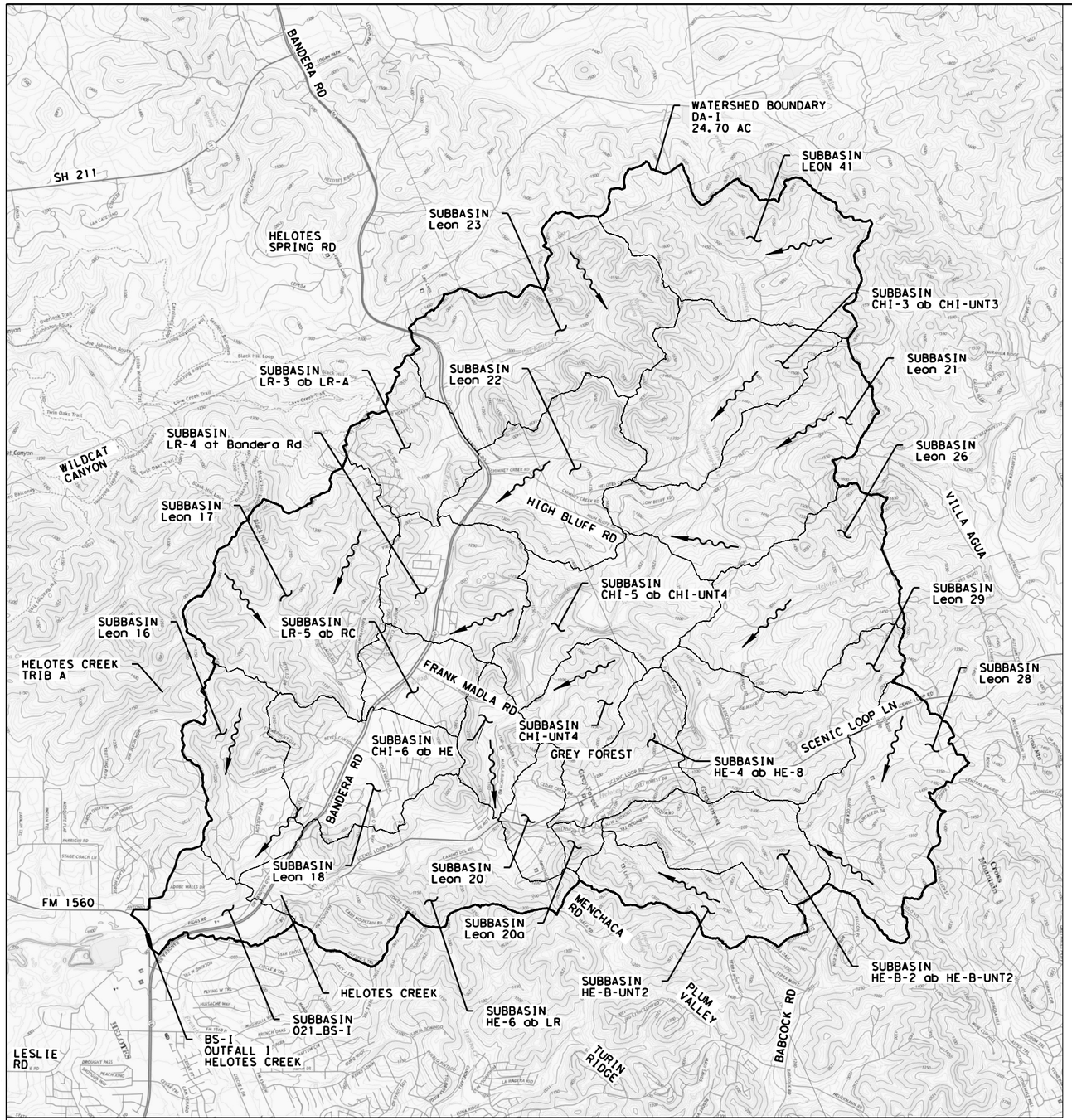

NOTES:

1. THIS SITE LIES WITHIN A FLOOD HAZARD (ZONE A) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 48029C0215G, BEXAR COUNTY, TEXAS, DATED SEPTEMBER 29, 2010.
2. HYDROLOGIC METHOD: FEMA EFFECTIVE HMS MODEL USES NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD. (HEC-HMS VERSION 4.3)
3. THE HYDROLOGIC DATA WAS BASED ON THE FEMA EFFECTIVE HMS MODEL AND UPDATED WITH ATLAS 14 PRECIPITATION TO DEVELOP THE REVISED EXISTING AND PROPOSED FLOWS.
4. FLOWS ARE DERIVED FROM JUNCTION "JCTC02A" OF THE HMS MODEL.
5. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____ .

LEGEND

- WATERSHED BOUNDARY
- SUBBASIN AREA
- STREAM PATH
- FLOW DIRECTION

0 5,000′ 10,000′

SCALE: 1" = 5,000′

SUBBASIN PARAMETERS FOR FM 1560 AT HELOTES CREEK BS-I

STREAM NAME	SUBBASIN ID	AREA (Sq Mi)	RCN	% IMPERVIOUS EXISTING	% IMPERVIOUS PROPOSED	LAG TIME (Hr)	PEAKING COEFFICIENT
HELOTES CREEK	Leon 26	1.47	75	0.00%	0.00%	0.689	0.81
HELOTES CREEK	Leon 29	1.37	78	0.00%	0.00%	0.680	0.81
HELOTES CREEK	HE-4 ab HE-B	0.67	78	0.00%	0.00%	0.450	0.75
HELOTES CREEK	Leon 28	1.33	80	0.00%	0.00%	0.542	0.81
HELOTES CREEK	HE-B-2 ab HE-B-UNT2	0.82	77	0.00%	0.00%	0.750	0.71
HELOTES CREEK	HE-B-UNT2	0.68	76	0.00%	0.00%	0.561	0.81
HELOTES CREEK	Leon 20a	0.09	79	0.00%	0.00%	0.120	0.76
HELOTES CREEK	Leon 20	0.35	79	0.00%	0.00%	0.180	0.76
HELOTES CREEK	Leon 41	1.65	73	0.00%	0.00%	0.389	0.81
HELOTES CREEK	CHI-3 ab CHI-UNT3	1.25	72	0.00%	0.00%	0.767	0.81
HELOTES CREEK	Leon 21	1.57	74	0.00%	0.00%	0.750	0.81
HELOTES CREEK	CHI-5 ab CHI-UNT4	1.15	76	0.00%	0.00%	0.542	0.81
HELOTES CREEK	CHI-UNT4	0.51	73	0.00%	0.00%	0.288	0.80
HELOTES CREEK	CHI-6 ab HE	0.42	75	0.00%	0.00%	0.308	0.80
HELOTES CREEK	HE-6 ab LR	1.69	78	0.00%	0.00%	1.200	0.75
HELOTES CREEK	Leon-23	1.98	75	0.00%	0.00%	0.698	0.81
HELOTES CREEK	LR-3 ab LR-A	0.68	77	0.00%	0.00%	0.499	0.81
HELOTES CREEK	Leon 22	1.25	77	0.00%	0.00%	0.389	0.81
HELOTES CREEK	LR-4 at Bandera Rd	0.92	81	0.00%	0.00%	0.361	0.81
HELOTES CREEK	LR-5 ab RC	0.52	77	0.00%	0.00%	0.399	0.81
HELOTES CREEK	Leon 17	1.89	74	0.00%	0.00%	0.689	0.81
HELOTES CREEK	Leon 18	1.03	79	0.00%	0.00%	0.478	0.81
HELOTES CREEK	Leon 16	0.92	80	0.00%	0.00%	0.529	0.81
HELOTES CREEK	021_BS-I	0.49	81	0.00%	0.54%	0.511	0.81

SOILS DATA OBTAINED FROM NRCS ONLINE WEB SOIL SURVEY

BEXAR COUNTY CURRENT LAND USE DATA OBTAINED FROM THE SAN ANTONIO RIVER AUTHORITY DATED 2017

RUNOFF COMPUTATIONS FOR FM 1560 AT HELOTES CREEK BS-I

STREAM NAME	JUNCTION ID	24-HOUR PRECIPICATION (in) 10-YR	25-YR	50-YR	100-YR	500-YR	REVISED EXISTING PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR	PROPOSED PEAK DISCHARGE (cfs) 10-YR	25-YR	50-YR	100-YR	500-YR
HELOTES CREEK	JHE014A	6.68	8.61	10.30	12.20	17.70	12697	19136	24118	29212	44482	12709	19017	24075	29367	44513

NRCS LOSS METHOD WITH SNYDER'S UNIT HYDROGRAPH METHOD MODELED IN HEC-HMS VERSION 4.3

PRECIPITATION DATA DERIVED FROM "NOAA ATLAS 14 PRECIPITATION - FREQUENCY ATLAS OF THE UNITED STATES VOLUME 11 VERSION 2.0: TEXAS".

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/8/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560 DRAINAGE AREA MAP HELOTES CREEK BRIDGE STRUCTURE I

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	257

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

TO CHANGE
USE - 6/10/2020

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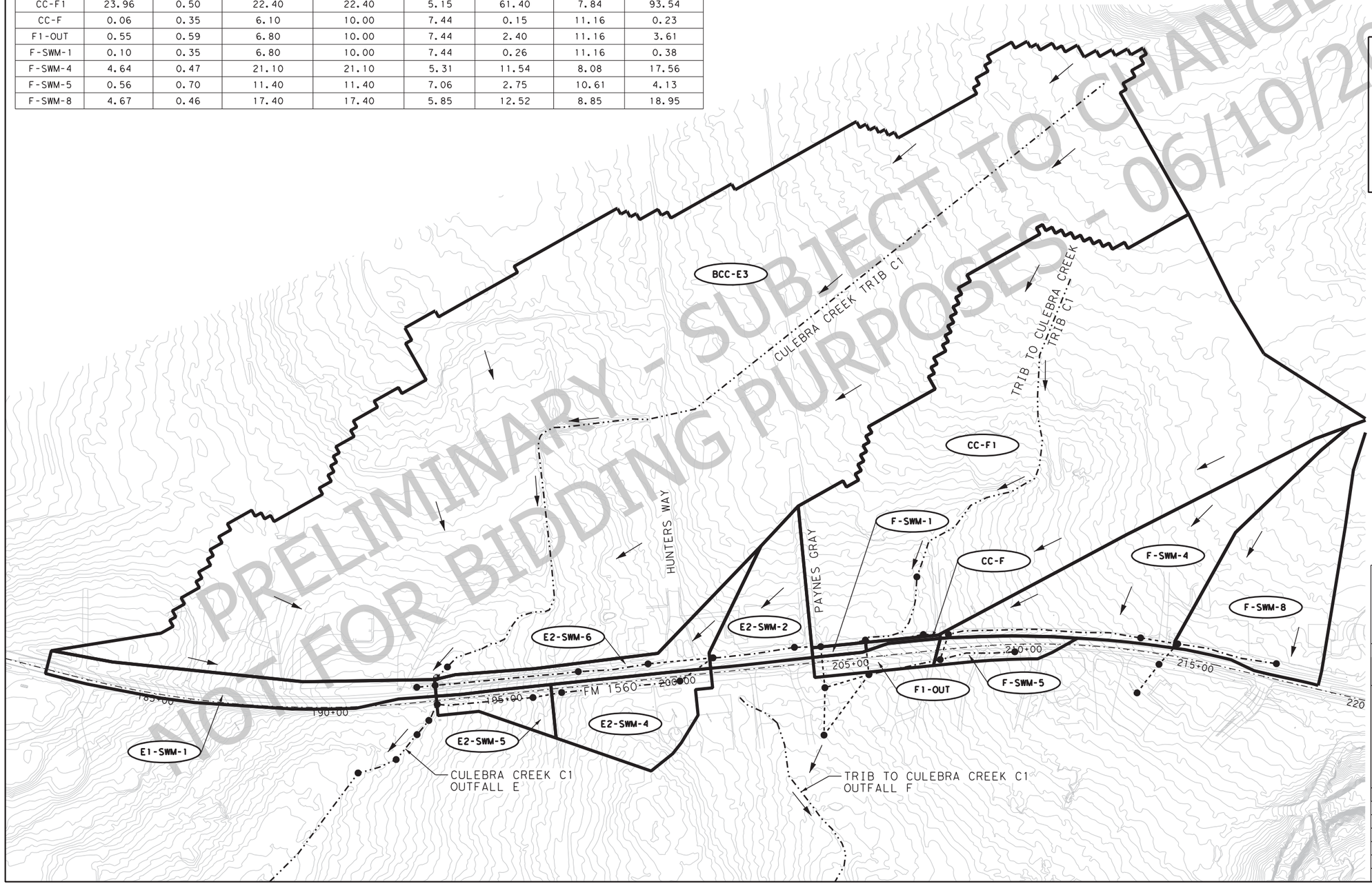
FM 1560 AT PAYNES GREY EXISTING XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM E								
BCC-E3	54.32	0.49	25.40	25.40	4.82	129.46	7.36	197.96
E1-SWM-1	1.99	0.62	22.70	22.70	5.11	6.30	7.79	9.61
E2-SWM-2	1.81	0.51	10.80	10.80	7.22	6.62	10.84	9.94
E2-SWM-4	2.10	0.48	14.20	14.20	6.43	6.45	9.69	9.72
E2-SWM-5	0.66	0.53	12.50	12.50	6.79	2.38	10.22	3.58
E2-SWM-6	1.48	0.62	14.90	14.90	6.29	5.83	9.49	8.79
SYSTEM F								
CC-F1	23.96	0.50	22.40	22.40	5.15	61.40	7.84	93.54
CC-F	0.06	0.35	6.10	10.00	7.44	0.15	11.16	0.23
F1-OUT	0.55	0.59	6.80	10.00	7.44	2.40	11.16	3.61
F-SWM-1	0.10	0.35	6.80	10.00	7.44	0.26	11.16	0.38
F-SWM-4	4.64	0.47	21.10	21.10	5.31	11.54	8.08	17.56
F-SWM-5	0.56	0.70	11.40	11.40	7.06	2.75	10.61	4.13
F-SWM-8	4.67	0.46	17.40	17.40	5.85	12.52	8.85	18.95



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

N

0 150 300
SCALE: 1" = 300'

LEGEND

- EXISTING DRAINAGE AREA BOUNDARY
- STREAM
- SHEET FLOW DIRECTION
- XP - STORM NODE
- H1-SWM-6 — DRAINAGE AREA LABEL

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR PEAK FLOW CALCULATIONS.
4. RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
PAYNES GRAY
EXISTING XP-STORM

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	258
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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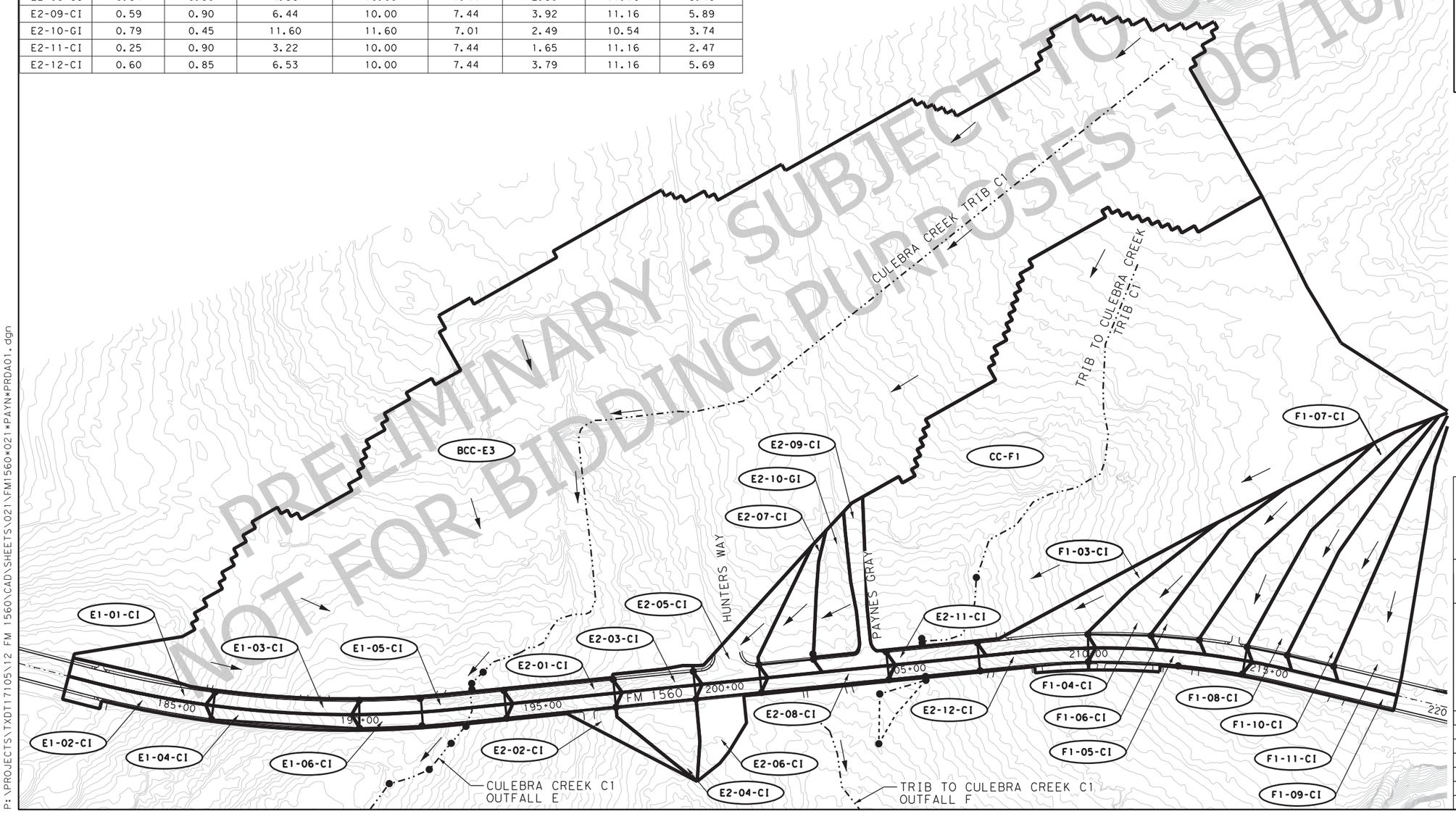
FM 1560 AT PAYNES GREY PROPOSED XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM E								
BCC-E3	55.37	0.49	25.40	25.40	4.82	131.64	7.36	201.29
E1-01-CI	0.46	0.82	4.78	10.00	7.44	2.79	11.16	4.19
E1-02-CI	0.44	0.84	4.86	10.00	7.44	2.77	11.16	4.15
E1-03-CI	0.39	0.90	4.82	10.00	7.44	2.61	11.16	3.92
E1-04-CI	0.40	0.90	4.96	10.00	7.44	2.65	11.16	3.98
E1-05-CI	0.41	0.90	3.00	10.00	7.44	2.74	11.16	4.11
E1-06-CI	0.41	0.90	3.00	10.00	7.44	2.76	11.16	4.14
E2-01-CI	0.30	0.90	3.78	10.00	7.44	1.98	11.16	2.96
E2-02-CI	0.58	0.68	11.90	11.90	6.94	2.75	10.43	4.14
E2-03-CI	0.22	0.90	2.89	10.00	7.44	1.45	11.16	2.17
E2-04-CI	0.85	0.55	10.80	10.80	7.22	3.37	10.84	5.06
E2-05-CI	0.71	0.63	14.20	14.20	6.43	2.89	9.69	4.35
E2-06-CI	0.65	0.56	9.20	10.00	7.44	2.74	11.16	4.11
E2-07-CI	0.78	0.53	13.00	13.00	6.68	2.76	10.06	4.16
E2-08-CI	0.34	0.90	4.36	10.00	7.44	2.30	11.16	3.46
E2-09-CI	0.59	0.90	6.44	10.00	7.44	3.92	11.16	5.89
E2-10-GI	0.79	0.45	11.60	11.60	7.01	2.49	10.54	3.74
E2-11-CI	0.25	0.90	3.22	10.00	7.44	1.65	11.16	2.47
E2-12-CI	0.60	0.85	6.53	10.00	7.44	3.79	11.16	5.69

FM 1560 AT PAYNES GREY PROPOSED XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM F								
CC-F1	23.76	0.50	22.40	22.40	5.15	60.56	7.84	92.26
F1-03-CI	1.00	0.58	15.10	15.10	6.25	3.58	9.43	5.41
F1-04-CI	1.08	0.52	16.80	16.80	5.94	3.37	8.99	5.10
F1-05-CI	0.50	0.83	5.16	10.00	7.44	3.07	11.16	4.60
F1-06-CI	1.49	0.52	21.20	21.20	5.30	4.08	8.06	6.21
F1-07-CI	1.48	0.53	19.90	19.90	5.47	4.34	8.31	6.58
F1-08-CI	1.43	0.50	19.30	19.30	5.56	4.00	8.43	6.07
F1-09-CI	0.41	0.90	5.13	10.00	7.44	2.75	11.16	4.12
F1-10-CI	1.64	0.48	19.90	19.90	5.47	4.33	8.31	6.57
F1-11-CI	1.76	0.49	21.50	21.50	5.26	4.55	8.00	6.92



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 150 300
SCALE: 1" = 300'

LEGEND

- PROPOSED DRAINAGE AREA BOUNDARY
- STREAM
- SHEET FLOW DIRECTION
- XP - STORM NODE
- H1-SWM-6 — DRAINAGE AREA LABEL

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR PEAK FLOW CALCULATIONS.
4. RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

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FM 1560
DRAINAGE AREA MAP
PAYNES GRAY
PROPOSED XP-STORM

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	259

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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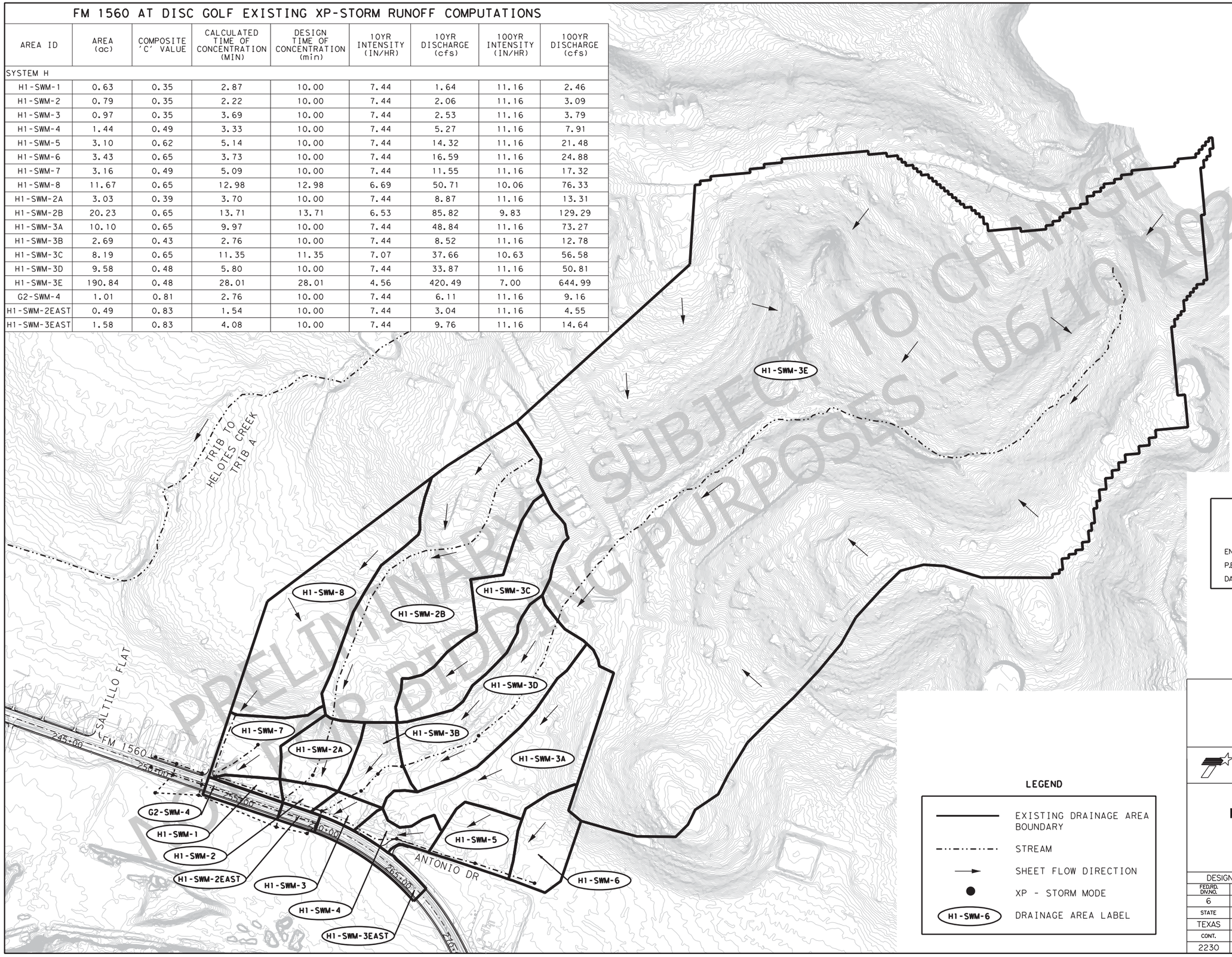
FM 1560 AT DISC GOLF EXISTING XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM H								
H1-SWM-1	0.63	0.35	2.87	10.00	7.44	1.64	11.16	2.46
H1-SWM-2	0.79	0.35	2.22	10.00	7.44	2.06	11.16	3.09
H1-SWM-3	0.97	0.35	3.69	10.00	7.44	2.53	11.16	3.79
H1-SWM-4	1.44	0.49	3.33	10.00	7.44	5.27	11.16	7.91
H1-SWM-5	3.10	0.62	5.14	10.00	7.44	14.32	11.16	21.48
H1-SWM-6	3.43	0.65	3.73	10.00	7.44	16.59	11.16	24.88
H1-SWM-7	3.16	0.49	5.09	10.00	7.44	11.55	11.16	17.32
H1-SWM-8	11.67	0.65	12.98	12.98	6.69	50.71	10.06	76.33
H1-SWM-2A	3.03	0.39	3.70	10.00	7.44	8.87	11.16	13.31
H1-SWM-2B	20.23	0.65	13.71	13.71	6.53	85.82	9.83	129.29
H1-SWM-3A	10.10	0.65	9.97	10.00	7.44	48.84	11.16	73.27
H1-SWM-3B	2.69	0.43	2.76	10.00	7.44	8.52	11.16	12.78
H1-SWM-3C	8.19	0.65	11.35	11.35	7.07	37.66	10.63	56.58
H1-SWM-3D	9.58	0.48	5.80	10.00	7.44	33.87	11.16	50.81
H1-SWM-3E	190.84	0.48	28.01	28.01	4.56	420.49	7.00	644.99
G2-SWM-4	1.01	0.81	2.76	10.00	7.44	6.11	11.16	9.16
H1-SWM-2EAST	0.49	0.83	1.54	10.00	7.44	3.04	11.16	4.55
H1-SWM-3EAST	1.58	0.83	4.08	10.00	7.44	9.76	11.16	14.64



0 250 500

SCALE: 1" = 500'

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR PEAK FLOW CALCULATIONS.
4. RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.

SUBJECT TO CHANGE
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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

LEGEND

- EXISTING DRAINAGE AREA BOUNDARY
- STREAM
- SHEET FLOW DIRECTION
- XP - STORM MODE
- H1-SWM-6 — DRAINAGE AREA LABEL

FIRM REGISTRATION NO. F-230

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FM 1560
DRAINAGE AREA MAP
DISC GOLF
EXISTING XP-STORM

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

260

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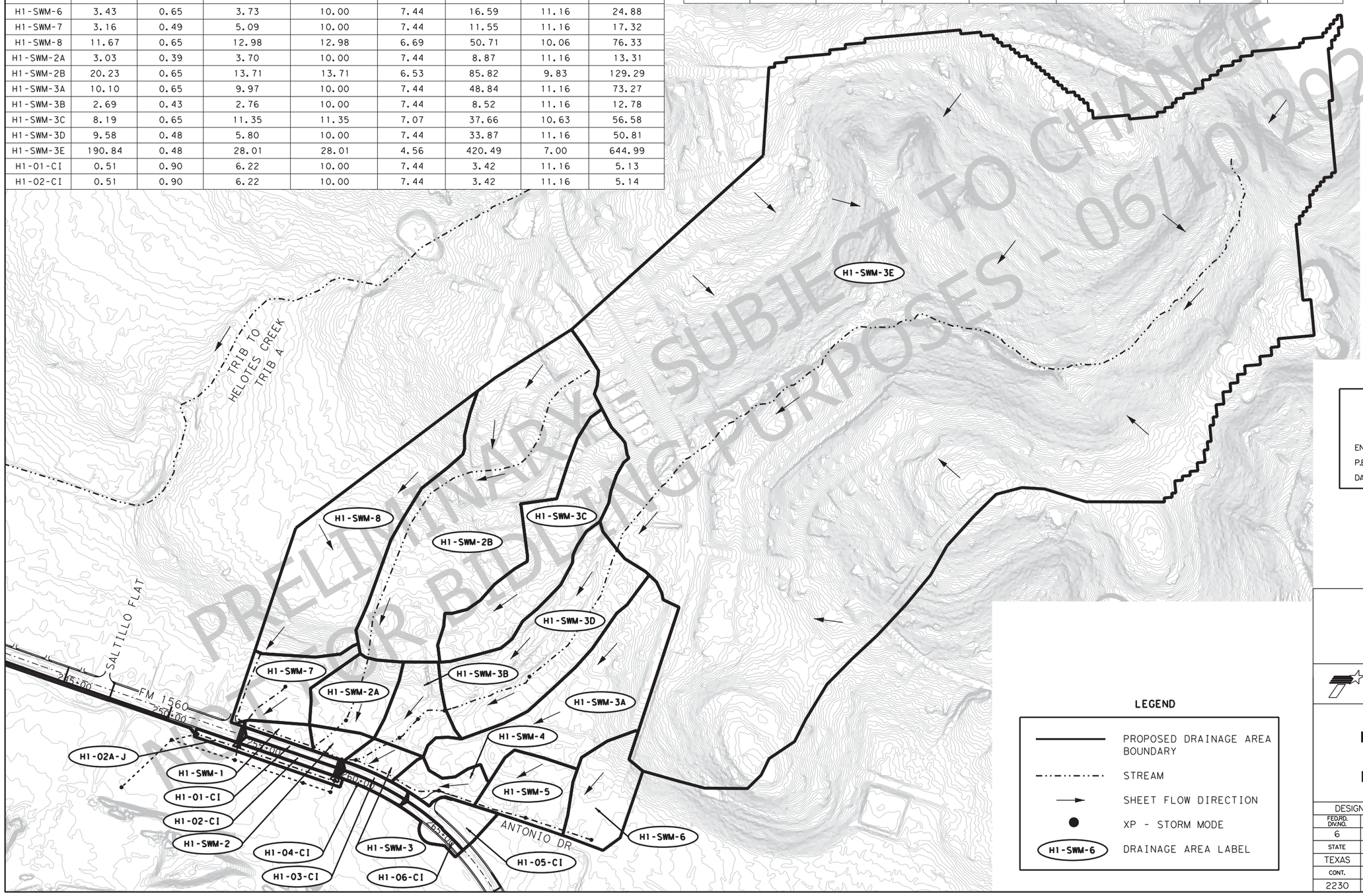
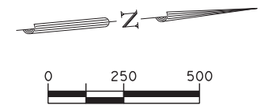
FM 1560 AT DISC GOLF PROPOSED XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM H								
H1-SWM-1	0.63	0.35	2.87	10.00	7.44	1.64	11.16	2.46
H1-SWM-2	0.79	0.35	2.22	10.00	7.44	2.06	11.16	3.09
H1-SWM-3	0.97	0.35	3.69	10.00	7.44	2.53	11.16	3.79
H1-SWM-4	1.44	0.49	3.33	10.00	7.44	5.27	11.16	7.91
H1-SWM-5	3.10	0.62	5.14	10.00	7.44	14.32	11.16	21.48
H1-SWM-6	3.43	0.65	3.73	10.00	7.44	16.59	11.16	24.88
H1-SWM-7	3.16	0.49	5.09	10.00	7.44	11.55	11.16	17.32
H1-SWM-8	11.67	0.65	12.98	12.98	6.69	50.71	10.06	76.33
H1-SWM-2A	3.03	0.39	3.70	10.00	7.44	8.87	11.16	13.31
H1-SWM-2B	20.23	0.65	13.71	13.71	6.53	85.82	9.83	129.29
H1-SWM-3A	10.10	0.65	9.97	10.00	7.44	48.84	11.16	73.27
H1-SWM-3B	2.69	0.43	2.76	10.00	7.44	8.52	11.16	12.78
H1-SWM-3C	8.19	0.65	11.35	11.35	7.07	37.66	10.63	56.58
H1-SWM-3D	9.58	0.48	5.80	10.00	7.44	33.87	11.16	50.81
H1-SWM-3E	190.84	0.48	28.01	28.01	4.56	420.49	7.00	644.99
H1-01-CI	0.51	0.90	6.22	10.00	7.44	3.42	11.16	5.13
H1-02-CI	0.51	0.90	6.22	10.00	7.44	3.42	11.16	5.14

FM 1560 AT DISC GOLF PROPOSED XP-STORM RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM H								
H1-02A-J	0.75	0.90	6.09	10.00	7.44	4.99	11.16	7.48
H1-03-CI	0.35	0.90	4.44	10.00	7.44	2.34	11.16	3.51
H1-04-CI	0.34	0.90	4.28	10.00	7.44	2.27	11.16	3.41
H1-05-CI	1.27	0.56	8.72	10.00	7.44	5.29	11.16	7.94
H1-06-CI	0.55	0.71	4.56	10.00	7.44	2.90	11.16	4.35





NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR PEAK FLOW CALCULATIONS.
4. RATIONAL METHOD PEAK FLOWS, ATLAS 14 PRECIPITATION, AND MALCOLM SMALL WATERSHED METHOD USED TO DEVELOP HYDROGRAPHS FOR XP-STORM ANALYSIS.

LEGEND

- PROPOSED DRAINAGE AREA BOUNDARY
- STREAM
- SHEET FLOW DIRECTION
- XP - STORM MODE
- H1-SWM-6 — DRAINAGE AREA LABEL

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

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FM 1560
DRAINAGE AREA MAP
DISC GOLF
PROPOSED XP-STORM

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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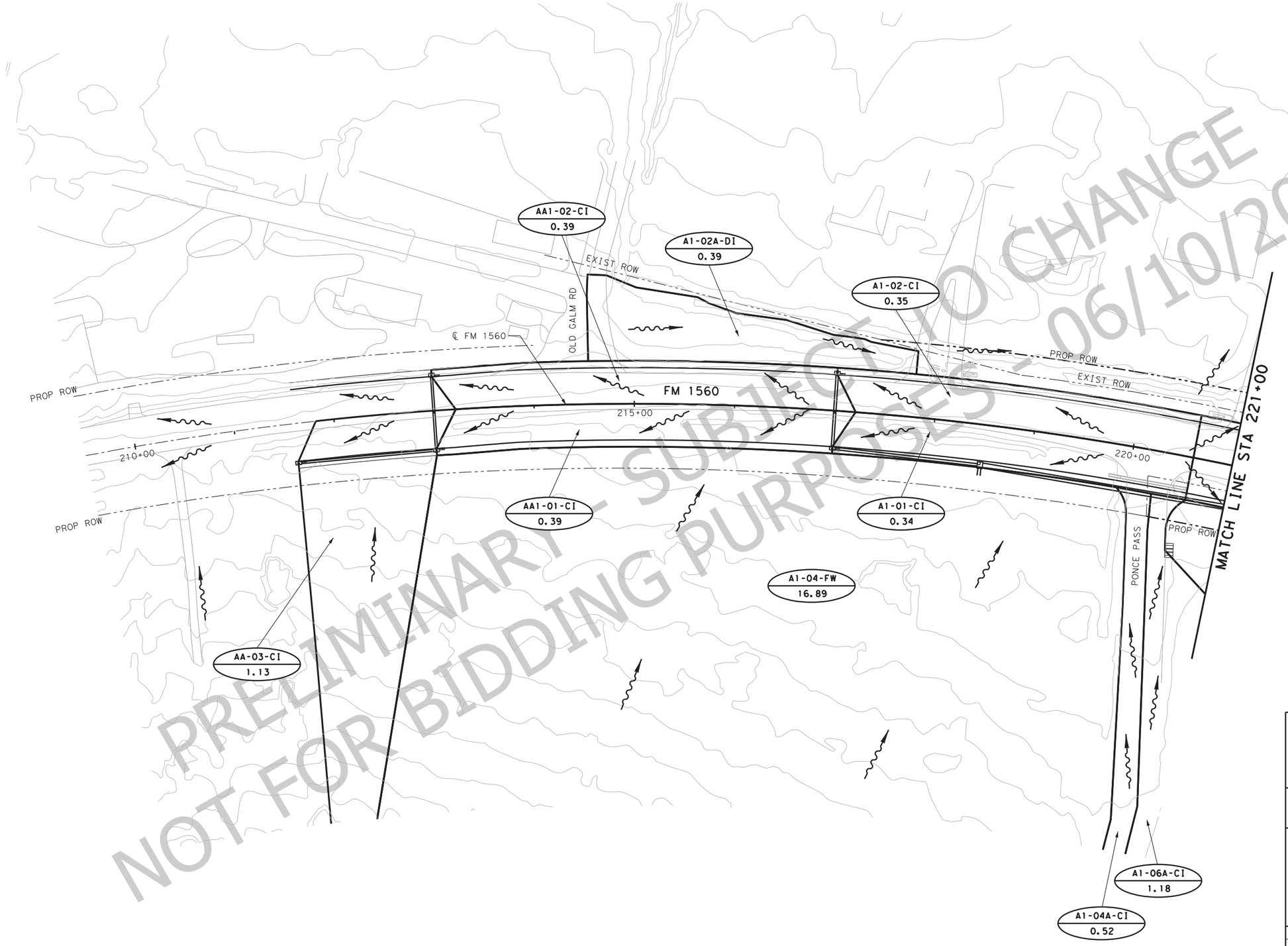
LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID, DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET



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NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 1 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	262
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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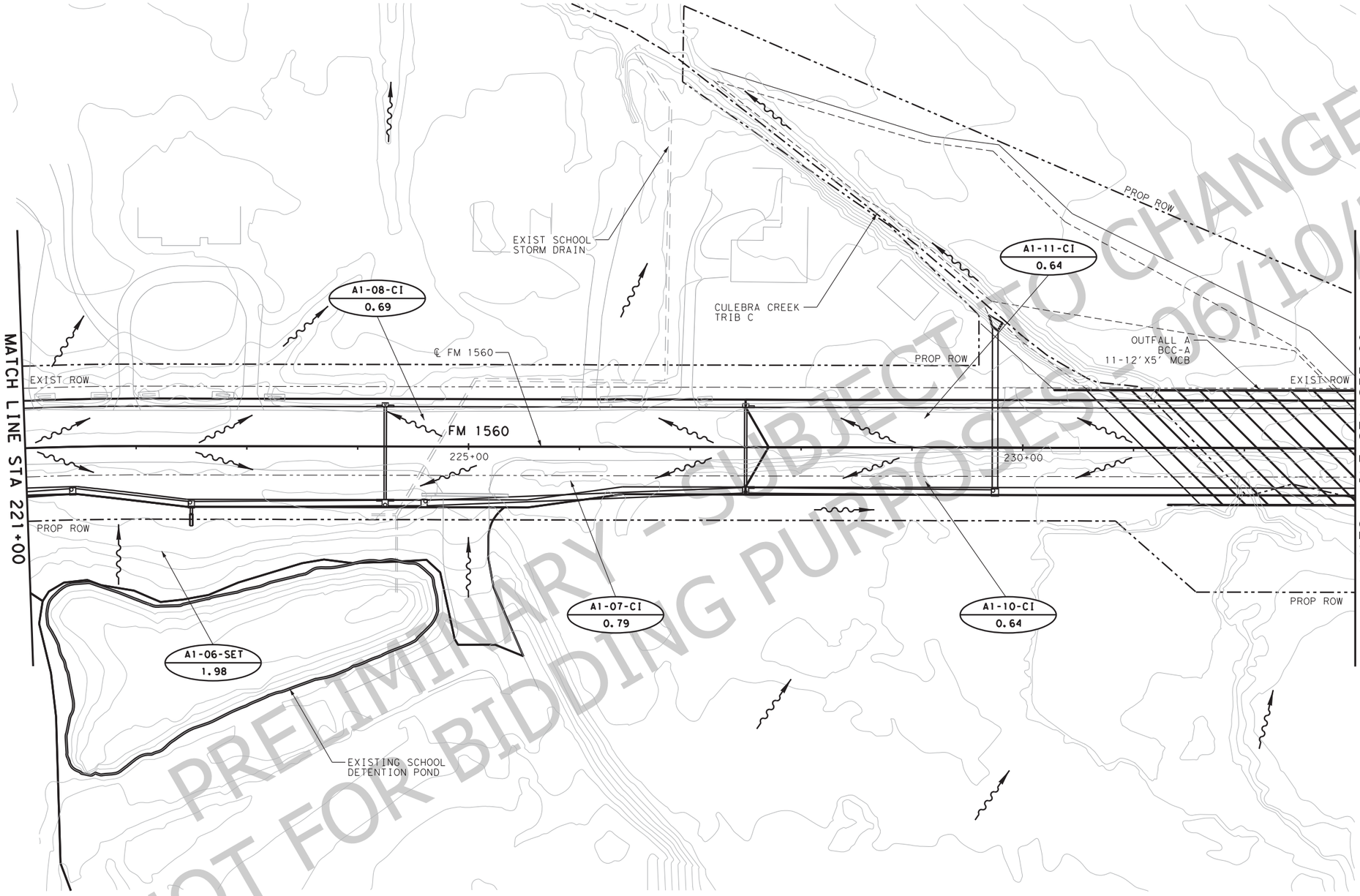
LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 2 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	263
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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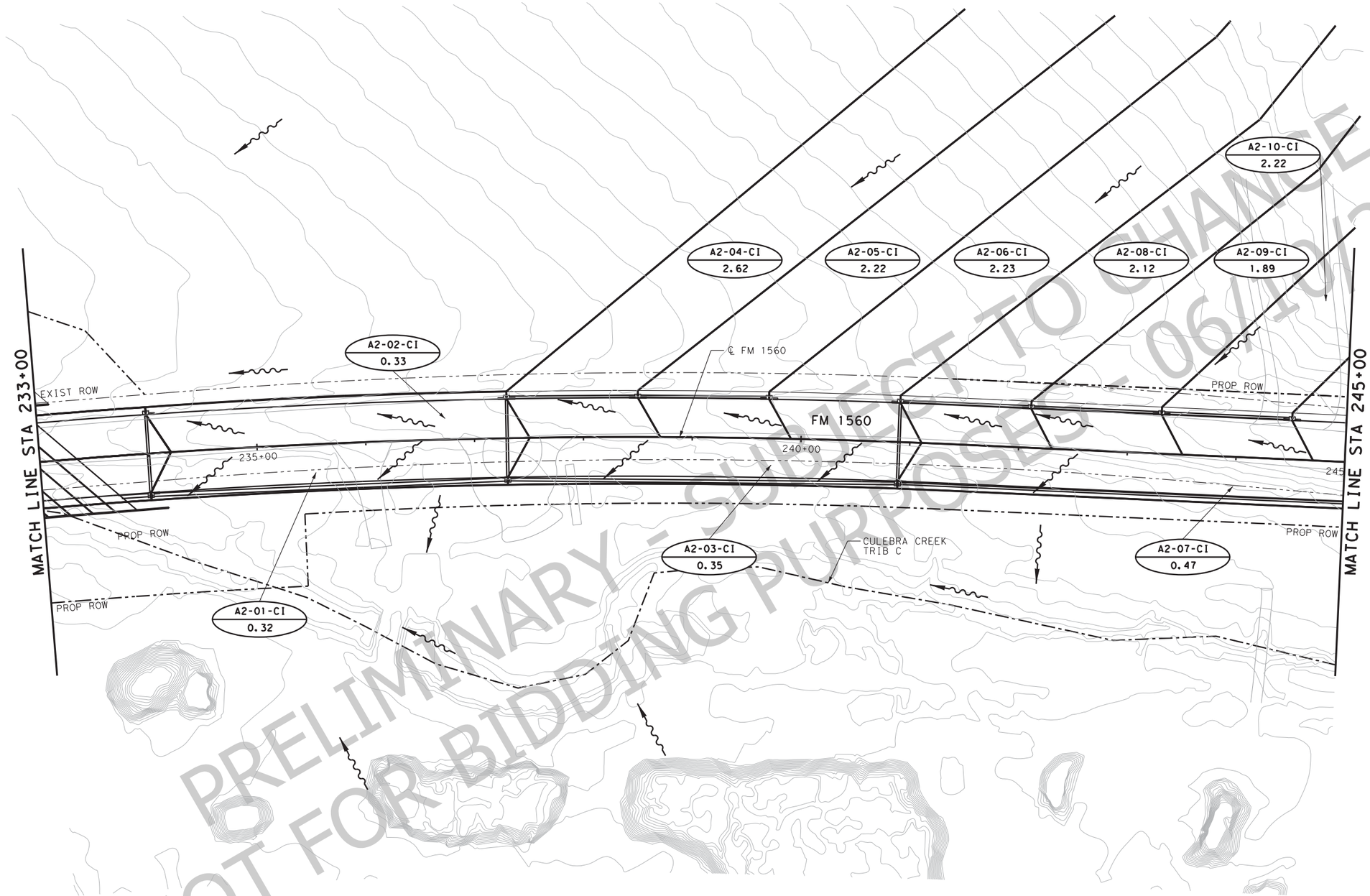

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 3 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	264
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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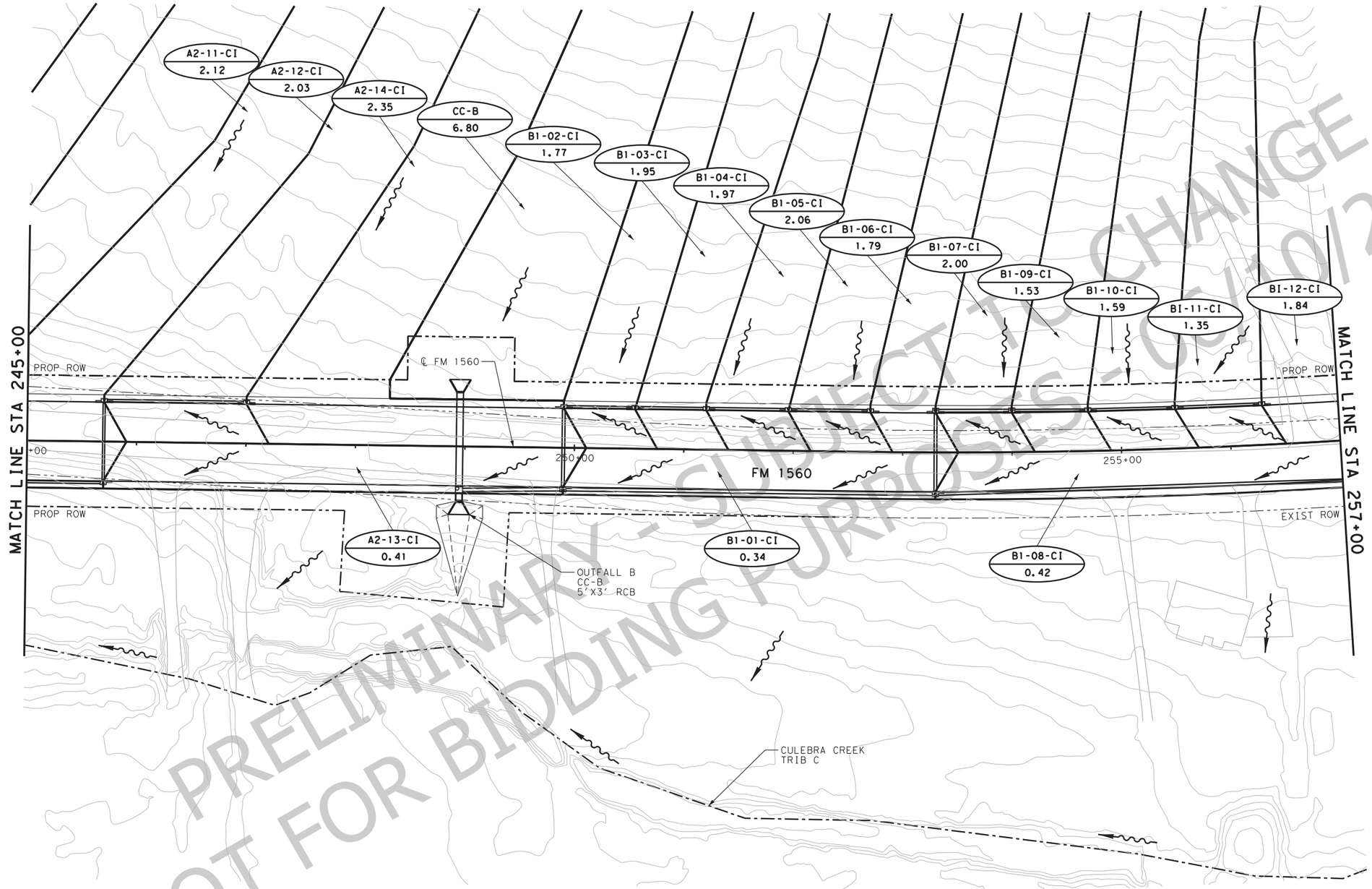

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET

NOTE:

1. DRAINAGE AREA CC-B INCLUDES ALL DRAINAGE FOR STORM SEWER SYSTEM B1.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 4 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	265
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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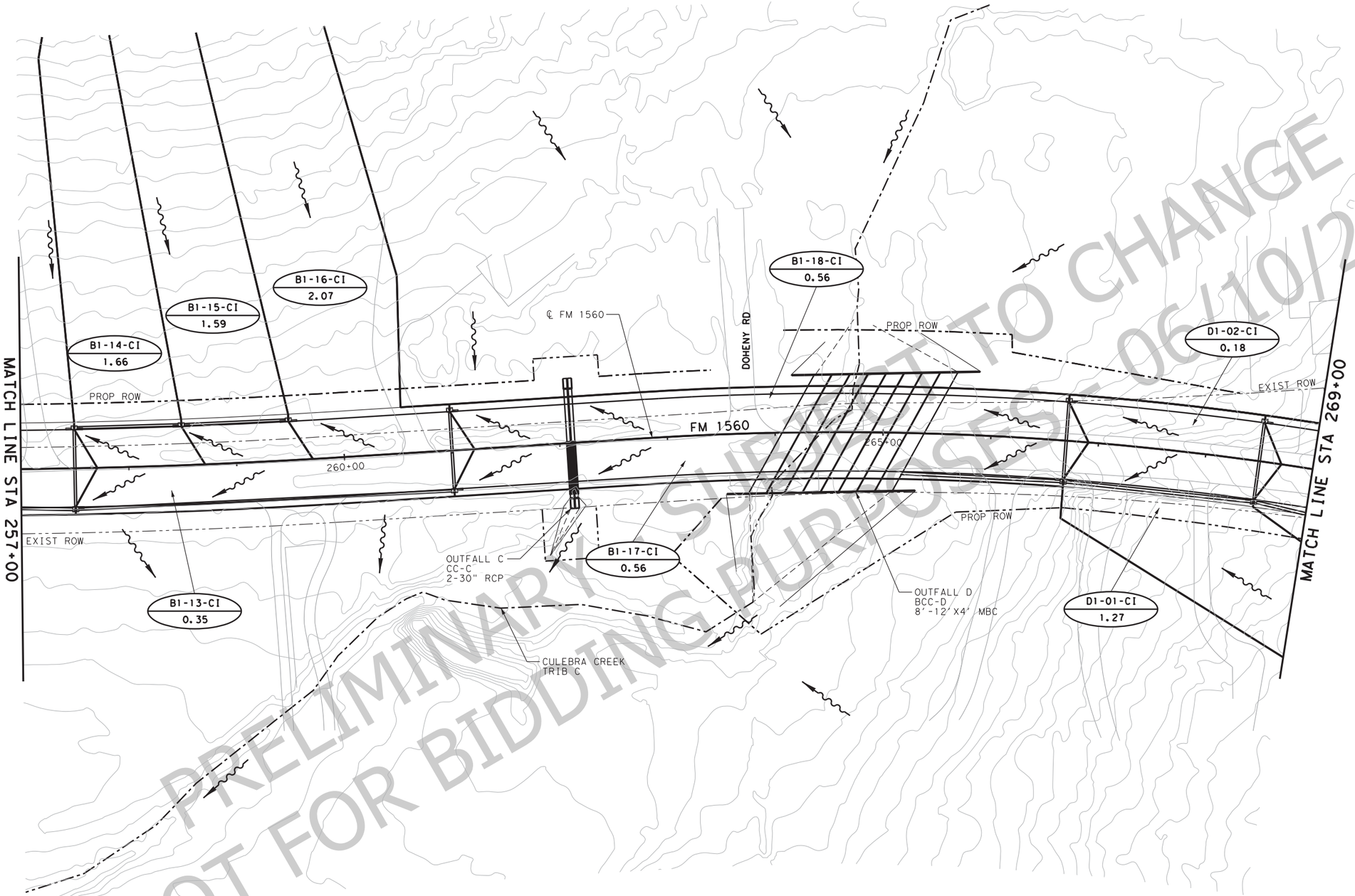

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET

SUBJECT TO CHANGE
06/10/2020
PRELIMINARY
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 5 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	266
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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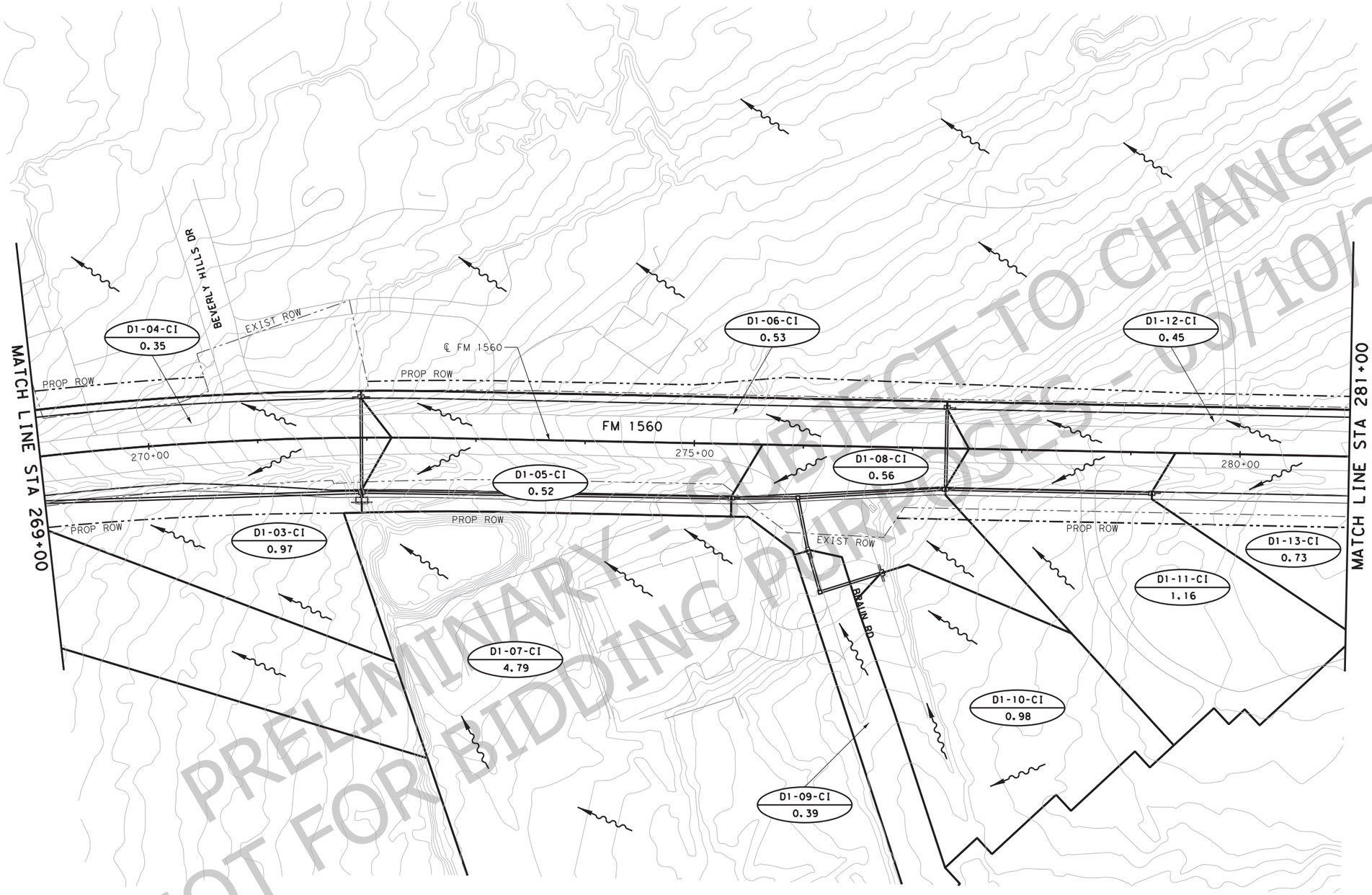
LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 6 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	267
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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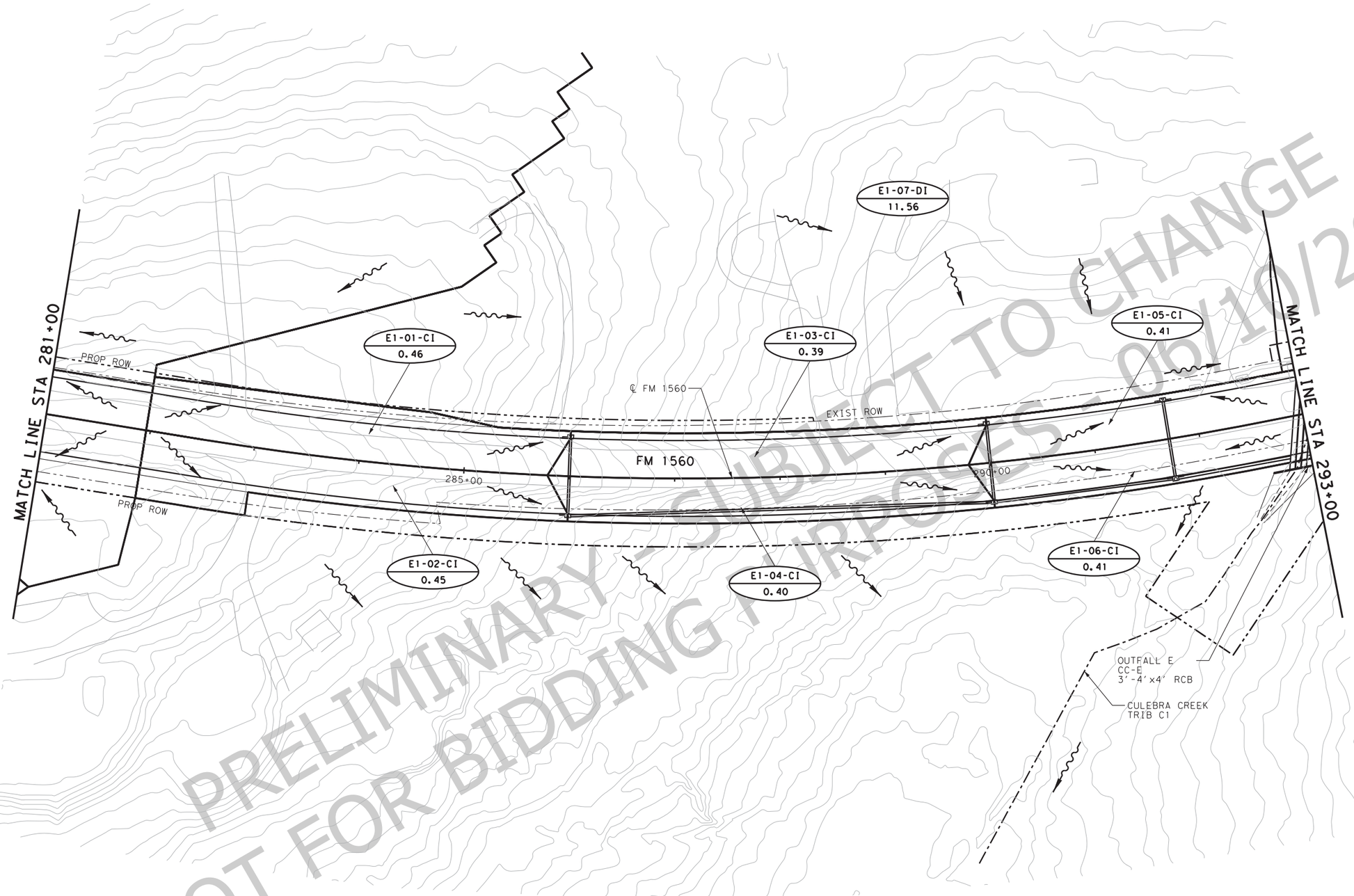

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET

SUBJECT TO CHANGE 06/10/2020
PRELIMINARY - NOT FOR BIDDING PURPOSES
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 7 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	268
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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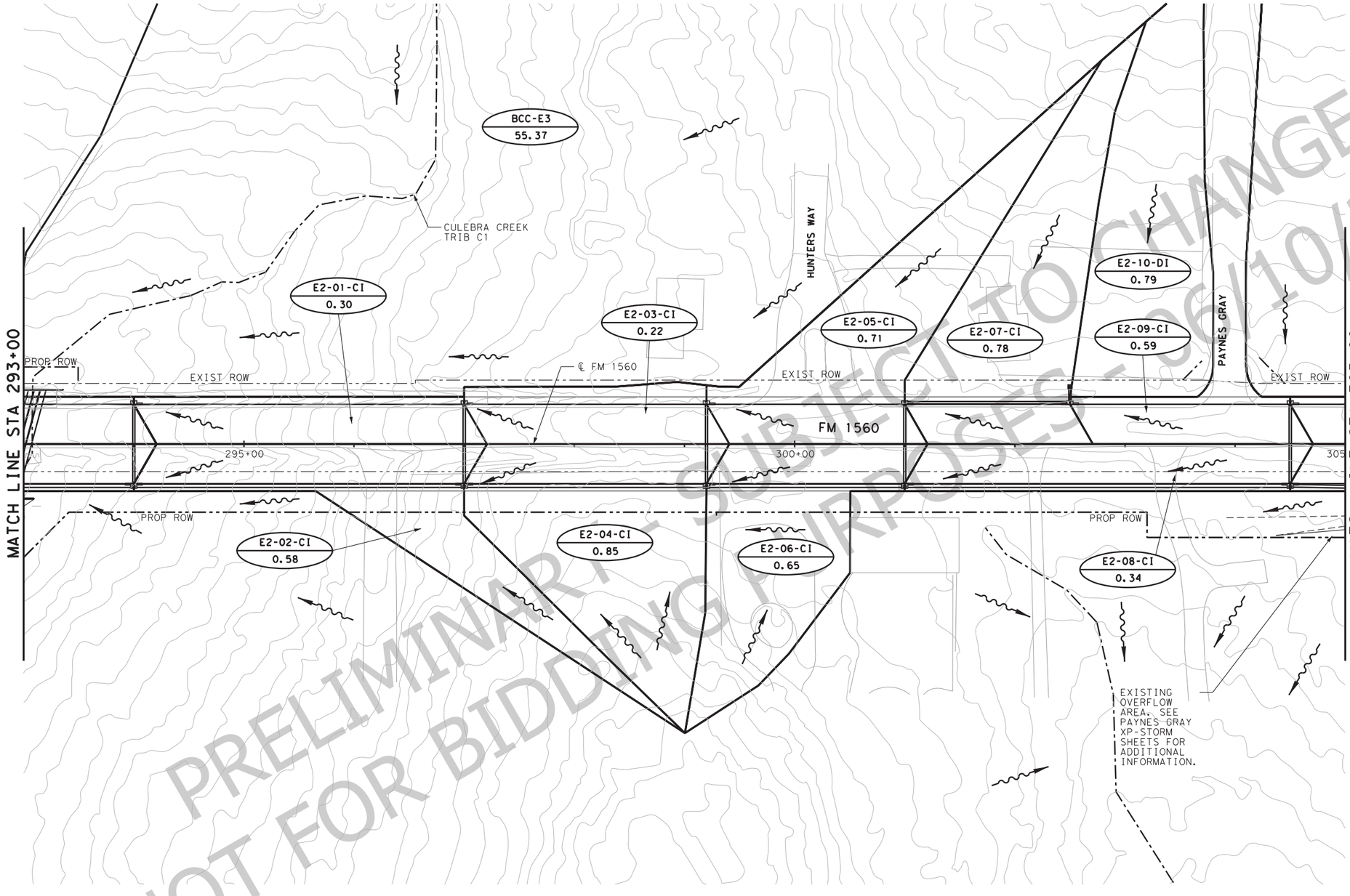

PRELIMINARY - SUBJECT TO CHANGE
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LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

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CI = CURB INLET
GI = GRATE INLET

NOTE :

1. SYSTEM E AND F ARE PART OF THE PAYNES GRAY SYSTEM. SEE PAYNES GRAY XP-STORM SHEETS FOR DETAILED ANALYSIS OF CROSSINGS.
2. DRAINAGE AREA BCC-E3 INCLUDES DRAINAGE AREA E1-07-DI.

INTERIM REVIEW ONLY

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 8 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	269
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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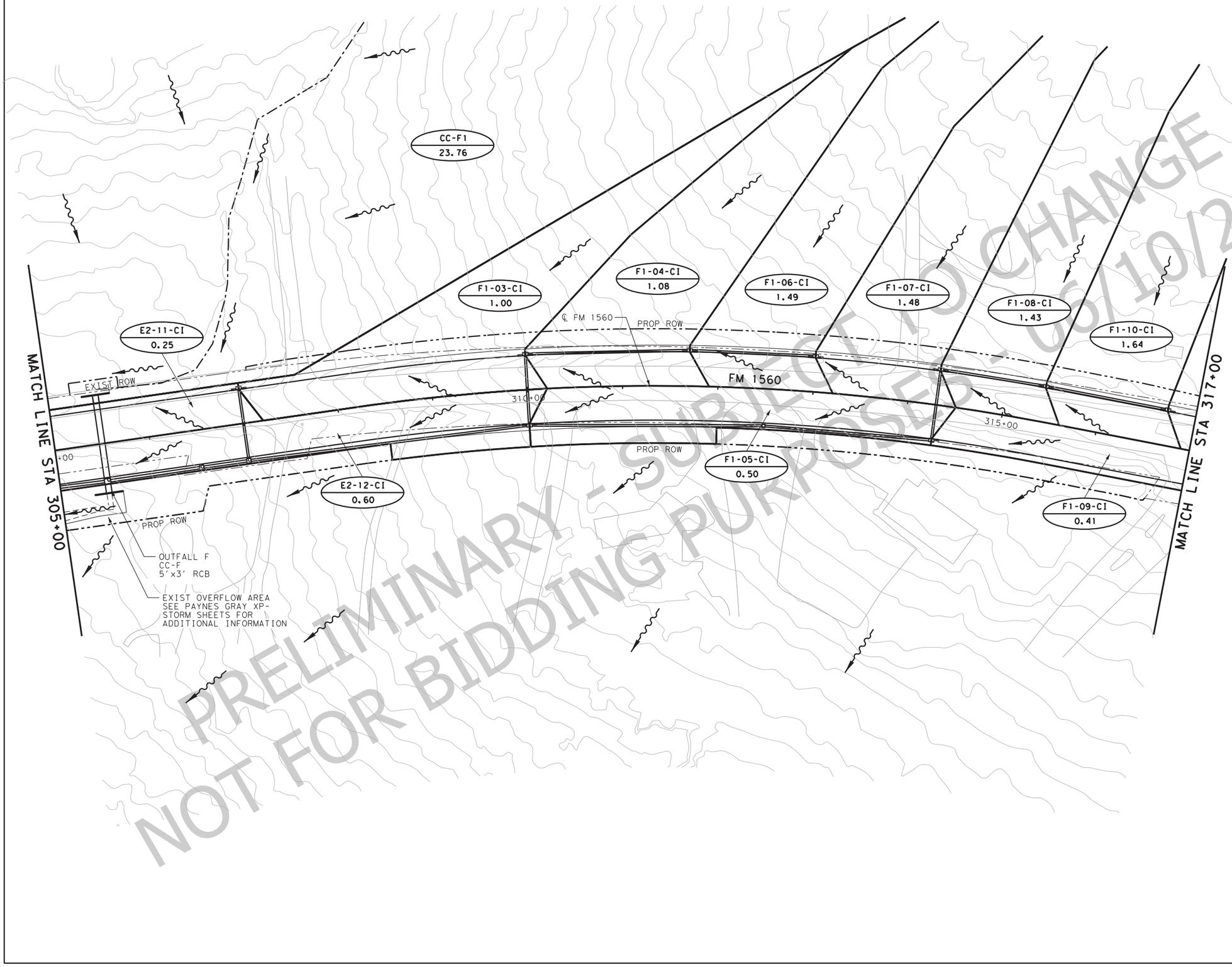

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

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PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 9 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	270
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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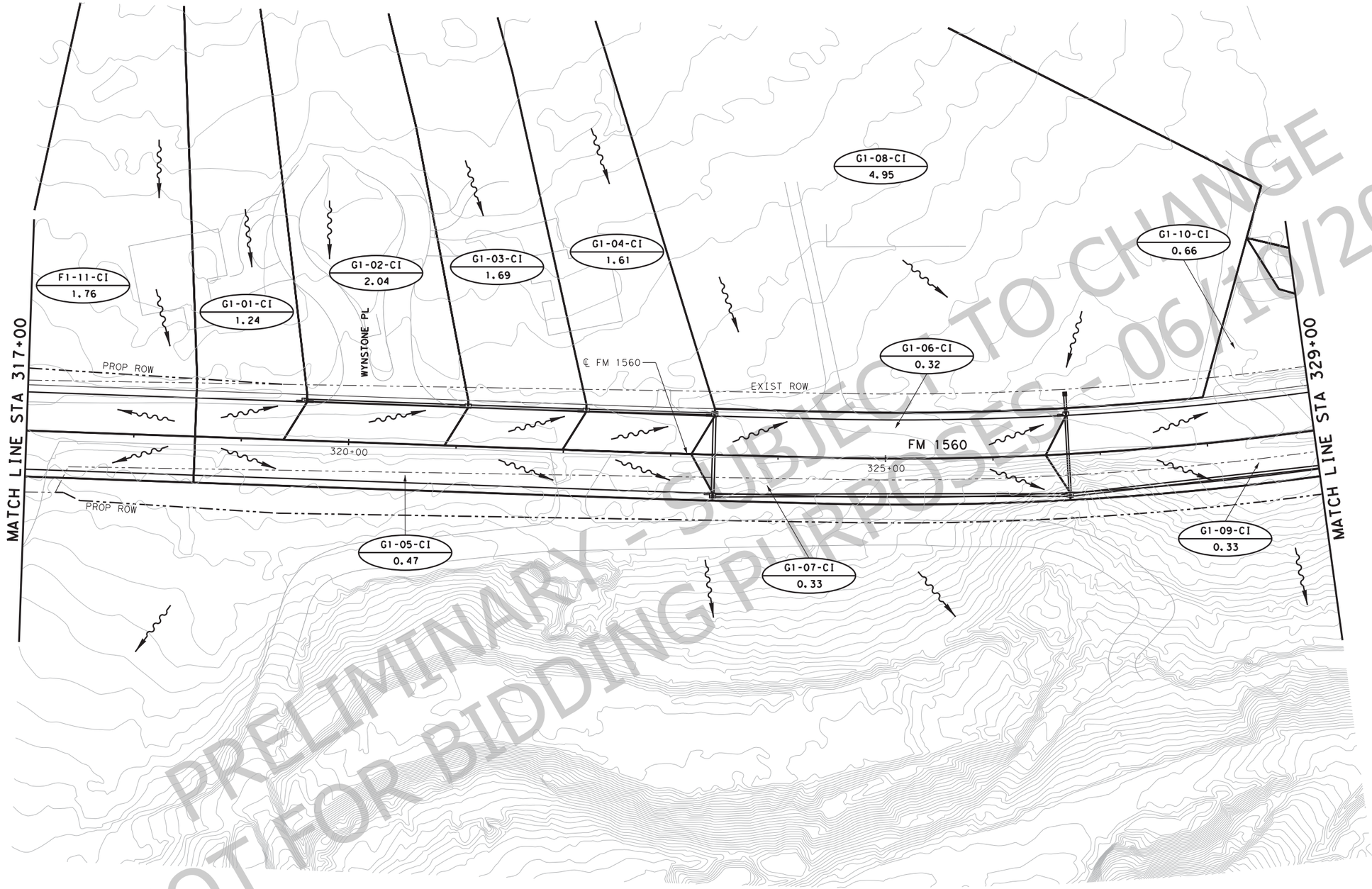

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 10 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	271
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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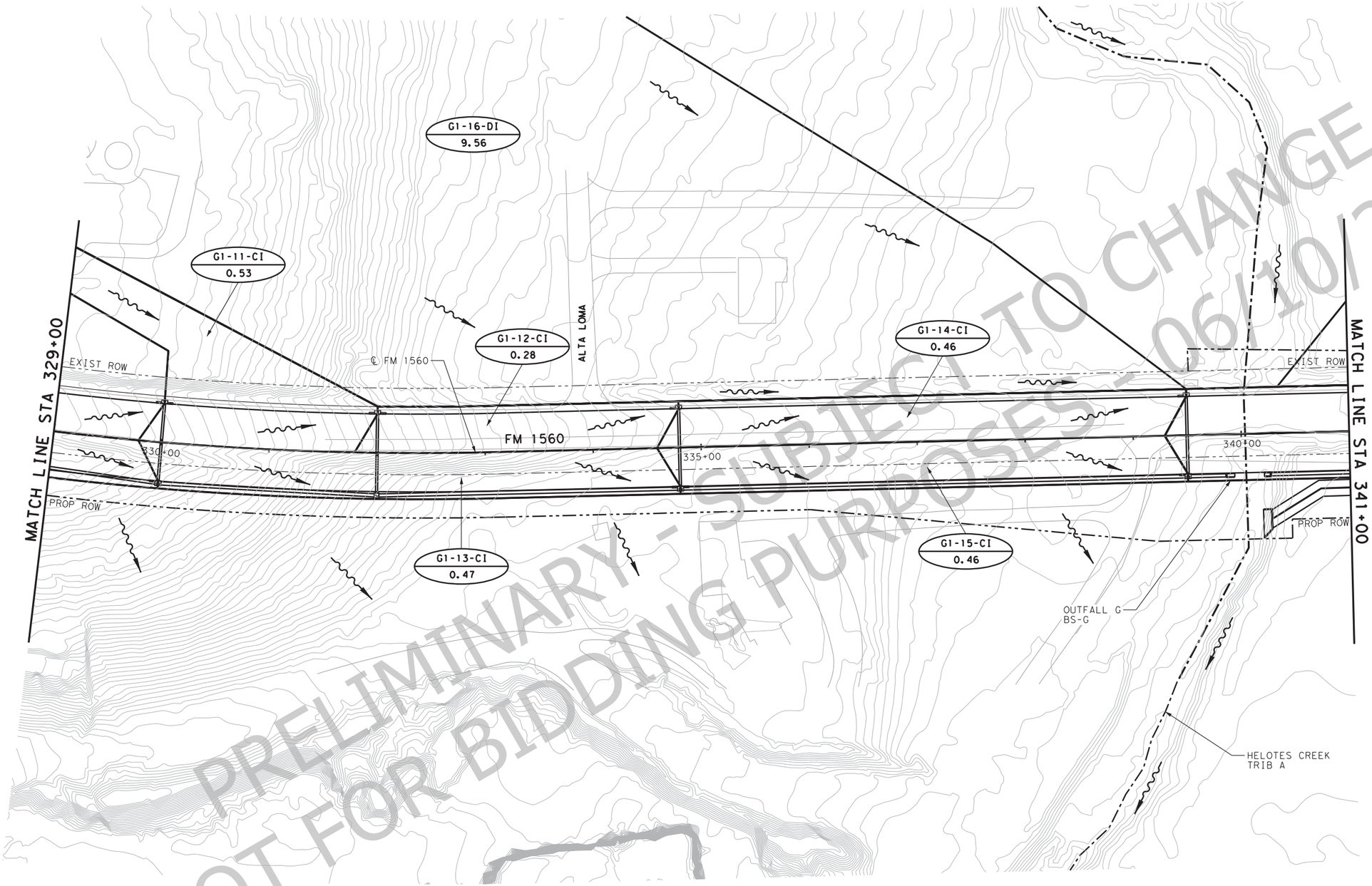

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-O1-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
O1 = INLET #
CI = CURB INLET
GI = GRATE INLET

N

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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HORIZ SCALE: 1" = 100′
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 11 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	272
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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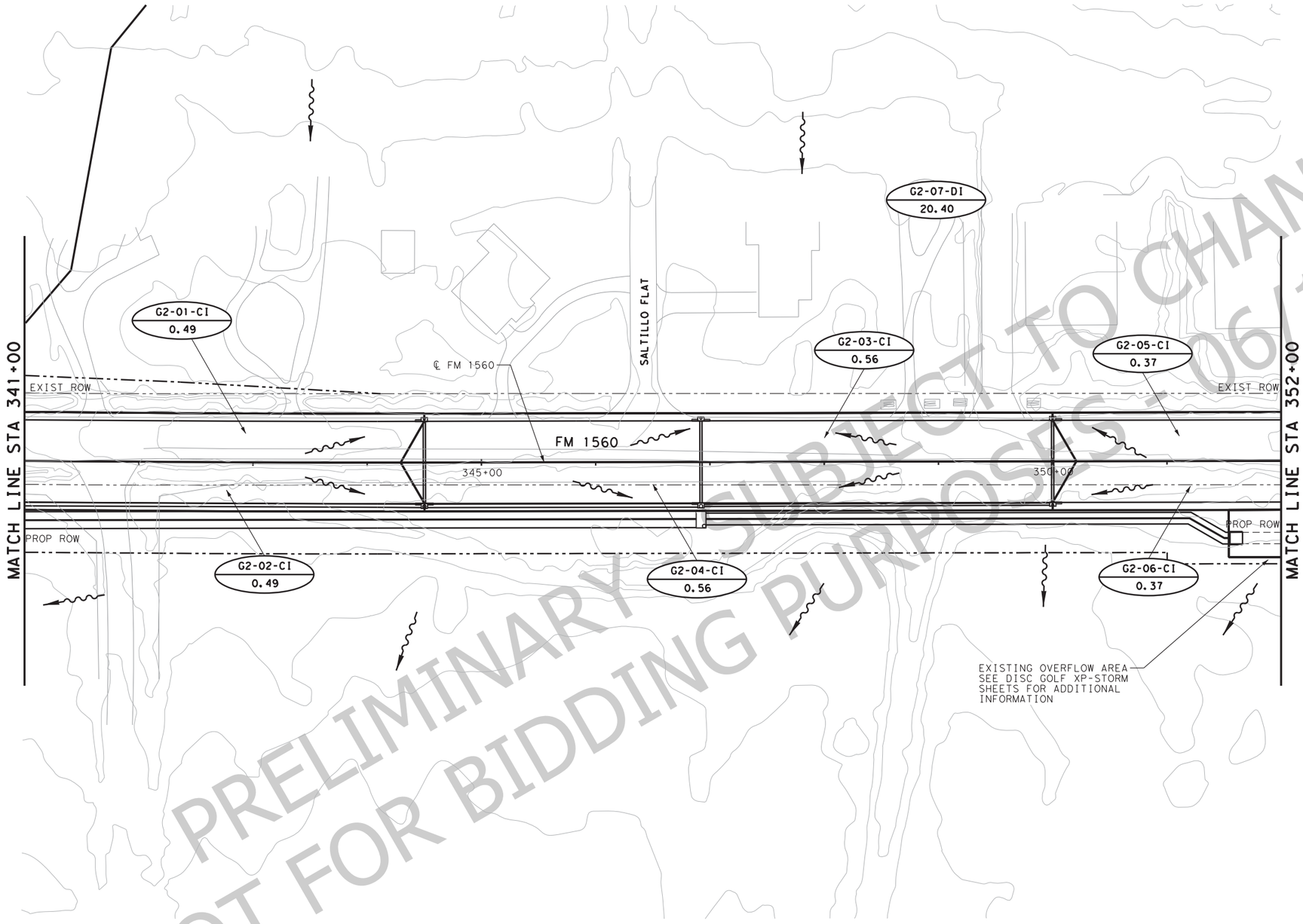

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
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SUBJECT TO CHANGE
06/10/2020
PRELIMINARY
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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tnp

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 12 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	273
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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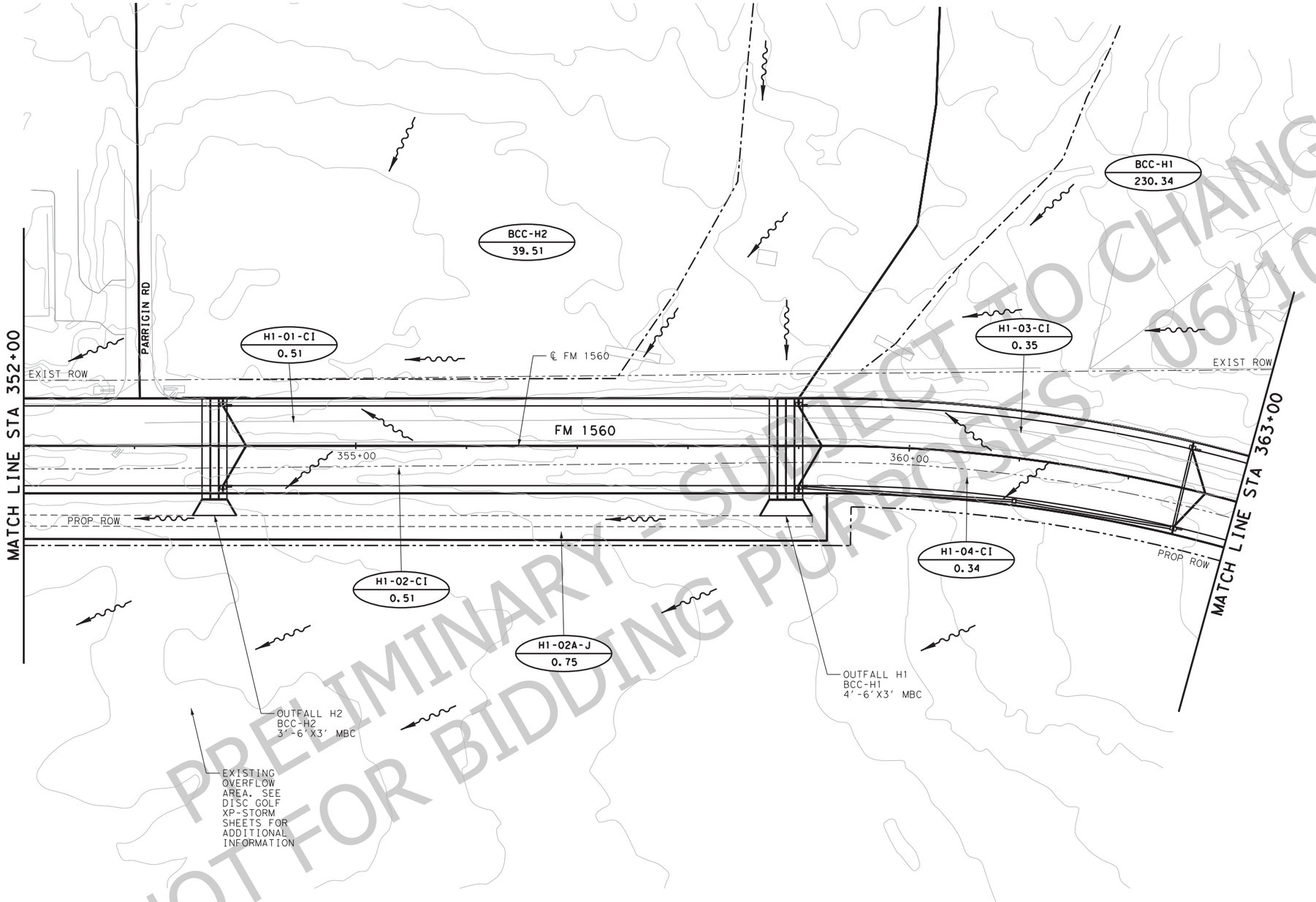

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
01 = INLET #
CI = CURB INLET
GI = GRATE INLET

NOTE :

1. SYTEM H1 AND H2 ARE PART OF DISC GOLF SYSTEM. SEE DISC GOLF XP-STORM SHEETS FOR DETAILED ANALYSIS OF CROSSINGS AND OUTFALL.

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 13 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	274
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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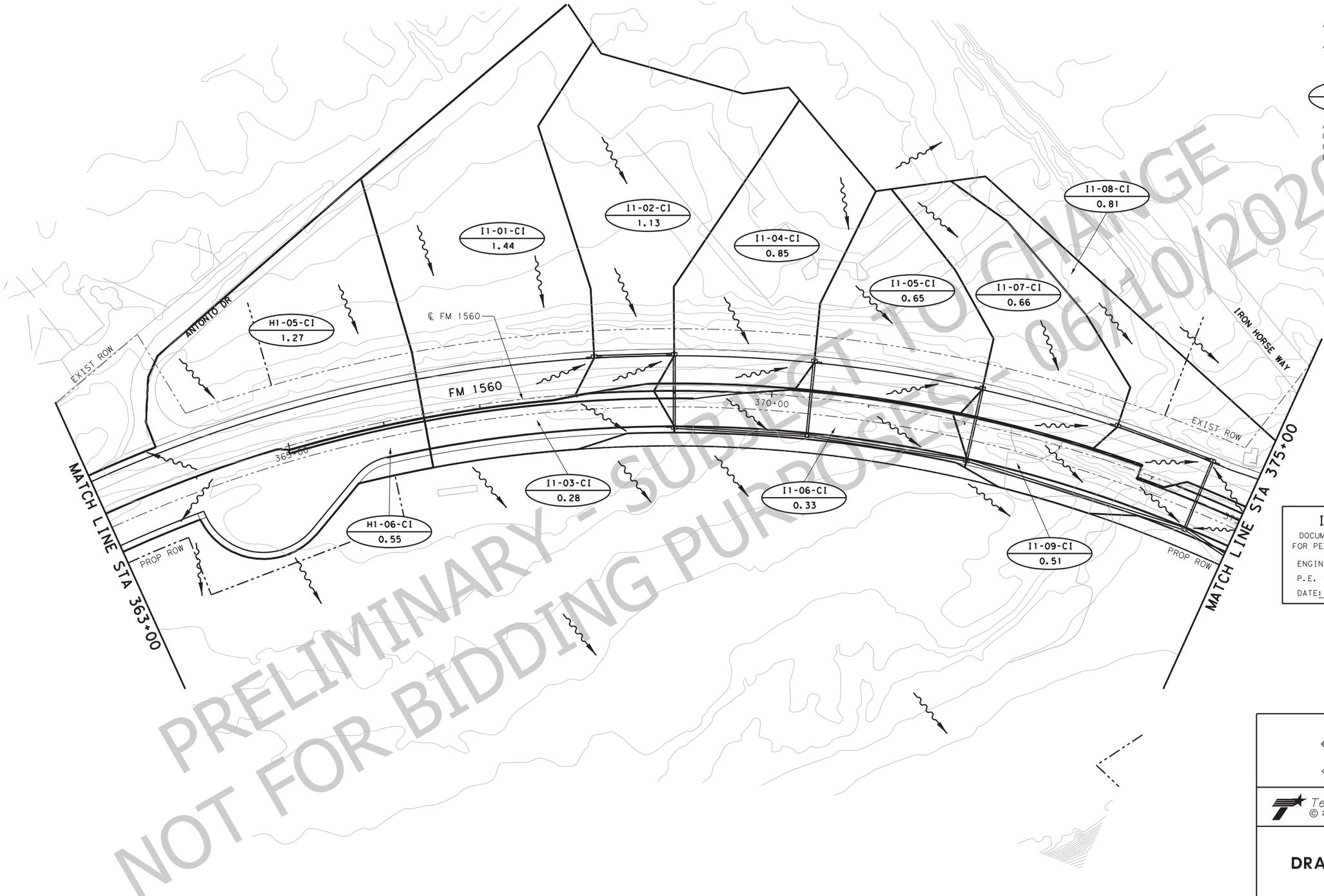

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 14 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	275
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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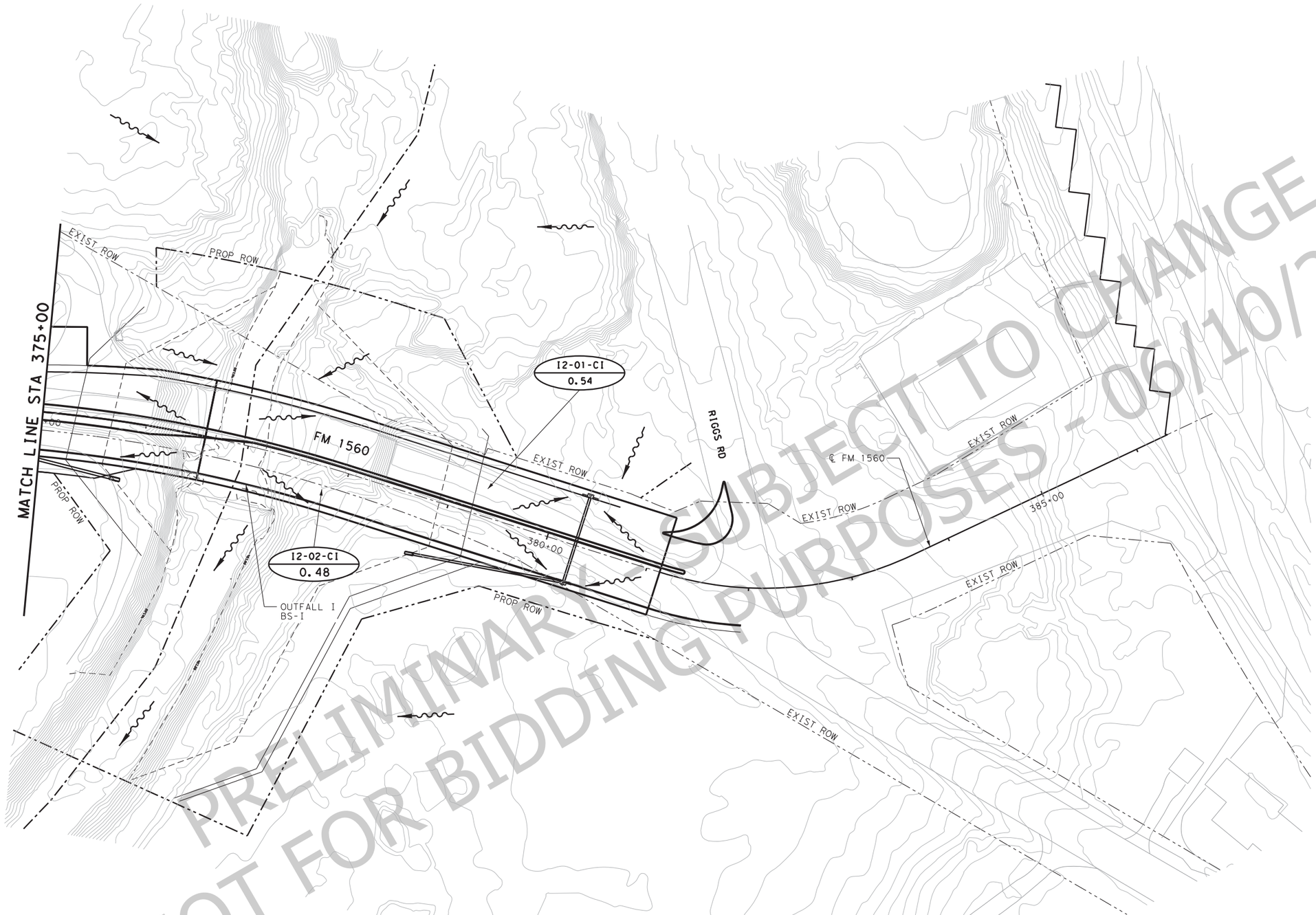

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

- DRAINAGE AREA
- STREAM PATH
- FLOW DIRECTION
- A1-01-CI / XX.XX — DRAINAGE AREA ID / DRAINAGE AREA SIZE (ACRE)

A1 = SYSTEM
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INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
DRAINAGE AREA MAP
INTERIOR

SHEET 15 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	276
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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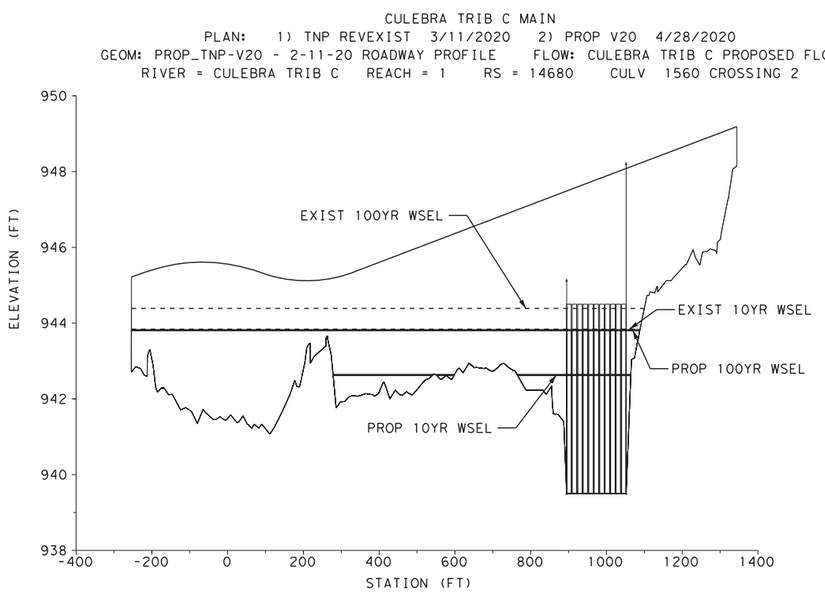
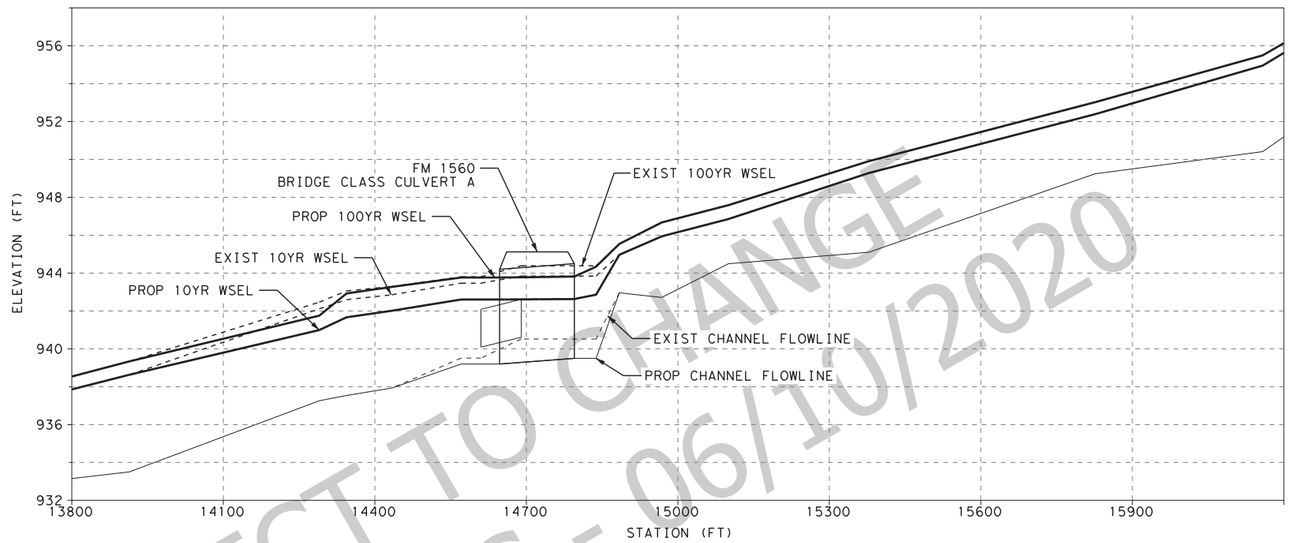
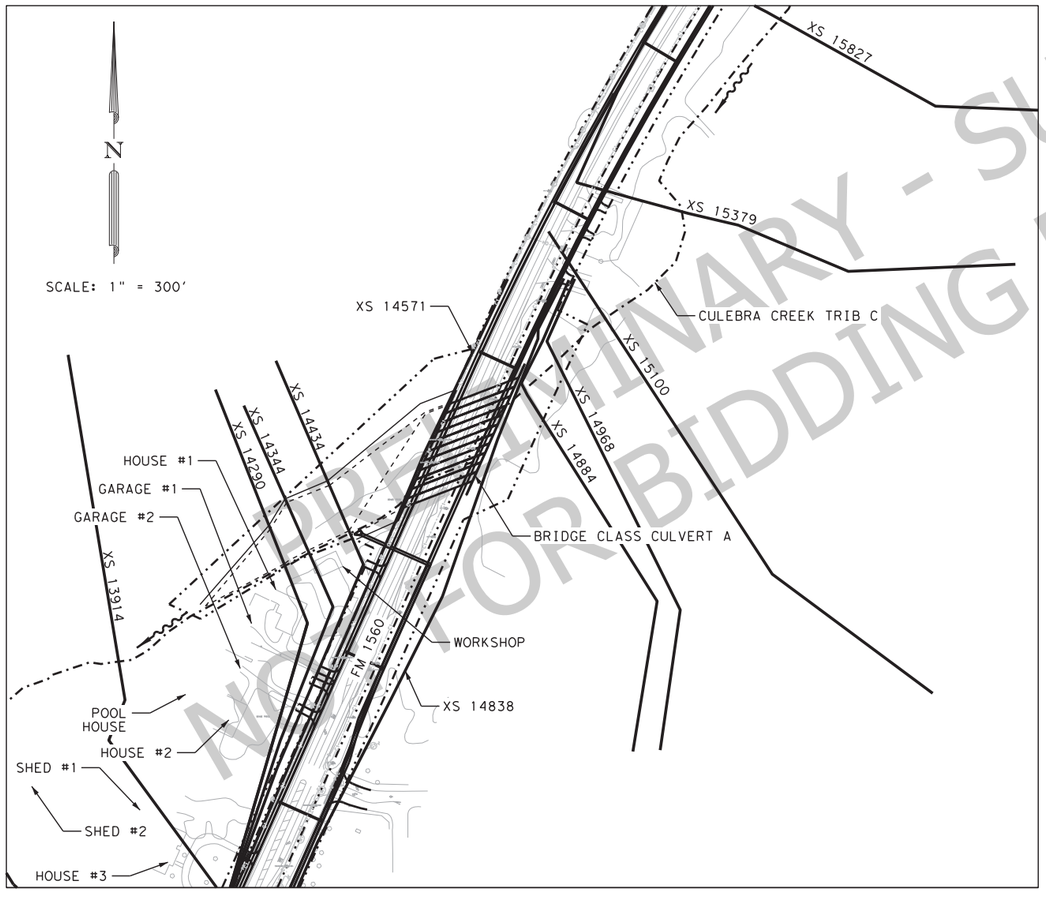


HEC-RAS CROSS SECTION OUTPUT



HEC-RAS PROFILE OUTPUT



CROSS SECTION LAYOUT

PROPOSED VS EXISTING CAPACITY		
	EXISTING	PROPOSED
STRUCTURE TYPE	2-3'X2' ARCH PIPE	11-12'X5' MBC
MIN TOP OF ROAD (FT)	942.42	945.12
Q10 (CFS)	1689	1691
US WSEL (FT)	943.84	942.86
Q100 (CFS)	3387	3387
US WSEL (FT)	944.39	944.34

NOTES:

1. HEC-RAS 5.0.7 USED FOR HYDRAULIC ANALYSIS.
2. N VALUE (CHANNEL) = 0.045-0.055
   N VALUE (OVER BANKS) = 0.055-0.08
3. CROSS SECTION GEOMETRY WAS BASED OFF OF HORIZONTAL DATUM NAD 83 AND VERTICAL DATUM NAVD 88.
4. THE D/S BOUNDARY CONDITION WAS SET AT A NORMAL DEPTH SLOPE OF 0.01.
5. THIS CROSSING LOCATION IS LOCATED IN A FEMA DESIGNATED ZONE "A" AS SHOWN ON MAP PANEL 48029C0215G EFFECTIVE SEPTEMBER 29, 2010.
6. REFER TO DRAINAGE AREA MAP FOR ADDITIONAL INFORMATION.
7. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____.
8. NINE (9) STRUCTURES ARE LOCATED WITHIN THE FEMA ZONE LIMITS NEAR THE PROJECT LOCATION. FINISHED FLOOR ELEVATIONS (FFE) HAVE BEEN FIELD SURVEYED FOR EACH STRUCTURE AND CROSS-SECTIONS WERE INCLUDED IN THE HYDRAULIC MODEL AT THE STRUCTURE LOCATIONS. THE FOLLOWING TABLE COMPARES THE FINISHED FLOOR ELEVATIONS TO THE 100-YEAR WSEL AT EACH STRUCTURE IN THE PROPOSED CONDITIONS:

RIVER STA	STRUCTURE TYPE	FFE	100-YR WSEL
14344	WORKSHOP	943.08	942.92
14290	HOUSE #1	942.90	941.75
14290	GARAGE #1	942.55	941.75
14290	GARAGE #2	940.97	941.75
13914	POOL HOUSE	942.06	939.33
13914	HOUSE #2	940.12	939.33
13914	SHED #1	938.79	939.33
13914	SHED #2	935.44	939.33
13914	HOUSE #3	939.57	939.33

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
HYDRAULIC DATA SHEET
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT A

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	277
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT:

REACH	RIVER STA	PROFILE	PLAN	Q TOTAL (CFS)	MIN CH EL (FT)	W.S. ELEV (FT)	CRIT W.S. (FT)	E.G. ELEV (FT)	E.G. SLOPE (FT/FT)	VEL CHNL (FT/S)	FLOW AREA (SQ FT)	TOP WIDTH (FT)	FROUDE # CHL
1	15827	10 Year	TNP RevExist	1774	949.24	952.38	952.06	952.54	0.010576	4.16	571.00	584.13	0.54
1	15827	10 Year	Prop v20	1775	949.24	952.38		952.54	0.010564	4.16	571.47	584.18	0.54
1	15827	100 Year	TNP RevExist	3305	949.24	953.01	952.42	953.20	0.008398	4.50	958.25	637.81	0.50
1	15827	100 Year	Prop v20	3308	949.24	953.02		953.21	0.008226	4.46	965.41	638.08	0.50
1	15379	10 Year	TNP RevExist	1774	945.10	949.27	948.80	949.50	0.005541	4.62	557.84	469.75	0.51
1	15379	10 Year	Prop v20	1775	945.10	949.28	948.78	949.50	0.005544	4.62	555.01	447.30	0.51
1	15379	100 Year	TNP RevExist	3305	945.10	949.90	949.42	950.22	0.00649	5.77	888.18	569.69	0.57
1	15379	100 Year	Prop v20	3308	945.10	949.90	949.38	950.23	0.006596	5.82	868.88	536.34	0.57
1	15100	10 Year	TNP RevExist	1774	944.49	946.85		947.06	0.012109	4.51	496.63	413.52	0.67
1	15100	10 Year	Prop v20	1775	944.49	946.85		947.06	0.012104	4.51	496.88	417.76	0.67
1	15100	100 Year	TNP RevExist	3305	944.49	947.59		947.80	0.009245	4.74	919.53	705.39	0.62
1	15100	100 Year	Prop v20	3308	944.49	947.59		947.80	0.009232	4.74	920.60	705.91	0.62
1	14968	10 Year	TNP RevExist	1774	942.71	945.94		946.06	0.004321	3.62	676.06	546.85	0.43
1	14968	10 Year	Prop v20	1775	942.71	945.94		946.06	0.004319	3.62	676.73	547.34	0.43
1	14968	100 Year	TNP RevExist	3305	942.71	946.67	945.58	946.83	0.005037	4.70	1240.71	877.23	0.49
1	14968	100 Year	Prop v20	3308	942.71	946.67	945.58	946.83	0.005068	4.72	1238.89	877.13	0.49
1	14884	10 Year	TNP RevExist	1689	942.96	944.97	944.97	945.40	0.026765	5.62	323.65	414.49	0.96
1	14884	10 Year	Prop v20	1691	942.96	944.97	944.97	945.40	0.026748	5.62	324.10	415.02	0.96
1	14884	100 Year	TNP RevExist	3387	942.96	945.54	945.54	946.05	0.03026	7.97	648.85	702.00	1.10
1	14884	100 Year	Prop v20	3387	942.96	945.54	945.54	946.05	0.030538	8.00	646.46	700.64	1.10
1	14838	10 Year	TNP RevExist	1689	940.52	943.84	942.43	943.85	0.000452	1.31	1989.47	1288.95	0.14
1	14838	10 Year	Prop v20	1691	939.50	942.86	941.03	943.02	0.000209	3.21	526.74	750.33	0.31
1	14838	100 Year	TNP RevExist	3387	940.52	944.39	942.75	944.41	0.000682	1.33	2826.79	1337.41	0.17
1	14838	100 Year	Prop v20	3387	939.50	944.34	941.94	944.64	0.000248	4.46	759.09	1353.04	0.36
1	14680			Culvert									
1	14571	10 Year	TNP RevExist	1689	939.51	943.47	942.94	943.51	0.003191	2.66	1111.26	1262.38	0.36
1	14571	10 Year	Prop v20	1691	939.20	942.61	940.73	942.76	0.001791	3.16	534.60	1095.72	0.30
1	14571	100 Year	TNP RevExist	3387	939.51	943.80	943.18	943.89	0.004853	3.69	1501.00	1296.63	0.46
1	14571	100 Year	Prop v20	3387	939.20	943.76	941.65	944.11	0.002709	4.73	716.36	1309.96	0.39
1	14434	10 Year	TNP RevExist	1689	937.93	942.85	942.85	943.08	0.008555	5.81	729.65	1261.20	0.62
1	14434	10 Year	Prop v20	1691	937.93	942.01		942.35	0.005127	4.72	367.44	945.51	0.49
1	14434	100 Year	TNP RevExist	3387	937.93	943.29		943.48	0.007494	6.01	1305.02	1330.20	0.60
1	14434	100 Year	Prop v20	3387	937.93	943.27	942.24	943.65	0.004303	5.41	879.23	1329.24	0.48
1	14344	10 Year	TNP RevExist	1689	937.54	942.59		942.69	0.003346	4.07	992.08	1167.62	0.40
1	14344	10 Year	Prop v20	1691	937.54	941.66		941.93	0.003904	4.20	431.11	946.43	0.43
1	14344	100 Year	TNP RevExist	3387	937.54	943.06		943.18	0.004016	4.87	1565.24	1283.96	0.45
1	14344	100 Year	Prop v20	3387	937.54	942.92	941.54	943.30	0.003824	5.24	910.54	1250.94	0.45
1	14290	10 Year	TNP RevExist	1689	937.26	942.11	942.11	942.44	0.00859	6.52	567.72	1029.49	0.64
1	14290	10 Year	Prop v20	1691	937.26	940.99	940.45	941.58	0.01002	6.24	299.29	864.49	0.68
1	14290	100 Year	TNP RevExist	3387	937.26	942.46	942.46	942.89	0.012387	8.24	949.49	1102.34	0.78
1	14290	100 Year	Prop v20	3387	937.26	941.75	941.75	942.87	0.014916	8.91	451.26	969.75	0.86
1	13914	10 Year	TNP RevExist	1689	933.50	938.63		938.80	0.005658	4.38	610.35	587.26	0.50
1	13914	10 Year	Prop v20	1691	933.50	938.63		938.80	0.005661	4.38	610.78	587.43	0.50
1	13914	100 Year	TNP RevExist	3387	933.50	939.33		939.54	0.005447	5.11	1062.25	687.86	0.51
1	13914	100 Year	Prop v20	3387	933.50	939.33		939.54	0.005447	5.11	1062.25	687.86	0.51

HEC-RAS OUTPUT THROUGH CULVERT: 10 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 14680
CULV GROUP: CULVERT #1 PROFILE: 10-YEAR

Q CULV GROUP (CFS)	1691	CULV FULL LEN (FT)	
# BARRELS	11	CULV VEL US (FT/S)	4.09
Q BARREL (CFS)	153.73	CULV VEL DS (FT/S)	3.76
E.G. US (FT)	943.02	CULV INV EL UP (FT)	939.50
W.S. US (FT)	942.86	CULV INV EL DN (FT)	939.20
E.G. DS (FT)	942.76	CULV FRCTN LS (FT)	0.06
W.S. DS (FT)	942.61	CULV EXIT LOSS (FT)	0.06
DELTA EG (FT)	0.26	CULV ENTR LOSS (FT)	0.13
DELTA WS (FT)	0.25	Q WEIR (CFS)	
E.G. IC (FT)	942.23	WEIR STA LFT (FT)	
E.G. OC (FT)	943.02	WEIR STA RGT (FT)	
CULVERT CONTROL	Outlet	WEIR SUBMERG	
CULV WS INLET (FT)	942.63	WEIR MAX DEPTH (FT)	
CULV WS OUTLET (FT)	942.61	WEIR AVG DEPTH (FT)	
CULV NML DEPTH (FT)	1.93	WEIR FLOW AREA (SQ FT)	
CULV CRT DEPTH (FT)	1.72	MIN EL WEIR FLOW (FT)	945.13

HEC-RAS OUTPUT THROUGH CULVERT: 100 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 14680
CULV GROUP: CULVERT #1 PROFILE: 100-YEAR

Q CULV GROUP (CFS)	3387	CULV FULL LEN (FT)	
# BARRELS	11	CULV VEL US (FT/S)	5.95
Q BARREL (CFS)	307.91	CULV VEL DS (FT/S)	5.62
E.G. US (FT)	944.64	CULV INV EL UP (FT)	939.50
W.S. US (FT)	944.34	CULV INV EL DN (FT)	939.20
E.G. DS (FT)	944.11	CULV FRCTN LS (FT)	0.11
W.S. DS (FT)	943.76	CULV EXIT LOSS (FT)	0.14
DELTA EG (FT)	0.53	CULV ENTR LOSS (FT)	0.28
DELTA WS (FT)	0.57	Q WEIR (CFS)	
E.G. IC (FT)	943.9	WEIR STA LFT (FT)	
E.G. OC (FT)	944.64	WEIR STA RGT (FT)	
CULVERT CONTROL	Outlet	WEIR SUBMERG	
CULV WS INLET (FT)	943.81	WEIR MAX DEPTH (FT)	
CULV WS OUTLET (FT)	943.76	WEIR AVG DEPTH (FT)	
CULV NML DEPTH (FT)	3.09	WEIR FLOW AREA (SQ FT)	
CULV CRT DEPTH (FT)	2.74	MIN EL WEIR FLOW (FT)	945.13

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/202

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
HYDRAULIC DATA SHEET
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT A

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	278

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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EXISTING CONDITIONS

****

STRAIGHT CULVERT
INLET ELEVATION (INVERT): 962.84 FT, OUTLET ELEVATION (INVERT): 961.89 FT
CULVERT LENGTH: 47.76 FT, CULVERT SLOPE: 0.0199

****

SITE DATA - EXISTING CC-B
- SITE DATA OPTION: CULVERT INVERT DATA
- INLET STATION: 0.00 FT
- NLET ELEVATION: 962.84 FT
- OUTLET STATION: 47.75 FT
- OUTLET ELEVATION: 961.89 FT
- NUMBER OF BARRELS: 1

CULVERT DATA SUMMARY - EXISTING CC-B
- BARREL SHAPE: CIRCULAR
- BARREL DIAMETER: 2.00 FT
- BARREL MATERIAL: CONCRETE
- EMBEDMENT: 0.00 IN
- BARREL MANNING'S N: 0.0120
- CULVERT TYPE: STRAIGHT
- INLET CONFIGURATION: SQUARE EDGE WITH HEADWALL
- INLET DEPRESSION: NONE

TAILWATER CHANNEL DATA - EXISTING CC-B
TAILWATER CHANNEL OPTION: IRREGULAR CHANNEL
- CHANNEL SLOPE: 0.0373
- USER DEFINED CHANNEL CROSS-SECTION:

COORD NO.	STATION (FT)	ELEVATION (FT)	MANNING'S N
1	0.00	966.00	0.0350
2	131.29	965.00	0.0350
3	320.72	964.00	0.0350
4	451.03	963.00	0.0350
5	501.69	963.50	0.0350
6	519.65	963.60	0.0350
7	539.65	962.75	0.0350
8	583.70	962.21	0.0350
9	588.22	962.00	0.0350
10	590.04	961.46	0.0350
11	591.45	961.36	0.0350
12	592.70	961.41	0.0350
13	595.61	961.96	0.0350
14	599.53	962.33	0.0350
15	641.80	962.00	0.0350
16	745.00	963.00	0.0350

ROADWAY DATA FOR CROSSING: EXISTING CC-B
ROADWAY PROFILE SHAPE: IRREGULAR ROADWAY SHAPE (COORDINATES)
- IRREGULAR ROADWAY CROSS-SECTION:

COORD NO.	STATION (FT)	ELEVATION (FT)
0	0.00	968.00
1	342.32	967.00
2	481.65	966.50
3	611.82	966.00
4	680.42	965.50
5	720.00	965.00

ROADWAY SURFACE: PAVED
ROADWAY TOP WIDTH: 40.00 FT

HYDROLOGIC DATA		
DRAINAGE AREA	32.19 AC	
COMPOSITE C VALUE	0.467	
TIME OF CONCENTRATION	22.40 MIN	
FREQUENCY	INTENSITY (IN/HR)	FLOWS (CFS)
2-YEAR	3.50	53
5-YEAR	4.39	66
10-YEAR	5.15	77
25-YEAR	6.23	94
50-YEAR	7.02	106
100-YEAR	7.84	118

TABLE 1 - DOWNSTREAM CHANNEL RATING CURVE
CROSSING: EXISTING CC-B

FREQUENCY	TOTAL DISCHARGE (CFS)	WATER SURFACE ELEVATION (FT)
10 YEAR	77	962.38
100 YEAR	118	962.45

TABLE 2 - SUMMARY OF CULVERT FLOWS AT CROSSING: EXISTING CC-B

HEADWATER ELEVATION (FT)	FREQUENCY	TOTAL DISCHARGE (CFS)	CULVERT 1 DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
965.80	10 YEAR	77	20	57	4
965.98	100 YEAR	118	21	97	3
965.00	OVERTOPPING	14	14	0	OVERTOPPING

TABLE 3 - CULVERT SUMMARY TABLE: EXISTING CC-B

FREQUENCY	TOTAL DISCHARGE (CFS)	CULVERT DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	TAIWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FPS)	TAILWATER VELOCITY (FPS)
10 YEAR	77	20	965.80	959.26	2.96	2.15	5-S2n	1.10	1.62	1.20	1.02	10.25	3.06
100 YEAR	118	21	965.98	959.33	3.14	2.31	5-S2n	1.13	1.65	1.24	1.09	10.39	3.46

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. HY-8 VERSION 7.60 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0215G DATED SEPTEMBER 29, 2010.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
HYDRAULIC DATA SHEET
CROSS CULVERT B

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	279

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PROPOSED CONDITIONS

****

STRAIGHT CULVERT
INLET ELEVATION (INVERT): 958.57 FT, OUTLET ELEVATION (INVERT): 958.27 FT
CULVERT LENGTH: 101.23 FT, CULVERT SLOPE: 0.0030

****

SITE DATA - PROPOSED CC-B
SITE DATA OPTION: CULVERT INVERT DATA
INLET STATION: 0.00 FT
INLET ELEVATION: 958.57 FT
OUTLET STATION: 101.23 FT
OUTLET ELEVATION: 958.27 FT
NUMBER OF BARRELS: 1

CULVERT DATA SUMMARY - PROPOSED CC-B
BARREL SHAPE: CONCRETE BOX
BARREL SPAN: 5.00 FT
BARREL RISE: 3.00 FT
BARREL MATERIAL: CONCRETE
EMBEDMENT: 0.00 IN
BARREL MANNING'S N: 0.0120
CULVERT TYPE: STRAIGHT
INLET CONFIGURATION: SQUARE EDGE (90°$^{5}/_{64}$) HEADWALL
INLET DEPRESSION: NONE

TAILWATER CHANNEL DATA - PROPOSED CC-B
TAILWATER CHANNEL OPTION: IRREGULAR CHANNEL
CHANNEL SLOPE: 0.0030
USER DEFINED CHANNEL CROSS-SECTION:

COORD NO.	STATION (FT)	ELEVATION (FT)	MANNING'S N
1	0.00	966.00	0.0350
2	131.29	965.00	0.0350
3	320.72	964.00	0.0350
4	451.03	963.00	0.0350
5	501.69	963.50	0.0350
6	519.65	963.60	0.0350
7	539.65	962.75	0.0350
8	575.27	962.30	0.0350
9	587.45	958.24	0.0350
10	591.45	958.24	0.0350
11	595.45	958.24	0.0350
12	607.63	962.30	0.0350
13	641.80	962.00	0.0350
14	745.00	963.00	0.0350

ROADWAY DATA FOR CROSSING: PROPOSED CC-B
ROADWAY PROFILE SHAPE: IRREGULAR ROADWAY SHAPE (COORDINATES)
IRREGULAR ROADWAY CROSS-SECTION:

COORD NO.	STATION (FT)	ELEVATION (FT)
0	0.00	967.84
1	470.89	965.72
2	485.89	965.64
3	500.89	965.56
4	515.89	965.46
5	530.89	965.35
6	545.89	965.22
7	560.89	965.08
8	575.89	964.93
9	590.89	964.77
10	605.89	964.59
11	620.89	964.41
12	698.89	963.39

ROADWAY SURFACE: PAVED
ROADWAY TOP WIDTH: 85.50 FT

HYDROLOGIC DATA		
DRAINAGE AREA	32.19 AC	
COMPOSITE C VALUE	0.467	
TIME OF CONCENTRATION	22.40 MIN	
FREQUENCY	INTENSITY (IN/HR)	FLOWS (CFS)
2-YEAR	3.50	53
5-YEAR	4.39	66
10-YEAR	5.15	77
25-YEAR	6.23	94
50-YEAR	7.02	106
100-YEAR	7.84	118

TABLE 1 - DOWNSTREAM CHANNEL RATING CURVE
CROSSING: PROPOSED CC-B

FREQUENCY	TOTAL DISCHARGE (CFS)	WATER SURFACE ELEVATION (FT)
10 YEAR	77	960.20
100 YEAR	118	960.67

TABLE 2 - SUMMARY OF CULVERT FLOWS AT CROSSING: PROPOSED CC-B

HEADWATER ELEVATION (FT)	FREQUENCY	TOTAL DISCHARGE (CFS)	CULVERT 1 DISCHARGE (CFS)	ROADWAY DISCHARGE (CFS)	ITERATIONS
961.93	10 YEAR	77	77	0	1
963.39	100 YEAR	118	118	0	9
963.39	OVERTOPPING	118	118	0	OVERTOPPING

TABLE 3 - CULVERT SUMMARY TABLE: PROPOSED CC-B

FREQUENCY	TOTAL DISCHARGE (CFS)	CULVERT DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	TAILWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FPS)	TAILWATER VELOCITY (FPS)
10 YEAR	77	77	961.93	960.20	3.33	3.36	7-M2c	2.09	1.95	1.95	1.96	7.92	2.82
100 YEAR	118	118	963.39	960.67	4.82	4.45	7-M2c	2.88	2.59	2.59	2.43	9.12	3.17

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. HY-8 VERSION 7.60 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0215G DATED SEPTEMBER 29, 2010.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

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tnp
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FM 1560
HYDRAULIC DATA SHEET
CROSS CULVERT B

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

280

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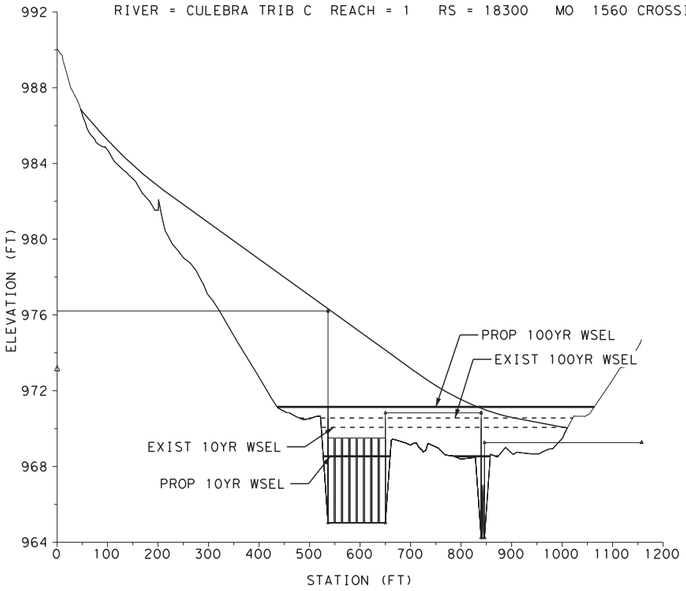
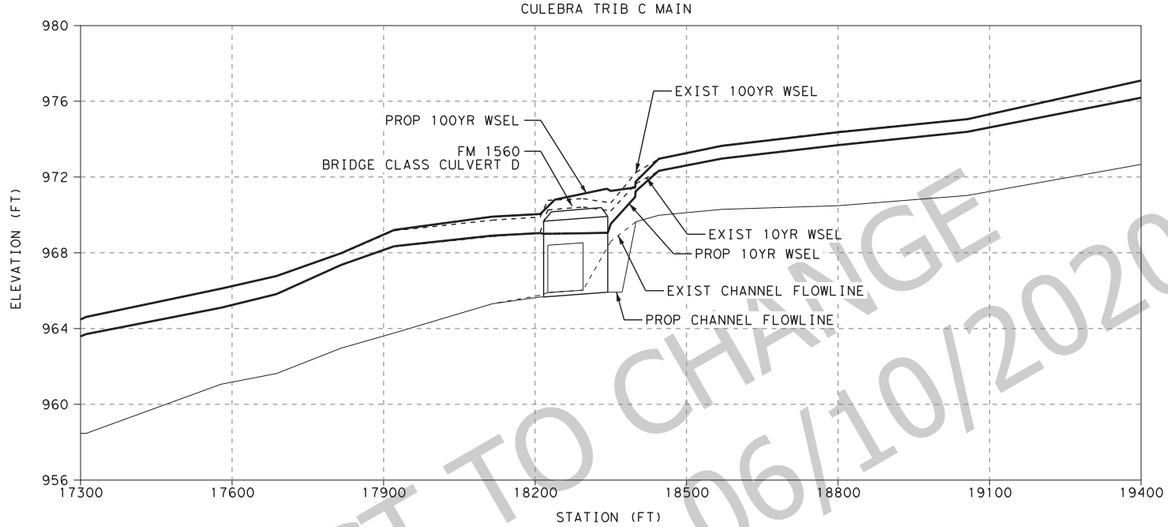
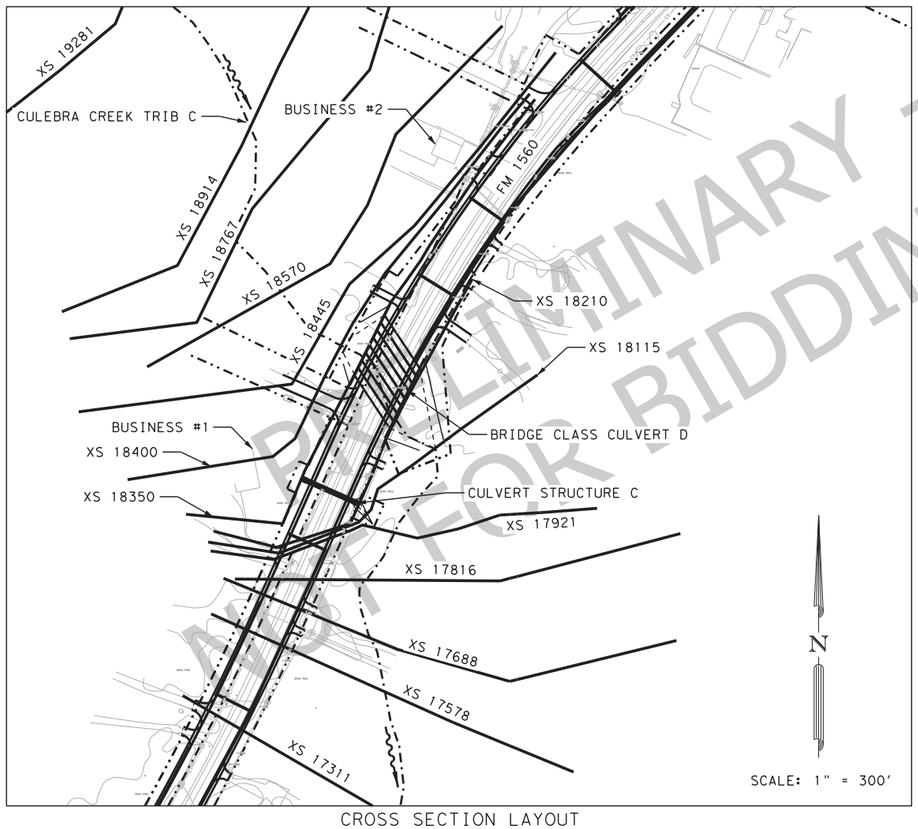


HEC-RAS CROSS SECTION OUTPUT



HEC-RAS PROFILE OUTPUT



CROSS SECTION LAYOUT

BCC-D PROPOSED VS EXISTING CAPACITY		
	EXISTING	PROPOSED
STRUCTURE TYPE	3-30" CMP	8-12'X4' MBC
MIN TOP OF ROAD (FT)	968.64	970.16
Q10 (CFS)	1774	1775
US WSEL (FT)	970.21	969.53
Q100 (CFS)	3305	3308
US WSEL (FT)	970.63	971.27

CC-C PROPOSED VS EXISTING CAPACITY		
	EXISTING	PROPOSED
STRUCTURE TYPE	2-24" CMP	2-30" RCP
MIN TOP OF ROAD (FT)	968.64	970.16
Q10 (CFS)	1774	1775
US WSEL (FT)	970.21	969.53
Q100 (CFS)	3305	3308
US WSEL (FT)	970.63	971.27

NOTES:

1. HEC-RAS 5.0.7 USED FOR HYDRAULIC ANALYSIS.
2. BRIDGE CLASS CULVERT D AND CULVERT STRUCTURE C WERE MODELED IN HEC-RAS AS A MULTIPLE OPENING.
2. N VALUE (CHANNEL) = 0.015-0.05
   N VALUE (OVER BANKS) = 0.07
3. CROSS SECTION GEOMETRY WAS BASED OFF OF HORIZONTAL DATUM NAD 83 AND VERTICAL DATUM NAVD 88.
4. THE D/S BOUNDARY CONDITION WAS SET AT A NORMAL DEPTH SLOPE OF 0.01.
5. THIS CROSSING LOCATION IS LOCATED IN A FEMA DESIGNATED ZONE "A" AS SHOWN ON MAP PANEL 48029C0215G EFFECTIVE SEPTEMBER 29, 2010.
7. REFER TO DRAINAGE AREA MAP FOR ADDITIONAL INFORMATION.
8. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____.
9. TWO (2) STRUCTURES ARE LOCATED WITHIN THE FEMA LIMITS NEAR THE PROJECT LOCATION. FINISHED FLOOR ELEVATIONS (FFE) WILL BE FIELD SURVEYED FOR EACH STRUCTURE AND CROSS-SECTIONS WERE INCLUDED IN THE HYDRAULIC MODEL AT THE STRUCTURE LOCATIONS. THE FOLLOWING TABLE COMPARES THE FINISHED FLOOR ELEVATIONS TO THE 100-YEAR WSEL AT EACH STRUCTURE IN THE PROPOSED CONDITIONS:

RIVER STA	STRUCTURE TYPE	FFE	100-YR WSEL
18570	BUSINESS #1		973.65
18400	BUSINESS #2		971.77

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

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FM 1560
HYDRAULIC DATA SHEET
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT D
AND CROSS CULVERT C

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	281

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT:

REACH	RIVER STA	PROFILE	PLAN	Q TOTAL (CFS)	MIN CH EL (FT)	W.S. ELEV (FT)	CRIT W.S. (FT)	E.G. ELEV (FT)	E.G. SLOPE (FT/FT)	VEL CHNL (FT/S)	FLOW AREA (SQ FT)	TOP WIDTH (FT)	FROUDE # CHL
1	19281	10 Year	TNP RevExist	1518	972.78	976.31	976.03	976.87	0.019636	6.63	321.80	253.24	0.72
1	19281	10 Year	Prop v20	1518	972.78	976.31	976.03	976.87	0.019739	6.64	321.05	252.86	0.72
1	19281	100 Year	TNP RevExist	2711	972.78	977.23	976.89	977.80	0.01552	7.19	588.75	318.87	0.67
1	19281	100 Year	Prop v20	2711	972.78	977.23	976.89	977.80	0.015444	7.18	589.94	319.17	0.67
1	18914	10 Year	TNP RevExist	1518	971.03	974.39		974.46	0.002763	2.90	754.12	408.23	0.30
1	18914	10 Year	Prop v20	1518	971.03	974.39		974.46	0.00275	2.89	755.31	408.36	0.30
1	18914	100 Year	TNP RevExist	2711	971.03	975.06		975.18	0.003427	3.71	1045.23	444.61	0.34
1	18914	100 Year	Prop v20	2711	971.03	975.05		975.18	0.003448	3.72	1043.00	444.48	0.35
1	18767	10 Year	TNP RevExist	1518	970.49	973.69		973.83	0.005537	3.90	669.85	535.29	0.42
1	18767	10 Year	Prop v20	1518	970.49	973.69		973.83	0.00554	3.91	669.72	535.28	0.42
1	18767	100 Year	TNP RevExist	2711	970.49	974.40		974.54	0.004876	4.27	1070.95	591.16	0.41
1	18767	100 Year	Prop v20	2711	970.49	974.37		974.52	0.005065	4.33	1057.04	590.26	0.41
1	18570	10 Year	TNP RevExist	1518	970.30	972.98		973.06	0.003747	3.27	742.59	451.61	0.37
1	18570	10 Year	Prop v20	1518	970.30	972.97		973.06	0.003776	3.28	740.66	451.32	0.37
1	18570	100 Year	TNP RevExist	2711	970.30	973.66		973.79	0.004496	4.23	1081.02	540.52	0.42
1	18570	100 Year	Prop v20	2711	970.30	973.65		973.77	0.004316	4.13	1072.61	540.15	0.41
1	18445	10 Year	TNP RevExist	1518	969.98	972.33		972.44	0.006373	3.63	636.06	483.59	0.46
1	18445	10 Year	Prop v20	1518	969.98	972.33		972.46	0.005803	3.86	638.84	484.19	0.49
1	18445	100 Year	TNP RevExist	2711	969.98	972.96		973.12	0.006165	4.33	957.40	521.62	0.48
1	18445	100 Year	Prop v20	2711	969.98	972.96		973.14	0.005715	4.63	958.29	521.70	0.51
1	18400	10 Year	TNP RevExist	1774	969.64	971.65	970.95	971.79	0.009678	3.59	617.93	501.17	0.54
1	18400	10 Year	Prop v20	1775	969.64	971.27	970.95	971.52	0.023965	4.54	448.85	404.84	0.81
1	18400	100 Year	TNP RevExist	3305	969.64	972.25	971.45	972.47	0.011024	4.88	947.92	588.13	0.61
1	18400	100 Year	Prop v20	3308	969.64	971.77	971.45	972.19	0.026721	6.32	681.12	537.23	0.91
1	18350	10 Year	TNP RevExist	1774	968.61	970.21	970.21	970.61	0.069524	5.58	349.85	430.49	1.27
1	18350	10 Year	Prop v20	1775	965.92	969.53	967.78	969.79	0.003302	4.02	438.14	391.91	0.37
1	18350	100 Year	TNP RevExist	3305	968.61	970.63	970.63	971.22	0.060563	6.91	540.51	485.10	1.27
1	18350	100 Year	Prop v20	3308	965.92	971.27	968.76	971.39	0.001443	3.36	1409.72	618.41	0.26
1	18300			Mult Open									
1	18210	10 Year	TNP RevExist	1774	965.76	969.08	968.13	969.21	0.00466	3.46	662.69	487.50	0.41
1	18210	10 Year	Prop v20	1775	965.67	969.04	967.52	969.34	0.00211	4.39	410.12	359.75	0.42
1	18210	100 Year	TNP RevExist	3305	965.76	969.89	968.87	970.05	0.003652	3.77	1093.42	561.53	0.38
1	18210	100 Year	Prop v20	3308	965.67	970.05	968.50	970.28	0.001555	4.43	1084.02	468.14	0.38
1	18115	10 Year	TNP RevExist	1774	965.31	968.86	967.90	968.98	0.004244	3.63	690.46	414.63	0.40
1	18115	10 Year	Prop v20	1775	965.31	968.91	967.91	969.04	0.004752	3.89	650.13	322.51	0.42
1	18115	100 Year	TNP RevExist	3305	965.31	969.72	968.45	969.88	0.003474	3.98	1117.44	555.06	0.38
1	18115	100 Year	Prop v20	3308	965.31	969.91	968.47	970.11	0.004549	4.72	1006.07	455.67	0.44
1	17921	10 Year	TNP RevExist	1774	963.77	968.33	966.76	968.52	0.00301	3.71	608.48	322.26	0.35
1	17921	10 Year	Prop v20	1775	963.77	968.35	966.76	968.54	0.003028	3.74	603.27	305.78	0.35
1	17921	100 Year	TNP RevExist	3305	963.77	969.17	967.98	969.44	0.003713	4.76	956.17	519.60	0.41
1	17921	100 Year	Prop v20	3308	963.77	969.21	967.96	969.53	0.004143	5.06	889.17	399.44	0.43
1	17816	10 Year	TNP RevExist	1774	962.97	967.36	967.36	967.90	0.012701	7.54	444.38	354.81	0.72
1	17816	10 Year	Prop v20	1775	962.97	967.36	967.36	967.92	0.012973	7.62	439.29	339.99	0.73
1	17816	100 Year	TNP RevExist	3305	962.97	967.97	967.97	968.69	0.015695	9.35	663.86	396.49	0.82
1	17816	100 Year	Prop v20	3308	962.97	967.98	967.98	968.72	0.01594	9.44	657.98	361.59	0.83
1	17688	10 Year	TNP RevExist	1774	961.63	965.82	965.06	966.02	0.006484	5.21	671.17	393.70	0.48
1	17688	10 Year	Prop v20	1775	961.63	965.82	964.96	966.02	0.006474	5.20	671.85	393.77	0.48
1	17688	100 Year	TNP RevExist	3305	961.63	966.78	965.79	967.01	0.006175	5.92	1077.54	453.18	0.48
1	17688	100 Year	Prop v20	3308	961.63	966.78	965.81	967.01	0.006174	5.92	1078.26	453.22	0.48
1	17578	10 Year	TNP RevExist	1774	961.06	965.10	964.35	965.27	0.006851	5.18	684.83	388.42	0.48
1	17578	10 Year	Prop v20	1775	961.06	965.10	964.34	965.28	0.006804	5.17	686.87	388.78	0.47
1	17578	100 Year	TNP RevExist	3305	961.06	966.10	964.97	966.31	0.006341	5.85	1106.32	444.35	0.48
1	17578	100 Year	Prop v20	3308	961.06	966.11	964.97	966.31	0.00634	5.85	1107.06	444.44	0.48
1	17311	10 Year	TNP RevExist	1774	958.47	963.71		963.88	0.00482	4.30	703.67	387.07	0.40
1	17311	10 Year	Prop v20	1775	958.47	963.71		963.88	0.00482	4.30	703.95	387.17	0.40
1	17311	100 Year	TNP RevExist	3305	958.47	964.61		964.86	0.005723	5.44	1082.39	444.99	0.46
1	17311	100 Year	Prop v20	3308	958.47	964.61		964.86	0.005726	5.44	1082.94	445.06	0.46

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
HYDRAULIC DATA SHEET
CULEBRA CREEK TRIB C BRIDGE CLASS CULVERT D AND CROSS CULVERT C

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	282

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT THROUGH BCC-D CULVERT: 10 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 18300
OPEN#1: CULVERT #1 PROFILE: 10-YEAR

Q CULV GROUP (CFS)	1743.06	CULV FULL LEN (FT)	
# BARRELS	8	CULV VEL US (FT/S)	5.79
Q BARREL (CFS)	217.88	CULV VEL DS (FT/S)	5.45
E.G. US (FT)	969.79	CULV INV EL UP (FT)	965.92
W.S. US (FT)	969.50	CULV INV EL DN (FT)	965.67
E.G. DS (FT)	969.33	CULV FRCTN LS (FT)	0.11
W.S. DS (FT)	969.00	CULV EXIT LOSS (FT)	0.13
DELTA EG (FT)	0.45	CULV ENTR LOSS (FT)	0.21
DELTA WS (FT)	0.50	Q WEIR (CFS)	
E.G. IC (FT)	969.41	WEIR STA LFT (FT)	
E.G. OC (FT)	969.79	WEIR STA RGT (FT)	
CULVERT CONTROL	Outlet	WEIR SUBMERG	
CULV WS INLET (FT)	969.06	WEIR MAX DEPTH (FT)	
CULV WS OUTLET (FT)	969.00	WEIR AVG DEPTH (FT)	
CULV NML DEPTH (FT)	2.47	WEIR FLOW AREA (SQ FT)	
CULV CRT DEPTH (FT)	2.17	MIN EL WEIR FLOW (FT)	972.58

HEC-RAS OUTPUT THROUGH BCC-D CULVERT: 100 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 18300
OPEN#1: CULVERT #1 PROFILE: 100-YEAR

Q CULV GROUP (CFS)	2999.81	CULV FULL LEN (FT)	
# BARRELS	8	CULV VEL US (FT/S)	8.21
Q BARREL (CFS)	374.98	CULV VEL DS (FT/S)	8.01
E.G. US (FT)	971.38	CULV INV EL UP (FT)	965.92
W.S. US (FT)	971.14	CULV INV EL DN (FT)	965.67
E.G. DS (FT)	970.28	CULV FRCTN LS (FT)	0.21
W.S. DS (FT)	969.57	CULV EXIT LOSS (FT)	0.28
DELTA EG (FT)	1.10	CULV ENTR LOSS (FT)	0.61
DELTA WS (FT)	1.57	Q WEIR (CFS)	
E.G. IC (FT)	971.38	WEIR STA LFT (FT)	
E.G. OC (FT)	971.19	WEIR STA RGT (FT)	
CULVERT CONTROL	Inlet	WEIR SUBMERG	
CULV WS INLET (FT)	969.73	WEIR MAX DEPTH (FT)	
CULV WS OUTLET (FT)	969.57	WEIR AVG DEPTH (FT)	
CULV NML DEPTH (FT)	3.60	WEIR FLOW AREA (SQ FT)	
CULV CRT DEPTH (FT)	3.12	MIN EL WEIR FLOW (FT)	972.58

HEC-RAS OUTPUT THROUGH CC-C CULVERT: 10 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 18300
OPEN#2: CULVERT #2 PROFILE: 10-YEAR

Q CULV GROUP (CFS)	31.94	CULV FULL LEN (FT)	102.70
# BARRELS	2	CULV VEL US (FT/S)	3.25
Q BARREL (CFS)	15.97	CULV VEL DS (FT/S)	3.25
E.G. US (FT)	969.74	CULV INV EL UP (FT)	965.21
W.S. US (FT)	969.74	CULV INV EL DN (FT)	964.90
E.G. DS (FT)	969.34	CULV FRCTN LS (FT)	0.16
W.S. DS (FT)	969.34	CULV EXIT LOSS (FT)	0.16
DELTA EG (FT)	0.40	CULV ENTR LOSS (FT)	0.08
DELTA WS (FT)	0.40	Q WEIR (CFS)	
E.G. IC (FT)	967.20	WEIR STA LFT (FT)	
E.G. OC (FT)	969.74	WEIR STA RGT (FT)	
CULVERT CONTROL	Outlet	WEIR SUBMERG	
CULV WS INLET (FT)	967.71	WEIR MAX DEPTH (FT)	
CULV WS OUTLET (FT)	967.40	WEIR AVG DEPTH (FT)	
CULV NML DEPTH (FT)		WEIR FLOW AREA (SQ FT)	
CULV CRT DEPTH (FT)	1.35	MIN EL WEIR FLOW (FT)	970.40

HEC-RAS OUTPUT THROUGH CC-C CULVERT: 100 YEAR EVENT

PLAN: PROP V20 RIVER: CULEBRA TRIB C REACH: 1 RS: 18300
OPEN#2: CULVERT #2 PROFILE: 100-YEAR

Q CULV GROUP (CFS)	53.06	CULV FULL LEN (FT)	102.70
# BARRELS	2	CULV VEL US (FT/S)	5.40
Q BARREL (CFS)	26.53	CULV VEL DS (FT/S)	5.40
E.G. US (FT)	971.39	CULV INV EL UP (FT)	965.21
W.S. US (FT)	971.38	CULV INV EL DN (FT)	964.90
E.G. DS (FT)	970.28	CULV FRCTN LS (FT)	0.43
W.S. DS (FT)	970.28	CULV EXIT LOSS (FT)	0.44
DELTA EG (FT)	1.10	CULV ENTR LOSS (FT)	0.23
DELTA WS (FT)	1.11	Q WEIR (CFS)	255.13
E.G. IC (FT)	971.29	WEIR STA LFT (FT)	832.89
E.G. OC (FT)	971.39	WEIR STA RGT (FT)	1063.62
CULVERT CONTROL	Outlet	WEIR SUBMERG	0.00
CULV WS INLET (FT)	967.71	WEIR MAX DEPTH (FT)	0.99
CULV WS OUTLET (FT)	967.40	WEIR AVG DEPTH (FT)	0.54
CULV NML DEPTH (FT)		WEIR FLOW AREA (SQ FT)	123.84
CULV CRT DEPTH (FT)	1.76	MIN EL WEIR FLOW (FT)	970.40

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
HYDRAULIC DATA SHEET
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT D
AND CROSS CULVERT C

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	283

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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EXISTING 3 - 24" x 36" ARCH PIPE AT CC-E - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
BCC-E-L	EXISTING 3 - 24" x 36" ARCH PIPE	Special	BCC-E	E-OUT	997.82	997.42	3	0	2	46	0.87	85.02	6.47	1001.04	998.63
BCC-E-L-RD	FLOW ACROSS FM 1560	Natural	BCC-E	E-OUT	1000.64	1000.64	1	0	5	46	0.00	90.19	1.54	1001.04	1000.92

EXISTING 3 - 24" x 36" ARCH PIPE AT CC-E - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
BCC-E-L	EXISTING 3 - 24" x 36" ARCH PIPE	Special	BCC-E	E-OUT	997.82	997.42	3	0	2	46	0.87	88.13	6.65	1001.15	998.78
BCC-E-L-RD	FLOW ACROSS FM 1560	Natural	BCC-E	E-OUT	1000.64	1000.64	1	0	5	46	0.00	170.25	1.96	1001.15	1001.03

PROPOSED 3-4'X4' MBC AT CC-E - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
BCC-E-L	CULVERT E	Rectangular	BCC-E	E-OUT2	997.67	997.36	3	4	4	103.76	0.30	131.49	4.41	1000.30	998.56
BCC-E-L-RD	FLOW ACROSS FM 1560	Natural	BCC-E	E-OUT2	1003.60	1003.60	1	0	4	100.14	0.00	0.00	0.00	1000.30	998.56

PROPOSED 3-4'X4' MBC AT CC-E - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
BCC-E-L	CULVERT E	Rectangular	BCC-E	E-OUT2	997.67	997.36	3	4	4	103.76	0.30	201.06	5.10	1001.18	998.69
BCC-E-L-RD	FLOW ACROSS FM 1560	Natural	BCC-E	E-OUT2	1003.60	1003.60	1	0	4	100.14	0.00	0.00	0.00	1001.18	998.69

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0215G DATED SEPTEMBER 29, 2010

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
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FM 1560
HYDRAULIC DATA SHEET
CROSS CULVERT E

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	284

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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EXISTING FLOW OVER FM 1560 ROADWAY AT CC-F - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-F-L	FLOW ACROSS FM 1560	Trapezoidal	CC-F	F1-OUT	1024.25	1023.75	1	20	1	40	1.25	43.17	4.35	1024.58	1024.08
F-SWM-1R-L	FLOW ACROSS FM 1560	Trapezoidal	F-SWM-1	F1-OUT2	1023.23	1022.75	1	20	1	40	1.20	13.79	2.72	1023.40	1022.92

EXISTING FLOW OVER FM 1560 ROADWAY AT CC-F - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-F-L	FLOW ACROSS FM 1560	Trapezoidal	CC-F	F1-OUT	1024.25	1023.75	1	20	1	40	1.25	72.45	5.05	1024.68	1024.18
F-SWM-1R-L	FLOW ACROSS FM 1560	Trapezoidal	F-SWM-1	F1-OUT2	1023.23	1022.75	1	20	1	40	1.20	23.53	3.17	1023.45	1022.97

PROPOSED 5'X3' RCB AT CC-F - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-F-L	CULVERT FROM WEST DITCH TO MANHOLE F1-OUT	Rectangular	CC-F	F1-OUT	1020.68	1020.50	1	5	3	91.83	0.20	60.39	6.52	1022.54	1022.28
F1-OUTF-L	CULVERT FROM MANHOLE F1-OUT TO EAST DITCH	Rectangular	F1-OUT	F1-OUT1	1020.50	1020.47	1	5	3	13.12	0.21	57.90	6.51	1022.28	1022.24

PROPOSED 5'X3' RCB AT CC-F - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-F-L	CULVERT FROM WEST DITCH TO MANHOLE F1-OUT	Rectangular	CC-F	F1-OUT	1020.68	1020.50	1	5	3	91.83	0.20	92.08	8.41	1022.89	1022.53
F1-OUTF-L	CULVERT FROM MANHOLE F1-OUT TO EAST DITCH	Rectangular	F1-OUT	F1-OUT1	1020.50	1020.47	1	5	3	13.12	0.20	99.47	9.84	1022.53	1022.45

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0215G DATED SEPTEMBER 29, 2010.

SUBJECT TO CHANGE
PROPOSES - 06/10/2020
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
CROSS CULVERT F

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

285

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EXISTING FLOW OVER FM 1560 ROADWAY AT BCC-H1 - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
L-3TO3EAST-RDWY	FLOW ACROSS FM 1560	Trapezoidal	H1-SWM-3	H1-SWM-3EAST	1003.70	1003.65	1	50	4	40	0.13	18.08	1.40	1003.92	1003.80
L-3	OVERFLOW TO CULVERT BCC-H2	Trapezoidal	H1-SWM-3	H1-SWM-2	1002.25	1000.25	1	20	4	221	0.91	553.35	3.32	1003.92	1002.00

EXISTING FLOW OVER FM 1560 ROADWAY AT BCC-H1 - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
L-3TO3EAST-RDWY	FLOW ACROSS FM 1560	Trapezoidal	H1-SWM-3	H1-SWM-3EAST	1003.70	1003.65	1	50	4	40	0.00	85.82	2.43	1004.18	1004.03
L-3	OVERFLOW TO CULVERT BCC-H2	Trapezoidal	H1-SWM-3	H1-SWM-2	1002.25	1000.25	1	20	4	221	0.91	783.45	3.61	1004.18	1002.28

PROPOSED 4-6'X3' MBC AT BCC-H1 - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-H-L	CULVERT FROM WEST DITCH TO CURB INLET H1-03-CI	Rectangular	CC-H	H1-03-CI	995.99	995.96	4	6	3	6.25	0.40	518.23	7.17	1001.09	1000.43
H1-03-L	CULVERT FROM CURB INLET H1-03-CI TO CURB INLET H1-04-CI	Rectangular	H1-03-CI	H1-04-CI	995.96	995.66	4	6	3	75	0.40	520.46	7.21	1000.45	1000.18
H1-04-L	CULVERT FROM CURB INLET H1-04-CI TO EAST DITCH	Rectangular	H1-04-CI	H1-04A-J	995.66	995.61	4	6	3	11.66	0.40	530.38	7.35	1000.18	998.78
Link385	FLOW ACROSS FM 1560	Trapezoidal	CC-H	H1-04A-J	1002.43	1002.37	1	0	4	102	0.06	0.00	0.00	1001.09	998.78
Link387	OVERFLOW TO CULVERT BCC-H2	Trapezoidal	H1-SWM-3	H1-SWM-2	1002.25	1000.25	1	20	4	150	0.00	53.65	1.68	1002.81	1001.73

PROPOSED 4-6'X3' MBC AT BCC-H1 - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-H-L	CULVERT FROM WEST DITCH TO CURB INLET H1-03-CI	Rectangular	CC-H	H1-03-CI	995.99	995.96	4	6	3	6.25	0.40	661.31	9.13	1002.98	1002.46
H1-03-L	CULVERT FROM CURB INLET H1-03-CI TO CURB INLET H1-04-CI	Rectangular	H1-03-CI	H1-04-CI	995.96	995.66	4	6	3	75	0.40	663.82	9.17	1002.46	1001.54
H1-04-L	CULVERT FROM CURB INLET H1-04-CI TO EAST DITCH	Rectangular	H1-04-CI	H1-04A-J	995.66	995.61	4	6	3	11.66	0.40	677.76	9.37	1001.54	999.38
Link385	FLOW ACROSS FM 1560	Trapezoidal	CC-H	H1-04A-J	1002.43	1002.37	1	0	4	102	0.06	21.22	1.49	1002.98	1002.77
Link387	OVERFLOW TO CULVERT BCC-H2	Trapezoidal	H1-SWM-3	H1-SWM-2	1002.25	1000.25	1	20	4	150	0.00	183.52	2.55	1003.22	1001.97

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0205G DATED SEPTEMBER 29, 2010.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
HYDRAULIC DATA SHEET
BRIDGE CLASS CULVERT H1

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 286

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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EXISTING 18" CMP AT BCC-H2 - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
L-1-EAST	18" CMP UNDER FM 1560	Circular	H1-SWM-1	G2-SWM-4	997.11	996.33	1	0	1.5	82.5	0.95	9.82	5.62	1000.41	998.42
L-3TO4-RD	FLOW ACROSS FM 1560	Trapezoidal	G2-SWM-3	G2-SWM-4	999.50	999.45	1	100	4	40	0.13	296.17	3.31	1000.18	1000.03

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
4. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.
5. THIS CROSSING IS LOCATED OUTSIDE A FEMA FLOODPLAIN IN ZONE "X", AREA OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, AS SHOWN ON FIRM PANEL 48029C0215G DATED SEPTEMBER 29, 2010.

EXISTING 18" CMP AT BCC-H2 - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
L-1-EAST	18" CMP UNDER FM 1560	Circular	H1-SWM-1	G2-SWM-4	997.11	996.33	1	0	1.5	82.5	0.95	9.82	5.62	1000.60	998.68
L-3TO4-RD	FLOW ACROSS FM 1560	Trapezoidal	G2-SWM-3	G2-SWM-4	999.50	999.45	1	100	4	40	0.00	516.32	3.94	1000.41	1000.26

PROPOSED 3-6'X3' MBC AT BCC-H2 - 10-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-H2-L	CULVERT FROM WEST DITCH TO CURB INLET H1-01-CI	Rectangular	CC-H2	H1-01-CI	993.90	993.88	3	6	3	6.25	0.30	207.24	3.83	998.59	998.41
H1-01-L	CULVERT FROM CURB INLET H1-01-CI TO CURB INLET H1-02-CI	Rectangular	H1-01-CI	H1-02-CI	993.88	993.66	3	6	3	75	0.30	210.33	3.89	998.41	998.34
H1-02-L	CULVERT FROM CURB INLET H1-02-CI TO EAST DITCH	Rectangular	H1-02-CI	H1-02A-J	993.66	993.63	3	6	3	10.42	0.30	213.60	3.94	998.33	998.06
Link386	FLOW ACROSS FM 1560	Trapezoidal	CC-H2	H1-02A-J	1000.35	1000.00	1	50	4	112	0.31	0.00	0.00	998.59	998.06

PROPOSED 3-6'X3' MBC AT BCC-H2 - 100-YEAR XP-STORM RESULTS

LINK NAME	DESCRIPTION	SHAPE	UPSTREAM NODE NAME	DOWNSTREAM NODE NAME	UPSTREAM INVERT ELEVATION (FT)	DOWNSTREAM INVERT ELEVATION (FT)	NUMBER OF BARRELS	BOTTOM WIDTH (FT)	DIAMETER HEIGHT (FT)	LENGTH (FT)	CONDUIT SLOPE (%)	MAX FLOW (CFS)	MAX VELOCITY (FT/S)	MAXIMUM WATER ELEVATION UPSTREAM (FT)	MAXIMUM WATER ELEVATION DOWNSTREAM (FT)
CC-H2-L	CULVERT FROM WEST DITCH TO CURB INLET H1-01-CI	Rectangular	CC-H2	H1-01-CI	993.90	993.88	3	6	3	6.25	0.30	403.39	7.43	1000.35	999.79
H1-01-L	CULVERT FROM CURB INLET H1-01-CI TO CURB INLET H1-02-CI	Rectangular	H1-01-CI	H1-02-CI	993.88	993.66	3	6	3	75	0.30	406.98	7.50	999.79	999.44
H1-02-L	CULVERT FROM CURB INLET H1-02-CI TO EAST DITCH	Rectangular	H1-02-CI	H1-02A-J	993.66	993.63	3	6	3	10.42	0.30	410.59	7.57	999.44	998.36
Link386	FLOW ACROSS FM 1560	Trapezoidal	CC-H2	H1-02A-J	1000.35	1000.00	1	100	4	112	0.31	0.00	0.00	1000.35	998.36

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
HYDRAULIC DATA SHEET
BRIDGE CLASS CULVERT H2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	287

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PAYNES GRAY EXISTING XP-STORM RESULTS

LINK ID	NODE ID		FLOWLINE ELEVATION		SHAPE	NUMBER OF BARRELS	SPAN (FT)	RISE (FT)	LENGTH (FT)	SLOPE (FT/FT)	N VALUE	CAPACITY (CFS)	10-YR FREQUENCY				100-YR FREQUENCY				COMMENTS
													MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	
	US	DS	US (FT)	DS (FT)									US (FT)	DS (FT)			US (FT)	DS (FT)			
SYSTEM E																					
BCC-E-L	BCC-E	E-OUT	997.82	997.42	Special	3	0.0	2.0	46.00	0.87	0.024	18.44	1001.04	998.63	6.47	85.02	1001.15	998.78	6.65	88.13	EXIST CULVERT CC-E
BCC-E-L-RD	BCC-E	E-OUT	1000.64	1000.64	Natural	1	0.0	5.0	46.00	0.00	0.015	1476.30	1001.04	1000.92	1.54	90.19	1001.15	1001.03	1.96	170.25	ROADWAY FLOW AT CC-E
BCC-E2-L	BCC-E2	BCC-E	1001.75	997.82	Natural	1	0.0	5.0	30.00	13.10	0.050	18793.76	1002.61	1001.04	2.99	129.37	1002.82	1001.15	3.66	197.90	
BCC-E3-L	BCC-E3	BCC-E2	1002.06	1001.75	Natural	1	0.0	4.0	44.00	0.70	0.050	2999.87	1003.12	1002.61	1.90	129.42	1003.30	1002.82	2.21	197.93	
E1-SWM-1-L	E1-SWM-1	BCC-E	999.50	999.25	Natural	1	0.0	3.0	52.67	0.47	0.035	285.47	1001.04	1001.04	0.99	6.29	1001.16	1001.15	0.94	9.51	
E2-SWM-1-L	E2-SWM-1	E2-SWM-6	1018.50	1015.00	Natural	1	0.0	1.0	202.17	1.73	0.035	122.57	1019.24	1015.58	1.94	34.06	1019.28	1015.66	2.11	43.27	
E2-SWM-2-L	E2-SWM-2	E2-SWM-1	1020.75	1018.50	Trapezoidal	1	80.0	1.0	186.52	1.21	0.015	1034.47	1020.89	1019.24	1.84	34.05	1020.91	1019.28	2.09	43.30	
E2-SWM-2R-L	E2-SWM-2	E2-SWM-3	1021.00	1020.50	Trapezoidal	1	20.0	1.0	40.00	1.25	0.015	716.17	1020.89	1019.50	0.00	0.00	1020.91	1019.50	0.00	0.00	
E2-SWM-3-L	E2-SWM-3	E2-SWM-4	1019.50	1013.00	Natural	1	0.0	2.0	341.18	1.91	0.035	255.51	1019.50	1013.00	0.00	0.00	1019.50	1013.00	0.00	0.00	
E2-SWM-4-L	E2-SWM-4	E2-SWM-5	1013.00	1011.00	Trapezoidal	1	20.0	2.0	83.66	2.39	0.015	2395.62	1013.10	1011.77	1.29	6.40	1013.12	1011.92	1.48	9.59	
E2-SWM-5-L	E2-SWM-5	E-OUT	1011.00	1000.00	Natural	1	0.0	2.0	275.60	3.99	0.035	217.18	1011.77	1000.77	4.40	8.54	1011.92	1000.92	4.40	13.06	
E2-SWM-6-L	E2-SWM-6	BCC-E	1015.00	1001.00	Natural	1	0.0	2.0	412.71	3.39	0.015	940.41	1015.58	1001.58	10.04	39.65	1015.66	1001.66	10.87	51.92	
E-OUT-L	E-OUT	E-OUT2	997.42	997.61	Natural	1	0.0	5.0	53.87	-0.35	0.050	7621.76	998.63	998.47	0.94	183.67	998.78	998.61	1.11	271.03	
E-OUT2-L	E-OUT2	E-OUT3	997.61	996.80	Natural	1	0.0	5.0	55.00	1.47	0.050	15984.40	998.47	998.19	1.40	183.53	998.61	998.31	1.60	270.92	
E-OUT3-L	E-OUT3	E-OUT4	996.80	996.08	Natural	1	0.0	5.0	93.00	0.77	0.050	9429.60	998.19	997.06	1.44	183.36	998.31	997.17	1.65	270.83	
E-OUT4-L	E-OUT4	E-OUT5	996.08	993.37	Natural	1	0.0	5.0	117.00	2.32	0.050	15514.54	997.06	994.21	2.15	183.27	997.17	994.30	2.44	270.76	SYSTEM E OUTFALL
F-SWM-2-L	F-SWM-2	E2-SWM-2	1022.50	1020.50	Natural	1	0.0	1.5	235.64	0.85	0.035	172.83	1023.41	1020.89	1.73	28.04	1023.46	1020.91	1.82	34.03	
SYSTEM F																					
CC-F-L	CC-F	F1-OUT	1024.25	1023.75	Trapezoidal	1	20.0	1.0	40.00	1.25	0.015	406.79	1024.58	1024.08	4.35	43.17	1024.68	1024.18	5.05	72.45	ROADWAY FLOW AT CC-F
CC-F-E-L	CC-F	F-SWM-1	1023.75	1022.75	Natural	1	0.0	1.5	118.00	0.85	0.035	281.28	1024.58	1023.40	1.85	41.69	1024.68	1023.45	1.97	57.25	
CC-F1-L	CC-F1	CC-F	1028.00	1023.75	Natural	1	0.0	7.0	285.00	1.49	0.050	17675.44	1028.89	1024.58	1.57	61.17	1029.03	1024.68	1.63	93.36	
F1-OUT-L	F1-OUT	F1-OUT2	1022.00	1020.00	Trapezoidal	1	30.0	1.0	131.62	1.52	0.050	189.70	1022.34	1020.42	1.45	22.52	1022.45	1020.54	1.68	36.87	
F1-OUT1-OF-L	F1-OUT	F1-OUT3	1022.00	1017.00	Trapezoidal	1	30.0	1.0	225.00	2.22	0.050	229.41	1022.34	1017.31	1.72	25.51	1022.45	1017.41	2.02	42.55	SYSTEM F OUTFALL
F1-OUT2-L	F1-OUT2	F1-OUT3	1020.00	1017.00	Trapezoidal	1	30.0	1.0	120.59	2.49	0.050	242.73	1020.42	1017.31	1.90	36.30	1020.54	1017.41	2.21	60.39	SYSTEM F OUTFALL
F-SWM-1-L	F-SWM-1	F-SWM-2	1023.00	1022.50	Trapezoidal	1	30.0	1.5	75.53	0.66	0.015	1018.84	1023.40	1023.41	1.38	28.07	1023.45	1023.46	1.37	34.04	OVERFLOW TO SYSTEM E
F-SWM-1R-L	F-SWM-1	F1-OUT2	1023.23	1022.75	Trapezoidal	1	20.0	1.0	40.00	1.20	0.015	601.06	1023.40	1022.92	2.72	13.79	1023.45	1022.97	3.17	23.53	
F-SWM-10-L	F-SWM-10	F-SWM-8	1048.75	1046.05	Natural	1	0.0	2.0	288.90	0.93	0.035	232.26	1048.75	1046.05	0.00	0.00	1048.75	1046.05	0.00	0.00	
F-SWM-3-L	F-SWM-3	CC-F	1027.00	1023.75	Natural	1	0.0	1.5	167.01	1.95	0.035	475.36	1027.38	1024.58	1.92	23.61	1027.46	1024.68	2.26	36.17	
F-SWM-4-L	F-SWM-4	F-SWM-3	1030.50	1027.00	Trapezoidal	1	30.0	1.5	72.10	4.85	0.015	3097.60	1030.63	1027.38	3.89	23.62	1030.67	1027.46	4.49	36.18	
F-SWM-4R-L	F-SWM-4	F-SWM-5	1031.00	1030.50	Trapezoidal	1	20.0	1.0	40.00	1.25	0.015	307.10	1030.63	1028.65	0.00	0.00	1030.67	1028.68	0.00	0.00	
F-SWM-5-L	F-SWM-5	F1-OUT	1028.50	1022.00	Natural	1	0.0	1.5	209.28	3.11	0.035	597.09	1028.65	1022.34	1.19	2.62	1028.68	1022.45	1.29	4.03	
F-SWM-6-L	F-SWM-6	F-SWM-5	1035.00	1028.50	Natural	1	0.0	1.5	215.38	3.02	0.035	396.98	1035.00	1028.65	0.00	0.00	1035.00	1028.68	0.00	0.00	
F-SWM-8.1-L	F-SWM-7	F-SWM-4	1044.50	1030.50	Natural	1	0.0	1.5	533.68	2.62	0.035	191.01	1045.17	1030.63	2.36	12.32	1045.28	1030.67	2.62	18.79	
F-SWM-8R-L	F-SWM-8	F-SWM-9	1047.00	1046.75	Trapezoidal	1	20.0	1.0	40.00	0.63	0.015	311.64	1046.87	1044.00	0.00	0.00	1046.90	1044.00	0.00	0.00	
F-SWM-8-L	F-SWM-8	F-SWM-7	1046.75	1044.50	Trapezoidal	1	30.0	1.5	107.87	2.09	0.015	1294.19	1046.87	1045.17	1.95	12.38	1046.90	1045.28	2.35	18.83	
F-SWM-9-L	F-SWM-9	F2-OUT	1044.00	1041.00	Trapezoidal	1	30.0	2.0	103.49	2.90	0.050	1127.57	1044.00	1041.00	0.00	0.00	1044.00	1041.00	0.00	0.00	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES: 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp
Texas Department of Transportation
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FM 1560
HYDRAULIC DATA SHEET
PAYNES GRAY

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 288

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PAYNES GRAY PROPOSED XP-STORM RESULTS

LINK ID	NODE ID		FLOWLINE ELEVATION		SHAPE	NUMBER OF BARRELS	SPAN (FT)	RISE (FT)	LENGTH (FT)	SLOPE (FT/FT)	N VALUE	CAPACITY (CFS)	10-YR FREQUENCY				100-YR FREQUENCY				COMMENTS
													MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	
	US	DS	US (FT)	DS (FT)									US (FT)	DS (FT)			US (FT)	DS (FT)			
SYSTEM E																					
BCC-E-L	BCC-E	E-OUT2	997.67	997.36	Rectangular	3	4.0	4.0	103.76	0.30	0.012	108.30	1000.30	998.56	4.41	131.49	1001.18	998.69	5.10	201.06	CULVERT CC-E
BCC-E-L-RD	BCC-E	E-OUT2	1003.60	1003.60	Natural	1	0.0	4.0	100.14	0.00	0.015	991.19	1000.30	998.56	0.00	0.00	1001.18	998.69	0.00	0.00	ROADWAY FLOW AT CC-E
BCC-E2-L	BCC-E2	BCC-E	1001.75	997.67	Natural	1	0.0	5.0	16.00	25.50	0.050	23665.29	1002.37	1000.30	5.63	131.56	1002.59	1001.18	5.63	201.22	
BCC-E3-L	BCC-E3	BCC-E2	1002.06	1001.75	Natural	1	0.0	4.0	44.00	0.70	0.050	2999.87	1003.11	1002.37	2.03	131.59	1003.29	1002.59	2.33	201.27	
E1-01-L	E1-01-CI	E1-02-CI	1010.79	1010.41	Circular	1	0.0	2.0	75.00	0.50	0.012	17.33	1011.33	1010.91	4.10	2.79	1011.45	1011.02	4.63	4.15	
E1-02-L	E1-02-CI	E1-04-CI	1010.41	998.82	Circular	1	0.0	2.0	404.96	2.86	0.012	41.47	1010.91	1000.03	7.47	5.54	1011.02	1000.72	8.00	8.23	
E1-03-L	E1-03-CI	E1-04-CI	999.19	998.82	Circular	1	0.0	2.0	75.00	0.50	0.012	17.33	1000.03	1000.03	2.33	2.59	1000.73	1000.72	2.36	3.74	
E1-04-L	E1-04-CI	E1-06-CI	998.82	997.95	Circular	1	0.0	2.0	171.06	0.51	0.012	17.45	1000.03	999.45	5.27	10.74	1000.72	1000.09	5.41	15.75	
E1-05-L	E1-05-CI	E1-06-CI	998.10	997.95	Circular	1	0.0	2.0	75.00	0.20	0.012	10.96	999.46	999.45	1.18	2.71	1000.11	1000.09	1.27	3.93	
E1-06-L	E1-06-CI	E-OUT2	997.95	997.40	Circular	1	0.0	2.0	110.05	0.50	0.012	17.33	999.45	998.85	6.41	16.15	1000.09	999.12	7.36	23.62	
E2-01-L	E2-01-CI	E2-02-CI	999.79	999.42	Circular	1	0.0	2.0	75.50	0.50	0.012	17.32	1000.98	1000.98	1.94	1.96	1001.86	1001.85	1.53	2.87	
E2-02-L	E2-02-CI	E-OUT2	998.42	997.90	Rectangular	1	3.0	3.0	103.43	0.50	0.012	65.04	1000.98	1000.40	8.78	67.33	1001.85	1000.90	9.81	88.31	
E2-03-L	E2-03-CI	E2-04-CI	1008.90	1008.52	Circular	1	0.0	2.0	75.50	0.50	0.012	17.39	1009.29	1008.91	3.35	1.44	1009.37	1008.99	3.73	2.08	
E2-04-L	E2-04-CI	E2-02-CI	999.92	998.42	Rectangular	1	3.0	3.0	300.00	0.50	0.012	65.05	1002.43	1000.98	8.31	62.83	1004.20	1001.85	9.04	81.54	
E2-05-L	E2-05-CI	E2-06-CI	1013.87	1013.49	Circular	1	0.0	2.0	75.50	0.50	0.012	17.39	1014.42	1014.04	4.10	2.89	1014.55	1014.17	4.60	4.33	
E2-06-L	E2-06-CI	E2-04-CI	1008.62	1007.52	Circular	1	0.0	3.0	220.00	0.50	0.012	51.09	1011.31	1009.98	8.78	58.09	1012.52	1010.23	10.57	74.44	
E2-07-L	E2-07-CI	E2-08-CI	1014.77	1014.39	Circular	1	0.0	2.0	75.50	0.50	0.012	17.39	1015.97	1015.84	4.52	8.86	1016.72	1016.52	4.63	13.45	
E2-08-L	E2-08-CI	E2-06-CI	1013.39	1012.49	Circular	1	0.0	3.0	180.00	0.50	0.012	51.09	1015.84	1014.85	8.54	52.55	1016.52	1015.09	9.24	66.02	
E2-09-L	E2-09-CI	E2-07-CI	1015.52	1014.77	Circular	1	0.0	2.0	150.00	0.50	0.012	17.33	1016.40	1015.97	4.51	6.31	1016.90	1016.72	4.51	9.33	
E2-10-L	E2-10-GI	E2-09-CI	1015.59	1015.52	Circular	1	0.0	2.0	14.50	0.50	0.012	17.39	1016.40	1016.40	3.03	2.41	1016.90	1016.90	2.89	3.72	
E2-11-L	E2-11-CI	E2-12-CI	1020.47	1020.10	Circular	1	0.0	2.0	75.50	0.49	0.012	17.16	1020.89	1020.52	3.45	1.64	1020.97	1020.60	3.83	2.36	
E2-12-L	E2-12-CI	E2-08-CI	1015.14	1013.39	Circular	1	0.0	3.0	350.00	0.50	0.012	51.09	1017.28	1015.84	7.59	41.43	1018.00	1016.52	7.72	49.30	
E-OUT2-L	E-OUT2	E-OUT3	997.36	996.80	Natural	1	0.0	5.0	55.00	1.02	0.050	12749.05	998.56	998.24	1.91	214.75	998.69	998.35	1.91	302.00	
E-OUT3-L	E-OUT3	E-OUT4	996.80	996.08	Natural	1	0.0	5.0	93.00	0.77	0.050	9429.60	998.24	997.10	1.52	214.58	998.35	997.21	1.72	301.79	
E-OUT4-L	E-OUT4	E-OUT5	996.08	993.37	Natural	1	0.0	5.0	117.00	2.32	0.050	15514.54	997.10	994.24	2.27	214.44	997.21	994.33	2.53	301.63	SYSTEM E OUTFALL

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 6/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
PAYNES GRAY

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FEDRD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	289

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PAYNES GRAY PROPOSED XP-STORM RESULTS

LINK ID	NODE ID		FLOWLINE ELEVATION		SHAPE	NUMBER OF BARRELS	SPAN (FT)	RISE (FT)	LENGTH (FT)	SLOPE (FT/FT)	N VALUE	CAPACITY (CFS)	10-YR FREQUENCY				100-YR FREQUENCY				COMMENTS
													MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	
	US	DS	US (FT)	DS (FT)									US (FT)	DS (FT)			US (FT)	DS (FT)			
SYSTEM F																					
CC-F-L	CC-F	F1-OUT	1020.68	1020.50	Rectangular	1	5.0	3.0	91.83	0.20	0.012	79.43	1022.54	1022.28	6.52	60.39	1022.89	1022.53	8.41	92.08	CULVERT CC-F
CC-F1-L	CC-F1	CC-F2	1028.00	1023.75	Natural	1	0.0	7.0	285.00	1.49	0.035	17675.44	1028.92	1024.15	1.46	60.38	1029.07	1024.26	1.56	92.07	
CC-F2-L	CC-F2	CC-F	1023.75	1020.68	Trapezoidal	1	5.0	5.0	12.00	25.56	0.015	9784.22	1024.15	1022.54	14.28	60.38	1024.26	1022.89	16.50	92.07	
F1-01-L	F1-01-MH	F1-OUT	1021.40	1021.00	Circular	1	0.0	2.5	100.00	0.40	0.012	28.10	1023.55	1022.97	7.53	33.57	1024.55	1023.30	10.23	50.12	
F1-02-L	F1-02-MH	F1-01-MH	1021.60	1021.40	Circular	1	0.0	2.5	50.00	0.40	0.012	28.10	1023.82	1023.55	7.30	33.56	1025.18	1024.55	10.18	50.12	
F1-03-L	F1-03-CI	F1-02-MH	1022.49	1022.10	Circular	1	0.0	2.0	77.00	0.50	0.012	17.33	1023.83	1023.82	2.71	3.55	1025.24	1025.18	2.49	6.63	
F1-04-L	F1-04-CI	F1-05-CI	1029.74	1029.36	Circular	1	0.0	2.0	75.00	0.50	0.012	17.33	1030.94	1030.57	5.92	11.66	1034.54	1034.22	6.38	18.33	
F1-04-OF-L	F1-04-CI	F1-03-CI	1034.49	1027.27	Trapezoidal	1	16.0	0.5	295.00	2.45	0.015	77.70	1030.94	1023.83	0.00	0.00	1034.54	1027.32	1.95	1.41	
F1-05-L	F1-05-CI	F1-02-MH	1025.07	1022.10	Circular	1	0.0	2.0	296.77	1.00	0.012	24.51	1028.32	1023.96	9.56	30.03	1034.22	1025.18	13.66	43.81	
F1-06-L	F1-06-CI	F1-04-CI	1031.47	1029.74	Circular	1	0.0	2.0	172.86	1.00	0.012	24.51	1032.29	1030.94	6.42	8.30	1034.98	1034.54	6.77	13.17	
F1-07-L	F1-07-CI	F1-06-CI	1035.48	1034.16	Circular	1	0.0	2.0	132.20	1.00	0.012	24.51	1036.05	1034.73	5.87	4.32	1036.19	1034.98	6.61	6.58	
F1-08-L	F1-08-CI	F1-09-CI	1040.16	1039.41	Circular	1	0.0	2.0	75.00	1.00	0.012	24.51	1041.18	1040.43	7.85	12.60	1041.50	1040.75	8.65	19.33	
F1-09A-L	F1-09A-MH	F1-05-CI	1031.82	1029.36	Circular	1	0.0	2.0	245.53	1.00	0.012	24.51	1032.97	1030.51	8.23	15.33	1036.39	1034.22	8.61	23.22	
F1-09-L	F1-09-CI	F1-09A-MH	1037.97	1036.20	Circular	1	0.0	2.0	176.83	1.00	0.012	24.51	1039.12	1037.35	8.23	15.33	1039.52	1037.75	8.88	23.22	
F1-10-L	F1-10-CI	F1-08-CI	1041.28	1040.16	Circular	1	0.0	2.0	111.86	1.00	0.012	24.51	1042.13	1041.18	6.74	8.77	1042.39	1041.50	7.31	13.41	
F1-11-L	F1-11-CI	F1-10-CI	1042.58	1041.28	Circular	1	0.0	2.0	130.24	1.00	0.012	24.50	1043.17	1042.13	5.49	4.52	1043.34	1042.39	5.95	6.90	
F1-OUTE-L	F1-OUT	E2-12-CI	1020.50	1019.60	Circular	1	0.0	2.5	100.02	0.90	0.012	42.15	1022.28	1021.38	9.64	36.05	1022.53	1021.63	9.79	41.68	OVERFLOW TO SYSTEM E
F1-OUTF-L	F1-OUT	F1-OUT1	1020.50	1020.47	Rectangular	1	5.0	3.0	13.12	0.21	0.012	80.72	1022.28	1022.24	6.51	57.90	1022.53	1022.45	9.84	99.47	CULVERT CC-F
F1-OUT1-L	F1-OUT1	F1-OUT2	1020.47	1020.00	Trapezoidal	1	5.0	4.0	144.00	0.33	0.050	198.55	1022.24	1020.46	2.59	43.38	1022.45	1020.53	2.86	56.75	
F1-OUT1-OF-L	F1-OUT1	F1-OUT3	1022.00	1017.00	Trapezoidal	1	30.0	1.0	225.00	2.22	0.050	229.41	1022.24	1017.34	1.41	14.41	1022.45	1017.40	1.99	42.69	SYSTEM F OUTFALL
F1-OUT2-L	F1-OUT2	F1-OUT3	1020.00	1017.00	Trapezoidal	1	30.0	1.0	120.59	2.49	0.050	242.73	1020.46	1017.34	2.00	43.37	1020.53	1017.40	2.17	56.74	SYSTEM F OUTFALL

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/6/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation
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FM 1560
HYDRAULIC DATA SHEET
PAYNES GRAY

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	290

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DISC GOLF EXISTING XP-STORM RESULTS

LINK ID	NODE ID		FLOWLINE ELEVATION		SHAPE	NUMBER OF BARRELS	SPAN (FT)	RISE (FT)	LENGTH (FT)	SLOPE (FT/FT)	N VALUE	CAPACITY (CFS)	10-YR FREQUENCY				100-YR FREQUENCY				COMMENTS
													MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	
	US	DS	US (FT)	DS (FT)									US (FT)	DS (FT)			US (FT)	DS (FT)			
SYSTEM H																					
L-F15	FIELD1.5	FIELD1	996.00	994.00	Trapezoidal	1	100.0	4.0	340.00	0.59	0.040	9703.83	997.19	994.74	2.16	532.20	997.50	994.98	2.51	894.72	SYSTEM H OUTFALL
L-FI2	FIELD2	FIELD4	999.00	997.00	Trapezoidal	1	100.0	4.0	464.00	0.43	0.040	8306.61	999.21	997.92	0.49	20.00	999.47	998.27	0.93	84.93	
L-FI3	FIELD3	FIELD2	1000.00	999.00	Trapezoidal	1	100.0	5.0	174.00	0.57	0.040	16492.18	1000.20	999.21	0.87	20.97	1000.44	999.47	1.35	85.89	
L-FI4	FIELD4	FIELD1.5	997.00	996.00	Trapezoidal	1	100.0	4.0	241.00	0.41	0.040	8150.03	997.92	997.19	1.53	281.87	998.27	997.50	1.88	554.55	
L-G2-1.5	G2-SWM-1.5	G2-SWM-1	996.64	996.00	Trapezoidal	1	5.0	4.0	128.00	0.50	0.040	374.54	997.77	997.13	2.17	23.27	997.94	997.30	2.34	31.01	SYTEM G OUTFALL DITCH EAST
L-G1.5	G2-SWM-1.5	FIELD1.5	997.00	996.00	Trapezoidal	1	100.0	4.0	140.00	0.71	0.040	10693.10	997.77	997.19	1.72	252.07	997.94	997.50	1.75	341.52	
L-G2-2.5	G2-SWM-2.5	G2-SWM-2	996.46	996.18	Trapezoidal	1	8.0	4.0	122.00	0.23	0.040	346.86	999.47	999.19	2.63	181.91	999.57	999.29	2.68	196.41	SYSTEM G OUTFALL DITCH WEST
L-G2-2.5TO1.5 RD	G2-SWM-2.5	G2-SWM-1.5	998.75	998.70	Trapezoidal	1	50.0	4.0	40.00	0.12	0.015	8177.62	999.47	999.32	3.00	218.70	999.57	999.42	3.27	294.25	
L-G2-3	G2-SWM-3	G2-SWM-2.5	996.26	996.46	Trapezoidal	1	8.0	4.0	150.00	-0.13	0.040	264.38	1000.18	999.47	3.84	400.62	1000.41	999.57	4.28	490.67	
L-3TO4-RD	G2-SWM-3	G2-SWM-4	999.50	999.45	Trapezoidal	1	100.0	4.0	40.00	0.12	0.015	7560.99	1000.18	1000.03	3.31	296.17	1000.41	1000.26	3.94	516.32	ROADWAY FLOW AT BCC-H2
L-G2-4	G2-SWM-4	G2-SWM-1.5	996.33	996.64	Trapezoidal	1	5.0	4.0	167.00	-0.19	0.040	228.21	998.42	997.77	2.16	56.78	998.68	997.94	2.47	78.49	
L-F4	G2-SWM-4	FIELD4	997.75	997.00	Trapezoidal	1	100.0	4.0	62.00	1.21	0.040	13915.61	998.42	997.92	2.22	263.45	998.68	998.27	2.48	471.56	
L-1-EAST	H1-SWM-1	G2-SWM-4	997.11	996.33	Circular	1	0.0	1.5	82.50	0.95	0.024	5.53	1000.41	998.42	5.62	9.82	1000.60	998.68	5.62	9.82	EXIST CULVERT BCC-H2
L-1-WEST	H1-SWM-1	G2-SWM-3	996.43	996.26	Circular	1	0.0	2.0	74.00	0.23	0.013	10.84	1000.41	1000.18	10.16	31.74	1000.60	1000.41	10.15	31.73	
L-1-WEST-RD	H1-SWM-1	G2-SWM-3	999.25	999.20	Trapezoidal	1	20.0	4.0	40.00	0.12	0.015	11747.08	1000.41	1000.25	3.62	684.04	1000.60	1000.43	3.98	995.63	
L-2	H1-SWM-2	H1-SWM-1	1000.25	996.43	Trapezoidal	1	20.0	4.0	398.00	0.96	0.040	5011.64	1002.00	1000.41	2.62	645.78	1002.28	1000.60	3.04	924.18	
L-2TO2EAST-RDWY	H1-SWM-2	H1-SWM-2EAST	1002.27	1002.22	Trapezoidal	1	40.0	4.0	40.00	0.12	0.015	6097.40	1002.00	1000.29	0.00	0.00	1002.28	1002.22	0.15	0.07	
L-2A	H1-SWM-2A	H1-SWM-2	1002.25	1000.25	Natural	1	0.0	4.0	211.00	0.95	0.040	143.18	1003.08	1002.00	1.79	92.26	1003.25	1002.28	2.06	141.77	
L-2B	H1-SWM-2B	H1-SWM-2A	1004.00	1002.25	Natural	1	0.0	4.0	162.00	1.08	0.040	152.85	1004.78	1003.08	2.23	85.43	1004.93	1003.25	2.47	129.00	
L-2EAST	H1-SWM-2EAST	G2-SWM-4	999.55	996.33	Trapezoidal	1	2.0	4.0	458.00	0.70	0.040	602.92	1000.29	998.42	1.14	9.45	1000.51	998.68	1.44	17.02	
L-F2	H1-SWM-2EAST	FIELD2	1000.50	999.00	Trapezoidal	1	50.0	4.0	88.00	1.70	0.040	14396.53	1000.29	999.21	0.00	0.00	1000.51	999.47	0.01	0.03	
L-3	H1-SWM-3	H1-SWM-2	1002.25	1000.25	Trapezoidal	1	20.0	4.0	221.00	0.90	0.040	4866.41	1003.92	1002.00	3.32	553.35	1004.18	1002.28	3.61	783.45	OVERFLOW FROM BCC-H1 TO BCC-H2
L-3TO3EAST-RDWY	H1-SWM-3	H1-SWM-3EAST	1003.70	1003.65	Trapezoidal	1	50.0	4.0	40.00	0.13	0.015	6404.65	1003.92	1003.80	1.40	18.08	1004.18	1004.03	2.43	85.82	ROADWAY FLOW AT BCC-H1
L-3A	H1-SWM-3A	H1-SWM-3	1004.00	1002.25	Natural	1	0.0	4.0	245.00	0.71	0.040	135.72	1005.75	1003.92	3.68	536.11	1006.14	1004.18	4.33	814.82	
L-3B	H1-SWM-3B	H1-SWM-3A	1005.00	1004.00	Natural	1	0.0	4.0	132.00	0.76	0.040	5027.00	1006.42	1005.75	2.96	489.31	1006.80	1006.14	3.22	743.85	
L-3C	H1-SWM-3C	H1-SWM-3B	1008.00	1005.00	Natural	1	0.0	4.0	150.00	2.00	0.040	8167.91	1008.94	1006.42	4.56	483.20	1009.25	1006.80	5.01	733.35	
L-3D	H1-SWM-3D	H1-SWM-3C	1016.00	1008.00	Natural	1	0.0	4.0	467.00	1.71	0.040	6011.59	1017.76	1008.94	4.31	446.76	1018.10	1009.25	4.58	687.47	
L-3E	H1-SWM-3E	H1-SWM-3D	1031.00	1016.00	Natural	1	0.0	4.0	790.00	1.90	0.040	8771.18	1031.69	1017.76	2.85	416.85	1031.89	1018.10	3.40	643.82	
L-3EAST	H1-SWM-3EAST	H1-SWM-2EAST	1000.86	999.55	Trapezoidal	1	3.0	4.0	219.00	0.60	0.040	580.77	1001.47	1000.29	1.45	6.59	1001.69	1000.51	1.73	12.92	
L-F3	H1-SWM-3EAST	FIELD3	1001.25	1000.00	Trapezoidal	1	50.0	4.0	77.00	1.62	0.040	14049.57	1001.47	1000.20	1.38	21.07	1001.69	1000.44	2.11	86.02	
L-4	H1-SWM-4	H1-SWM-3	1006.25	1002.25	Trapezoidal	1	5.0	4.0	455.00	0.88	0.040	1897.65	1007.05	1003.92	1.61	34.23	1007.21	1004.18	1.83	52.78	
L-5	H1-SWM-5	H1-SWM-4	1010.00	1006.25	Trapezoidal	1	5.0	4.0	455.00	0.82	0.040	1768.87	1010.77	1007.05	1.94	29.39	1010.92	1007.21	2.16	45.06	
L-6	H1-SWM-6	H1-SWM-5	1011.00	1010.00	Trapezoidal	1	3.0	4.0	347.00	0.29	0.040	249.50	1012.27	1010.77	1.64	15.87	1012.52	1010.92	1.86	24.19	
L-7	H1-SWM-7	H1-SWM-1	1001.00	999.00	Natural	1	150.0	4.0	302.50	0.66	0.040	483.54	1001.11	1000.41	0.28	11.33	1001.14	1000.60	0.35	17.00	
L-8	H1-SWM-8	H1-SWM-1	1004.00	999.00	Natural	1	0.0	4.0	370.00	1.35	0.040	691.29	1004.21	1000.41	0.90	49.99	1004.27	1000.60	1.12	75.88	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
DISC GOLF

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	291

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DISC GOLF PROPOSED XP-STORM RESULTS

LINK ID	NODE ID		FLOWLINE ELEVATION		SHAPE	NUMBER OF BARRELS	SPAN (FT)	RISE (FT)	LENGTH (FT)	SLOPE (FT/FT)	N VALUE	CAPACITY (CFS)	10-YR FREQUENCY				100-YR FREQUENCY				COMMENTS
													MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	MAX. WSE (HYDRAULIC GRADELINE)		VELOCITY (FT/S)	MAX. FLOW (CFS)	
	US	DS	US (FT)	DS (FT)									US (FT)	DS (FT)			US (FT)	DS (FT)			
SYSTEM H																					
CC-H-L	CC-H	H1-03-CI	995.99	995.96	Rectangular	4	6.0	3.0	6.25	0.40	0.012	64.35	1001.09	1000.43	7.17	518.23	1002.98	1002.46	9.13	661.31	CULVERT BCC-H1
Link385	CC-H	H1-04A-J	1002.43	1002.37	Trapezoidal	1	0.0	4.0	102.00	0.06	0.015	3050.81	1001.09	998.78	0.00	0.00	1002.98	1002.77	1.49	21.22	ROADWAY FLOW AT BCC-H1
CC-H2-L	CC-H2	H1-01-CI	993.90	993.88	Rectangular	3	6.0	3.0	6.25	0.30	0.012	56.10	998.59	998.41	3.83	207.24	1000.35	999.79	7.43	403.39	CULVERT BCC-H2
Link386	CC-H2	H1-02A-J	1000.35	1000.00	Trapezoidal	1	100.0	4.0	112.00	0.31	0.015	11911.37	998.59	998.06	0.00	0.00	1000.35	998.36	0.00	0.00	ROADWAY FLOW AT BCC-H2
L-F15	FIELD1.5	FIELD1	996.00	994.00	Trapezoidal	1	100.0	4.0	340.00	0.59	0.040	9703.83	997.18	994.74	2.15	528.32	997.50	994.98	2.51	892.08	SYSTEM H OUTFALL
L-FI2	FIELD2	FIELD4	999.00	997.00	Trapezoidal	1	100.0	4.0	464.00	0.43	0.040	8306.61	999.00	997.46	0.00	0.00	999.00	997.85	0.00	0.00	
L-FI3	FIELD3	FIELD2	1000.00	999.00	Trapezoidal	1	100.0	5.0	174.00	0.57	0.040	16492.18	1000.00	999.00	0.00	0.00	1000.00	999.00	0.00	0.00	
L-FI4	FIELD4	FIELD1.5	997.00	996.00	Trapezoidal	1	100.0	4.0	241.00	0.41	0.040	8150.03	997.46	997.18	0.70	60.08	997.85	997.50	1.08	193.64	
G2-01A-L	G2-01A-JB	G2-OUT	991.01	990.00	Rectangular	2	6.0	3.0	673.76	0.15	0.012	86.34	994.35	992.83	6.10	212.59	994.52	992.90	6.11	219.51	SYSTEM G OUTFALL
H1-01-L	H1-01-CI	H1-02-CI	993.88	993.66	Rectangular	3	6.0	3.0	75.00	0.30	0.012	122.09	998.41	998.34	3.89	210.33	999.79	999.44	7.50	406.98	CULVERT BCC-H2
L-F4	H1-02A-J	FIELD4	997.75	997.00	Trapezoidal	1	100.0	4.0	62.00	1.21	0.040	9806.48	998.06	997.46	1.61	61.50	998.36	997.85	2.22	194.47	
Link369	H1-02A-J	H1-OUTFLOW	993.63	992.45	Trapezoidal	1	8.0	6.0	230.00	0.51	0.015	2495.27	998.06	998.22	6.28	682.58	998.36	998.53	8.31	918.45	
H1-02-L	H1-02-CI	H1-02A-J	993.66	993.63	Rectangular	3	6.0	3.0	10.42	0.30	0.012	71.65	998.33	998.06	3.94	213.60	999.44	998.36	7.57	410.59	CULVERT BCC-H2
H1-03-L	H1-03-CI	H1-04-CI	995.96	995.66	Rectangular	4	6.0	3.0	75.00	0.40	0.012	140.97	1000.45	1000.18	7.21	520.46	1002.46	1001.54	9.17	663.82	CULVERT BCC-H1
L-F3	H1-04A-J	FIELD3	1001.25	1000.00	Trapezoidal	1	50.0	4.0	77.00	1.62	0.040	14049.57	998.78	1000.00	0.00	0.00	999.38	1000.00	0.00	0.00	
Link374	H1-04A-J	H1-02A-J	995.61	993.63	Trapezoidal	1	8.0	6.0	520.00	0.38	0.015	2158.58	998.78	998.06	8.05	530.37	999.38	998.36	9.22	698.83	
H1-04-L	H1-04-CI	H1-04A-J	995.66	995.61	Rectangular	4	6.0	3.0	11.66	0.40	0.012	88.23	1000.18	998.78	7.35	530.38	1001.54	999.38	9.37	677.76	CULVERT BCC-H1
H1-05-L	H1-05-CI	H1-06-CI	997.82	997.52	Circular	1	0.0	2.0	75.00	0.40	0.012	15.50	1000.57	1000.54	2.43	5.22	1002.35	1002.27	2.51	7.94	
H1-06-L	H1-06-CI	H1-07-MH	997.52	996.94	Circular	1	0.0	2.0	145.88	0.40	0.012	15.51	1000.54	1000.37	2.47	7.78	1002.27	1001.93	3.75	11.90	
H1-07-L	H1-07-MH	H1-04-CI	996.94	996.16	Circular	1	0.0	2.0	195.02	0.40	0.012	15.50	1000.37	1000.18	2.46	7.78	1001.93	1001.54	3.75	11.90	
H1-OUTFLOW-L	H1-OUTFLOW	G2-01-JB	992.45	991.01	Rectangular	2	4.0	3.0	466.66	0.31	0.012	74.46	998.22	994.35	8.82	212.59	998.53	994.52	9.10	219.51	
L-F16	H1-OUTFLOW	FIELD1.5	997.00	996.00	Trapezoidal	1	100.0	4.0	140.00	0.71	0.040	4091.22	998.22	997.18	3.26	469.98	998.53	997.50	3.72	698.95	
Link389	H1-SWM-1	CC-H2	999.00	993.90	Trapezoidal	1	10.0	10.0	20.00	25.50	0.015	50667.70	999.64	998.59	11.40	206.92	1000.55	1000.35	12.76	403.37	
Link392	H1-SWM-2	H1-SWM-1	1000.25	999.00	Trapezoidal	1	20.0	4.0	398.00	0.31	0.040	2707.02	1001.73	999.64	1.64	146.26	1001.97	1000.55	2.01	325.46	
L-2A	H1-SWM-2A	H1-SWM-2	1002.25	1000.25	Natural	1	0.0	4.0	211.00	0.95	0.040	143.18	1003.08	1001.73	1.89	92.23	1003.25	1001.97	2.16	141.80	
L-2B	H1-SWM-2B	H1-SWM-2A	1004.00	1002.25	Natural	1	0.0	4.0	162.00	1.08	0.040	152.85	1004.78	1003.08	2.23	85.43	1004.93	1003.25	2.47	128.98	
Link387	H1-SWM-3	H1-SWM-2	1002.25	1000.25	Trapezoidal	1	20.0	4.0	150.00	1.33	0.040	5577.61	1002.81	1001.73	1.68	53.65	1003.22	1001.97	2.55	183.52	OVERFLOW FROM BCC-H1 TO BCC-H2
Link388	H1-SWM-3	CC-H	1002.25	995.99	Trapezoidal	1	30.0	10.0	20.00	31.32	0.015	93971.07	1002.81	1001.09	14.31	518.05	1003.22	1002.98	14.13	681.91	
L-3A	H1-SWM-3A	H1-SWM-3	1004.00	1002.25	Natural	1	0.0	4.0	245.00	0.71	0.040	135.72	1005.84	1002.81	3.74	536.07	1006.23	1003.22	4.37	814.81	
L-3B	H1-SWM-3B	H1-SWM-3A	1005.00	1004.00	Natural	1	0.0	4.0	132.00	0.76	0.040	5027.00	1006.44	1005.84	2.87	489.31	1006.83	1006.23	3.13	743.83	
L-3C	H1-SWM-3C	H1-SWM-3B	1008.00	1005.00	Natural	1	0.0	4.0	150.00	2.00	0.040	8167.91	1008.94	1006.44	4.54	483.19	1009.25	1006.83	5.00	733.33	
L-3D	H1-SWM-3D	H1-SWM-3C	1016.00	1008.00	Natural	1	0.0	4.0	467.00	1.71	0.040	6011.59	1017.76	1008.94	4.31	446.75	1018.10	1009.25	4.58	687.45	
L-3E	H1-SWM-3E	H1-SWM-3D	1031.00	1016.00	Natural	1	0.0	4.0	790.00	1.90	0.040	8771.18	1031.69	1017.76	2.85	416.84	1031.89	1018.10	3.40	643.80	
L-4	H1-SWM-4	H1-SWM-3	1006.25	1002.25	Trapezoidal	1	5.0	4.0	455.00	0.88	0.040	1897.65	1007.13	1002.81	1.84	34.24	1007.25	1003.22	2.30	53.45	
L-5	H1-SWM-5	H1-SWM-4	1010.00	1006.25	Trapezoidal	1	5.0	4.0	455.00	0.82	0.040	1768.87	1010.77	1007.13	1.90	29.38	1010.92	1007.25	2.15	45.06	
L-6	H1-SWM-6	H1-SWM-5	1011.00	1010.00	Trapezoidal	1	3.0	4.0	347.00	0.29	0.040	249.50	1012.27	1010.77	1.64	15.87	1012.52	1010.92	1.86	24.19	
L-7	H1-SWM-7	H1-SWM-1	1001.00	999.00	Natural	1	150.0	4.0	302.50	0.66	0.040	483.54	1001.11	999.64	0.46	11.34	1001.14	1000.55	0.51	17.00	
L-8	H1-SWM-8	H1-SWM-1	1004.00	999.00	Natural	1	0.0	4.0	370.00	1.35	0.040	691.29	1004.21	999.64	1.24	49.99	1004.27	1000.55	1.35	75.86	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp
Texas Department of Transportation
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FM 1560
HYDRAULIC DATA SHEET
DISC GOLF

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	292

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM AA1								
AA1-01-CI	0.39	0.90	4.83	10.00	7.44	2.62	11.16	3.93
AA1-02-CI	0.39	0.90	4.89	10.00	7.44	2.64	11.16	3.96
AA1-03-CI	1.13	0.42	20.10	20.10	5.44	2.57	8.27	3.91
SYSTEM A1								
A1-01-CI	0.34	0.90	4.22	10.00	7.44	2.30	11.16	3.45
A1-02-CI	0.35	0.90	4.33	10.00	7.44	2.34	11.16	3.50
A1-02A-DI	0.39	0.43	4.98	10.00	7.44	1.22	11.16	1.84
A1-04-FW	16.89	0.36	22.90	22.90	5.09	31.00	7.76	47.27
A1-04A-CI	0.52	0.70	13.54	13.54	6.56	2.38	9.89	3.58
A1-06A-CI	1.18	0.55	13.70	13.70	6.53	4.26	9.84	6.42
A1-06-SET	1.98	0.51	6.28	10.00	7.44	7.45	11.16	11.18
A1-07-CI	0.79	0.90	4.39	10.00	7.44	5.32	11.16	7.98
A1-08-CI	0.69	0.90	4.39	10.00	7.44	4.60	11.16	6.91
A1-10-CI	0.64	0.90	7.67	10.00	7.44	4.27	11.16	6.41
A1-11-CI	0.64	0.90	7.67	10.00	7.44	4.28	11.16	6.42
SYSTEM A2								
A2-01-CI	0.32	0.90	4.06	10.00	7.44	2.17	11.16	3.25
A2-02-CI	0.33	0.90	4.11	10.00	7.44	2.18	11.16	3.27
A2-03-CI	0.35	0.90	4.44	10.00	7.44	2.36	11.16	3.54
A2-04-CI	2.62	0.38	17.10	17.10	5.89	5.78	8.92	8.75
A2-05-CI	2.22	0.38	16.80	16.80	5.94	5.00	8.99	7.57
A2-06-CI	2.23	0.38	16.60	16.60	5.98	5.06	9.04	7.66
A2-07-CI	0.47	0.90	5.79	10.00	7.44	3.16	11.16	4.74
A2-08-CI	2.12	0.38	16.80	16.80	5.94	4.80	8.99	7.26
A2-09-CI	1.89	0.38	16.00	16.00	6.08	4.42	9.19	6.68
A2-10-CI	2.22	0.38	16.80	16.80	5.94	5.02	8.99	7.60
A2-11-CI	2.12	0.38	16.30	16.30	6.03	4.90	9.12	7.40
A2-12-CI	2.03	0.39	15.90	15.90	6.10	4.77	9.22	7.21
A2-13-CI	0.41	0.90	5.13	10.00	7.44	2.77	11.16	4.15
A2-14-CI	2.35	0.42	15.80	15.80	6.12	6.00	9.25	9.07
SYSTEM B1								
B1-01-CI	0.34	0.90	4.22	10.00	7.44	2.24	11.16	3.36
B1-02-CI	1.77	0.39	19.20	19.20	5.57	3.81	8.45	5.78
B1-03-CI	1.95	0.38	18.80	18.80	5.63	4.21	8.54	6.39
B1-04-CI	1.97	0.40	20.30	20.30	5.42	4.23	8.23	6.42
B1-05-CI	2.06	0.41	17.10	17.10	5.89	4.97	8.92	7.52
B1-06-CI	1.79	0.44	17.40	17.40	5.84	4.63	8.85	7.01
B1-07-CI	2.00	0.47	16.90	16.90	5.93	5.60	8.97	8.47
B1-08-CI	0.42	0.90	5.16	10.00	7.44	2.78	11.16	4.17
B1-09-CI	1.53	0.51	17.20	17.20	5.88	4.55	8.90	6.88
B1-10-CI	1.59	0.51	17.60	17.60	5.81	4.69	8.80	7.10
B1-11-CI	1.35	0.53	17.80	17.80	5.78	4.11	8.76	6.22
B1-12-CI	1.84	0.51	18.60	18.60	5.66	5.24	8.58	7.95
B1-13-CI	0.35	0.90	3.91	10.00	7.44	2.31	11.16	3.47
B1-14-CI	1.66	0.51	21.00	21.00	5.32	4.50	8.10	6.85
B1-15-CI	1.59	0.48	19.90	19.90	5.47	4.14	8.31	6.29
B1-16-CI	2.07	0.46	19.70	19.70	5.50	5.26	8.35	7.99
B1-17-CI	0.56	0.90	6.78	10.00	7.44	3.73	11.16	5.60
B1-18-CI	0.56	0.90	6.83	10.00	7.44	3.77	11.16	5.66

FM 1560 RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM D1								
D1-01-CI	1.27	0.46	11.90	11.90	6.94	4.02	10.43	6.05
D1-02-CI	0.18	0.90	2.49	10.00	7.44	1.19	11.16	1.79
D1-03-CI	0.97	0.56	3.83	10.00	7.44	4.08	11.16	6.12
D1-04-CI	0.35	0.90	4.39	10.00	7.44	2.31	11.16	3.46
D1-05-CI	0.52	0.80	4.38	10.00	7.44	3.11	11.16	4.67
D1-06-CI	0.53	0.90	6.42	10.00	7.44	3.51	11.16	5.27
D1-07-CI	4.79	0.35	15.30	15.30	6.21	10.41	9.38	15.72
D1-08-CI	0.56	0.86	6.39	10.00	7.44	3.56	11.16	5.34
D1-09-CI	0.39	0.75	4.83	10.00	7.44	2.17	11.16	3.25
D1-10-CI	0.98	0.45	7.56	10.00	7.44	3.25	11.16	4.88
D1-11-CI	1.16	0.50	6.89	10.00	7.44	4.32	11.16	6.49
D1-12-CI	0.45	0.90	5.56	10.00	7.44	3.00	11.16	4.51
D1-13-CI	0.73	0.55	6.22	10.00	7.44	2.97	11.16	4.46
SYSTEM E1								
E1-01-CI	0.46	0.82	4.78	10.00	7.44	2.79	11.16	4.19
E1-02-CI	0.45	0.84	4.86	10.00	7.44	2.77	11.16	4.15
E1-03-CI	0.39	0.90	4.82	10.00	7.44	2.61	11.16	3.92
E1-04-CI	0.40	0.90	4.96	10.00	7.44	2.65	11.16	3.98
E1-05-CI	0.41	0.90	3.00	10.00	7.44	2.74	11.16	4.11
E1-06-CI	0.41	0.90	3.00	10.00	7.44	2.76	11.16	4.14
E1-07-DI	11.56	0.57	17.40	17.40	5.84	38.32	8.85	58.02
SYSTEM E2								
E2-01-CI	0.30	0.90	3.78	10.00	7.44	1.98	11.16	2.96
E2-02-CI	0.58	0.68	11.90	11.90	6.94	2.75	10.43	4.14
E2-03-CI	0.22	0.90	2.89	10.00	7.44	1.45	11.16	2.17
E2-04-CI	0.85	0.55	10.80	10.80	7.22	3.37	10.84	5.07
E2-05-CI	0.71	0.63	14.20	14.20	6.43	2.89	9.69	4.35
E2-06-CI	0.65	0.56	9.20	10.00	7.44	2.74	11.16	4.11
E2-07-CI	0.78	0.53	13.00	13.00	6.68	2.76	10.06	4.16
E2-08-CI	0.34	0.90	4.36	10.00	7.44	2.30	11.16	3.46
E2-09-CI	0.59	0.90	6.44	10.00	7.44	3.92	11.16	5.89
E2-10-GI	0.79	0.45	11.60	11.60	7.01	2.49	10.54	3.74
E2-11-CI	0.25	0.90	3.22	10.00	7.44	1.65	11.16	2.47
E2-12-CI	0.60	0.85	6.53	10.00	7.44	3.79	11.16	5.69

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.
5. SYSTEM E AND SYSTEM F ARE PART OF THE PAYNES GRAY ANALYSIS. SEE PAYNES GRAY XP-STORM SHEETS FOR CROSS CULVERT AND OUTFALL ANALYSIS.
6. SYSTEM H1 AND SYSTEM H2 ARE PART OF THE DISC GOLF ANALYSIS. SEE DISC GOLF XP-STORM SHEETS FOR CROSS CULVERT AND OUTFALL ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
RUNOFF COMPUTATIONS

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	293

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560 RUNOFF COMPUTATIONS

AREA ID	AREA (ac)	COMPOSITE 'C' VALUE	CALCULATED TIME OF CONCENTRATION (MIN)	DESIGN TIME OF CONCENTRATION (min)	10YR INTENSITY (IN/HR)	10YR DISCHARGE (cfs)	100YR INTENSITY (IN/HR)	100YR DISCHARGE (cfs)
SYSTEM F1								
F1-03-CI	1.00	0.58	15.10	15.10	6.25	3.59	9.43	5.41
F1-04-CI	1.08	0.52	16.80	16.80	5.94	3.37	8.99	5.11
F1-05-CI	0.50	0.83	5.16	10.00	7.44	3.07	11.16	4.61
F1-06-CI	1.49	0.52	21.20	21.20	5.30	4.08	8.06	6.21
F1-07-CI	1.48	0.53	19.90	19.90	5.47	4.34	8.31	6.59
F1-08-CI	1.43	0.50	19.30	19.30	5.55	4.00	8.43	6.07
F1-09-CI	0.41	0.90	5.13	10.00	7.44	2.75	11.16	4.12
F1-10-CI	1.64	0.48	19.90	19.90	5.47	4.33	8.31	6.57
F1-11-CI	1.76	0.49	21.50	21.50	5.26	4.55	8.00	6.92
SYSTEM G1								
G1-01-CI	1.24	0.48	20.80	20.80	5.35	3.18	8.13	4.84
G1-02-CI	2.04	0.49	22.40	22.40	5.15	5.15	7.84	7.85
G1-03-CI	1.69	0.48	21.10	21.10	5.31	4.26	8.08	6.49
G1-04-CI	1.61	0.48	20.20	20.20	5.43	4.21	8.25	6.40
G1-05-CI	0.47	0.90	5.78	10.00	7.44	3.12	11.16	4.69
G1-06-CI	0.32	0.90	4.09	10.00	7.44	2.16	11.16	3.24
G1-07-CI	0.33	0.90	4.17	10.00	7.44	2.18	11.16	3.28
G1-08-GI	4.95	0.45	16.70	16.70	5.96	13.20	9.02	19.97
G1-09-CI	0.33	0.90	4.17	10.00	7.44	2.19	11.16	3.28
G1-10-CI	0.66	0.66	4.11	10.00	7.44	3.24	11.16	4.86
G1-11-CI	0.53	0.60	2.33	10.00	7.44	2.38	11.16	3.57
G1-12-CI	0.28	0.90	3.56	10.00	7.44	1.84	11.16	2.76
G1-13-CI	0.47	0.90	5.83	10.00	7.44	3.18	11.16	4.77
G1-14-CI	0.46	0.90	5.67	10.00	7.44	3.10	11.16	4.64
G1-15-CI	0.46	0.90	5.67	10.00	7.44	3.09	11.16	4.64
G1-16-DI	9.56	0.45	23.40	23.40	5.03	21.56	7.68	32.90
SYSTEM G2								
G2-01-CI	0.49	0.90	6.00	10.00	7.44	3.29	11.16	4.94
G2-02-CI	0.49	0.90	6.00	10.00	7.44	3.29	11.16	4.94
G2-03-CI	0.56	0.90	3.72	10.00	7.44	3.73	11.16	5.60
G2-04-CI	0.56	0.90	3.72	10.00	7.44	3.74	11.16	5.61
G2-05-CI	0.37	0.90	4.67	10.00	7.44	2.50	11.16	3.75
G2-06-CI	0.37	0.90	4.67	10.00	7.44	2.50	11.16	3.75
G2-07-DI	20.40	0.47	32.30	32.30	4.21	40.53	6.49	62.49
SYSTEM H1								
H1-01-CI	0.51	0.90	6.22	10.00	7.44	3.42	11.16	5.13
H1-02-CI	0.51	0.90	6.22	10.00	7.44	3.42	11.16	5.14
H1-03-CI	0.35	0.90	4.44	10.00	7.44	2.34	11.16	3.51
H1-04-CI	0.34	0.90	4.28	10.00	7.44	2.27	11.16	3.41
H1-05-CI	1.27	0.56	8.72	10.00	7.44	5.29	11.16	7.94
H1-06-CI	0.55	0.71	4.56	10.00	7.44	2.90	11.16	4.35
SYSTEM I1								
I1-01-CI	1.44	0.47	8.44	10.00	7.44	5.01	11.16	7.52
I1-02-CI	1.13	0.52	9.06	10.00	7.44	4.37	11.16	6.56
I1-03-CI	0.28	0.80	3.17	10.00	7.44	1.66	11.16	2.49
I1-04-CI	0.85	0.60	6.14	10.00	7.44	3.78	11.16	5.67
I1-05-CI	0.65	0.60	5.89	10.00	7.44	2.91	11.16	4.36
I1-06-CI	0.33	0.90	3.78	10.00	7.44	2.18	11.16	3.27
I1-07-CI	0.66	0.58	7.56	10.00	7.44	2.88	11.16	4.33
I1-08-CI	0.81	0.65	8.11	10.00	7.44	3.90	11.16	5.85
I1-09-CI	0.51	0.85	3.11	10.00	7.44	3.23	11.16	4.85
SYSTEM I2								
I2-01-CI	0.54	0.84	4.56	10.00	7.44	3.34	11.16	5.01
I2-02-CI	0.48	0.90	4.33	10.00	7.44	3.24	11.16	4.86

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.
5. SYSTEM E AND SYSTEM F ARE PART OF THE PAYNES GRAY ANALYSIS. SEE PAYNES GRAY XP-STORM SHEETS FOR CROSS CULVERT AND OUTFALL ANALYSIS.
6. SYSTEM H1 AND SYSTEM H2 ARE PART OF THE DISC GOLF ANALYSIS. SEE DISC GOLF XP-STORM SHEETS FOR CROSS CULVERT AND OUTFALL ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
RUNOFF COMPUTATIONS

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	294

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 INLET CALCULATIONS (10 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM AA1																									
AA1-01-CI	AA1-01-CI	Curb	PCO (3 FT) (LEFT)	213+00.00	FM1560CL	38.00	0.35	n/a	0.02	0.015	5.21	2.62	2.60	0.02	AA1-03-CI	16.00	n/a	n/a	12.31	0.50	0.25	9.50	10.20	n/a	
AA1-02-CI	AA1-02-CI	Curb	PCO (3 FT) (RIGHT)	213+00.00	FM1560CL	-34.00	n/a	0.35	0.02	0.015	4.89	2.64	2.61	0.02	--	16.00	n/a	n/a	12.34	0.50	0.25	9.50	10.24	n/a	
AA1-03-CI	AA1-03-CI	Curb	PCO (3 FT) (LEFT)	211+60.00	FM1560CL	38.00	0.35	n/a	0.02	0.015	4.50	2.59	2.57	0.02	--	16.00	n/a	n/a	12.27	0.50	0.25	9.50	10.14	n/a	
SYSTEM A1																									
A1-01-CI	A1-01-CI	Curb	PCO (3 FT) (LEFT)	217+00.00	FM1560CL	36.00	0.35	n/a	0.02	0.015	4.94	2.30	2.30	0.00	AA1-01-CI	16.00	n/a	n/a	11.72	0.50	0.23	9.50	9.48	n/a	
A1-02-CI	A1-02-CI	Curb	PCO (3 FT) (RIGHT)	217+00.00	FM1560CL	-36.00	n/a	0.35	0.02	0.015	4.33	2.34	2.33	0.00	AA1-02-CI	16.00	n/a	n/a	11.79	0.50	0.24	9.50	9.56	n/a	
A1-04A-CI	A1-04A-CI	Curb	10' CURB CUT	220+08.98	FM1560CL	101.80	0.50	4.60	0.02	0.015	6.44	2.38	10.33	0.00	--	14.00	10.67	3.09	10.67	0.50	0.19	10.00	n/a	n/a	SAG
A1-06A-CI	A1-06A-CI	Curb	SIDEWALK BRIDGE	220+49.95	FM1560CL	96.04	4.60	0.50	0.02	0.015	6.67	4.26	9.98	0.00	--	14.00	3.85	13.28	14.17	0.50	0.28	8.67	n/a	n/a	SAG
A1-07-CI	A1-07-CI	Curb	PCO (6 FT) (BOTH)	224+24.81	FM1560CL	48.00	0.19	0.18	0.02	0.015	25.31	5.83	13.58	0.00	--	16.00	14.37	14.59	14.59	0.50	0.28	14.00	n/a	n/a	SAG
A1-08-CI	A1-08-CI	Curb	PCO (3 FT) (BOTH)	224+24.81	FM1560CL	-36.00	0.18	0.19	0.02	0.015	4.39	5.15	13.58	0.00	--	16.00	13.93	13.72	13.93	0.50	0.26	14.00	n/a	n/a	SAG
A1-10-CI	A1-10-CI	Curb	PCO (6 FT) (LEFT)	227+50.00	FM1560CL	36.00	0.38	n/a	0.02	0.015	26.52	4.29	3.78	0.51	A1-07-CI	16.00	n/a	n/a	14.58	0.50	0.29	9.50	13.70	n/a	
A1-11-CI	A1-11-CI	Curb	PCO (3 FT) (RIGHT)	227+50.00	FM1560CL	-36.00	n/a	0.38	0.02	0.015	7.67	4.38	3.84	0.55	A1-08-CI	16.00	n/a	n/a	14.70	0.50	0.29	9.50	13.88	n/a	
SYSTEM A2																									
A2-01-CI	A2-01-CI	Curb	PCO (4 FT) (LEFT)	234+00.00	FM1560CL	36.00	0.38	n/a	0.02	0.015	18.67	2.48	2.47	0.02	A1-10-CI	16.00	n/a	n/a	11.88	0.50	0.24	9.50	10.09	n/a	
A2-02-CI	A2-02-CI	Curb	PCO (3 FT) (RIGHT)	234+00.00	FM1560CL	-36.00	n/a	0.38	0.02	0.015	4.11	3.00	2.90	0.10	A1-11-CI	16.00	n/a	n/a	12.76	0.50	0.26	9.50	11.23	n/a	
A2-03-CI	A2-03-CI	Curb	PCO (4 FT) (LEFT)	237+30.00	FM1560CL	36.00	0.72	n/a	0.02	0.015	18.07	3.11	2.79	0.32	A2-01-CI	16.00	n/a	n/a	11.48	0.50	0.23	9.50	13.23	n/a	
A2-04-CI	A2-04-CI	Curb	PCO (3 FT) (BOTH)	237+30.00	FM1560CL	-36.00	n/a	0.72	0.02	0.015	17.20	6.69	5.87	0.82	A2-02-CI	16.00	n/a	n/a	15.30	0.50	0.31	14.00	20.35	n/a	
A2-05-CI	A2-05-CI	Curb	PCO (3 FT) (BOTH)	238+50.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.93	5.88	4.97	0.91	A2-04-CI	16.00	n/a	n/a	13.04	0.50	0.26	14.00	21.70	n/a	
A2-06-CI	A2-06-CI	Curb	PCO (3 FT) (BOTH)	239+70.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.60	5.80	4.93	0.88	A2-05-CI	16.00	n/a	n/a	12.97	0.50	0.26	14.00	21.54	n/a	
A2-07-CI	A2-07-CI	Curb	PCO (4 FT) (LEFT)	240+90.00	FM1560CL	36.00	1.30	n/a	0.02	0.015	17.47	3.56	2.81	0.74	A2-03-CI	16.00	n/a	n/a	10.80	0.50	0.22	9.50	16.36	n/a	
A2-08-CI	A2-08-CI	Curb	PCO (3 FT) (BOTH)	240+90.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	17.32	5.48	4.74	0.74	A2-06-CI	16.00	n/a	n/a	12.70	0.50	0.25	14.00	20.85	n/a	
A2-09-CI	A2-09-CI	Curb	PCO (3 FT) (BOTH)	242+10.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	17.07	5.33	4.65	0.68	A2-08-CI	16.00	n/a	n/a	12.57	0.50	0.25	14.00	20.54	n/a	
A2-10-CI	A2-10-CI	Curb	PCO (3 FT) (BOTH)	243+30.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.80	5.88	4.97	0.91	A2-09-CI	16.00	n/a	n/a	13.03	0.50	0.26	14.00	21.69	n/a	
A2-11-CI	A2-11-CI	Curb	PCO (3 FT) (BOTH)	244+50.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.30	5.75	4.89	0.85	A2-10-CI	16.00	n/a	n/a	12.92	0.50	0.26	14.00	21.42	n/a	
A2-12-CI	A2-12-CI	Curb	PCO (3 FT) (BOTH)	245+70.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.15	5.74	4.89	0.85	A2-11-CI	16.00	n/a	n/a	12.92	0.50	0.26	14.00	21.40	n/a	
A2-13-CI	A2-13-CI	Curb	PCO (3 FT) (LEFT)	245+70.00	FM1560CL	36.00	1.30	n/a	0.02	0.015	16.32	2.82	2.42	0.40	A2-07-CI	16.00	n/a	n/a	9.90	0.50	0.20	9.50	14.34	n/a	
A2-14-CI	A2-14-CI	Curb	PCO (3 FT) (BOTH)	247+00.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	15.80	6.00	5.04	0.97	A2-12-CI	16.00	n/a	n/a	13.14	0.50	0.26	14.00	21.96	n/a	
SYSTEM B1																									
B1-01-CI	B1-01-CI	Curb	PCO (4 FT) (LEFT)	249+90.00	FM1560CL	36.00	0.59	n/a	0.02	0.015	23.02	2.36	2.30	0.06	A2-13-CI	16.00	n/a	n/a	10.73	0.50	0.22	9.50	10.84	n/a	
B1-02-CI	B1-02-CI	Curb	PCO (3 FT) (BOTH)	249+90.00	FM1560CL	-36.00	n/a	0.59	0.02	0.015	20.67	3.86	3.85	0.00	A2-14-CI	16.00	n/a	n/a	12.90	0.50	0.26	14.00	14.30	n/a	
B1-03-CI	B1-03-CI	Curb	PCO (3 FT) (BOTH)	250+55.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.49	4.81	4.76	0.05	B1-02-CI	16.00	n/a	n/a	14.75	0.50	0.30	14.00	15.20	n/a	
B1-04-CI	B1-04-CI	Curb	PCO (3 FT) (RIGHT)	251+20.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.30	4.31	3.71	0.60	B1-03-CI	16.00	n/a	n/a	14.15	0.50	0.28	9.50	14.29	n/a	
B1-05-CI	B1-05-CI	Curb	PCO (3 FT) (BOTH)	251+95.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	17.68	5.02	4.94	0.08	B1-04-CI	16.00	n/a	n/a	14.99	0.50	0.30	14.00	15.57	n/a	
B1-06-CI	B1-06-CI	Curb	PCO (3 FT) (BOTH)	252+70.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	17.40	4.83	4.78	0.05	B1-05-CI	16.00	n/a	n/a	14.77	0.50	0.30	14.00	15.23	n/a	
B1-07-CI	B1-07-CI	Curb	PCO (4 FT) (BOTH)	253+30.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.51	5.62	5.42	0.20	B1-06-CI	16.00	n/a	n/a	15.63	0.50	0.31	14.00	16.57	n/a	
B1-08-CI	B1-08-CI	Curb	PCO (4 FT) (LEFT)	253+30.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	22.28	2.90	2.78	0.12	B1-01-CI	16.00	n/a	n/a	12.20	0.50	0.24	9.50	11.44	n/a	
B1-09-CI	B1-09-CI	Curb	PCO (4 FT) (BOTH)	254+00.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.33	4.58	4.56	0.02	B1-07-CI	16.00	n/a	n/a	14.48	0.50	0.29	14.00	14.79	n/a	
B1-10-CI	B1-10-CI	Curb	PCO (3 FT) (BOTH)	254+70.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.13	4.69	4.66	0.04	B1-09-CI	16.00	n/a	n/a	14.61	0.50	0.29	14.00	14.99	n/a	
B1-11-CI	B1-11-CI	Curb	PCO (3 FT) (BOTH)	255+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	18.89	4.23	4.23	0.00	B1-10-CI	16.00	n/a	n/a	14.05	0.50	0.28	14.00	14.14	n/a	
B1-12-CI	B1-12-CI	Curb	PCO (3 FT) (BOTH)	256+30.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	18.60	5.26	5.14	0.12	B1-11-CI	16.00	n/a	n/a	15.25	0.50	0.31	14.00	15.97	n/a	
B1-13-CI	B1-13-CI	Curb	PCO (4 FT) (LEFT)	257+50.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	21.22	2.90	2.78	0.12	B1-08-CI	16.00	n/a	n/a	12.20	0.50	0.24	9.50	11.43	n/a	
B1-14-CI	B1-14-CI	Curb	PCO (3 FT) (BOTH)	257+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	21.00	4.51	4.49	0.02	B1-12-CI	16.00	n/a	n/a	14.39	0.50	0.29	14.00	14.65	n/a	
B1-15-CI	B1-15-CI	Curb	PCO (3 FT) (BOTH)	258+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.05	4.34	4.34	0.01	B1-14-CI	16.00	n/a	n/a	14.19	0.50	0.28	14.00	14.35	n/a	
B1-16-CI	B1-16-CI	Curb	PCO (3 FT) (BOTH)	259+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.70	5.65	5.45	0.20	B1-15-CI	16.00	n/a	n/a	15.67	0.50	0.31	14.00	16.63	n/a	
B1-17-CI	B1-17-CI	Curb	PCO (3 FT) (LEFT)	261+00.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	7.13	4.27	3.68	0.59	B1-13-CI	16.00	n/a	n/a	14.11	0.50	0.28	9.50	14.22	n/a	
B1-18-CI	B1-18-CI	Curb	PCO (3 FT) (RIGHT)	261+00.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	6.83	3.77	3.38	0.39	B1-16-CI	16.00	n/a	n/a	13.47	0.50	0.27	9.50	13.26	n/a	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10YR INLET CALCULATIONS

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 295

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020 10:46:07 AM
P:\PROJECTS\TXDOT17105\12 FM 1560\CAD\SHEETS\021\FM1560*021*HDS*SS03.dgn

FM 1560 INLET CALCULATIONS (10 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM D1																									
D1-01-CI	D1-01-CI	Curb	PCO (4 FT) (BOTH)	266+70.00	FM1560CL	36.00	1.72	n/a	0.02	0.015	16.21	4.59	4.05	0.54	B1-17-CI	16.00	n/a	n/a	11.27	0.50	0.23	14.00	20.11	n/a	
D1-02-CI	D1-02-CI	Curb	PCO (3 FT) (RIGHT)	266+70.00	FM1560CL	-36.00	n/a	1.72	0.02	0.015	2.49	1.19	1.19	0.00	B1-18-CI	16.00	n/a	n/a	6.81	0.50	0.14	9.50	9.40	n/a	
D1-03-CI	D1-03-CI	Curb	PCO (4 FT) (BOTH)	268+50.00	FM1560CL	36.00	1.72	n/a	0.02	0.015	15.91	4.65	4.08	0.56	D1-01-CI	16.00	n/a	n/a	11.33	0.50	0.23	14.00	20.26	n/a	
D1-04-CI	D1-04-CI	Curb	PCO (3 FT) (RIGHT)	268+50.00	FM1560CL	-36.00	n/a	1.72	0.02	0.015	4.39	2.31	2.04	0.27	D2-02-CI	16.00	n/a	n/a	8.72	0.50	0.17	9.50	13.64	n/a	
D1-05-CI	D1-05-CI	Curb	PCO (4 FT) (BOTH)	271+95.00	FM1560CL	48.00	4.22	n/a	0.02	0.015	15.32	3.66	3.09	0.57	D1-03-CI	16.00	n/a	n/a	8.75	0.50	0.18	14.00	21.70	n/a	
D1-06-CI	D1-06-CI	Curb	PCO (3 FT) (BOTH)	271+95.00	FM1560CL	-36.00	n/a	4.22	0.02	0.015	6.42	4.33	3.45	0.89	D2-04-CI	16.00	n/a	n/a	9.33	0.50	0.19	14.00	23.88	n/a	
D1-07-CI	D1-07-CI	Curb	CHANNEL HEADWALL INLET	271+95.00	FM1560CL	59.67	50.00	50.00	0.50	0.015	15.30	10.41	27.14	0.00	--	2.00	0.84	0.84	1.06	1.00	0.53	10.00	n/a	n/a	SAG
D1-08-CI	D1-08-CI	Curb	PCO (3 FT) (BOTH)	275+35.00	FM1560CL	48.00	4.40	n/a	0.02	0.015	8.27	3.56	3.02	0.54	D1-05-CI	16.00	n/a	n/a	8.60	0.50	0.17	14.00	21.58	n/a	
D1-09-CI	D1-09-CI	Curb	PCO (3 FT) (LEFT)	276+07.82	FM1560CL	95.67	4.00	n/a	0.02	0.015	7.96	2.17	1.74	0.43	D2-08-CI	12.00	n/a	n/a	7.27	0.50	0.15	9.50	15.95	n/a	
D1-10-CI	D1-10-CI	Curb	PCO (3 FT) (BOTH)	276+73.22	FM1560CL	115.67	n/a	4.00	0.02	0.015	7.56	3.25	2.87	0.38	D2-08-CI	12.00	n/a	n/a	8.46	0.50	0.17	14.00	20.06	n/a	
D1-11-CI	D1-11-CI	Curb	PCO (3 FT) (BOTH)	277+31.00	FM1560CL	36.00	3.37	n/a	0.02	0.015	6.89	4.32	3.56	0.77	D2-08-CI	16.00	n/a	n/a	9.72	0.50	0.19	14.00	22.67	n/a	
D1-12-CI	D1-12-CI	Curb	PCO (3 FT) (RIGHT)	277+31.00	FM1560CL	-36.00	n/a	3.37	0.02	0.015	5.56	3.00	2.19	0.82	D1-06-CI	16.00	n/a	n/a	8.48	0.50	0.17	9.50	18.45	n/a	
D1-13-CI	D1-13-CI	Curb	PCO (3 FT) (LEFT)	279+20.00	FM1560CL	36.00	3.37	n/a	0.02	0.015	6.22	2.97	2.17	0.80	D2-11-CI	16.00	n/a	n/a	8.45	0.50	0.17	9.50	18.34	n/a	
SYSTEM E1																									
E1-01-CI	E1-01-CI	Curb	PCO (3 FT) (LEFT)	286+00.00	FM1560CL	-36.00	3.77	n/a	0.02	0.015	4.78	2.79	2.06	0.74	E1-03-CI	16.00	n/a	n/a	8.08	0.50	0.16	9.50	18.16	n/a	
E1-02-CI	E1-02-CI	Curb	PCO (3 FT) (RIGHT)	286+00.00	FM1560CL	36.00	n/a	3.77	0.02	0.015	5.12	2.77	2.05	0.72	E1-04-CI	16.00	n/a	n/a	8.05	0.50	0.16	9.50	18.07	n/a	
E1-03-CI	E1-03-CI	Curb	PCO (3 FT) (LEFT)	290+00.00	FM1560CL	-36.00	1.37	n/a	0.02	0.015	4.82	3.35	2.69	0.66	E1-05-CI	16.00	n/a	n/a	10.46	0.50	0.21	9.50	16.00	n/a	
E1-04-CI	E1-04-CI	Curb	PCO (3 FT) (RIGHT)	290+00.00	FM1560CL	36.00	n/a	1.37	0.02	0.015	5.92	3.38	2.70	0.68	E1-06-CI	16.00	n/a	n/a	10.49	0.50	0.21	9.50	16.07	n/a	
E1-05-CI	E1-05-CI	Curb	PCO (3 FT) (BOTH)	291+71.20	FM1560CL	-36.00	1.89	1.72	0.02	0.015	3.00	3.67	13.58	0.00	--	16.00	7.23	8.57	10.45	0.50	0.21	14.00	n/a	n/a	SAG
E1-06-CI	E1-06-CI	Curb	PCO (4 FT) (BOTH)	291+71.20	FM1560CL	36.00	1.72	1.89	0.02	0.015	6.44	3.57	13.58	0.00	--	16.00	8.48	7.16	10.26	0.50	0.21	14.00	n/a	n/a	SAG
SYSTEM E2																									
E2-01-CI	E2-01-CI	Curb	PCO (3 FT) (RIGHT)	294+00.00	FM1560CL	-36.00	n/a	1.83	0.02	0.015	3.78	2.27	2.00	0.27	E1-05-CI	16.00	n/a	n/a	8.57	0.50	0.17	9.50	13.72	n/a	
E2-02-CI	E2-02-CI	Curb	PCO (4 FT) (BOTH)	294+00.00	FM1560CL	36.00	1.83	n/a	0.02	0.015	24.73	3.27	3.13	0.13	E1-06-CI	16.00	n/a	n/a	9.81	0.50	0.20	14.00	16.84	n/a	
E2-03-CI	E2-03-CI	Curb	PCO (3 FT) (RIGHT)	297+00.00	FM1560CL	-36.00	n/a	3.25	0.02	0.015	2.89	2.00	1.70	0.30	E2-01-CI	16.00	n/a	n/a	7.34	0.50	0.15	9.50	14.55	n/a	
E2-04-CI	E2-04-CI	Curb	PCO (4 FT) (BOTH)	297+00.00	FM1560CL	36.00	3.25	n/a	0.02	0.015	24.12	3.79	3.28	0.52	E2-02-CI	16.00	n/a	n/a	9.32	0.50	0.19	14.00	20.89	n/a	
E2-05-CI	E2-05-CI	Curb	PCO (3 FT) (RIGHT)	299+20.00	FM1560CL	-36.00	n/a	1.27	0.02	0.015	14.20	3.19	2.63	0.55	E2-03-CI	16.00	n/a	n/a	10.41	0.50	0.21	9.50	15.29	n/a	
E2-06-CI	E2-06-CI	Curb	PCO (4 FT) (LEFT)	299+20.00	FM1560CL	36.00	1.27	n/a	0.02	0.015	23.67	2.89	2.47	0.42	E2-04-CI	16.00	n/a	n/a	10.03	0.50	0.20	9.50	14.46	n/a	
E2-07-CI	E2-07-CI	Curb	PCO (3 FT) (RIGHT)	301+00.00	FM1560CL	-36.00	n/a	0.73	0.02	0.015	13.00	3.04	2.74	0.30	E2-05-CI	16.00	n/a	n/a	11.34	0.50	0.23	9.50	13.12	n/a	
E2-08-CI	E2-08-CI	Curb	PCO (4 FT) (LEFT)	301+00.00	FM1560CL	36.00	0.73	n/a	0.02	0.015	23.30	2.58	2.43	0.15	E2-06-CI	16.00	n/a	n/a	10.66	0.50	0.21	9.50	11.96	n/a	
E2-09-CI	E2-09-CI	Curb	PCO (3 FT) (BOTH)	302+50.00	FM1560CL	-36.00	n/a	1.47	0.02	0.015	11.66	4.03	3.76	0.27	E2-07-CI	16.00	n/a	n/a	11.06	0.50	0.22	14.00	18.05	n/a	
E2-10-GI	E2-10-GI	Grate	PSL FG (3'x3'-3'x3')	302+50.00	FM1560CL	-52.00	25.00	1.00	0.25	0.035	11.60	2.49	14.78	0.00	--	4.00	0.27	2.80	2.80	1.00	0.25	n/a	n/a	0.50	SAG
E2-11-CI	E2-11-CI	Curb	PCO (3 FT) (RIGHT)	304+50.00	FM1560CL	-36.00	n/a	1.37	0.02	0.015	3.22	1.97	1.87	0.11	E2-09-CI	16.00	n/a	n/a	8.58	0.50	0.17	9.50	11.84	n/a	
E2-12-CI	E2-12-CI	Curb	PCO (4 FT) (BOTH)	304+50.00	FM1560CL	36.00	1.37	n/a	0.02	0.015	22.57	4.12	3.85	0.27	E2-08-CI	16.00	n/a	n/a	11.31	0.50	0.23	14.00	17.97	n/a	
SYSTEM F1																									
F1-03-CI	F1-03-CI	Curb	PCO (3 FT) (BOTH)	307+00.00	FM1560CL	-36.00	n/a	1.47	0.02	0.015	15.10	4.20	3.87	0.33	E2-11-CI	16.00	n/a	n/a	11.23	0.50	0.23	14.00	18.46	n/a	
F1-04-CI	F1-04-CI	Curb	PCO (3 FT) (BOTH)	310+00.00	FM1560CL	-36.00	n/a	2.60	0.02	0.015	21.61	4.27	3.65	0.61	F1-03-CI	16.00	n/a	n/a	10.15	0.50	0.20	14.00	21.21	n/a	
F1-05-CI	F1-05-CI	Curb	PCO (3 FT) (BOTH)	310+00.00	FM1560CL	36.00	2.60	n/a	0.02	0.015	23.18	3.54	3.21	0.33	E2-12-CI	16.00	n/a	n/a	9.47	0.50	0.19	14.00	19.09	n/a	
F1-06-CI	F1-06-CI	Curb	PCO (3 FT) (BOTH)	311+70.00	FM1560CL	-36.00	n/a	2.60	0.02	0.015	21.20	4.88	3.99	0.89	F1-04-CI	16.00	n/a	n/a	10.68	0.50	0.21	14.00	22.90	n/a	
F1-07-CI	F1-07-CI	Curb	PCO (3 FT) (BOTH)	313+00.00	FM1560CL	-36.00	n/a	2.35	0.02	0.015	19.90	4.82	4.02	0.80	F1-06-CI	16.00	n/a	n/a	10.83	0.50	0.22	14.00	22.20	n/a	
F1-08-CI	F1-08-CI	Curb	PCO (3 FT) (BOTH)	314+30.00	FM1560CL	-36.00	n/a	1.80	0.02	0.015	22.13	4.38	3.90	0.48	F1-07-CI	16.00	n/a	n/a	10.99	0.50	0.22	14.00	19.81	n/a	
F1-09-CI	F1-09-CI	Curb	PCO (3 FT) (LEFT)	314+30.00	FM1560CL	36.00	1.80	n/a	0.02	0.015	22.30	2.75	2.28	0.47	F1-05-CI	16.00	n/a	n/a	9.22	0.50	0.18	9.50	15.21	n/a	
F1-10-CI	F1-10-CI	Curb	PCO (3 FT) (BOTH)	315+40.00	FM1560CL	-36.00	n/a	1.34	0.02	0.015	21.87	4.50	4.12	0.39	F1-08-CI	16.00	n/a	n/a	11.74	0.50	0.24	14.00	18.79	n/a	
F1-11-CI	F1-11-CI	Curb	PCO (3 FT) (BOTH)	316+70.00	FM1560CL	-36.00	n/a	0.79	0.02	0.015	21.50	4.55	4.37	0.18	F1-10-CI	16.00	n/a	n/a	13.01	0.50	0.26	14.00	16.75	n/a	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
STORM DRAIN
10YR INLET CALCULATIONS

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

296

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FM 1560 INLET CALCULATIONS (10 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM G1																									
G1-01-CI	G1-01-CI	Curb	PCO (3 FT) (BOTH)	319+58.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	20.80	3.18	3.18	0.00	G1-02-CI	16.00	n/a	n/a	13.24	0.50	0.27	14.00	11.38	n/a	
G1-02-CI	G1-02-CI	Curb	PCO (3 FT) (LEFT)	321+10.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	22.40	5.15	4.32	0.83	G1-03-CI	16.00	n/a	n/a	15.86	0.50	0.32	9.50	14.89	n/a	
G1-03-CI	G1-03-CI	Curb	PCO (3 FT) (LEFT)	322+20.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	22.82	5.09	4.29	0.80	G1-04-CI	16.00	n/a	n/a	15.79	0.50	0.32	9.50	14.80	n/a	
G1-04-CI	G1-04-CI	Curb	PCO (4 FT) (LEFT)	323+40.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	23.23	5.01	4.25	0.77	G1-06-CI	16.00	n/a	n/a	15.70	0.50	0.31	9.50	14.67	n/a	
G1-05-CI	G1-05-CI	Curb	PCO (4 FT) (RIGHT)	323+40.00	FM1560CL	36.00	n/a	0.35	0.02	0.015	23.47	3.12	3.01	0.11	G1-07-CI	16.00	n/a	n/a	13.15	0.50	0.26	9.50	11.26	n/a	
G1-06-CI	G1-06-CI	Curb	PCO (3 FT) (LEFT)	326+70.00	FM1560CL	-36.00	0.97	n/a	0.02	0.015	16.75	2.93	2.58	0.35	G1-10-CI	16.00	n/a	n/a	10.60	0.50	0.21	9.50	13.70	n/a	
G1-07-CI	G1-07-CI	Curb	PCO (4 FT) (RIGHT)	326+70.00	FM1560CL	36.00	n/a	0.97	0.02	0.015	24.50	2.30	2.16	0.13	G1-09-CI	16.00	n/a	n/a	9.68	0.50	0.19	9.50	11.94	n/a	
G1-08-GI	G1-08-GI	Grate	PSL FG (3'x3'-3'x3')	326+70.00	FM1560CL	-56.00	0.30	0.30	0.25	0.035	16.70	13.20	20.90	0.00	--	8.00	6.05	3.60	6.05	2.00	0.80	n/a	n/a	0.50	SAG
G1-09-CI	G1-09-CI	Curb	PCO (4 FT) (RIGHT)	330+00.00	FM1560CL	36.00	n/a	5.52	0.02	0.015	25.26	2.32	1.73	0.59	G1-13-CI	16.00	n/a	n/a	7.02	0.50	0.14	9.50	17.84	n/a	
G1-10-CI	G1-10-CI	Curb	PCO (3 FT) (BOTH)	330+00.00	FM1560CL	-36.00	5.52	n/a	0.02	0.015	4.11	3.58	2.94	0.65	G1-11-CI	16.00	n/a	n/a	8.26	0.50	0.17	14.00	22.81	n/a	
G1-11-CI	G1-11-CI	Curb	PCO (3 FT) (BOTH)	332+00.00	FM1560CL	-36.00	6.55	n/a	0.02	0.015	2.33	3.03	2.57	0.46	G1-12-CI	16.00	n/a	n/a	7.51	0.50	0.15	14.00	21.56	n/a	
G1-12-CI	G1-12-CI	Curb	PCO (3 FT) (LEFT)	334+80.00	FM1560CL	-36.00	3.77	n/a	0.02	0.015	3.56	2.30	1.82	0.47	G1-14-CI	16.00	n/a	n/a	7.51	0.50	0.15	9.50	16.27	n/a	
G1-13-CI	G1-13-CI	Curb	PCO (4 FT) (BOTH)	334+80.00	FM1560CL	36.00	n/a	3.77	0.02	0.015	26.30	3.77	3.20	0.57	G1-15-CI	16.00	n/a	n/a	9.04	0.50	0.18	14.00	21.52	n/a	
G1-14-CI	G1-14-CI	Curb	PCO (3 FT) (LEFT)	339+50.00	FM1560CL	-36.00	0.59	n/a	0.02	0.015	5.67	3.57	3.15	0.42	G2-01-CI	16.00	n/a	n/a	12.56	0.50	0.25	9.50	13.65	n/a	
G1-15-CI	G1-15-CI	Curb	PCO (4 FT) (RIGHT)	339+50.00	FM1560CL	36.00	n/a	0.59	0.02	0.015	27.29	3.66	3.21	0.46	G2-02-CI	16.00	n/a	n/a	12.68	0.50	0.25	9.50	13.85	n/a	
SYSTEM G2																									
G2-01-CI	G2-01-CI	Curb	PCO (3 FT) (LEFT)	344+50.00	FM1560CL	-36.00	0.59	n/a	0.02	0.015	6.00	3.71	3.23	0.48	G2-03-CI	16.00	n/a	n/a	12.74	0.50	0.26	9.50	13.95	n/a	
G2-02-CI	G2-02-CI	Curb	PCO (4 FT) (RIGHT)	344+50.00	FM1560CL	36.00	n/a	0.59	0.02	0.015	7.29	3.75	3.26	0.49	G2-04-CI	16.00	n/a	n/a	12.79	0.50	0.26	9.50	14.04	n/a	
G2-03-CI	G2-03-CI	Curb	PCO (3 FT) (BOTH)	346+92.13	FM1560CL	-36.00	0.29	0.28	0.02	0.015	3.72	4.35	13.58	0.00	--	16.00	10.92	12.81	12.81	0.50	0.23	14.00	n/a	n/a	SAG
G2-04-CI	G2-04-CI	Curb	PCO (4 FT) (BOTH)	346+92.13	FM1560CL	36.00	0.28	0.29	0.02	0.015	6.32	4.36	13.58	0.00	--	16.00	12.82	10.93	12.82	0.50	0.23	14.00	n/a	n/a	SAG
G2-05-CI	G2-05-CI	Curb	PCO (3 FT) (RIGHT)	350+00.00	FM1560CL	-36.00	n/a	0.56	0.02	0.015	4.67	2.79	2.64	0.14	G2-03-CI	16.00	n/a	n/a	11.53	0.50	0.23	9.50	11.78	n/a	
G2-06-CI	G2-06-CI	Curb	PCO (3 FT) (LEFT)	350+00.00	FM1560CL	36.00	0.56	n/a	0.02	0.015	5.05	2.73	2.60	0.13	G2-04-CI	16.00	n/a	n/a	11.45	0.50	0.23	9.50	11.65	n/a	
SYSTEM H1																									
H1-01-CI	H1-01-CI	Curb	PCO (3 FT) (RIGHT)	353+80.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	25.62	3.61	3.32	0.29	G2-05-CI	16.00	n/a	n/a	13.55	0.50	0.27	9.50	12.60	n/a	
H1-02-CI	H1-02-CI	Curb	PCO (3 FT) (LEFT)	353+80.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	25.80	3.43	3.20	0.23	G2-06-CI	16.00	n/a	n/a	13.29	0.50	0.27	9.50	12.24	n/a	
H1-03-CI	H1-03-CI	Curb	PCO (3 FT) (RIGHT)	359+00.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	30.36	3.31	3.12	0.20	H1-01-CI	16.00	n/a	n/a	13.12	0.50	0.26	9.50	12.00	n/a	
H1-04-CI	H1-04-CI	Curb	PCO (3 FT) (LEFT)	359+00.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	30.49	2.36	2.36	0.01	H1-02-CI	16.00	n/a	n/a	11.56	0.50	0.23	9.50	9.93	n/a	
H1-05-CI	H1-05-CI	Curb	PCO (3 FT) (RIGHT)	362+50.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	8.72	5.29	4.32	0.98	H1-03-CI	16.00	n/a	n/a	15.63	0.50	0.31	9.50	15.59	n/a	
H1-06-CI	H1-06-CI	Curb	PCO (3 FT) (LEFT)	362+50.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	9.01	2.90	2.81	0.09	H1-04-CI	16.00	n/a	n/a	12.48	0.50	0.25	9.50	11.14	n/a	
SYSTEM I1																									
I1-01-CI	I1-01-CI	Curb	PCO (3 FT) (BOTH)	368+20.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	8.44	5.01	4.90	0.11	I1-02-CI	16.00	n/a	n/a	14.69	0.50	0.29	14.00	15.93	n/a	
I1-02-CI	I1-02-CI	Curb	PCO (3 FT) (LEFT)	369+00.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	9.06	4.49	3.75	0.73	I1-04-CI	16.00	n/a	n/a	14.09	0.50	0.28	9.50	14.97	n/a	
I1-03-CI	I1-03-CI	Curb	PCO (3 FT) (RIGHT)	369+00.00	FM1560CL	36.00	n/a	0.50	0.02	0.015	9.29	1.66	1.66	0.00	I1-06-CI	16.00	n/a	n/a	9.71	0.50	0.19	9.50	8.56	n/a	
I1-04-CI	I1-04-CI	Curb	PCO (3 FT) (LEFT)	370+40.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	6.14	4.51	3.77	0.74	I1-05-CI	16.00	n/a	n/a	14.12	0.50	0.28	9.50	15.02	n/a	
I1-05-CI	I1-05-CI	Curb	PCO (3 FT) (LEFT)	372+10.00	FM1560CL	-36.00	1.39	n/a	0.02	0.015	5.89	3.65	2.83	0.82	I1-07-CI	16.00	n/a	n/a	10.76	0.50	0.22	9.50	16.86	n/a	
I1-06-CI	I1-06-CI	Curb	PCO (4 FT) (RIGHT)	372+10.00	FM1560CL	36.00	n/a	1.39	0.02	0.015	10.13	2.18	2.01	0.18	I1-09-CI	16.00	n/a	n/a	8.88	0.50	0.18	9.50	12.60	n/a	
I1-07-CI	I1-07-CI	Curb	PCO (3 FT) (LEFT)	373+50.00	FM1560CL	-36.00	1.60	n/a	0.02	0.015	7.56	3.70	2.79	0.91	I1-08-CI	16.00	n/a	n/a	10.55	0.50	0.21	9.50	17.55	n/a	
I1-08-CI	I1-08-CI	Curb	PCO (3 FT) (BOTH)	374+51.05	FM1560CL	-36.00	1.04	0.15	0.02	0.015	8.11	4.81	13.58	0.00	--	16.00	9.73	13.98	13.98	0.50	0.25	14.00	n/a	n/a	SAG
I1-09-CI	I1-09-CI	Curb	PCO (4 FT) (BOTH)	374+51.05	FM1560CL	36.00	0.15	1.04	0.02	0.015	10.72	3.41	13.58	0.00	--	16.00	11.30	9.15	11.30	0.50	0.20	14.00	n/a	n/a	SAG
SYSTEM I2																									
I2-01-CI	I2-01-CI	Curb	PCO (3 FT) (BOTH)	380+27.85	FM1560CL	-48.00	0.32	0.22	0.02	0.015	4.56	3.34	13.58	0.00	--	16.00	13.18	6.20	13.18	0.50	0.20	14.00	n/a	n/a	SAG
I2-02-CI	I2-02-CI	Curb	PCO (3 FT) (BOTH)	380+27.85	FM1560CL	36.00	0.22	0.32	0.02	0.015	4.90	3.24	13.58	0.00	--	16.00	6.13	13.03	13.03	0.50	0.19	14.00	n/a	n/a	SAG

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 6/10/2020

NOTES:

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2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10YR INLET CALCULATIONS

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	297

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (10-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM AA1																			
AA1-01-L	AA1-01-CI	AA1-OUT	133.10	135.60	0.40	Circular	n/a	2.00	1.00	937.36	936.82	0.80	4.45	2.07	1.66	938.86	938.82	16.64	5.21
AA1-02-L	AA1-02-CI	AA1-01-CI	72.00	75.00	0.48	Circular	n/a	2.00	1.00	937.72	937.36	0.53	3.94	1.42	1.04	938.86	938.86	18.26	2.61
SYSTEM A1																			
A1-01-L	A1-01-CI	A1-03-MH	143.01	148.01	0.10	Pipe-Arch	2.38	1.50	1.00	940.62	940.47	1.13	2.36	1.83	1.83	943.37	943.27	5.56	4.63
A1-02-L	A1-02-CI	A1-01-CI	72.00	75.00	0.10	Pipe-Arch	2.38	1.50	1.00	940.69	940.62	0.56	2.04	0.92	0.92	943.38	943.37	5.61	2.33
A1-03-L	A1-03-MH	A1-05A-MH	282.85	287.85	0.10	Box	5.00	2.00	1.00	940.47	940.18	1.73	3.94	3.42	3.42	943.27	942.92	41.39	34.15
A1-04-L	A1-04-FW	A1-03-MH	7.42	10.42	1.25	Box	3.00	2.00	1.00	940.60	940.47	1.04	9.97	5.17	5.17	943.30	943.27	73.92	31.00
A1-05A-L	A1-05A-MH	A1-05-MH	102.68	107.68	0.10	Box	5.00	2.00	1.00	940.18	940.08	1.73	3.94	3.42	3.42	942.92	942.80	41.43	34.15
A1-05-L	A1-05-MH	A1-07-CI	169.82	174.82	0.10	Box	5.00	2.00	1.00	940.08	939.90	1.86	4.07	3.78	3.78	942.80	942.54	41.46	37.81
A1-06-L	A1-06-SET	A1-05-MH	5.45	8.45	10.95	Circular	n/a	2.00	1.00	941.00	940.08	0.41	16.10	2.51	2.37	942.79	942.80	87.22	7.45
A1-07-L	A1-07-CI	A1-09-MH	30.23	35.23	0.20	Box	5.00	2.00	1.00	939.90	939.83	1.61	5.56	4.47	4.47	942.54	942.47	58.57	44.72
A1-08-L	A1-08-CI	A1-07-CI	84.00	88.50	0.30	Circular	n/a	2.00	1.00	940.17	939.90	0.87	3.96	1.64	1.64	942.58	942.54	14.44	5.15
A1-09-L	A1-09-MH	A1-10-CI	285.32	290.32	0.10	Box	5.00	3.00	1.00	938.66	938.37	2.04	4.38	2.98	2.98	942.47	942.28	71.29	44.72
A1-10-L	A1-10-CI	A1-12-MH	219.51	225.01	0.10	Box	5.00	3.00	1.00	938.37	938.15	2.23	4.32	3.21	3.21	942.28	942.12	71.29	48.09
A1-11-L	A1-11-CI	A1-10-CI	72.00	76.50	0.30	Circular	n/a	2.00	1.00	939.60	939.37	0.73	3.67	1.22	1.22	942.30	942.28	14.44	3.83
A1-12-L	A1-12-MH	A1-OUT	145.39	148.39	0.10	Box	5.00	3.00	1.00	938.15	938.00	2.23	4.32	3.21	3.21	942.12	942.01	71.29	48.09
SYSTEM A2																			
A2-01-L	A2-01-CI	A2-OUT	26.27	28.77	0.63	Circular	n/a	3.00	1.00	940.63	940.45	2.27	9.18	8.82	9.13	942.99	942.72	61.69	52.58
A2-02-L	A2-02-CI	A2-01-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	942.38	941.63	0.46	5.25	2.54	5.22	943.17	942.09	26.36	2.90
A2-03-L	A2-03-CI	A2-01-CI	323.03	328.03	0.63	Circular	n/a	3.00	1.00	942.70	940.63	2.13	9.12	8.51	9.11	944.98	942.76	61.69	49.05
A2-04-L	A2-04-CI	A2-03-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	944.45	943.69	1.16	8.27	6.52	8.10	945.87	944.87	26.36	15.61
A2-05-L	A2-05-CI	A2-04-CI	115.69	120.69	1.00	Circular	n/a	2.00	1.00	945.66	944.45	0.88	7.38	5.42	7.33	946.78	945.33	26.36	9.83
A2-06-L	A2-06-CI	A2-05-CI	115.69	120.69	1.00	Circular	n/a	2.00	1.00	946.86	945.66	0.61	6.09	2.78	6.09	947.97	946.27	26.36	4.93
A2-07-L	A2-07-CI	A2-03-CI	352.84	357.84	1.00	Circular	n/a	2.50	1.00	946.77	943.20	1.58	9.85	7.90	9.85	948.70	944.77	47.80	32.12
A2-08-L	A2-08-CI	A2-07-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	948.86	948.11	1.31	8.60	7.15	8.46	950.42	949.44	26.36	18.80
A2-09-L	A2-09-CI	A2-08-CI	115.27	120.27	1.00	Circular	n/a	2.00	1.00	950.06	948.86	1.09	8.10	6.26	8.03	951.42	949.96	26.36	14.23
A2-10-L	A2-10-CI	A2-09-CI	115.00	120.00	1.00	Circular	n/a	2.00	1.00	951.26	950.06	0.88	7.35	5.41	7.32	952.38	950.95	26.36	9.79
A2-11-L	A2-11-CI	A2-10-CI	115.00	120.00	1.00	Circular	n/a	2.00	1.00	952.46	951.26	0.61	6.10	2.77	6.08	953.56	951.87	26.36	4.89
A2-12-L	A2-12-CI	A2-13-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	955.10	954.35	0.88	7.38	5.42	7.24	956.22	955.24	26.36	9.83
A2-13-L	A2-13-CI	A2-07-CI	474.72	479.72	1.00	Circular	n/a	2.00	1.00	952.91	948.11	0.97	7.71	5.78	7.71	954.13	949.08	26.36	11.67
A2-14-L	A2-14-CI	A2-12-CI	125.00	130.00	1.00	Circular	n/a	2.00	1.00	956.40	955.10	0.62	6.13	2.79	6.13	957.52	955.72	26.36	5.04

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10YR LINK CALCULATIONS

SHEET 1 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 298

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020 11:30:15 AM
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FM 1560 LINK CALCULATIONS (10-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM B1																			
B1-01-L	B1-01-CI	B1-OUT	89.39	91.89	0.50	Box	3.00	3.00	1.00	958.76	958.30	2.55	8.39	7.87	7.14	961.48	961.30	77.47	64.23
B1-02-L	B1-02-CI	B1-01-CI	72.00	75.50	0.45	Circular	n/a	2.50	1.00	959.59	959.26	1.54	6.57	5.03	4.52	961.56	961.48	32.06	20.84
B1-03-L	B1-03-CI	B1-02-CI	60.00	65.00	0.45	Circular	n/a	2.00	1.00	960.39	960.10	1.76	5.88	6.15	6.83	962.05	961.59	17.68	17.20
B1-04-L	B1-04-CI	B1-03-CI	60.00	65.00	0.45	Circular	n/a	2.00	1.00	960.68	960.39	1.32	5.76	5.08	4.53	962.16	962.05	17.68	12.68
B1-05-L	B1-05-CI	B1-04-CI	70.00	75.00	0.45	Circular	n/a	2.00	1.00	961.02	960.68	1.10	5.42	4.94	3.84	962.20	962.16	17.68	9.60
B1-06-L	B1-06-CI	B1-05-CI	70.00	75.00	0.45	Circular	n/a	2.00	1.00	961.35	961.02	0.74	4.51	2.76	2.46	962.44	962.20	17.68	4.78
B1-07-L	B1-07-CI	B1-08-CI	72.00	76.00	0.45	Circular	n/a	2.50	1.00	961.13	960.79	1.65	6.64	6.64	6.24	962.78	962.53	31.96	22.81
B1-08-L	B1-08-CI	B1-01-CI	335.39	340.39	0.45	Circular	n/a	3.00	1.00	960.29	958.76	2.24	7.70	7.70	6.48	962.53	961.48	52.14	43.65
B1-09-L	B1-09-CI	B1-07-CI	64.53	69.53	0.45	Circular	n/a	2.50	1.00	961.44	961.13	1.39	6.35	6.15	6.34	962.87	962.52	32.07	17.85
B1-10-L	B1-10-CI	B1-09-CI	64.54	69.54	0.45	Circular	n/a	2.00	1.00	962.25	961.94	1.38	5.90	5.90	6.14	963.63	963.27	17.68	13.62
B1-11-L	B1-11-CI	B1-10-CI	74.47	79.47	0.45	Circular	n/a	2.00	1.00	962.61	962.25	1.07	5.38	5.30	5.38	963.69	963.32	17.68	9.21
B1-12-L	B1-12-CI	B1-11-CI	74.47	79.47	0.45	Circular	n/a	2.00	1.00	962.97	962.61	0.77	4.61	2.80	4.61	964.10	963.38	17.68	5.14
B1-13-L	B1-13-CI	B1-08-CI	417.70	422.70	0.45	Circular	n/a	2.50	1.00	962.69	960.79	1.54	6.60	6.53	6.60	964.24	962.33	32.06	20.94
B1-14-L	B1-14-CI	B1-13-CI	72.00	75.50	0.45	Circular	n/a	2.00	1.00	963.53	963.19	1.42	5.85	5.86	6.22	964.95	964.54	17.63	13.99
B1-15-L	B1-15-CI	B1-14-CI	94.34	99.34	0.45	Circular	n/a	2.00	1.00	963.97	963.53	1.10	5.49	5.40	5.48	965.09	964.63	17.68	9.72
B1-16-L	B1-16-CI	B1-15-CI	94.34	99.34	0.45	Circular	n/a	2.00	1.00	964.42	963.97	0.79	4.71	2.84	4.71	965.60	964.77	17.68	5.45
B1-17-L	B1-17-CI	B1-13-CI	346.58	351.58	0.45	Circular	n/a	2.00	1.00	964.77	963.19	0.92	5.03	4.85	5.03	965.71	964.11	17.68	7.07
B1-18-L	B1-18-CI	B1-17-CI	72.00	75.00	0.45	Circular	n/a	2.00	1.00	965.11	964.77	0.62	4.11	2.60	4.11	965.97	965.39	17.68	3.38
SYSTEM D1																			
D1-01-L	D1-01-CI	D1-OUT	148.14	150.64	1.00	Circular	n/a	2.50	1.00	967.93	966.42	1.74	10.08	8.52	10.03	969.98	968.17	47.80	36.79
D1-02-L	D1-02-CI	D1-01-CI	76.00	79.50	1.00	Circular	n/a	2.00	1.00	973.00	972.20	0.30	4.03	2.24	4.02	973.45	972.51	26.36	1.19
D1-03-L	D1-03-CI	D1-01-CI	172.56	177.56	1.00	Circular	n/a	2.50	1.00	974.03	972.25	1.60	9.86	7.96	9.82	975.97	973.85	47.80	32.61
D1-04-L	D1-04-CI	D1-03-CI	76.00	79.50	1.00	Circular	n/a	2.00	1.00	976.10	975.30	0.39	4.71	2.43	4.71	976.72	975.70	26.36	2.04
D1-05-L	D1-05-CI	D1-03-CI	334.67	339.67	1.00	Circular	n/a	2.50	1.00	978.75	975.35	1.45	9.56	7.41	9.56	980.56	976.80	47.80	28.20
D1-06-L	D1-06-CI	D1-05-CI	84.00	87.50	1.00	Circular	n/a	2.00	1.00	986.35	985.47	0.51	5.52	2.60	5.48	987.23	985.98	26.36	3.45
D1-07-L	D1-07-CI	D1-05-CI	3.00	7.00	1.00	Circular	n/a	2.00	1.00	985.55	985.48	0.91	7.49	3.57	6.35	987.30	986.51	26.36	10.41
D1-08-L	D1-08-CI	D1-05-CI	333.63	338.63	1.00	Circular	n/a	2.00	1.00	988.87	985.48	1.16	8.24	6.51	8.24	990.29	986.64	26.36	15.55
D1-09A-L	D1-09A-MH	D1-08-CI	57.02	61.02	1.00	Circular	n/a	2.00	1.00	1002.26	1001.65	1.01	7.86	5.94	7.61	1003.53	1002.69	26.36	12.53
D1-09-L	D1-09-CI	D1-09A-MH	45.28	49.28	0.50	Circular	n/a	2.00	1.00	1004.72	1004.47	0.70	4.67	4.25	4.66	1005.47	1005.18	18.64	4.61
D1-10A-L	D1-10A-MH	D1-09-CI	35.60	39.60	0.50	Circular	n/a	2.00	1.00	1006.91	1006.72	0.55	4.09	3.70	4.07	1007.50	1007.27	18.64	2.87
D1-10-L	D1-10-CI	D1-10A-MH	56.68	59.68	0.50	Circular	n/a	2.00	1.00	1007.21	1006.91	0.55	4.09	2.54	4.09	1007.99	1007.46	18.64	2.87
D1-11-L	D1-11-CI	D1-09A-MH	131.42	135.42	1.00	Circular	n/a	2.00	1.00	1005.82	1004.47	0.78	6.97	5.03	6.94	1006.83	1005.25	26.36	7.92
D1-12-L	D1-12-CI	D1-11-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	1009.35	1008.60	0.40	4.83	2.45	4.82	1010.00	1009.00	26.36	2.19
D1-13-L	D1-13-CI	D1-11-CI	184.00	189.00	1.00	Circular	n/a	2.00	1.00	1010.49	1008.60	0.40	4.80	2.45	4.80	1011.14	1009.00	26.36	2.17
SYSTEM E1																			
E1-01-L	E1-01-CI	E1-02-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	1010.78	1010.41	0.47	3.70	2.44	3.70	1011.41	1010.87	18.64	2.06
E1-02-L	E1-02-CI	E1-04-CI	399.96	404.96	2.82	Circular	n/a	2.00	1.00	1010.41	998.99	0.43	8.37	4.10	8.37	1011.12	999.42	44.26	4.10
E1-03-L	E1-03-CI	E1-04-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	999.37	998.99	0.53	4.01	1.13	0.91	1000.78	1000.77	18.64	2.69
E1-04-L	E1-04-CI	E1-06-CI	168.45	173.45	0.50	Circular	n/a	2.00	1.00	998.99	998.12	1.06	5.64	3.21	3.02	1000.77	1000.54	18.64	9.49
E1-05-L	E1-05-CI	E1-06-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	998.50	998.12	0.62	4.39	1.17	1.17	1000.56	1000.54	18.64	3.67
E1-06-L	E1-06-CI	E1-OUT	108.86	111.36	0.20	Circular	n/a	2.50	1.00	998.12	997.90	1.76	4.53	3.44	3.41	1000.54	1000.40	21.38	16.73

PRELIMINARY
NOT FOR BIDDING PURPOSES - SUBJECT TO CHANGE - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10YR LINK CALCULATIONS

SHEET 2 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	299

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020 11:34:31 AM
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FM 1560 LINK CALCULATIONS (10-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM E2																			
E2-01-L	E2-01-CI	E2-02-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	999.79	999.42	0.46	3.68	0.99	0.74	1001.02	1001.02	18.64	2.00
E2-02-L	E2-02-CI	E2-OUT	100.93	103.43	0.50	Box	3.00	3.00	1.00	998.42	997.90	2.30	8.21	7.26	6.28	1001.02	1000.90	77.84	56.55
E2-03-L	E2-03-CI	E2-04-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1008.90	1008.52	0.42	3.53	2.38	3.53	1009.46	1008.94	18.70	1.70
E2-04-L	E2-04-CI	E2-02-CI	295.00	300.00	0.50	Box	3.00	3.00	1.00	999.92	998.42	2.20	8.11	8.11	6.88	1002.12	1001.02	77.84	53.63
E2-05-L	E2-05-CI	E2-06-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1013.87	1013.49	0.53	3.97	2.51	3.97	1014.61	1014.02	18.70	2.63
E2-06-L	E2-06-CI	E2-04-CI	215.00	220.00	0.50	Circular	n/a	3.00	1.00	1008.62	1007.52	2.46	8.16	8.24	8.65	1011.06	1009.84	54.96	50.70
E2-07-L	E2-07-CI	E2-08-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1014.77	1014.39	0.98	5.51	5.15	5.49	1015.81	1015.38	18.70	8.46
E2-08-L	E2-08-CI	E2-06-CI	175.00	180.00	0.50	Circular	n/a	3.00	1.00	1013.39	1012.49	2.29	8.22	8.22	8.37	1015.68	1014.74	54.96	47.52
E2-09-L	E2-09-CI	E2-07-CI	145.00	150.00	0.50	Circular	n/a	2.00	1.00	1015.52	1014.77	0.81	5.00	4.60	5.00	1016.39	1015.58	18.64	6.00
E2-10-L	E2-10-GI	E2-09-CI	11.50	14.50	0.50	Circular	n/a	2.00	1.00	1015.59	1015.52	0.51	3.90	2.15	1.91	1016.38	1016.39	18.64	2.49
E2-11-L	E2-11-CI	E2-12-CI	72.00	75.50	0.49	Circular	n/a	2.00	1.00	1020.47	1020.10	0.45	3.55	2.41	3.55	1021.06	1020.55	18.46	1.86
E2-12-L	E2-12-CI	E2-08-CI	345.00	350.00	0.50	Circular	n/a	3.00	1.00	1015.14	1013.39	2.00	8.01	7.75	8.01	1017.20	1015.39	54.96	40.16
F1-OUTE-L	F1-OUTE	E2-12-CI	94.52	100.02	0.90	Circular	n/a	2.50	1.00	1020.50	1019.60	1.79	9.66	7.39	9.55	1024.33	1021.41	45.34	36.28
SYSTEM F1																			
F1-01-L	F1-01-MH	F1-OUT	95.00	100.00	0.40	Circular	n/a	2.50	1.00	1021.40	1021.00	2.09	6.53	5.83	5.83	1023.92	1023.50	30.23	28.61
F1-02-L	F1-02-MH	F1-01-MH	46.00	50.00	0.40	Circular	n/a	2.50	1.00	1021.60	1021.40	2.09	6.53	5.83	5.83	1024.13	1023.92	30.23	28.61
F1-03-L	F1-03-CI	F1-02-MH	73.50	77.00	0.50	Circular	n/a	2.00	1.00	1022.48	1022.10	0.65	4.42	1.40	1.23	1024.14	1024.13	18.64	3.87
F1-04-L	F1-04-CI	F1-05-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	1029.74	1029.36	1.16	5.85	5.66	5.85	1030.93	1030.52	18.64	11.04
F1-05-L	F1-05-CI	F1-02-MH	292.27	296.77	1.00	Circular	n/a	2.00	1.00	1025.07	1022.10	1.76	8.81	8.21	8.21	1027.41	1024.13	26.36	25.79
F1-06-L	F1-06-CI	F1-04-CI	167.86	172.86	1.00	Circular	n/a	2.00	1.00	1031.47	1029.74	0.78	6.97	5.02	6.94	1032.47	1030.52	26.36	7.87
F1-07-L	F1-07-CI	F1-06-CI	127.20	132.20	1.00	Circular	n/a	2.00	1.00	1035.48	1034.16	0.55	5.77	2.67	5.75	1036.45	1034.71	26.36	4.02
F1-08-L	F1-08-CI	F1-09-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	1040.16	1039.41	0.98	7.73	5.81	7.57	1041.39	1040.40	26.36	11.82
F1-09A-L	F1-09A-MH	F1-05-CI	241.53	245.53	1.00	Circular	n/a	2.00	1.00	1031.82	1029.36	1.05	7.92	6.07	7.92	1033.13	1030.41	26.36	13.21
F1-09-L	F1-09-CI	F1-09A-MH	172.83	176.83	1.00	Circular	n/a	2.00	1.00	1037.97	1036.20	1.05	7.92	6.07	7.92	1039.28	1037.25	26.36	13.21
F1-10-L	F1-10-CI	F1-08-CI	106.86	111.86	1.00	Circular	n/a	2.00	1.00	1041.28	1040.16	0.80	7.03	5.10	6.99	1042.30	1040.96	26.36	8.25
F1-11-L	F1-11-CI	F1-10-CI	125.24	130.24	1.00	Circular	n/a	2.00	1.00	1042.58	1041.28	0.57	5.89	2.71	5.89	1043.60	1041.85	26.36	4.37
SYSTEM G1																			
G1-01-L	G1-01-CI	G1-02-CI	147.00	152.00	0.30	Circular	n/a	2.00	1.00	1043.53	1043.07	0.66	3.52	2.57	1.65	1044.36	1044.25	14.44	3.18
G1-02-L	G1-02-CI	G1-03-CI	105.00	110.00	0.30	Circular	n/a	2.00	1.00	1043.07	1042.74	1.06	4.39	3.83	3.15	1044.25	1044.14	14.44	7.38
G1-03-L	G1-03-CI	G1-04-CI	114.72	119.72	0.30	Circular	n/a	2.00	1.00	1042.74	1042.38	1.41	4.83	4.87	5.73	1044.14	1043.60	14.44	11.43
G1-04-L	G1-04-CI	G1-05-CI	72.00	76.00	0.30	Circular	n/a	2.50	1.00	1041.88	1041.66	1.43	5.26	5.07	4.81	1043.36	1043.20	26.01	15.26
G1-05-L	G1-05-CI	G1-07-CI	328.03	333.03	0.30	Circular	n/a	2.50	1.00	1041.66	1040.66	1.54	5.41	5.41	6.06	1043.20	1042.06	26.18	17.17
G1-06-L	G1-06-CI	G1-07-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1037.66	1037.28	1.47	6.21	6.23	6.47	1039.12	1038.69	18.64	15.32
G1-07-L	G1-07-CI	G1-09-CI	329.24	334.24	0.50	Circular	n/a	2.50	1.00	1031.24	1029.57	2.02	7.28	7.30	7.74	1033.25	1031.46	33.80	30.90
G1-08-L	G1-08-GI	G1-06-CI	15.50	18.50	0.50	Circular	n/a	2.00	1.00	1037.75	1037.66	1.31	6.08	4.20	5.36	1039.80	1039.12	18.64	13.20
G1-09-L	G1-09-CI	G1-11A-MH	198.20	202.70	0.50	Circular	n/a	3.00	1.00	1017.33	1016.32	1.76	7.69	7.16	7.69	1019.20	1018.08	54.96	33.15
G1-10-L	G1-10-CI	G1-09-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1030.45	1030.07	0.56	4.11	2.55	4.10	1031.24	1030.63	18.64	2.94
G1-11A-L	G1-11A-MH	G1-13-CI	276.96	281.46	0.50	Circular	n/a	3.00	1.00	1002.64	1001.23	1.80	7.78	7.28	7.78	1004.55	1003.03	54.96	34.55
G1-11-L	G1-11-CI	G1-11A-MH	73.50	77.00	0.50	Circular	n/a	2.00	1.00	1017.70	1017.32	0.52	3.95	2.50	3.95	1018.43	1017.84	18.64	2.57
G1-12-L	G1-12-CI	G1-13-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1002.61	1002.23	0.44	3.56	2.40	3.56	1003.19	1002.67	18.64	1.82
G1-13-L	G1-13-CI	G1-15-CI	465.00	470.00	0.50	Circular	n/a	3.00	1.00	996.57	994.22	1.89	7.94	7.51	7.94	998.56	996.11	54.96	37.30
G1-14-L	G1-14-CI	G1-15-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	995.60	995.22	0.58	4.17	2.57	4.17	996.42	995.80	18.64	3.15
G1-15-L	G1-15-CI	G1-OUT	33.50	36.00	0.50	Circular	n/a	3.00	1.00	990.68	990.50	2.02	7.99	5.74	5.74	995.44	995.33	54.96	40.55

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10YR LINK CALCULATIONS

SHEET 3 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	300
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (10-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM G2																			
G2-01-L	G2-01-CI	G2-02-CI	72.00	75.50	0.30	Circular	n/a	2.00	1.00	992.65	992.42	0.67	3.52	1.03	1.03	995.98	995.97	14.44	3.23
G2-02-L	G2-02-CI	G2-OUT	421.79	424.29	0.20	Box	3.00	2.00	1.00	990.85	990.00	1.48	4.59	3.41	3.41	995.97	995.33	29.60	20.44
G2-03-L	G2-03-CI	G2-04-CI	72.00	75.50	0.30	Circular	n/a	2.00	1.00	991.56	991.33	0.78	3.85	1.38	1.38	996.16	996.13	14.44	4.35
G2-04-L	G2-04-CI	G2-02-CI	237.13	242.13	0.20	Box	3.00	2.00	1.00	991.33	990.85	1.11	4.18	2.33	2.33	996.13	995.97	29.60	13.95
G2-05-L	G2-05-CI	G2-06-CI	72.00	75.00	0.30	Circular	n/a	2.00	1.00	992.48	992.26	0.60	3.32	0.84	0.84	996.29	996.28	14.44	2.64
G2-06-L	G2-06-CI	G2-04-CI	302.87	307.87	0.30	Circular	n/a	2.00	1.00	992.26	991.33	0.87	4.03	1.67	1.67	996.28	996.13	14.44	5.25
SYSTEM H1																			
H1-05-L	H1-05-CI	H1-06-CI	72.00	75.00	0.40	Circular	n/a	2.00	1.00	997.82	997.52	0.72	4.25	1.41	1.37	999.70	999.68	16.67	4.32
H1-06-L	H1-06-CI	H1-07-MH	141.88	145.88	0.40	Circular	n/a	2.00	1.00	997.52	996.94	0.95	4.82	2.27	2.27	999.68	999.56	16.67	7.13
H1-07-L	H1-07-MH	H1-04-CI	191.00	195.00	0.40	Circular	n/a	2.00	1.00	996.94	996.16	0.95	4.82	2.27	2.27	999.56	999.40	16.67	7.13
SYSTEM I1																			
I1-01-L	I1-01-CI	I1-02-CI	77.12	82.12	0.50	Circular	n/a	2.00	1.00	998.70	998.29	0.73	4.76	2.77	4.75	999.80	999.01	18.64	4.90
I1-02-L	I1-02-CI	I1-03-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	998.29	997.91	1.00	5.53	5.18	5.51	999.34	998.91	18.64	8.65
I1-03-L	I1-03-CI	I1-04A-MH	132.16	136.16	0.50	Circular	n/a	2.00	1.00	997.91	997.23	1.11	5.73	5.52	5.73	999.06	998.35	18.64	10.32
I1-04A-L	I1-04A-MH	I1-06-CI	161.27	165.27	0.50	Circular	n/a	2.00	1.00	997.23	996.40	1.38	6.10	6.10	6.23	998.61	997.76	18.64	14.08
I1-04-L	I1-04-CI	I1-04A-MH	73.50	76.50	0.50	Circular	n/a	2.00	1.00	997.61	997.23	0.63	4.44	2.43	1.63	998.60	998.61	18.64	3.77
I1-05-L	I1-05-CI	I1-06-CI	76.00	79.50	0.47	Circular	n/a	2.00	1.00	996.78	996.41	0.56	3.96	2.53	3.96	997.55	996.96	18.11	2.83
I1-06-L	I1-06-CI	I1-09-CI	229.29	234.29	0.50	Circular	n/a	2.50	1.00	993.64	992.47	1.39	6.69	3.93	3.83	995.99	995.59	33.80	18.82
I1-07-L	I1-07-CI	I1-08-CI	98.72	103.72	0.50	Circular	n/a	2.00	1.00	993.87	993.35	0.54	4.05	0.93	0.89	995.68	995.67	18.64	2.79
I1-08-L	I1-08-CI	I1-09-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	993.35	992.97	0.92	5.36	2.42	2.42	995.67	995.59	18.64	7.61
I1-09-L	I1-09-CI	I1-OUT	116.74	119.24	0.50	Circular	n/a	2.50	1.00	984.60	984.00	1.91	7.25	5.93	5.93	995.59	995.08	33.80	29.13
SYSTEM I2																			
I2-01-L	I2-01-CI	I2-02-CI	84.00	87.00	0.50	Circular	n/a	2.00	1.00	991.55	991.12	0.59	4.27	1.06	1.06	995.20	995.19	18.64	3.34
I2-02-L	I2-02-CI	I2-OUT	144.94	147.44	0.50	Circular	n/a	2.00	1.00	984.74	984.00	0.85	5.17	2.09	2.09	995.19	995.08	18.64	6.58

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

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4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
10-YR LINK CALCULATIONS

SHEET 4 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

301

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FM 1560 INLET CALCULATIONS (100 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM AA1																									
AA1-01-CI	AA1-01-CI	Curb	PCO (3 FT) (LEFT)	213+00.00	FM1560CL	38.00	0.35	n/a	0.02	0.015	5.18	4.12	3.71	0.41	AA1-03-CI	16.00	n/a	n/a	14.60	0.50	0.29	9.50	13.16	n/a	
AA1-02-CI	AA1-02-CI	Curb	PCO (3 FT) (RIGHT)	213+00.00	FM1560CL	-34.00	n/a	0.35	0.02	0.015	4.89	4.16	3.74	0.43	--	16.00	n/a	n/a	14.65	0.50	0.29	9.50	13.23	n/a	
AA1-03-CI	AA1-03-CI	Curb	PCO (3 FT) (LEFT)	211+60.00	FM1560CL	38.00	0.35	n/a	0.02	0.015	4.50	4.32	3.83	0.48	--	16.00	n/a	n/a	14.85	0.50	0.30	9.50	13.50	n/a	
SYSTEM A1																									
A1-01-CI	A1-01-CI	Curb	PCO (3 FT) (LEFT)	217+00.00	FM1560CL	36.00	0.35	n/a	0.02	0.015	4.87	3.45	3.25	0.19	AA1-01-CI	16.00	n/a	n/a	13.65	0.50	0.27	9.50	11.90	n/a	
A1-02-CI	A1-02-CI	Curb	PCO (3 FT) (RIGHT)	217+00.00	FM1560CL	-36.00	n/a	0.35	0.02	0.015	4.33	3.50	3.29	0.21	AA1-02-CI	16.00	n/a	n/a	13.73	0.50	0.28	9.50	12.01	n/a	
A1-04A-CI	A1-04A-CI	Curb	10' CURB CUT	220+08.98	FM1560CL	101.80	0.50	4.60	0.02	0.015	6.44	3.58	10.33	0.00	--	14.00	12.44	3.61	12.44	0.50	0.25	10.00	n/a	n/a	SAG
A1-06A-CI	A1-06A-CI	Curb	SIDEWALK BRIDGE	220+49.95	FM1560CL	96.04	4.60	0.50	0.02	0.015	6.67	6.42	9.98	0.00	--	14.00	4.49	15.49	18.63	0.50	0.37	8.67	n/a	n/a	SAG
A1-07-CI	A1-07-CI	Curb	PCO (6 FT) (BOTH)	224+24.81	FM1560CL	48.00	0.19	0.18	0.02	0.015	24.68	9.90	13.58	0.00	--	16.00	17.52	17.79	20.25	0.50	0.41	14.00	n/a	n/a	SAG
A1-08-CI	A1-08-CI	Curb	PCO (3 FT) (BOTH)	224+24.81	FM1560CL	-36.00	0.18	0.19	0.02	0.015	4.39	9.46	13.58	0.00	--	16.00	17.49	17.23	19.65	0.50	0.39	14.00	n/a	n/a	SAG
A1-10-CI	A1-10-CI	Curb	PCO (6 FT) (LEFT)	227+50.00	FM1560CL	36.00	0.38	n/a	0.02	0.015	25.76	7.19	5.27	1.92	A1-07-CI	16.00	n/a	n/a	17.69	0.50	0.35	9.50	18.26	n/a	
A1-11-CI	A1-11-CI	Curb	PCO (3 FT) (RIGHT)	227+50.00	FM1560CL	-36.00	n/a	0.38	0.02	0.015	7.67	8.30	5.75	2.55	A1-08-CI	16.00	n/a	n/a	18.67	0.50	0.37	9.50	19.77	n/a	
SYSTEM A2																									
A2-01-CI	A2-01-CI	Curb	PCO (4 FT) (LEFT)	234+00.00	FM1560CL	36.00	0.38	n/a	0.02	0.015	18.52	4.93	4.15	0.78	A1-10-CI	16.00	n/a	n/a	15.37	0.50	0.31	9.50	14.82	n/a	
A2-02-CI	A2-02-CI	Curb	PCO (3 FT) (RIGHT)	234+00.00	FM1560CL	-36.00	n/a	0.38	0.02	0.015	4.11	7.12	5.24	1.88	A1-11-CI	16.00	n/a	n/a	17.63	0.50	0.35	9.50	18.16	n/a	
A2-03-CI	A2-03-CI	Curb	PCO (4 FT) (LEFT)	237+30.00	FM1560CL	36.00	0.72	n/a	0.02	0.015	18.00	5.89	4.21	1.68	A2-01-CI	16.00	n/a	n/a	14.58	0.50	0.29	9.50	18.95	n/a	
A2-04-CI	A2-04-CI	Curb	PCO (3 FT) (BOTH)	237+30.00	FM1560CL	-36.00	n/a	0.72	0.02	0.015	17.14	12.64	8.80	3.85	A2-02-CI	16.00	n/a	n/a	19.41	0.50	0.39	14.00	28.93	n/a	
A2-05-CI	A2-05-CI	Curb	PCO (3 FT) (BOTH)	238+50.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.90	11.32	7.43	3.89	A2-04-CI	16.00	n/a	n/a	16.66	0.50	0.33	14.00	31.29	n/a	
A2-06-CI	A2-06-CI	Curb	PCO (3 FT) (BOTH)	239+70.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.60	11.10	7.35	3.76	A2-05-CI	16.00	n/a	n/a	16.54	0.50	0.33	14.00	30.95	n/a	
A2-07-CI	A2-07-CI	Curb	PCO (4 FT) (LEFT)	240+90.00	FM1560CL	36.00	1.30	n/a	0.02	0.015	17.41	6.29	3.94	2.35	A2-03-CI	16.00	n/a	n/a	13.37	0.50	0.27	9.50	22.53	n/a	
A2-08-CI	A2-08-CI	Curb	PCO (3 FT) (BOTH)	240+90.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	17.28	10.59	7.15	3.44	A2-06-CI	16.00	n/a	n/a	16.25	0.50	0.33	14.00	30.15	n/a	
A2-09-CI	A2-09-CI	Curb	PCO (3 FT) (BOTH)	242+10.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	17.05	10.41	7.08	3.33	A2-08-CI	16.00	n/a	n/a	16.15	0.50	0.32	14.00	29.86	n/a	
A2-10-CI	A2-10-CI	Curb	PCO (3 FT) (BOTH)	243+30.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.80	11.06	7.33	3.73	A2-09-CI	16.00	n/a	n/a	16.52	0.50	0.33	14.00	30.88	n/a	
A2-11-CI	A2-11-CI	Curb	PCO (3 FT) (BOTH)	244+50.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.30	10.62	7.16	3.46	A2-10-CI	16.00	n/a	n/a	16.27	0.50	0.33	14.00	30.19	n/a	
A2-12-CI	A2-12-CI	Curb	PCO (3 FT) (BOTH)	245+70.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	16.12	10.21	7.00	3.22	A2-11-CI	16.00	n/a	n/a	16.03	0.50	0.32	14.00	29.54	n/a	
A2-13-CI	A2-13-CI	Curb	PCO (3 FT) (LEFT)	245+70.00	FM1560CL	36.00	1.30	n/a	0.02	0.015	16.28	5.00	3.46	1.55	A2-07-CI	16.00	n/a	n/a	12.27	0.50	0.25	9.50	19.82	n/a	
A2-14-CI	A2-14-CI	Curb	PCO (3 FT) (BOTH)	247+00.00	FM1560CL	-36.00	n/a	1.30	0.02	0.015	15.80	9.86	6.86	3.01	A2-12-CI	16.00	n/a	n/a	15.83	0.50	0.32	14.00	28.98	n/a	
SYSTEM B1																									
B1-01-CI	B1-01-CI	Curb	PCO (4 FT) (LEFT)	249+90.00	FM1560CL	36.00	0.59	n/a	0.02	0.015	22.80	4.55	3.70	0.85	A2-13-CI	16.00	n/a	n/a	13.73	0.50	0.28	9.50	15.69	n/a	
B1-02-CI	B1-02-CI	Curb	PCO (3 FT) (BOTH)	249+90.00	FM1560CL	-36.00	n/a	0.59	0.02	0.015	20.60	7.01	6.21	0.80	A2-14-CI	16.00	n/a	n/a	16.14	0.50	0.32	14.00	19.97	n/a	
B1-03-CI	B1-03-CI	Curb	PCO (3 FT) (BOTH)	250+55.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.47	8.71	7.48	1.23	B1-02-CI	16.00	n/a	n/a	18.43	0.50	0.37	14.00	21.13	n/a	
B1-04-CI	B1-04-CI	Curb	PCO (3 FT) (RIGHT)	251+20.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.30	7.64	5.31	2.33	B1-03-CI	16.00	n/a	n/a	17.54	0.50	0.35	9.50	19.65	n/a	
B1-05-CI	B1-05-CI	Curb	PCO (3 FT) (BOTH)	251+95.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	17.65	8.67	7.46	1.22	B1-04-CI	16.00	n/a	n/a	18.39	0.50	0.37	14.00	21.07	n/a	
B1-06-CI	B1-06-CI	Curb	PCO (3 FT) (BOTH)	252+70.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	17.40	8.51	7.36	1.15	B1-05-CI	16.00	n/a	n/a	18.26	0.50	0.37	14.00	20.86	n/a	
B1-07-CI	B1-07-CI	Curb	PCO (4 FT) (BOTH)	253+30.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.43	9.33	7.83	1.50	B1-06-CI	16.00	n/a	n/a	18.90	0.50	0.38	14.00	21.94	n/a	
B1-08-CI	B1-08-CI	Curb	PCO (4 FT) (LEFT)	253+30.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	22.21	5.58	4.38	1.19	B1-01-CI	16.00	n/a	n/a	15.59	0.50	0.31	9.50	16.50	n/a	
B1-09-CI	B1-09-CI	Curb	PCO (4 FT) (BOTH)	254+00.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.26	7.77	6.91	0.86	B1-07-CI	16.00	n/a	n/a	17.65	0.50	0.35	14.00	19.84	n/a	
B1-10-CI	B1-10-CI	Curb	PCO (3 FT) (BOTH)	254+70.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.09	7.86	6.97	0.89	B1-09-CI	16.00	n/a	n/a	17.72	0.50	0.35	14.00	19.96	n/a	
B1-11-CI	B1-11-CI	Curb	PCO (3 FT) (BOTH)	255+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	18.86	7.48	6.73	0.75	B1-10-CI	16.00	n/a	n/a	17.40	0.50	0.35	14.00	19.43	n/a	
B1-12-CI	B1-12-CI	Curb	PCO (3 FT) (BOTH)	256+30.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	18.60	8.79	7.52	1.26	B1-11-CI	16.00	n/a	n/a	18.48	0.50	0.37	14.00	21.23	n/a	
B1-13-CI	B1-13-CI	Curb	PCO (4 FT) (LEFT)	257+50.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	21.18	5.99	4.59	1.41	B1-08-CI	16.00	n/a	n/a	16.02	0.50	0.32	9.50	17.18	n/a	
B1-14-CI	B1-14-CI	Curb	PCO (3 FT) (BOTH)	257+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	21.00	7.70	6.87	0.83	B1-12-CI	16.00	n/a	n/a	17.59	0.50	0.35	14.00	19.74	n/a	
B1-15-CI	B1-15-CI	Curb	PCO (3 FT) (BOTH)	258+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	20.02	7.76	6.90	0.85	B1-14-CI	16.00	n/a	n/a	17.64	0.50	0.35	14.00	19.82	n/a	
B1-16-CI	B1-16-CI	Curb	PCO (3 FT) (BOTH)	259+50.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	19.70	9.27	7.80	1.47	B1-15-CI	16.00	n/a	n/a	18.86	0.50	0.38	14.00	21.87	n/a	
B1-17-CI	B1-17-CI	Curb	PCO (3 FT) (LEFT)	261+00.00	FM1560CL	36.00	0.45	n/a	0.02	0.015	7.11	7.98	5.45	2.53	B1-13-CI	16.00	n/a	n/a	17.83	0.50	0.36	9.50	20.13	n/a	
B1-18-CI	B1-18-CI	Curb	PCO (3 FT) (RIGHT)	261+00.00	FM1560CL	-36.00	n/a	0.45	0.02	0.015	6.83	5.76	4.47	1.28	B1-16-CI	16.00	n/a	n/a	15.77	0.50	0.32	9.50	16.79	n/a	

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation
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FM 1560
STORM DRAIN
100YR INLET CALCULATIONS

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 302

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020 12:20:53 PM
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FM 1560 INLET CALCULATIONS (100 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM D1																									
D1-01-CI	D1-01-CI	Curb	PCO (4 FT) (BOTH)	266+70.00	FM1560CL	36.00	1.72	n/a	0.02	0.015	16.16	8.27	5.89	2.38	B1-17-CI	16.00	n/a	n/a	14.06	0.50	0.28	14.00	28.01	n/a	
D1-02-CI	D1-02-CI	Curb	PCO (3 FT) (RIGHT)	266+70.00	FM1560CL	-36.00	n/a	1.72	0.02	0.015	2.49	1.79	1.70	0.10	B1-18-CI	16.00	n/a	n/a	7.93	0.50	0.16	9.50	11.82	n/a	
D1-03-CI	D1-03-CI	Curb	PCO (4 FT) (BOTH)	268+50.00	FM1560CL	36.00	1.72	n/a	0.02	0.015	15.87	7.99	5.78	2.22	D1-01-CI	16.00	n/a	n/a	13.88	0.50	0.28	14.00	27.48	n/a	
D1-04-CI	D1-04-CI	Curb	PCO (3 FT) (RIGHT)	268+50.00	FM1560CL	-36.00	n/a	1.72	0.02	0.015	4.39	3.46	2.65	0.81	D2-02-CI	16.00	n/a	n/a	10.15	0.50	0.20	9.50	17.16	n/a	
D1-05-CI	D1-05-CI	Curb	PCO (4 FT) (BOTH)	271+95.00	FM1560CL	48.00	4.22	n/a	0.02	0.015	15.31	6.12	4.25	1.87	D1-03-CI	16.00	n/a	n/a	10.62	0.50	0.21	14.00	29.04	n/a	
D1-06-CI	D1-06-CI	Curb	PCO (3 FT) (BOTH)	271+95.00	FM1560CL	-36.00	n/a	4.22	0.02	0.015	6.42	7.02	4.60	2.42	D2-04-CI	16.00	n/a	n/a	11.18	0.50	0.22	14.00	31.38	n/a	
D1-07-CI	D1-07-CI	Curb	CHANNEL HEADWALL INLET	271+95.00	FM1560CL	59.67	50.00	50.00	0.50	0.015	15.30	15.72	27.14	0.00	--	2.00	0.98	0.98	1.39	1.00	0.70	10.00	n/a	n/a	SAG
D1-08-CI	D1-08-CI	Curb	PCO (3 FT) (BOTH)	275+35.00	FM1560CL	48.00	4.40	n/a	0.02	0.015	8.22	5.34	3.89	1.45	D1-05-CI	16.00	n/a	n/a	10.01	0.50	0.20	14.00	27.15	n/a	
D1-09-CI	D1-09-CI	Curb	PCO (3 FT) (LEFT)	276+07.82	FM1560CL	95.67	4.00	n/a	0.02	0.015	7.94	3.25	2.23	1.03	D2-08-CI	12.00	n/a	n/a	8.46	0.50	0.17	9.50	20.06	n/a	
D1-10-CI	D1-10-CI	Curb	PCO (3 FT) (BOTH)	276+73.22	FM1560CL	115.67	n/a	4.00	0.02	0.015	7.56	4.88	3.74	1.14	D2-08-CI	12.00	n/a	n/a	9.85	0.50	0.20	14.00	25.23	n/a	
D1-11-CI	D1-11-CI	Curb	PCO (3 FT) (BOTH)	277+31.00	FM1560CL	36.00	3.37	n/a	0.02	0.015	6.89	6.49	4.56	1.92	D2-08-CI	16.00	n/a	n/a	11.32	0.50	0.23	14.00	28.51	n/a	
D1-12-CI	D1-12-CI	Curb	PCO (3 FT) (RIGHT)	277+31.00	FM1560CL	-36.00	n/a	3.37	0.02	0.015	5.56	4.51	2.76	1.75	D1-06-CI	16.00	n/a	n/a	9.87	0.50	0.20	9.50	23.21	n/a	
D1-13-CI	D1-13-CI	Curb	PCO (3 FT) (LEFT)	279+20.00	FM1560CL	36.00	3.37	n/a	0.02	0.015	6.22	4.46	2.74	1.72	D2-11-CI	16.00	n/a	n/a	9.84	0.50	0.20	9.50	23.08	n/a	
SYSTEM E1																									
E1-01-CI	E1-01-CI	Curb	PCO (3 FT) (LEFT)	286+00.00	FM1560CL	-36.00	3.77	n/a	0.02	0.015	4.78	4.19	2.60	1.59	E1-03-CI	16.00	n/a	n/a	9.41	0.50	0.19	9.50	22.85	n/a	
E1-02-CI	E1-02-CI	Curb	PCO (3 FT) (RIGHT)	286+00.00	FM1560CL	36.00	n/a	3.77	0.02	0.015	5.09	4.15	2.58	1.57	E1-04-CI	16.00	n/a	n/a	9.38	0.50	0.19	9.50	22.74	n/a	
E1-03-CI	E1-03-CI	Curb	PCO (3 FT) (LEFT)	290+00.00	FM1560CL	-36.00	1.37	n/a	0.02	0.015	4.82	5.51	3.62	1.89	E1-05-CI	16.00	n/a	n/a	12.60	0.50	0.25	9.50	21.18	n/a	
E1-04-CI	E1-04-CI	Curb	PCO (3 FT) (RIGHT)	290+00.00	FM1560CL	36.00	n/a	1.37	0.02	0.015	5.85	5.55	3.64	1.91	E1-06-CI	16.00	n/a	n/a	12.63	0.50	0.25	9.50	21.26	n/a	
E1-05-CI	E1-05-CI	Curb	PCO (3 FT) (BOTH)	291+71.20	FM1560CL	-36.00	1.89	1.72	0.02	0.015	3.00	7.48	13.58	0.00	--	16.00	9.44	11.19	16.80	0.50	0.34	14.00	n/a	n/a	SAG
E1-06-CI	E1-06-CI	Curb	PCO (4 FT) (BOTH)	291+71.20	FM1560CL	36.00	1.72	1.89	0.02	0.015	6.33	7.36	13.58	0.00	--	16.00	11.12	9.39	16.62	0.50	0.33	14.00	n/a	n/a	SAG
SYSTEM E2																									
E2-01-CI	E2-01-CI	Curb	PCO (3 FT) (RIGHT)	294+00.00	FM1560CL	-36.00	n/a	1.83	0.02	0.015	3.78	4.58	3.10	1.48	E1-05-CI	16.00	n/a	n/a	11.14	0.50	0.22	9.50	20.39	n/a	
E2-02-CI	E2-02-CI	Curb	PCO (4 FT) (BOTH)	294+00.00	FM1560CL	36.00	1.83	n/a	0.02	0.015	24.34	6.20	4.89	1.31	E1-06-CI	16.00	n/a	n/a	12.47	0.50	0.25	14.00	24.18	n/a	
E2-03-CI	E2-03-CI	Curb	PCO (3 FT) (RIGHT)	297+00.00	FM1560CL	-36.00	n/a	3.25	0.02	0.015	2.89	4.34	2.72	1.62	E2-01-CI	16.00	n/a	n/a	9.80	0.50	0.20	9.50	22.53	n/a	
E2-04-CI	E2-04-CI	Curb	PCO (4 FT) (BOTH)	297+00.00	FM1560CL	36.00	3.25	n/a	0.02	0.015	23.81	6.77	4.71	2.06	E2-02-CI	16.00	n/a	n/a	11.58	0.50	0.23	14.00	28.97	n/a	
E2-05-CI	E2-05-CI	Curb	PCO (3 FT) (RIGHT)	299+20.00	FM1560CL	-36.00	n/a	1.27	0.02	0.015	14.20	6.03	3.86	2.16	E2-03-CI	16.00	n/a	n/a	13.21	0.50	0.26	9.50	21.89	n/a	
E2-06-CI	E2-06-CI	Curb	PCO (4 FT) (LEFT)	299+20.00	FM1560CL	36.00	1.27	n/a	0.02	0.015	23.48	5.29	3.59	1.70	E2-04-CI	16.00	n/a	n/a	12.58	0.50	0.25	9.50	20.34	n/a	
E2-07-CI	E2-07-CI	Curb	PCO (3 FT) (RIGHT)	301+00.00	FM1560CL	-36.00	n/a	0.73	0.02	0.015	13.00	5.85	4.18	1.67	E2-05-CI	16.00	n/a	n/a	14.50	0.50	0.29	9.50	18.96	n/a	
E2-08-CI	E2-08-CI	Curb	PCO (4 FT) (LEFT)	301+00.00	FM1560CL	36.00	0.73	n/a	0.02	0.015	23.20	4.96	3.78	1.18	E2-06-CI	16.00	n/a	n/a	13.62	0.50	0.27	9.50	17.28	n/a	
E2-09-CI	E2-09-CI	Curb	PCO (3 FT) (BOTH)	302+50.00	FM1560CL	-36.00	n/a	1.47	0.02	0.015	11.66	7.29	5.60	1.69	E2-07-CI	16.00	n/a	n/a	13.80	0.50	0.28	14.00	25.19	n/a	
E2-10-GI	E2-10-GI	Grate	PSL FG (3'x3'-3'x3')	302+50.00	FM1560CL	-52.00	25.00	1.00	0.25	0.035	11.60	3.74	14.78	0.00	--	4.00	0.32	3.26	3.26	1.00	0.33	n/a	n/a	0.50	SAG
E2-11-CI	E2-11-CI	Curb	PCO (3 FT) (RIGHT)	304+50.00	FM1560CL	-36.00	n/a	1.37	0.02	0.015	3.22	4.71	3.31	1.40	E2-09-CI	16.00	n/a	n/a	11.89	0.50	0.24	9.50	19.38	n/a	
E2-12-CI	E2-12-CI	Curb	PCO (4 FT) (BOTH)	304+50.00	FM1560CL	36.00	1.37	n/a	0.02	0.015	22.54	7.04	5.54	1.50	E2-08-CI	16.00	n/a	n/a	13.82	0.50	0.28	14.00	24.29	n/a	
SYSTEM F1																									
F1-03-CI	F1-03-CI	Curb	PCO (3 FT) (BOTH)	307+00.00	FM1560CL	-36.00	n/a	1.47	0.02	0.015	15.10	8.31	6.06	2.24	E2-11-CI	16.00	n/a	n/a	14.50	0.50	0.29	14.00	27.09	n/a	
F1-04-CI	F1-04-CI	Curb	PCO (3 FT) (BOTH)	310+00.00	FM1560CL	-36.00	n/a	2.60	0.02	0.015	21.58	8.46	5.56	2.90	F1-03-CI	16.00	n/a	n/a	13.12	0.50	0.26	14.00	31.20	n/a	
F1-05-CI	F1-05-CI	Curb	PCO (3 FT) (BOTH)	310+00.00	FM1560CL	36.00	2.60	n/a	0.02	0.015	23.05	5.80	4.45	1.35	E2-12-CI	16.00	n/a	n/a	11.39	0.50	0.23	14.00	25.24	n/a	
F1-06-CI	F1-06-CI	Curb	PCO (3 FT) (BOTH)	311+70.00	FM1560CL	-36.00	n/a	2.60	0.02	0.015	21.20	9.18	5.83	3.35	F1-04-CI	16.00	n/a	n/a	13.53	0.50	0.27	14.00	32.67	n/a	
F1-07-CI	F1-07-CI	Curb	PCO (3 FT) (BOTH)	313+00.00	FM1560CL	-36.00	n/a	2.35	0.02	0.015	19.90	8.75	5.77	2.97	F1-06-CI	16.00	n/a	n/a	13.54	0.50	0.27	14.00	31.06	n/a	
F1-08-CI	F1-08-CI	Curb	PCO (3 FT) (BOTH)	314+30.00	FM1560CL	-36.00	n/a	1.80	0.02	0.015	22.08	7.82	5.66	2.16	F1-07-CI	16.00	n/a	n/a	13.65	0.50	0.27	14.00	27.43	n/a	
F1-09-CI	F1-09-CI	Curb	PCO (3 FT) (LEFT)	314+30.00	FM1560CL	36.00	1.80	n/a	0.02	0.015	22.23	4.12	2.92	1.20	F1-05-CI	16.00	n/a	n/a	10.74	0.50	0.22	9.50	19.13	n/a	
F1-10-CI	F1-10-CI	Curb	PCO (3 FT) (BOTH)	315+40.00	FM1560CL	-36.00	n/a	1.34	0.02	0.015	21.84	7.56	5.81	1.75	F1-08-CI	16.00	n/a	n/a	14.25	0.50	0.29	14.00	25.14	n/a	
F1-11-CI	F1-11-CI	Curb	PCO (3 FT) (BOTH)	316+70.00	FM1560CL	-36.00	n/a	0.79	0.02	0.015	21.50	6.92	5.93	0.99	F1-10-CI	16.00	n/a	n/a	15.22	0.50	0.30	14.00	21.19	n/a	

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ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
100YR INLET CALCULATIONS

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

303

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FM 1560 INLET CALCULATIONS (100 YEAR)

AREA ID	NODE ID	TYPE	DESCRIPTION	STATION	REFERENCE CHAIN	OFFSET (FT)	LONGITUDINAL SLOPE (%)		CROSS SLOPE (FT/FT)	SPREAD N	CUMULATIVE TC (MIN)	DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS FLOW INTO	MAX PONDED WIDTH (FT)	COMPUTED PONDED WIDTH (FT)			MAX PONDED DEPTH (FT)	COMPUTED PONDED DEPTH (FT)	CURB LENGTH (FT)	LENGTH REQUIRED (FT)	GRATE CLOG AREA (%)	COMMENTS
							LEFT	RIGHT									LEFT	RIGHT	TOTAL						
SYSTEM G1																									
G1-01-CI	G1-01-CI	Curb	PCO (3 FT) (BOTH)	319+58.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	20.80	4.84	4.83	0.01	G1-02-CI	16.00	n/a	n/a	15.49	0.50	0.31	14.00	14.38	n/a	
G1-02-CI	G1-02-CI	Curb	PCO (3 FT) (LEFT)	321+10.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	22.40	7.86	5.64	2.22	G1-03-CI	16.00	n/a	n/a	18.58	0.50	0.37	9.50	18.81	n/a	
G1-03-CI	G1-03-CI	Curb	PCO (3 FT) (LEFT)	322+20.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	22.79	8.70	6.00	2.71	G1-04-CI	16.00	n/a	n/a	19.31	0.50	0.39	9.50	19.90	n/a	
G1-04-CI	G1-04-CI	Curb	PCO (4 FT) (LEFT)	323+40.00	FM1560CL	-36.00	0.35	n/a	0.02	0.015	23.18	9.11	6.16	2.95	G1-06-CI	16.00	n/a	n/a	19.64	0.50	0.39	9.50	20.40	n/a	
G1-05-CI	G1-05-CI	Curb	PCO (4 FT) (RIGHT)	323+40.00	FM1560CL	36.00	n/a	0.35	0.02	0.015	23.40	4.69	4.06	0.63	G1-07-CI	16.00	n/a	n/a	15.31	0.50	0.31	9.50	14.13	n/a	
G1-06-CI	G1-06-CI	Curb	PCO (3 FT) (LEFT)	326+70.00	FM1560CL	-36.00	0.97	n/a	0.02	0.015	16.75	6.19	4.11	2.08	G1-10-CI	16.00	n/a	n/a	14.04	0.50	0.28	9.50	20.88	n/a	
G1-07-CI	G1-07-CI	Curb	PCO (4 FT) (RIGHT)	326+70.00	FM1560CL	36.00	n/a	0.97	0.02	0.015	24.40	3.91	3.12	0.79	G1-09-CI	16.00	n/a	n/a	11.82	0.50	0.24	9.50	16.13	n/a	
G1-08-GI	G1-08-GI	Grate	PSL FG (3'x3'-3'x3')	326+70.00	FM1560CL	-56.00	0.30	0.30	0.25	0.035	16.70	19.97	20.90	0.00	--	8.00	7.06	4.20	7.30	2.00	1.83	n/a	n/a	0.50	SAG
G1-09-CI	G1-09-CI	Curb	PCO (4 FT) (RIGHT)	330+00.00	FM1560CL	36.00	n/a	5.52	0.02	0.015	24.99	4.07	2.39	1.68	G1-13-CI	16.00	n/a	n/a	8.67	0.50	0.17	9.50	24.51	n/a	
G1-10-CI	G1-10-CI	Curb	PCO (3 FT) (BOTH)	330+00.00	FM1560CL	-36.00	5.52	n/a	0.02	0.015	4.11	6.93	4.35	2.58	G1-11-CI	16.00	n/a	n/a	10.58	0.50	0.21	14.00	33.12	n/a	
G1-11-CI	G1-11-CI	Curb	PCO (3 FT) (BOTH)	332+00.00	FM1560CL	-36.00	6.55	n/a	0.02	0.015	2.33	6.15	3.95	2.20	G1-12-CI	16.00	n/a	n/a	9.79	0.50	0.20	14.00	32.19	n/a	
G1-12-CI	G1-12-CI	Curb	PCO (3 FT) (LEFT)	334+80.00	FM1560CL	-36.00	3.77	n/a	0.02	0.015	3.56	4.96	2.85	2.11	G1-14-CI	16.00	n/a	n/a	10.02	0.50	0.20	9.50	25.14	n/a	
G1-13-CI	G1-13-CI	Curb	PCO (4 FT) (BOTH)	334+80.00	FM1560CL	36.00	n/a	3.77	0.02	0.015	25.97	6.45	4.46	1.99	G1-15-CI	16.00	n/a	n/a	11.06	0.50	0.22	14.00	29.17	n/a	
G1-14-CI	G1-14-CI	Curb	PCO (3 FT) (LEFT)	339+50.00	FM1560CL	-36.00	0.59	n/a	0.02	0.015	5.67	6.75	4.72	2.03	G2-01-CI	16.00	n/a	n/a	15.95	0.50	0.32	9.50	19.51	n/a	
G1-15-CI	G1-15-CI	Curb	PCO (4 FT) (RIGHT)	339+50.00	FM1560CL	36.00	n/a	0.59	0.02	0.015	26.95	6.63	4.67	1.96	G2-02-CI	16.00	n/a	n/a	15.84	0.50	0.32	9.50	19.31	n/a	
SYSTEM G2																									
G2-01-CI	G2-01-CI	Curb	PCO (3 FT) (LEFT)	344+50.00	FM1560CL	-36.00	0.59	n/a	0.02	0.015	6.00	6.97	4.81	2.16	G2-03-CI	16.00	n/a	n/a	16.13	0.50	0.32	9.50	19.85	n/a	
G2-02-CI	G2-02-CI	Curb	PCO (4 FT) (RIGHT)	344+50.00	FM1560CL	36.00	n/a	0.59	0.02	0.015	7.01	6.90	4.78	2.12	G2-04-CI	16.00	n/a	n/a	16.08	0.50	0.32	9.50	19.75	n/a	
G2-03-CI	G2-03-CI	Curb	PCO (3 FT) (BOTH)	346+92.13	FM1560CL	-36.00	0.29	0.28	0.02	0.015	3.72	8.94	13.58	0.00	--	16.00	14.31	16.78	18.92	0.50	0.38	14.00	n/a	n/a	SAG
G2-04-CI	G2-04-CI	Curb	PCO (4 FT) (BOTH)	346+92.13	FM1560CL	36.00	0.28	0.29	0.02	0.015	6.16	8.70	13.58	0.00	--	16.00	16.60	14.16	18.57	0.50	0.37	14.00	n/a	n/a	SAG
G2-05-CI	G2-05-CI	Curb	PCO (3 FT) (RIGHT)	350+00.00	FM1560CL	-36.00	n/a	0.56	0.02	0.015	4.67	5.28	4.09	1.19	G2-03-CI	16.00	n/a	n/a	14.64	0.50	0.29	9.50	16.85	n/a	
G2-06-CI	G2-06-CI	Curb	PCO (3 FT) (LEFT)	350+00.00	FM1560CL	36.00	0.56	n/a	0.02	0.015	5.01	4.85	3.88	0.97	G2-04-CI	16.00	n/a	n/a	14.19	0.50	0.28	9.50	16.08	n/a	
SYSTEM H1																									
H1-01-CI	H1-01-CI	Curb	PCO (3 FT) (RIGHT)	353+80.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	25.61	6.40	4.87	1.53	G2-05-CI	16.00	n/a	n/a	16.78	0.50	0.34	9.50	17.33	n/a	
H1-02-CI	H1-02-CI	Curb	PCO (3 FT) (LEFT)	353+80.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	25.77	5.55	4.45	1.10	G2-06-CI	16.00	n/a	n/a	15.91	0.50	0.32	9.50	16.01	n/a	
H1-03-CI	H1-03-CI	Curb	PCO (3 FT) (RIGHT)	359+00.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	30.36	5.90	4.63	1.27	H1-01-CI	16.00	n/a	n/a	16.28	0.50	0.33	9.50	16.56	n/a	
H1-04-CI	H1-04-CI	Curb	PCO (3 FT) (LEFT)	359+00.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	30.45	3.97	3.56	0.41	H1-02-CI	16.00	n/a	n/a	14.03	0.50	0.28	9.50	13.28	n/a	
H1-05-CI	H1-05-CI	Curb	PCO (3 FT) (RIGHT)	362+50.00	FM1560CL	-36.00	n/a	0.40	0.02	0.015	8.72	7.94	5.55	2.39	H1-03-CI	16.00	n/a	n/a	18.20	0.50	0.36	9.50	19.53	n/a	
H1-06-CI	H1-06-CI	Curb	PCO (3 FT) (LEFT)	362+50.00	FM1560CL	36.00	0.40	n/a	0.02	0.015	9.00	4.35	3.79	0.56	H1-04-CI	16.00	n/a	n/a	14.52	0.50	0.29	9.50	13.98	n/a	
SYSTEM I1																									
I1-01-CI	I1-01-CI	Curb	PCO (3 FT) (BOTH)	368+20.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	8.44	7.52	6.67	0.86	I1-02-CI	16.00	n/a	n/a	17.10	0.50	0.34	14.00	19.97	n/a	
I1-02-CI	I1-02-CI	Curb	PCO (3 FT) (LEFT)	369+00.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	9.06	7.42	5.13	2.29	I1-04-CI	16.00	n/a	n/a	17.01	0.50	0.34	9.50	19.81	n/a	
I1-03-CI	I1-03-CI	Curb	PCO (3 FT) (RIGHT)	369+00.00	FM1560CL	36.00	n/a	0.50	0.02	0.015	9.27	2.49	2.44	0.05	I1-06-CI	16.00	n/a	n/a	11.31	0.50	0.23	9.50	10.77	n/a	
I1-04-CI	I1-04-CI	Curb	PCO (3 FT) (LEFT)	370+40.00	FM1560CL	-36.00	0.50	n/a	0.02	0.015	6.14	7.96	5.34	2.61	I1-05-CI	16.00	n/a	n/a	17.46	0.50	0.35	9.50	20.60	n/a	
I1-05-CI	I1-05-CI	Curb	PCO (3 FT) (LEFT)	372+10.00	FM1560CL	-36.00	1.39	n/a	0.02	0.015	5.89	6.98	4.12	2.85	I1-07-CI	16.00	n/a	n/a	13.72	0.50	0.27	9.50	24.27	n/a	
I1-06-CI	I1-06-CI	Curb	PCO (4 FT) (RIGHT)	372+10.00	FM1560CL	36.00	n/a	1.39	0.02	0.015	10.07	3.33	2.67	0.66	I1-09-CI	16.00	n/a	n/a	10.40	0.50	0.21	9.50	16.00	n/a	
I1-07-CI	I1-07-CI	Curb	PCO (3 FT) (LEFT)	373+50.00	FM1560CL	-36.00	1.60	n/a	0.02	0.015	7.56	7.18	4.08	3.10	I1-08-CI	16.00	n/a	n/a	13.51	0.50	0.27	9.50	25.46	n/a	
I1-08-CI	I1-08-CI	Curb	PCO (3 FT) (BOTH)	374+51.05	FM1560CL	-36.00	1.04	0.15	0.02	0.015	8.11	8.95	13.58	0.00	--	16.00	12.28	17.64	18.94	0.50	0.38	14.00	n/a	n/a	SAG
I1-09-CI	I1-09-CI	Curb	PCO (4 FT) (BOTH)	374+51.05	FM1560CL	36.00	0.15	1.04	0.02	0.015	10.62	5.51	13.58	0.00	--	16.00	13.53	10.96	13.70	0.50	0.27	14.00	n/a	n/a	SAG
SYSTEM I2																									
I2-01-CI	I2-01-CI	Curb	PCO (3 FT) (BOTH)	380+27.85	FM1560CL	-48.00	0.32	0.22	0.02	0.015	4.56	5.01	13.58	0.00	--	16.00	15.34	7.22	15.34	0.50	0.26	14.00	n/a	n/a	SAG
I2-02-CI	I2-02-CI	Curb	PCO (3 FT) (BOTH)	380+27.85	FM1560CL	36.00	0.22	0.32	0.02	0.015	4.86	4.86	13.58	0.00	--	16.00	7.14	15.17	15.17	0.50	0.25	14.00	n/a	n/a	SAG

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
100YR INLET CALCULATIONS

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	304

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (100-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM AA1																			
AA1-01-L	AA1-01-CI	AA1-OUT	133.10	135.60	0.40	Circular	n/a	2.00	1.00	937.36	936.82	0.98	4.85	2.88	2.37	938.90	938.82	16.64	7.45
AA1-02-L	AA1-02-CI	AA1-01-CI	72.00	75.00	0.48	Circular	n/a	2.00	1.00	937.72	937.36	0.64	4.33	1.94	1.44	938.90	938.90	18.26	3.74
SYSTEM A1																			
A1-01-L	A1-01-CI	A1-03-MH	143.01	148.01	0.10	Pipe-Arch	2.38	1.50	1.00	940.62	940.47	1.50	2.59	2.59	2.59	945.24	945.04	5.56	6.55
A1-02-L	A1-02-CI	A1-01-CI	72.00	75.00	0.10	Pipe-Arch	2.38	1.50	1.00	940.69	940.62	0.84	2.30	1.30	1.30	945.27	945.24	5.61	3.29
A1-03-L	A1-03-MH	A1-05A-MH	282.85	287.85	0.10	Box	5.00	2.00	1.00	940.47	940.18	2.00	5.22	5.17	5.17	945.04	944.25	41.39	51.68
A1-04-L	A1-04-FW	A1-03-MH	7.42	10.42	1.25	Box	3.00	2.00	1.00	940.60	940.47	1.41	11.19	7.88	7.88	945.12	945.04	73.92	47.27
A1-05A-L	A1-05A-MH	A1-05-MH	102.68	107.68	0.10	Box	5.00	2.00	1.00	940.18	940.08	2.00	5.22	5.17	5.17	944.25	943.96	41.43	51.68
A1-05-L	A1-05-MH	A1-07-CI	169.82	174.82	0.10	Box	5.00	2.00	1.00	940.08	939.90	2.00	5.84	5.79	5.79	943.96	943.36	41.46	57.86
A1-06-L	A1-06-SET	A1-05-MH	5.45	8.45	10.95	Circular	n/a	2.00	1.00	941.00	940.08	0.50	18.11	3.56	3.56	943.98	943.96	87.22	11.18
A1-07-L	A1-07-CI	A1-09-MH	30.23	35.23	0.20	Box	5.00	2.00	1.00	939.90	939.83	2.00	7.24	7.17	7.17	943.36	943.18	58.57	71.70
A1-08-L	A1-08-CI	A1-07-CI	84.00	88.50	0.30	Circular	n/a	2.00	1.00	940.17	939.90	1.23	4.66	3.01	3.01	943.49	943.36	14.44	9.46
A1-09-L	A1-09-MH	A1-10-CI	285.32	290.32	0.10	Box	5.00	3.00	1.00	938.66	938.37	2.97	4.83	4.78	4.78	943.18	942.71	71.29	71.70
A1-10-L	A1-10-CI	A1-12-MH	219.51	225.01	0.10	Box	5.00	3.00	1.00	938.37	938.15	3.00	5.17	5.12	5.12	942.71	942.29	71.29	76.82
A1-11-L	A1-11-CI	A1-10-CI	72.00	76.50	0.30	Circular	n/a	2.00	1.00	939.60	939.37	0.91	4.13	1.83	1.83	942.75	942.71	14.44	5.75
A1-12-L	A1-12-MH	A1-OUT	145.39	148.39	0.10	Box	5.00	3.00	1.00	938.15	938.00	3.00	5.17	5.12	5.12	942.29	942.01	71.29	76.82
SYSTEM A2																			
A2-01-L	A2-01-CI	A2-OUT	26.27	28.77	0.63	Circular	n/a	3.00	1.00	940.63	940.45	3.00	11.48	11.19	11.62	943.68	943.21	61.69	79.13
A2-02-L	A2-02-CI	A2-01-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	942.38	941.63	0.63	6.22	2.45	1.67	943.67	943.68	26.36	5.24
A2-03-L	A2-03-CI	A2-01-CI	323.03	328.03	0.63	Circular	n/a	3.00	1.00	942.70	940.63	3.00	10.49	10.22	10.22	946.96	943.68	61.69	72.25
A2-04-L	A2-04-CI	A2-03-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	944.45	943.69	1.57	8.84	7.44	7.44	947.65	946.96	26.36	23.39
A2-05-L	A2-05-CI	A2-04-CI	115.69	120.69	1.00	Circular	n/a	2.00	1.00	945.66	944.45	1.11	8.17	4.68	4.68	948.09	947.65	26.36	14.70
A2-06-L	A2-06-CI	A2-05-CI	115.69	120.69	1.00	Circular	n/a	2.00	1.00	946.86	945.66	0.75	6.81	3.10	2.34	948.28	948.09	26.36	7.35
A2-07-L	A2-07-CI	A2-03-CI	352.84	357.84	1.00	Circular	n/a	2.50	1.00	946.77	943.20	2.20	10.21	9.52	9.52	950.92	946.96	47.80	46.73
A2-08-L	A2-08-CI	A2-07-CI	72.00	75.50	1.00	Circular	n/a	2.00	1.00	948.86	948.11	2.00	9.18	8.95	8.95	951.91	950.92	26.36	28.11
A2-09-L	A2-09-CI	A2-08-CI	115.27	120.27	1.00	Circular	n/a	2.00	1.00	950.06	948.86	1.44	8.76	6.74	6.74	952.81	951.91	26.36	21.18
A2-10-L	A2-10-CI	A2-09-CI	115.00	120.00	1.00	Circular	n/a	2.00	1.00	951.26	950.06	1.10	8.13	4.60	4.58	953.22	952.81	26.36	14.39
A2-11-L	A2-11-CI	A2-10-CI	115.00	120.00	1.00	Circular	n/a	2.00	1.00	952.46	951.26	0.74	6.77	3.07	6.74	953.85	952.01	26.36	7.16
A2-12-L	A2-12-CI	A2-13-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	955.10	954.35	1.07	8.02	6.17	7.85	956.43	955.44	26.36	13.73
A2-13-L	A2-13-CI	A2-07-CI	474.72	479.72	1.00	Circular	n/a	2.00	1.00	952.91	948.11	1.20	8.35	6.66	8.35	954.37	949.31	26.36	16.36
A2-14-L	A2-14-CI	A2-12-CI	125.00	130.00	1.00	Circular	n/a	2.00	1.00	956.40	955.10	0.72	6.70	3.03	6.67	957.75	955.82	26.36	6.86

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
100YR LINK CALCULATIONS

SHEET 1 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 305

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (100-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM B1																			
B1-01-L	B1-01-CI	B1-OUT	89.39	91.89	0.50	Box	3.00	3.00	1.00	958.76	958.30	3.00	11.06	10.95	10.95	962.35	961.30	77.47	98.51
B1-02-L	B1-02-CI	B1-01-CI	72.00	75.50	0.45	Circular	n/a	2.50	1.00	959.59	959.26	2.35	6.72	6.55	6.55	962.75	962.35	32.06	32.15
B1-03-L	B1-03-CI	B1-02-CI	60.00	65.00	0.45	Circular	n/a	2.00	1.00	960.39	960.10	2.00	8.56	8.34	8.34	963.49	962.75	17.68	26.20
B1-04-L	B1-04-CI	B1-03-CI	60.00	65.00	0.45	Circular	n/a	2.00	1.00	960.68	960.39	2.00	6.22	6.07	6.07	963.88	963.49	17.68	19.06
B1-05-L	B1-05-CI	B1-04-CI	70.00	75.00	0.45	Circular	n/a	2.00	1.00	961.02	960.68	1.47	5.94	4.67	4.67	964.15	963.88	17.68	14.66
B1-06-L	B1-06-CI	B1-05-CI	70.00	75.00	0.45	Circular	n/a	2.00	1.00	961.35	961.02	0.94	5.08	2.34	2.34	964.22	964.15	17.68	7.36
B1-07-L	B1-07-CI	B1-08-CI	72.00	76.00	0.45	Circular	n/a	2.50	1.00	961.13	960.79	2.50	7.17	6.99	6.99	965.65	965.20	31.96	34.31
B1-08-L	B1-08-CI	B1-01-CI	335.39	340.39	0.45	Circular	n/a	3.00	1.00	960.29	958.76	3.00	9.59	9.35	9.35	965.20	962.35	52.14	66.06
B1-09-L	B1-09-CI	B1-07-CI	64.53	69.53	0.45	Circular	n/a	2.50	1.00	961.44	961.13	1.87	6.89	5.53	5.53	965.91	965.65	32.07	27.13
B1-10-L	B1-10-CI	B1-09-CI	64.54	69.54	0.45	Circular	n/a	2.00	1.00	962.25	961.94	2.00	6.75	6.58	6.58	966.41	965.91	17.68	20.66
B1-11-L	B1-11-CI	B1-10-CI	74.47	79.47	0.45	Circular	n/a	2.00	1.00	962.61	962.25	1.42	5.87	4.47	4.47	966.67	966.41	17.68	14.03
B1-12-L	B1-12-CI	B1-11-CI	74.47	79.47	0.45	Circular	n/a	2.00	1.00	962.97	962.61	0.95	5.09	2.39	2.39	966.74	966.67	17.68	7.52
B1-13-L	B1-13-CI	B1-08-CI	417.70	422.70	0.45	Circular	n/a	2.50	1.00	962.69	960.79	2.20	6.88	6.42	6.42	967.32	965.20	32.06	31.50
B1-14-L	B1-14-CI	B1-13-CI	72.00	75.50	0.45	Circular	n/a	2.00	1.00	963.53	963.19	2.00	6.91	6.74	6.74	967.89	967.32	17.63	21.17
B1-15-L	B1-15-CI	B1-14-CI	94.34	99.34	0.45	Circular	n/a	2.00	1.00	963.97	963.53	1.47	5.92	4.65	4.65	968.24	967.89	17.68	14.62
B1-16-L	B1-16-CI	B1-15-CI	94.34	99.34	0.45	Circular	n/a	2.00	1.00	964.42	963.97	0.97	5.18	2.48	2.48	968.34	968.24	17.68	7.80
B1-17-L	B1-17-CI	B1-13-CI	346.58	351.58	0.45	Circular	n/a	2.00	1.00	964.77	963.19	1.11	5.51	3.16	3.16	967.90	967.32	17.68	9.92
B1-18-L	B1-18-CI	B1-17-CI	72.00	75.00	0.45	Circular	n/a	2.00	1.00	965.11	964.77	0.71	4.47	1.42	1.42	967.93	967.90	17.68	4.47
SYSTEM D1																			
D1-01-L	D1-01-CI	D1-OUT	148.14	150.64	1.00	Circular	n/a	2.50	1.00	967.93	966.42	2.50	10.52	10.25	10.25	970.97	969.04	47.80	50.34
D1-02-L	D1-02-CI	D1-01-CI	76.00	79.50	1.00	Circular	n/a	2.00	1.00	973.00	972.20	0.36	4.49	2.38	4.47	973.56	972.56	26.36	1.70
D1-03-L	D1-03-CI	D1-01-CI	172.56	177.56	1.00	Circular	n/a	2.50	1.00	974.03	972.25	2.04	10.34	9.63	10.31	976.24	974.29	47.80	44.26
D1-04-L	D1-04-CI	D1-03-CI	76.00	79.50	1.00	Circular	n/a	2.00	1.00	976.10	975.30	0.44	5.11	2.51	5.08	976.84	975.75	26.36	2.65
D1-05-L	D1-05-CI	D1-03-CI	334.67	339.67	1.00	Circular	n/a	2.50	1.00	978.75	975.35	1.79	10.18	8.73	10.18	980.84	977.14	47.80	38.25
D1-06-L	D1-06-CI	D1-05-CI	84.00	87.50	1.00	Circular	n/a	2.00	1.00	986.35	985.47	0.59	5.98	2.74	5.95	987.40	986.06	26.36	4.60
D1-07-L	D1-07-CI	D1-05-CI	3.00	7.00	1.00	Circular	n/a	2.00	1.00	985.55	985.48	1.17	8.27	5.00	7.22	987.90	986.79	26.36	15.72
D1-08-L	D1-08-CI	D1-05-CI	333.63	338.63	1.00	Circular	n/a	2.00	1.00	988.87	985.48	1.37	8.68	7.38	8.68	990.47	986.85	26.36	19.92
D1-09A-L	D1-09A-MH	D1-08-CI	57.02	61.02	1.00	Circular	n/a	2.00	1.00	1002.26	1001.65	1.18	8.31	6.60	8.08	1003.70	1002.86	26.36	16.03
D1-09-L	D1-09-CI	D1-09A-MH	45.28	49.28	0.50	Circular	n/a	2.00	1.00	1004.72	1004.47	0.81	5.03	4.59	5.00	1005.58	1005.28	18.64	5.97
D1-10A-L	D1-10A-MH	D1-09-CI	35.60	39.60	0.50	Circular	n/a	2.00	1.00	1006.91	1006.72	0.63	4.40	3.99	4.40	1007.59	1007.35	18.64	3.74
D1-10-L	D1-10-CI	D1-10A-MH	56.68	59.68	0.50	Circular	n/a	2.00	1.00	1007.21	1006.91	0.63	4.40	2.64	4.40	1008.14	1007.55	18.64	3.74
D1-11-L	D1-11-CI	D1-09A-MH	131.42	135.42	1.00	Circular	n/a	2.00	1.00	1005.82	1004.47	0.89	7.40	5.47	7.39	1006.96	1005.37	26.36	10.07
D1-12-L	D1-12-CI	D1-11-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	1009.35	1008.60	0.45	5.17	2.53	5.15	1010.11	1009.05	26.36	2.76
D1-13-L	D1-13-CI	D1-11-CI	184.00	189.00	1.00	Circular	n/a	2.00	1.00	1010.49	1008.60	0.45	5.17	2.52	5.15	1011.25	1009.05	26.36	2.74
SYSTEM E1																			
E1-01-L	E1-01-CI	E1-02-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	1010.78	1010.41	0.52	3.99	2.51	3.96	1011.51	1010.93	18.64	2.60
E1-02-L	E1-02-CI	E1-04-CI	399.96	404.96	2.82	Circular	n/a	2.00	1.00	1010.41	998.99	0.48	8.95	4.40	8.95	1011.21	999.47	44.26	5.18
E1-03-L	E1-03-CI	E1-04-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	999.37	998.99	0.62	4.34	1.17	1.15	1001.28	1001.27	18.64	3.62
E1-04-L	E1-04-CI	E1-06-CI	168.45	173.45	0.50	Circular	n/a	2.00	1.00	998.99	998.12	1.26	5.96	3.96	3.96	1001.27	1000.82	18.64	12.44
E1-05-L	E1-05-CI	E1-06-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	998.50	998.12	0.92	5.33	2.38	2.38	1000.89	1000.82	18.64	7.48
E1-06-L	E1-06-CI	E1-OUT	108.86	111.36	0.20	Circular	n/a	2.50	1.00	998.12	997.90	2.50	5.70	5.56	5.56	1000.82	1000.40	21.38	27.28

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
100YR LINK CALCULATIONS

SHEET 2 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	306

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (100-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM E2																			
E2-01-L	E2-01-CI	E2-02-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	999.79	999.42	0.57	4.18	0.99	0.99	1001.85	1001.84	18.64	3.10
E2-02-L	E2-02-CI	E2-OUT	100.93	103.43	0.50	Box	3.00	3.00	1.00	998.42	997.90	3.00	9.82	9.73	9.73	1001.84	1000.90	77.84	87.53
E2-03-L	E2-03-CI	E2-04-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1008.90	1008.52	0.54	4.02	2.52	4.02	1009.65	1009.06	18.70	2.72
E2-04-L	E2-04-CI	E2-02-CI	295.00	300.00	0.50	Box	3.00	3.00	1.00	999.92	998.42	3.00	9.27	9.18	9.18	1004.25	1001.84	77.84	82.59
E2-05-L	E2-05-CI	E2-06-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1013.87	1013.49	0.64	4.48	2.65	4.45	1014.81	1014.13	18.70	3.86
E2-06-L	E2-06-CI	E2-04-CI	215.00	220.00	0.50	Circular	n/a	3.00	1.00	1008.62	1007.52	3.00	11.31	11.02	11.48	1012.97	1010.27	54.96	77.90
E2-07-L	E2-07-CI	E2-08-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1014.77	1014.39	1.28	6.03	4.06	4.06	1017.40	1017.19	18.70	12.76
E2-08-L	E2-08-CI	E2-06-CI	175.00	180.00	0.50	Circular	n/a	3.00	1.00	1013.39	1012.49	3.00	10.61	10.34	10.92	1017.19	1015.19	54.96	73.09
E2-09-L	E2-09-CI	E2-07-CI	145.00	150.00	0.50	Circular	n/a	2.00	1.00	1015.52	1014.77	1.03	5.53	2.86	2.86	1017.60	1017.40	18.64	8.99
E2-10-L	E2-10-GI	E2-09-CI	11.50	14.50	0.50	Circular	n/a	2.00	1.00	1015.59	1015.52	0.63	4.40	1.19	1.19	1017.60	1017.60	18.64	3.74
E2-11-L	E2-11-CI	E2-12-CI	72.00	75.50	0.49	Circular	n/a	2.00	1.00	1020.47	1020.10	0.59	4.24	2.59	4.24	1021.32	1020.69	18.46	3.31
E2-12-L	E2-12-CI	E2-08-CI	345.00	350.00	0.50	Circular	n/a	3.00	1.00	1015.14	1013.39	3.00	8.93	8.70	8.70	1019.73	1017.19	54.96	61.52
F1-OUTE-L	F1-OUTE	E2-12-CI	94.52	100.02	0.90	Circular	n/a	2.50	1.00	1020.50	1019.60	2.50	11.55	11.26	11.53	1027.21	1021.96	45.34	55.29
SYSTEM F1																			
F1-01-L	F1-01-MH	F1-OUT	95.00	100.00	0.40	Circular	n/a	2.50	1.00	1021.40	1021.00	2.50	8.64	8.42	8.42	1024.40	1023.54	30.23	41.33
F1-02-L	F1-02-MH	F1-01-MH	46.00	50.00	0.40	Circular	n/a	2.50	1.00	1021.60	1021.40	2.50	8.64	8.42	8.42	1024.83	1024.40	30.23	41.33
F1-03-L	F1-03-CI	F1-02-MH	73.50	77.00	0.50	Circular	n/a	2.00	1.00	1022.48	1022.10	0.81	5.05	1.93	1.93	1024.88	1024.83	18.64	6.06
F1-04-L	F1-04-CI	F1-05-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	1029.74	1029.36	1.55	6.22	5.18	5.18	1031.80	1031.47	18.64	16.29
F1-05-L	F1-05-CI	F1-02-MH	292.27	296.77	1.00	Circular	n/a	2.00	1.00	1025.07	1022.10	2.00	11.97	11.66	11.66	1031.47	1024.83	26.36	36.64
F1-06-L	F1-06-CI	F1-04-CI	167.86	172.86	1.00	Circular	n/a	2.00	1.00	1031.47	1029.74	0.96	7.64	5.73	7.64	1032.68	1030.70	26.36	11.40
F1-07-L	F1-07-CI	F1-06-CI	127.20	132.20	1.00	Circular	n/a	2.00	1.00	1035.48	1034.16	0.66	6.38	2.88	6.36	1036.70	1034.82	26.36	5.77
F1-08-L	F1-08-CI	F1-09-CI	72.00	75.00	1.00	Circular	n/a	2.00	1.00	1040.16	1039.41	1.20	8.41	6.71	8.21	1041.63	1040.64	26.36	16.60
F1-09A-L	F1-09A-MH	F1-05-CI	241.53	245.53	1.00	Circular	n/a	2.00	1.00	1031.82	1029.36	1.28	8.57	7.04	8.54	1033.36	1030.65	26.36	18.25
F1-09-L	F1-09-CI	F1-09A-MH	172.83	176.83	1.00	Circular	n/a	2.00	1.00	1037.97	1036.20	1.28	8.57	7.04	8.53	1039.51	1037.49	26.36	18.25
F1-10-L	F1-10-CI	F1-08-CI	106.86	111.86	1.00	Circular	n/a	2.00	1.00	1041.28	1040.16	0.96	7.64	5.73	7.60	1042.49	1041.12	26.36	11.40
F1-11-L	F1-11-CI	F1-10-CI	125.24	130.24	1.00	Circular	n/a	2.00	1.00	1042.58	1041.28	0.67	6.41	2.90	6.41	1043.82	1041.95	26.36	5.93
SYSTEM G1																			
G1-01-L	G1-01-CI	G1-02-CI	147.00	152.00	0.30	Circular	n/a	2.00	1.00	1043.53	1043.07	0.84	3.88	2.46	1.78	1044.73	1044.68	14.44	4.83
G1-02-L	G1-02-CI	G1-03-CI	105.00	110.00	0.30	Circular	n/a	2.00	1.00	1043.07	1042.74	1.32	4.68	3.80	3.47	1044.68	1044.54	14.44	10.30
G1-03-L	G1-03-CI	G1-04-CI	114.72	119.72	0.30	Circular	n/a	2.00	1.00	1042.74	1042.38	2.00	5.21	5.37	6.58	1044.54	1043.83	14.44	15.94
G1-04-L	G1-04-CI	G1-05-CI	72.00	76.00	0.30	Circular	n/a	2.50	1.00	1041.88	1041.66	1.83	5.58	5.26	5.12	1043.83	1043.65	26.01	21.53
G1-05-L	G1-05-CI	G1-07-CI	328.03	333.03	0.30	Circular	n/a	2.50	1.00	1041.66	1040.66	2.05	5.56	5.71	6.90	1043.65	1042.33	26.18	24.01
G1-06-L	G1-06-CI	G1-07-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1037.66	1037.28	2.00	7.65	7.46	8.15	1039.82	1039.00	18.64	23.43
G1-07-L	G1-07-CI	G1-09-CI	329.24	334.24	0.50	Circular	n/a	2.50	1.00	1031.24	1029.57	2.50	9.44	9.20	9.78	1035.40	1031.80	33.80	45.18
G1-08-L	G1-08-GI	G1-06-CI	15.50	18.50	0.50	Circular	n/a	2.00	1.00	1037.75	1037.66	2.00	6.52	6.35	6.35	1040.69	1039.82	18.64	19.96
G1-09-L	G1-09-CI	G1-11A-MH	198.20	202.70	0.50	Circular	n/a	3.00	1.00	1017.33	1016.32	2.33	8.25	8.25	8.47	1019.67	1018.59	54.96	48.61
G1-10-L	G1-10-CI	G1-09-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1030.45	1030.07	0.68	4.60	2.71	4.59	1031.47	1030.75	18.64	4.35
G1-11A-L	G1-11A-MH	G1-13-CI	276.96	281.46	0.50	Circular	n/a	3.00	1.00	1002.64	1001.23	2.46	8.19	8.24	8.67	1005.09	1003.55	54.96	50.91
G1-11-L	G1-11-CI	G1-11A-MH	73.50	77.00	0.50	Circular	n/a	2.00	1.00	1017.70	1017.32	0.65	4.47	2.66	4.46	1018.66	1017.97	18.64	3.95
G1-12-L	G1-12-CI	G1-13-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	1002.61	1002.23	0.55	4.06	2.54	4.06	1003.38	1002.78	18.64	2.85
G1-13-L	G1-13-CI	G1-15-CI	465.00	470.00	0.50	Circular	n/a	3.00	1.00	996.57	994.22	2.82	7.98	8.14	9.05	999.30	996.63	54.96	54.98
G1-14-L	G1-14-CI	G1-15-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	995.60	995.22	0.71	4.71	2.75	4.69	996.67	995.93	18.64	4.72
G1-15-L	G1-15-CI	G1-OUT	33.50	36.00	0.50	Circular	n/a	3.00	1.00	990.68	990.50	3.00	8.70	8.48	8.48	995.58	995.33	54.96	59.92

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
STORM DRAIN
100YR LINK CALCULATIONS

SHEET 3 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	307
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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FM 1560 LINK CALCULATIONS (100-YEAR)

LINK ID	UPSTREAM NODE	DOWNSTREAM NODE	ACTUAL LENGTH (FT)	HYDRAULIC LENGTH (FT)	SLOPE %	SHAPE	SPAN (FT)	RISE (FT)	NUMBER OF BARRELS	INVERT UPSTREAM (FT)	INVERT DOWNSTREAM (FT)	UNIFORM DEPTH (FT)	UNIFORM VELOCITY	ACTUAL VELOCITY UPSTREAM	ACTUAL VELOCITY DOWNSTREAM	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	CAPACITY (CFS)	DISCHARGE (CFS)
SYSTEM G2																			
G2-01-L	G2-01-CI	G2-02-CI	72.00	75.50	0.30	Circular	n/a	2.00	1.00	992.65	992.42	0.82	3.96	1.53	1.53	997.24	997.21	14.44	4.81
G2-02-L	G2-02-CI	G2-OUT	421.79	424.29	0.20	Box	3.00	2.00	1.00	990.85	990.00	2.00	5.93	5.87	5.87	997.21	995.33	29.60	35.20
G2-03-L	G2-03-CI	G2-04-CI	72.00	75.50	0.30	Circular	n/a	2.00	1.00	991.56	991.33	1.20	4.53	2.85	2.85	997.88	997.78	14.44	8.94
G2-04-L	G2-04-CI	G2-02-CI	237.13	242.13	0.20	Box	3.00	2.00	1.00	991.33	990.85	1.79	4.76	4.27	4.27	997.78	997.21	29.60	25.61
G2-05-L	G2-05-CI	G2-06-CI	72.00	75.00	0.30	Circular	n/a	2.00	1.00	992.48	992.26	0.76	3.72	1.30	1.30	998.13	998.11	14.44	4.09
G2-06-L	G2-06-CI	G2-04-CI	302.87	307.87	0.30	Circular	n/a	2.00	1.00	992.26	991.33	1.11	4.43	2.54	2.54	998.11	997.78	14.44	7.97
SYSTEM H1																			
H1-05-L	H1-05-CI	H1-06-CI	72.00	75.00	0.40	Circular	n/a	2.00	1.00	997.82	997.52	0.83	4.51	1.77	1.77	1000.68	1000.64	16.67	5.55
H1-06-L	H1-06-CI	H1-07-MH	141.88	145.88	0.40	Circular	n/a	2.00	1.00	997.52	996.94	1.11	5.19	2.97	2.97	1000.64	1000.43	16.67	9.34
H1-07-L	H1-07-MH	H1-04-CI	191.00	195.00	0.40	Circular	n/a	2.00	1.00	996.94	996.16	1.11	5.19	2.97	2.97	1000.43	1000.15	16.67	9.34
SYSTEM I1																			
I1-01-L	I1-01-CI	I1-02-CI	77.12	82.12	0.50	Circular	n/a	2.00	1.00	998.70	998.29	0.87	5.12	3.00	5.12	1000.03	999.15	18.64	6.67
I1-02-L	I1-02-CI	I1-03-CI	72.00	75.00	0.50	Circular	n/a	2.00	1.00	998.29	997.91	1.20	5.98	5.80	5.98	999.52	999.12	18.64	11.79
I1-03-L	I1-03-CI	I1-04A-MH	132.16	136.16	0.50	Circular	n/a	2.00	1.00	997.91	997.23	1.38	6.16	5.61	4.62	999.42	999.13	18.64	14.24
I1-04A-L	I1-04A-MH	I1-06-CI	161.27	165.27	0.50	Circular	n/a	2.00	1.00	997.23	996.40	2.00	6.39	6.35	7.31	999.13	998.00	18.64	19.58
I1-04-L	I1-04-CI	I1-04A-MH	73.50	76.50	0.50	Circular	n/a	2.00	1.00	997.61	997.23	0.76	4.86	2.07	1.73	999.15	999.13	18.64	5.34
I1-05-L	I1-05-CI	I1-06-CI	76.00	79.50	0.47	Circular	n/a	2.00	1.00	996.78	996.41	0.67	4.42	2.68	4.42	997.76	997.08	18.11	4.12
I1-06-L	I1-06-CI	I1-09-CI	229.29	234.29	0.50	Circular	n/a	2.50	1.00	993.64	992.47	1.76	7.12	5.36	5.36	997.07	996.24	33.80	26.30
I1-07-L	I1-07-CI	I1-08-CI	98.72	103.72	0.50	Circular	n/a	2.00	1.00	993.87	993.35	0.66	4.51	1.30	1.30	996.49	996.46	18.64	4.08
I1-08-L	I1-08-CI	I1-09-CI	72.00	75.50	0.50	Circular	n/a	2.00	1.00	993.35	992.97	1.29	6.08	4.15	4.15	996.46	996.24	18.64	13.03
I1-09-L	I1-09-CI	I1-OUT	116.74	119.24	0.50	Circular	n/a	2.50	1.00	984.60	984.00	2.50	9.18	8.94	8.94	996.24	995.08	33.80	43.90
SYSTEM I2																			
I2-01-L	I2-01-CI	I2-02-CI	84.00	87.00	0.50	Circular	n/a	2.00	1.00	991.55	991.12	0.73	4.80	1.59	1.59	995.36	995.32	18.64	5.01
I2-02-L	I2-02-CI	I2-OUT	144.94	147.44	0.50	Circular	n/a	2.00	1.00	984.74	984.00	1.09	5.67	3.14	3.14	995.32	995.08	18.64	9.87

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR INLET AND PROPOSED STORM SEWER DESIGN.
2. RATIONAL METHOD USED FOR HYDROLOGIC ANALYSIS.
3. GEOPAK DRAINAGE USED FOR HYDRAULIC ANALYSIS.
4. DOWNSTREAM BOUNDARY CONDITION SET TO 10-YR WATER SURFACE ELEVATION IN OUTFALL CHANNEL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
STORM DRAIN
100YR LINK CALCULATIONS

SHEET 4 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

308

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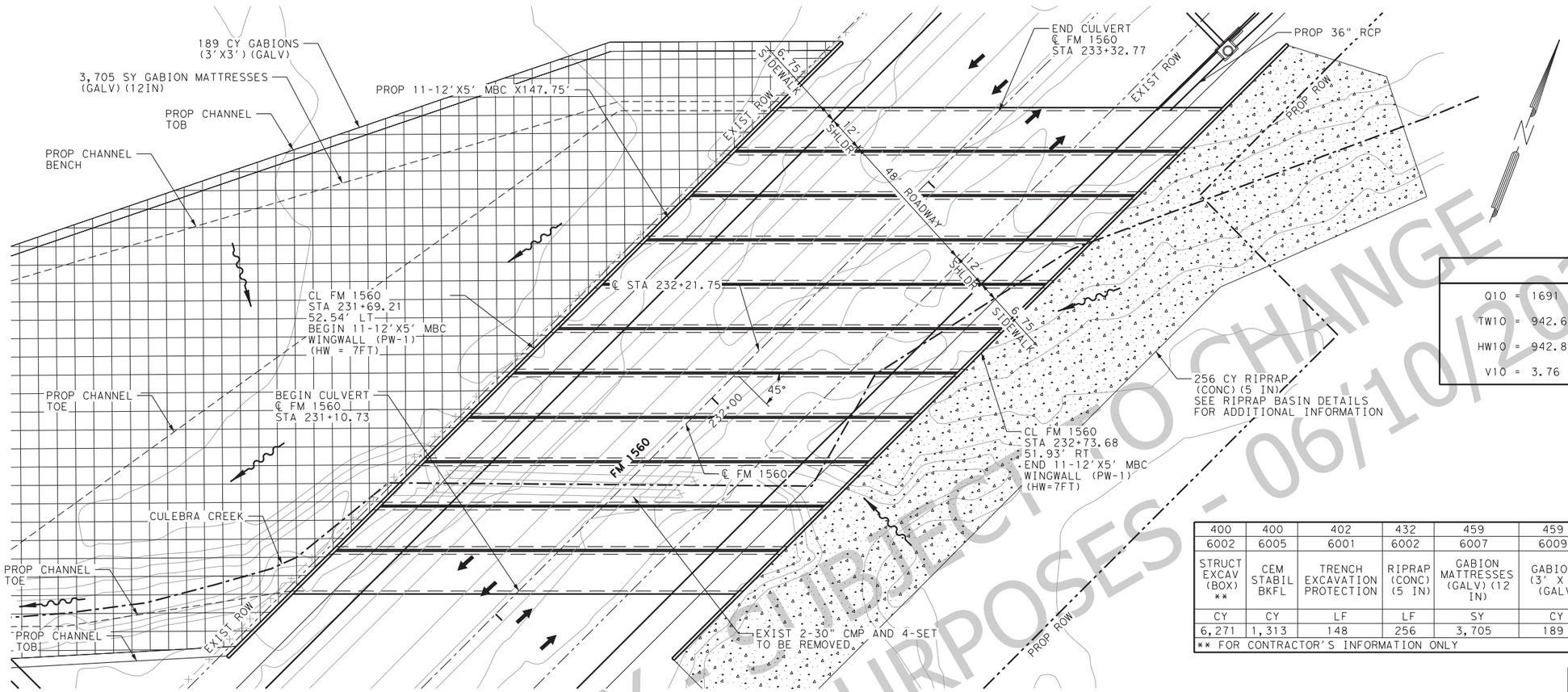
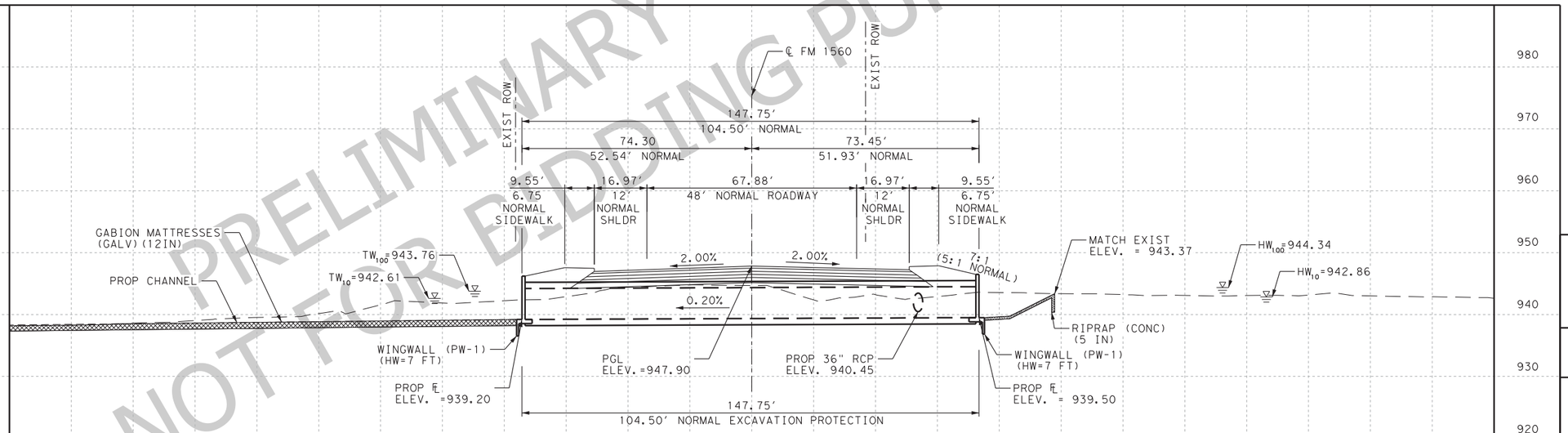


HYDRAULIC DATA	
Q10 = 1691	Q100 = 3387
TW10 = 942.61	TW100 = 943.76
HW10 = 942.86	HW100 = 944.34
V10 = 3.76	V100 = 5.62

400	400	402	432	459	459	462	466	496	496
6002	6005	6001	6002	6007	6009	6176	6182	6004	6007
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	GABION MATTRESSES (GALV) (12 IN)	GABIONS (3' X 3') (GALV)	CONC BOX CULV (12FT X 5FT)	WINGWALL (PW-1) (HW=7FT)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	LF	SY	CY	LF	EA	EA	LF
6,271	1,313	148	256	3,705	189	1,628	2	4	161
** FOR CONTRACTOR'S INFORMATION ONLY									



BRIDGE CLASS CULVERT A

℄ FM 1560 STA 232+21.75
EXIST 2-30" CMP W/SET LT & RT TO BE REMOVED
PROP 11-12'X5' MBC X147.75' W/ WINGWALL (PW-1) (HW=7FT) LT & RT
SCP-MD, SCP-12, PW

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
CULVERT LAYOUT
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT A
STA 232+21.75

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	309
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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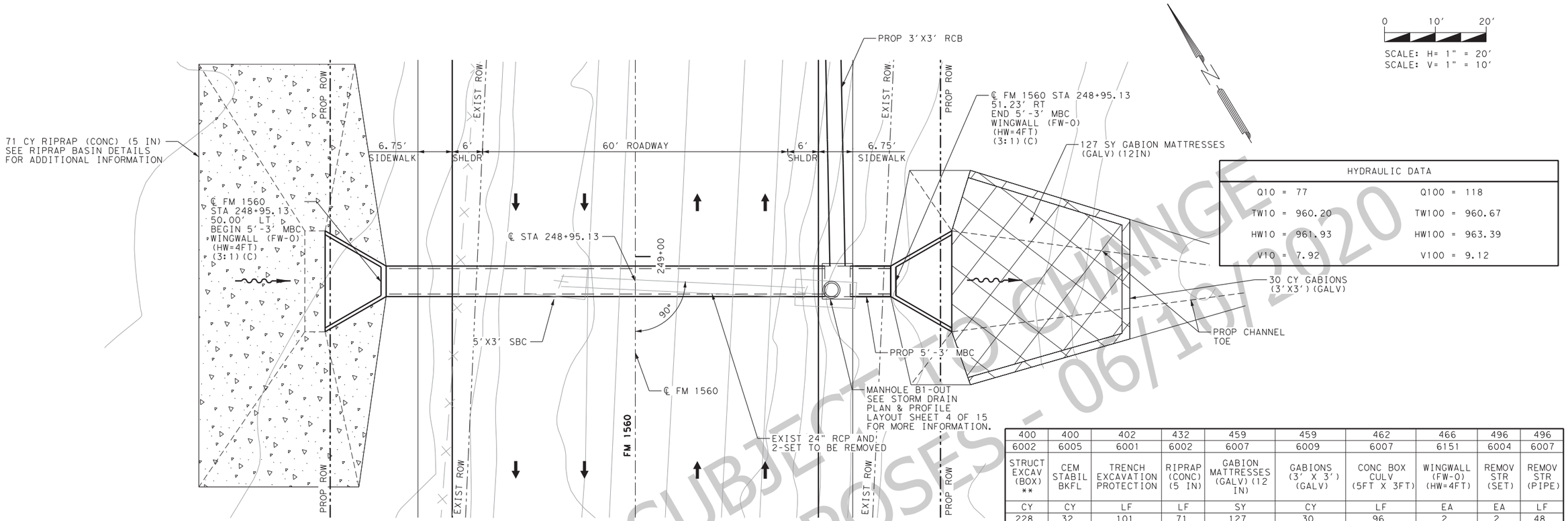
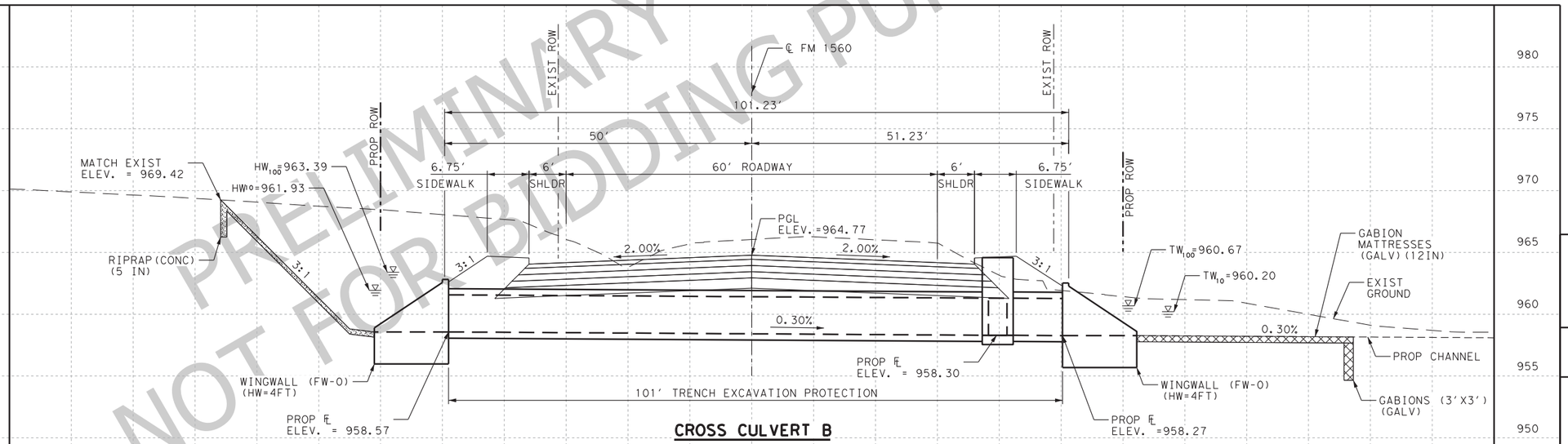


HYDRAULIC DATA	
Q10 = 77	Q100 = 118
TW10 = 960.20	TW100 = 960.67
HW10 = 961.93	HW100 = 963.39
V10 = 7.92	V100 = 9.12

400	400	402	432	459	459	462	466	496	496
6002	6005	6001	6002	6007	6009	6007	6151	6004	6007
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	GABION MATTRESSES (GALV) (12 IN)	GABIONS (3' X 3') (GALV)	CONC BOX CULV (5FT X 3FT)	WINGWALL (FW-0) (HW=4FT)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	LF	SY	CY	LF	EA	EA	LF
228	32	101	71	127	30	96	2	2	48

** FOR CONTRACTOR'S INFORMATION ONLY



CROSS CULVERT B

℄ FM 1560 STA 248+95.13
EXIST 24" RCP X 48' W/ SET LT & RT TO BE REMOVED
PROP 5'X3' SBC X96' W/WINGWALL (FW-0)(HW=4FT) LT & RT
SCP-MD, SCP-5, FW-0, PB, PPD, PSL

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
CULVERT LAYOUT
CROSS CULVERT B

STA 248+95.13

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	310
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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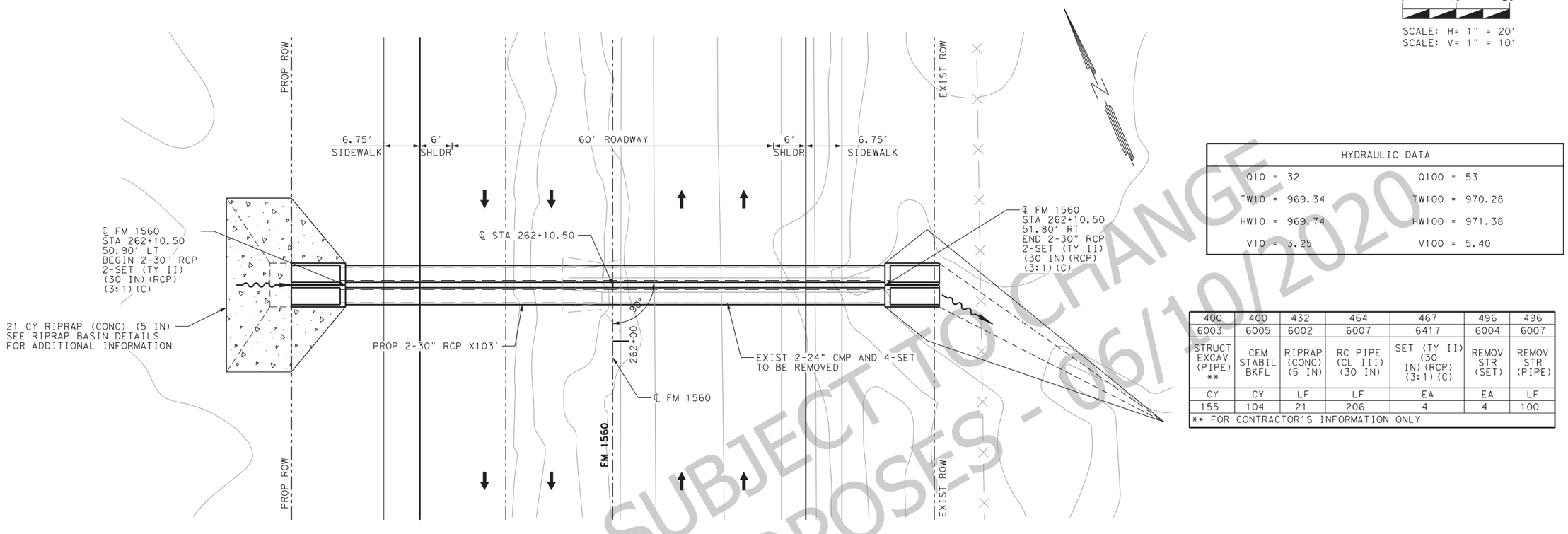
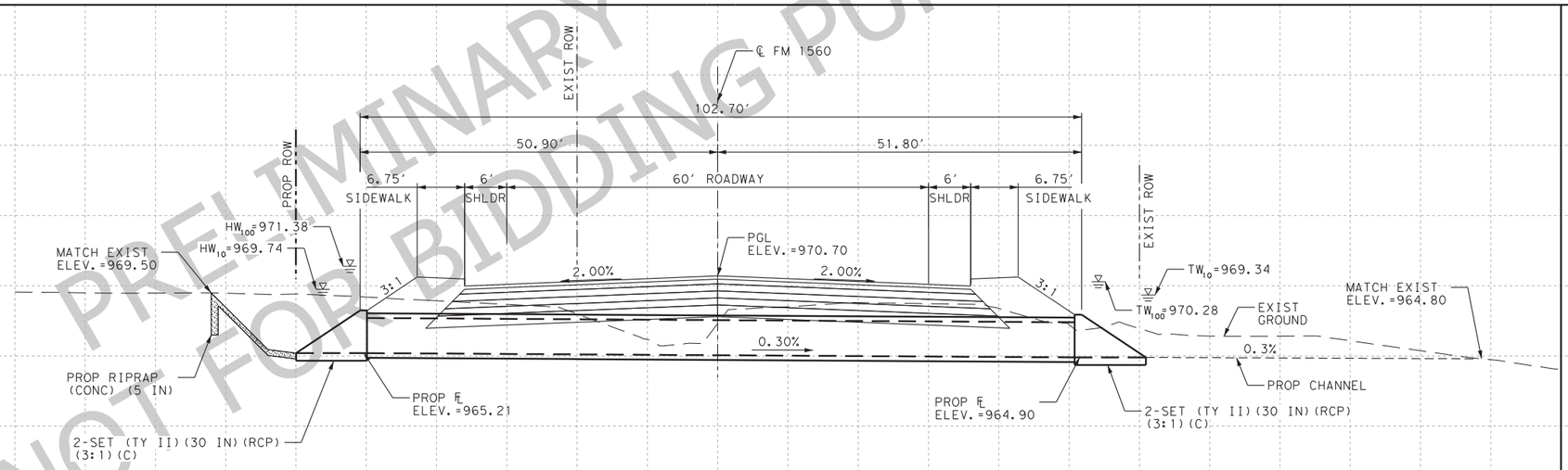


0 10′ 20′

SCALE: H= 1" = 20′
SCALE: V= 1" = 10′

HYDRAULIC DATA	
Q10 = 32	Q100 = 53
TW10 = 969.34	TW100 = 970.28
HW10 = 969.74	HW100 = 971.38
V10 = 3.25	V100 = 5.40

400	400	432	464	467	496	496
6003	6005	6002	6007	6417	6004	6007
STRUCT EXCAV (PIPE) **	CEM STABIL BKFL	RIPRAP (CONC) (5 IN)	RC PIPE (CL III) (30 IN)	SET (TY II) (30 IN)(RCP) (3:1)(C)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	LF	EA	EA	LF
155	104	21	206	4	4	100
** FOR CONTRACTOR'S INFORMATION ONLY						



CROSS CULVERT C

℄ FM 1560 STA 262+10.50
EXIST 2 - 24" CMP X 50′ W/ SET LT & RT TO BE REMOVED
PROP 2-30" RCP X103′ W/ 2-SET (TY II)(30 IN)(RCP)(3:1)(C) LT & RT
SETP-CD, PSET-SC, PSET-RC

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
CULVERT LAYOUT
CROSS CULVERT C

STA 262+10.50

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	311
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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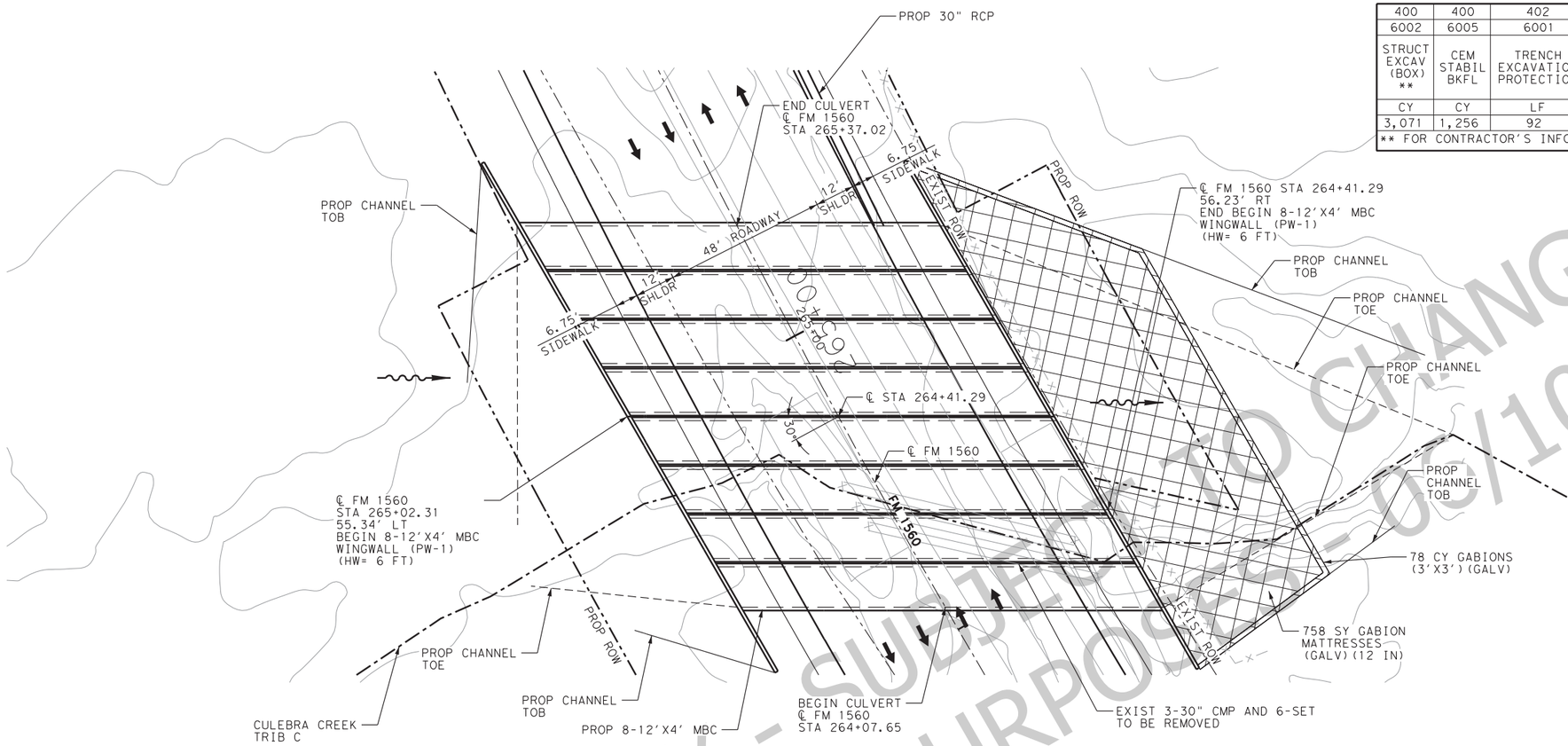
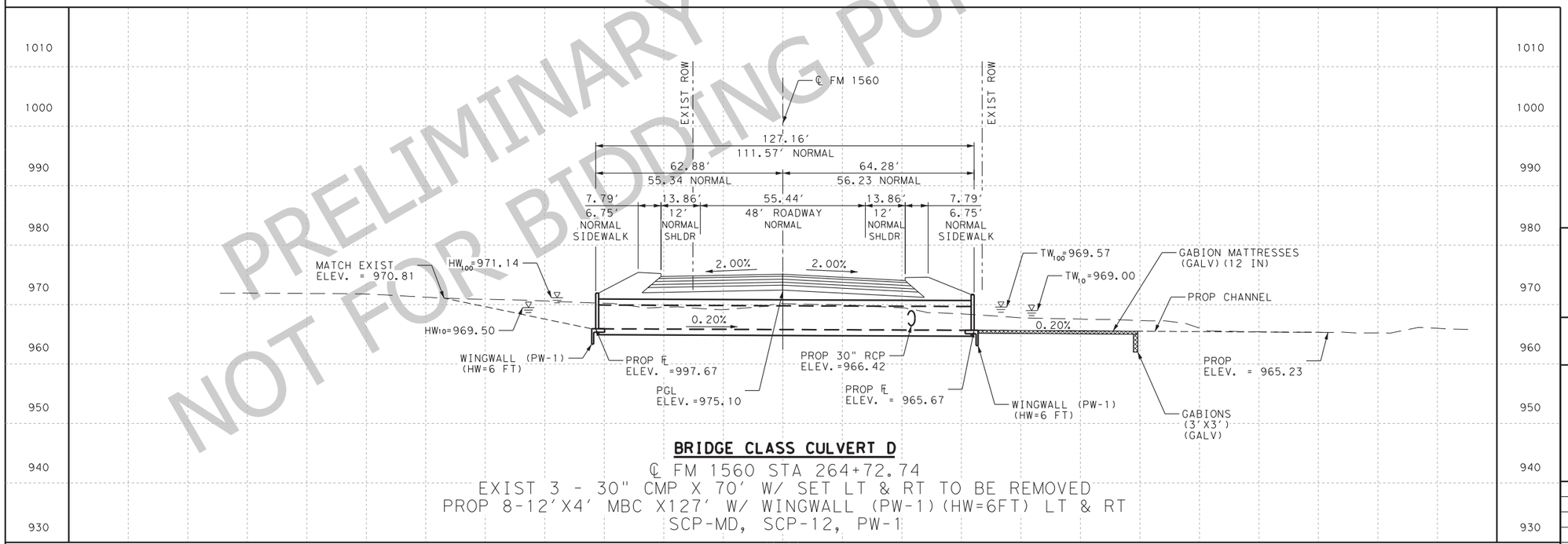
400	400	402	459	459	462	466	496	496
6002	6005	6001	6007	6009	6040	6181	6004	6007
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	GABION MATTRESSES (GALV)(12 IN)	GABIONS (3' X 3') (GALV)	CONC BOX CULV (12FT X 4FT)	WINGWALL (PW-1) (HW=6FT)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	SY	CY	LF	EA	EA	LF
3,071	1,256	92	758	78	1,016	2	6	210

** FOR CONTRACTOR'S INFORMATION ONLY



HYDRAULIC DATA	
Q10 = 1743	Q100 = 3000
TW10 = 969.00	TW100 = 969.57
HW10 = 969.5	HW100 = 971.14
V10 = 5.45	V100 = 8.01



BRIDGE CLASS CULVERT D

℄ FM 1560 STA 264+72.74

EXIST 3 - 30" CMP X 70' W/ SET LT & RT TO BE REMOVED

PROP 8-12'X4' MBC X127' W/ WINGWALL (PW-1)(HW=6FT) LT & RT

SCP-MD, SCP-12, PW-1

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 05/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/5/2020

0 20' 40'

SCALE: H= 1" = 40'

SCALE: V= 1" = 20'

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
CULVERT LAYOUT
CULEBRA CREEK TRIB C
BRIDGE CLASS CULVERT D
STA 264+72.74

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	312
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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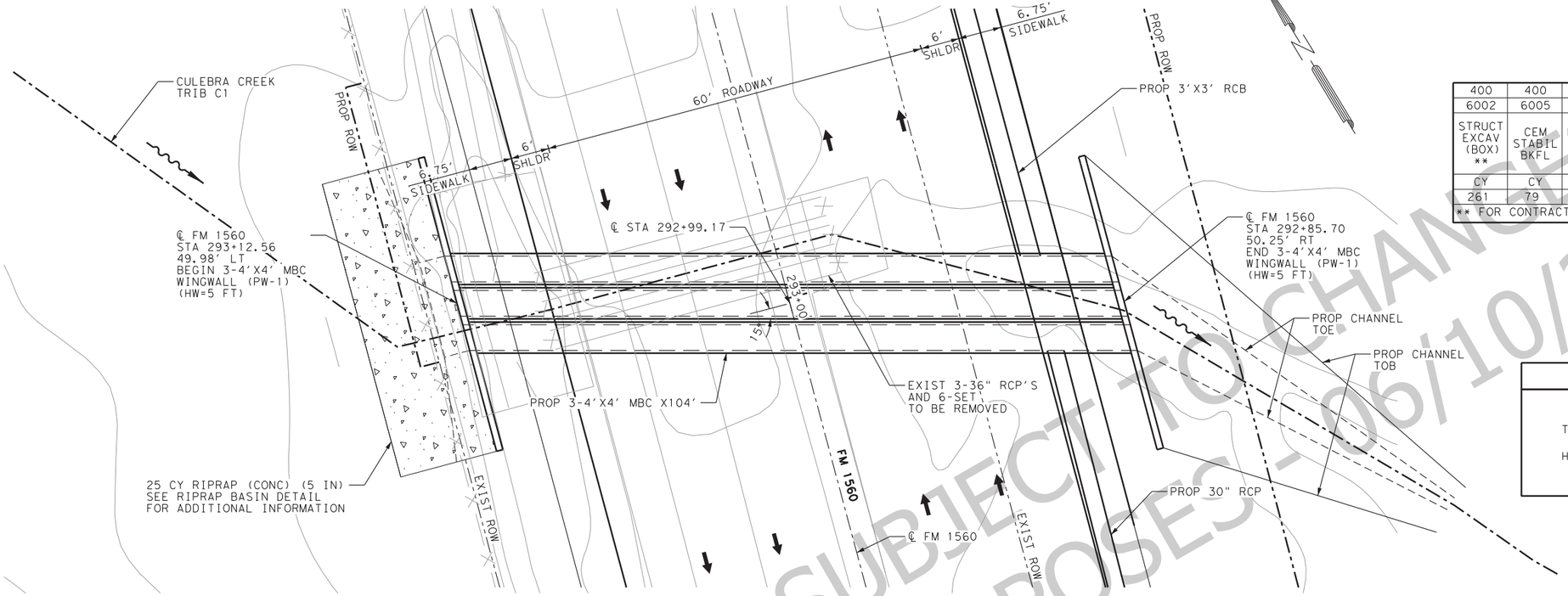
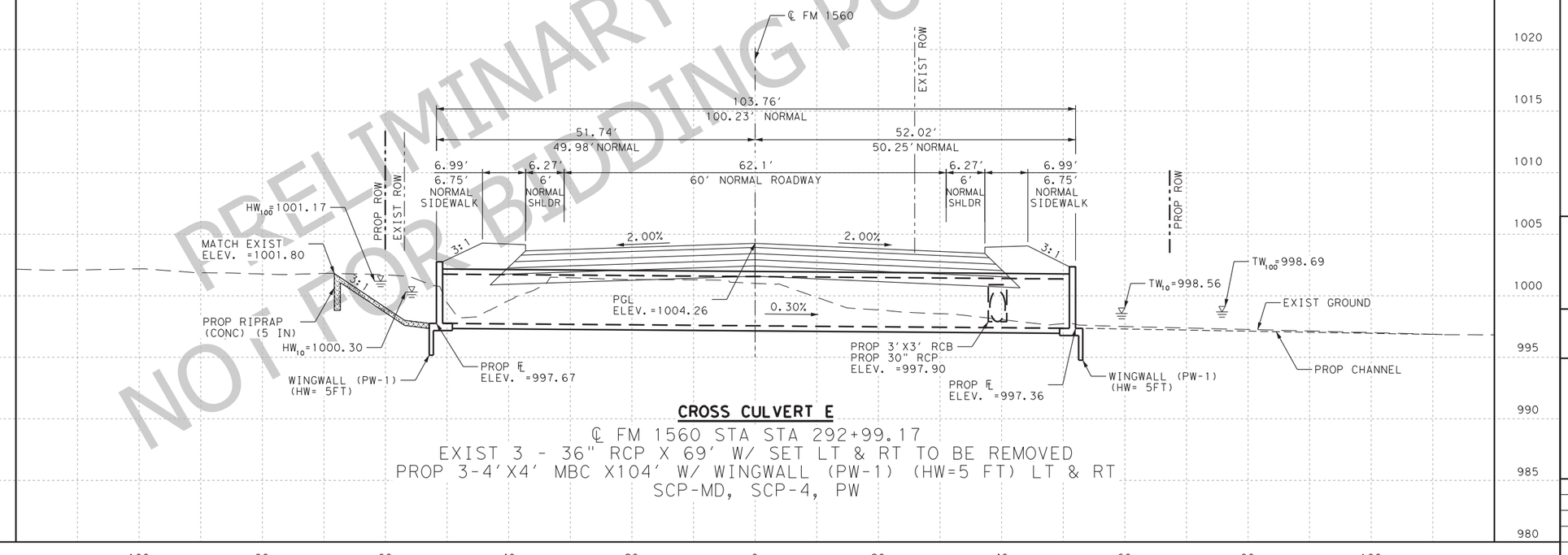


0 10' 20'

SCALE: H= 1" = 20'
SCALE: V= 1" = 10'

400	400	432	462	466	496	496
6002	6005	6002	6005	6180	6004	6007
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	RIPRAP (CONC) (5 IN)	CONC BOX CULV (4FT X 4FT)	WINGWALL (PW-1) (HW=5FT)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	LF	EA	EA	LF
261	79	25	312	2	6	138
** FOR CONTRACTOR'S INFORMATION ONLY						

HYDRAULIC DATA	
Q10 = 131	Q100 = 200
TW10 = 998.56	TW100 = 998.69
HW10 = 1000.30	HW100 = 1001.17
V10 = 4.40	V100 = 5.09



CROSS CULVERT E

℄ FM 1560 STA STA 292+99.17
EXIST 3 - 36" RCP X 69' W/ SET LT & RT TO BE REMOVED
PROP 3-4'X4' MBC X104' W/ WINGWALL (PW-1) (HW=5 FT) LT & RT
SCP-MD, SCP-4, PW

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
CULVERT LAYOUT
CROSS CULVERT E

STA 292+99.17

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	313
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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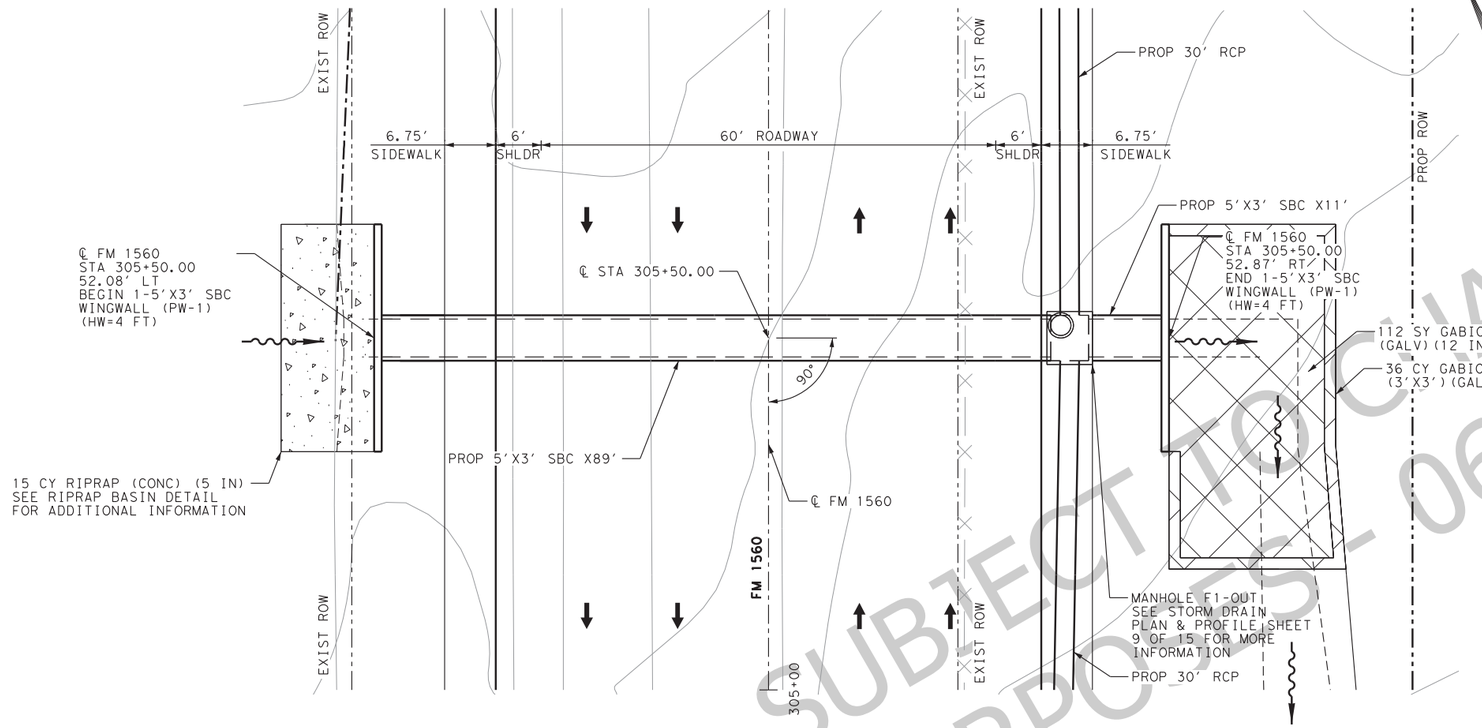


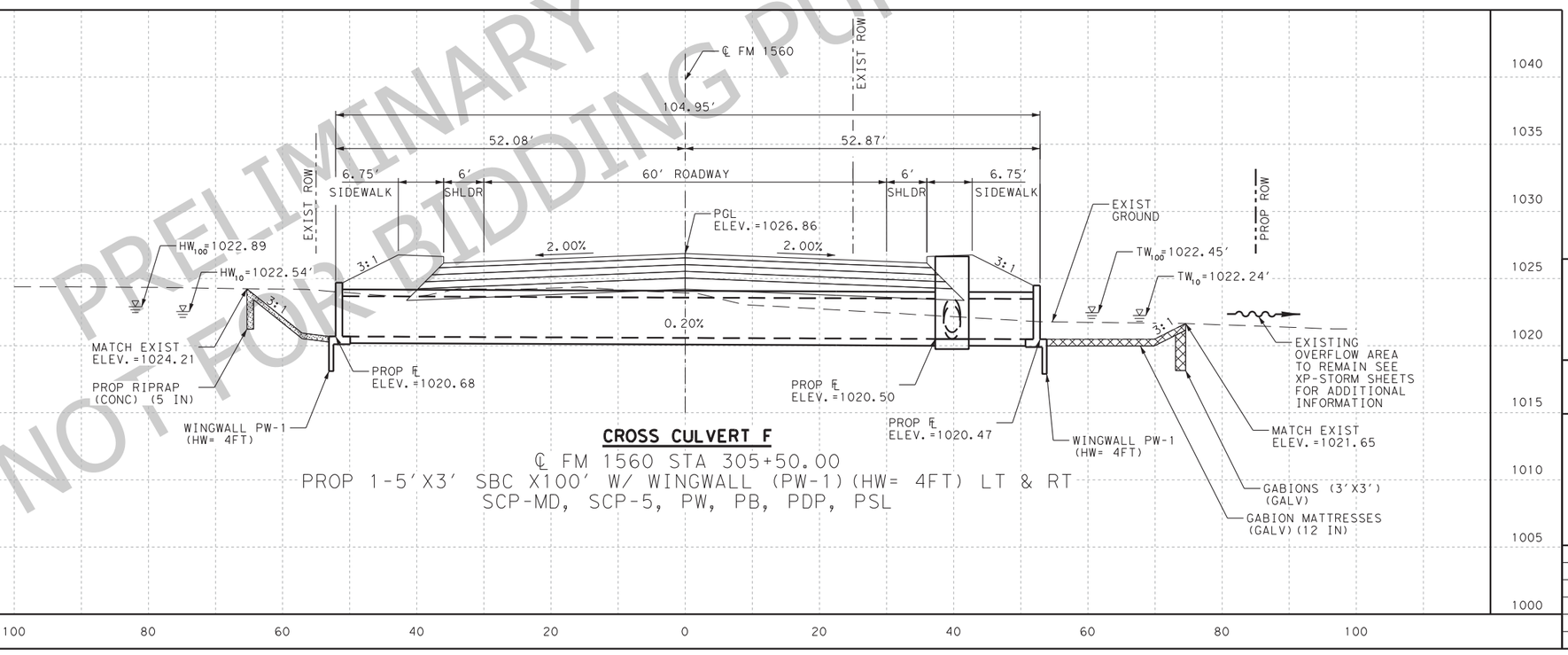
0 10' 20'

SCALE: H= 1" = 20'
SCALE: V= 1" = 10'

HYDRAULIC DATA	
Q10 = 60	Q100 = 99
TW10 = 1022.24	TW100 = 1022.45
HW10 = 1022.54	HW100 = 1022.89
V10 = 6.50	V100 = 9.84

400	400	432	459	459	462	466
6002	6005	6002	6007	6009	6007	6179
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	RIPRAP (CONC) (5 IN)	GABION MATTRESSES (GALV)(12 IN)	GABIONS (3' X 3') (GALV)	CONC BOX CULV (5FT X 3FT)	WINGWALL (PW-1) (HW=4FT)
CY	CY	LF	SY	CY	LF	EA
124	30	15	112	36	100	2

** FOR CONTRACTOR'S INFORMATION ONLY



CROSS CULVERT F

℄ FM 1560 STA 305+50.00

PROP 1-5'X3' SBC X100' W/ WINGWALL (PW-1)(HW= 4FT) LT & RT

SCP-MD, SCP-5, PW, PB, PDP, PSL

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/5/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
CULVERT LAYOUT
CROSS CULVERT F

STA 305+50.00

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	314
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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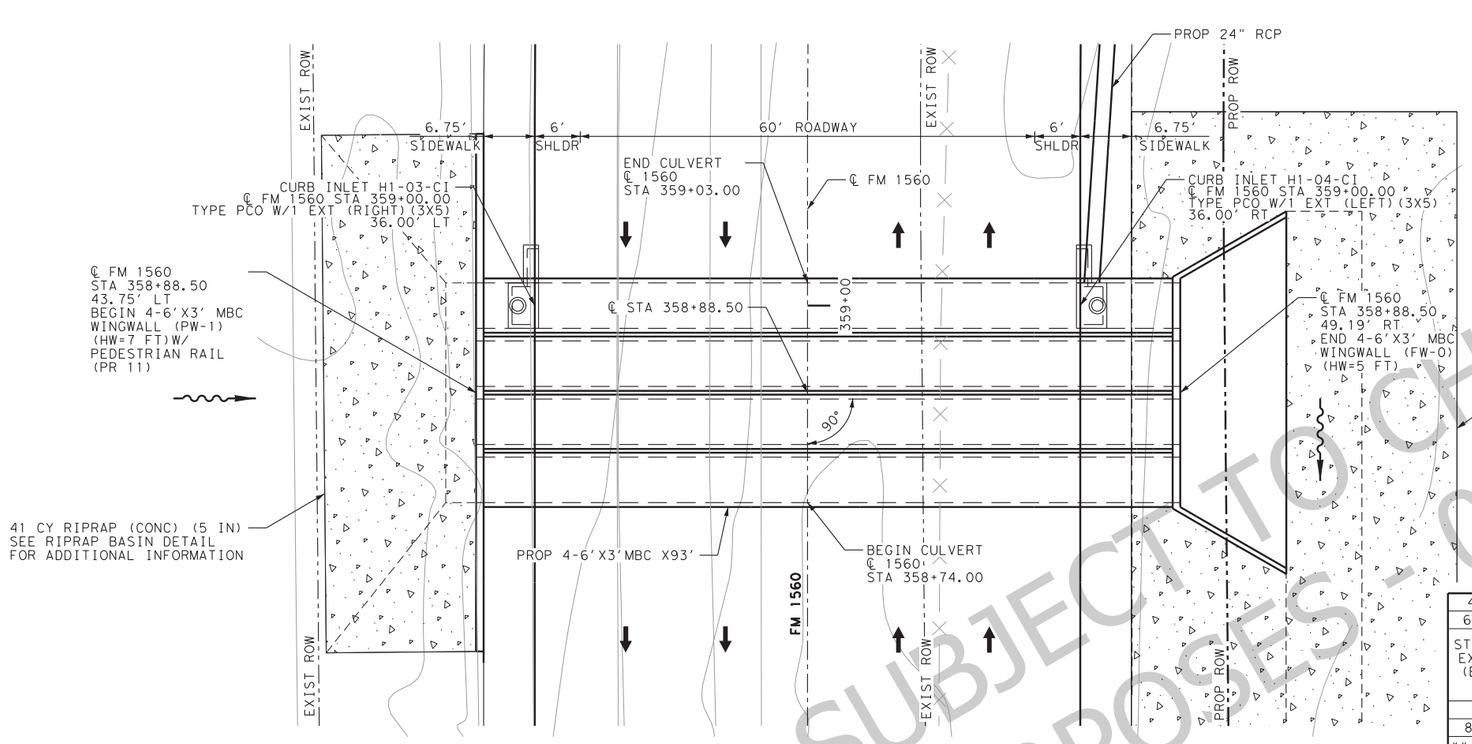


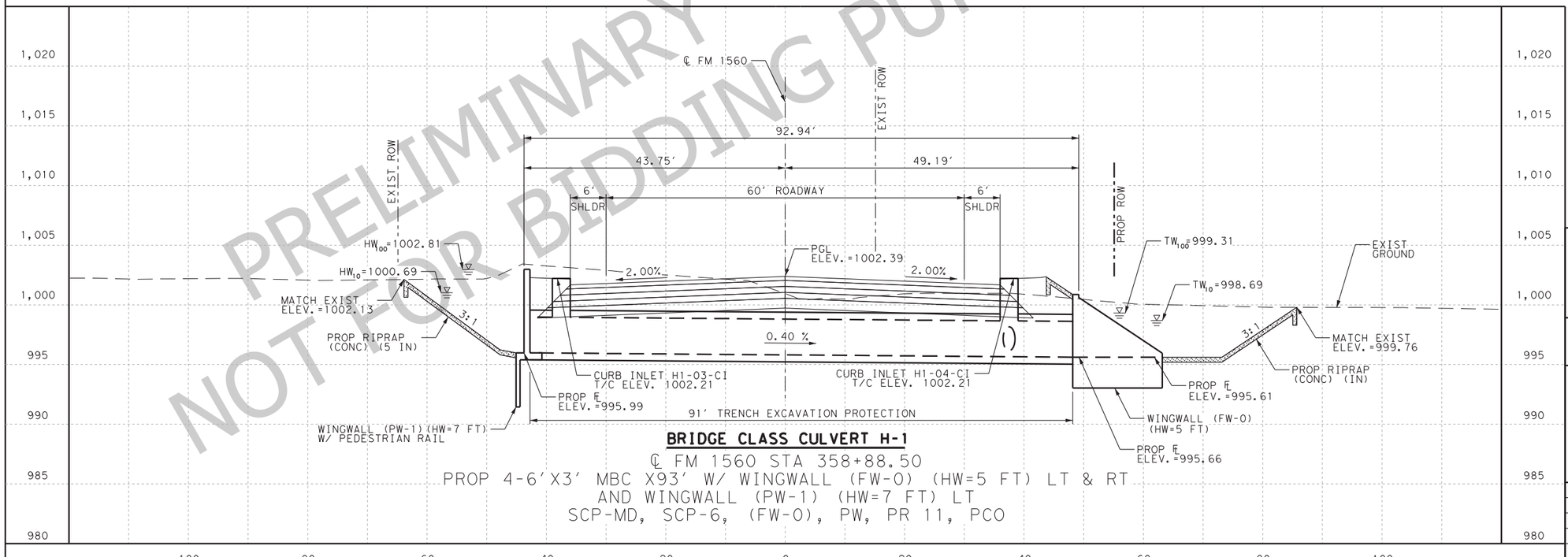
0 10' 20'

SCALE: H= 1" = 20'
SCALE: V= 1" = 10'

HYDRAULIC DATA	
Q10 = 495	Q100 = 716
TW10 = 998.69	TW100 = 999.31
HW10 = 1000.69	HW100 = 1002.81
V10 = 6.87	V100 = 9.21

400	400	402	432	462	465	465	466	466
6002	6005	6001	6002	6010	6014	6015	6152	6182
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	CONC BOX CULV (6FT X 3FT)	INLET (COMPL) (PCO) (3FT) (LEFT)	INLET (COMPL) (PCO) (3FT) (RIGHT)	WINGWALL (FW-0) (HW=5FT)	WINGWALL (PW-1) (HW=7FT)
CY	CY	LF	LF	LF	EA	EA	EA	EA
871	141	93	41	372	1	1	1	1

** FOR CONTRACTOR'S INFORMATION ONLY



BRIDGE CLASS CULVERT H-1

℄ FM 1560 STA 358+88.50

PROP 4-6'X3' MBC X93' W/ WINGWALL (FW-0) (HW=5 FT) LT & RT
AND WINGWALL (PW-1) (HW=7 FT) LT
SCP-MD, SCP-6, (FW-0), PW, PR 11, PCO

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/15/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230

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FM 1560
CULVERT LAYOUT
BRIDGE CLASS CULVERT H1

STA 358+88.50

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	315
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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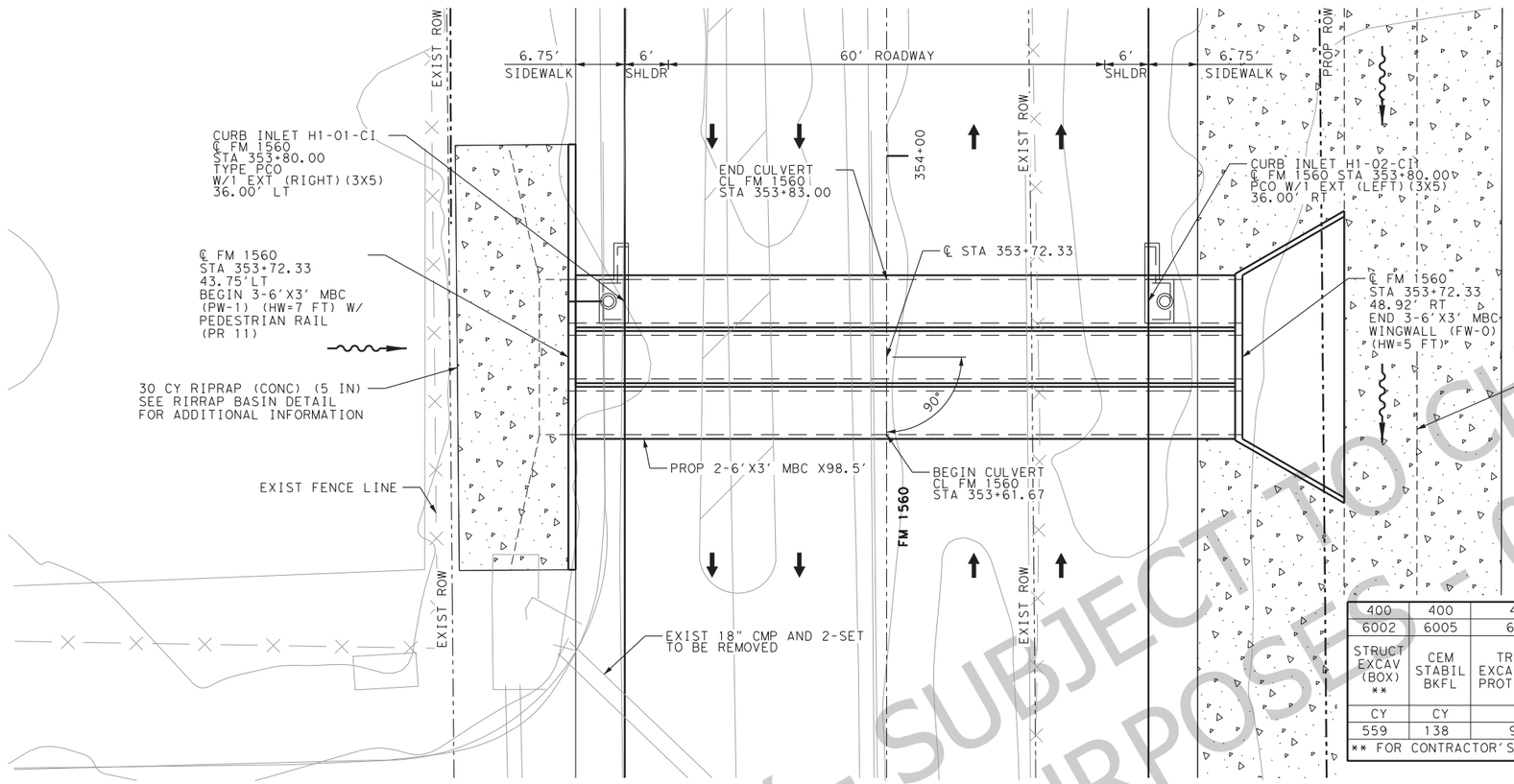


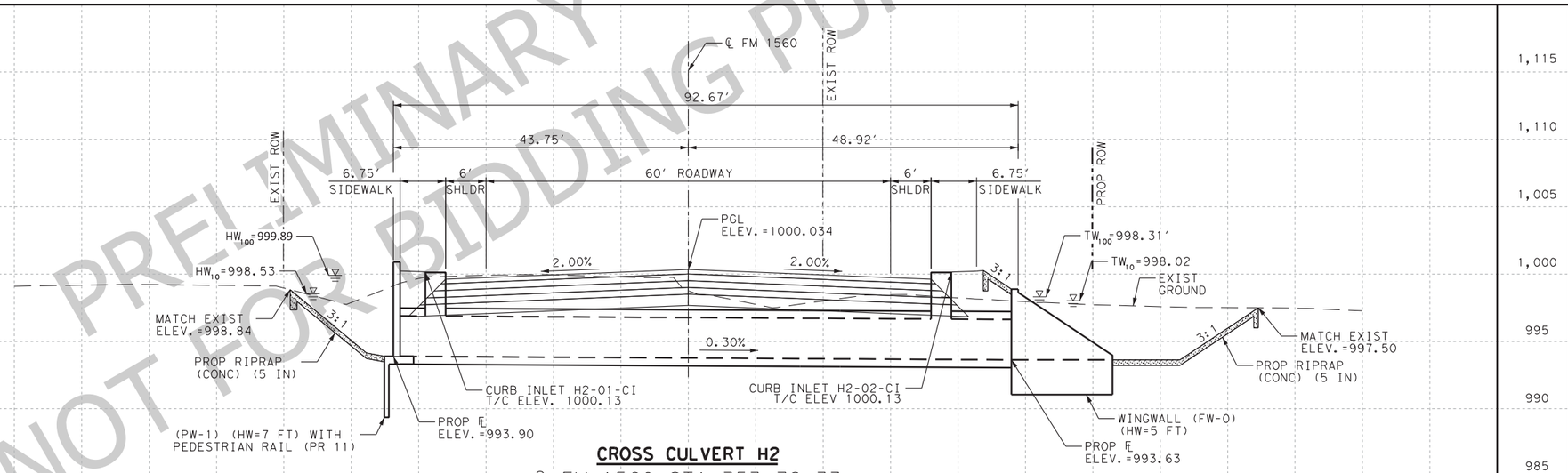
0 10' 20'

SCALE: H= 1" = 20'
SCALE: V= 1" = 10'

HYDRAULIC DATA	
Q10 = 207	Q100 = 367
TW10 = 998.02	TW100 = 998.31
HW10 = 998.53	HW100 = 999.89
V10 = 3.83	V100 = 6.77

400	400	402	432	462	465	465	466	466	496	496
6002	6005	6001	6002	6010	6014	6015	6152	6182	6004	6007
STRUCT EXCAV (BOX) **	CEM STABIL BKFL	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	CONC BOX CULV (6FT X 3FT)	INLET (COMPL) (PCO) (3FT) (LEFT)	INLET (COMPL) (PCO) (3FT) (RIGHT)	WINGWALL (FW-0) (HW=5FT)	WINGWALL (PW-1) (HW=7FT)	REMOV STR (SET)	REMOV STR (PIPE)
CY	CY	LF	LF	LF	EA	EA	EA	EA	EA	LF
559	138	93	30	279	1	1	1	1	2	66

** FOR CONTRACTOR'S INFORMATION ONLY



CROSS CULVERT H2

℄ FM 1560 STA 353+72+33
EXIST 18" CMP W/ SET LT & RT TO BE REMOVED
PROP 3-6'X3' MBC X93' W/ WINGWALL (FW-0) (HW= 5FT) AND
WINGWALL (PW-1) (HW=7 FT) WITH PEDESTRIAN RAIL LT
SCP-MD, SCP-6, FW-0, PW, PR11, PCO

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
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FM 1560
CULVERT LAYOUT
BRIDGE CLASS CULVERT H2

STA 353+72.33

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	316
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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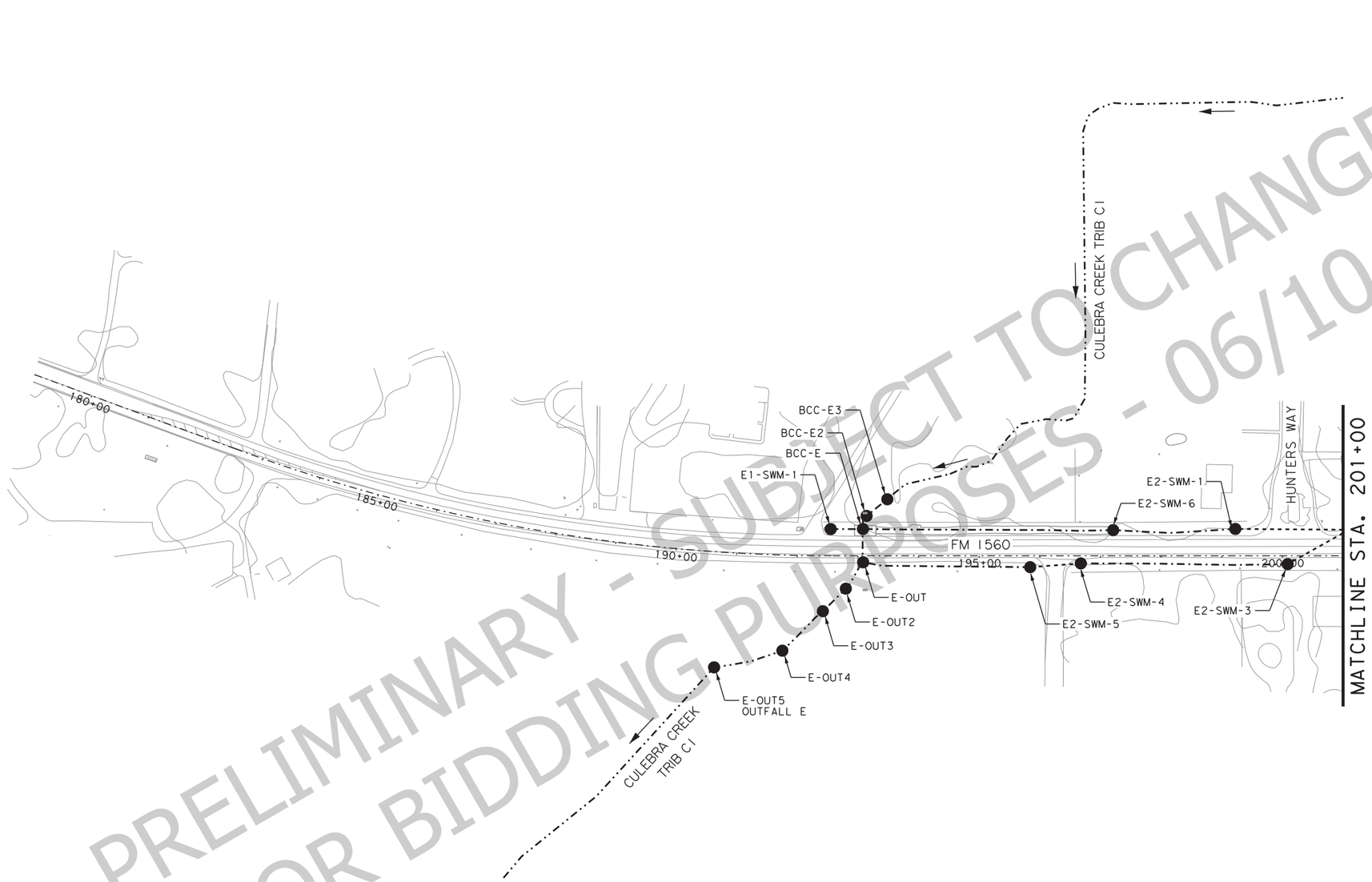

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

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FM 1560
XP-STORM LAYOUT
PAYNES GRAY
EXISTING

SHEET 1 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	317

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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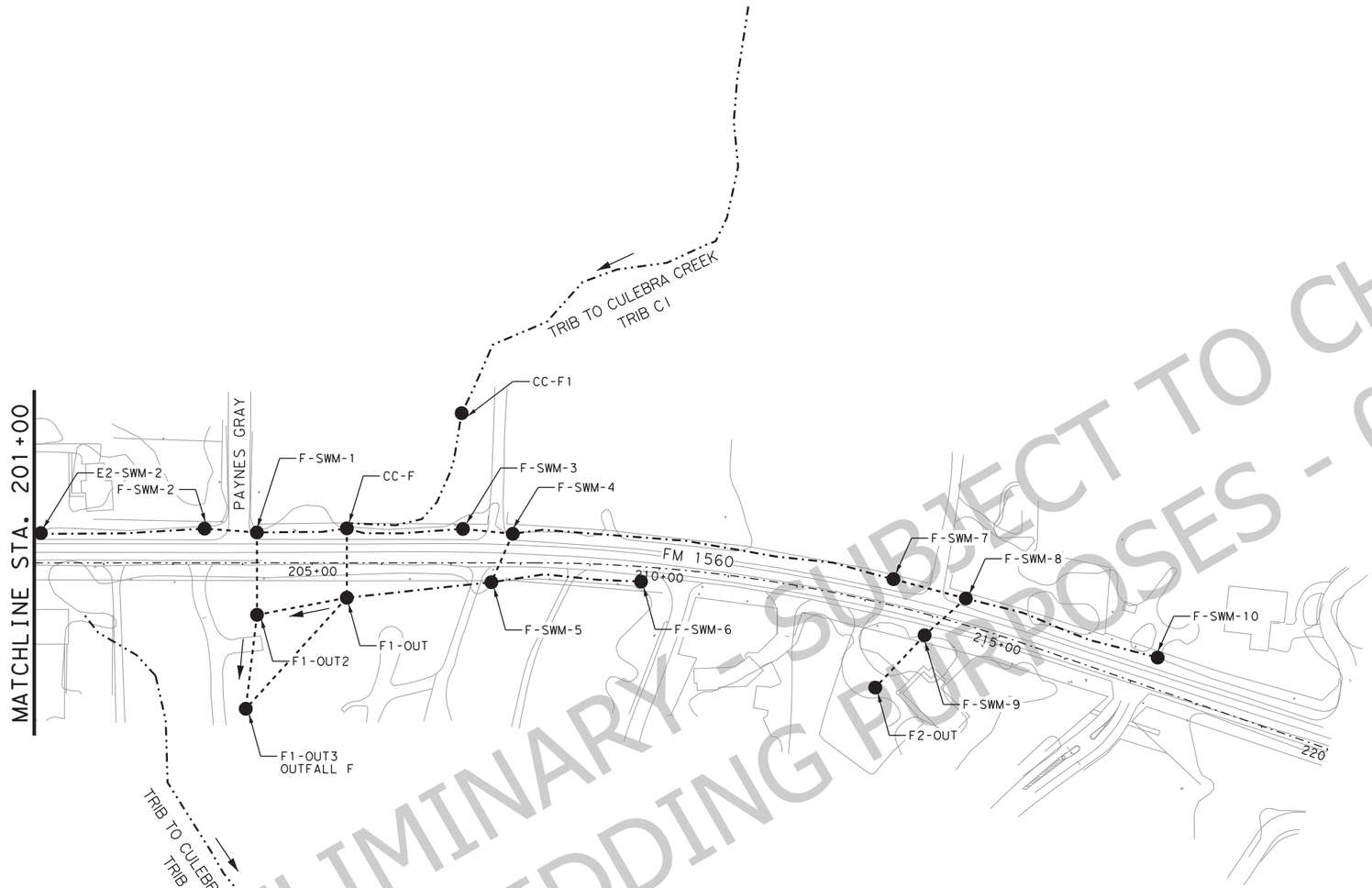

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- EXIST. STM SWR
- XP - STORM NODE
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

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FM 1560
XP-STORM LAYOUT
PAYNES GRAY
EXISTING

SHEET 2 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

318

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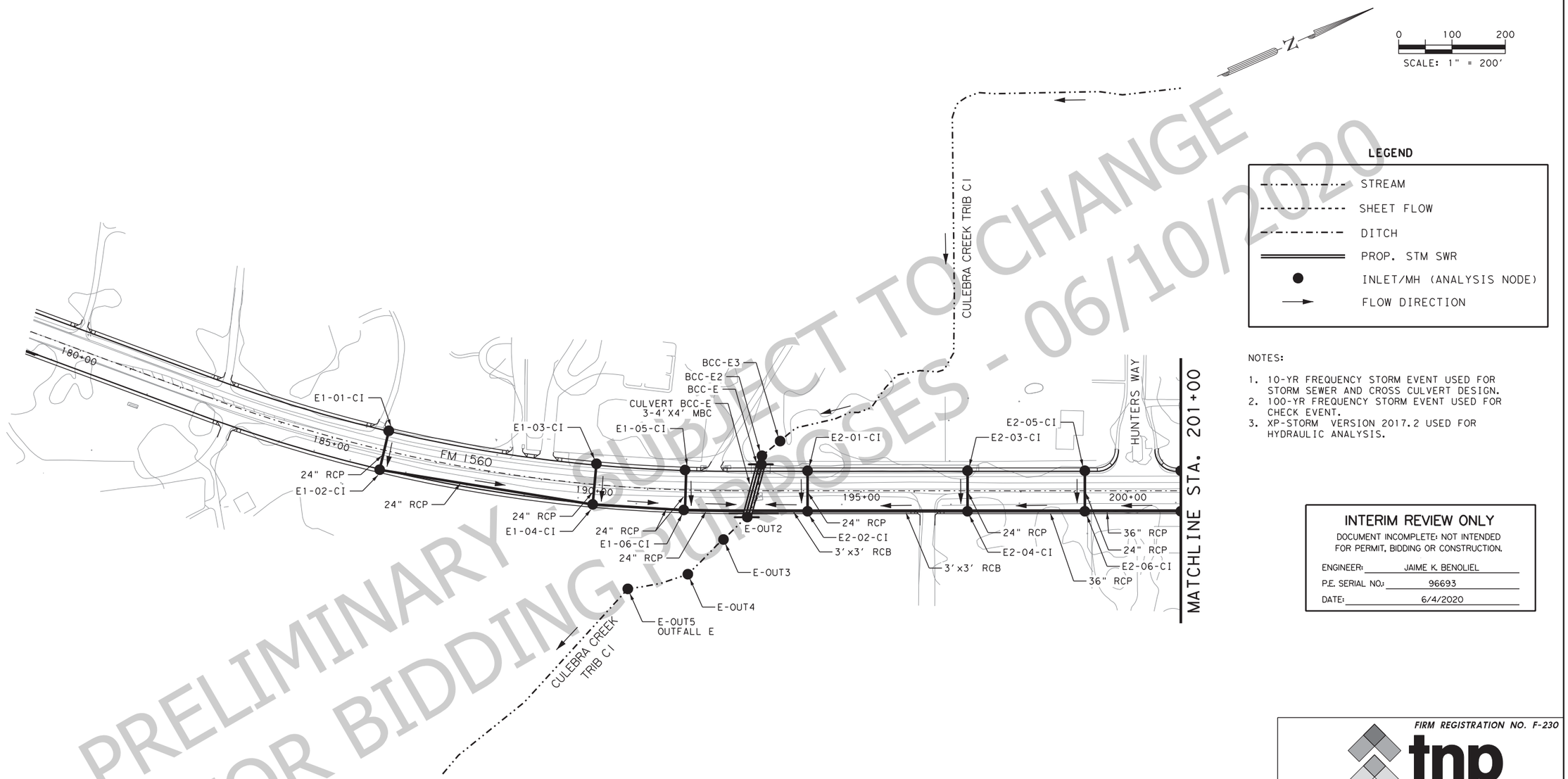

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

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NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560
XP-STORM LAYOUT
PAYNES GRAY
PROPOSED

SHEET 3 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	319

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- PROP. STM SWR
- INLET/MH (ANALYSIS NODE)
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

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ENGINEER: JAIME K. BENOLIEL
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DATE: 6/4/2020

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FM 1560
XP-STORM LAYOUT
PAYNES GRAY
PROPOSED

SHEET 4 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	320

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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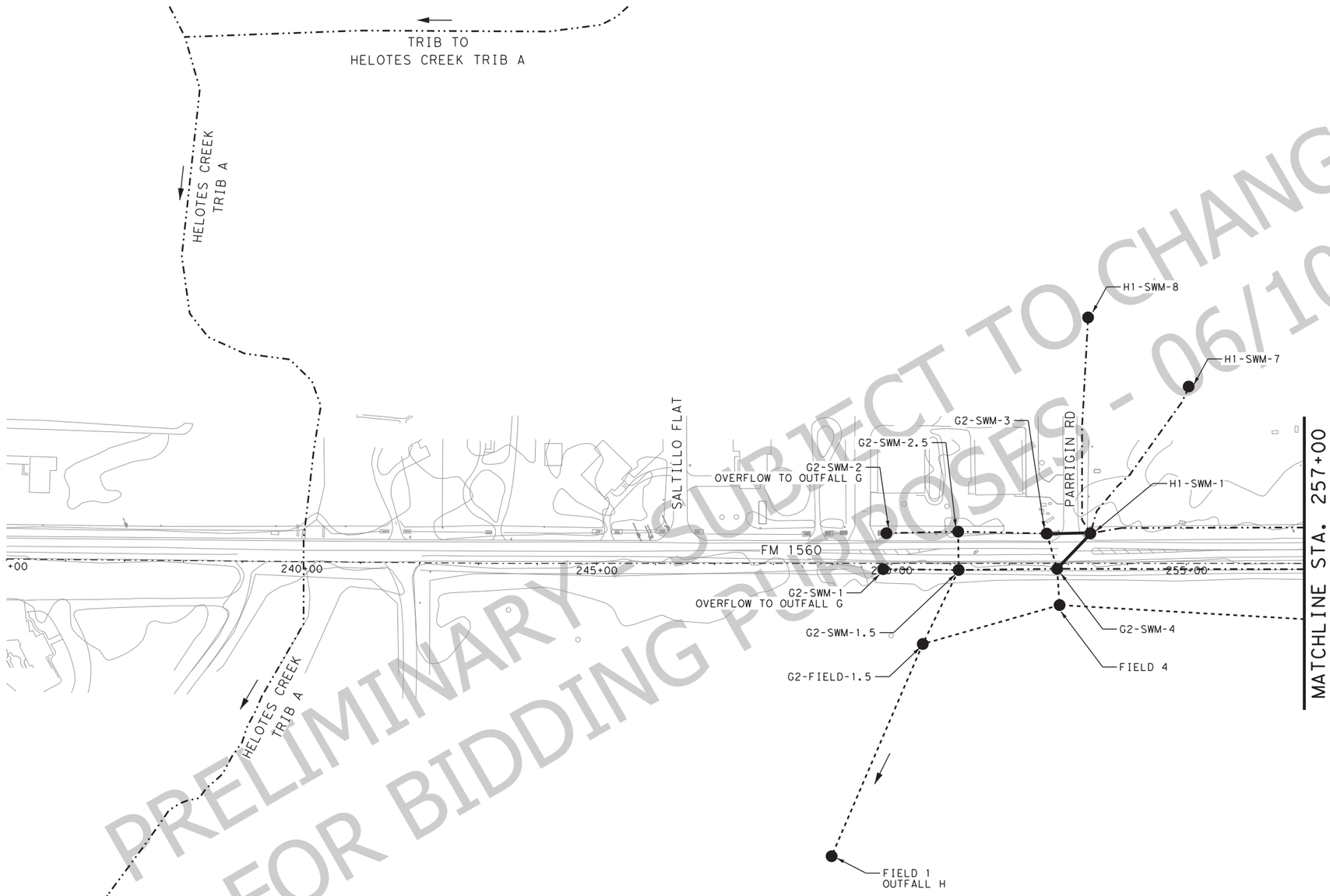

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- EXIST. STM SWR
- XP - STORM NODE
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

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FM 1560
XP-STORM LAYOUT
DISC GOLF
EXISTING

SHEET 1 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	321

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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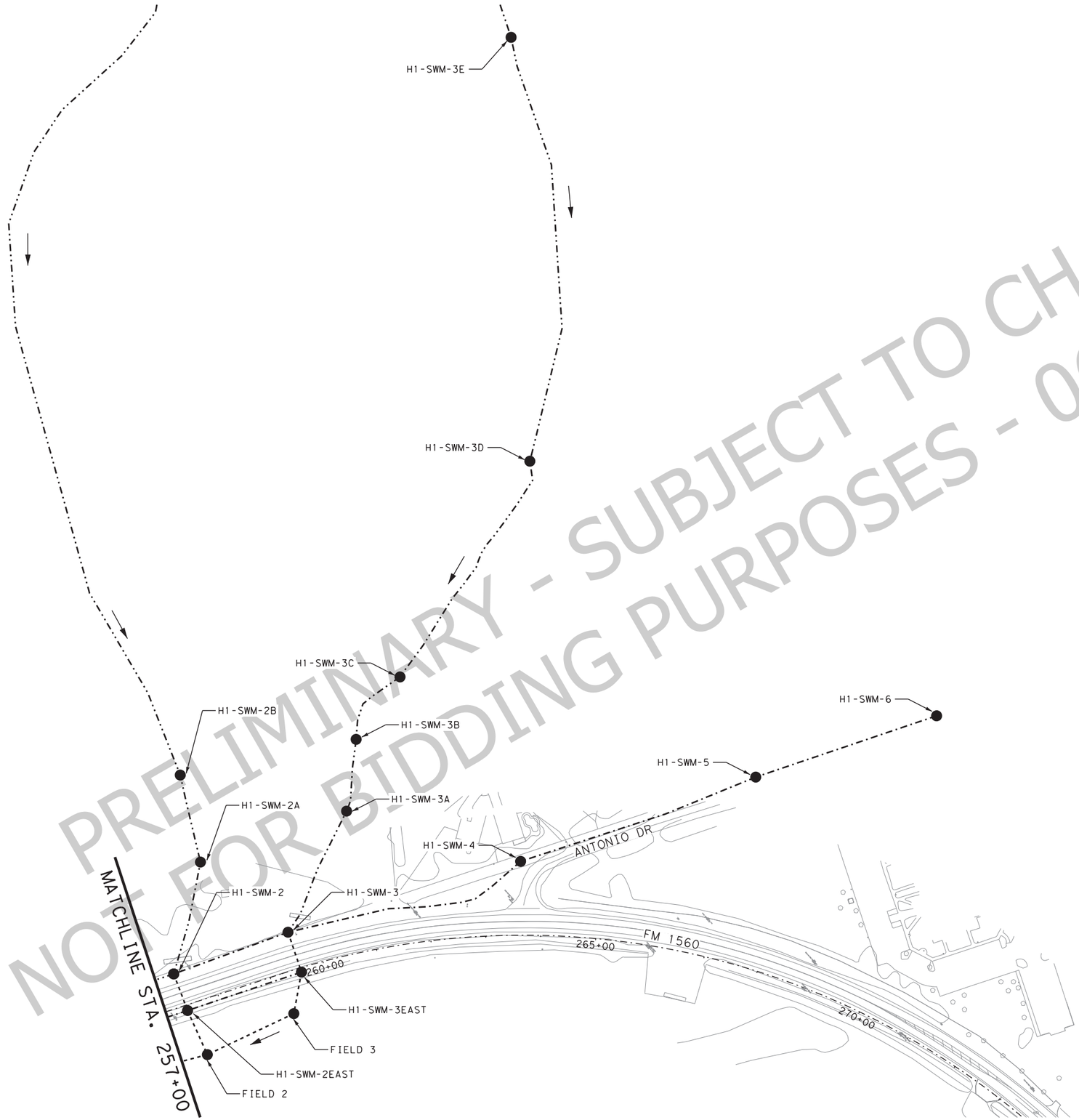

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- EXIST. STM SWR
- XP - STORM NODE
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY
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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
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FM 1560
XP-STORM LAYOUT
DISC GOLF
EXISTING

SHEET 2 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO. 6	FEDERAL AID PROJECT	SHEET NO.

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	322
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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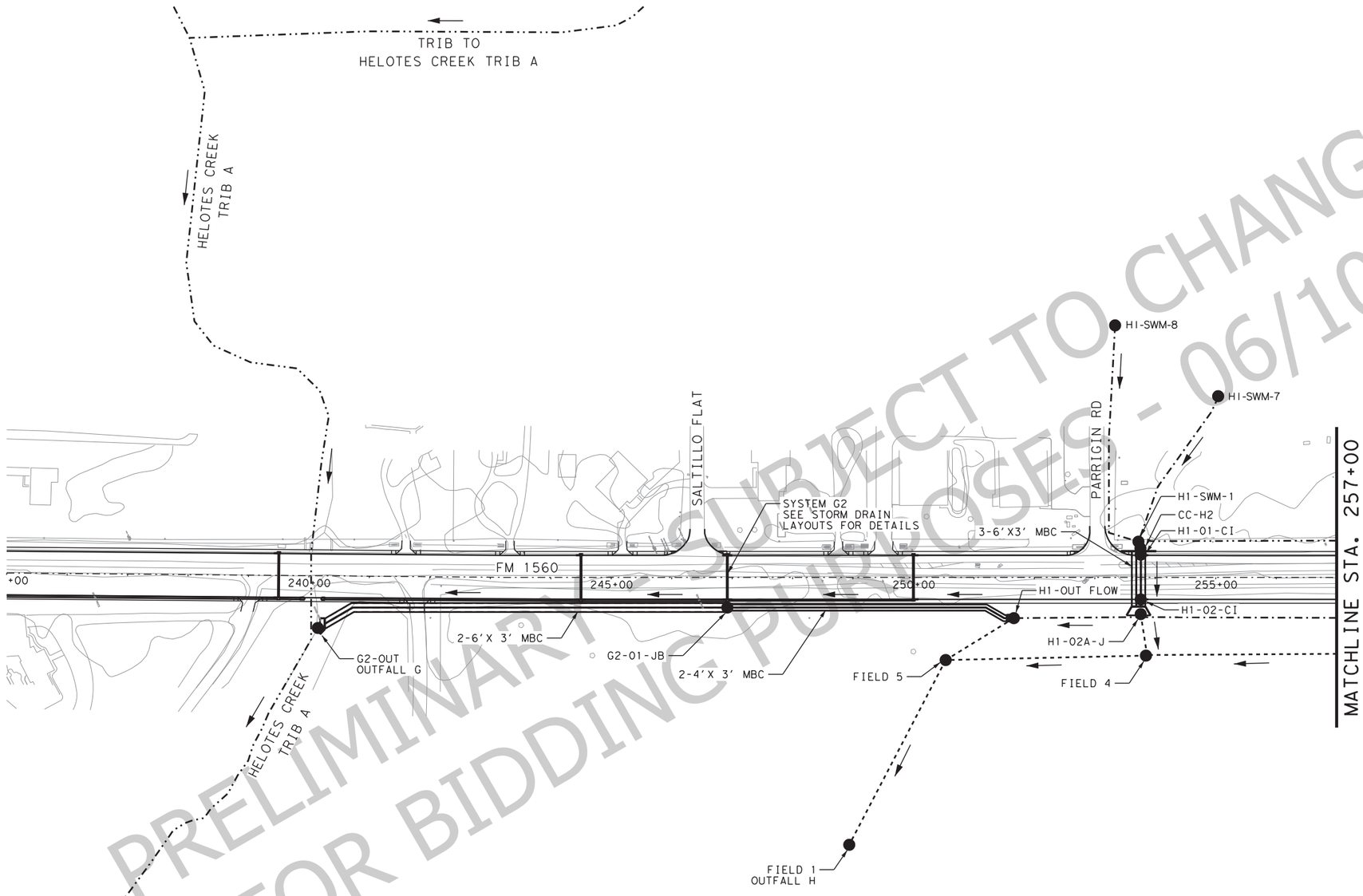

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- PROP. STM SWR
- INLET/MH (ANALYSIS NODE)
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

SUBJECT TO CHANGE
PRELIMINARY - 06/10/2020
NOT FOR BIDDING PURPOSES

FIRM REGISTRATION NO. F-230

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FM 1560
XP-STORM LAYOUT
DISC GOLF
PROPOSED

SHEET 3 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	323

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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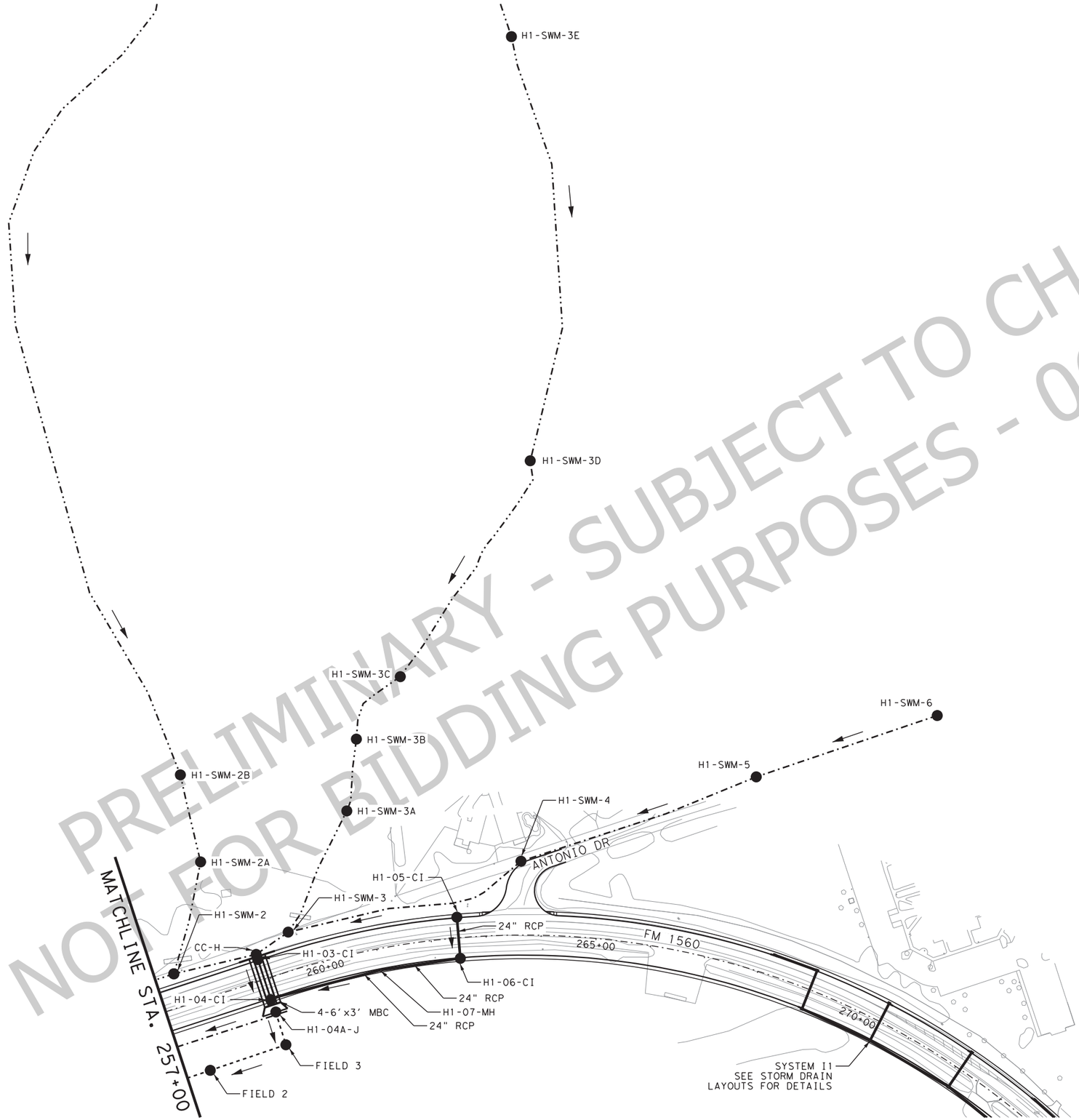

0 100 200
SCALE: 1" = 200'

LEGEND

- STREAM
- SHEET FLOW
- DITCH
- PROP. STM SWR
- INLET/MH (ANALYSIS NODE)
- FLOW DIRECTION

NOTES:

1. 10-YR FREQUENCY STORM EVENT USED FOR STORM SEWER AND CROSS CULVERT DESIGN.
2. 100-YR FREQUENCY STORM EVENT USED FOR CHECK EVENT.
3. XP-STORM VERSION 2017.2 USED FOR HYDRAULIC ANALYSIS.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
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FM 1560
XP-STORM LAYOUT
DISC GOLF
PROPOSED

SHEET 4 OF 4

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO. 6	FEDERAL AID PROJECT	SHEET NO.
STATE: TEXAS	DIST.: SAT	COUNTY: BEXAR 324
CONT.: 2230	SECT.: 01	JOB: 021
HIGHWAY NO.: FM 1560		

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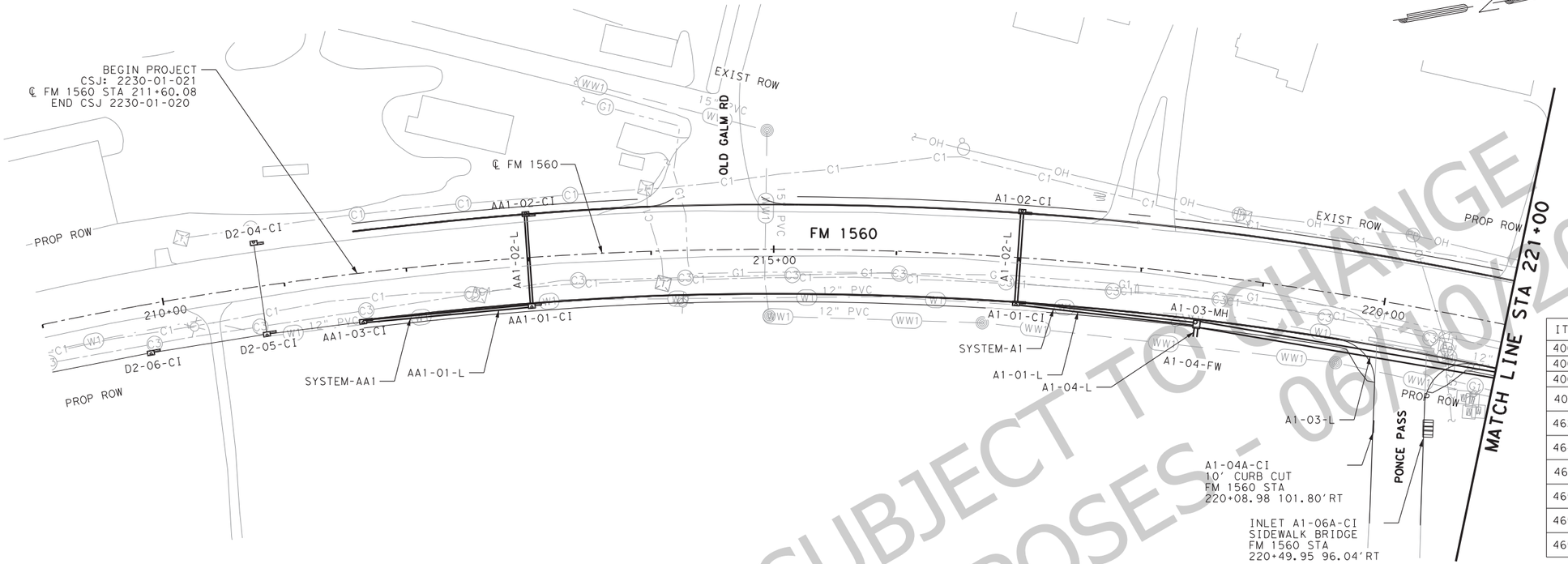


LEGEND

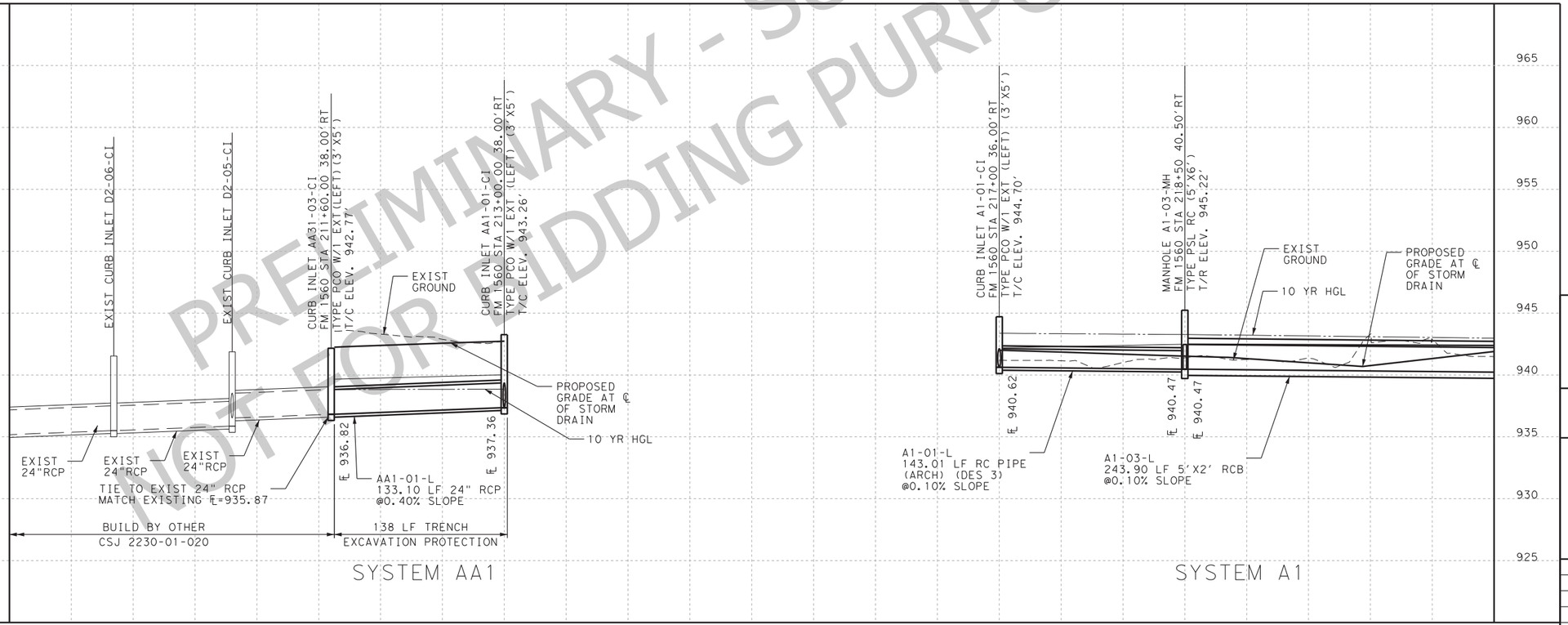
T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM	■	GRATE INLET
01 =	INLET #	A1-01-CI	INLET I.D.
CI =	CURB INLET	A1-01-L	LINK I.D.
GI =	GRATE INLET		
L =	LINK		

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	152
400-6003	STRUCT EXCAV (PIPE)**	CY	182
400-6005	CEM STABIL BKFL	CY	56
402-6001	TRENCH EXCAVATION PROTECTION	LF	138
462-6006	CONC BOX CULV (5 FT X 2 FT)	LF	244
464-6005	RC PIPE (CL III) (24 IN)	LF	133
464-6031	RC PIPE (ARCH) (CL III) (DES 2)	LF	143
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	3
465-6075	INLET (COMPL)(PSL) (RC)(5FTX6FT)	EA	1
465-6233	INLET (COMP) (TY SIDEWALKBRIDGE)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
STORM DRAIN
PLAN & PROFILE

SHEET 1 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	325
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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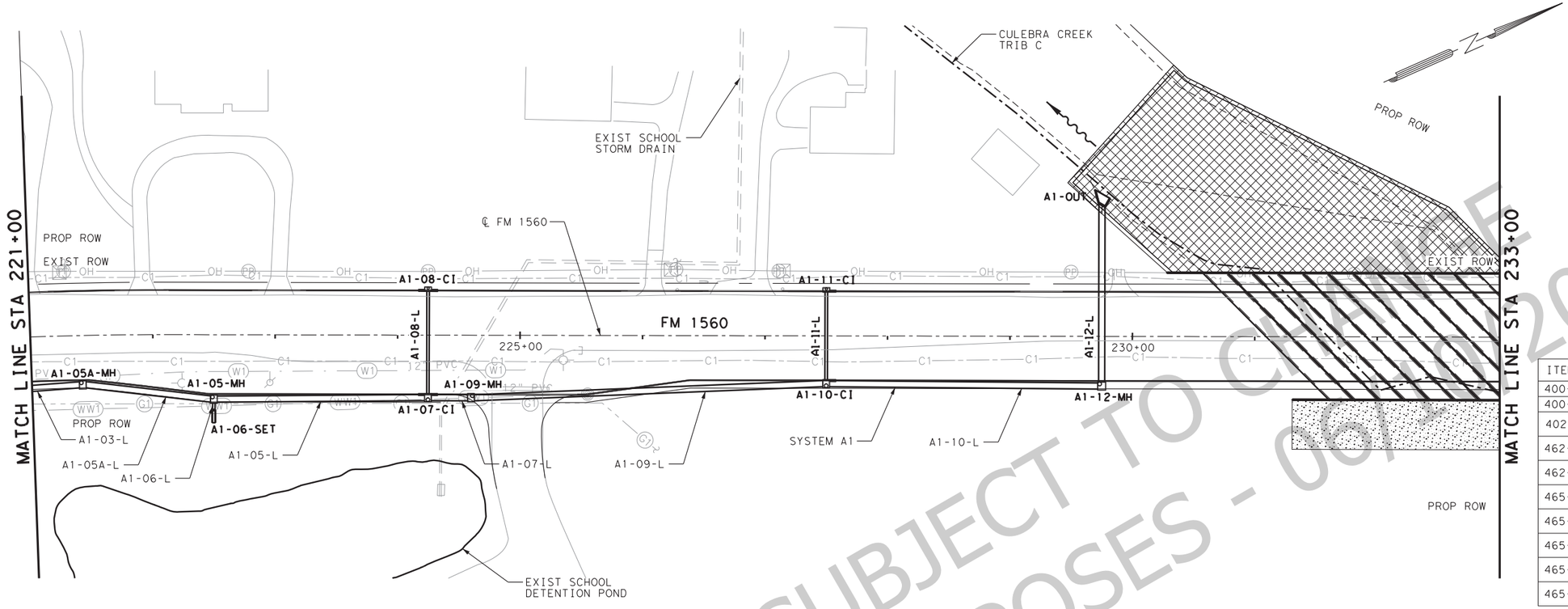

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
O1 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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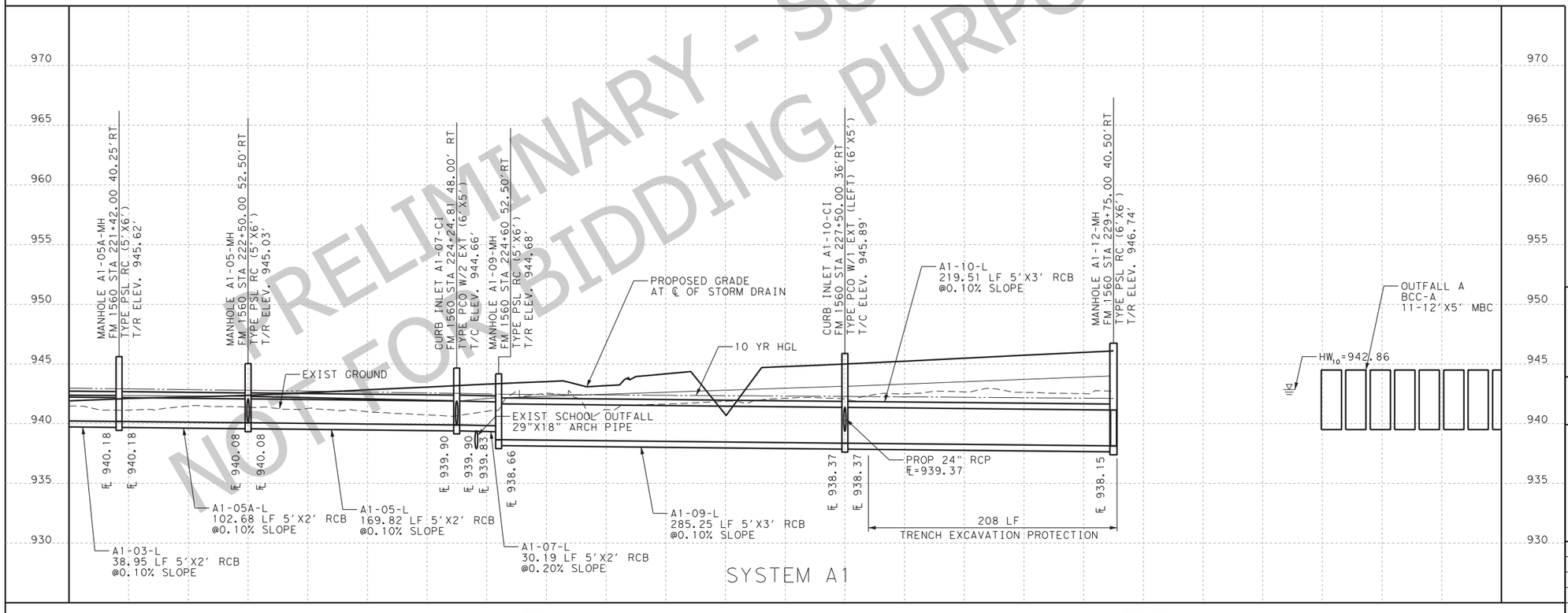
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	1,114
400-6005	CEM STABIL BKFL	CY	38
402-6001	TRENCH EXCAVATION PROTECTION	LF	208
462-6006	CONC BOX CULV (5 FT X 2 FT)	LF	342
462-6007	CONC BOX CULV (5 FT X 3 FT)	LF	505
465-6022	INLET (COMPL)(PCO) (5 FT)(LEFT)	EA	1
465-6026	INLET (COMPL)(PCO) (6 FT)(LEFT)	EA	1
465-6028	INLET (COMPL)(PCO) (6 FT)(BOTH)	EA	1
465-6075	INLET (COMPL)(PSL) (RC)(5FTX6FT)	EA	3
465-6076	INLET (COMPL)(PSL) (RC)(6FTX6FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
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VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560 STORM DRAIN PLAN & PROFILE

SHEET 2 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	326
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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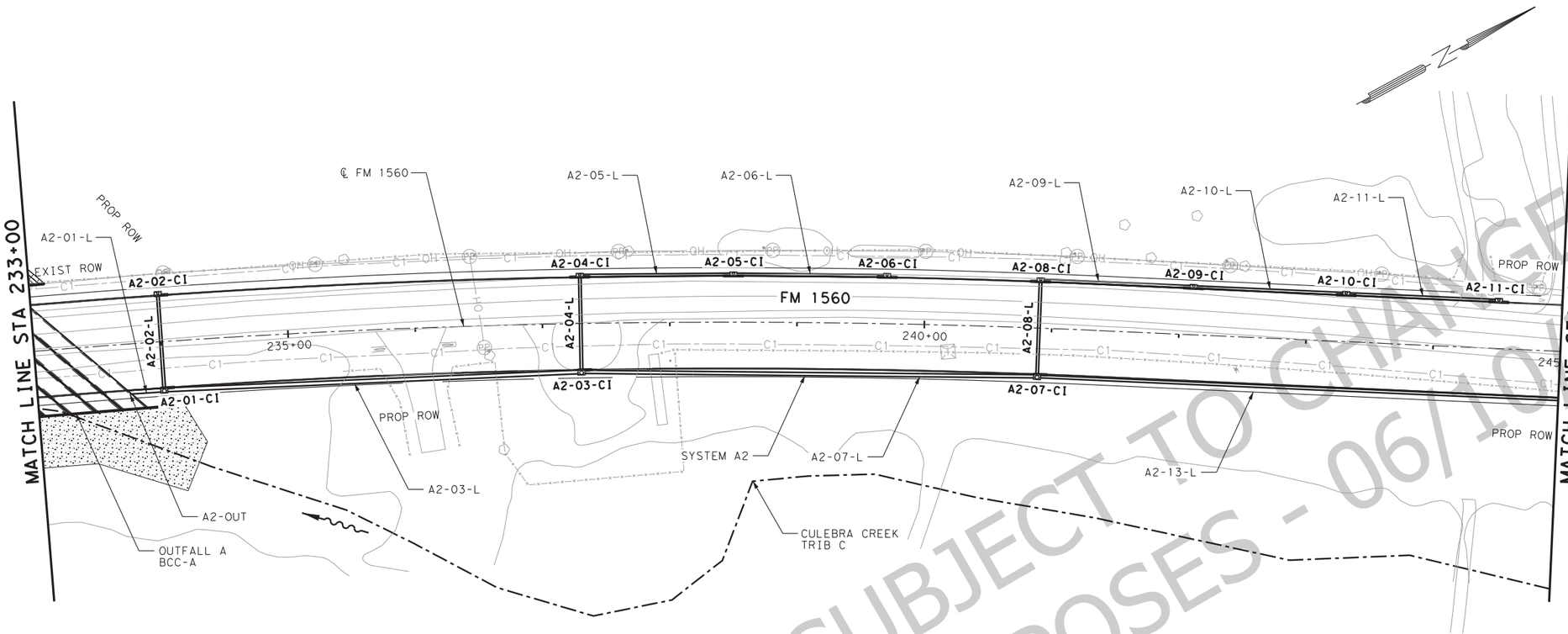

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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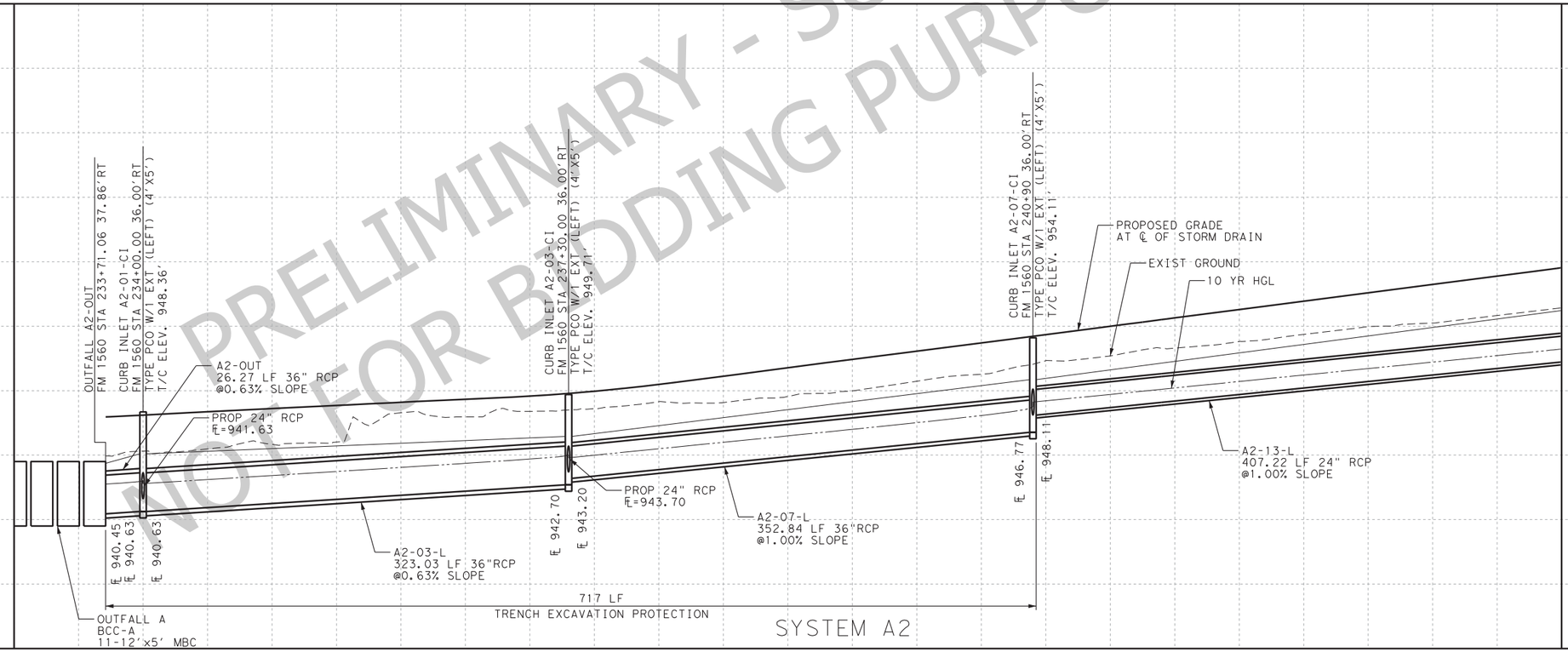
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,368
400-6005	CEM STABIL BKFL	CY	97
402-6001	TRENCH EXCAVATION PROTECTION	LF	717
464-6005	RC PIPE (CL III) (24 IN)	LF	407
464-6007	RC PIPE (CL III) (30 IN)	LF	353
464-6008	RC PIPE (CL III) (36 IN)	LF	349
465-6018	INLET (COMPL)(PCO) (4 FT)(LEFT)	EA	3

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
STORM DRAIN
PLAN & PROFILE

SHEET 3 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	327
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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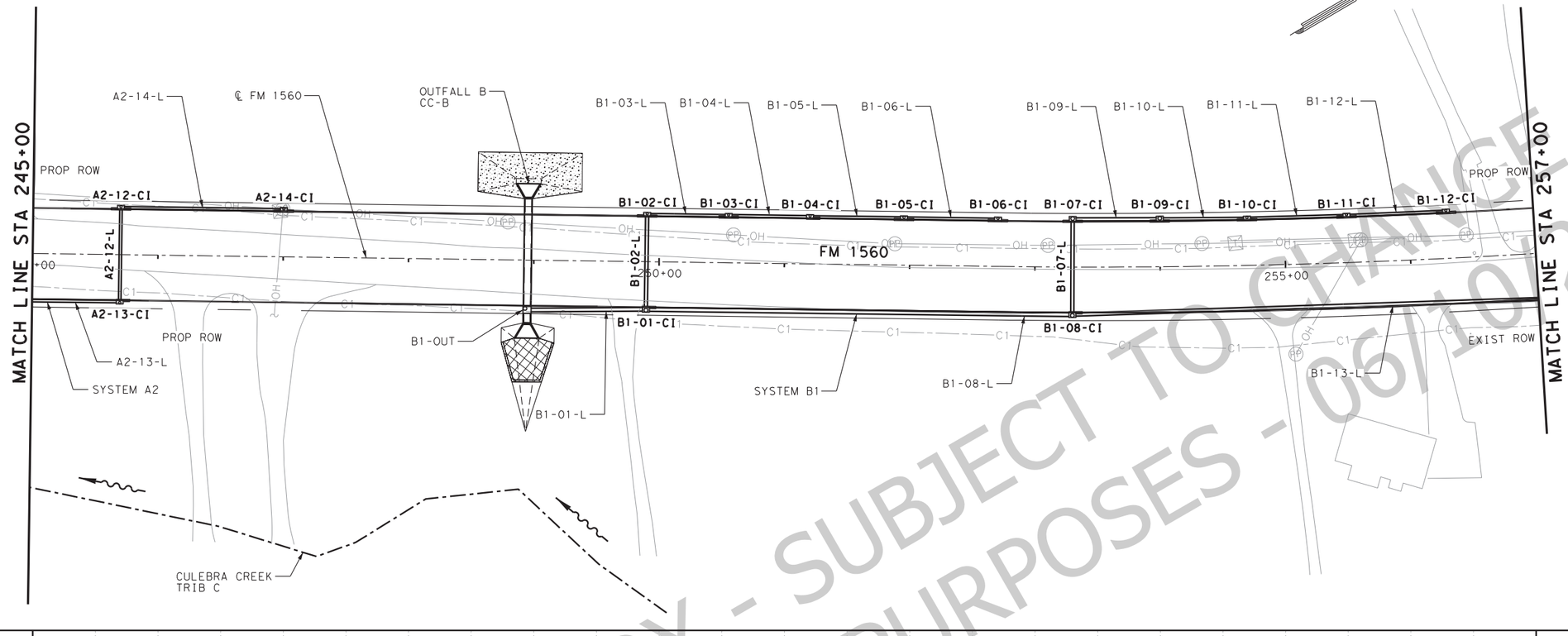

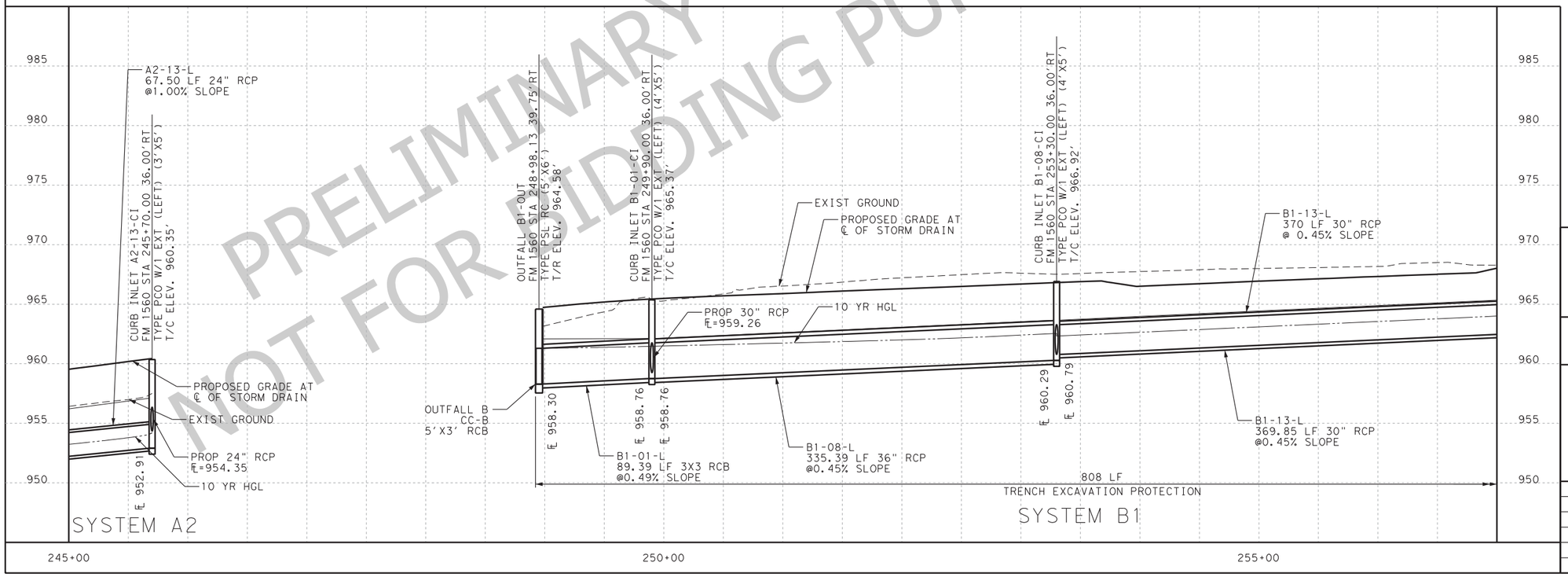

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #	■	GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	170
400-6003	STRUCT EXCAV (PIPE)**	CY	1,863
400-6005	CEM STABIL BKFL	CY	65
402-6001	TRENCH EXCAVATION PROTECTION	LF	808
462-6002	CONC BOX CULV (3 FT X 3 FT)	LF	89
464-6005	RC PIPE (CL III) (24 IN)	LF	68
464-6007	RC PIPE (CL III) (30 IN)	LF	370
464-6008	RC PIPE (CL III) (36 IN)	LF	335
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6018	INLET (COMPL)(PCO) (4 FT)(LEFT)	EA	2
465-6075	INLET (COMPL)(PSL) (RC)(5FTX6FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
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FM 1560
STORM DRAIN
PLAN & PROFILE

SHEET 4 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	328
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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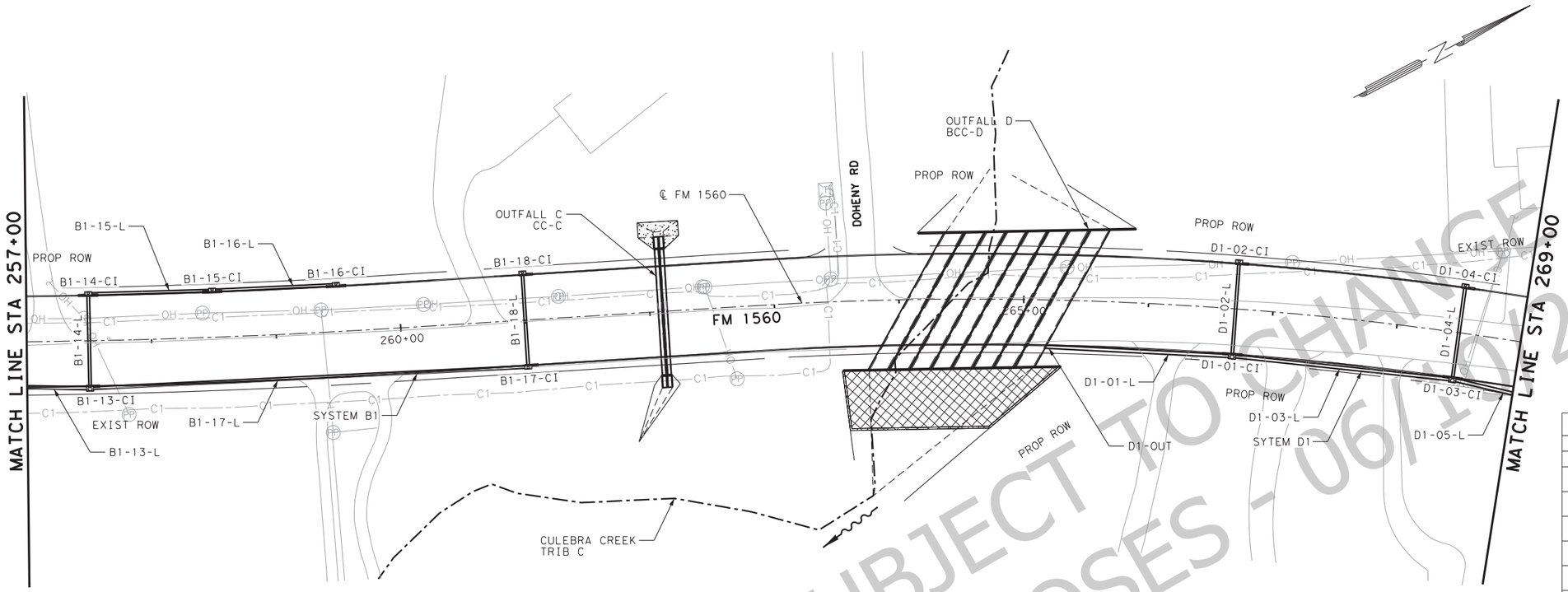

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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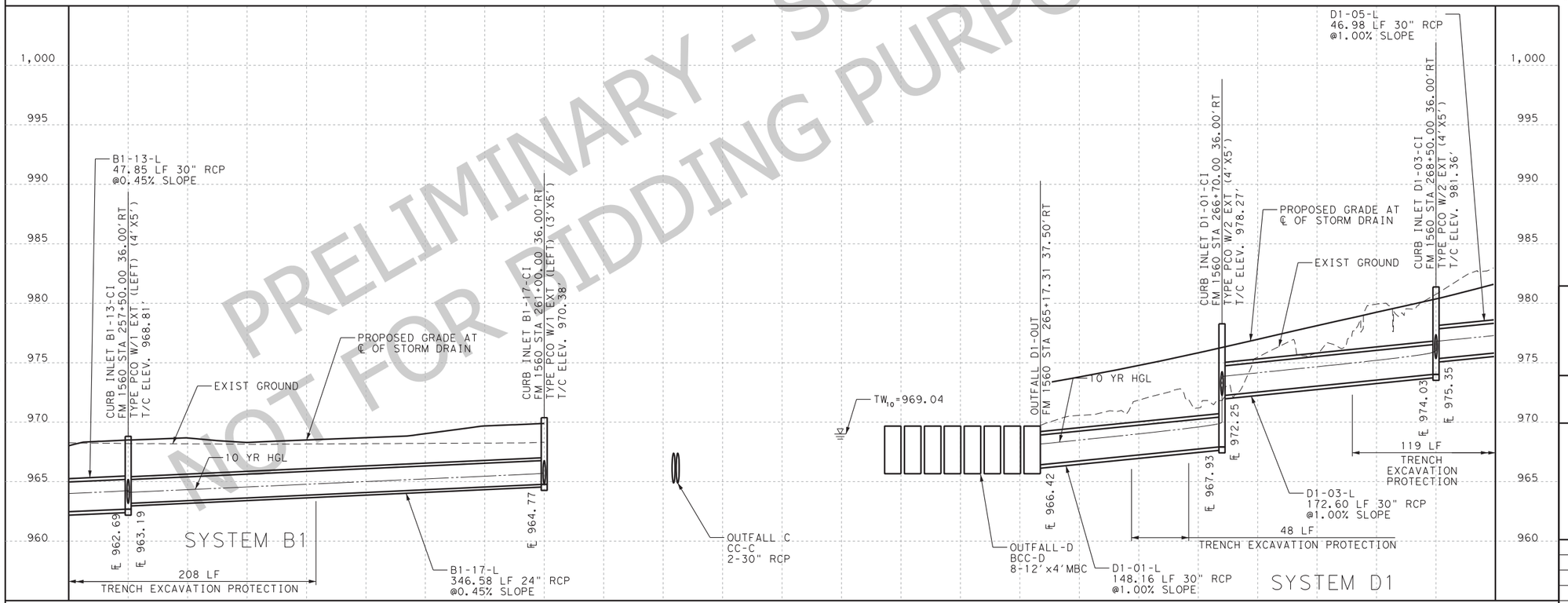
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	770
400-6005	CEM STABIL BKFL	CY	206
402-6001	TRENCH EXCAVATION PROTECTION	LF	375
464-6005	RC PIPE (CL III) (24 IN)	LF	347
464-6007	RC PIPE (CL III) (30 IN)	LF	416
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6018	INLET (COMPL)(PCO) (4 FT)(LEFT)	EA	1
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	2

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
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VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
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FM 1560
STORM DRAIN
PLAN & PROFILE

SHEET 5 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	329
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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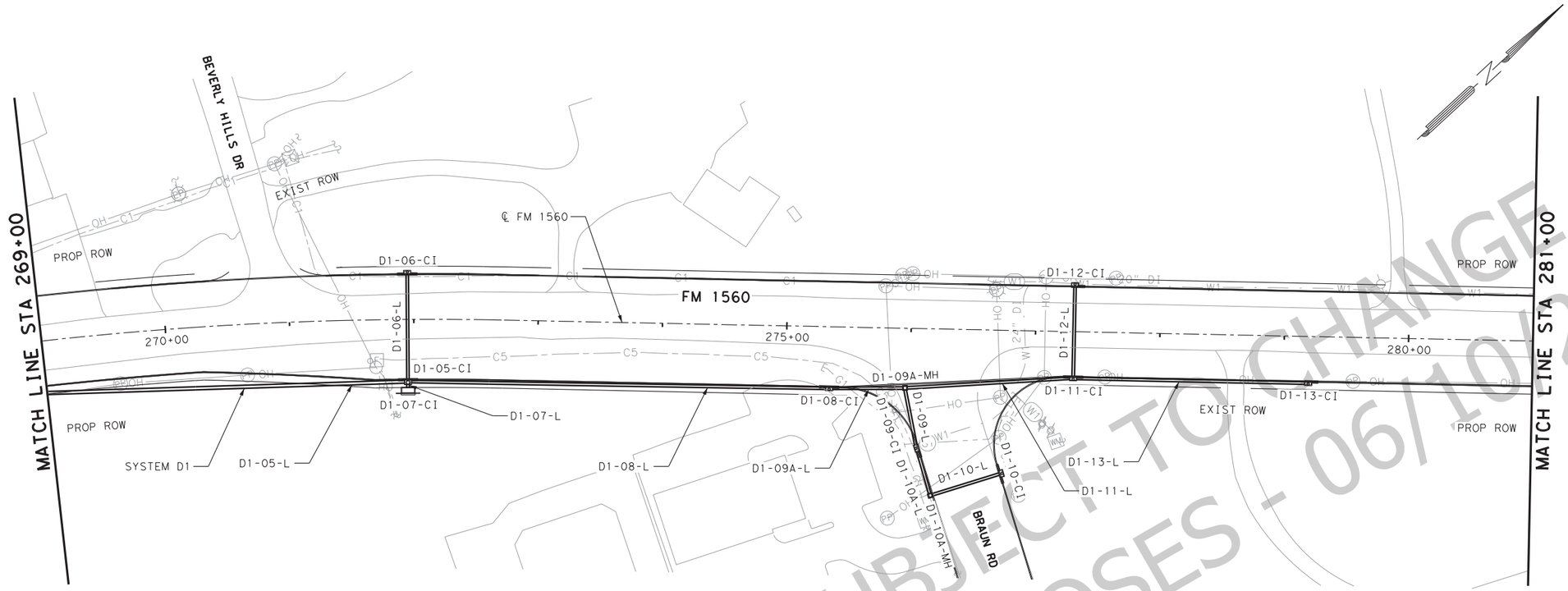

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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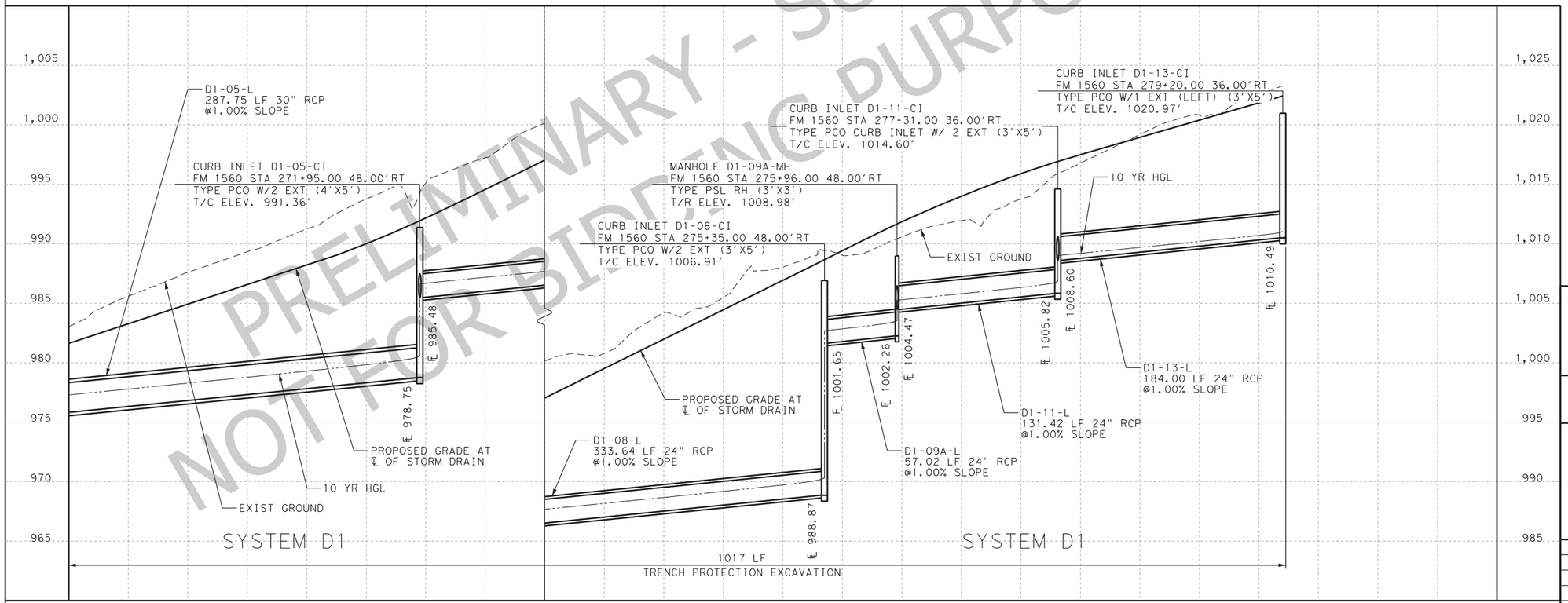
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	6,104
400-6005	CEM STABIL BKFL	CY	133
402-6001	TRENCH EXCAVATION PROTECTION	LF	1,017
464-6005	RC PIPE (CL III) (24 IN)	LF	706
464-6007	RC PIPE (CL III) (30 IN)	LF	288
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	2
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	1
465-6062	INLET (COMPL)(PSL) (RH)(3FTX3FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
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FIRM REGISTRATION NO. F-230
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STORM DRAIN
PLAN & PROFILE

SHEET 6 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	330
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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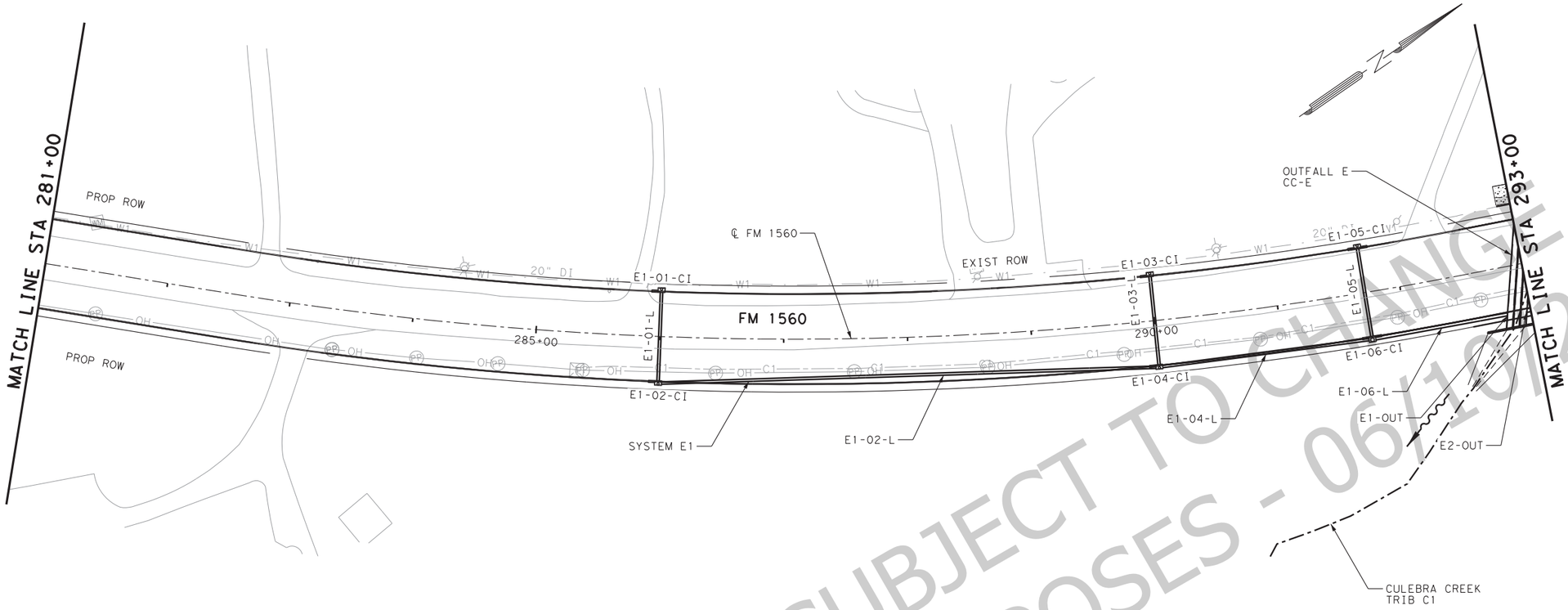

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

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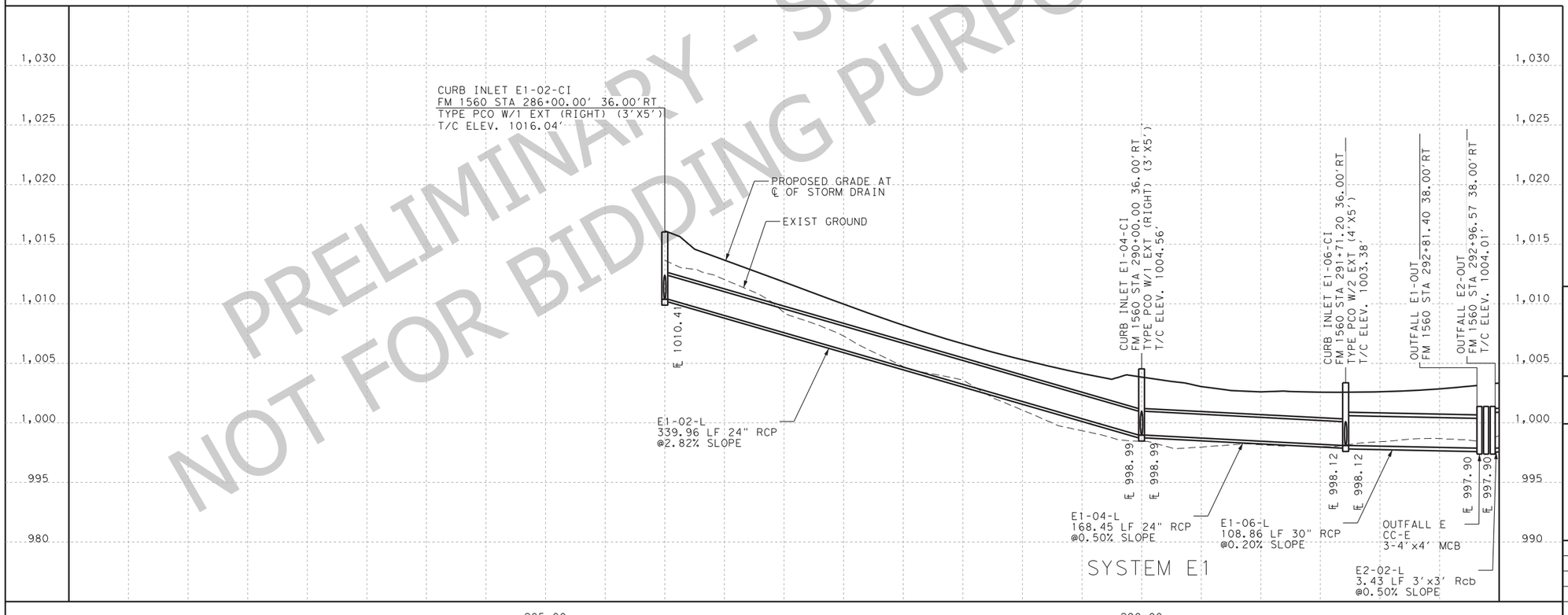
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	3
400-6003	STRUCT EXCAV (PIPE)**	CY	449
462-6002	CONC BOX CULV (3 FT X 3 FT)	LF	3
464-6005	RC PIPE (CL III) (24 IN)	LF	568
464-6007	RC PIPE (CL III) (30 IN)	LF	109
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	2
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/19/2020

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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STORM DRAIN
PLAN & PROFILE

SHEET 7 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	331
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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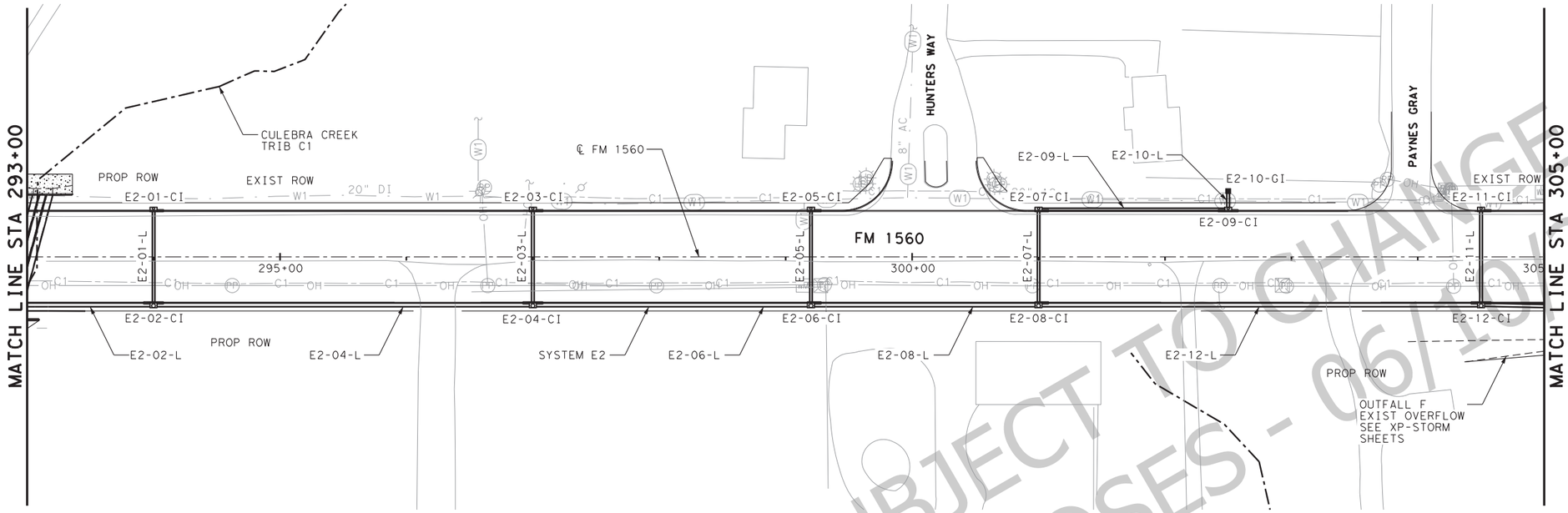

LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #	■	GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
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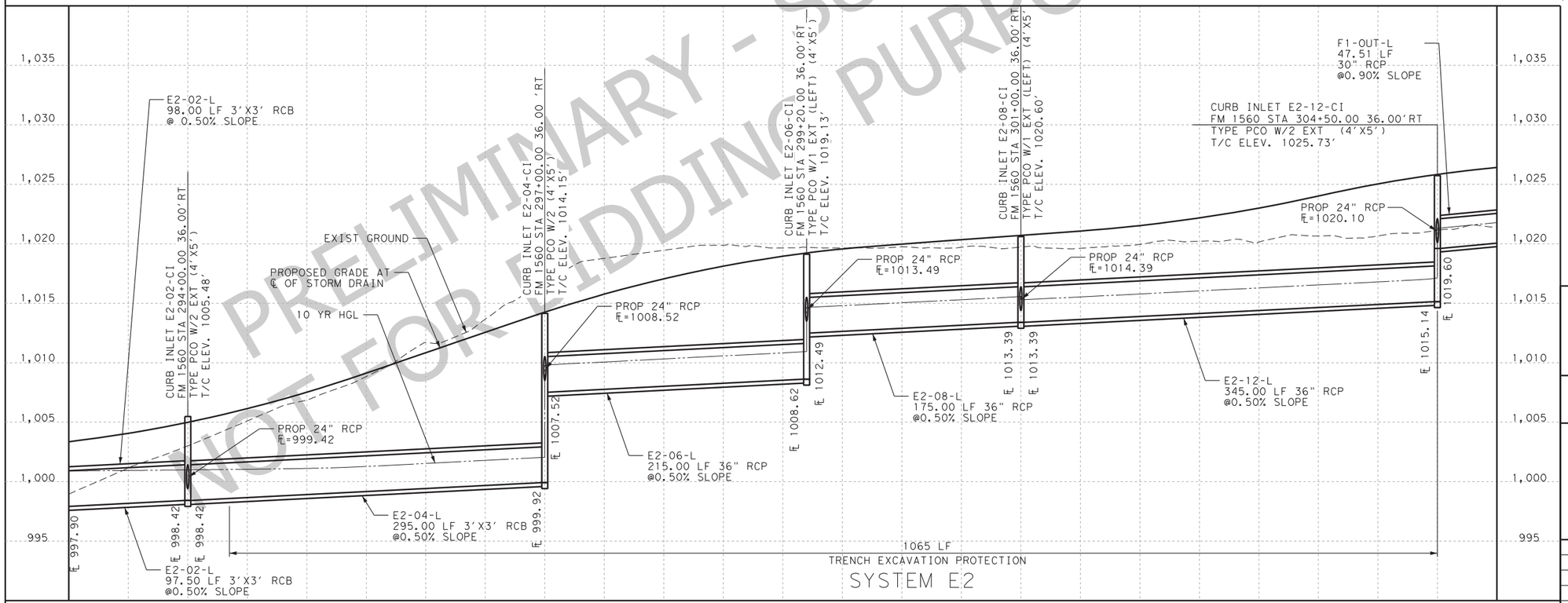
SUBJECT TO CHANGE
PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	1,632
400-6003	STRUCT EXCAV (PIPE)**	CY	3,006
400-6005	CEM STABIL BKFL	CY	283
402-6001	TRENCH EXCAVATION PROTECTION	LF	1,065
462-6002	CONC BOX CULV (3 FT X 3 FT)	LF	393
464-6007	RC PIPE (CL III) (30 IN)	LF	48
464-6008	RC PIPE (CL III) (36 IN)	LF	735
465-6018	INLET (COMPL)(PCO) (4 FT)(LEFT)	EA	2
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	3

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560 STORM DRAIN PLAN & PROFILE

SHEET 8 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	332
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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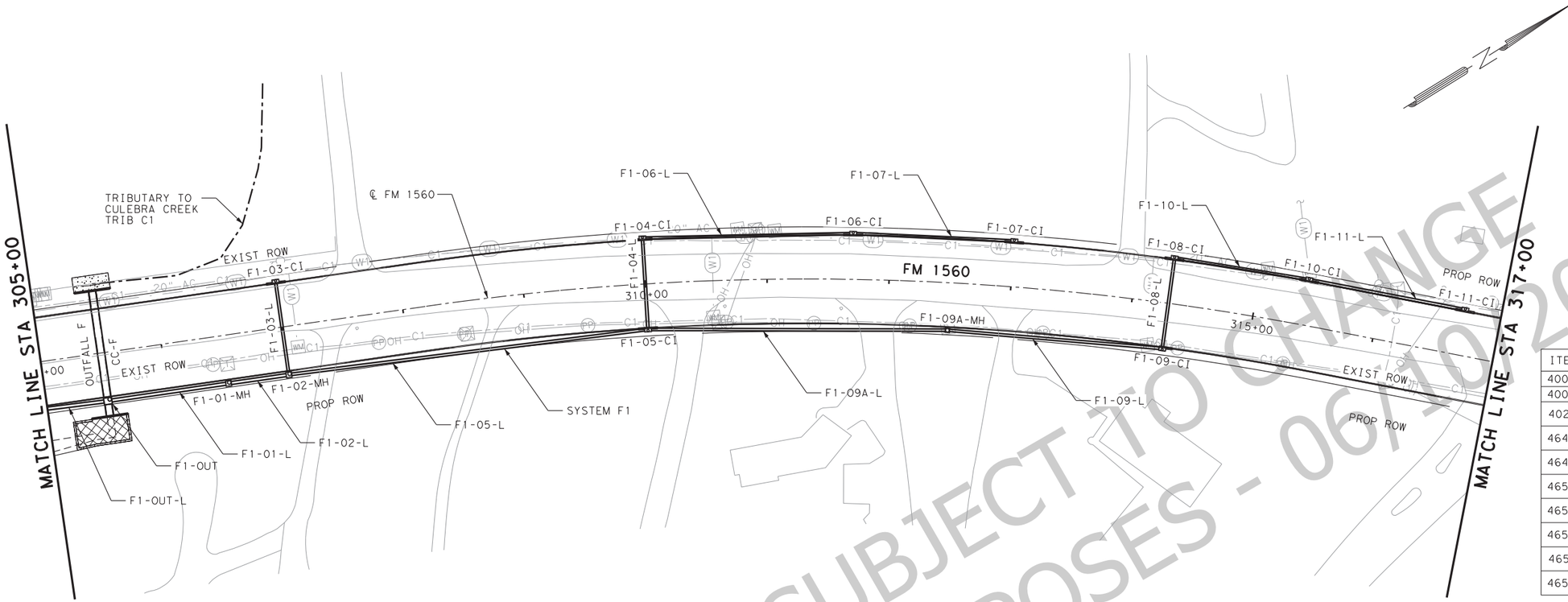


LEGEND

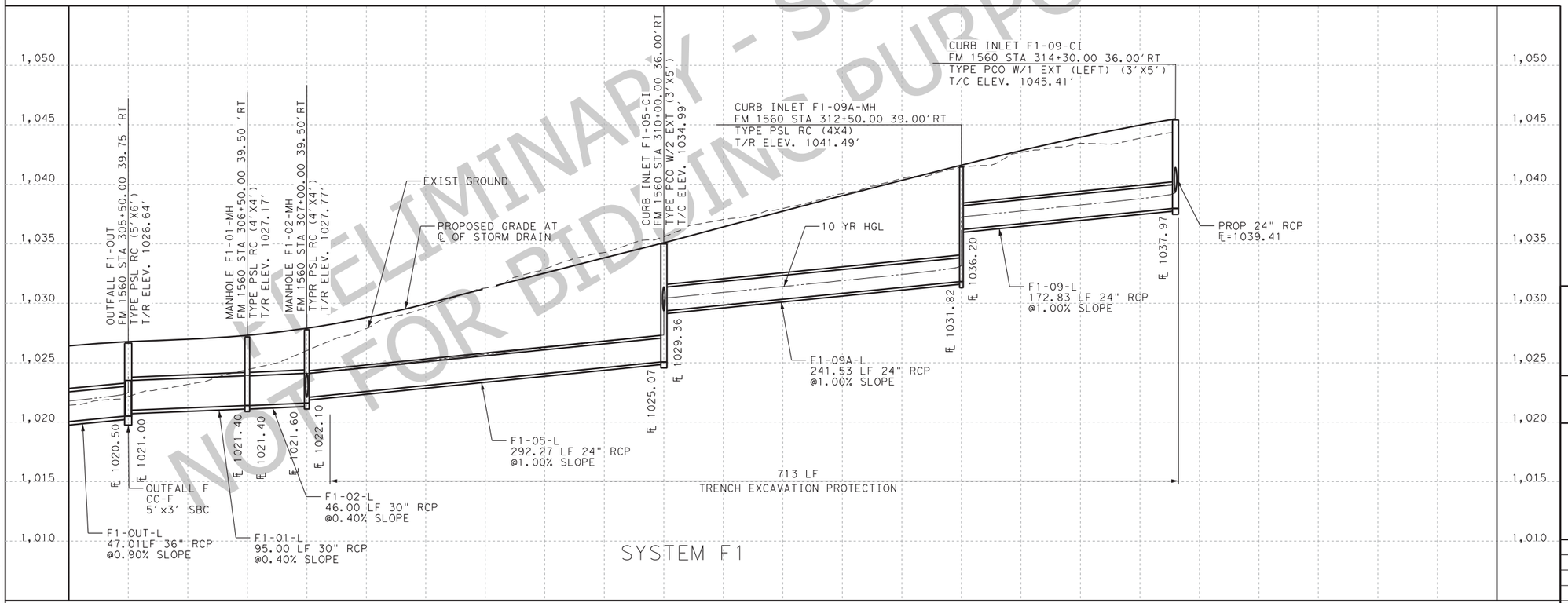
T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #	■	GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,827
400-6005	CEM STABIL BKFL	CY	114
402-6001	TRENCH EXCAVATION PROTECTION	LF	713
464-6005	RC PIPE (CL III) (24 IN)	LF	707
464-6007	RC PIPE (CL III) (30 IN)	LF	188
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1
465-6070	INLET (COMPL)(PSL) (RC)(3FTX3FT)	EA	1
465-6071	INLET (COMPL)(PSL) (RC)(4FTX4FT)	EA	2
465-6075	INLET (COMPL)(PSL) (RC)(5FTX6FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



SYSTEM F1

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

FIRM REGISTRATION NO. F-230
tnp

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FM 1560 STORM DRAIN PLAN & PROFILE

SHEET 9 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	333
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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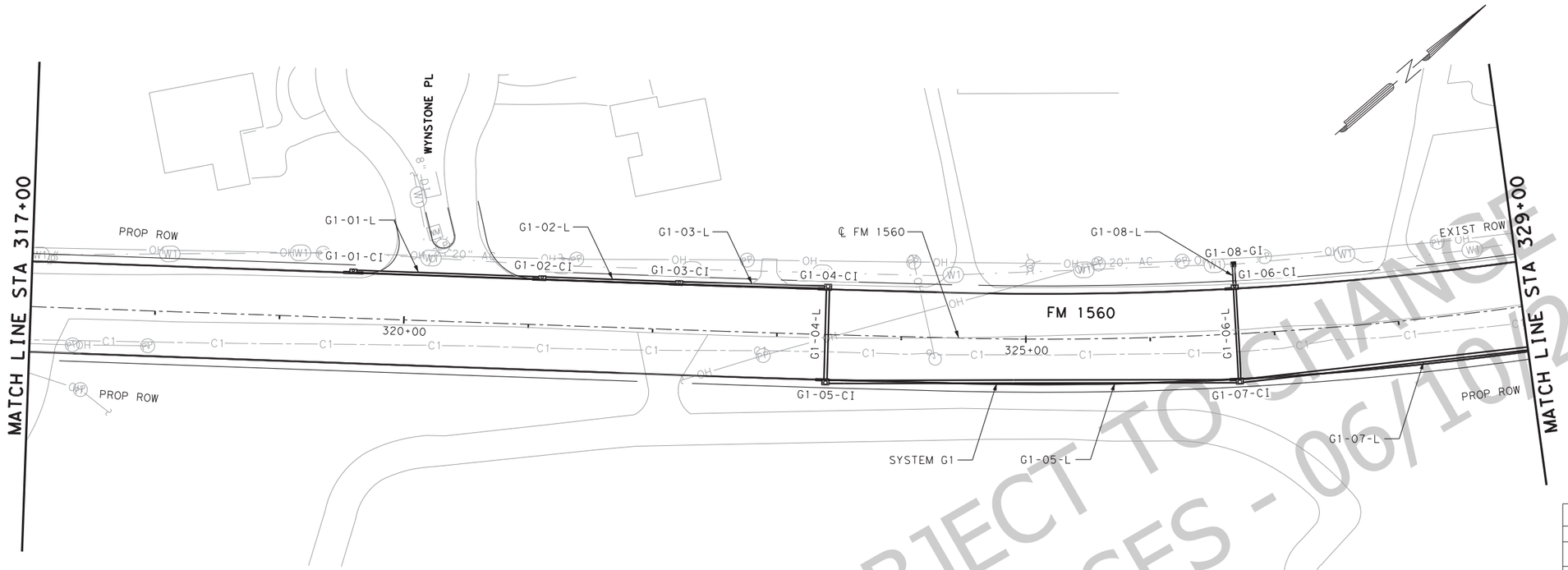


LEGEND

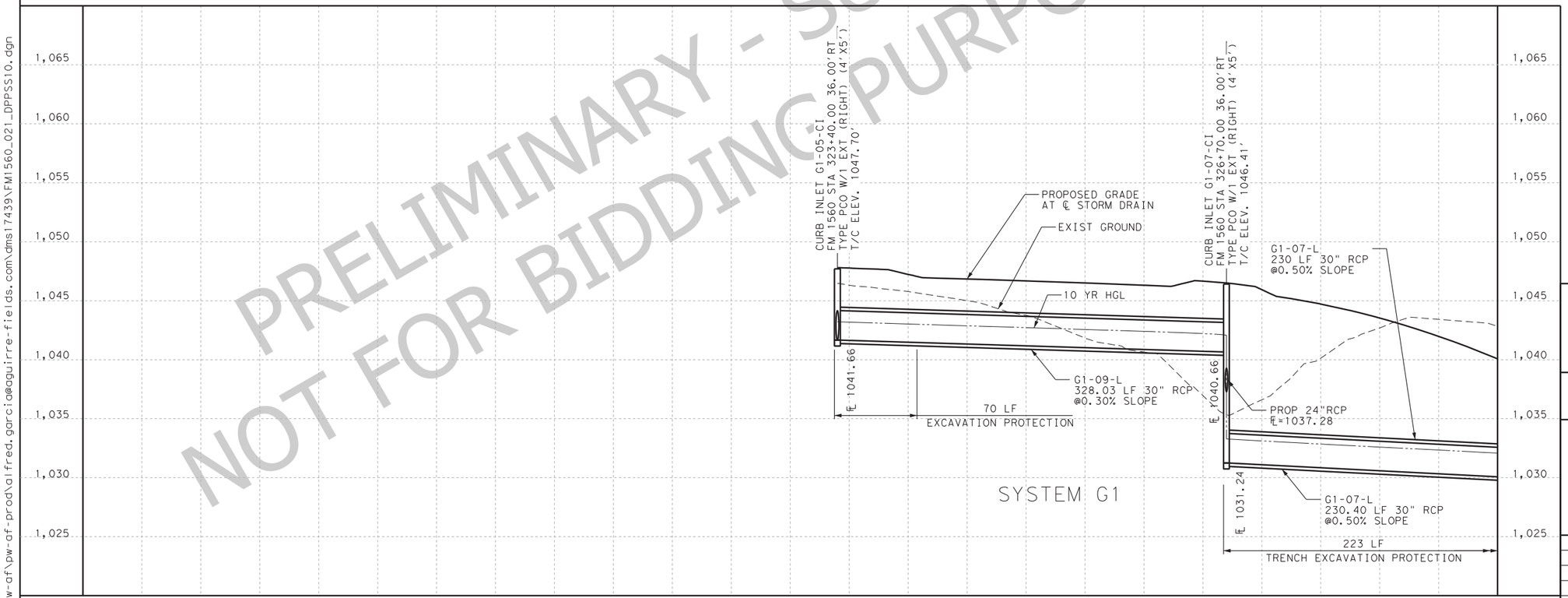
T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM	■	GRATE INLET
01 =	INLET #	A1-01-CI	INLET I.D.
CI =	CURB INLET	A1-01-L	LINK I.D.
GI =	GRATE INLET		
L =	LINK		

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,254
402-6001	TRENCH EXCAVATION PROTECTION	LF	293
464-6007	RC PIPE (CL III) (30 IN)	LF	558
465-6019	INLET (COMPL)(PCO) (4 FT)(RIGHT)	EA	2

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

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FM 1560
STORM DRAIN
PLAN AND PROFILE

SHEET 10 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	334
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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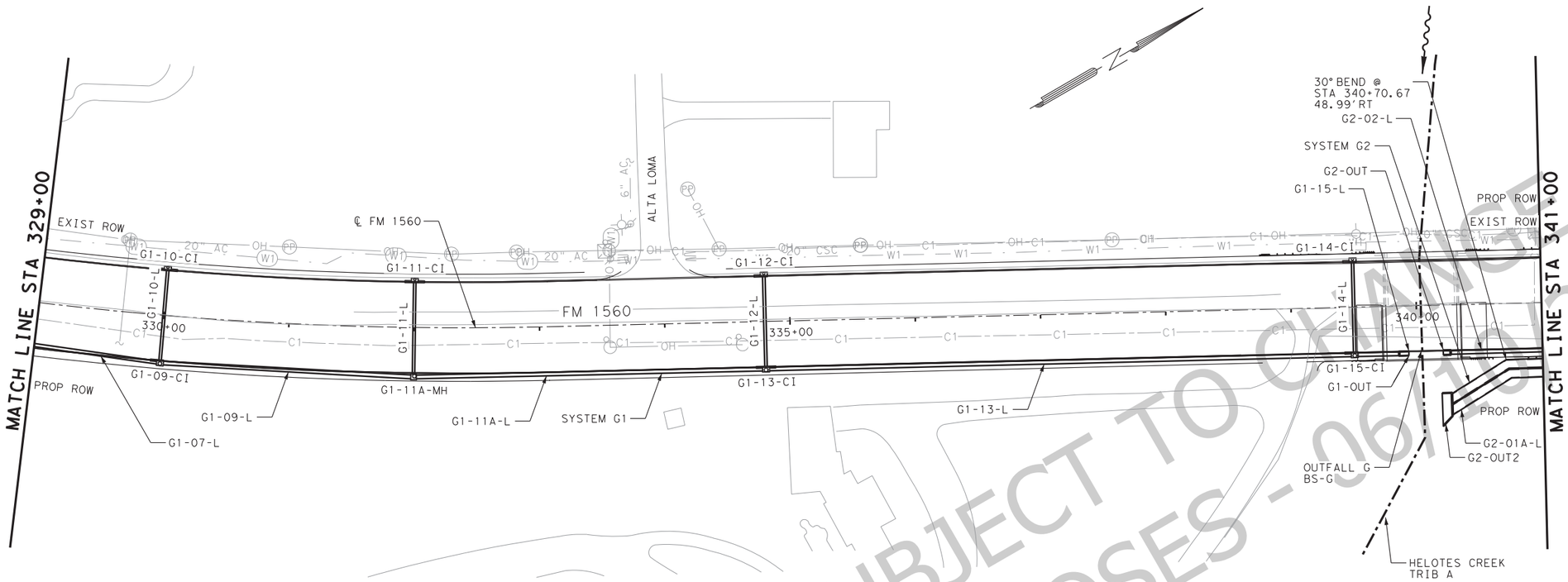


LEGEND

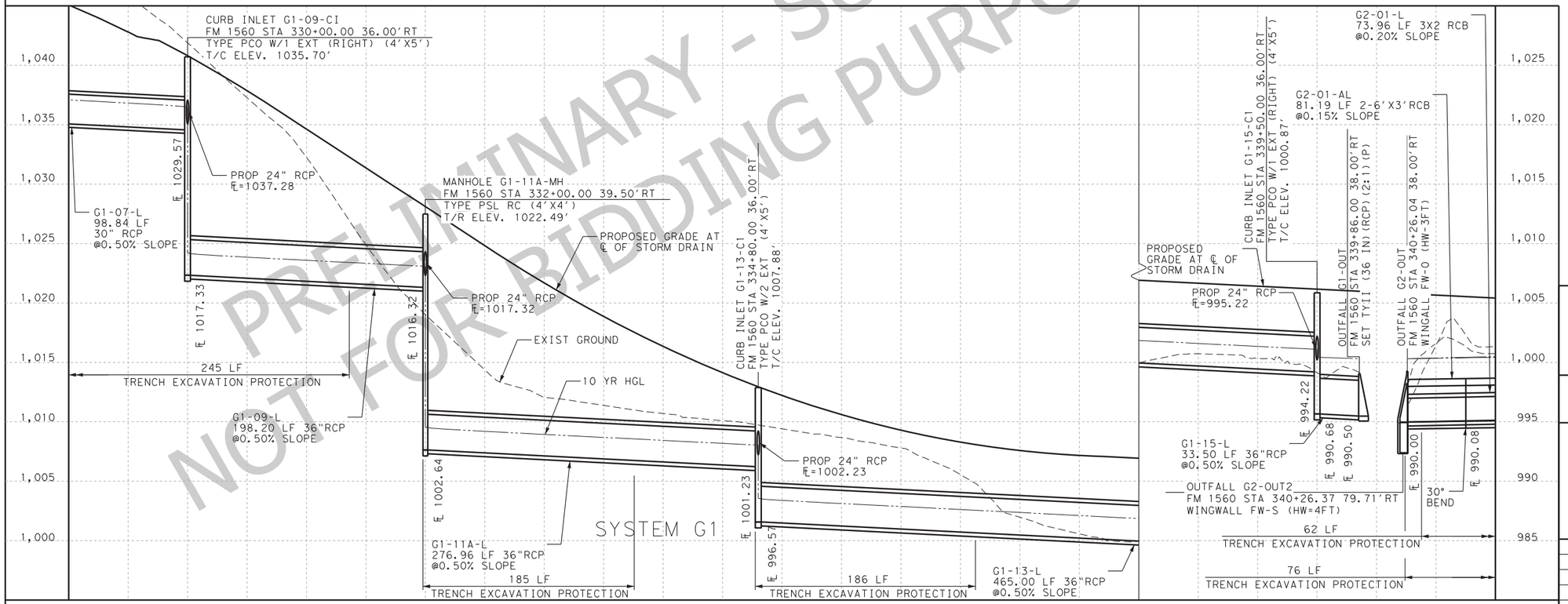
T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	659
400-6003	STRUCT EXCAV (PIPE)**	CY	2,879
400-6005	CEM STABIL BKFL	CY	37
402-6001	TRENCH EXCAVATION PROTECTION	LF	754
462-6001	CONC BOX CULV (3 FT X 2 FT)	LF	74
462-6010	CONC BOX CULV (6 FT X 3 FT)	LF	162
464-6007	RC PIPE (CL III) (30 IN)	LF	99
464-6008	RC PIPE (CL III) (36 IN)	LF	974
465-6019	INLET (COMPL)(PCO) (4 FT)(RIGHT)	EA	2
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	1
465-6071	INLET (COMPL)(PSL) (RC)(4FTX4FT)	EA	1
466-6150	WINGWALL (FW-O) (HW = 3 FT)	EA	1
466-6165	WINGWALL (FW-S) (HW = 4 FT)	EA	1
467-6447	SET (TY II) (36 IN) (RCP) (2:1) (P)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/16/2020

INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

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STORM DRAIN
PLAN & PROFILE

SHEET 11 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	335
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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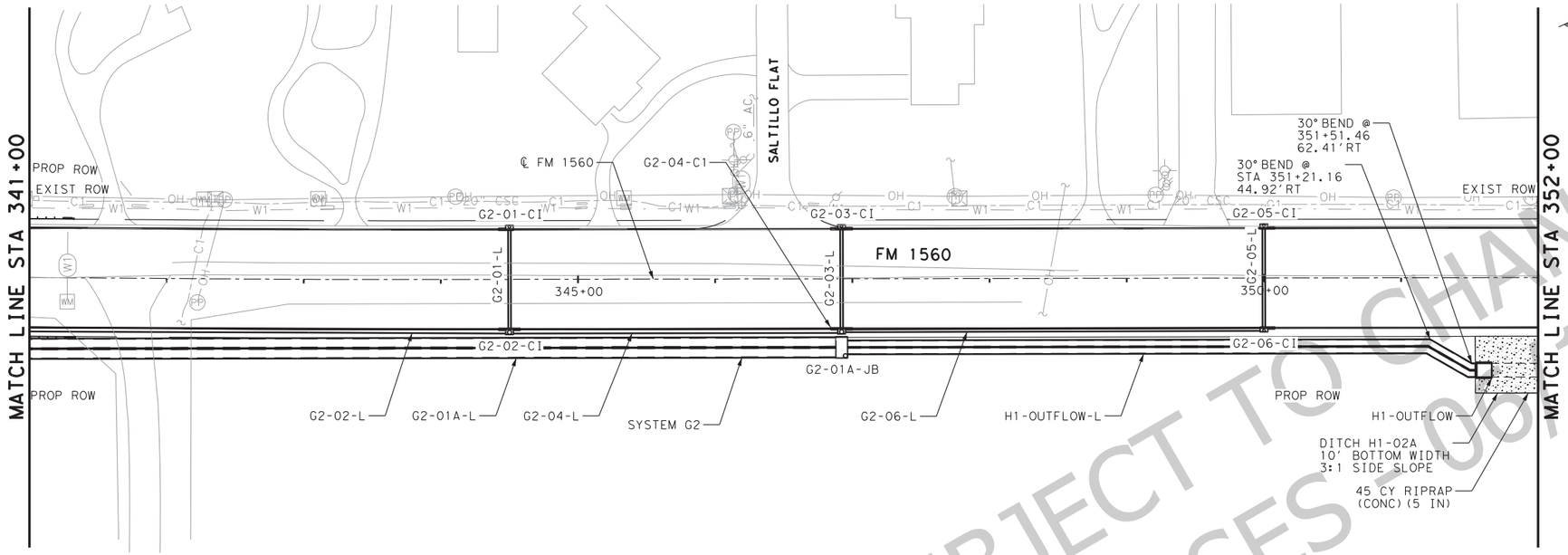


LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #	■	GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

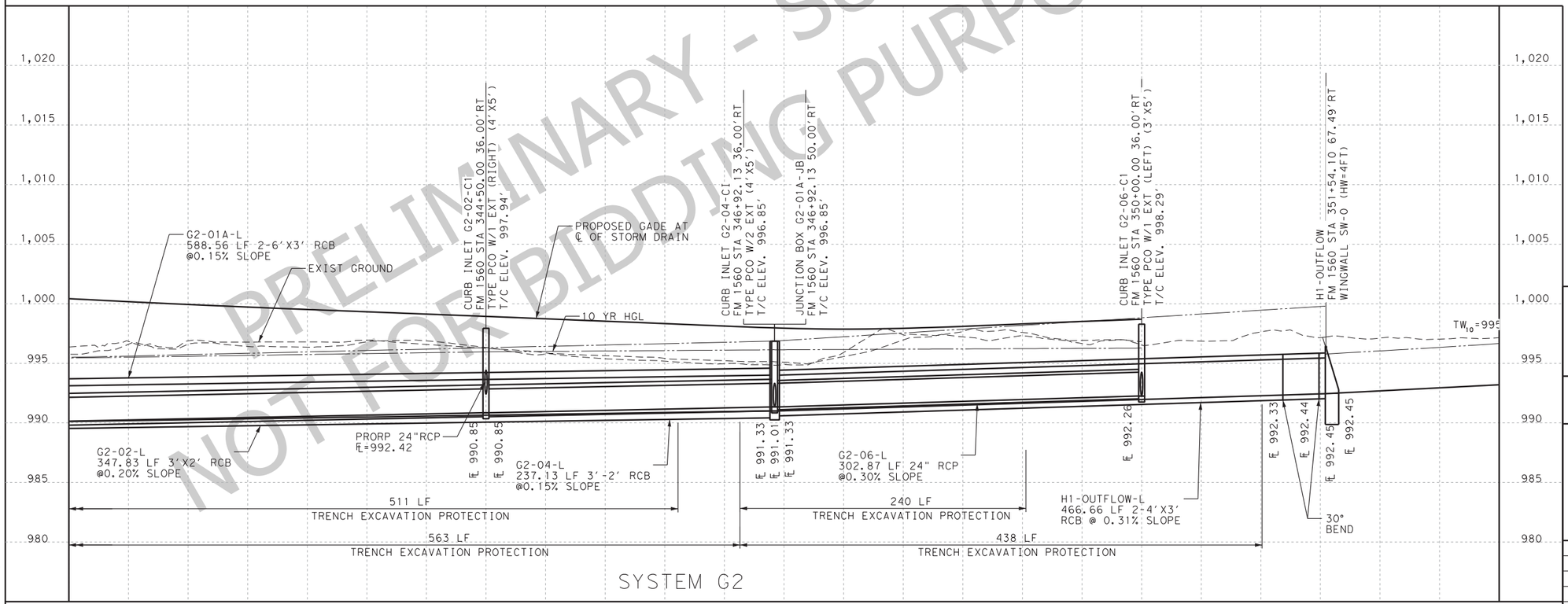
NOTES:

1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.
3. SEE DISC GOLF XP-ANALYSIS FOR HYDRAULIC COMPUTATION FOR SYSTEM H DITCH AND OUTFALL.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	6,043
400-6003	STRUCT EXCAV (PIPE)**	CY	339
400-6005	CEM STABIL BKFL	CY	132
402-6001	TRENCH EXCAVATION PROTECTION	LF	1,752
432-6002	RIPRAP (CONC) (5 IN)	CY	45
462-6001	CONC BOX CULV (3 FT X 2 FT)	LF	585
462-6004	CONC BOX CULV (4 FT X 3 FT)	LF	934
462-6010	CONC BOX CULV (6 FT X 3 FT)	LF	1,178
464-6005	RC PIPE (CL III) (24 IN)	LF	303
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6019	INLET (COMPL)(PCO) (4 FT)(RIGHT)	EA	1
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	1
465-6225	JCT BOX (COMPL) (SPL)	EA	1
466-6207	WINGWALL (SW-0) (HW = 4 FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

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FM 1560 STORM DRAIN PLAN & PROFILE

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	336
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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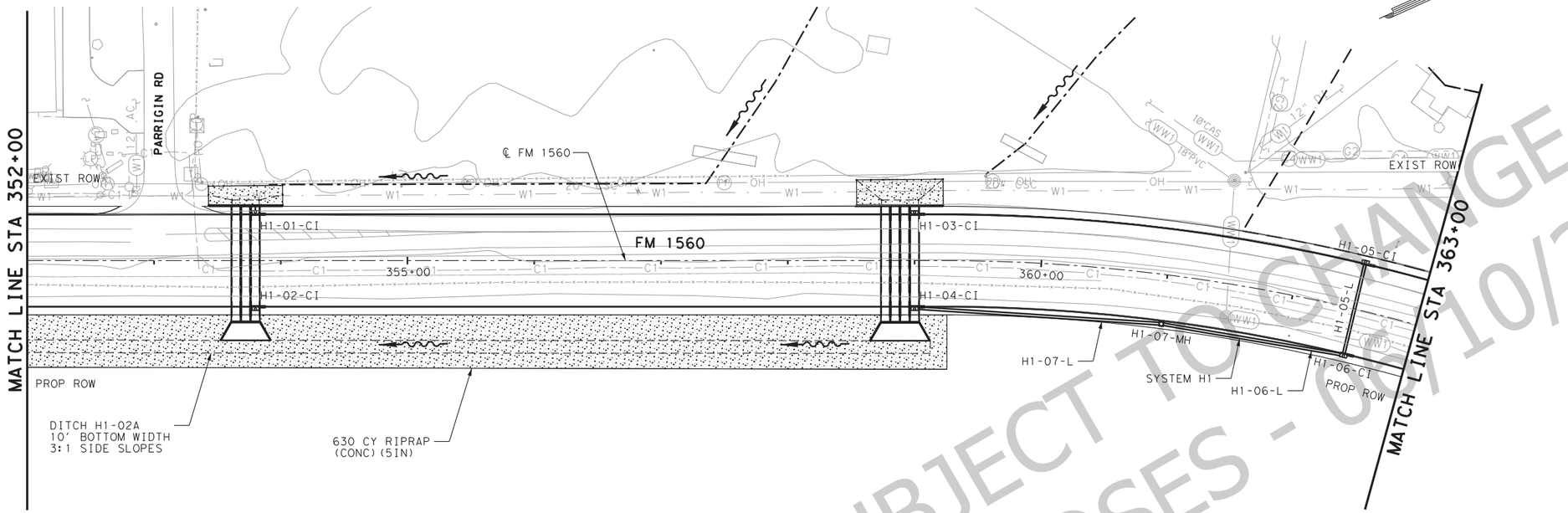


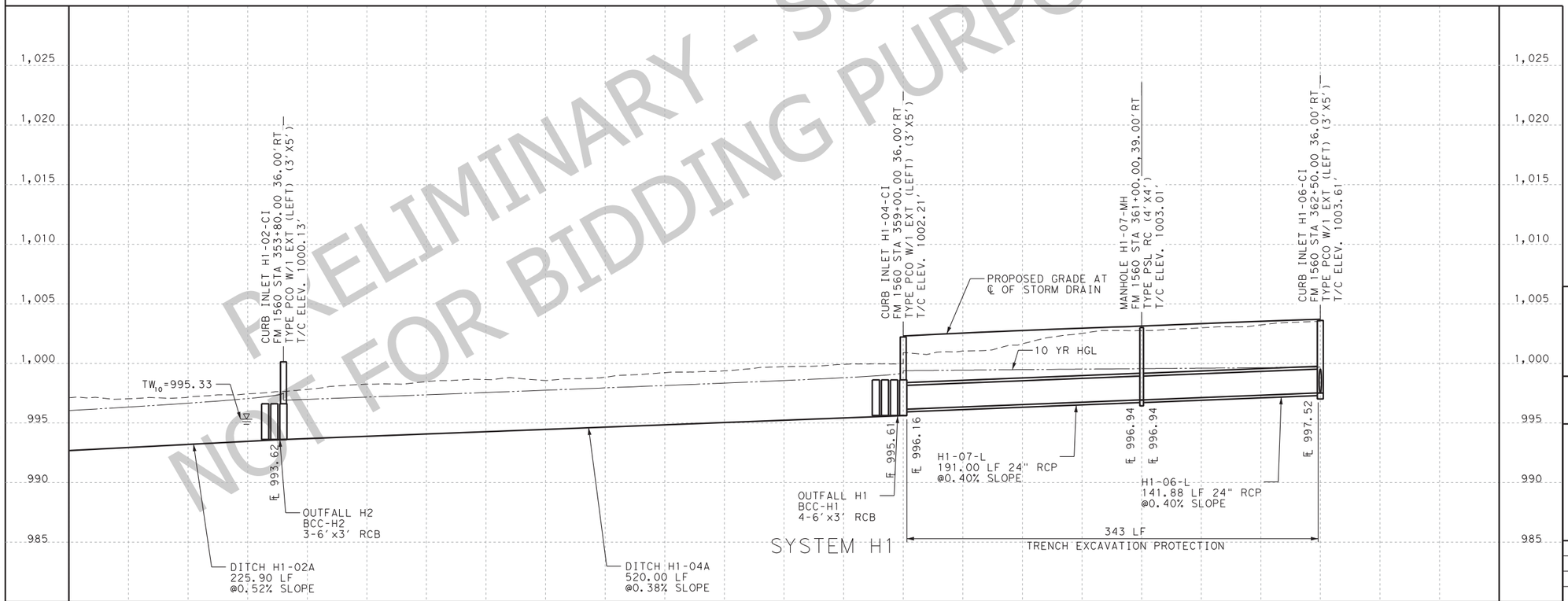
LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #		GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.
3. SEE DISC GOLF XP- ANALYSIS FOR HYDRAULIC COMPUTATIONFOR SYSTEM H.

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	349
402-6001	TRENCH EXCAVATION PROTECTION	LF	343
432-6002	RIPRAP (CONC) (5 IN)	CY	630
464-6005	RC PIPE (CL III) (24 IN)	LF	333
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6070	INLET (COMPL)(PSL) (RC)(3FTX3FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 6/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50' 100'
HORIZ SCALE: 1" = 100'
VERT SCALE: 1" = 10'

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STORM DRAIN
PLAN & PROFILE

SHEET 13 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	337
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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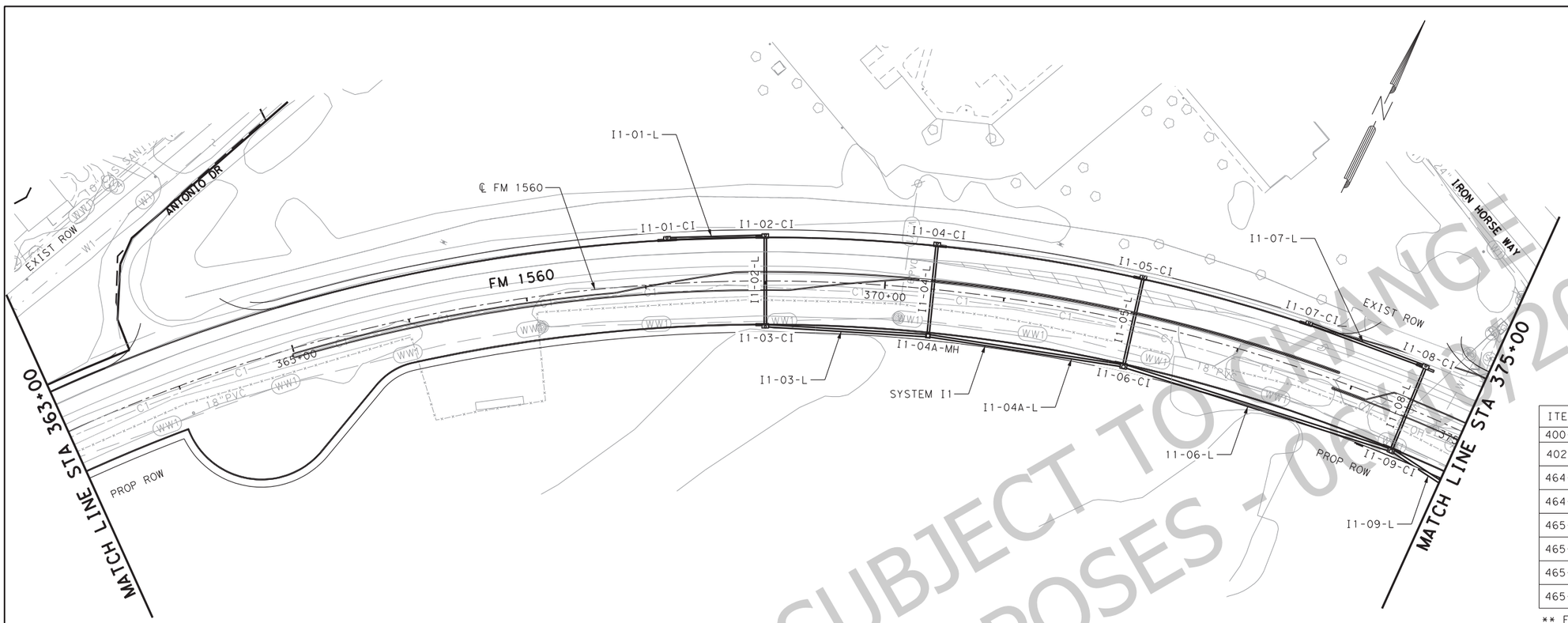


LEGEND

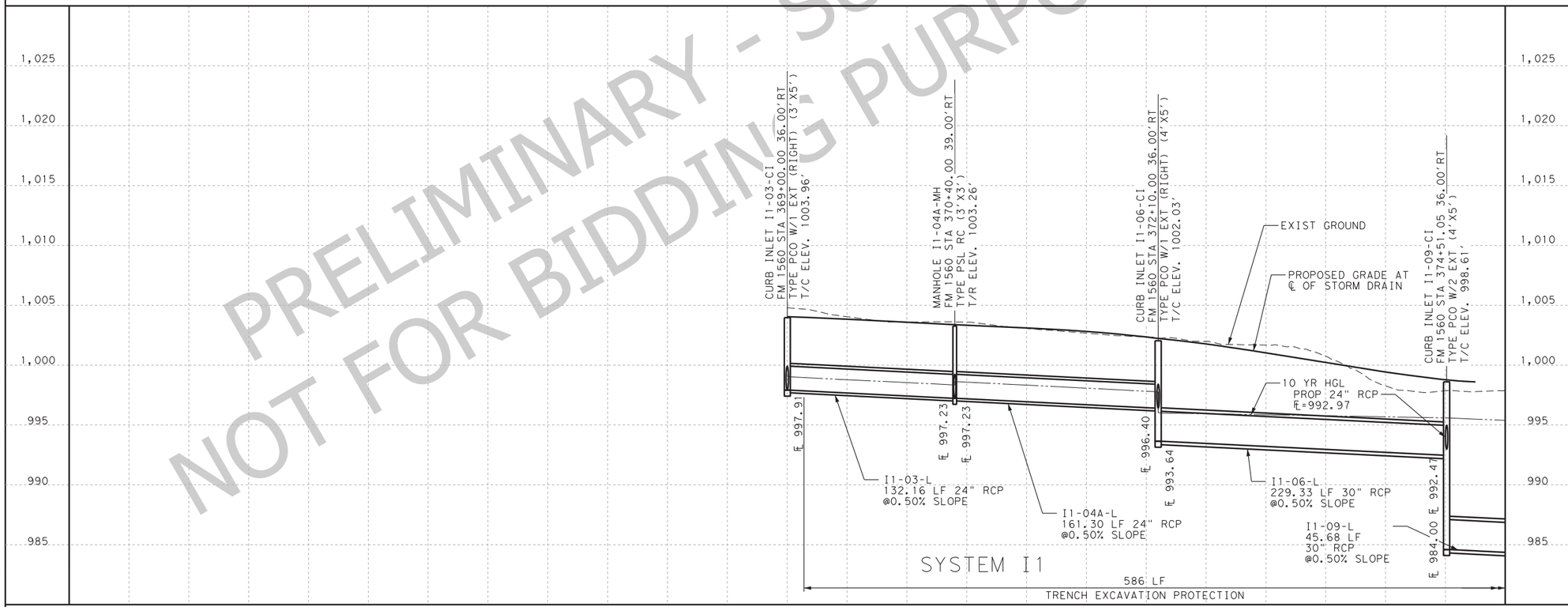
T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM	■	GRATE INLET
01 =	INLET #	A1-01-CI	INLET I.D.
CI =	CURB INLET	A1-01-L	LINK I.D.
GI =	GRATE INLET		
L =	LINK		

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,402
402-6001	TRENCH EXCAVATION PROTECTION	LF	586
464-6005	RC PIPE (CL III) (24 IN)	LF	293
464-6007	RC PIPE (CL III) (30 IN)	LF	275
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1
465-6019	INLET (COMPL)(PCO) (4 FT)(RIGHT)	EA	1
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	1
465-6070	INLET (COMPL)(PSL) (RC)(3FTX3FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/05/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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STORM DRAIN
PLAN & PROFILE

SHEET 14 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	338
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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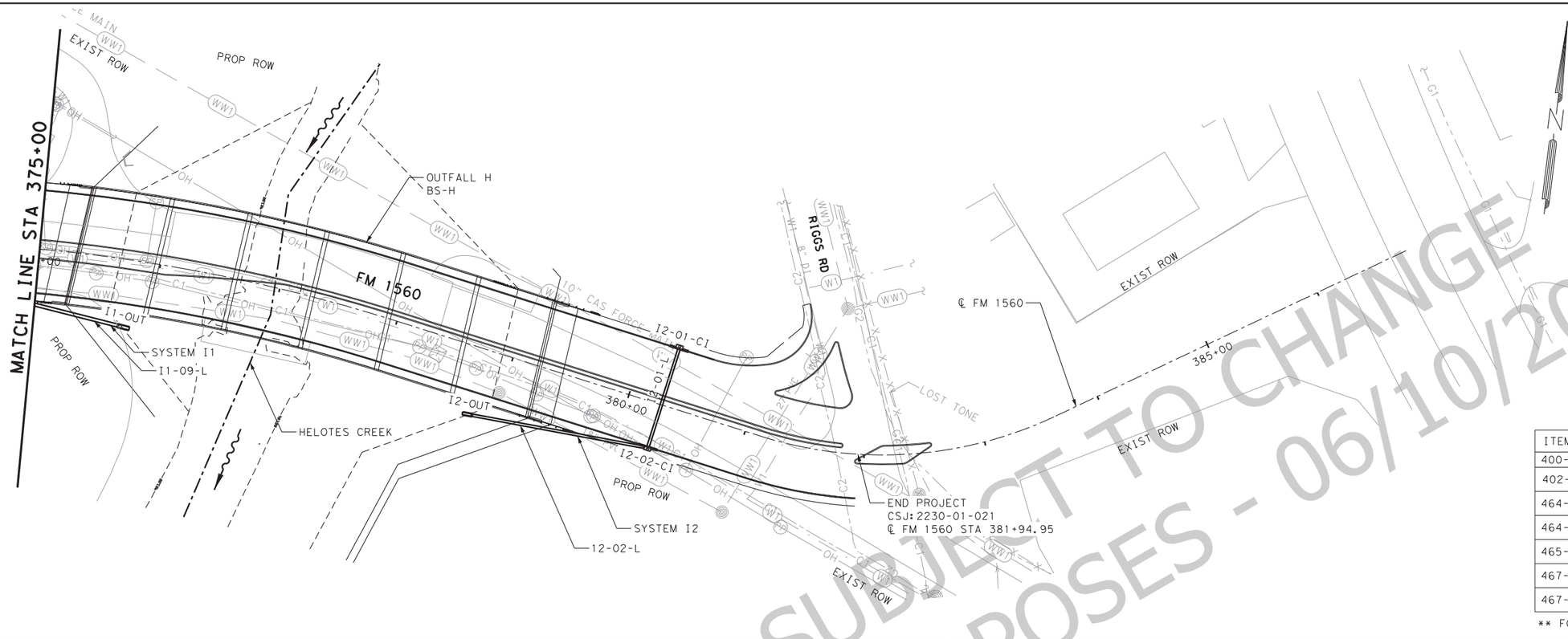


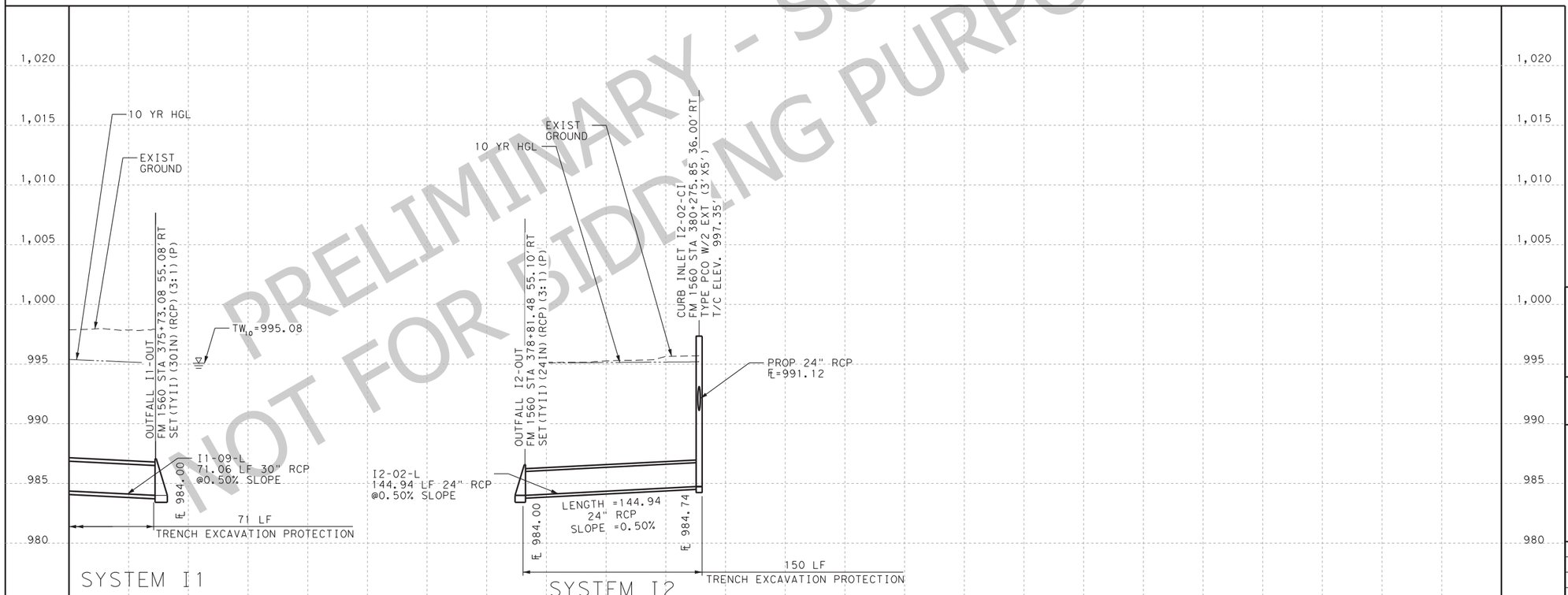
LEGEND

T/C	TOP OF CURB		STORM SEWER
T/G	TOP GRATE		
T/R	TOP OF RIM		CURB INLET
A1 =	SYSTEM		
01 =	INLET #	■	GRATE INLET
CI =	CURB INLET	A1-01-CI	INLET I.D.
GI =	GRATE INLET		
L =	LINK	A1-01-L	LINK I.D.

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

	QUANTITY SUMMARY CSJ: 2230-01-021		
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,038
402-6001	TRENCH EXCAVATION PROTECTION	LF	221
464-6005	RC PIPE (CL III) (24 IN)	LF	145
464-6007	RC PIPE (CL III) (30 IN)	LF	71
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1
467-6389	SET (TY II) (24 IN) (RCP) (3:1) (P)	EA	1
467-6418	SET (TY II) (30 IN) (RCP) (3:1) (P)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 50′ 100′
HORIZ SCALE: 1" = 100′
VERT SCALE: 1" = 10′

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FM 1560
STORM DRAIN
PLAN & PROFILE

SHEET 15 OF 15

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	339
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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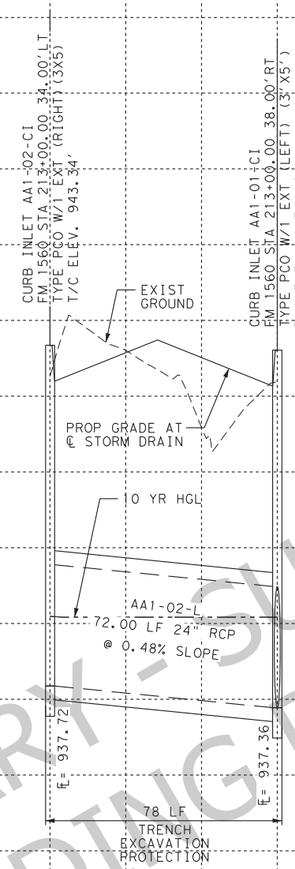

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
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QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	89
400-6005	CEM STABIL BKFL	CY	33
402-6001	TRENCH EXCAVATION PROTECTION	LF	78
464-6005	RC PIPE (CL III) (24 IN)	LF	72
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 25' 50'
HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 2.5'

FIRM REGISTRATION NO. F-230
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FM 1560
STORM DRAIN LATERALS
SYSTEM AA

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	340
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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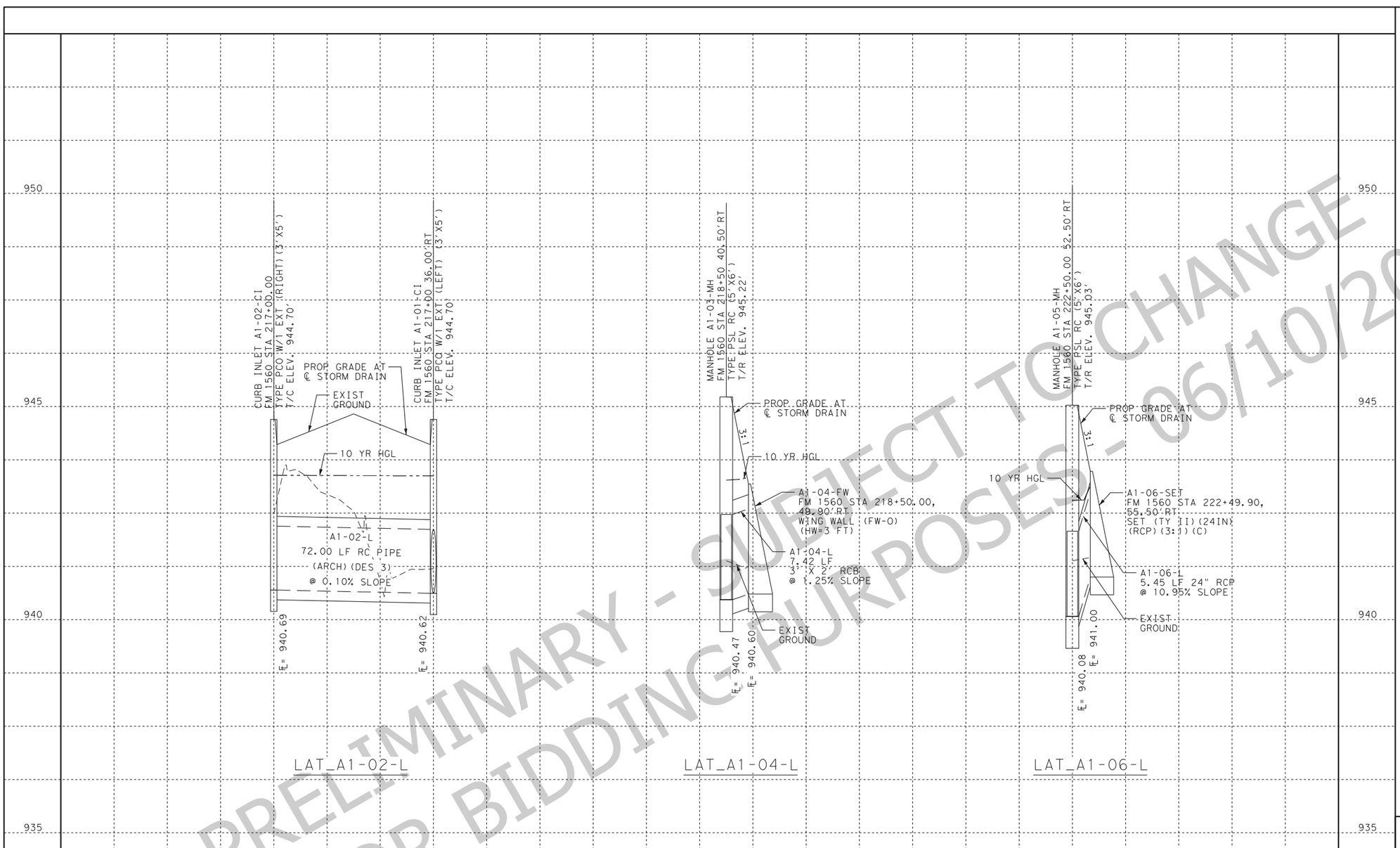

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	7
400-6003	STRUCT EXCAV (PIPE)**	CY	62
400-6005	CEM STABIL BKFL	CY	12
402-6001	TRENCH EXCAVATION PROTECTION	LF	0
462-6001	CONC BOX CULV (3 FT X 2 FT)	LF	7
464-6005	RC PIPE (CL III) (24 IN)	LF	5
464-6031	RC PIPE(ARCH) (CL III)(DES 2)	LF	72
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1
466-6150	WINGWALL (FW-O) (HW = 3 FT)	EA	1
467-6388	SET (TY II) (24 IN) (RCP) (3:1) (C)	EA	1

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PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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FM 1560
STORM DRAIN LATERALS
SYSTEM A

SHEET 1 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	341
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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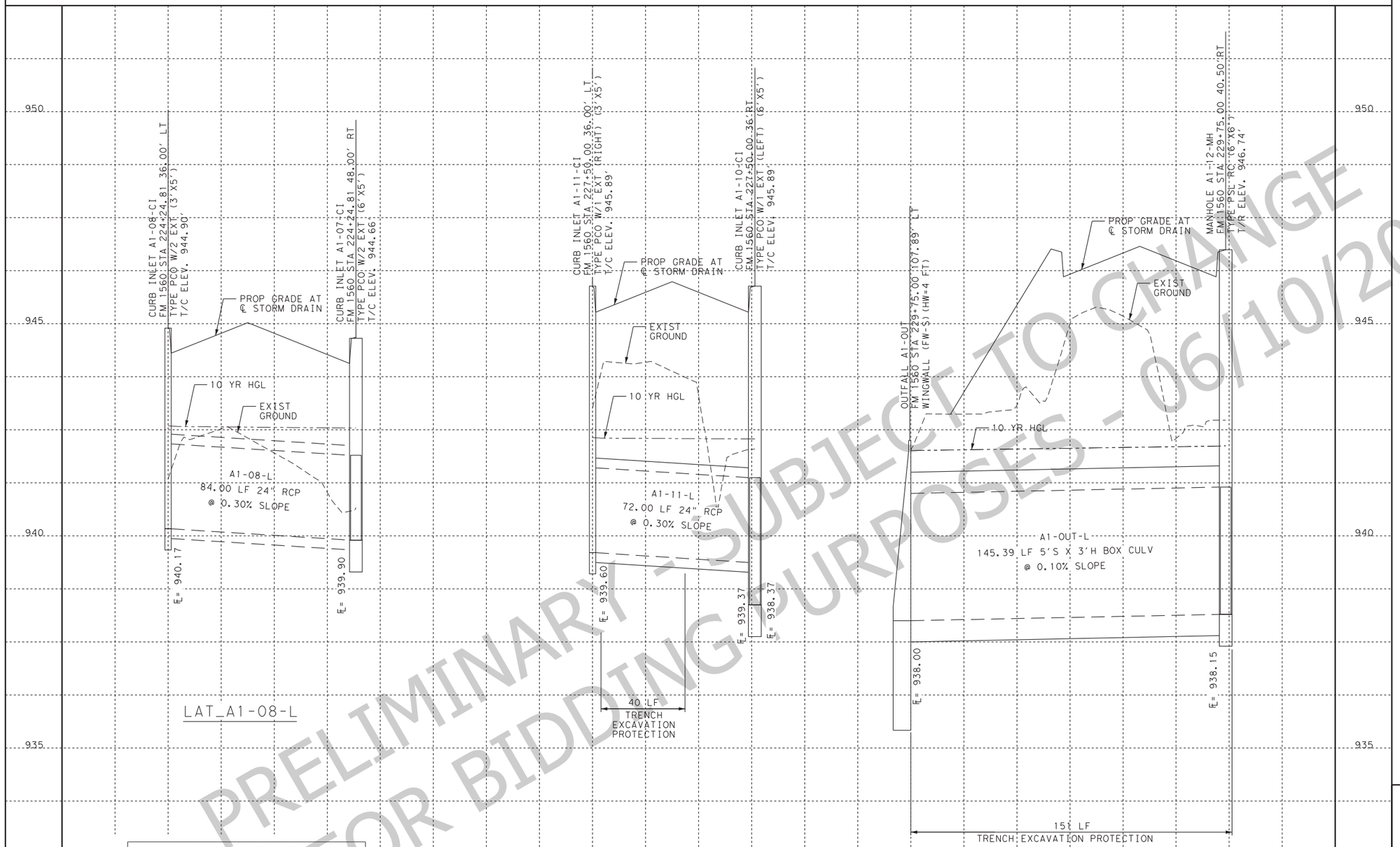

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6002	STRUCT EXCAV (BOX)**	CY	338
400-6003	STRUCT EXCAV (PIPE)**	CY	120
400-6005	CEM STABIL BKFL	CY	155
402-6001	TRENCH EXCAVATION PROTECTION	LF	191
462-6007	CONC BOX CULV (5 FT X 3 FT)	LF	145
464-6005	RC PIPE (CL III) (24 IN)	LF	156
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1
466-6165	WINGWALL (FW-S) (HW = 4 FT)	EA	1

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STORM DRAIN LATERALS
SYSTEM A

SHEET 2 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	342
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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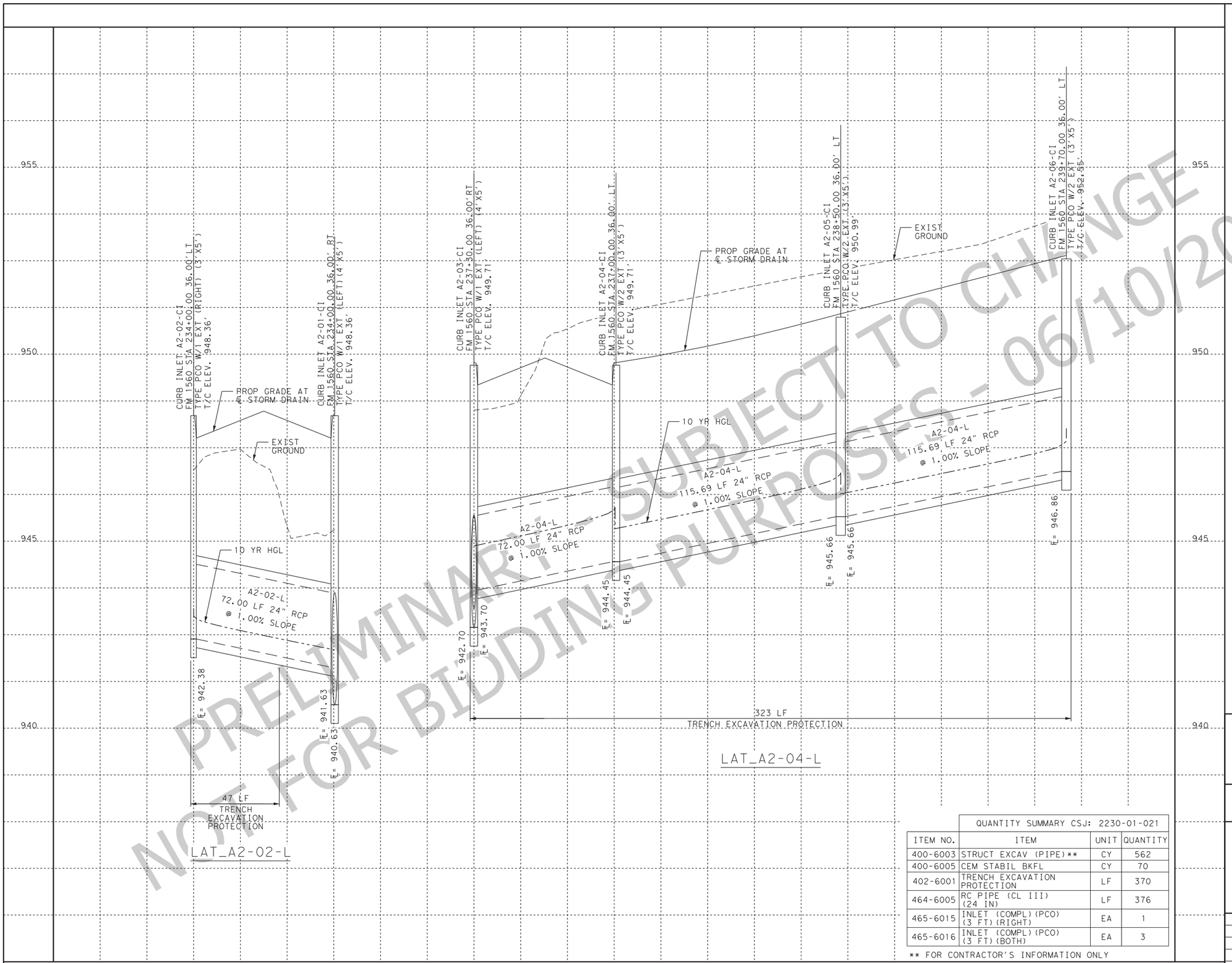

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	562
400-6005	CEM STABIL BKFL	CY	70
402-6001	TRENCH EXCAVATION PROTECTION	LF	370
464-6005	RC PIPE (CL III) (24 IN)	LF	376
465-6015	INLET (COMPL) (PCO) (3 FT) (RIGHT)	EA	1
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	3

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STORM DRAIN LATERALS
SYSTEM A

SHEET 3 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	343
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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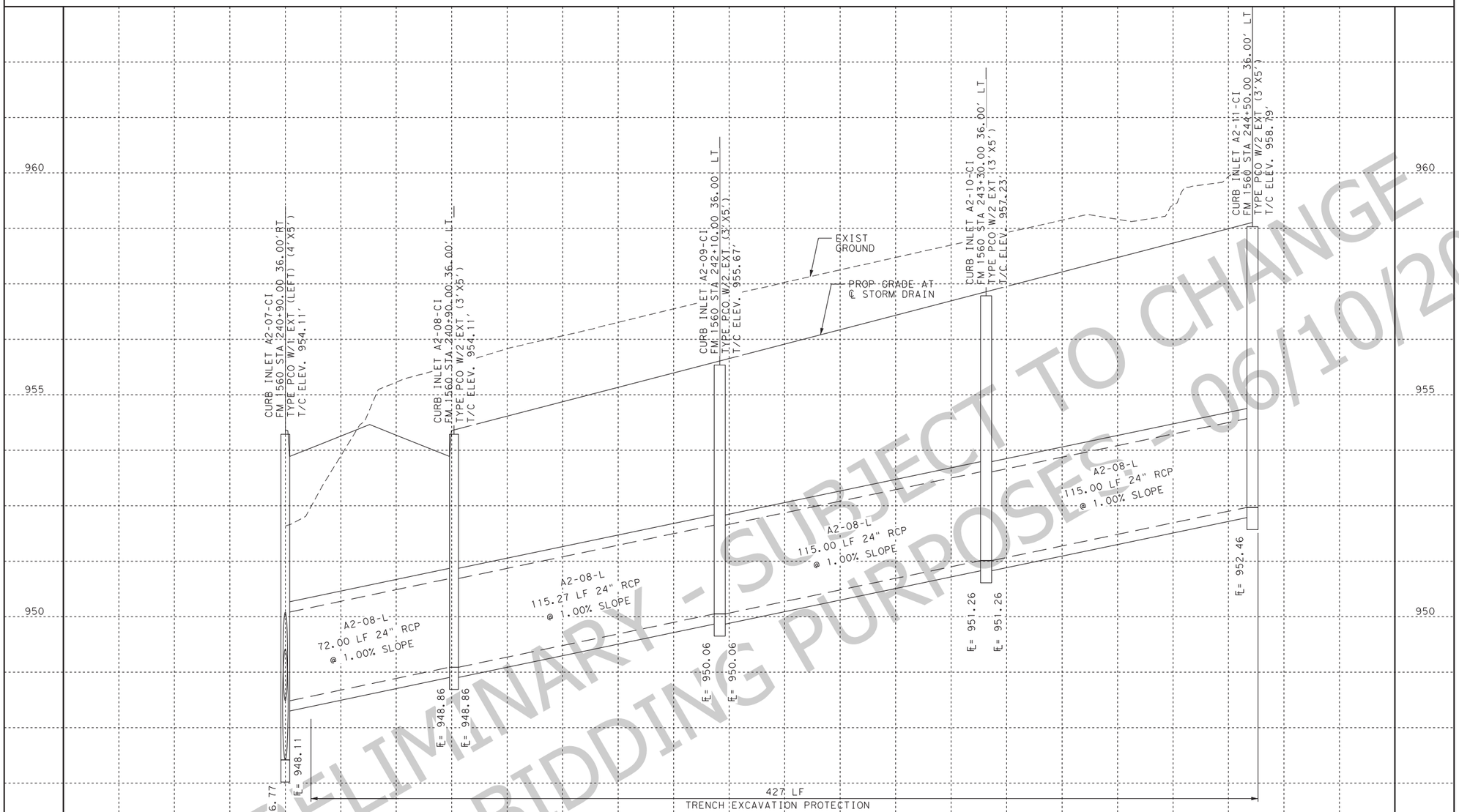

LAT_A2-08-L

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	830
400-6005	CEM STABIL BKFL	CY	33
402-6001	TRENCH EXCAVATION PROTECTION	LF	427
464-6005	RC PIPE (CL III) (24 IN)	LF	417
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	4

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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VERT SCALE: 1" = 2.5'

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FM 1560
STORM DRAIN LATERALS
SYSTEM A

SHEET 4 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	344
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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LAT_A2-12-L

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	340
400-6005	CEM STABIL BKFL	CY	31
402-6001	TRENCH EXCAVATION PROTECTION	LF	198
464-6005	RC PIPE (CL III) (24 IN)	LF	197
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	2

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FM 1560
STORM DRAIN LATERALS
SYSTEM A

SHEET 5 OF 5

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	345
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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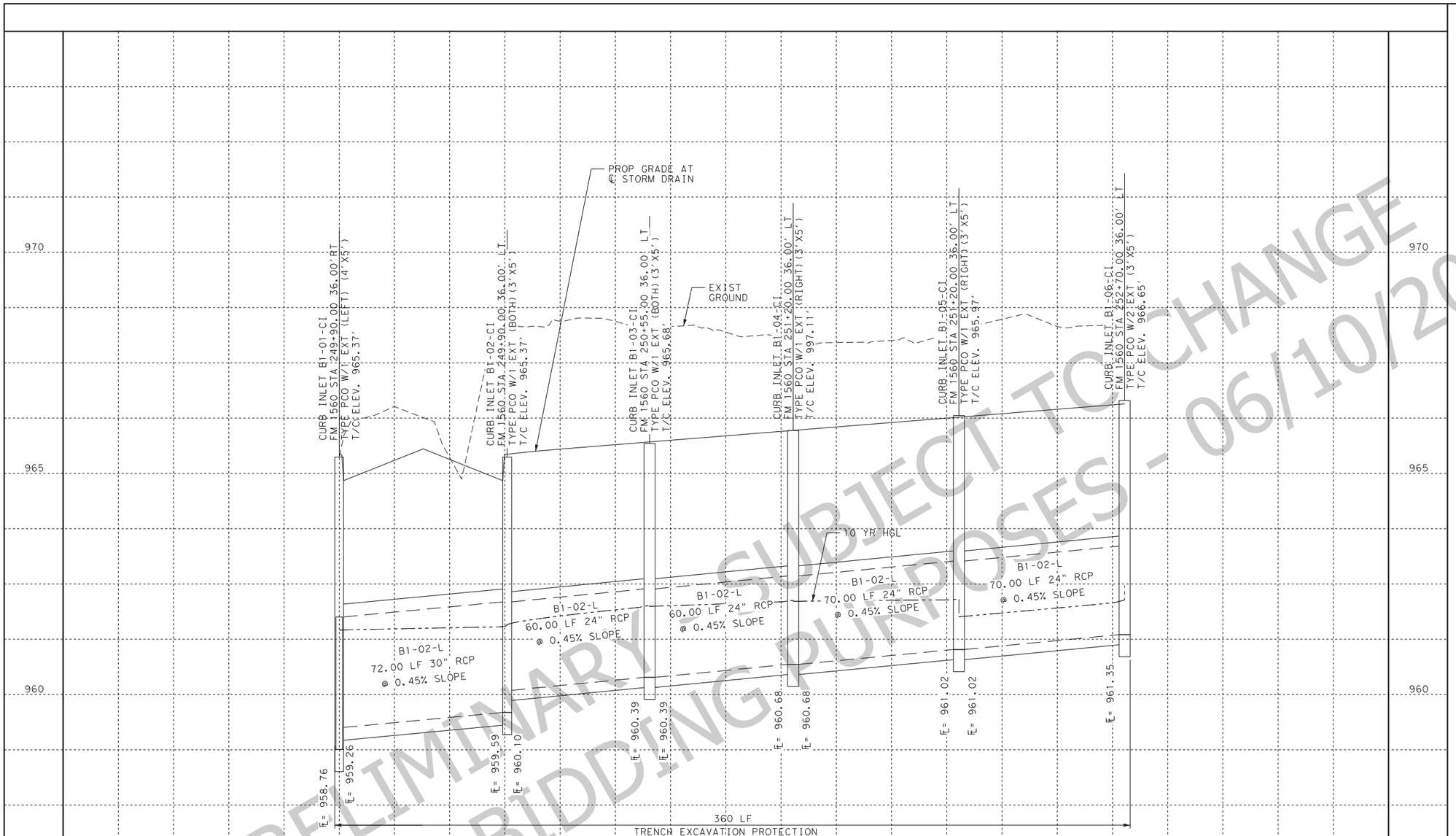

LAT_B1-02-L

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	799
400-6005	CEM STABIL BKFL	CY	34
402-6001	TRENCH EXCAVATION PROTECTION	LF	360
464-6005	RC PIPE (CL III) (24 IN)	LF	260
464-6007	RC PIPE (CL III) (30 IN)	LF	72
465-6015	INLET (COMPL) (PCO) (3 FT) (RIGHT)	EA	1
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	4

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FM 1560
STORM DRAIN LATERALS
SYSTEM B

SHEET 1 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	346
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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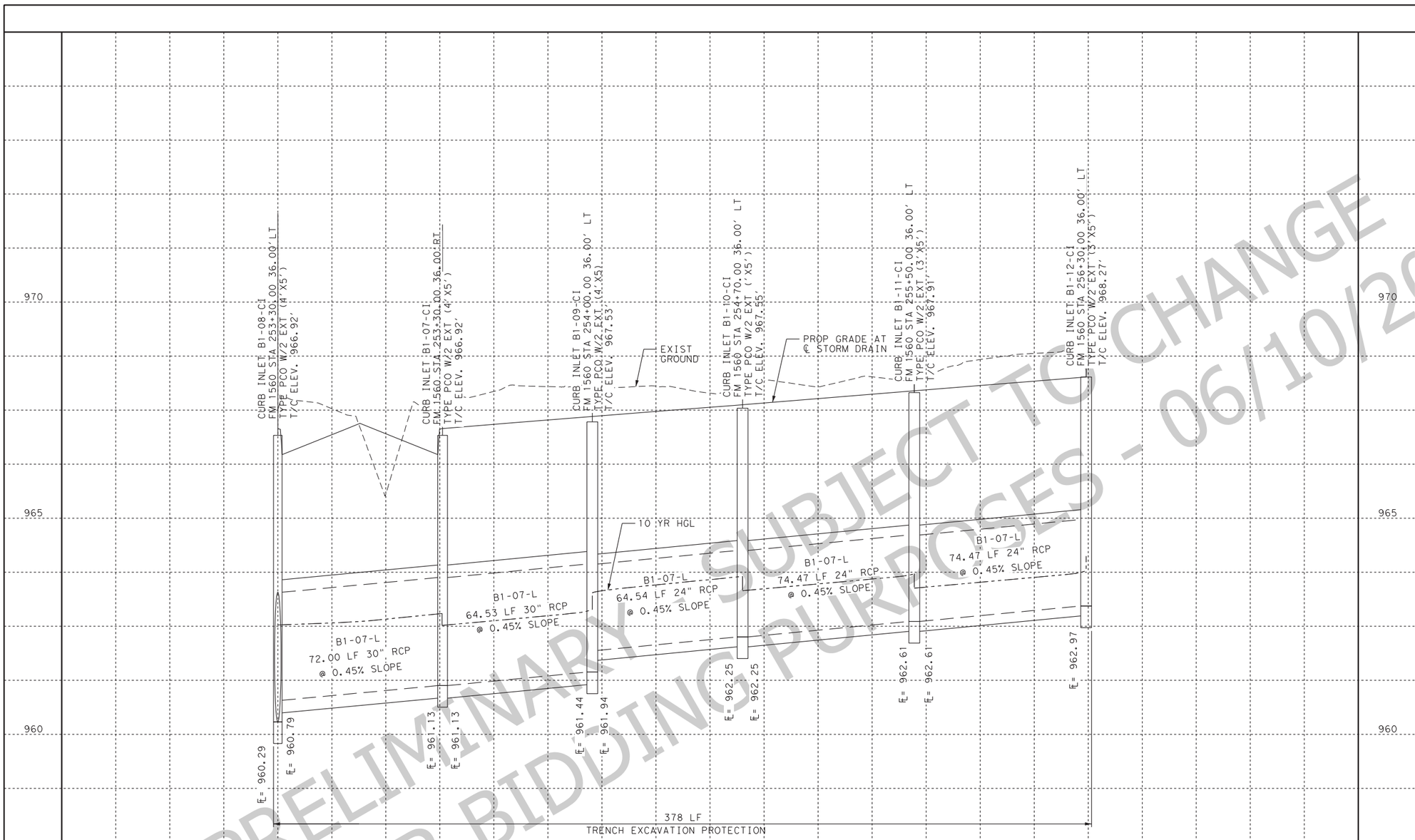

LAT_B1-07-L

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	570
400-6005	CEM STABIL BKFL	CY	37
402-6001	TRENCH EXCAVATION PROTECTION	LF	378
464-6005	RC PIPE (CL III) (24 IN)	LF	213
464-6007	RC PIPE (CL III) (30 IN)	LF	137
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	3
465-6020	INLET (COMPL)(PCO) (4 FT)(BOTH)	EA	2

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FM 1560
STORM DRAIN LATERALS
SYSTEM B

SHEET 2 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	347
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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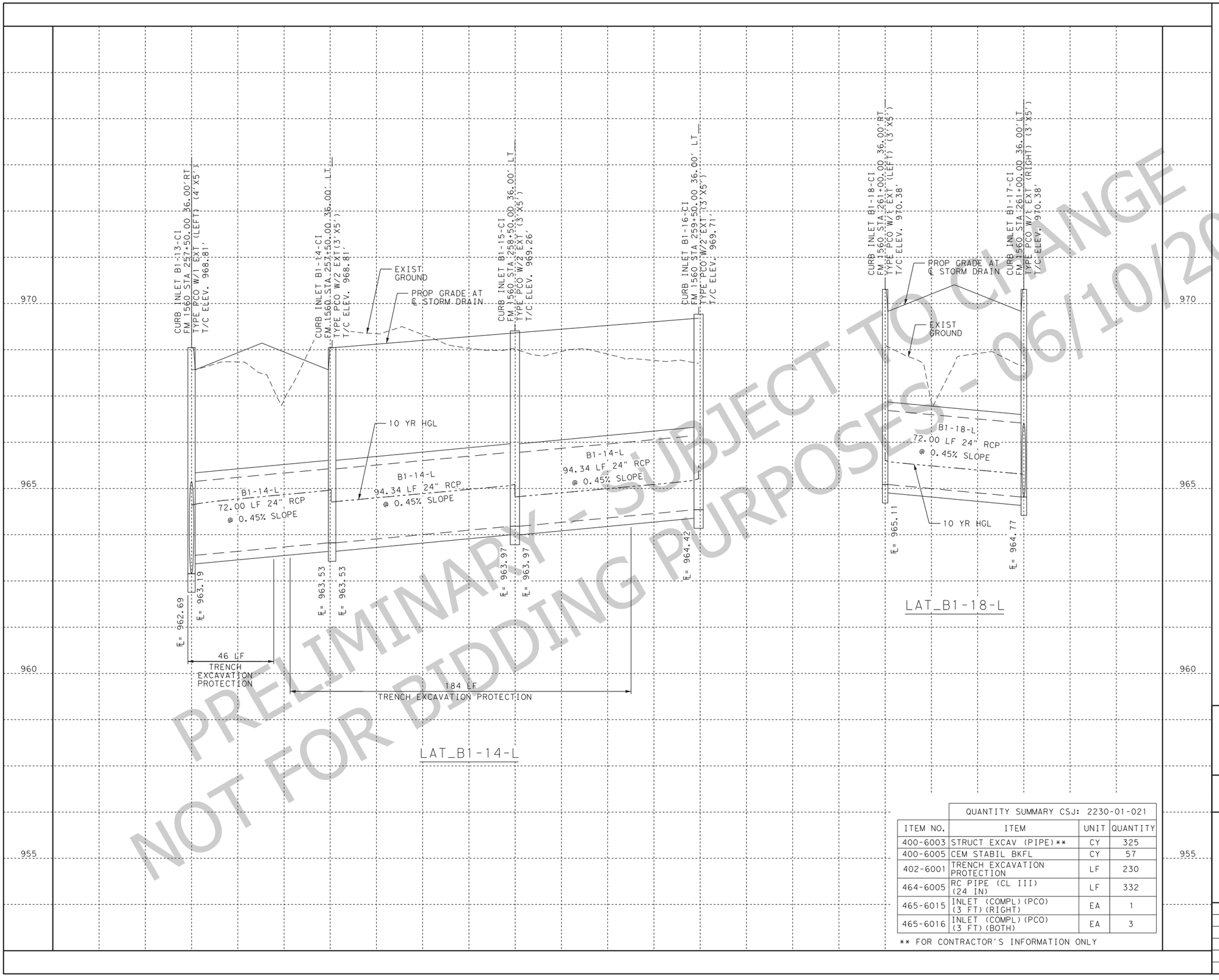

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QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	325
400-6005	CEM STABIL BKFL	CY	57
402-6001	TRENCH EXCAVATION PROTECTION	LF	230
464-6005	RC PIPE (CL III) (24 IN)	LF	332
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	3

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STORM DRAIN LATERALS
SYSTEM B

SHEET 3 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	348
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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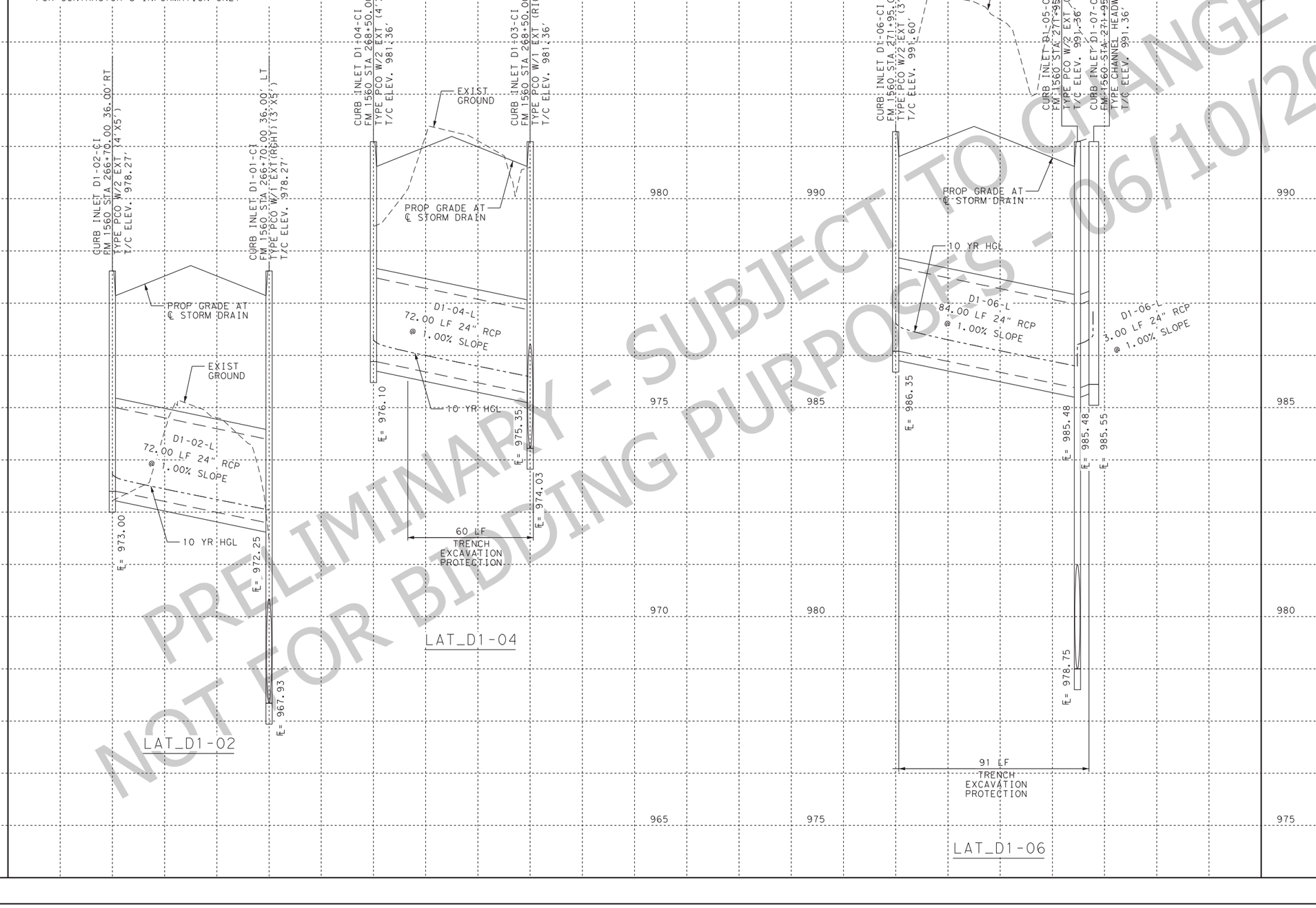
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	388
400-6005	CEM STABIL BKFL	CY	97
402-6001	TRENCH EXCAVATION PROTECTION	LF	159
464-6005	RC PIPE (CL III) (24 IN)	LF	231
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	2
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY



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FM 1560
STORM DRAIN LATERALS
SYSTEM D

SHEET 1 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	349
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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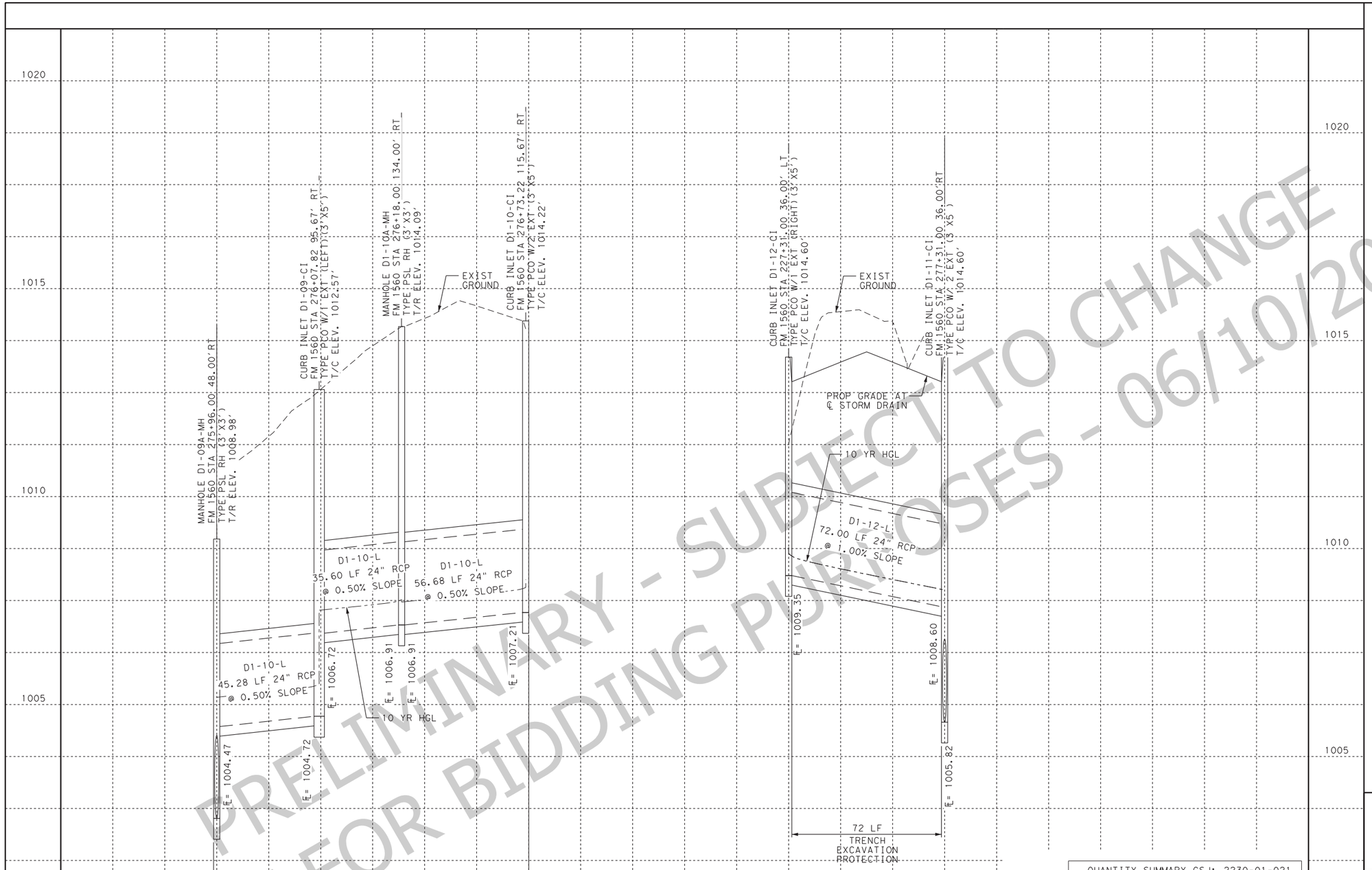

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QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	402
400-6005	CEM STABIL BKFL	CY	87
402-6001	TRENCH EXCAVATION PROTECTION	LF	224
464-6005	RC PIPE (CL III) (24 IN)	LF	210
465-6014	INLET (COMPL) (PCO) (3 FT) (LEFT)	EA	1
465-6015	INLET (COMPL) (PCO) (3 FT) (RIGHT)	EA	1
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	1
465-6070	INLET (COMPL) (PSL) (RC) (3FTX3FT)	EA	1

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FM 1560
STORM DRAIN LATERALS
SYSTEM D

SHEET 2 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	350
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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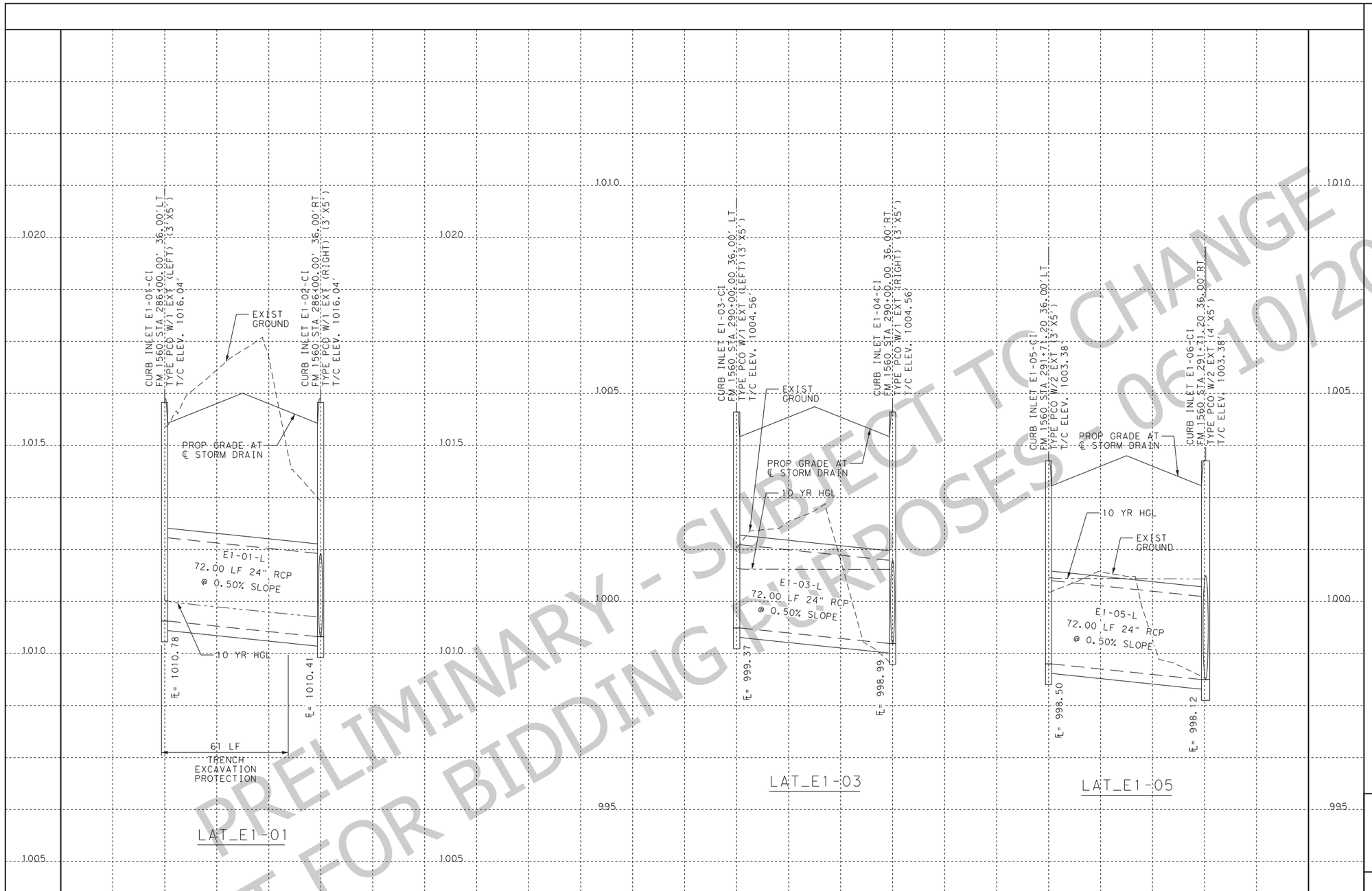

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QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	209
400-6005	CEM STABIL BKFL	CY	87
402-6001	TRENCH EXCAVATION PROTECTION	LF	61
464-6005	RC PIPE (CL III) (24 IN)	LF	216
465-6014	INLET (COMPL) (PCO) (3 FT) (LEFT)	EA	2
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY

NOTES:
1. STORM SEWER LENGTHS SHOWN ARE ACTUAL LENGTHS MEASURED FROM INSIDE WALL TO INSIDE WALL OF DRAINAGE STRUCTURE.
2. STORM SEWER SLOPES SHOWN ARE CALCULATED USING THE HYDRAULIC LENGTH.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 25' 50'
HORIZ SCALE: 1" = 50'
VERT SCALE: 1" =2.5'

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
STORM DRAIN LATERALS
SYSTEM E

SHEET 1 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	351
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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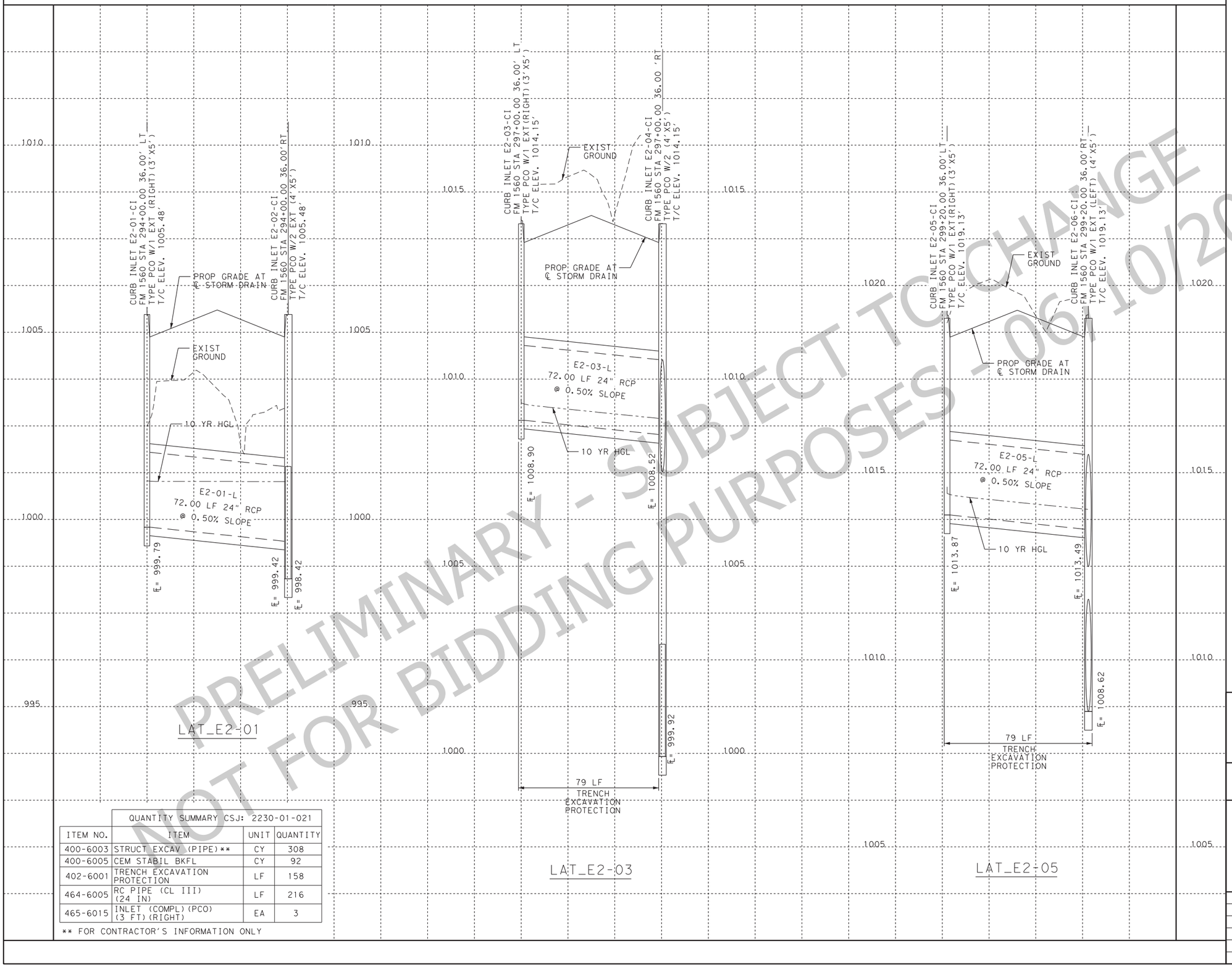

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	308
400-6005	CEM STABIL BKFL	CY	92
402-6001	TRENCH EXCAVATION PROTECTION	LF	158
464-6005	RC PIPE (CL III) (24 IN)	LF	216
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	3

** FOR CONTRACTOR'S INFORMATION ONLY

NOTES:
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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FM 1560
STORM DRAIN LATERALS
SYSTEM E

SHEET 2 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	352
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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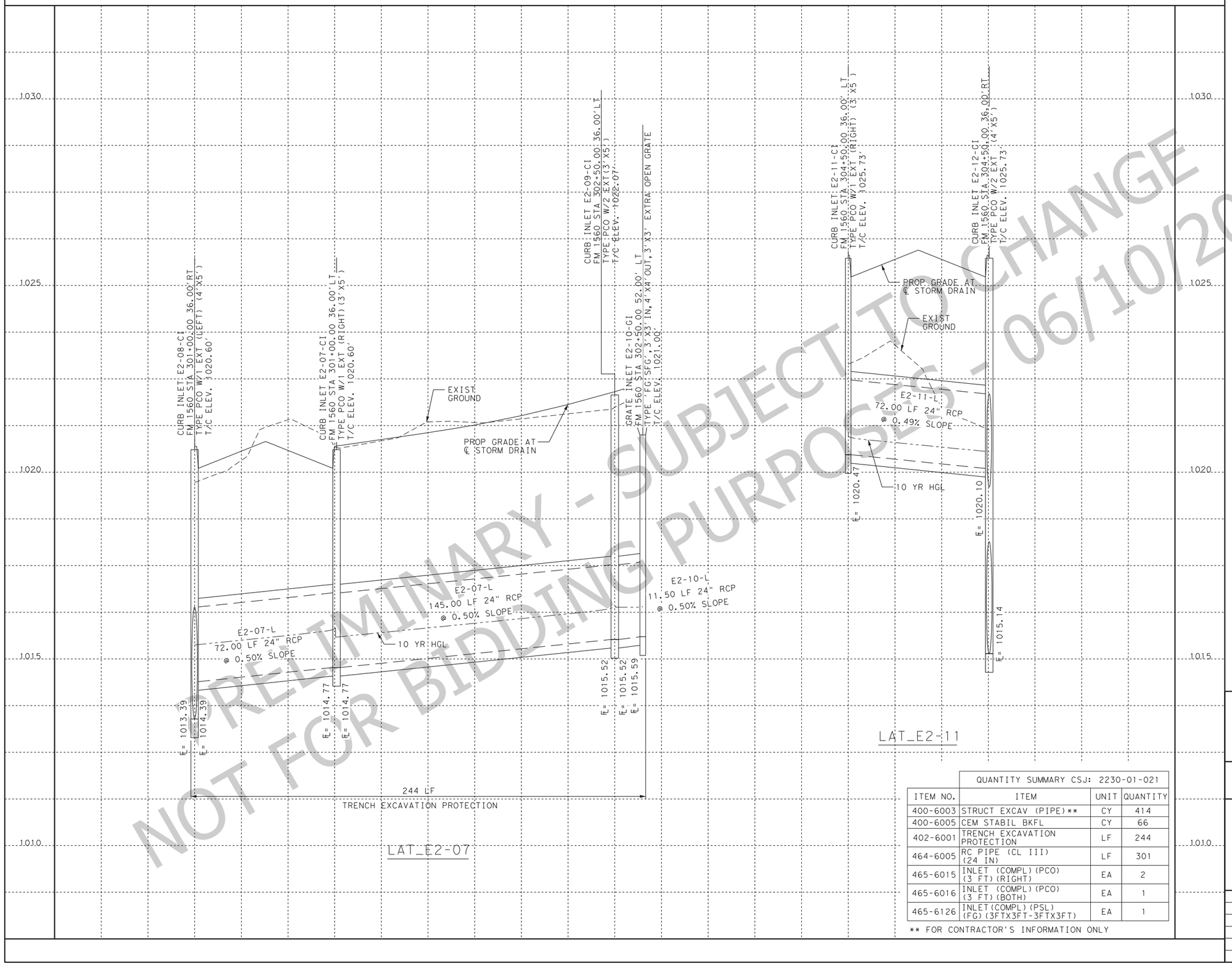

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	414
400-6005	CEM STABIL BKFL	CY	66
402-6001	TRENCH EXCAVATION PROTECTION	LF	244
464-6005	RC PIPE (CL III) (24 IN)	LF	301
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	2
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1
465-6126	INLET(COMPL)(PSL) (FG)(3FTX3FT-3FTX3FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY

INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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FM 1560
STORM DRAIN LATERALS
SYSTEM E

SHEET 3 OF 3

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	353
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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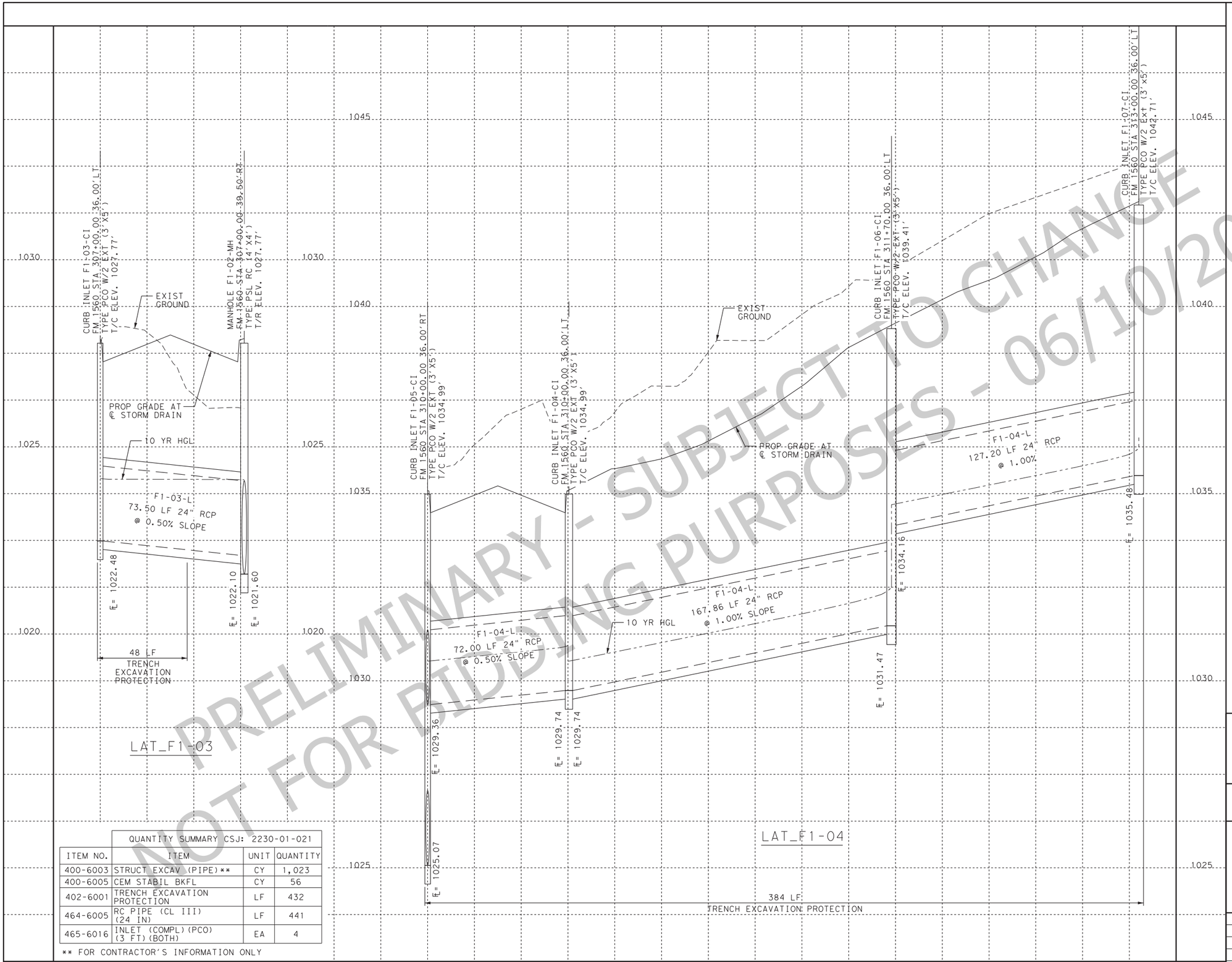

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	1,023
400-6005	CEM STABIL BKFL	CY	56
402-6001	TRENCH EXCAVATION PROTECTION	LF	432
464-6005	RC PIPE (CL III) (24 IN)	LF	441
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	4

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

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HORIZ SCALE: 1" = 50'
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FIRM REGISTRATION NO. F-230
tnp

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FM 1560
STORM DRAIN LATERALS
SYSTEM F

SHEET 1 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	354
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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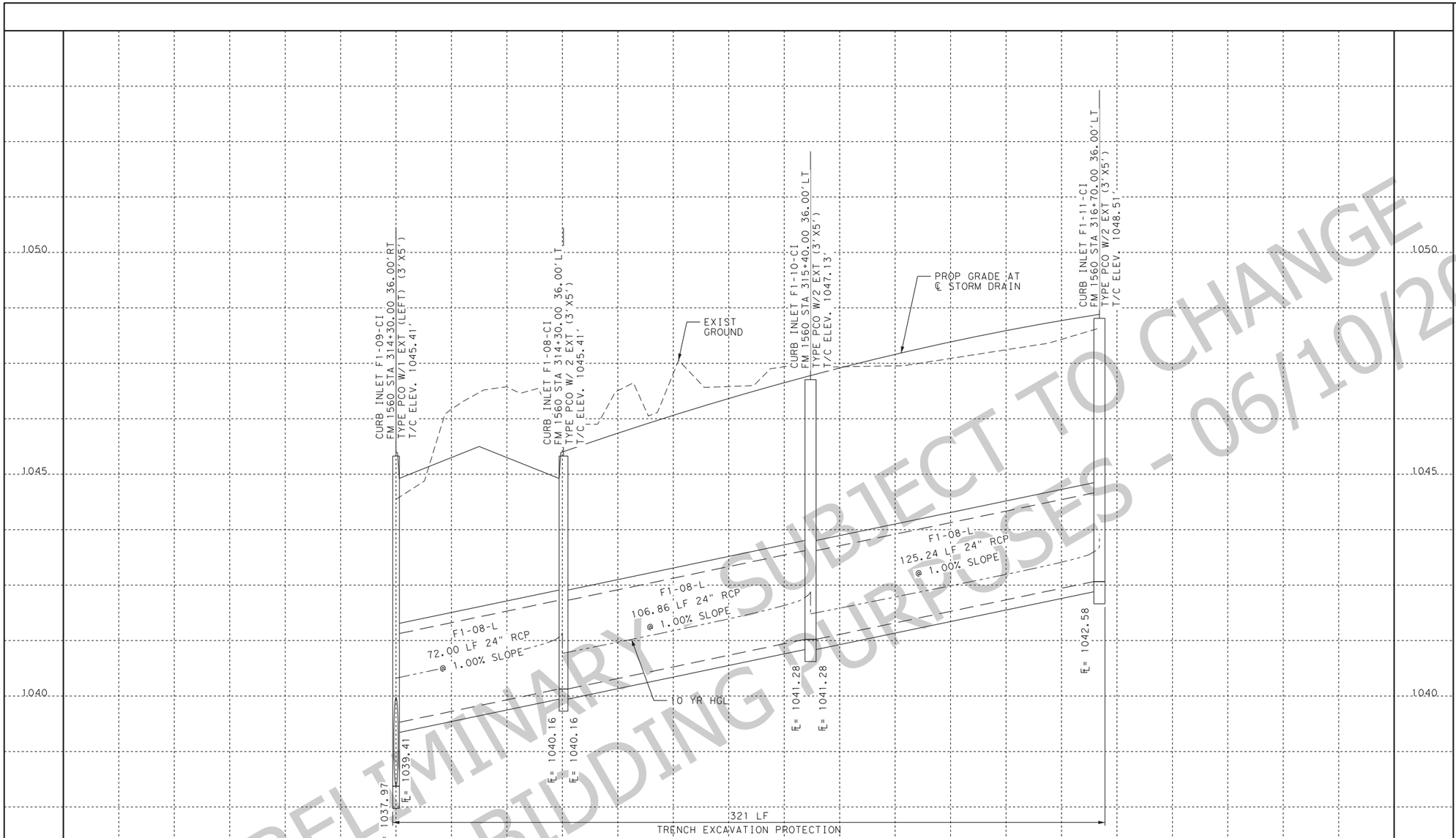

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QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	460
400-6005	CEM STABIL BKFL	CY	33
402-6001	TRENCH EXCAVATION PROTECTION	LF	321
464-6005	RC PIPE (CL III) (24 IN)	LF	304
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	3

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PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 25' 50'
HORIZ SCALE: 1" = 50'
VERT SCALE: 1" =2.5'

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FM 1560
STORM DRAIN LATERALS
SYSTEM F

SHEET 2 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	355
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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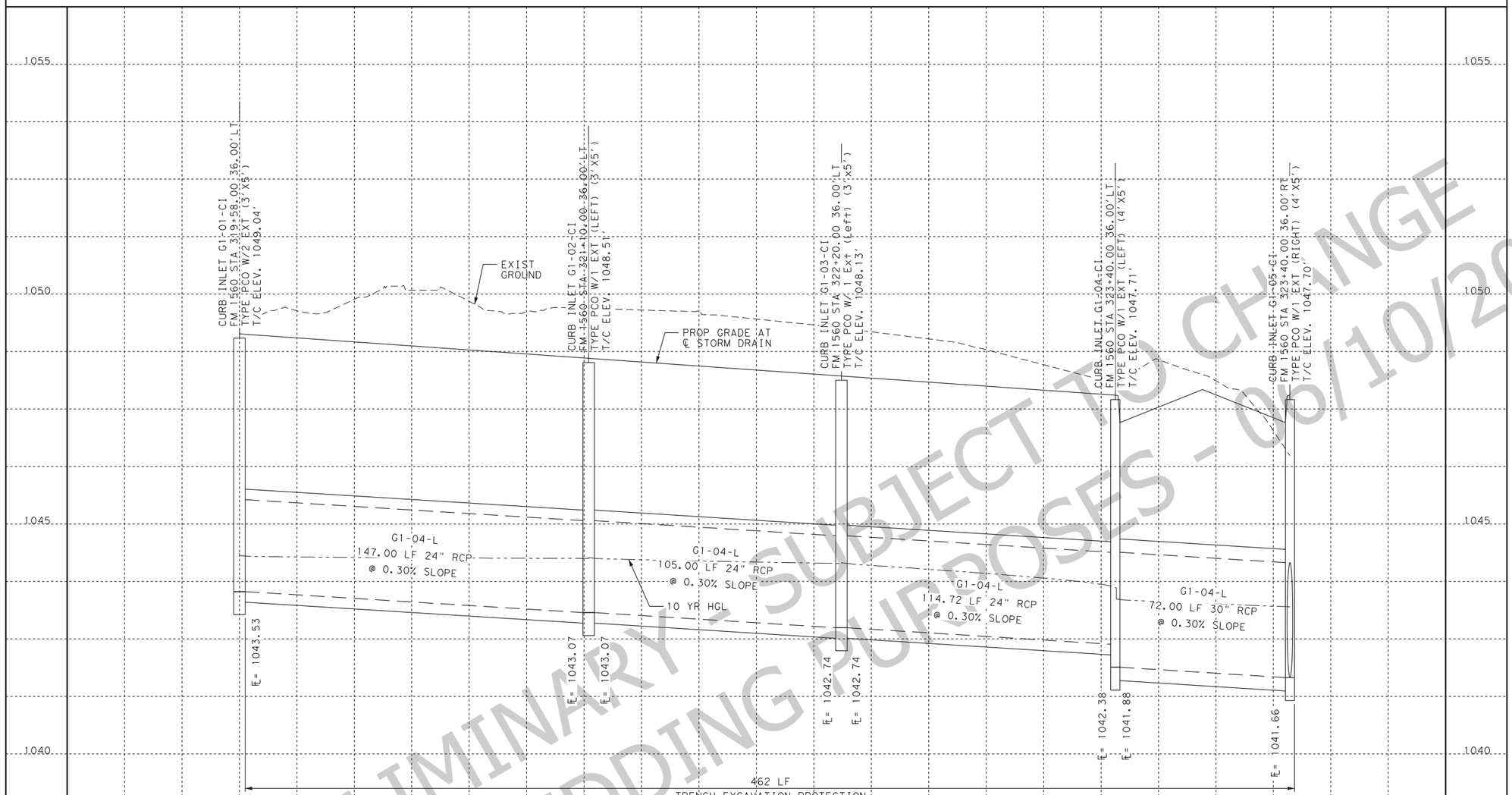

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	768
400-6005	CEM STABIL BKFL	CY	36
402-6001	TRENCH EXCAVATION PROTECTION	LF	462
464-6005	RC PIPE (CL III) (24 IN)	LF	367
464-6007	RC PIPE (CL III) (30 IN)	LF	72
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	2
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1
465-6018	INLET (COMPL)(PCO) (4 FT)(LEFT)	EA	1

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INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
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DATE: 6/5/2020

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STORM DRAIN LATERALS
SYSTEM G

SHEET 1 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	356
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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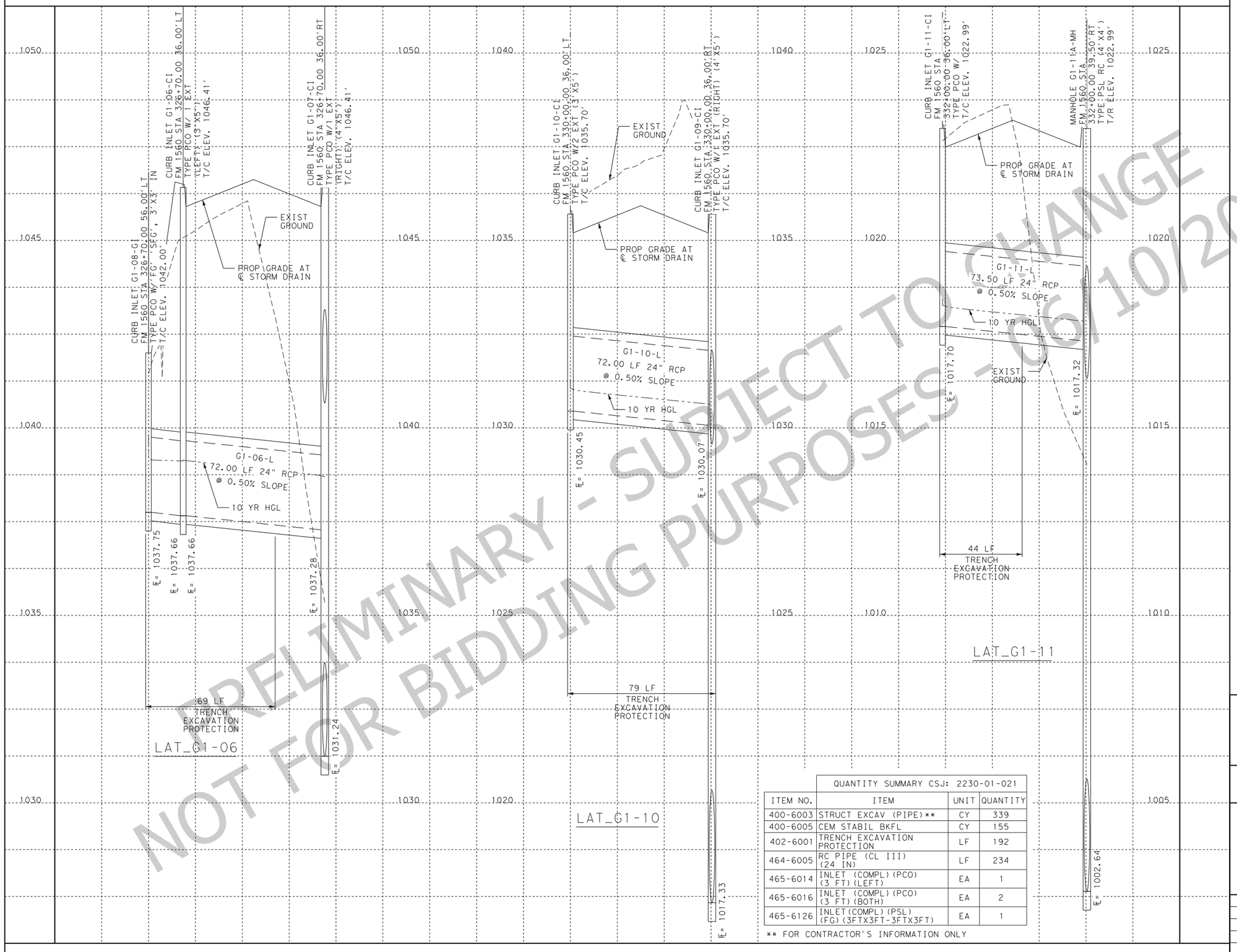

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	339
400-6005	CEM STABIL BKFL	CY	155
402-6001	TRENCH EXCAVATION PROTECTION	LF	192
464-6005	RC PIPE (CL III) (24 IN)	LF	234
465-6014	INLET (COMPL) (PCO) (3 FT) (LEFT)	EA	1
465-6016	INLET (COMPL) (PCO) (3 FT) (BOTH)	EA	2
465-6126	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX3FT)	EA	1

** FOR CONTRACTOR'S INFORMATION ONLY

NOTES:
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INTERIM REVIEW ONLY
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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 25' 50'
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FM 1560
STORM DRAIN LATERALS
SYSTEM G

SHEET 2 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	357
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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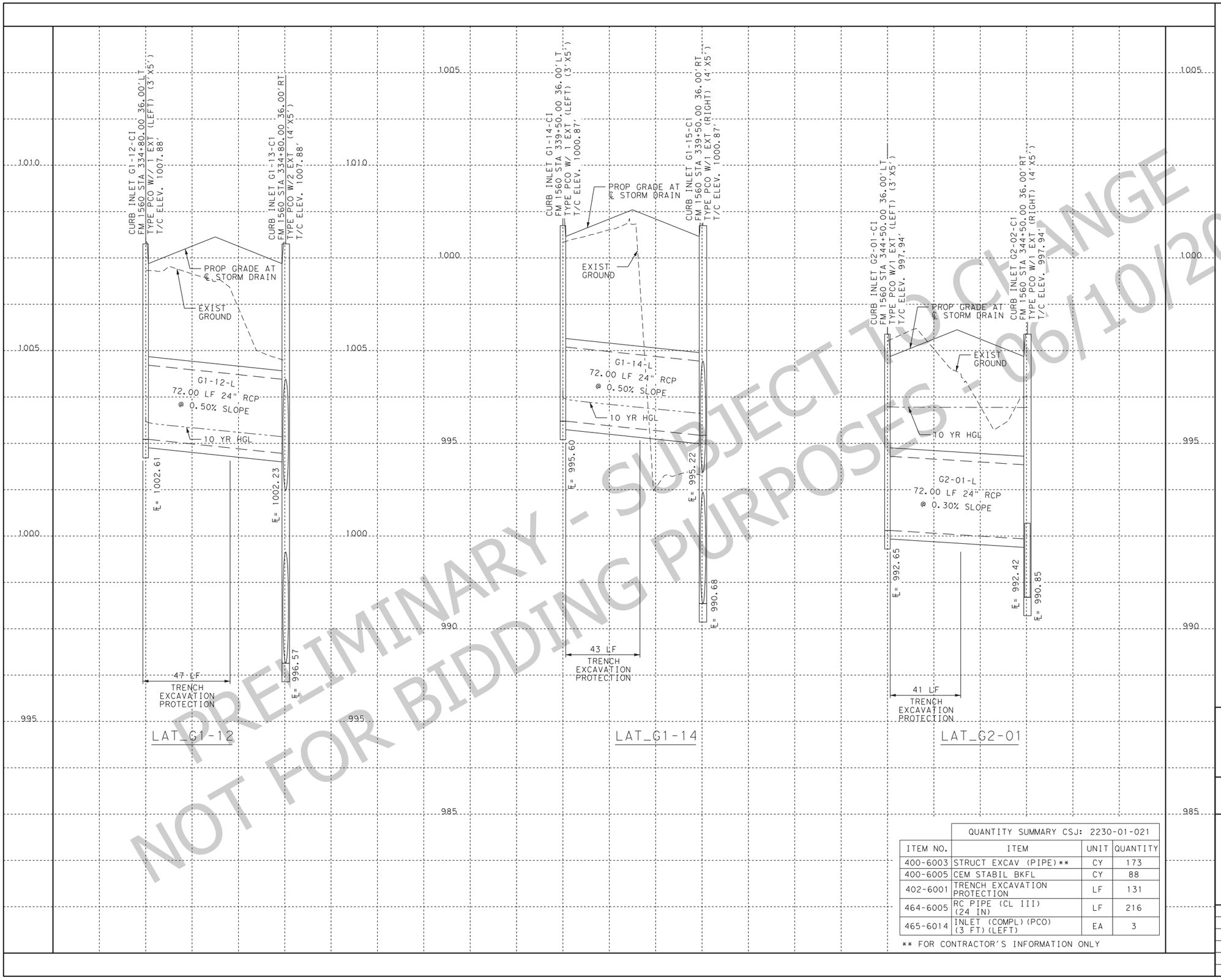

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	173
400-6005	CEM STABIL BKFL	CY	88
402-6001	TRENCH EXCAVATION PROTECTION	LF	131
464-6005	RC PIPE (CL III) (24 IN)	LF	216
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	3

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P.E. SERIAL NO.: 96693
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FM 1560
STORM DRAIN LATERALS
SYSTEM G

SHEET 3 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	358
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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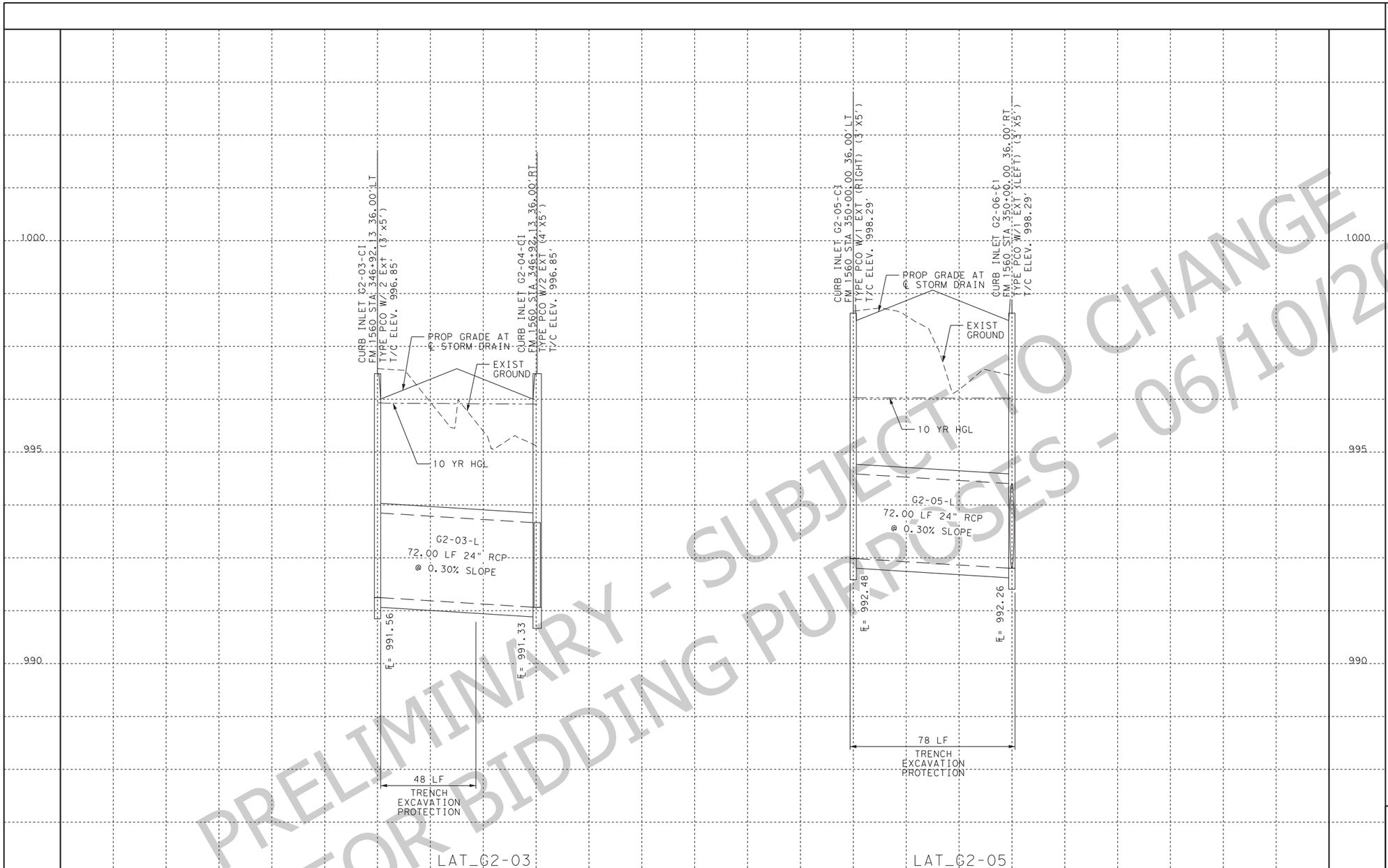

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	148
400-6005	CEM STABIL BKFL	CY	67
402-6001	TRENCH EXCAVATION PROTECTION	LF	126
464-6005	RC PIPE (CL III) (24 IN)	LF	144
465-6015	INLET (COMPL)(PCO) (3 FT)(RIGHT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1

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FM 1560
STORM DRAIN LATERALS
SYSTEM G

SHEET 4 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	359
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	127
400-6005	CEM STABIL BKFL	CY	34
402-6001	TRENCH EXCAVATION PROTECTION	LF	78
464-6005	RC PIPE (CL III) (24 IN)	LF	72
465-6015	INLET (COMPL) (PCO) (3 FT) (RIGHT)	EA	1

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STORM DRAIN LATERALS
SYSTEM H

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	360
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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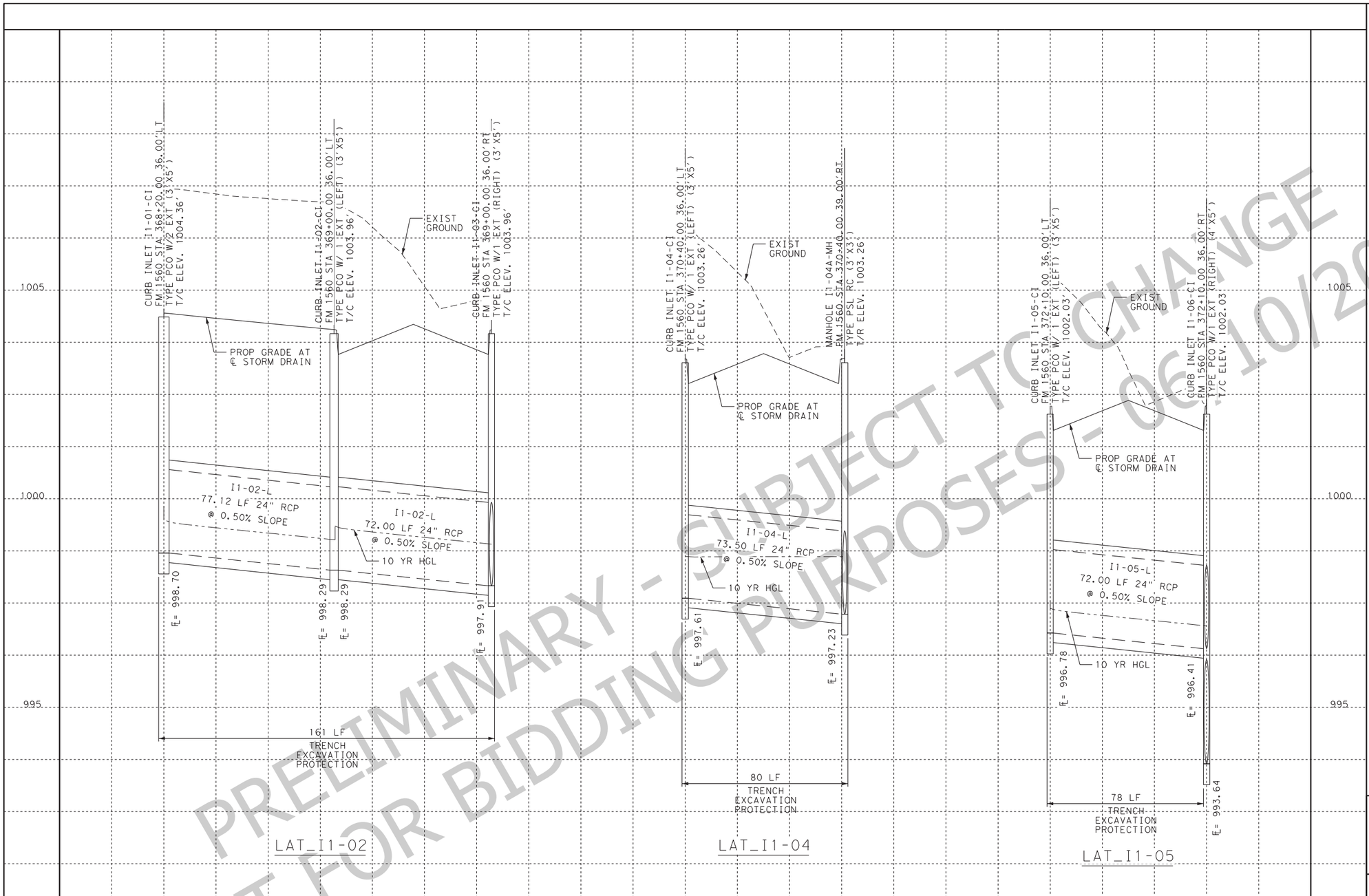

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	678
400-6005	CEM STABIL BKFL	CY	98
402-6001	TRENCH EXCAVATION PROTECTION	LF	319
464-6005	RC PIPE (CL III) (24 IN)	LF	295
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	3
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	1

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FM 1560
STORM DRAIN LATERALS
SYSTEM I

SHEET 1 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	361
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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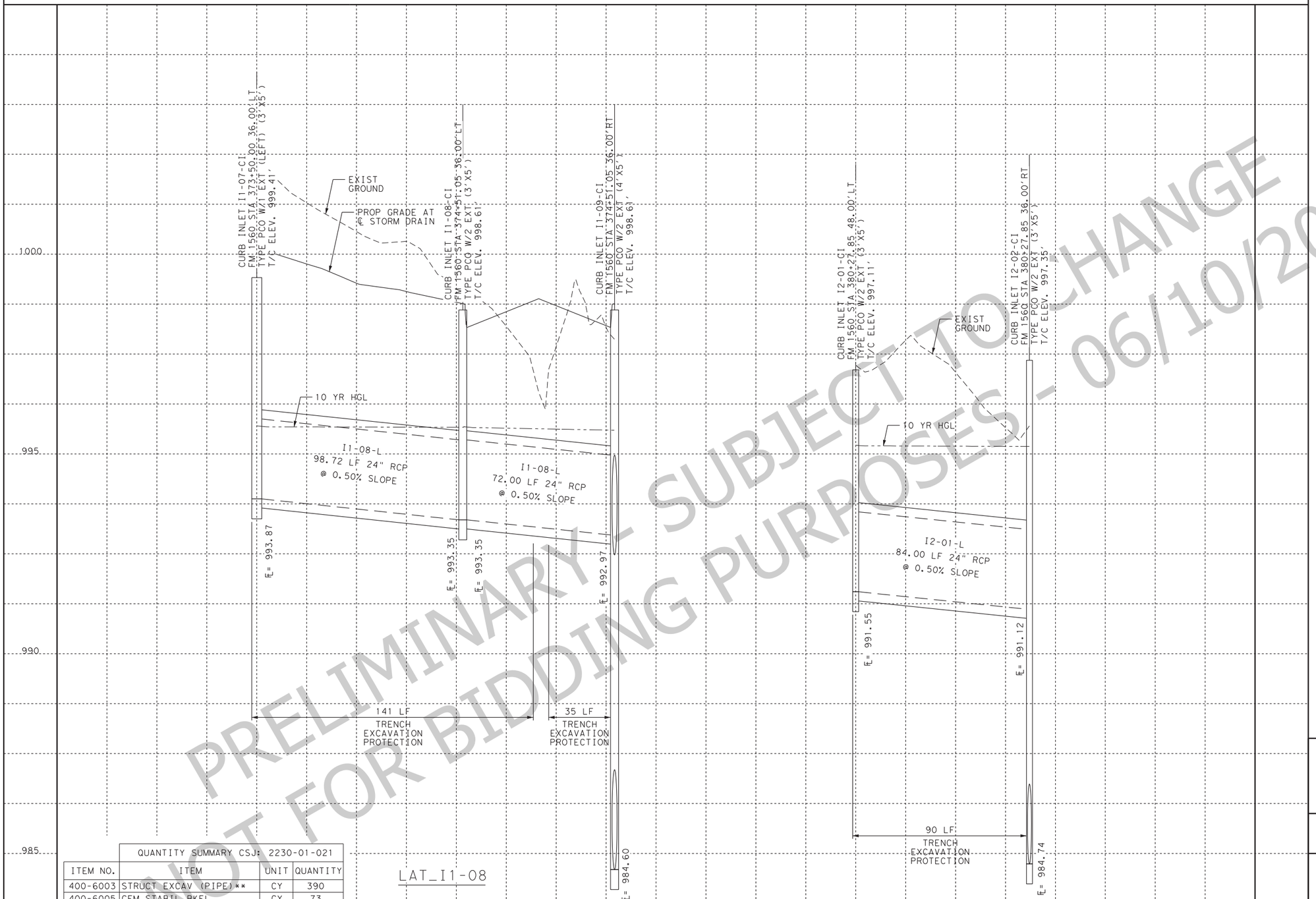

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
400-6003	STRUCT EXCAV (PIPE)**	CY	390
400-6005	CEM STABIL BKFL	CY	73
402-6001	TRENCH EXCAVATION PROTECTION	LF	266
464-6005	RC PIPE (CL III) (24 IN)	LF	255
465-6014	INLET (COMPL)(PCO) (3 FT)(LEFT)	EA	1
465-6016	INLET (COMPL)(PCO) (3 FT)(BOTH)	EA	2

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ENGINEER: JAIME K BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

0 25' 50'
HORIZ SCALE: 1" = 50'
VERT SCALE: 1" =2.5'

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
STORM DRAIN LATERALS
SYSTEM I

SHEET 2 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6			
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	362
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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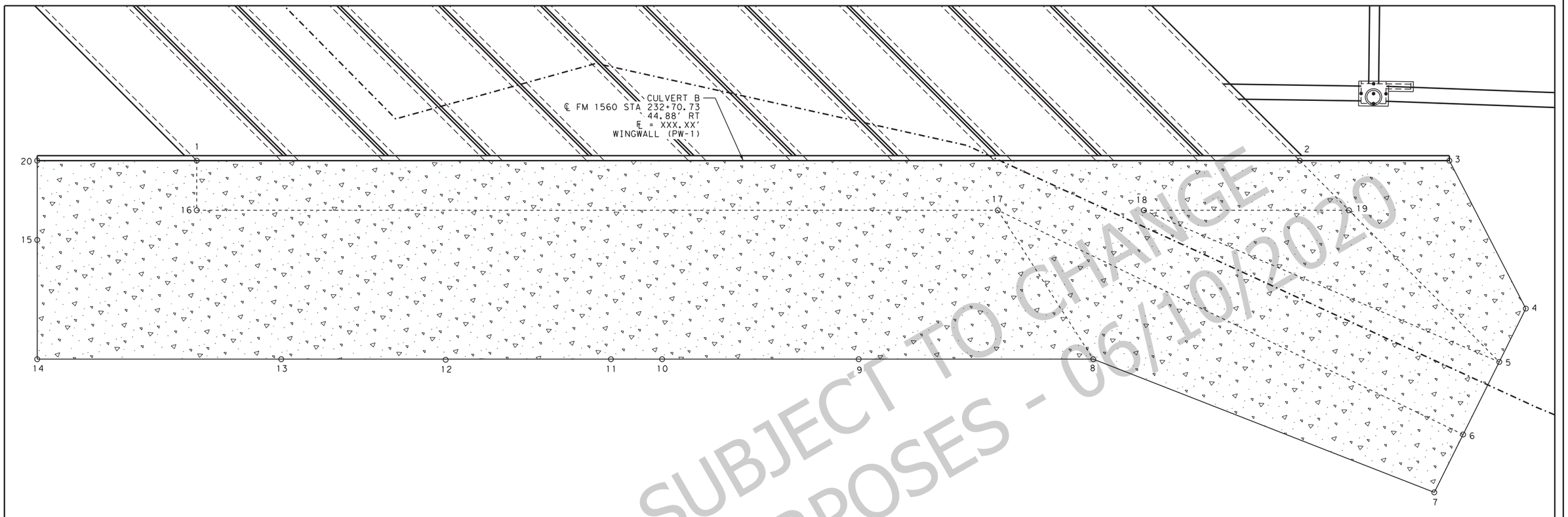

RIPRAP DETAIL
BRIDGE CLASS CULVERT A
PROP 11-12'x5' MBC
℄ FM 1560 STA 232+25.85
1" = 20'

CULVERT A RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
A-1	Flow Line of Basin	231+62.67	51.93 RT	939.50
A-2	Flow Line of Basin	233+85.18	51.64 RT	939.50
A-3	Corner of Riprap	234+15.54	51.30 RT	939.50
A-4	Corner of Riprap - Top of Slope	234+31.55	80.87 RT	944.50
A-5	Edge of Riprap - Flow Line of Basin	234+26.31	91.69 RT	943.00
A-6	Edge of Riprap - Flow Line of Basin	234+19.14	106.42 RT	943.00
A-7	Corner of Riprap - Top of Slope	234+13.40	118.16 RT	945.00
A-8	Corner of Riprap - Top of Slope	233+43.41	91.91 RT	944.75
A-9	Edge of Riprap - Top of Slope	232+95.91	91.93 RT	944.50
A-10	Edge of Riprap - Top of Slope	232+56.34	91.93 RT	943.55
A-11	Edge of Riprap - Top of Slope	232+46.04	91.93 RT	944.00
A-12	Edge of Riprap - Top of Slope	232+12.73	91.93 RT	944.00
A-13	Edge of Riprap - Top of Slope	231+79.68	91.93 RT	942.00
A-14	Corner of Riprap - Top of Slope	231+30.55	91.93 RT	941.75
A-15	Edge of Riprap - Top of Slope	231+30.55	67.91 RT	941.35
A-16	Flow Line of Basin	231+62.67	61.93 RT	939.75
A-17	Flow Line of Basin	233+23.92	61.93 RT	939.75
A-18	Flow Line of Basin	233+53.59	61.87 RT	939.75
A-19	Flow Line of Basin	233+95.28	61.55 RT	939.75
A-20	Corner of Riprap	231+30.55	51.93 RT	946.50

NOTES:

1. ALL STATION/OFFSET TIES REFER TO CL FM 1560, UNLESS OTHERWISE NOTED.
2. CONSTRUCT 8"x18" DEEP TOE WALL ALONG ALL EXPOSED EDGES OF CONCRETE RIPRAP.
3. ELEVATIONS SHOWN REPRESENT NOMINAL SURFACE OF RIPRAP.
4. RIPRAP LIMITS SHOWN ON CULVERT LAYOUTS ARE APPROXIMATE AND BASED ON BEST AVAILABLE INFORMATION. LIMITS, SHAPES AND GRADING MAY BE ADJUSTED TO FIT SITE CONDITIONS, AS DIRECTED.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
RIPRAP BASIN DETAILS

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	363

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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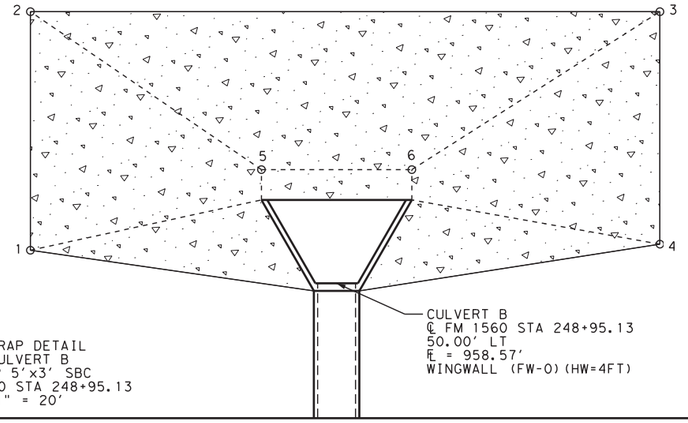
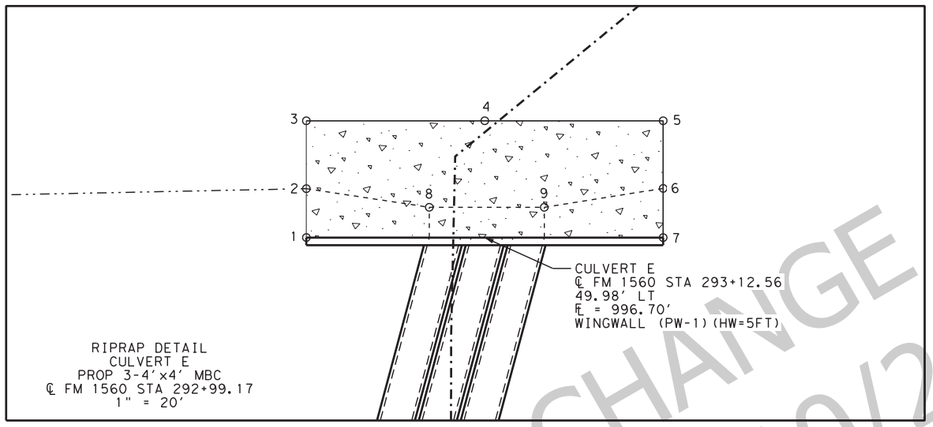


RIPRAP DETAIL
CULVERT B
PROP 5'x3' SBC
℄ FM 1560 STA 248+95.13
1" = 20'

CULVERT B RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
B-1	Corner of Riprap	248+54.71	54.36 LT	968.00
B-2	Corner of Riprap - Top of Slope	248+54.71	85.85 LT	968.75
B-3	Corner of Riprap - Top of Slope	249+37.81	85.85 LT	969.50
B-4	Corner of Riprap	249+37.81	55.16 LT	968.75
B-5	Flowline of Basin	248+85.20	65.00 LT	958.82
B-6	Edge of Riprap - Top of Slope	249+05.06	65.00 LT	958.82



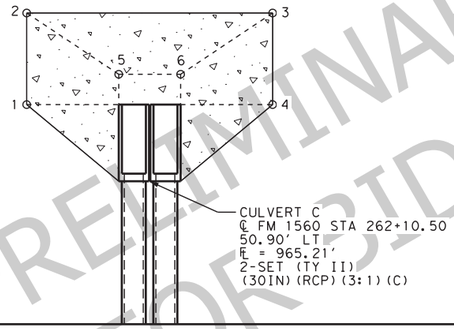
RIPRAP DETAIL
CULVERT E
PROP 3-4'x4' MBC
℄ FM 1560 STA 292+99.17
1" = 20'

CULVERT E RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
E-1	Corner of Riprap	292+88.74	49.98 LT	1001.70
E-2	Flow Line of Ditch	292+88.74	56.43 LT	1000.00
E-3	Corner of Riprap - Top of Slope	292+88.74	65.40 LT	1001.58
E-4	Flow Line of Ditch	293+12.29	65.40 LT	1001.80
E-5	Corner of Riprap - Top of Slope	293+35.84	65.40 LT	1001.50
E-6	Flow Line of Ditch	293+35.84	56.47 LT	1000.00
E-7	Corner of Riprap	293+35.84	49.98 LT	1001.70
E-8	Flowline of Basin	293+04.97	53.98 LT	997.92
E-9	Flowline of Basin	293+20.15	53.98 LT	997.92

NOTES:

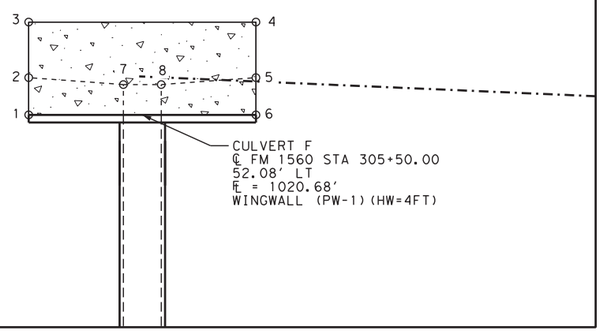
1. ALL STATION/OFFSET TIES REFER TO CL FM 1560, UNLESS OTHERWISE NOTED.
2. CONSTRUCT 8"x18" DEEP TOE WALL ALONG ALL EXPOSED EDGES OF CONCRETE RIPRAP.
3. ELEVATIONS SHOWN REPRESENT NOMINAL SURFACE OF RIPRAP.
4. RIPRAP LIMITS SHOWN ON CULVERT LAYOUTS ARE APPROXIMATE AND BASED ON BEST AVAILABLE INFORMATION. LIMITS, SHAPES AND GRADING MAY BE ADJUSTED TO FIT SITE CONDITIONS, AS DIRECTED.



RIPRAP DETAIL
CULVERT C
PROP 2-30" RCP
℄ FM 1560 STA 262+10.50
1" = 20'

CULVERT C RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
C-1	Flow Line of Ditch	261+94.28	60.02 LT	968.75
C-2	Corner of Riprap - Top of Slope	261+94.28	72.11 LT	969.25
C-3	Corner of Riprap - Top of Slope	262+26.74	72.11 LT	969.25
C-4	Flow Line of Ditch	262+26.74	60.02 LT	968.75
C-5	Flowline of Basin	262+06.43	64.02 LT	965.46
C-6	Flowline of Basin	262+14.59	64.02 LT	965.46



RIPRAP DETAIL
CULVERT F
PROP 5'x3' SBC
℄ FM 1560 STA 305+50.00
1" = 20'

CULVERT F RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
F-1	Corner of Riprap	305+35.00	52.08 LT	1024.68
F-2	Flow Line of Ditch	305+35.00	57.00 LT	1022.50
F-3	Corner of Riprap - Top of Slope	305+35.00	64.33 LT	1024.05
F-4	Corner of Riprap - Top of Slope	305+65.00	64.33 LT	1024.50
F-5	Flow Line of Ditch	305+65.00	57.00 LT	1024.00
F-6	Corner of Riprap	305+65.00	52.08 LT	1024.68
F-7	Flowline of Basin	305+47.50	56.08 LT	1020.93
F-8	Flowline of Basin	305+52.50	56.08 LT	1020.93

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 6/10/2020

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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
RIPRAP BASIN DETAILS

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	364

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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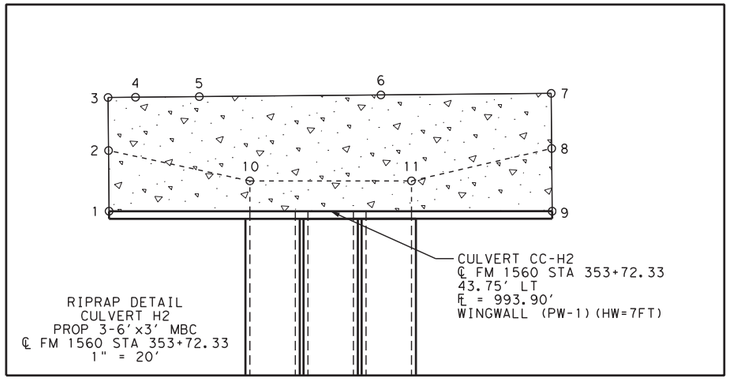
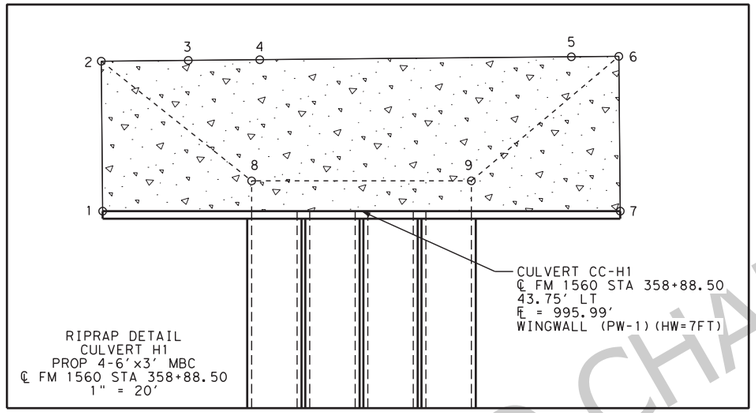


CULVERT H2 RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
H2-1	Corner of Riprap	353+43.08	43.75 LT	1000.90
H2-2	Flow Line of Ditch	353+43.02	51.76 LT	997.00
H2-3	Corner of Riprap - Top of Slope	353+42.95	58.76 LT	997.60
H2-4	Edge of Riprap - Top of Slope	353+47.12	58.79 LT	997.30
H2-5	Edge of Riprap - Top of Slope	353+55.00	58.87 LT	998.00
H2-6	Edge of Riprap - Top of Slope	353+78.97	59.10 LT	999.00
H2-7	Corner of Riprap - Top of Slope	354+01.45	59.31 LT	998.60
H2-8	Flow Line of Ditch	354+01.52	52.03 LT	998.00
H2-9	Corner of Riprap	354+01.58	43.75 LT	1000.90
H2-10	Flow Line of Basin	353+61.67	47.75 LT	994.15
H2-11	Flow Line of Basin	353+83.00	47.75 LT	994.15



CULVERT H1 RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
H1-1	Corner of Riprap	358+54.34	43.75 LT	1002.99
H1-2	Corner of Riprap - Top of Slope	358+54.15	63.55 LT	1001.40
H1-3	Edge of Riprap - Top of Slope	358+65.63	63.65 LT	1001.50
H1-4	Edge of Riprap - Top of Slope	358+75.07	63.74 LT	1002.00
H1-5	Edge of Riprap - Top of Slope	359+16.21	64.13 LT	1002.75
H1-6	Corner of Riprap - Top of Slope	359+22.42	64.19 LT	1002.50
H1-7	Corner of Riprap	359+22.62	43.75 LT	1002.99
H1-8	Flowline of Basin	358+74.00	47.75 LT	996.24
H1-9	Flow Line of Basin	359+03.00	47.75 LT	996.24

NOTES:

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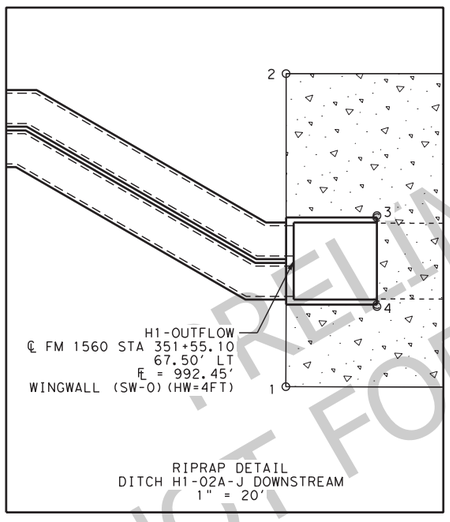
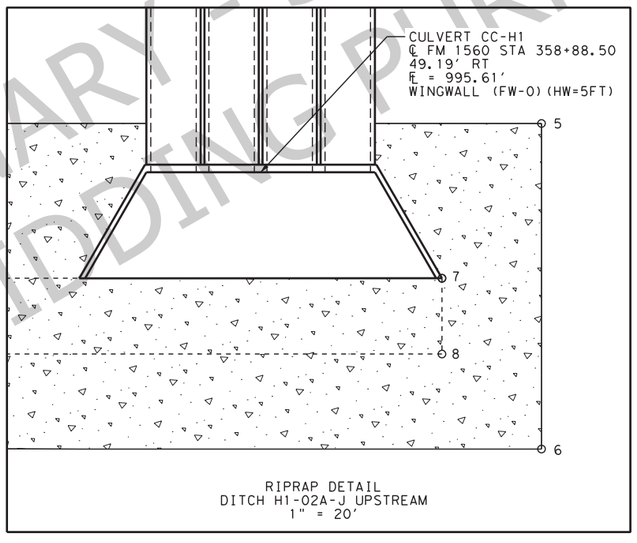
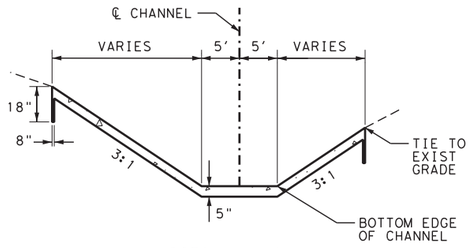
4. RIPRAP LIMITS SHOWN ON CULVERT LAYOUTS ARE APPROXIMATE AND BASED ON BEST AVAILABLE INFORMATION. LIMITS, SHAPES AND GRADING MAY BE ADJUSTED TO FIT SITE CONDITIONS, AS DIRECTED.





DITCH H1-02A-J RIPRAP GRADING POINT TABLE

POINT	DESCRIPTION	STATION	OFFSET	ELEV.
DITCH-1	Corner of Riprap - Top of Slope	351+54.07	84.07 RT	996.75
DITCH-2	Corner of Riprap - Top of Slope	351+54.07	42.75 RT	999.27
DITCH-3	Flow Line of Ditch	351+66.10	61.74 RT	992.45
DITCH-4	Flow Line of Ditch	351+66.10	73.24 RT	992.45
DITCH-5	Corner of Riprap - Top of Slope	359+25.71	42.75 RT	1002.33
DITCH-6	Corner of Riprap - Top of Slope	359+25.85	85.72 RT	1000.00
DITCH-7	Flow Line of Ditch	359+12.44	63.19 RT	995.61
DITCH-8	Flow Line of Ditch	359+12.44	73.19 RT	995.61



DITCH H1-02A-J
TYPICAL SECTION
NTS

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/5/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
RIPRAP BASIN DETAILS

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	365

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 6/10/2020

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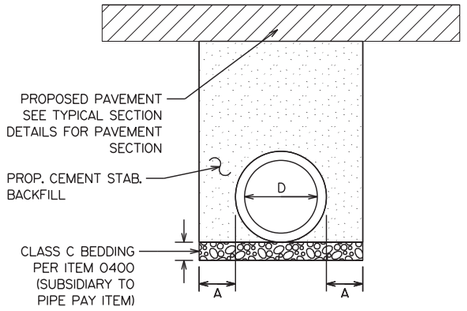
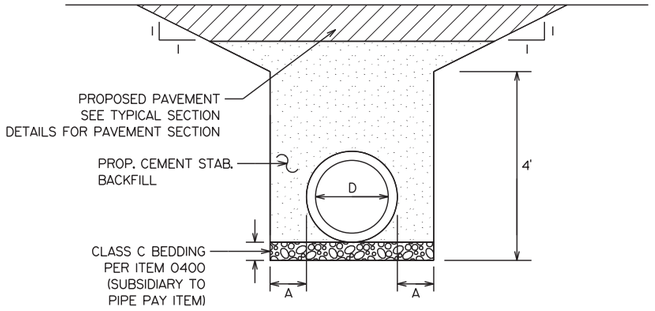
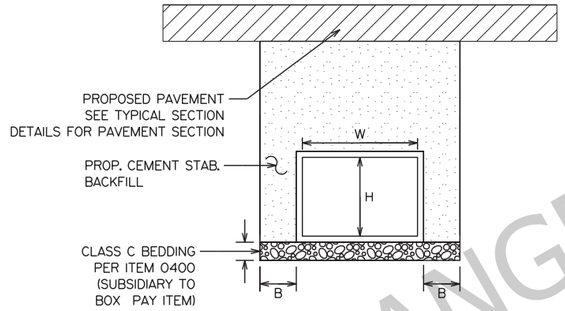


CROSS-SECTION VIEW (PIPE)
TYPICAL DETAIL
DETAIL "A"



EXCAVATION & BACKFILL
TYPICAL DETAIL
DETAIL "B"
(FOR DEPTHS GREATER THAN 5')



CROSS-SECTION VIEW (BOX)
TYPICAL DETAIL
DETAIL "C"

REINFORCED CONCRETE PIPE		
D (IN)	A (FT)	WALL THICKNESS (IN)
18"	1'	2.5"
24"	1'	3"
27"	1'	3.25"
30"	1'	3.5"
36"	1'	4"
42"	2'	4.5"
48"	2'	5"
54"	2'	5.5"
60"	2'	6"
72"	2'	7"

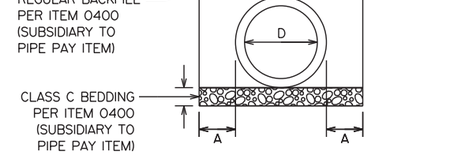
BOX CULVERT			
W (FT)	H (FT)	B (FT)	WALL THICKNESS (IN)
3'	2'	1'	4" USUAL
7'	3'	1'	8" USUAL

TYPICAL STRUCTURAL EXCAVATION AND CEMENT STABILIZED BACKFILL DETAIL IN A PAVED AREA

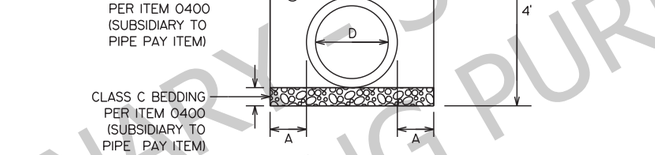
NOTES:

1. CEMENT STABILIZED BACKFILL TO BE PAID FOR UNDER ITEM 400-6005 (CEMENT STABILIZED BACKFILL).
2. INCIDENTAL WORK OUTSIDE THE LIMITS SHOWN, SUCH AS CEMENT STABILIZED BACKFILL USED FOR AREAS BENCHED OR SLOPED TO COMPLY WITH OSHA REQUIREMENTS, WILL NOT BE PAID FOR DIRECTLY. THIS WORK WILL BE SUBSIDIARY TO ITEM 400 AND ITEM 402.

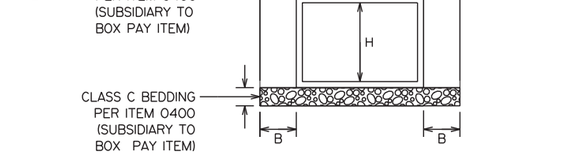
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020



CROSS-SECTION VIEW (PIPE)
TYPICAL DETAIL
DETAIL "A"

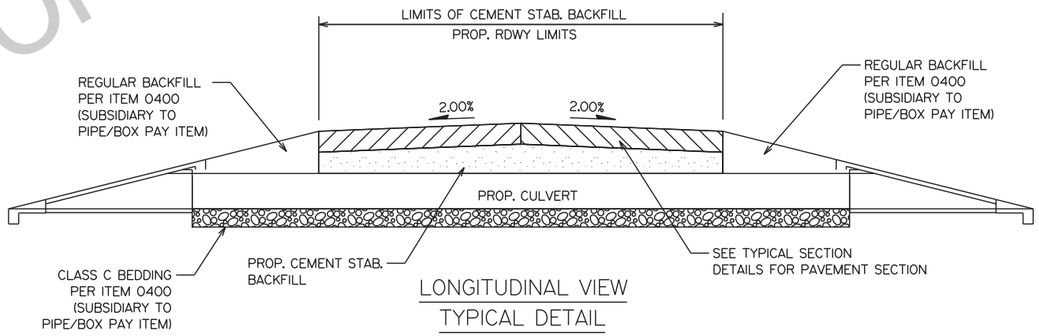


EXCAVATION & BACKFILL
TYPICAL DETAIL
DETAIL "B"
(FOR DEPTHS GREATER THAN 5')



CROSS-SECTION VIEW (BOX)
TYPICAL DETAIL
DETAIL "C"

TYPICAL STRUCTURAL EXCAVATION AND BACKFILL DETAIL IN A GRADED AREA



LONGITUDINAL VIEW
TYPICAL DETAIL

INTERIM REVIEW ONLY
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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

SCALE: NTS

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation
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FM 1560
MISCELLANEOUS
DRAINAGE DETAILS

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	366

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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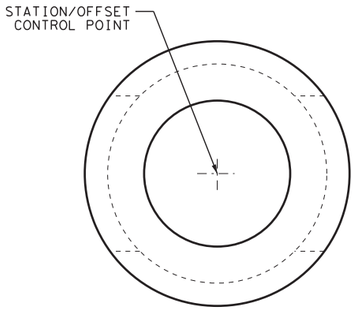
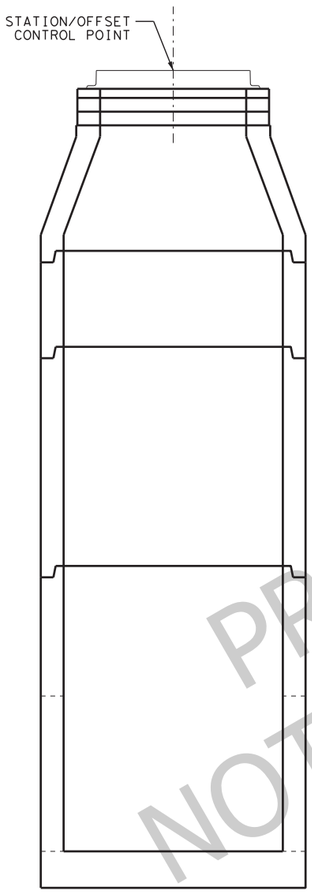


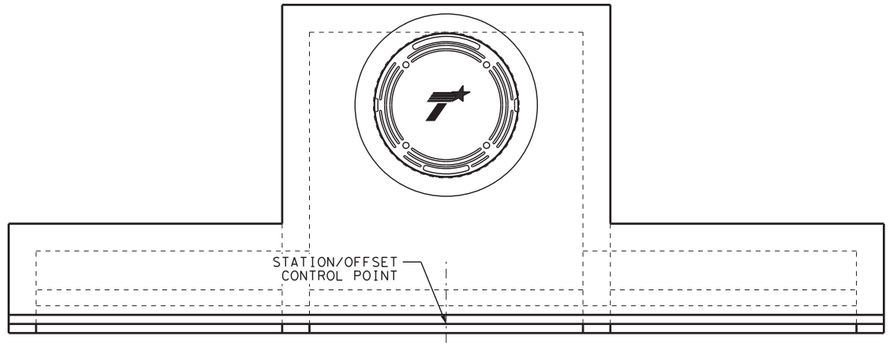
PLAN VIEW - MANHOLE

STATION CONTROL POINT



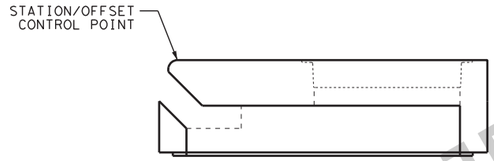
PROFILE VIEW - MANHOLE

STATION CONTROL POINT



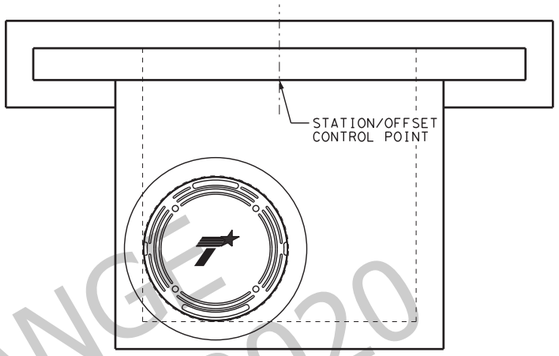
PLAN VIEW - CURB INLET

STATION CONTROL POINT



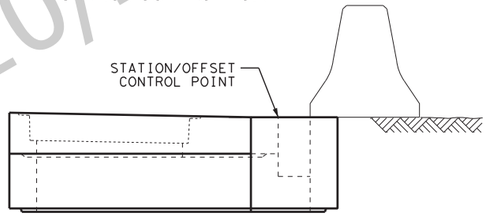
PLAN VIEW - CURB INLET

STATION CONTROL POINT



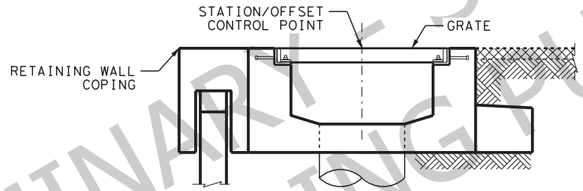
PLAN VIEW - MEDIAN BARRIER DRAIN

STATION CONTROL POINT



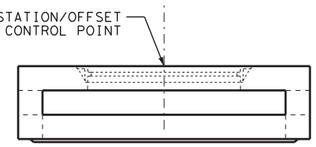
PLAN VIEW - CURB INLET

STATION CONTROL POINT



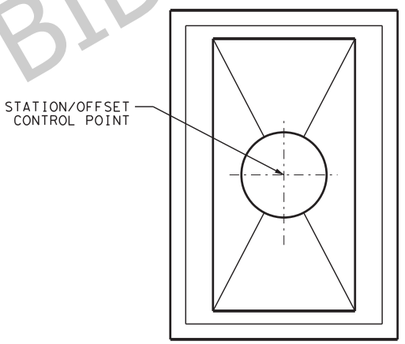
PROFILE VIEW - RW INLET

STATION CONTROL POINT



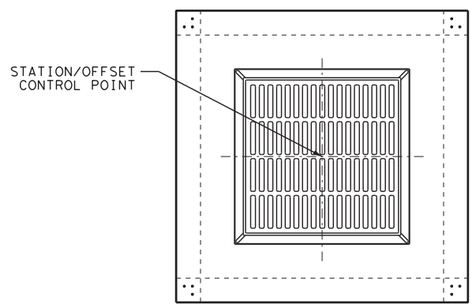
PROFILE VIEW - GRATE INLET

STATION CONTROL POINT



PLAN VIEW - RW INLET

STATION CONTROL POINT



PLAN VIEW - GRATE INLET

STATION CONTROL POINT

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/5/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SCALE: NTS

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
MISCELLANEOUS
DRAINAGE DETAILS
STRUCTURE CONTROL POINTS

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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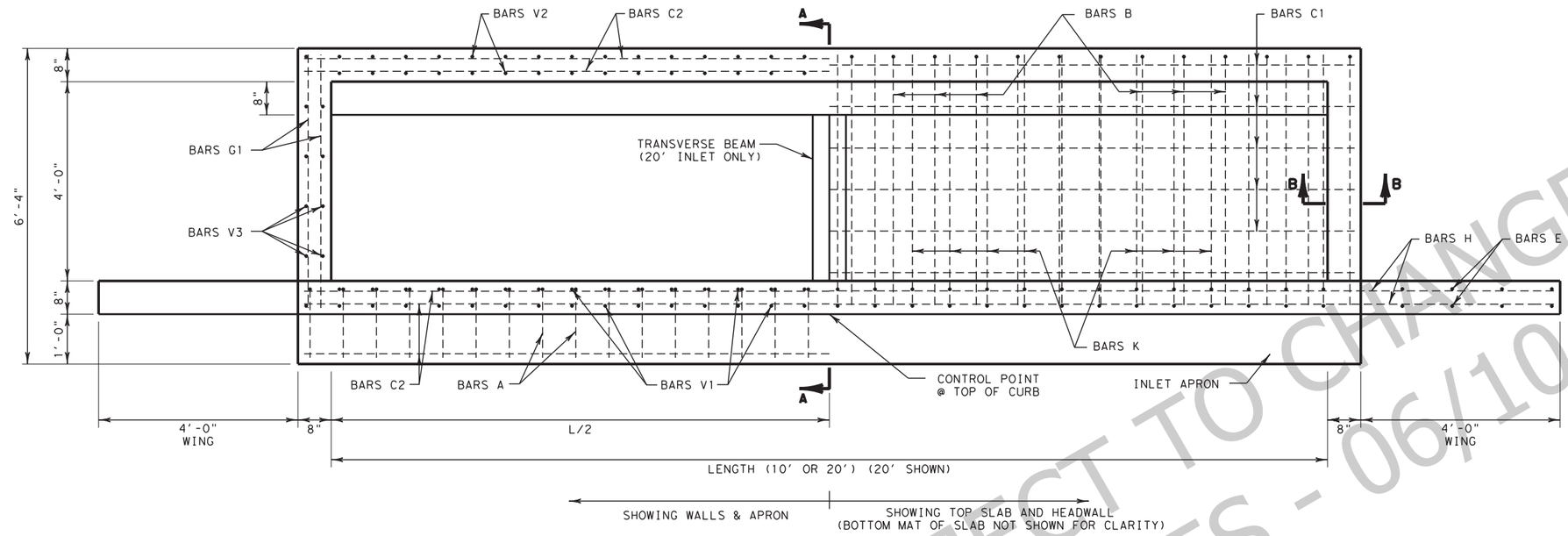
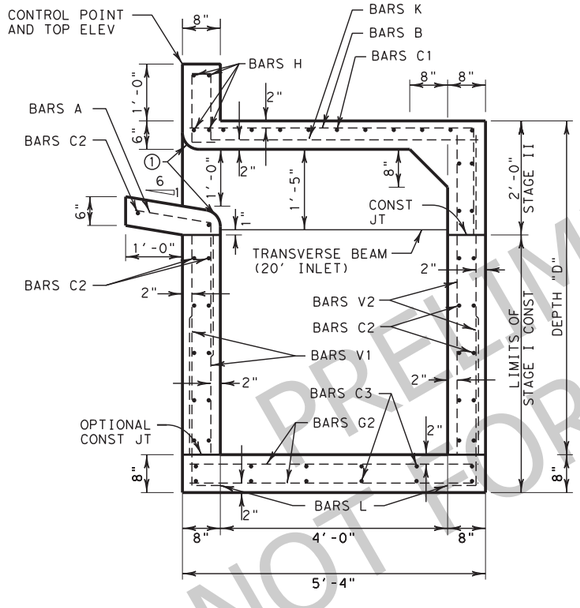


PLAN VIEW
N.T.S.



SECTION "A-A"
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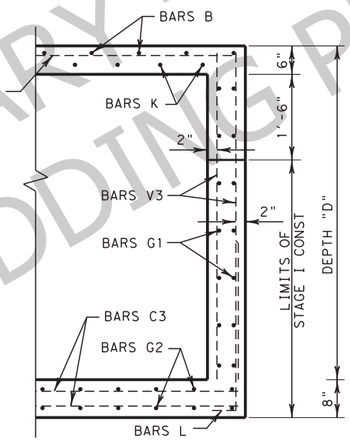

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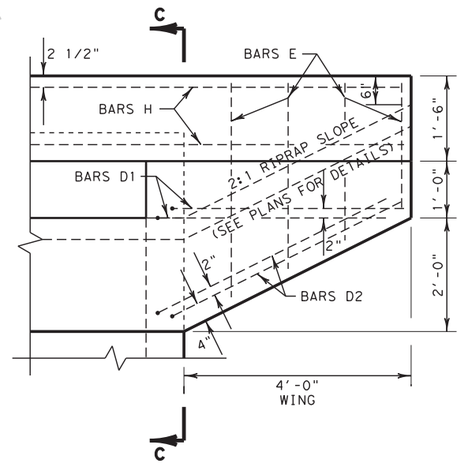

WING ELEVATION
N.T.S.

GENERAL NOTES

1. DESIGNED FOR AASHTO LRFD HL 93 LOADING
2. ALL CONCRETE SHALL BE CLASS "C".
3. ALL REINFORCING STEEL SHALL BE GRADE 60.
4. CHANNEL HEADWALL INLETS SHALL BE ENTIRELY CAST-IN-PLACE.
5. CHAMFER ALL EXPOSED CORNERS 3/4", EXCEPT WHERE NOTED OTHERWISE.
6. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO THE CENTERS OF BARS.
7. FIELD CUT OR BEND BARS AS NECESSARY TO ACCOMMODATE STORM DRAIN PIPE.
8. DEPTHS OTHER THAN THOSE SHOWN MAY BE USED WHENEVER NECESSARY, UP TO A MAXIMUM DEPTH OF 10'. QUANTITIES FOR OTHER DEPTHS MAY BE DETERMINED BY INTERPOLATION.
9. THE LOCATION OF INLET AS SHOWN IN THE PLAN REFERS TO THE CONTROL POINT AT THE FACE OF HEADWALL AND MID-POINT OF THE INLET.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JOHN A. TERRY
P.E. SERIAL NO.: 51729
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp

Texas Department of Transportation
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FM 1560
CHANNEL - HEADWALL INLET

SHEET 1 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	368
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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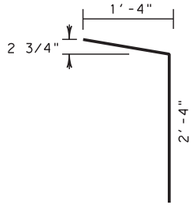
BILL OF REINFORCING STEEL

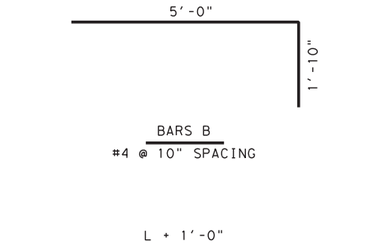
Depth "D"	Length "L"	Bars A			Bars B			Bars C1			Bars C2			Bars C3			Bars D1			Bars D2			Bars E			Bars G1			Bars G2		
		#4		at 8" Spa	#4		at 10" Spa	#5		at 6" Spa	#5		at 10" Spa	#5		at 12" Spa	#4			#4			#4			#5		at 10" Spa	#5		at 8" Spa
[ft]	[ft]	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt
5.0	10.0	18	3.686	44	15	6.833	68	9	11.000	103	23	11.000	264	6	11.000	69	2	6.083	8	2	6.500	9	16	3.000	32	24	5.000	125	36	5.000	188
5.0	20.0	33	3.686	81	27	6.833	123	9	21.000	197	23	21.000	504	6	21.000	131	2	6.083	8	2	6.500	9	16	3.000	32	24	5.000	125	66	5.000	344

BILL OF REINFORCING STEEL CONTINUED

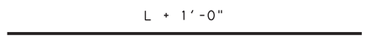
Bars H			Bars K			Bars L			Bars M			Bars N			Bars S			Bars V1			Bars V2			Bars V3			Total Reinf	Steel Qty Adjust.	Class "C"	Concrete Qty Adjust.
#4			#4		at 9" Spa	#5			#4			#4		at 12" Spa	#4		at 6" Spa	#5		at 8" Spa	#5		at 8" Spa	#5		at 12" Spa	Weight	P.L.F. of "D"		P.L.F. of "D"
No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	No	Length	Wt	[Lb]	[Lb]	[CY]	[CY]
4	19.000	51	15	7.750	78	40	3.750	156	0	5.537	0	0	6.333	0	0	4.333	0	34	3.000	106	34	4.833	171	16	4.833	81	1,554	168	7.0	0.76
4	29.000	77	28	7.750	145	70	3.750	274	2	5.537	7	2	6.333	8	5	4.333	14	64	3.000	200	64	4.833	323	16	4.833	81	2,685	280	11.9	1.25



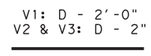
BARS A
#4 @ 8" SPACING



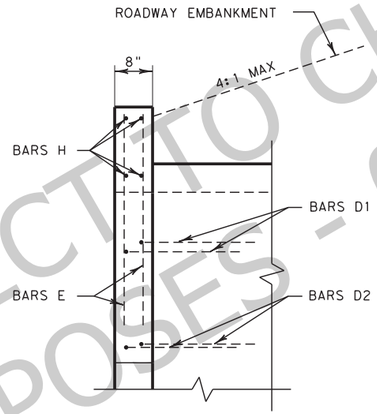
BARS B
#4 @ 10" SPACING



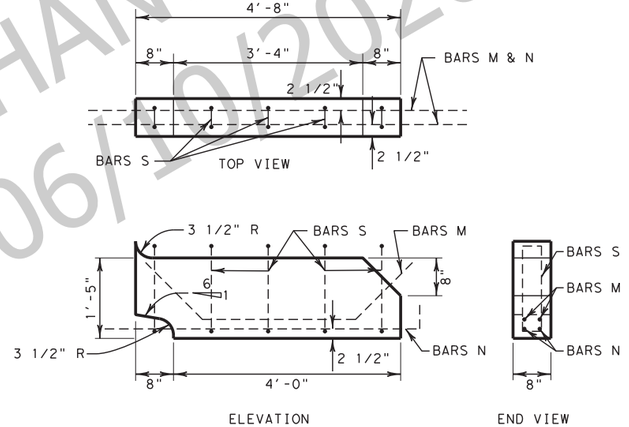
#5 BARS C
C1 @ 6" SPACING
C2 @ 10" SPACING
C3 @ 12" SPACING



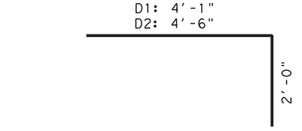
#5 BARS V
V1 @ 8" SPACING
V2 @ 8" SPACING
V3 @ 12" SPACING



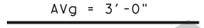
SECTION "C-C"
N.T.S.



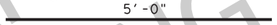
TRANSVERSE BEAM DETAIL
N.T.S.



#4 BARS D
(PLACE AS SHOWN)



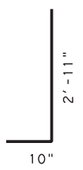
BARS E
#4 @ 12" SPACING



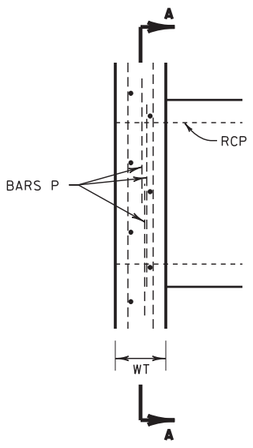
#5 BARS G
G1 @ 10" SPACING
G2 @ 8" SPACING

#4 BARS H
(PLACE AS SHOWN)

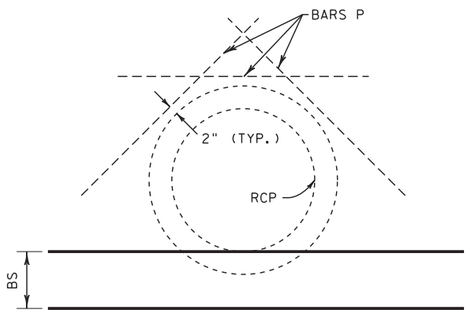
BARS K
#4 @ 9" SPACING



#5 BARS L
(MATCH BAR V SPACING)



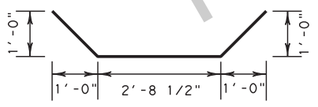
PLAN VIEW



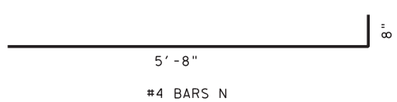
SHOWING ONLY BARS P FOR CLARITY

BARS P LENGTH = PIPE O.D. + 9"
PLACE 3 BARS P AS SHOWN AT
EACH PIPE OPENING WITH 2"
CLEAR COVER OVER PIPE.

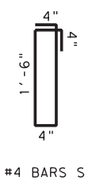
SECTION A-A
N.T.S.



#4 BARS M



#4 BARS N
N.T.S.



#4 BARS S
N.T.S.

SUPPLEMENTAL REINFORCEMENT
RCP CONNECTION
(CAST-IN-PLACE ONLY)

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED
FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: JOHN A. TERRY
P.E. SERIAL NO.: 51729
DATE: 6/5/2020

FIRM REGISTRATION NO. F-230
tnp
Texas Department of Transportation
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FM 1560
CHANNEL - HEADWALL INLET

SHEET 2 OF 2

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	369

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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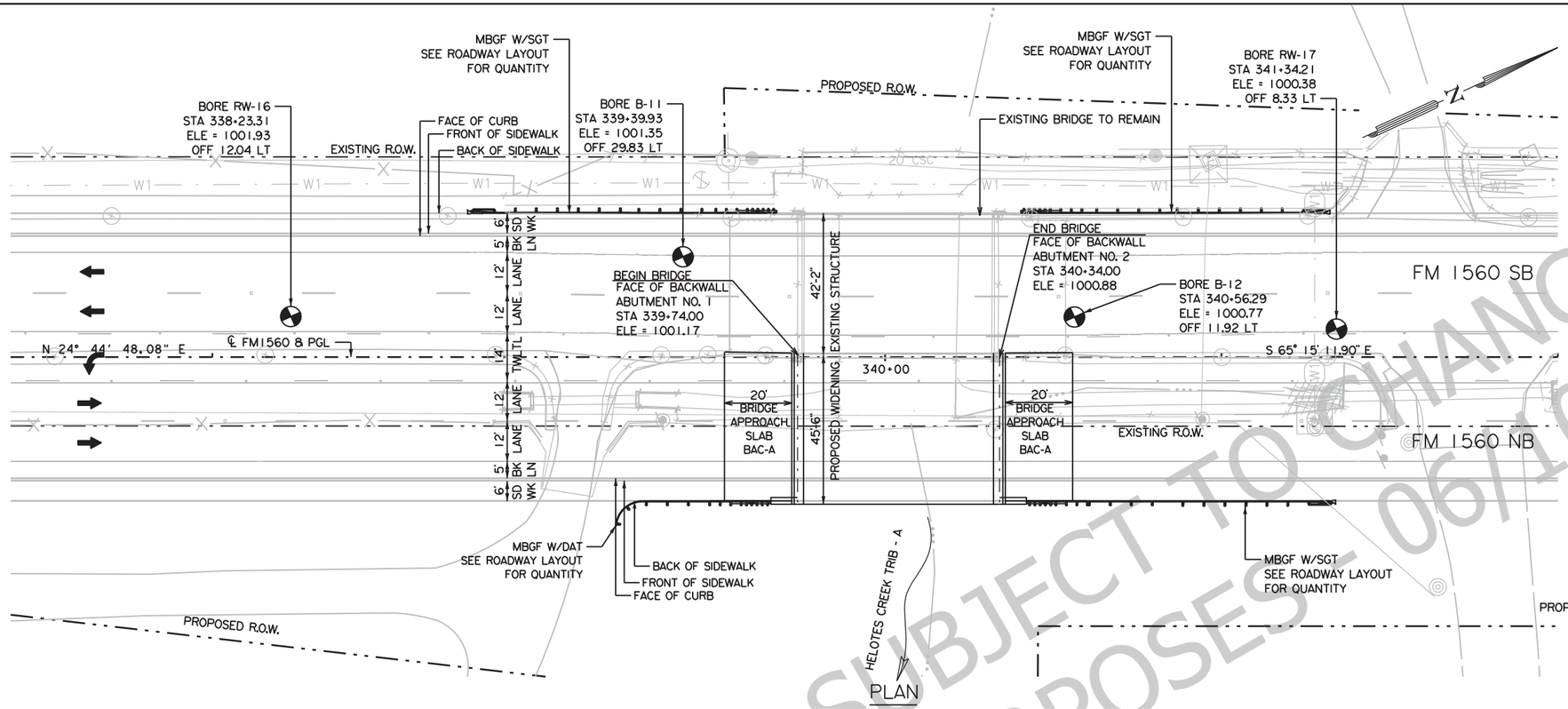
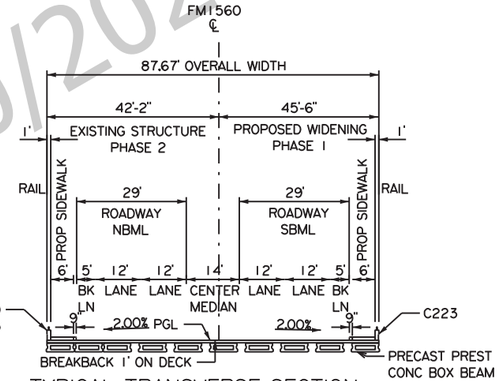


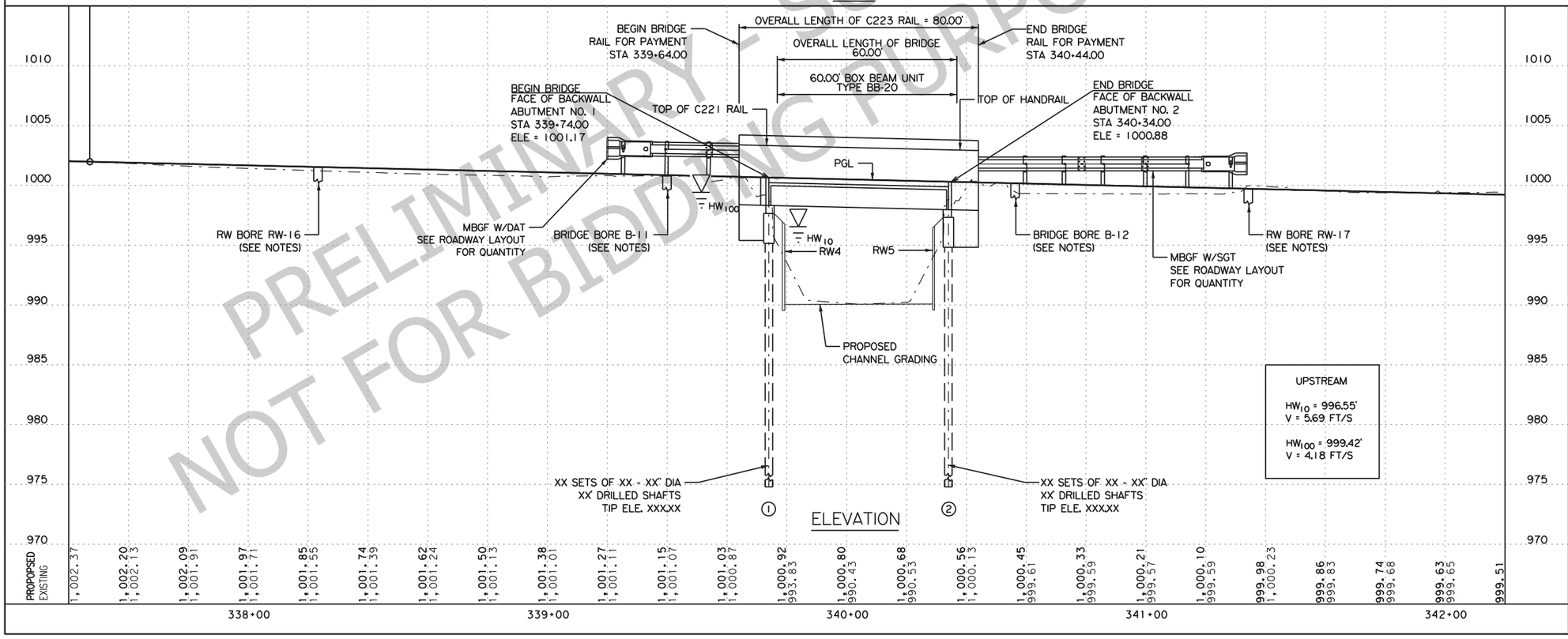
NOTES:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICAITONS 2017, 8TH EDITION.
2. EXISTING NBI = 15-015-0-2230-01-296
3. FM 1560 DATA:
   ADT (2023) = 22,518
   ADT (2043) = 40,669
   DESIGN SPEED = 45 MPH
   FUNCTIONAL CLASS = URBAN ARTERIAL
4. THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
5. SEE GEOTECHNICAL BORE DATA SHEETS FOR TEST HOLE DATA
6. UTILITIES SHOWN ARE IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF ALL UTILITES PRIOR TO CONSTRUCTION.
7. ALL BENTS AND ABUTMENTS ON APPROXIMATE BEARING S 65° 15' 11.9" E. CONTRACTOR SHALL MATCH ALL EXISTING BENT AND ABUTMENT BEARINGS.
8. DRILLED SHAFTS WILL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER TO OBTAIN A MINIMUM PENETRATION OF TWO SHAFT DIAMETERS INTO HARD MARL OR SHALE.



TYPICAL TRANSVERSE SECTION

HL93 LOADING



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE
HORIZONTAL: 1" = 10' VERTICAL: 1" = 40'

Texas Department of Transportation
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BRIDGE LAYOUT
HELOTES CREEK TRIB - A

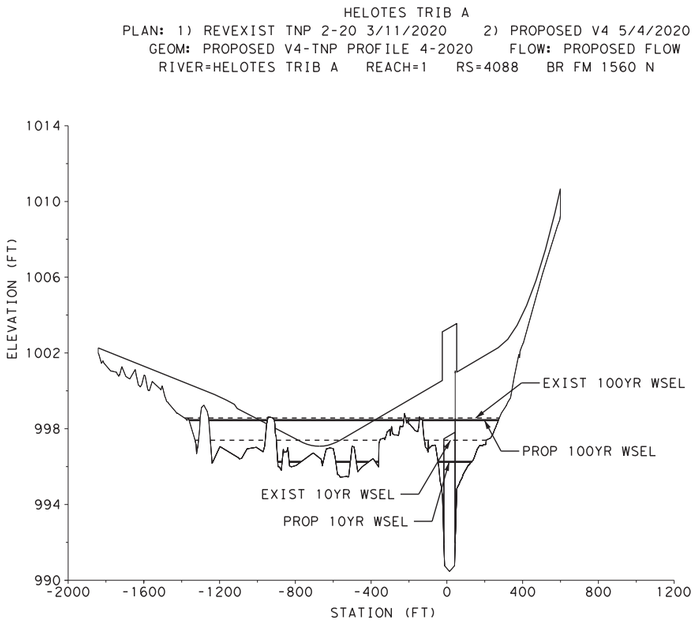
NBI NO. 15-015-0-2230-01-296

SHEET 1 OF 1

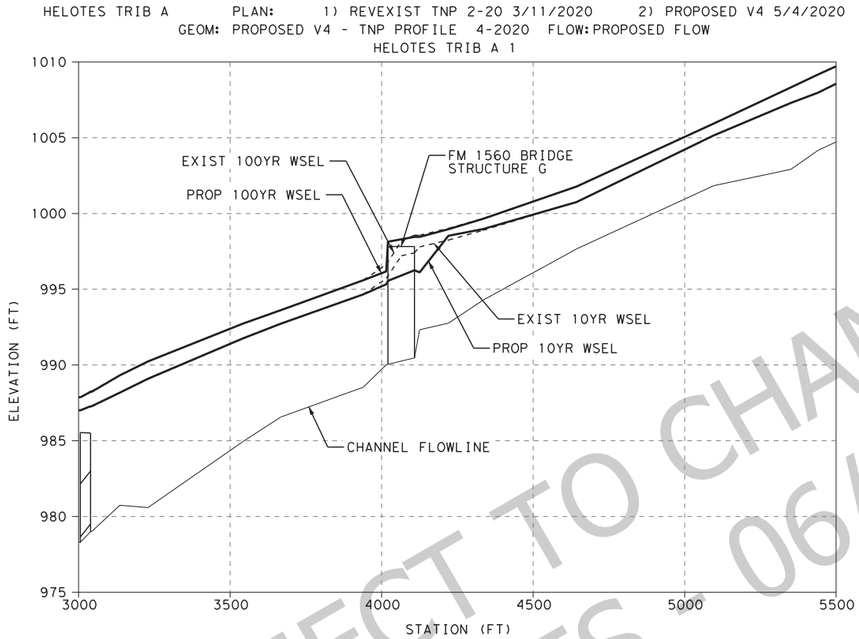
DESIGN: DG	DRAFT: DG	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	XX

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 370

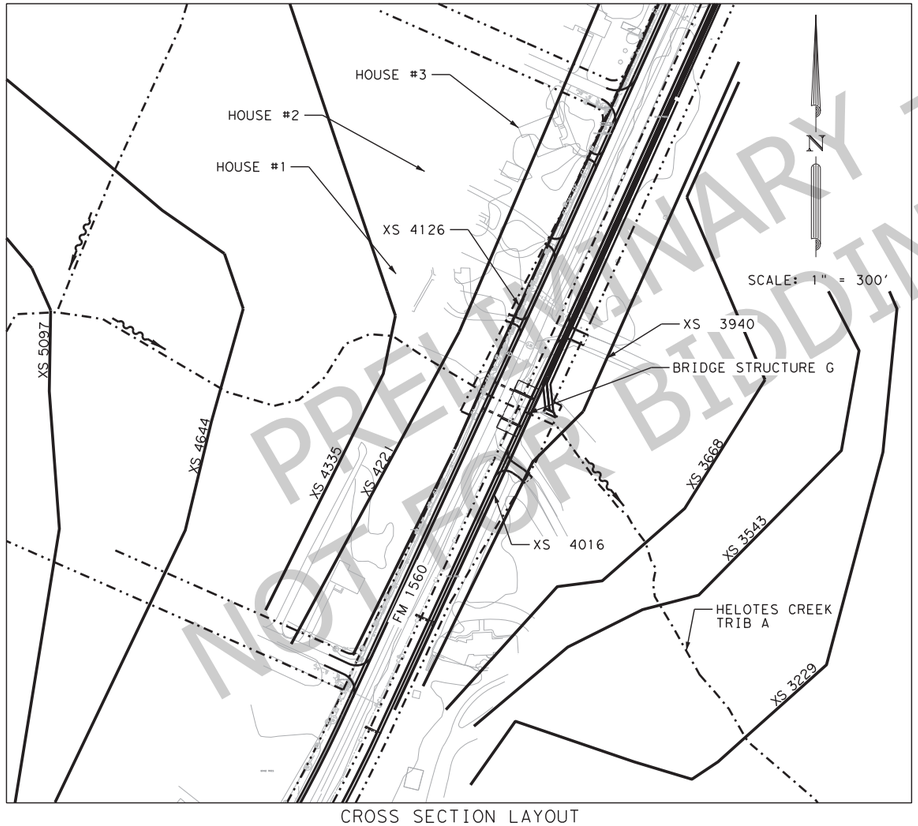
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



HEC-RAS CROSS SECTION OUTPUT



HEC-RAS PROFILE OUTPUT



CROSS SECTION LAYOUT

PROPOSED VS EXISTING CAPACITY		
	EXISTING	PROPOSED
STRUCTURE TYPE	BRIDGE	BRIDGE
MIN TOP OF ROAD (FT)	996.82	997.08
MAX LOW CHORD ELEVATION (FT)	997.98	997.82
Q10 (CFS)	1915	1906
US WSEL (FT)	997.80	996.11
Q100 (CFS)	3663	3667
US WSEL (FT)	998.57	998.46

NOTES:

1. HEC-RAS 5.0.7 USED FOR HYDRAULIC ANALYSIS.
2. N VALUE (CHANNEL) = 0.03-0.065
   N VALUE (OVER BANKS) = 0.055-0.10
3. CROSS SECTION GEOMETRY WAS BASED OFF OF HORIZONTAL DATUM NAD 83 AND VERTICAL DATUM NAVD 88.
4. THE EFFECTIVE D/S BOUNDARY CONDITION IS NORMAL DEPTH WITH A SLOPE OF 0.009.
5. THIS CROSSING LOCATION IS LOCATED IN A FEMA DESIGNATED ZONE "AE" AS SHOWN ON MAP PANEL 48029C0215G EFFECTIVE SEPTEMBER 29, 2010.
6. REFER TO DRAINAGE AREA MAP FOR ADDITIONAL INFORMATION.
7. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____.
8. THREE (3) STRUCTURES ARE LOCATED WITHIN THE FEMA ZONE "AE" LIMITS NEAR THE PROJECT LOCATION. FINISHED FLOOR ELEVATIONS (FFE) WILL BE FIELD SURVEYED FOR EACH STRUCTURE AND CROSS-SECTIONS WERE INCLUDED IN THE HYDRAULIC MODEL AT THE STRUCTURE LOCATIONS. THE FOLLOWING TABLE COMPARES THE FINISHED FLOOR ELEVATIONS TO THE 100-YEAR WSEL AT EACH STRUCTURE IN THE PROPOSED CONDITIONS:

RIVER STA	STRUCTURE TYPE	FFE	100-YR WSEL
4335	HOUSE #1		999.65
4335	HOUSE #2		999.65
4221	HOUSE #3		998.96

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation
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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK TRIB A
BRIDGE STRUCTURE G

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	371

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT:

REACH	RIVER STA	PROFILE	PLAN	Q TOTAL (CFS)	MIN CH EL (FT)	W.S. ELEV (FT)	CRIT W.S. (FT)	E.G. ELEV (FT)	E.G. SLOPE (FT/FT)	VEL CHNL (FT/S)	FLOW AREA (SQ FT)	TOP WIDTH (FT)	FROUDE # CHL
1	5097	10 Year	RevExist TNP 2-20	1488	1001.84	1005.15		1005.40	0.01517	5.01	437.60	290.07	0.57
1	5097	10 Year	Proposed v4	1488	1001.84	1005.15		1005.40	0.015114	5.00	438.16	290.16	0.57
1	5097	100 Year	RevExist TNP 2-20	2726	1001.84	1005.94		1006.27	0.014424	5.91	678.42	320.51	0.59
1	5097	100 Year	Proposed v4	2726	1001.84	1005.94		1006.27	0.014427	5.91	678.36	320.50	0.59
1	4644	10 Year	RevExist TNP 2-20	1488	997.66	1000.77		1000.91	0.00593	3.06	508.32	247.54	0.35
1	4644	10 Year	Proposed v4	1488	997.66	1000.75		1000.89	0.006062	3.08	504.50	247.06	0.35
1	4644	100 Year	RevExist TNP 2-20	2726	997.66	1001.78		1001.98	0.005884	3.78	777.89	291.65	0.36
1	4644	100 Year	Proposed v4	2726	997.66	1001.78		1001.99	0.005866	3.78	778.74	291.81	0.36
1	4335	10 Year	RevExist TNP 2-20	1488	994.28	998.88		999.09	0.005974	4.10	523.97	299.39	0.38
1	4335	10 Year	Proposed v4	1488	994.28	998.97		999.15	0.005344	3.94	548.94	305.98	0.36
1	4335	100 Year	RevExist TNP 2-20	2726	994.28	999.67		999.97	0.007582	5.27	792.27	389.90	0.45
1	4335	100 Year	Proposed v4	2726	994.28	999.65		999.96	0.007737	5.31	785.43	387.79	0.45
1	4221	10 Year	RevExist TNP 2-20	1915	992.76	998.24		998.39	0.004888	3.78	1040.50	1130.14	0.35
1	4221	10 Year	Proposed v4	1906	992.76	998.53		998.60	0.002608	2.90	1364.76	1166.27	0.26
1	4221	100 Year	RevExist TNP 2-20	3663	992.76	999.02		999.13	0.003882	3.83	1959.79	1246.14	0.32
1	4221	100 Year	Proposed v4	3667	992.76	998.96		999.08	0.00431	4.00	1887.25	1242.88	0.34
1	4126	10 Year	RevExist TNP 2-20	1915	992.33	997.80	996.00	997.83	0.001115	2.14	1588.35	1328.76	0.17
1	4126	10 Year	Proposed v4	1906	992.33	996.11	995.99	997.58	0.037356	9.72	196.13	357.45	0.95
1	4126	100 Year	RevExist TNP 2-20	3663	992.33	998.57	997.13	998.61	0.001243	2.50	2535.97	1581.89	0.19
1	4126	100 Year	Proposed v4	3667	992.33	998.46	997.22	998.51	0.001445	2.66	2390.01	1523.05	0.20
1	4088			Bridge									
1	4016	10 Year	RevExist TNP 2-20	1915	989.91	995.72	995.23	996.90	0.026405	8.73	219.37	525.13	0.80
1	4016	10 Year	Proposed v4	1906	990.02	995.33	993.49	995.96	0.009194	6.36	299.51	357.28	0.50
1	4016	100 Year	RevExist TNP 2-20	3663	989.91	996.63	996.63	997.24	0.015443	7.72	735.26	899.23	0.64
1	4016	100 Year	Proposed v4	3667	990.02	996.18	996.16	996.98	0.013477	7.87	635.51	679.01	0.61
1	3940	10 Year	RevExist TNP 2-20	1915	988.54	994.66	993.41	995.10	0.01128	5.41	416.08	438.08	0.52
1	3940	10 Year	Proposed v4	1906	988.54	994.66	993.42	995.09	0.011152	5.38	416.69	440.08	0.52
1	3940	100 Year	RevExist TNP 2-20	3663	988.54	995.60		995.88	0.007791	5.22	1230.58	1228.66	0.45
1	3940	100 Year	Proposed v4	3667	988.54	995.60		995.88	0.007816	5.23	1229.98	1228.44	0.45
1	3668	10 Year	RevExist TNP 2-20	1821	986.57	992.72		992.91	0.004284	3.53	535.00	231.57	0.35
1	3668	10 Year	Proposed v4	1836	986.57	992.73		992.92	0.004304	3.55	537.54	233.45	0.35
1	3668	100 Year	RevExist TNP 2-20	3505	986.57	993.62		993.98	0.006126	4.98	943.01	859.62	0.43
1	3668	100 Year	Proposed v4	3500	986.57	993.62		993.98	0.006124	4.98	941.13	858.53	0.43
1	3543	10 Year	RevExist TNP 2-20	1821	984.95	991.74	990.87	992.19	0.00771	6.04	610.33	589.34	0.49
1	3543	10 Year	Proposed v4	1836	984.95	991.76	991.47	992.20	0.007668	6.03	619.25	593.47	0.49
1	3543	100 Year	RevExist TNP 2-20	3505	984.95	992.74		993.12	0.007248	6.64	1354.87	1019.50	0.49
1	3543	100 Year	Proposed v4	3500	984.95	992.73		993.12	0.007266	6.64	1350.46	1017.03	0.49
1	3229	10 Year	RevExist TNP 2-20	1821	980.59	989.07	987.22	989.71	0.008048	6.60	363.75	376.51	0.50
1	3229	10 Year	Proposed v4	1836	980.59	989.09	987.25	989.73	0.008048	6.62	370.80	396.37	0.50
1	3229	100 Year	RevExist TNP 2-20	3505	980.59	990.24	990.06	990.80	0.00769	7.35	1084.84	741.74	0.51
1	3229	100 Year	Proposed v4	3500	980.59	990.24	990.06	990.80	0.007659	7.34	1085.57	741.85	0.50

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK TRIB A
BRIDGE STRUCTURE G

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	372

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT THROUGH BRIDGE: 10 YEAR EVENT

PLAN: PROPOSED V4 RIVER: HELOTES TRIB A REACH: 1 RS: 4088

FM 1560 BRIDGE STRUCTURE G PROFILE: 10-YEAR

E.G. US (FT)	997.58	ELEMENT	INSIDE BR US	INSIDE BR DS
W.S. US (FT)	996.11	E.G. ELEV (FT)	996.69	996.04
Q TOTAL (CFS)	1906	W.S. ELEV (FT)	996.25	995.55
Q BRIDGE (CFS)	1765.6	CRIT W.S. (FT)	993.87	993.49
Q WEIR (CFS)	140.4	MAX CHL DPTH (FT)	5.78	5.53
WEIR STA LFT (FT)	-768.93	VEL TOTAL (FT/S)	5.31	5.64
WEIR STA RGT (FT)	-535.96	FLOW AREA (SQ FT)	332.41	312.79
WEIR SUBMERG	0	FROUDE # CHL	0.39	0.42
WEIR MAX DEPTH (FT)	0.5	SPECIF FORCE (CU FT)	1214.86	1130.57
MIN EL WEIR FLOW (FT)	997.09	HYDR DEPTH (FT)	5.54	5.21
MIN EL PRS (FT)	997.82	W.P. TOTAL (FT)	68.91	67.65
DELTA EG (FT)	1.62	CONV. TOTAL (CFS)	21694.8	19846.1
DELTA WS (FT)	0.79	TOP WIDTH (FT)	60	60
BR OPEN AREA (SQ FT)	415.85	FRCTN LOSS (FT)	0.63	0.05
BR OPEN VEL (FT/S)	5.64	C & E LOSS (FT)	0.02	0.04
COEF OF Q		SHEAR TOTAL (LB/SQ FT)	2.32	2.66
BR SEL METHOD	Energy/Weir	POWER TOTAL (LB/FT S)	12.35	15.03

HEC-RAS OUTPUT THROUGH BRIDGE: 100 YEAR EVENT

PLAN: PROPOSED V4 RIVER: HELOTES TRIB A REACH: 1 RS: 4088

FM 1560 BRIDGE STRUCTURE G PROFILE: 100-YEAR

E.G. US (FT)	998.51	ELEMENT	Inside BR US	Inside BR DS
W.S. US (FT)	998.46	E.G. ELEV (FT)	998.51	998.43
Q TOTAL (CFS)	3667	W.S. ELEV (FT)	998.46	998.13
Q BRIDGE (CFS)	2434.21	CRIT W.S. (FT)	995.60	995.22
Q WEIR (CFS)	1232.79	MAX CHL DPTH (FT)	7.99	8.11
WEIR STA LFT (FT)	-1003.36	VEL TOTAL (FT/S)	4.12	5.06
WEIR STA RGT (FT)	-378.14	FLOW AREA (SQ FT)	889.26	724.11
WEIR SUBMERG	0	FROUDE # CHL	0.3	0.38
WEIR MAX DEPTH (FT)	1.43	SPECIF FORCE (CU FT)	2553.81	2604.49
MIN EL WEIR FLOW (FT)	997.09	HYDR DEPTH (FT)	1.56	1.48
MIN EL PRS (FT)	997.82	W.P. TOTAL (FT)	702.6	622.38
DELTA EG (FT)	1.53	CONV. TOTAL (CFS)		
DELTA WS (FT)	2.28	TOP WIDTH (FT)	570.86	490.51
BR OPEN AREA (SQ FT)	415.85	FRCTN LOSS (FT)		
BR OPEN VEL (FT/S)	5.85	C & E LOSS (FT)		
COEF OF Q	0.35	SHEAR TOTAL (LB/SQ FT)		
BR SEL METHOD	Press/Weir	POWER TOTAL (LB/FT S)		

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK TRIB A
BRIDGE STRUCTURE G

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	373

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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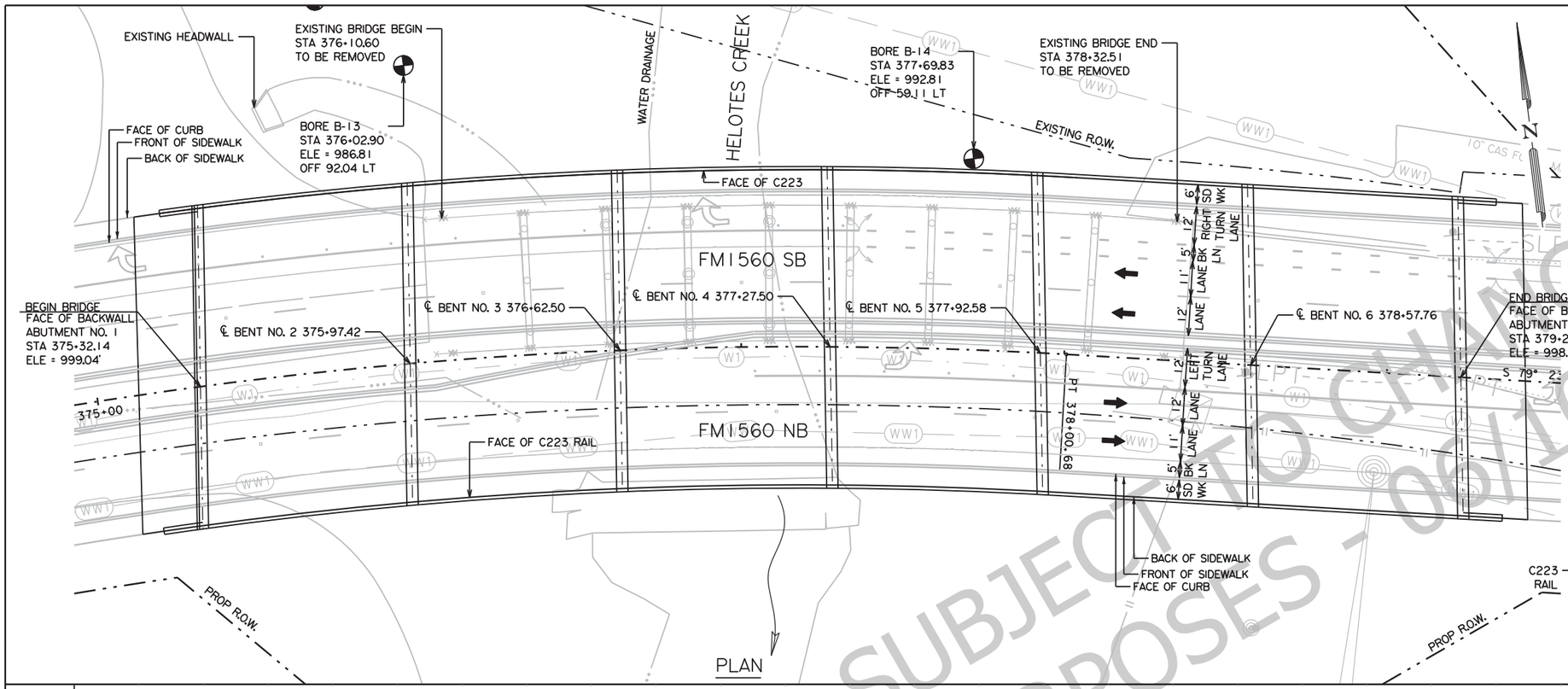
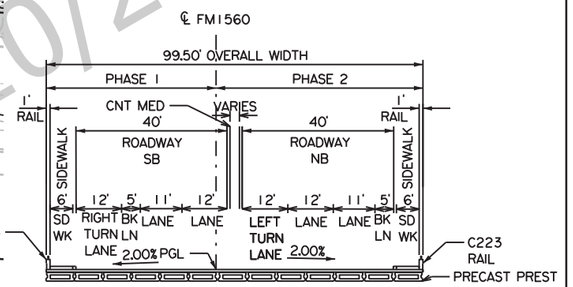
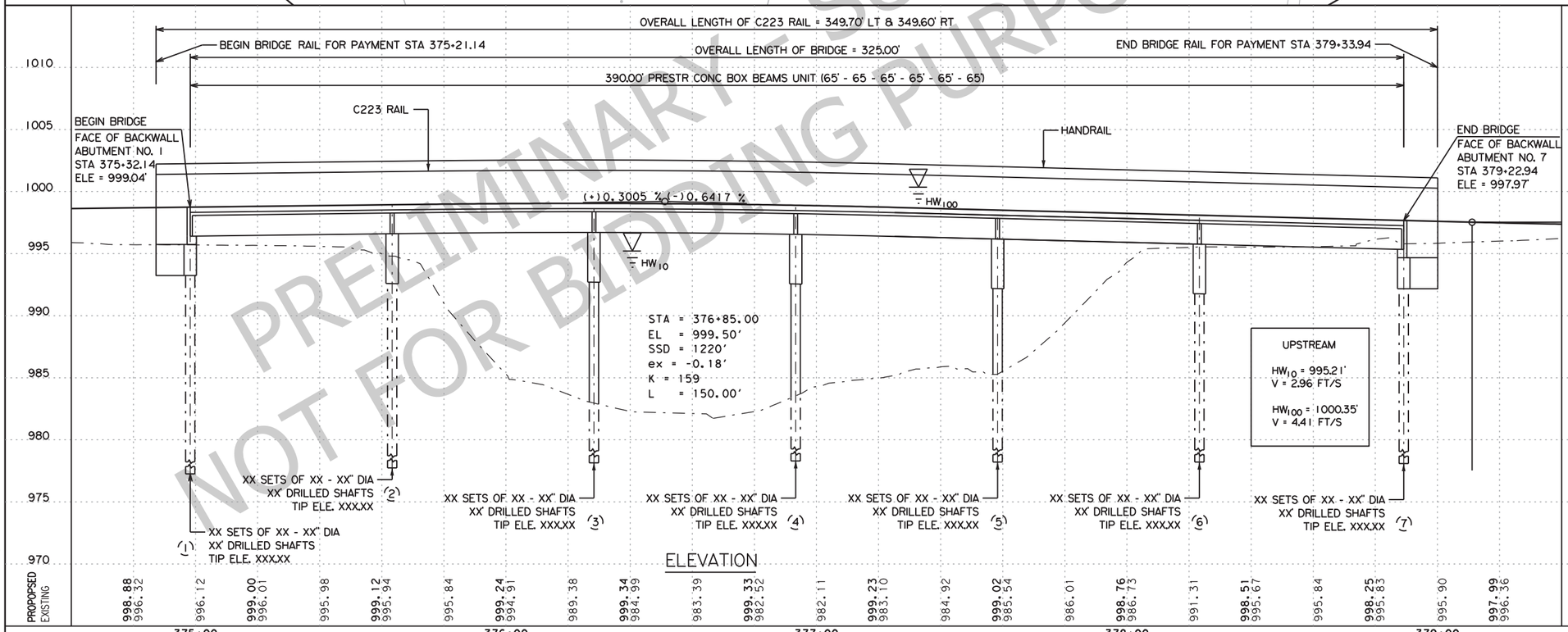


NOTES:
1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICAITONS 2017, 8TH EDITION.
2. EXISTING NBI = 15-015-0-2230-01-007
3. PROP NBI = 15-015-0-2230-01-300
4. FM 1560 DATA:
   ADT (2023) = 22,518
   ADT (2043) = 40,669
   DESIGN SPEED = 45 MPH
   FUNCTIONAL CLASS = URBAN ARTERIAL
5. THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
6. SEE GEOTECHNICAL BORE DATA SHEETS FOR TEST HOLE DATA
7. UTILITIES SHOWN ARE IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF ALL UTILITES PRIOR TO CONSTRUCTION.
8. ALL BENTS AND ABUTMENTS ON APPROXIMATE BEARING N 66° 21' 22.5" W. CONTRACTOR SHALL MATCH ALL EXISTING BENT AND ABUTMENT BEARINGS.
9. DRILLED SHAFTS WILL BE FOUNDED AT THE ELEVATIONS SHOWN OR DEEPER TO OBTAIN A MINIMUM PENETRATION OF TWO SHAFT DIAMETERS INTO HARD MARL OR SHALE.



TYPICAL TRANSVERSE SECTION

HL93 LOADING



ELEVATION

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 2020/06/08

SCALE
HORIZONTAL: 1" = 10' VERTICAL: 1" = 40'

Texas Department of Transportation
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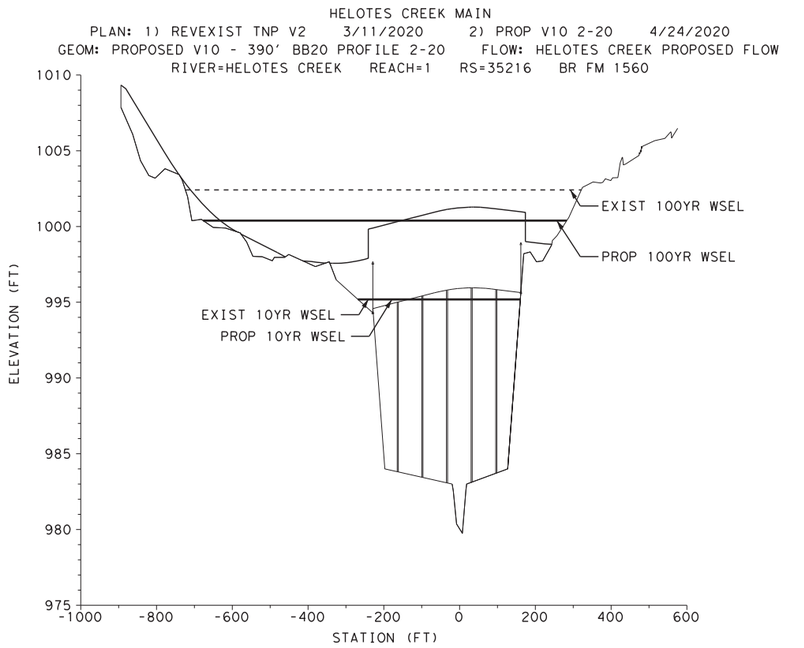
BRIDGE LAYOUT
HELOTES CREEK

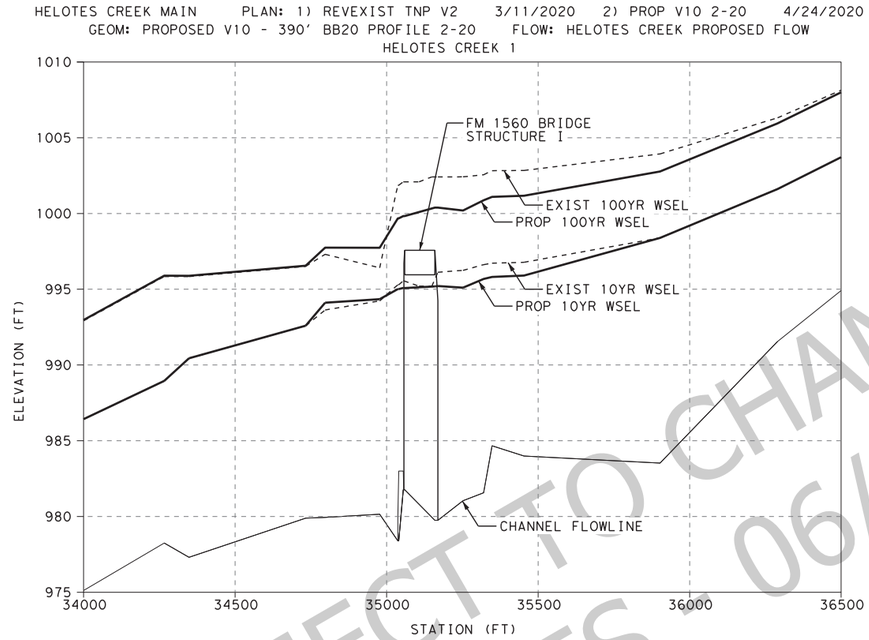
NBI NO. 15-015-0-2230-01-300

SHEET 1 OF 1

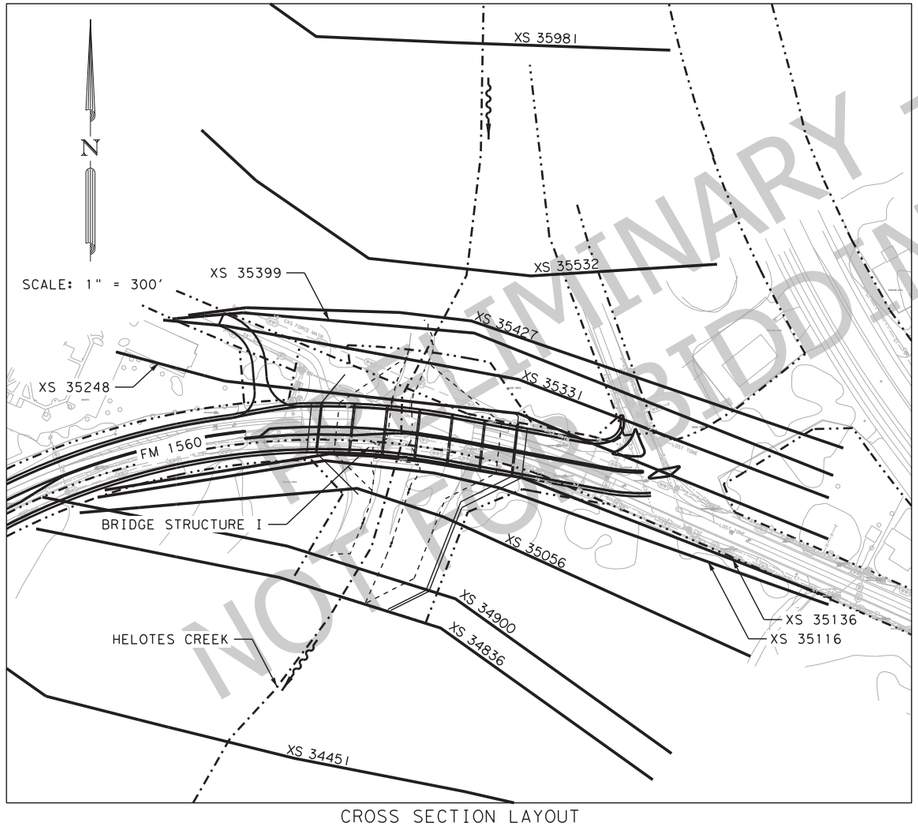
DESIGN: DG	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	374
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



HEC-RAS CROSS SECTION OUTPUT



HEC-RAS PROFILE OUTPUT



CROSS SECTION LAYOUT

PROPOSED VS EXISTING CAPACITY		
	EXISTING	PROPOSED
STRUCTURE TYPE	BRIDGE	BRIDGE
MIN TOP OF ROAD (FT)	996.95	997.57
MAX LOW CHORD ELEVATION (FT)	995.20	995.95
Q10 (CFS)	12697	12709
US WSEL (FT)	996.12	995.21
Q100 (CFS)	29212	29367
US WSEL (FT)	1002.41	1000.39

NOTES:

1. HEC-RAS 5.0.7 USED FOR HYDRAULIC ANALYSIS.
2. N VALUE (CHANNEL) = 0.03-0.065
   N VALUE (OVER BANKS) = 0.055-0.10
3. CROSS SECTION GEOMETRY WAS BASED OFF OF HORIZONTAL DATUM NAD 83 AND VERTICAL DATUM NAVD 88.
4. THE D/S BOUNDARY CONDITION WAS SET AT A NORMAL DEPTH SLOPE OF 0.009.
5. THIS CROSSING LOCATION IS LOCATED IN A FEMA DESIGNATED ZONE "AE" AS SHOWN ON MAP PANEL 48029C0215G EFFECTIVE SEPTEMBER 29, 2010.
6. HEC-RAS PROFILE OUTPUT DIPLAYS INCREASES WATER SURFACE ELEVATIONS (WSEL) DOWNSTREAM OF THE PROPOSED BRIDGE SECTION. INCREASES IN WATER SURFACE ELEVATIONS ARE CONTAINED WITHIN THE PROPOSED ROW AND DO NOT IMPACT ANY STRUCTURES.
7. REFER TO DRAINAGE AREA MAP FOR ADDITIONAL INFORMATION.
8. NOTIFICATION TO THE LOCAL FLOODPLAIN ADMINISTRATOR WAS COMPLETED ON _____.
9. NO STRUCTURES ARE LOCATED WITHIN THE FEMA ZONE "AE" LIMITS NEAR THE PROJECT LOCATION.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/5/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

FIRM REGISTRATION NO. F-230

tnp

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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK
BRIDGE STRUCTURE I

SHEET 1 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 375
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT:

REACH	RIVER STA	PROFILE	PLAN	Q TOTAL (CFS)	MIN CH EL (FT)	W.S. ELEV (FT)	CRIT W.S. (FT)	E.G. ELEV (FT)	E.G. SLOPE (FT/FT)	VEL CHNL (FT/S)	FLOW AREA (SQ FT)	TOP WIDTH (FT)	FROUDE # CHL
1	35981	10-Year	RevExist TNP v2	12746	983.53	998.39	998.39	999.24	0.006295	10.78	2037.42	307.77	0.53
1	35981	10 Year	Prop v10 2-20	12747	983.53	998.39	998.39	999.24	0.006296	10.78	2037.42	307.77	0.53
1	35981	100-Year	RevExist TNP v2	29212	983.53	1003.93	999.34	1004.94	0.004729	11.88	4101.16	462.44	0.49
1	35981	100 Year	Prop v10 2-20	29346	983.53	1002.77	999.37	1004.12	0.006823	13.66	3583.86	433.44	0.58
1	35532	10-Year	RevExist TNP v2	12746	983.99	996.78		997.20	0.001033	6.77	2925.00	347.50	0.35
1	35532	10 Year	Prop v10 2-20	12747	983.99	995.90		996.43	0.001421	7.56	2622.09	342.06	0.41
1	35532	100-Year	RevExist TNP v2	29212	983.99	1002.84		1003.56	0.001053	8.92	5257.65	502.07	0.37
1	35532	100 Year	Prop v10 2-20	29346	983.99	1001.17		1002.12	0.001565	10.21	4536.86	400.35	0.45
1	35427	10-Year	RevExist TNP v2	12746	984.67	996.72		996.97	0.001515	5.12	3376.68	394.78	0.27
1	35427	10 Year	Prop v10 2-20	12747	984.67	995.81		996.12	0.002126	5.72	3020.63	385.18	0.32
1	35427	100-Year	RevExist TNP v2	29212	984.67	1002.83		1003.26	0.001754	7.42	6309.76	632.20	0.32
1	35427	100 Year	Prop v10 2-20	29346	984.67	1001.10		1001.71	0.002802	8.73	5286.95	558.13	0.39
1	35399	10-Year	RevExist TNP v2	12746	981.57	996.62		996.92	0.001583	5.75	3214.52	372.86	0.28
1	35399	10 Year	Prop v10 2-20	12747	981.57	995.68		996.05	0.002202	6.44	2868.62	357.70	0.33
1	35399	100-Year	RevExist TNP v2	29212	981.57	1002.56		1003.17	0.002676	9.63	6266.53	963.17	0.39
1	35399	100 Year	Prop v10 2-20	29346	981.57	1000.87		1001.61	0.003287	10.03	5118.00	589.75	0.43
1	35331	10-Year	RevExist TNP v2	12697	981.04	996.25	991.74	996.75	0.002375	7.13	2764.43	417.26	0.35
1	35331	10 Year	Prop v10 2-20	12709	981.04	995.11	991.74	995.76	0.003333	7.95	2332.82	356.76	0.41
1	35331	100-Year	RevExist TNP v2	29212	981.04	1002.42	995.29	1002.98	0.00203	8.55	6887.41	1006.48	0.34
1	35331	100 Year	Prop v10 2-20	29367	981.04	1000.20	995.31	1001.24	0.00397	11.01	4895.72	737.20	0.47
1	35248	10-Year	RevExist TNP v2	12697	979.75	996.12	990.84	996.54	0.001905	5.17	2454.02	439.61	0.30
1	35248	10 Year	Prop v10 2-20	12709	979.75	995.21	986.82	995.35	0.000505	2.98	4267.86	429.92	0.16
1	35248	100-Year	RevExist TNP v2	29212	979.75	1002.41	994.10	1002.74	0.001001	5.04	7768.67	1045.24	0.23
1	35248	100 Year	Prop v10 2-20	29367	979.75	1000.39	989.48	1000.68	0.000685	4.43	7679.13	961.80	0.20
1	35216			Bridge									
1	35136	10-Year	RevExist TNP v2	12697	981.77	995.55	990.54	996.29	0.003739	6.91	1856.47	354.81	0.41
1	35136	10 Year	Prop v10 2-20	12709	981.77	995.08	986.85	995.23	0.000527	3.02	4212.26	413.45	0.16
1	35136	100-Year	RevExist TNP v2	29212	981.77	1002.09	995.38	1002.55	0.001486	6.33	7379.95	1269.03	0.29
1	35136	100 Year	Prop v10 2-20	29367	981.77	999.83	989.50	1000.13	0.00076	4.56	7576.48	1003.38	0.21
1	35126			Inl Struct									
1	35116	10-Year	RevExist TNP v2	12697	978.39	995.30	987.36	996.01	0.00208	6.86	1998.40	208.88	0.32
1	35116	10 Year	Prop v10 2-20	12709	978.39	995.01	986.13	995.17	0.000592	3.23	3938.82	357.80	0.17
1	35116	100-Year	RevExist TNP v2	29212	978.39	1001.87	993.51	1002.47	0.001459	7.43	7151.87	1257.52	0.29
1	35116	100 Year	Prop v10 2-20	29367	978.39	999.68	989.24	1000.04	0.000893	4.94	7015.84	1001.84	0.22
1	35056	10-Year	RevExist TNP v2	12697	980.15	994.23		995.74	0.00609	9.92	1334.28	157.54	0.54
1	35056	10 Year	Prop v10 2-20	12709	980.15	994.35		994.98	0.002514	6.36	1999.55	193.23	0.35
1	35056	100-Year	RevExist TNP v2	29212	980.15	996.41	996.29	1001.80	0.017063	18.81	1725.14	312.58	0.93
1	35056	100 Year	Prop v10 2-20	29367	980.15	997.74	992.81	999.52	0.005164	10.82	3105.95	799.53	0.52
1	34900	10-Year	RevExist TNP v2	12697	979.94	993.63	990.21	994.66	0.004284	8.88	2068.31	499.27	0.49
1	34900	10 Year	Prop v10 2-20	12709	979.94	994.11	988.25	994.55	0.001584	5.61	2894.02	506.99	0.30
1	34900	100-Year	RevExist TNP v2	29212	979.94	997.30	995.40	998.60	0.004759	11.04	4096.89	709.33	0.54
1	34900	100 Year	Prop v10 2-20	29367	979.94	997.75	993.48	998.55	0.002333	8.11	4998.47	725.82	0.39
1	34836	10-Year	RevExist TNP v2	12697	979.89	992.59	990.17	994.25	0.007131	10.84	1566.21	455.77	0.62
1	34836	10 Year	Prop v10 2-20	12709	979.89	992.60	990.18	994.26	0.007123	10.84	1568.91	456.17	0.62
1	34836	100-Year	RevExist TNP v2	29212	979.89	996.51	995.40	998.21	0.006463	12.44	3576.21	548.51	0.62
1	34836	100 Year	Prop v10 2-20	29367	979.89	996.56	995.41	998.24	0.006411	12.41	3603.35	567.84	0.62
1	34451	10-Year	RevExist TNP v2	12697	977.31	990.44	986.84	991.82	0.005258	9.42	1348.49	625.77	0.54
1	34451	10 Year	Prop v10 2-20	12709	977.31	990.45	986.86	991.83	0.005258	9.43	1349.36	626.20	0.54
1	34451	100-Year	RevExist TNP v2	29212	977.31	995.83	992.11	996.46	0.002091	7.81	5767.20	747.74	0.36
1	34451	100 Year	Prop v10 2-20	29367	977.31	995.89	992.13	996.51	0.002073	7.80	5809.43	749.39	0.36

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ENGINEER: JAIME K. BENOLIEL
P.E. SERIAL NO.: 96693
DATE: 6/4/2020

FIRM REGISTRATION NO. F-230
tnp

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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK
BRIDGE STRUCTURE 1

SHEET 2 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	376

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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HEC-RAS OUTPUT THROUGH BRIDGE: 10 YEAR EVENT

PLAN: PROP V10 2-20 RIVER: HELOTES CREEK REACH: 1 RS: 35216

FM 1560 BRIDGE STRUCTURE I PROFILE: 10-YEAR

E.G. US (FT)	995.35	ELEMENT	INSIDE BR US	INSIDE BR DS
W.S. US (FT)	995.21	E.G. ELEV (FT)	995.34	995.24
Q TOTAL (CFS)	12709	W.S. ELEV (FT)	995.18	995.08
Q BRIDGE (CFS)	12709	CRIT W.S. (FT)	986.94	986.95
Q WEIR (CFS)		MAX CHL DPTH (FT)	15.43	13.31
WEIR STA LFT (FT)		VEL TOTAL (FT/S)	3.13	3.17
WEIR STA RGT (FT)		FLOW AREA (SQ FT)	4054.01	4014.93
WEIR SUBMERG		FROUDE # CHL	0.14	0.15
WEIR MAX DEPTH (FT)		SPECIF FORCE (CU FT)	24990.59	24408.16
MIN EL WEIR FLOW (FT)	997.58	HYDR DEPTH (FT)	14.27	13.37
MIN EL PRS (FT)	995.95	W.P. TOTAL (FT)	586.56	569.05
DELTA EG (FT)	0.12	CONV. TOTAL (CFS)	398294.8	399022
DELTA WS (FT)	0.13	TOP WIDTH (FT)	284.01	300.29
BR OPEN AREA (SQ FT)	4201.33	FRCTN LOSS (FT)	0.1	0
BR OPEN VEL (FT/S)	3.17	C & E LOSS (FT)	0	0.01
COEF OF Q		SHEAR TOTAL (LB/SQ FT)	0.44	0.45
BR SEL METHOD	Energy only	POWER TOTAL (LB/FT S)	1.38	1.41

HEC-RAS OUTPUT THROUGH BRIDGE: 100 YEAR EVENT

PLAN: PROP V10 2-20 RIVER: HELOTES CREEK REACH: 1 RS: 35216

FM 1560 BRIDGE STRUCTURE I PROFILE: 100-YEAR

E.G. US (FT)	1000.68	ELEMENT	Inside BR US	Inside BR DS
W.S. US (FT)	1000.39	E.G. ELEV (FT)	1000.68	1000.46
Q TOTAL (CFS)	29367	W.S. ELEV (FT)	1000.39	999.83
Q BRIDGE (CFS)	24899.63	CRIT W.S. (FT)	989.66	989.69
Q WEIR (CFS)	4467.38	MAX CHL DPTH (FT)	20.64	18.06
WEIR STA LFT (FT)	-645.3	VEL TOTAL (FT/S)	5.68	5.97
WEIR STA RGT (FT)	289.77	FLOW AREA (SQ FT)	5166.41	4916.93
WEIR SUBMERG	0.62	FROUDE # CHL	0.24	0.27
WEIR MAX DEPTH (FT)	3.11	SPECIF FORCE (CU FT)	52145.27	49450.92
MIN EL WEIR FLOW (FT)	997.58	HYDR DEPTH (FT)	8.81	9.84
MIN EL PRS (FT)	995.95	W.P. TOTAL (FT)	1467.6	1380.49
DELTA EG (FT)	0.55	CONV. TOTAL (CFS)		
DELTA WS (FT)	0.56	TOP WIDTH (FT)	586.27	499.52
BR OPEN AREA (SQ FT)	4201.33	FRCTN LOSS (FT)		
BR OPEN VEL (FT/S)	5.93	C & E LOSS (FT)		
COEF OF Q		SHEAR TOTAL (LB/SQ FT)		
BR SEL METHOD	Press/Weir	POWER TOTAL (LB/FT S)		

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ENGINEER: JAIME K. BENOLIEL

P.E. SERIAL NO.: 96693

DATE: 6/4/2020

FIRM REGISTRATION NO. F-230

tnp

Texas Department of Transportation

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FM 1560
HYDRAULIC DATA SHEET
HELOTES CREEK
BRIDGE STRUCTURE 1

SHEET 3 OF 3

DESIGN: JKB	DRAFT: CA	CHECK: JAT

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6		

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	377

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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6/4/2020
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2018\2018-2060-00 - TxDOT Traffic Engineering (San Antonio)\Work Authorizations\2018-2060-02 - WA2 Emergency Work Authorization

TRAFFIC SIGNAL NOTES:

1. SIGNAL HEADS SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE.

2. FURNISH VEHICLE AND PEDESTRIAN SIGNALS WITH LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS.

3. USE TYPE C HIGH SPECIFIC INTENSITY GRADE SHEETING FOR SIGNS MOUNTED UNDER OR ADJACENT TO THE SIGNAL HEADS.

4. FURNISH SYMBOL TYPE PEDESTRIAN COUNTDOWN SIGNALS. INSTALL USING MOUNTING HEIGHT IN ACCORDANCE WITH THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

5. FURNISH MATERIALS NECESSARY TO INSTALL ACCESSIBLE PEDESTRIAN SIGNAL UNITS AND SIGNS AS SHOWN IN THE PLANS. INSTALL AT 3 FT. 6 IN. TO 4 FT. 0 IN. ABOVE THE SIDEWALK OR CONCRETE WALKWAY.

6. ROUTE CABLE FOR LUMINAIRES (#12/4C TRAY CABLE) TO THE SERVICE ENCLOSURE. SEE ELECTRICAL DETAIL SHEETS.

7. FURNISH AND INSTALL FULL-ACTUATED CONTROLLER WITH INTERNAL TIME BASE COORDINATION UNIT IN A BASE MOUNTED CABINET.

8. THE VENDORS' REPRESENTATIVE OF THE RADAR EQUIPMENT SUPPLIED FOR THIS PROJECT MUST SUPERVISE THE INSTALLATION, SETUP AND TESTING OF THIS EQUIPMENT.
THE REPRESENTATIVE MUST BE ON SITE DURING THIS TIME. ANY EQUIPMENT REQUIRED FOR SETUP AND OPERATION OF THE RADAR DEVICES MUST BE PROVIDED TO TXDOT/CITY UPON COMPLETION. THE VENDORS' REPRESENTATIVE MUST PROVIDE TRAINING TO THE MUNICIPALITIES WHO WILL BE RESPONSIBLE FOR THE MAINTENANCE OF THE RADAR EQUIPMENT AFTER ACCEPTANCE OF THE PROJECT.

9. REPAIR OR REPLACE PAVEMENT AND SIDEWALKS DAMAGED BY THE CONTRACTOR'S FORCES DURING CONSTRUCTION AT NO COST TO THE DEPARTMENT.

10. ASSUME OWNERSHIP OF THE REMOVED EXISTING SIGNS.

11. FURNISH AND INSTALL URETHANE FOAM TO ENCLOSE THE ENDS OF ALL CONDUITS CONTAINING SIGNAL CABLES AND ELECTRICAL CONDUCTORS.

12. CAP SPARE CONDUITS INSTALLED IN POLE FOUNDATIONS AND GROUND BOXES USING APPROVED CAPPING DEVICES.

13. DO NOT PLACE SIGNAL HEADS OVER THE ROADWAY UNTIL ALL NECESSARY MATERIALS ARE ON HAND AS APPROVED.

14. INSTALL TWO SET SCREWS ON ALL VEHICLE SIGNAL HEAD MOUNTING HARDWARE FITTINGS.

15. PROVIDE CONTINUED OPERATION OF THE EXISTING SIGNAL(S) DURING CONSTRUCTION AND UNTIL THE PROPOSED OPERATION IS COMPLETED.

16. ONCE THE INTEGRITY AND/OR FUNCTION OF THE EXISTING TRAFFIC SIGNAL(S) IS ALTERED BY THE CONTRACTOR, MAINTAIN AND OPERATE THE EXISTING TRAFFIC SIGNAL(S) UNTIL THE TRAFFIC SIGNAL WORK IS ACCEPTED BY THE DEPARTMENT. DURING THE CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL WORK, MAINTAIN THE EXISTING TRAFFIC SIGNAL(S) AND/OR TEMPORARY CONSTRUCTION TRAFFIC SIGNAL(S) IN CONFORMANCE WITH THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

17. DURING CONSTRUCTION OF THE PROPOSED SIGNAL WORK, IF THE EXISTING TRAFFIC SIGNAL EQUIPMENT REQUIRES REPLACEMENT DUE TO WEAR, DETERIORATION, OR ANY CIRCUMSTANCE OVER WHICH THE CONTRACTOR HAS NO CONTROL, THE EQUIPMENT WILL BE FURNISHED BY THE DEPARTMENT AT NO COST TO THE CONTRACTOR. INSTALL THIS EQUIPMENT AT NO COST TO THE DEPARTMENT, SUCH MATERIALS WILL BE PROVIDED AT THE DEPARTMENT'S SIGNAL SHOP LOCATED AT 6810 KATY ROAD, HOUSTON, TEXAS. CONTACT MR. MICHAEL AWA, P.E., AT TELEPHONE NUMBER (713) 802-5661.

18. MAINTAIN THE INTEGRITY AND FUNCTION OF EACH EXISTING SIGNALIZED INTERSECTION. ONCE THE INTEGRITY OR FUNCTION OF THE SIGNAL HAS BEEN ALTERED, PURSUE THE WORK AT THAT LOCATION WITHOUT DELAY OR INTERRUPTION TO RESTORE OPERATION TO ITS ORIGINAL OR FINAL OPERATIONAL DESIGN.

19. INSTALL A 5/8-IN. (MINIMUM) EYE BOLT FOR THE POINT OF ATTACHMENT BELOW THE SERVICE ENTRANCE WEATHERHEAD FOR THE SERVICE DROP TO STEEL OR WOOD POLE.

20. AIM LUMINAIRE ARMS MOUNTED ON TRAFFIC SIGNAL POLES PERPENDICULAR TO THE CENTERLINE OF THE ROADWAY IT IS INTENDED TO COVER, TO DEVELOP THE PROPER ILLUMINATION PATTERN FOR THE INTERSECTION.

21. PROVIDE 250 WATT LIGHT EMITTING DIODE (LED) LAMP LUMINAIRES OPERATING AT 240 VOLTS.

22. WRAP SIGNAL HEADS WITH DARK PLASTIC OR SUITABLE MATERIAL TO CONCEAL THE SIGNAL FACES FROM THE TIME OF INSTALLATION UNTIL PLACING INTO OPERATION.

23. GROUND STEEL STRAIN POLE ASSEMBLIES IN ACCORDANCE WITH REQUIREMENTS SHOWN ON THE LATEST TRAFFIC SIGNAL POLE FOUNDATION STANDARD. USE THE GROUNDING LUG ON THE POLE TO GROUND THE POLE TO THE GROUND CONDUCTORS FROM THE CONDUITS.

24. GROUND STEEL MAST ARM POLE ASSEMBLIES IN ACCORDANCE WITH REQUIREMENTS SHOWN ON THE LATEST TRAFFIC SIGNAL POLE FOUNDATION STANDARD. USE THE GROUNDING LUG ON THE POLE TO GROUND THE POLE TO THE GROUND CONDUCTORS FROM THE CONDUITS.

25. VERIFY THE CORRECT MAST ARM POLE LENGTHS FOR EACH SIGNALIZED INTERSECTION PRIOR TO ORDERING THE EQUIPMENT.

26. INSTALL A CLOSE NIPPLE WITH LOCK NUT AND BUSHING (SIZE AS REQUIRED) WHERE THE CABLE ENTERS THE UPPER PORTION OF THE SIGNAL POLE.

27. REFER TO TXDOT'S WEBSITE FOR PREQUALIFIED PRODUCTS LIST REGARDING RADAR DETECTION UNITS, VEHICLE LED TRAFFIC SIGNAL LAMP UNIT, SYMBOLIC PEDESTRIAN SIGNAL HEAD, SYMBOLIC PEDESTRIAN SIGNAL LAMP, CONDUIT, CONDUCTORS, GROUND BOXES, AND ELECTRIC SERVICE. CHECK WEBSITE PERIODICALLY FOR CURRENT UPDATES.

28. THE LOCATION OF THE RADAR DETECTION ZONE IS APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED BY THE ENGINEER AND/OR DEPARTMENT'S TRAFFIC OPERATIONS SECTION.

29. THE CONTRACTOR SHALL CONNECT ALL FIELD WIRING TO THE CONTROLLER.

30. TRAY CABLE AND ILSN CABLE SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.

31. DETECTION SHALL BE PROVIDED USING A RADAR PRESENCE DETECTOR (RPDD) AND RADAR ADVANCE DETECTOR (RADD). THE RPDD AND RADD SHALL BE MOUNTED ABOVE THE ROADWAY ON THE MAST ARMS, SIGNAL POLES OR PEDESTAL POLES AS SHOWN ON THE PLANS. RPDD AND RADD SHALL BE ORIENTED IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATION TO OBTAIN OPTIMUM DETECTION.

32. THE RADAR PRESENCE DETECTOR AND RADAR ADVANCE DETECTOR PROCESSOR SYSTEM PROVIDED SHALL CONSIST OF UNITS THAT INSERT DIRECTLY INTO THE CONTROLLER INPUT FILE.

33. MINIMUM CLEARANCE OF 10' RADIUS FROM NEUTRAL AND 10' RADIUS FROM PRIMARY SHALL BE MAINTAINED BETWEEN PROPOSED TRAFFIC SIGNAL EQUIPMENT, INCLUDING SPAN WIRE, AND EXISTING OVERHEAD CPS ELECTRICAL LINES.

34. IT IS THE INTENTION OF THESE PLANS TO PROVIDE A FULLY OPERATIONAL TRAFFIC SIGNAL. ANY ITEMS REQUIRED, BUT OMITTED, ARE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE SUBSIDIARY TO THE APPROPRIATE BID ITEM.

35. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PUBLIC AND PRIVATE) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO LOCATE, PRESERVE AND PROTECT THESE UTILITIES, WHETHER UNDERGROUND, ABOVE GROUND OR OVERHEAD.

36. CONTRACTOR WILL EXERCISE CAUTION WHEN EXCAVATING IN THE VICINITY OF UNDERGROUND UTILITIES.

37. CONTRACTOR WILL NOTIFY THE STATE'S UTILITIES LOCATOR AT 800-344-8377 WITH 48 HOURS ADVANCE NOTICE PRIOR TO ANY EXCAVATION, BORING, TRENCHING OR PUSHING PIPING IN THE AREA.

38. ALL CONSTRUCTION SIGNS AND BARRICADES WILL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND BE CONSISTENT WITH TXDOT TCP STANDARDS.

39. EXACT LOCATION OF TRAFFIC SIGNAL POLES, GROUND BOXES AND ELECTRICAL SERVICE WILL BE DETERMINED IN THE FIELD SUBJECT TO FINAL APPROVAL BY TXDOT INSPECTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATIONS FROM INSPECTING ENGINEER, PRIOR TO CONSTRUCTION.

40. ALL CONDUITS IN NATURAL GROUND WILL BE TRENCHED AND BURIED. THE CONTRACTOR WILL BACKFILL, COMPACT AND RESTORE TRENCH AREA TO ORIGINAL CONDITIONS AND MATCH EXISTING SURFACE CONDITIONS TO THE DENSITY OF THE ADJACENT AREA.

41. ALL CONDUITS UNDER ROADWAYS AND PAVED SHOULDERS WILL BE BORED.

42. ALL PVC CONDUIT WILL BE SCHEDULE 80.

43. ALL POLES AND BOXES WILL BE GROUNDED.

44. ALL DRILL SHAFT LOCATIONS ARE APPROXIMATE AND WILL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. ANY ADJUSTMENTS WILL BE APPROVED BY THE INSPECTING ENGINEER.

45. CONTRACTOR WILL RESTORE THE CONSTRUCTION AREA TO ORIGINAL CONDITIONS PRIOR TO FINAL INSPECTION.

46. ANY EXISTING PAVEMENT, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION WILL BE REPLACED TO TXDOT STANDARDS.

47. SIGNAL HEADS WILL BE LED AND HAVE RED, YELLOW, GREEN, YELLOW ARROW, GREEN ARROW WHERE SPECIFIED INDICATORS WITH 12IN LED LENS. ALL SIGNAL HEADS HAVE BLACK BACKPLATES.

48. FURNISH MATERIALS NECESSARY TO INSTALL ACCESSIBLE PEDESTRIAN SIGNAL UNITS AND SIGNS AS SHOWN IN THE PLANS.

49. PEDESTRIAN PUSH BUTTONS WILL CONFORM TO CURRENT ADA STANDARDS AND WILL BE ACCESSIBLE PEDESTRIAN SIGNAL (APS) UNITS CONFORMING TO ITEM 688. EACH APS PUSH BUTTON WILL HAVE THE FOLLOWING FEATURES:
i)PUSH BUTTON LOCATOR TONE
ii)A TACTILE ARROW
iii)A SPEECH WALK MESSAGE INDICATION, AND
iv)A SPEECH PUSH BUTTON INFORMATION MESSAGE.

50. THE APS UNIT WILL BE PROGRAMMED BY A MANUFACTURER'S REPRESENTATIVE IN ACCORDANCE WITH SPECIFICATIONS AND THE TMUTCD.

51. CABINET ASSEMBLY SHALL BE EQUIPPED WITH A MANUAL CONTROL SWITCH AND INTERVAL ADVANCE BUTTON IN THE POLICE PANEL FOR MANUAL CONTROL OF SIGNAL.

52. TXDOT HAS THE AUTHORITY TO STOP CONSTRUCTION OF TRAFFIC SIGNAL, IF THE STATE SPECIFICATIONS ARE NOT BEING FOLLOWED.

NOTES FOR TXDOT MAINTAINED AND OPERATED SIGNALS:

1. ALL EXISTING SIGNAL EQUIPMENT WITH THE EXCEPTION OF THE SIGNAL CONTROLLER AND RELATED EQUIPMENT BECOME THE PROPERTY OF THE CONTRACTOR. DELIVER THE CONTROLLER AND RELATED EQUIPMENT TO THE SIGNAL SHOP, LOCATED AT 4615 NW LOOP 410 (CORNER OF IH 410 AND CALLAGHAN ROAD) IN SAN ANTONIO, TEXAS OR TO THE AREA OFFICE AS DIRECTED.

2. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT CRAIG WILLIAMS AT 210-615-5975.

3. FURNISH AND INSTALL A NEW EIGHT-PHASE NEMA TS2 TYPE 2 CONTROLLER AND CABINET, MEETING THE REQUIREMENTS OF DEPARTMENTAL MATERIALS SPECIFICATIONS DMS-11170. PROVIDE DETECTOR PANEL TOGGLE SWITCHES THAT ADDITIONALLY PERMIT THE USER TO DISCONNECT THE DETECTOR. FOR BOTH GROUND AND POLE-MOUNT CABINETS, PROVIDE CABINET CONFIGURATION WITH 16 POSITION LOAD BAY.

4. CONTRACTOR SHALL FURNISH AND DELIVER TS2 TYPE 2 CONTROLLER CABINET AND ASSEMBLY TO THE TXDOT SAN ANTONIO DISTRICT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICK UP WITH CRAIG WILLIAMS (210) 615-5975.

PRELIMINARY - SUBJECT TO CHANGE
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60% SUBMITTAL

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RESPONSIBLE ENGINEER:
TEDSI INFRASTRUCTURE GROUP, INC.
M. R. NEELAPU, P.E.
TEXAS REGISTRATION NO. 107595

6/4/2020

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TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

FM 1560

TRAFFIC SIGNAL NOTES

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	378
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020
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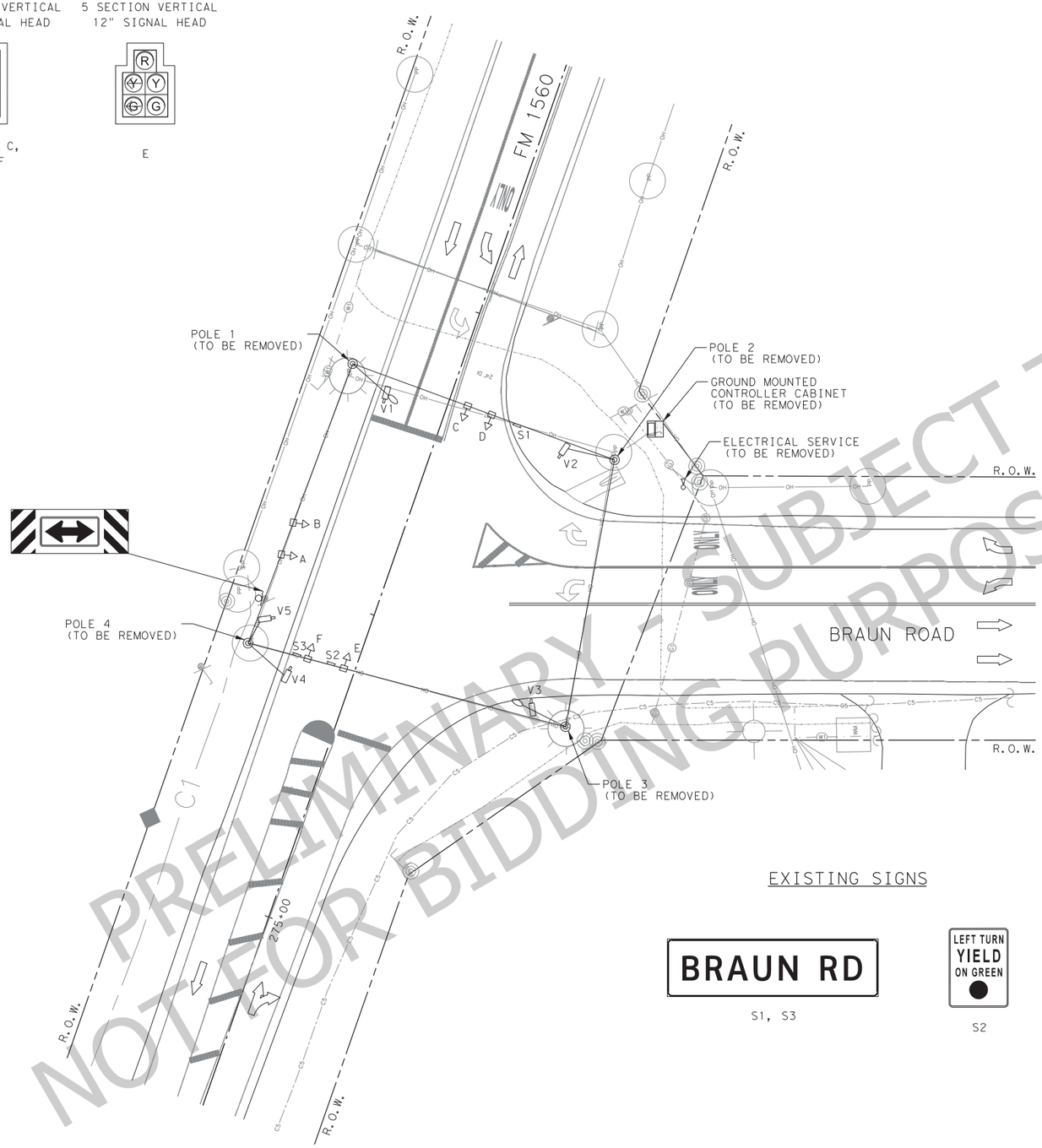
EXISTING TRAFFIC SIGNAL HEADS

3 SECTION VERTICAL 12" SIGNAL HEAD

A, B, C, D, F

5 SECTION VERTICAL 12" SIGNAL HEAD

E



LEGEND

- WOOD POLE WITH SPAN WIRE
- LUMINAIRE
- VERTICAL SIGNAL HEAD
- SERVICE METER AND DISCONNECT
- GROUND MOUNTED CONTROLLER CABINET
- SIGN ON POST
- VIVDS CAMERA
- DIRECTION OF TRAFFIC
- RIGHT OF WAY (R.O.W.)

EXISTING SIGNS

S1, S3

S2

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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RESPONSIBLE ENGINEER:
TEDSI INFRASTRUCTURE GROUP, INC.
M. R. NEELAPU, P.E.
TEXAS REGISTRATION NO. 107595

6/4/2020

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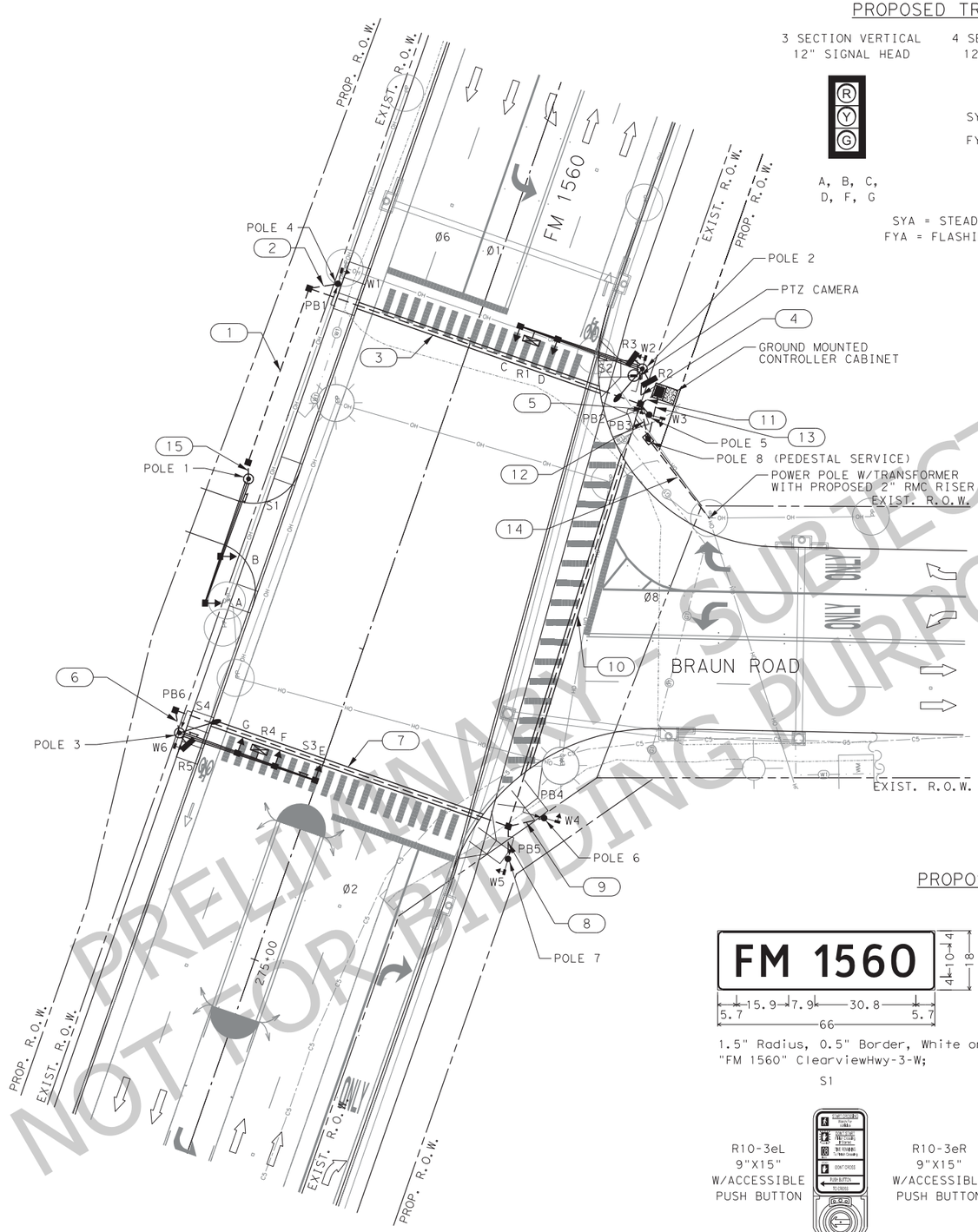
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

FM 1560
FM 1560 AT
BRAUN ROAD

EXISTING CONDITIONS

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	379
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2018\2018-2060-00 - TxDOT Traffic Engineering (San Antonio)\Work Authorizations\2018-2060-02 - WA2 Emergency Work Authorizations



PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

PROPOSED TRAFFIC SIGNAL HEADS

3 SECTION VERTICAL 12" SIGNAL HEAD

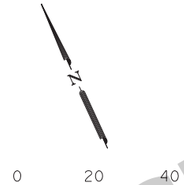
A, B, C, D, F, G

4 SECTION VERTICAL 12" SIGNAL HEAD

E

SYA = STEADY YELLOW ARROW SIGNAL
FYA = FLASHING YELLOW ARROW SIGNAL

W1 THRU W6



LEGEND

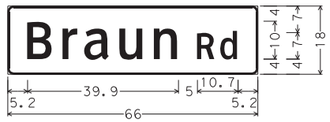
- SIGNAL POLE WITH MAST ARM
- PEDESTRIAN POLE
- LUMINAIRE
- VERTICAL SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTAL SERVICE METER AND DISCONNECT
- GROUND MOUNTED CONTROLLER CABINET
- RADAR PRESENCE (RPDD)
- RADAR ADVANCE (RADD)
- PTZ CAMERA
- DIRECTION OF TRAFFIC
- RIGHT OF WAY (R.O.W.)

NOTE:
THE CONTRACTOR SHALL STAKE ALL POLE LOCATIONS PRIOR TO DIGGING. ENGINEER WILL APPROVE POLE LOCATIONS.

PROPOSED SIGNS

1.5" Radius, 0.5" Border, White on Green;
"FM 1560" ClearviewHwy-3-W;

S1



1.5" Radius, 0.5" Border, White on, Green;
"Braun", ClearviewHwy-3-W;
"Rd", ClearviewHwy-3-W;

S2, S4

R10-3eL
9"X15"
W/ACCESSIBLE
PUSH BUTTON

PB2, PB4, PB6

R10-3eR
9"X15"
W/ACCESSIBLE
PUSH BUTTON

PB1, PB3, PB5

LEFT TURN
YIELD
ON FLASHING
YELLOW
ARROW

R10-17T
30"X30"

S3

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FM 1560
FM 1560 AT BRAUN ROAD
PROPOSED SIGNAL LAYOUT

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	380
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020
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CONDUIT AND CONDUCTOR SCHEDULE

ITEM			RUN NUMBER	1	2	3	4			5	6			7			8	9	10			11			12	13	14	15		
			CONDUIT SIZE IN INCHES	3	2	3	3	3	2	2	3	3	2	3	3	2	2	2	3	3	2	3	3	2	2	2	3	3	2
			NUMBER OF CONDUITS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			LENGTH OF RUN (FT)	57	9	107	11	11	11	5	7	7	7	108	108	108	10	12	135	135	135	7	7	11	15	30	5	5	5
			TRENCH (T) / BORE (B)	T	T	B	T	T	T	T	T	T	T	B	B	B	T	T	B	B	B	T	T	T	T	T	T	T	T
POWER	#6 XHHW		120 POWER HOT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
			120 POWER COMMON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
	#6 BARE		BARE BOND GROUND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SIGNAL HEAD	7/C - #12 AWG TYPE A		PHASE 1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
			PHASE 2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
			PHASE 6	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
			PHASE 8	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
PEDESTRIAN	4/C - #12 AWG TYPE A		PHASE 2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	2	-	-	-	-	-	-	-
			PHASE 7	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	2	-	-	2	-	-	-	-	-	-	-
			PHASE 8	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
PUSH BUTTON	2/C - #14 AWG TYPE C		PHASE 2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	2	-	-	-	-	-	-	-
			PHASE 7	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	2	-	-	2	-	-	-	-	-	-	-
			PHASE 8	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
RADAR DETECTOR	COMMUNICATION CABLE		PHASE 1&6 PRESENCE	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
			PHASE 1&6 ADVANCE	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
			PHASE 2 PRESENCE	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
			PHASE 2 ADVANCE	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
			PHASE 8 PRESENCE	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
PTZ CAMERA	COMM. CABLE		POLE 2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
LUMINAIRE	TRAY CABLE 4/C -#12 AWG TYPE A		POLE 2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
			POLE 3	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	-

RADAR DETECTION CHART

RADAR	PHASE	APPROACH	DETECTION ZONE	MOUNTING LOCATION
R1	2	NB FM 1560	ADVANCE	POLE 2 MAST ARM
R2	8	WB BRAUN RD	PRESENCE	POLE 2
R3	1&6	SB FM 1560	PRESENCE	POLE 2
R4	1&6	SB FM 1560	ADVANCE	POLE 3 MAST ARM
R5	2	NB FM 1560	PRESENCE	POLE 3

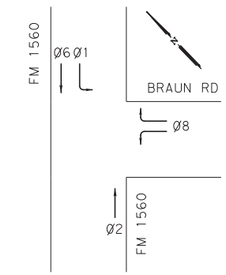
*POLE & EQUIPMENT INFORMATION

POLE ID	DESCRIPTION	STATION	OFFSET
1	SINGLE MAST ARM 40'ON A 36-A FOUNDATION AT 13.2 FT WITH TWO VEHICLE SIGNALS.	276+37.4	50.0' L
2	SINGLE MAST ARM 40'ON A 36-A FOUNDATION AT 13.2 FT WITH TWO VEHICLE SIGNALS, ONE 8 FT LUMINAIRE ARM WITH 250 W HPS EQUIVALENT LED LAMP,TWO RADAR PRESENCE DETECTORS, ONE RADAR ADVANCE DETECTOR, ONE PTZ CAMERA, ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	277+08.5	52.0' R
3	SINGLE MAST ARM 44'ON A 36-A FOUNDATION AT 13.2 FT WITH THREE VEHICLE SIGNALS, ONE 8 FT LUMINAIRE ARM WITH 250 W HPS EQUIVALENT LED LAMP,ONE RADAR PRESENCE DETECTORS, ONE RADAR ADVANCE DETECTOR, ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	275+57.6	44.3' L
4	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	277+02.4	43.9' L
5	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	276+96.0	58.6' R
6	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	275+69.7	68.9' R
7	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	275+54.3	62.6' R
8	PROPOSED PEDESTAL SERVICE WITH METER AND DISCONNECT.	276+88.9	60.7' R
CONTROLLER	PROPOSED CONTROLLER CABINET. TXDOT TRAFFIC SIGNAL TS 2 TY 2 COBALT ECONOLITE CONTROLLER AND CABINET ON CONCRETE FOUNDATION.	277+03.6	59.2' R

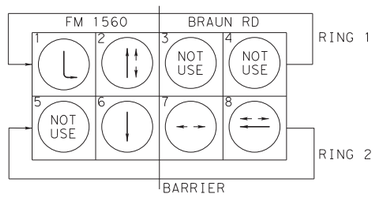
*FINAL LOCATION TO BE FIELD VERIFIED AND APPROVED BY THE FIELD ENGINEER BEFORE INSTALLING THE FOUNDATION

ELEC. SERVICE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (5) - 14)	SERVICE CONDUIT SIZE	SERVUCE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANELBD/ LOADCENTER AMP RATING	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
8	ELEC SERV TY D 120/240 070(NS)AL(E)PS(U)	1 1/4"	3/#6	N/A	2P/70	30	100	A (LUMINAIRE) B (SIGNAL)	1P/20 1P/50	6 40	<7.1

ORIENTATION DIAGRAM



PHASING DIAGRAM



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FM 1560
FM 1560 AT BRAUN ROAD

PROPOSED SIGNAL DETAILS

SHEET 1 OF 2

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	381
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

ITEM NO.	DESC. CODE	DESCRIPTION	UNIT	QUANTITY
416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	39
618	6046	CONDT (PVC) (SCH 80) (2")	LF	130
618	6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	270
618	6053	CONDT (PVC) (SCH 80) (3")	LF	130
618	6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	650
620	6009	ELEC CONDR (NO.6) BARE	LF	1175
620	6010	ELEC CONDR (NO.6) INSULATED	LF	100
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	380
624	6010	GROUND BOX TY D (162922)W/APRON	EA	5
628	6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	**	NEMA TS 2 TY2 SIGNAL CONTROLLER	EA	1
	**	NEMA TS 2 TY2 SIGNAL CABINET	EA	1
	**	TRF SIG CONTROLLER CONCRETE BASEDPAD FOUNDATION	EA	1
	**	ROD, 5/8" X 10' COPPER GROUND (CONTROLLER ONLY)	EA	1
	**	CONTROLLER POWER SUPPLY	EA	1
	**	DETECTOR CARD RACK/UNIT	EA	1
	**	CONTROL, PHOTOELECTRIC	EA	1
	**	LED LUMINAIRE (250 W EQ) WITH ARM	EA	2
	**	MAST ARM MOUNTED REG SIGN PANEL	EA	4
	**	CELLULAR MODEM (CISCO MODEL 809)	EA	1
	**	ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
	**	IP CAMERA	EA	1
	**	IP CAMERA MOUNTING BRACKET	EA	1
	**	POWER STRIP	EA	1
	**	SWITCH POWER SUPPLY	EA	1
	**	POE POWER SUPPLY (FOR CAMERA ONLY)	EA	1
	**	ETHERNET CABLE (COLOR CODED)	EA	1
680	6004	REMOVE TRAFFIC SIGNAL	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
682	6005	VEH SIG SEC (12")LED(RED)	EA	6
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
682	6023	BACK PLATE (12")(3 SEC)	EA	6
682	6024	BACK PLATE (12")(4 SEC)	EA	1
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	850
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1040
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	820
686	6041	INS TRF SIG PL AM(S)1 ARM(40')	EA	1
686	6043	INS TRF SIG PL AM(S)1 ARM(40')LUM	EA	1
686	6047	INS TRF SIG PL AM(S)1 ARM(44')LUM	EA	1
687	6001	PED POLE ASSEMBLY	EA	4
	***	DRILL SHAFT (24IN FOUNDATION)	LF	24
688	6001	PED DETECT PUSH BUTTON (APS)	EA	6
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
	****	6/C-RADAR SMARTSENSOR CABLE	LF	390
6292	6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
	****	6/C-RADAR SMARTSENSOR CABLE	LF	410

** SUBSIDIARY TO ITEM 680-6003
*** SUBSIDIARY TO ITEM 687-6001
**** SUBSIDIARY TO ITEM 6292-6001

POLE SCHEDULE

ITEM	POLE		1	2	3	4	5	6	7
	POLE TYPE		SMA-80	SMA-80	SMA-80	PED	PED	PED	PED
	POLE HEIGHT (FT)		19	30	30	10	10	10	10
	MAST ARM LENGTH (FT)		40	40	44	N/A	N/A	N/A	N/A
	LUMINAIRE		NO	YES	YES	N/A	N/A	N/A	N/A
	FOUNDATION TYPE		36-A	36-A	36-A	24-A	24-A	24-A	24-A
	FOUNDATION DEPTH (FT)		13	13	13	6	6	6	6
SIGNAL HEAD	7/C - #12 AWG TYPE A	PHASE 1	-	-	1	-	-	-	-
		PHASE 2	-	1	-	-	-	-	-
		PHASE 6	-	-	1	-	-	-	-
		PHASE 8	1	-	-	-	-	-	-
PEDESTRIAN	4/C - #12 AWG TYPE A	PHASE 2	-	-	-	-	1	1	-
		PHASE 7	-	-	1	-	-	-	1
		PHASE 8	-	1	-	1	-	-	-
PUSH BUTTON	2/C - #14 AWG TYPE C	PHASE 2	-	-	-	-	1	1	-
		PHASE 7	-	-	1	-	-	-	1
		PHASE 8	-	1	-	1	-	-	-
RADAR DETECTOR	COMMUNICATION CABLE	PHASE 1&6 PRESENCE	-	1	-	-	-	-	-
		PHASE 1&6 ADVANCE	-	-	1	-	-	-	-
		PHASE 2 PRESENCE	-	-	1	-	-	-	-
		PHASE 2 ADVANCE	-	1	-	-	-	-	-
		PHASE 8 PRESENCE	-	1	-	-	-	-	-
PTZ CAMERA	COMMUNICATION CABLE	POLE 2	-	1	-	-	-	-	-
LUMINAIRE	TRAY CABLE 4/C - #12 AWG TYPE A	POLE 2	-	1	-	-	-	-	-
		POLE 3	-	-	1	-	-	-	-

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BRAUN ROAD

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STATE	DIST.	COUNTY	382
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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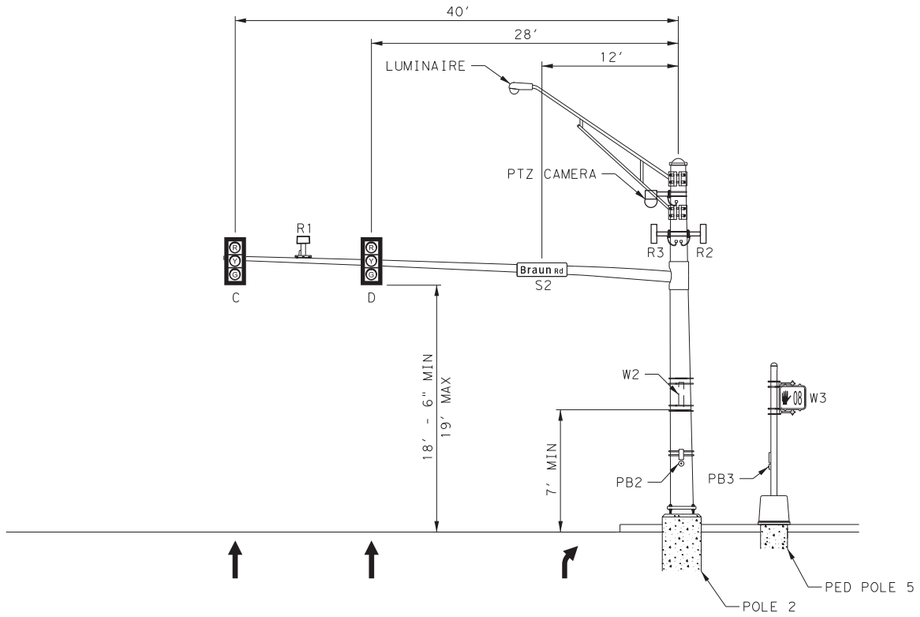
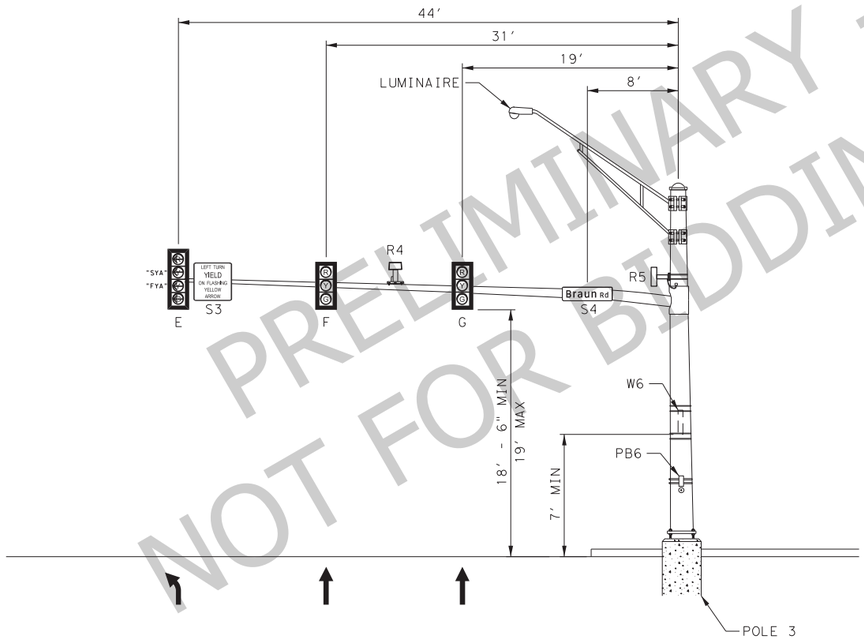
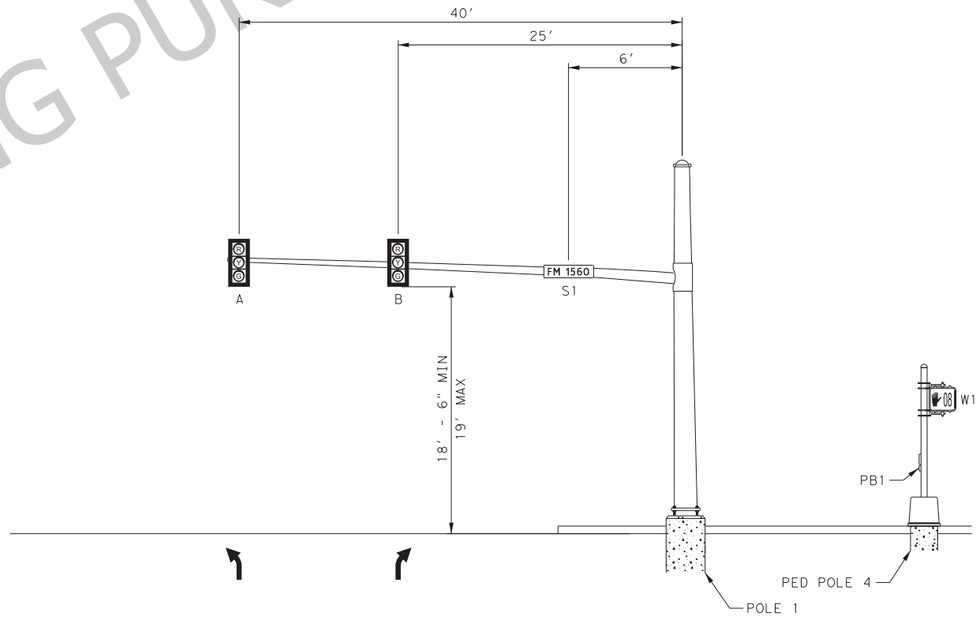


LOOKING NORTH ON NB FM 1560
AT BRAUN ROAD



LOOKING SOUTH ON SB FM 1560
AT BRAUN ROAD



LOOKING WEST ON BRAUN ROAD
AT FM 1560

NOTES:

1. DISTANCES SHOWN ALONG MAST ARMS ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD AS NEEDED.
2. LOCATION OF POLES ARE APPROXIMATE. ANY CHANGES WILL BE APPROVED BY THE FIELD ENGINEER.
3. MAST ARM ATTACHMENT HEIGHT WILL BE CALCULATED BY THE CONTRACTOR IN THE FIELD AND APPROVED BY THE ENGINEER.
4. FOUNDATIONS MUST BE ADJUSTED IN THE FIELD IN ORDER TO MEET CLEARANCE.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SCALE: NOT TO SCALE

60% SUBMITTAL

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M. R. NEELAPU, P.E.
TEXAS REGISTRATION NO. 107595

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Consulting Engineers
738 Hwy 6 South, Suite 430
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(832) 619-1000
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TBPE F-1640

FM 1560
FM 1560 AT
BRAUN ROAD

TRAFFIC SIGNAL ELEVATION

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	383
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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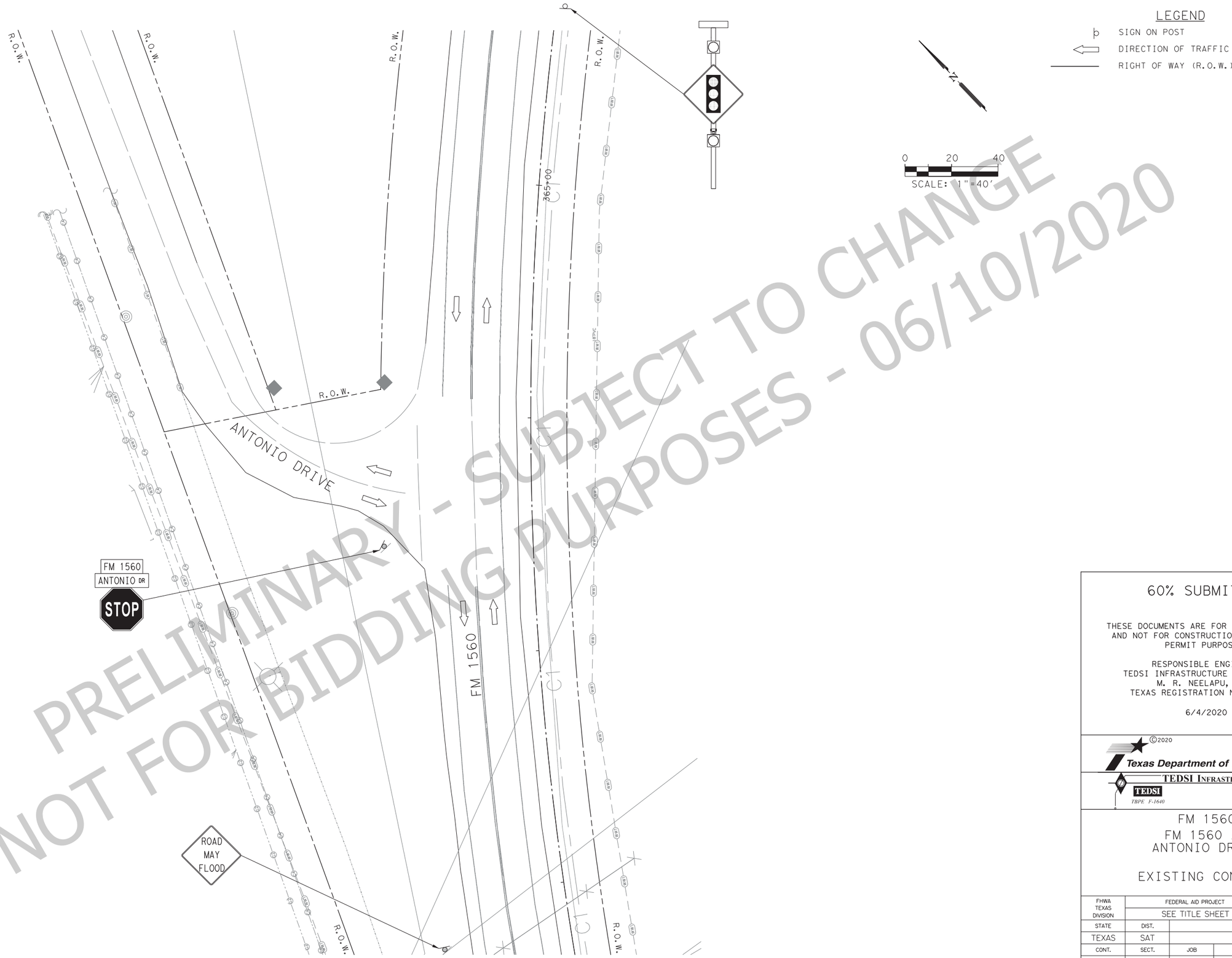

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FM 1560
FM 1560 AT ANTONIO DRIVE

EXISTING CONDITIONS

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	384
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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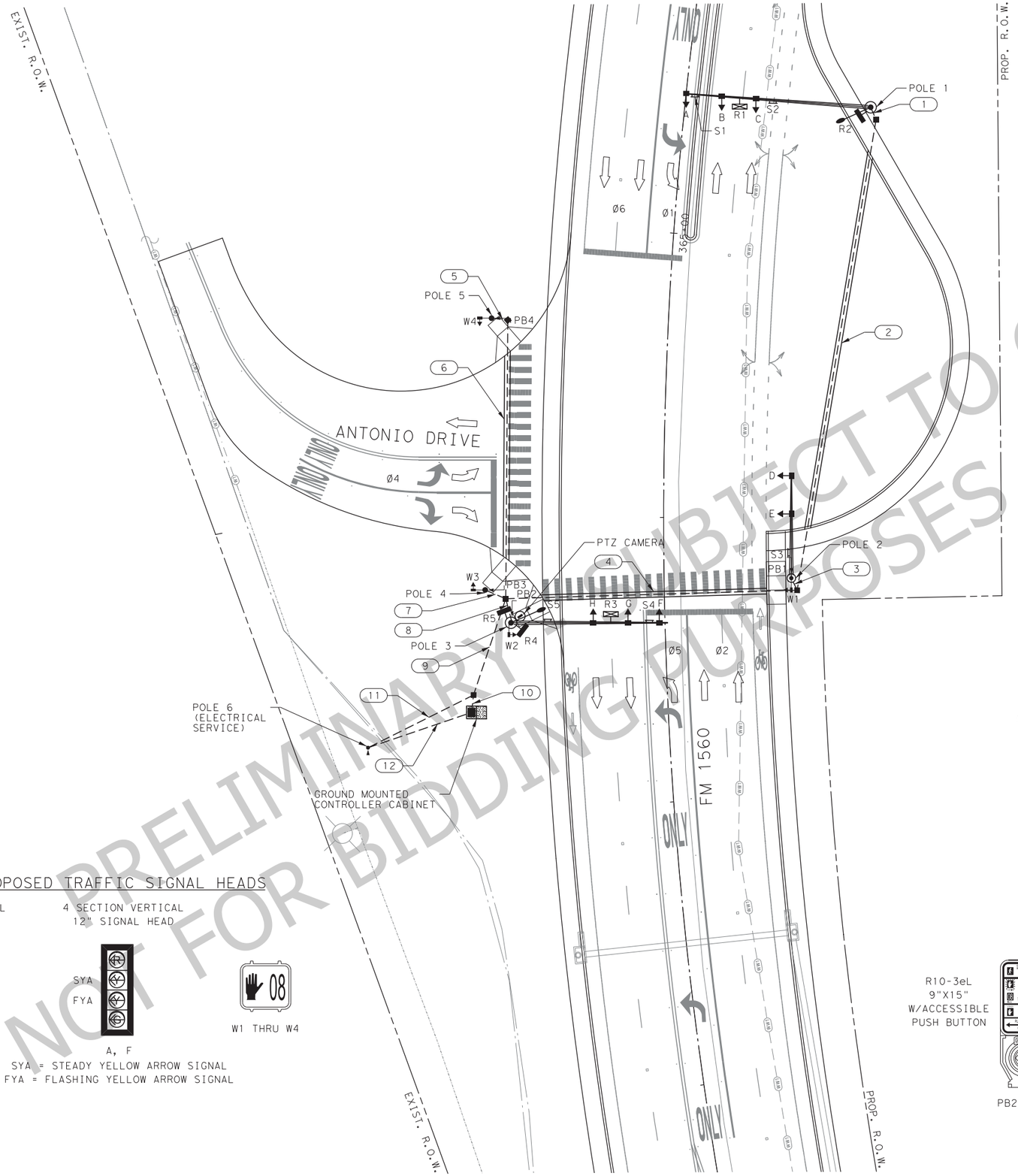


0 20 40
SCALE: 1"=40'

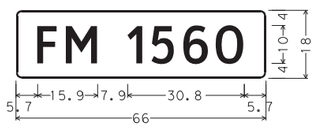
LEGEND

- SIGNAL POLE WITH MAST ARM
- PEDESTRIAN POLE
- LUMINAIRE
- VERTICAL SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- SERVICE METER AND DISCONNECT
- GROUND MOUNTED CONTROLLER CABINET
- RADAR PRESENCE (RPDD)
- RADAR ADVANCE (RADD)
- PTZ CAMERA
- DIRECTION OF TRAFFIC
- RIGHT OF WAY (R.O.W.)

PROPOSED SIGNS

1.5" Radius, 0.5" Border, White on, Green;
"Antonio", ClearviewHwy-3-W;
"Dr", ClearviewHwy-3-W;

S2, S5



1.5" Radius, 0.5" Border, White on Green;
"FM 1560" ClearviewHwy-3-W;

S3

R10-17T
30"X30"

S1, S4

PROPOSED TRAFFIC SIGNAL HEADS

3 SECTION VERTICAL 12" SIGNAL HEAD

B, C, D, E, G, H

4 SECTION VERTICAL 12" SIGNAL HEAD

A, F

W1 THRU W4

SYA = STEADY YELLOW ARROW SIGNAL
FYA = FLASHING YELLOW ARROW SIGNAL

R10-3eL
9"X15"
W/ACCESSIBLE
PUSH BUTTON

PB2, PB4

R10-3eR
9"X15"
W/ACCESSIBLE
PUSH BUTTON

PB1, PB3

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FM 1560
FM 1560 AT ANTONIO DRIVE

PROPOSED LAYOUT

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	385
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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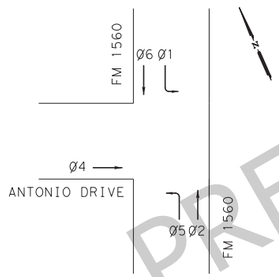
6/4/2020

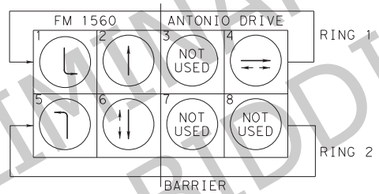
CONDUIT AND CONDUCTOR SCHEDULE

ITEM			RUN NUMBER	1			2			3			4			5	6	7	8			9			10		11	12
			CONDUIT SIZE IN INCHES	3	3	2	3	3	2	3	3	2	3	3	2	2	2	2	3	3	2	3	3	2	3	3	2	2
			NUMBER OF CONDUITS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			LENGTH OF RUN (FT)	5	5	5	168	168	168	5	5	5	103	103	103	6	98	8	9	9	9	36	36	36	7	7	42	39
			TRENCH (T) / BORE (B)	T	T	T	B	B	B	T	T	T	B	B	B	T	B	T	T	T	T	T	T	T	T	T	T	T
POWER	#6 XHHW		120 POWER HOT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
			120 POWER COMMON	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	#6 BARE		BARE BOND GROUND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SIGNAL HEAD	7/C - #12 AWG TYPE A		PHASE 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-
			PHASE 2	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
			PHASE 4	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
			PHASE 5	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
			PHASE 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-
PEDESTRIAN	4/C - #12 AWG TYPE A		PHASE 4	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1	-	-	2	-	-	2	-	-	-
			PHASE 6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	2	-	-	2	-	-	-
PUSH BUTTON	2/C - #14 AWG TYPE C		PHASE 4	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1	-	-	2	-	-	2	-	-	-
			PHASE 6	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	2	-	-	2	-	-	-
RADAR DETECTOR	COMMUNICATION CABLE		PHASE 2&5 PRESENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-
			PHASE 2&5 ADVANCE	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-
			PHASE 4 PRESENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-
			PHASE 1&6 PRESENCE	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-
			PHASE 1&6 ADVANCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-
PTZ CAMERA	COMM. CABLE		POLE 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-
LUMINAIRE	TRAY CABLE 4/C -#12 AWG TYPE A		POLE 1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
			POLE 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-

ORIENTATION DIAGRAM



PHASING DIAGRAM



RADAR DETECTION CHART

RADAR	PHASE	APPROACH	DETECTION ZONE	MOUNTING LOCATION
R1	2&5	NB FM 1560	ADVANCE	POLE 1 MAST ARM
R2	1&6	SB FM 1560	PRESENCE	POLE 1
R3	1&6	SB FM 1560	ADVANCE	POLE 3 MAST ARM
R4	2&5	NB FM 1560	PRESENCE	POLE 3
R5	4	EB ANTONIO DRIVE	PRESENCE	POLE 3

ELEC. SERVICE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (5) - 14)	SERVICE CONDUIT SIZE	SERVUCE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANELBD/ LOADCENTER AMP RATING	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
6	ELEC SERV TY D 120/240 070(NS)AL(E)TP(O)	1 1/4"	3/#6	N/A	2P/70	30	100	A (LUMINAIRE) B (SIGNAL)	1P/20 1P/50	6 40	<7.1

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FM 1560
FM 1560 AT ANTONIO DRIVE

PROPOSED SIGNAL DETAILS

SHEET 1 OF 2

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	386
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

ITEM NO.	DESC. CODE	DESCRIPTION	UNIT	QUANTITY
416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	13
416	6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	44
618	6046	CONDT (PVC) (SCH 80) (2")	LF	165
618	6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	410
618	6053	CONDT (PVC) (SCH 80) (3")	LF	140
618	6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	600
620	6009	ELEC CONDR (NO.6) BARE	LF	1305
620	6010	ELEC CONDR (NO.6) INSULATED	LF	90
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	555
624	6010	GROUND BOX TY D (162922)W/APRON	EA	5
628	6167	ELC SRV TY D 120/240 070(NS)AL(E)TP(O)	EA	1
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	**	NEMA TS 2 TY2 SIGNAL CONTROLLER	EA	1
	**	NEMA TS 2 TY2 SIGNAL CABINET	EA	1
	**	TRF SIG CONTROLLER CONCRETE BASEDPAD FOUNDATION	EA	1
	**	ROD, 5/8" X 10' COPPER GROUND (CONTROLLER ONLY)	EA	1
	**	CONTROLLER POWER SUPPLY	EA	1
	**	DETECTOR CARD RACK/UNIT	EA	1
	**	CONTROL, PHOTOELECTRIC	EA	1
	**	LED LUMINAIRE (250 W EQ) WITH ARM	EA	2
	**	MAST ARM MOUNTED REG SIGN PANEL	EA	5
	**	CELLULAR MODEM (CISCO MODEL 809)	EA	1
	**	ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
	**	IP CAMERA	EA	1
	**	IP CAMERA MOUNTING BRACKET	EA	1
	**	POWER STRIP	EA	1
	**	SWITCH POWER SUPPLY	EA	1
	**	POE POWER SUPPLY (FOR CAMERA ONLY)	EA	1
	**	ETHERNET CABLE (COLOR CODED)	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	6
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	4
682	6023	BACK PLATE (12")(3 SEC)	EA	6
682	6024	BACK PLATE (12")(4 SEC)	EA	2
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	490
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1370
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	460
686	6037	INS TRF SIG PL AM(S)1 ARM(36')	EA	1
686	6059	INS TRF SIG PL AM(S)1 ARM(55')LUM	EA	1
686	6067	INS TRF SIG PL AM(S)1 ARM(65')LUM	EA	1
687	6001	PED POLE ASSEMBLY	EA	2
	***	DRILL SHAFT (24IN FOUNDATION)	LF	12
688	6001	PED DETECT PUSH BUTTON (APS)	EA	4
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
	****	6/C-RADAR SMARTSENSOR CABLE	LF	530
6292	6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
	****	6/C-RADAR SMARTSENSOR CABLE	LF	540

** SUBSIDIARY TO ITEM 680-6003

*** SUBSIDIARY TO ITEM 687-6001

**** SUBSIDIARY TO ITEM 6292-6001

*POLE & EQUIPMENT INFORMATION

POLE ID	DESCRIPTION	STATION	OFFSET
1	SINGLE MAST ARM 65'ON A 48-A FOUNDATION AT 22 FT WITH THREE VEHICLE SIGNALS, ONE 8 FT LUMINAIRE ARM WITH 250 W HPS EQUIVALENT LED LAMP,ONE RADAR PRESENCE DETECTOR, ONE RADAR ADVANCE DETECTOR.	365+49.0	65.0' R
2	SINGLE MAST ARM 36'ON A 36-A FOUNDATION AT 13.2 FT WITH TWO VEHICLE SIGNALS, ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	363+75.5	44.7' R
3	SINGLE MAST ARM 55'ON A 48-A FOUNDATION AT 22 FT WITH THREE VEHICLE SIGNALS, ONE 8 FT LUMINAIRE ARM WITH 250 W HPS EQUIVALENT LED LAMP,TWO RADAR PRESENCE DETECTORS, ONE RADAR ADVANCE DETECTOR, ONE PTZ CAMERA, ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	363+66.8	53.7' L
4	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	363+79.0	62.9' L
5	10' PEDESTAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 5.7 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD AND ONE APS PED PUSH BUTTON.	364+70.0	62.1' L
6	PROPOSED ELECTRICAL SERVICE POLE. CPS ENERGY TIMBER POLE AND METER W/ TXDOT TYPE D SERVICE.	363+37.9	79.5' L
CONTROLLER	PROPOSED CONTROLLER CABINET. TXDOT TRAFFIC SIGNAL TS 2 TY 2 COBALT ECONOLITE CONTROLLER AND CABINET ON CONCRETE FOUNDATION.	363+36.4	69.1' L

*FINAL LOCATION TO BE FIELD VERIFIED AND APPROVED BY THE FIELD ENGINEER BEFORE INSTALLING THE FOUNDATION

POLE SCHEDULE

			1	2	3	4	5
ITEM	POLE		1	2	3	4	5
	POLE TYPE		LMA-80	SMA-80	LMA-80	PED	PED
	POLE HEIGHT (FT)		30	19	30	10	10
	MAST ARM LENGTH (FT)		65	36	55	N/A	N/A
	LUMINAIRE		YES	NO	YES	N/A	N/A
	FOUNDATION TYPE		48-A	36-A	48-A	24-A	24-A
	FOUNDATION DEPTH (FT)		22	13	22	6	6
SIGNAL HEAD	7/C - #12 AWG TYPE A	PHASE 1	-	-	1	-	-
		PHASE 2	1	-	-	-	-
		PHASE 4	-	1	-	-	-
		PHASE 5	1	-	-	-	-
		PHASE 6	-	-	1	-	-
PEDESTRIAN	4/C - #12 AWG TYPE A	PHASE 4	-	1	1	-	-
		PHASE 6	-	-	-	1	1
PUSH BUTTON	2/C - #14 AWG TYPE C	PHASE 4	-	1	1	-	-
		PHASE 6	-	-	-	1	1
RADAR DETECTOR	COMMUNICATION CABLE	PHASE 2&5 PRESENCE	-	-	1	-	-
		PHASE 2&5 ADVANCE	1	-	-	-	-
		PHASE 4 PRESENCE	-	-	1	-	-
		PHASE 1&6 PRESENCE	1	-	-	-	-
		PHASE 1&6 ADVANCE	-	-	1	-	-
PTZ CAMERA	COMMUNICATION CABLE	POLE 3	-	-	1	-	-
LUMINAIRE	TRAY CABLE 4/C - #12 AWG TYPE A	POLE 1	1	-	-	-	-
		POLE 3	-	-	1	-	-

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PROPOSED SIGNAL DETAILS

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	SEE TITLE SHEET		
STATE	DIST.	COUNTY	387
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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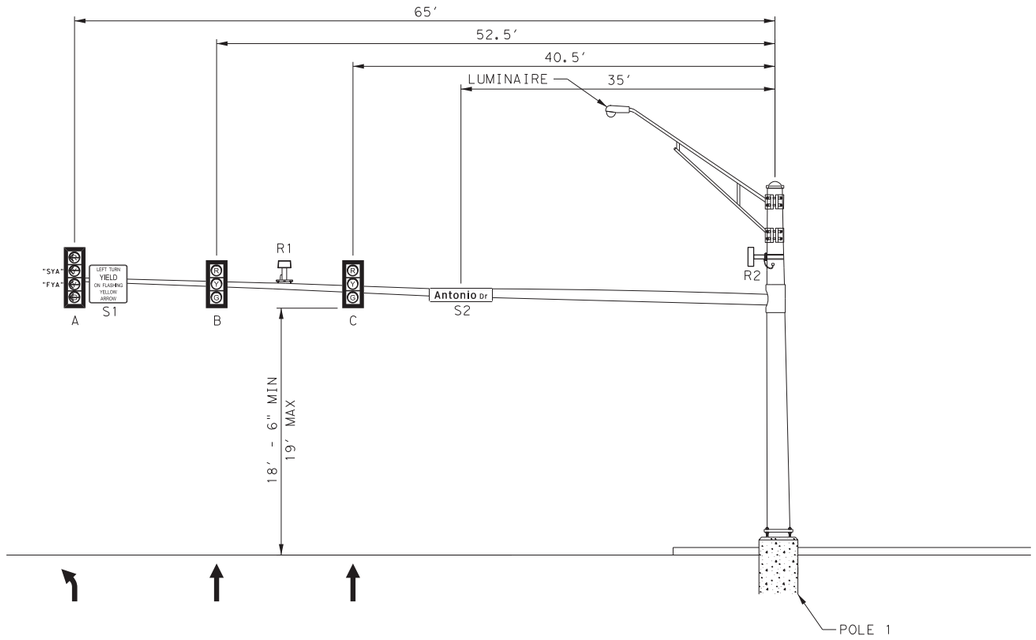
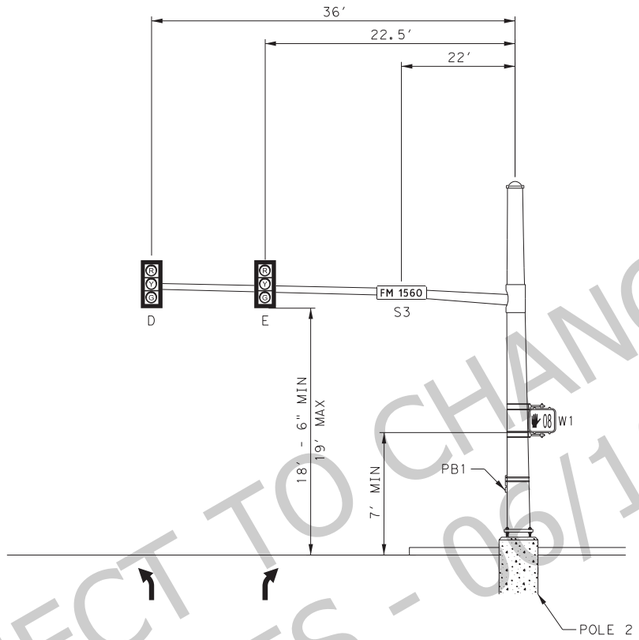


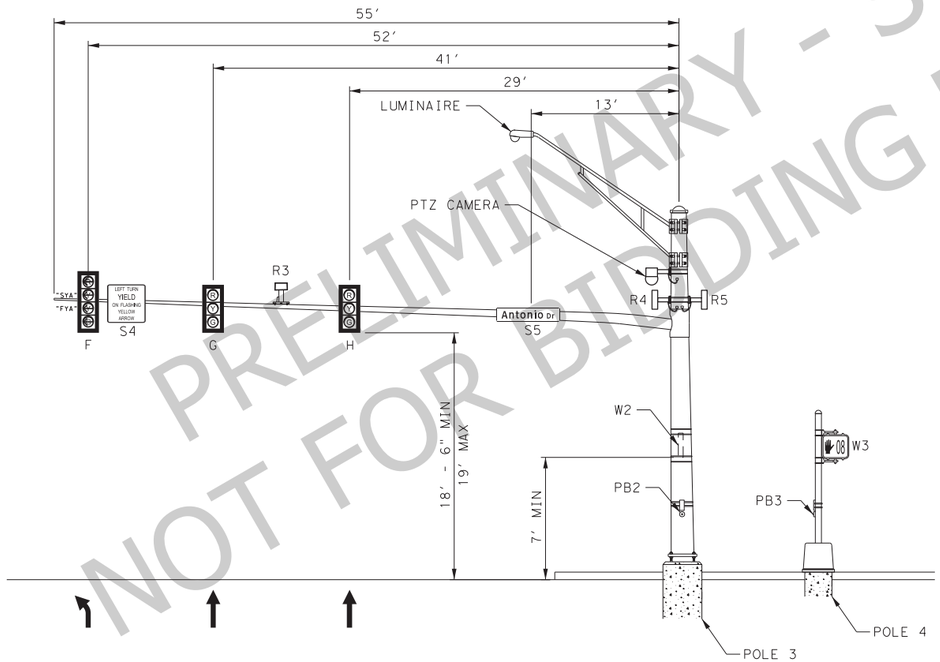
LOOKING NORTH ON NB FM 1560
AT ANTONIO DRIVE



LOOKING EAST ON ANTONIO DRIVE
AT FM 1560

NOTES:

1. DISTANCES SHOWN ALONG MAST ARMS ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD AS NEEDED.
2. LOCATION OF POLES ARE APPROXIMATE. ANY CHANGES WILL BE APPROVED BY THE FIELD ENGINEER.
3. MAST ARM ATTACHMENT HEIGHT WILL BE CALCULATED BY THE CONTRACTOR IN THE FIELD AND APPROVED BY THE ENGINEER.
4. FOUNDATIONS MUST BE ADJUSTED IN THE FIELD IN ORDER TO MEET CLEARANCE.



LOOKING SOUTH ON SB FM 1560
AT ANTONIO DRIVE

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SCALE: NOT TO SCALE

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FM 1560
FM 1560 AT ANTONIO DRIVE

TRAFFIC SIGNAL ELEVATION

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	388
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/4/2020
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2018\2018-2060-00 - TxDOT Traffic Engineering (San Antonio)\Work Authorizations\2018-2060-02 - WA2 Emergency Work Authorizations

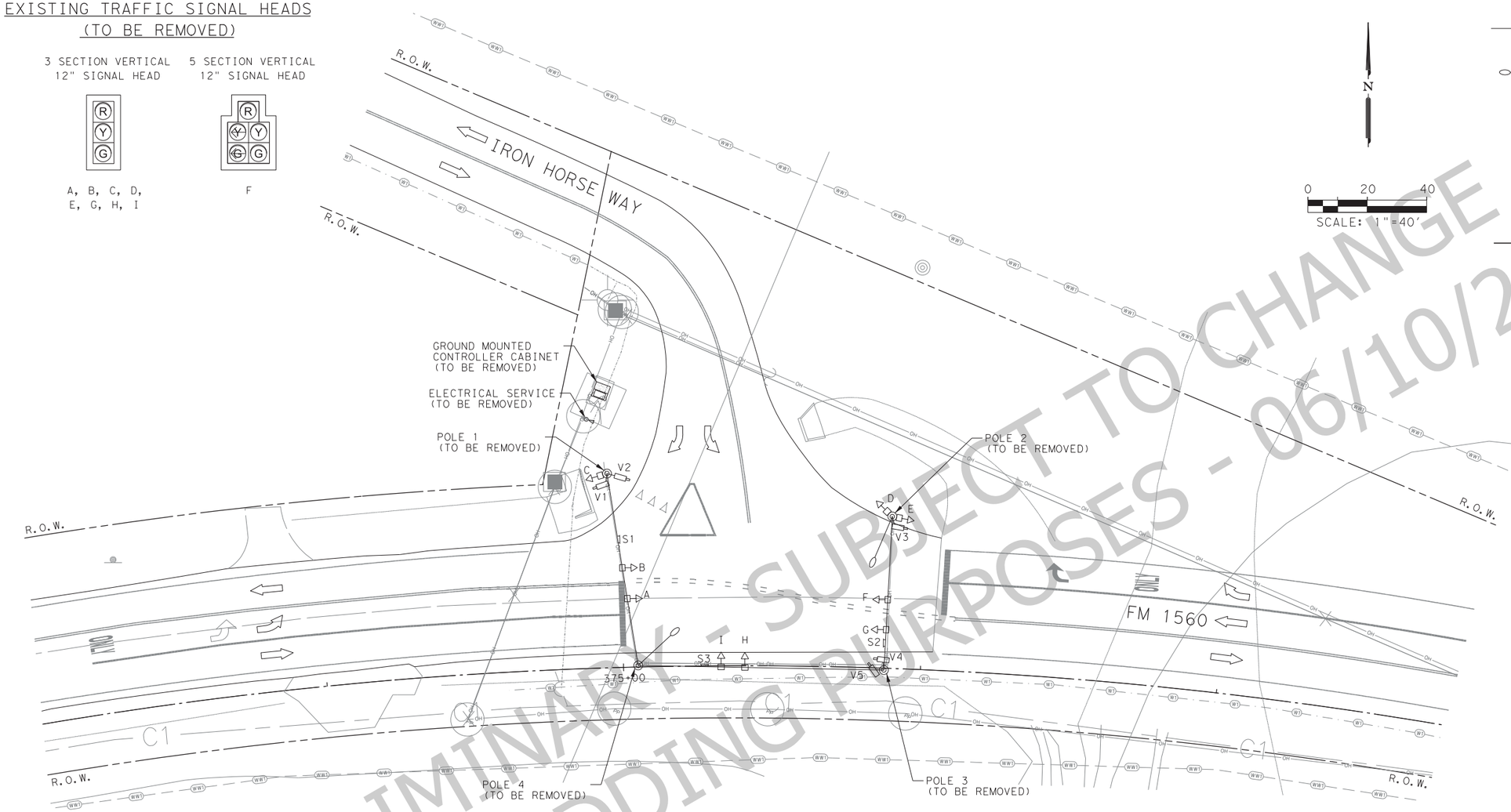
EXISTING TRAFFIC SIGNAL HEADS (TO BE REMOVED)

3 SECTION VERTICAL 12" SIGNAL HEAD

A, B, C, D, E, G, H, I

5 SECTION VERTICAL 12" SIGNAL HEAD

F



EXISTING SIGNS (TO BE REMOVED)

Iron Horse Way

S1, S2

FM 1560

S3

NOTE:
SIGNAL CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL AFTER INSTALLING STOP (R1-2) SIGN FOR THE SOUTHBOUND APPROACH OF IRON HORSE WAY AS SHOWN IN THE "SIGN DESIGN" PLANS.

ITEM NO.	DESC. CODE	DESCRIPTION	UNIT	QUANTITY
680	6004	REMOVE TRAFFIC SIGNAL	EA	1

N

0 20 40

SCALE: 1"=40'

LEGEND

- STEEL STRAIN POLE WITH SPAN WIRE
- PEDESTRIAN POLE
- LUMINAIRE
- VERTICAL SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- SERVICE METER AND DISCONNECT
- GROUND MOUNTED CONTROLLER CABINET
- SIGN ON POST
- DIRECTION OF TRAFFIC
- RIGHT OF WAY (R.O.W.)

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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RESPONSIBLE ENGINEER:
TEDSI INFRASTRUCTURE GROUP, INC.
M. R. NEELAPU, P.E.
TEXAS REGISTRATION NO. 107595

6/4/2020

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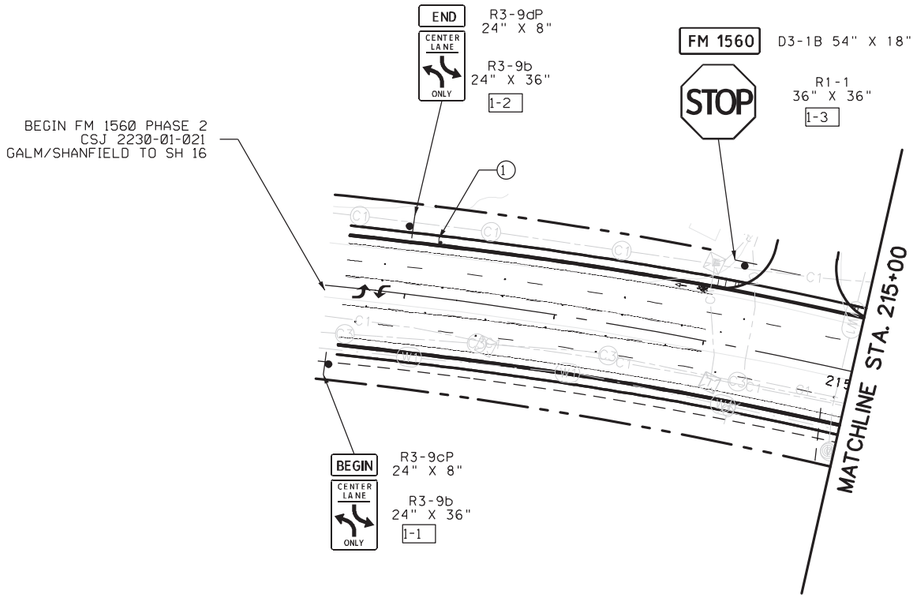
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

FM 1560
FM 1560 AT
IRON HORSE WAY

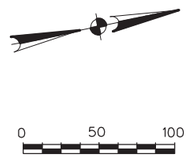
EXISTING CONDITIONS

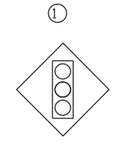
FHWA TEXAS DIVISION	FEDERAL AID PROJECT		SHEET NO.
	SEE TITLE SHEET		
STATE	DIST.	COUNTY	389
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	3
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	0



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020





REMOVE EXISTING ASSM.

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PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
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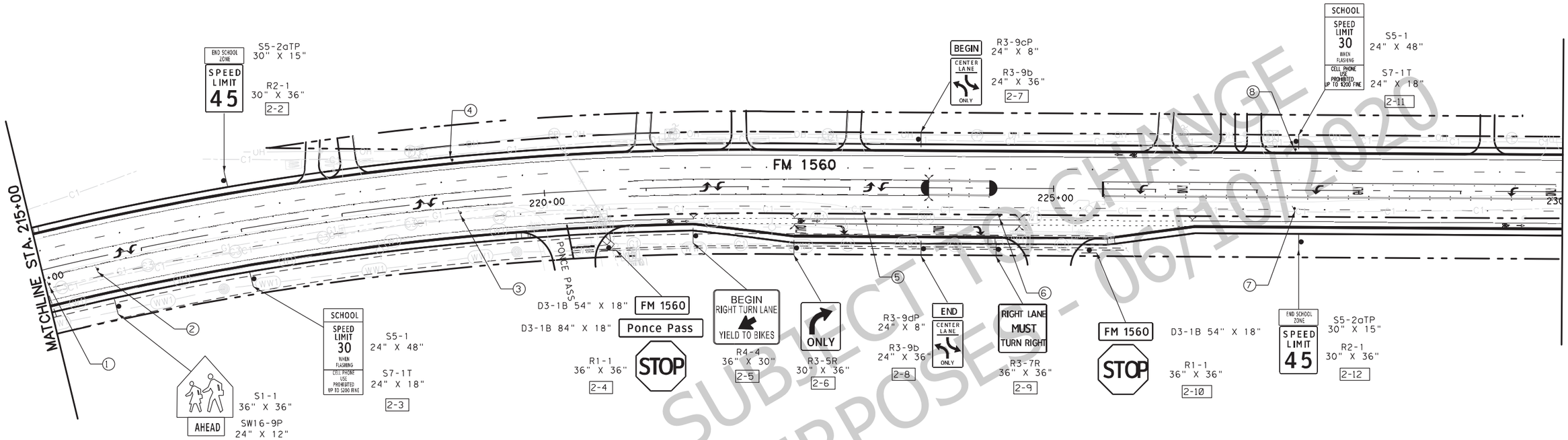
SHEET 1 OF 13
STA. 200+00 TO STA. 215+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR 390	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:35 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	11
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

① ROAD MAY FLOOD — REMOVE EXISTING ASSM.

② AHEAD — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

③ SCHOOL SPEED LIMIT 30 WHEN FLASHING / CELL PHONE USE PROHIBITED UP TO $200 FINE — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

④ END SCHOOL ZONE / SPEED LIMIT 45 — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

⑤ ONLY — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

⑥ ONLY — REMOVE EXISTING ASSM.

⑦ END SCHOOL ZONE / SPEED LIMIT 45 — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

⑧ SCHOOL SPEED LIMIT 30 WHEN FLASHING / CELL PHONE USE PROHIBITED UP TO $200 FINE — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

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PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

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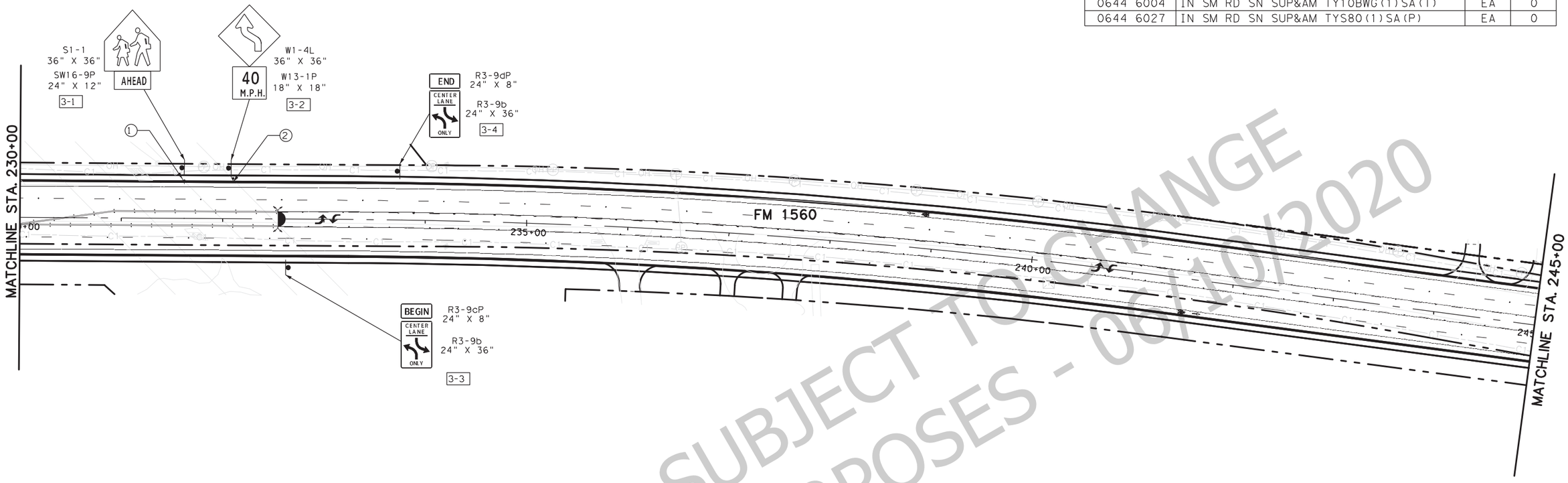
SHEET 2 OF 13
STA. 215+00 TO STA. 230+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	391
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

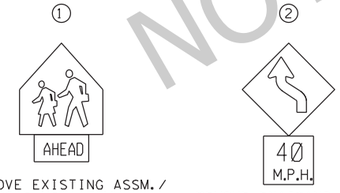
6/4/2020 6:04:36 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	4
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	0



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

① ②



REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

0 50 100

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128628
TEXAS SERIAL NO.
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DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-9032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
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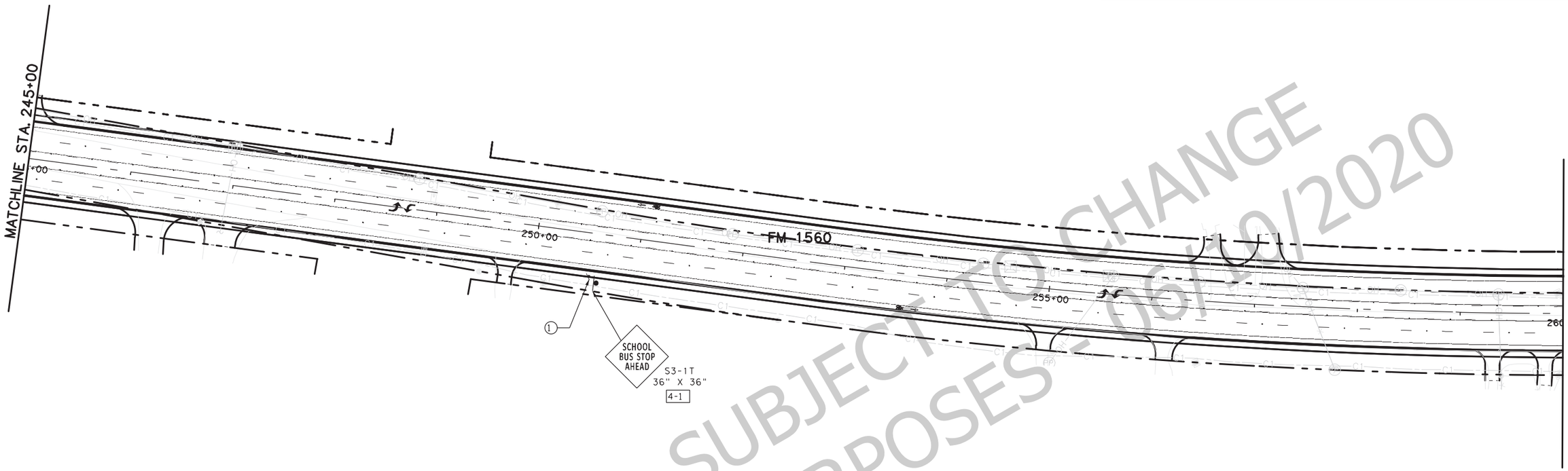
SHEET 3 OF 13
STA. 230+00 TO STA. 245+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	392
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:38 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	0

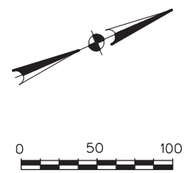


PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

1

SCHOOL BUS STOP AHEAD

REMOVE EXISTING ASSM. /
PROPOSE NEW ASSM.



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128628
TEXAS SERIAL NO.

6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
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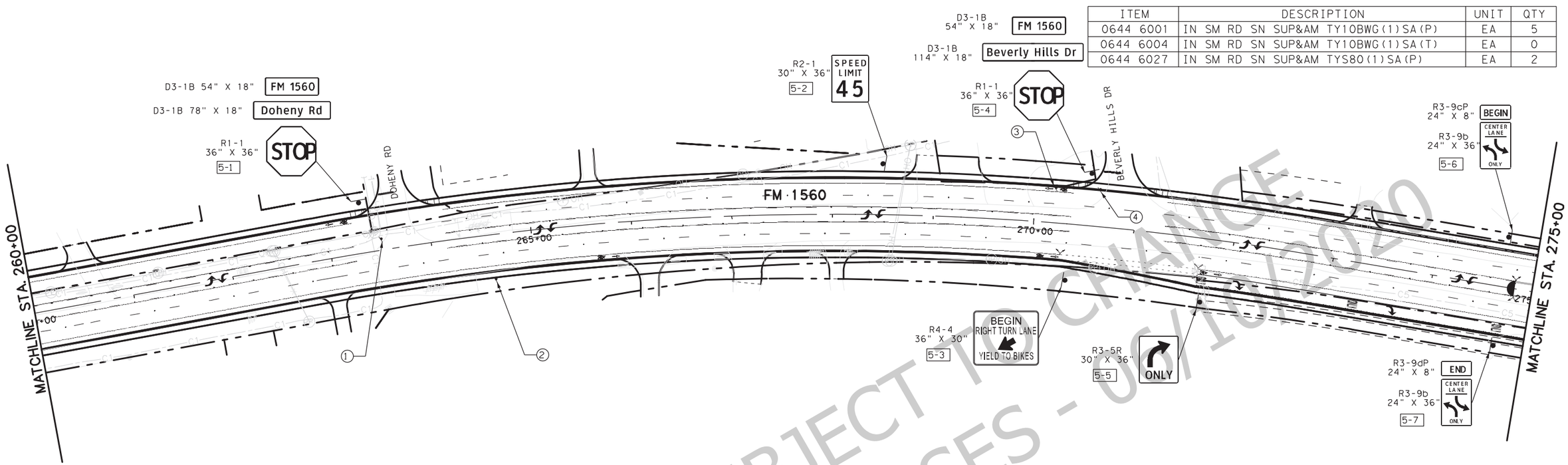
SHEET 4 OF 13
STA. 245+00 TO STA. 260+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR 393	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:41 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	5
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	2



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

① FM 1560 / DOHENY RD / STOP
REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

② REMOVE EXISTING ASSM.

③ ROAD MAY FLOOD
REMOVE EXISTING ASSM.

④ STOP
REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

0 50 100

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128628
TEXAS SERIAL NO.
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DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

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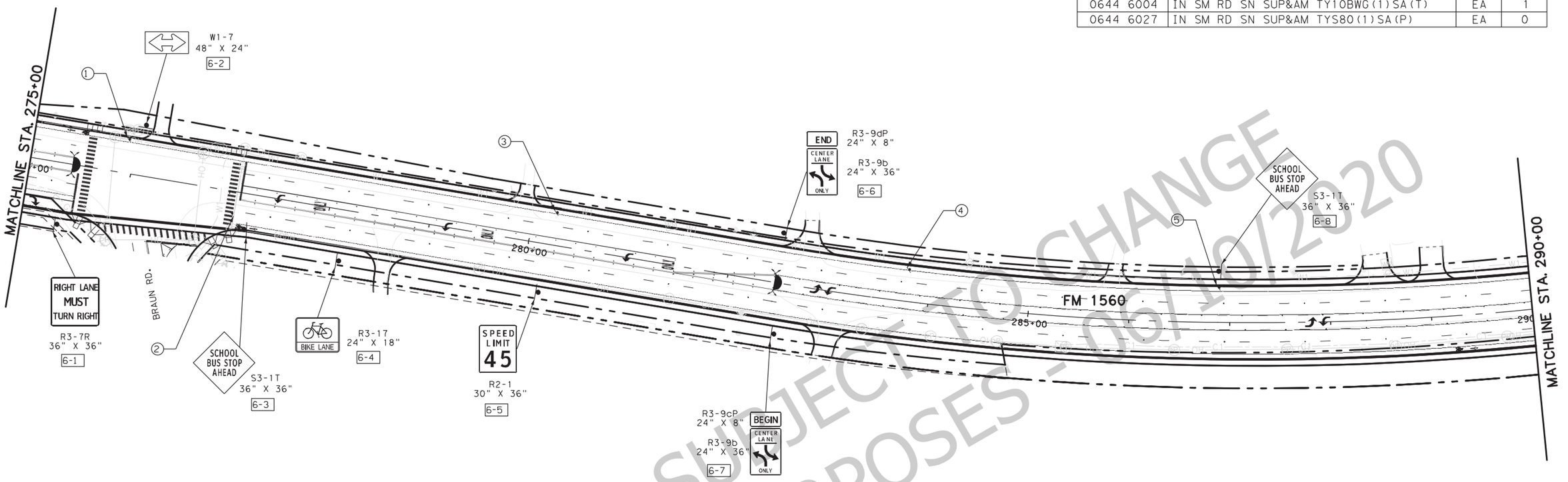
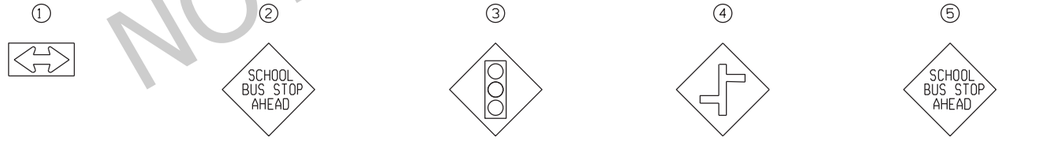
SHEET 5 OF 13
STA. 260+00 TO STA. 275+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	394
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

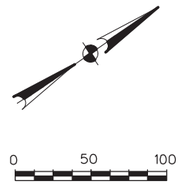
6/4/2020 6:04:44 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	7
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	0





REMOVE EXISTING ASSM. / PROPOSE NEW ASSM. | REMOVE EXISTING ASSM. | REMOVE EXISTING ASSM. | REMOVE EXISTING ASSM. | REMOVE EXISTING ASSM.



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PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
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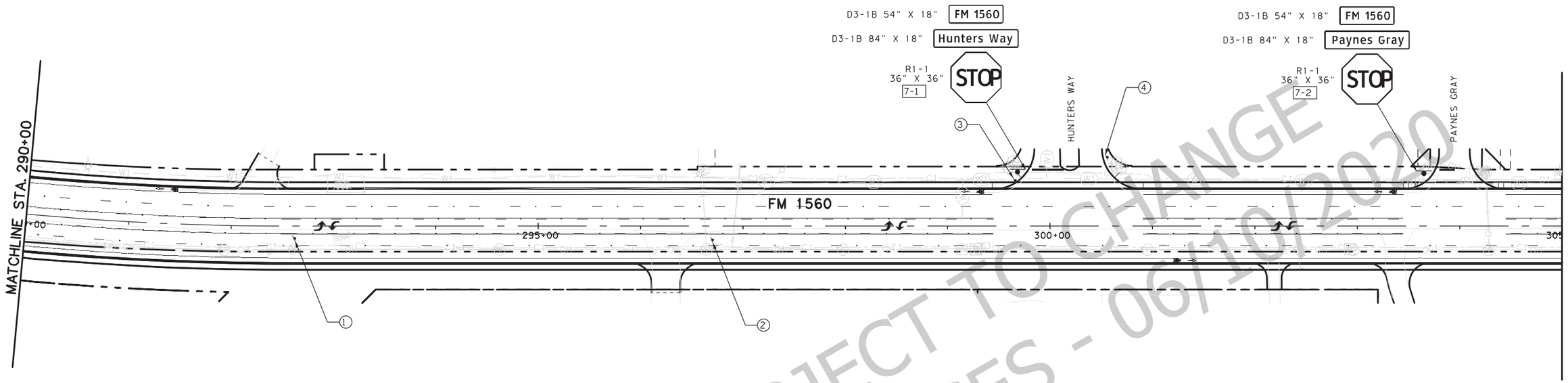
SHEET 6 OF 13
STA. 275+00 TO STA. 290+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	395
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:48 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	0
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	2



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

① HUNTERS WAY / PAYNES GRAY
REMOVE EXISTING ASSM.

② SPEED LIMIT 45
REMOVE EXISTING ASSM.

③ STOP
REMOVE EXISTING ASSM.

④ FM 1560 / HUNTERS WAY / STOP
REMOVE EXISTING ASSM.

0 50 100

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128628
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6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

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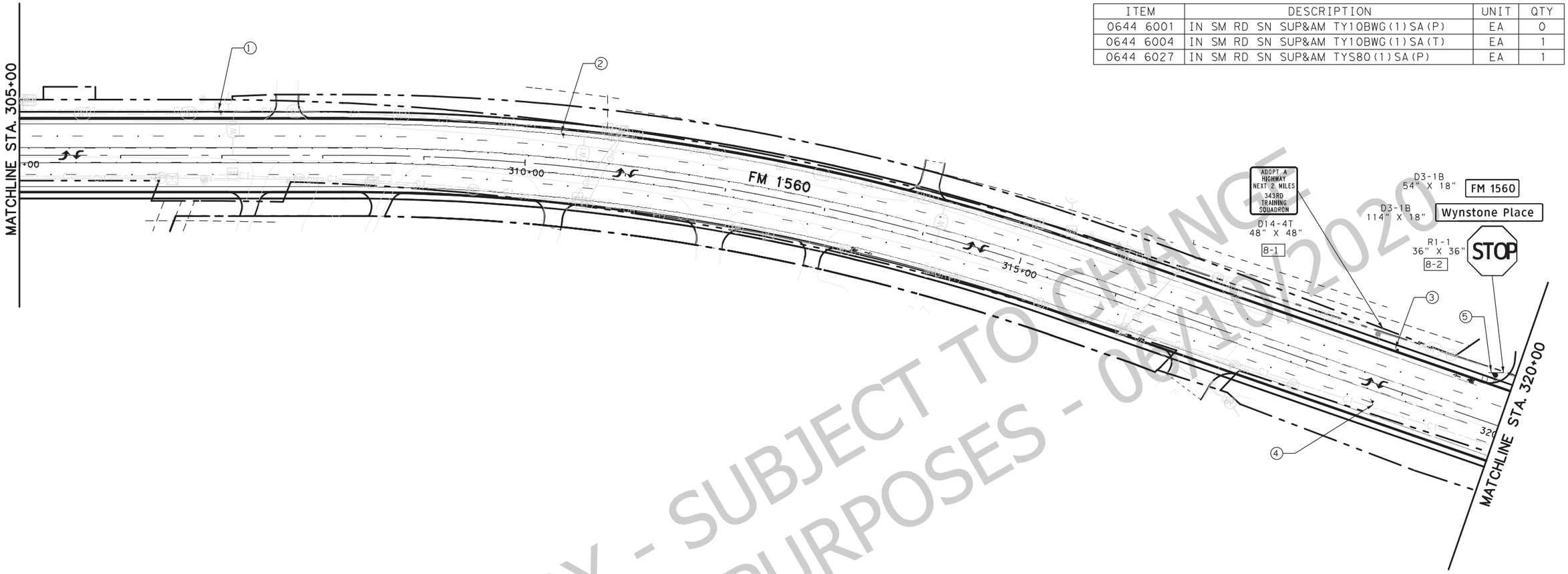
SHEET 7 OF 13
STA. 290+00 TO STA. 305+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	396
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:51 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	0
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/04/2020

① HUNTERS WAY / PAYNES GRAY — REMOVE EXISTING ASSM.

② SOUTH FARM 1560 ROAD — REMOVE EXISTING ASSM.

③ ADOPT A HIGHWAY NEXT 2 MILES 343RD TRAINING SQUADRON — REMOVE EXISTING ASSM. / PROPOSED NEW ASSM.

④ EXISTING SIGN COULD NOT BE LOCATED

⑤ STOP — REMOVE EXISTING ASSM.

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PAYTON D. ARENS
128628
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6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-9032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

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FM 1560

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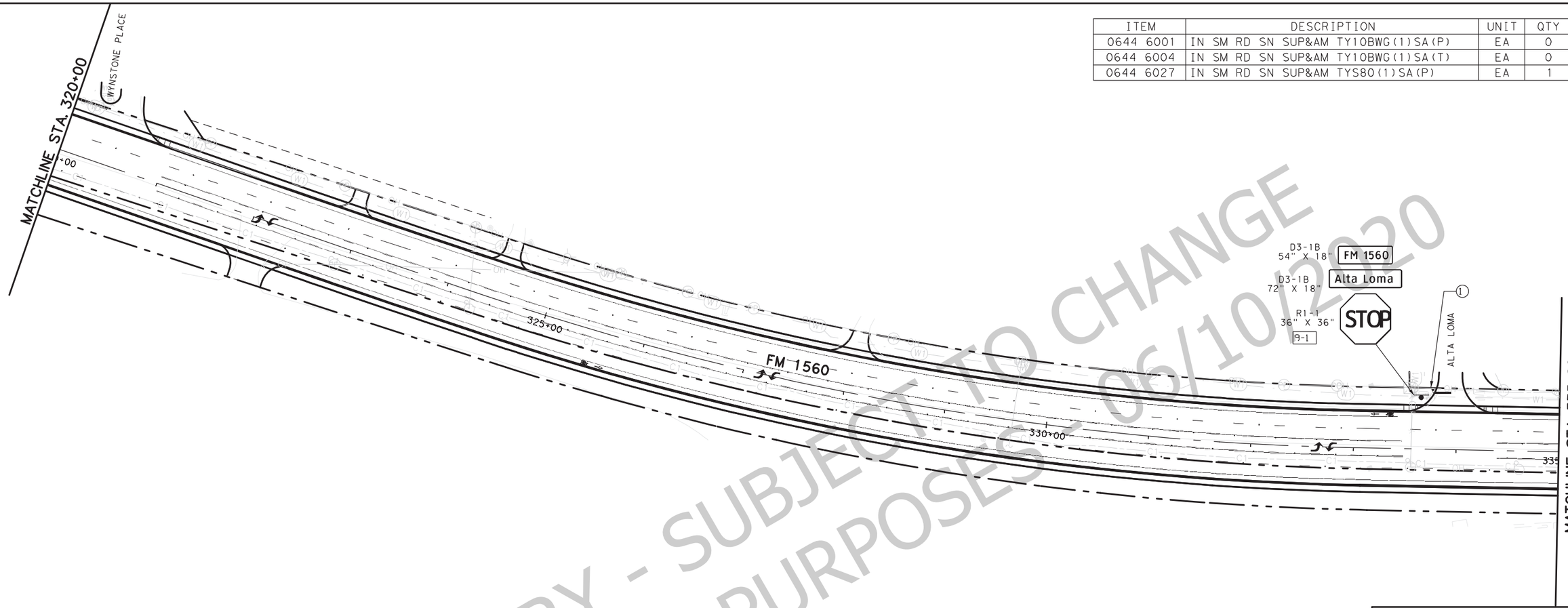
SHEET 8 OF 13
STA. 305+00 TO STA. 320+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	397
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:04:53 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	0
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 50 100

1

FM 1560

ALTA LOMA

STOP

REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

6/4/2020 6:04:57 PM

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128628
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6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-9032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
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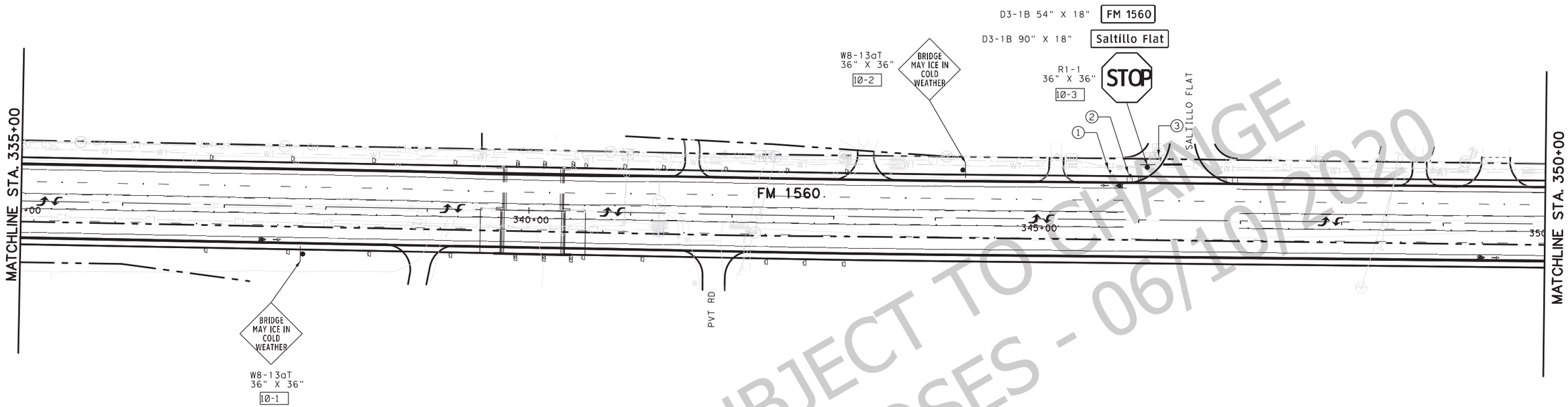
SHEET 9 OF 13
STA. 320+00 TO STA. 335+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	398
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1

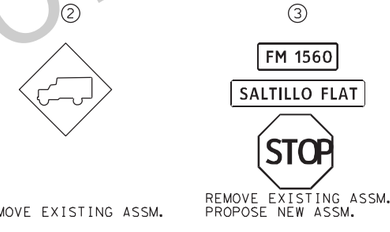


PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

① EXISTING SIGN COULD NOT BE LOCATED

② REMOVE EXISTING ASSM.

③ REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.



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PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1640

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FM 1560

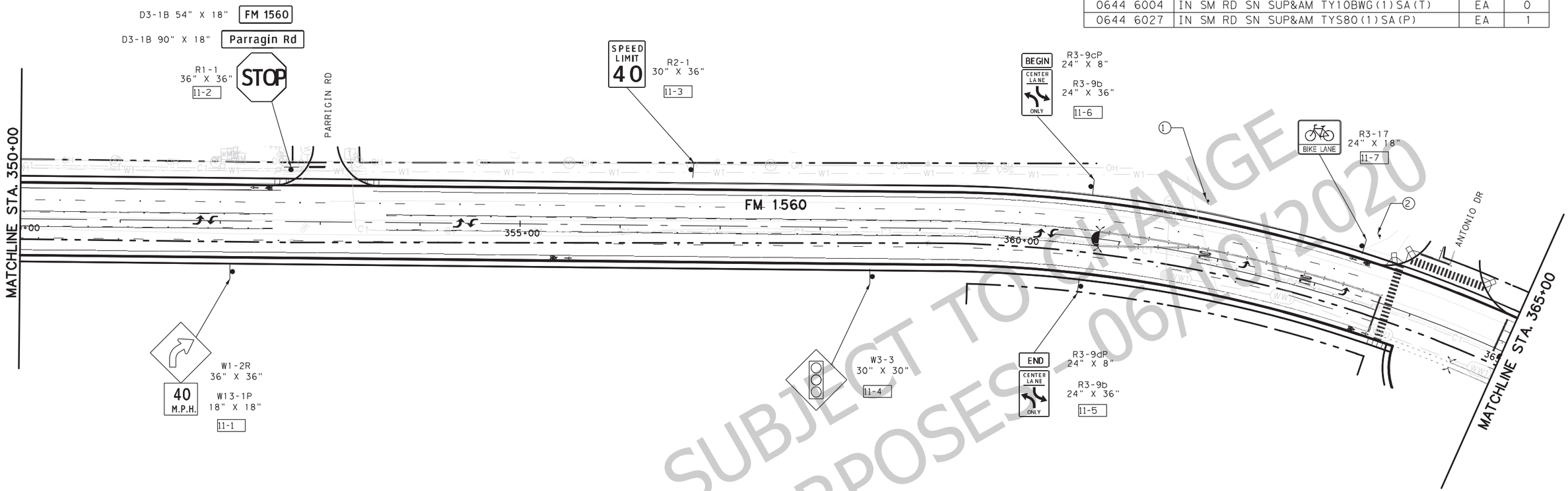
SIGNING LAYOUT

SHEET 10 OF 13
STA. 335+00 TO STA. 350+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	
TEXAS	SAT.	BEXAR	399
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:05:01 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	6
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/19/2020

0 50 100

① ROAD MAY FLOOD

REMOVE EXISTING ASSM.

② FM 1560 / ANTONIO DR / STOP

REMOVE EXISTING ASSM.

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PAYTON D. ARENS
128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

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FM 1560

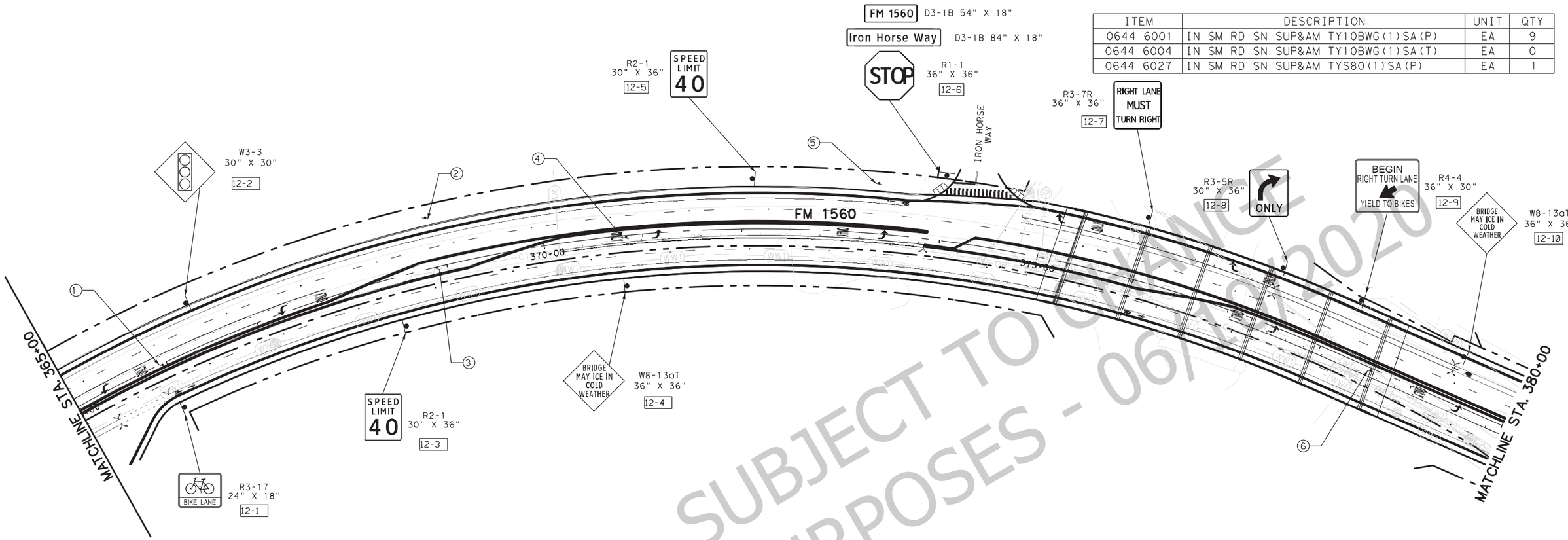
SIGNING LAYOUT

SHEET 11 OF 13
STA. 350+00 TO STA. 365+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	400
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:05:04 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	9
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	0
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/04/2020

1 — SPEED LIMIT 40 — REMOVE EXISTING ASSM.

2 — SPEED LIMIT 40 — REMOVE EXISTING ASSM.

3 — SPEED LIMIT 40 — REMOVE EXISTING ASSM.

4 — BRIDGE MAY ICE IN COLD WEATHER — REMOVE EXISTING ASSM. / PROPOSE NEW ASSM.

5 — SHARE THE ROAD — REMOVE EXISTING ASSM.

6 — SPEED LIMIT 40 — REMOVE EXISTING ASSM.

0 50 100

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128628
TEXAS SERIAL NO.
6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

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FM 1560

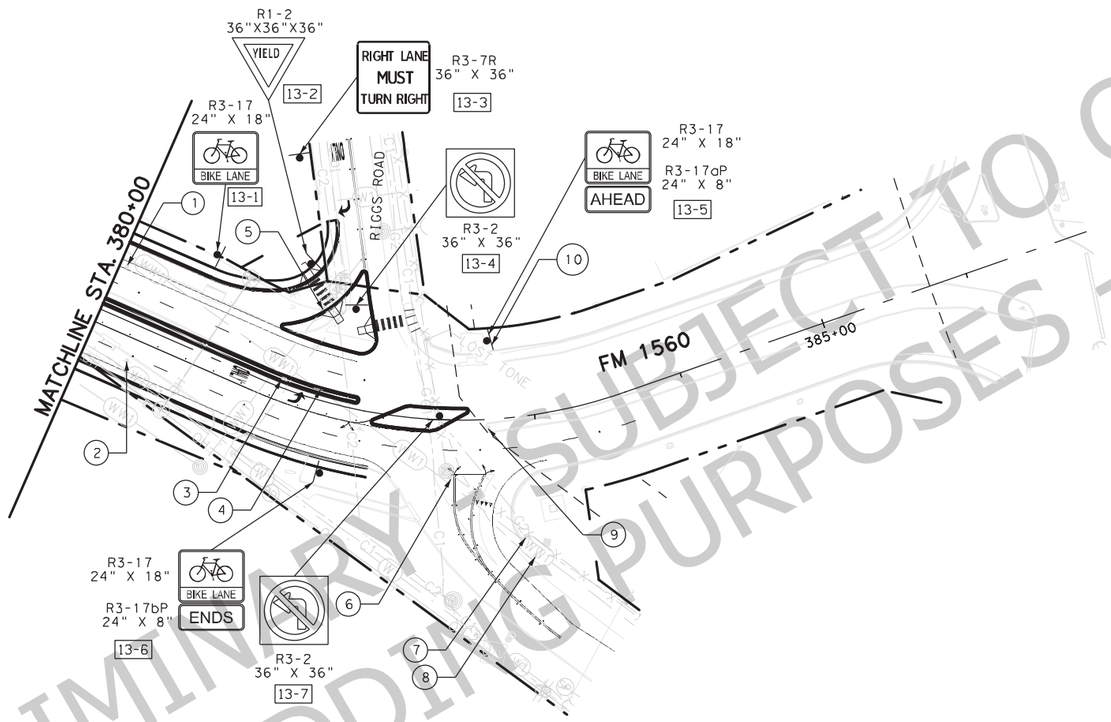
SIGNING LAYOUT

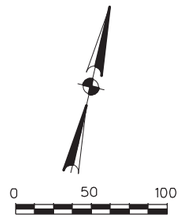
SHEET 12 OF 13
STA. 365+00 TO STA. 380+00

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	401
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:12:13 PM

ITEM	DESCRIPTION	UNIT	QTY
0644 6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	6
0644 6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
0644 6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	0





① EXISTING SIGN COULD NOT BE LOCATED

② EXISTING SIGN COULD NOT BE LOCATED

③ EXISTING SIGN COULD NOT BE LOCATED

④ REMOVE EXISTING ASSM.

⑤ REMOVE EXISTING ASSM.

⑥ REMOVE EXISTING ASSM.

⑦ EXISTING SIGN TO REMAIN

⑧ EXISTING SIGN TO REMAIN

⑨ REMOVE EXISTING ASSM.

⑩ REMOVE EXISTING SIGN PLAQUE/ PROPOSED SIGN PLAQUE ON EXISTING ASSM.

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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PAYTON D. ARENS
128628
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6/4/2020
DATE

Kimley»Horn
11700 Katy Freeway, Suite 800
Houston, Texas 77079
TBPE FIRM NO. F-928
Tel. No. (281) 597-9300
Fax No. (281) 597-8032

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

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SIGNING LAYOUT

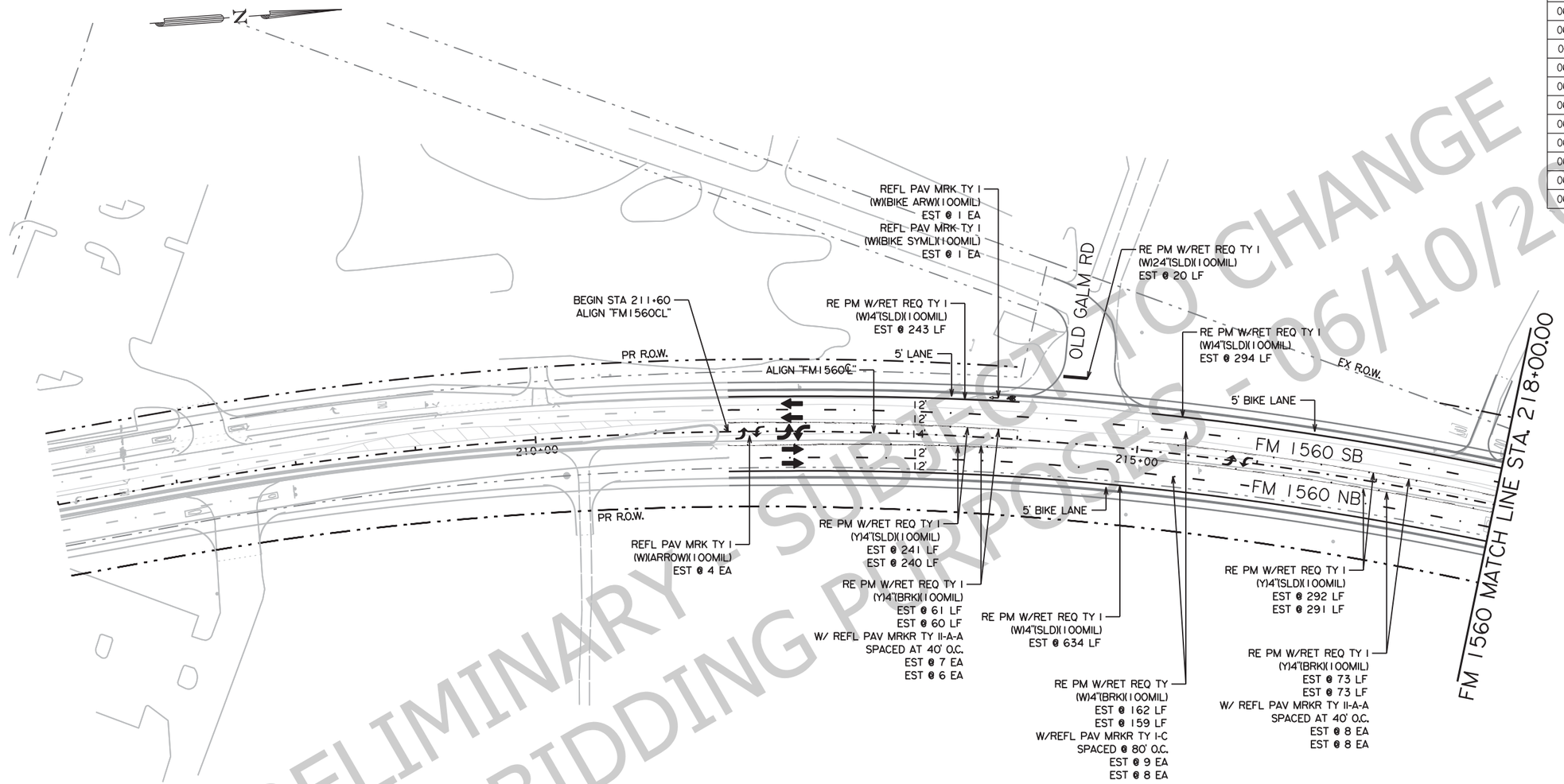
SHEET 13 OF 13
STA. 380+00 TO END

FED RD DIV NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DISTRICT	COUNTY	402
TEXAS	SAT.	BEXAR	
CONTROL	SECTION	JOB	HIGHWAY
2230	01	021	FM 1560

6/4/2020 6:15:04 PM

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	20
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	4
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	1
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	2823
0666-6230	PAVEMENT SEALER 24"	LF	20
0666-6231	PAVEMENT SEALER (ARROW)	EA	4
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	1
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	1
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	321
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	1171
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	267
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1064
0672-6007	REFL PAV MRKR TY I-C	EA	17
0672-6009	REFL PAV MRKR TY II-A-A	EA	29



LEGEND

DIRECTIONAL ARROW ➡

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 1 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	403
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:32:26 PM
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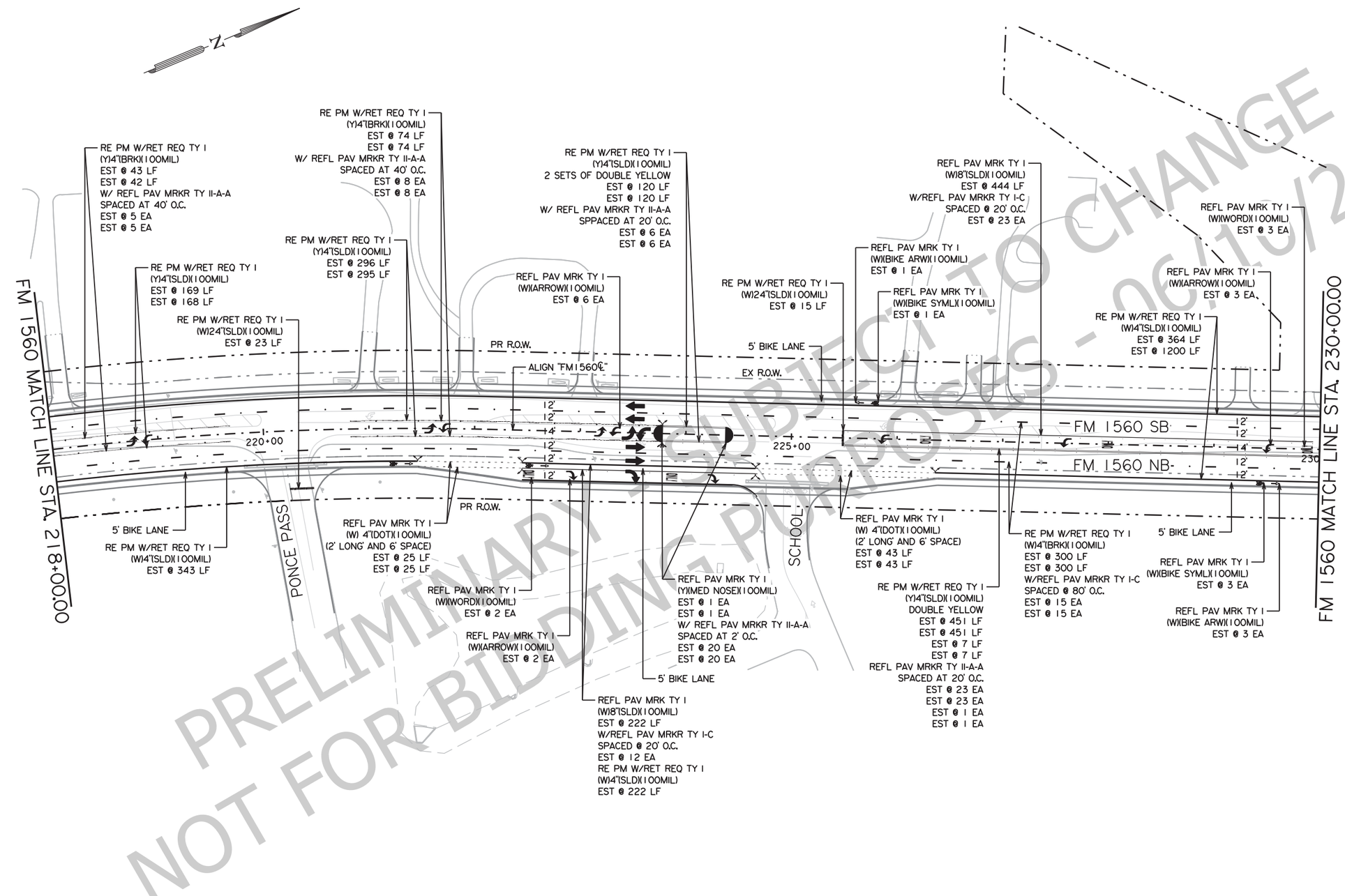

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/19/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	136
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	666
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	38
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	11
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	5
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	4
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	4
0666-6156	REFL PAV MRK TY I(Y)(MED NOSE)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5182
0666-6226	PAVEMENT SEALER 8"	LF	666
0666-6230	PAVEMENT SEALER 24"	LF	38
0666-6231	PAVEMENT SEALER (ARROW)	EA	11
0666-6232	PAVEMENT SEALER (WORD)	EA	5
0666-6233	PAVEMENT SEALER (MED NOSE)	EA	2
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	4
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	4
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2129
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	233
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2084
0672-6007	REFL PAV MRKR TY I-C	EA	65
0672-6009	REFL PAV MRKR TY II-A-A	EA	126

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 2 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

404

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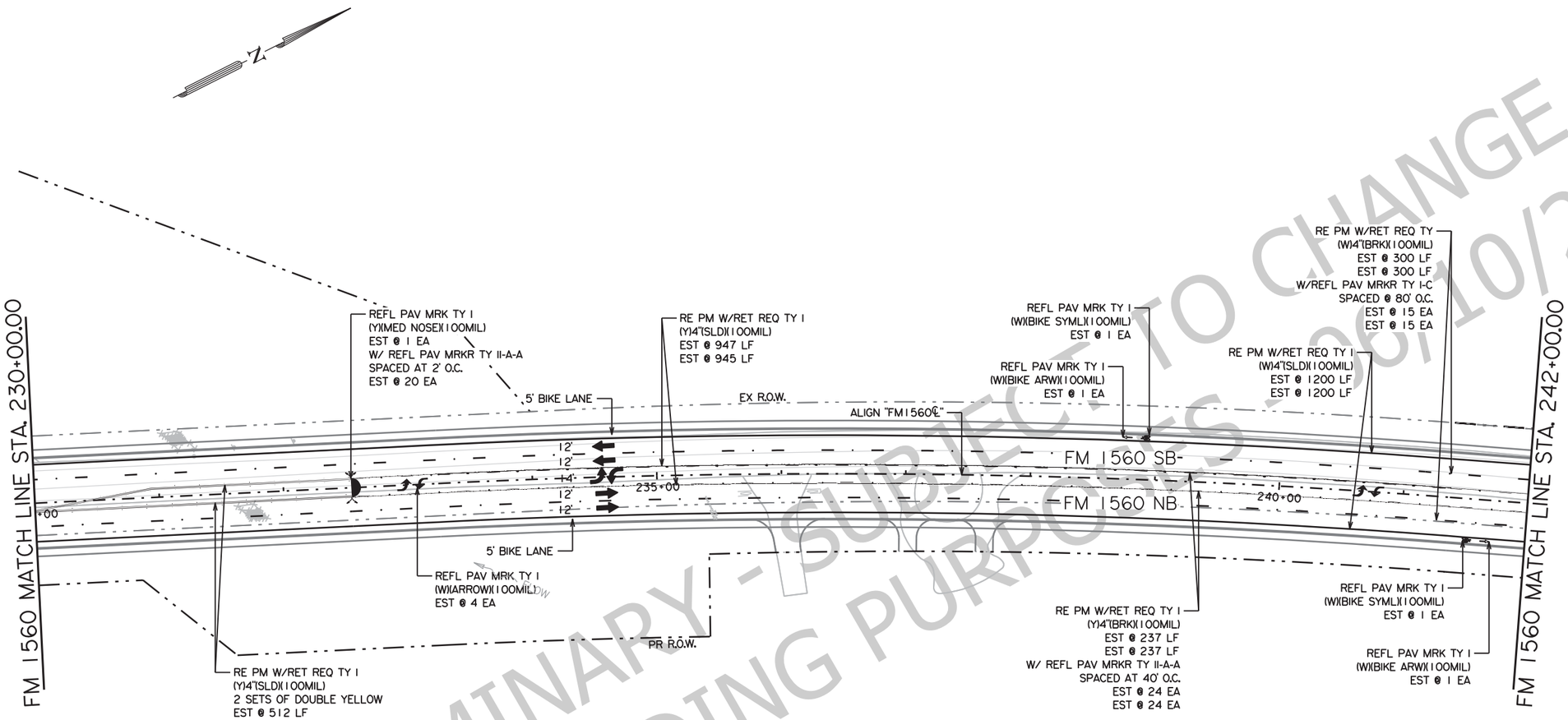
QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6054	REFL PAV MRK TY I (W)ARROW)(100MIL)	EA	4
0666-6105	REFL PAV MRK TY I (W)BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)BIKE SYML)(100MIL	EA	2
0666-6156	REFL PAV MRK TY I(Y)MED NOSE)(100MIL	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	6388
0666-6231	PAVEMENT SEALER (ARROW)	EA	4
0666-6233	PAVEMENT SEALER (MED NOSE)	EA	1
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2400
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	474
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2914
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	120



LEGEND

DIRECTIONAL ARROW →

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 3 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	405
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:39:55 PM
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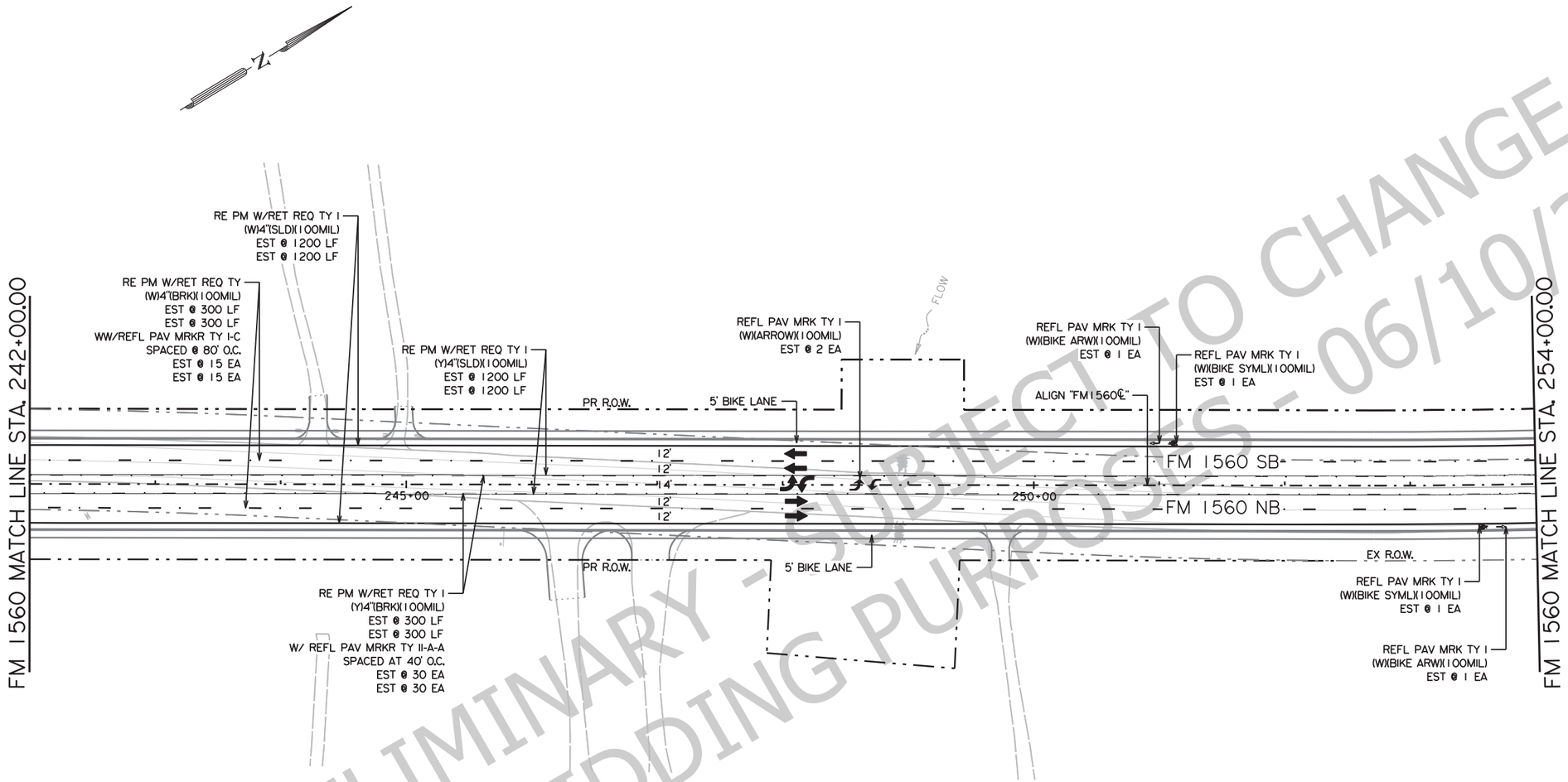
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6054	REFL PAV MRK TY I (W)ARROW(I00MIL)	EA	2
0666-6105	REFL PAV MRK TY I (W)BIKE ARW)(I00MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)BIKE SYML)(I00MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	6000
0666-6231	PAVEMENT SEALER (ARROW)	EA	2
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(I00MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(I00MIL	LF	2400
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(I00MIL)	LF	600
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(I00MIL)	LF	2400
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	60



LEGEND

DIRECTIONAL ARROW →

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 4 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	406
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:41:10 PM
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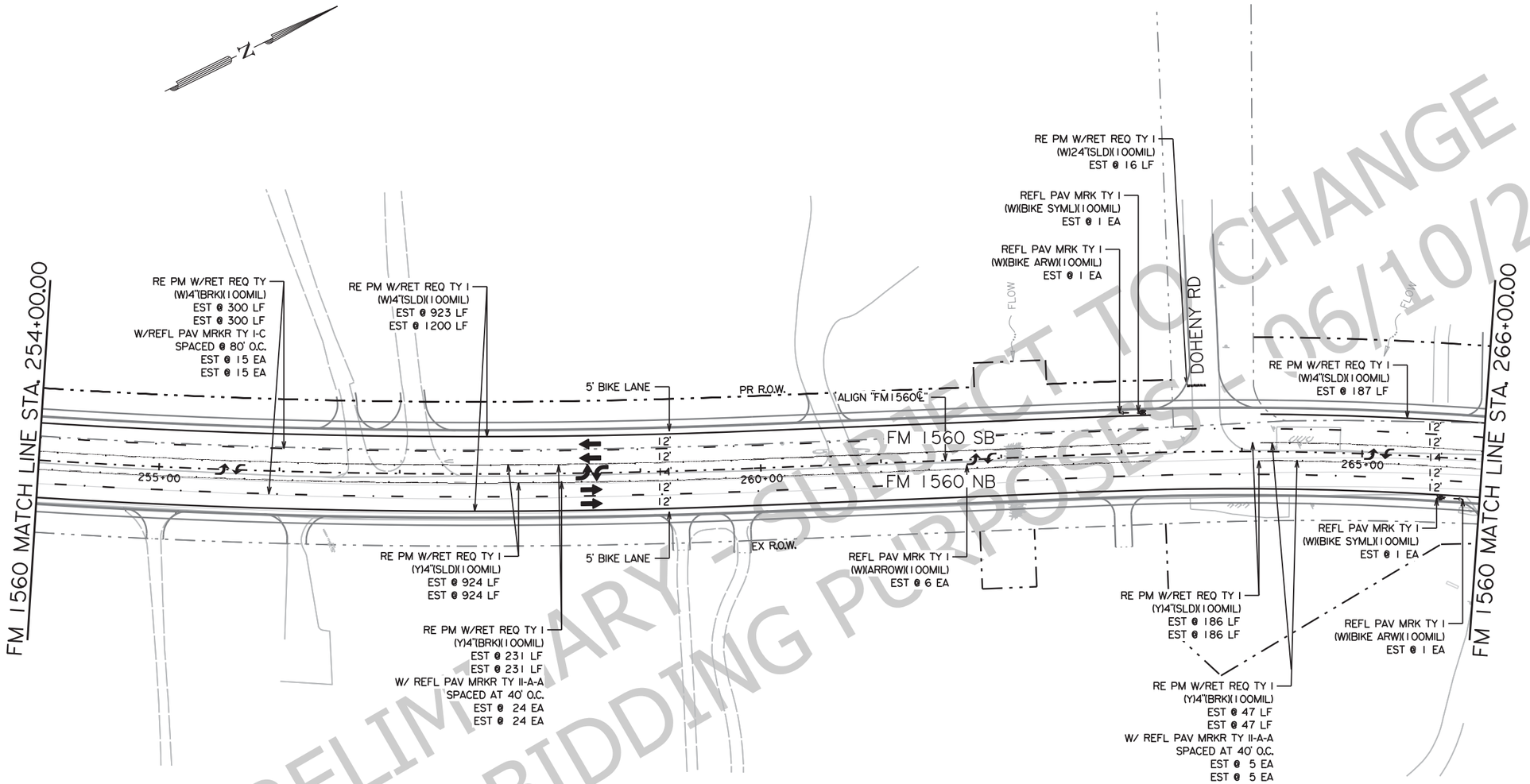

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	16
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	3
0666-6224	PAVEMENT SEALER 4"	LF	5686
0666-6230	PAVEMENT SEALER 24"	LF	16
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	3
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2310
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	556
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2220
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	58

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

LEGEND

DIRECTIONAL ARROW

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 5 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	407
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:42:16 PM
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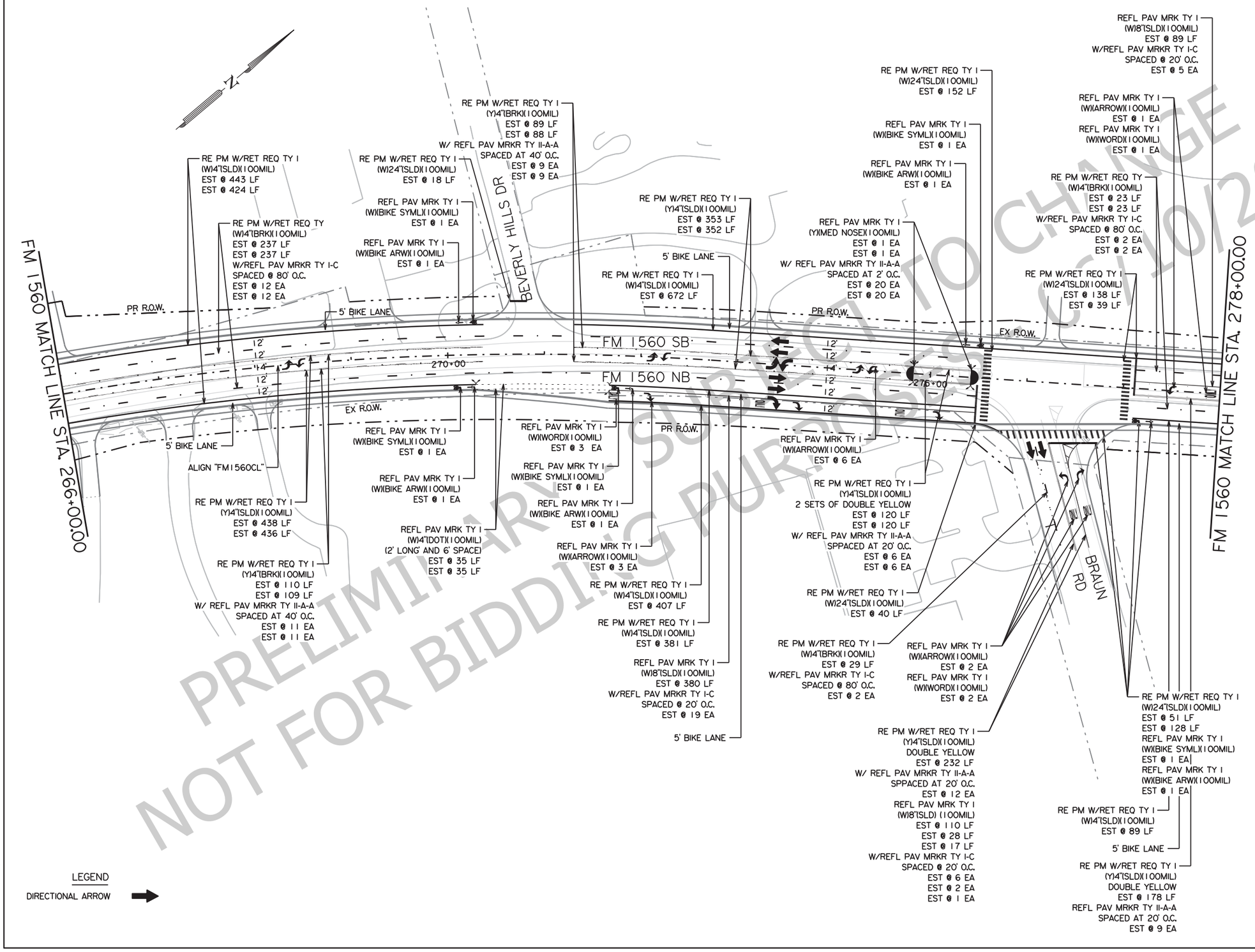

PRELIMINARY SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 6/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	70
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	624
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	566
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	12
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	6
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	5
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	5
0666-6156	REFL PAV MRK TY I(Y)(MED NOSE)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5660
0666-6226	PAVEMENT SEALER 8"	LF	624
0666-6230	PAVEMENT SEALER 24"	LF	566
0666-6231	PAVEMENT SEALER (ARROW)	EA	12
0666-6232	PAVEMENT SEALER (WORD)	EA	6
0666-6233	PAVEMENT SEALER (MED NOSE)	EA	2
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	5
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	5
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	549
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2416
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	396
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2229
0672-6007	REFL PAV MRKR TY I-C	EA	63
0672-6009	REFL PAV MRKR TY II-A-A	EA	113

INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 6 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	408

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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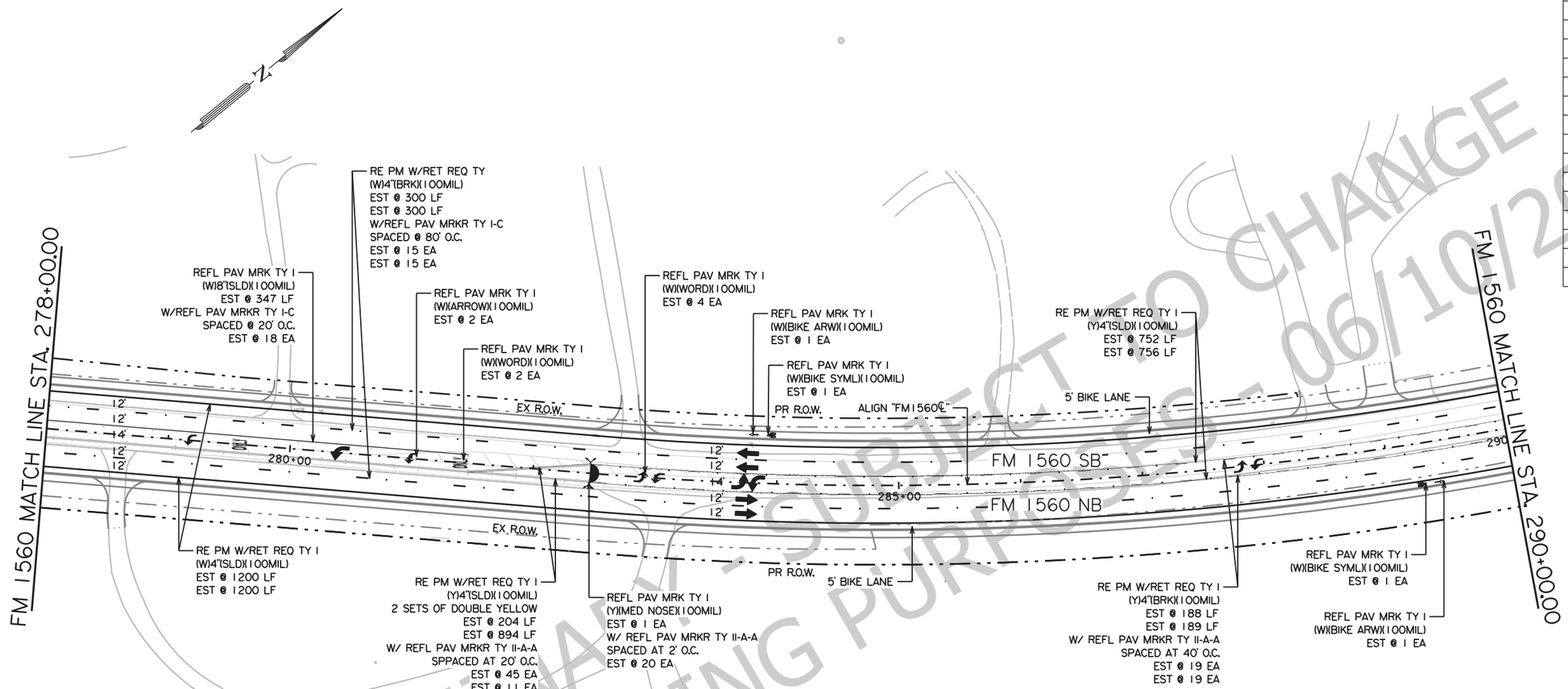

SUBJECT TO CHANGE
PROPOSED 06/10/2020
PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES

LEGEND

DIRECTIONAL ARROW

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6036	REFL PAV MRK TY I (W)18"(SLD)(100MIL)	LF	347
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	2
0666-6156	REFL PAV MRK TY I(Y)(MED NOSE)(100MIL	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	5983
0666-6226	PAVEMENT SEALER 8"	LF	347
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6232	PAVEMENT SEALER (WORD)	EA	2
0666-6233	PAVEMENT SEALER (MED NOSE)	EA	1
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2400
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	377
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2606
0672-6007	REFL PAV MRKR TY I-C	EA	48
0672-6009	REFL PAV MRKR TY II-A-A	EA	114

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 7 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

409

6/9/2020 2:47:23 PM
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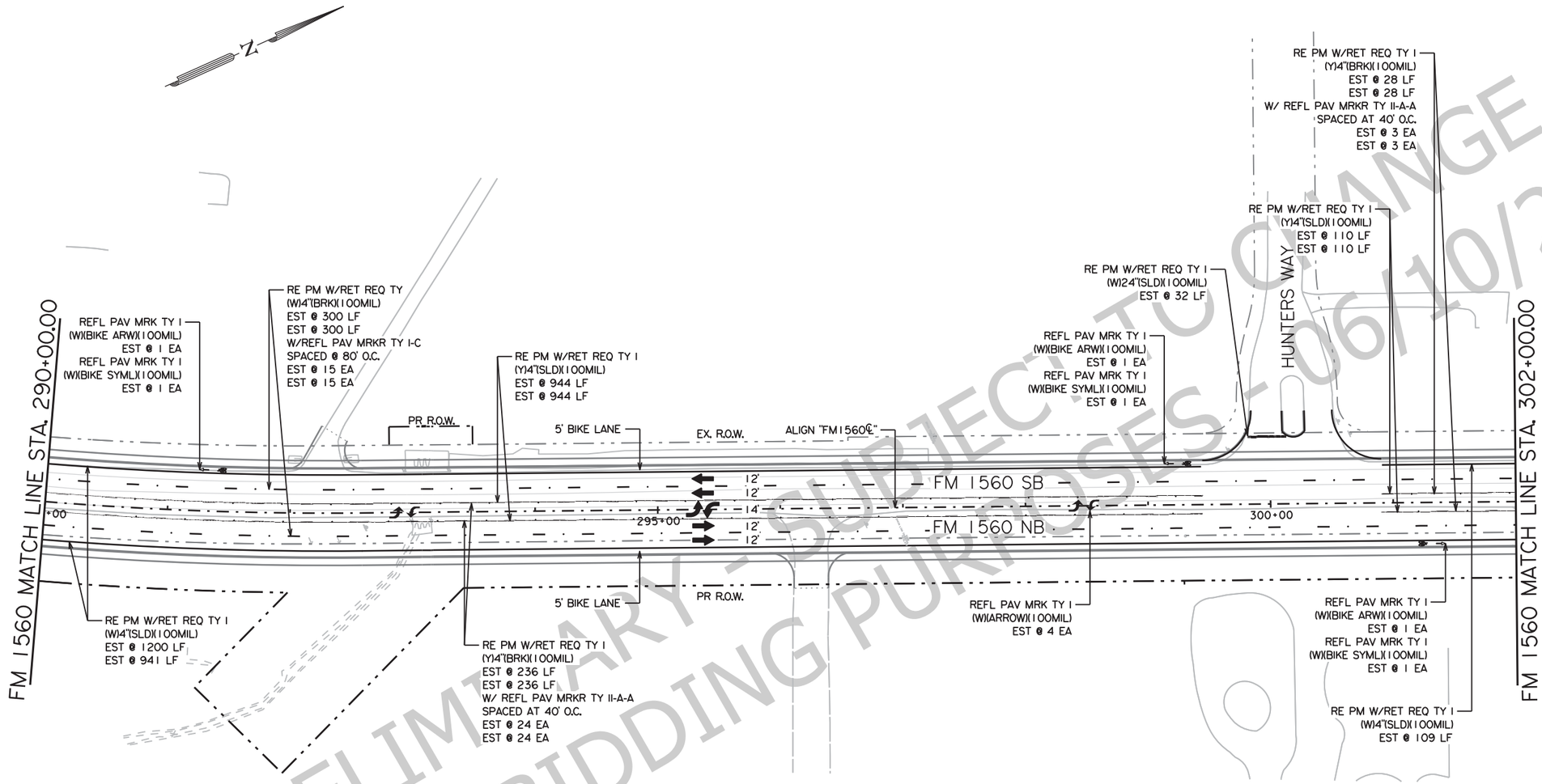

LEGEND

DIRECTIONAL ARROW →

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	32
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	4
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	3
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	3
0666-6224	PAVEMENT SEALER 4"	LF	5486
0666-6230	PAVEMENT SEALER 24"	LF	32
0666-6231	PAVEMENT SEALER (ARROW)	EA	4
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	3
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	3
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2250
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	528
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2108
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	54

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560 PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 8 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH

FEDRD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	410

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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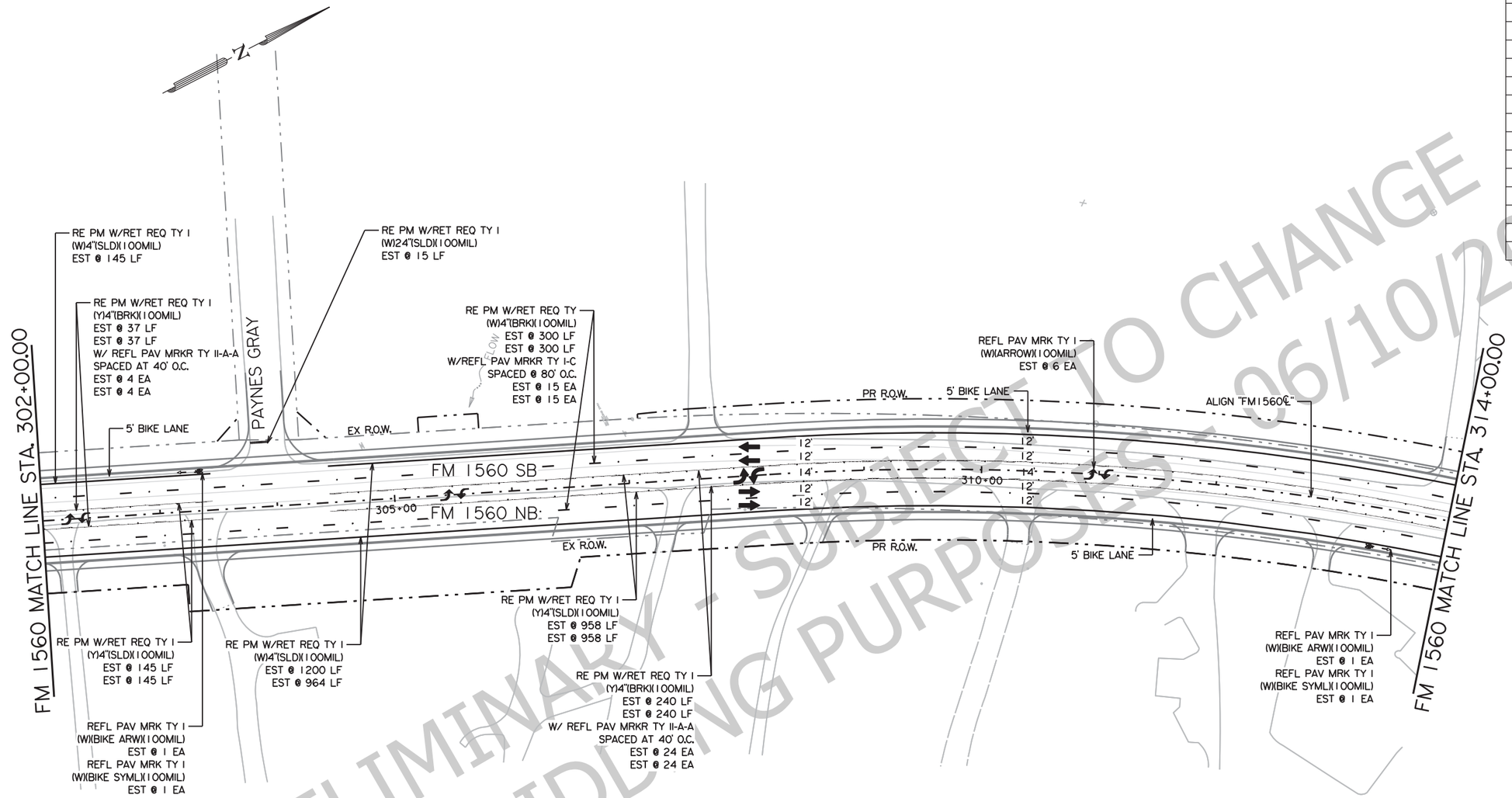

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	15
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY II(W)(BIKE SYML)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5669
0666-6230	PAVEMENT SEALER 24"	LF	15
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2309
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	554
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2206
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	56

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

PRELIMINARY - SUBJECT TO CHANGE
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LEGEND

DIRECTIONAL ARROW

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 9 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 411

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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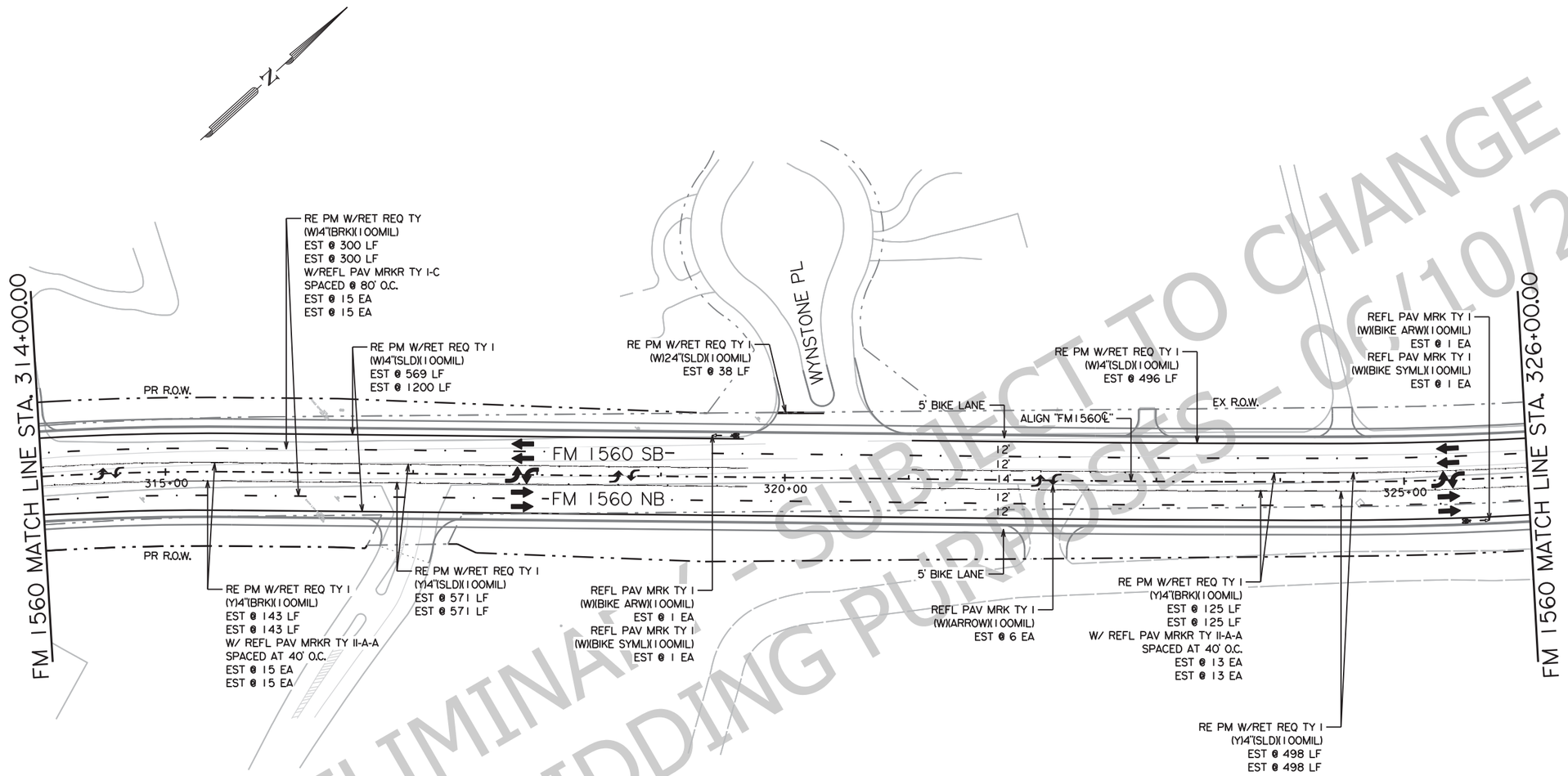
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	38
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5539
0666-6230	PAVEMENT SEALER 24"	LF	38
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2265
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	536
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2138
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	56



LEGEND

DIRECTIONAL ARROW →

PRELIMINARY - SUBJECT TO CHANGE
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DATE: 6/9/2020

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 10 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	412
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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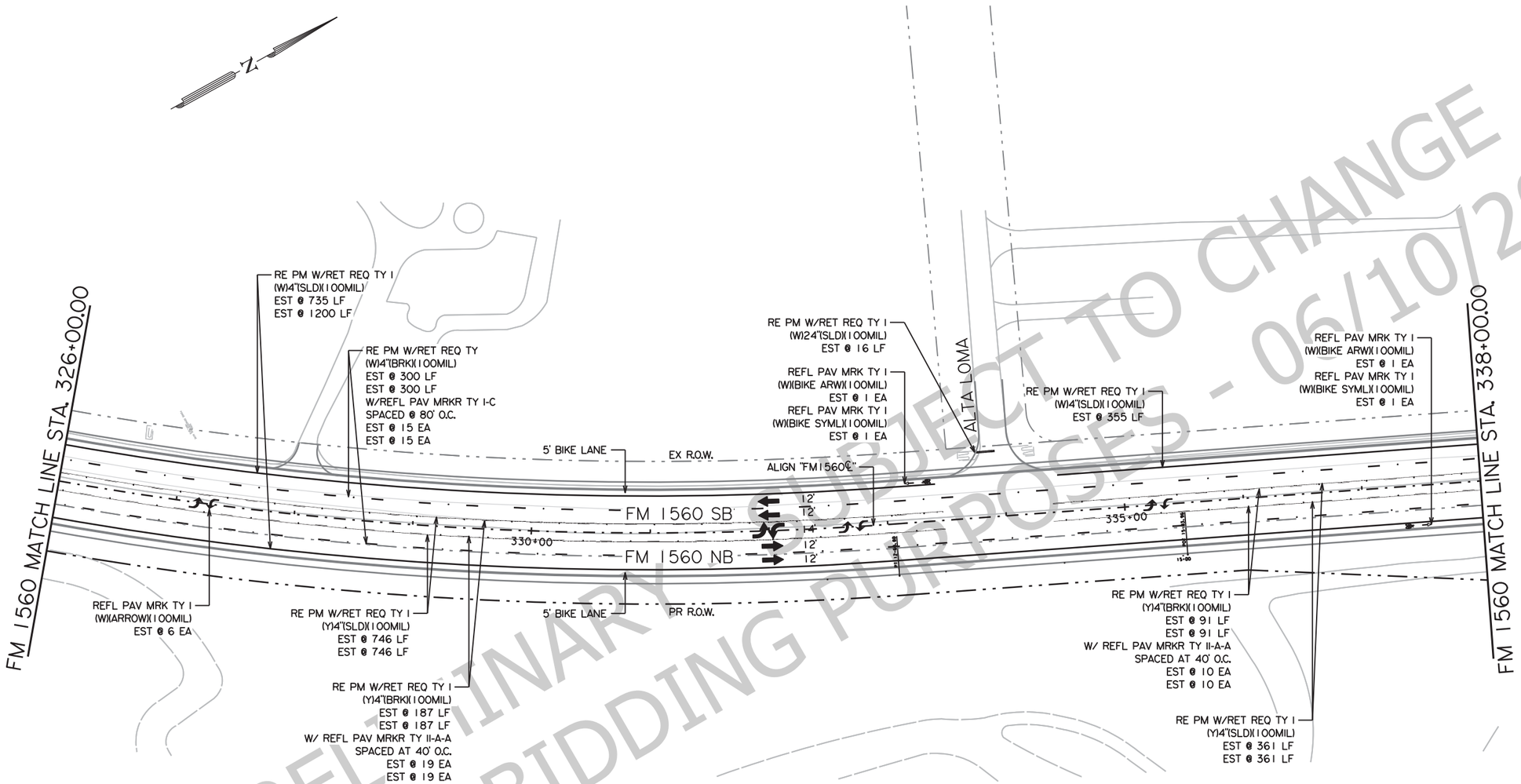
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	16
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5660
0666-6230	PAVEMENT SEALER 24"	LF	16
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2290
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	556
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2214
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	58



LEGEND

DIRECTIONAL ARROW →

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 11 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	413
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:55:17 PM
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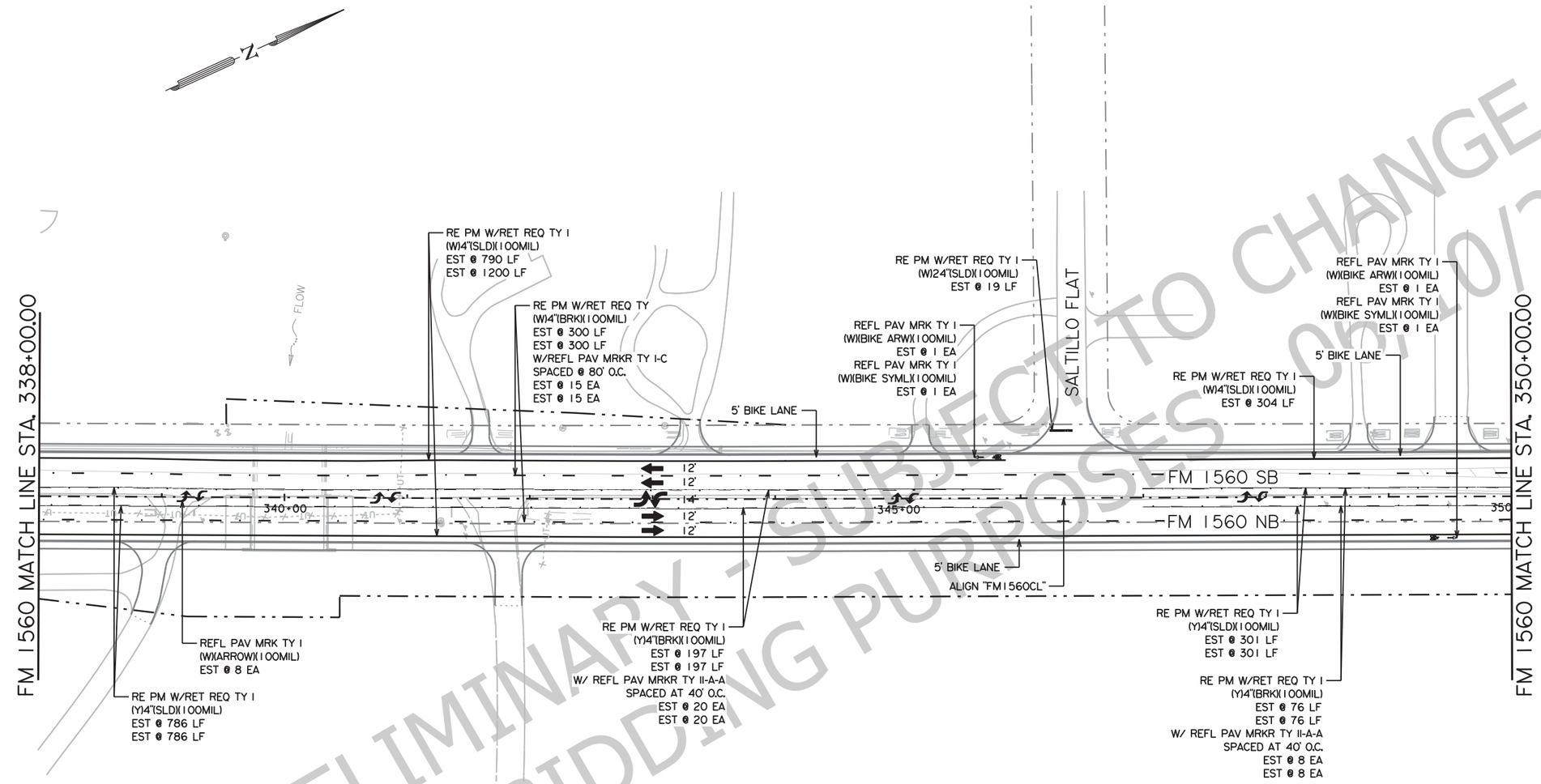
QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	19
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	8
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY II(W)(BIKE SYML)(100MIL	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	5614
0666-6230	PAVEMENT SEALER 24"	LF	19
0666-6231	PAVEMENT SEALER (ARROW)	EA	8
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2294
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	546
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2174
0672-6007	REFL PAV MRKR TY I-C	EA	30
0672-6009	REFL PAV MRKR TY II-A-A	EA	56



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
09/10/2020

LEGEND

DIRECTIONAL ARROW →

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 12 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 414

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 2:58:14 PM
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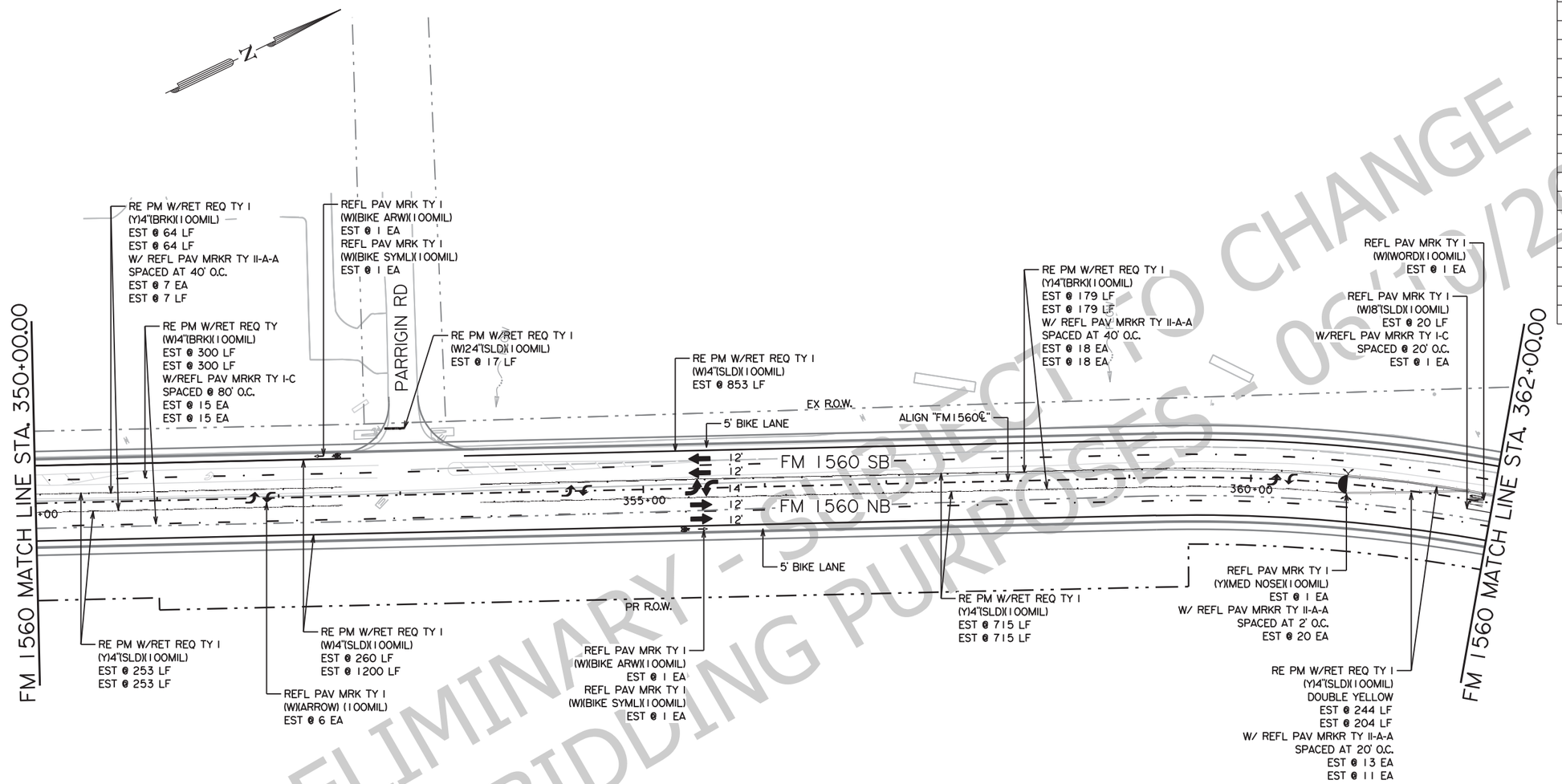

LEGEND

DIRECTIONAL ARROW →

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	20
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	17
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	1
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	2
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	2
0666-6156	REFL PAV MRK TY I(Y)(MED NOSE)(100MIL	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	5783
0666-6226	PAVEMENT SEALER 8"	LF	20
0666-6230	PAVEMENT SEALER 24"	LF	17
0666-6231	PAVEMENT SEALER (ARROW)	EA	6
0666-6232	PAVEMENT SEALER (WORD)	EA	1
0666-6233	PAVEMENT SEALER (MED NOSE)	EA	1
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	2
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	600
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2313
0666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	486
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2384
0672-6007	REFL PAV MRKR TY I-C	EA	31
0672-6009	REFL PAV MRKR TY II-A-A	EA	94

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ENGINEER: TRAVIS OWENS

P.E. SERIAL NO.: 122079

DATE: 6/9/2020

PRELIMINARY - SUBJECT TO CHANGE
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06/19/2020

SCALE: 1"=100'

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PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 13 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	415
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

6/9/2020 3:01:22 PM
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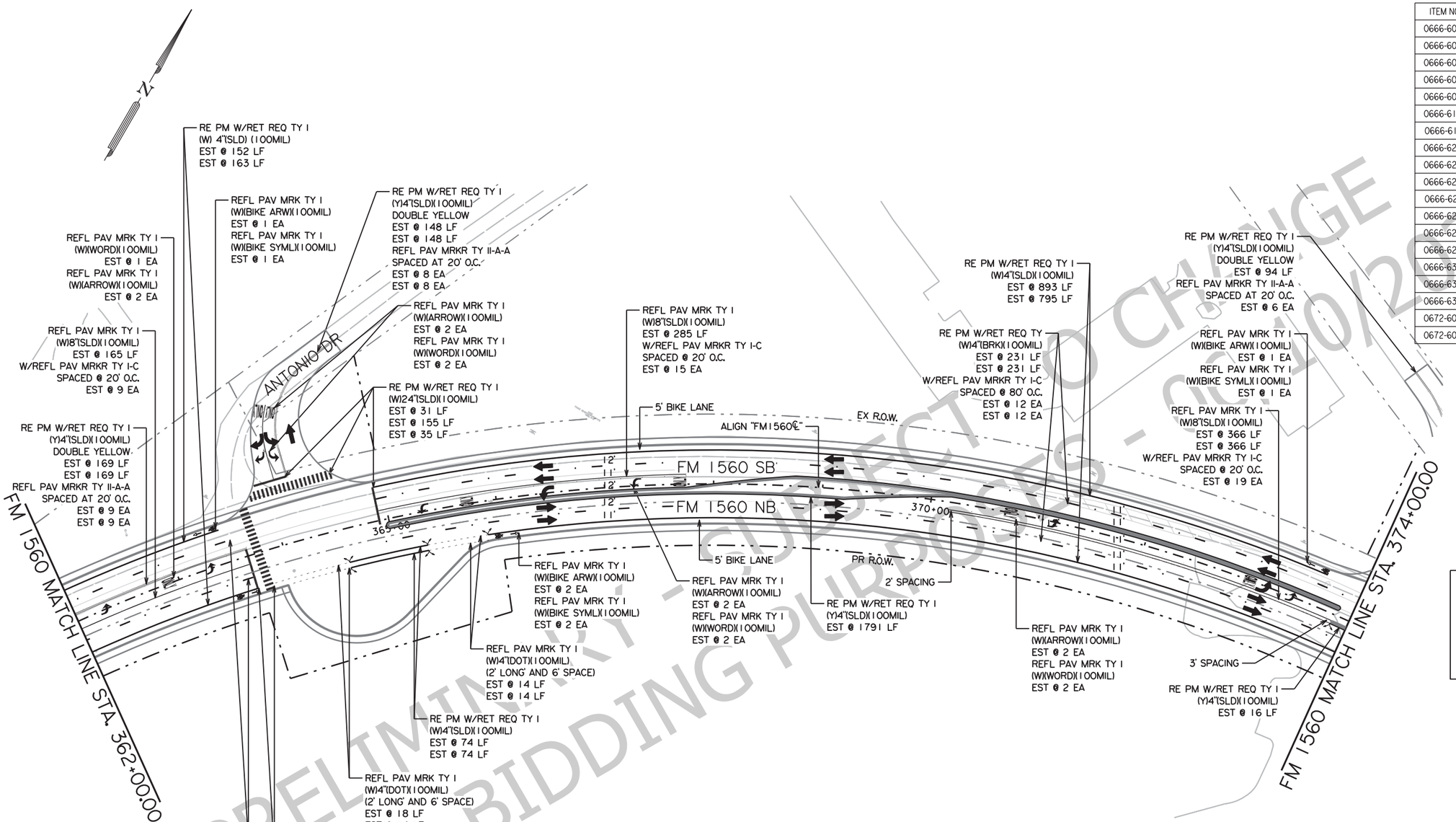

QUANTITY SUMMARY CSJ: 2230-01-021			
ITEM NO.	ITEM	UNIT	QUANTITY
0666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	60
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	1182
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	419
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	8
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	7
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	4
0666-6111	REFL PAV MRK TY I(W)(BIKE SYML)(100MIL	EA	4
0666-6224	PAVEMENT SEALER 4"	LF	5292
0666-6226	PAVEMENT SEALER 8"	LF	1182
0666-6230	PAVEMENT SEALER 24"	LF	419
0666-6231	PAVEMENT SEALER (ARROW)	EA	8
0666-6232	PAVEMENT SEALER (WORD)	EA	7
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	4
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	4
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	546
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2151
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2535
0672-6007	REFL PAV MRKR TY I-C	EA	73
0672-6009	REFL PAV MRKR TY II-A-A	EA	40

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

DIRECTIONAL ARROW

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 14 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	416
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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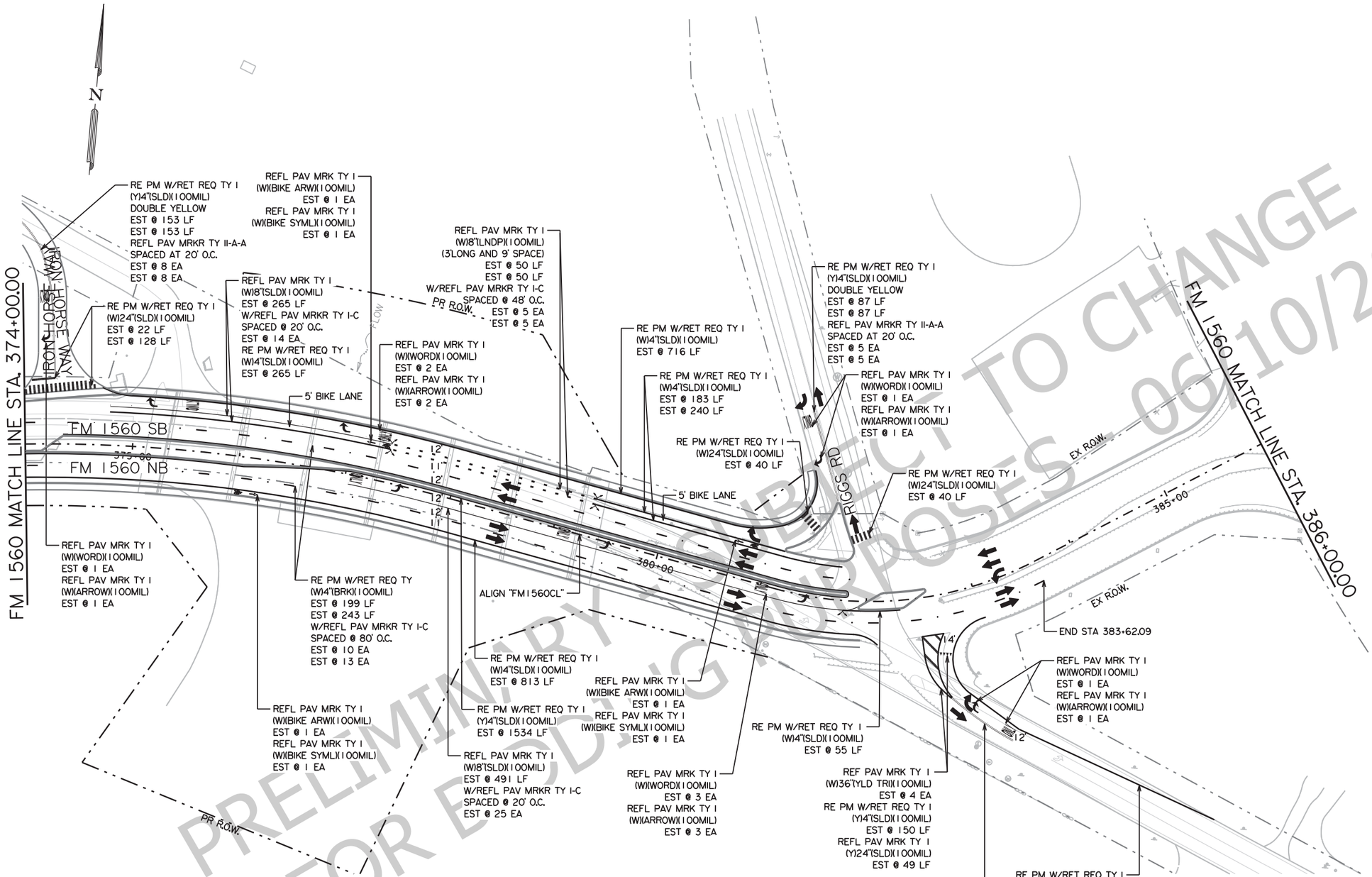

PRELIMINARY NOT FOR BIDDING
SUBJECT TO CHANGE
FOR DESIGN PURPOSES 06/10/2020

QUANTITY SUMMARY CSJ: 2230-01-021

ITEM NO.	ITEM	UNIT	QUANTITY
0666-6033	REFL PAV MRK TY I (W)8"(LNDP)(100MIL)	LF	100
0666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	756
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	230
0666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	8
0666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	8
0666-6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA	4
0666-6105	REFL PAV MRK TY I (W)(BIKE ARW)(100MIL	EA	3
0666-6111	REFL PAV MRK TY II(W)(BIKE SYML)(100MIL	EA	2
0666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	49
0666-6224	PAVEMENT SEALER 4"	LF	5366
0666-6226	PAVEMENT SEALER 8"	LF	856
0666-6230	PAVEMENT SEALER 24"	LF	279
0666-6231	PAVEMENT SEALER (ARROW)	EA	8
0666-6232	PAVEMENT SEALER (WORD)	EA	8
0666-6243	PAVEMENT SEALER (YLD TRI)	EA	4
0666-6244	PAVEMENT SEALER (BIKE ARROW)	EA	3
0666-6245	PAVEMENT SEALER (BIKE SYMBOL)	EA	2
0666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL	LF	442
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL	LF	2620
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	2304
0672-6007	REFL PAV MRKR TY I-C	EA	72
0672-6009	REFL PAV MRKR TY II-A-A	EA	34

INTERIM REVIEW ONLY

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ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 15 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	417
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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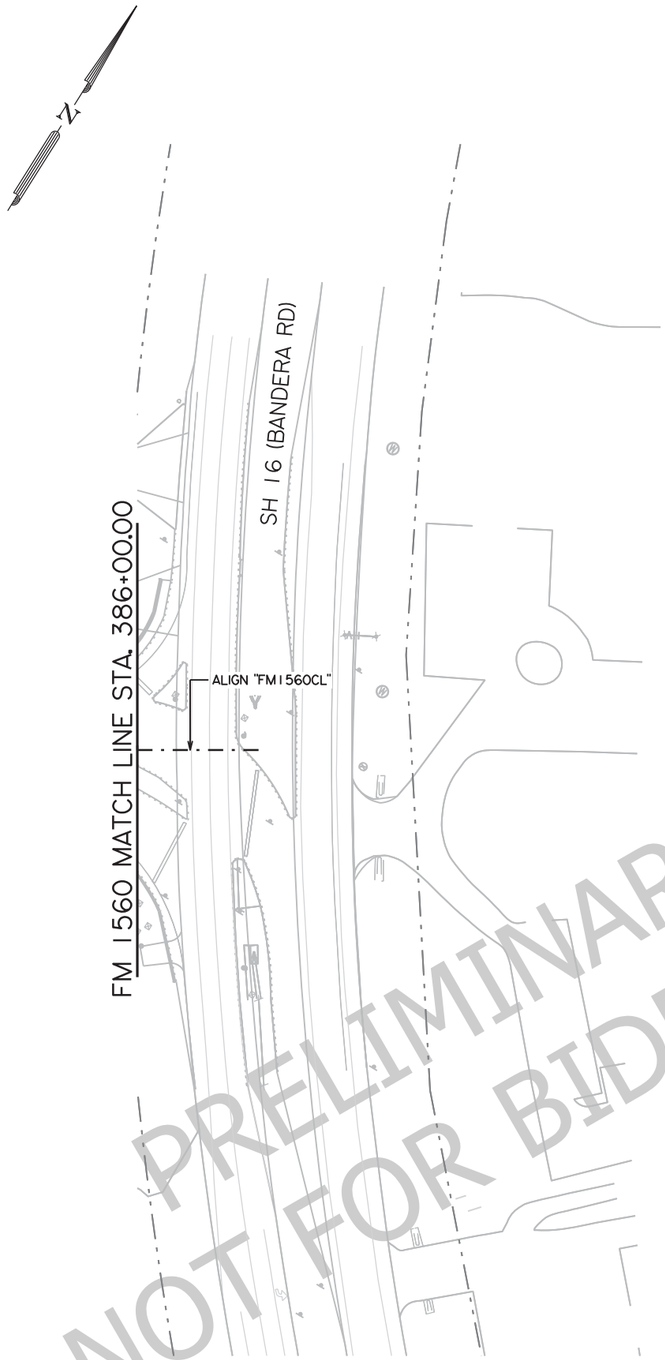

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

DIRECTIONAL ARROW →

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 6/9/2020

SCALE: 1"=100'

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FM 1560
PAVEMENT MARKING & DELINEATION LAYOUT

SHEET 16 OF 16

DESIGN: JL	DRAFT: JL	CHECK: JH	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	418
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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A. GENERAL SITE DATA

1. PROJECT LIMITS: *FROM SH 16 TO GALM/SHAENFIELD*

2. PROJECT SITE MAPS:

- *Project Latitude* 29.5277 *Project Longitude* -98.718
  29.565 -98.688
- *Project Location Map: Shown on Title Sheet*
- *Drainage Patterns: Shown on Drainage Area Maps*
- *Approx. Slopes Anticipated After Major Gradings and Areas of Soil Disturbance: Shown on Typical Sections*
- *Major Controls and Locations of Stabilization Practices: Shown on SW3P Sheets*
- *Project Specific Locations: Off-site waste, borrow, or storage areas are not part of this SW3P.*
- *Surface Waters and Discharge Locations: Shown on Drainage and Culvert Layout Sheets*

3. PROJECT DESCRIPTION: *EXPAND FROM 2 TO 4 LANES WITH RAISED MEDIAN OR CENTER TURN LANE, BIKE LANES, AND SIDEWALKS*

- *Joint-bid utilities are covered by this SW3P*
  Non-Joint Bid Utilities are not part of this SW3P.

4. FOR MAJOR SOIL DISTURBING ACTIVITIES SEQUENCE OF EVENTS:

1. *Install controls down-slope of work area and initiate inspection and maintenance activities.*
2. *Begin phased construction with interim stabilization practices. Adjust erosion and sedimentation controls during construction to meet requirements and changing conditions and as directed/approved by the Engineer.*
3. *Major soil disturbing activities may include but are not limited to: right-of-way preparation, cut and/or fill to improve roadway profile, final grading and placement of topsoil and the following (if marked):*

- X *Placement of road base*
- X *Exstensive ditch grading*
- X *Upgrading or replacing culverts or bridges*
- ___ *Temporary detour road(s)*
- ___ *Other:* _____

5. EXISTING AND PROPOSED CONDITIONS:

Description of existing vegetative cover: NATIVE GRASS
Percentage of existing vegetative cover: 65%
Existing vegetative cover:(mark one)
___ *Thick or uniformly established*
X *Thin and Patchy*
___ *None or minimal cover*
Description of soils: LEWISVILLE SILTY CLAY - LEAN CLAY AND CLAYEY SAND
Site Acreage: 45.35 *Acreage disturbed: 40.82*
Site runoff coefficient (pre-construction): _____ *Site runoff coefficient (post-construction):* _____

6. RECEIVING WATERS: *(Mark all that apply)*

X *A classified stream does not pass through project.*
___ *A classified stream passes through project. Name* _____ *Segment Number* _____
Name of receiving waters that will receive discharges from disturbed areas of the project: _____

Site is in a Municipal Separate Storm Sewer System (MS4).
MS4 Operator (name): TXDOT

B. BEST MANAGEMENT PRACTICES

General timing or sequence for implementation of BMPs shall be as required and/or as directed/approved by the Engineer to provide adequate controls. BMPs shown on plan sheets are to be considered "proposed" unless/until install date is shown. BMPs are to reduce sediments from road construction activities.

1. SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- P SEEDING
- T MULCHING (Hay or Straw)
- ___ BUFFER ZONES
- ___ PLANTING
- ___ COMPOST/MULCH FILTER BERM
- P SODDING
- ___ PRESERVATION OF NATURAL RESOURCES
- ___ FLEXIBLE CHANNEL LINER
- P RIGID CHANNEL LINER
- P SOIL RETENTION BLANKET
- P COMPOST MANUFACTURED TOPSOIL
- ___ OTHER: (NA)

2. STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- T SILT FENCES
- ___ HAY BALES
- T ROCK FILTER DAMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- T ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- P CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT BASINS
- ___ STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- P CURBS AND GUTTERS
- P STORM SEWERS
- P VELOCITY CONTROL DEVICES
- ___ OTHER: *(NA)*

3. STORM WATER MANAGEMENT:

The proposed facility was designed in consideration of hydraulic design standards to convey stormwater in a manner that is protective of public safety and property. The control of erosion from the facility is inherent to the design. Additional factors affecting post-construction stormwater at the project location include:(mark all that apply)

- X *Existing or new vegetation provides natural filtration.*
- X *The design includes provisions for permanent erosion controls provided by strategically placed pervious and impervious surfaces.*
- X *Project includes permanent sedimentation controls (other than grass).*
- ___ *Velocities do not require dissipation devices.*
- X *Velocity-dissipation devices included in the design.*
- ___ *Other :* _____

4. NON-STORM WATER DISCHARGES:

Off-site discharges are prohibited except as follows:

1. *Discharges from fire fighting activities and/or fire hydrant flushings.*
2. *Vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed).*
3. *Plain water used to control dust.*
4. *Plain water originating from potable water sources.*
5. *Uncontaminated groundwater, spring water or accumulated stormwater.*
6. *Foundation or footing drains where flows are not contaminated with process materials such as solvents.*
7. *Other:* _____

Concrete truck wash water discharges on the site should be prohibited or minimized. If allowed by the Engineer, they must be managed in a manner so as not to contaminate surface water. They must not be located in areas of concentrated flow. Concrete truck wash-out locations must be shown on the SW3P Layout and included in the inspections.

Hazardous material spill/leak shall be prevented or minimized. At a minimum, this includes asphalt products, fuels, oils, lubricants, solvents, paints, acids, concrete curing compounds and chemical additives for soil stabilization. BMPs shall be implemented to the storage areas of these products. All spills must be cleaned and disposed properly and reported to the Engineer. Report any release at or above the reportable quantity during a 24 hour period to the National Response Center at 1-800-424-8802.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:

All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be performed before the next anticipated storm event but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Disturbed areas on which construction activities have ceased, temporarily or permanently, shall be stabilized within 14 calendar days unless they are scheduled to and do resume within 21 calendar days. The areas adjacent to creeks and drainageways shall have priority followed by protecting storm sewer inlets.

2. INSPECTION:

For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every seven (7) calendar days. An Inspection and Maintenance Report shall be prepared for each inspection and the controls shall be revised on the SW3P within seven (7) calendar days following the inspection.

3. WASTE MATERIALS:

All non-hazardous municipal waste materials such as litter, rubbish, trash and garbage located on or originating from the project shall be collected and stored in a securely lidded metal dumpster, provided by the Contractor. The dumpster shall be emptied as necessary or as required by local regulation and the trash shall be hauled to a permitted disposal facility. The burying of non-hazardous municipal waste on the project shall not be permitted. Construction material waste sites, stockpiles and haul roads shall be constructed to minimize and control the amount of sediment that may enter receiving waters. Construction material waste sites shall not be located in any wetland, water body or stream bed. Construction staging areas and vehicle maintenance areas shall be constructed in a manner to minimize the runoff of pollutants.

4. OFFSITE VEHICLE TRACKING:

Off-site vehicle tracking of sediments and the generation of dust must be minimized. Excess sediments on road shall be removed on a regular basis as directed/approved by the Engineer.

5. OTHER:

See the EPIC sheet for additional environmental information.

PRELIMINARY - NOT FOR BIDDING
SUBJECT TO CHANGE - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

, P.E.
Signature of Registrant & Date

REVISION DATE: 10/12

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STORM WATER POLLUTION PREVENTION PLAN (SW3P)

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6			FM 1560
STATE	DISTRICT	COUNTY	
TEXAS	SAT	BEXAR	
CONTROL	SECTION	JOB	SHEET NO.
2230	01	021	419

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DOCUMENT NAME

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit (CGP) required for projects with 1 or more acres distrubed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
2. Comply with the Storm Water Pollution Prevention Plan (SW3P) and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA) or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, Contractor shall submit Notice of Intent (NOI) to TCEQ and the Engineer.
5. NOI required: ☒Yes ☐No

Note: If amount of soil disturbance changes, permit requirements may change.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

US Army Corps of Engineers (USACE) Permit required for filling, dredging, excavating or other work in any potential USACE jurisdictional water, such as, rivers, creeks, streams, or wetlands.

The Contractor shall adhere to all of the terms and conditions associated with the following permit(s):

☐ No Permit Required
☒ Nationwide Permit (NWP) 14 - Pre-construction Notice (PCN) not Required
☐ Nationwide Permit 14 - PCN Required
☐ Individual 404 Permit Required
☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices (BMPs) planned to control erosion, sedimentation and post-project total suspended solids (TSS).

1. CULEBRA CREEK TRIBUTARY C AT STA 232+15

2. CULEBRA CREEK TRIBUTARY C AT STA 264+88

3. CULEBRA CREEK TRIBUTARY C AT STA 293+00

4. HELOTES CREEK TRIBUTARY A AT STA 340+15

5. HELOTES CREEK AT STA 376+80

401 Best Management Practices: (Not applicable if no USACE permit)

Erosion	Sedimentation	Post-Construction TSS
☒ Temporary Vegetation	☒ Silt Fence	☐ Vegetative Filter Strips
☒ Blankets/Matting	☒ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☒ Sodding	☒ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☒ Erosion Control Compost
☒ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☒ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☒ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Sedimentation Chambers
		☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162,164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:

   A. Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.

   B. On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.

2. See Item 5 in General Notes.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediated area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the follwing are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

Does the project involve the demolition of a span bridge?

☒ Yes ☐ No (No further action required)

If "Yes", a pre- demolition notification must be submitted to the Texas Department of State Health Services. The contractor shall contact TxDOT's Project Engineer 25 calendar days prior to the demolition of the bridges(s) on the project to assist with the notification.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☐ No Action Required ☒ Required Action

Action No.

1. Comply with the TCEQ-approved Edwards Aquifer Protection Plan and conditions in the TCEQ-authorization letter for this project.
2. The Contractor must immediately report spills (including sanitary sewer discharge) of reportable quantities to TxDOT and to the following:
   * State Emergency Response Center (800) 832-8224
   * TCEQ Regional Office (210) 490-3096
   * National Response Center at (800) 424-8802
   * Edwards Aquifer Authority at (210) 222-2204
3. Hazardous substances (e.g., fuel, oil, asphalt emulsion, concrete curing compounds) shall not be stored on the State ROW or easements.
4. Intentional discharges of sediment laden storm water during construction are not allowed.
5. If any sensitive feature (e.g., cave, sinkhole, well) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately and notify the TxDOT Environmental Office. Construction near the sensitive feature may not proceed until the feature has been evaluated and approval to continue construction has been received.

PRELIMINARY - SUBJECT TO CHANGE - 06/10/2020
NOT FOR BIDDING PURPOSES

Texas Department of Transportation
San Antonio District Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

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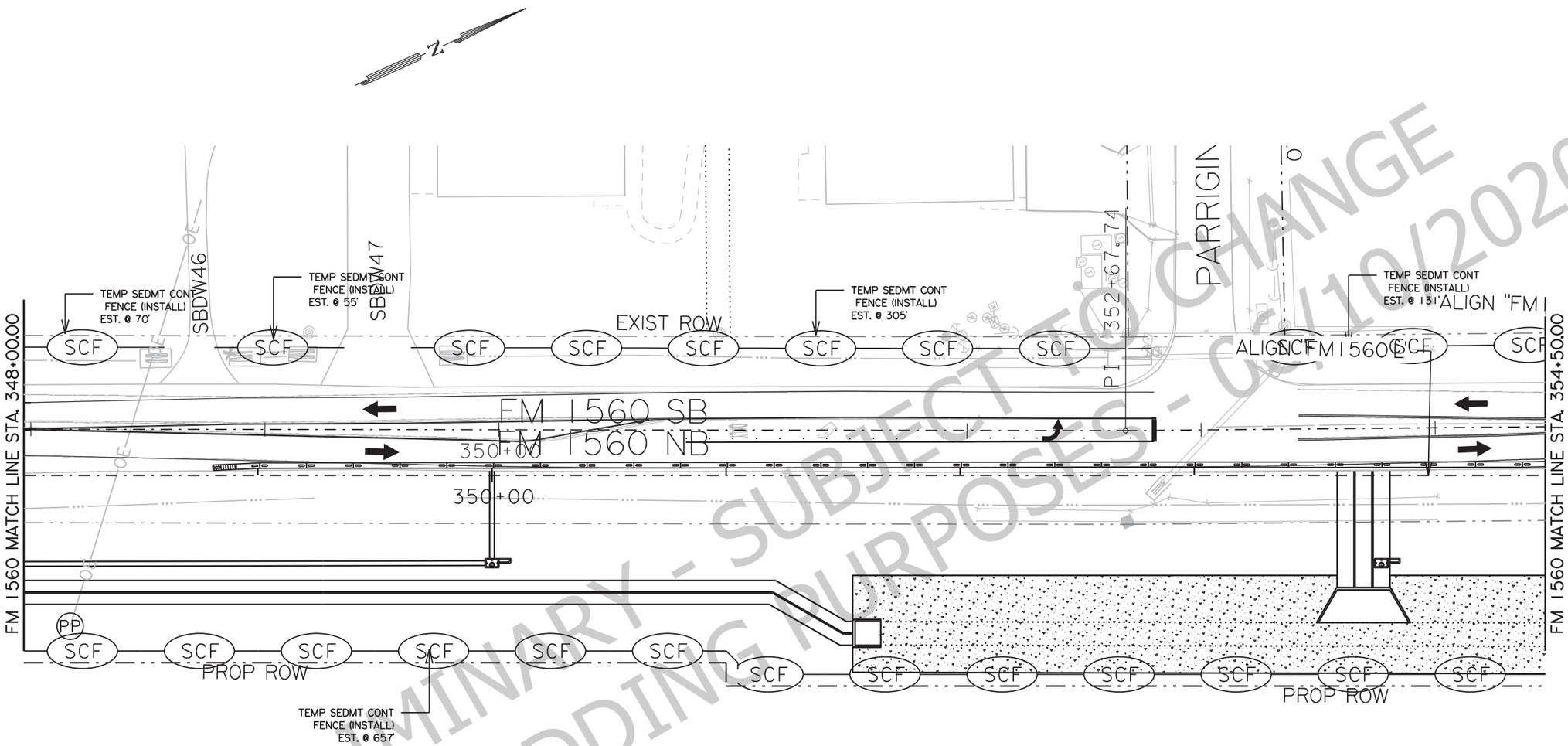
©TxDOT OCTOBER 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	2230	01	021	FM1560
	DIST	COUNTY		SHEET NO.
	SAT	BEXAR		420



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/5/2020

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
2. NOT ALL BMP'S ARE REQUIRED TO BE INSTALLED AT BEGINNING OF PROJECT/PHASE. INSTALL ACCORDINGLY WITH CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER.
3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
   ALL ESTABLISHMENT AREAS TO RECEIVE:
   TEMPORARY SEEDING, 4" OF COMPOST, PERMANENT SEEDING, FERTILIZER, & WATER.
   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

SCALE: 1"=50'

Texas Department of Transportation
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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 1 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	421
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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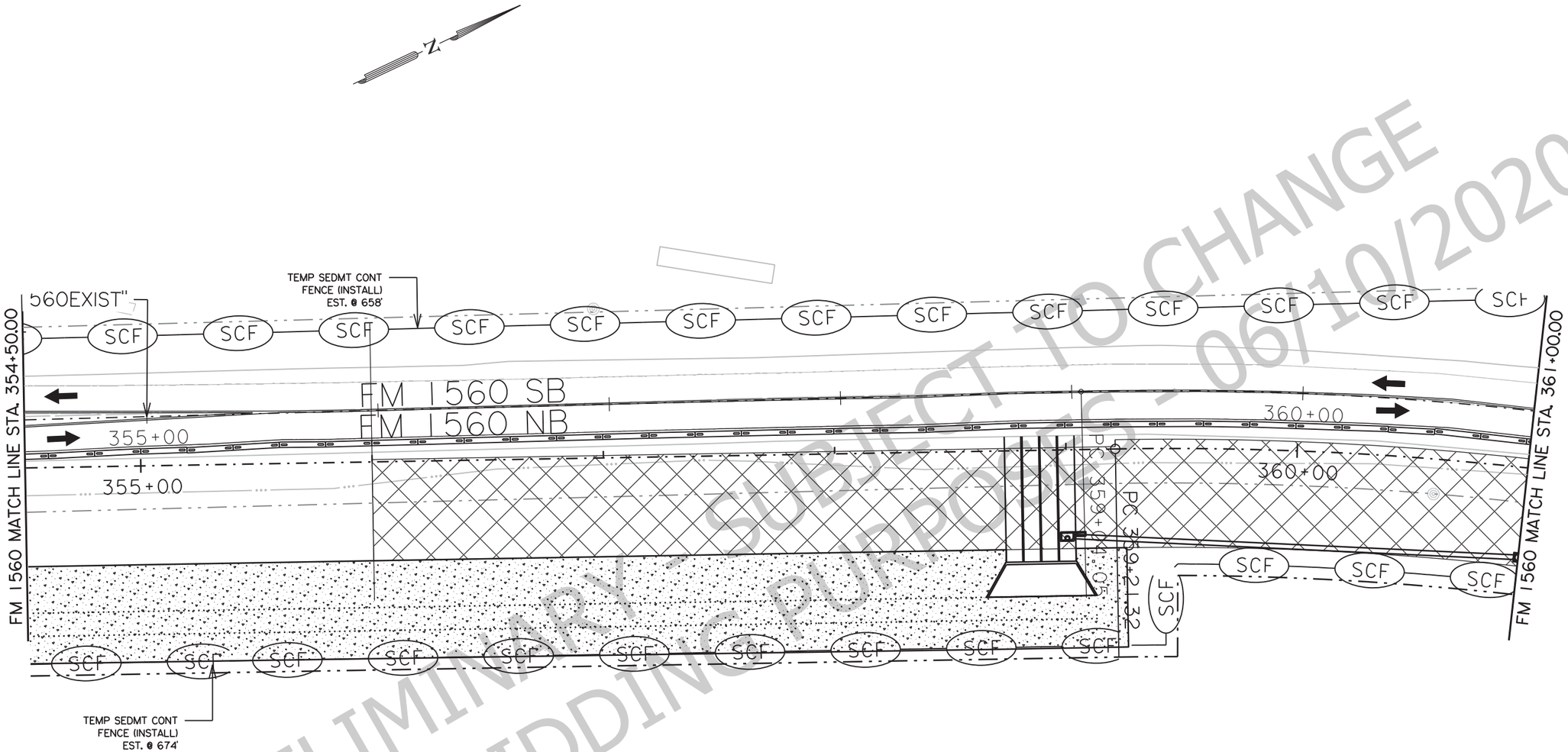

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/5/2020

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
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3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
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4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

SCALE: 1"=50'

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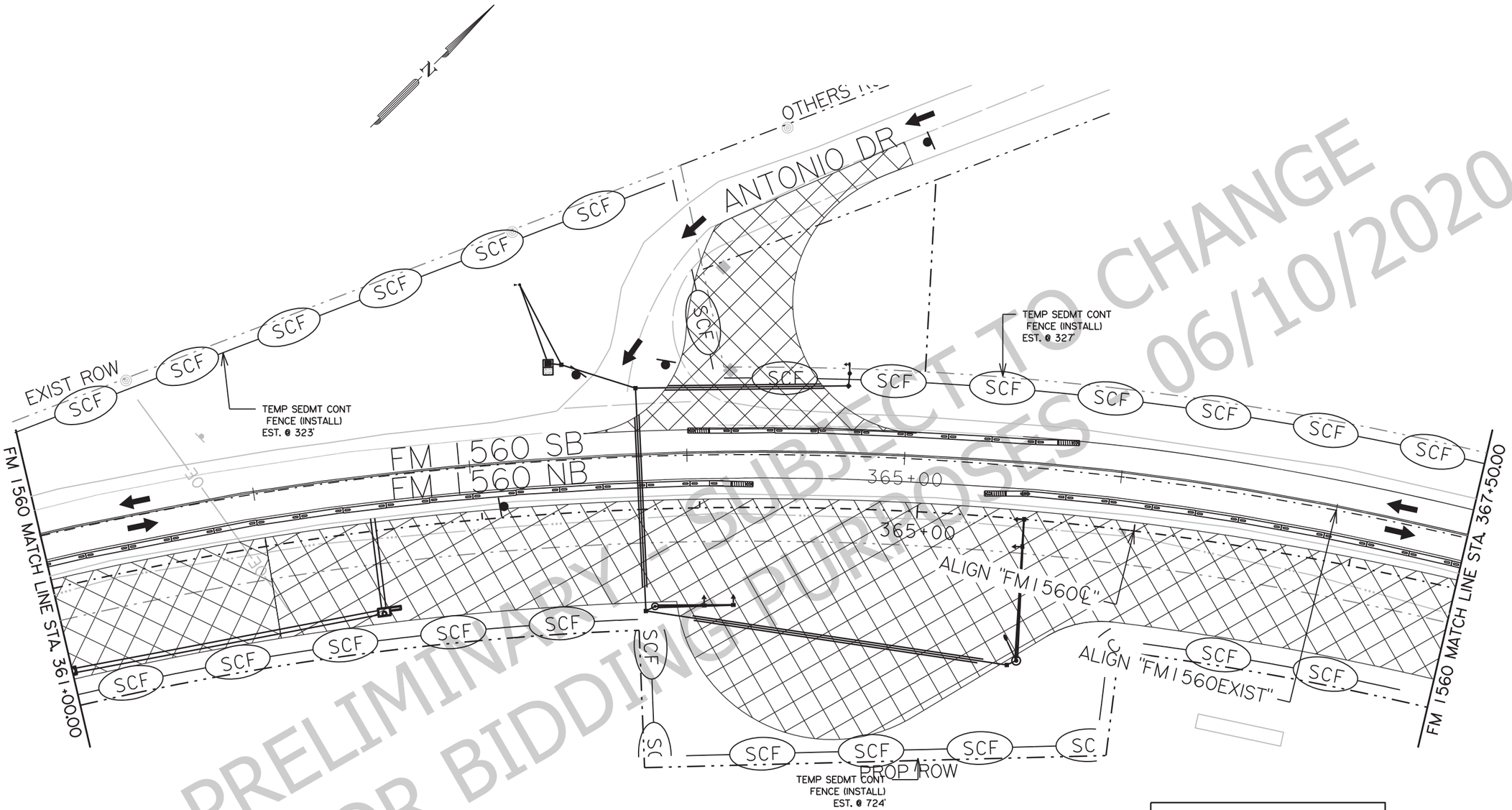
FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 2 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	422
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
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SCALE: 1"=50'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 3 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	423
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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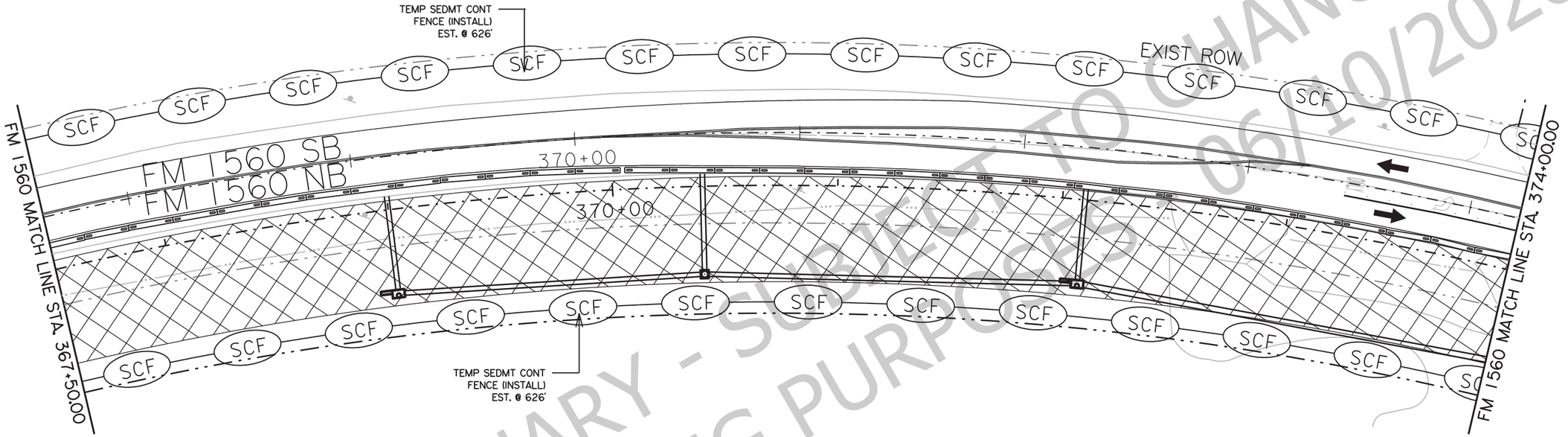

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

SW3P LEGEND

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SCALE: 1"=50'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 4 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	424
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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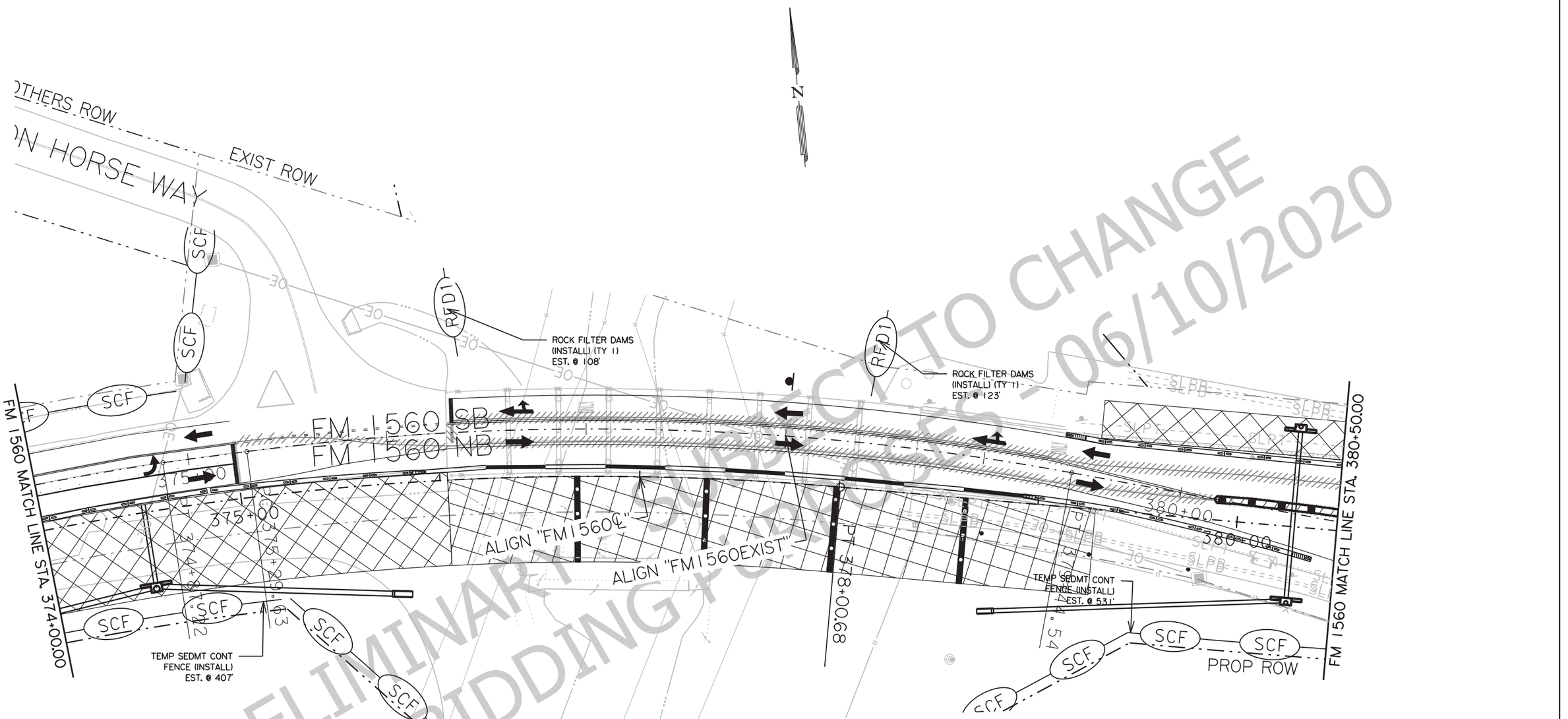

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 2020/06/08

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SCALE: 1"=50'

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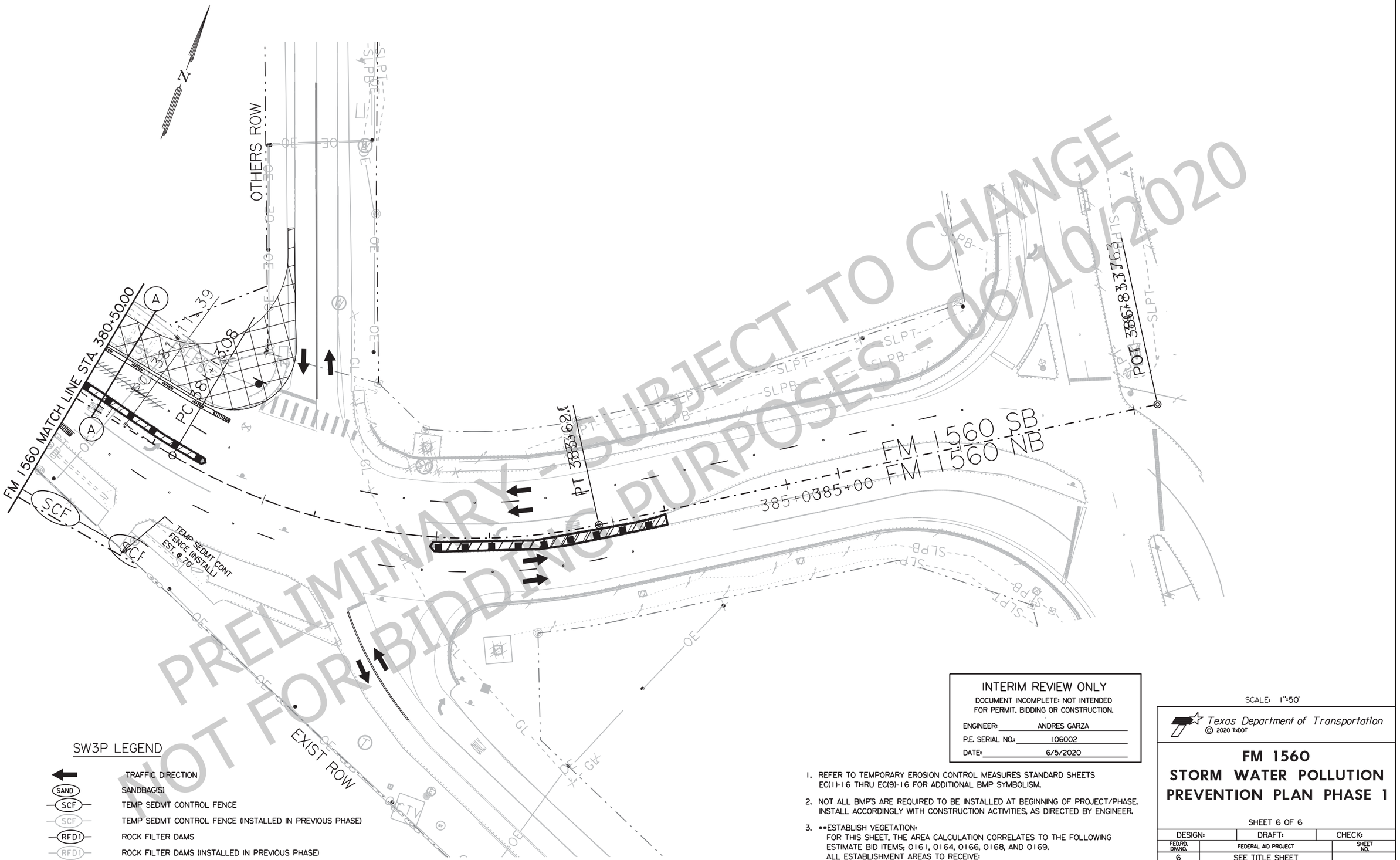
FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 5 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	425
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



SW3P LEGEND

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P.E. SERIAL NO.: 106002
DATE: 6/5/2020

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SCALE: 1"=50'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 1

SHEET 6 OF 6

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
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2230	01	021	FM 1560

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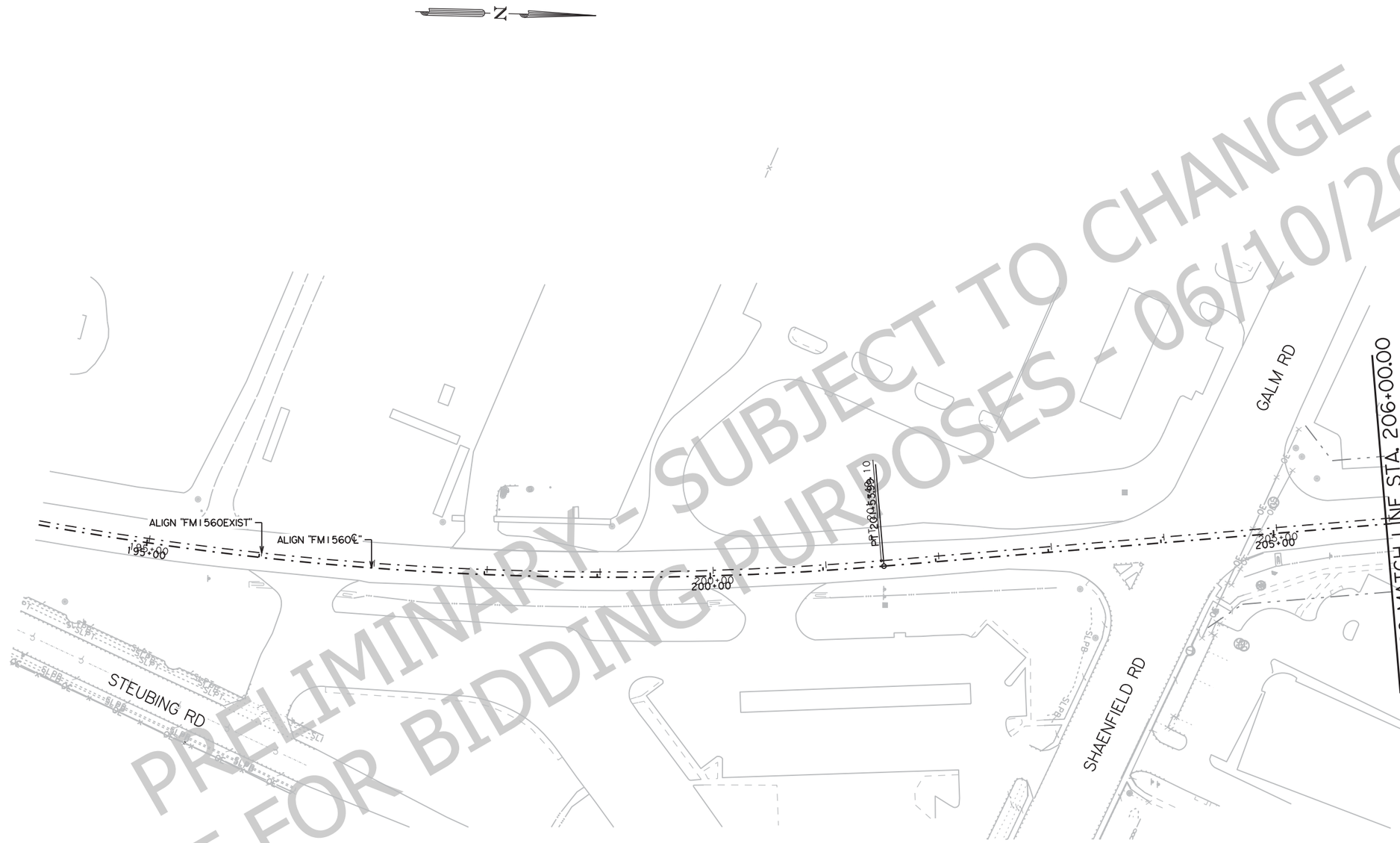

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SW3P LEGEND

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SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 1 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	427
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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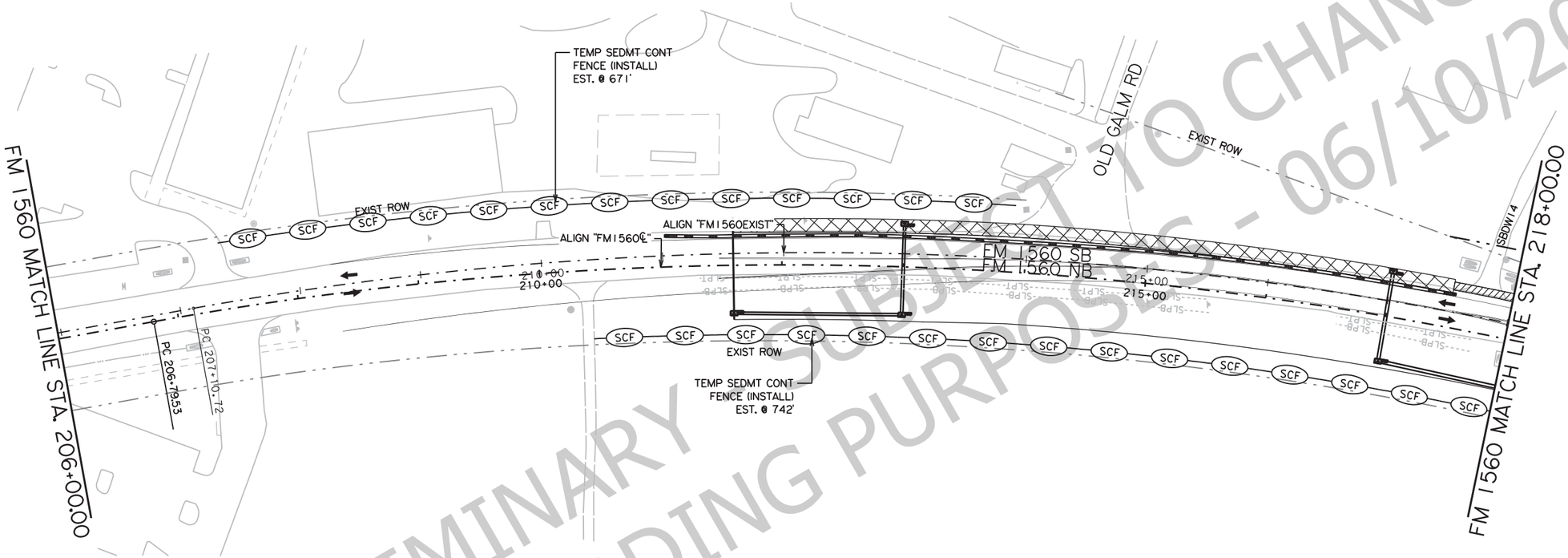

PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

SW3P LEGEND

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 2 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	428
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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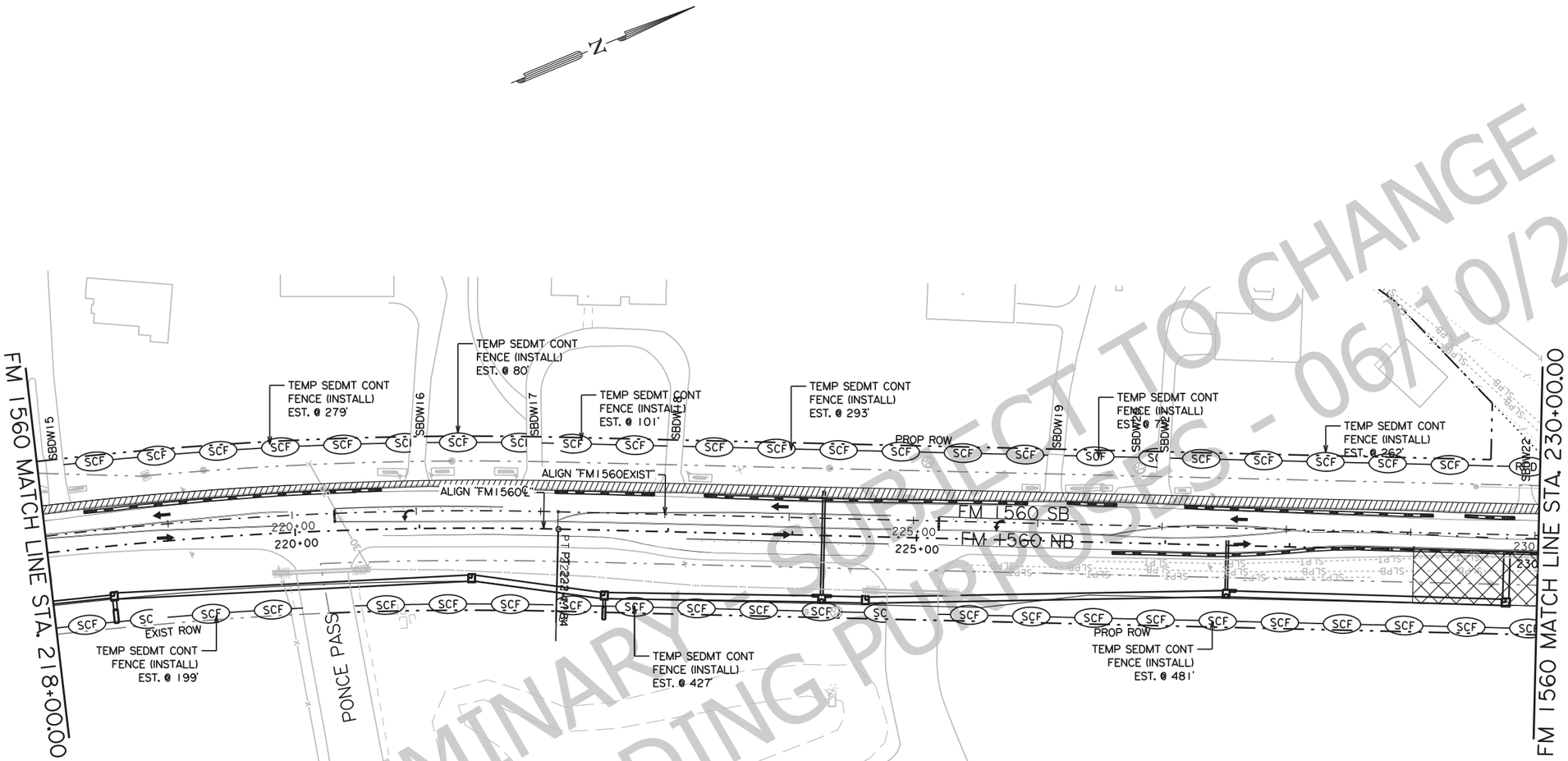

SUBJECT TO CHANGE
PROPOSES - 06/10/2020
PRELIMINARY
NOT FOR BIDDING PURPOSES

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 3 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	429
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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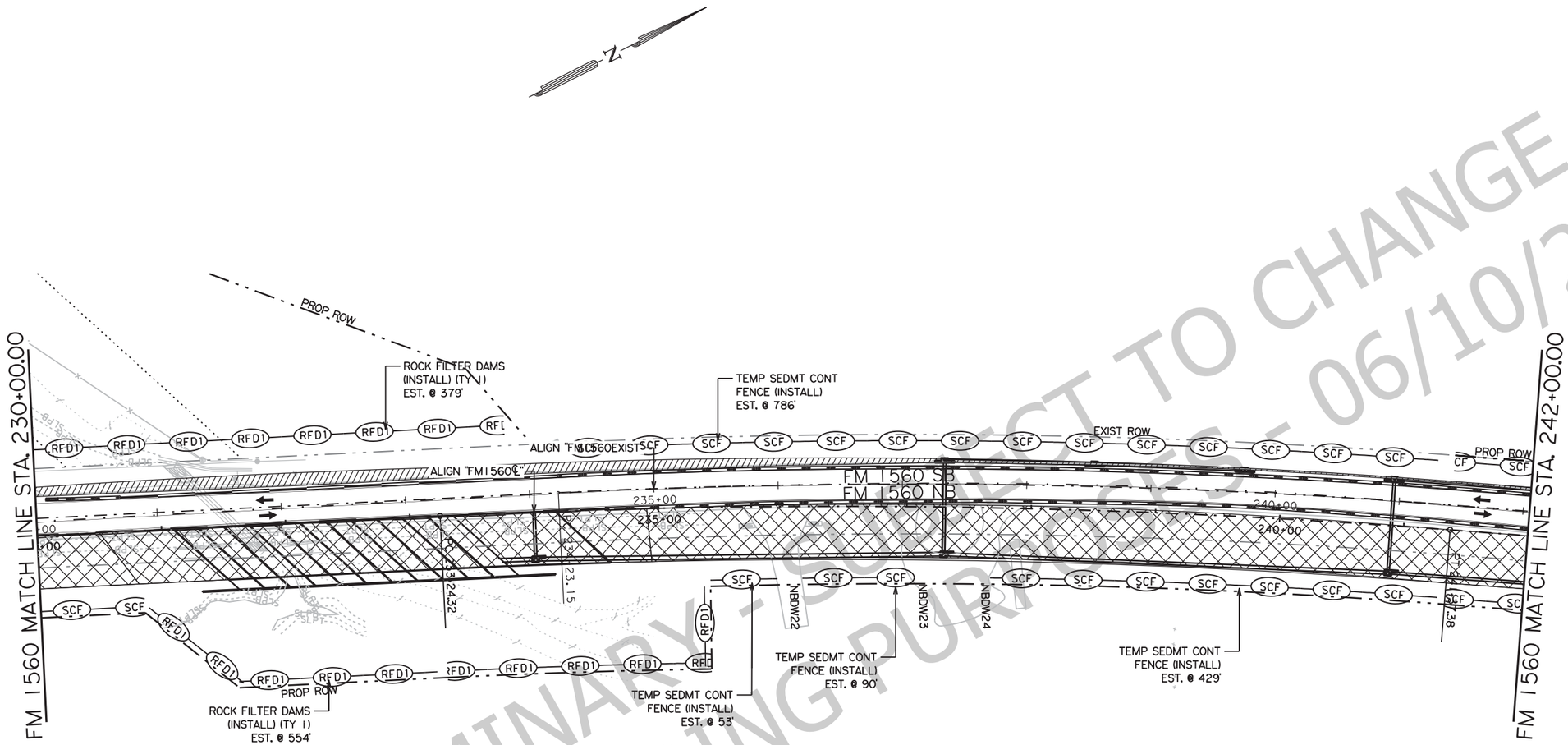

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DATE: 6/4/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 4 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	430
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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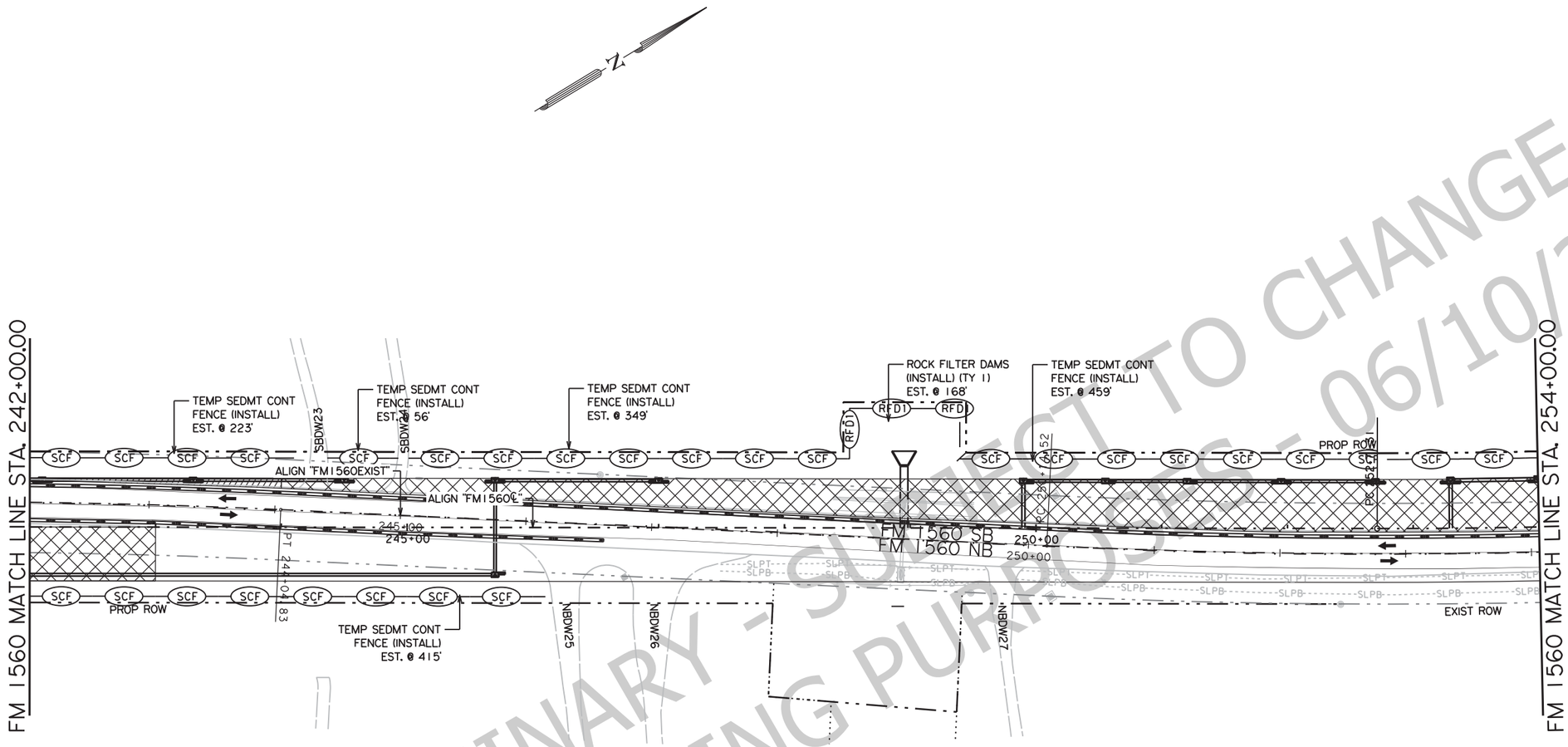

PRELIMINARY - SUBJECT TO CHANGE
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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 5 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	431
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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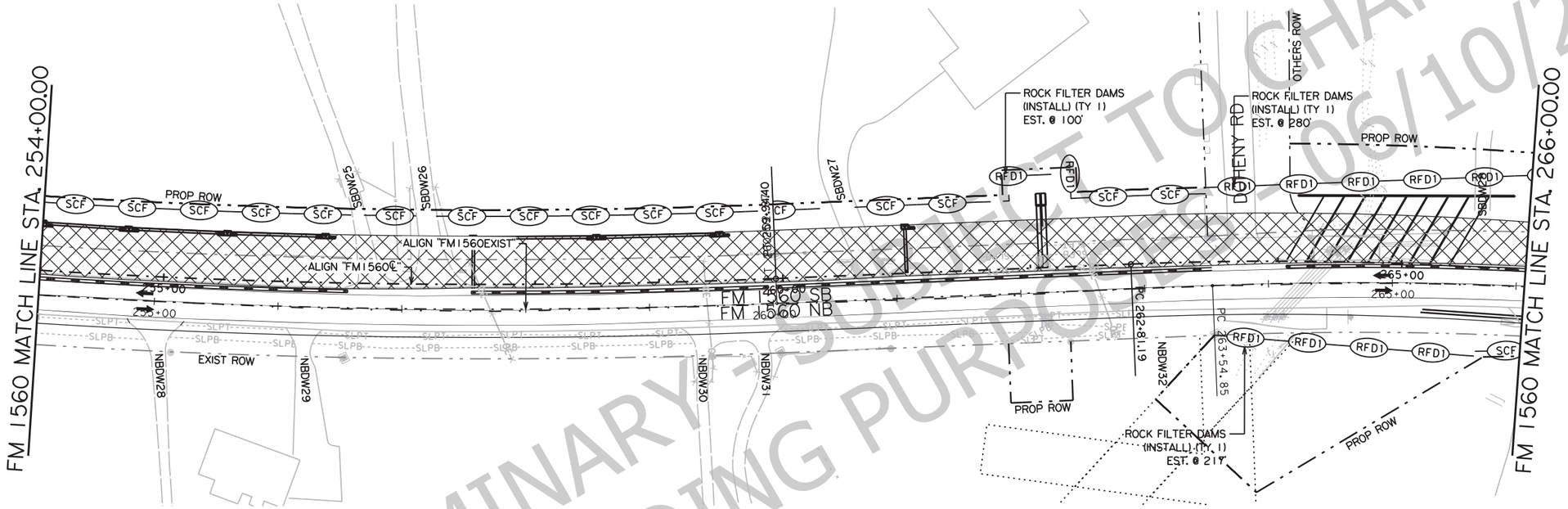

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
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3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
   ALL ESTABLISHMENT AREAS TO RECEIVE:
   TEMPORARY SEEDING, 4" OF COMPOST, PERMANENT SEEDING, FERTILIZER, & WATER.
   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 6 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	432
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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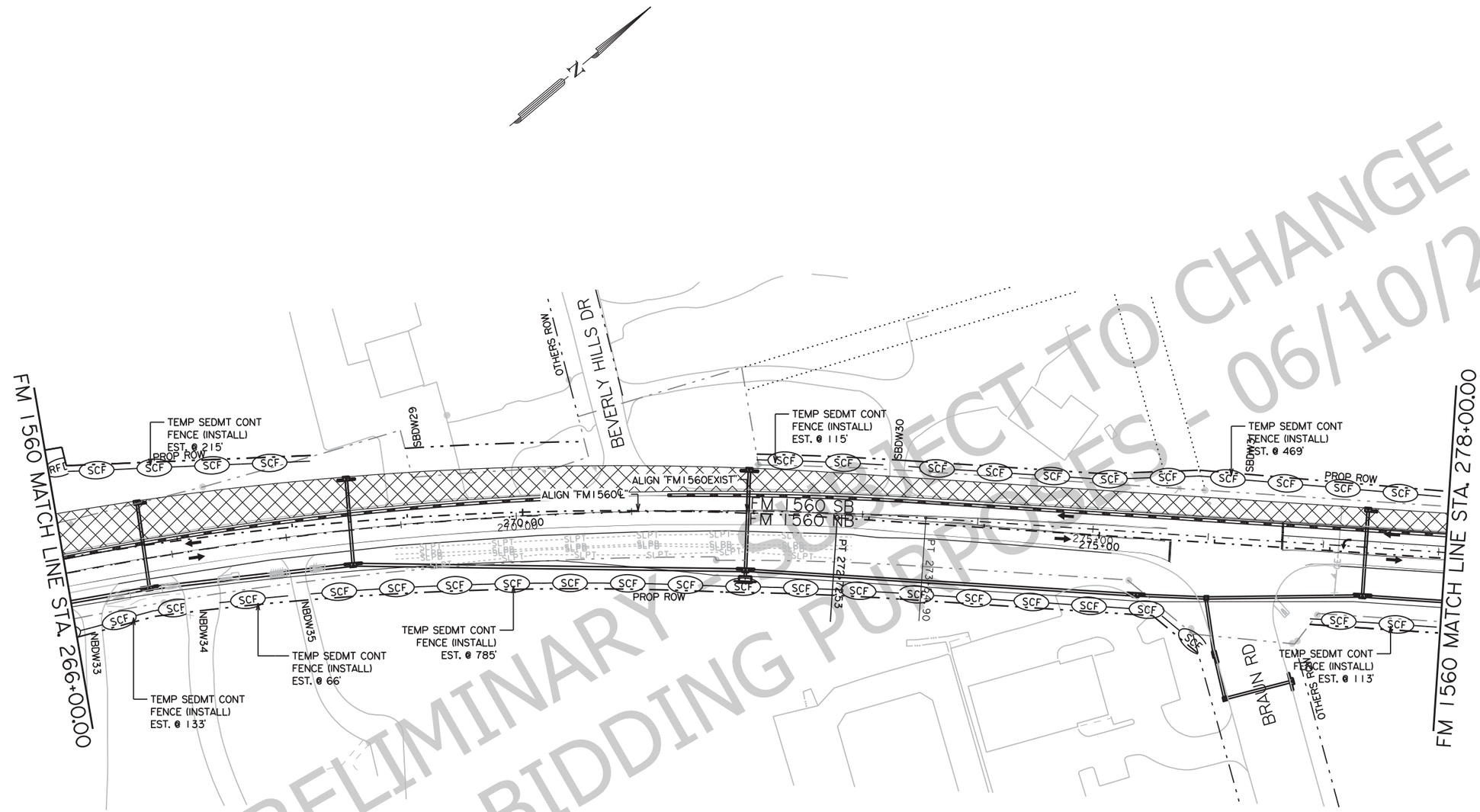

PRELIMINARY - SUBJECT TO CHANGE
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INTERIM REVIEW ONLY
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SW3P LEGEND

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SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 7 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	433
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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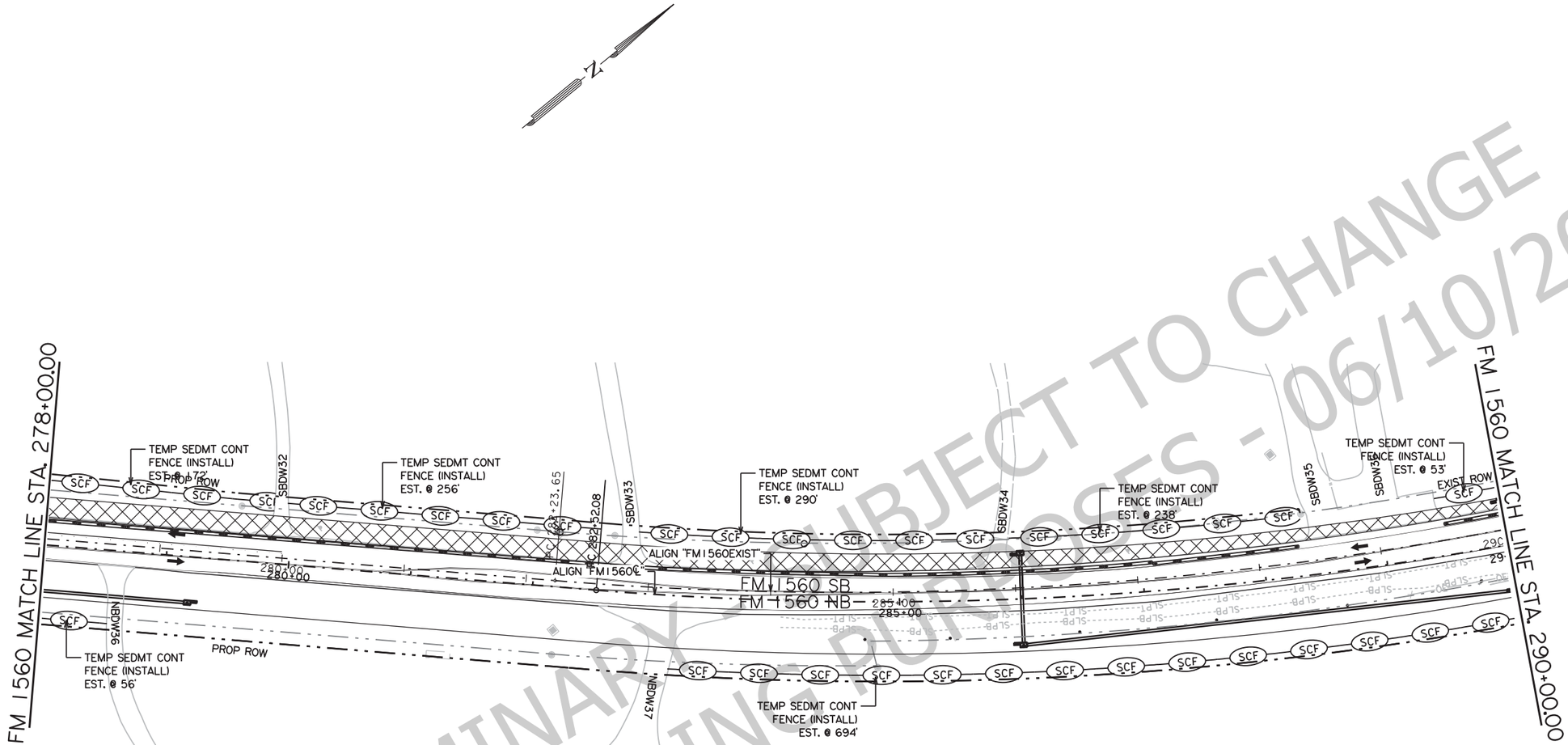

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 8 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	434
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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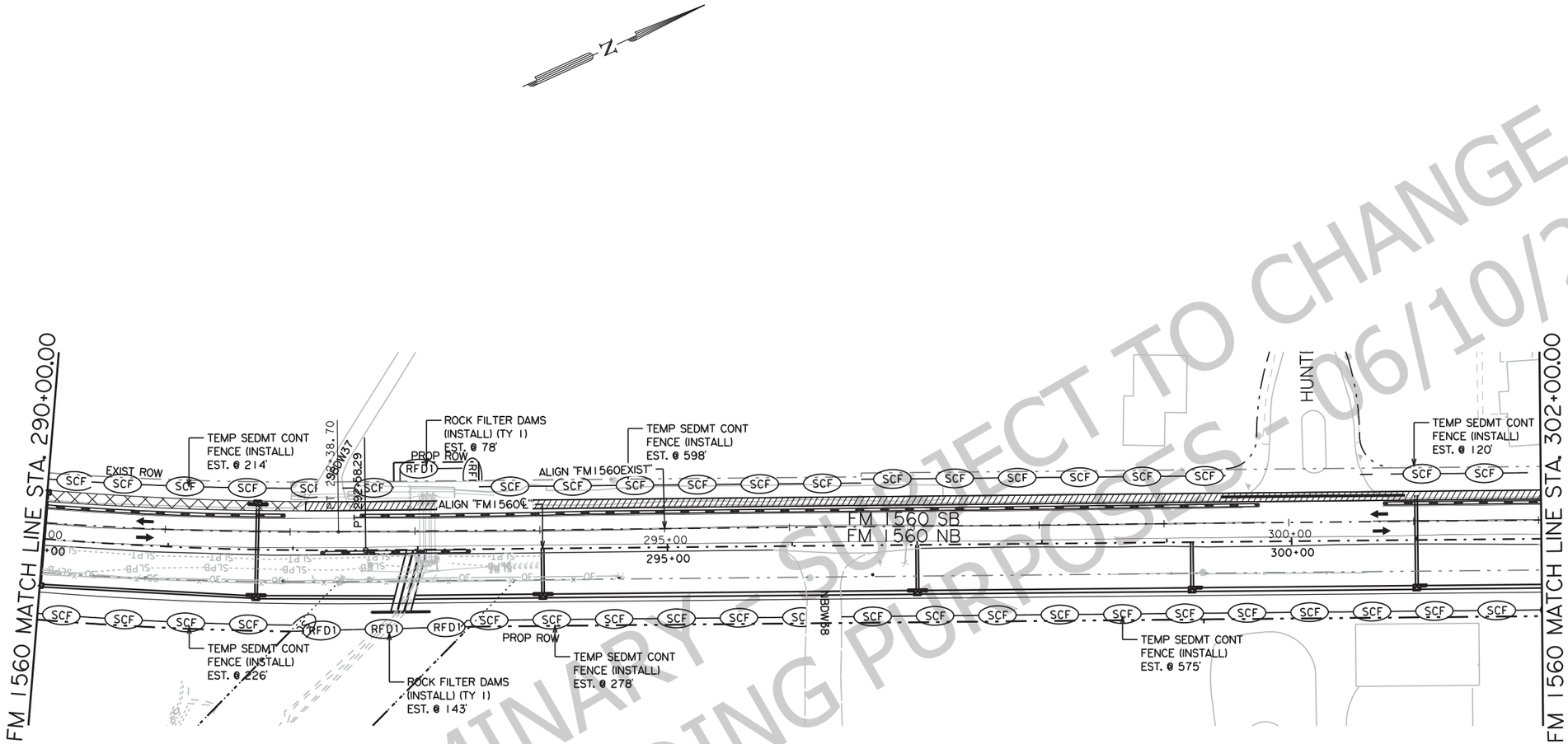

SUBJECT TO CHANGE
PROPOSED 06/10/2020
PRELIMINARY - NOT FOR BIDDING PURPOSES

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
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- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 9 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	435
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2230	01	021	FM 1560

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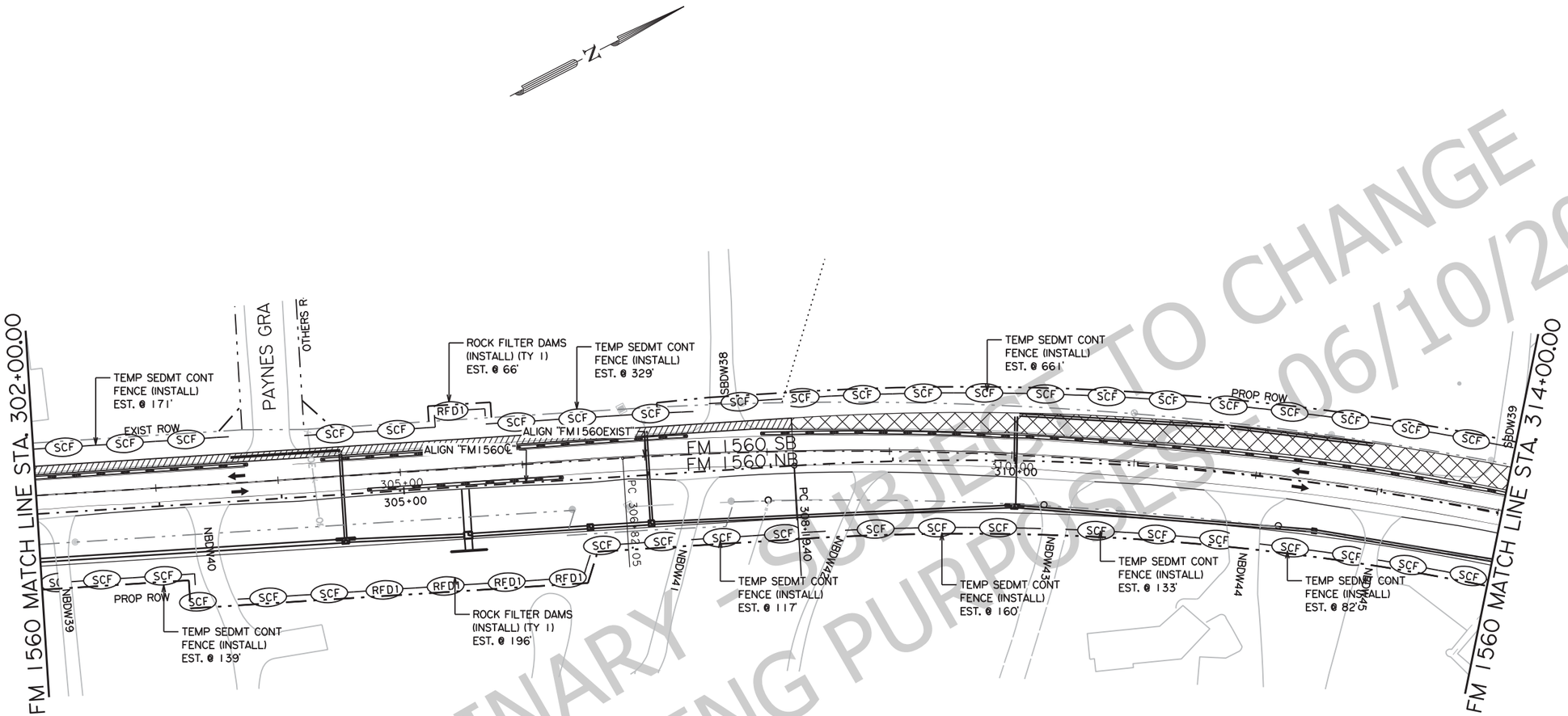

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 10 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	436
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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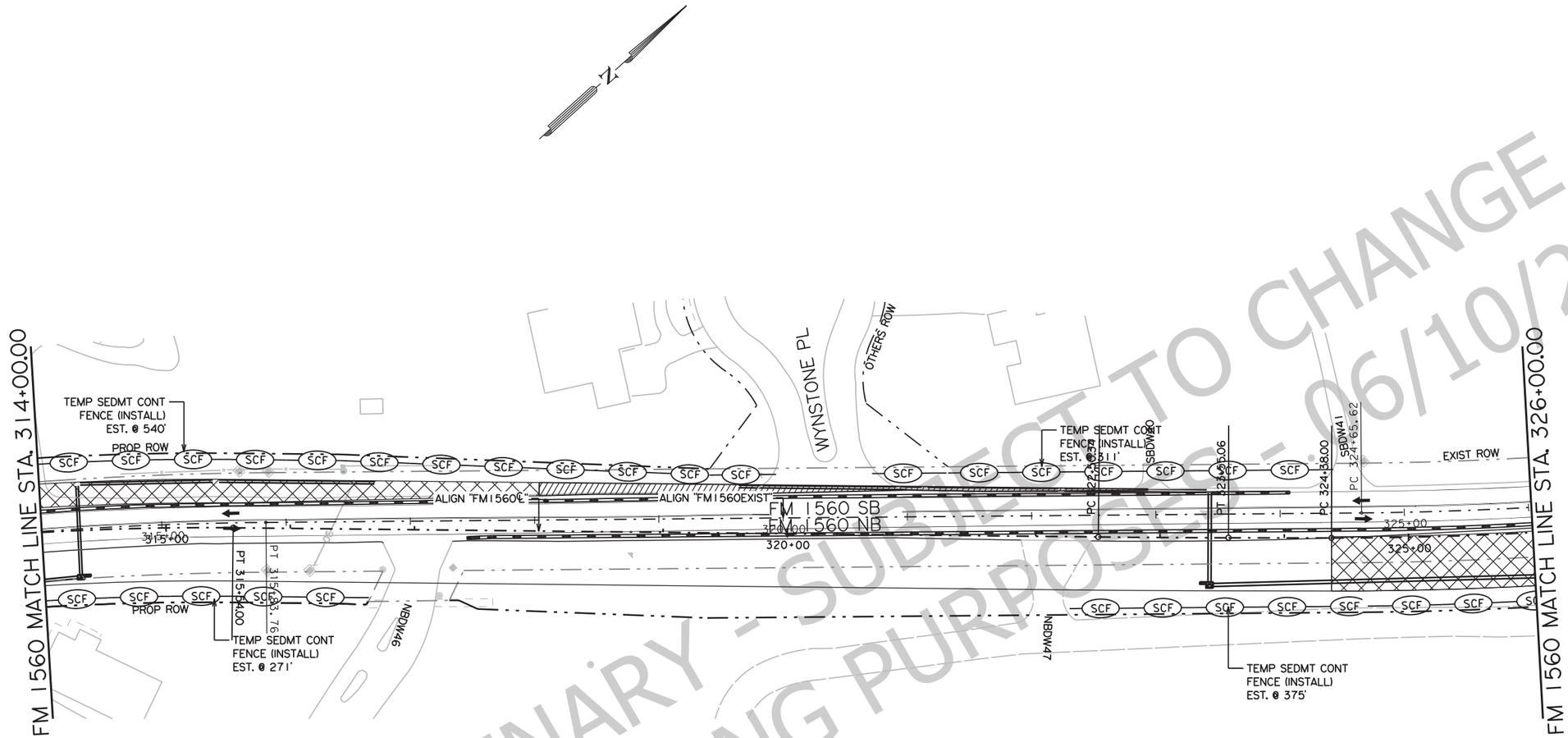

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/4/2020

SW3P LEGEND

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SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 11 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	437
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2230	01	021	FM 1560

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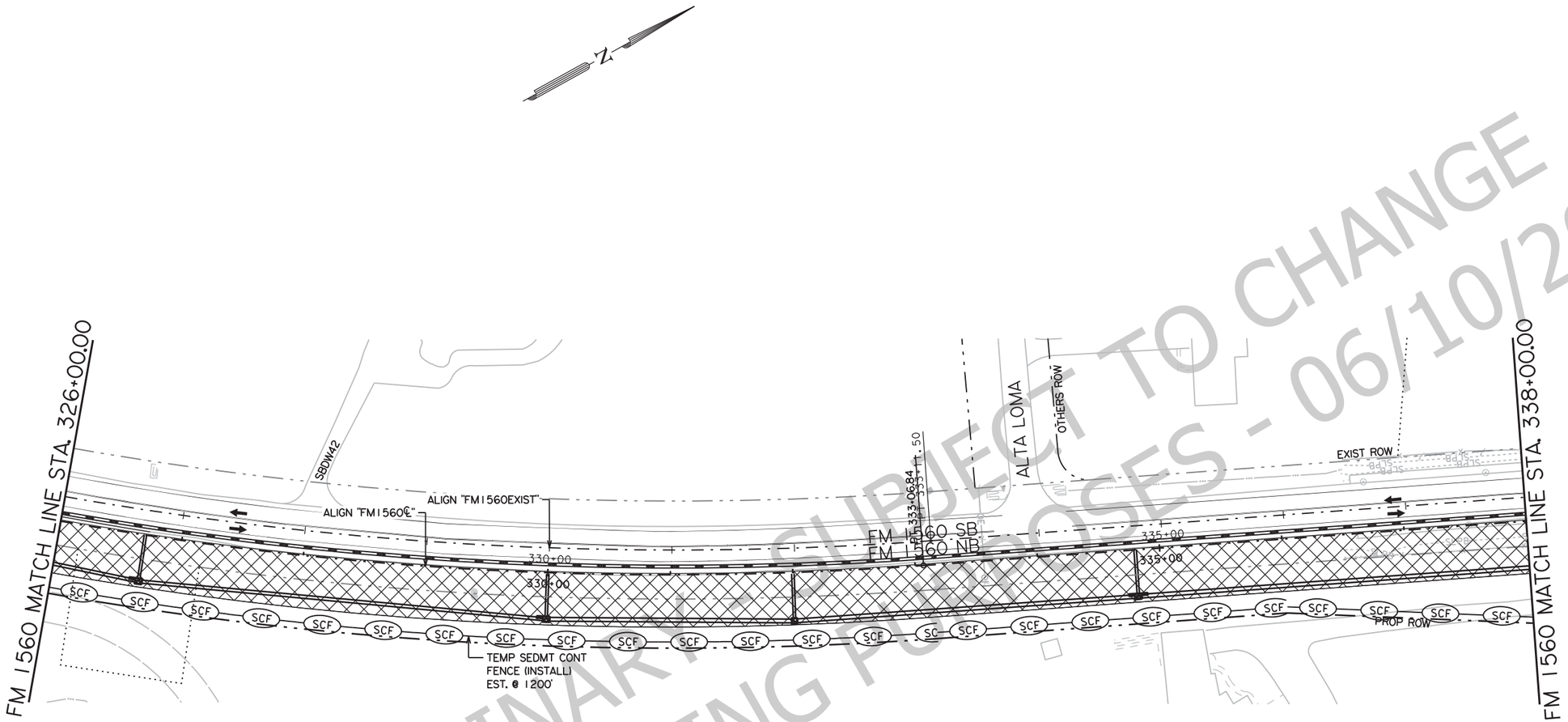

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
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SCALE: 1"=100'

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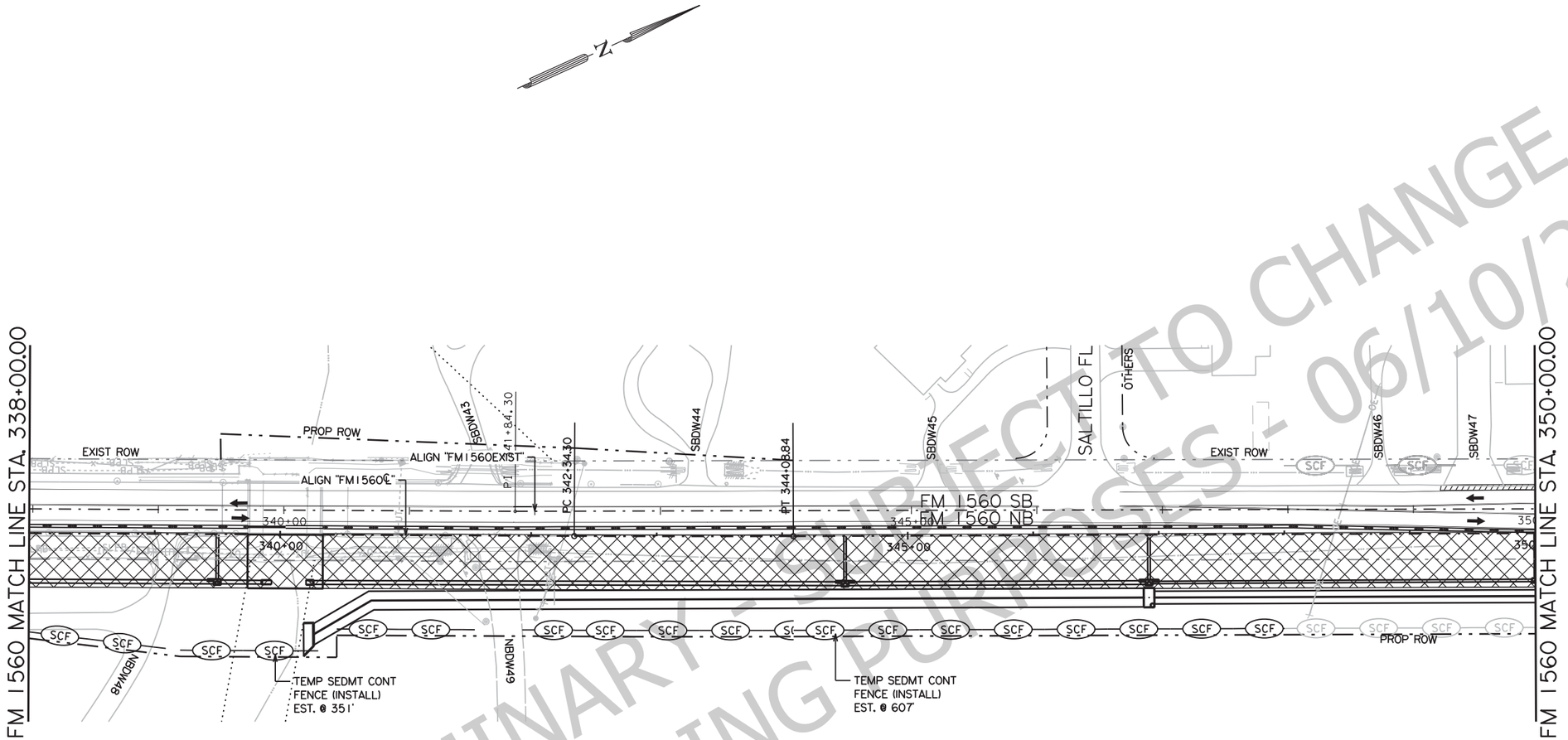
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 12 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	438
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020



SCALE: 1"=100'

SW3P LEGEND

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- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
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STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 13 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	439
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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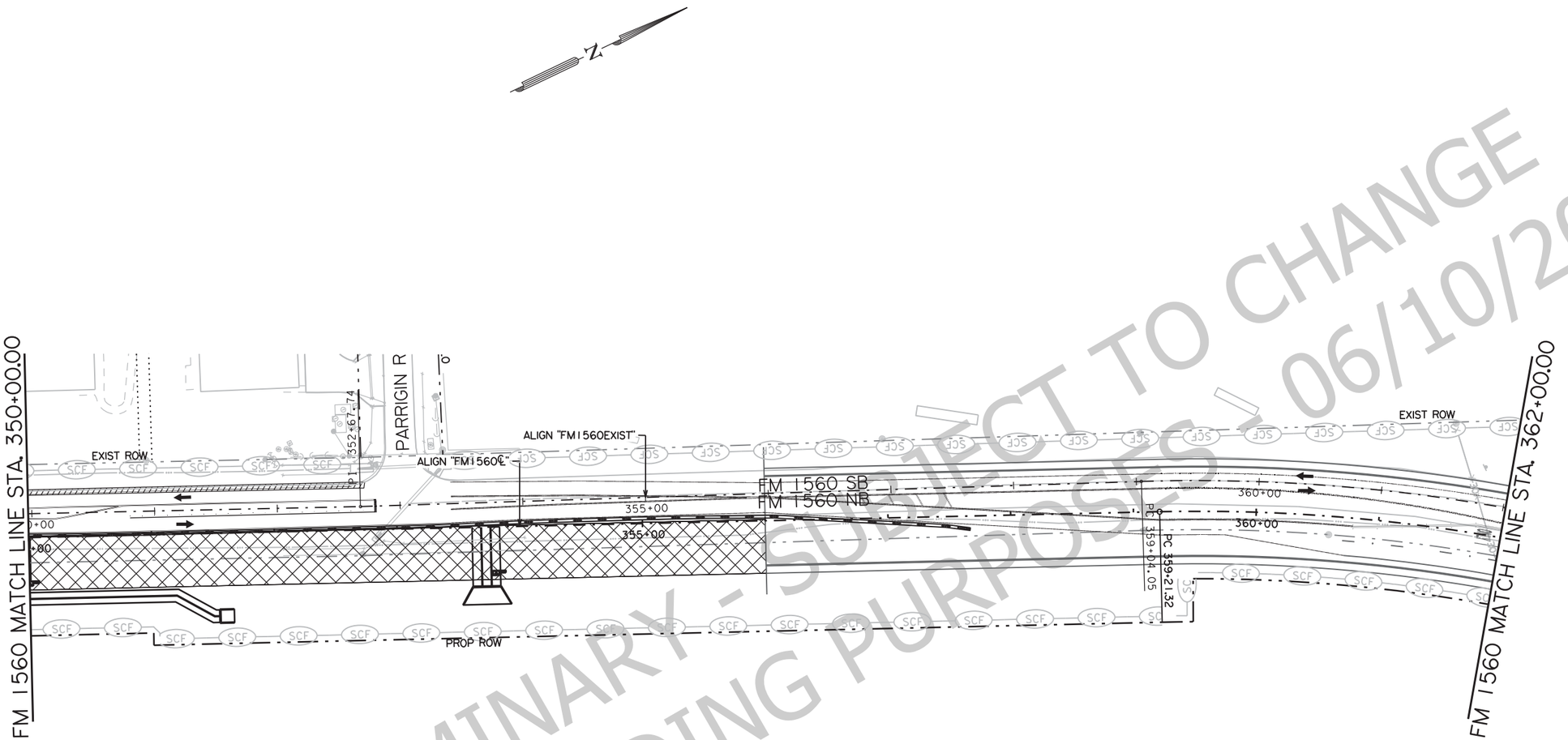

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 14 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	440
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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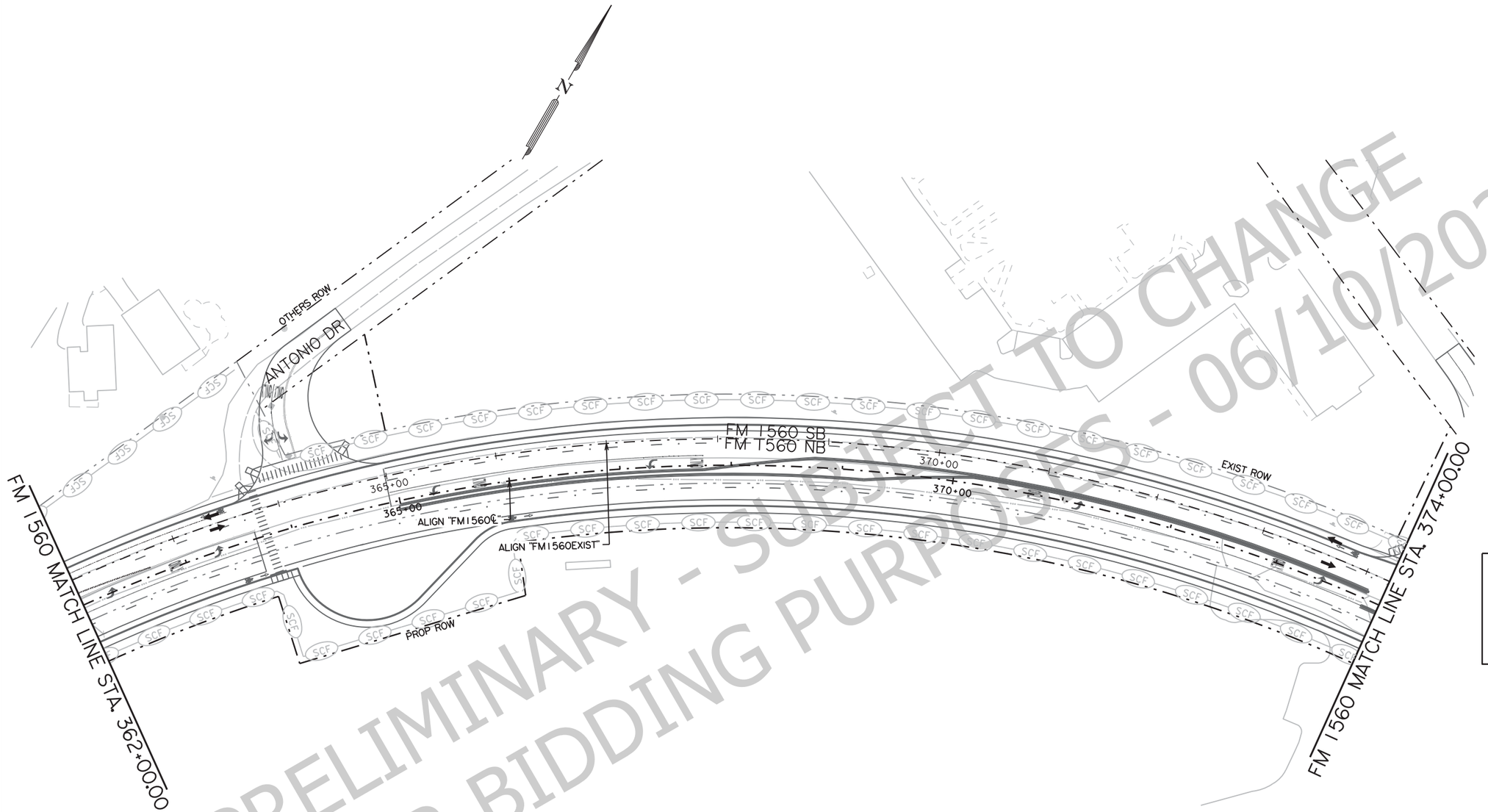

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

←	TRAFFIC DIRECTION
SAND	SANDBAG(S)
SCF	TEMP SEDMT CONTROL FENCE
SCF	TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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	CONSTRUCTION EXIT

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2. NOT ALL BMP'S ARE REQUIRED TO BE INSTALLED AT BEGINNING OF PROJECT/PHASE. INSTALL ACCORDINGLY WITH CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER.
3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
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   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.
ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 15 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	441
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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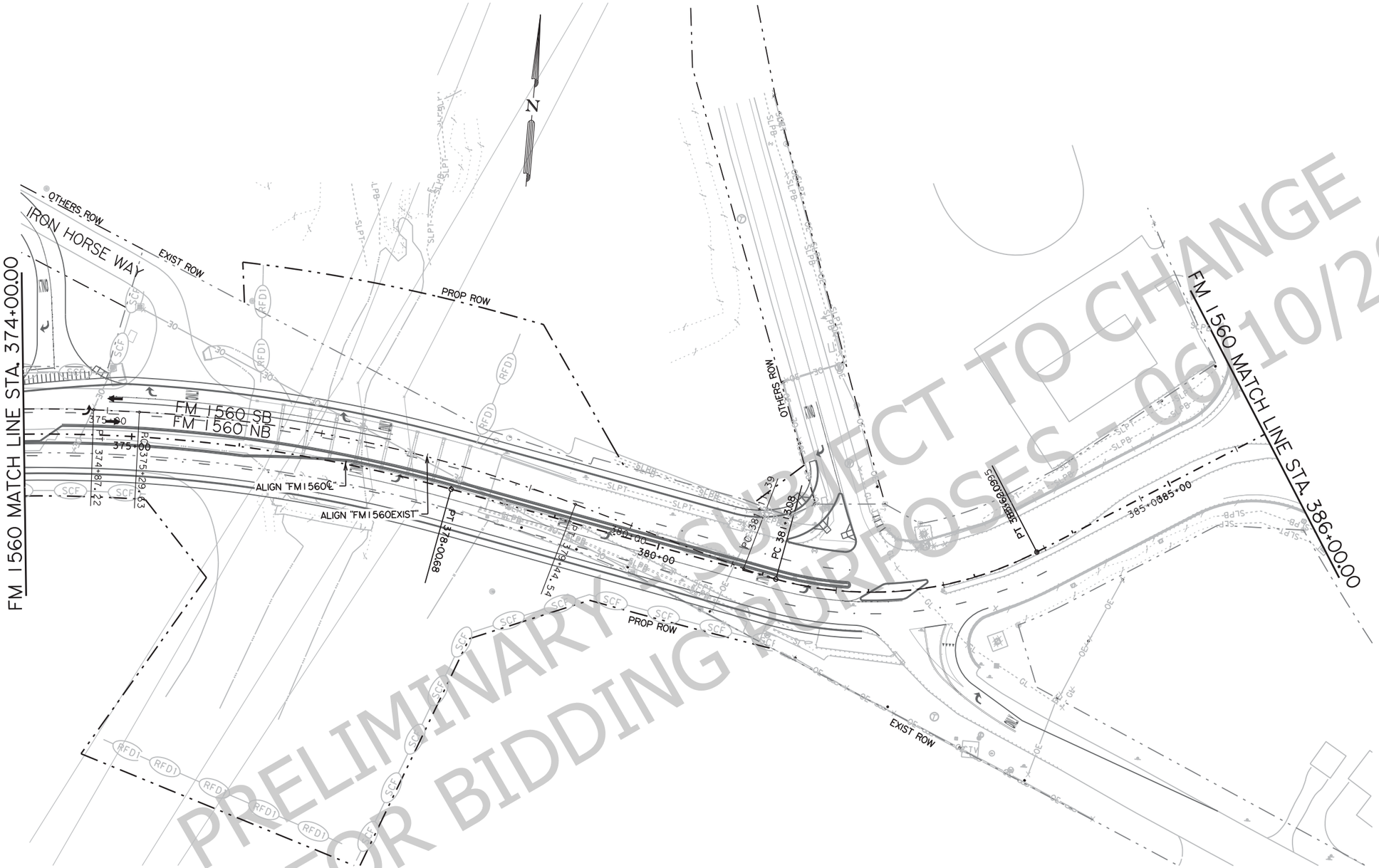

PRELIMINARY - NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 2

SHEET 16 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	442
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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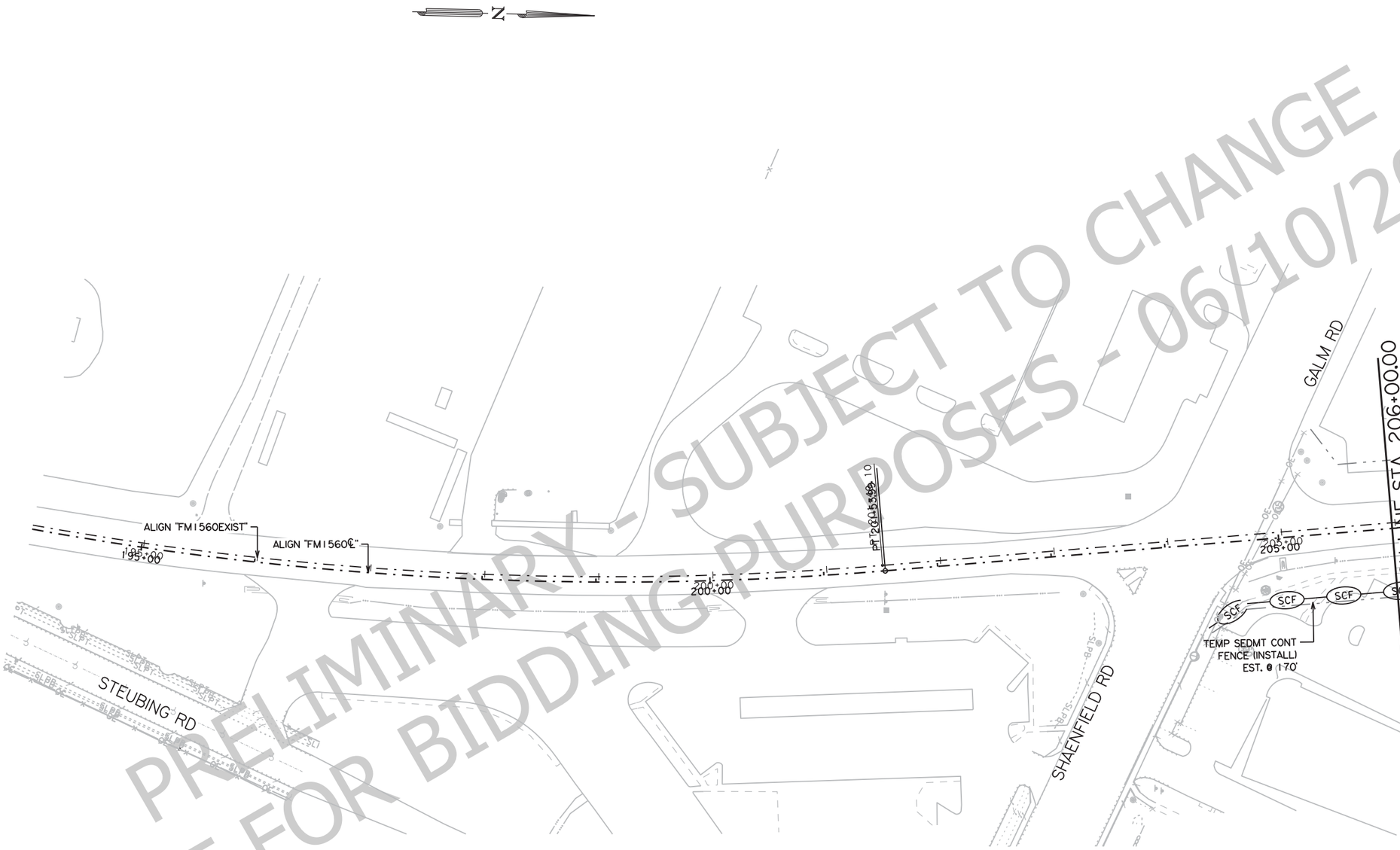

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SW3P LEGEND

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- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 1 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	443
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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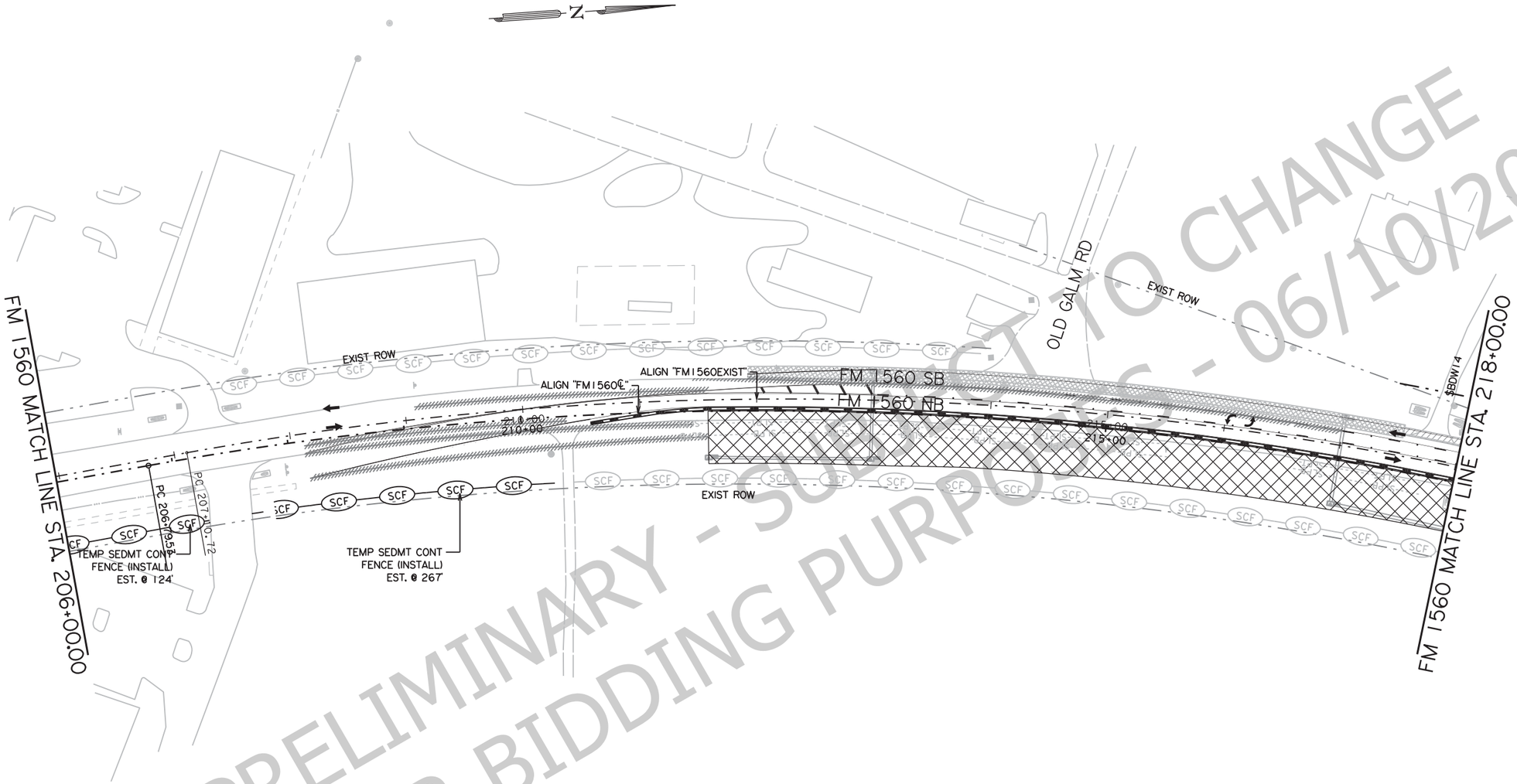

PRELIMINARY - SUBJECT TO CHANGE - 06/10/2020
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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 2 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	444
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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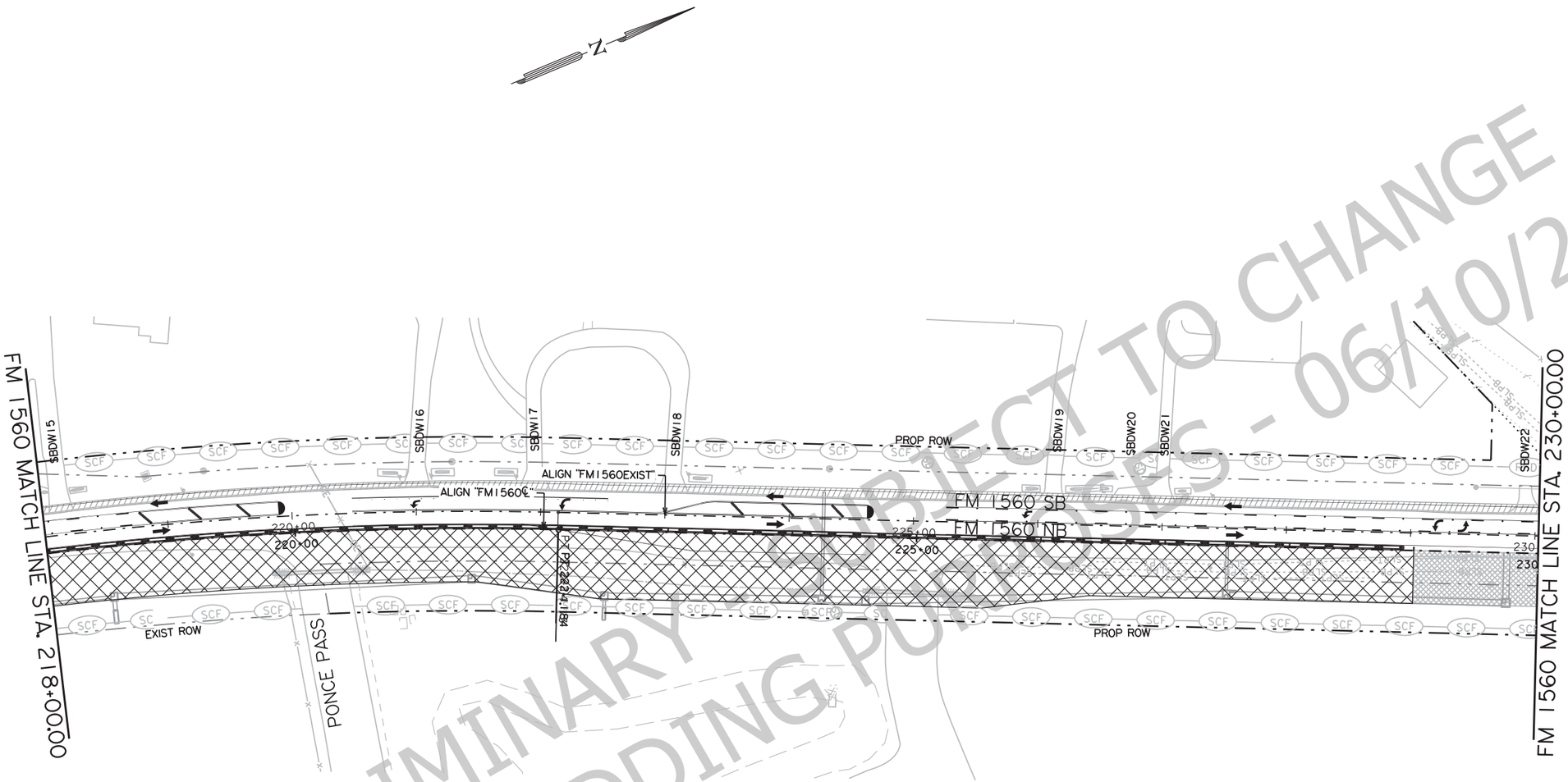

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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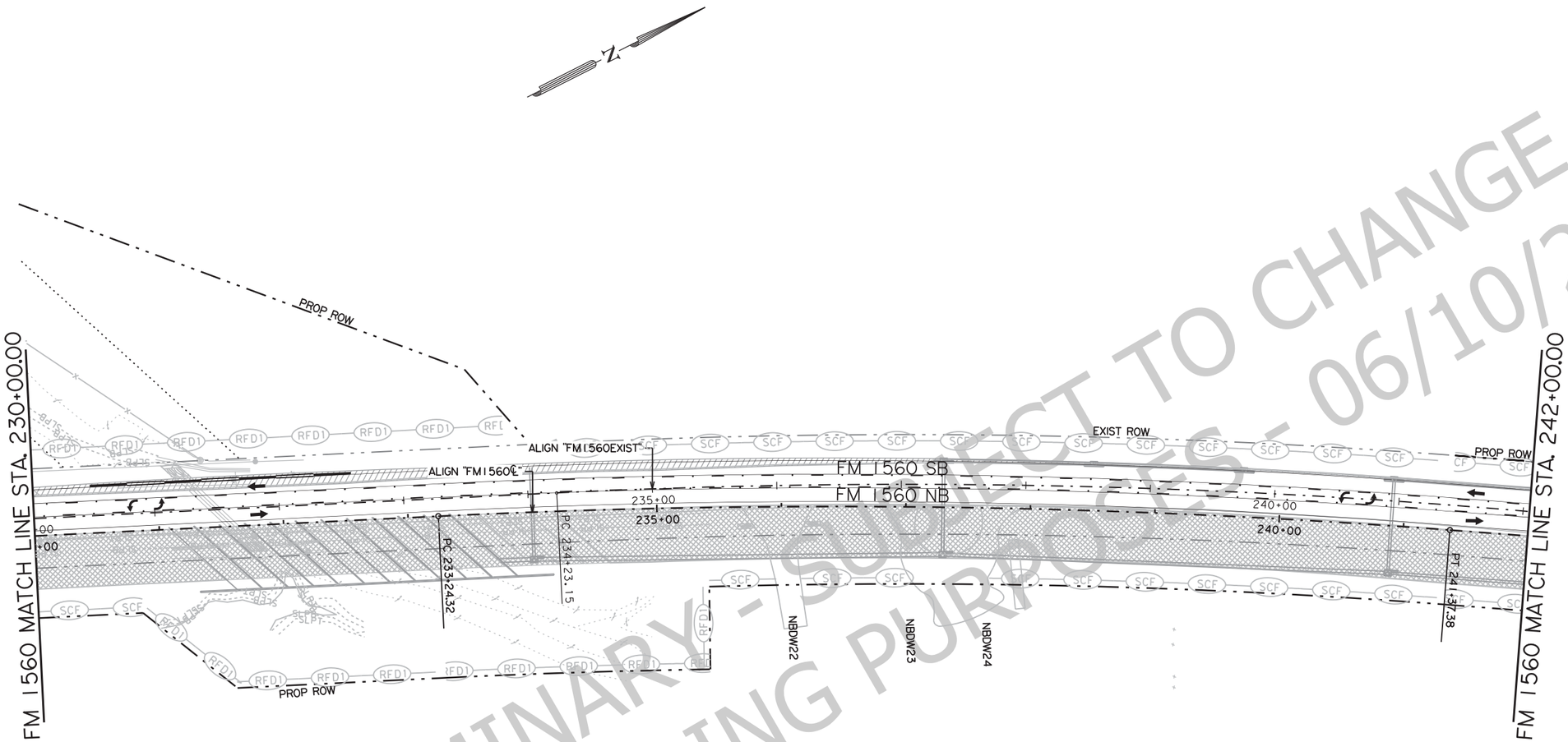
FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 3 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	445
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



PRELIMINARY - SUBJECT TO CHANGE
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DATE: 6/4/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 4 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	446
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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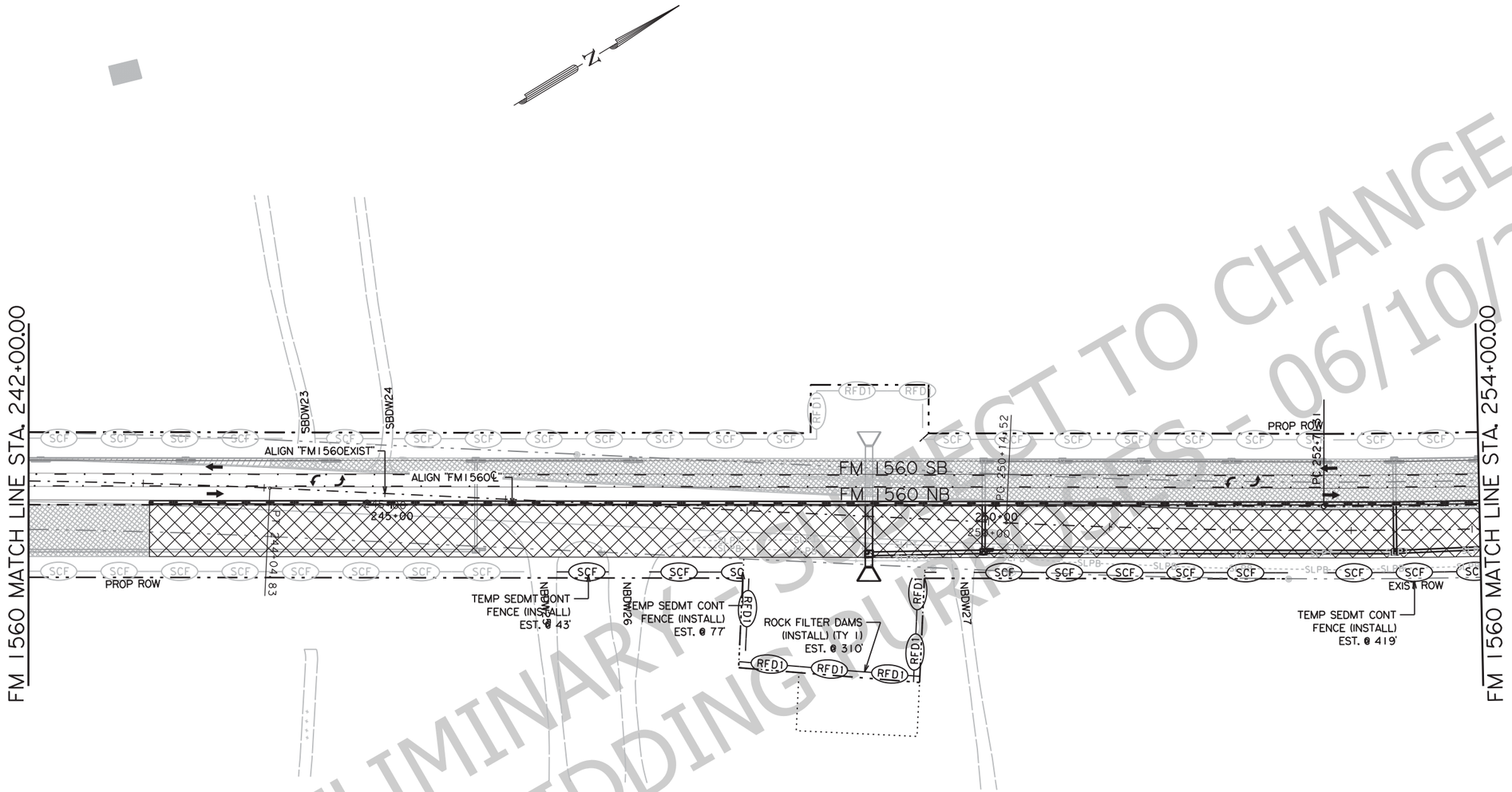

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

←	TRAFFIC DIRECTION
SAND	SANDBAG(S)
SCF	TEMP SEDMT CONTROL FENCE
SCF	TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
RFD1	ROCK FILTER DAMS
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P.E. SERIAL NO.: 106002
DATE: 6/4/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 5 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	447
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
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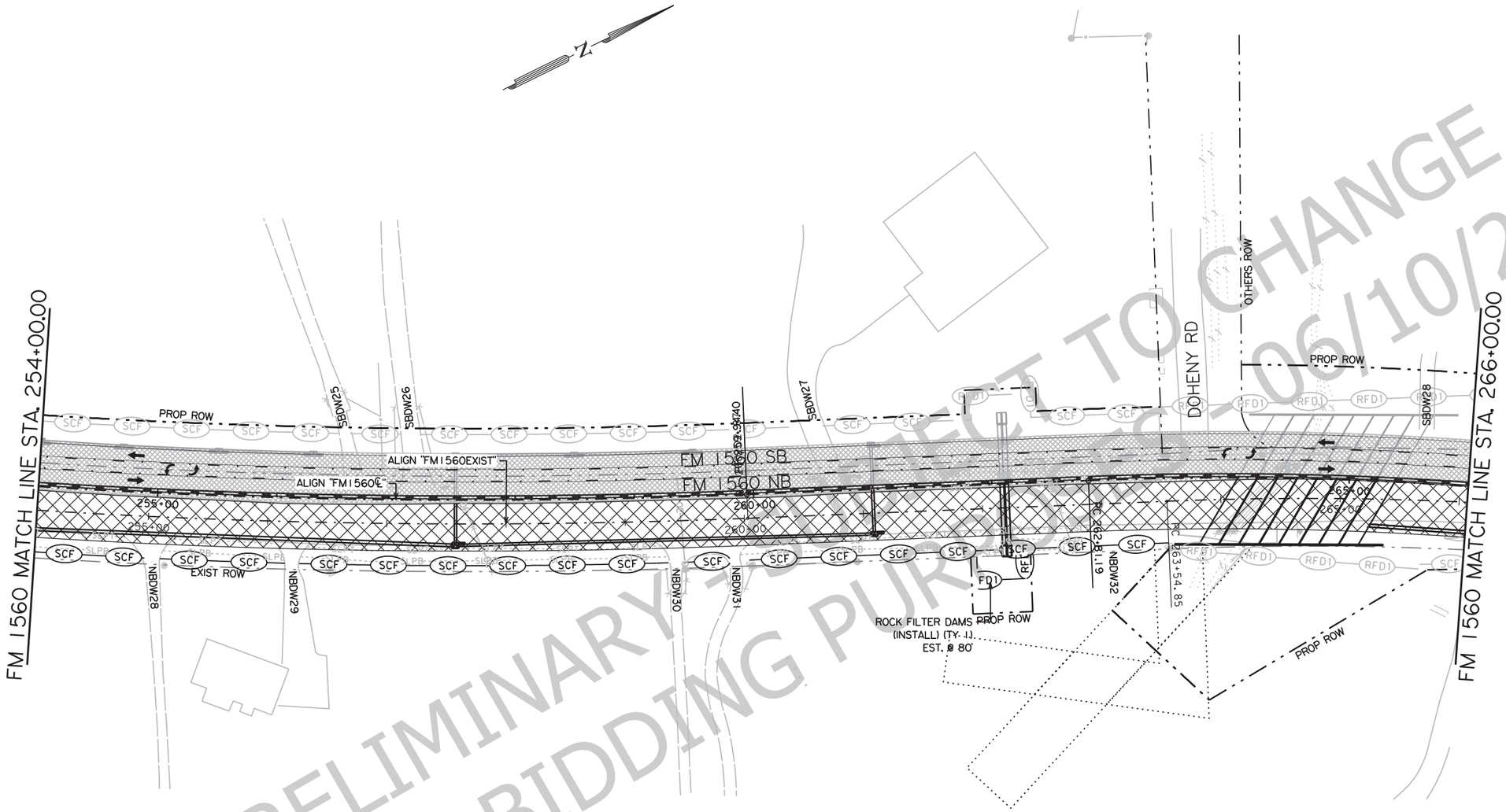

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
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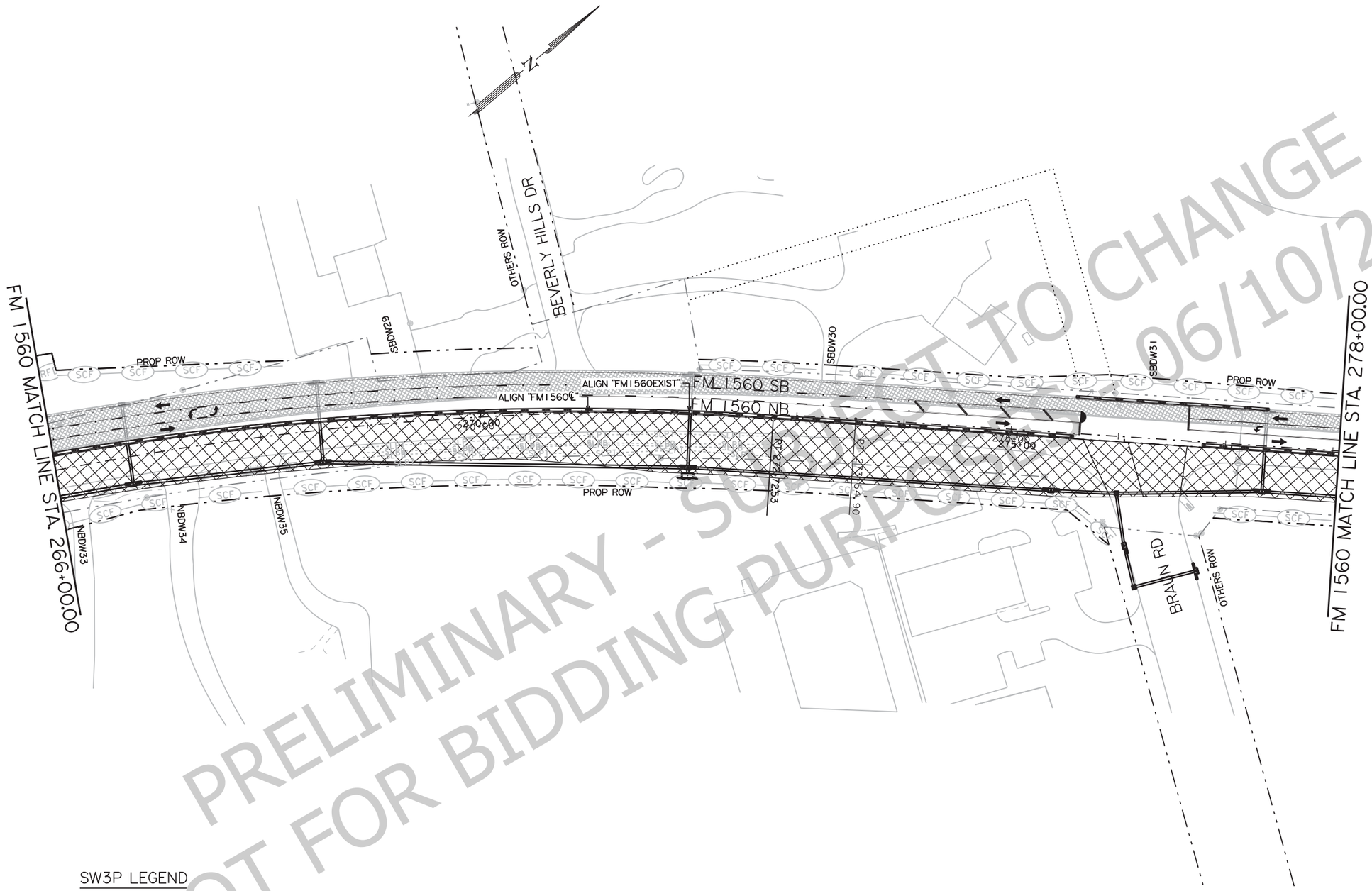
STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 6 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	448
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

SW3P LEGEND

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DATE: 6/4/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 7 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	449
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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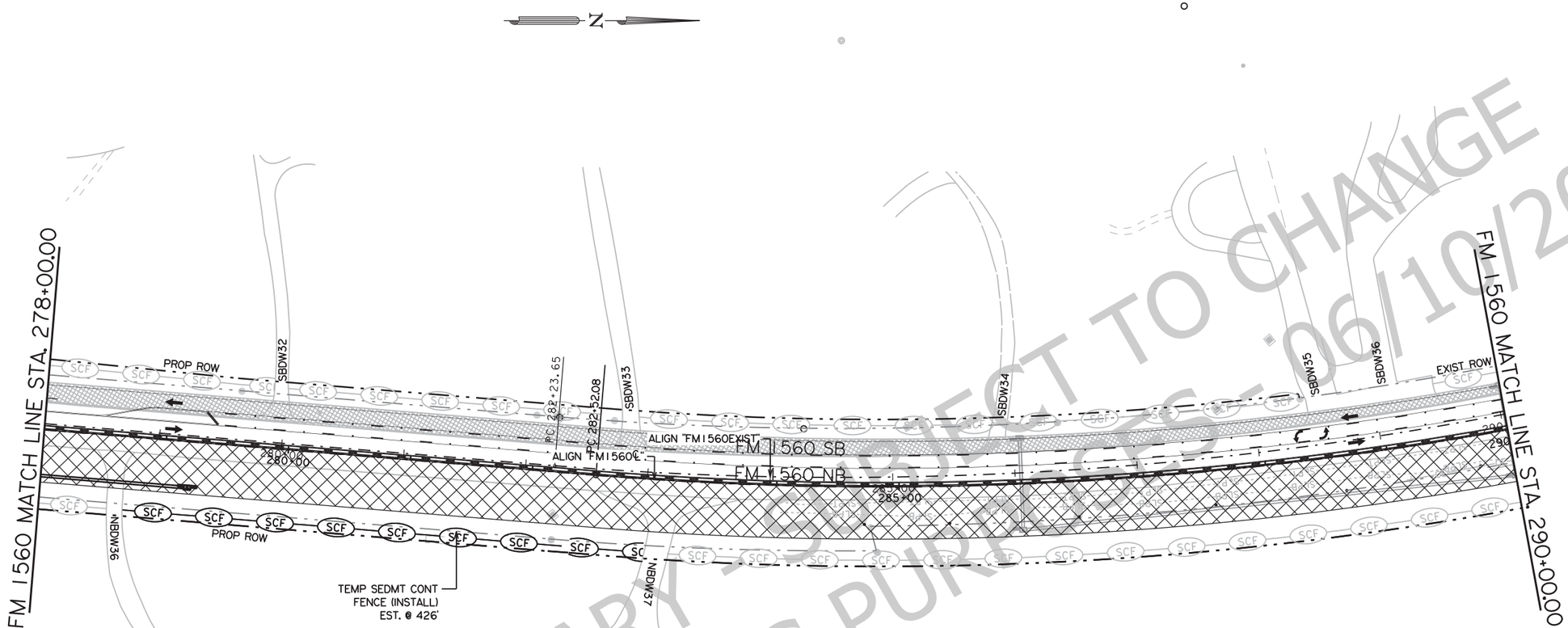

SW3P LEGEND

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 8 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	450
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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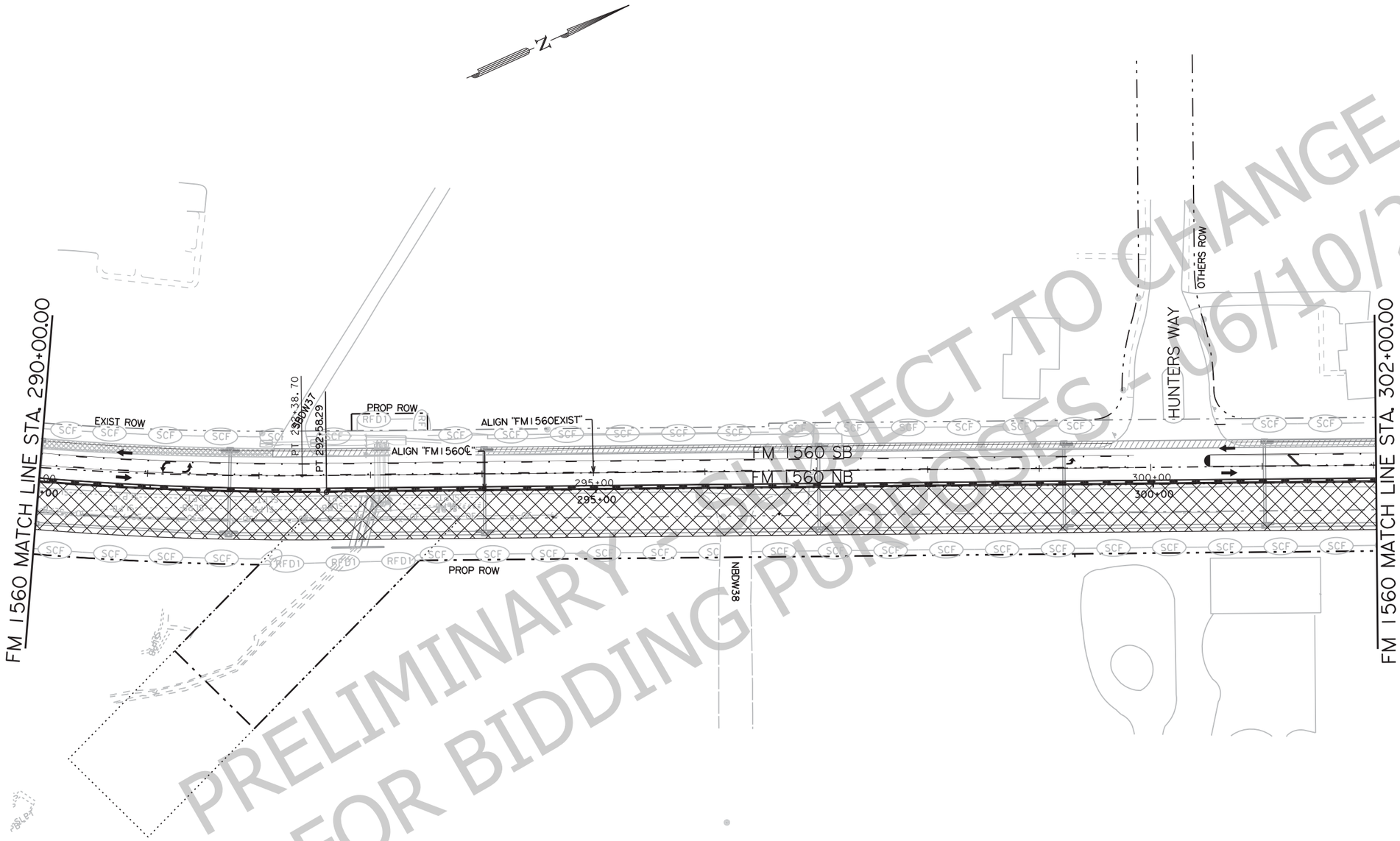

PRELIMINARY - SUBJECT TO CHANGE
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- CONSTRUCTION EXIT

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4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 9 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	451
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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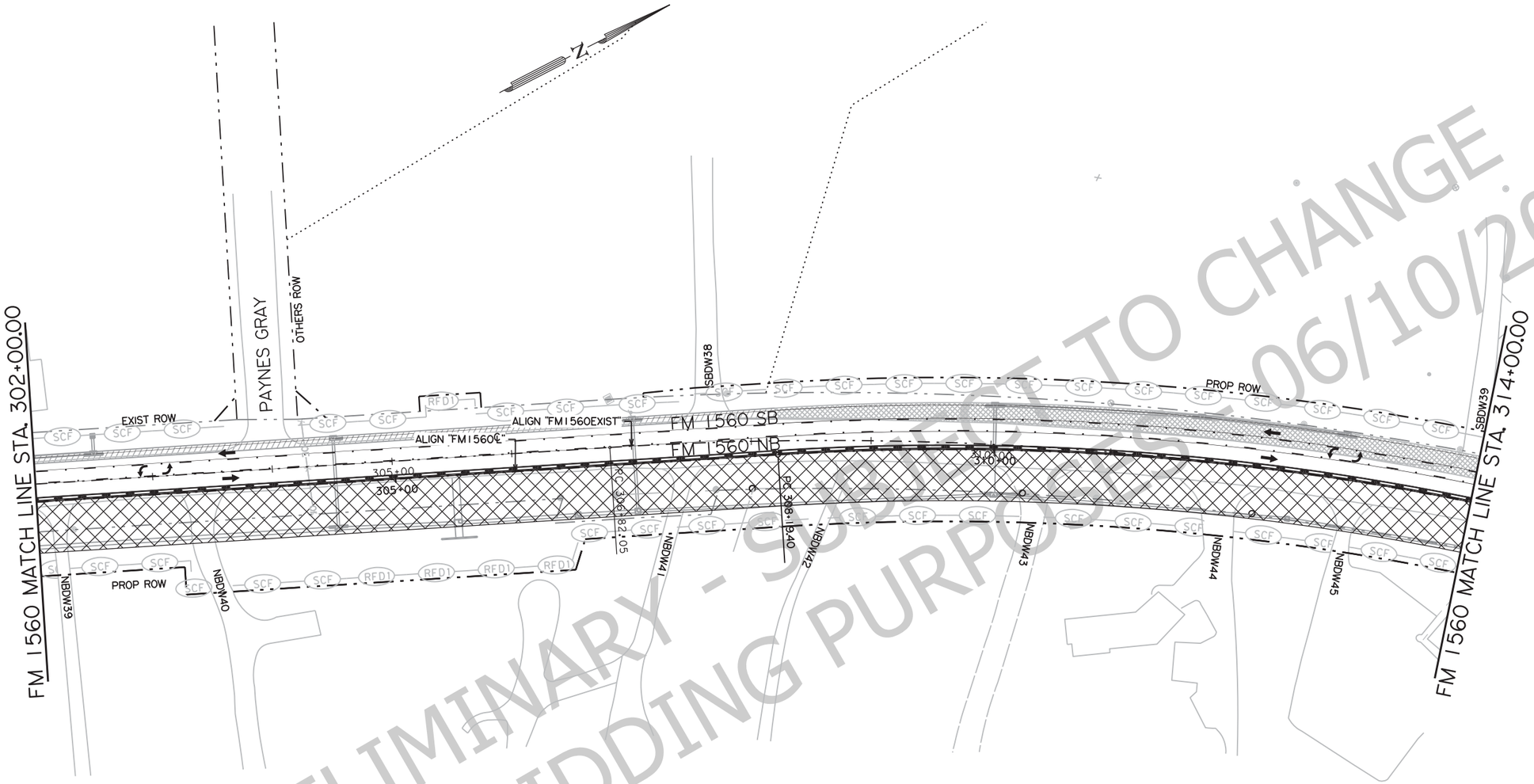

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
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DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 10 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	452
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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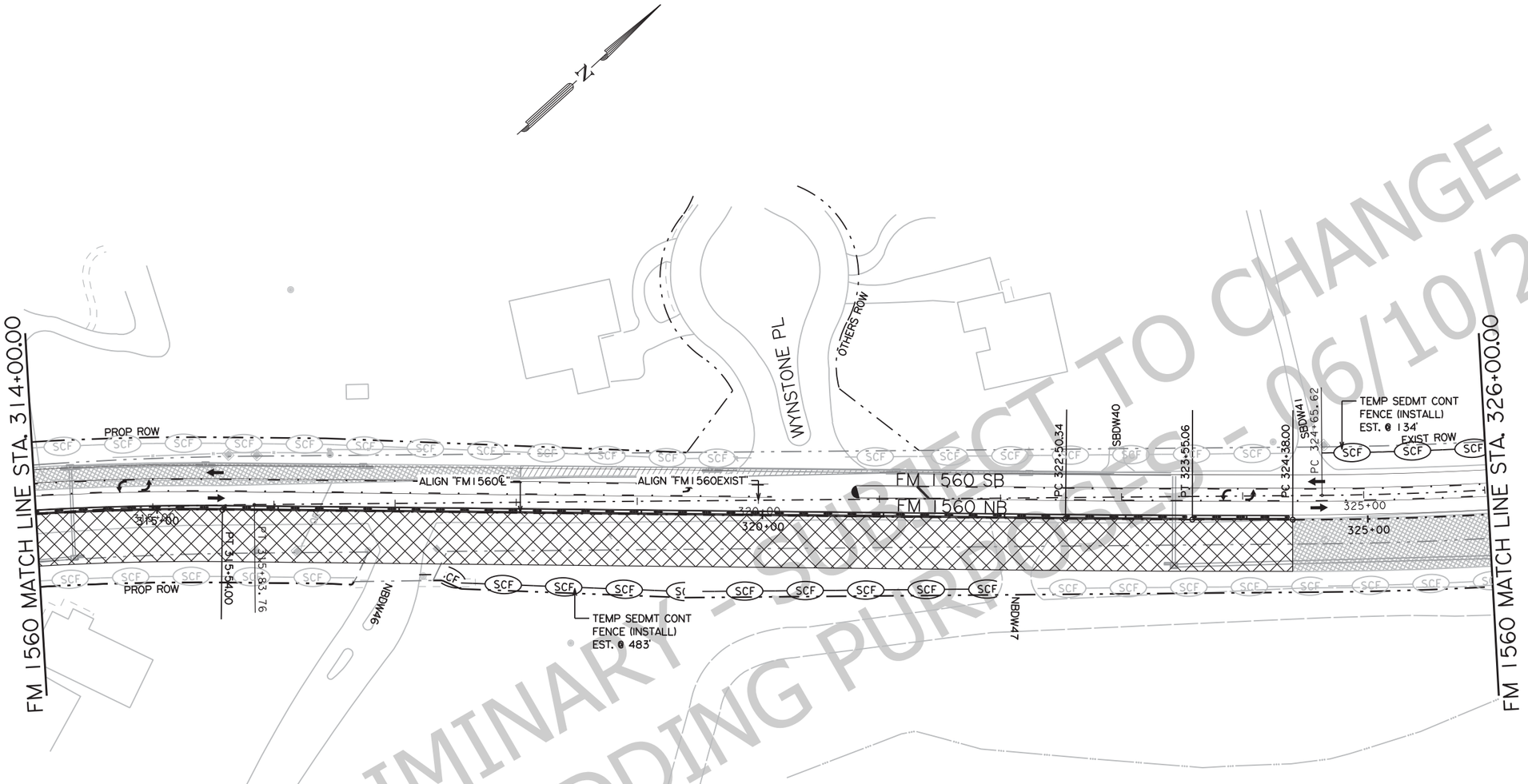

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 11 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	453
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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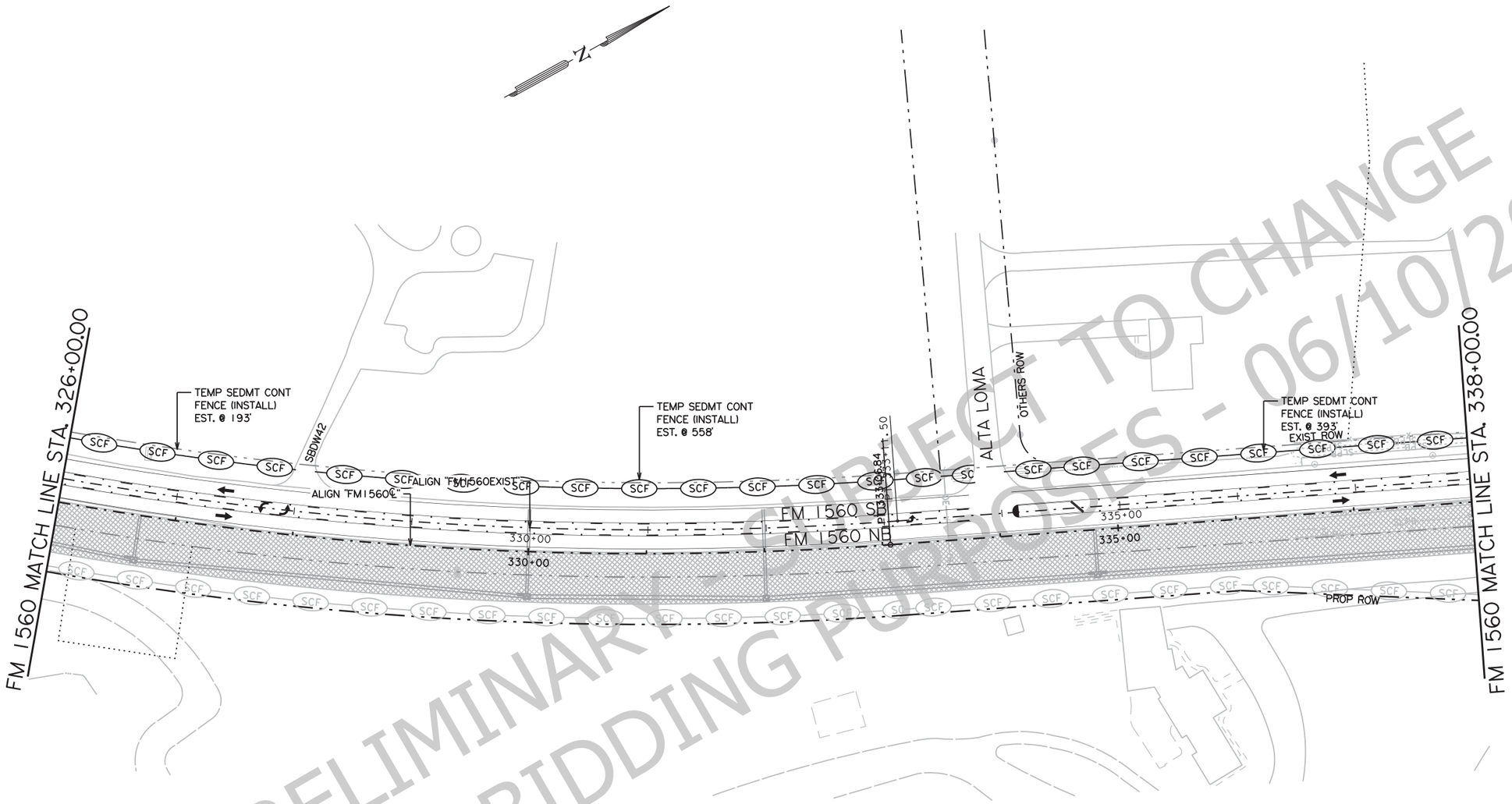

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PRELIMINARY - DRAFT
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P.E. SERIAL NO.: 106002
DATE: 6/4/2020

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SW3P LEGEND

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- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 12 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	454
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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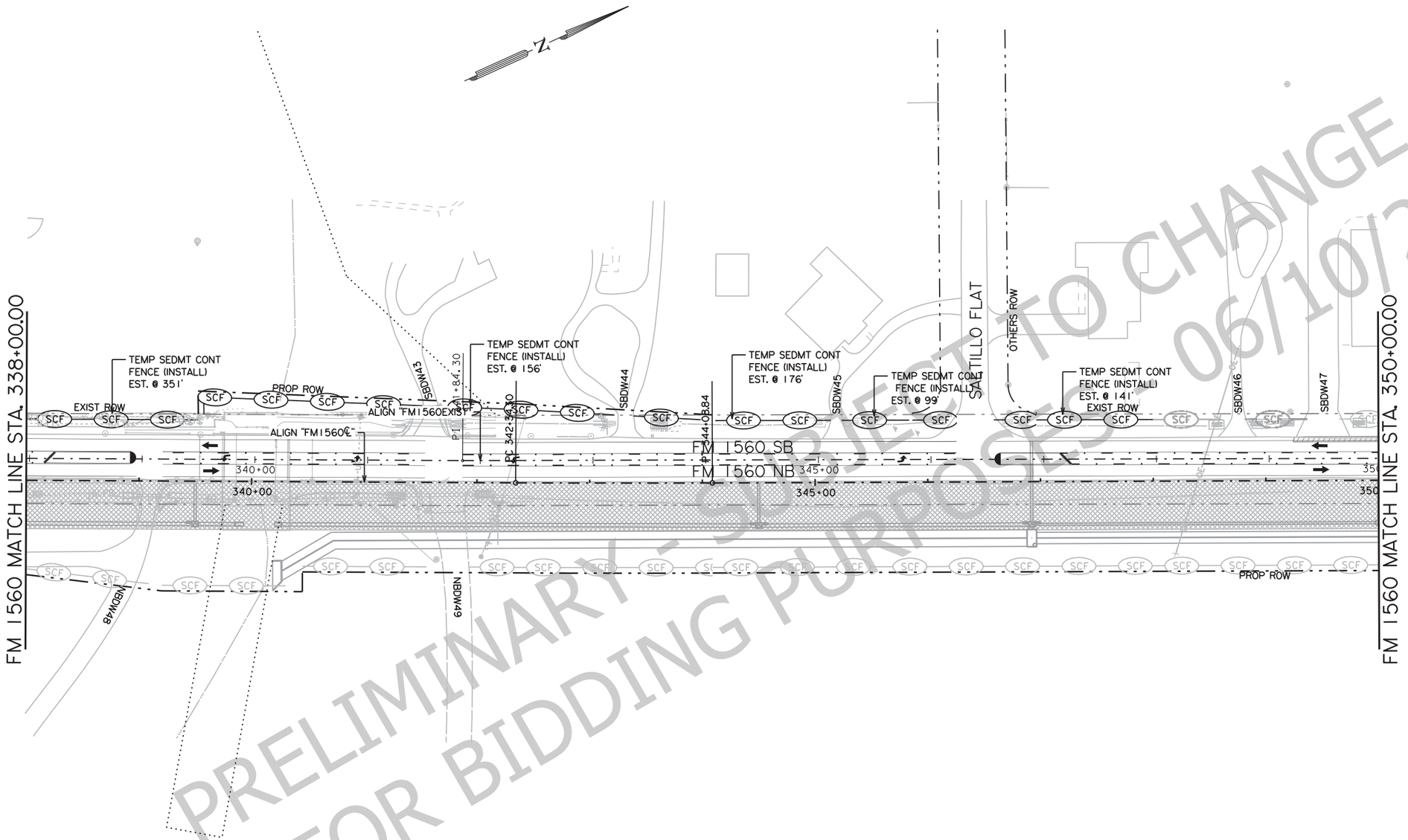

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 13 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	455
TEXAS	SAT	BEXAR	
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2230	01	021	FM 1560

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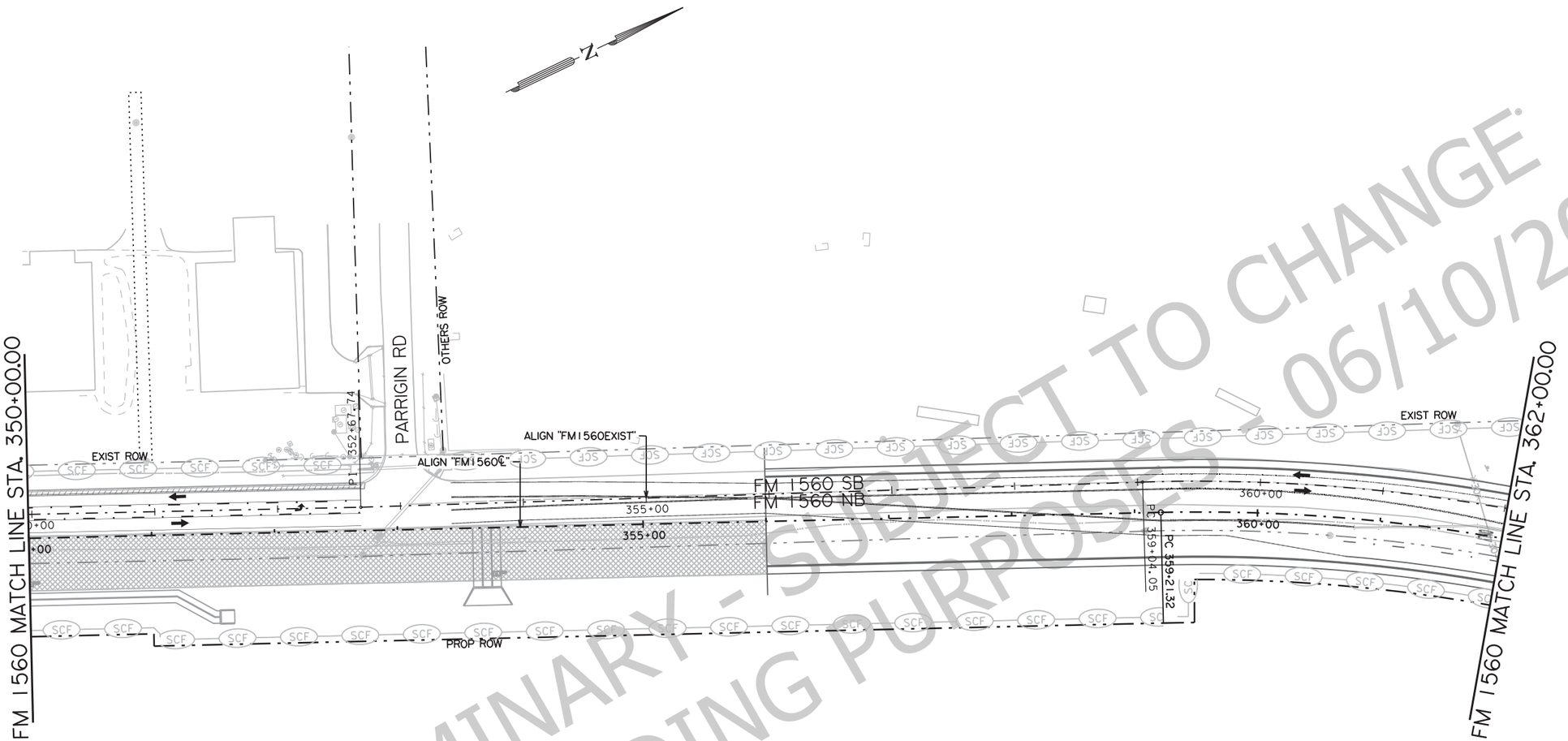

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STORM WATER POLLUTION PREVENTION PLAN PHASE 3

SHEET 14 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	456
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CONT.	SECT.	JOB	HIGHWAY NO.
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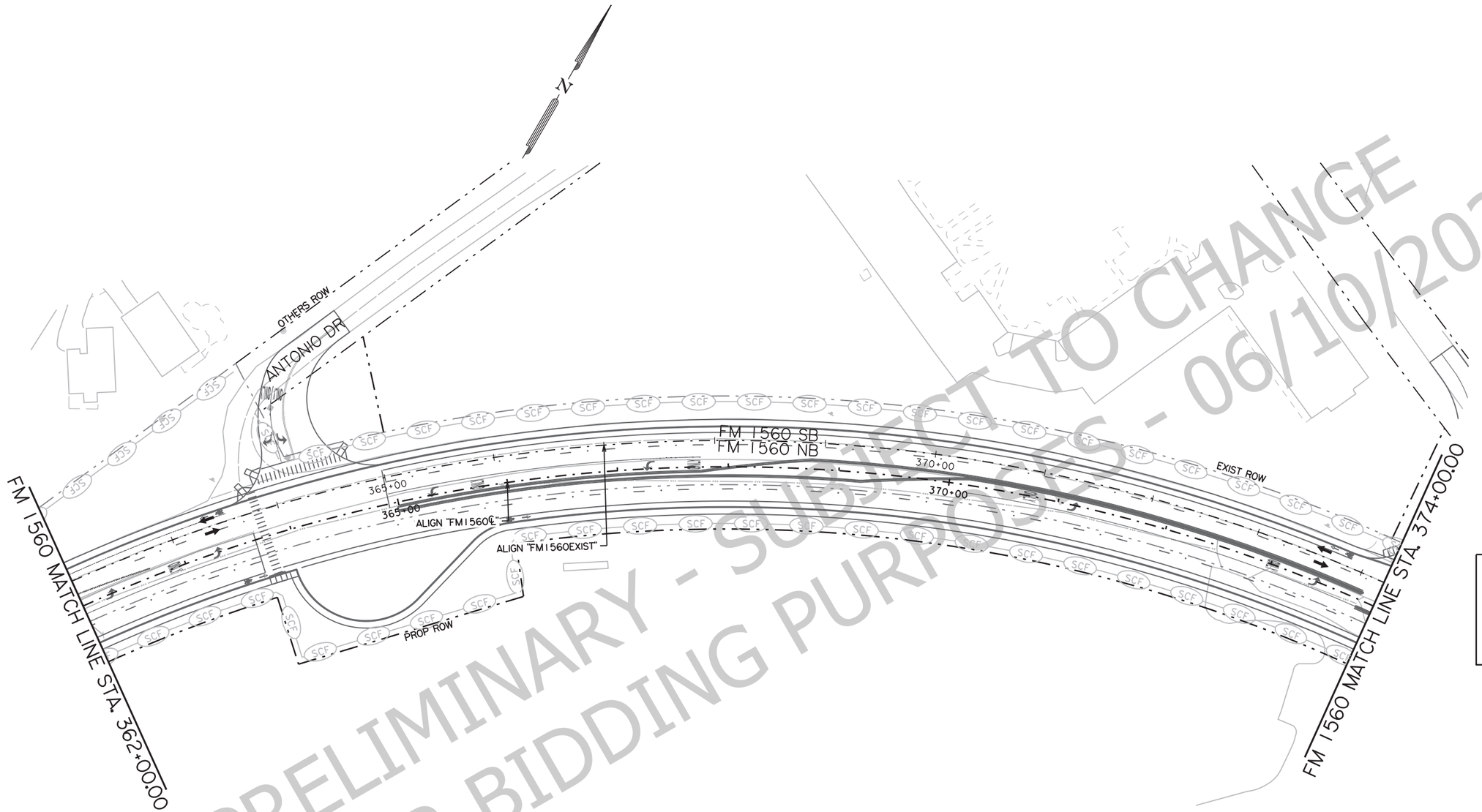

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

←	TRAFFIC DIRECTION
SAND	SANDBAG(S)
SCF	TEMP SEDMT CONTROL FENCE
SCF	TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
RFD1	ROCK FILTER DAMS
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SHEET 15 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	457
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CONT.	SECT.	JOB	HIGHWAY NO.
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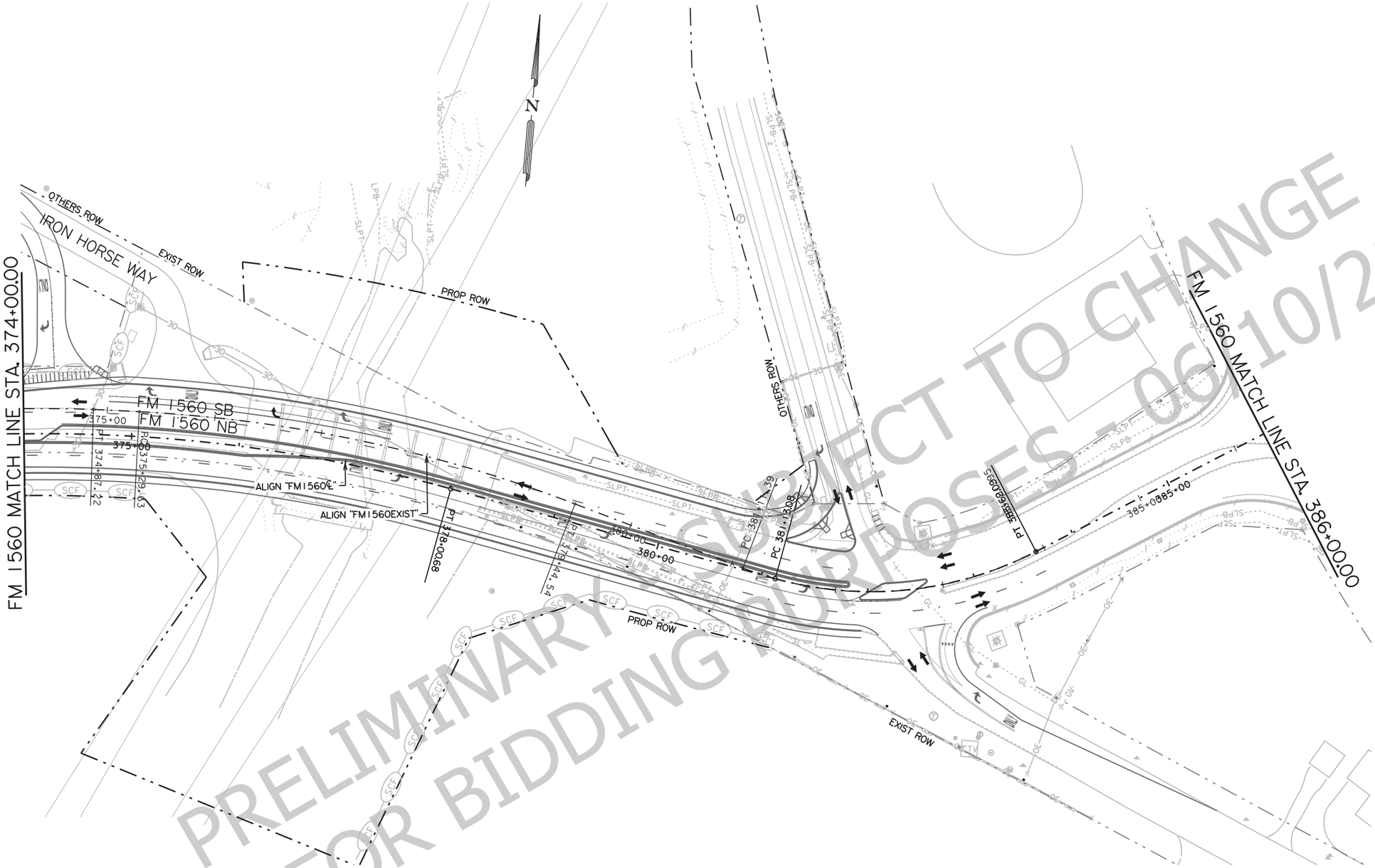

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SHEET 16 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	458
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CONT.	SECT.	JOB	HIGHWAY NO.
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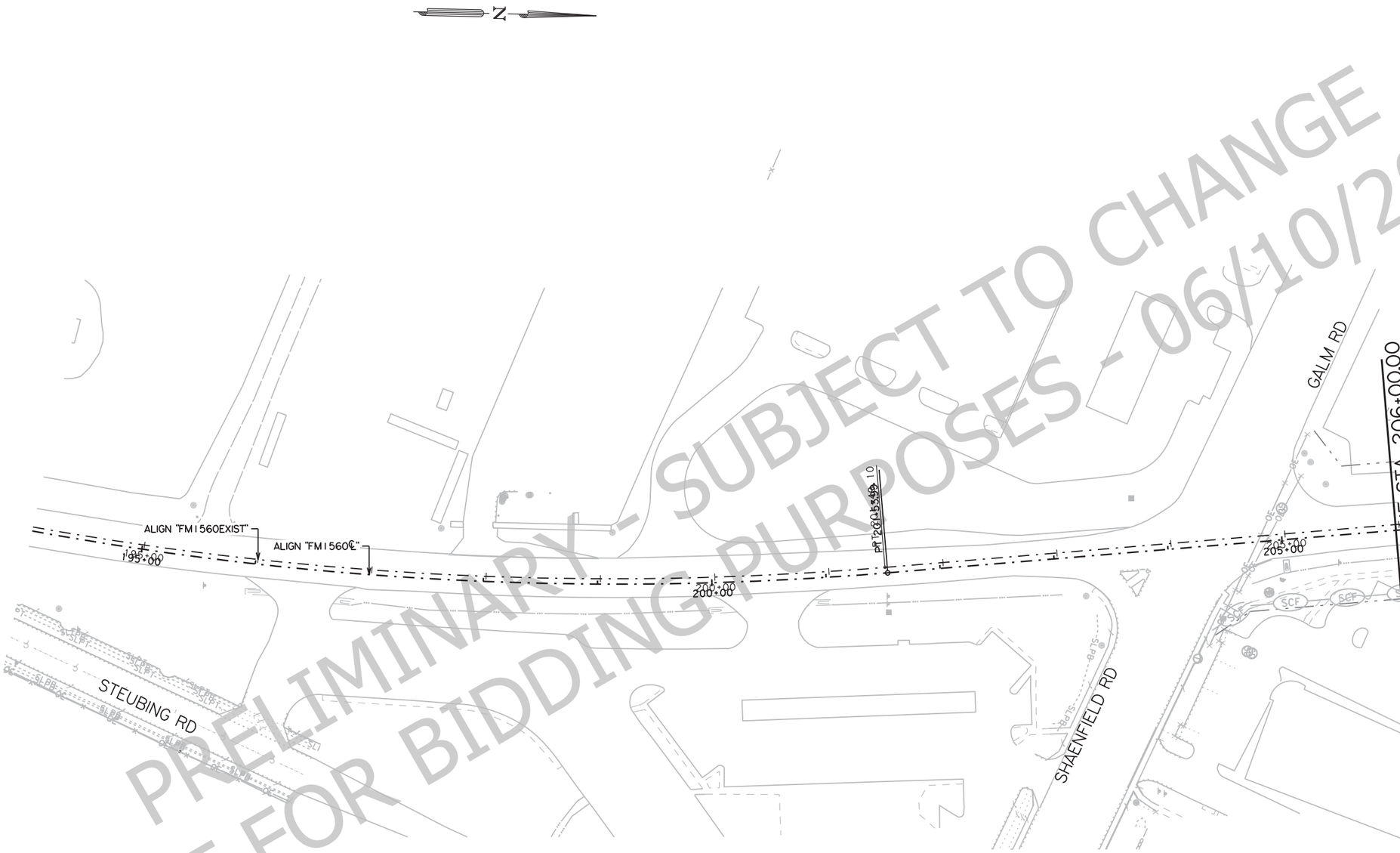

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 1 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	459
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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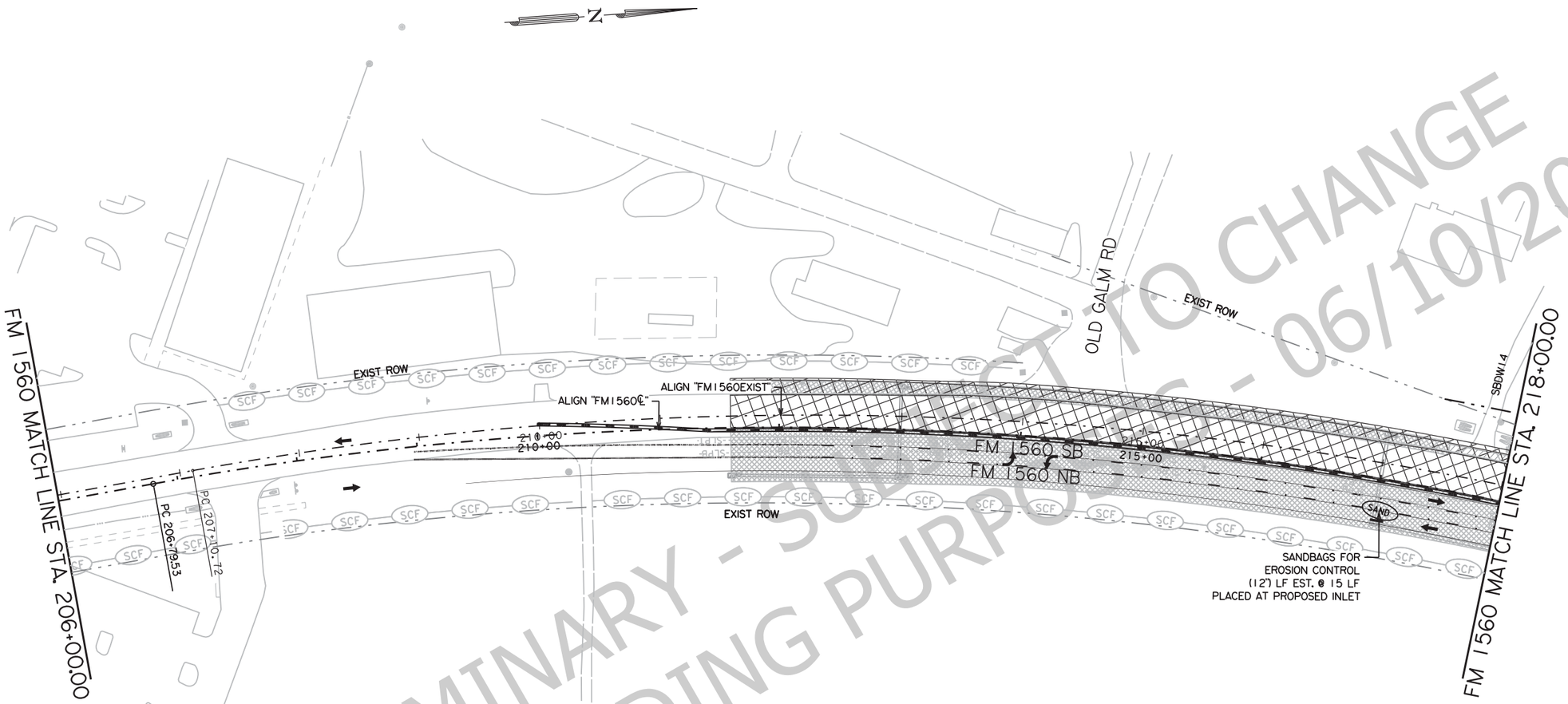

PRELIMINARY - SUBJECT TO CHANGE - 06/10/2020
NOT FOR BIDDING PURPOSES

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DATE: 6/4/2020

SCALE: 1"=100'

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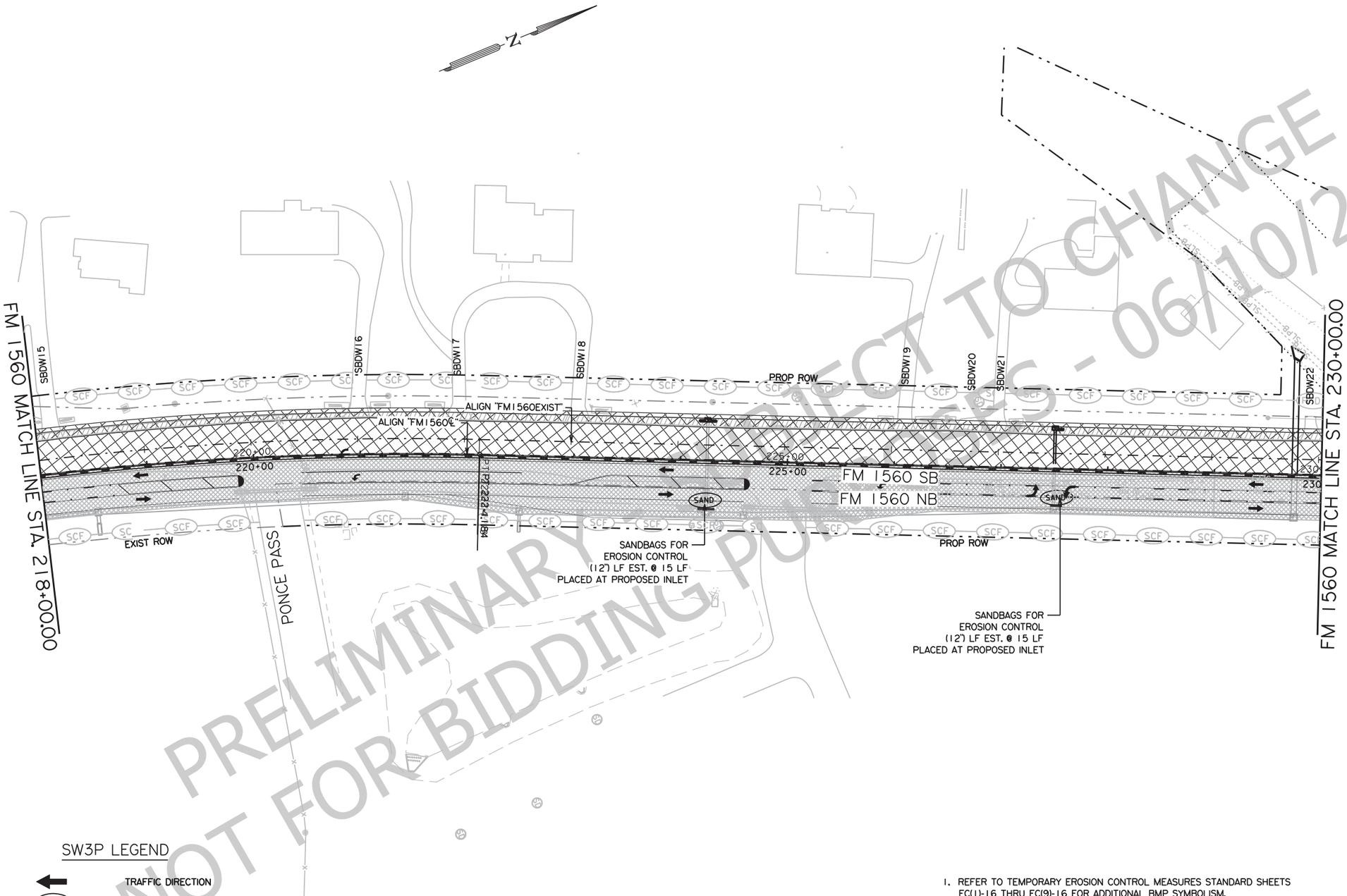
STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 2 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	460
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
2. NOT ALL BMP'S ARE REQUIRED TO BE INSTALLED AT BEGINNING OF PROJECT/PHASE. INSTALL ACCORDINGLY WITH CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER.
3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
   ALL ESTABLISHMENT AREAS TO RECEIVE:
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   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 3 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	461
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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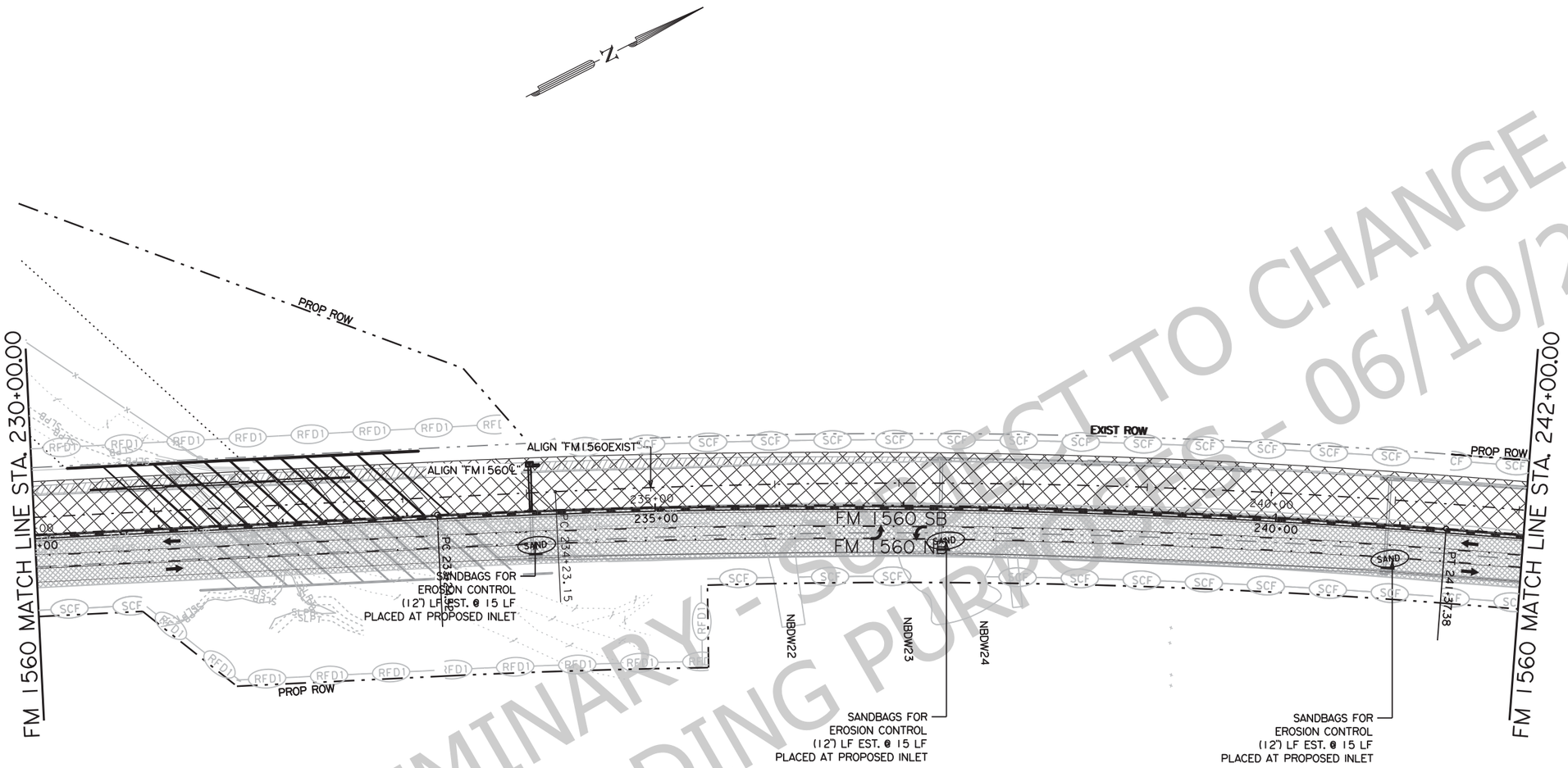

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 4 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	462
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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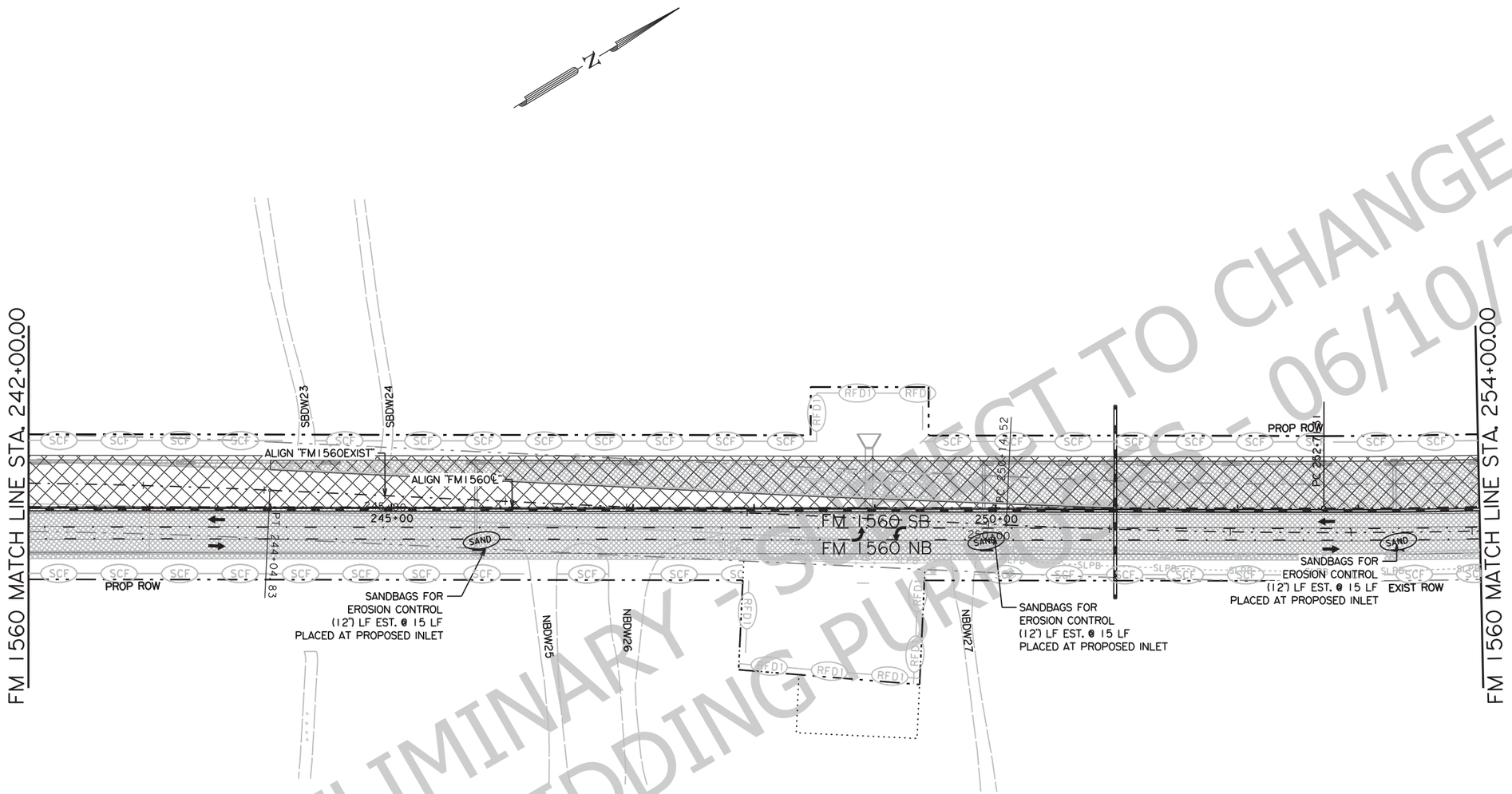

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 5 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	463
TEXAS	SAT	BEXAR	
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2230	01	021	FM 1560

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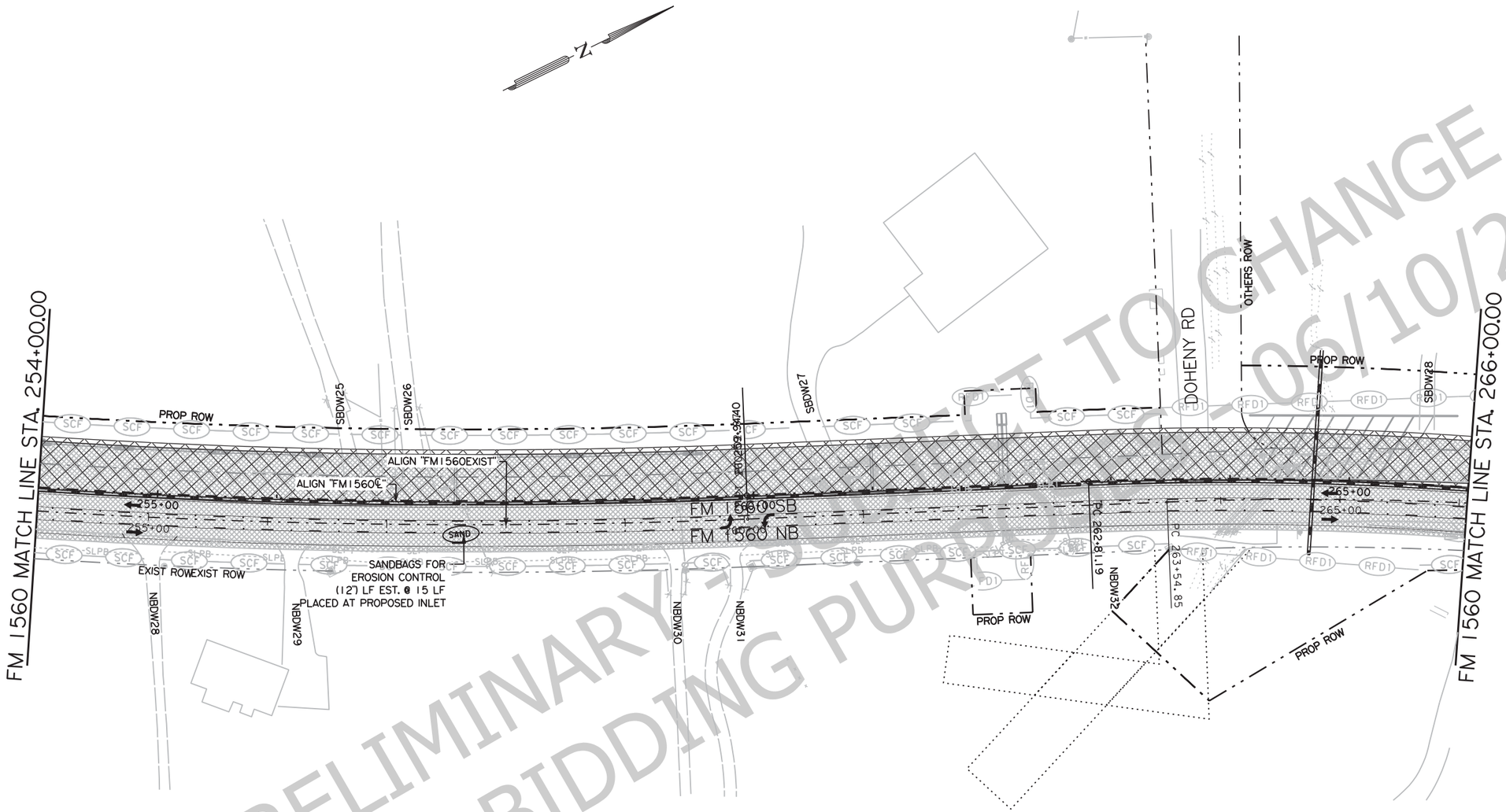

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 6 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	464
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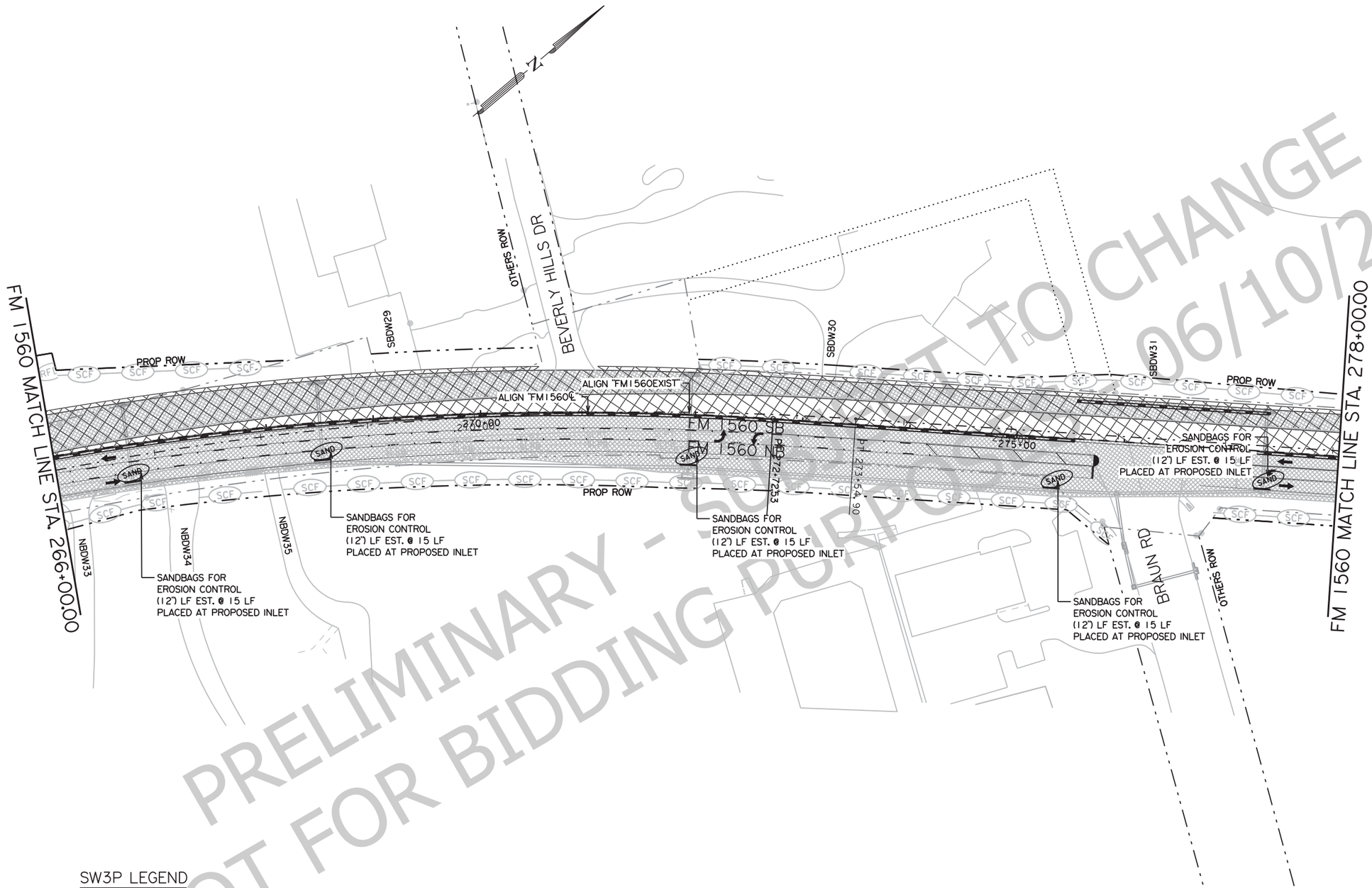

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 7 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	465
TEXAS	SAT	BEXAR	
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2230	01	021	FM 1560

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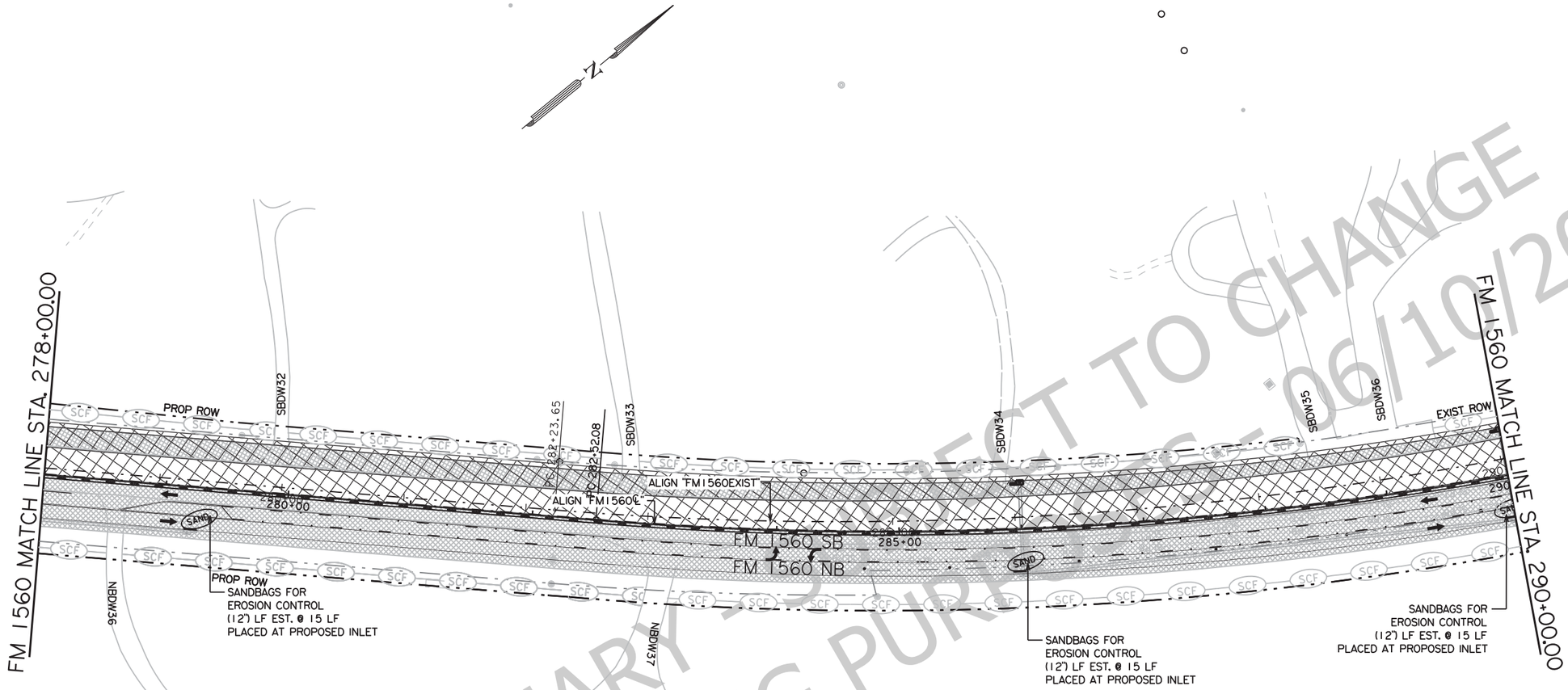

PRELIMINARY - SUBJECT TO CHANGE
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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 8 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	466
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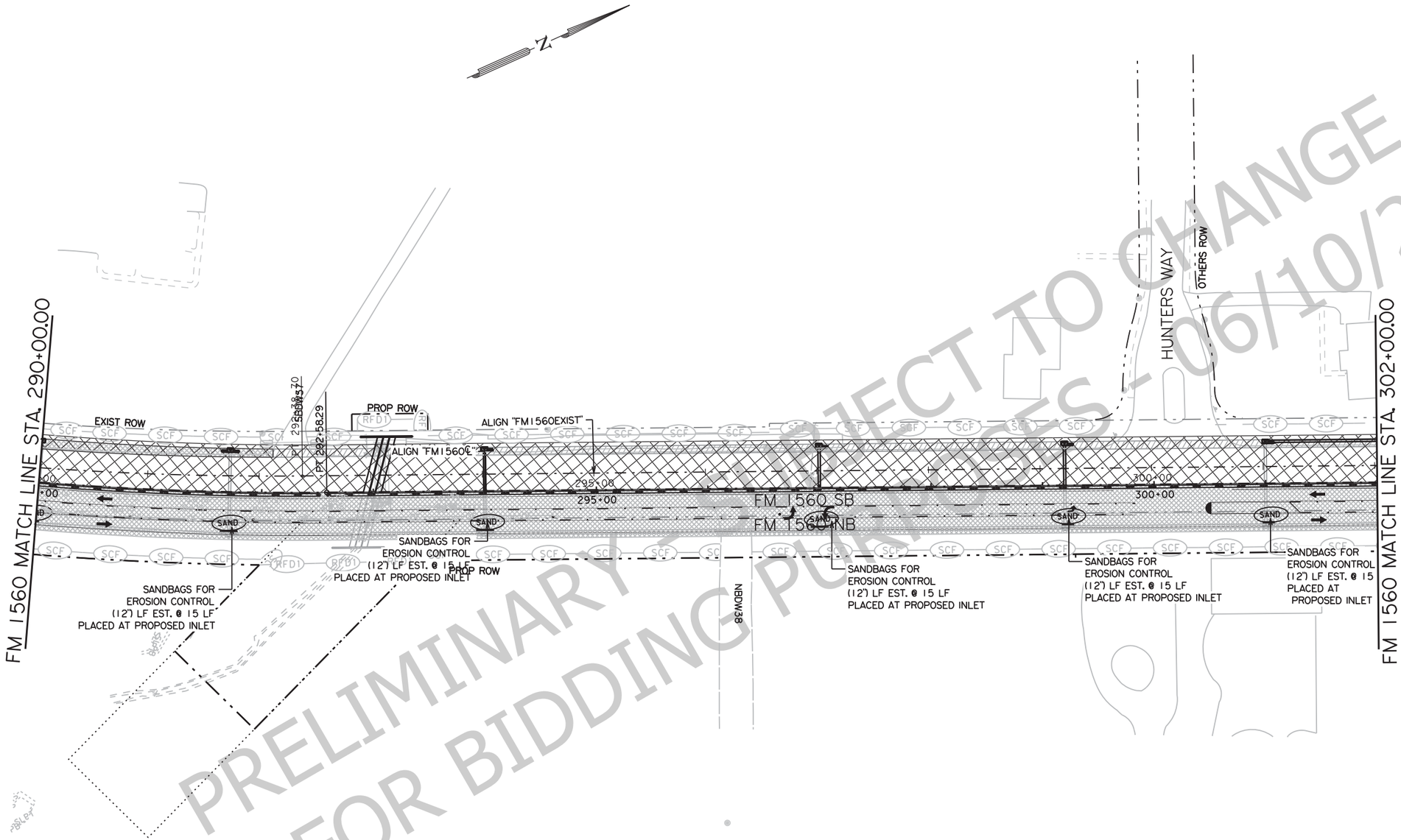

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 9 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
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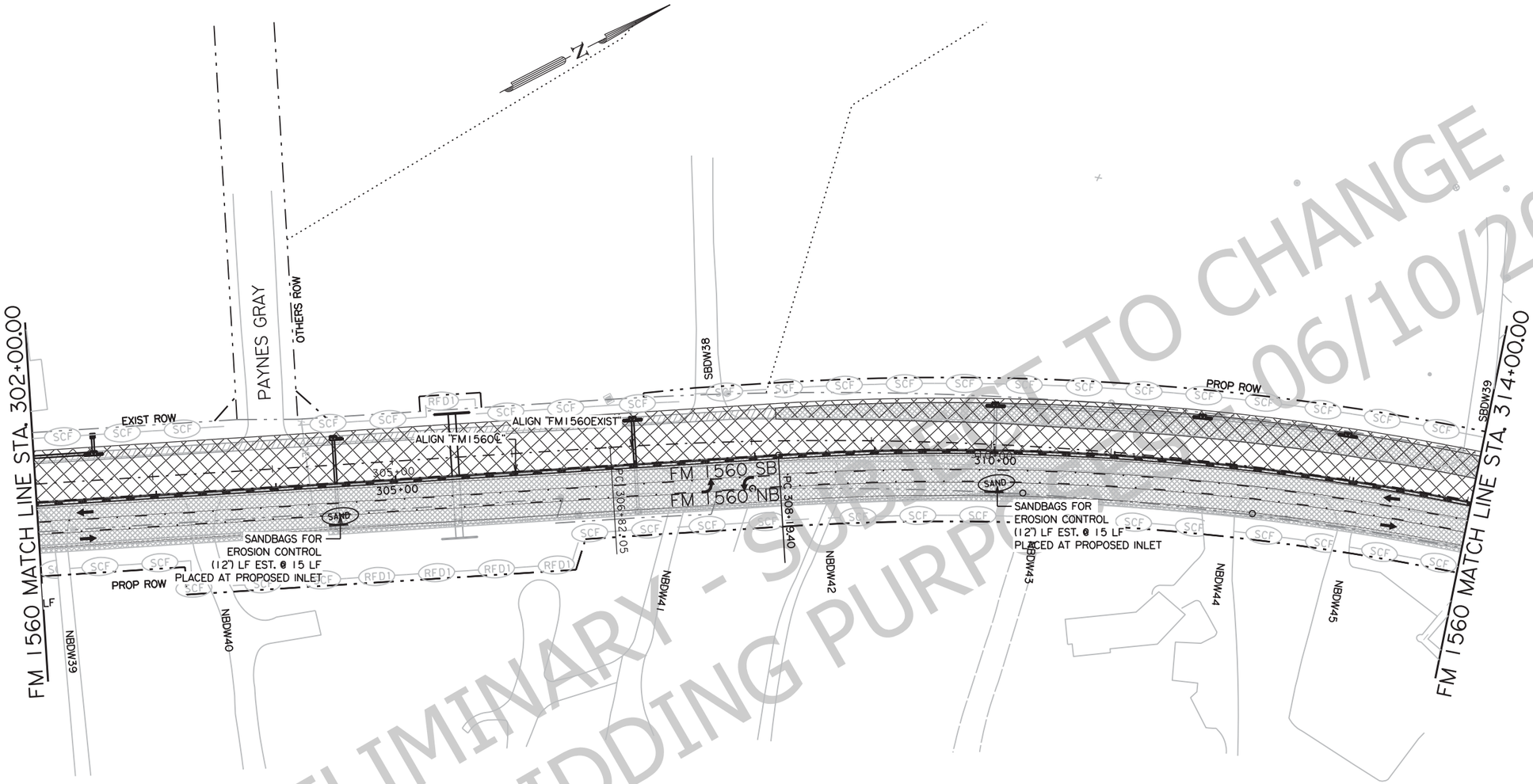

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SHEET 10 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	468
CONT.	SECT.	JOB	HIGHWAY NO.
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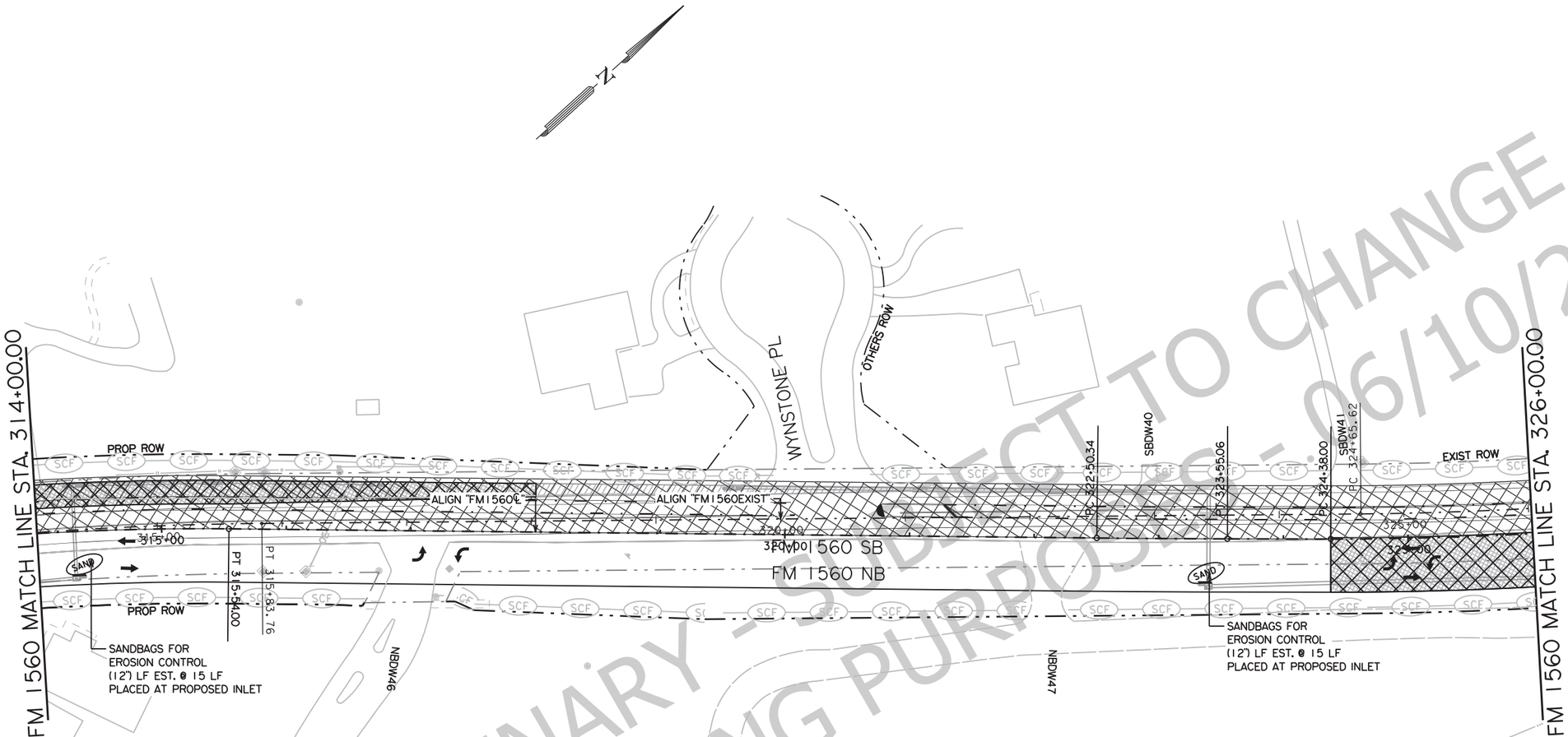

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SHEET 11 OF 16

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FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	469
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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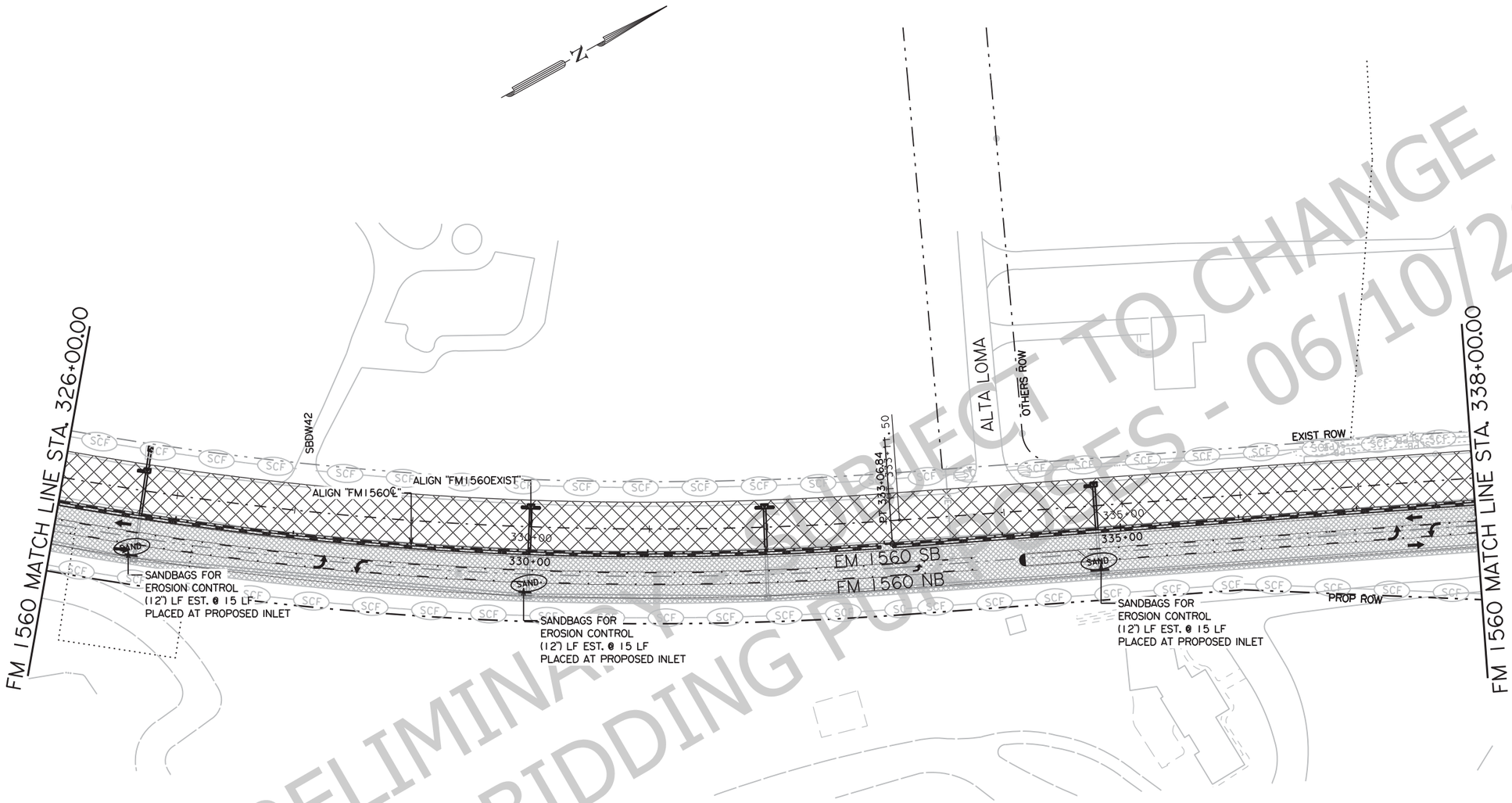

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- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
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3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
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4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 12 OF 16

DESIGN:		DRAFT:		CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT			SHEET NO.
6	SEE TITLE SHEET			
STATE	DIST.	COUNTY		470
TEXAS	SAT	BEXAR		
CONT.	SECT.	JOB	HIGHWAY NO.	
2230	01	021	FM 1560	

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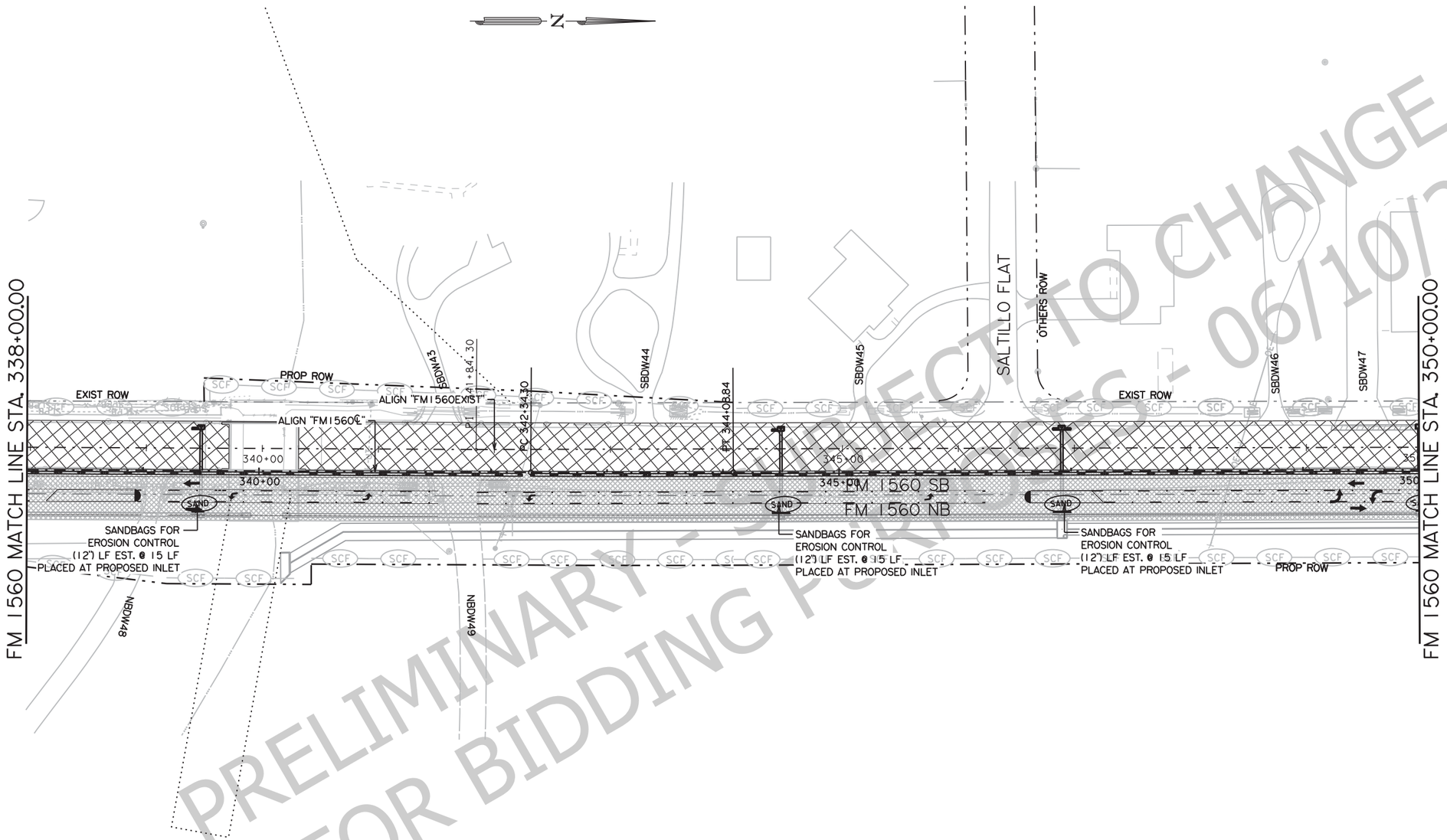

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
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INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 13 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	471
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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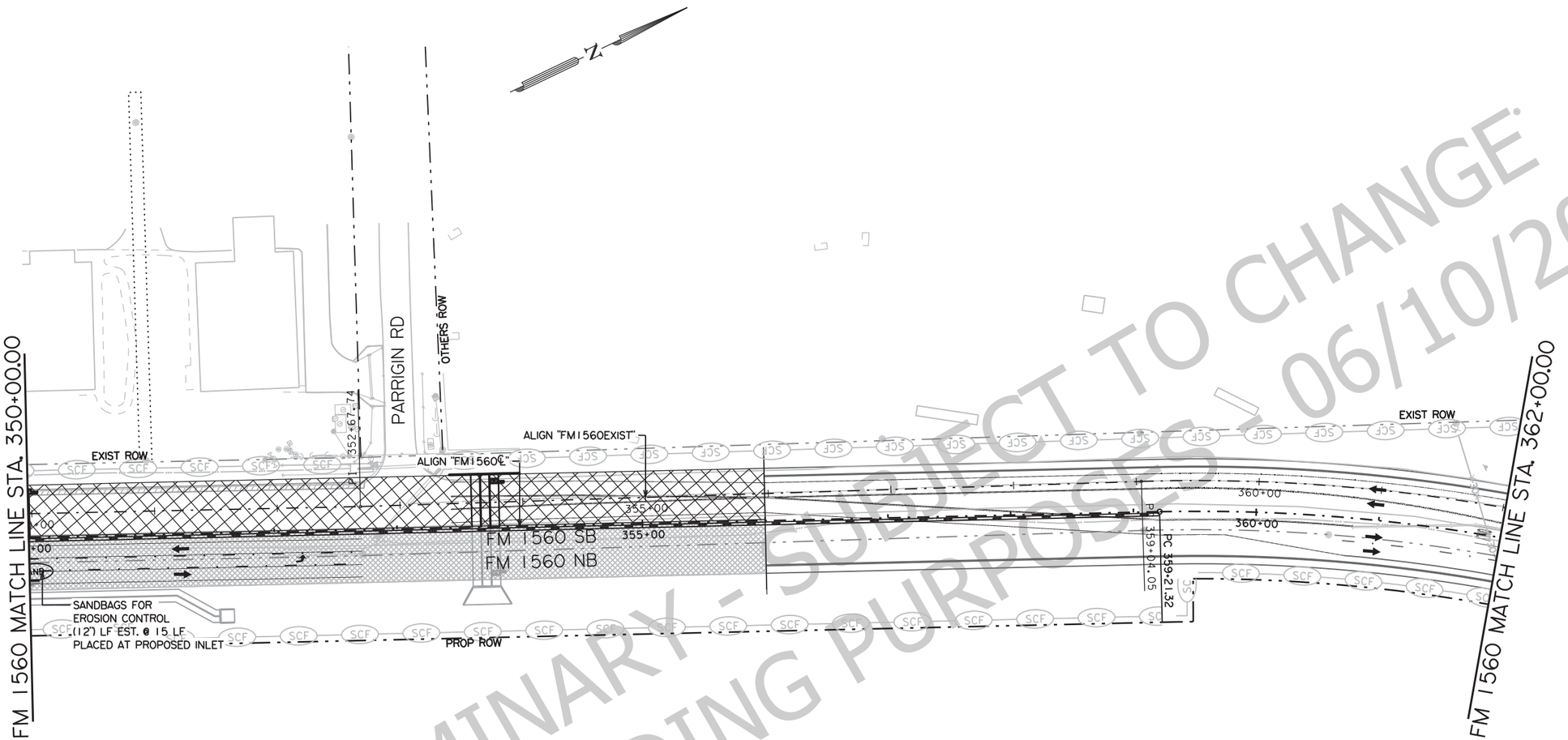

PRELIMINARY - SUBJECT TO CHANGE
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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 14 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
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STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	472
CONT.	SECT.	JOB	HIGHWAY NO.
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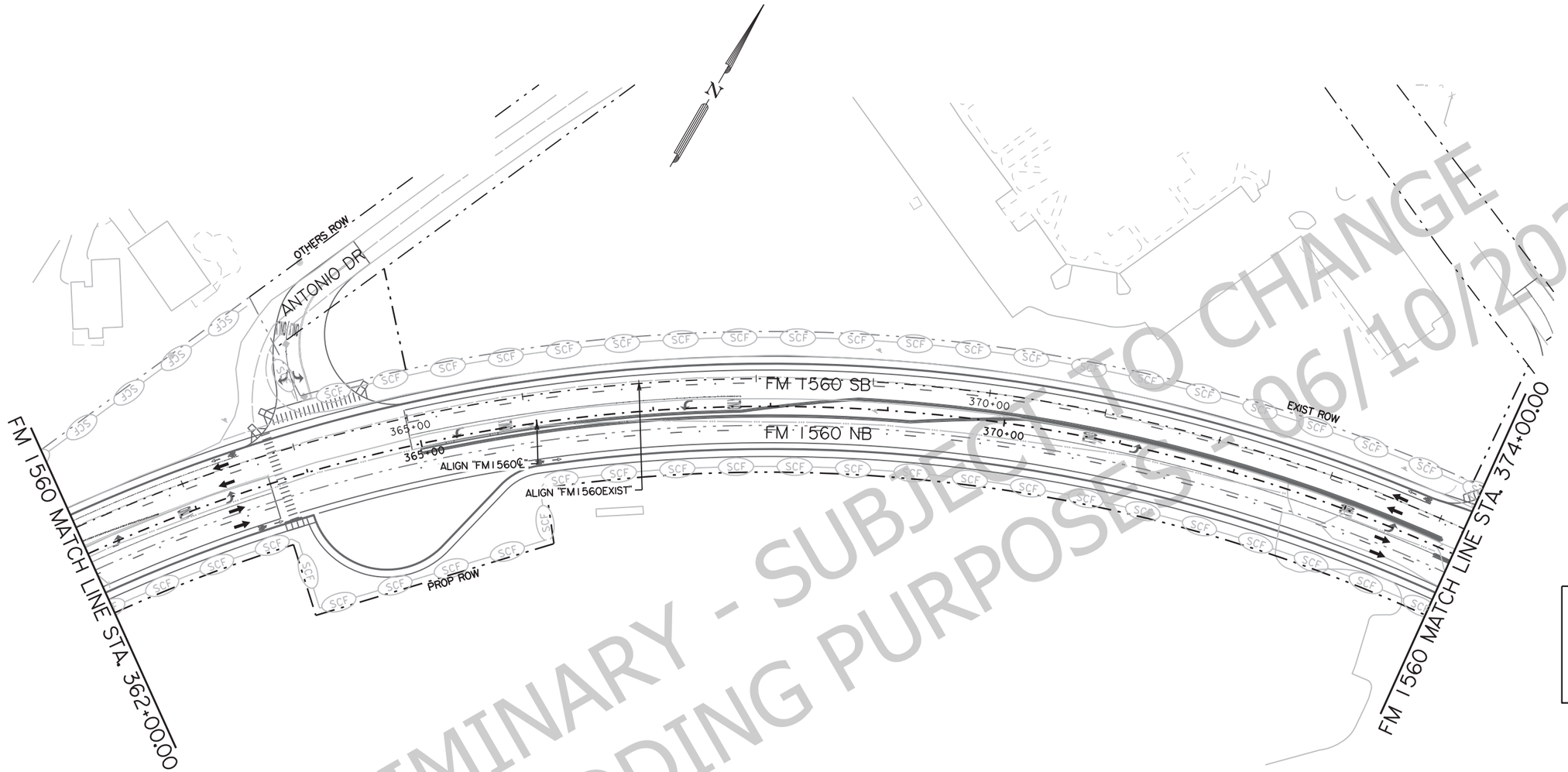

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/4/2020

SCALE: 1"=100'

SW3P LEGEND

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SHEET 15 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	473
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SUBJECT TO CHANGE
FOR BIDDING PURPOSES - 06/10/2020
PRELIMINARY - NOT FOR BIDDING PURPOSES

SW3P LEGEND

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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 4

SHEET 16 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	474
TEXAS	SAT	BEXAR	
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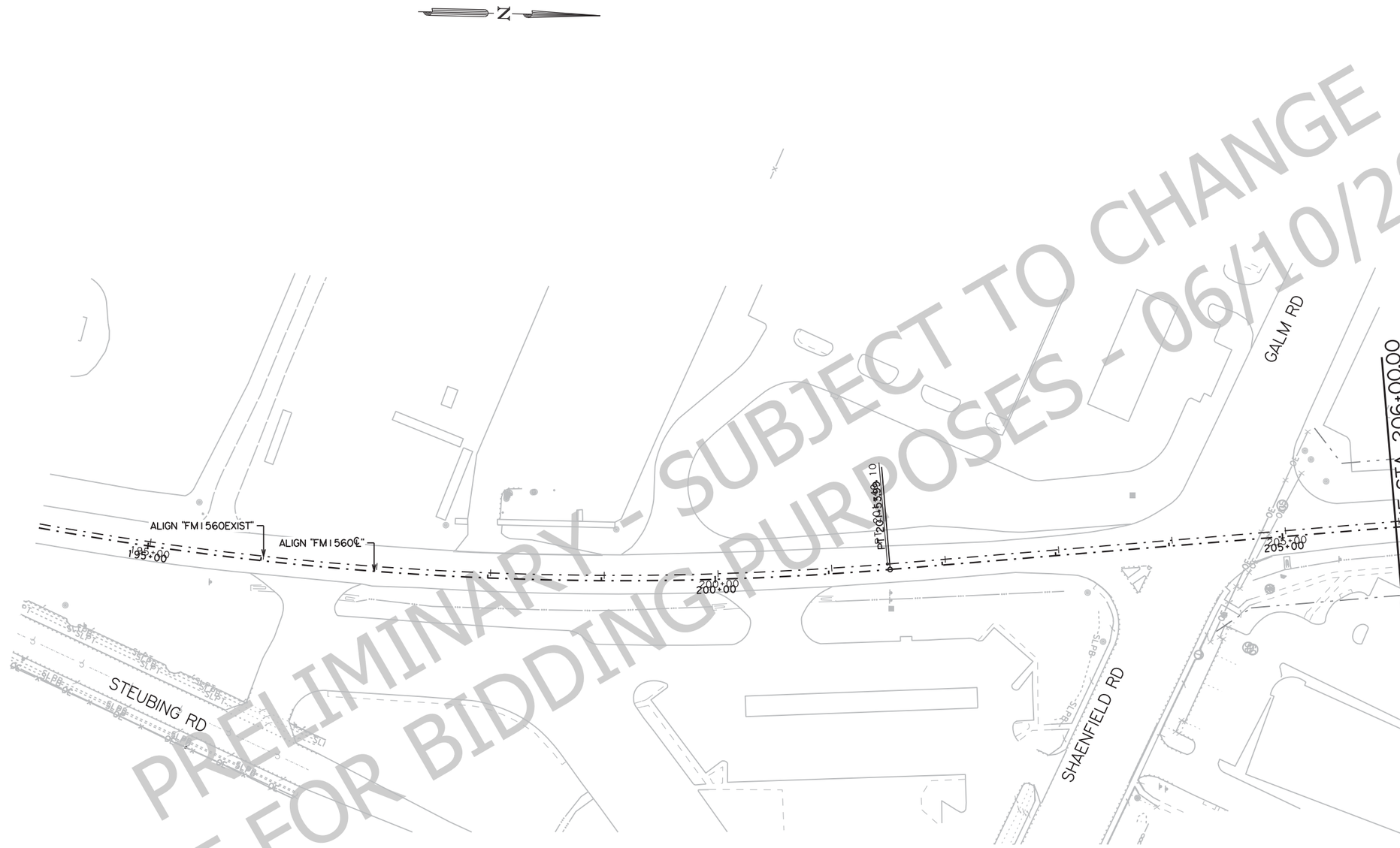

PRELIMINARY - SUBJECT TO CHANGE
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ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

SW3P LEGEND

- TRAFFIC DIRECTION
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- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 1 OF 16

DESIGN:	DRAFT:	CHECK:	
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TEXAS	SAT	BEXAR	
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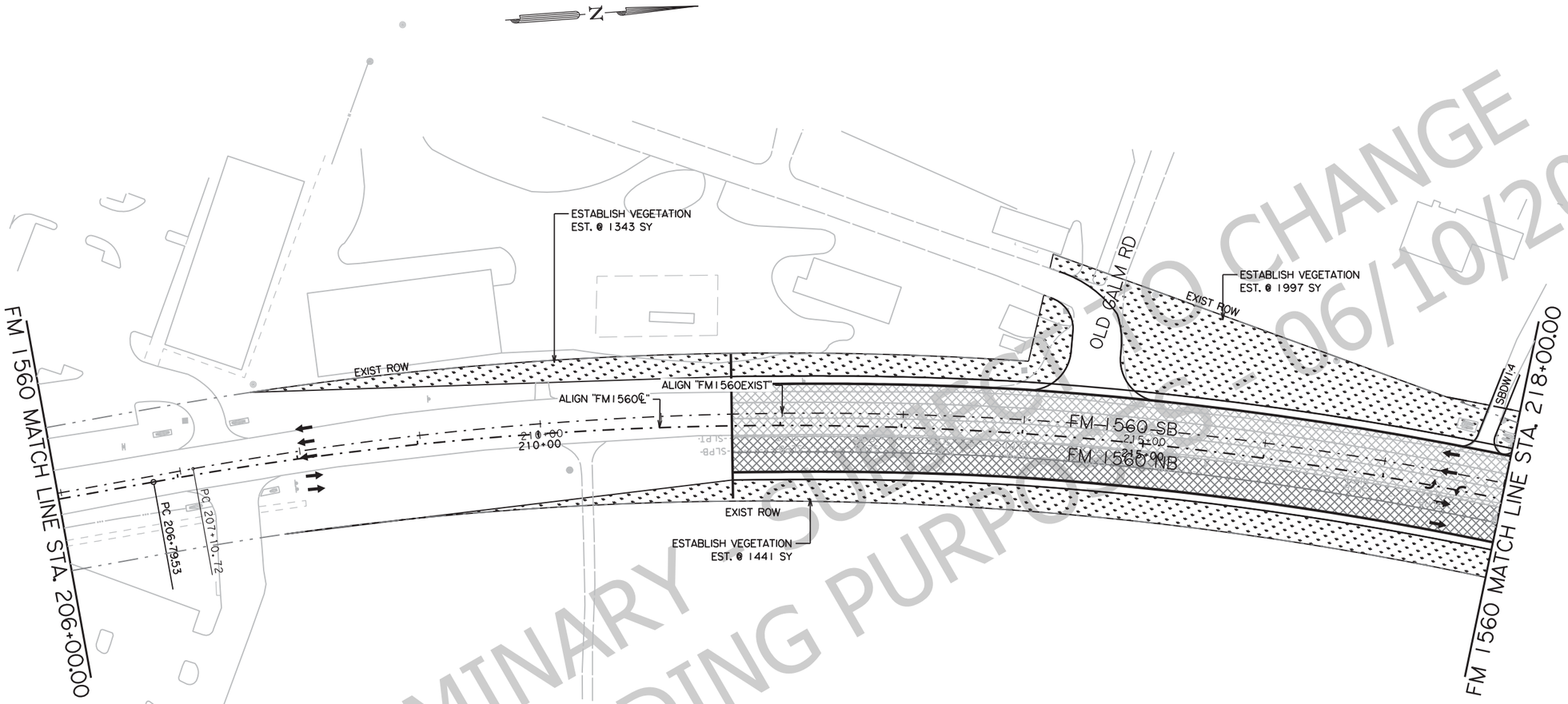

PRELIMINARY
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SUBJECT TO CHANGE
06/10/2020

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/4/2020

SCALE: 1"=100'

SW3P LEGEND

- TRAFFIC DIRECTION
- (SAND) SANDBAG(S)
- (SCF) TEMP SEDMT CONTROL FENCE
- (SCF) TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- (RFD1) ROCK FILTER DAMS
- (RFD1) ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 2 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	476
CONT.	SECT.	JOB	HIGHWAY NO.
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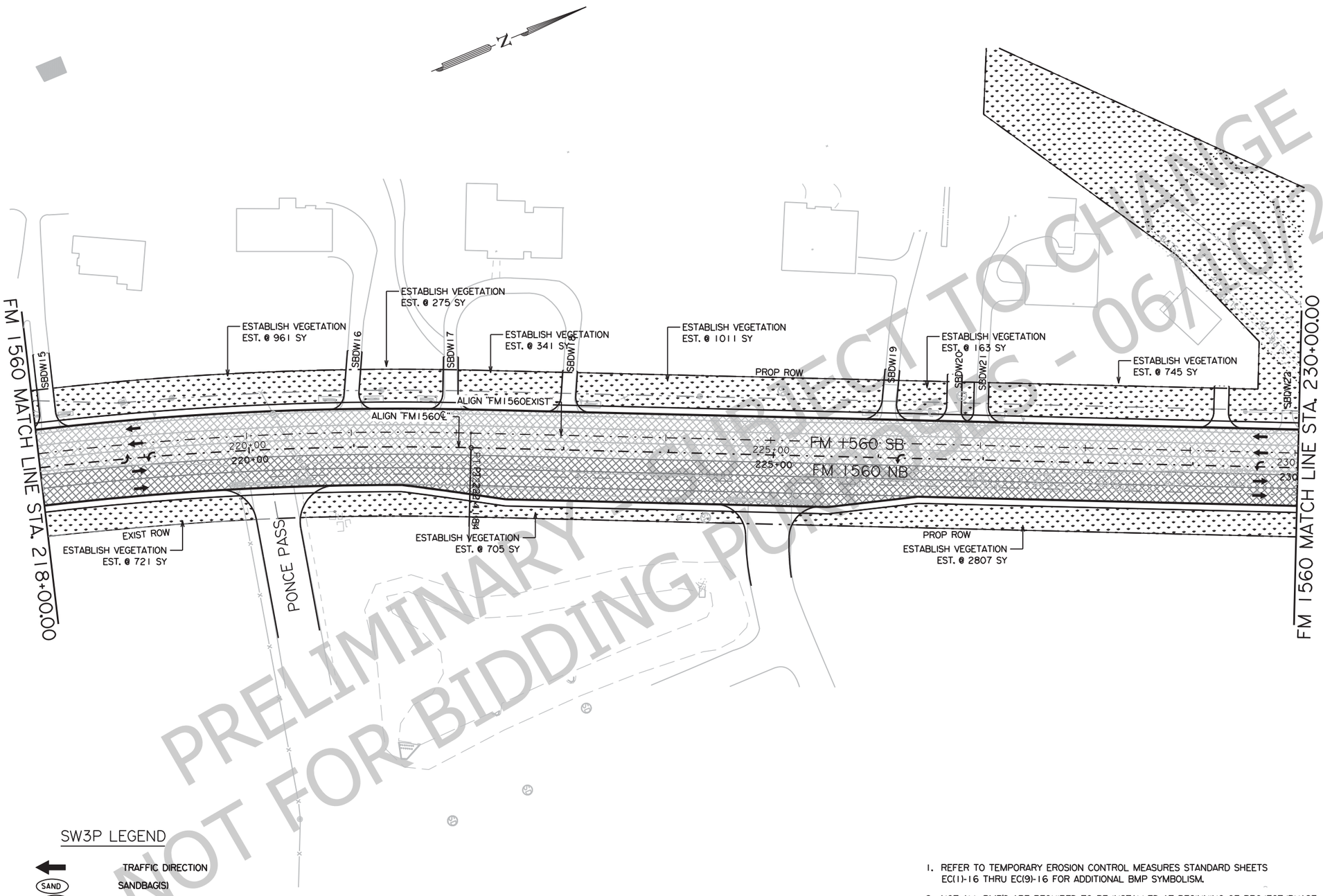

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SW3P LEGEND

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SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 3 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	477
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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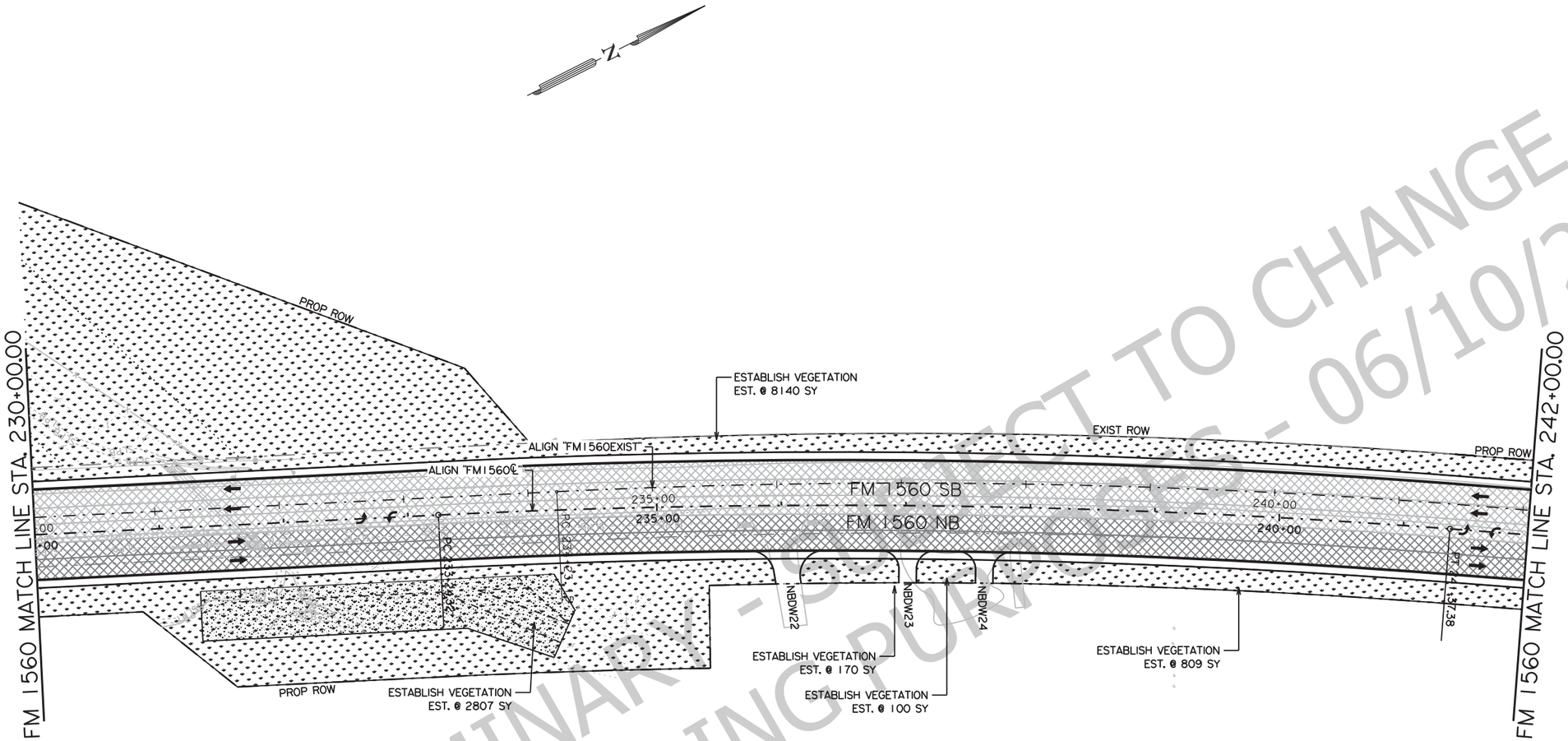

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 4 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	478
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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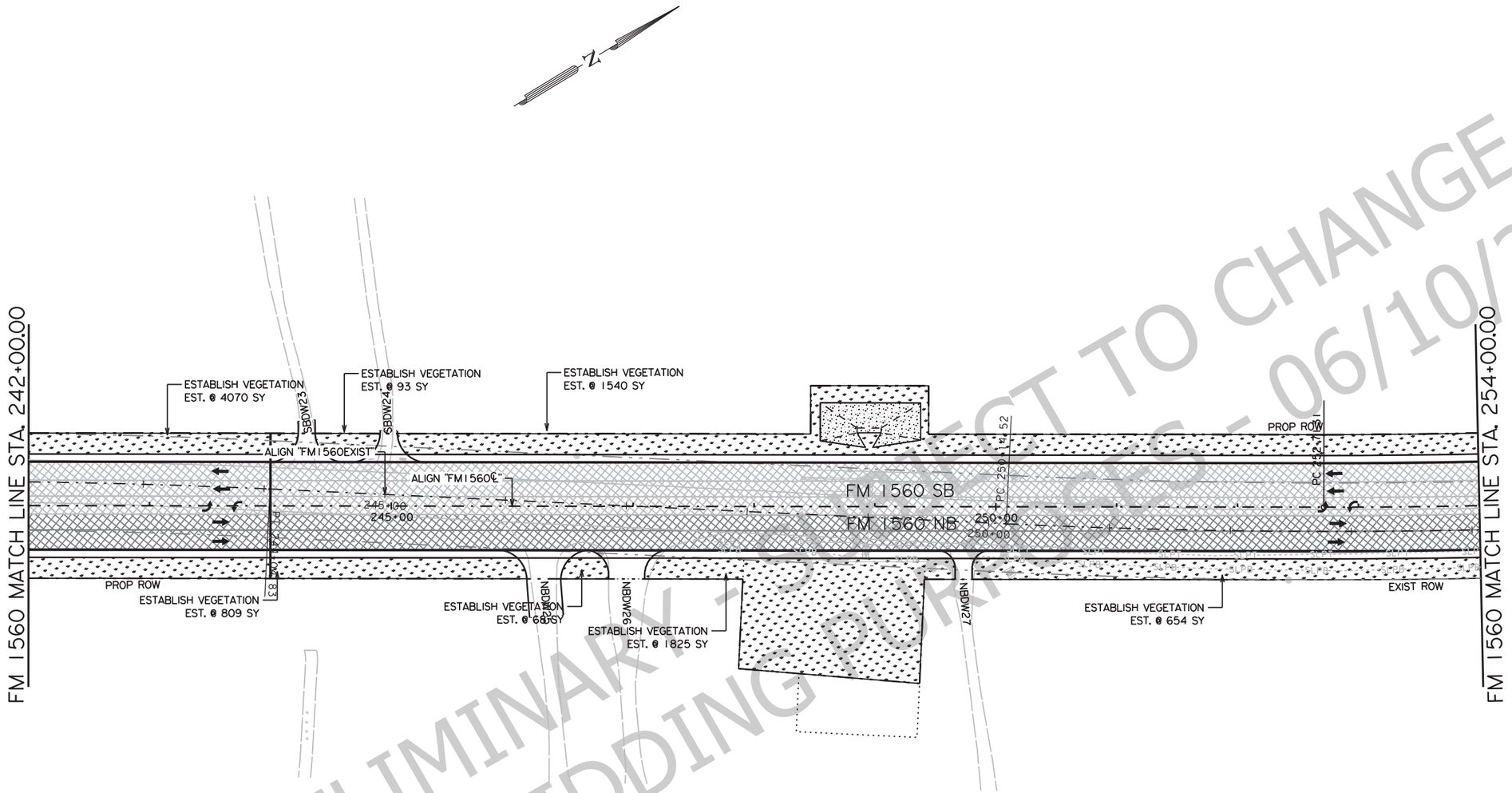

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 5 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	479
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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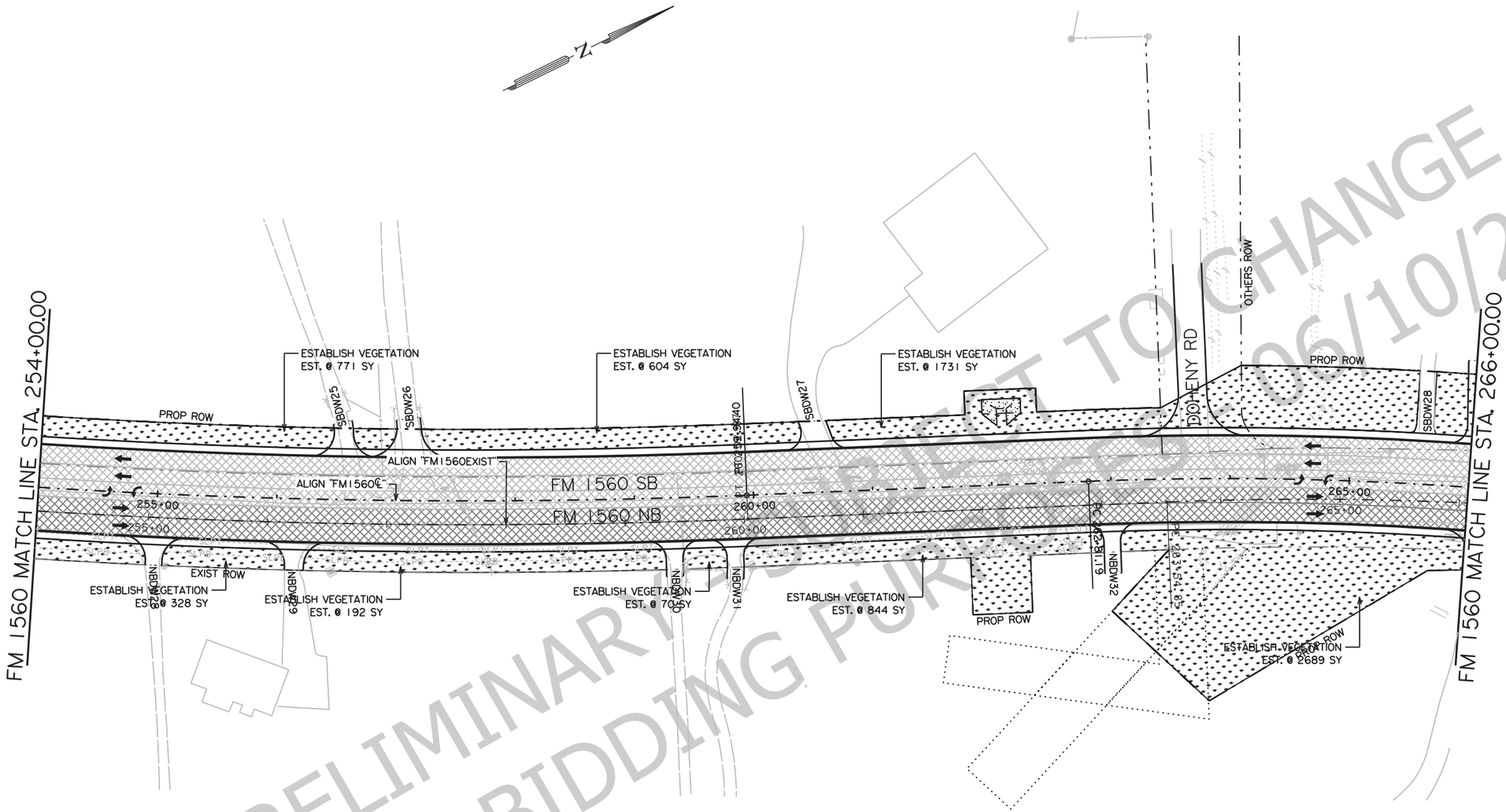

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES
06/10/2020

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
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4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 6 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	480
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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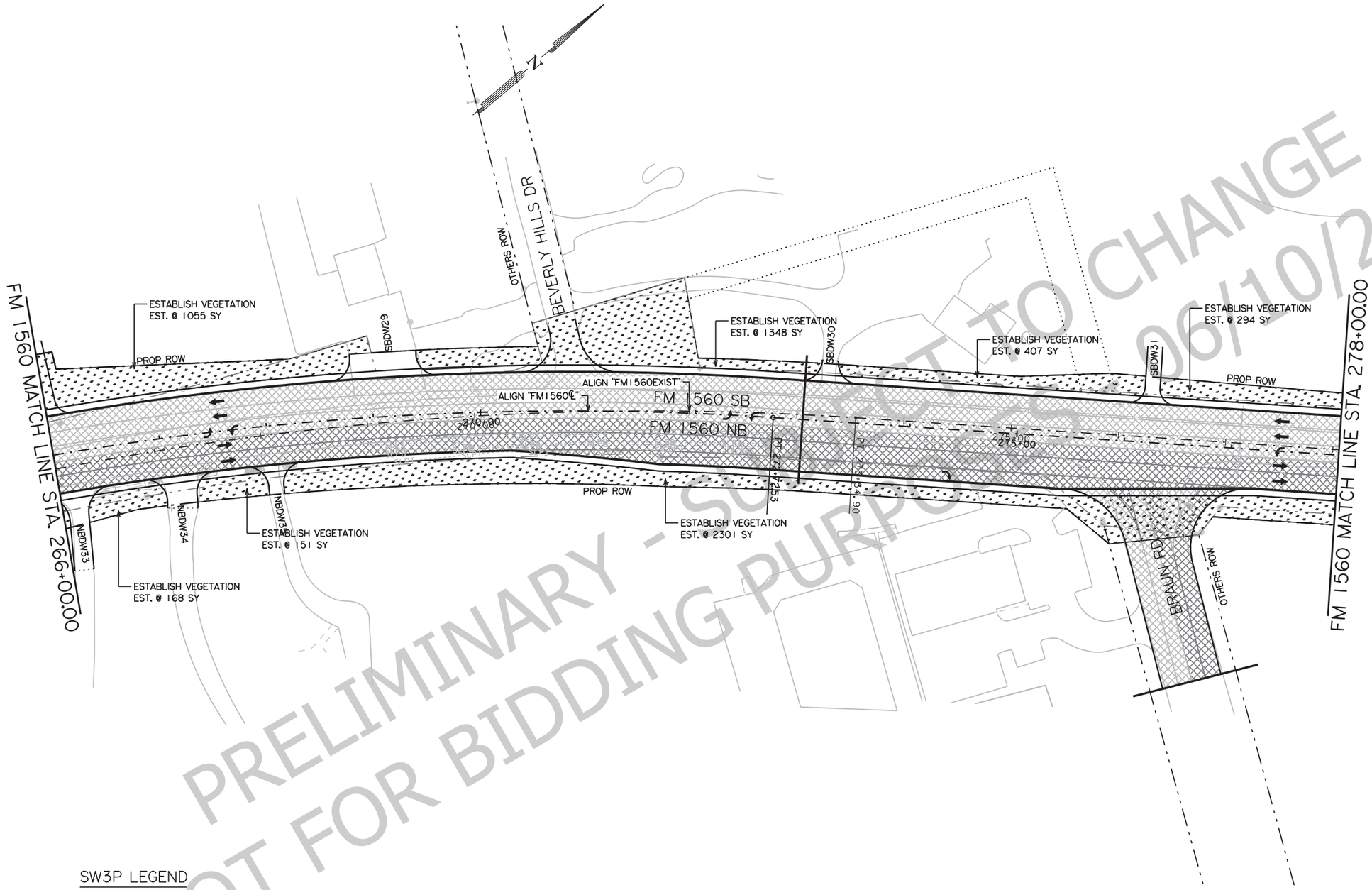

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06/10/2020

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 7 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	481
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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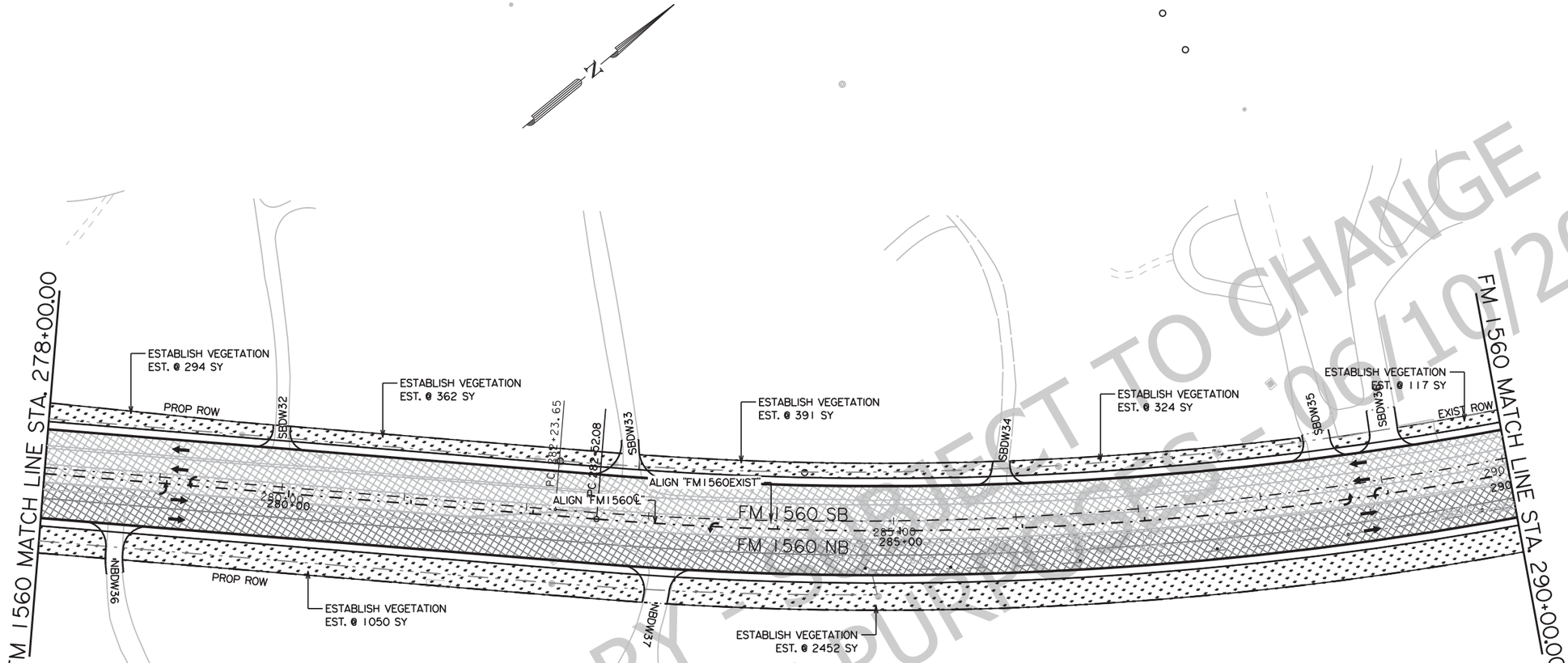

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 8 OF 16

DESIGN:	DRAFT:	CHECK:

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	482

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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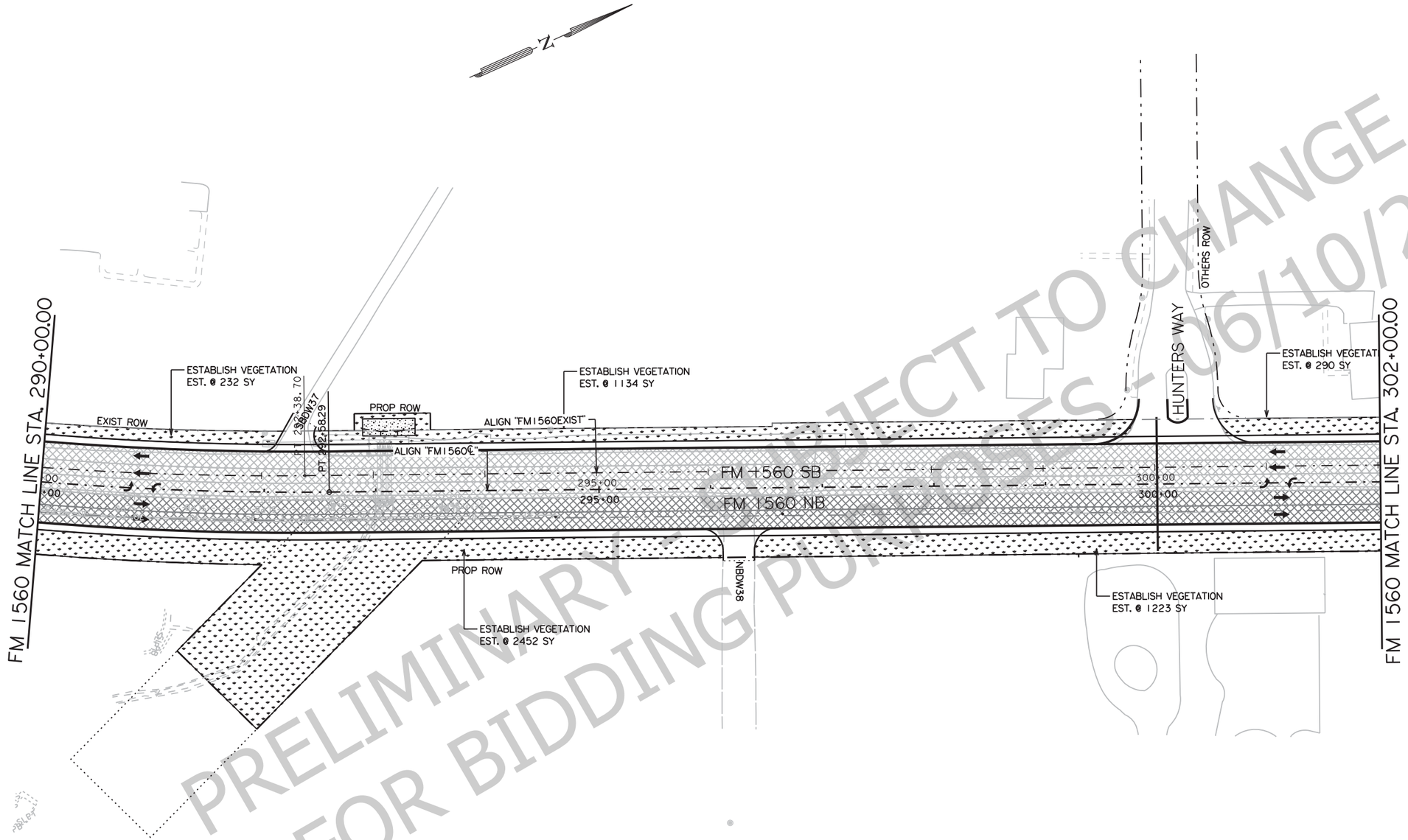

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 9 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	483
TEXAS	SAT	BEXAR	
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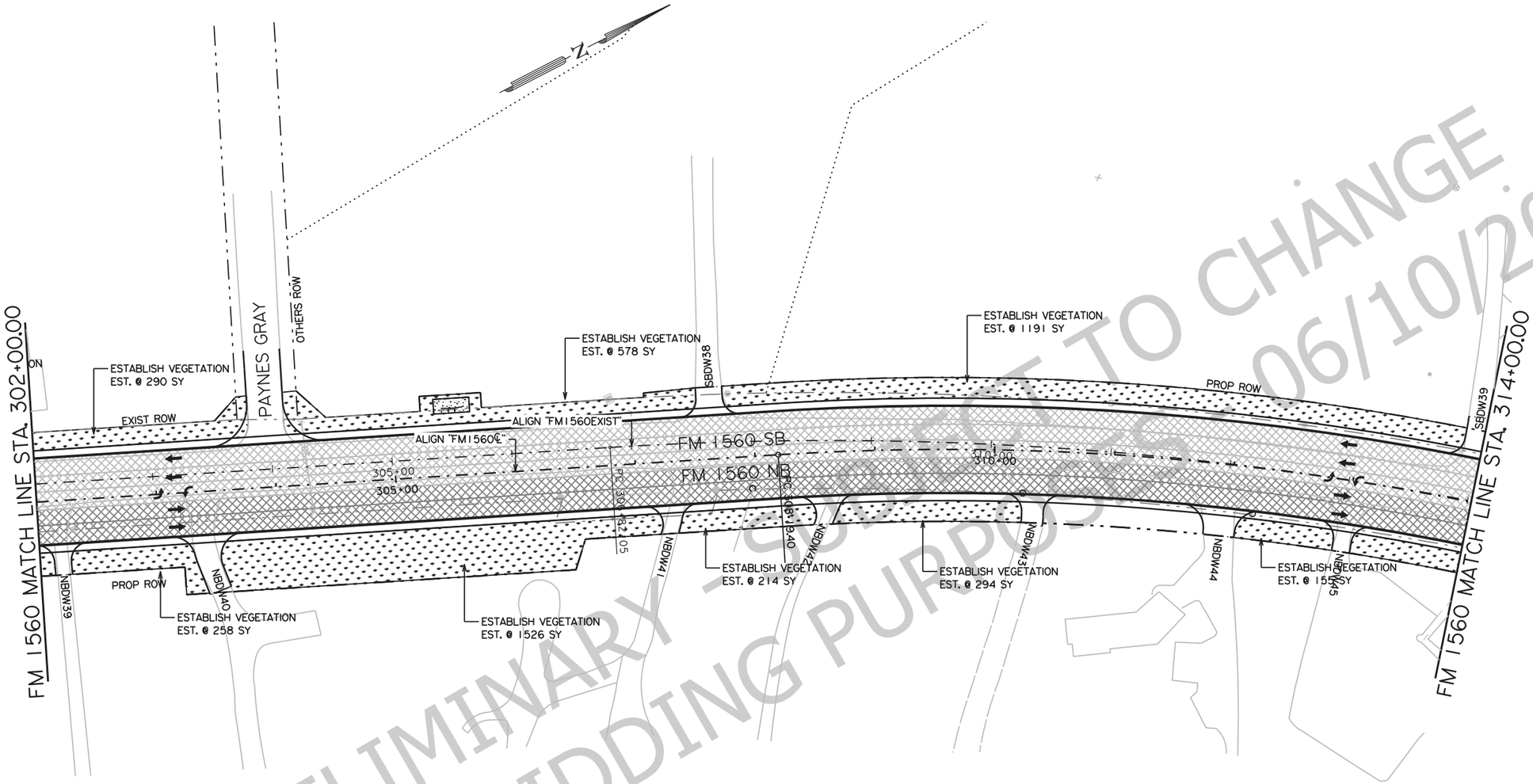

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DATE: 6/4/2020

SCALE: 1"=100'

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 10 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	484
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2230	01	021	FM 1560

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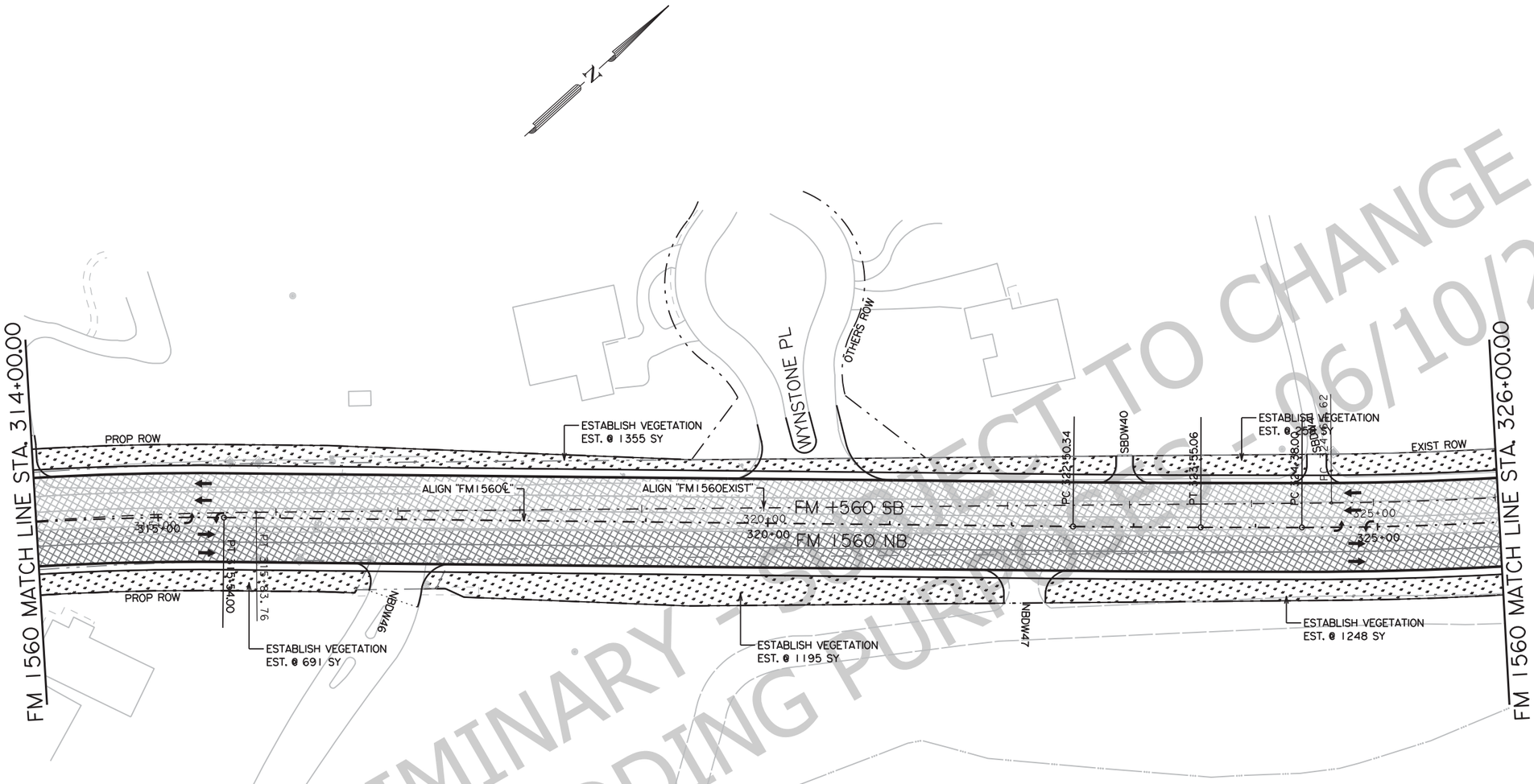

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ENGINEER: ANDRES GARZA

P.E. SERIAL NO.: 106002

DATE: 6/4/2020

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SW3P LEGEND

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 11 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	485
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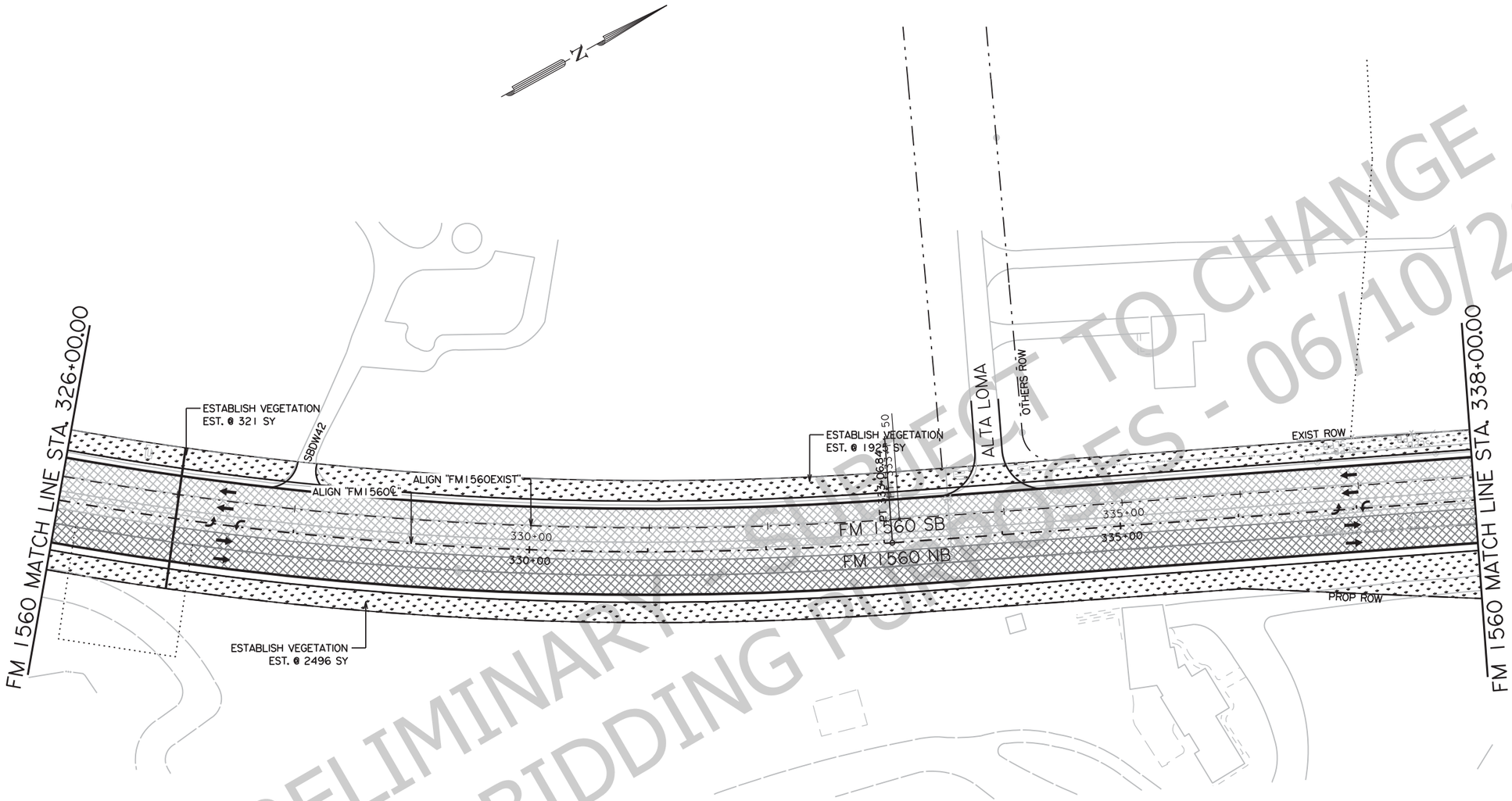

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STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 12 OF 16

DESIGN:	DRAFT:	CHECK:	
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6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	486
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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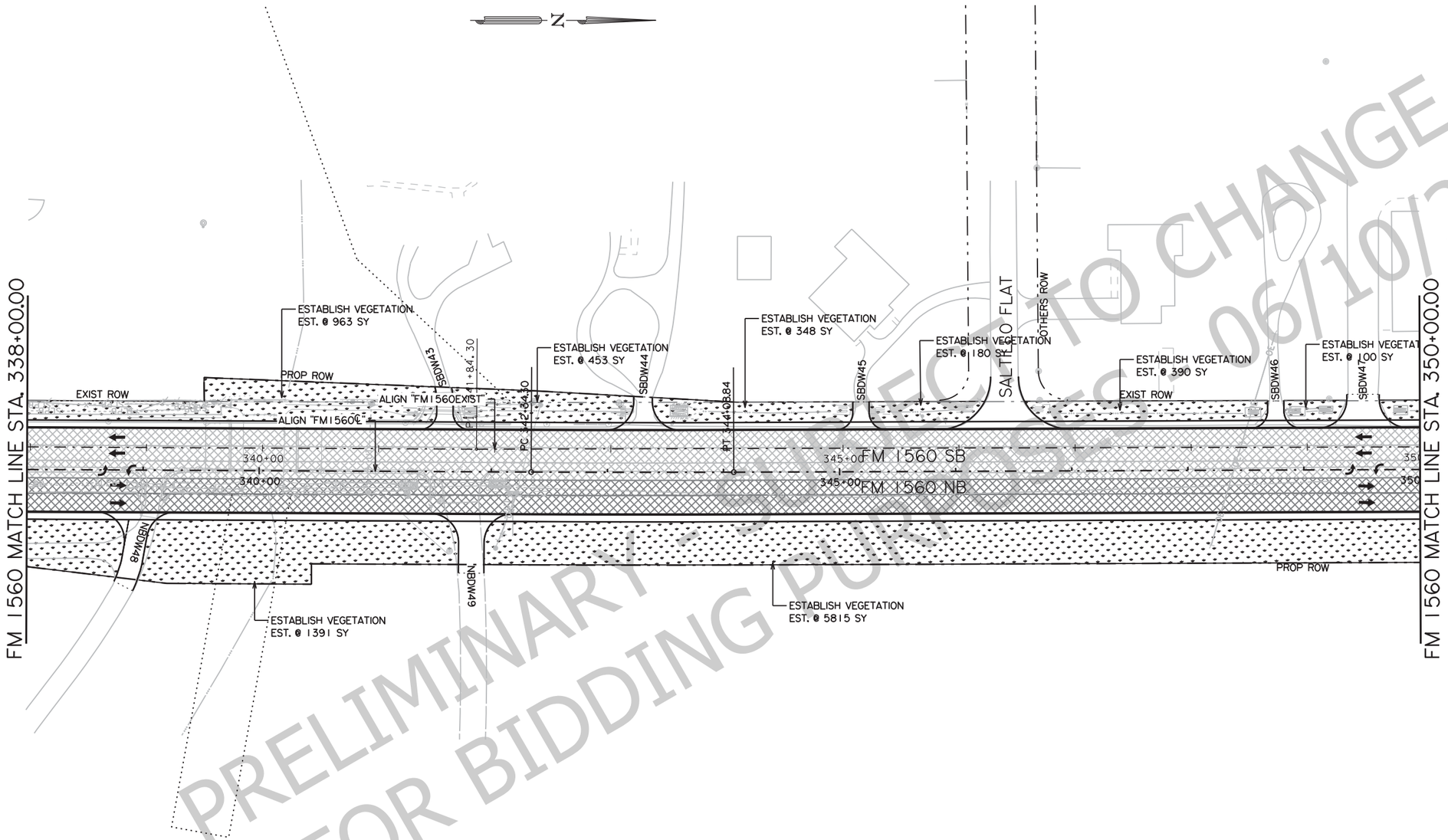

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SHEET 13 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	487
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

PRELIMINARY - SUBJECT TO CHANGE
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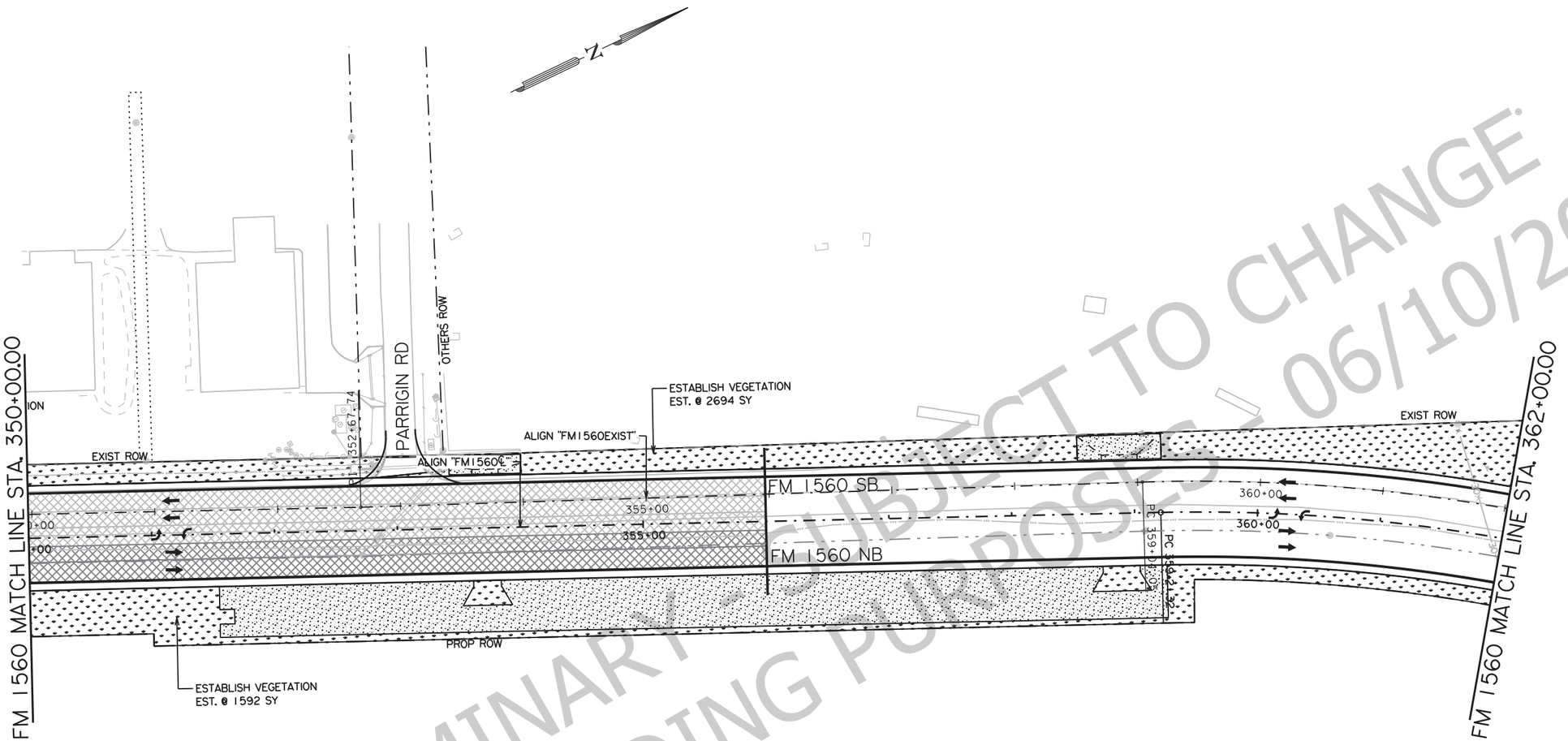

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SHEET 14 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	488
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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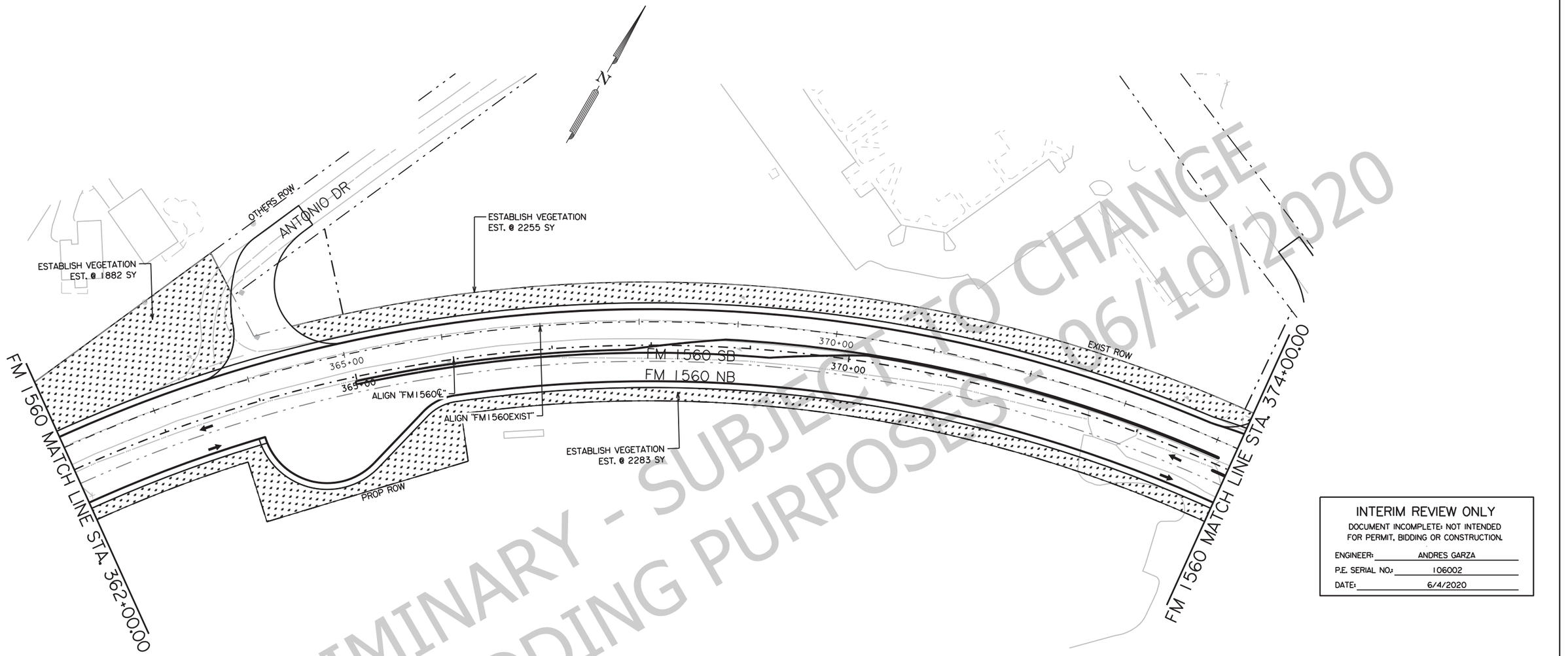

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- CONSTRUCTION EXIT

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2. NOT ALL BMP'S ARE REQUIRED TO BE INSTALLED AT BEGINNING OF PROJECT/PHASE. INSTALL ACCORDINGLY WITH CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER.
3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
   ALL ESTABLISHMENT AREAS TO RECEIVE:
   TEMPORARY SEEDING, 4" OF COMPOST, PERMANENT SEEDING, FERTILIZER, & WATER.
   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 15 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	489
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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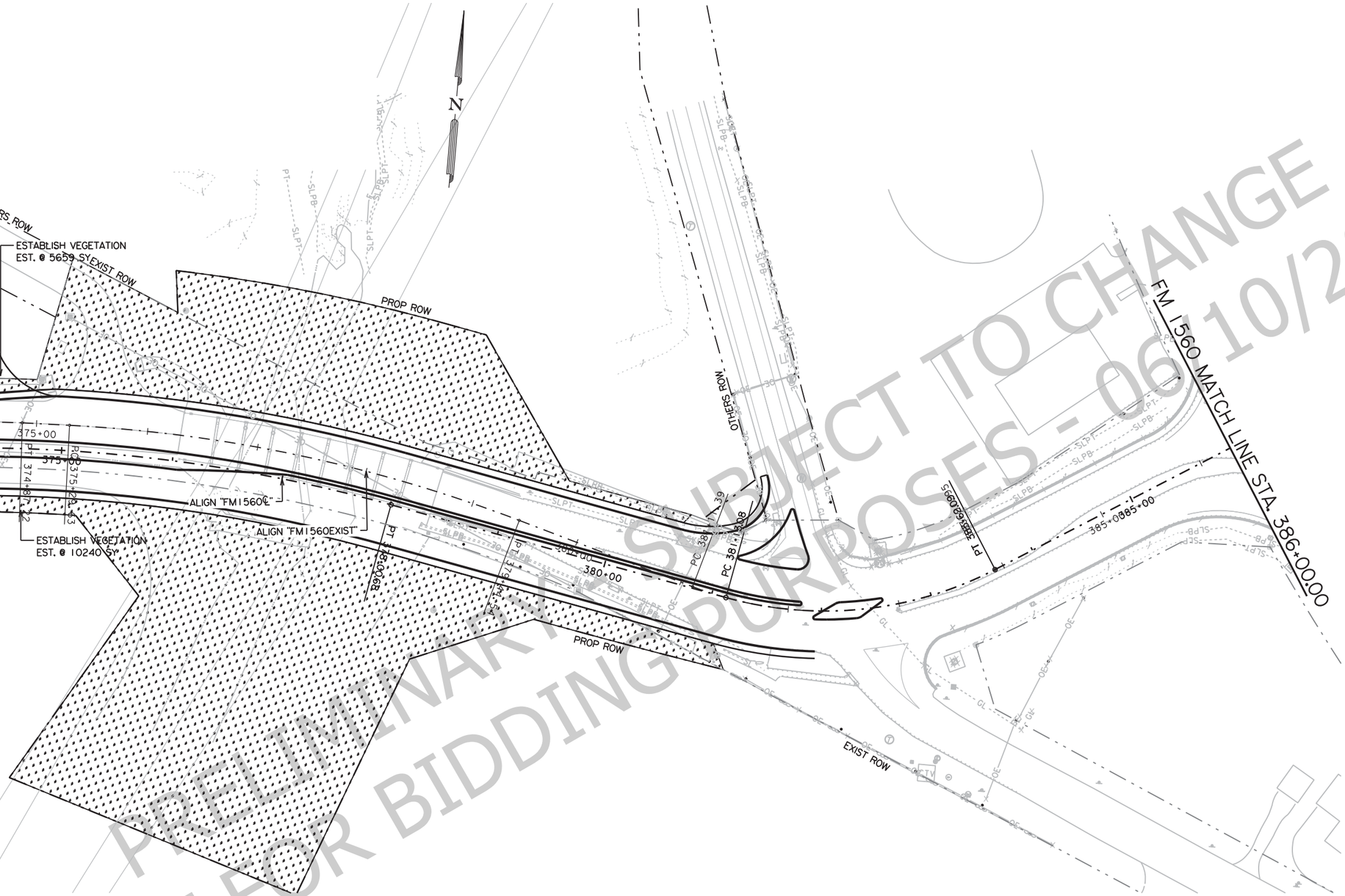

SUBJECT TO CHANGE
FOR PURPOSES - 06/10/2020
PRELIMINARY
NOT FOR BIDDING PURPOSES

SW3P LEGEND

- TRAFFIC DIRECTION
- SAND — SANDBAG(S)
- SCF — TEMP SEDMT CONTROL FENCE
- SCF — TEMP SEDMT CONTROL FENCE (INSTALLED IN PREVIOUS PHASE)
- RFD1 — ROCK FILTER DAMS
- RFD1 — ROCK FILTER DAMS (INSTALLED IN PREVIOUS PHASE)
- VEGEATATIVE STABILIZATION
- CONSTRUCTION EXIT

1. REFER TO TEMPORARY EROSION CONTROL MEASURES STANDARD SHEETS EC(1)-16 THRU EC(9)-16 FOR ADDITIONAL BMP SYMBOLISM.
2. NOT ALL BMP'S ARE REQUIRED TO BE INSTALLED AT BEGINNING OF PROJECT/PHASE. INSTALL ACCORDINGLY WITH CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER.
3. ••ESTABLISH VEGETATION:
   FOR THIS SHEET, THE AREA CALCULATION CORRELATES TO THE FOLLOWING ESTIMATE BID ITEMS; 0161, 0164, 0166, 0168, AND 0169.
   ALL ESTABLISHMENT AREAS TO RECEIVE:
   TEMPORARY SEEDING, 4" OF COMPOST, PERMANENT SEEDING, FERTILIZER, & WATER.
   REFER TO GENERAL NOTES AND 2014 SPEC. BOOK FOR ADDITIONAL INFO.
4. EROSION COMPOST PLACEMENT RECOMMENDED AT CONSTRUCTION EXITS AND CONTRACTOR PSLs, FOR DUST CONTROL.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: ANDRES GARZA
P.E. SERIAL NO.: 106002
DATE: 6/4/2020

SCALE: 1"=100'

Texas Department of Transportation
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FM 1560
STORM WATER POLLUTION PREVENTION PLAN PHASE 5

SHEET 16 OF 16

DESIGN:	DRAFT:	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		
STATE	DIST.	COUNTY	490
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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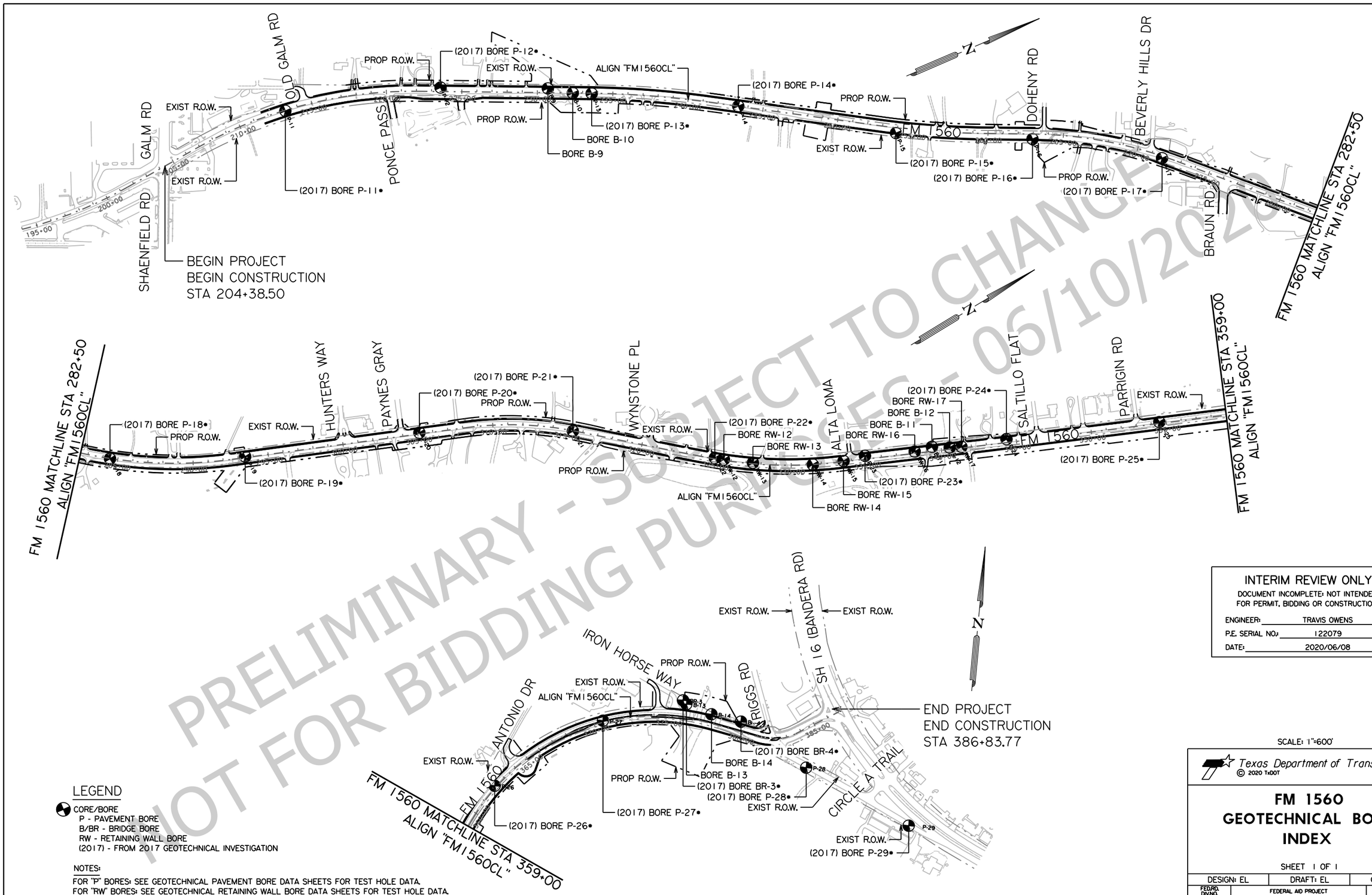

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND

CORE/BORE
P - PAVEMENT BORE
B/BR - BRIDGE BORE
RW - RETAINING WALL BORE
(2017) - FROM 2017 GEOTECHNICAL INVESTIGATION

NOTES:

FOR "P" BORES: SEE GEOTECHNICAL PAVEMENT BORE DATA SHEETS FOR TEST HOLE DATA.
FOR "RW" BORES: SEE GEOTECHNICAL RETAINING WALL BORE DATA SHEETS FOR TEST HOLE DATA.
FOR "B" AND "BR" BORES: SEE GEOTECHNICAL BRIDGE BORE DATA SHEETS FOR TEST HOLE DATA.
•INCLUDED FOR INFORMATION ONLY. GEOTECHNICAL REPORT AVAILABLE UPON REQUEST.

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: TRAVIS OWENS
P.E. SERIAL NO.: 122079
DATE: 2020/06/08

SCALE: 1"=600'

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FM 1560 GEOTECHNICAL BORE INDEX

SHEET 1 OF 1

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

491

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar County	Hole	P-12	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	123+59.75	Grnd. Elev.	942.63 ft
		Offset	-17.67	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 5" asphaltic concrete, 24" tan flex base							PP = 1.0 tsf
940.2			CLAY, stiff to hard, moist, black, fat, with trace gravel and calcareous deposits. [Leona Formation] (CH)							PP = 3.25 tsf
5										PP = 4.5+ tsf
										PP = 4.5+ tsf
										PP = 2.75 tsf
						27.1	76	54		Passing No. 200 Sieve: 88%
932.6 10										
15										
20										

Remarks: Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13743019.18, 2058715.01)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Pavement 1-15.CLG

DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar County	Hole	P-13	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	133+60.89	Grnd. Elev.	946.53 ft
		Offset	8.16	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 9" asphaltic concrete, 14" tan flex base							
944.5			CLAY, stiff, moist, reddish brown, fat, with sand, trace gravel, calcareous inclusions, and limestone fragments. [Leona Formation] (CH)							PP = 4.5+ tsf
5						19.1	64	43		PP = 4.5+ tsf Passing No. 200 Sieve: 81%
										PP = 4.5+ tsf
938.5			CLAY, very stiff, dry, tan, lean, calcareous, with limestone fragments. [Leona Formation] (CL)							SS: 10-12-11
936.5 10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13743922.05, 2059148.33)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Pavement 1-15.CLG

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FM 1560
GEOTECHNICAL PAVEMENT BORE DATA

SHEET 1 OF 9

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$$
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB / HIGHWAY NO.
2230	01	021 / FM 1560

492

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-14	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	143+37.80	Grnd. Elev.	958.18 ft
		Offset	9.55	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 8.5" asphaltic concrete, 12" tan flex base							
956.5			SAND, slightly compact, moist, brown, clayey, with trace gravel. [Residual] (SC)							PP = 4.25 tsf
						16.5	42	24		Passing No. 200 Sieve: 48%
954.2			CLAY, hard, moist, tan, fat, friable, with calcareous deposits and ferrous staining. [Residual] (CH)							PP = 4.5 tsf
5										PP = 4.5+ tsf
										PP = 4.5+ tsf
948.2	10									
15										
20										

Remarks: Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13744780.11, 2059610.04)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Pavement 1-15.CLG

DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-15	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2007
CSJ	2230-01-020, 2230-01-021	Station	153+96.83	Grnd. Elev.	968.11 ft
		Offset	9.89	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 4" asphaltic concrete, 9" tan flex base							
966.9			CLAY, hard, moist, dark brown, fat, with sand, trace gravel, and calcareous seams and nodules. [Residual] (CH)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5						20.5	57	34		Passing No. 200 Sieve: 79%
										PP = 4.5+ tsf
960.1			CLAY, very stiff, semi-moist, tan to reddish brown, lean, calcareous. [Residual] (CL)							PP = 4.5 tsf
958.1	10									
15										
20										

Remarks: Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13745667.91, 2060188.03)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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FM 1560
GEOTECHNICAL PAVEMENT BORE DATA

SHEET 2 OF 9

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$$
STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

493

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar County	Hole	P-16	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	163+01.04	Grnd. Elev.	969.27 ft
		Offset	4.37	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
968.			PAVEMENT, 4" asphaltic concrete, 11" tan flex base							
			CLAY, hard, semi-moist, dark brown, fat, with calcareous deposits, and trace gravel. [Residual] (CH)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5										
963.3			SAND, compact, dry, tan, clayey, medium grained, with calcareous nodules and limestone fragments. [Residual] (SC)			4.8	39	24		SS: 14-14-8 Passing No. 200 Sieve: 18%
										SS: 36-50/2"
959.3 10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13746481.75, 2060582.84)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar County	Hole	P-17	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	171+73.29	Grnd. Elev.	993.55 ft
		Offset	9.76	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
992.5			PAVEMENT, 4" asphaltic concrete, 9" tan flex base							
			LIMESTONE, soft, tan, highly to completely weathered with tan lean clay infill. [Austin Chalk]			7.4				SS: 50/4"
5										SS: 50/2"
987.6										-auger refusal at 6'
10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 6 feet, and groundwater was not encountered at that depth. (N,E)= (13747219.05, 2061039.25)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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FM 1560
GEOTECHNICAL PAVEMENT BORE DATA

SHEET 3 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	494
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-18	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	184+49.16	Grnd. Elev.	1023.08 ft
		Offset	1.31	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
1022.			PAVEMENT, 4.5" asphaltic concrete, 9" tan flex base							
			LIMESTONE, soft, tan, highly to completely weathered, with tan lean clay. [Austin Chalk]			3.6				SS: 20-50/3"
										SS: 50/0"
5										
1017.1										-auger refusal at 6'
10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 6 feet, and groundwater was not encountered at that depth. (N,E)= (13748151.19, 2061909.19)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger: KC** **Organization: HVJ**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-19	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	193+47.31	Grnd. Elev.	1002.35 ft
		Offset	3.63	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
1001.			PAVEMENT, 4" asphaltic concrete, 13" tan flex base							
			CLAY, very stiff, moist, dark brown, fat, with sand, trace gravel, and calcareous deposits. [Residual] (CH)			20.4	66	43		PP = 4.5+ tsf
										Passing No. 200 Sieve: 83%
										PP = 4.5+ tsf
997.4 5			LIMESTONE, soft, highly to completely weathered, marly, with ferrous staining. [Buda Limestone]							
										SS: 50/5.5"
										SS: 50/0"
992.4 10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13748923.01, 2062363.21)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger: KC** **Organization: HVJ**

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FM 1560
GEOTECHNICAL PAVEMENT BORE DATA

SHEET 4 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	495
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	P-20	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/10/2017
CSJ	2230-01-020, 2230-01-021	Station	205+11.46	Grnd. Elev.	1023.77 ft
		Offset	1.36	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1022.7			PAVEMENT, 4" asphaltic concrete, 9" tan flex base							PP = 3.25 tsf
			CLAY, stiff, moist, dark brown, fat, with trace sand. [Residual] (CH)							PP = 3.0 tsf
						28.9	78	49		Passing No. 200 Sieve: 96%
1019.8			LIMESTONE, soft, highly to completely weathered, with ferrous staining, and gray lean clay infill. [Buda Limestone]							SS: 50/0"
5										SS: 50/3"
										SS: 50/5"
1013.810										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13749990.04, 2062828.70)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	P-21	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/14/2017
CSJ	2230-01-020, 2230-01-021	Station	215+33.48	Grnd. Elev.	1048.23 ft
		Offset	6.06	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1047.3			PAVEMENT, 4" asphaltic concrete, 7" tan flex base							PP = 4.5+ tsf
			CLAY, very stiff, moist, dark brown, fat, sandy, with calcareous inclusions and seams. [Residual] (CH)			24.7	78	51		Passing No. 200 Sieve: 65%
1045.7			LIMESTONE, soft to hard, tan, highly to completely weathered, with ferrous staining. [Buda Limestone]							SS: 50/0"
1043.25										-auger refusal at 5'
10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 5 feet, and groundwater was not encountered at that depth. (N,E)= (13750863.39, 2063348.37)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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FM 1560 GEOTECHNICAL PAVEMENT BORE DATA

SHEET 5 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	496
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	P-22	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	224+90.29	Grnd. Elev.	1047.81 ft
		Offset	14.56	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 5" asphaltic concrete, 14" tan flex base							
1046.2			SAND, compact, moist, dark brown, clayey, calcareous. [Residual] (SC)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5						11.2	54	33		Passing No. 200 Sieve: 36%
1041.8			LIMESTONE, soft, light tan, highly to completely weathered, with chert nodules. [Buda Limestone]							SS: 50/0"
										SS: 50/0"
1037.810										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13751573.49, 2063989.57)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	P-23	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	234+86.41	Grnd. Elev.	1006.46 ft
		Offset	-1.05	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 6" asphaltic concrete, 15" tan flex base							
1004.7			CLAY, very stiff to hard, moist, dark brown, fat, with trace gravel and calcareous inclusions. [Residual] (CH)							PP = 4.25 tsf
										PP = 2.75 tsf
5										
1000.5			CLAY, hard, moist, tan, lean, highly calcareous, with ferrous staining. [Residual] (CL)							PP = 4.5+ tsf
										PP = 4.5+ tsf
						12.3	37	24		Passing No. 200 Sieve: 87%
996.5	10									
15										
20										

Remarks: Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13752429.49, 2064495.12)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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FM 1560
GEOTECHNICAL PAVEMENT BORE DATA

SHEET 6 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	497
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-24	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	244+29.96	Grnd. Elev.	998.20 ft
		Offset	-2.47	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 5.5" asphaltic concrete, 11" tan flex base							
996.8			CLAY, hard, moist, dark brown, fat, with trace gravel and calcareous nodules. [Leona Formation] (CH)							PP = 4.5+ tsf
995.2			CLAY, hard, moist, reddish dark brown, fat, with limestone fragments. [Leona Formation] (CH)			21.4	68	44		Passing No. 200 Sieve: 86%
5										PP = 4.5+ tsf
										PP = 4.5+ taf
990.2			CLAY, hard, semi-moist, tan, fat, with limestone fragments. [Leona Formation] (CH)							SS: 22-26-27
988.2		10								
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13753286.99, 2064888.82)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger: KC** **Organization: HVJ.**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-25	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	254+48.17	Grnd. Elev.	1000.04 ft
		Offset	10.92	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 7" asphaltic concrete, 14" tan flex base							
998.2			CLAY, very stiff, moist, dark brown, fat, with calcareous inclusions. [Leona Formation] (CH)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5						21.7	75	52		Passing No. 200 Sieve: 96%
										PP = 4.5+ tsf
										PP = 4.5+ tsf
991.2			CLAY, hard, semi-moist, brown, fat, calcareous, with ferrous staining. [Leona Formation] (CH)							
990.		10								
15										
20										

Remarks: Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13754210.26, 2065318.46)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger: KC** **Organization: HVJ**

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GEOTECHNICAL PAVEMENT BORE DATA

SHEET 7 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	498
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar County	Hole	P-26	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/11/2017
CSJ	2230-01-020, 2230-01-021	Station	262+17.95	Grnd. Elev.	1004.18 ft
		Offset	12.10	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 8" asphaltic concrete, 13" tan flex base							
1002.4			CLAY, hard, moist, dark brown to dark reddish brown, fat, calcareous, with trace gravel. [Leona Formation] (CH)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5										PP = 4.5+ tsf
						21.7	71	49		Passing No. 200 Sieve: 96%
996.2			LIMESTONE, soft, white to tan, highly to completely weathered, with tan lean clay infill. [Buda Limestone]							SS: 50/0"
994.2 10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13754895.50, 2065659.47)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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DRILLING LOG

1 of 1

WinCore
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County	Bexar County	Hole	P-27	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/14/2017
CSJ	2230-01-020, 2230-01-021	Station	270+74.22	Grnd. Elev.	1005.42 ft
		Offset	12.42	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 8" asphaltic concrete, 13" tan flex base							
1003.6			CLAY, hard, moist, dark brown to tan, fat, sandy, with calcareous inclusions and limestone fragments. [Leona Formation] (CH)			14.2	53	36		PP = 4.5+ tsf Passing No. 200 Sieve: 54%
1001.9			LIMESTONE, hard, tan, moderately weathered. [Buda Limestone]							SS: 50/0"
1000.45										-auger refusal at 5'
10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 5 feet, and groundwater was not encountered at that depth. (N,E)= (13755392.22, 2066332.37)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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GEOTECHNICAL PAVEMENT BORE DATA

SHEET 8 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	499
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	P-28	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/14/2017
CSJ	2230-01-020, 2230-01-021	Station	283+64.67	Grnd. Elev.	1005.23 ft
		Offset	233.66	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 7" asphaltic concrete, 16" tan flex base							
1003.3			SAND, compact, moist, reddish brown, clayey, with calcareous inclusions and limestone fragments. [Leona Formation] (SC)							PP = 4.5+ tsf
										PP = 4.5+ tsf
5						11.1	42	21		Passing No. 200 Sieve: 43%
999.2										-auger refusal at 6.5'
998.7			LIMESTONE, hard, tan to white, moderately weathered. [Edwards Limestone]							
10										
15										
20										

Remarks: Boring advanced by dry drilling techniques to 6 feet, and groundwater was not encountered at that depth. (N,E)= (13755209.27, 2067701.55)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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DRILLING LOG

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County	Bexar County	Hole	P-29	District	San Antonio
Highway	FM 1560	Structure	Pavement	Date	8/14/2017
CSJ	2230-01-020, 2230-01-021	Station	287+09.20	Grnd. Elev.	1004.95 ft
		Offset	881.46	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 9.5" asphaltic concrete, 13" tan flex base							
1003.1			CLAY, very stiff, moist, tan, fat, calcareous. [Residual] (CH)							PP = 2.5 tsf
						30	64	39		Passing No. 200 Sieve: 98%
5										SS: 13-29-20
998.5			LIMESTONE, soft to hard, highly to completely weathered, tan to white, with tan clay infill. [Edwards Limestone]							SS: 10-30-50/3.5"
										SS: 50/4.5"
995. 10										
15										
20										

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 feet, and groundwater was not encountered at that depth. (N,E)= (13754890.82, 2068413.59)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: KC Organization: HVJ

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GEOTECHNICAL PAVEMENT BORE DATA

SHEET 9 OF 9

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	500
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-12	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/9/19
CSJ	2230-01-021	Station		Grnd. Elev.	1047.27 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1046.3			PAVEMENT, 3.25" Asphalt over 9" Base							
			GRAVEL, FILL, light tan, clayey, with limestone fragments (GC)							SS= 8-26-27
1044.3			CLAY, very stiff, dark brown to tan, sandy, fat [Leona Formation] (CH)			24				SS= 3-4-6
5		26 (6) 19 (6)								
1040.8			LIMESTONE, soft to very hard, tan, highly weathered, marly, with interbedded clay seams [Buda Limestone]			11				(-)No. 200=52%; SS= 50/4" interbedded marl at 6.5'
10		50 (0.5) 50 (0)								
						4				SS= 50/4"
1032.315		50 (1) 50 (0.25)	CLAY, very hard, tan and gray, marly, lean [Del Rio Clay] (CL)							RUN:15-20';Rec=0%;RQD=0%
1027.320		23 (6) 30 (6)								

Remarks: Air Rotary: 0' to 15'; Wet Coring: 15' to 20', Wet Rotary: 20' to 30'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13751619.51, Easting: 2064029.59. Groundwater was not encountered prior to rock coring. Caved at 10'.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger:** M. Amaya **Organization:** Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-12	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/9/19
CSJ	2230-01-021	Station		Grnd. Elev.	1047.27 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, very stiff to hard, tan, with ferrous stains [Del Rio Clay] (CL)			15				
25		25 (6) 50 (6)								
1017.330		50 (6) 50 (2.5)				16	44	29		SS= 18-37-20
35										
40										

Remarks: Air Rotary: 0' to 15'; Wet Coring: 15' to 20', Wet Rotary: 20' to 30'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13751619.51, Easting: 2064029.59. Groundwater was not encountered prior to rock coring. Caved at 10'.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore **Logger:** M. Amaya **Organization:** Arias Geoprofessionals

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GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 1 OF 6

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	501
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-13	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/10/19
CSJ	2230-01-021	Station		Grnd. Elev.	1045.28 ft
		Offset		GW Elev.	1029.28 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 4" Asphalt over 8" Base			4				
1044.3			SAND, FILL, tan, clayey, with gravel (SC)			6				(-)No. 200=43%; SS=8-26-50/5.5"
1042.3			GRAVEL, very dense, tan, clayey, with sand [Leona Formation] (GC)			5				(-)No. 200=23%; SS=10-16-50/5"
1040.35		50 (0.5) 50 (0)	LIMESTONE, very hard to soft, light tan, marly [Buda Limestone]							RUN:5-10';Rec=43%;RQD=23% weathered from 5' to 10'
10		50 (5) 50 (3)								RUN:10-15';Rec=97%;RQD=92% DD= 161 pcf; Uc= 1077 tsf
1030.315		22 (6) 17 (6)	CLAY, stiff to very stiff, tan and gray, with gravel, sandy lean [Del Rio Clay] (CL)			18	40	25		(-)No. 200=52%; SS=27-21-11
20		24 (6) 37 (6)								

Remarks: Air Rotary: 0' to 5'; Wet Coring: 5' to 15', Wet Rotary: 15' to 30'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13751772.22, Easting: 2064148.41. Groundwater was encountered at 16' during drilling and measured at 16.5' about 15 minutes after completion.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-13	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/10/19
CSJ	2230-01-021	Station		Grnd. Elev.	1045.28 ft
		Offset		GW Elev.	1029.28 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, stiff to very stiff, tan and gray, with gravel, sandy lean [Del Rio Clay] (CL)							
1023.8			CLAY, very hard to hard, tan, gravelly, lean [Del Rio Clay] (CL)			20	37	24		(-)No. 200=59%; SS=15-14-18
25		50 (2) 50 (2)				19				SS=9-13-10
1015.330		40 (6) 49 (6)								
35										
40										

Remarks: Air Rotary: 0' to 5'; Wet Coring: 5' to 15', Wet Rotary: 15' to 30'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13751772.22, Easting: 2064148.41. Groundwater was encountered at 16' during drilling and measured at 16.5' about 15 minutes after completion.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 2 OF 6

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$**$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

502

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-14	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/21/19
CSJ	2230-01-021	Station		Grnd. Elev.	1027.89 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1026.9			PAVEMENT, 3.75" Asphalt over 8" Base							
			SAND, light tan to tan, clayey, with gravel and limestone fragments [Leona Formation] (SC)			3				SS= 30-38-29
						5				(-)No. 200=19%; SS= 40-50/2"
1022.95		45 (6) 41 (6)								
			CLAY, hard to very stiff, tan and gray, with calcareous deposits and ferrous stains, fat [Del Rio Clay] (CH)			13	55	39		(-)No. 200=86%; SS= 11-10-11
						15	53	35		(-)No. 200=91%; SS= 8-12-10 with gypsum crystals at 8.5'
10		34 (6) 40 (6)								
1016.4			CLAY, hard, reddish tan and gray, with gypsum crystals [Del Rio Clay] (CH)			17				SS= 14-25-19
15		50 (4.5) 50 (2.5)								
						13	59	39		(-)No. 200=86%; SS= 18-27-30
20		50 (3.5) 50 (2)								

Remarks: Air Rotary: 0' to 33'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752104.54, Easting: 2064364.78. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-14	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/21/19
CSJ	2230-01-021	Station		Grnd. Elev.	1027.89 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, hard, reddish tan and gray, with gypsum crystals [Del Rio Clay] (CH)			15				SS= 25-40-45
25		50 (3.5) 50 (2.5)								
1001.4			CLAY, very hard, tan and gray, with calcareous deposits, ferrous stains and gypsum crystals, lean [Del Rio Clay] (CL)			17	46	29		(-)No. 200=85%; SS= 25-36-44
30		50 (4) 50 (4)								
						20				SS= 18-37-43
994.9										
35										
40										

Remarks: Air Rotary: 0' to 33'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752104.54, Easting: 2064364.78. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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FM 1560
GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 3 OF 6

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	503
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-15	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/21/19
CSJ	2230-01-021	Station		Grnd. Elev.	1013.62 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1012.6			PAVEMENT, 5.5" Asphalt over 6" Base			5				
			GRAVEL, compact to slightly compact, brown, clayey, with sand [Leona Formation] (GC)			7	47	29		(-)No. 200=20%
						6				SS= 15-23-25
5		22 (6) 38 (6)								
						8				SS= 10-12-12
1005.6			CLAY, very stiff to stiff, tan, with sand and interbedded gypsum crystals and calcareous deposits, lean [Del Rio Clay] (CL)							SS=11-9-10 with calcareous deposits at 8'
10		17 (6) 20 (6)								
						14				SS= 7-5-8
15		34 (6) 20 (6)								
						19				SS= 8-11-17
20		23 (6) 34 (6)								

Remarks: Air Rotary: 0' to 33'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf).
Survey Data - Northing: 13752290.52, Easting: 2064450.7. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-15	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/21/19
CSJ	2230-01-021	Station		Grnd. Elev.	1013.62 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, very stiff to stiff, tan, with sand and interbedded gypsum crystals and calcareous deposits, lean [Del Rio Clay] (CL)			16	43	28		(-)No. 200=71% increased gypsum content below 21.5'
25		7 (6) 27 (6)								
						10				DD= 120 pcf; Uc= 8.07 tsf with ferrous stains and gypsum crystals below 26.5'
983.6 30		50 (3.75) 50 (3.5)	CLAY, hard, tan, with gypsum crystals and calcareous deposits, lean [Del Rio Clay] (CL)			14	45	28		(-)No. 200=95%
980.6										
35										
40										

Remarks: Air Rotary: 0' to 33'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf).
Survey Data - Northing: 13752290.52, Easting: 2064450.7. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 4 OF 6

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

504

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-16	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	1001.52 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
1000.			PAVEMENT, 13" Asphalt over 5" Base			3				
			GRAVEL, FILL, compact, brown, clayey, with sand (GC)			5				(-)No. 200=19%; SS= 17-11-11 with asphalt fragments at 2'
						4				
996.5 5		35 (6) 38 (6)	SAND, compact to dense, dark brown, clayey, with gravel [Leona Formation] (SC)			6	59	40		(-)No. 200=46%; SS= 10-10-10
10		50 (5.5) 50 (3.5)				6				(-)No. 200=36%; SS= 22-18-42
988.5			SAND, dense, brown and tan, poorly-graded, with sand and clay [Leona Formation] (SP-SC)			4				(-)No. 200=11%
986.5 15		20 (6) 22 (6)	GRAVEL, dense, tan, clayey, with sand and limestone fragments [Leona Formation] (CG)			6	31	19		
981.5 20		50 (1.25) 50 (0.5)								

Remarks: Air Rotary: 0' to 30'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752725.54, Easting: 2064642.7. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-16	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	1001.52 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan [Edwards Limestone]			4				
25		50 (0) 50 (0)				6				
971.5 30		50 (0) 50 (0)								
35										
40										

Remarks: Air Rotary: 0' to 30'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752725.54, Easting: 2064642.7. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 5 OF 6

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$**$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	505
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-17	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	999.99 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
999.			PAVEMENT, 12" Asphalt			2				
			SAND, slightly compact, light gray, clayey [Leona Formation] (SC)			5	23	12		(-)No. 200=28%; SS=13-20-9
5		8 (6) 25 (6)								
993.5			GRAVEL, slightly compact to compact, poorly-graded, with clay and sand [Leona Formation] (GP-GC)			4				(-)No. 200=9%; SS=8-17-13
10		22 (6) 34 (6)								
988.5			GRAVEL, compact, poorly-graded, with limestone fragments [Leona Formation] (GP)			2				SS=12-24-13
15		27 (6) 39 (6)								
						3				(-)No. 200=13%
20		34 (6) 32 (6)				1				

Remarks: Air Rotary: 0' to 25'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13753006.33, Easting: 2064776.22. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	RW-17	District	San Antonio
Highway	FM 1560	Structure	Retaining Wall	Date	10/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	999.99 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, compact, poorly-graded, with limestone fragments [Leona Formation] (GP)							
977.			LIMESTONE, hard, light tan [Edwards Limestone]			1				(-)No. 200=9%
975. 25		50 (2) 50 (1)								
30										
35										
40										

Remarks: Air Rotary: 0' to 25'; SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13753006.33, Easting: 2064776.22. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: A. Steshenko Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL RETAINING WALL BORE DATA

SHEET 6 OF 6

DESIGN: EL	DRAFT: EL	CHECK:

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	506

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B- 9	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/24/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.79 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 4.5" Asphalt over 12" Base			16	54	33		SS= 6-7-10
943.4			CLAY, very stiff, dark brown, fat [Leona Formation] (CH)							
						16				(-)No. 200=86%; SS= 4-10-14
5		18 (6) 23 (6)								
938.3			GRAVEL, compact to loose, reddish tan, clayey, with sand and ferrous stains [Leona Formation] (GC)			12	51	32		(-)No. 200=48%; SS= 10-7-9
10		17 (6) 26 (6)								
						9	44	27		(-)No. 200=46%; SS= 12-13-14
15		9 (6) 9 (6)								
928.3			CLAY, stiff, tan and gray, with ferrous stains, fat [Pecan Gap Chalk] (CH)			25	77	52		SS= 4-8-12
20		18 (6) 17 (6)								

Remarks: Air Rotary: 0' to 25'; Wet Coring: 25' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743669.38, Easting: 2059001.95. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B- 9	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/24/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.79 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, stiff, tan and gray, with ferrous stains, fat [Pecan Gap Chalk] (CH)			17				SS= 9-13-15
919.8	25	50 (0) 50 (0)	LIMESTONE, very hard, tan, with ferrous stains and clay partings [Pecan Gap Chalk]			11				RUN:25-30';Rec=100%;RQD=76%
										45° fracture at 27.5'
	30	50 (0) 50 (0)				6				RUN:30-35';Rec=100%;RQD=98%
										DD= 140 pcf; Uc= 50 tsf
	35	50 (0.5) 50 (0)								RUN:35-40';Rec=98%;RQD=92%
	40	50 (0) 50 (0)				7	26	11		RUN:40-45';Rec=100%;RQD=78%

Remarks: Air Rotary: 0' to 25'; Wet Coring: 25' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743669.38, Easting: 2059001.95. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 1 OF 16

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6	SEE TITLE SHEET		$**$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	507
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B- 9	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/24/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.79 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, with ferrous stains and clay partings [Pecan Gap Chalk]							DD= 139 pcf; Uc= 67 tsf
45		50 (0.5) 50 (0.25)								RUN:45-50';Rec=100%;RQD=63%
50		50 (0.25) 50 (0)								RUN:50-55';Rec=94%;RQD=74%
889.8 55		50 (0) 50 (0)	LIMESTONE, very hard, tan and gray, with clay seams at occasional depths [Pecan Gap Chalk]			5				RUN:55-60';Rec=99%;RQD=93% DD= 146 pcf; Uc= 191 tsf
60		50 (0) 50 (0)								RUN:60-65';Rec=100%;RQD=100%

Remarks: Air Rotary: 0' to 25'; Wet Coring: 25' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743669.38, Easting: 2059001.95. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B- 9	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/24/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.79 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan and gray, with clay seams at occasional depths [Pecan Gap Chalk]							
65		50 (0) 50 (0)								RUN:65-70';Rec=100%;RQD=100%
70		50 (0) 50 (0)				4				RUN:70-75';Rec=86%;RQD=79% DD= 144 pcf; Uc= 173 tsf
75		50 (0) 50 (0)								RUN:75-80';Rec=90%;RQD=72%
864.8 80		50 (0) 50 (0)								

Remarks: Air Rotary: 0' to 25'; Wet Coring: 25' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743669.38, Easting: 2059001.95. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 2 OF 16

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	508
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-10
Structure Bridge
Station
Offset

District San Antonio
Date 9/26/19
Grnd. Elev. 944.92 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
944.			PAVEMENT, 4" Asphalt over 3" Base over 4" Old Asphalt			4				
			CLAY, dark brown, with limestone fragments, gravelly, fat [Leona Formation] (CH)			27				SS= 8-5-8
						20	63	42		(-)No. 200=60%; PP= 4.5+ tsf DD= 101 pcf; Uc= 4.78 tsf
939.9	5	7 (6) 9 (6)								
			SAND, loose, tan and brown, clayey, with gravel [Leona Formation] (SC)			5	36	20		(-)No. 200=12%; SS= 14-14-20
936.9						13	38	22		(-)No. 200=50%; SS= 7-8-9
	10	19 (6) 19 (6)	CLAY, stiff, tan, gravelly, with sand, calcareous deposits and ferrous stains, lean [Leona Formation] (CL)							
933.4						16				SS= 6-7-12
			CLAY, stiff, tan, with gravel and calcareous deposits, fat [Leona Formation] (CH)			21	61	40		(-)No. 200=79%; PP= 4.0 tsf
	15	18 (6) 16 (6)								
926.4			CLAY, hard, tan and gray, with ferrous stains, lean [Pecan Gap Chalk] (CL)			20	75	52		SS= 8-10-14 with ferrous stains below 18'
	20	37 (6) 44 (6)								

Remarks: Air Rotary: 0' to 30'; Wet Coring: 30' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743808.37, Easting: 2059095.84. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: J. Ramos Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-10
Structure Bridge
Station
Offset

District San Antonio
Date 9/26/19
Grnd. Elev. 944.92 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, hard, tan and gray, with ferrous stains, lean [Pecan Gap Chalk] (CL)			7	44	28		SS= 23-30-50/3.5"
						7				
919.9	25	50 (1) 50 (0.5)								
			MARL, very hard, tan, with clay partings, highly weathered [Pecan Gap Chalk]							SS= 50/2"
914.9	30	50 (1.25) 50 (0.75)				10	29	15		RUN:30-35';Rec=97%;RQD=63% DD= 140 pcf; Uc= 110 tsf
			LIMESTONE, hard to very hard, tan and gray, with clay partings [Pecan Gap Chalk]							
	35	50 (1) 50 (0.5)								RUN:35-40';Rec=95%;RQD=35%
										highly weathered from 38' to 40'
	40	50 (0.75) 50 (0.5)								RUN:40-45';Rec=57%;RQD=25%

Remarks: Air Rotary: 0' to 30'; Wet Coring: 30' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743808.37, Easting: 2059095.84. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: J. Ramos Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 3 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	509

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-10	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/26/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.92 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan and gray, with clay partings [Pecan Gap Chalk]							
45		50 (0.5) 50 (0)								RUN:45-50';Rec=97%;RQD=80%
50		50 (0.75) 50 (0.25)				7				RUN:50-55';Rec=100%;RQD=68% DD= 132 pcf; Uc= 86 tsf
										vertical fracture from 53.5' to 54.5'
889.9 55		50 (1) 50 (0.5)								RUN:55-60';Rec=83%;RQD=83%
			LIMESTONE, hard to very hard, light tan, with ferrous stains and occasional clay seams at various depths [Pecan Gap Chalk]							
60		50 (0.5) 50 (0.25)								RUN:60-65';Rec=72%;RQD=12%

Remarks: Air Rotary: 0' to 30'; Wet Coring: 30' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743808.37, Easting: 2059095.84. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: J. Ramos Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-10	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/26/19
CSJ	2230-01-021	Station		Grnd. Elev.	944.92 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, light tan, with ferrous stains and occasional clay seams at various depths [Pecan Gap Chalk]							fractured from 60' to 65'
65		50 (1) 50 (0)								RUN:65-70';Rec=80%;RQD=53%
70		50 (0.5) 50 (0.25)				4				RUN:70-75';Rec=100%;RQD=70% DD= 148 pcf; Uc= 188 tsf
										vertical fracture from 74.5' to 75'
75		50 (0.75) 50 (0.25)								RUN:75-80';Rec=100%;RQD=77%
864.9 80		50 (0.5) 50 (0)								

Remarks: Air Rotary: 0' to 30'; Wet Coring: 30' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13743808.37, Easting: 2059095.84. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: J. Ramos Organization: Arias Geoprofessionals

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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

SHEET 4 OF 16

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	510
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-11	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.72 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
999.8			PAVEMENT, 11" Asphalt							
			CLAY, soft, dark brown, sandy, with gravel and calcareous deposits [Leona Formation] (CL)			14	39	22		(-)No. 200=57%; SS=6-15-9 with pea gravel from 1' to 2.5'
						12				SS=9-9-6
5		8 (6) 10 (6)								
						12				
990.7	10	20 (6) 40 (6)	GRAVEL, compact, light tan and reddish brown, with ferrous stains, clayey, with sand [Leona Formation] (GC)			4	42	26		(-)No. 200=17%; SS=19-22-20
15		11 (6) 42 (6)								
984.2			GRAVEL, compact, light tan, clayey, with sand and ferrous stains [Leona Formation] (GC)			8	35	23		(-)No. 200=26%; SS=46-30-42
980.7	20	50 (0.5) 50 (0)								RUN:20-25';Rec=90%;RQD=63%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752838.89, Easting: 2064675.36. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-11	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/22/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.72 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, with occasional calcite crystal [Edwards Limestone]							DD= 153 pcf; Uc= 437 tsf
25		50 (0) 50 (0)								RUN:25-30';Rec=99%;RQD=98%
30		50 (0.25) 50 (0)								RUN:30-35';Rec=100%;RQD=88%
35		50 (0) 50 (0.3)								RUN:35-40';Rec=100%;RQD=94% DD= 151 pcf; Uc= 340 tsf
960.7	40	50 (0) 50 (0)								RUN:40-45';Rec=99%;RQD=81%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752838.89, Easting: 2064675.36. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: M. Amaya Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 5 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	511

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County Bexar | Hole B-11 | District San Antonio
Highway FM 1560 | Structure Bridge | Date 9/22/19
CSJ 2230-01-021 | Station | Grnd. Elev. 1000.72 ft
Offset | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC LL PI Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, with ferrous stains [Edwards Limestone]				
45		50 (0) 50 (0)					RUN:45-50';Rec=100%;RQD=93%
50		50 (0) 50 (0)					RUN:50-55';Rec=100%;RQD=98% DD= 160 pcf; Uc= 515 tsf with occasional calcite crystal and
55		50 (0.5) 50 (0)					RUN:55-60';Rec=98%;RQD=88%
60		50 (0.25) 50 (0)					RUN:60-65';Rec=81%;RQD=66%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752838.89, Easting: 2064675.36. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic | Logger: M. Amaya | Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County Bexar | Hole B-11 | District San Antonio
Highway FM 1560 | Structure Bridge | Date 9/22/19
CSJ 2230-01-021 | Station | Grnd. Elev. 1000.72 ft
Offset | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC LL PI Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, with ferrous stains [Edwards Limestone]				with seashell from 60' to 65'
935.7 65		50 (0) 50 (0)	LIMESTONE, very hard, light tan, weathered [Edwards Limestone]				RUN:65-70';Rec=94%;RQD=84% DD= 140 pcf; Uc= 101 tsf
70		50 (0) 50 (0)					RUN:70-75';Rec=65%;RQD=23% highly weathered from 70' to 75' light tan below 70'
75		50 (0) 50 (0)					RUN:75-80';Rec=32%;RQD=14% fractured below 75'
920.7 80		50 (0) 50 (0)					

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752838.89, Easting: 2064675.36. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic | Logger: M. Amaya | Organization: Arias Geoprofessionals

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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

SHEET 6 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	512

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-12	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/29/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.35 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			PAVEMENT, 12" Asphalt over 6" Base							
998.9						8				(-)No. 200=30%; SS= 6-16-20
			GRAVEL, compact, dark brown, clayey, with sand [Leona Formation] (GC)							
						7				SS= 5-5-6
5		26 (6) 34 (6)								
						10	61	39		(-)No. 200=41%; SS= 6-8-10
10		33 (6) 45 (6)								
988.9			GRAVEL, compact, reddish tan, clayey, with sand [Leona Formation] (GC)			7	45	28		(-)No. 200=19%; SS= 20-21-35
15		18 (6) 27 (6)								
						4				SS= 8-20-12
980.4	20	50 (0.3) 50 (1.5)								RUN:20-25';Rec=68%;RQD=52%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752937.07, Easting: 2064740.33. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-12	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/29/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.35 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, with ferrous stains [Edwards Limestone]							DD= 159 pcf; Uc= 850 tsf
25		50 (0.5) 50 (0.3)								RUN:25-30';Rec=69%;RQD=53%
970.4	30	50 (1.5) 50 (0.5)	LIMESTONE, hard to soft, tan, highly weathered [Edwards Limestone]							RUN:30-35';Rec=52%;RQD=0% with clay seams from 33' to 40' highly fractured from 30' to 33'
35		23 (6) 50 (3.5)								RUN:35-40';Rec=30%;RQD=0%
	40	50 (0.25) 50 (0)								RUN:40-45';Rec=90%;RQD=28%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752937.07, Easting: 2064740.33. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 7 OF 16

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$**$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	513
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

DRILLING LOG

3 of 4

WinCore Version 3.3

County	Bexar	Hole	B-12	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/29/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.35 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to soft, tan, highly weathered [Edwards Limestone]							DD= 150 pcf; Uc= 545 tsf
										interbedded seashell at various depths below 40'
955.4 45		50 (0.5) 50 (0.25)								RUN:45-50';Rec=45%;RQD=8%
			LIMESTONE, very hard, light tan, highly weathered, with occasional calcite crystal [Edwards Limestone]							
50		50 (0.25) 50 (0)								RUN:50-55';Rec=38%;RQD=0%
55		50 (2) 50 (1)								RUN:55-60';Rec=38%;RQD=0%
										porous from 55' to 70'
60		50 (1.5) 50 (1)								RUN:60-65';Rec=23%;RQD=0%

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752937.07, Easting: 2064740.33. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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DRILLING LOG

4 of 4

WinCore Version 3.3

County	Bexar	Hole	B-12	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/29/19
CSJ	2230-01-021	Station		Grnd. Elev.	1000.35 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, highly weathered, with occasional calcite crystal [Edwards Limestone]							with calcareous clay seams from 60' to 65'
65		50 (1.25) 50 (0.75)								RUN:65-70';Rec=25%;RQD=0%
70		50 (0.5) 50 (0.25)								RUN:70-75';Rec=73%;RQD=23%
										DD= 142 pcf; Uc= 308 tsf
75		50 (0.5) 50 (0)								RUN:75-80';Rec=50%;RQD=16%
										chert from 75' to 80'
920.4 80		50 (1.75) 50 (1)								

Remarks: Air Rotary: 0' to 20'; Wet Coring: 20' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13752937.07, Easting: 2064740.33. Groundwater was not encountered prior to rock coring.

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: M. Amaya Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 8 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$$$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	514

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County Bexar | Hole B-13 | District San Antonio
Highway FM 1560 | Structure Bridge | Date 9/19/19
CSJ 2230-01-021 | Station | Grnd. Elev. 992.81 ft
Offset | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, brown, clayey, with sand [Leona Formation] (GC)			4				(-)No. 200=27%; SS= 7-7-17
990.8			GRAVEL, light tan, clayey, with sand and limestone fragments [Leona Formation] (GC)			1				SS= 3-5-13
987.8	5	50 (5) 50 (1)	LIMESTONE, soft to very hard, light tan, possible boulders [Buda Limestone]							
	10	50 (0) 50 (0)								
981.8			GRAVEL, slightly compact, tan, clayey, with sand and limestone fragments, highly weathered [Buda Limestone] (GC)							
	15	19 (6) 15 (6)								SS= 5-7-8
972.8	20	22 (6) 22 (6)								

Remarks: Air Rotary: 0' to 35'; Wet Coring: 35' to 75', Wet Rotary: 75' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755553.11, Easting: 2066872.36. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic | Logger: L. Arizola | Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County Bexar | Hole B-13 | District San Antonio
Highway FM 1560 | Structure Bridge | Date 9/19/19
CSJ 2230-01-021 | Station | Grnd. Elev. 992.81 ft
Offset | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, very stiff to very hard, tan and gray, with ferrous stains, fat [Del Rio Clay] (CH)			19	53	34		(-)No. 200=97%; SS= 2-7-11
	25	50 (3) 50 (1)								with gravel at 25'
966.3			CLAY, very stiff, tan and gray, with ferrous stains and gypsum crystals [Del Rio Clay] (CL)			18	47	29		SS= 13-22-25
	30	28 (6) 42 (6)				18				SS= 6-18-24
959.8			CLAY-SHALE, hard to very hard, gray to dark gray [Del Rio Clay]							
	35	50 (1) 50 (0.25)				8	55	35		RUN:35-40';Rec=96%;RQD=93% DD= 132 pcf; Uc= 28 tsf
	40	50 (0.5) 50 (0)								RUN:40-45';Rec=97%;RQD=88%

Remarks: Air Rotary: 0' to 35'; Wet Coring: 35' to 75', Wet Rotary: 75' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755553.11, Easting: 2066872.36. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic | Logger: L. Arizola | Organization: Arias Geoprofessionals

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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

SHEET 9 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$$

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR 515

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-13
Structure Bridge
Station
Offset

District San Antonio
Date 9/19/19
Grnd. Elev. 992.81 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY-SHALE, hard to very hard, gray to dark gray [Del Rio Clay]							
947.8 45		50 (1) 50 (1)				4				RUN:45-50';Rec=71%;RQD=58% DD= 139 pcf; Uc= 19 tsf
945.8			LIMESTONE, very hard, tan and gray, with ferrous stains, highly weathered, with clay [Edwards Limestone]							
			LIMESTONE, very hard, tan to light tan, with ferrous stains [Edwards Limestone]							
50		50 (0.5) 50 (0)								RUN:50-55';Rec=100%;RQD=98%
55		50 (0) 50 (0)								RUN:55-60';Rec=97%;RQD=78%
60		50 (0) 50 (0)				1				RUN:60-65';Rec=93%;RQD=85%

Remarks: Air Rotary: 0' to 35'; Wet Coring: 35' to 75', Wet Rotary: 75' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755553.11, Easting: 2066872.36. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic **Logger:** L. Arizola **Organization:** Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-13
Structure Bridge
Station
Offset

District San Antonio
Date 9/19/19
Grnd. Elev. 992.81 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan to light tan, with ferrous stains [Edwards Limestone]							DD= 146 pcf; Uc= 243 tsf
65		50 (0) 50 (0)								RUN:65-70';Rec=98%;RQD=53% with interbedded calcite from 65' to 70'
										fractured below 67'
922.8 70		50 (0) 50 (0)	LIMESTONE, very hard, tan to light tan, extremely weathered, with interbedded clay seams [Edwards Limestone]							RUN:70-75';Rec=58%;RQD=53% possible void from 71' to 73'
917.8 75		6 (6) 5 (6)	CLAY, soft, reddish tan, with calcareous deposits, fat [Edwards Limestone] (CH)							intermittent clay-filled solution features below 75'
						35	74	51		SS=4-4-5
912.8 80		4 (6) 5 (6)								

Remarks: Air Rotary: 0' to 35'; Wet Coring: 35' to 75', Wet Rotary: 75' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755553.11, Easting: 2066872.36. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic **Logger:** L. Arizola **Organization:** Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 10 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	516

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-14
Structure Bridge
Station
Offset

District San Antonio
Date 9/17/19
Grnd. Elev. 986.81 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
985.8			CLAY, dark brown, fat [Leona Formation] (CH)			2	35	19		SS= 8-34-44
			LIMESTONE, very hard, tan, possible boulders, highly weathered [Buda Limestone]							SS= 50/5" RUN:2.5-5';Rec=100%;RQD=53% caving at 3'
981.8 5		13 (6) 15 (6)								
			CLAY, stiff to very stiff, tan, with limestone fragments, fat [Del Rio Clay] (CH)			13				SS= 9-16-18
10		20 (6) 20 (6)								
975.3			CLAY, very stiff to very hard, tan and gray, with ferrous stains and fossils, fat [Del Rio Clay] (CH)			16	63	42		(-)No. 200=96%; SS= 9-19-22
15		31 (6) 26 (6)				16				SS= 10-13-16
20		32 (6) 34 (6)								

Remarks: Air Rotary: 0' to 2.5'; Wet Coring: 2.5' to 5', Wet Rotary: 5' to 32'; Wet Coring: 32' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755502.14, Easting: 2067043.76. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: L. Arizola Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County Bexar
Highway FM 1560
CSJ 2230-01-021

Hole B-14
Structure Bridge
Station
Offset

District San Antonio
Date 9/17/19
Grnd. Elev. 986.81 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, very stiff to very hard, tan and gray, with ferrous stains and fossils, fat [Del Rio Clay] (CH)			19				(-)No. 200=88%; SS= 9-12-22 with gypsum crystals at 21.5'
25		32 (6) 32 (6)				22				SS= 8-12-18
30		50 (3) 50 (1)				15				(-)No. 200=61%; SS= 50/3"
954.8			LIMESTONE, tan, highly weathered [Edwards Limestone]			6				(-)No. 200=29% RUN:32.5-35';Rec=97%;RQD=33%
953.8			LIMESTONE, soft to very hard, tan, extremely weathered, with clay seams [Edwards Limestone]							
35		50 (0.5) 50 (4)								RUN:35-40';Rec=83%;RQD=42%
946.8 40		50 (2) 50 (1.5)				6				RUN:40-45';Rec=100%;RQD=80%

Remarks: Air Rotary: 0' to 2.5'; Wet Coring: 2.5' to 5', Wet Rotary: 5' to 32'; Wet Coring: 32' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755502.14, Easting: 2067043.76. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: L. Arizola Organization: Arias Geoprofessionals

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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

SHEET 11 OF 16

DESIGN: EL	DRAFT: EL	CHECK:

FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	517

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-14	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/17/19
CSJ	2230-01-021	Station		Grnd. Elev.	986.81 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan, moderately weathered, with interbedded clay seams [Edwards Limestone]							DD= 135 pcf; Uc= 95 tsf
45		50 (2) 50 (0.5)								RUN:45-50';Rec=99%;RQD=73%
50		50 (0) 50 (0)								RUN:50-55';Rec=93%;RQD=52%
931.8 55		50 (5) 50 (0)	LIMESTONE, soft to very hard, light tan, extremely weathered, with ferrous stains and calcite crystal [Edwards Limestone]							RUN:55-60';Rec=48%;RQD=27% light tan, with ferrous stains and calcite crystal from 55' to 60'
926.8 60		50 (0) 50 (0)				4				RUN:60-65';Rec=83%;RQD=60%

Remarks: Air Rotary: 0' to 2.5'; Wet Coring: 2.5' to 5', Wet Rotary: 5' to 32'; Wet Coring: 32' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755502.14, Easting: 2067043.76. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: L. Arizola Organization: Arias Geoprofessionals

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-14	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	9/17/19
CSJ	2230-01-021	Station		Grnd. Elev.	986.81 ft
		Offset		GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured [Edwards Limestone]							DD= 150 pcf; Uc= 477 tsf
65		50 (0) 50 (0)								RUN:65-70';Rec=50%;RQD=11%
70		50 (0) 50 (0)								RUN:70-75';Rec=52%;RQD=15%
75		50 (0) 50 (0)								RUN:75-80';Rec=60%;RQD=43% DD= 157 pcf; Uc= 767 tsf
906.8 80		50 (0) 50 (0)								

Remarks: Air Rotary: 0' to 2.5'; Wet Coring: 2.5' to 5', Wet Rotary: 5' to 32'; Wet Coring: 32' to 80'. SS = Split Spoon (with 170lb hammer). PP = Pocket Penetrometer (tsf). Uc = Compressive Strength (tsf). Survey Data - Northing: 13755502.14, Easting: 2067043.76. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Austin Geologic Logger: L. Arizola Organization: Arias Geoprofessionals

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 12 OF 16

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	518
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	BR-3	District San Antonio
Highway	FM 1560	Structure	Bridge	Date 8/04/2017
CSJ	2230-01-020, 2230-01-021	Station	276+00.10	Grnd. Elev. 995.84 ft
		Offset	-92.44	GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, dense to very dense, dry, brown and tan, clayey, with gravel. [Leona Formation] (SC)							SS: 16-26-29
										SS: 20-29-20
										SS: 8-17-21
						2.6	23	10		Passing No. 200 Sieve: 25%
5		20 (6) 50 (5)								
989.3			SAND, dense to very dense, dry to semi-moist, tan and reddish brown, clayey, with gravel. [Leona Formation] (SC)							SS: 12-18-28
						4.9	34	22		Passing No. 200 Sieve: 20%
										SS: 20-36-50/0.5"
10		50 (3) 50 (0.5)								
										SS: 13-22-40
15		50 (3) 50 (4)								
977.8			CLAY, hard to very hard, semi-moist, olive brown, fat, with trace gravel. [Leona Formation] (CH)							SS: 6-18-50/1.5"
20		50 (0) 50 (0)								RUN:20-25';REC:40%;RQD:30%

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 45 feet and wet coring to 60 feet, and groundwater was not encountered. (N,E)= (13755576.59, 2066847.72)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

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DRILLING LOG

WinCore
Version 3.1

County	Bexar County	Hole	BR-3	District San Antonio
Highway	FM 1560	Structure	Bridge	Date 8/04/2017
CSJ	2230-01-020, 2230-01-021	Station	276+00.10	Grnd. Elev. 995.84 ft
		Offset	-92.44	GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, hard to very hard, semi-moist, olive brown, fat, with trace gravel. [Leona Formation] (CH)							
25		42 (6) 26 (6)								SS: 15-23-27
30		37 (6) 50 (4)								
961.8			SHALE, hard, gray, slightly to highly weathered, with clay and silt seams. [Del Rio Clay]							SS: 16-21-32
35		50 (3) 50 (1.5)								
										SS: 26-34-50/4"
40		50 (1) 50 (2)								

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 45 feet and wet coring to 60 feet, and groundwater was not encountered. (N,E)= (13755576.59, 2066847.72)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

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GEOTECHNICAL REPORT AVAILABLE UPON REQUEST

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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

SHEET 13 OF 16

DESIGN: EL	DRAFT: EL	CHECK:	
FED.RD. DIV.NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		$\bullet\bullet$$
STATE	DIST.	COUNTY	519
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	BR-3	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	8/04/2017
CSJ	2230-01-020, 2230-01-021	Station	276+00.10	Grnd. Elev.	995.84 ft
		Offset	-92.44	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			SHALE, hard, gray, slightly to highly weathered, with clay and silt seams. [Del Rio Clay]							SS: 50/1.5"
950.8 45		50 (1) 50 (0.25)								RUN:45-50';REC:73%;RQD:38%
			SHALE, very hard, gray, slightly to highly weathered, moderately to heavily fractured, with clay and silt seams. [Del Rio Clay]							
50		50 (0.5) 50 (0.25)		0	292	11		133		RUN:50-55';REC:72%;RQD:72%
				0	371	13.1		140		
55		50 (0.25) 50 (0.25)		0	296	10.9		140		RUN:55-60';REC:77%;RQD:70%
937.8			LIMESTONE, very hard, tan, slightly to moderately weathered, slightly fractured, vuggy, with fossils. [Edwards Limestone]							
935.8 60		50 (0) 50 (0)								

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 45 feet and wet coring to 60 feet, and groundwater was not encountered. (N,E)= (13755576.59, 2066847.72)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	BR-4	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	8/9/2017
CSJ	2230-01-020, 2230-01-021	Station	279+89.62	Grnd. Elev.	995.77 ft
		Offset	-53.55	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			SAND, slightly compact, semi-moist, dark reddish brown, clayey, with gravel and trace organics. [Leona Formation] (SC)							PP = 4.5+ tsf
						7.6	35	20		SS: 12-9-20 Passing No. 200 Sieve: 23%
990.8 5		50 (5) 50 (4.5)								
			SAND, loose to dense, semi-moist, light tan to brown, clayey, with limestone fragments. [Residual] (SC)							SS: 5-5-6
						7.1	42	25		Passing No. 200 Sieve: 19%
10		5 (6) 6 (6)								SS: 50/3.5"
										SS: 9-50/5"
15		50 (3) 50 (0.25)								
										SS: 50/3"
975.8 20		50 (0.5) 50 (0)								RUN:20-25';REC:53%;RQD:35%

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 25 feet and wet coring to 80 feet, and groundwater was not encountered. (N,E)= (13755472.08, 2067242.92)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Bridge 1-4.CLG

GEOTECHNICAL REPORT AVAILABLE UPON REQUEST

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 14 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	520

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	BR-4	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	8/9/2017
CSJ	2230-01-020, 2230-01-021	Station	279+89.62	Grnd. Elev.	995.77 ft
		Offset	-53.55	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, soft to very hard, tan to white, slightly to moderately weathered, heavily fractured, vuggy, with clay seams. [Edwards Limestone]	0	2822	4.4			151	
25		50 (6) 30 (6)								RUN:25-30';REC:21%;RQD:0%
30		40 (6) 23 (6)								-coring not possible due to limestone being completely fractured with clay layers from 30-35'
35		50 (0.25) 50 (0)		0	660	7.1			147	RUN:35-40';REC:43%;RQD:13%
40		50 (0.5) 50 (0.25)								RUN:40-45';REC:20%;RQD:0%

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 25 feet and wet coring to 80 feet, and groundwater was not encountered. (N,E)= (13755472.08, 2067242.92)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Bridge 1-4.CLG

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	BR-4	District	San Antonio
Highway	FM 1560	Structure	Bridge	Date	8/9/2017
CSJ	2230-01-020, 2230-01-021	Station	279+89.62	Grnd. Elev.	995.77 ft
		Offset	-53.55	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, soft to very hard, tan to white, slightly to moderately weathered, heavily fractured, vuggy, with clay seams. [Edwards Limestone]							-tan highly weathered zone from 42-44'
45		50 (0) 50 (0)								RUN:45-50';REC:18%;RQD:0%
50		50 (0) 50 (0)								RUN:50-55';REC:33%;RQD:6%
55		50 (0) 50 (0)								RUN:55-60';REC:33%;RQD:6%
60		50 (0) 50 (0)								RUN:60-65';REC:16%;RQD:0%

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 25 feet and wet coring to 80 feet, and groundwater was not encountered. (N,E)= (13755472.08, 2067242.92)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

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FM 1560 GEOTECHNICAL BRIDGE BORE DATA

SHEET 15 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	521

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

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DRILLING LOG

WinCore Version 3.1	County	Bexar County	Hole	BR-4	District	San Antonio
	Highway	FM 1560	Structure	Bridge	Date	8/9/2017
	CSJ	2230-01-020, 2230-01-021	Station	279+89.62	Grnd. Elev.	995.77 ft
			Offset	-53.55	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, soft to very hard, tan to white, slightly to moderately weathered, heavily fractured, vuggy, with clay seams. [Edwards Limestone]							
65		50 (0.5) 50 (0.5)								RUN:65-70';REC:38%;RQD:0%
70		50 (0) 50 (0)								RUN:70-75';REC:85%;RQD:6%
75		50 (0) 50 (0)								RUN:75-80';REC:38%;RQD:0%
915.8 80		50 (0.5) 50 (0.5)								

Remarks: Split Spoon N-Values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 25 feet and wet coring to 80 feet, and groundwater was not encountered. (N,E)= (13755472.08, 2067242.92)

The ground water elevation was not determined during the course of this boring.

Driller: Texas GeoBore Logger: LF Organization: HVJ

G:\HVJ Shared Common\AUSTIN\Austin Projects\AG 16 10074.8 FM 1560; Jones and Carter\Wincore\Bridge 1-4.CLG

SUBJECT TO CHANGE
FOR BIDDING PURPOSES - 06/10/2020

GEOTECHNICAL REPORT AVAILABLE UPON REQUEST

Texas Department of Transportation
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FM 1560
GEOTECHNICAL BRIDGE BORE DATA

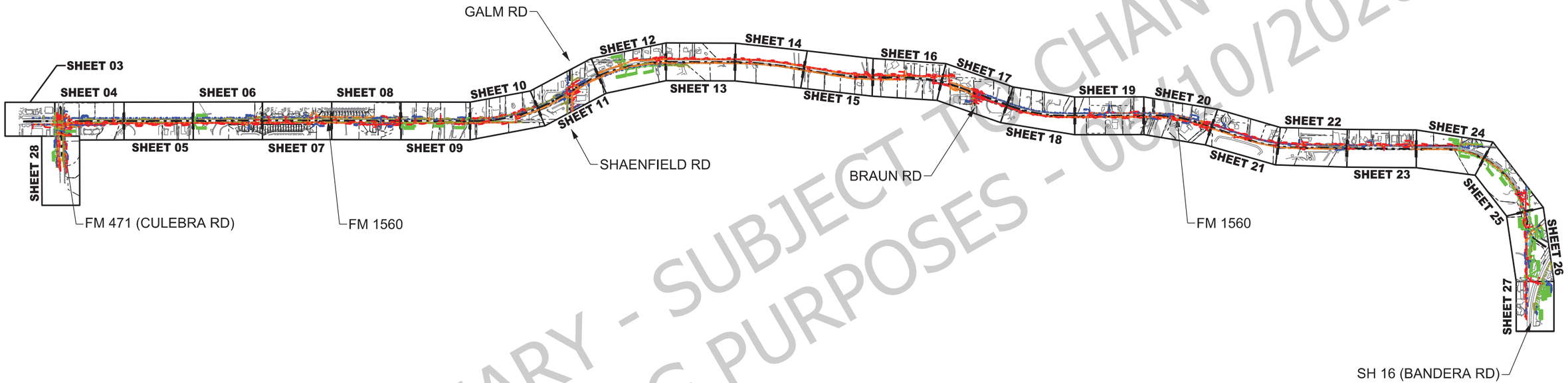
SHEET 16 OF 16

DESIGN: EL	DRAFT: EL	CHECK:
FED.RD. DIV.NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	$\bullet\bullet$

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	522

CONT.	SECT.	JOB	HIGHWAY NO.
2230	01	021	FM 1560

NOT TO SCALE



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

SPECIAL NOTES

1. ALL PIPE SIZES WERE TAKEN FROM UTILITY RECORDS WHERE POSSIBLE. THE UTILITIES DEPICTED WERE INVESTIGATED BY THE RIOS GROUP, INC.. ALL OTHER PLAN INFORMATION, NOTABLY THE BACKGROUND INFORMATION, WAS PROVIDED BY OTHERS AND THE RIOS GROUP, INC. DISCLAIMS RESPONSIBILITY FOR ITS ACCURACY.

2. EXISTING SUBSURFACE UTILITY INVESTIGATIONS WERE COMPLETED ON 07/30/2018. THE RIOS GROUP, INC. EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR NEW UTILITY INSTALLATIONS, MODIFICATIONS, AND/OR ADJUSTMENTS TO EXISTING UTILITIES AFTER THE COMPLETION DATE.

3. UTILITY LOCATIONS ON THESE DRAWINGS ARE INTENDED FOR DESIGN PURPOSES AND NOT CONSTRUCTION. THEY REFLECT SUBSURFACE UTILITIES AT THE TIME OF FIELD INVESTIGATION. CALL TEXAS ONE CALL SYSTEM (800)245-4545 FOR UTILITY LOCATIONS 48 HOURS PRIOR TO ANY WORK.

4. WHERE POSSIBLE, WATER, GAS, AND COMMUNICATION SERVICE LINES WERE DESIGNATED. HOWEVER, SOME SERVICE LINES ARE CONSTRUCTED OF NON-CONDUCTIVE MATERIAL AND UTILITY COMPANY DRAWINGS MAY NOT SHOW SERVICE LINE LOCATIONS. THEREFORE ALL SERVICE LINES MAY NOT BE SHOWN.

QUALITY LEVELS

Quality Level "D" - Information derived from existing records and/or oral collection.

Quality Level "C" - Information obtained by surveying and plotting visible above ground utility features and by using professional judgment in correlating information to Quality Level "D" information.

Quality Level "B" - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates Quality Levels "C" and "D" information to produce Quality Level "B" information.

Quality Level "A" - Locate: Precise horizontal and vertical location of utilities obtained by the actual exposure and subsequent measurement of subsurface utilities at a specific point. Diameters shown are verified visually and may not be exact.

Subsurface Utility Engineering (SUE) Certification

The engineer's seal hereon is to certify that the utilities shown have been investigated in accordance with standard SUE industry practices. Where indicated utility sizes and materials taken from best available records. All other information hereon has been provided by others and is not a part of this certification.

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

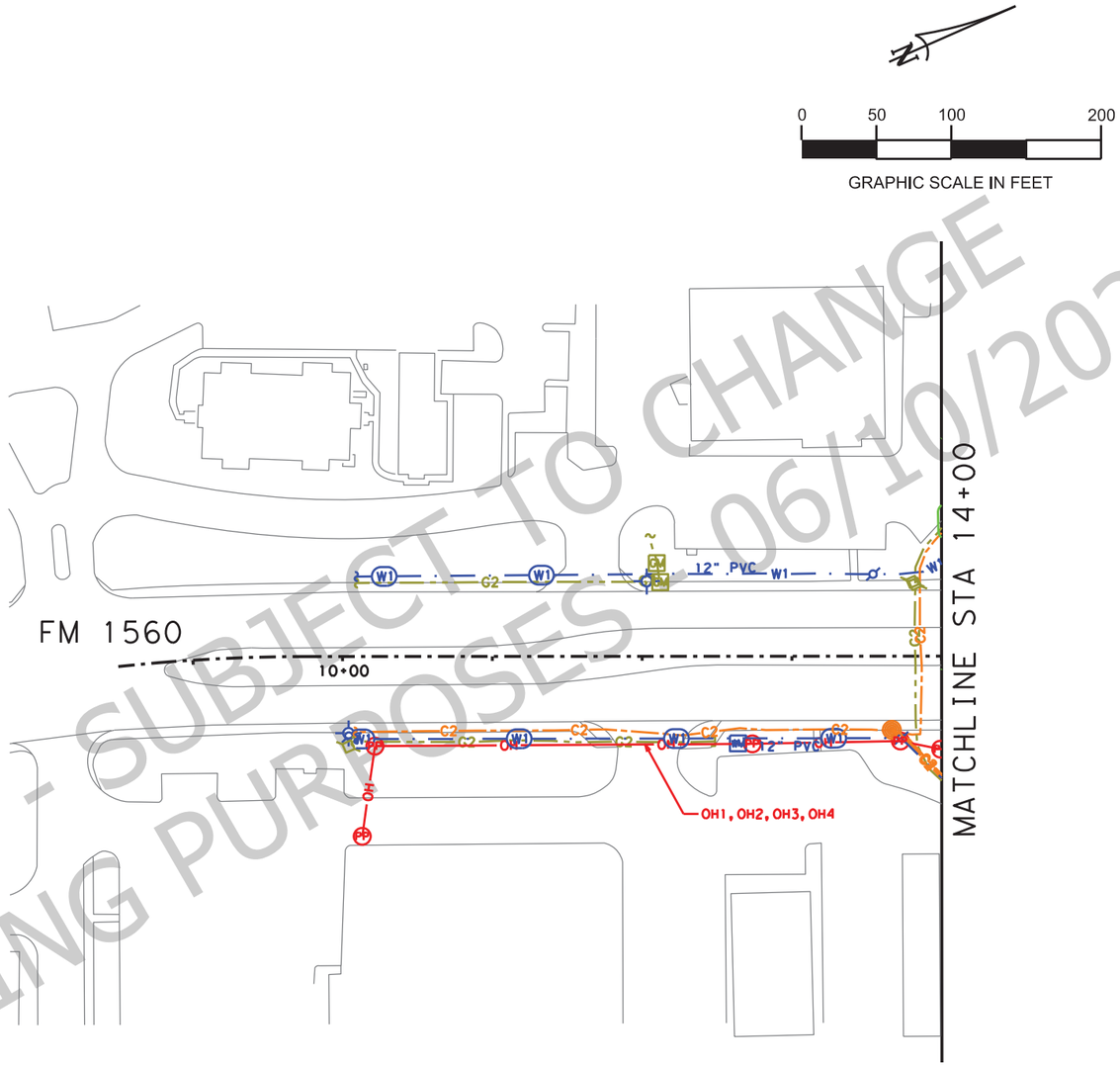
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **523**

SUE PLAN SHEET

LAYOUT INDEX

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		02 OF 28



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LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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The Rios Group, Inc.
TBPE Firm # F-14595

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LICENSED
PROFESSIONAL ENGINEER

10-23-2018

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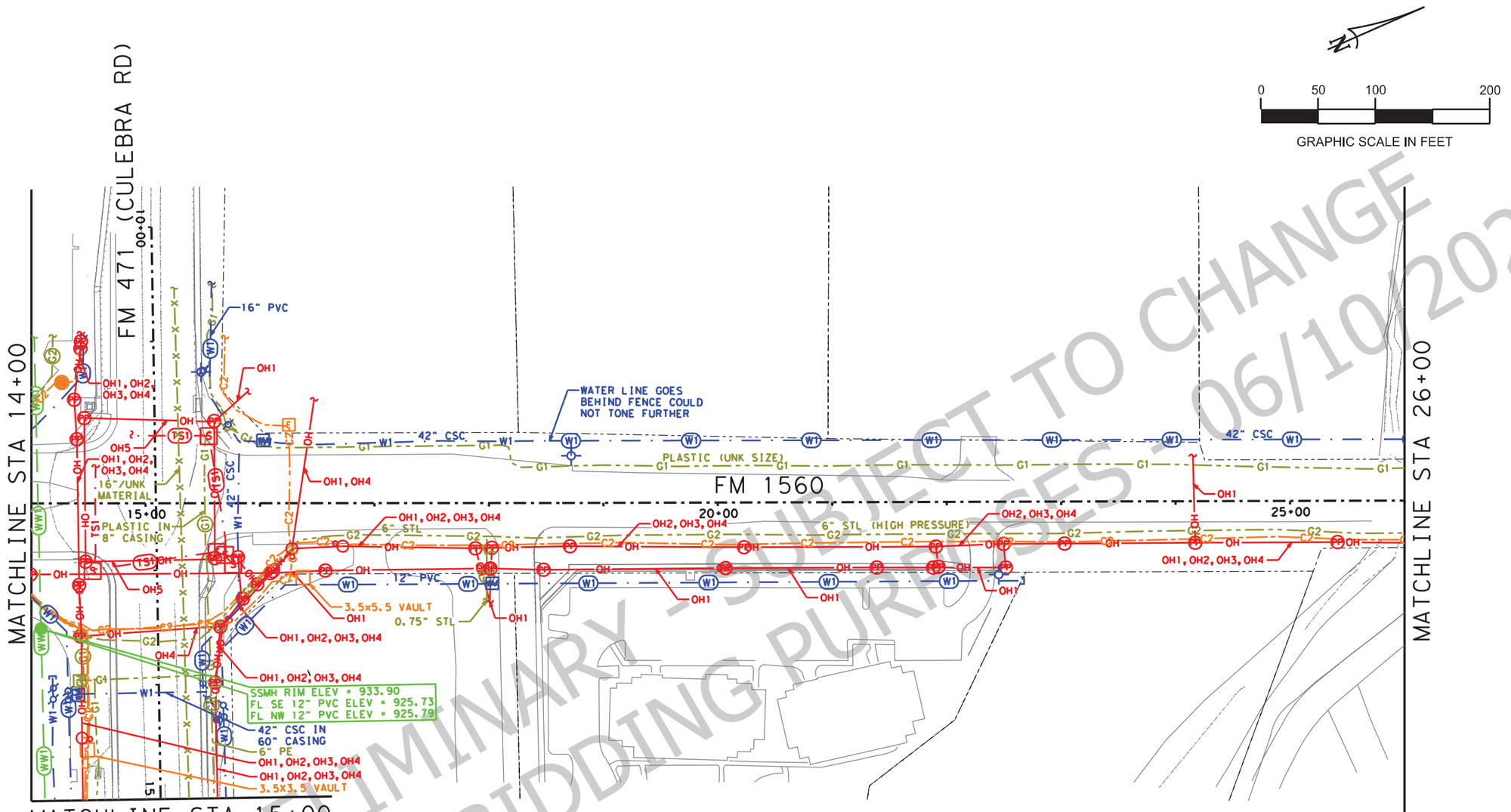
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **524**

SUE PLAN SHEET

BEGIN PROJECT TO STA 14+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		03 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

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PROPOSED UTILITY
UNKNOWN UTILITY

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CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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10-23-2018

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2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **525**

SUE PLAN SHEET

STA 14+00 TO STA 26+00

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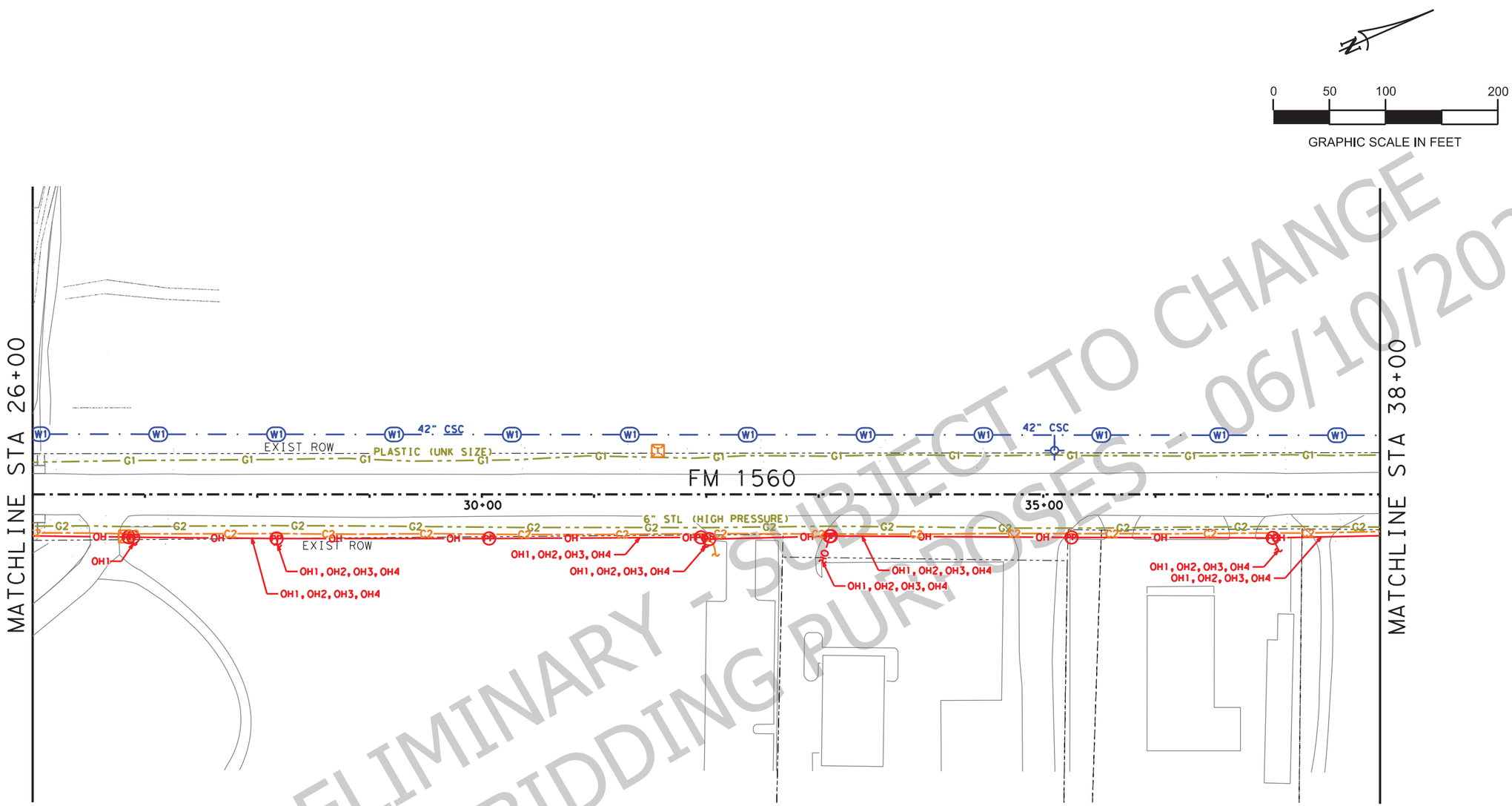
JOCA1701.01		04 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS — QL "B"
AT&T (TELEPHONE) — C1
AT&T (FO/DUCT) — C2
CONTERA (FO/DUCT) — C3
SPECTRUM (TIME WARNER CABLE) — C4
ZAYO (FO/DUCT) — C5

QL "C"/QL "D"
AT&T (TELEPHONE) — C1
AT&T (FO/DUCT) — C2
CONTERA (FO/DUCT) — C3
SPECTRUM (TIME WARNER CABLE) — C4
ZAYO (FO/DUCT) — C5

ELECTRIC / POWER
QL "B"
CPS — E1
QL "C"/QL "D"
CPS — E1

GAS / PETROLEUM
QL "B"
CPS — G1
GREY FOREST — G2
QL "C"/QL "D"
CPS — G1
GREY FOREST — G2

SANITARY SEWER
QL "B"
SAWS — WW1
QL "C"/QL "D"
SAWS — WW1

POTABLE WATER
QL "B"
SAWS — W1
QL "C"/QL "D"
SAWS — W1

TRAFFIC SIGNALS
QL "B"
TXDOT — TS1
QL "C"/QL "D"
TXDOT — TS1

OVERHEAD UTILITIES
QL "C" — OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
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TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
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TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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10-23-2018

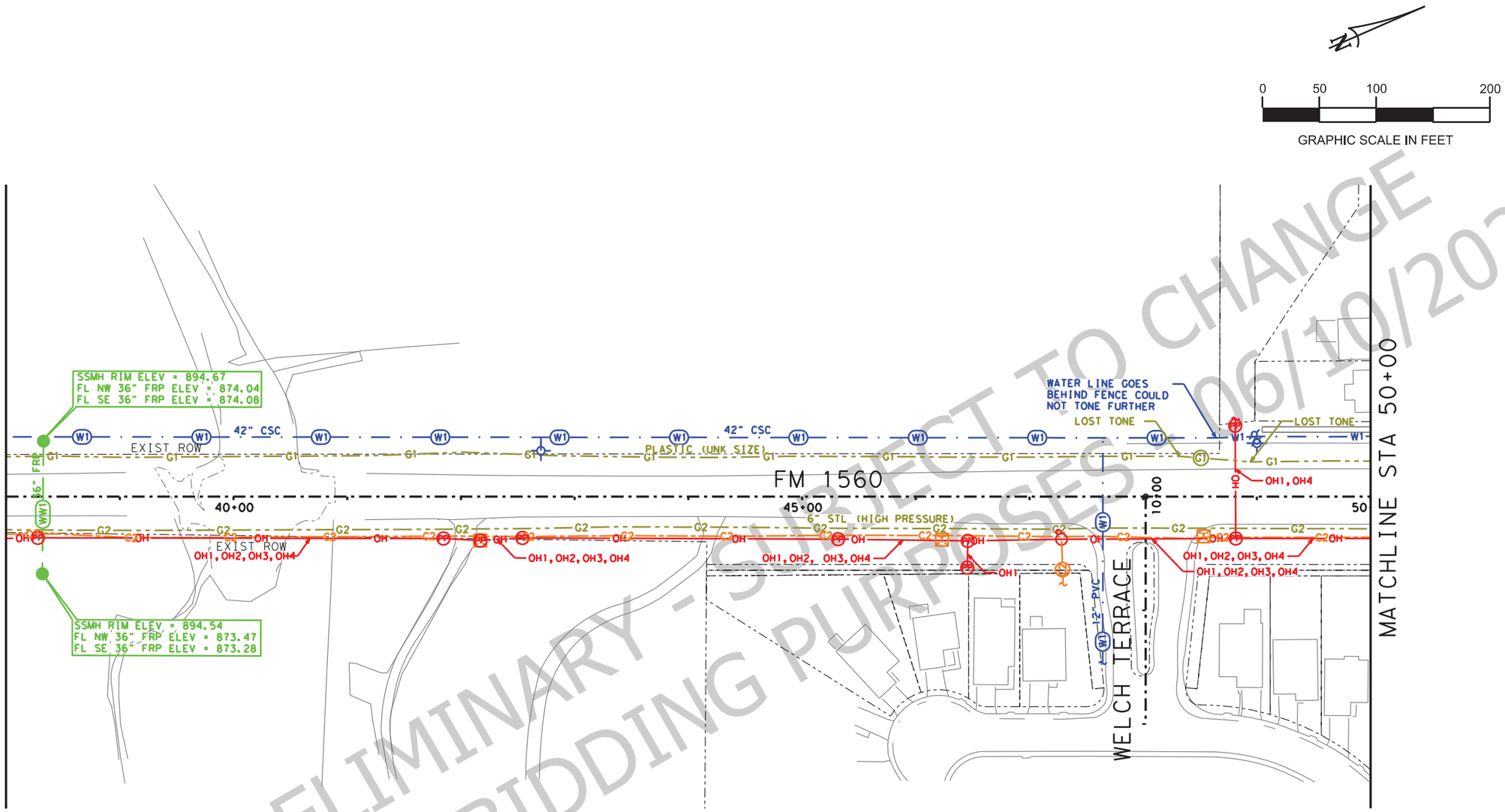
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **526**

SUE PLAN SHEET

STA 26+00 TO STA 38+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		05 OF 28



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SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

The engineer's seal hereon is to certify that the utilities shown have been investigated in accordance with standard SUE industry practices. Where indicated utility sizes and materials taken from best available records. All other information hereon has been provided by others and is not a part of this certification.

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

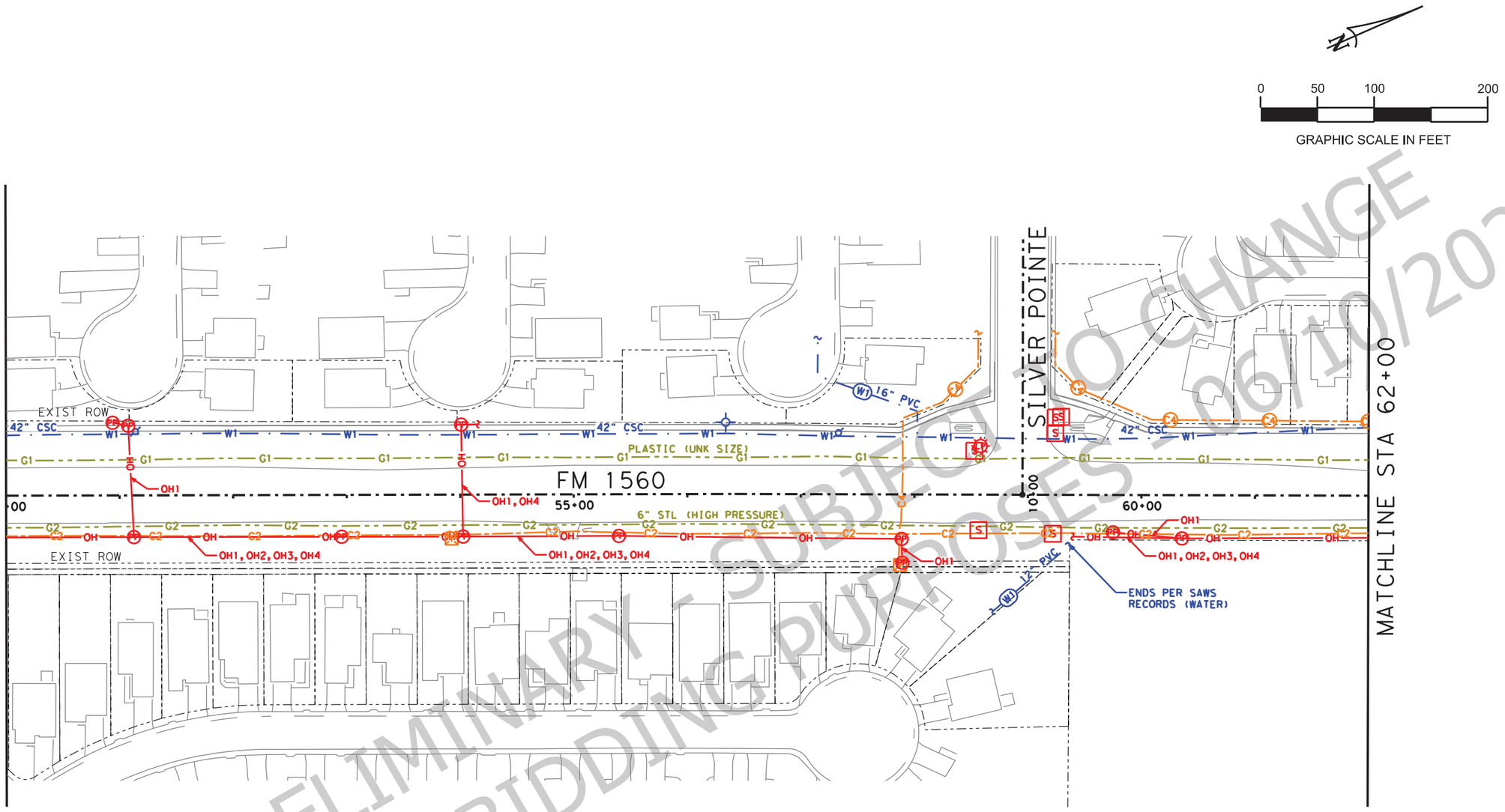
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **527**

SUE PLAN SHEET

STA 38+00 TO STA 50+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		06 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

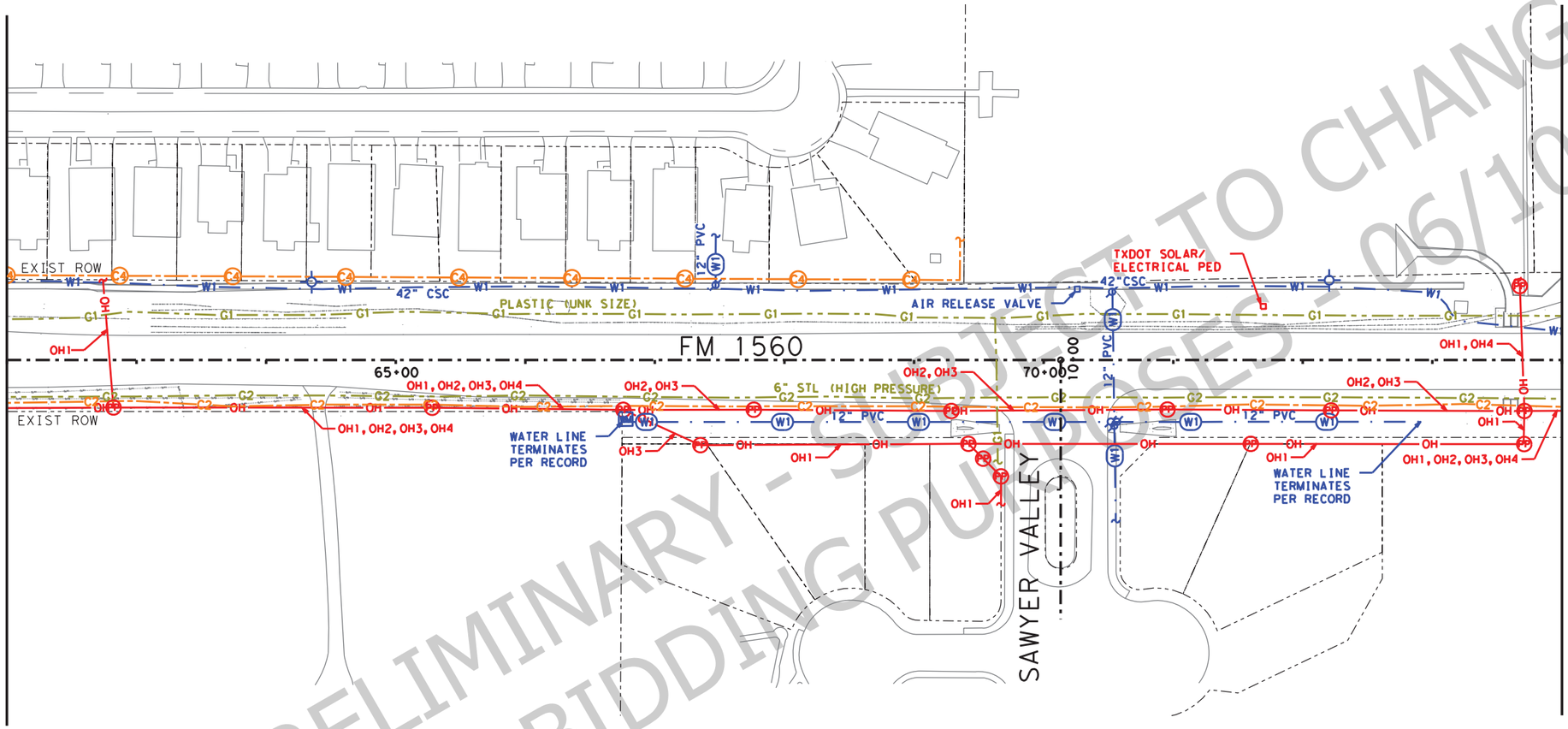
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **528**

SUE PLAN SHEET

STA 50+00 TO STA 62+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		07 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

0 50 100 200

GRAPHIC SCALE IN FEET

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
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100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

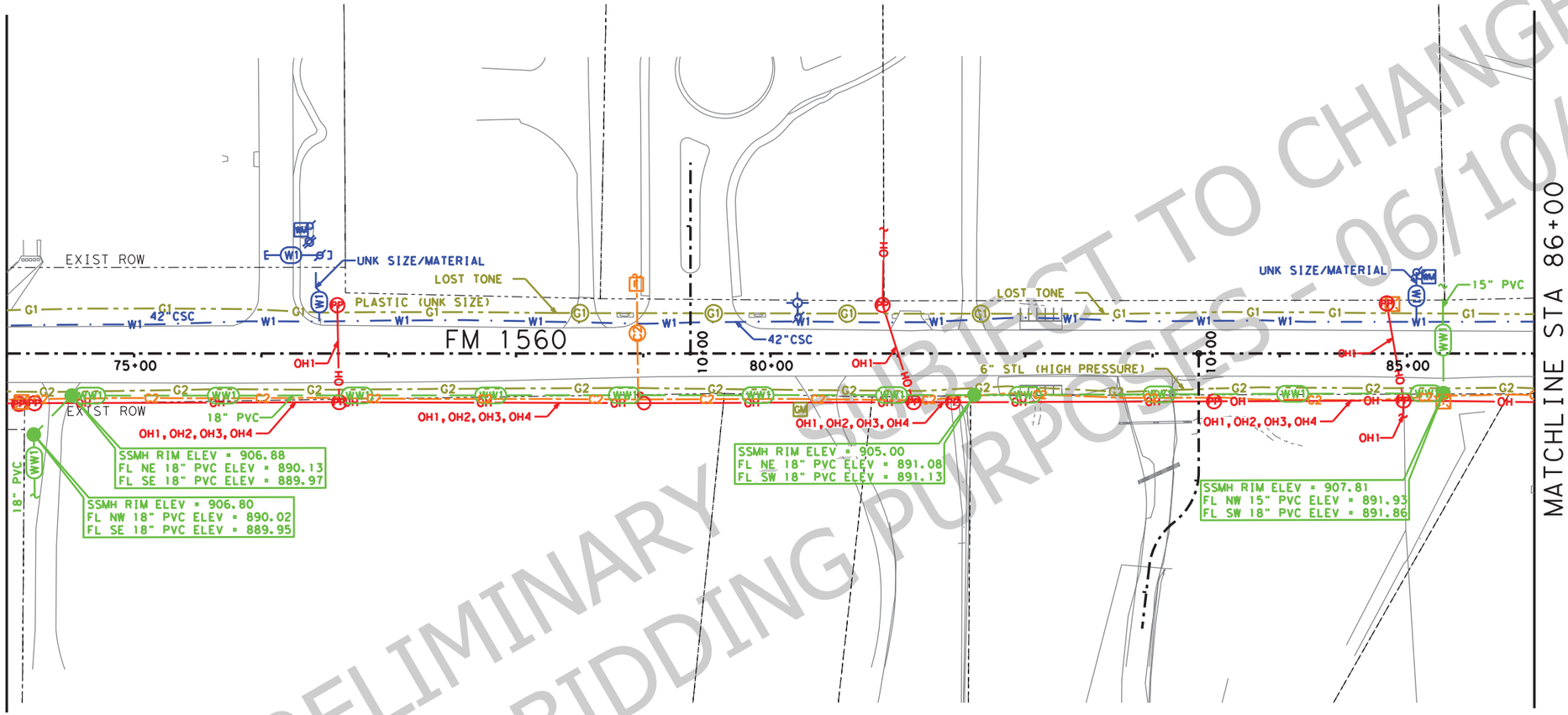
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **529**

SUE PLAN SHEET

STA 62+00 TO STA 74+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		08 OF 28



PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY —X—X—X—X—
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

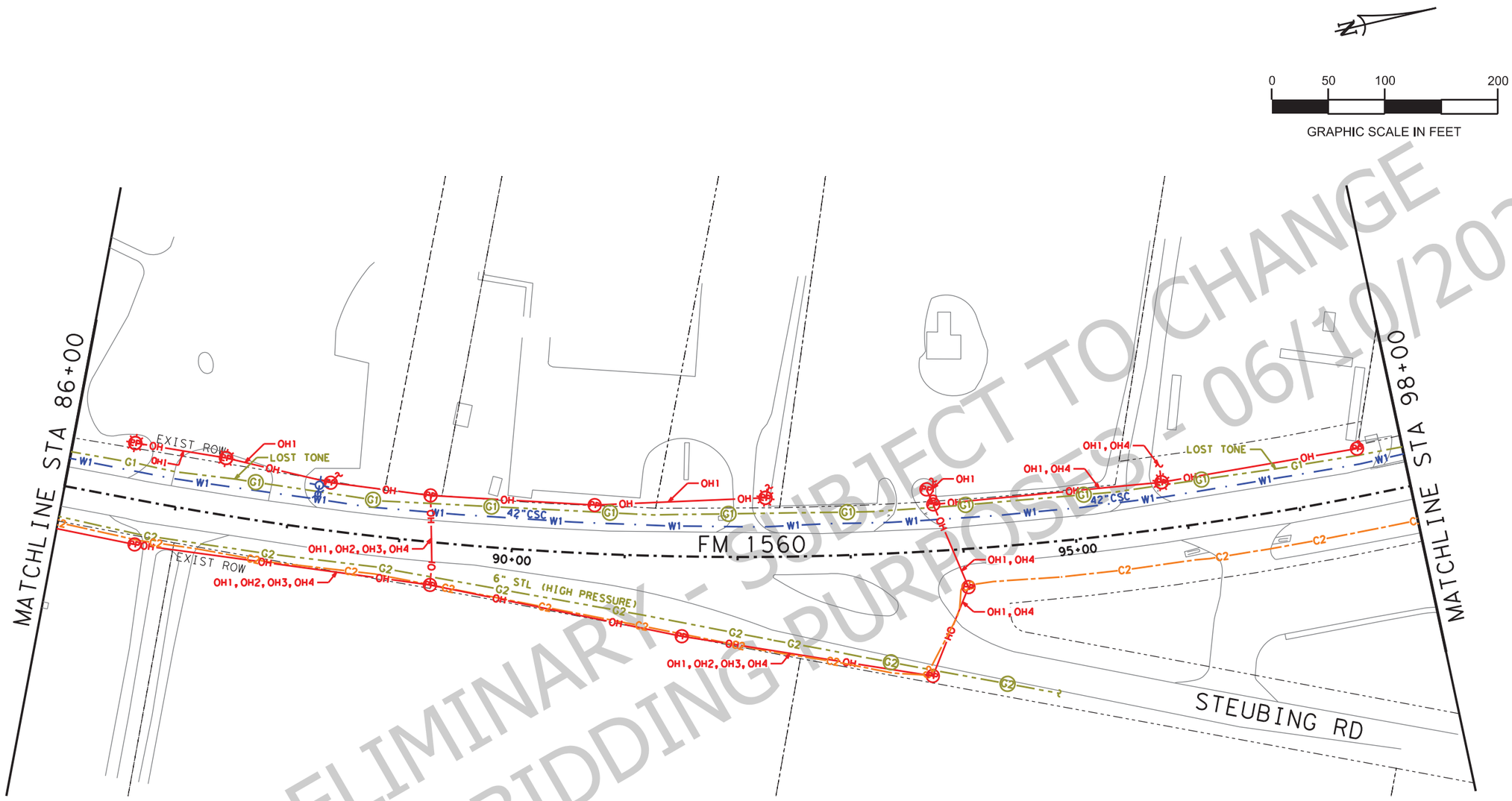
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **530**

SUE PLAN SHEET

STA 74+00 TO STA 86+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		09 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS — QL "B"
- AT&T (TELEPHONE) — C1
- AT&T (FO/DUCT) — C2
- CONTERA (FO/DUCT) — C3
- SPECTRUM (TIME WARNER CABLE) — C4
- ZAYO (FO/DUCT) — C5

QL "C"/QL "D"
- AT&T (TELEPHONE) — C1
- AT&T (FO/DUCT) — C2
- CONTERA (FO/DUCT) — C3
- SPECTRUM (TIME WARNER CABLE) — C4
- ZAYO (FO/DUCT) — C5

ELECTRIC / POWER
- CPS — QL "B" — E1
- CPS — QL "C"/QL "D" — E1

GAS / PETROLEUM
- CPS — QL "B" — G1
- GREY FOREST — QL "B" — G2
- CPS — QL "C"/QL "D" — G1
- GREY FOREST — QL "C"/QL "D" — G2

SANITARY SEWER
- SAWS — QL "B" — WW1
- SAWS — QL "C"/QL "D" — WW1

POTABLE WATER
- SAWS — QL "B" — W1
- SAWS — QL "C"/QL "D" — W1

TRAFFIC SIGNALS
- TXDOT — QL "B" — TS1
- TXDOT — QL "C"/QL "D" — TS1

OVERHEAD UTILITIES — QL "C" — OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET (CC)
CATV HANDHOLE (C)
CATV PEDESTAL (C)

FIBER HANDHOLE (F)
TELEPHONE CABINET (T)
TELEPHONE HANDHOLE (VAULT) (T)
TELEPHONE MANHOLE (T)
TELEPHONE PEDESTAL (TP)
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE (E)
ELECTRIC JUNCTION BOX (CABINET) (EJ)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER) (PP)
ELECTRIC POLE W/RISER (LP)
LIGHT POLE (SP)
SIGNAL POLE (SB)
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER (GM)
GAS TEST STATION (TS)
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET (INL)
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER (WM)
WATER VALVE
WATER VAULT (W)

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

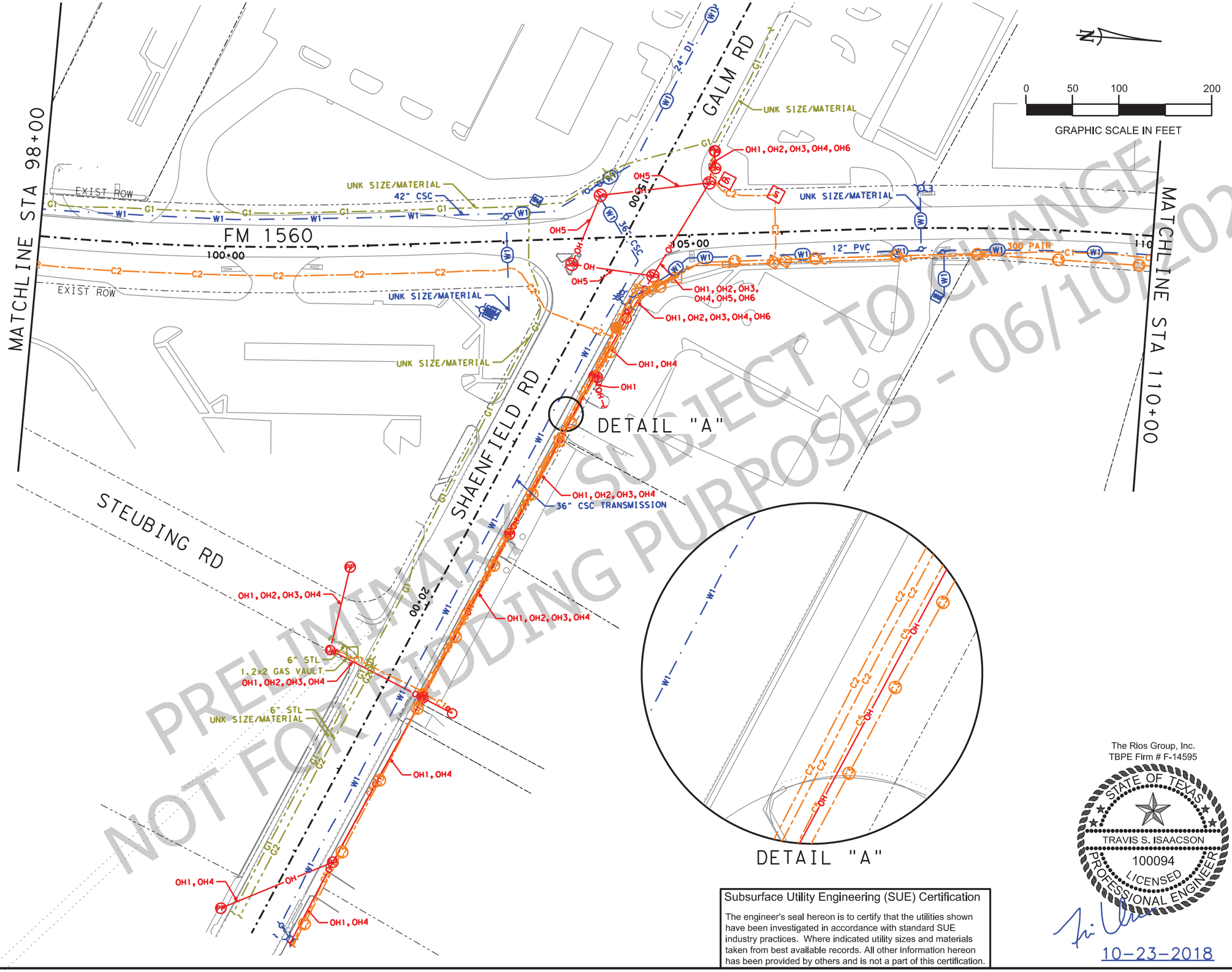
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **531**

SUE PLAN SHEET

STA 86+00 TO STA 98+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		10 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) (C1)
AT&T (FO/DUCT) (C2)
CONTERA (FO/DUCT) (C3)
SPECTRUM (TIME WARNER CABLE) (C4)
ZAYO (FO/DUCT) (C5)

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS (E1)

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS (G1)
GREY FOREST (G2)

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS (WW1)

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS (W1)

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT (TS1)

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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LICENSED PROFESSIONAL ENGINEER

10-23-2018

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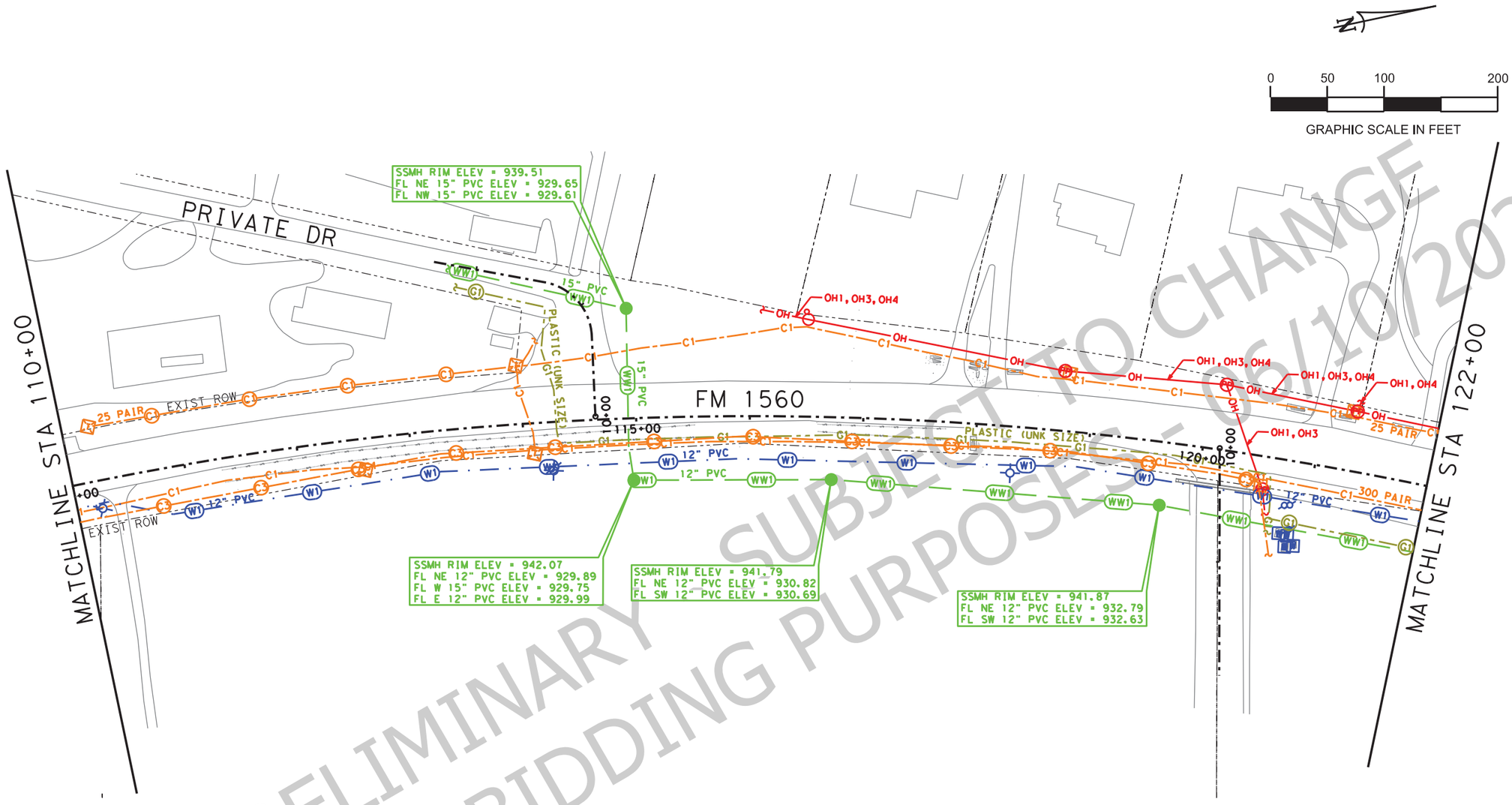
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **532**

SUE PLAN SHEET

STA 98+00 TO STA 110+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		11 OF 28



PRELIMINARY
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
05/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E2

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

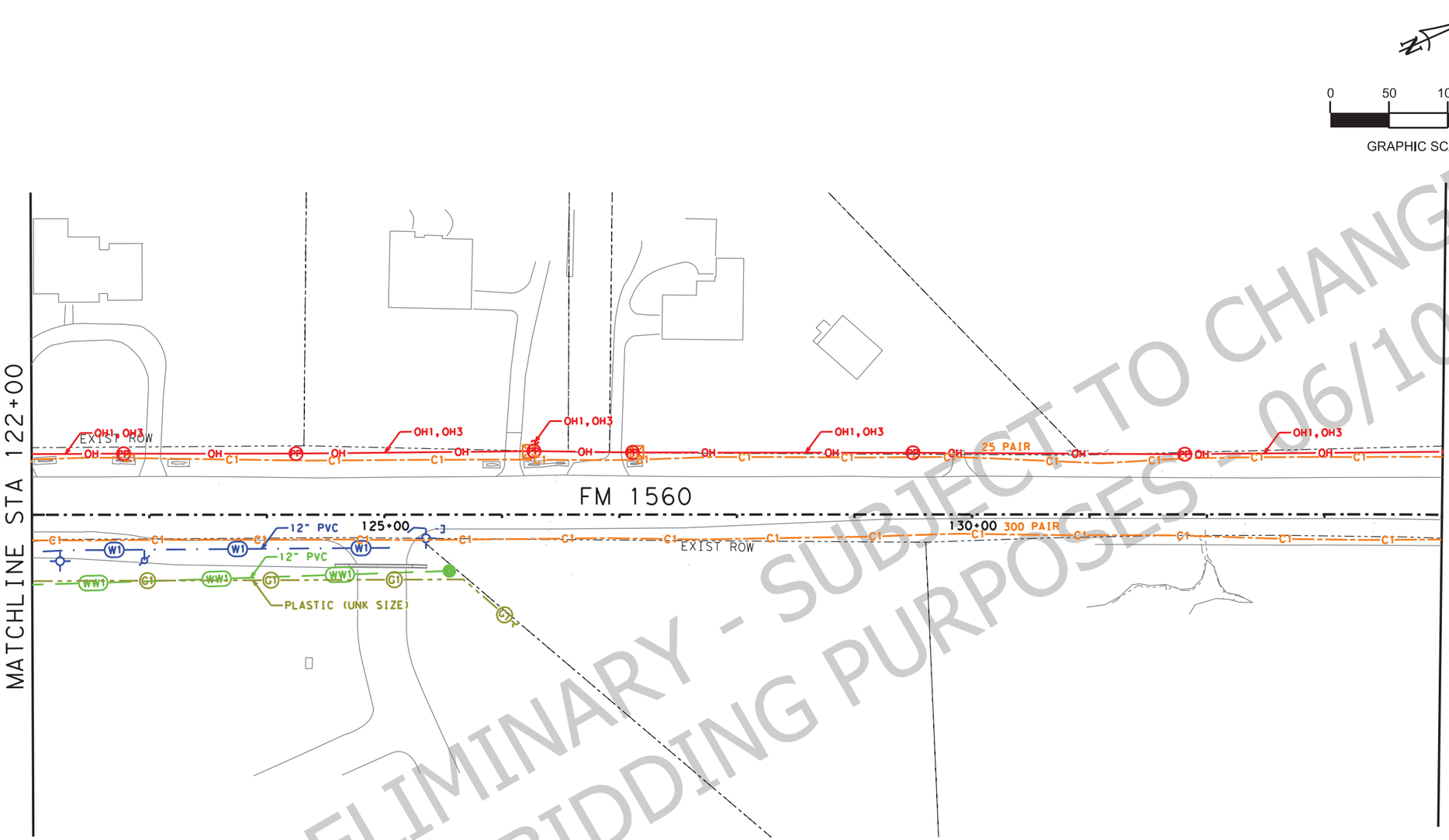
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **533**

SUE PLAN SHEET

STA 110+00 TO STA 122+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		12 OF 28



0 50 100 200

GRAPHIC SCALE IN FEET

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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10-23-2018

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2118 Mannix Dr.
San Antonio, TX 78217
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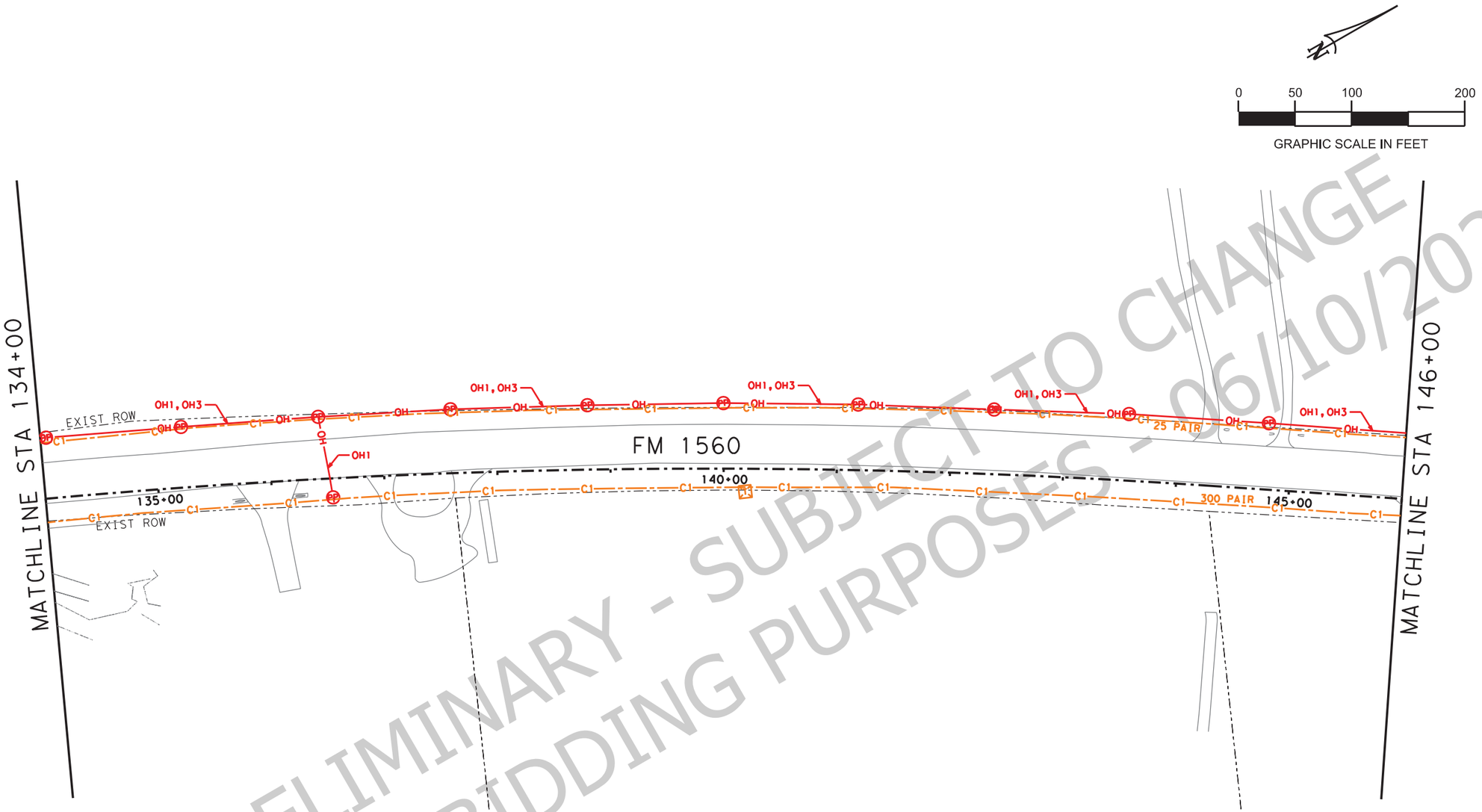
FM 1560
SAN ANTONIO, TX **534**

SUE PLAN SHEET

STA 122+00 TO STA 134+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		13 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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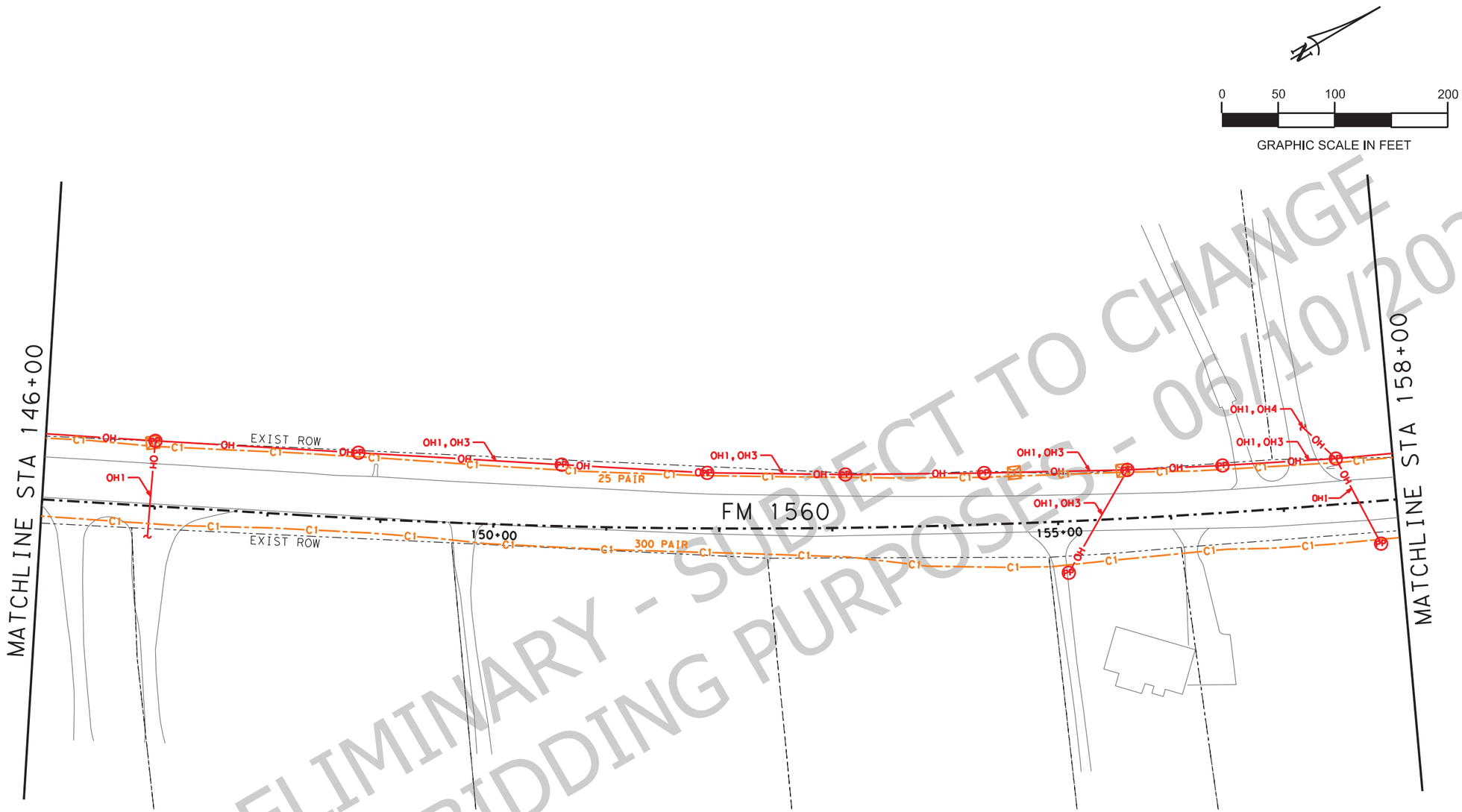
FM 1560
SAN ANTONIO, TX **535**

SUE PLAN SHEET

STA 134+00 TO STA 146+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		14 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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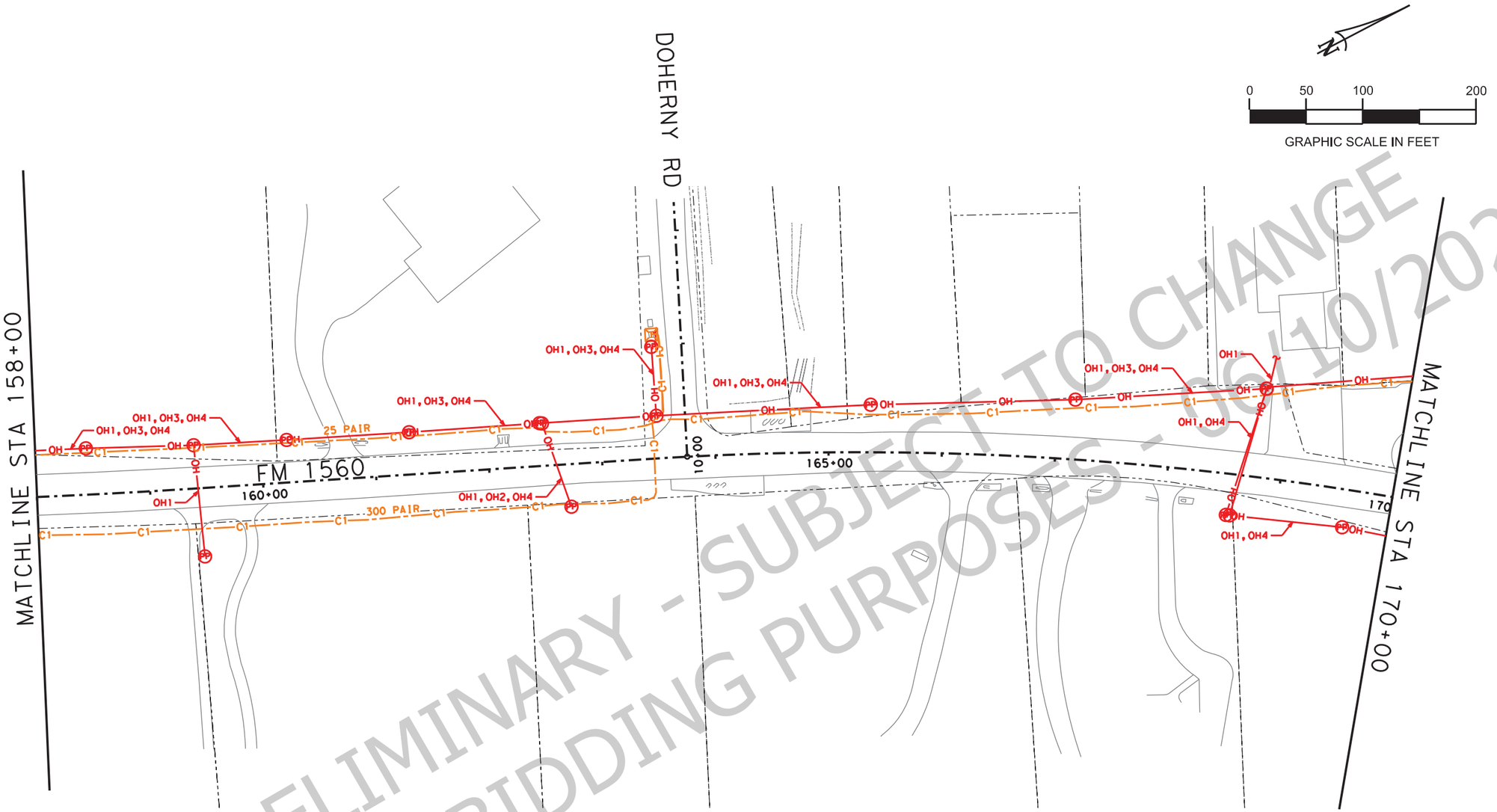
SAN ANTONIO, TX **536**

SUE PLAN SHEET

STA 146+00 TO STA 158+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		15 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

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ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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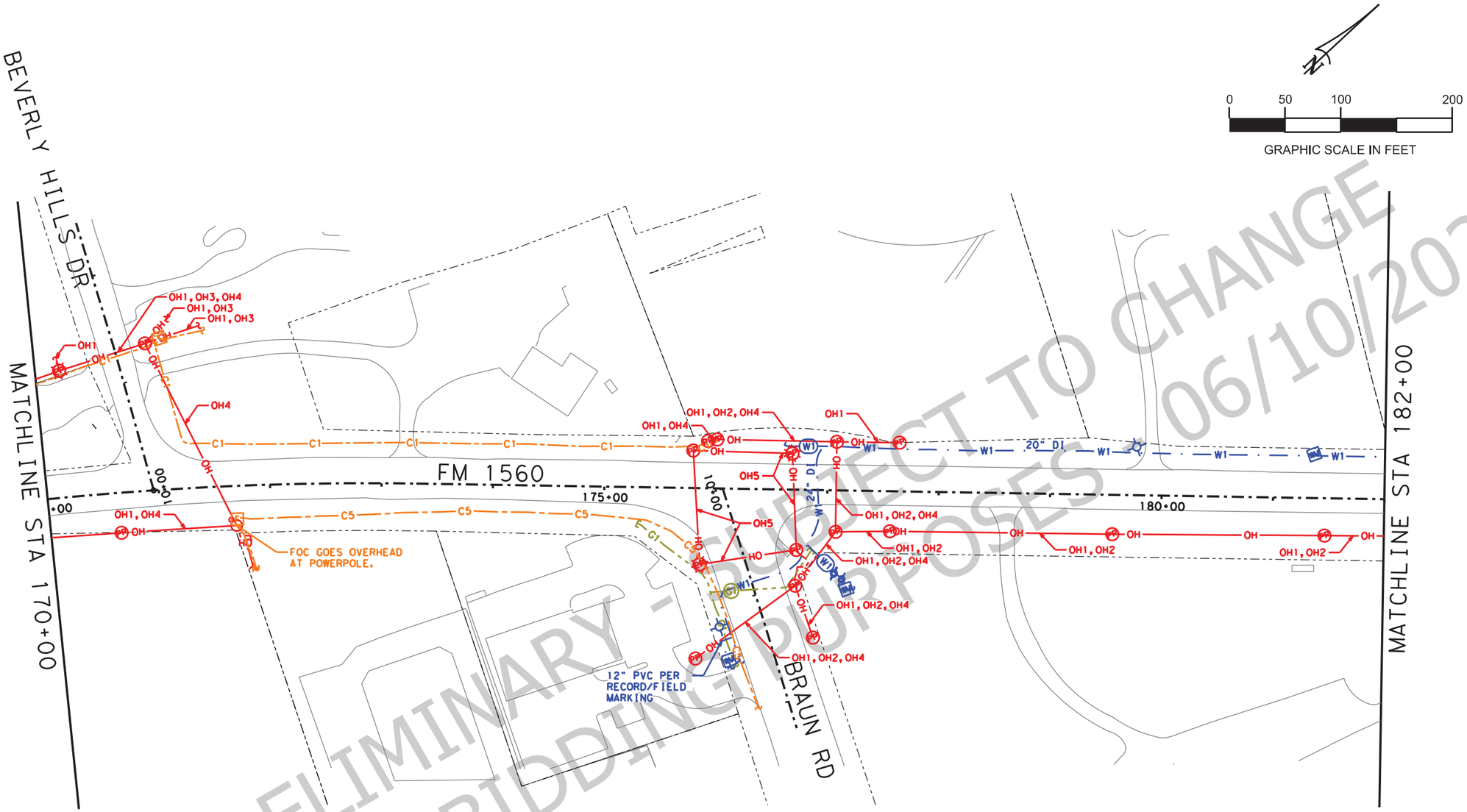
210-981-3050

FM 1560
SAN ANTONIO, TX **537**

SUE PLAN SHEET

STA 158+00 TO STA 170+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		16 OF 28



PRELIMINARY - SUBJECT TO CHANGE
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06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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SUE PLAN SHEET

STA 170+00 TO STA 182+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
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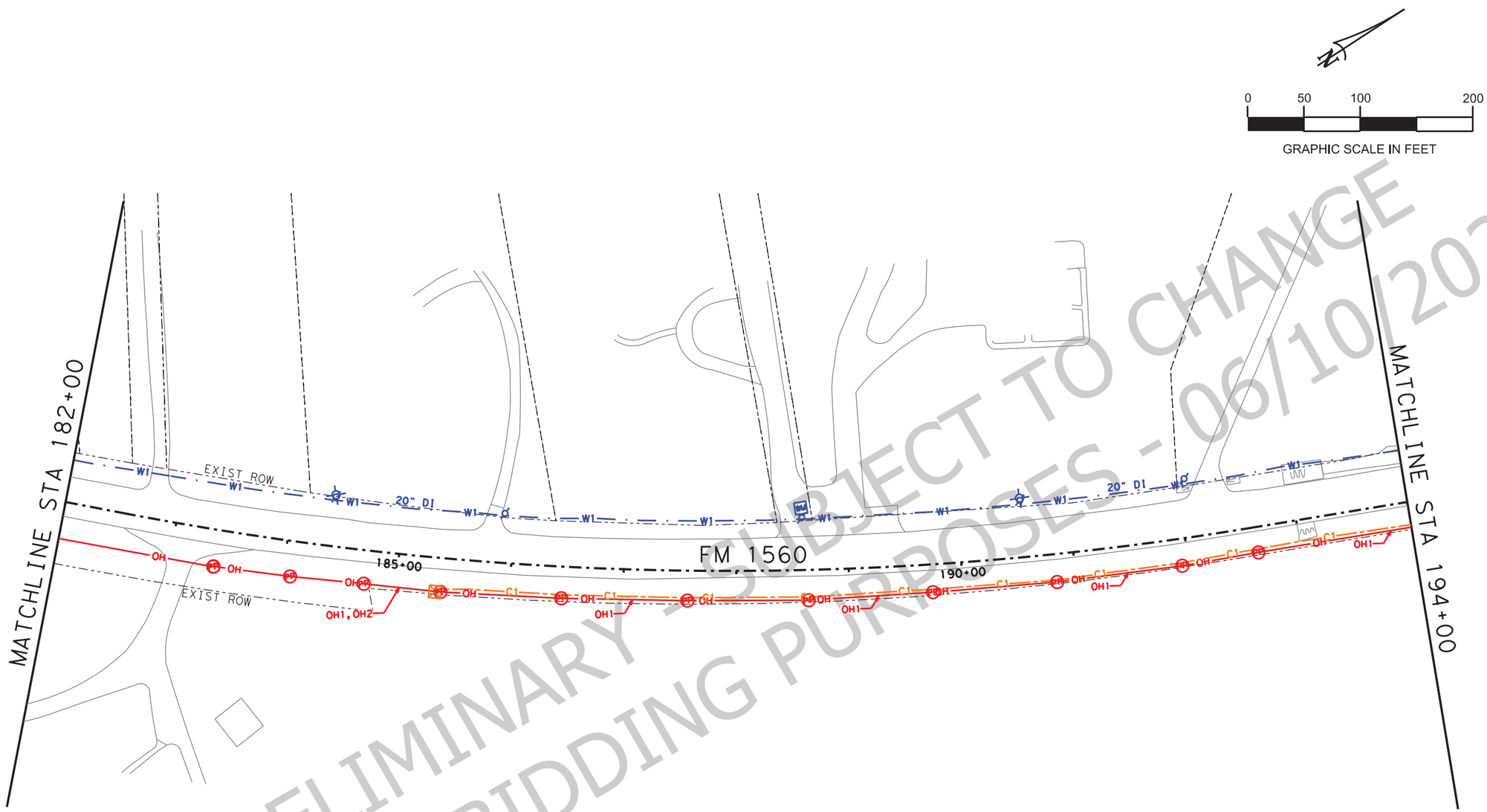

PRELIMINARY - SUBJECT TO CHANGE
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LEGEND OF UTILITY TYPES

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ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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10-23-2018

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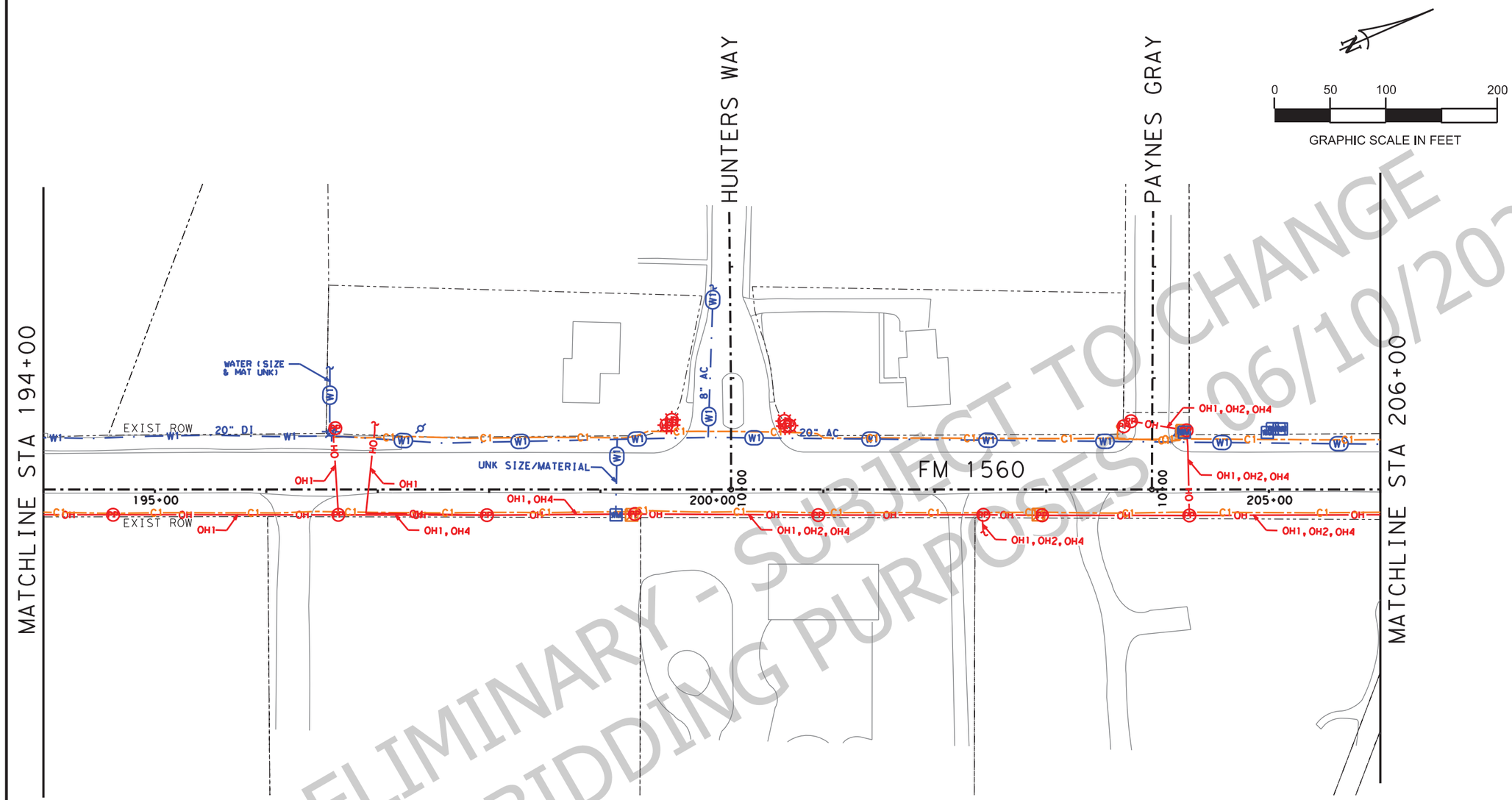
FM 1560
SAN ANTONIO, TX **539**

SUE PLAN SHEET

ST 182+00 TO STA 194+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		18 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

The engineer's seal hereon is to certify that the utilities shown have been investigated in accordance with standard SUE industry practices. Where indicated utility sizes and materials taken from best available records. All other information hereon has been provided by others and is not a part of this certification.

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

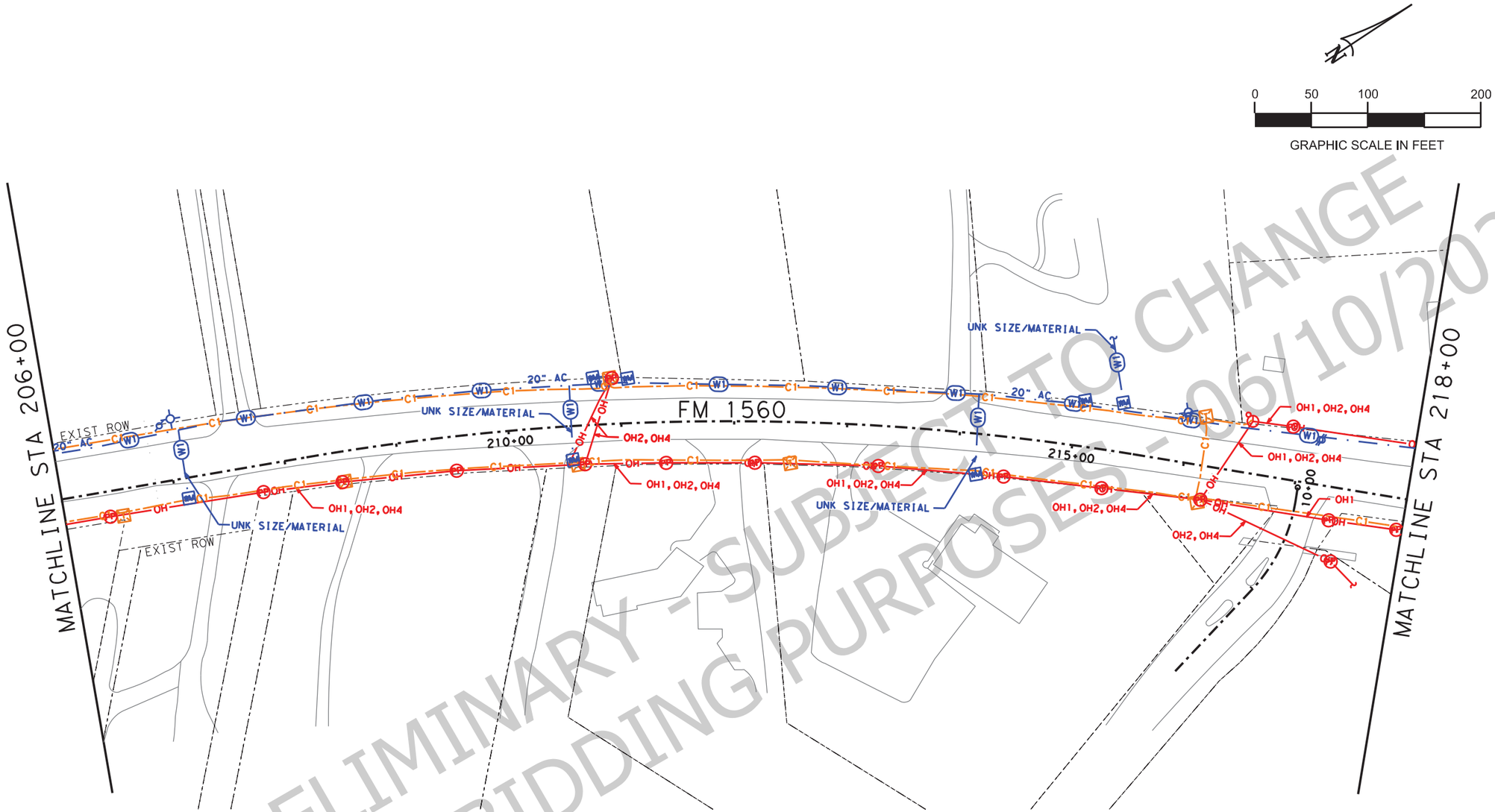
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **540**

SUE PLAN SHEET

STA 194+00 TO STA 206+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		19 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED PROFESSIONAL ENGINEER

10-23-2018

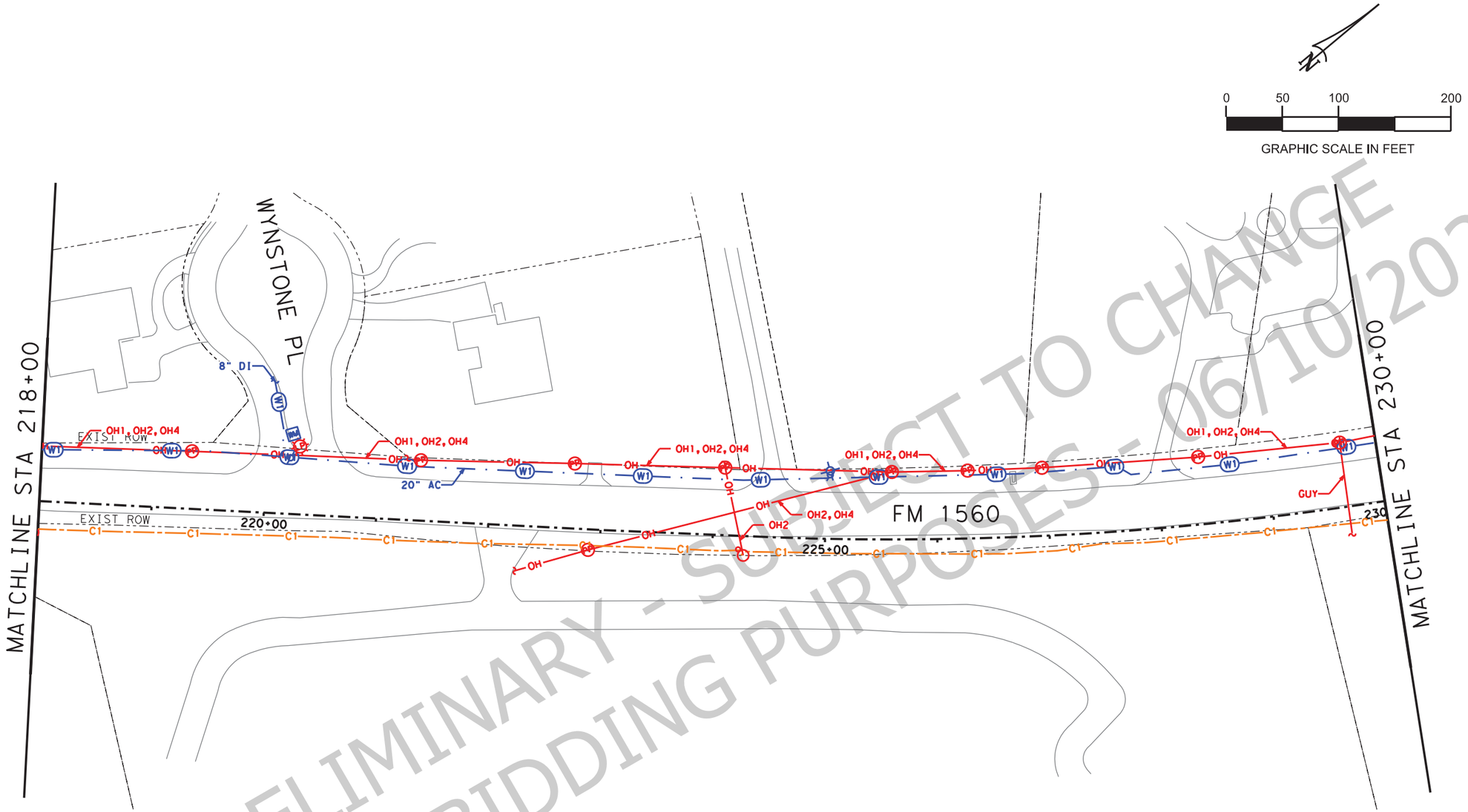
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr,
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **541**

SUE PLAN SHEET

STA 206+00 TO STA 218+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		20 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

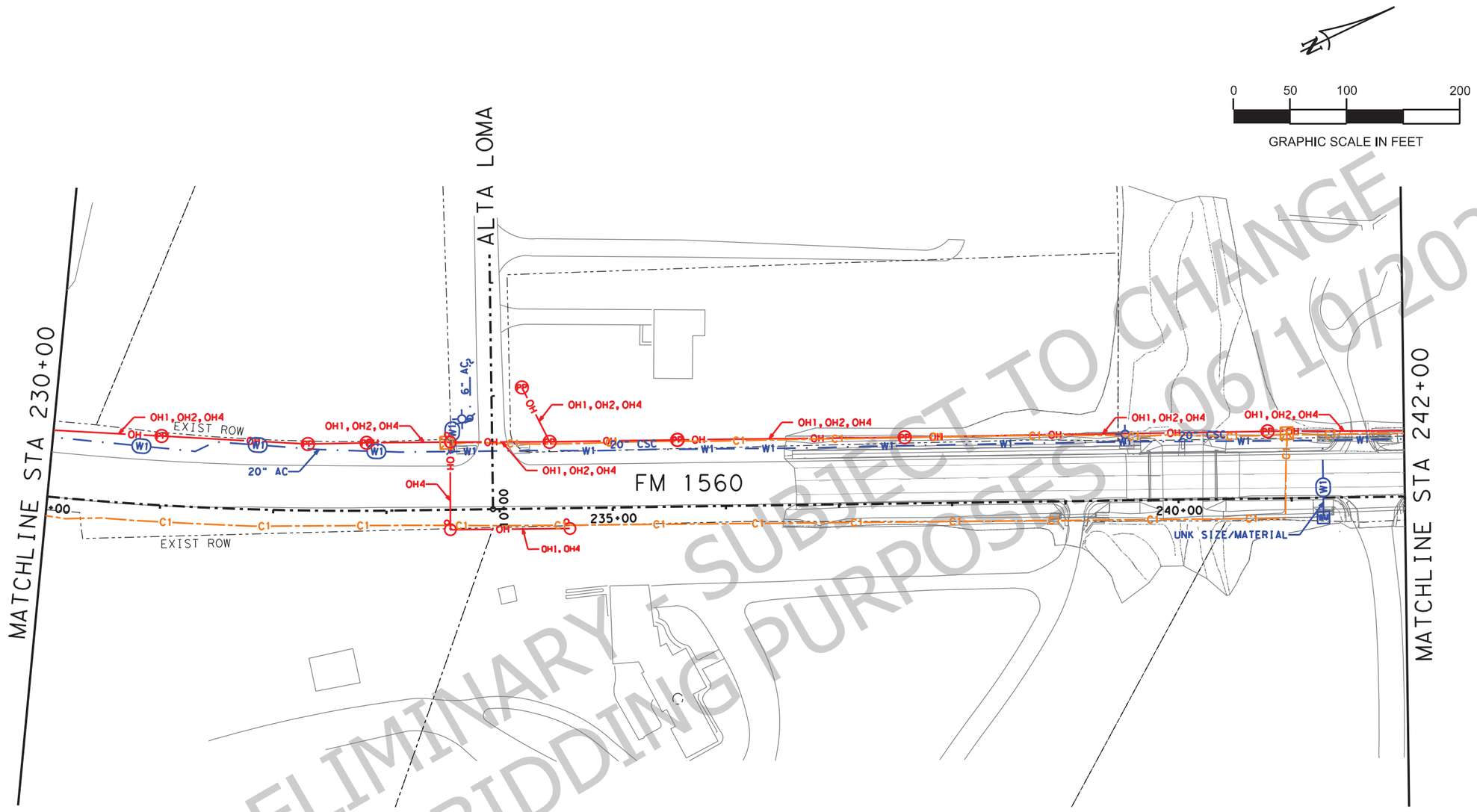
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **542**

SUE PLAN SHEET

STA 218+00 TO STA 230+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		21 OF 28



PRELIMINARY FOR
NOT FOR BIDDING PURPOSES
SUBJECT TO CHANGE
06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

Subsurface Utility Engineering (SUE) Certification

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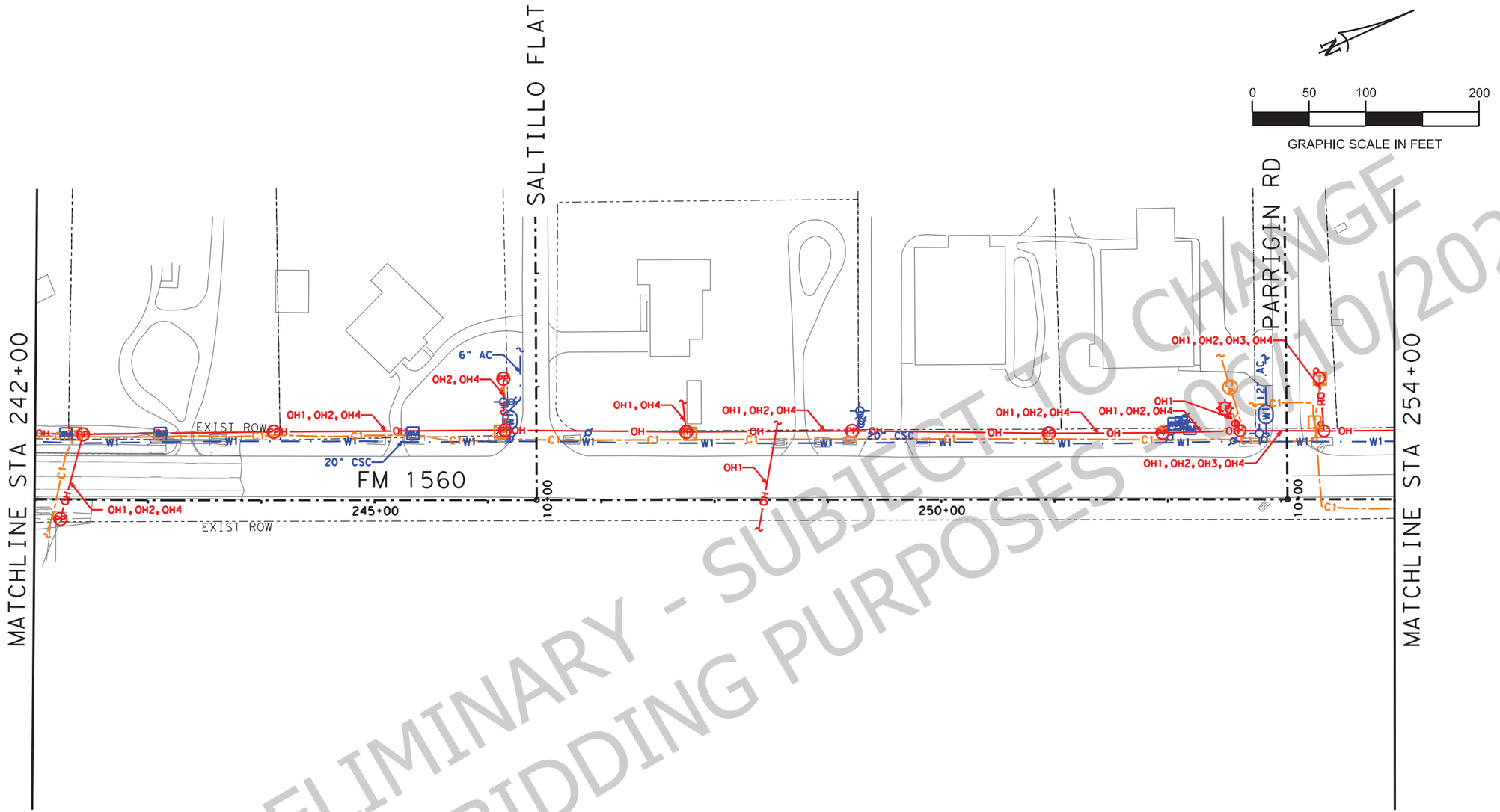
THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **543**

SUE PLAN SHEET

STA 230+00 TO STA 242+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		22 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES - 05/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **544**

SUE PLAN SHEET

STA 242+00 TO STA 254+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
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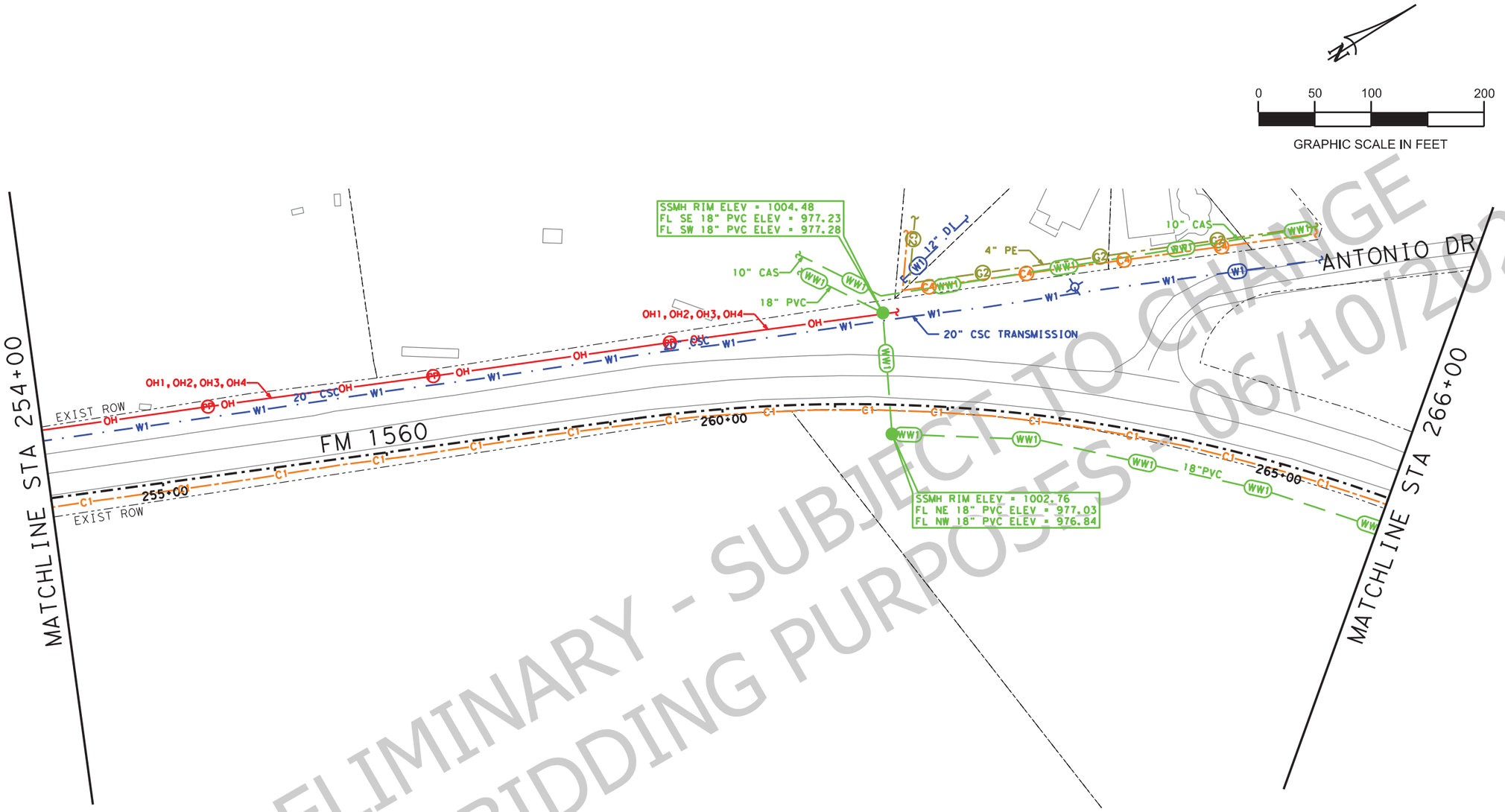

PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER

10-23-2018

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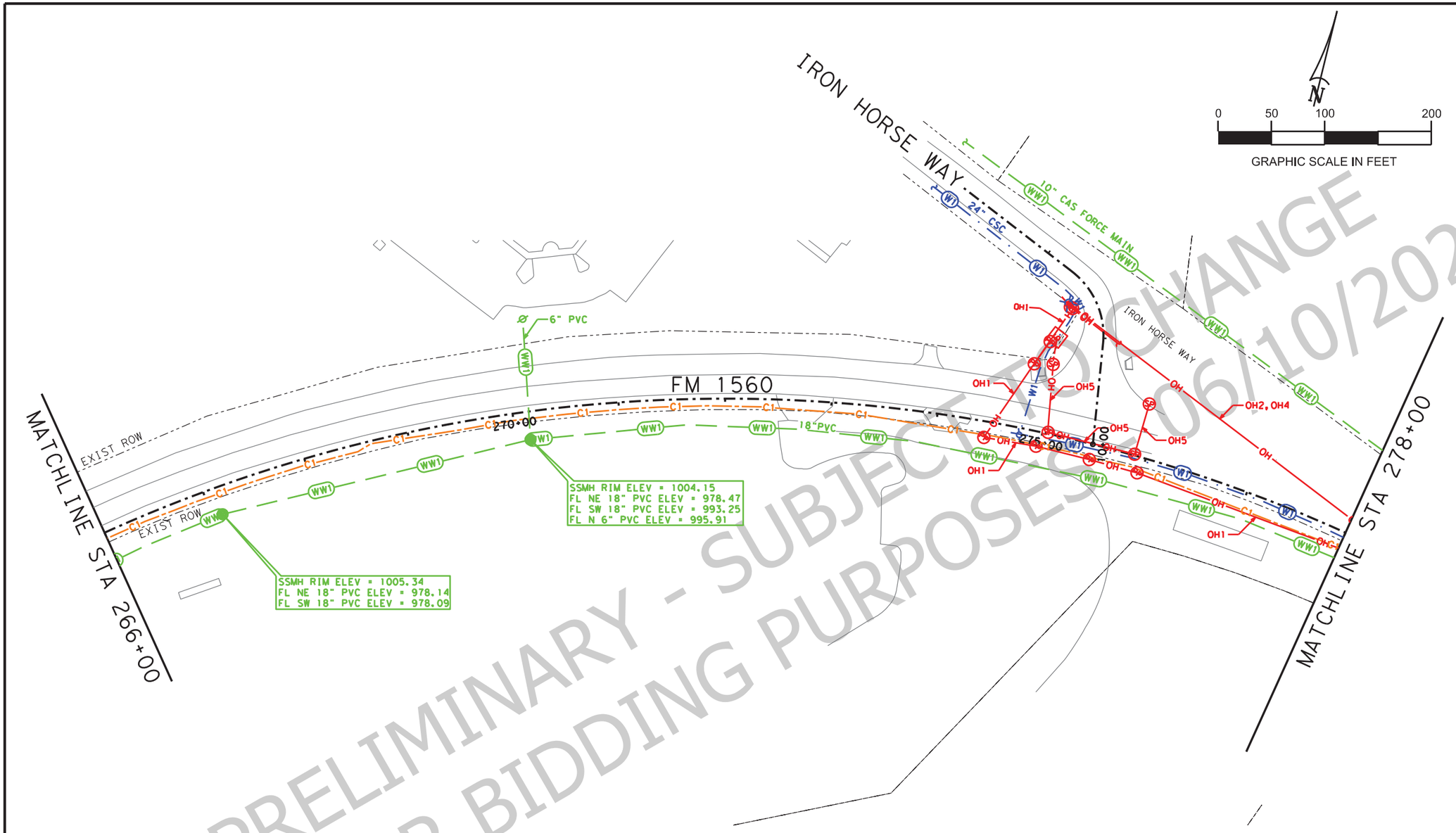
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **545**

SUE PLAN SHEET

STA 254+00 TO STA 266+00

DESIGNED BY: RH	CHECKED BY: TF	DATE: 10-23-2018
JOCA1701.01		24 OF 28



PRELIMINARY - SUBJECT TO CHANGE
NOT FOR BIDDING PURPOSES 06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER PTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE
GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

Subsurface Utility Engineering (SUE) Certification

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The Rios Group, Inc.
TBPE Firm # F-14595

STATE OF TEXAS
TRAVIS S. ISAACSON
100094
LICENSED
PROFESSIONAL ENGINEER

10-23-2018

THE RIOS GROUP
Subsurface Utility Engineering
Utility Coordination
2118 Mannix Dr.
San Antonio, TX 78217
210-981-3050

FM 1560
SAN ANTONIO, TX **546**

SUE PLAN SHEET

STA 266+00 TO STA 278+00

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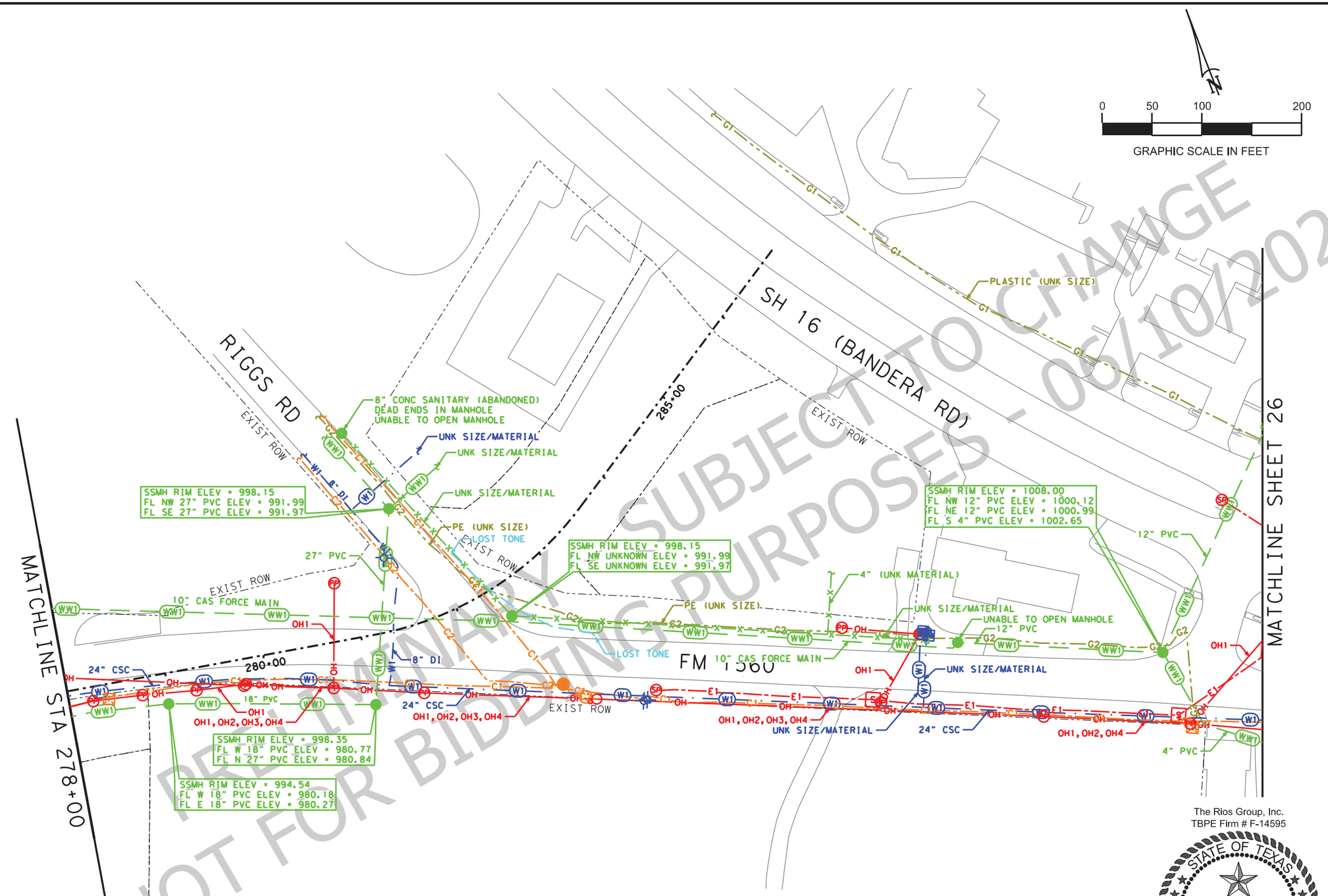
JOCA1701.01		25 OF 28



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SUBJECT TO CHANGE
06/10/2020

LEGEND OF UTILITY TYPES

NOTE: AN "O" PRECEDING THE UTILITY TYPE INDICATES AN OVERHEAD UTILITY (I.E. "OE1" = OVERHEAD ELECTRIC)

ABANDONED UTILITY
PROPOSED UTILITY
UNKNOWN UTILITY

COMMUNICATIONS

QL "B"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C" OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET C
CATV HANDHOLE C
CATV PEDESTAL C

FIBER HANDHOLE T
TELEPHONE CABINET T
TELEPHONE HANDHOLE (VAULT) T
TELEPHONE MANHOLE T
TELEPHONE PEDESTAL TP
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE E
ELECTRIC JUNCTION BOX (CABINET) E
ELECTRIC MANHOLE
ELECTRIC POLE (POWER) PP
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE SP
SIGNAL HANDHOLE/BOX SB
TRANSMISSION POLE

GAS METER GM
GAS TEST STATION TS
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET UNL
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE

FIRE HYDRANT
WATER MANHOLE
WATER METER WM
WATER VALVE
WATER VAULT W

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SUE PLAN SHEET

STA 278+00 TO SH 16

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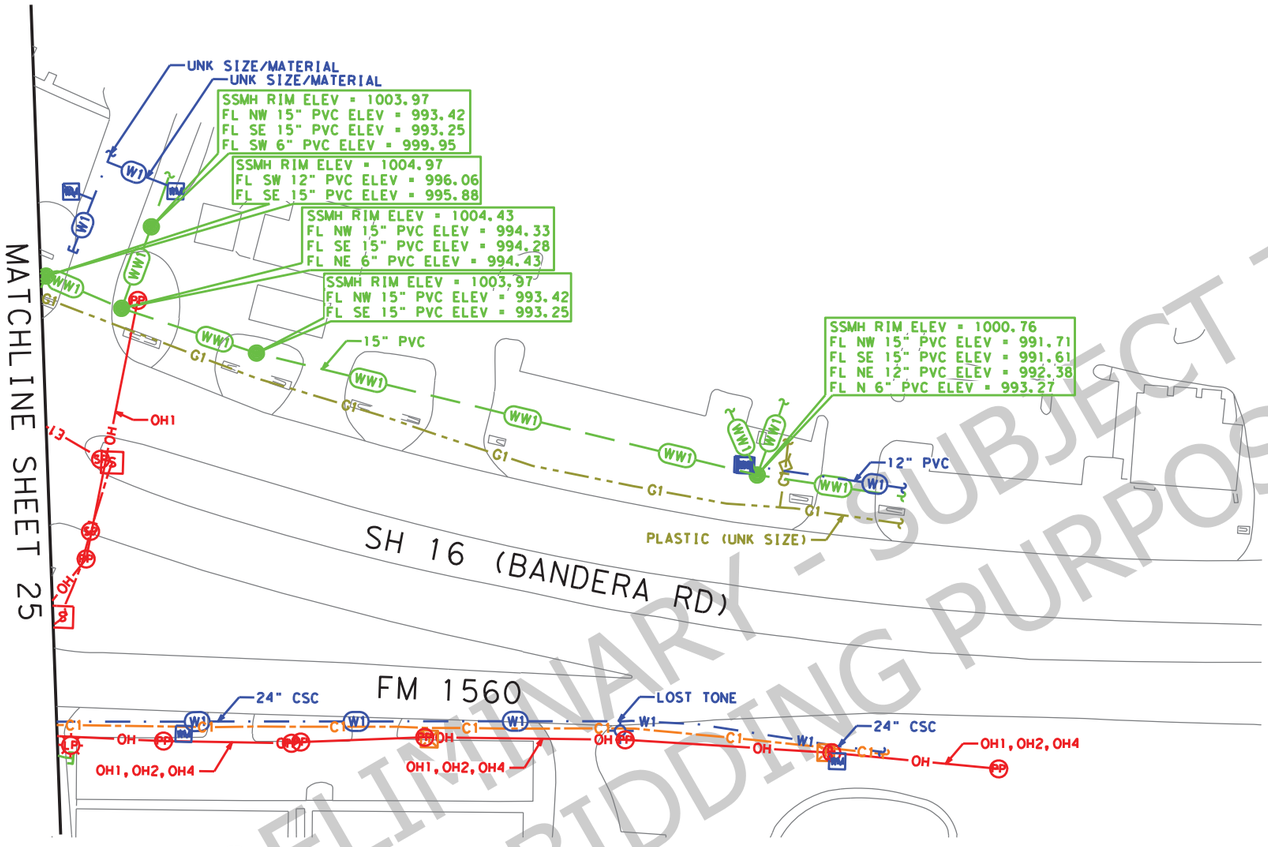
JOCA1701.01		26 OF 28



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0 50 100 200

GRAPHIC SCALE IN FEET

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CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION
CATV CABINET
CATV HANDHOLE
CATV PEDESTAL
FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER
ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
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GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)
STORM SEWER INLET
STORM SEWER MANHOLE
WASTE WATER CLEANOUT
WASTE WATER MANHOLE
FIRE HYDRANT
WATER MANHOLE
WATER METER
WATER VALVE
WATER VAULT

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SH 16 TO END PROJECT

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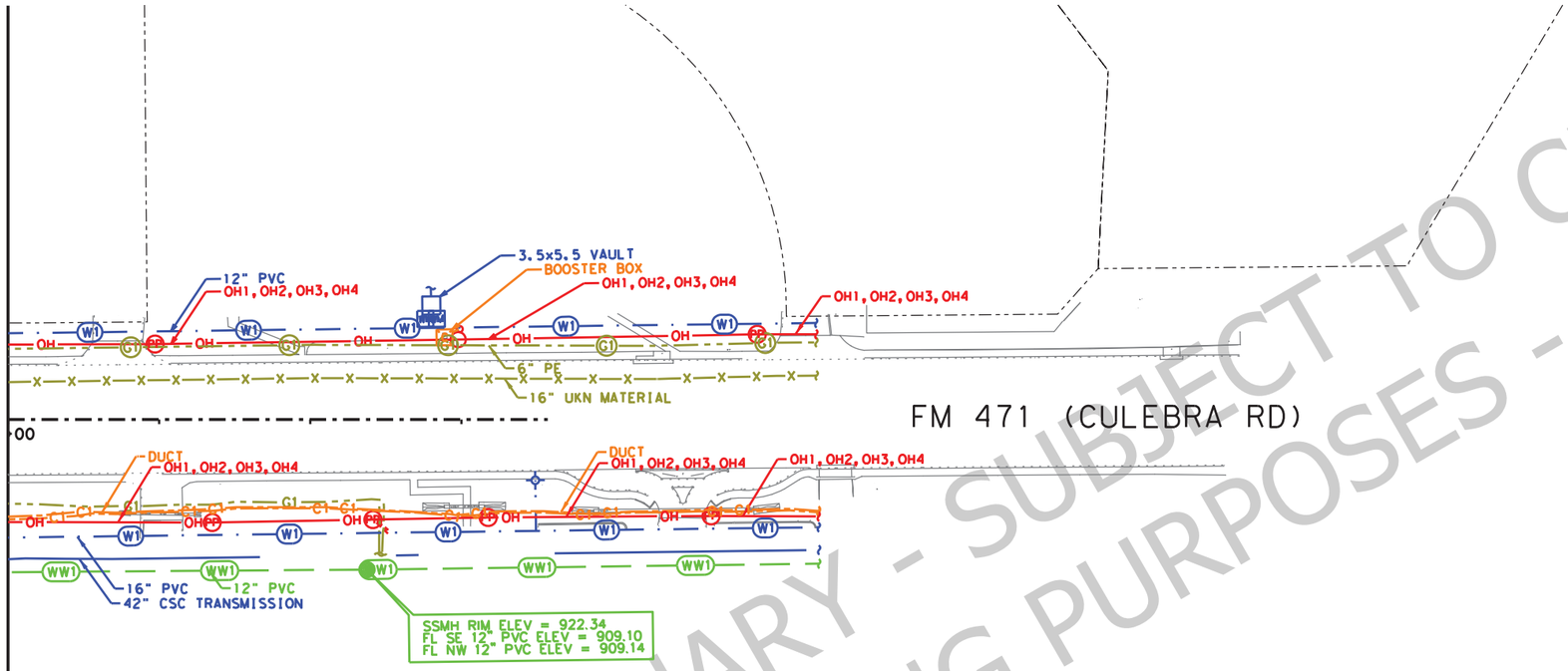
JOCA1701.01		27 OF 28



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GRAPHIC SCALE IN FEET

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ZAYO (FO/DUCT) C5

QL "C"/QL "D"
AT&T (TELEPHONE) C1
AT&T (FO/DUCT) C2
CONTERA (FO/DUCT) C3
SPECTRUM (TIME WARNER CABLE) C4
ZAYO (FO/DUCT) C5

ELECTRIC / POWER

QL "B"
CPS E1

QL "C"/QL "D"
CPS E1

GAS / PETROLEUM

QL "B"
CPS G1
GREY FOREST G2

QL "C"/QL "D"
CPS G1
GREY FOREST G2

SANITARY SEWER

QL "B"
SAWS WW1

QL "C"/QL "D"
SAWS WW1

POTABLE WATER

QL "B"
SAWS W1

QL "C"/QL "D"
SAWS W1

TRAFFIC SIGNALS

QL "B"
TXDOT TS1

QL "C"/QL "D"
TXDOT TS1

OVERHEAD UTILITIES

QL "C"
OH

OH-1 - CPS ENERGY - ELECTRIC
OH-2 - AT&T - TELEPHONE
OH-3 - AT&T - FIBER OPTIC CABLE
OH-4 - SPECTRUM(TWC) - CABLE TELEVISION
OH-5 - TRAFFIC SIGNAL
OH-6 - CONTERRA - FIBER OPTIC CABLE

LEGEND OF UTILITY SYMBOLS

END CAP
TEST HOLE
UTILITY CONTINUATION

CATV CABINET
CATV HANDHOLE
CATV PEDESTAL

FIBER HANDHOLE
TELEPHONE CABINET
TELEPHONE HANDHOLE (VAULT)
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE POLE
TELEPHONE POLE W/RISER

ELECTRIC HANDHOLE
ELECTRIC JUNCTION BOX (CABINET)
ELECTRIC MANHOLE
ELECTRIC POLE (POWER)
ELECTRIC POLE W/RISER
LIGHT POLE
SIGNAL POLE
SIGNAL HANDHOLE/BOX
TRANSMISSION POLE

GAS METER
GAS TEST STATION
GAS VALVE
GAS VENT PIPE (GAS RISER)

STORM SEWER INLET
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JOCA1701.01		28 OF 28